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West Germanic OV and VO : the status of exceptions

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3. Relative Objects

The previous chapter examined the development of the position of directional phrases in the history of Dutch and English. These phrases are taken as the control group for the development of the position of arguments over time. In this chapter, I turn to a particular type of argument, the position of which has been widely noted as exceptional in the literature on Middle Dutch. Burridge (1993), Blom (2002), and Ribbert (2005) have mentioned that objects modified by relative clauses (hereafter *relative objects*) occur with an unusually high frequency in VO orders when compared to other objects; they state that when an object is modified by a relative clause, it always occurs after the verb. In this case, relative objects are useful in investigating the development of word order patterns because they are considered heavy by almost any definition of weight: they are always structurally heavy, and this usually, though not necessarily, results in their being phonologically and lexically heavy.¹

Relative objects are the focus of this investigation for a number of reasons. First, one of the theories under investigation on the shift in English from OV to VO relies on the position of relative clauses (Ogura 2001: to be discussed more fully in section 3.1.1). In order to effectively evaluate this proposal, the position of relative objects needs to be analyzed. Second, they will be useful for studying weight as a factor in leakage. Because argument noun phrases with relative clauses must always be considered structurally heavy (though not necessarily phonetically or lexically heavy as will be demonstrated in section 3.5), instances where the entire relative object string does not extrapose can be compared to instances where it does to see if there is indeed a significant difference in the phonetic and/or lexical weight of extraposed versus non-extraposed constituents. Moreover, these examples can be further analyzed to see if newness plays a role in determining word order. Third, in the history of Dutch, we see a clear shift with respect to word order possibilities of these complex strings. In Middle Dutch, we find two main options: OVR and VOR, where ‘R’ represents the position of the relative clause. In Modern Dutch, however, the latter option, namely VOR, is no longer possible. A careful investigation of the development of this pattern can reveal the factors involved in this change. And finally, relative clauses are practical: as I am searching texts through six centuries of two different languages, in one of which no syntactically parsed corpus exists, I

¹Recall that for the purposes of this study, the term *object* refers to any argument noun phrase that is neither a subject nor the complement of a preposition, thereby including predicate nominals as well as direct and indirect objects.

3. *Relative Objects*

need something that is fairly easy to collect. As relative clauses generally begin with a relative pronoun, I can do a lexical search for the (various spellings of) the relative pronouns of Dutch through time and sort through the examples; for English, the program CorpusSearch 1.0 will be used to extract relative objects from the corpus. This greatly reduces the time required to collect relevant data.

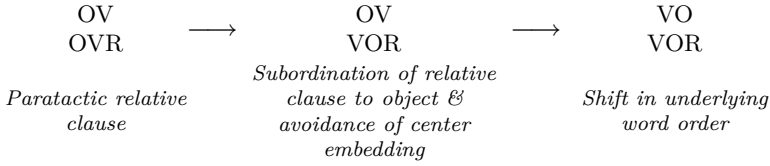
In section 3.1, I describe various aspects of relative clauses, beginning with Ogura's (2001) theory on the influence of relative objects on the shift in English syntax in subsection 3.1.1 before moving on to some of the characteristics of relative objects: the relative pronouns found in the data collected for Dutch and English in subsection 3.1.2; the word order possibilities of objects, relative clauses, and verbs within a clause as well as my assumptions about their possible positions in subsection 3.1.3. I state the research questions that result from the preceding discussion with predictions about the results based on previous analyses in section 3.2. Section 3.3 is a discussion of the procedures used to gather and group the data for each language. In sections 3.4 and 3.5, I present the data for Dutch and English, respectively, and these data are summarized and compared in section 3.6.

3.1. Relative Objects

This section begins by summarizing Ogura (2001) and the hypothesis that the change in the underlying word order of English was initiated by relative objects. This is followed by a discussion of two features of relative objects relevant to this study, namely the relative pronouns found in the examples in this study and the syntactic properties of relative objects.

3.1.1. Processing: Avoidance of Center-embedding

Ogura (2001: 234) proposes a theory on the word order change in English, relating it to “the interaction between the evolution of relative clauses and perceptual factors”. A schema of Ogura's analysis is given below; note that the first row represents the underlying order at that stage, the second row the orders for relative objects, and the last row provides the reason for the word orders.



In Ogura's analysis, the underlying order of the initial stage of English is OV, and the underlying order of relative objects is OVR, an order that can only be attained by movement in most other analyses.² For Ogura, however, the order OVR in this initial period is the result of an older paratactic coordination, making the "relative clause" a semi-independent clause that gives additional information about a preceding element. Relative clauses are thus not extraposed from a position within the sentence brace to a position outside; rather, they originate outside of the sentence brace and are separate from the head noun. This suggests that, unlike in traditional analyses, relative clauses are not subordinate clauses that are dependent on objects, at least initially. In the beginning, then, relative clauses behave more like unlinked coordinated clauses that provide additional information about a given noun within the sentence brace.

In the second stage, relative clauses lose their semi-independent status and depend increasingly on the objects they modify. This dependence on the object causes adjacency of the object and the relative clause, i.e., subordination of relative clauses to objects. Since the object originates to the left of the verb and the relative clause to the right, there are two logical options if they are to appear next to one another: the relative clause can join the object to the left of the verb (embedded into the sentence brace), or the object can join the relative clause to the right (extraposition). Center-embedding, i.e., the insertion of a clause into the middle of another, is difficult to process, as demonstrated by (48) below from Ogura (2001: 234) (itself taken from (Kuno 1974)):

(48) The cheese [the rat [the cat chased] ate] was rotten.

This sentence, which is technically grammatical, is virtually impossible for even native speakers to process. According to Ogura, because of the difficulty in processing the information, speakers try to avoid center-embedded constructions, which would rule out the order ORV and prefer VOR. Over time, this word order, where the object appears to the right of the verb when modified by a relative clause, gradually spreads to objects without relative clauses, causing the eventual shift to VO.

A problem with this analysis is that while it is true that the sentence in (48) above is difficult to process, sentences with three layers of embedding are quite rare, whether it be due to the avoidance of center-embedding or to discourse

²In many analyses, noun phrases and relative clauses are considered one element, not two separate constituents as in Ogura's analysis. The underlying representation of these, however, differs per analysis. See De Vries (2003) and the references there for an overview.

3. Relative Objects

constraints. Taking one of the center-embedded clauses out as in (49) makes the entire string perfectly acceptable.

- (49) The cheese [the rat ate] was rotten.

It seems unlikely, therefore, that a rare subset of an already infrequent subset of objects occurs frequently enough to initiate change in the underlying word order of a language. Nevertheless, Ogura's analysis will be evaluated on the basis of the data from Dutch and English.

3.1.2. Relative Pronouns

In Dutch, the relativizer *(het/de)welk* was chosen as the relativizer for this investigation. It declines like an adjective and agrees in number and gender with its head noun. Case can either be determined by its head noun or by the function of the *(het/de)welk* in the relative clause. It can occur by itself, with a preceding definite determiner, or with a repetition of the noun being modified (Stoett 1923, 33-34; Van den Berg 1971, 26; Van Kerckvoorde 1993, 177). None of the literature has mentioned a difference in use or in the syntax between *welk* versus *(het/de)welk* nor between either of these and *welk* + NP though a discourse or syntactic distinction among these is conceivable given that their differences in internal structure—this would perhaps be an interesting topic for future research. In addition to being a relativizer, *welk* can also function as an interrogative adjective, which is easily distinguished from its relative pronoun function.

Dutch also has a number of other relativizers, among them *die/dat*. *Die/dat* in particular is much more frequent than *(het/de)welk*. *(Het/de)welk* was chosen mainly for practical reasons. Though *die/dat* occurs much more often than *(het/de)welk* as a relativizer, it also has additional functions that are much more often employed than *(het/de)welk* ever is: *die/dat* is also used as a demonstrative/definite article, occasionally as a pronoun, and *dat* functions as a subordinating conjunction. This makes collecting *die/dat* in a large corpus impractical. Another reason for choosing *(het/de)welk* over *die/dat* is that the spelling of *welk* is easily reduced to two variants as the consonant sequences <w-l-k> and <w-l-c> do not often occur, regardless of the vowels employed. The letter combinations of *die/dat* occur quite frequently in other, non-relevant words.

I assume that the positional distribution of these two relative pronouns is more or less the same, an assumption which should be tested in future research. In the end, whether a relative clause is headed by a form of *(het/de)welk* or *die/dat* should not affect the results of this study because in either case, the object is being modified by a clause, and this clause serves to make the object structurally heavy.

For Old and Middle English, the relative clauses analyzed were those coded as such in the corpora used. The corpora do not distinguish among the various relativizers, though when collected, they are easy enough to distinguish. Most of the Old English relative clauses are marked by the relative particle *þe*. Sometimes, it occurs with a form of the demonstrative *se*. Both are optional and can be combined, giving three possible configurations:³ *þe* by itself, *þe* with demonstrative *se*, or demonstrative *se* by itself. The particle *þe* does not decline while demonstrative *se* agrees with the head noun in gender, number and sometimes case (Diamond 1970, 22-23; Davis 1980, 24; Moore *et al.* 1977, 155-156). More often, however, the case of *se* is determined by its function in the relative clause and not the case of its antecedent. In the Early Middle English data I collected, *þe* still appears as a relative marker but eventually gives way to newer markers in the later periods: *that*, *(the)which*, *whom*, and occasionally *when*, *where*, *whose* and zero-marking.

3.1.3. Syntax

The position of relative clauses must be investigated with respect to their heads, and the position of both of these constituents must be viewed with respect to the verb. The interaction between these results in five logical orders:⁴

1. ORV
2. OXRV
3. OVR
4. VOR
5. VOXR

Note that one of these, namely OXRV, does not occur in my data set at any stage of either English or Dutch; this order is even ungrammatical in Modern Dutch as can be seen in (50) below.

- (50) **dat Jan het boek morgen dat hij gisteren heeft gekocht*
 that Jan the book tomorrow that he yesterday has bought
wil lezen. OXRV
 wants to-read
 ‘that Jan want to read the book tomorrow that he bought yesterday.’

I further classify these five logical orders into two main types: *combined relative objects* (i.e., ORV and VOR) and *split relative objects* (i.e., OXRV, OVR and VOXR). In all stages of both English and Dutch, relative objects can occur

³It is also possible that there is no relativizer, but this is more common with subjects than with objects and does not occur in my data.

⁴Orders where a relative clause precedes an object are also logically possible but are not considered as they never occur in West Germanic

3. Relative Objects

either together or split, as demonstrated in (51) to (54) below. The (a) examples show combined relative objects, namely relative objects where the object and relative clause occur adjacent to one another, and the (b) examples split relative objects, namely instances where some additional sentential element occurs between the object and the relative clause. I label each example to demonstrate which of the five logical orders the sentence represents. The boundaries of the clause, i.e., the verbs, verbal particles and complementizers (if present), are italicized, the objects underlined and bold, and the relative clauses in bold.

(51) Modern English

- a. John *wants to read* **the book** **that he bought yesterday** tomorrow.
VOR
- b. John *wants to read* **the book** tomorrow **that he bought yesterday**.
VOXR

(52) Old English

- a. *þæt hie woldan eal þæt he wolde* VOR
that they wanted all that he wanted
'that they wanted all that he wanted' (OE2, bede)
- b. *þæt hie eal þæt woldon þæt he wolde* OVR
that they all that wanted that he wanted
'that they wanted all that which he wanted' (OE2, bede)

(53) Modern Dutch

- a. Jan *wil* **het boek** **dat hij gisteren heeft gekocht** morgen *lezen*.
ORV
- b. Jan *wil* **het boek** morgen *lezen* **dat hij gisteren heeft gekocht**.
OVR

(54) Middle Dutch

- a. *dat de meester die dat maecte* seer abel *moste wesen* ORV
that the master who that made very able must be
'that the master who made that must be very able' (16C, exempel)
- b. *hoe datter een is die dat al maecte* OVR
how that-there one is who that all made
'how there is one who made that all' (16C, exempel)
- c. *dat si zien mine claerhede, de welke du mi ghegheven*
that they see my clarity which you me given
hebs VOR
have
'that they may see my clarity, which you have given to me.' (14C, a'damlect)

Relative clauses, considered separately from their antecedent, can occur on either side of the verb in all varieties (examples 52–54) except Modern English, where they are restricted to a position to the right of the verb. Objects, either together with or separate from the modifying relative clause, can also occur on either side of the verb in Old English (examples in 52) and Middle Dutch (examples in 54) but not in Modern English and Modern Dutch, where they are restricted to a position to the right and to the left of the verb, respectively.

Regardless of the underlying word order of a given stage of English or Dutch, relative clauses have a tendency to appear to the right of the verb, i.e., outside of the sentence brace, because of their original paratactic nature, or to avoid center-embedding, or a combination of the two, or whatever other reason. Ogura's claim, which is even stronger, is that relative clauses originate outside of the sentence brace and separate from the object, demonstrating how strong this tendency for relative clauses to occur to the right of a verb even in an OV language is. Because relative clauses prefer appearing outside of the sentence brace even in an underlying OV language, we cannot make any claims about the state of the grammar at that time. However, instances of relative clauses inside the sentence brace, few though they may be, can be taken as an indicator that the language at that stage has an underlying OV grammar since there should be no reason for relative clauses to occur inside the brace in VO languages.

Similar assumptions hold for objects but to a much weaker extent. Objects generally prefer a position inside the sentence brace in an OV language and a position to the right of the verb in a VO language. However, as was discussed in Chapter 1, the position of objects appears to be much more susceptible to movement than relative clauses under the influence of other factors, for instance discourse related or vestigial grammatical factors. As a result, we can find objects to the right of the sentence brace in an OV language and inside the “brace” in a VO language. The occurrence of these “unexpected” word orders (i.e., a VO order in an OV language or vice versa) does not necessarily mean that the language at that particular stage has an additional underlying order. In other words, the occurrence of a fairly high percentage of VO orders in an OV language at a certain point in time does not necessarily indicate that the language at that time additionally has an underlying VO grammar. Because a number of factors play a role in object-relative clause combinations, namely heaviness and discourse factors, relative objects would seem particularly susceptible to appear in a position to the right of the verb, even in an underlyingly OV language.

3.2. Research Questions

The previous discussion on the word order possibilities of objects and relative clauses and previous analyses of these phenomena brings up a number of questions. In this chapter, I will only be considering the facts regarding relative

3. *Relative Objects*

objects; a comparison of these with directional phrases and naming objects will be discussed in Chapter 5.

The first set of questions has to do with the general trends in word order frequencies over time. What is the overall pattern, at what point do we see a shift to more rigid orders, and how long does the process take? A frequency count of the word order patterns over time will give us a good indication of the developments in Dutch and English. I will also use these data to establish, based on statistical (dis)similarities, different periods in which the underlying syntactic system is the same. If the distribution of word orders in two centuries does not significantly differ from one another, then I assume that the system underlying them is the same. In this way, I will be able to distinguish the evolution of the syntactic system found in the history of Dutch and English, and the combination of the data in these periods will allow for more data, strengthening the statistical validity. I will also use a logistic function to calculate the rate of change, the midpoint of the change, and the amount of time needed for the change to complete itself.

In what positions do relative clauses appear with respect to the verb and to the head of the relative object? As discussed above, relative clauses have a preference for appearing postverbally in the history of both Dutch and English, regardless of the underlying word order. Ogura (2001) claims that this is initially the case because of its original paratactic nature and later as a means to avoid center embedding. Given this strong tendency for relative clauses to occur postverbally, I will use the occurrence of relative clauses within the sentence brace as an indicator that a given stage of Dutch or English has underlying OV grammar.

I will also use the information from the previous issue to evaluate Ogura's hypothesis by looking at the position of relative clauses with respect to the head of the relative object. Ogura's hypothesis predicts that the most common order in the initial period will be OVR and that it will shift to VOR when the relative clause becomes subordinate to the object. Her hypothesis also predicts that the orders ORV and VOXR will not occur, or at least very rarely. ORV is problematic because center-embedding makes it difficult to process. VOXR is problematic because the only motivation for O to occur postverbally is in order to be adjacent to R. Looking at the distribution of these orders in Dutch and English will help determine how well Ogura's hypothesis works.

In how far does heaviness play a role in the extraposition of relative objects? Since relative objects are heavy by most definitions, the methods used to test the influence of heaviness in directional phrases and naming objects have to be adapted. If lexical weight is an important factor in determining the position of relative objects, then we would expect that relative objects occurring totally inside the sentence brace, i.e., the head noun phrase along with its modifying relative clause, to be significantly less "heavy" than those that occur either wholly or partially outside the sentence brace. To see if this is the case, I will

examine the lexical heaviness of relative objects in texts where they appear preverbally. Whether this is shown to have a significant impact on word order or not, the object itself or the relative clause itself may still in some way be related to word order effects. For instance, preverbal relative objects as a whole may not be significantly shorter than their split or postverbal counterparts, but preverbal objects or relative clauses may be significantly shorter than their postverbal counterparts. Because of this, I will also examine the lexical heaviness of the object and relative clause individually in the same texts to see what influence they may have on word order.

Because relative objects are by definition structurally heavy, I have to use a different method to examine the influence of structural heaviness than the one I used for directional phrases and naming objects, where I compare the distribution of complex versus simplex phrases. For relative objects, I compare the frequencies of the relative objects in my data with the frequencies of objects in general. For Dutch, this involves comparison with the data on Holland Dutch in BurrIDGE (1993). For English, I conducted a separate search of the relevant texts for all objects (excluding pronouns) and compared their distribution to the data collected for the relative objects. If structural heaviness does indeed play a role, we expect to see that the relative objects in my data extrapose significantly more often than in the data set that includes all objects.

Does newness influence the position of relative objects? If so, how? This is only relevant in periods with variation between OV and VO orders as with the previous question though this question deals with the influence of discourse factors on word order unlike the previous question. In order to determine this, I will compare the proportion of definite to indefinite relative objects per position per period because according to Van Kemenade & Los (2006a), the position of Old English noun phrases with respect to discourse particles is sensitive to definiteness. If newness plays an important role in determining word order in any period, then we expect there to be a significantly greater percentage of indefinite objects phrases to the right of the verb than to the left.

The position of relative objects can also be influenced by whether the information in the relative clause is new or given. As already has been discussed, however, relative clauses in the history of Dutch and English have a strong tendency to occur after the verb, regardless of the underlying order of the language. This would suggest that the status of the information in the clause as new or given is not an important factor in determining its position within a clause. However, in order to determine this, I will examine the few instances of preverbal relative clauses to see whether they have anything in common; they may be able to point to the factors that motivate them to occur inside the sentence brace.

Can we distinguish separate cohesive synchronic syntactic systems in either language based on the combination of the above factors? If so, what periods can we distinguish and what characterizes them? If there are identifiable cohesive

3. *Relative Objects*

systems, then we expect that the factors governing word order will be the same in adjacent centuries/periods, i.e., the extent to which heaviness and newness, if relevant factors, influence word order will be the same.

In the following section, I discuss the criteria used to collect the data. Next, in sections 3.4 and 3.5, I will present the data and results for Dutch and English, respectively. At the end of each of these sections is a subsection where I address the research questions posed here per language; the discussion in this final subsection includes connections between the various preceding subsections. The Dutch and English sections are followed by section 3.6 where I compare and summarize the results for both languages.

3.3. Methodological Considerations

3.3.1. Word Order

Remember that in this chapter, the term *object* refers to any noun phrase that is neither a subject nor part of a prepositional phrase and *relative object* refers to any such object modified by a relative clause.

For the English data, I used the *CorpusSearch* 1.1 program (Randall 2003) to search for instances of relative clauses dominated by an NP that was in turn immediately dominated by IP. This, in theory, would have yielded non-subject NPs (i.e., objects) modified by relative clauses. After looking through the examples, however, I found that I still had to sift out the relevant examples—some of the clauses retrieved had an NP modified by a relative clause where this entire NP + relative clause combination was wholly contained within another NP that was the true object of the relevant verb. These and other irrelevant examples were discarded for the study. The Dutch data were a little more difficult to collect since the texts were not syntactically parsed. Using the *MicroConcord* program (Scott & Johns 1993), I conducted a lexical search for the various spellings of the relative pronoun (*het/de*)*welc* and again sifted through the hits for relevant examples.

Once the examples were collected, they had to meet a number of syntactic criteria in order to be included in the study. For the reasons mentioned in Chapter 1, I did not include main or conjunct clauses that contained only a single finite verb in order to avoid the potential effects of verb second, which would have resulted in increased VO orders. Moreover, instances where the relative object or any part thereof occurred in the first position (i.e., topicalized) were also excluded as the number of possible positions it can occupy in that case is greatly limited.

Once the appropriate clauses were collected, I grouped them based on the position of the object and the relative clause as well as the finite verb and the nonfinite verb, if present. Within each group, the examples were further catego-

rized based on the type of clause in which they appeared: main, subordinate or conjunct.

In 13C and 14C Dutch official texts, I came across a few expressions that appeared in more than one text. Some of these repeated constructions are given in (55) and (56) below.

- (55) *Dat wi enen tvist hadden met onsen here den biscop janne van vtrecht. Ende met enen edelen manne onsen here haren Florense Grave van hollant. waer bi dat wi in vanghenissen quamen, der vorghenoemder tvier heren. **welke tvist bi onsen consente. ende bi onsen goeden wille. ende onser vriende. ende onser maghe neder ghelegheet** es.*

‘that we had a quarrel, which has been settled with our consent and with our good will and our friend’s and our kinsmen’s, with our lord, Bishop Jan of Utrecht and with a gentleman, our lord, Lord Floris Count of Holland, whereby we came into prison of the aforementioned the four gentlemen.’ (13C, hgk 1285 oktober 27a)

- (56) *dat ic schuldich ben enen edelen man, haren wolfarde van barsele, here van zandenborgh die houder es van desen brieue. hondert. pont. enghels in hoofdekijns, **welke penninghe hi voer mi met ghereden ghelde in vlaendren betaelt heeft.***

‘that I owe a noble man, Lord Wolfert van Borselen, Lord of Zandenburg, who is holder of this letter, one hundred English pounds in head money, which he paid for me with cash (ready money) in Flanders’ (13C, hgk 1298 juni 15)

In order to dispel the potential influence of these relatively frequent expressions, I did two sets of calculations: one in which I counted each expression only once per word order type, no matter how often it appeared and one where I counted each occurrence of an expression individually. For example, the expression given in (55) occurred a total of four times. These four instances only counted as one for the order OVR per century in which it occurred for the first count and counted as four for the second count. There were no significant differences in the frequencies between the first and second count, so I used the second count, where each instance was counted separately, in order to have a sufficient amount of data for analysis. The expression in (56), however, sometimes occurred with the phrase *te betalen* between the amount and the relative clause describing the amount. All instances with *te betalen* counted as one for the order OVR while all instances without it counted as one for the order VOR. In this way, the potential influence of such expressions on the data set could be reduced. No such frequent expressions were found in the data collected for English. An interesting observation is the large number of constituents intervening between the head of the relative object and the relative clause that modifies it in (55).

3. Relative Objects

This distance is perhaps facilitated by the occurrence of *welk* with a repetition of the head, which will be discussed below.

I will now briefly address the syntactic consequences of the relativizer *welk* + noun phrase, shown in (55) and (56) above. As discussed in subsection 3.1.2 above, this is one of the relativizing constructions encountered in my data. This occurs in 13C, where all of the relative objects occur with this construction, and in 14C. No one has discussed whether there are syntactic differences among the three relativizing constructions with *welk*, but this particular form does not seem to have a noticeable influence on the position of the heads of the relative objects. If *welk* + noun phrase did have an influence on the position of the heads, then we would expect that the heads would occur with an unexpectedly greater frequency on one or the other side of the verb, but this is not the case. This form of the relativizer does, perhaps, have some influence on the position of the relative clause itself; in (55), for example, a very long prepositional phrase, *met onsen here den biscop janne van vtrecht ... hollant*, and a subordinate clause, *waer bi dat wi in vanghenissen quamen*, in addition to the verb *hadden* intervene between the relative clause and its head. This makes sense as the repetition of the head would easily allow a reader/speaker to associate the relative clause with the appropriate head. The syntactic differences among the forms of *welk* should be investigated in future research.

In determining whether a clause was OV or VO, I looked at the position of the head of the relative object, i.e., the object noun phrase being modified by a relative clause, with respect to the verb. The position of the relative clause itself was not considered in this part of the study. All of the object noun phrases are modified by relative clauses in this study, so if the relative clause has an effect on the position of the head noun phrase, we should see a higher percentage of VO orders. The position of the relative clauses with respect to its head will be considered in the subsection on heaviness.

3.3.2. Heaviness

To test heaviness as a factor in the positioning of relative objects, we will look at it from two angles: lexical and structural. Because relative objects are by most definitions, whether phonological, lexical, or structural, heavy, I employ modified versions of the methods used for directional phrases and naming objects. For lexical weight, I compare the average lengths of the relative objects in various positions with each other to see if there is a significant difference. Again, if heaviness is an important factor, we expect that relative objects in the ORV order contain significantly fewer words than the other orders (OVR, VOR and VOXR) and that objects and relative clauses occurring before the verb are significantly shorter than those occurring after the verb.

In order to examine structural heaviness as a factor, I had to bring in additional data on objects in general to compare to the data collected in this

study, which includes only relative objects. For Dutch, I compare my data with that of Burridge (1993), who also collected data from the Holland dialect of Middle Dutch, and for English, I will conduct a separate search of the corpora to get the frequencies of each order for *all* objects. If heaviness is an important factor, then we expect a higher frequency of VO orders in the data of this study than in the data where all objects were taken into account. Given that relative objects are less frequent than objects, we still expect to see a difference in frequencies even if relative objects are included in these other data. A potential problem with comparing my Middle Dutch data with that of Burridge is the fact that the genres are different: my texts come from a variety of genres whereas her texts are all medical texts.

3.3.3. Newness

The final factor under investigation is newness. As with heaviness, the methods used to investigate newness have to be modified. Because relative objects do not occur frequently and are rarely repeated within the same text, the qualitative part of the study is not feasible. I will therefore limit the investigation of newness to a quantitative study of the head of relative objects. For the quantitative study, the same criteria will be used as for directional phrases: relative objects will be considered new if the head is indefinite and old if it is definite. I consider the ratio of indefinite to definite relative objects per position per period, using the following criteria in determining the definiteness of a relative object. If the head of the relative object had a definite article, a demonstrative, a possessive pronoun, a noun in the genitive case modifying the relevant noun phrase, or a name, I counted it as definite. If the head had an indefinite article or no determiner element, I counted it as indefinite.

As already mentioned, the relative clause itself can be either restrictive or nonrestrictive and can contain either new or old information. Deciding whether a relative clause is restrictive or nonrestrictive or whether it contains new or old information is problematic because we are limited to written texts that were written in an entirely different social and cultural context. It is difficult for those of us conducting research now to establish whether the information in a relative clause was common knowledge at the time of writing. I will not try to solve this problem. However, in the context of this study, I will examine the instances of the order ORV, one of the rarest orders, to see if the relative clauses share any characteristics. If the position of the relative clause is influenced by any sort of newness factor, then we would expect that the relative clauses contained within a clause all share some property, whether it be that they are all (non)restrictive or that they all contain old or known information.

3.4. Dutch

In this section, I will focus on the data from the history of Dutch. The primary concern here is the position of relative objects and how it develops over time. I start by investigating the distribution of the word order frequencies (OV and VO) over time in subsection 3.4.1. The general trends in the position of the heads of relative objects, the logistic function of these trends, and the position of both elements of the relative objects (the head and the relative clause) are treated in this subsection. This is followed by an examination of the influence of lexical and structural heaviness in the position of relative objects in subsection 3.4.2. Lexical heaviness is examined by statistically comparing the average lengths of relative objects, their heads, and their relative clauses per position per century. Structural heaviness is investigated by comparing my data on the position of the heads of relative objects to Burridge's (1993) data on the position of *all* objects. Finally, in subsection 3.4.3, newness is investigated as a potential factor in word order. A statistical comparison of the distribution of definite and indefinite heads across word orders is conducted as well as an in-depth examination of the instances of the ORV order. I summarize the evolution of the position of relative objects in the history of Dutch in subsection 3.4.4.

3.4.1. Word Order

Figure 3.1 presents the frequencies of the different positions of the head of relative objects with respect to the verb in Dutch over time. Note that all of these have relative clauses, but the position of the relative clause is not taken into consideration in these data. This figure gives a clear picture of the development of word order in Dutch: both OV as well as VO orders are allowed to varying degrees until 18C where only OV orders appear. The majority of the tokens have VO orders in 13C and 14C while OV orders form the majority in 15C, 16C, and 17C. By statistically comparing the word order frequencies between the centuries, we can make four clear groups. 15C, 16C, and 17C do not significantly differ from one another, and so their data will be combined. 18C is not significantly different from 15C or 16C, but it is significantly different from 17C ($p = .02$). Because 18C only has OV orders, however, it will not be grouped with them. 13C is not significantly different from 15C or 17C, but it is significantly different from 16C as well as the from 15C&16C&17C. I decided not to include 13C into 15C&16C&17C because of these significant differences. 14C is significantly different from all other centuries and will also be considered separately.

The logistic function of these data is shown in figure 3.2. Note that the line with the dots is a representation of the raw data and the smooth S-shaped curve is the logistic function. According to these calculations, the slope of the curve (i.e., the rate of change) is -1.19, a relatively fast change. Note that a

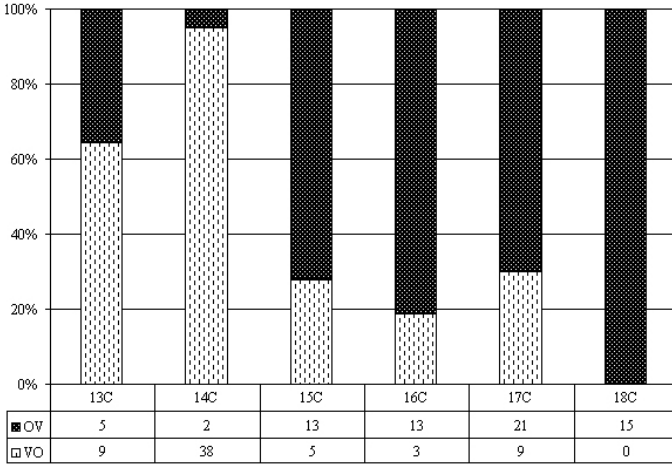


Figure 3.1.: Position of Relative Object Heads in Dutch

negative slope only indicates the direction of change, in this case a decline in VO order, i.e. a slope of 1.19 would represent the same rate of change but in the opposite direction, an increase in VO order. The loss of the extraposition of relative objects takes 5 centuries to complete itself, and the midpoint of the change is just before 15C. The range suggests that the change starts mid-12C and completes itself mid-17C. Now that we have established the patterns with respect to the position of the head, I will continue by considering the position of the relative clause in relation to the head and the verb.

Table 3.1 gives the distribution of the four word orders ORV, OVR, VOR, and VOXR over time. As discussed in subsection 3.1.3 above, the occurrence

Period	% ORV	% OVR	% VOR	% VOXR	<i>n</i>
13C	0	36	64	0	14
14C	0	5	40	55	40
15C	0	72	28	0	18
16C	0	81	13	6	16
17C	7	63	27	3	30
18C	7	93	0	0	15

Table 3.1.: Heads, Relative Clauses, and Verbs in Dutch

of relative clauses inside the sentence brace is being used as a diagnostic of

3. Relative Objects

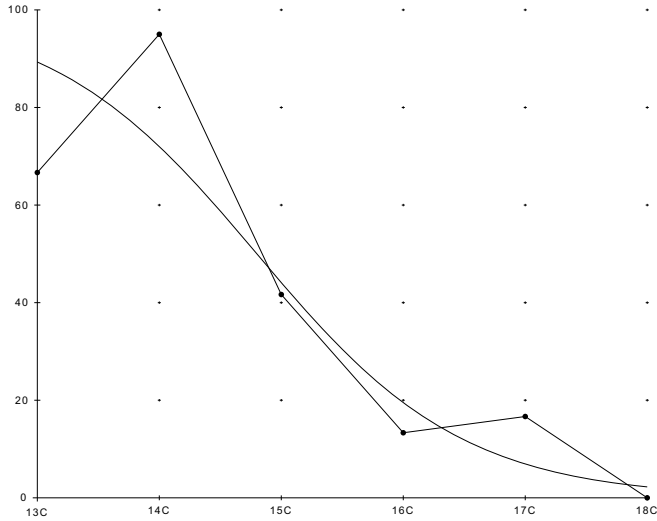


Figure 3.2.: Logistic Function of Relative Object Heads in Dutch

underlying OV grammar in this study. When we look at the position of relative clauses with respect to verbs in this table, we see, as expected, that the overwhelming majority of relative clauses in all periods occur to the right of the sentence brace, i.e., extraposed. The two later periods, 17C and 18C, have instances of relative clauses to the left of the verb as seen in the column labeled ORV. Taken together with the fact that these are also periods where OV orders form the majority confirms that they have an underlying OV grammar.

In Ogura's theory, the position of the relative clause with respect to the object plays a crucial role: the more often relative clauses in a given period occur adjacent to the objects they are modifying, the more subordinate they are to their objects. When we consider the data in table 3.1, we notice that the development in Dutch does not quite follow the pattern predicted by Ogura's hypothesis. In 13C, we already see evidence of the subordination of the relative clause to the object because of the high frequency of VOR orders. Dutch is still underlying OV, but the subordination results in combined relative objects, and the avoidance of center-embedding prevents them from occurring inside the sentence brace. This seems to support Ogura's theory. In 14C, however, even though there is an overall higher percentage of VO orders, the order VOXR is more frequent than VOR. The high frequency of this order is problematic for Ogura's hypothesis if it assumes that subordination of relative clauses to

objects results in the adjacency of object and relative clause. In Ogura's theory, a relative clause is generated outside of the sentence brace while the object is generated inside. If the head of a relative object is moved to a position outside of the sentence brace, it is in order to be adjacent to the relative clause that is subordinate to it. This is clearly not the case in VOXR orders.

Starting in 15C, we also see a steady increase in the order OVR. This is likewise unexpected in Ogura's theory. We already saw from the word order frequencies in 13C that relative clauses appear to be subordinate to objects. It seems that in spite of this subordination, relative objects prefer to split. One might explain this departure by saying that relative clauses become more independent over time in Dutch. However, there is no evidence of this, at least in the syntax. The syntax within relative clauses themselves over time shows a shift from high frequencies of VO orders (which could be an indication of their original paratactic, hence more independent, structure) to a strict OV order, which has become an indicator of subordination in Dutch. Ogura's theory is not able to deal with these data adequately. Further research into the development of Dutch subordinate clauses needs to be conducted to verify this.

These data also pose another potential problem for Ogura's theory, namely the occurrence of ORV orders, albeit at low frequencies. The low frequencies probably indicate that these constructions are difficult to process, but their occurrence shows that it is not totally impossible.

3.4.2. Heaviness

In the previous subsection, we observed the general trends in word order over time in Dutch. Now, I investigate lexical and structural heaviness as potential factors in determining the position of the relative objects. For the investigation of lexical heaviness, I compare the average length of relative objects as well as their component parts, namely the heads and relative clauses, per position per century. Three different comparisons were made: the average length of relative objects in the different word orders, the average length of heads before and after the verb, and the average length of relative clauses before and after the verb. For structural heaviness, I compare my data on the position of the heads of relative objects with the data from Burrige (1993), which include the position of *all* objects in Dutch from 14C to 17C.

Lexical Heaviness

Table 3.2 summarizes the data on the average length of relative objects in the various word order possibilities. Note that in the table *N* stands for 'number' (the number of items per word order), \bar{x} for 'average', and *SD* for 'standard deviation'. The data in the table do not show much variation in the average lengths of relative objects per word order per century, for the most part. The

3. Relative Objects

	ORV			OVR			VOR			VOXR		
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>
13C	0			5	23.0	3.7	9	23.0	10.1	0		
14C	0			2	26.5	12.0	16	22.7	11.1	22	25.1	10.4
15C	0			13	15.6	11.0	5	12.8	4.4	0		
16C	0			13	9.1	3.3	2	11.0	1.4	1	12.0	
17C	2	13.0	5.7	19	15.2	5.7	8	23.4	18.2	1	19.0	
18C	1	9.0		14	12.7	5.1	0			0		

Table 3.2.: Average Number of Words in Relative Objects per Word Order in Dutch

one exception is 17C. The average lengths in the ORV and OVR positions, 13.0 and 15.2, respectively, seem to be much smaller than the average lengths for VOXR and especially for VOR. If any of these centuries shows a significant difference in average length, we would expect to see it in 17C at the least.

The averages per word order were compared to one another per century using an unmatched *t*-test.⁵ For instance, looking at 17C, the average length of the relative object in the word order ORV (13.0 with a standard deviation of 5.7) was compared to that found for the word orders OVR and VOR.⁶ Afterwards, the data for the order OVR was compared to that of VOR. This means that a total of three comparisons were made for this century (the maximum number of comparisons): ORV versus OVR, ORV versus VOR, and OVR versus VOR. This was done for all centuries. Remember, if weight is an important factor in extraposition, then we expect that relative objects in the ORV order will be significantly shorter than that found in any other order. What we find, however, is that the lengths of the relative objects in the various orders is not significantly different from any of the other orders, suggesting that lexical heaviness does not play a role in determining the position of relative objects.

In table 3.3, we see a comparison of the average length of the heads of the relative objects before and after the verb. Note that *t* stands for ‘*t*-value’ (the result of the *t*-test), *sig* for ‘significance’ (the *p*-value, i.e., the level of significance), and *ns* for ‘not significant’. Again, the data for the most part do not show great variation in their average lengths within a century. The exceptions here, the centuries where we are most likely to see a significant difference, are 13C and 15C: in both of these centuries, the average length of postverbal heads is at least double the average for preverbal heads. The results from the *t*-test, however, show that the average lengths are not significantly

⁵Refer to subsection 1.4.3 in Chapter 1 for more information about this statistical test.

⁶Because the *t*-test is a comparison of *averages*, it cannot be conducted if there is only one item in a list.

	OV			VO			<i>t</i>	<i>p</i> -value
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>		
13C	5	3.2	2.7	9	8.3	5.6	0.04	> .05
14C	2	6.5	0.7	38	6.3	4.8	0.87	> .05
15C	13	2.2	0.8	5	4.4	3.7	0.26	> .05
16C	13	2.2	0.7	3	3.0	1.0	0.06	> .05
17C	21	3.1	1.8	9	4.0	2.3	0.29	> .05

Table 3.3.: Average Number of Words in Relative Object Heads per Word Order in Dutch

different in any century.

When we look at the average lengths of relative clauses in the two positions given in table 3.4, we notice that there is not a lot of variation in the data between the average lengths. The biggest difference in average lengths is in

	RV			VR			<i>t</i>	<i>p</i> -value
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>		
17C	2	9.5	3.5	28	14.4	10.2	0.24	> .05
18C	1	7.0		14	9.5	3.4		

Table 3.4.: Average Number of Words in a Relative Clause per Word Order in Dutch

17C, but the difference does not seem great enough to suspect significance. The *t*-test confirms these observations; the length in the two positions is not significantly different.

Structural Heaviness

We have seen that lexical heaviness does not have an influence on the position of relative objects. In order to test whether structural heaviness plays a role, I compare the distribution of the relative objects in my data, which are always structurally heavy, with those from Burridge (1993), who collected data on the position of all objects in medical texts written from 14C to 17C in Holland, shown in table 3.5.⁷ She examined the extraposition of direct and indirect objects as well as nominal and adjectival complements, similar to the criteria I used in collecting my data. It is clear that her data include relative objects as well as objects not modified by relative clauses so if there is a heaviness effect,

⁷She also looks at the Brabant dialect of Dutch, but those data will be ignored for this study.

3. Relative Objects

we would still expect to see a lower percentage of VO orders in her data than in mine. As was done in this study, Burridge counts instances of OVR as OV since the head of the relative object is to the left of the verb.

In order to facilitate comparison between the two sets of data, I recalculated Burridge's data, which is divided into 50-year increments, by century. Table 3.5 shows the distribution of OV and VO in both my data and those found in Burridge. Looking at the raw data, we can observe some tendencies. In 14C,

	Relative Objects		All Objects		<i>p</i> -value
	My data		Burridge (1993)		
	OV	VO	OV	VO	
14C	2	38	576	163	.00002
15C & 16C & 17C	48	18	932	246	> .05
15C	13	5	201	124	> .05
16C	13	3	326	67	> .05
17C	22	10	405	55	.01

Table 3.5.: Extraposition in Dutch

relative objects have a clear preference for VO orders (38 out of 40 or 98%) whereas OV orders are clearly preferred for objects in general (576 out of 739 or 78%). In the following centuries (and in 15C&16C&17C), relative objects and all object types both show a preference for OV orders. The frequency with which each type of object occurs on either side of the verb is also similar: for instance, in 15C&16C&17C, 73% of the relative objects and 79% of all objects occur preverbally. In 17C, however, the difference in frequency is greater than for the other periods: 69% of the relative objects occur preverbally as opposed to 88% for all objects. From these observations, we would expect for the distribution of OV and VO in relative objects versus all objects in Burridge's data to be significantly different in 14C and 17C but not in the other centuries. These observations are confirmed by the Fisher-Yates test. What is interesting to note is that while the difference in distributions in 14C and 17C are both significantly different, this significance actually describes different situations. In 14C, not only are relative objects significantly more likely to occur postverbally than preverbally, but all objects are significantly more likely to occur preverbally than postverbally, i.e., each type of object has its own preferred position. In contrast, both types of object prefer a preverbal position in 17C; however, objects in general have a significantly stronger preference for this position than relative objects. These differences are reflected in the level of significance (*p*-value) of each century—the lower the *p*-value, the more significant the difference is.

3.4.3. Newness

Newness is the next factor under investigation. Because there were no repetitions of the same relative object in the same text, the position of the relative objects with respect to newness will not be examined qualitatively. What follows is the quantitative study, wherein the distribution of definite and indefinite relative objects per position is compared per period, followed by an in-depth analysis of the three instance of ORV order. Remember that definiteness is taken as a representation of newness because indefinite noun phrases generally introduce a new entity into the discourse while definite noun phrases tend to be given entities that have already been mentioned.

Table 3.6 presents the distribution of definite and indefinite relative objects per position in the different periods. To determine whether a relative object was definite or indefinite (or OV or VO, for that matter), I only looked at the head of the relative object and its position, not at the information or position of the relative clause. What is striking is the lack of preverbal

	13C		14C		15C & 16C & 17C	
	OV	VO	OV	VO	OV	VO
Definite	0	5	0	12	24	14
Indefinite	5	4	2	26	24	4

Table 3.6.: Position and Newness in Relative Object Heads in Dutch

definite heads in 13C and 14C. This means that 100% of the definite heads occur to the right of the verb. In 13C, this differs from indefinite heads, which only occur to the right of the verb 44% of the time. This goes against our initial expectation that new elements have a greater tendency to appear after the verb than before, but it does still suggest that newness is a motivation for extraposition, at least with respect to relative objects. Perhaps it is the interaction of definiteness and the relative clause that plays a role, but it seems, based on these data, that if “newness” is to be further pursued as an important factor in extraposition, it will perhaps be more useful to define it in other terms such as focus, where noun phrases modified by demonstratives are perhaps more common. 14C contrasts with 13C, however, in that the frequency of indefinite heads to the right of the verb (93%) is similar to that for definite ones (100%), suggesting that newness does not play an important role in relative objects. In 15C&16C&17C, we also see a noticeable difference in the frequency of the order for definite (63% OV) versus indefinite heads (86% OV), though this difference is not as big as in 13C. Given these observations, we would expect that the distributions are significantly different from one another in 13C and possibly in 15C&16C&17C but not in 14C. In both 15C and 17C individually,

3. Relative Objects

there are similar distributions as in the combined data: definites occur 57% and 55% before the verb, respectively, while indefinites occur at 82% and 91%, respectively. In 16C, there is not much difference between the two types of head: definites are 82% preverbal while indefinites are 80%. The Fisher-Yates test, however, indicates that the distributions in none of the periods is significantly different. This discrepancy may be caused by the low number of examples in each period. Because the tendency in 13C, 15C, 17C, and 15C&16C&17C is quite clear, more data would probably allow this to be confirmed statistically. It is interesting to note, however, that the role that newness seems to play with respect to relative objects in Dutch is the opposite of our expectations; rather than indefinite heads appearing more often to the right of the verb than definite heads, we find that definite heads have a stronger preference for the postverbal position than indefinite heads.

The previous data suggest that newness may play an important role in determining the position of the head of relative objects in 13C and the combined period though the statistics did not confirm this. Newness does not seem to play a role in 14C but not in the same way as in the other centuries; both indefinite and definite relative objects occur with a very high frequency to the right of the verb. Now I will take a look at the three instances of ORV order seen in table 3.2, given in (57), to see if this rare word order is in some way motivated by newness.

- (57) a. *Daeromme* ick oock Cyriacum mijnen broeder ende
 For that reason I also Cyriacus my brother and
mede-dienaer, **den welcken uwer Godvruchticheyts lange**
 fellow-servant the which your devotion's long
beraedtslagenen tot de selve Ordre hebben ghebaert,
 deliberations to the same order have caused
 tot de regieringhe van het Pastoors of Harderschap seer
 to the rule of the priests or shepherdship very
 bequaem *houde*
 able hold
 'For that reason, I also considered Cyriacus, my brother and fellow
 servant, who the long deliberations of your devotion bore into the
 same order, very able for the rule of priests or shepherdship' (17C,
 heeren)
- b. *die* het Lot, 't **welk in de schoot gheworpen wordt**,
 which the lot the which in the lap thrown becomes
 zijn uytkomst *geeft* door zijn bijzondere voorsienigheyd
 its result gives through his special providence
 '...who gives the lot, which is thrown into the lap, its result through
 his special providence' (17C, vb)

- c. *om dat hij het geld, **het welk hij met zijne**
 because he the money the which he with his
bekwaamheden won, naar zijn geneigdheid *verteerde*
 ability won to his inclination spent
 ‘...because he spent the money, which he earned with his ability, to
 his own liking’ (18C, tooneel)*

There are a few features that these three examples share, despite being from different genres and centuries, that may point toward newness factors in determining their position. First, the head of each relative object is definite. This is not totally unexpected as definite nouns are generally instances of given information. Second, all of these examples have a relativizer of the form determiner + *welk*. Although no one has mentioned a difference between the use of the different *welk* relativizers, the fact that this form is the only one found within the sentence brace may suggest that there are indeed some differences, which need to be further investigated. Third, all of these relative clauses seem to be nonrestrictive, giving additional but nonessential information about the head.

Another feature of these relative clauses is that they seem to be used in order to more strongly emphasize some aspect of the head. For instance, (57b) is in a sentence, repeated in (58), which is the continuation of a discussion on using God’s name in vain.

- (58) Tot het misbruyk van Godts Naem moet ghebraght worden het misbruyk van het Lot, wanneer men daer mede speeldt, in de plaets van Godts Naem eerbiedigh aen te roepen, *die het Lot, ’t welk in de schoot gheworpen wordt*, sijn uytkomst *geeft* door sijn bijsondere voorsienigheydt.
 ‘The abuse of the lot (fate) must also be considered an abuse of God’s name, when one plays with it instead of reverently calling on God’s name, who gives the lot (fate), which is thrown into the lap, its result with his special providence’ (17C, vb)

In this case, the word *lot* ‘lot’ is used, which not only refers to gambling but can also mean ‘fate, destiny’. Our lot, or fate, is something over which we have no control; it is just “thrown into our laps”, as the example states. In this sentence, however, our lack of control over the lot is contrasted with God’s providence—he is the one who decides the lot. So, this example clearly shows an opposition, and the position of the entire relative object within the sentence brace may be in order to strengthen the contrast of the two sides.

This emphasizing function also seems evident in (57c), the entire sentence in which it appears repeated below in (59).

- (59) zoude men te Londen, te Parijs, of in eenige plaats van Europa, eenen Tooneelspeeler, dien men zegt te beminnen, en niet te kunnen derven, *om*

3. Relative Objects

dat hij het geld, het welk hij met zijne bekwaamheden won, naar zijn geneigdheid verteerde, wel zulk eene laage mishandeling aandoen?
'Would one in London, in Paris, or in any other place in Europe, give an actor, who one says he loves and cannot be without, such abuse because he spent the money, which he won with his own ability, to his own liking?' (18C, toneel)

The relative object is contained within a subordinate clause headed by *om dat* 'because'. It is clear in the text that the relative clause is nonrestrictive because there is no other money with which this money is being contrasted. It seems that the writer is emphasizing the fact that the money is what the actor earned *himself*; as a result, he should be able to do with it whatever he pleases.

Of course, these observations should be taken with a grain of salt given the fact that there are so few examples. It is possible, for instance, that the fact that these relative clauses begin with *hetwelk* and occur preverbally may just be features of formal written language. However, all the characteristics taken together are consistent enough to warrant further investigation.

3.4.4. Discussion

I will address the research questions posed in section 3.2 above in this subsection with respect to the Dutch data. The first set of questions are about the word order patterns over time. In subsection 3.4.1, we saw that the main break seems to occur between 14C and 15C. 13C and 14C both have a majority of VO orders while the centuries after 14C have a majority of OV orders. With statistics, we were able to establish four periods: 13C, 14C, 15C&16C&17C, and 18C. The logistic function let us know that the shift was relatively fast with a slope of -1.19 and that it took 5 centuries to complete with its midpoint just before 15C. There were only two centuries in which the order ORV occurred: 17C and 18C. This order combined with the word order distribution is being used as a diagnostic for underlying OV order, which must be present in these two centuries.

The distribution of the word orders was used to evaluate Ogura's (2001) proposal. As was mentioned at the end of subsection 3.4.1, the data from Dutch pose a number of problems for the hypothesis. The presence of VOXR orders is not predicted by Ogura's hypothesis, let alone the high percentage found in 14C. It is actually quite a big problem since the motivation for the head of a relative object to occur to the right of the verb is precisely to be adjacent to its relative clause. In this order, however, something intervenes between the two, a violation of Ogura's account.

Another problem that the Dutch data pose to Ogura's theory is the fact that the OVR order becomes more frequent after relative clauses have become subordinate to their heads. That relative clauses are subordinate to their head

can be seen in the frequency of VOR orders in 13C and 14C as well as the ORV orders of 17C and 18C. It is also very clear from the syntax of relative clauses, which clearly shows subordinate–clause, i.e., OV, syntax.

The second set of questions addresses heaviness, whether defined lexically or structurally, as a factor in the word order of relative objects. Lexical heaviness was shown not to be an important factor in determining the position of relative objects: the average length of preverbal relative objects is not significantly different from the average length of split, postverbal, or postverbal split relative objects. Nor is the average length of the heads of relative objects or their relative clauses significantly different in any position.

When the effect of structural heaviness was examined, there were mixed results. My data were compared to those of Burridge (1993), who also examined the position of verbal complements in the history of Dutch. The raw data for 14C are quite different: the heads of relative objects have a preference for a postverbal whereas other types of objects have a preference for a preverbal position. This observation is confirmed by statistics, which indicate that the distribution of these two types of objects is significantly different from one another. For 15C&16C&17C, however, the situation is not as clear. The raw data show that in the combined period as well as in each individual century, both types of object have an equal preference for a preverbal position. Again, statistics confirm this observation in all instances except for 17C, where there is a significant difference in the distribution of word order for relative objects versus other objects. Even though both types have a preference for a preverbal position, other types of objects are significantly even more likely to occur preverbally than the heads of relative objects. In this way, the situation for 17C seems to be different from the one in 14C, despite the fact that structural heaviness plays a role in word order patterns in both. Given this difference, it is not surprising that structural heaviness does not play a continuous role in the history of Dutch. It is strange, however, that there is such a difference between 17C on the one hand and 15C and 16C on the other. This may suggest that 17C should actually not be grouped with them.

Newness was the topic of the third set of questions. This was a little more difficult to investigate qualitatively because of the lack of repetition of the same relative object in the same text. However, the quantitative study was complemented with a qualitative investigation of the few instances of ORV order. First, when looking at the raw data for the quantitative part of the study, what is striking is the fact that there are no instances of definite relative objects in the OV position in 13C and 14C. These data show a clear tendency for definite relative objects to occur postverbally. Indefinite relative objects, however, have no strong preference for OV or VO in 13C while they do have an unexpected preference for VO in 14C. From these observations, we would expect that newness would play a role in 13C but not in 14C, though the role played by newness in 13C is the opposite of what we would have expected because

3. Relative Objects

all definite heads occur *after* the verb and not before. The statistics indicate that newness is not an important factor in either century. However, given the strength of the tendency in 13C, the addition of more data would probably give statistical significance. Recall, however, that the data from 13C suggest that newness should be defined in other terms to be useful, perhaps in terms of focus as suggested by the qualitative analysis. For 15C&16C&17C, we would also expect to see an effect of newness on word order: indefinite relative objects are far more likely to occur preverbally than definite relative objects according to the raw data. While the statistics do not confirm this, though, more data would probably show that it is significant.

The detailed examination of the three instances of ORV order (from 17C and 18C) revealed a number of interesting similarities among the examples that indicate that newness may play a role in determining the position of relative objects. All three examples shared the following four characteristics: the head of the relative object was definite, the relativizer was ‘determiner + *welk*’, the relative clause seemed to be nonrestrictive, and the relative clause seemed to be added for emphasis. Some of these characteristics are surprising while others match expectations. Particularly surprising is the observation that the relative clauses all seem to be nonrestrictive. One would expect relative clauses contained within the sentence brace to be restrictive because restrictive relative clauses are essential to the discourse and to identifying the head of the relative object and would thus be expected to have a stronger connection to the head than nonrestrictive relative clauses. Because the preverbal position is so uncommon for relative clauses, it is not surprising that they seem to be strongly emphasizing a particular aspect of their head. The placing of the constituent in an atypical position makes it more expressive and therefore would cause readers/speakers to pay more attention to it; this would be one way to mark a particular element in a sentence with focus.

Table 3.7 summarizes the characteristics of relative objects in Dutch per century. The results of the combined period are not reflected in this table; rather, the characteristics are based on the data of just that century. In the case of <VO (majority VO) and ORV, ‘+’ means the presence and ‘-’ the absence of that feature. For the other characteristics, ‘+’ means that statistics confirm

	13C	14C	15C	16C	17C	18C
< VO	+	+	-	-	-	-
ORV	-	-	-	-	+	+
Lexical	-	-	-	-	(+)	(+)
Structural	n/a	+ ₁	-	-	+ ₂	n/a
Newness	(+)	-	(+)	-	(+)	n/a

Table 3.7.: Summary of Relative Objects in Dutch

that the given feature is significant, ‘(+)’ means that the given feature is not statistically significant but that the data suggest that there is a strong tendency that would probably be confirmed with more data, and ‘–’ means that the feature is neither statistically significant nor is there any indication in the data that there is a tendency. Note, however, that with respect to newness, (+) indicates that there seems to be a strong tendency, but that the tendency found is the opposite of what we initially expected: definite relative objects appear postverbally more often than indefinite ones. The centuries that seem to have clusters of features in common, though no two are completely alike, are 13C and 14C, 15C and 16C, and 17C and 18C; this grouping is different from the original grouping established on the basis of only the word order distributions of relative object heads in subsection 3.4.1. Comparison with the English data should help out with some of the discrepancies. Moreover, we will be able to get a clearer picture in Chapter 5 when we compare these results with that of directional phrases and naming objects.

3.5. English

In this section, I will focus on the data from the history of English. The primary concern here is the position of relative objects and how it develops over time. I start by investigating the distribution of the word order frequencies (OV and VO) over time in subsection 3.5.1. This is followed by an examination of the influence of heaviness in the position of relative objects in subsection 3.5.2. Heaviness is considered in three different ways: the word length of preverbal relative objects is compared to split and postverbal relative objects, my data on the position of relative objects is compared to data on the position of all objects, and the position of relative clauses with respect to the verb is compared in the different periods. These three comparisons provide quantitative as well as qualitative means to evaluate the influence of heaviness on word order. I discuss the evolution of the position of relative objects in the history of English in subsection 3.5.4.

3.5.1. Word Order

Figure 3.3 shows the frequency of the position of the head of relative objects with respect to the verb in English over time. Note that the O in this figure represents only the head of the relative object and does not take the position of the relative clause into consideration in this graph. This figure gives a clear picture of the development of word order in English: both OV as well as VO orders are allowed to varying degrees until ME3 where only VO orders appear. The OE2 period is the only period where there is an equal percentage of OV orders to VO. Thereafter, the VO orders increasingly dominate until it is the

3. Relative Objects

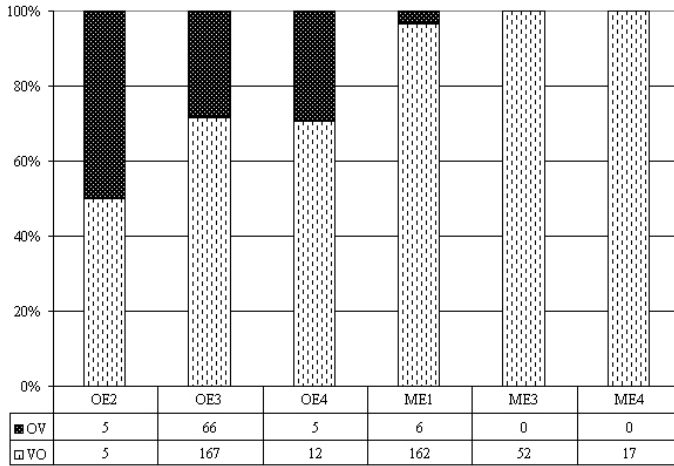


Figure 3.3.: Position of Relative Objects in English

only option. By statistically comparing the word order frequencies between the centuries, we can divide the different periods into two groups. OE2 and OE4 are not significantly different from one another and can be grouped together. OE3, however, is not significantly different from OE4, but it is significantly different from all other periods, OE2 included. I group it with OE2 and OE4 because it appears between these two periods, which are clearly not significantly different from one another, and because it is not significantly different from one of the two. ME1, ME3, and ME4 are not significantly different from one another, but they each are significantly different from the periods in the first group. Because ME3 and ME4 do not have word order variation, however, I will group them separately from ME1.

The logistic function of these data is presented in figure 3.4.⁸ Recall that the line with the dots represents the raw data and the smooth S-shaped curve is the logistic function. According to these calculations, the slope of the curve (i.e., the rate of change) is 0.68, a relatively slow change. The change takes 9.0 centuries to complete itself, and the midpoint of the change is around 900, in the middle of OE2. The range of the change suggests that the change starts in the mid-5th century and completes itself mid-14th century, just before ME3.

Table 3.8 gives the distribution of the four word orders ORV, OVR, VOR, and VOXR over time. As discussed in subsection 3.1.3 above, the occurrence

⁸Refer to subsection 1.4.3 in Chapter 1 for more information on the this test and its limitations.

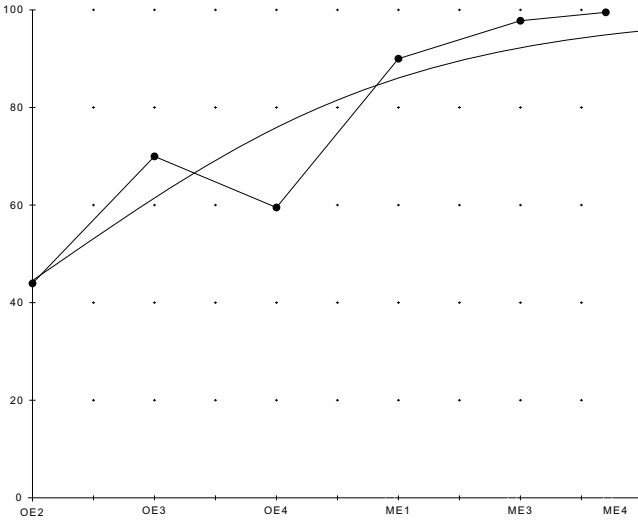


Figure 3.4.: Logistic Function of Relative Objects in English

of a relative clause inside the sentence brace is being used as a diagnostic of underlying OV grammar in this study. When we look at the position of relative clauses with respect to verbs in this table, we see, as expected, that the overwhelming majority of relative clauses occur to the right of the sentence brace, i.e., extraposed. We do find ORV orders in three periods, however: OE2, OE3, and ME1. In OE2 and OE3, we find a relatively high percentage of OV orders (in comparison to other periods), which taken together with the occurrence of ORV would seem to confirm analyzing them as having underlying OV. In ME1, however, OV orders clearly form a minority pattern, and the

Period	% ORV	% OVR	% VOR	% VOXR	<i>n</i>
OE2	20	30	50	0	10
OE3	4	24	65	7	233
OE4	0	29	65	6	17
ME1	1	3	90	6	168
ME3	0	0	98	2	52
ME4	0	0	94	6	17

Table 3.8.: Objects, Relative Clauses and Verbs in English

3. *Relative Objects*

one instance of a preverbal relative clause in ME1 is quite unexpected. Given the strong tendency of relative clauses to appear postverbally, the order ORV indicates that ME1 indeed has underlying OV grammar despite the overall word order patterns of this period. As will be discussed in subsection 3.5.3 below, this one example is exceptional in a number of ways, possibly indicating that this OV grammar is limited to special circumstances in much the same way as verb second in Modern English, which is retained with negative elements.

As I have already mentioned, the position of the relative clause with respect to the object plays a crucial role in Ogura's theory: the more often relative clauses in a given period occur next to the objects they are modifying, the more subordinate they are to objects. When we consider the data in table 3.8, we observe that trends seem to confirm Ogura's hypothesis. In all periods, the VOR order is the most frequent of the four word orders. This word order is the best to accommodate both subordinated relative clauses and the avoidance of center-embedding. However, split relative objects remain a sizable minority (between 30% and 35%) from OE2 to OE4. Starting from ME1, however, there is a very noticeable drop, with split relative objects forming only 9% of the total. These data more or less follow the pattern one would expect if Ogura's analysis is correct.

3.5.2. **Heaviness**

In the previous subsection, we observed the general trends in word order over time in English. Now, I investigate lexical and structural heaviness as potential factors in determining the position of the relative objects. For the investigation of lexical heaviness, I compare the average length of relative objects as a whole as well as their component parts, namely the heads and relative clauses, per position per century. Three different comparisons were made: the average length of relative objects in the different word orders, the average length of heads before and after the verb, and the average length of relative clauses before and after the verb. For structural heaviness, I collected data on the position of *all* nonpronominal objects in the same texts where the relative objects were collected. So as to make a clear distinction between relative objects and the other types, I subtracted the number of relative objects per position per century from the total since the relative objects would have been included in the search of all objects. In this way, we can more accurately see whether heaviness plays an important role.

Lexical Heaviness

Table 3.9 summarizes the data on the average length of relative objects in the various word order possibilities. The data in the table do not show much variation in the average lengths of relative objects per word order per period,

	ORV			OVR			VOR			VOXR		
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>
OE2	2	8.0	2.3	3	8.7	3.1	5	9.8	5.0	0		
OE3	10	7.2	2.7	56	8.8	4.5	150	9.8	7.4	17	12.4	6.1
OE4	0			5	4.6	0.6	11	12.3	7.7	1	19.0	
ME1	1	4.0		5	7.8	1.3	152	9.3	7.9	10	9.3	3.9

Table 3.9.: Average Number of Words in a Relative Object per Word Order in English

for the most part. The few exceptions are OE4 and ME1. In OE4, the average length in OVR is 4.6, which about a third of the average in VOR at 12.3 and about a quarter of the length in VOXR at 19.0. In ME1, the length in ORV at 4.0 is about half of the average for the other orders.

I compared these values with one another per period using an unmatched *t*-test.⁹ For instance, when looking at OE2, the average length of the relative object in the word order ORV (8.0 with a standard deviation of 2.3) was compared to that found for the word orders OVR, VOR, and VOXR. Afterwards, the data for the order OVR was compared to that of VOR and VOXR, and then VOR was compared to VOXR. This means that a total of six comparisons were made for this text: ORV versus OVR, ORV versus VOR, ORV versus VOXR, OVR versus VOR, OVR versus VOXR, and VOR versus VOXR. This was done for each period. Remember, if weight is an important factor in extraposition, then we expect that relative objects in the ORV order will be significantly shorter than that found in any other order. What we find is that for most of the periods, the lengths of the relative objects in the various orders is not significantly different.

In table 3.10, we see a comparison of the average length of relative object heads before and after the verb. There is not much difference between the

	OV			VO			<i>t</i>	<i>p</i> -value
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>		
OE2	5	2.2	0.5	5	3.0	2.2	0.47	> .05
OE3	66	2.2	0.8	167	2.7	1.1	0.00	> .05
OE4	5	1.4	0.6	12	2.4	0.8	0.01	> .05
ME1	6	1.8	0.8	162	2.6	1.7	0.07	> .05

Table 3.10.: Average Number of Words in Heads per Word Order in English

⁹Refer to subsection 1.4.3 in Chapter 1 for more information about this test.

3. Relative Objects

average lengths in any of the periods, so we would not expect any of these periods to be significantly different. The Fisher-Yates test confirms this observation: relative object heads to the left of the verb are not significantly shorter than than those to the right.

When we look at the average length of relative clauses in the two positions given in table 3.11, we notice that there is more variation in these lengths. Though the averages in OE2 do not seem very different, the averages in OE3 and especially in ME1 seem to be more different from one another. The

	RV			VR			<i>t</i>	<i>p</i> -value
	<i>n</i>	\bar{x}	<i>SD</i>	<i>n</i>	\bar{x}	<i>SD</i>		
OE2	2	6.0	2.8	8	6.6	4.3	0.82	> .05
OE3	10	4.9	2.1	223	7.2	6.5	0.01	> .05
ME1	1	3.0		167	6.7	7.0		

Table 3.11.: Average Number of Words in a Relative Clause per Word Order in English

statistical test, however, indicates that the length of relative clauses on either side of the verb is not significantly different. Again, this may be a reflection of the lack of preverbal relative clauses rather than the actual state of affairs, especially in ME1.

Structural Heaviness

For English, I did a search of subordinate clauses in my corpus using the CorpusSearch 1.1 program for nonpronominal objects in order to compare these new data with my data on relative objects.¹⁰ In order to strengthen the contrast between the two types of objects, I subtracted the instances of relative objects from the total count of objects. These data are given in 3.12. These data seem to indicate a general tendency for relative objects to occur more often after the verb than general objects. For instance, relative objects occur to the right of the verb 69% of the time in OE2&OE3&OE4 versus 48% of the time for general objects. Distributions similar to this are found in both OE3 and OE4, where relative objects occur postverbally 70% and 71% of the time, respectively versus 50% and 48% of the time for general objects. OE2, on the other hand, has quite different distributions: relative objects occur postverbally 50% of time and general objects 24%, only half as often as relative objects. This may suggest that OE2 should be treated as a period on its own and not

¹⁰Recall from Chapter 1 that pronouns in the early stages of English are clitic in nature and almost always occur to the left of the verb. Including pronominal objects would have greatly increased the percentage of OV orders.

	Relative Objects		Objects		<i>p</i> -value
	OV	VO	OV	VO	
OE2 & OE3 & OE4	82	183	1540	1416	.00002
OE2	5	5	188	58	> .05
OE3	72	166	1280	1291	.00002
OE4	5	12	72	67	> .05
ME1	6	162	100	748	.0008

Table 3.12.: Relative Objects versus Objects in English

grouped together with OE3&OE4. In any case, since the percentages in each of these periods seem to be quite different from one another (between 20 and 25 percentage points difference), we would expect to see that the distributions are significantly different from one another. In ME1, however, the distributions do not seem to be so different: 96% of relative objects occur postverbally versus 88% of general objects, only a difference of 8 percentage points. When these distributions are statistically compared, they are shown to be significantly different in OE2&OE3&OE4 and ME1. There are, however, differences among the individual periods in OE2&OE3&OE4: the difference in distribution is only significant in OE3 and not in OE2 or OE4. Given the fact that OE3 has much more data than the other two periods, it seems that it overpowered the other two in making the combined data significantly different. Given that the distribution in OE4 is almost the same as in OE3 and OE2&OE3&OE4, however, this does not seem to be likely; rather, lack of data in OE4 and OE2 seem to be the more likely cause. This suggests a tendency for structurally heavy relative clauses to occur postverbally in OE4 that would probably be significant if there were more data. These results indicate that the interaction of factors influencing word order in OE2 is quite different from that in OE3 and OE4. Overall, though, these data show that structural heaviness plays an important role in determining word order in the early stages of English.

3.5.3. Newness

Newness is the next factor under investigation. Because there were no repetitions of the same relative object in the same text, the position of the relative objects with respect to newness will not be examined qualitatively. What follows is the quantitative study, wherein the distribution of definite and indefinite relative objects per position is compared per period, followed by an in-depth analysis of the twelve instances of ORV order.

Table 3.13 presents the distribution of definite and indefinite relative objects per position in the different periods. To determine whether a relative object

3. Relative Objects

	OE2 & OE3 & OE4		ME1	
	OV	VO	OV	VO
Definite	64	144	3	95
Indefinite	20	39	3	67

Table 3.13.: Position and Newness in Relative Object Heads in English

was definite or indefinite (or OV or VO, for that matter), I only looked at the head of the relative object and its position, not at the information or position of the relative clause. When looking at the raw data, it is clear that both definite and indefinite relative objects prefer the VO position in both OE2&OE3&OE4 and ME1. Moreover, their occurrence in the VO position is more or less the same within each period: 69% for definites versus 66% for indefinites in OE2&OE3&OE4 and 97% for definites versus 96% for indefinites in ME1. From these figures, we do not expect for the distributions to be significant in either period. In OE3 by itself, the pattern is the same as for OE2&OE3&OE4: 69% VO for definites versus 68% for indefinites. In OE2, there are not enough data (only 10 examples) to get a clear picture of the distribution; while 43% of the definites occur in VO position versus 67% of the indefinites, more data is needed to see if there are any clear tendencies. In OE4, in contrast, there is a clear pattern: 100% of the definites occur in VO position versus 58% of the indefinites. Given these numbers, we would expect for newness to play a significant role in OE4 though not in the way expected; instead of new constituents, i.e., indefinites, occurring more often in VO position than given constituents, i.e., definites, we see that there is a very strong tendency for the reverse.

When the Fisher-Yates test is used to compare the data per period, most of the observations are confirmed. Newness does not play an important role in determining the position of relative objects in OE2&OE3&OE4, OE2, OE3, or ME1. The statistics also show, however, that the distribution of the data in OE4 is not significant, against expectations. In this case, the low numbers seem to be a factor; most probably, more data would statistically confirm that newness is significant in OE4.

The previous data suggest that newness does not play an important role in determining the position of the head of relative objects. Now I will examine a few instances of ORV order, given in (60), to see if this rare word order is in some way motivated by newness. Only a selection of the ten instances from OE3 will be presented, but the discussion will be based on examination of all of the examples.

- (60) a. *ðæt ðu ðone wisdom ðe ðe God sealde ðær ðær ðu*
that you the wisdom which you God gave there there you

- hiene befæstan mæge**, *georne befæste*
 it use may eagerly may-apply
 ‘that you may apply the wisdom, which God has given you, there where you may use it’ (OE2, *prefcura*)
- b. *ðæt we eac sumæ bec, ða ðe niedbeðearfosta sien*
 that we also some books those which most-necessary are
eallum monnum to wiotonne, *ðæt we ða on ðæt*
 all men to know that we them into that
geðiode wenden ðe we ealle gecnawan mægen
 language translate that we all know may
 ‘that we also may translate some books that are the most necessary for all men to know, that we translate them into the language in order for us to know’¹¹ (OE2, *prefcura*)
- c. [p]a het Sebastianus þone hæðenan þegn *þæt he*
 then commanded Sebastian the heathen servant that he
þa hæftlingas þe he heold on þam cwearterne *gebrohete*
 the prisoners who he held in the prison brought to
 his spræce
 his speech
 ‘Then Sebastian commanded the heathen servant to bring the prisoners whom he held in the prison to his speech’ (OE3, *aelive*)
- d. *gif we nu ðeowtlicera weorca. þæt sind synna geswicad*
 if we now servile works that are sins yield
 ‘if we now yield to servile works that are sins’ (OE3, *cathom2*)
- e. and feawa is ðæra manna *ðe mage ealle ða halgan bec. ðe*
 and few is of-the men who may all the holy books which
þurh Godes muð. oððe ðurh Godes gast gedihte
 through God’s mouth or through God’s spirit composed
wæron *fulfremedlice þurhsmeagan*
 were completely investigate
 ‘and there are few men who may completely investigate all the holy books, which were composed through God’s mouth or through his spirit’ (OE2, *cathom2*)

When we take a close look at the relative objects in the preverbal position, we can make some interesting observations. First, a majority of the heads

¹¹Note that the relative object in this example appears in a clause without a verb. The clause containing the relative object seems to have been a false start and is followed by a repetition of the clause. In the repetition, the relative object is not repeated; rather, a resumptive pronoun, *ða*, is used. I included this example in the study because even though the original clause was not complete, it is clear from the beginning that if it had been completed, the relative object would have preceded the verb.

3. Relative Objects

(10 out of the 12 in OE2 and OE3) are definite. Second, a majority of the relative clauses (9 out of the 12) begin with the relativizer *þe*, though being the most common relativizer, this is not surprising. Two other relativizers are found: there are two instances of a form of the demonstrative *se* and one of *se þe*, the combination of the demonstrative and *þe*. It is more difficult to establish whether these relative clauses should be interpreted as restrictive or nonrestrictive—for most of them, either interpretation is possible and depends on what the writer thought the reader knew. Oftentimes, the information in the relative clause has not been mentioned elsewhere in the preceding discourse, but it can still be best interpreted as given information. This is exemplified by (60e), where the information in the relative clauses seems to be additional but nonessential—presumably, for a Christian, what makes books holy is that they are composed in some way by God. The fact that many of these instances share a number of features indicates that this position has certain characteristics associated with it, but more data are needed to confirm this observation.

The example from ME1 is given below in (61). This order is unexpected in this period, and investigating it reveals that it is exceptional in a number of ways.

- (61) *Makeð twa þinges þt þu al þt þu dest do hit oðer for luue*
Make two things that you all that you do may-do it or for love
ane of god. Oðer for oðres god
one of god or for other's good
'Make two things that you may do all that you do either for a love of
God or for the good of others.' (ME1, *ancriv2*)

One, the object is *al* 'all', a quantifier. Quantifiers and negative elements are known to keep an OV order longer than any other type of object in English (Moerenhout & Van der Wurff 2005). Two, the relative clause itself is quite short (in other words, it is phonologically light), comprised only of a relative pronoun (*þt* 'that'), a subject pronoun (*þu* 'you'), and a filler verb (*dest* 'do'). Finally, this relative object, short though it is and occurring right in front of the main verb *do* 'do', is resumed directly after the main verb by the pronoun *hit* 'it', thereby retaining a VO order. These observations show that the nature of this order in ME1 is different from that found in OE2 and OE3.

3.5.4. Discussion

I will now address the research questions posed in section 3.2 above with respect to the English data. The first set of questions are about the word order patterns over time. In subsection 3.5.1, we saw that the main break seems to occur between OE4 and ME1. OE2 is the only period where OV forms a sizable percentage; all other periods have either majority or exclusive VO order. With statistics, we were able to establish three periods: OE2&OE3&OE4, ME1,

and ME3&ME4. The logistic function of the data reveals that the shift was relatively slow with a slope of 0.68 and that it took 9 centuries to complete with its midpoint around 900, in the middle of OE2. There were three centuries in which the order ORV occurred: OE2, OE3, and ME1. This order combined with the word order distribution is being used as a diagnostic for underlying OV order. The combination of these two factors indicate that OE2 and OE3 have underlying OV grammar, but the word order distribution in ME1 brings into question the validity of this conclusion.

The distribution of the four possible word order patterns was used to evaluate Ogura's (2001) theory on the cause of the word order shift in English. Considering the fact that Ogura's theory is based on data from English, it is not surprising that these data corroborate with her analysis. It is still not clear, however, how a fairly rare subtype of object can influence the underlying syntax of the language.

The second set of questions addresses heaviness, defined both lexically and structurally, as a factor in the position of relative objects. Lexical heaviness was shown not to have a significant influence on the word order patterns of relative objects: the average length of preverbal relative objects is not significantly different from the average length of split, postverbal, or postverbal split relative objects. Nor is the average length of the heads of relative objects or their relative clauses significantly different in either position.

When the effects of structural heaviness was examined, there were mixed results. Both OE3 and ME1 (as well as OE2&OE3&OE4) showed statistically significant heaviness effects on the position of relative objects: in both periods, relative objects occurred significantly more often postverbally than general objects. The distribution of relative objects in OE2 and OE4, however, did not show a statistically significant difference from general objects despite the fact that the raw data indicate tendencies to the contrary. The tendency in OE2, though, is different from the others. While relative objects show a stronger preference for *postverbal* positions than general objects in the other periods (roughly 70% for relative objects versus 50% for general objects in OE3 and OE4 and 96% versus 88% in ME1), this is not the case in OE2; rather, it is the general objects that show a stronger preference for *preverbal* positions than relative objects (50% for relative objects versus 76% for general objects). Despite the differences between OE2 on the one hand and OE3, OE4, and ME1 on the other just discussed, these situations can be related to heaviness.

Newness was the topic of the third set of questions. As was mentioned above, this was a little more difficult to investigate qualitatively because of the lack of repetition of the same relative object within the same text. However, the quantitative study was complemented with a qualitative investigation of the few instances of ORV order. First, when looking at the raw data for OE2&OE3&OE4 and ME1, both definite and indefinite relative objects seem to prefer a postverbal position with neither type seeming to occur more frequently postverbally. This

3. Relative Objects

would indicate that newness does not play a role in determining word order, and this is statistically confirmed by the Fisher-Yates test.

The detailed examination of the twelve instances of ORV order in OE2 and OE3 revealed two characteristics shared by the majority of the preverbal relative objects: most of the heads (10 out of the 12) are definite, and the most common relativizer (9 out of the 12) is *þe*. The fact that the majority of the heads are definite is not surprising if newness is indeed a factor: definiteness indicates that an entity is known by the participants, thus given information. The example from ME1, in contrast, is exceptional on a number of accounts.

Table 3.14 summarizes the characteristics of relative objects in English per century. The results of the combined period are not reflected in this table; rather, the characteristics are based on the data of just that century. In the case of <VO and RV, ‘+’ means the presence and ‘-’ the absence of that feature. For the other characteristics, ‘+’ means that statistics confirm that the given

	OE2	OE3	OE4	ME1	ME3	ME4
<VO	-	+	+	+	+	+
RV	+	+	-	+	-	-
Lexical	-	-	(+)	(+)	n/a	n/a
Structural	(+)	+	(+)	+	n/a	n/a
Newness	-	-	(+)	-	n/a	n/a

Table 3.14.: Summary of Relative Objects in English

feature is significant, ‘(+)’ means that the given feature is not statistically significant but that the data suggest that there is a strong tendency that would probably be confirmed with more data, and ‘-’ means that the feature is neither statistically significant nor is there any indication in the data that it might be. Remember that the (+) role that newness plays in OE4 is the opposite of what we initially expected. The periods that seem to have clusters of features in common are OE2 and OE3, OE4 and ME1, and ME3 and ME4; this grouping is different from the original grouping established on the basis of only the word order distributions of relative object heads in subsection 3.4.1. As we will see, comparing the results from English to the results in Dutch will help resolve some of the grouping issues. Moreover, we will be able to get a clearer picture in Chapter 5 when we compare these results with that of directional phrases and naming objects.

3.6. Comparison

Now that we have a clear understanding of the evolution of relative objects in Dutch and English, we can more accurately compare the two languages and see

what this reveals about them as well as about language change in general. I will treat the subsections in the same order as they appear in the previous two sections.

3.6.1. Word Order

The evolution of the word order patterns of relative objects in Dutch and English have clear and opposite developments. In the early period of Dutch, namely 13C and 14C, both OV and VO orders are allowed with a high frequency of VO patterns, 64% and 95%, respectively. Both orders are still found in 15C, 16C, and 17C, but there is a shift wherein OV orders are more frequent. By 18C, OV orders become the only available order. Statistical comparison of these centuries shows that four separate periods can be distinguished in Dutch: 13C, 14C, 15C&16C&17C, and 18C. The English OE2 period has the lowest frequency of VO patterns of any of the English periods at 50%; there is a noticeable increase in VO orders in OE3 to 71%, which seems comparable to the frequencies found in 13C of Dutch. This high frequency of VO orders eventually gives way to a rigid VO order in English. Through statistical comparison, three separate periods could be established: OE2&OE3&OE4, ME1, and ME3&ME4.

If Dutch has no period of competing grammars, then it would seem that even an underlyingly OV language can allow a very high percentage of VO orders. How, then, do the frequencies of the different periods in Dutch compare to those of the different stages of English? When the distribution of OV and VO orders in the two languages are statistically compared with one another using the Fischer-Yates test, we see that for the most part, the patterns in each of the periods are for the most part significantly different from one another, with a few not too unexpected similarities. Dutch 13C is not significantly different from OE2&OE3&OE4 nor from any of the individual periods. Considering that these periods in English are significantly different from the following periods, it is not surprising that they would be so similar to the early period of Dutch. An interesting contrast in this English period, however, is OE2. Unlike OE3 and OE4, which are significantly different from all the other centuries in Dutch, OE2 is not significantly different from 15C, 16C, or 17C. This may indicate that OE2 is more OV than OE3 or OE4 and perhaps that it should actually be grouped by itself. Interestingly, Dutch 14C is not significantly different from ME1, ME3, or ME4. This is surprising because one would normally expect that the word order patterns in any period of Dutch, a language that stays OV throughout its history, would significantly differ from the periods of English with the highest percentage of VO, especially those which only have VO as an option. Though the high frequency of VO in Dutch 14C can be in part attributed to heaviness as we saw in subsection 3.4.2 above, it is not clear why this is the only period in Dutch where heaviness seems to play such a prominent role in the position of relative objects.

3. *Relative Objects*

What these data taken together indicate is that the system underlying the early periods of Dutch and the early periods of English are not significantly different from one another though the chronology differs between the two languages. The comparison indicates that the system in OE2 is similar to that of 15C, 16C, and 17C, centuries in Dutch where there is a clear transition from the majority VO stages of 13C and 14C and the rigid OV stage of 18C. In English, this progresses to OE3 and OE4, which are both similar to Dutch 13C, a period where argument extraposition still forms a major part of the system. ME1, then, seems to be the stage in English that is likely to have had competing OV and VO grammars. The one striking exception is 14C in Dutch; this century seems very exceptional because of its very high frequency of VO orders. These data and comparisons suggest that the system in 14C Dutch is quite different from the other centuries though it is not clear what happened or why. Overall, these data support the divisions previously established for Dutch while it shows that the English divisions require some modification, namely by separating OE2 from OE3&OE4, because of differences in the interaction of factors influencing word order.

When we consider Ogura's (2001) analysis, we see that whereas the development in the history of English seems to support the analysis, the Dutch data pose a number of problems. In Dutch, the development moves away from a period where the relative object is combined and appears to the right of the verb to a period where, despite the relative clause's clear subordination to its head, relative objects occur more often split with the head to the left of the verb and the relative clause to the right. Moreover, the occurrence of the orders ORV and VOXR also seem problematic for her analysis, the former a violation of center-embedding and the latter a lack of adjacency between the relative clause and its head despite seeming subordination of the relative clause to the head as evidenced by the object appearing to the right of the verb. There are also a few examples of multiple center-embedding, which would also show that center-embedding is not as difficult to process as Ogura makes such instances seem.

3.6.2. Heaviness

Heaviness was investigated according to two definitions: lexical and structural. Because relative objects are heavy by all definitions of heaviness, modified methods were used to calculate and compare these, as will be discussed below.

A look at the raw data seemed to indicate that lexical heaviness does not in general play a role in determining the position of entire relative objects in either Dutch or English in any period. The few exceptions were 17C in Dutch and OE4 and ME1 in English; in these periods, the average length of relative objects in the ORV and/or OVR positions seemed to be much shorter than the average length in other positions. By statistically comparing the average lengths,

however, it was found that preverbal relative objects are not significantly shorter than relative objects in any other position in either Dutch or English.

This same comparison was made for the heads of these relative objects and for the relative clauses. Again, the raw data did not seem to indicate that lexical heaviness generally played an important role in any period of either language with a few exceptions. The average length of OV heads in 13C and 15C of Dutch seemed to be much shorter than VO heads, and the average length of OV relative clauses in OE3 and ME1 of English seemed to be much shorter than VO relative clauses. As with the whole relative objects, the statistical comparison showed that the average lengths in the two positions were not significantly different from one another.

These comparisons confirm that lexical heaviness does not have an influence on the position of relative objects in any stage of Dutch or English. There were, however, a few instances where the raw data seemed to indicate otherwise, and the amount of data probably also had an influence on the results. I will return to these issues in Chapter 5 when all three constructions are compared with one another.

Because relative objects are always structurally heavy by definition, I could not compare the distribution of “complex” relative objects with “simplex” ones, which do not exist. Therefore, a modified version of my method of comparison was used to be able to investigate the influence of structural heaviness; in this case, the distribution of relative object heads was compared to that of all nonpronominal objects in general. This was done in Dutch by comparing my data on relative objects with Burridge’s (1993) data on *all* objects and in English by extracting *all* nonpronominal objects. What we see is that Dutch and English differ with respect to the influence of structural heaviness. In Dutch, structural heaviness does not consistently play a role throughout the early period; it is only significant in 14C and 17C but not in 15C or 16C. In English, in contrast, structural heaviness plays a consistent role throughout the early periods, from OE2 to ME1, though it is not statistically significant in some of these periods. In both languages, however, the results of these comparisons bring into question the initial period divisions established in subsections 3.4.1 and 3.5.1; it seems that 17C should be separated from 15C&16C&17C and OE2 from OE2&OE3&OE4, both due to significant difference in the distributions of relative objects versus general objects. I will return to these issues in Chapter 5 when the data from relative objects will be compared to that of directional phrases and naming objects. The tendencies in this section, however, indicate considerable differences between Dutch and English relative objects with respect to the influence of structural heaviness on their position, which will be discussed in section 3.7 below.

3.6.3. Newness

In this study, newness is defined by indefiniteness according to Van Kemenade & Los (2006a). If newness plays an important role in word order, then we expect indefinite relative object heads to occur after the verb significantly more often than before the verb. The data seemed to suggest that newness would play an important role in word order in some periods of Dutch and English: in Dutch 13C, 15C, 17C, and 15C&16C&17C and in English OE4. The statistical comparison, however, did not show any significant difference in any of the distributions. Again, we have a situation where the tendencies found in the data do not seem to be confirmed by statistics, perhaps due to the lack of data, a situation to be resolved when relative objects are compared to directional phrases and naming objects in Chapter 5. Based on the tendencies, however, it seems that newness plays a fairly continuous role throughout the early period of Dutch but not in English.

The qualitative analysis of the instances of ORV, especially in Dutch, seemed to point toward newness indeed being a relevant factor. All of the instances of ORV shared a number of characteristics in each language. One of the characteristics was shared between the two languages, namely the fact that most of the heads were definite. The other characteristics, however, differed: first, the relativizer in Dutch was determiner + *welk* whereas in English, it was just *be* without a preceding determiner, and second, the relative clauses in Dutch all seemed to be instances of nonrestrictive relative clauses with an emphasizing function whereas the English relative clauses were not consistently nonrestrictive or restrictive nor did they seem to have a special emphasizing function.

The data in this section seem to indicate underlying differences between Dutch and English relative objects with respect to the influence of newness, or rather focus, on their position.

3.7. Concluding Remarks

I have discussed my data on various aspects of the position of relative objects in Dutch and English. I compared the results of each language and found that there are a few similarities between the two but also a number of apparent differences. In Dutch, there seem to be four distinguishable periods, though this is more the result of the exceptionality of 14C, a century with an overwhelming majority of VO orders, than perhaps actual differences among the various centuries. 15C and 16C definitely form one group because they share a number of features. Not only are the distributions of relative object heads in the two centuries not significantly different from one another, but neither century is significantly different from 13C or 18C, suggesting that they are a sort of transition period

between the two, nor does either century show any tendency toward lexical or structural heaviness as an important factor in determining the position of relative objects. 14C, as we saw above, is very exceptional on a number of accounts: it has a very high percentage of VO orders; its distribution of relative object heads is significantly different from all other centuries in Dutch but not significantly different from ME1, ME3, or ME4; it is only one of two centuries, the other being 17C, where structural heaviness plays an important role in determining the position of the relative object heads; and again it is only one of two centuries, the other being 16C, where there is no indication that newness plays a role. These suggest that the system of 14C is quite different from the other centuries and that it should be in a group by itself. While 13C is not significantly different from 15C or 16C, comparisons with English indicate that it forms a period on its own—unlike either 15C or 16C, the distribution of relative object heads in 13C is not significantly different from OE3 or OE4. This seems to indicate that argument extraposition is fully functional in 13C but that it is in the process of being lost in 15C and 16C. 18C forms its own group; it is the only century where relative object heads are limited to one position, namely OV, and though it is not significantly different from 15C or 16C, it is significantly different from all the periods in English. 17C poses some problems for this method of grouping. While the distribution of its relative object heads is not significantly different from 15C or 16C, it is significantly different from both 13C and 18C, two centuries which are not significantly different from 15C and 16C. Moreover, the position of relative clauses in 17C are clearly influenced by structural heaviness while this is not the case in 15C or 16C. For the moment, I will save grouping 17C until Chapter 5 where relative objects will be compared to directional phrases and naming objects.

On the basis of both internal and external comparison, there seem to be three identifiable periods in English. ME3 and ME4 form one group: neither period allows OV orders, and they are both significantly different from all other English periods except ME1 as well as from all Dutch centuries except 14C. Because relative objects were limited to VO positions, there is no influence of heaviness or newness on their position with respect to the verb. OE3 and OE4 also seem to form a cohesive group: they are not significantly different from one another or from Dutch 13C, but they are significantly different from the other periods and centuries of English and Dutch. The only exception is that OE4 is not significantly different from OE2. There is, however, evidence from the comparisons with Dutch that strongly suggests that OE2 should be treated separately from OE4: while neither OE2 nor OE4 is significantly different from Dutch 13C, OE2 differs from OE4 in that it is not significantly different from Dutch 15C, 16C, or 17C. This indicates that OE2 has a stronger tendency toward surface OV than OE4, which may suggest differences between the two periods. ME1 also should be treated separately. It is not significantly different from ME3, ME4, or, similarly to them, Dutch 14C, but it is significantly different

3. *Relative Objects*

from the other periods in English as well as all the other periods in Dutch, again like ME3 and ME4. The major point of departure, however, is the fact that there is one instance of ORV order in ME1, which is being used as a diagnostic for underlying OV grammar. This would seem to indicate that ME1 may have both underlying OV, as evidenced by the admittedly exceptional instance of ORV order, as well as underlying VO orders, as evidenced by its statistical similarity to ME3 and ME4.

From this discussion, we have been able to establish different periods in the history of Dutch and English with respect to relative objects. The periods in both languages follow the patterns that one would expect: similar developments but chronologically different. Despite the similarities, however, there are a few points where the languages seem to differ: newness seems to have a tendency to influence word order in Dutch throughout its history, though not continuously, while it only seems to be a potential factor in only one period in English. Moreover, structural heaviness plays a consistent role in the history of English but not in Dutch. These points show that, at least with relative objects, there were already differences between the two languages from the beginning; these initial differences between the two languages may indicate that the Celtic languages of Britain had an earlier and more significant impact on Old English than normally acknowledged, though recent work in this area would further support this hypothesis (see, for instance, Filppula *et al.* (2002) and Filppula *et al.* (2008)). In Chapter 5, the data from relative objects will be compared to those of directional phrases and naming objects; this will help to strengthen any generalizations and conclusions we can make about the two languages.