VERB ORDER IN SUBORDINATE CLAUSES

FROM EARLY NEW HIGH GERMAN TO MODERN GERMAN

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This dissertation investigates the change from the nearly free relative order of verbs in subordinate clauses in Early New High German (1350-1650) to the more fixed order of Modern Standard German. Chapter 2 presents a corpus study of nearly 3,000 subordinate clauses from 30 texts from a broad range of dialects from the 14th to the 16th century, the most comprehensive overview of ENHG verb clusters to date. Several factors that influence verb order are identified: syntagm type, prefix type, extraposition, focus, and sociolinguistic factors. Chapter 3 breaks this data down by dialect and individual text, showing that most of these factors have similar effects across the dialects and tracing the decline of particular orders and favoring factors over time. Chapter 4 examines these orders in contemporary German, concentrating on the effect of focus on verb order. A survey with speakers of Austrian dialects and Swabian shows that although the Standard German orders are preferred, the non-standard orders may occur under the appropriate focus conditions. A Magnitude Estimation experiment demonstrates that variation in the Standard German *werden*-modal-infinitive construction is also sensitive to focus. In Chapter 5, the data from the previous chapters are used to demonstrate that the more traditional SOV approach to the structure of German is slightly preferable to the SVO hypothesis and that non-SOV surface orders are derived by rightward movement. Additionally, a principle is proposed to account for the relationship between focus and word order: a non-normal word order indicates a marked focus interpretation. Chapter 6 discusses the implications of this research for the history of the German language and for language change in general.

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Chapter 1: Introduction

1 Subordinate clause word order in modern and older German

A well-known characteristic of Modern Standard German is the position of the verbs in subordinate clauses. Unlike in main clauses, where the finite verb occupies the second position of the clause, all verbs are clustered at the end of subordinate clauses. Moreover, the order within the verbal complex is fixed. Let us illustrate this using two verbs. (More details on word order in Standard German, including the facts concerning more than two verbs, will be provided in Chapter 4.) We will call the finite verb '1' and the non-finite verb (in this case, the lexical verb) '2'. In Standard German, the only possible order is 2-1, i.e. the non-finite V followed by the finite V (1).[1]

(1) … dass Klaus heute das Buch *lesen will.* 2-1
that K. today the book read$_2$ wants$_1$
'… that Klaus wants to read the book today.'

However, earlier stages of German, as well as many contemporary continental West Germanic dialects, show considerable variation in word order within the verbal complex. This can be illustrated with clusters of two verbs in Early New High German (ENHG), the language of the central and southern German-speaking areas from 1350 to 1650. (Details on ENHG word order will be provided in Chapter 2 and contemporary German dialects will be discussed in Chapter 4.) In addition to the 2-1 order (2a), we find the opposite order 1-2 (2b). Furthermore, some material may occur between the verbs, resulting in an order that we will label '1-X-2' (2c). Finally, independently of verb order, a constituent may be 'extraposed', i.e. placed to the right of the verbs (2d).

(2) a. das er in kainer sund *verczweiffeln sol* 2-1
that he in no sin despair$_2$ shall$_1$
'that he shall not despair in any sin' (*Pillenreuth* 161)

b. das der mensch alle sein lebttag nicht anders *scholt thun* 1-2
that the person all his life.days nothing else should$_1$ do$_2$
'that man should do nothing else all the days of his life' (*Pillenreuth* 206)

c. das der mensche nicht *scholt* **sein rew** *sparen* ... 1-X-2
that the person not should$_1$ his regret save$_2$
'that one should not hold back his repentance …' (*Pillenreuth* 212)

d. Wye man *fragen sol* **dy krancken** 2-1 with extraposition
how one ask$_2$ shall$_1$ the sick
'how one should ask the sick' (*Pillenreuth* 166)

This dissertation investigates these word orders in the recent history of German, beginning with ENHG and continuing to some modern varieties of German. For ENHG, we will attempt to make as accurate a description as possible regarding the frequencies of particular word orders, the linguistic factors that favor some orders over others, and the diachronic and dialectal spread of these phenomena. For Modern German, we investigate similar phenomena, resulting in a more complete understanding of synchronic grammar

[1] Throughout this dissertation, parts of the verb cluster will be italicized. In addition, extraposed or intervening constituents will be indicated by bold face.

and diachronic developments. Overall, this study attempts to do for one aspect of diachronic German syntax what Anthony Kroch and his associates have done for the history of English: for a given syntactic change provide an accurate description that contributes both to traditional scholarship on historical linguistics and to work on syntactic theory.

The rest of this chapter is organized as follows. Section 2 will provide a brief rationale of why this dissertation is necessary despite the large body of research on German word order. Section 3 will then introduce the concept of focus, which plays an important role throughout the dissertation. Section 4 outlines the organization of the rest of the dissertation.

2 The scope of this study

2.1 The verbal complex

Most scholarship on syntactic change in German has concentrated on two aspects of German word order. First, the verb-second (V2) phenomenon of main clause word order has received substantial diachronic treatment (most recently by Axel 2005). Secondly, extraposition (both in main and subordinate clauses) has been a major topic in German grammar, being an object of research in virtually every historical study of word order in German. The position of the verbs within the verbal complex has received considerably less-thorough treatment.

This state of affairs is, I believe, largely a result of the traditional sentence frame analysis of German word order (e.g. Wöllstein-Leisten et al. 1997:53-54). Under this model, the verbs in main clauses 'frame' the rest of the sentence, so that the finite verb forms the so-called 'left bracket' and the non-finite verb the 'right bracket'. In subordinate clauses, the complementizer forms the 'left bracket' and the verb cluster the 'right bracket'.

(3)

Vorfeld	*left bracket*	*Mittelfeld*	*right bracket*	*Nachfeld*
Klaus	will	heute das Buch	lesen.	
	dass	Klaus heute das Buch	lesen will.	

NHG strictly limits what kinds of constituents can be found in the *Nachfeld*, i.e. extraposed, but as we have seen, earlier stages of German are much freer in this respect, as in (2d). Thus scholarship on the history of German word order has focused almost exclusively on the development of the sentence frame, i.e. the decreasing frequency of extraposition. The relative order of the verbs is often either ignored or, as in Admoni (1990:156), the 1-2 order is lumped together with extraposition.

However, there are at least two reasons why the changes in the relative order of verbs that occur in the history of German are interesting, not only for philologists of German but also for those interested in language change and syntactic theory. First of all, many changes in word order have been argued to be related to other changes in the language, such as the loss of inflectional morphology. However, the inflectional system of German has remained remarkably stable throughout its attested history. Therefore, the diachronic developments within the German verb cluster present an interesting case, because the change in word order appears to be motivated by something other than morphology.

The second reason that this phenomenon is worthy of diachronic treatment is because it has increasingly received synchronic attention. There has been a flurry of research in the last twenty years seeking the best analysis for the 1-2 and 2-1 orders in Dutch and varieties of German (see Chapter 5). ENHG appears to allow even more variation than most of the modern dialects, thus it provides additional data that these analyses should take into account. Moreover, investigating earlier stages of contemporary varieties may help explain some aspects of these orders that have not been understood.

The subject of this study is the verbal complex, and it will be limited to verbal complexes in subordinate clauses. This is because in main clauses, verb clusters occur only when there are three or more verbs in the clause, since the finite verb is located in the second position:

(4) Klaus *will* heute das Buch *lesen können*.
K. wants_1 today the book read_3 can_2
'Klaus wants to be able to read the book today.'

Comparing verb clusters in main and subordinate clauses may be comparing unlike types, since main clauses have clusters of only non-finite verbs, while subordinate clauses always have a finite verb in the cluster.

2.2 Early New High German

This dissertation begins with the ENHG period. Unlike Old High German and Middle High German, ENHG has a sufficient number of prose texts to enable a thorough syntactic study. Moreover, these texts range across many dialects and genres, and thanks to an increasingly literate population, there are many texts such as personal letters that may more accurately reflect the speech of the time.

Although there is a large body of scholarship on ENHG syntax, many studies neglect the word order within the verbal complex altogether, concentrating instead on extraposition, as discussed above. The studies that do treat the relative order of verbs are all incomplete in some sense. Hammarström (1923) investigates a variety of texts over the whole ENHG period, but does not take dialect differences into account. Maurer (1926) covers a wide range of dialects but has few tokens from each text. Moreover, these early studies do not use any kind of test for statistical significance. Härd (1981) uses a very large corpus of three-verb clusters but ignores two-verb clusters altogether. Ebert (1981, 1998) treats only two-verb clusters and only in writings from Nuremberg, and Reifsnyder (2003) does the same for Augsburg. Bies (1996) looks at two-verb clusters from a broader geographic distribution but does not give detailed information on dialect differences. Finally, only Ebert (1981, 1998) pays serious attention to the factors that favor particular orders.

The ENHG study presented in Chapters 2 and 3 attempts to fill in the gaps of previous scholarship by including a wide variety of texts from many dialects, addressing clusters of two and three verbs, and investigating the factors that affect verb order with statistical tests.

2.3 Contemporary German

Like the previous scholarship on word order in ENHG, studies of contemporary German verb order have focused almost exclusively on extraposition. It is relatively rare

to find a description of a German dialect that gives details on the relative order of the verbs. Even rarer is a discussion of the linguistic factors that influence verb order. Thus the section on Modern German seeks to broaden the description of these orders in the synchronic grammars of standard and dialectal German. Moreover, since the phenomena investigated are the same as for ENHG, the study of the contemporary language allows for a better understanding of the diachronic developments involved.

3 Focus

In Section 1 above, a number of terms are introduced that will be used throughout this work. These terms (such as '2-1') refer to surface word-order patterns and are thus easy to illustrate with a few examples. However, there is one important concept in this study that is not a purely word-order phenomenon: focus. Since the terminology surrounding focus can be somewhat confusing, an introduction here may be useful.

Focus is a linguistic concept that has effects on both phonology and syntax but is itself neither a phonological nor syntactic phenomenon. Rather, focus is a part of pragmatics: the focus of the sentence is the part of the sentence that is most important within a given discourse context. In this study, we will distinguish between two types of focus: new information focus and contrastive focus.

Within a given context, a sentence may be divided up into old information and new information.[2] Let us take Cinque's (1993:257) example sentence *John left*. In the case where *John* has already been mentioned in the discourse and is thus old information (5a), the focus of the sentence, i.e. the new information, is *left*. On the other hand, if it is understood from the discourse that someone left, the focus of the sentence may be *John* (5b). The focus structure of a sentence is easiest to illustrate using questions to represent the discourse background:[3]

(5) a. What did John do?
John [$_{Foc}$ LEFT].
b. Who left?
[$_{Foc}$ JOHN] left.

(Cinque's (1993:257) ex. (44)-(45))

Whereas new information focus indicates information that is new to the discourse, focus may also contrast with something in the discourse. Contrastive focus may be either discourse-new (6a) or discourse-old (6b):

(6) a. Did Mary leave?
No, [$_{Foc}$ JOHN] left.
b. Did John leave or did Mary leave?
[$_{Foc}$ JOHN] left.

In both of these cases, *John* contrasts with *Mary*.

[2] This distinction between old and new information has also been labeled 'theme' vs. 'rheme' (Firbas 1964), 'topic' vs. 'comment' (Chomsky 1965), and 'presupposition' vs. 'focus' (Chomsky 1970).
[3] Throughout this dissertation, the most prominent phonological stress of the sentence will be indicated by capital letters, and the focus will be placed in brackets labeled 'Foc'.

In all of the above examples, the stressed word of the sentence exactly corresponds to the focus; however, this does not always hold. Rather, the stressed word is always part of the focus, but the focus may include more than just the stressed word:

(7) a. What did John read?
John read [$_{Foc}$ the BOOK].
b. What did John do?
John [$_{Foc}$ read the BOOK].
c. What happened?
[$_{Foc}$ John read the BOOK].

In each of these cases, the stress is on *book*, but the focus differs depending on the discourse context.[4]

4 Organization

This dissertation addresses a topic that has received very different treatment depending on whether the researcher's interest is primarily historical, dialectological, or theoretical; therefore, rather than offering a single overview of the *Stand der Forschung*, this dissertation will discuss previous scholarship separately at the beginning of the appropriate chapter.

Chapter 2 treats verb order in subordinate clauses ENHG as a whole. After a survey of the literature on this topic, a corpus study of thirty ENHG texts is presented. This study establishes the frequencies of the various word orders as well as the linguistic factors that favor them. Chapter 3 analyzes each individual text, testing whether the results for the whole corpus hold for smaller samples of the language and tracking the decline of certain patterns over time and across dialects. The distribution of the verb orders and the factors that favor them are then used to arrange the ENHG dialects into larger groups.

Chapter 4 covers Modern Standard German and several contemporary dialects of German. After reviewing existing descriptions of these varieties, the chapter presents two new studies: a questionnaire-based study of word order in Austrian dialects and Swabian, and a Magnitude Estimation study of Standard German word order. This will allow a comparison with the data from ENHG, confirming the continuing effect of focus on verb order.

Chapter 5 builds on the descriptive and emprical word of the previous chapters to addresses the theoretical aspects of this research. The two primary goals of this chapter are to establish the best analysis of German clause structure and to determine the nature of the relationship between focus and word order.

Chapter 6 concludes the dissertation, summarizing the most important findings and discussing their broader implications.

[4] In Selkirk (1995), the stressed word is termed the 'focus exponent' and the semantic focus is the 'focus projection'. For the sake of clarity, throughout this dissertation, 'focus' will refer only to the focus projection.

Chapter 2: Factors influencing verb order in ENHG

1 Introduction

1.1 Basic facts

In Early New High German (ENHG; 1350-1650), there is considerable variation in verb order in subordinate clauses. The Modern Standard German order, where the finite verb follows the non-finite verb (the 2-1 order), is a frequent word order in ENHG:

(1) das er in kainer sund *verczweiffeln sol* 2-1
that he in no sin despair$_2$ shall$_1$
'that he shall not despair in any sin' (*Pillenreuth* 161)

In addition to the modern, 2-1 order, there are also clauses in which the finite verb precedes the non-finite verb, either directly, resulting in the 1-2 order (2), or separated by some constituent, in the 1-X-2 order (3):

(2) das der mensch alle sein lebttag nicht anders *scholt thun* 1-2
that the person all his life.days nothing else should$_1$ do$_2$
'that man should do nothing else all the days of his life' (*Pillenreuth* 206)

(3) das der mensche nicht *scholt* **sein rew** *sparen* an das todpett 1-X-2
that the person not should$_1$ his regret save$_2$ on the deathbed
'that one should not hold back his repentance on his deathbed' (*Pillenreuth* 212)

A fourth logically possible order would be for the verbs to be in the order 2-1 but with an intervening constituent. This order is virtually unattested in my ENHG corpus.[1] Thus ENHG follows the generalization for the West Germanic verb-raising languages discussed in Chapter 4, section 2.5, that no constituents can intervene between the verbs when in the left-governing (2-1) order.

In addition to variation in the position of the verbs relative to each other, the verbs need not be in the clause-final position. Some constituents may follow the verbs, i.e., they may be extraposed, like the PP *an das todpett* in (3) and the NPs in (4). Extraposition can occur regardless of the relative order of the verbs (4a-b), even with the 1-X-2 construction (3).

(4) a. Wye man *fragen sol* **dy krancken** 2-1 with extraposition
how one ask$_2$ shall$_1$ the sick
'how one should ask the sick' (*Pillenreuth* 166)

[1] There are only three examples in which this order does occur, all of which are from a single text, the *Oxforder Benediktinerregel* from the 14th century. Perhaps crucially, in all three examples, the intervening constituent is the negator, with a negative prefix on the finite verb:
(i) daz sie mit missetroste *virloren* **nit** *inwerde* 2-X-1
that she with false.comfort lost$_2$ not NEG-be$_1$
'that she not be lost because of false comfort' (*Benediktinerregel* 16)
This does not necessarily pose a challenge to the observation that no constituents can intervene between the verbs in their base order (Bobalijk 2003:18), if one assumes that in these cases *nit* is part of the verbal inflection.

b. daz ich damit *sol pussen* **mein sund** 1-2 with extraposition
that I therewith shall$_1$ atone$_2$ my sin
'that I should atone for my sin with that' (*Pillenreuth* 163)

In clusters of three verbs, there is even more word-order variation. Four of the six logically possible orders are attested in my ENHG corpus: the 3-2-1 order (5) with each verb selecting its complement verb to the left, the 1-2-3 order (7) with each verb selecting its complement verb to the right, and two mixed orders, 1-3-2 (6) and 3-1-2 (8):

(5) das so darvorgesetzt ist in fragweis *verstanden werden soll* 3-2-1
that RP before.set is in question understood$_3$ be$_2$ should$_1$
'that what is set before should be understood as a question' (*Eunuchus* 14)

(6) als er des tages *scholt begraben werden* 1-3-2
as he the day should$_1$ buried$_3$ be$_2$
'when he should be buried on that day' (*Pillenreuth* 212)

(7) so er dan den menschen nicht *hat mugen vberwinden* 1-2-3
when he then the person not has$_1$ can$_2$ overcome$_3$
'when he has not been able to overcome the person' (*Pillenreuth* 158)

(8) dy er ... *getan solt haben* 3-1-2
RP he done$_3$ should$_1$ have$_2$
'that he should have done' (*Pillenreuth* 159)

The other two logically possible orders, 2-1-3 and 2-3-1, are unattested in my ENHG corpus:[2]

(9) *dy er ... *haben solt getan* *2-1-3

(10) *dy er ... *haben getan solt* *2-3-1

In addition, with two of these orders, 1-3-2 and 1-2-3, some constituent may break up the verb cluster. In all eleven instances involving 1-3-2 order (some of which are V2 and thus ambiguous with main clauses), the intervening constituent appears just before the non-finite verb of which it is the complement, i.e. V_3 (11). The fact that no constituent may break up the 3-2-1 order, or appear between V_3 and V_2 in the 1-3-2 order, follows the generalization discussed above, that no constituent can intervene between verbs in the left-governing order. On the other hand, in the three instances involving the 1-2-3 order, the intervening constituent appears twice between verbs 1 and 2 (12), and once between verbs 2 and 3 (13):[3]

(11) die sich niemals *haben* **Schand**e *vbergehen lassen* 1-X-3-2
RP REFL never have$_1$ disgrace come.upon$_3$ let$_2$
'who have never let disgrace come upon themselves' (*Bange Chronik* 7r)

[2] It may be safe to claim that these word orders were ungrammatical in ENHG, first because they are unattested in my corpus, and secondly because they are ungrammatical or extremely rare in modern German dialects (Chapter 4, section 2.3).

[3] In addition, there is one instance of 1-X-2-X-3, if we take the first conjunct from (17):

(17') das jhr euch dis Capitel *wollet* **ja** *lassen* **lieb** … *sein* 1-X-2-X-3
that you REFL this chapter will yes let dear be
'that you will indeed let this chapter be dear … to you'

(12) wie si ain wuenderlich ding *hiet* **vor dem ofen** *gesehen ligen* 1-X-2-3[4]
how she a miraculous thing has$_1$ before the oven seen$_2$ lie$_3$
'how she saw a miraculous thing lying in front of the oven' (*Denkwürdigk.* 17)

(13) das er seinen Sohn fu^{e}r vns *hat lassen* **ein Schlachtopffer** *werden* 1-2-X-3
that he his son for us has$_1$ let$_2$ a sacrifice.victim become$_3$
'that he has let his son become a sacrificial victim for us' (*Passionale* 46v)

There is only one attested order for clusters of four verbs: 1-2-4-3, which occurs four times, three times with no intervening constituent (14)-(16) and once with an intervening constituent (17). Two of these clauses exhibit the *infinitivus pro participio* (IPP) construction plus either an ACI (14) or passive (15) and two involve a modal plus causative plus passive (16)-(17).

(14) das Gott wunderbarlicher wyß *hat lassen herfürwalle[n] geschine[n]* 1-2-4-3
RP God miraculously has$_1$ let$_2$ forth.flow$_4$ appear$_3$
'which God miraculously caused to appear to flow forth' (*Gespenster* 19v)

(15) das sie mehr für ein Rüst- dann Schlaffkammer … *hette moegen gehalten werden* 1-2-4-3
that it more for an armor than sleep.chamber had$_1$ can$_2$ held$_4$ be$_3$
'that it could have been considered more an armory than a bedroom'
(*Beschreibung* 13)

(16) das die selben jre Prediger jnen *sollen lassen befolhen sein* 1-2-4-3
that the same their pastors them shall$_1$ let$_2$ commanded$_4$ be$_3$
'that they should let their pastors be commanded to them' (*Summaria* 19v)

(17) das jhr euch dis Capitel *wollet* **ja** *lassen* lieb/ *angelegen vnd befohlen sein* 1-X-2-4-3
that you REFL this chapter will$_1$ yes let$_2$ dear fitting and commanded$_3$ be$_4$
'that you will indeed let this chapter be dear, fitting, and commanded to you'
(*Passionale* 35r)

Ignoring the first conjunct *wollet lassen lieb sein*, the verb clusters in (17) are *wollet lassen angelegen sein* (the second conjunct) and *wollet lassen befohlen sein* (the third conjunct) with the particle *ja* intervening.

Finally, as discussed in section 5.2.4 below, extraposition may occur with three-verb clusters, regardless of the order of the verbs.

1.2 The corpus

My ENHG corpus consists of 2,921 subordinate clauses from thirty texts available on the on-line *Bonner Frühneuhochdeutsch-Korpus*. These thirty texts represent three texts each from ten dialect areas: Cologne, Hesse, Alsace, Zurich, Nuremberg, Swabia, Thuringia, Saxony, Augsburg, and Vienna. Within each dialect, there is one text each

[4] The other example of 1-X-2-3 is a second conjunct and thus ambiguously V2:
(i) vnd *sal* **sich nit balde** *laissen brechen* 1-X-2-3
and shall$_1$ REFL not soon let$_2$ break$_3$
'and will not let itself be broken quickly' (*Hortus Sanitatis* 121)

from the 14th, 15th, and 16th centuries.[5] There are 2,752 clauses with clusters of two verbs, 165 clauses with clusters of three verbs, and four clauses with four verbs.

Approximately 100 clauses from each text were selected according to the following criteria. First of all, the corpus contains only finite subordinate clauses with clusters of at least two verbs, not counting the infinitive of any embedded infinitival clause. Not included in this study are PPPs (past/passive participles) with no auxiliary, which are fairly common in ENHG (for a discussion, see Reifsnyder 2003:231-4). Also excluded are two tokens with a repeated finite verb as in (18), a construction discussed in Reifsnyder (2003:237-41).

(18) der da rache *ist gehaissen ist* — repeated auxiliary
RP PART revenge is_1 $called_2$ is_1
'which is called revenge' (*Altdeutsche Pred.* 7)

Secondly, only unambiguous subordinate clauses were selected. Frequently, clauses with 1-2 or 1-X-2 order had to be rejected because they were ambiguous with verb-second (V2) main clauses. Many potential relative clauses were rejected, since the relative pronoun is usually homophonous with the demonstrative pronoun (19a). Thus relative clauses were included in the corpus only if at least one constituent intervened between the pronoun and the verb, indicating an unambiguous subordinate clause (19b).

(19)a. dem *werden vergeben* sein sund — ambiguous MC/RC
DEM/RP be forgiven his sin
'that one / whom will be forgiven his sin' (*Pillenreuth* 176)

b. der in dem himel nicht *mocht sein* vnter got — unambiguous RC
RP in the heaven not could be among God
'who could not be in heaven with God' (*Pillenreuth* 162)

Also frequently ambiguous were clauses with *wan*. According to Ebert & Reichmann (1993:473) *wan* is subordinating in the meaning 'when' (20), but in the meaning 'because', *wan* but may be coordinating (21a) or subordinating (21b).

(20) wan sich dy sel *sol abschaiden* von dem leib — unambiguous SC
when REFL the soul shall part from the body
'when the should shall leave the body' (*Pillenreuth* 161)

(21)a. wan er *mag* nymer mer *sunden* — ambiguous MC/SC
for he can never more sin
'for he can never sin again' (*Pillenreuth* 158)

b. wan er kain menschen *lest* mer *angefochten werden* — unambiguous SC
for he no person lets more tempted be
'for he does not let anyone be more tempted' (*Pillenreuth* 166)

With *wan* 'because', clauses are only included when at least two constituents intervene between the complementizer and the finite verb, as in (21b).

Finally, if the complementizer is unambiguously subordinating but the clause is V2, as in (22), the clause is kept in the corpus but coded as 'V2'. This allowed me to

[5] The *Bonner* corpus has texts from 4 time periods: 1350-1400, 1450-1500, 1550-1600, and 1650-1700. I have not included any texts from the last period, since I consider that to be the NHG era.

include such clauses in the corpus (under the assumption that they involve extraposition), while maintaining the option of excluding them if more restrictive criteria seemed necessary later on.

(22) ob er *wolt leben* … in aynem rechten cristenlichen glauben V2 SC
if he would live … in a correct Christian faith
'whether he would live … in a true Christian faith' (*Pillenreuth* 167)

The analyses were conducted using the statistics package *GoldVarb 2001*. This program was originally developed for sociolinguistic studies, and allows the researcher to determine the extent of the effect of several independent variables (linguistic and sociolinguist factors) on a dependent variable. *GoldVarb* can be a useful tool in historical linguistics as well, since time can be treated as an independent variable. Sets of independent variables are called factor groups, and each value of the variable is called a factor. For example, 'syntagm' is a factor group with the factors 'passive', 'perfect', 'modal-infinitive', etc. A powerful feature of *GoldVarb* is the ability to recode the factors during the analysis. If the researcher is not certain whether the distinction between e.g. present perfect and pluperfect will be significant, they can be initially tagged as separate factors. Then during the course of the analysis, one can recode, or recombine, these specific factors into more general ones and test which combination has the most significant effect.

There are two statistical outputs of *GoldVarb 2001* that will be utilized in this chapter. The first is statistical significance. Note that this represents the statistical significance of the entire factor group, e.g. syntagm, but does not indicate which factor or factors have the significant effect. For that, one has to look at another output, the factor weight. The factor weight is expressed as a probability between 0 and 1, with 0.5 indicating no effect. The further the factor weight is from 0.5, the greater that factor's effect on the dependent variable.

1.3 Organization of this chapter

This chapter is organized as follows. Section 2 is a discussion of previous research on subordinate clause word order in ENHG. Section 3 presents the findings of the pilot study of four texts (Sapp 2005). Section 4 presents the results of the complete corpus of 30 texts for clusters of two verbs, and section 5 presents the results for clusters of three verbs. This chapter is concluded in section 6.

2 Previous research on ENHG verb order

2.1 Hammarström (1923)

Hammarström (1923) looks at verb placement in ENHG in both official documents and popular literature. The official documents are divided into imperial,

princely, municipal, and religious documents.[6] The results for subordinate clauses containing two verbs are presented in the following tables.[7]

Table 1: Rate of 1-2 in imperial documents in Hammarström (1923)

Imperial documents		V^{fin} + Inf		V^{fin} + PPP		Total %
Emperor	year	2-1	1-2	2-1	1-2	of 1-2
Ludwig	1315-46	62	28 (31%)	198	9 (5%)	12%
Karl	1349-78	84	31 (27%)	134	4 (3%)	14%
Wenzel	1391-99	11	2 (15%)	14	0	7%
Sigismund	1414-37	25	1 (4%)	16	0	2%
Friedrich	1465-88	9	1 (11%)	8	0	6%
Maximilian	1493-1519	121	3 (2%)	132	0	1%

Table 2: Rate of 1-2 in princely documents in Hammarström (1923)

Princely documents		V^{fin} + Inf		V^{fin} + PPP		Total %
Prince	year	2-1	1-2	2-1	1-2	of 1-2
Eberhard	1321	16	6 (25%)	31	3 (9%)	16%
Ulr. u. Eberh.	1361	28	4 (13%)	34	1 (3%)	7%
Ludw. u. Ulr	1442	13	0	36	2 (5%)	4%
Eberh. d. ä. u. j.	1482	27	4 (13%)	27	0	7%
Ulrich	1537	21	0	8	0	0%
other princes	1419-1537	213	10 (5%)	152	1 (1%)	3%
official persons	1449-1521	41	10 (24%)	68	4 (6%)	11%

Table 3: Rate of 1-2 in popular literature in Hammarström (1923)

Popular literature		V^{fin} + Inf		V^{fin} + PPP		Total %
work	year	2-1	1-2	2-1	1-2	of 1-2
Til Eulenspiegel	1515	204	193 (49%)	236	61 (21%)	37%
Faust	1587[8]	303	65 (18%)	245	13 (5%)	12%
Alberus	1550	31	6 (16%)	53	1 (2%)	8%
Meistergesang	1571	67	11 (14%)	78	3 (4%)	9%
Aller praktik	1572	24	14 (37%)	10	5 (33%)	36%
Speculum	1584	181	15 (7%)	63	1 (2%)	6%
Clawert	1587	245	16 (6%)	270	9 (3%)	5%
Simplicissimus	1669	256	15 (6%)	180	3 (2%)	4%

There are a few general trends that can be noted here. First is the obvious decline of the 1-2 order over time for all types of texts. Secondly, the rate of the 1-2 order is always higher for the modal-infinitive construction than for the participial constructions.

[6] 'Imperial' and 'princely' refer to documents produced in the chanceries of the emperor and in those of lesser rulers, respectively, not necessarily by the emperor and princes themselves. I skip the municipal and religious documents in this discussion, since they are all relatively short and late (around 1500) and show low rates of 1-2 order, as expected.

[7] Tables compiled from tables in Hammarstöm (1923:123-149). The percentages for the 'documents' are mine and those for 'popular literature' are Hammarstöm's. The rightmost column in each table is my calculation of the rate of 1-2 order in the infinitival and participial constructions combined.

[8] For reasons unclear to me, Hammarström places *Faust* between *Til Eulenspiegel* and *Alberus*, despite the fact that it was first published in 1587.

Thirdly, the rate of the 1-2 order depends on the type of text, with literature having generally higher rates of 1-2 than contemporaneous chancery documents. By far the highest frequencies are found in the popular 16th-century books *Til Eulenspiegel* (37%) and *Aller praktik grossmutter* (36%). One has to look back to the 14th century to find anything approaching those rates in the chancery documents, and even then, only the modal-infinitive construction comes close.

Hammarström (1923:150-162) also looks at subordinate clauses with three verbs, but the number of tokens is quite small. Generally speaking, he finds a mixture of 1-3-2, 3-1-2, and 3-2-1, with a preference for the 3-2-1 order in official documents. The exception is with the IPP construction, which is overwhelmingly 1-3-2 as in NHG.

Hammarström's (1923:199-200) conclusion is that the word order of the chancery documents was influenced by Latin, although he does not explicitly discuss what form that influence took. The word order of the chancery documents, in turn, served as the model for written NHG.

There are some obvious problems with Hammarström's study. First, even within each category, there is a mix of genres: *Aller praktik grossmutter* is poetic and according to Hammarström (1923:134) most cases of the 1-2 order are probably to facilitate rhyme. Secondly, all of the literary texts are later than most of the documents, making a real comparison between different text types impossible. Finally, as Maurer points out (1926:84), Hammarström does not take dialect differences into account: even his comparison of municipal documents mainly looks at texts from Swabian cities.

2.2 Maurer (1926)

Maurer (1926) places much more emphasis on dialect differences. He investigates a large number of both official documents and literary texts, from different dialect areas from 1300 to 1700. Unlike Hammarström (1923), Maurer looks only at perfect constructions. He does not give the results for perfects with *haben* 'have' in tabular form, but his results for perfects with *sein* 'be' are given in Table 4. Based on these results, he concludes that the Alemannic areas (Switzerland, Alsace, Swabia, and Baden) have the highest rates of 1-2, while East Middle German (EMG) and North Bavarian (i.e. Nuremberg) have the lowest rates.

Table 4: Frequency of 1-2 order with *sein* perfects in Maurer (1926)

Region	Percentage of 1-2 order (1400-1600)[9]
High Alemannic (Swiss)	30%
Low Alemannic (Swiss)	12%
Alsatian	50% -> 33%
Swabian	50% -> 60%
S. and M. Bavarian	8%
N. Bavarian (Nuremberg)	3%
Rhine Franconian	10% -> 30%
EMG dialect	60% -> 20%
EMG written language	5% -> 0%

[9] Adapted from Maurer (1926:148). Maurer's table is more complicated than this, with some variation over time for some dialects.

Maurer (1926:151) concludes that the EMG and North Bavarian dialects prefer the 2-1 order because they were already under the influence of the written language at this early stage. The tendency to have 2-1 in the written ENHG language, according to Maurer (1926:123), is a direct result of Latin influence. Maurer (1926:180) claims that late-medieval Latin school grammars prescribed the 2-1 word order for perfect passives like *quod dictum est* 'which was called', which then provided the model for ENHG word order.[10] Maurer (1926:165) finds that verb clusters translated from Latin may vary in word order when the Latin original is a simplex verb (23), but are 2-1 when the original is a cluster with 2-1 order (24).

(23)a. Latin original: a quo lingua latina nomen *accepit*
from RP language Latin name receives

b. Eike von Repgow: von deme latinisch tunge *ist genannt* 1-2
from RP Latin tongue is named
'for which the Latin language is named'

(24)a. Latin original: Qui postea *dictus est* Sedechias
who afterward said is S.

b. Eike von Repgow: der dar nâ *gehêten was* Sedechias 2-1
who afterward called was S.
'who was later called Sedechias'

Furthermore, in Latin-based texts, Maurer (1926:164) finds a higher frequency of 2-1 order with perfects formed with *sein* than with *haben*, supporting his conclusion that the Latin perfect passive (which is formed with the verb *esse* 'to be') played an important role. Finally, in addition to Latin influence, Maurer (1926:159) attributes a certain role to 'rhythm': some combinations of verbs prefer specific orders, to maintain an alternation of stressed and unstressed syllables, and verbal prefixes affect the rhythmic structure as well. Maurer (1926:161-2) also claims that falling intonation favors 2-1 order, so 2-1 is more likely to occur in a sentence-final subordinate clause than in a sentence-initial one.

Besides the problems with Maurer's Latin hypothesis pointed out by Ebert (1981) (discussed in section 2.4 below), there are several problems with the way his study is conducted. First of all, it does not look at modal plus infinitive constructions, which Hammarström and later studies show to have a higher rate of 1-2. Secondly, it mixes text-types, so it is not clear how much of the variation is due to dialect and how much is due to genre. The EMG data in Table 4 are especially telling in this regard: that dialect shows both the highest and lowest percentages of the 1-2 order, because it is divided into two categories. The so-called dialect ('Mundart') texts have rates as high as 60%, and the texts in 'written language' ('Schriftsprache') are as low as 0%, suggesting that genre may be as important as or even more important than dialect. Thirdly, as Härd (1981:26) points out, the number of tokens from each text is quite small. It is unclear whether the differences between Hammarström's and Maurer's results are due to the fact that Maurer takes into account texts from various dialects, or due to the problems with his study.

[10] However, Burridge (1993:115) and Ebert (1998:116) demonstrate that medieval grammars of German do not make any such prescriptions.

Finally, like Hammarström (1923), Maurer (1926) does not give any indication of whether his results are statistically significant.

2.3 Härd (1981)

Härd (1981) is a study of 17,073 clusters of three or more verbs, from 1450 to 1975. We will be concerned here only with his first period (1450-1580), from which he has 2,704 tokens. The details of his study will be discussed and compared to my results in sections 5.3.1, 5.4.1, and 5.4.2 below, but here I will summarize his basic findings.

First of all, Härd (1981:75) finds that, although ENHG has an increasing tendency to have the finite verb at the end of a two-verb cluster (2-1), it has the opposite tendency in three-verb clusters, with an increasing preference for the 1-3-2 order. Secondly, Härd (1981:54) finds this trend is mainly found in the High German dialects, with Low German preferring the 3-2-1 order. Finally, after the ENHG period, Härd (1981:174) demonstrates that the downward trend in the 3-2-1 order reverses for all constructions except the IPP, becoming the norm by the 20th century.

2.4 Ebert (1981)

Ebert (1981) examines letters written by forty-four people from Nuremburg from the 14th to 16th centuries. By looking at texts from just one city, Ebert is able to pinpoint some of the social and stylistic variables that determine the variation between the 2-1 and 1-2 orders.[11] He thus both avoids Maurer's pitfall of lumping all types of texts together and avoids altogether the question of dialect differences. Moreover, Ebert uses a sophisticated statistical model (Generalized Linear Interactive Modeling) that controls the variables stress, time, style, class, education, and occupation.

Ebert (1981:219-228) finds that the following factors have an effect of verb order. The stress of the word preceding the verb cluster turns out to be a significant factor. When the preceding word is a noun (i.e. 'stressed'), there is no clear preference for either order, but when the preceding word is a pronoun ('unstressed'), the 2-1 order is strongly preferred. The variable time is also significant, with a general decline in the 1-2 order as has been shown in other studies. The results for style are significant as well, with more formal letters having higher rates of 2-1. Combining the factors class, education, and occupation (which itself is indicative of sex) gives the following hierarchy: administrators have the highest rates of 2-1, followed by merchants, artisans, students, nuns, and secular women. The type of syntagm is significant as well: *werden* + PPP has the highest rate of 2-1, followed by *haben* + PPP, modals/*werden* + infinitive, and finally *sein* + PPP.

Ebert also considers so-called 'rhythmic' factors, which have been given primary importance since Maurer (1923). First, Ebert (1981:206) disproves Maurer's contention that sentence-final subordinate clauses show a higher rate of 2-1 and thus that the 2-1 order is linked to falling intonation. Secondly, Ebert (1981:229) confirms Maurer's findings (1923:159) that verbs with stressed separable prefixes are the least likely to show the 2-1 order. Thirdly, Ebert (1981:208) finds that the alternation of stressed and unstressed syllables in the verb cluster 'may affect the choice' of orders, but the number of examples is too small for statistical analysis. Finally, Ebert (1981:209) notices that the

[11] Ebert only treats verb clusters where the two verbs are adjacent, so his data does not include instances of VPR.

placement of the verb cluster within the clause may have an effect on the ordering within the cluster: when the verbs are in clause final position, the 2-1 order is preferred.

Based on these findings, Ebert concludes that Latin influence on the 2-1 order has been overstated. First of all, the preference for 2-1 is not tied to an individual's knowledge of Latin: merchants and artisans, who would not have had much schooling in Latin, show a higher rate of 2-1 than students, who received their education in Latin. Secondly, although Maurer claimed that Latin perfect passives like *quod dictum est* 'which was said' influenced the German passive *das gesagt ist* 'which is said', *sein* + PPP is the syntagm which shows the lowest rate of 2-1. Ebert (1981:231) maintains that this 'soundly refutes' the Latin hypothesis.[12] According to Ebert (1981:237), the tendency to show the 2-1 order more and more over time is an example of 'change from above', passed down from the chancery style, rather than an imitation of Latin syntax.[13]

2.5 Ebert (1998)

Ebert (1998) studies verb placement primarily in the language of teenagers from 16th-century Nuremberg. Ebert (1998:65-67) finds several factors that influence verb order in the writings of these individuals. First, as seen in earlier research, different syntagms favor the 2-1 order to different degrees, following the hierarchy *werden* passive > *sein* passive > *haben* perfect > infinitive constructions > *sein* perfect. Second, the stress or category of the preceding word affects verb order (as in Ebert 1981). Third, Ebert claims that the rhythmic structure of the non-finite verb affects word order, although essentially this is reducible to the type of prefix on the verb. Fourth, Ebert claims to find that for some individuals the lexeme of the non-finite verb plays a role, but this is probably reducible to prefix type and syntagm. The highest rates of 2-1 occur with the verbs *vernehmen/vernommen* 'perceive (inf./PPP)' and *empfangen* 'receive (inf./PPP)', which have an unstressed prefix, while the lowest rates occur with the forms *gewest* 'been' and *werden/worden* 'become (inf./PPP)'. *Gewest* and *worden* occur only in the *sein* passive, and *werden* is an infinitive, thus these forms necessarily occur in the syntagms with the lowest rates of 2-1.[14] Fifth, some individuals show lower rates of the 2-1 order when the finite verb is subjunctive. Finally, the 2-1 order increases over time, and the effect of some factors (the stress of the preceding word, the lexeme of the non-finite verb) diminishes over time. In addition, most of the individuals show increasing rates of 2-1 over their lifetimes.

Ebert investigates not only the linguistic factors that affect verb order with these teenagers, but also the social circumstances that may have influenced them. Ebert (1998:102) finds that the above factors among the young men do not change when they attend university are also prevalent among their female family members, who had much less schooling. Combined with the fact that contemporary school books and grammars make no mention of verb order, Ebert (1998:102) concludes that the effect of the above linguistic factors on verb order is part of the spoken language of the time, rather than

[12] Ebert (1981) does not distinguish the *sein* passive from the *sein* perfect. When these are treated separately, the *sein* passive has very high rates of 2-1, see the discussion of Ebert (1998) below and (46a-c). This weakens somewhat Ebert's refutation of Maurer's Latin hypothesis.

[13] However, as Burridge (1993:117) points out, this still does not rule out indirect Latin influence, since Latin word order could have influenced chancery style.

[14] On the other hand, *gewesen* 'been', an alternative form to *gewest*, has the same syntagmatic distribution but a much higher frequency of 2-1.

learned in school. Ebert's (1998:154) examination of printed texts from Nuremberg reveals much higher rates of 2-1, with only syntagm having a significant effect on verb order. Ebert (1998:154) concludes from this that the teenagers' increasing tendency to use the 2-1 order, and the consequent decrease in the effect of the linguistic factors on verb order, was influenced by contemporary printed texts.

2.6 Bies (1996)

Another recent study of ENHG word order is Bies (1996). Bies compiles a corpus of over 5,000 clauses (900 of which are subordinate clauses) mainly from letters, including material from a wide range of dialects. Assuming that ENHG, like Modern Standard German, is an underlyingly SOV language, she investigates two aspects of ENHG syntax: extraposition and the 1-2 order.

In the section on extraposition, Bies (1996:66) points out that ENHG, like Modern Standard German, allows the extraposition of clauses, PPs, and heavy NPs. Unlike Modern Standard German, however, ENHG also allows the extraposition of non-heavy NPs. When heavy NP shift has been controlled for, Bies (1996:39) finds that NPs extrapose to force a narrow focus interpretation. This focus-driven extraposition is lost by the NHG period (1996:65).

In her study of the 1-2 order, Bies (1996:61) confirms some of Ebert's (1981) results, establishing that the rate of 1-2 falls over time and agreeing with Ebert that ENHG is undergoing a change from above. Although Bies (1996:54) determines only a weak effect of social class, she does find a significant effect of style, with higher rates of 1-2 in 'less monitored styles'. She also generally confirms Ebert's hierarchy of syntagms, which will be discussed in section 4.3.1 below (46b vs. c).

However, Bies finds that some of Ebert's results are inconclusive. First, Bies (1996:59) finds that the stress of the word preceding the verb cluster has no significant impact on the order of verbs. She believes that this may be 'due to a comparison of unlike objects across corpora' (1996:60); however, my own study supports her findings against Ebert's (see section 4.2.1 below). Secondly, Bies (1996:60) concludes that the placement of the verb cluster within the clause is insignificant, i.e. extraposition has no effect on verb order. However, her data do show an effect of extraposition on word order, if one looks at different types of extraposition separately. In Bies' Table 17 (1996:61), the 1-2 order occurs more often than expected with a extraposed NP (37.1% versus the expected rate of 27.3%), whereas extraposed PPs have the 1-2 order at 29.2%, close to the expected rate.

2.7 Reifsnyder (2003)

Reifsnyder (2003) is a study of the ENHG dialect of Augsburg, using a corpus with a wide variety of texts types from the period 1500-1660. Her study covers orthographic, morphological, and syntactic variation in Augsburg, with the three syntactic variables being double negation, position of the verb within the clause (i.e. extraposition), and order within the verb cluster. Only the results for the latter variable will be discussed here.

There are three factors that affect verb order in her study. First, as in previous studies, Reifsnyder (2003:229) finds a general decline of 1-2 over time. Secondly, Reifsnyder (2003:224-5) confirms the importance of text type for verb order. The text types assumed to be removed from the spoken language are termed DISTANZSPRACHE

'distant language' texts, consisting of chronicles, city ordinances, letters from schoolmasters, official letters and reports, and printed pamphlets. These texts have the lowest rates of the 1-2 order. NÄHESPRACHE 'close language' texts–letters from artisans, private letters from patricians, personal narratives, and guild books–are assumed to be most reflective of the spoken language and indeed have the highest rates of 1-2. Thirdly, Reifsnyder (2003:226-7) determines an effect of clause type: clauses starting with a *wh*-word or with the relative complementizer *so* have the highest rates of 2-1. For Reifsnyder (2003:245), the prevalence of the 2-1 order in official texts, as well as its increasing frequency over time, is the result of the adoption of a standard language ideology.

3 Pilot study: Sapp (2005)

3.1 Introduction

Before conducting a detailed study on my complete ENHG corpus, it was necessary to conduct a pilot study on a smaller sample. For the pilot study (Sapp 2005), I selected 468 clauses from four 15th-century texts from the *Bonner Frühneuhochdeutsch-Korpus*. I took approximately 97 clauses matching my criteria from each of the following three texts: Hans Neidhart's commentary on the Latin play *Eunuchus* (Ulm, 1486), Gerold Edlibach's *Chronik* (Zürich, 1485-1486), and Johannes Rothe's *Chronik* (Eisenach, 1421). The fourth text, *Pillenreuth Mystik* (Nürnberg, 1463), is written in two hands. I took 97 clauses from the first hand and 80 clauses (the entire selection available on-line) from the second hand.

In this sample of four texts, the rate of the 1-2 order overall is 27%. As an informal approximation, a rate of 1-2 that is higher than 27% probably indicates a favoring factor. This is expressed by *GoldVarb* as a factor weight below 0.5.[15]

In section 3.2, I discuss three 'phonological' factors that previous studies have found to affect ENHG verb order: the position of the subordinate clause within the sentence, the category or phonological weight of the word preceding the verb cluster, and the syllable structure of the non-finite verb. I tested the clauses from these four texts using *GoldVarb* but was unable to verify these claims. In section 3.3, I present five factors that do affect verb order in the pilot study: syntagm type, extraposition, focus, coordination, and clause type.

3.2 Comparison with previous studies: non-favoring factors

3.2.1 Position of clause

Using a small sample of ENHG clauses, Maurer finds that the position of the clause within the sentence affects word order (1926:161-162). In his data, sentence-final clauses tend to have the order 2-1 and non-sentence-final clauses 1-2. He argues that the 2-1 order is preferred in sentence-final clauses due to the falling intonation at the end of

[15] In *GoldVarb*, a higher factor weight indicates a favoring factor for the default value for the dependent variable. In this study, the more frequent order 2-1 is the default value, so the higher the factor weight, the higher the favoring effect on the 2-1 order. Conversely, a lower factor weight indicates a favoring effect for the 1-2 order, the real object of the study.

the sentence and the tendency for auxiliaries to be located in phonologically weak positions.

However, the data from my pilot study do not support Maurer's findings. Table 5 shows that whether the clause is sentence-final or not, the rate of the 1-2 order is very similar to the expected rate of 27%. The distinction between clause sentence-final and non-sentence-final clauses is very slight: 26% versus 28%, with factor weights very close to 0.5. Furthermore, this distinction is not statistically significant.

Table 5: Effect of the position of the clause on 1-2 order (pilot study)[16]

Position of clause	2-1	1-2	Factor weight
sentence final	87 (73%)	32 (26%)	0.469
not sentence final	251 (71%)	98 (28%)	0.510
Total	338 (72%)	130 (27%)	
$p = 0.102$			

Thus the effect of the position of the subordinate clause within the sentence on the choice of verb orders could not be confirmed. Nor was Ebert able to confirm any effect in his study of texts from Nuremberg: 'there is no consistent pattern here of influence due to occurrence in a "Vordersatz" vs. "Nachsatz"' (1981:206).

3.2.2 Word/phrase preceding the verb cluster

Ebert (1981:206) finds that the distinction noun vs. pronoun influences verb order, with a preceding noun favoring 1-2 and a preceding pronoun favoring 2-1. In the pilot study, the 1-2 order does occur more often when preceded by a noun (33%) than the expected rate (27%), as shown in Table 6. When preceded by a pronoun, the 1-2 order occurs slightly less frequently (25%) than expected. However, the factor weights for both nouns and pronouns are not far from 0.5, indicating that this distinction is not very strong. Moreover, the factor group is not statistically significant. This small effect becomes even smaller in the full study, as seen in section 4.2.1 below.

Table 6: Effect of the category of the preceding word on 1-2 order (pilot study)

Category of preceding word	2-1	1-2	Factor weight
noun	81 (66%)	40 (33%)	0.436
pronoun	48 (75%)	16 (25%)	0.556
adjective	3 (50%)	3 (50%)	0.337
adverb	91 (75%)	30 (24%)	0.514
prepositional phrase	92 (77%)	26 (22%)	0.551
da-compound	6 (75%)	2 (25%)	0.440
clause (infinitival or finite)	8 (80%)	2 (20%)	0.803
nothing precedes	9 (45%)	11 (55%)	0.246
Total	338 (72%)	130 (27%)	
$p = 0.085$			

[16] *GoldVarb 2001* does not round up percentages, so they add up to 99% rather than 100%. I report the statistics here exactly as outputted by *GoldVarb*, except that I have changed $p = 0.000$ to $p < 0.001$.

Ebert (1981:207) attributed the difference that he finds between nouns and pronouns to phonological stress, speculating that the heavier stress of nouns compared to pronouns favors the 1-2 order. Ebert (1998:65) finds stress to be a significant factor in further studies, independent of the noun vs. pronoun distinction. This observation goes back to Behaghel (1932:IV, 87), who claims that the combination of a stressed word such as a noun plus 1-2 order produces the sequence 'Hochton, Unton, Hochton' ('stressed word, unstressed word, stressed word'), while the combination of a light word plus 2-1 produces the sequence 'Unton, Hochton, Unton'.

If, as Ebert speculates, the difference between nouns and pronouns were due to phonological stress, one would expect to find that the stress of all kinds of words, not just nouns and pronouns, should have an affect on verb order. However, this hypothesis does not hold in my sample of 15th-century German. Recoding NPs, PPs, and poly-syllabic adverbs as stressed words and pronouns, negators, and mono-syllabic adverbs as unstressed, the stress of the preceding word has no effect on verb order at all, as seen in Table 7.[17] Similar results were found by Bies (1996:59).

Table 7: Effect of the stress of the preceding word on 1-2 order (pilot study)

Stress of preceding word	2-1	1-2	Factor weight
stressed	218 (73%)	79 (26%)	0.498
unstressed	111 (73%)	40 (26%)	0.540
nothing precedes	9 (45%)	11 (55%)	0.246
Total	338 (72%)	130 (27%)	
$p = 0.036$[18]			

Since the difference between nouns and pronouns is not due to a more general phonological principle, it must be due to something else, to the degree that it is significant. (Recall that this factor is not significant in the full study, see section 4.2.1 below.) In section 3.3.3 below, I demonstrate that the difference between nouns and pronouns in the pilot study is probably due to the effect of the information status of the preceding noun/pronoun on verb order.

3.2.3 Prefix type (alternation of stressed and unstressed syllables)

ENHG, like the other continental West Germanic languages, has a series of verbal prefixes. There are a number of stressed, separable prefixes (SSPs), like *auff* in (25). There are also unstressed prefixes, which are inseparable from the verb, such as *ver-* in (26).

(25) dye got der her parmherczigklich *hat auffgenumen* 1-2
RP God the Lord mercifully has$_1$ up.taken$_2$
'whom God the Lord has mercifully received' (*Pillenreuth* 160)

(26) das er in kainer sund *verczweiffeln sol* 2-1
that he in no sin despair$_2$ shall$_1$
'that he shall not despair in any sin' (*Pillenreuth* 161)

[17] This method of determining stressed vs. unstressed words is the same as Ebert's (1998:7), so the difference between my study and his is not due to differing criteria.

Ebert (1981:207; 1998 *passim*), like Maurer (1929:159), finds that non-finite verbs with a SSP favor the 1-2 order as in (25), while non-finite verbs with an unstressed prefix favor the 2-1 order as in (26). This observation holds true for my pilot study as well, as shown in Table 8. With verbs with an SSP, the 1-2 order occurs at a rate of 45%, well above the expected rate of 27%, and the factor weight is well below 0.5, indicating a strongly favoring factor. Verbs with an unstressed prefix disfavor the 1-2 order, although the factor weight suggests that the effect is slight. Overall, the factor group is extremely significant.

Table 8: Effect of prefix type on 1-2 order (pilot study)

Prefix type	2-1	1-2	Factor weight
stressed	25 (54%)	21 (45%)	0.264
unstressed	224 (79%)	59 (20%)	0.542
no prefix	89 (64%)	50 (35%)	0.499
Total	338 (72%)	130 (27%)	
$p < 0.001$			

Although this study confirms Ebert's general observation of the effect of prefix type on word order, it cannot confirm his hypothesis for why this effect occurs. Ebert (1981:208) attempts to account for this fact by hypothesizing that the verb order is sensitive to the alternation of stressed and unstressed syllables within the verb cluster.[19] According to Ebert, some patterns should favor either order (*sóllĕn schréibĕn~schréibĕn sóllĕn* 'should write'), since both orders produce an alternation of stressed and unstressed syllables. For other patterns, reordering to 1-2 results in consecutive stressed or unstressed syllables (*bérichtĕn sóllĕn~*sóllĕn bérichtĕn* 'should report') and thus should not favor 1-2. Likewise, the 1-2 order should be favored when it results in alternating stressed and unstressed syllables.

However, this explanation does not hold for my 15th-century sample, as shown in Table 9. In fact, the results here are the opposite of what one would expect under Ebert's hypothesis. When the underlying 2-1 order has alternating stressed and unstressed syllables but reordering to 1-2 removes that alternation, the frequency of 1-2 order is actually higher (44%) than the expected rate of 27%. Moreover, when the 2-1 order involves consecutive stressed (or unstressed) syllables but reordering to 1-2 would produce alternating syllables, the rate of 1-2 is lower than expected (19%). Finally, clusters like *schréibĕn sóllĕn*, which Ebert finds to have a high frequency of 1-2, have 1-2 at close to the expected rate (22%).[20]

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[18] The statistical significance of this table is probably due to the high rate (55%) of the 1-2 order where no constituent (or only the subordinator) precedes the verb cluster.

[19] Ebert concedes that his sample is too small to for statistical significance. He does not maintain this explanation in a later study; however, he continues to find that when the V has the pattern as in *bérichtĕn*, V-Aux is favored (1998:162). Note, that this pattern is exclusively found in verbs with an unstressed prefix, which does slightly favor 2-1 in my corpus.

[20] Ebert limited his conclusions to modal + infinitive clusters. I tested this again excluding syntagms other than modal + infinitive and found very similar results to those in Table 5.

Table 9: Effect of syllable pattern on 1-2 order (pilot study)

Alternating syllables	2-1	1-2	Factor weight
both orders result in clash	14 (70%)	6 (30%)	0.448
both orders result in alternation	168 (77%)	50 (22%)	0.515
2-1 alternates, 1-2 clashes	64 (55%)	52 (44%)	0.434
2-1 clashes, 1-2 alternates	92 (80%)	22 (19%)	0.548
Total	338 (72%)	130 (27%)	
$p < 0.001$			

Thus, the preference for the 1-2 order by verbs with an SSP cannot be attributed to a general interaction of stress and word order. Perhaps there is a syntactic reason for this preference, such as the fact that a verb and its SSP form a complex predicate (Müller 2002:409). On the other hand, phonology could be the reason, but not in the way Ebert claims. I suggest as an alternative an appeal to Behaghel's (1932:III, 367) *Gesetz der wachsenden Glieder* ('Law of the growing constituents'), which states that in German, heavier items tend to be placed as late as possible in a clause. Since a verb with an SSP is phonologically heavier than a verb without an SSP, it follows that clusters including such verbs would be a favoring environment for the 1-2 order.

3.3 Factors favoring the 1-2 order in the pilot study

3.3.1 Syntagm type

In those West Germanic dialects (including Standard Dutch) that allow 1-2, there is a preference for 2-1 in constructions with participles, and for 1-2 with a modal plus infinitive (Wurmbrand 2001:7-10; I will offer a comprehensive discussion of contemporary German dialects in Chapter 4). As discussed in section 2 above, several earlier studies have found a similar effect in ENHG. This also holds in my pilot study: as shown in Table 10, the 1-2 order is clearly disfavored with perfects and passives, occurring just 17% of the time. Modals pattern with the future auxiliary *werden* and the causative *lassen*, favoring the 1-2 order at a rate of 37%.

Table 10: Effect of general syntagm type on 1-2 order (pilot study)

Syntagm	2-1	1-2	Factor weight
aux + PPP (perfect, passive)	221 (82%)	46 (17%)	0.625
modal (*lassen, werden*) + inf.	113 (62%)	69 (37%)	0.390
three verbs	4 (21%)	15 (78%)	0.053
Total	338 (72%)	130 (27%)	
$p < 0.001$			

Clusters of three verbs can have four possible word orders in ENHG: 3-2-1, 1-3-2, 1-2-3, and 3-1-2. (For examples see section 1.1 above; for a thorough discussion, see section 5 below.) In the pilot study, given the low number of tokens, these four orders are not discussed individually. Rather, the order 3-2-1 (the consistently right-headed order) is treated as 2-1, whereas the other orders are put in the 1-2 column in Table 10 (under the assumption that they involve Verb Raising (VR), see Chapter 5). Using these criteria, clusters with three verbs strongly prefer the non-3-2-1 orders, at 78%. Indeed,

this is the only context in ENHG where a right-governing order is strongly preferred over a left-governing order.

3.3.2 Extraposition

Ebert (1981:209) notes that when the verb cluster is in clause final position, the 2-1 order is preferred. To put it differently, there is a correlation between the 1-2 order and the extraposition of some constituent, usually an NP or a PP. This also holds true in my pilot study. As shown in Table 11, when nothing is extraposed, the rate of the 1-2 order is 24%, very close to the expected rate. However, when some constituent is extraposed, 1-2 occurs at 39%.

Table 11: Effect of extraposition on 1-2 order (pilot study)

Extraposition in ENHG	2-1	1-2	Factor weight
something extraposed	69 (60%)	45 (39%)	0.369
nothing extraposed	269 (75%)	85 (24%)	0.543
Total	338 (72%)	130 (27%)	
p = 0.003			

3.3.3 Focus

In my pilot study of 15th-century texts, focus is one of the most important factors favoring the 1-2 order. A word or phrase is focused if it introduces new information into the discourse. In addition to conveying new information, focus may also be contrastive. Here are some examples of focus: on an NP (27), on a PP (28), and two contrasting verbs (29). Examples (27) and (29) illustrate cases where contrastive focus can be detected, and in (28) the PP *durch die mensch* is new information.

(27) das der mensch alle sein lebttag [$_{Foc}$ nicht anders] *scholt thun*, denn lernen...
that the person all his life.days nothing else should do than learn
'that man should do nothing else all the days of his life, than to learn...'
(*Pillenreuth* 206)

(28) das ich alles [$_{Foc}$ durch die mensch] *hab gethan*.
that I all for the person have done
'that I have done all of that for the sake of man.' (*Pillenreuth* 220)

(29) das ein cristenmensch in dem stat *getar* [$_{F}$*leben*], in dem er nicht gern *wolt* [$_{F}$*sterben*]
that a christian.person in the place dares live, in RP he not gladly would die
'(It is a wonder), that a Christian dares LIVE where he would not like to DIE'
(*Pillenreuth* 211)

As shown in Table 12, when the clause consists of old information and there is no contrast, the rate of 1-2 is 26%, or roughly the expected rate. On the other hand, focus, whether new information or contrastive focus, strongly favors the 1-2 order, occurring just over half the time, well above the expected rate of 27%.

Table 12: Effect of focus on 1-2 order (pilot study)

Focus	2-1	1-2	Factor weight
old information	323 (73%)	114 (26%)	0.523
new information/contrastive focus	15 (48%)	16 (51%)	0.216
Total	338 (72%)	130 (27%)	
p = 0.006			

Using context for determining the focus structure of a sentence in a non-living language can be quite difficult, and that is especially true for contrastive focus. It is possible that in some cases the 1-2 order has biased me into reading the clauses with a special intonation, and there are no doubt instances of focus that I have overlooked. However, there are some additional data that lend support to the argument that focus influences verb order.

First, let us take a second look at the role of the definiteness of the NP[21] preceding the verb cluster. In section 3.2.2 above, I showed that the distinction noun vs. pronoun did not affect the ordering of the verbs. However, it is also possible to distinguish between NPs that tend to represent old or given information, i.e. pronouns and definites, and those that tend to represent new information, i.e. indefinites and NPs headed by the quantifiers *jeder* 'every', *kein* 'none', and *alle* 'all'. In Table 13, it can be seen that when a pronoun or definite NP precedes the verb cluster, the rate of 1-2 is 26%, very close to the expected rate. However, when the verbs are preceded by an NP that represents new information, 1-2 is more frequent than expected (36%).

Table 13: Effect of the information status of the preceding NP on 1-2 (pilot study)

Preceding NP	2-1	1-2	Factor weight
new information	41 (63%)	24 (36%)	0.390
old information	88 (73%)	32 (26%)	0.533
non-NP precedes	200 (76%)	63 (23%)	0.534
nothing precedes	9 (45%)	11 (55%)	0.243
Total	338 (72%)	130 (27%)	
p = 0.011			

Note that the new information/old information distinction is statistically significant (p = 0.011), unlike the noun/pronoun distinction in Table 6 (p = 0.085).

The second piece of supporting evidence that focus influences verb order is the correlation between lack of scrambling and the 1-2 order. An object is scrambled if it appears to the left of a sentential adverb or negator (30) and is not scrambled if it is to the right (31):

(30) so der teufel [den menschen] **nit** *vberwinden mag* scrambled object
if the devil the person not overcome can
'if the devil cannot overcome that person' (*Pillenreuth* 163)

[21] Throughout this study, NP includes both nouns and pronouns. When pronouns are meant to be excluded, either 'noun', 'non-pronominal NP', or 'full NP' will be used. No distinction will be made between NP and DP.

(31) als ob du **nie** [sundt] *habst gethan* object not scrambled
as if you never sin have done
'as if you have never committed sin' (*Pillenreuth* 223)

Under one approach to scrambling (Reinhart 1995; Haider & Rosengren 2003), scrambling occurs when the object is old information. When an object is new information or contrastive it will fail to scramble, remaining inside the VP where it will receive the nuclear stress accent. The effect of scrambling on my sample of 15th-century ENHG is shown in Table 14. Clauses with an unscrambled NP (representing new information) have the 1-2 order 41% of the time, much higher than the expected rate of 27%. Clauses with a scrambled NP, thus probably old information, tend to have the 2-1 order, with a lower-than-expected rate of 1-2.[22] This seems to support my hypothesis that focus favors the 1-2 order.

Table 14: Correlation between scrambling and 1-2 order (pilot study)

Scrambled object?	2-1	1-2	Factor weight
object not scrambled	10 (58%)	7 (41%)	0.298
object is scrambled	78 (79%)	20 (20%)	0.685
cannot tell	250 (70%)	103 (29%)	0.457
Total	338 (72%)	130 (27%)	
p = 0.102			

As a third supporting argument for the hypothesis that focus affects verb order, recall that 1-2 is more likely when an argument has been extraposed (section 3.3.2 above). Bies (1996) demonstrates that extraposed arguments in ENHG are likely to be focused (see section 2.6 above). Assuming that that is true, the correlation between extraposition and 1-2 order could be due to the fact that both are sensitive to focus.

3.3.4 Coordination of VPs

In Standard NHG, there is only one order for coordinated VPs governed by one auxiliary: the finite verb follows the conjoined non-finite verbs (2-&-2-1). This order also occurs in ENHG (32). However, ENHG has two additional orders, one in which the finite verb precedes the conjoined non-finite verbs (1-2-&-2), as in (33), and one in which the first conjunct is in the 2-1 order, and the second conjunct has no finite verb (2-1-&-2), as in (34). Finally, if each non-finite V has its own finite verb, as in (35), each cluster may appear in either the 2-1 or 1-2 order.

[22] In the majority of sentences it is not possible to know whether scrambling has occurred, either because there is no object or because there is no adverb. I suspect the low significance of this model is due to the high number of ambiguous cases.

(32) dy doch got vns *geraicht* vnd *gegeben hat* zw hail vnser seel 2-&-2-1
RP PART God us handed$_2$ and given$_2$ has$_1$ to salvation our soul
'that indeed God has handed and given to us for the salvation of our soul'
(*Pillenreuth* 173)

(33) daz der kranck sich mit nicht *laß abweisen* noch *erschrecken* 1-2-&-2
that the sick REFL by nothing let$_1$ turn-away$_2$ nor frighten$_2$
'that the sick one not let himself be turned or frightened by anything'
(*Pillenreuth* 177)

(34) dy sie geren *gehort haben* oder *gelesen* in irem gesunt 2-1-&-2
RP they gladly heard$_2$ have$_1$ or read$_2$ in their health
'that they have gladly heard or read in their health' (*Pillenreuth* 178)

(35) als er *sprechen solt* oder *wolt sprechen* each V with own V^{fin}
as he speak$_2$ should$_1$ or would$_1$ speak$_2$
'as he should say or would say' (*Pillenreuth* 215)

The coordination type 1-2-&-2 as in (33) is clearly a case of VR or the 1-2 order. Under the VR analysis assumed in the pilot study, the conjoined non-finite verbs have moved to the right of the finite verb:

(33') daz der kranck sich mit nicht t_i laß [*abweisen noch erschrecken*]$_i$

The coordination type 2-1-&-2 as in (34) is more problematic. On the one hand, it could represent deletion of the second finite verb, as in (34'a), in which case it would not represent an instance the 1-2 order. On the other hand, a VR analysis is possible, making this a case of 1-2: only the second conjunct is adjoined to the right, as in (34'b):

(34')a. dy sie geren *gehort haben* oder *gelesen* ~~*haben*~~ ...
b. dy sie geren *gehort* t_i haben [*oder gelesen*]$_i$ ...

In Sapp (2005), I assume that the VR analysis is preferable for the 2-1-&-2 type of coordination. Thus in Table 15, 1-2-&-2 and 2-1-&-2 are represented under 1-2. Using these criteria for the 15th-century sample, when non-finite Vs are coordinated, there is a higher-than-expected frequency of the 1-2 order. This is especially true when they share one finite verb (48%), but also true when the VPs are coordinated but each V has its own finite verb (36%), as in (35).

Table 15: Effect of coordination on 1-2 order (pilot study)

Coordinated Vs	2-1	1-2	Factor weight
coordinated Vs with shared V^{fin}	23 (51%)	22 (48%)	0.312
coordinated Vs, with own V^{fin}	31 (63%)	18 (36%)	0.374
No coordination	284 (75%)	90 (24%)	0.541
Total	338 (72%)	130 (27%)	
p = 0.002			

This raises the question why coordination should trigger the 1-2 order. Sapp & Sprouse (2003) suggested two reasons. The first is the general tendency in German to place heavier elements after lighter elements, as noted by Behaghel in his *Gesetz der wachsenden Glieder* (1932:III, 367). Since two Vs are heavier than one, this could

explain why coordinated non-finite Vs occur to the right of the finite verb at a rate higher than that of single non-finite Vs. However, this explanation fails to account for the high frequency of 1-2 among coordinated Vs where each V has its own finite verb, since in those cases only individual Vs would move, compare (33') to (35'):

(35') als er *sprechen solt* oder t_i *wolt* [*sprechen*]$_i$

The second explanation suggested by Sapp and Sprouse (2003) is that coordinate VPs are likely to include the focus. Sapp and Sprouse contend that a sentence with coordinated VPs as in (36b)-(37b) is most likely to have a background like (36a), where the question is a single VP, rather than (37a), where multiple VPs are interrogated and the new information in the answer involves only the objects of the coordinated VPs.

(36)a. Was hat Hans in der Stadt gemacht?
'What did Hans do in the city?'
b. Ich glaube, dass Hans [$_{Foc}$ eine Kanzlei besucht und ein Volksbuch gekauft] hat.
'I think that Hans visited a chancery and bought a chapbook.'

(37)a. Was hat Hans in der Stadt besucht und gekauft?
'What did Hans visit and buy in the city?'
b. ... dass Hans [$_{Foc}$ eine Kanzlei] besucht und [$_{Foc}$ ein Volksbuch] gekauft hat.

However, this explanation requires the assumption that there is a difference with respect to favoring 1-2 between wide focus on the whole VP as in (36b) and narrow focus on an object as in (37b). However, no such distinction has been maintained in the tagging of the ENHG data; rather, both wide (VP) focus and narrow (object) focus were tagged either as 'new' or 'contrastive'.

After examining the larger corpus of 30 texts, I discovered that the apparent favoring effect of coordination is actually a result of ANACOLUTHON, i.e. the tendency of second conjuncts to have main clause word order. This will be discussed further in section 4.2.2 below.

3.3.5 Clause type

The type of subordinate clause seems to have some effect on verb order in my 15th-century sample. In relative clauses, the order 1-2 is disfavored, occurring in only 15% of the clauses as shown in Table 16. The factor weight indicates that this is a fairly strong preference.[23] Conversely, complement clauses and other clause types slightly favor 1-2.

Table 16: Effect of clause type on 1-2 order (pilot study)

Clause type	2-1	1-2	Factor weight
complement clause	107 (63%)	61 (36%)	0.421
relative clause	109 (84%)	20 (15%)	0.646
adverbial clause	46 (77%)	13 (22%)	0.558
other	76 (67%)	36 (32%)	0.417
Total	338 (72%)	130 (27%)	
$p < 0.001$			

[23] Note that this preference is greatly reduced when the entire corpus of 30 texts is analyzed (section 4.2.3).

In Sapp (2005), I was unable to offer any reason why this might be the case. For a possible explanation, see section 4.2.3 below.

3.4 Conclusion

This section reported on a pilot study of four 15th-century German texts (Sapp 2005). Section 3.2 discussed three 'phonological' factors that are claimed by previous studies to affect ENHG subordinate clause verb order. Contra Maurer (1926), this study found no effect of the clause's position within the sentence on verb placement. Contra Ebert (1981), the study failed to show any effect of category or phonological weight of the word preceding the verb cluster. Although this study did confirm Ebert's (1981) observation concerning the effect of prefixes on verb order, this was not reducible to a more general phonological principle.

Section 3.3 showed that there are five factors (in addition to separable prefixes) that do have an effect on verb order: syntagm type, NP/PP extraposition, focus, coordination, and clause type. Although these factors have a frequency of 1-2 that is statistically significantly higher than the overall rate of 27%, only for the clusters of three verbs is there an overwhelming tendency to have the 1-2 order. Thus one might argue that 1-2 is still not satisfactorily accounted for. However, of the 130 clauses in the pilot study with 1-2 order, all but 10 are accounted for by one or more of the favoring factors, as shown in Table 17. Thus, although no individual factor forces the 1-2 order, the relatively high frequency of 1-2 in these texts can be understood as the result of the slight favoring effect of a number of factors.

Table 17: All favoring factors for 1-2 (pilot study)[24]

Favoring factor	1-2
Separable prefix verb	21
Modal + infinitive	66
Three verbs	12
Extraposition	45
Focus	15
No scrambling	7
Preceding DP is new information	22
Coordinated VPs	41
None of the favoring factors	10
Total	130

Moreover, I have argued in this section that focus, although a minor factor at first glance, plays an important role in determining verb order. Looking only at the effect of those favoring factors that I have argued are related to focus, the majority of 1-2 clauses are still accounted for, as seen in Table 18.

[24] Many clauses are represented in this table more than once, since a clause may have two or more of the favoring factors.

Table 18: Focus-related favoring factors for 1-2 (pilot study)

Favoring factor	1-2
Extraposition	45
Focus	15
No scrambling	7
Preceding DP is new information	22
None of the above	54
Total	130

The next sections will pursue these results further, testing them on a larger corpus of ENHG. Section 4 discusses the results for my complete ENHG corpus of 30 texts, reporting on subordinate clauses with clusters of two verbs. Section 5 reports on clusters of three or more verbs in the complete ENHG corpus.

4 Clusters with two verbs in ENHG

4.1 Introduction

In my complete ENHG corpus of 30 texts from the *Bonner Frühneuhochdeutsch-Korpus*, there are 2,752 subordinate clauses with exactly one finite and one non-finite verb. The total rate of the 1-2 order in the corpus is 24%. As a rough approximation, a rate of 1-2 higher than 24% indicates a favoring effect. As in section 3, the lower the factor weight, the stronger the favoring effect.

In section 4.2, I discuss three factors that do not have any effect on verb order. First, I discuss one of the factors that was determined to have no effect in the pilot study: the category or phonological weight of the word preceding the verb cluster. Then, I discuss two factors that were determined to have an effect in the pilot study, but have no effect in the complete corpus: coordination of VPs and clause type.

In section 4.3, I present four factors that affected verb order in the pilot study and also have an effect in the complete corpus: syntagm type, extraposition, focus, and verbal prefixes. Section 4.4 discusses variation in the rate of the 1-2 order over time, across dialects, and sociolinguistically.

4.2 Non-favoring factors

4.2.1 Word/Phrase preceding the verb cluster

In the pilot study (see section 3.2.2 above), using a small sample of four texts, I demonstrated that the part of speech of the preceding word had a small effect on verb order. Judging by the factor weight (see Table 6), there was very little difference in the rate of 1-2 depending on whether a noun versus a pronoun preceded. The results for the complete corpus show that this apparently small effect is in fact negligible. As can be seen in Table 19, there is no difference at all between the rate of the 1-2 order after a noun versus after a pronoun. In both cases, the rate is 24%, which is also the expected rate of 1-2. This is a more solid refutation of Ebert's (1981:206) findings.

Table 19: Effect of the category of the preceding word on 1-2 order

Class of preceding word	2-1	1-2	Factor weight
noun	517 (75%)	167 (24%)	0.518
pronoun	302 (75%)	96 (24%)	0.521
quantified NP	49 (68%)	23 (31%)	0.495
adjective	39 (60%)	26 (40%)	0.284
adverb	436 (75%)	145 (24%)	0.505
prepositional phrase	598 (78%)	159 (21%)	0.515
stranded preposition	6 (60%)	4 (40%)	0.256
clause (infinitival or finite)	45 (81%)	10 (18%)	0.514
nothing precedes	73 (69%)	32 (30%)	0.338
Total	2065 (75%)	662 (24%)	
$p = 0.100$			

The only categories that have any favoring effect on verb order are adjectives, stranded prepositions, and nothing preceding. With an adjective preceding the verb cluster, the rate of the 1-2 order is 40%, considerably higher than the expected rate of 24%. I have no explanation for the fact that adjectives seem to favor 1-2; however, note that the number of tokens with adjectives is relatively low.

ENHG, unlike Modern Standard German, allows preposition stranding:

(38) (durch die wu^{i}sti) **da** anthonius **inne** *was gewesen* P-stranding
through the desert RP A. in was been
'through the desert that Anthonius had been in' (*Buch Altväter* 73v)

When preceded by a stranded preposition, the 1-2 order is more frequent than expected, at a rate of 40%. This fact is easily accounted for by the interaction with time. Of the ten occurrences of preposition stranding, six are from the 14th century (three of which are nearly identical clauses from a single text, *Buch Altväter*), when the rate of 1-2 is the highest, and none at all are from the 16th century, when 1-2 is rare.

When no constituents occur between the complementizer or relative pronoun and the verb cluster, the 1-2 order occurs at a rate of 30%, somewhat higher than the expected rate of 24%. This is also easily accounted for: most instances of 1-2 with nothing preceding the verb cluster come from second conjuncts (see (41), for example). As discussed in section 4.2.2 below, second conjunct subordinate clauses are more likely to have main clause word order, thus apparent instances of 1-2 with nothing preceding the finite verb are probably best treated as V2 clauses.

Recall from section 3.2.2 above that Ebert attributes the difference between nouns and pronouns in his corpus to the difference in phonological stress. (Note however that the current study failed to find any difference in the effect of nouns vs. pronouns.) One could also speculate that phonological stress could account for the preference for 1-2 after adjectives and stranded prepositions, which would probably be heavily stressed; however, it is unclear how this explanation would account for instances of 1-2 with nothing preceding the finite verb.

Treating pronouns, short adverbs, the negator, and *da*-compounds as unstressed, with all other categories as stressed (including the significant types adjective and stranded preposition), stress has no effect at all. As can be seen in Table 20, the rate of 1-2 is

exactly the same whether the verb cluster follows a stressed or an unstressed word. These results confirm the conclusion from the pilot study (see Table 7), as well as Bies' (1996:59) findings, that the stress of the preceding word has no effect on the order of the verbs.

Table 20: Effect of the stress of the preceding word on 1-2 order

Stress of preceding word	2-1	1-2	Factor weight
stressed	1213 (75%)	401 (24%)	0.486
unstressed	737 (75%)	231 (24%)	0.523
Total	1950 (75%)	632 (24%)	
p = 0.581			

4.2.2 Coordination of VPs

In the pilot study (Sapp 2005), I found that coordination of VPs favored the 1-2 order (see section 3.3.4 above). In the current study, whether coordination affects verb order depends largely on the treatment of two issues: the problematic coordination type 2-1-&-2 and coordination where each VP has its own finite verb.

Recall that there are two possible analyses of the problematic type 2-1-&-2 as in (34), repeated here for convenience as (39):

(39) dy sie geren *gehort haben* oder *gelesen* in irem gesunt 2-1-&-2
RP they gladly heard$_2$ have$_1$ or read$_2$ in their health
'that they have gladly heard or read in their health' (*Pillenreuth* 178)

In (39'a), the finite verb of the second conjunct has been deleted. In (39'b), the second conjunct is moved to the right.

(39')a. dy sie geren *gehort haben* oder *gelesen* ~~*haben*~~ ...
b. dy sie geren *gehort* t_i haben [*oder gelesen*]$_i$ ...

Let us first assume that the movement analysis as in (39'b) is the correct one. In that case, instances of type 2-1-&-2 would represent the order 1-2, since the shared finite verb (*haben*) occurs to the left of the second conjoined non-finite verb (*gelesen*). Under this analysis (which was assumed in the pilot study), coordination of VPs has a very significant effect on verb order, as seen in Table 21. When the two conjoined VPs share a single finite verb, 2-1 (as represented by type 2-&-2-1) occurs at 67% and 1-2 (as represented by types 1-2-&-2 and 2-1-&-2) occurs 32% of the time. This is considerably higher than the rate of 1-2 when no coordination is involved (24%), and the factor weight indicates that this difference is probably significant.

Table 21: Effect of coordination on 1-2 order (movement analysis of 2-1-&-2)

Coordinated VPs	2-1	1-2	Factor weight
coordinated Vs with shared V^{fin}	177 (67%)	85 (32%)	0.347
coordinated Vs, with own V^{fin}	128 (68%)	59 (31%)	0.523
no coordination	1736 (75%)	558 (24%)	0.516
Total	2041 (75%)	702 (25%)	
p = 0.005			

On the other hand, if one were to assume that the deletion analysis as in (39'a) is correct, instances of type 2-1-&-2 should be treated as order 2-1, since for both conjuncts the finite verb follows the non-finite verb. Under that analysis, coordination of VPs has little effect on the choice between the 1-2 and 2-1 orders, as seen in Table 22. With the problematic type now treated as 2-1, the rate of 1-2 has dropped to 22%, actually below the expected rate.

Table 22: Effect of coordination on 1-2 order (deletion analysis of 2-1-&-2)

Coordinated VPs	2-1	1-2	Factor weight
coordinated Vs with shared V^{fin}	204 (77%)	58 (22%)	0.492
coordinated Vs, with own V^{fin}	128 (68%)	59 (31%)	0.505
no coordination	1736 (75%)	557 (24%)	0.500
Total	2068 (75%)	674 (24%)	
$p = 0.064$			

With no way of knowing which of these two analyses is preferable, one might even assume that some clauses have the deletion analysis and some the movement analysis. Thus at minimum, the rate of the 1-2 order with coordinated non-finite Vs is 22% (indicating no effect), and at most, the rate is 31% (a small but probably significant effect), with the possibility that the rate is somewhere in between. In order to conclude that coordination of non-finite Vs has a favoring effect on 1-2, one needs to assume that all instances of type 2-1-&-2 are derived by movement. Therefore, the pilot study's conclusion that coordination with a shared finite V favors the 1-2 order is weak at best.

The second issue involves coordination of VPs where each non-finite verb has its own finite verb, as in (35), repeated here for convenience as (40):

(40) als er *sprechen solt* oder *wolt sprechen* — each with own V^{fin}
as he speak$_2$ should$_1$ or would$_1$ speak$_2$
'as he should say or would say' (*Pillenreuth* 215)

In Table 21 and Table 22, the rate of 1-2 is 31%, which seems considerably higher than the expected rate. However, the factor weights in both cases are close to 0.5, indicating that this factor does not have a significant effect on verb order. This undermines the conclusion of the pilot study that coordination of VPs with separate finite verbs favors the 1-2 order.

The apparent preference for 1-2 in conjoined VPs is most likely due to an effect called ANACOLUTHON, from the Greek ανακόλουθος 'lacking sequence'. A construction with anacoluthon starts out as one construction (e.g. a declarative clause) but after some syntactic break continues as another construction (e.g. an interrogative). One of the most frequent types of anacoluthon in earlier stages of German involves conjoined subordinate clauses: although the second conjunct should have subordinate-clause word order, it sometimes has main-clause word order instead (Paul 1920:381):

(41) das ich mich in dein sel *pergen muß* vnd *wil* **dir ring** *machen* alles das
that I REFL in your soul hide$_2$ must$_1$ and want$_1$ you humble make$_2$ all that
'that I must hide myself in your soul and want to make all of that humble for you'
(*Pillenreuth* 223)

This is able to account for almost all instances of the 1-2 order in conjoined subordinate clauses in my ENHG corpus. First of all, of the 31 pairs of conjoined subordinate clauses with individual finite verbs where one conjunct has 1-2, only three have 1-2 in the first conjunct but 2-1 in the second conjunct. That is, there is a strong preference for 1-2 in second conjuncts, lending support to the anacoluthon explanation. However, there may be another explanation for the preference for 1-2 in second conjuncts: it is possible for the second conjunct to contrast with the first conjunct, as in (40). Since contrastive focus strongly favors 1-2 (see sections 3.3.3 above and 4.3.3 below), the preference for 1-2 in second conjuncts may reflect the fact that many of those are contrastive.

However, there is a second set of facts that supports the anacoluthon explanation, rendering the focus explanation unnecessary. Of those 28 pairs of conjoined subordinate clauses where the second conjunct apparently has 1-2, all but three are ambiguously V2. Moreover, of those second conjuncts with 1-2, over half have some constituent between the two verbs (1-X-2), as in (41). As we will see in section 4.4.1 below, 1-X-2 accounts for less than one-fifth of the instances of 1-2 in the whole corpus. There seems to be only one explanation that can account for the extremely high frequency of V2 and 1-X-2 clauses in second conjuncts: that they actually have main clause word order.

In sum, contrary to the pilot study, coordination of VPs does not have a favoring effect on the 1-2 order. The pilot study's conclusion that coordinated VPs with a shared finite verb depends on the assumption that no instances of the problematic coordination type 2-1-&-2 involve deletion of the second finite verb, and the apparent favoring effect of coordination with individual finite verbs is reducible to anacoluthon.

4.2.3 Clause type

In the pilot study, there was a difference in the frequency of 1-2 depending on the type of clause, with complement clauses having 1-2 at a rate of 36% and relative clauses only 15% (see Table 16 in section 3.3.5 above). However, in my complete ENHG corpus, this difference has largely disappeared, as seen in Table 23. In complement clauses, the rate of 1-2 is 31%, above the expected rate of 24%. In relative clauses, the rate of 1-2 is 20%, slightly below the expected rate. While it is still true that 1-2 is more frequent in complement clauses than in relative clauses, the factor weights of both are quite close to 0.5, indicating that this difference is a small one.

Table 23: Effect of clause type on 1-2 order

Clause type	2-1	1-2	Factor weight
complement clause	518 (68%)	238 (31%)	0.450
relative clause	752 (79%)	192 (20%)	0.541
adverbial clause	283 (74%)	98 (25%)	0.493
other	515 (77%)	146 (22%)	0.504
Total	2068 (75%)	674 (24%)	
$p < 0.001$			

To my knowledge, this pattern has not been mentioned before, aside from the pilot study discussed above (section 3.3.5). One possible reason why relative clauses show a higher preference for 2-1 than other types could be the ambiguity between the relative pronoun and the demonstrative pronoun, as in (19a). Thus the 2-1 order may be

preferred with relative clauses to avoid such ambiguous cases. However, recall that Reifsnyder (2003:227) finds high rates of the 2-1 orders with the relative particle *so* but not with relative pronouns. This would suggest that the high rate of 2-1 in relative clauses is not due to an attempt to disambiguate them from clauses with demonstrative pronouns.

A second possible reason for this effect could be based on my selection criteria for clauses in the corpus. Because of the ambiguity of the relative pronoun, clauses like (19a) were excluded from the corpus. Recall from section 1.2 above that relative clauses with 1-2 were selected for the corpus only if at least one constituent intervened between the pronoun and the finite verb. However, complement clauses, which are not usually ambiguous between a main and subordinate clause, were selected for the corpus even if the finite verb immediately followed the complementizer (although they were marked as being V2). Thus many 1-2 relative clauses were excluded, while similar 1-2 complement clauses were not.

This second explanation is confirmed by running a second analysis of the data, this time excluding clauses tagged as V2. As seen in Table 24, the difference between complement clauses and relative clauses decreases, from 31% vs. 20% in Table 23 to 27% vs. 19%. This decrease in spread between the percentages is also reflected in the factor weights: for both types of clause in question, the factor weight in Table 24 is closer to 0.5 than it was in Table 23.

Table 24: Effect of clause type on 1-2 order, with V2 clauses excluded

Clause type	2-1	1-2	Factor weight
complement clause	517 (72%)	196 (27%)	0.469
relative clause[25]	752 (80%)	181 (19%)	0.513
adverbial clause	283 (77%)	83 (22%)	0.490
other	514 (80%)	125 (19%)	0.520
Total	2066 (77%)	585 (22%)	
$p < 0.001$			

Thus much of the apparent effect of clause type on the rate of the 1-2 order is due to the differing selection criteria for complement clauses vs. relative clauses. When this difference is controlled for, as in Table 24, the effect of clause type on 1-2 is diminished considerably.

Having discussed three factors that play little or no role in verb order in subordinate clauses in ENHG, in the next section we turn to four factors that do have a favoring effect on 1-2.

[25] Note that a small number of relative clauses (eleven) were tagged as V2, consisting of two types. The first type consists of second conjuncts, where the first conjunct clearly indicates that the clause is a subordinate relative clause but the second conjunct is V2. The second type is relative clauses where only one constituent intervenes between the relative pronoun and the finite verb. These are unambiguous subordinate clauses, but if the relative pronoun is not counted as the first constituent they are also V2:

(i) den er *mu^{o}ge verterben* RC with V2
whom he can destroy
'whom he can destroy' (*Altdeutsche Predigten* 6)

4.3 Favoring factors

4.3.1 Syntagm type

In the pilot study, I demonstrated that syntagm type plays a major role in subordinate clause verb order in ENHG (see section 3.3.1 above), as it does in Dutch and some German dialects. Recall from Table 10 that syntagms with participles have a relatively low rate of the 1-2 order (17%), while syntagms with infinitives have a higher-than-expected rate of 1-2 (37%). The data from the complete ENHG corpus are very similar, as can been seen in Table 25. Syntagms with a participle (perfects and passives) have the 1-2 order just 18% of the time, below the expected rate of 24%. On the other hand, syntagms with an infinitive (modals, causatives, future tense, etc.) strongly favor 1-2, at a rate of 34%.

Table 25: Effect of general syntagm type on 1-2 order

Syntagm	2-1	1-2	Factor weight
aux + PPP (perfect, passive)	1380 (81%)	312 (18%)	0.573
modal (*lassen, werden*) + inf.	668 (65%)	358 (34%)	0.378
aux + inf./PAP (progressive)	20 (83%)	4 (16%)	0.614
Total	2068 (75%)	674 (24%)	
$p < 0.001$			

In addition, there is a relatively rare third type, the progressive tense. The ENHG progressive consists of the auxiliary *sein* or *werden* plus either the infinitive or present participle:[26]

(42) do nu[e] die Junkchfraun vnd y·eder man *slaffen was* — *sein* + infinitive
when now the virgins and every man sleep-inf$_2$ was$_1$
'now when the virgins and everyone were sleeping' (*Denkwürdigk.* 15)

(43) do sich sein sach *pessern ward* — *werden* + infinitive
when REFL his case improve-inf$_2$ was$_1$
'when his case was improving' (*Denkwürdigk.* 14)

(44) sider ich dise bekentnisse von dir *habende bin* — *sein* + PAP
since I these confessions from you having$_2$ am$_1$
'since I have these confessions from you' (*Mannen* 4)

(45) das ich … frvege alleine *wart sitzzende* — *werden* + PAP
that I early alone was$_1$ sitting$_2$
'that I was sitting alone early (in the morning)' (*Mannen* 3)

Although the number of tokens is too small to allow one to draw any firm conclusions, the progressives appear to pattern with the participial constructions.

For the sake of comparison with previous studies, the data in Table 25 can be broken down into more specific syntagms. In Table 26, the syntagms are listed in order of the rate of 1-2, from least frequent to most frequent.

[26] The 24 instances of subordinate clauses with the progressive tense in my corpus come from only five texts. Ten of these have the infinitive as in (42)-(43). All 14 instances with the present participle come from a single text, *Mannen*.

Table 26: Effect of specific syntagms on 1-2 order

Syntagm	2-1	1-2	Factor weight
werden passive	446 (89%)	55 (10%)	0.704
sein passive	237 (88%)	32 (11%)	0.723
progressive	20 (83%)	4 (16%)	0.569
perfect with *haben*	520 (77%)	152 (22%)	0.493
future	49 (76%)	15 (23%)	0.403
perfect with *sein*	177 (70%)	73 (29%)	0.401
modal + inf.	593 (65%)	311 (34%)	0.381
other V + inf. (causative, ACI)	26 (44%)	32 (55%)	0.117
Total	2068 (75%)	674 (24%)	
$p < 0.001$			

The resulting hierarchy can now be compared to those in previous studies. The hierarchy from my ENHG corpus (46a) is largely similar to the hierarchies in Bies' (46b) and Ebert's (46c) ENHG corpora:

(46)a. *werden* passive > *sein* passive > *haben* perfect > future > *sein* perfect > modals
b. *werden* passive > *sein* passive > *haben* perfect > *sein* perfect > future > modals (Bies 1996:58)
c. *werden* passive > *sein* passive > *haben* perfect > future > modals > *sein* perfect (Ebert 1992:5)[27]

The hierarchies do not correspond exactly, but the general trend of passive > perfect > modal does hold.

4.3.2 Extraposition

The pilot study demonstrated that there is a correlation between the 1-2 order and the extraposition of some constituent (see Table 11). This holds true for the larger ENHG corpus as well, as can be seen in Table 27. When some constituent occurs to the right of the verb cluster, the 1-2 order occurs 36% of the time, well above the expected rate of 24%.[28]

Table 27: Effect of extraposition on 1-2 order

NP/PP extraposition in ENHG	2-1	1-2	Factor weight
extraposed constituent	163 (63%)	93 (36%)	0.461
nothing extraposed	1751 (77%)	523 (22%)	0.502
extraposed adjunct PP	153 (72%)	58 (27%)	0.525
Total	2067 (75%)	674 (24%)	
$p < 0.001$			

[27] As reported in Bies (1996:58); this is very similar to the hierarchy reported in Ebert (1998:65), see section 2.5 above. Ebert (1981) is not compared here because *sein* passives and *sein* perfects are not treated separately. The direction of the arrows here indicates the descending preference for the *2-1* order, as in Bies.

[28] The factor weight for this factor is quite close to 0.5, indicating at best a very slight favoring effect. However, when this factor group was tested in isolation, the factor weight was 0.359, indicating a strongly favoring effect.

When there is no extraposition, the rate of the 1-2 order is 22%, very close to the expected rate. The one category of extraposed constituent that behaves differently from other categories is adjunct PPs, such as *an das todpett* in (3). When an adjunct PP is extraposed, the rate of 1-2 is just 27%, very close to the expected rate.[29]

Finally, note the rate of extraposition in the corpus. Of the 2,741 clauses, 211 or 8% have a extraposed adjunct PP, while 256 or 9% have some other constituent extraposed. This means that the total rate of extraposition is 17%.

This leads to an interesting comparison with Modern Standard German. First of all, nearly half of the extraposed constituents in my ENHG corpus are adjunct PPs. Secondly, the fact that adjunct PPs have 1-2 at a lower rate than other types of extraposed constituents suggests that they are not subject to the same restrictions on extraposition. This is not surprising, since adjuncts also extrapose more easily than NPs and argument PPs in Modern Standard German. In Lambert's (1976:137) corpus of written and spoken Standard German, 16.5% of the sentences have an extraposed adverbial phrase, which includes adverbial PPs, while only 3.5% of the sentences have an extraposed argument PP. Bies (1996:65) concludes that focus-driven extraposition of NPs and argument PPs was lost in the transition to NHG, while extraposition of adjuncts continued.

4.3.3 Focus

In the pilot study, I demonstrated that new information and contrastive focus have a strong favoring effect on the 1-2 order (see section 3.3.3 above). In Table 12, new information and contrastive focus were treated together. In my complete ENHG corpus, however, there are enough tokens to view these two kinds of focus separately, as seen in Table 28. If there is contrastive focus, the 1-2 order is very strongly favored, occurring more than 50% of the time. With new information focus, 1-2 is also favored at the rate of 31%, still considerably higher than the expected rate of 24%. On the other hand, old information has a disfavoring effect on 1-2, occurring only 18% of the time.

Table 28: Effect of focus on 1-2 order

Focus	2-1	1-2	Factor weight
contrastive focus	15 (46%)	17 (53%)	0.263
new information	816 (68%)	369 (31%)	0.397
old information	1237 (81%)	288 (18%)	0.586
Total	2068 (75%)	674 (24%)	
$p < 0.001$			

As in the pilot study, let us attempt to corroborate the effect of information structure by looking at two additional factors: the definiteness of the constituent immediately preceding the verb cluster and scrambling. The first of these factors is inconclusive. Recall that indefinite NPs tend to represent new information while definite NPs and pronouns tend to represent old information. Unlike in the pilot study, where indefinites favored the 1-2 order and definites did not, in the complete study, there is no such effect, as seen in Table 29. When the preceding NP is indefinite (including QPs

[29] Recall from section 2.6 above that Bies' data also show that NP extraposition affects verb order, while PP extraposition does not. In fact, her numbers are strikingly similar to mine: 1-2 occurs 37.1% of the time with NP extraposition and 29.2% with PP extraposition, versus the expected rate of 27.3% (Bies 1996:61).

with *jeder*, *kein*, *alle*), the rate of 1-2 is 23%, and when it is definite (including pronouns and proper names), the rate is 25%. Note, however, that the definiteness of the preceding constituent would only be able to capture new information focus, since contrastive focus may involve a preceding definite NP.

Table 29: Effect of the information status of the preceding NP on 1-2 order

Preceding NP	2-1	1-2	Factor weight
indefinites (including QPs)	198 (76%)	61 (23%)	0.537
definites	670 (74%)	225 (25%)	0.489
Total	868 (75%)	286 (24%)	
$p = 0.601$			

The information status of the preceding NP may have an effect, when added with another factor that I have ignored thus far: the constituent that intervenes between the verbs in the 1-X-2 construction. On the analysis that the intervening constituent stays inside the VP and is thus not scrambled (along the lines of Haegeman 1992, see Chapter 5, section 2.3.2 below for details), one might assume that the constituent, like other non-scrambled objects, is focused. In the analysis presented in Table 30, intervening NPs, pronouns, and QPs (all regardless of definiteness) have been added to the indefinite preceding NPs and QPs. When the preceding NP is indefinite or there is an intervening NP, the rate of 1-2 is 35%, now well above the expected 26%.

Table 30: Effect of the information status of the preceding/intervening NP

Preceding (or intervening) NP	2-1	1-2	Factor weight
indefinites plus intervening NPs	198 (64%)	111 (35%)	0.395
definites	670 (76%)	204 (23%)[30]	0.537
Total	868 (73%)	315 (26%)	
$p = 0.601$			

The second supporting factor, scrambling, does corroborate the effect of focus on the 1-2 order, as in the pilot study. Recall that when an object is focused, it is usually not scrambled (i.e. occurs to the right of a sentential adverb or negation), whereas old information NPs tend to be further leftward in the clause. As seen in Table 31, clauses with unscrambled objects favor the 1-2 order at a rate of 38%, well above the expected rate. In clauses with scrambled NPs, on the other hand, the rate of 1-2 is close to the expected rate.

[30] This number is a bit lower than in in Table 29, because of some clauses which have an intervening constituent and a preceding definite NP.

Table 31: Correlation between scrambling and 1-2 order

Scrambled object?	2-1	1-2	Factor weight
object not scrambled	45 (61%)	28 (38%)	0.371
object is scrambled	115 (71%)	46 (28%)	0.568
cannot tell[31]	1908 (76%)	600 (23%)	0.499
Total	2068 (75%)	674 (24%)	
$p = 0.014$			

Finally, section 4.3.2 above showed that extraposition favors the 1-2 order. Since according to Bies (1996) extraposed constituents tend to be focused, this also supports the favoring effect of focus on 1-2.

4.3.4 Prefix type

The pilot study confirmed Ebert's (1981:207; 1998 *passim*) observation that stressed separable prefixes favor the 1-2 order (see section 3.2.3 above). As seen in Table 32, this also holds for the larger ENHG corpus. When the non-finite verb has an SSP, the 1-2 order occurs 35% of the time, well above the expected rate of 24%. The factor weight, well below 0.5, confirms that this factor strongly favors the 1-2 order.

Table 32: Effect of prefix type on 1-2 order

Prefix type	2-1	1-2	Factor weight
stressed	187 (64%)	104 (35%)	0.331
no prefix	532 (70%)	228 (30%)	0.536
unstressed	1349 (79%)	342 (20%)	0.514
Total	2068 (75%)	674 (24%)	
$p < 0.001$			

A conceivable reason for the correlation between prefix type and word order could be an interaction with syntagm type. Past participles usually have an unstressed prefix, especially the perfective marker *ge-*, whereas infinitives do not necessarily. (Either form may have an SSP.)

GoldVarb 2001 has a cross-tabulation function, which allows the researcher to test for interactions of this kind. The result of the cross-tabulation of prefix type and syntagm type, given in Table 33, suggests that the factors prefix type and syntagm type are independent of each other, and that their effect on verb order is cumulative. For all three factors in the factor group prefix type, the frequency of 1-2 is higher with infinitival constructions than with participial constructions (stressed prefix: 51% > 25%; no prefix: 32% > 22%; unstressed prefix 34% > 17%). Likewise, for both past participles and infinitives, the frequency of 1-2 is highest with stressed prefixes and lowest with unstressed prefixes (past participles: 25% > 17%; infinitives: 51% > 34%).

[31] I have included pronouns in this category. Pronouns do scramble since they are always old information, and tend to appear much earlier in the clause than other NPs, with pronominal objects often coming even before the subject. When this factor is removed from the analysis, so that only the clear cases of scrambling versus non-scrambling are tested, the significance is improved to $p = 0.003$.

Table 33: Cross-tab of prefix type with syntagm type

Prefix type	word order	participle	infinitive	Total
stressed	2-1	128 (75%)	57 (49%)	185 (64%)
	1-2	43 (25%)	59 (51%)	102 (36%)
no prefix	2-1	106 (78%)	410 (68%)	516 (70%)
	1-2	30 (22%)	196 (32%)	226 (30%)
unstressed	2-1	1146 (83%)	201 (66%)	1347 (80%)
	1-2	239 (17%)	103 (34%)	342 (20%)
Total	2-1	1380 (82%)	668 (65%)	2048 (75%)
	1-2	312 (18%)	358 (35%)	670 (25%)

In sum, the presence of a stressed separable prefix on the non-finite verb favors the 1-2 word order, and this effect is independent of syntagm type. Having discussed four syntactic factors that favor 1-2 in ENHG subordinate clauses, in the next section I will present the variation in subordinate clause word order over time, across dialects, and sociolinguistically.

4.4 Diachronic, dialectal, and sociolinguistic variation

4.4.1 Date

As seen in section 2 above, it is well established that the 1-2 order decreases over time, becoming ungrammatical in Modern Standard German. In my ENHG corpus, there is also a sharp decrease in the rate of 1-2 order from the 14th to the 16th centuries, as seen in Table 34. In the 14th century, the rate of 1-2 is 35%, considerably higher than the overall rate of 24%. By the 15th century, the rate of 1-2 has dropped to 22%, just below the overall rate. The frequency of 1-2 in the 16th century is lower still.

Table 34: Effect of time on 1-2 order

Century	2-1	1-2	Factor weight
1350-1399	546 (64%)	301 (35%)	0.335
1450-1499	783 (77%)	223 (22%)	0.512
1550-1599	739 (83%)	150 (16%)	0.646
Total	2067 (75%)	674 (24%)	
$p < 0.001$			

The relatively high rate of 1-2 in the 16th century in the table above may be a bit misleading, due to the presence of one text, *Walter Ralegh*. In *Walter Ralegh*, 69% of the two-verb clusters have the 1-2 order, more than twice as high as any other 16th-century text, and more than triple the earlier Hessian texts. I believe the extremely high frequency of 1-2 is a result of the fact that the ENHG *Walter Ralegh* is a translation from Dutch.[32] With that questionable text removed from the analysis, the following distribution obtains, with the frequency of 1-2 in the 16th century reduced from 16% to 11%.

[32] Although *Walter Ralegh* had to be removed from the time, dialect, and sociolinguistic analyses, where one text could have a strong influence on the results, it was included in the other analyses. As will be seen in Chapter 3, despite the high rate of the 1-2 order in *Walter Ralegh*, the factors favoring that order are the same as in other ENHG texts.

Table 35: Effect of time on 1-2 order, excluding *Walter Ralegh*

Century	2-1	1-2	Factor weight
1350-1399	546 (64%)	301 (35%)	0.334
1450-1499	783 (77%)	223 (22%)	0.495
1550-1599	714 (88%)	93 (11%)	0.679
Total	2043 (76%)	617 (23%)	
$p < 0.001$			

This result is largely similar to trends found in previous studies. In Hammarström (1923), Ebert (1981), and Bies (1996), 1-2 generally declines over time, as seen in Table 36. For all three corpora, the frequency of 1-2 is highest at the beginning of the period and lowest at the end. However, unlike my ENHG corpus and Hammarström's study, which show a steady decrease of 1-2 over time, both Ebert's and Bies' data have an increase in the middle of the period (1500-1550 and 1450-1500, respectively) before decreasing in the end. According to Bies (1996:50), this kind of discrepancy across corpora is 'suggestive of widespread synchronic variation and the normative pressure of a change from above'.

Table 36: Effect of time on 1-2 order: comparison to previous studies

Period	Hammarström[33]	Ebert (1981)[34]	Bies (1996)	from Table 34
1300-1350	12.6%	30.7%	36.1%	
1350-1400			20.6%	35%
1400-1450	5.0%	25.2%	19.2%	
1450-1500			34.8%	22%
1500-1550	0%	32.3%	24.2%	
1550-1600		23.6%		11%

Having seen the decrease of 1-2 (in the general sense that the finite verb precedes the non-finite verb) over time, let us look at the difference between the 1-2 order in the narrow sense (the finite verb immediately precedes the non-finite verb) and the 1-X-2 order. As shown in Table 37, the rate of the 1-2 order in the stricter sense decreases over time, while the 1-X-2 order decreases only slightly.[35] These results are illustrated graphically in Figure 1. Table 38 indicates the frequency of 1-2 in the strict sense and of 1-X-2 as a percentage of the two orders combined.

[33] Percentages for imperial and princely documents, compiled from Table 1 and Table 2 above. The raw numbers are 1315-1399: 88 clusters with 1-2 out of 700; 1414-1488: 8 out of 169; and 1493-1537: 0 out of 282. The categories 'other princes' and 'official persons' were excluded since they spanned over two centuries.

[34] As reported in Bies (1996:52). Bies converts Ebert's ratios to percentages. Moreover, I have averaged the percentages for sentence-internal and sentence-final, to ease comparison.

[35] *Gold Varb 2001* is not equipped for multi-variate analyses, i.e., although it can calculate the raw numbers and percentages for several values of the dependent variable, it can statistically test only two values. Thus the data for 1-X-2 order are given without factor weights or statistical significance.

Table 37: Effect of time on 1-2 and 1-X-2 orders

Century	2-1	1-2	1-X-2
1350-1399	544 (64%)	264 (31%)	36 (4%)
1450-1499	783 (77%)	170 (16%)	51 (5%)
1550-1599[36]	714 (88%)	69 (8%)	24 (2%)
Total	2041 (76%)	503 (18%)	111 (4%)

Figure 1: Frequency of the 1-2 and 1-X-2 orders over time

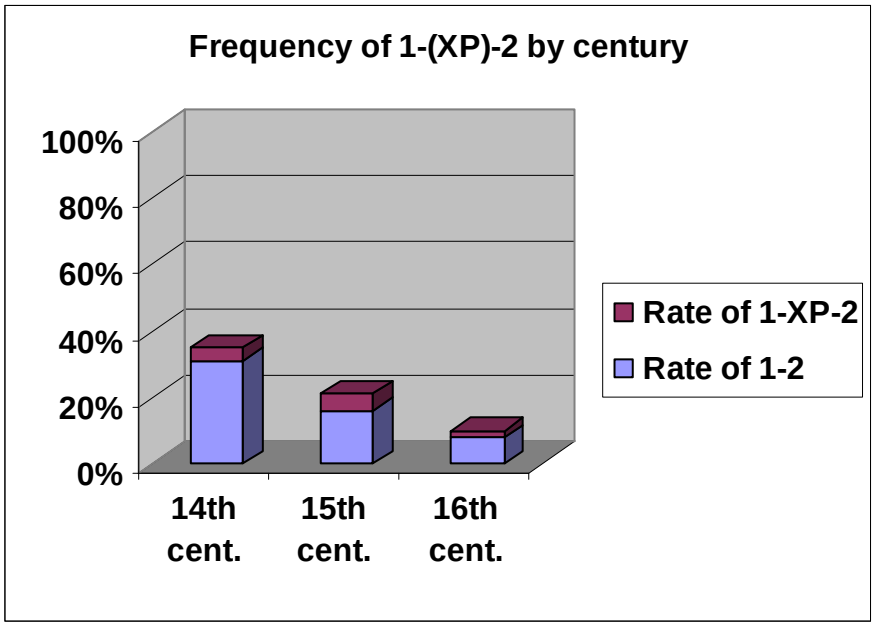


Table 38: Effect of time, 1-2 vs. 1-X-2 order

Century	1-2	1-X-2
1350-1399	264 (88%)	36 (12%)
1450-1499	170 (76%)	51 (23%)
1550-1599[37]	69 (74%)	24 (25%)
Total	503 (81%)	111 (18%)

Recall from section 1.2 above that some unambiguously subordinating clauses with the verb in the second position were marked in the corpus. This makes it possible to exclude such clauses in a *GoldVarb* analysis. Doing so is especially important with 1-X-2 clauses, to rule out the possibility that they involve main clause word order rather than true, unambiguous 1-X-2. Excluding these subordinate clauses with possibly main clause word order results in a smaller number of 1-2 clauses (especially 1-X-2 clauses), as can be seen in Table 39, although a comparison with Table 37 shows that this difference is very slight. In any event, those 1-X-2 subordinate clauses that remain cannot be accounted for by main clause word order, indicating that ENHG, like some contemporary

[36] Excludes *Walter Ralegh.*
[37] Excludes *Walter Ralegh.*

West Germanic dialects (see Chapter 4), has the Verb Projection Raising (VPR) construction.

Table 39: Effect of time on 1-2 and 1-X-2 orders, V2 clauses removed

Century	2-1	1-2	1-X-2
1350-1399	544 (68%)	227 (28%)	29 (3%)
1450-1499	783 (80%)	152 (15%)	33 (3%)
1550-1599[38]	714 (89%)	68 (8%)	20 (2%)
Total	2041 (79%)	447 (17%)	82 (3%)

The rate of the 1-X-2 order is fairly stable throughout the period, both as a percentage of the total clauses, and as a percentage of the 1-(X)-2 orders. Thus most of the decrease over time of the non-NHG word orders is a result of the decrease of the 1-2 order in the strict sense rather than a decrease of the 1-X-2 order.

4.4.2 Dialect

As one might expect from a linguistic feature that shows great variation by linguistic context and over time, verb order in subordinate clauses in ENHG varies widely by dialect. As seen in Table 40, the frequency of the 1-2 order (in the wider sense, i.e. including 1-X-2) ranges from a low of 8% in texts from Cologne to a high of 42% in texts from Swabia.

Table 40: Effect of dialect on 1-2 order

Dialect	2-1	1-2	Factor weight
Cologne	256 (91%)	24 (8%)	0.742
Alsace	247 (88%)	33 (11%)	0.669
Hesse[39]	155 (87%)	23 (12%)	0.645
Thuringia	180 (85%)	31 (14%)	0.611
Zurich	192 (83%)	37 (16%)	0.584
Augsburg	216 (76%)	68 (23%)	0.462
Vienna	215 (75%)	70 (24%)	0.453
Saxony	194 (69%)	87 (30%)	0.376
Nuremberg	226 (64%)	126 (35%)	0.326
Swabia	162 (57%)	118 (42%)	0.271
Total	2043 (76%)	617 (23%)	
$p < 0.001$			

Dialectal variation will be discussed in detail in Chapter 3.

4.4.3 Sociolinguistic factors

As shown by Hammarström (1923), Ebert (1981, 1998), Bies (1996), and Reifsnyder (2003), subordinate-clause word order in ENHG is subject to a great deal of sociolinguistic variation (see section 2 above). In my ENHG corpus, clauses were coded for four sociolinguistic factors: the author's sex, education, and social class, and the genre of the text. There are only two texts by women in the corpus (*Denkwürdigkeiten* and

[38] Excludes *Walter Ralegh.*
[39] Excluding the 16th-century Hessian text *Walter Ralegh*.

Pillenreuth Mystik), so no conclusions can be made about the influence of sex on word order. In addition, the Bonn corpus only gives education level for three of the authors, so this study can draw no conclusions about the effect of education either.

The effect of occupation is obvious, with the higher-status occupations having the lowest rates of 1-2 and vice versa, as seen in Table 41.[40] The two university officials and the two nobles have the 1-2 order at a rate of 8% and 11%, respectively, well below the expected rate of 16%. The texts by scribes, printers, and physicians have the 1-2 order at frequencies close to the expected rate.[41] The six texts in the corpus written by clerics have the highest rate of 1-2 at 23%.

Table 41: Effect of occupation on 1-2 order

Occupation (number of texts)	2-1	1-2	Factor weight
university officials (2)	166 (91%)	15 (8%)	0.580
nobles (2)	121 (88%)	16 (11%)	0.566
scribes/printers (6)	408 (85%)	71 (14%)	0.423
physicians (3)	214 (81%)	47 (18%)	0.623
clerics (6)	357 (76%)	107 (23%)	0.459
Total	1266 (83%)	256 (16%)	
$p <$ 0.001			

This generally confirms the findings of previous studies. In Ebert (1981:222-223), patrician administrators have lower frequencies of 1-2 than do merchants and artisans. In Bies (1996:56), nobles and merchants do not significantly differ from each other, but clerics have 1-2 at a significantly higher rate than the other two groups. Taken together, these two studies confirm the general hierarchy in Table 41, with clerics having the highest rates of 1-2, followed by middle-class professions, with nobles having the lowest rates of 1-2. In Reifsnyder (2003:224), however, private letters by patricians have a much higher rate of 1-2 (56.76%) than letters written by scribes on behalf of artisans (28%), letters by schoolmasters (10.34%), and official letters (4.76%). The fact that private letters by patricians differ so much from letters written by scribes in Reifsnyder's study suggests that the intended audience of the text may be as important as the class of the writer.

Note that there may be some interaction between time and occupation in my study. For example, the two texts written by the university officials are from the 16th century, which could be the main reason why they have the lowest rates of 1-2. However, time alone cannot account for the high rate of 1-2 with clerics: even in the 14th and 15th centuries, clerics have a higher frequency of 1-2 than do other occupations.

Genre has an effect on word order in the current study, as can be seen in Table 42. The most formal text type in the corpus, chronicles, has the lowest frequency of 1-2 at 13%, well below the expected rate of 23%. Technical prose also has a relatively low rate

[40] This data excludes the many anonymous texts, most of which are early, so the overall rate of 1-2 for this factor group (16%) is lower than for the corpus as a whole (24%). Furthermore, the occupations judge and merchant, which had only one representative each, are excluded. The text *Walter Ralegh* is excluded by virtue of (the ENHG translation) being an anonymous text.

[41] However, the factor weights for both of these factors are unexpectedly far from 0.5, and in the opposite of the expected direction: 14% should yield a factor weight above 0.5 and 18% should be below 0.5.

of 1-2 (19%).[42] The two less formal genres, literature and religious prose, have higher-than-expected frequencies at 29% and 28% respectively.

Table 42: Effect of genre on 1-2 order

Genre	2-1	1-2	Factor weight
literature	196 (70%)	82 (29%)	0.320
religious	943 (71%)	368 (28%)	0.485
technical prose	249 (80%)	61 (19%)	0.337
chronicle[43]	665 (86%)	106 (13%)	0.658
Total	2043 (76%)	617 (23%)	
$p < 0.001$			

These findings are confirmed by previous scholarship. Hammarström (1923) finds higher rates of 1-2 in literature than in chancery documents. Ebert (1981:221), who looked only at letters, found that less formal letters had higher rates of 1-2. Ebert's (1998:166) study of 16th-century Nuremberg found that chancery and other official documents had the lowest rates of 1-2 (7-8%), followed by religious texts (19%), technical writings (26%), and private letters (23-35%).[44] In Bies (1996:54), expository essays and government writings also have a lower rate of 1-2 (16.9% and 21.1%, respectively), while literary texts have the highest frequency (43.5%). In Reifsnyder (2003:224), official letters and city ordinances have the lowest rates of 1-2 (4.76% and 5.07%, respectively). Chronicles rank in the middle (24.29%), and the highest rates are in text types closest to the spoken language, such as flyers (32.06%), guild records (48.36%), and personal letters (56.76%).

It is not immediately obvious that religious texts are a less formal genre. Some of the religious texts in the corpus are less formal, such as sermons, while others are more formal, like the *Oxforder Benedictinerregel* (the rules of a Benedictine monastery). The high rate of the 1-2 order in religious texts may be primarily due to the fact that religious texts are overrepresented in the 14th-century, when the frequency of 1-2 was highest. Of the ten 14th-century texts in the corpus, seven are religious in nature. In contrast, only two 15th-century and five 16th-century texts are religious. Another explanation for the high rate of 1-2 in religious texts could be that they tend to be written by clerics, who show higher rates of 1-2 than other occupations, as mentioned above.

4.5 Conclusion

In this section, I have discussed the results of my analysis of word order variation with clusters of two verbs, based on a corpus of 30 ENHG texts. Of the variables examined, three were not found to affect verb order: the word preceding the verb cluster, coordination of VPs and clause type. On the other hand, four factors were found to affect

[42] However, the factor weight, being well below 0.5, suggests that this factor FAVORS 1-2. Thus no strong conclusions should be drawn for this factor. Note in the discussion below that the rate of 1-2 order in technical texts varies considerably across studies: among the highest genres in Ebert (1981) at 26%, but the lowest genre in Bies (1996) at 16.9%. Note also that three of the four texts in this category were written by physicians, so it is difficult to separate genre from profession in this case.

[43] Excludes *Walter Ralegh.*

[44] The percentages reported here are from the period 1510-1560, since fewer genres are represented in the following period (1560-1600).

verb order: syntagm type, extraposition, focus, and verbal prefixes. Finally, the date, dialect, and genre of the text, as well as the occupational status of the author, play a major role in the choice of word orders. The next section will test these same factors on subordinate clauses with clusters of three verbs.

5 Clusters with three verbs in ENHG

5.1 Introduction

Of the nearly 3,000 subordinate clauses in my ENHG corpus, 165 clauses have clusters of three verbs and four clauses have clusters of four verbs. The basic facts regarding the four-verb clusters were given in section 1.1 and will not be discussed further.

Recall from section 1.1 that four of the six logically possible orders for three-verb clusters are attested in ENHG: the left-selecting 3-2-1 order (5), the right-selecting 1-2-3 order (7), and two mixed orders, 1-3-2 (6) and 3-1-2 (8). (The examples are repeated here for convenience.)

(5) das so darvorgesetzt ist in fragweis *verstanden werden soll* 3-2-1
that RP before.set is in question understood$_3$ be$_2$ should$_1$
'that what is set before should be understood as a question' (*Eunuchus* 14)

(6) als er des tages *scholt begraben werden* 1-3-2
as he the day should$_1$ buried$_3$ be$_2$
'when he should be buried on that day' (*Pillenreuth* 212)

(7) so er dan den menschen nicht *hat mugen vberwinden* 1-2-3
when he then the person not has$_1$ can$_2$ overcome$_3$
'when he has not been able to overcome the person' (*Pillenreuth* 158)

(8) dy er ... *getan solt haben* 3-1-2
RP he done$_3$ should$_1$ have$_2$
'that he should have done' (*Pillenreuth* 159)

Moreover, recall that a constituent may break up the verb cluster (VPR) with the orders 1-3-2 and 1-2-3. These orders were described in section 1.1 above, and hereafter will be treated with the other instances of 1-3-2 and 1-2-3.

Having four possible word orders presents three problems. The first has to do with the fact that *GoldVarb 2001* allows only binomial analyses, and four word orders would require a multinomial analysis. To get around this limitation, I ran four separate analyses for each factor group. I tested the order 3-2-1 against the combined orders 1-3-2, 1-2-3, and 3-1-2. Then I tested the 1-3-2 order against the other three combined, etc. This allowed me to have factor weights and statistical significance for each of the four dependent variables.

The second problem is the low number of tokens. There are only 169 clauses (165 with three verbs plus four clauses with four verbs) to begin with, and this is compounded by having four dependent variables. Thus in this section, statistical significance will only rarely be found.

The third problem is one of presentation, thus I will briefly explain how to interpret the tables. Taking Table 43 as an example, there are two occurrences of the order 3-2-1 with an adjective preceding the verb cluster. These two instances make up 40% of the five total instances of an adjective preceding a three-verb cluster. To determine whether this is a favoring factor for the 3-2-1 order, this percentage should be compared not to the percentages of the other word orders, but to the expected rate of 3-2-1 in the corpus, which is 17%. Of course, to determine whether the favoring effect is significant, the factor weight needs to be consulted. In this section, factor weights will be reported in the body of the text when relevant, and a factor weight greater than 0.5 indicates a favoring effect on the word order in question.

This section is organized as follows. In section 5.2, I will present four factors that do not affect word order in three-verb clusters. This includes the three factors that had no effect on the order of two-verb clusters (preceding word, coordination, and clause type), plus one factor that affects two-verb clusters but not three-verb clusters: extraposition. Section 5.3 discusses the three factors that do affect verb placement in these clusters: syntagm type, focus, and verbal prefixes. Finally, section 5.4 discusses the effect of date, dialect, and sociolinguistic factors on three-verb clusters.

5.2 Non-favoring factors

5.2.1 Word/Phrase preceding the verb cluster

In section 4.2.1 above, it was demonstrated that in clusters of two verbs, the category of the word preceding the verb cluster had little effect on the order of the verbs. Whether a pronoun or non-pronominal NP preceded, the rate of 1-2 was the expected rate. The 1-2 order was favored by the infrequent categories adjective, stranded preposition, and nothing preceding.

For clusters of three verbs, this factor group is not significant for any of the word orders, as shown in Table 43. Thus no firm conclusions can be drawn. For the record, however, note that for the more frequent categories adverb and prepositional phrase, the percentages for each word order are close to the expected rates. On the other hand, after NPs the 3-2-1 order is disfavored, occurring at just 9%, well below the expected 17% (factor weight = 0.359), while the order 3-1-2 is favored, occurring 31% of the time, above the expected rate of 23% (factor weight = 0.625). To the extent that these results are significant, this is surprising, since NPs had no effect on the order of two-verb clusters.

Table 43: Effect of the category of the preceding word on three-verb clusters

Class of preceding word	3-2-1	1-3-2	1-2-3	3-1-2
noun / pronoun / QP	5 (9%)	18 (35%)	12 (23%)	16 (31%)
adjective	2 (40%)	1 (20%)	1 (20%)	1 (20%)
adverb	7 (15%)	22 (48%)	8 (17%)	8 (17%)
prepositional phrase	11 (20%)	24 (44%)	7 (12%)	12 (22%)
clause / nothing precedes	5 (35%)	5 (35%)	2 (14%)	2 (14%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	p = 0.192	p = 0.475	p = 0.868	p = 0.415

5.2.2 Coordination of VPs

Recall from section 4.2.2 above that coordination of VPs does not have a favoring effect on 1-2. As can be seen in Table 44, coordination of VPs has no effect on verb order in three-verb clusters either. For none of the word orders is this factor group statistically significant, although the 3-2-1 order and 1-2-3 order are close enough to being significant that they may merit some discussion for completeness' sake.

Table 44: Effect of coordination on three-verb clusters

Coordinated VPs	3-2-1	1-3-2	1-2-3	3-1-2
coordination	9 (31%)	11 (37%)	2 (6%)	7 (24%)
no coordination	21 (15%)	59 (42%)	28 (20%)	32 (22%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.053$	$p = 0.681$	$p = 0.070$	$p = 0.887$

The 3-2-1 order appears to be favored by coordination, occurring at a rate of 31%, above the expected rate of 17% (factor weight = 0.711). Conversely, the 1-2-3 order is disfavored at 6%, versus the expected rate of 17% (factor weight = 0.257). However, this effect may be due to the effect of time. More than half of the tokens involving coordination of three-verb clusters are from the 16th century, when the 3-2-1 order is at its most frequent (see section 5.4.1 below).

5.2.3 Clause type

Section 4.2.3 demonstrated that the apparent favoring effect of complement clauses for 1-2 is a slight one. The effect of clause type on word order in three-verb clusters is not clear, either, as shown in Table 45. This factor group is significant only for the 3-1-2 order. That order is slightly favored by complement clauses, occurring 30% of the time versus the expected rate of 23% (factor weight = 0.624). It is unclear what relationship this may have to the slightly favoring effect of complement clauses on the 1-2 order.

Table 45: Effect of clause type on three-verb clusters

Clause type	3-2-1	1-3-2	1-2-3	3-1-2
complement clause	9 (17%)	19 (36%)	8 (15%)	16 (30%)
relative clause	10 (20%)	18 (36%)	7 (14%)	14 (28%)
adverbial clause	2 (12%)	4 (25%)	6 (37%)	4 (25%)
other	9 (17%)	29 (55%)	9 (17%)	5 (9%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.902$	$p = 0.070$	$p = 0.253$	$p = 0.035$

5.2.4 Extraposition

The previous three factor groups had no effect on either two-verb or three-verb clusters. NP/PP extraposition, on the other hand, has an effect on two-verb clusters (as shown in section 4.3.2 above), but no effect on clusters of three verbs. As seen in Table

46, the effect of this factor group is not statistically significant for any of the four word orders.[45]

Table 46: Effect of extraposition on three-verb clusters

NP/PP extraposition	3-2-1	1-3-2	1-2-3	3-1-2
extraposed constituent	1 (14%)	1 (14%)	2 (28%)	3 (42%)
nothing extraposed	26 (17%)	65 (43%)	27 (17%)	33 (21%)
extraposed adjunct PP	3 (27%)	4 (36%)	1 (9%)	3 (27%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.705$	$p = 0.262$	$p = 0.567$	$p = 0.464$

Although no firm conclusions can be drawn concerning the effect of extraposition on verb order in three-verb clusters, the following observations can be made about extraposition in these clauses. First of all, of the 169 clauses with three-verb clusters, 18 or 11% have extraposition. This rate is lower than the rate of extraposition with two-verb clusters (17%), suggesting that the larger clusters may be more difficult to extrapose around. Secondly, note that while adjunct PPs made up less than half of the cases of extraposition with two-verb clusters (211 out of 467, or 45%), adjunct PPs make up more than half of the cases of extraposition with three-verb clusters (11 out of 18, or 61%). This suggests that whatever the impediment for extraposition around three-verb clusters may be, it is easier to extrapose adjunct PPs than other constituents.

Having discussed four factors which do not affect word order in clusters of three verbs, in the next section we turn to three factors that do. These are syntagm type, focus, and verbal prefixes.

5.3 Favoring factors

5.3.1 Syntagm type

In section 4.3.1 above, I showed that syntagm type plays a major role in subordinate clauses with clusters of two verbs. Table 47 and Table 48 demonstrate that this is also the case for clusters of three verbs. Table 47 shows the distribution of each attested syntagm, which are illustrated in (47)-(55):

(47) als er des tages *scholt begraben werden* — modal + passive
as he the day should$_1$ buried$_3$ be$_2$
'when he should be buried on that day' (*Pillenreuth* 212)

(48) das auß Guiana *gebracht worden ist* — perfect of passive
RP from G. brought$_3$ be$_2$ is$_1$
'which has been brought from Guyana' (*Walter Ralegh* iv)

(49) dy er ... *getan solt haben* — modal + perfect
RP he done$_3$ should$_1$ have$_2$
'that he should have done …' (*Pillenreuth* 159)

[45] Further tests did not result in improved significance, neither combining extraposed adjunct PPs with other extraposed constituents, nor combining extraposed adjunct PPs with clauses without extraposition.

(50) so er dan den menschen nicht *hat mugen vberwinden* perfect + modal (IPP)
when he then the person not has$_1$ can$_2$ overcome$_3$
'when he has not been able to overcome the person' (*Pillenreuth* 158)

(51) das thais phedriam ee *hat gehoert reden* perfect + ACI (non-IPP) [46]
that T. P. more has$_1$ heard$_2$ speak$_3$
'that Thais heard Phedria speak, rather (than saw him)' (*Eunuchus* 23)

(52) dz si es mit der von togenburg … *willen behaben mugent* modal + modal + inf.
that they it with that from T. want$_2$ have$_3$ can$_1$
'that they may want to have it with the one from Togenburg' (*Edlibach Chr.* 9)

(53) Weyl sie an disen zeichen sich nicht *wo^{e}llen settigen lassen* modal + causative
because they on these signs REFL not want$_1$ satisfy$_3$ let$_2$
'because they do not want to be satisfied by these signs' (*Summaria* 21r)

(54) wenn … Jesus … *wird* … herrlich *gemacht werden* *werden* + passive
when J. will$_1$ glorious made$_3$ be$_2$
'When … Jesus … will … be made glorious' (*Passionale* 42v)

(55) daß wir also eine … Heymfahrt *wu^{e}rden gehabt haben* *werden* + perfect
that we such a return-trip would$_1$ had$_3$ have$_2$
'that we would have had such a … return journey' (*Walter Ralegh* 5)

Table 47: Effect of specific syntagms on three-verb clusters

Syntagm	3-2-1	1-3-2	1-2-3	3-1-2
modal + passive	20 (25%)	36 (45%)	2 (2%)	22 (27%)
perfect of passive	7 (26%)	9 (34%)	0 (0%)	10 (38%)
modal + perfect	1 (12%)	5 (62%)	0 (0%)	2 (25%)
perfect + modal (IPP)	0 (0%)	10 (32%)	20 (64%)	1 (3%)
perfect + ACI (non-IPP)	0 (0%)	0 (0%)	2 (2%)	0 (0%)
modal + modal + inf.	1 (25%)	1 (25%)	1 (25%)	1 (25%)
modal + causative	1 (8%)	7 (58%)	1 (8%)	3 (25%)
werden + pass. / perf.	0 (0%)	2 (100%)	0 (0%)	0 (0%)
Total	30 (17%)	70 (41%)	26 (17%)	39 (23%)

Note that there are many syntagms that have no occurrences with a given word order. These zeros are known in *GoldVarb* as KNOCK-OUT FACTORS, and preclude *GoldVarb* from running a statistical analysis. Thus there is no statistical significance available for Table 47. In Table 48, the minor syntagms perfect + perception verb + infinitive (non-IPP), modal + modal + infinitive, and *werden* + passive/perfect have been removed. The remaining ones are analyzed in the most significant combination, with the three main kinds of syntagms containing a participle (47)-(49) combined, but the IPP (50) and modal + causative (53) syntagms left separately.

[46] Both instances of this construction have *gehoert* as the second verb.

Table 48: Effect of general syntagm type on three-verb clusters

Syntagm	3-2-1	1-3-2	1-2-3	3-1-2
modal + passive, perfect of passive, modal + perfect	28 (24%)	50 (43%)	2 (1%)	34 (29%)
perfect + modal (IPP)	0 (0%)[47]	10 (32%)	20 (64%)	1 (3%)
modal + causative	1 (8%)	7 (58%)	1 (8%)	3 (25%)
Total	29 (18%)	67 (42%)	23 (14%)	38 (24%)
significance	$p = 0.170$	$p = 0.267$	$p < 0.001$	$p = 0.004$

The results for three-verb clusters are similar to those with two-verb clusters. Recall from Table 25 that in two-verb clusters, syntagms with a participle slightly disfavor the 1-2 order. Similarly, three-verb syntagms with participles strongly disfavor the 1-2-3 order, occurring just 1% of the time versus the expected rate of 14% (factor weight = 0.262), while slightly favoring the other orders (with varying degrees of significance).

Recall also from Table 25 that in two-verb clusters, syntagms with an infinitive strongly favor the 1-2 order and disfavor the 2-1 order. Likewise, three-verb syntagms with infinitives strongly disfavor the 3-2-1 order: this order is unattested for IPP, and occurs just 1 time for modal + causative (factor weight = 0.240).[48] The IPP construction overwhelmingly favors the 1-2-3 order at a rate of 64% (factor weight = 0.973). To an equal degree, IPP disfavors the 3-1-2 order, with a rate of only 3% versus the expected 24% (factor weight = 0.117).

Finally, note that the frequency of the 1-3-2 order for each syntagm is close to the expected rate (42%), indicating that syntagm has little effect on this word order (which is probably the reason for the low significance of the factor group). The fact that the 1-3-2 order is the most frequent, plus the fact that syntagm type has little effect on it, indicates that it may be the unmarked order in ENHG.

Since the number of tokens with three verbs in my corpus is small, my results can be compared to those in the much larger study by Härd (1981). For the period 1450-1580, Härd has 2,704 tokens with three or more verbs. Results from Härd for this period are presented in Table 49.

[47] Because this is a knock-out factor, it was excluded from the test of 3-2-1 vs. the other orders.

[48] In another test, I combined these two factors. The result, which was significant ($p < 0.001$), was that the two together strongly disfavor the 3-2-1 order (factor weight = 0.130).

Table 49: Verb orders by syntagm in Härd (1981:46-52)

Syntagm (Härd's class)	3-2-1[49]	1-3-2	1-2-3[50]	3-1-2
modal + pass. / perf. (III)	15.8%	56.7%		27.5%
perfect of passive (I)	23.2%	26.3%		40%
perfect + IPP (IV)	2.3%	28.8%	56.9%	8.3%
modal + inf. + inf. (V, VI)	15.1%	43.3%	30.4%	11.1%
werden + pass. / perf. (II)	17.8%	72.1%		10.1%

Härd's results are remarkably similar to my data in Table 47, with identical rankings for all syntagms except modal + two infinitives. As in my corpus, the modal + passive and modal + perfect have 1-3-2 as the most frequent order (56.7% in Härd, versus 45% and 62% in mine), followed by 3-1-2 and 3-2-1. The perfect of the passive favors the 3-1-2 order (40% in Härd and 38% in my study), followed by 1-3-2 and 3-2-1. The IPP construction strongly prefers the 1-2-3 order in both studies (56.9% and 64%), followed by 1-3-2 and 3-1-2, with the 3-2-1 order being nearly unattested in Härd (2.3%) and unattested in my study. Finally, a finite verb plus two infinitives favors the 1-3-2 order in Härd's corpus (43.3%), and in my study the 1-3-2 order accounts for 8 out of 16 examples of the two types modal + modal + infinitive and modal + causative. The overwhelming agreement between the current study and Härd (1981) confirms that the data in Table 47 and Table 48, despite the small number of tokens and statistical insignificance, are indeed representative of ENHG as a whole.

5.3.2 Focus

In section 4.3.3 above, I showed that contrastive focus and new information focus favor the 1-2 order, while old information favors the 2-1 order. The effect of focus on clusters of three verbs can be seen in Table 50 (with contrastive focus and new information combined due to the small number of tokens). Just as old information favors the 2-1 order with two-verb clusters, in three-verb clusters it favors the 3-2-1 order, at a rate of 24% versus the expected 17% (factor weight = 0.631). Contrastive focus and new information favor the combination of the other three orders, occurring 87% of the time versus the expected 82% (factor weight = 0.387).

Table 50: Effect of focus on three-verb clusters (3-2-1 vs. others)

Focus	3-2-1	1-3-2 / 1-2-3 / 3-1-2
new info. / contrastive	11 (12%)	80 (87%)
old information	19 (24%)	59 (76%)
Total	30 (17%)	139 (82%)
significance	$p = 0.040$	

[49] Härd refers to these orders as 'Endstellung', 'Voranstellung', and 'Zwischenstellung' of the finite verb. Härd states that the non-finite verb forms generally occur in the order 3-2, and the only exception he mentions is the 1-2-3 order. This implies that Härd's corpus, like mine, has no occurrences of the 2-3-1 or 2-1-3 order.

[50] Härd (1981:59) only distinguishes 1-3-2 from 1-2-3 in the IPP and modal + inf. + inf. constructions. He claims that the 1-2-3 order is rare for the other constructions, except in Low German, and thus does not give separate percentages for 1-3-2 vs. 1-2-3 for those syntagms. I have indicated that these syntagms might contain a few occurrences of 1-2-3 by merging the 1-3-2 and 1-2-3 columns.

Although focus does favor the 1-3-2, 1-2-3, and 3-1-2 orders combined, no effect could be detected on these word orders individually. As seen in Table 51, results for these orders alone were not statistically significant. For all three orders, the frequency with focus is just one or two percentage points over the expected rate, with factor rates ranging from 0.521 to 0.546.

Table 51: Effect of focus on three-verb clusters (all orders)

Focus	3-2-1	1-3-2	1-2-3	3-1-2
new info. / contrastive	11 (12%)	40 (43%)	17 (18%)	23 (25%)
old information	19 (24%)	30 (38%)	13 (16%)	16 (20%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.040$	$p = 0.478$	$p = 0.737$	$p = 0.472$

It was not possible to corroborate the effect of focus on three-verb clusters by comparing it to scrambling. Out of the already small number of clauses with three verbs, there were only a handful with both an object and an adverb.

5.3.3 Prefix type

Section 4.3.4 above demonstrated for two-verb clusters that the type of verbal prefix affects verb order. A similar effect is found in clusters of three verbs, as shown in Table 52. Just as two-verb clusters containing a separable prefix favor 1-2, in three-verb clusters, the rate of 1-2-3 order is 45%, well above the expected rate of 17% (factor weight = 0.847). Likewise, just as stressed prefixes disfavor the 2-1 order with two verbs, with three verbs the rate of 3-2-1 order is just 9% versus the expected 17% (factor weight = 0.340). The 3-1-2 order patterns very similarly to the 3-2-1 order in this factor group, with a rate of only 9% with stressed prefixes versus 23% overall (factor weight = 0.276). As with syntagm type and focus, this factor group has no effect on the 1-3-2 order, again suggesting that it is the default order in ENHG.

Table 52: Effect of prefix type on three-verb clusters

Prefix type	3-2-1	1-3-2	1-2-3	3-1-2
Stressed	2 (9%)	8 (36%)	10 (45%)	2 (9%)
No prefix	1 (3%)	13 (48%)	11 (40%)	2 (7%)
Unstressed	27 (22%)	49 (40%)	9 (7%)	35 (29%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.018$	$p = 0.689$	$p < 0.001$	$p = 0.008$

An interesting difference between the two-verb and three-verb clusters is the effect of verbs with no prefix. Recall from Table 32 that prefixless verbs had no effect on verb order, patterning with the verbs with unstressed prefixes. With three verbs, however, the percentages and factor weights for verbs with no prefix are remarkably close to those for verbs with stressed prefixes (factor weight = 0.823 for 1-2-3, versus 0.157 for 3-2-1 and 0.236 for 3-1-2).

The fact that in three-verb clusters, verbs with no prefix pattern with the SSPs rather than the unstressed prefixes suggest that something other than prefix type is really at play. This pattern is most likely due to an interaction with syntagm type. The vast majority of past participles in ENHG have an unstressed prefix, usually *ge-*. On the other

hand, infinitives may have a stressed, unstressed, or no prefix depending on the lexical item. To illustrate this interaction, Table 53 compares the top line of Table 48 with the bottom line of Table 52. Note that the numbers are almost exactly the same, indicating that the exact same tokens are involved.

Table 53: Comparison of tokens with past participle and unstressed prefix

Factor	3-2-1	1-3-2	1-2-3	3-1-2
syntagms with participle	28	50	2	34
unstressed prefix	27	49	9	35

For two-verb clusters, the cross-tabulation in Table 33 illustrated that the effect of the prefix on verb order was independent of syntagm type. For clusters of three verbs, however, this interaction cannot be ruled out, as illustrated by the cross-tabulation in Table 54. In syntagms with a participle, with a stressed or no prefix the 1-3-2 order is most frequent (71% vs. the expected rate of 44%), but with an unstressed prefix all four word orders are close to the expected frequencies. In syntagms with an infinitive, on the other hand, the rate of 1-2-3 order is higher than expected with a stressed prefix or no prefix (57% vs. the expected 42%), but with an unstressed prefix all word orders are close to the expected rates. The fact that the factor stressed/no prefix prefers one order with participles (1-3-2) but another with infinitives (1-2-3) suggests that the effect of prefix type is subordinate to the effect of syntagm.

Table 54: Cross-tab of prefix type with syntagm type (three verbs)

Prefix type	word order	participle		infinitive		Total	
stressed / no prefix	3-2-1	2	(14%)	0	(0%)	2	(5%)
	1-3-2	10	(71%)	11	(38%)	21	(49%)
	1-2-3	0	(0%)	17	(57%)	17	(40%)
	3-1-2	2	(14%)	1	(3%)	3	(7%)
unstressed	3-2-1	26	(26%)	1	(7%)	27	(24%)
	1-3-2	40	(40%)	6	(43%)	46	(40%)
	1-2-3	2	(2%)	4	(29%)	6	(5%)
	3-1-2	32	(32%)	3	(18%)	35	(31%)
Total	3-2-1	28	(25%)	1	(2%)	29	(18%)
	1-3-2	50	(44%)	17	(40%)	67	(43%)
	1-2-3	2	(2%)	21	(42%)	23	(15%)
	3-1-2	34	(30%)	4	(9%)	38	(30%)

Having discussed the syntactic factors that affect word order in clusters of three verbs, in the next section we turn to the distribution of these word orders over time, by dialect, and sociolinguistically.

5.4 Diachronic, dialectal, and sociolinguistic variation

5.4.1 Date

In section 4.4.1 above, we saw that there is a decrease in the rate of 1-2 from the 14th to the 16th century. The picture with three-verb clusters is more complicated, as seen in Table 55. The only order with statistically significant results is the 3-1-2 order, which shows a rise in frequency in the 15th century (factor weight = 0.771), followed by a sharp

drop to just 13% in the 16th century (factor weight = 0.376). The low frequency of 3-1-2 near the end of the ENHG period should not be surprising, since this order is ungrammatical in (written) Modern Standard German.

Table 55: Effect of time on three-verb clusters

Century	3-2-1	1-3-2	1-2-3	3-1-2
14th century	1 (7%)	8 (61%)	1 (7%)	3 (23%)
15th century	6 (13%)	13 (28%)	5 (11%)	21 (46%)
16th century	23 (20%)	49 (44%)	24 (21%)	15 (13%)
Total	30 (17%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.304$	$p = 0.068$	$p = 0.165$	$p < 0.001$

The results for the other orders are not statistically significant; however, some basic trends can be seen. First, the 3-2-1 order shows a gradual increase from century to century, which is expected since this is the most common order for three-verb clusters in Modern Standard German. Secondly, the 1-3-2 order fluctuates in inverse proportion to the 3-1-2 order, suggesting that the increase in the 3-1-2 order in the 15th century discussed above was at the expense of 1-3-2. Finally, the 1-2-3 order gradually increases over the course of the period, which is surprising given the fact that this order is ungrammatical in Modern Standard German.

To test whether the results from my small number of tokens are representative for ENHG as a whole, let us compare them to the much larger study by Härd (1981). As can be seen in Table 56, the results from the two studies are largely similar. In the period 1450-1500, both studies have similar rates of the 'Voranstellung' word orders (41% and 39%), which is similar to the rate of 3-1-2 in both studies. Also, in both studies, the least frequent order in this period is 3-2-1. For the second period (1550-1580), the frequencies are also similar across the two studies, with the vast majority of the tokens (71% and 65%) having the 1-3-2/1-2-3 orders. The diachronic trends also show similarity, with the frequency of the 1-3-2/1-2-3 orders sharply increasing from the first period to the next, while the 3-1-2 order declines sharply. The major difference is that my study shows the 3-2-1 order increasing from 13% to 20%, while Härd finds that the 3-2-1 order decreased from 26% to 14%.

Table 56: Effect of time on three-verb clusters: comparison to Härd (1981)

Period	3-2-1	1-3-2 / 1-2-3	3-1-2
Härd: 1450-1500[51]	105 (26%)	198 (41%)	182 (36%)
Table 55: 1450-1500	6 (13%)	18 (39%)	21 (46%)
Härd: 1550-1580[52]	93 (14%)	489 (71%)	99 (15%)
Table 55: 1550-1600	23 (20%)	73 (65%)	15 (13%)

To sum up the findings of this section in light of Härd (1981), the 3-1-2 order declines sharply over the ENHG period, while the 1-3-2 order increases sharply. The

[51] Calculated from the tables in Härd (1981:38-39). I took the 485 tokens containing three verbs (ignoring those with an elided verb form or more than four verbs) from texts 1-16. All of these texts were begun in the period 1450-1500, although some were completed as late as 1519.

[52] Calculated from the tables in Härd (1981:38-39). I took the 681 tokens (same criteria as above) from texts 43-55.

status of the 1-2-3 order is less clear, since my results are not statistically significant and Härd's are split by syntagm.[53] Finally, despite being the most typical order in Modern Standard German, the 3-2-1 order remains relatively infrequent in ENHG.

5.4.2 Dialect

As might be expected given the rather complex dialectal distribution of two-verb clusters (section 4.4.2 above), the picture with three-verb clusters is even more complex. Given the small number of tokens per dialect, for none of the four word orders is this factor group statistically significant, as shown in Table 57.

Table 57: Effect of dialect on three-verb clusters

Dialect[54]	3-2-1	1-3-2	1-2-3	3-1-2
Cologne	9 (45%)	8 (40%)	1 (5%)	2 (10%)
Hesse	2 (8%)	10 (41%)	7 (29%)	5 (20%)
Alsace	3 (16%)	8 (44%)	1 (5%)	6 (33%)
Zurich	2 (11%)	5 (27%)	6 (33%)	5 (27%)
Swabia	3 (18%)	6 (37%)	4 (25%)	3 (18%)
Nuremberg	0 (0%)	8 (40%)	5 (25%)	7 (35%)
Thuringia	0 (0%)	4 (80%)	0 (0%)	1 (20%)
Saxony	3 (17%)	9 (52%)	3 (17%)	2 (11%)
Augsburg	4 (25%)	7 (43%)	2 (12%)	3 (18%)
Vienna	4 (26%)	5 (33%)	1 (6%)	5 (33%)
Total	30 (20%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.173$	$p = 0.616$	$p = 0.216$	$p = 0.054$

Dialectal variation in 3-verb clusters will be discussed further in Chapter 3, section 2.3.

5.4.3 Sociolinguistic factors

In section 4.4.3 above, I demonstrated that occupation and genre have an effect on word order in two-verb clusters, with higher status writers and more formal genres preferring the 2-1 order. However, with three-verb clusters, the picture is much less clear, probably due to the very small number of tokens for each of the four word orders.

As seen in Table 58, the 3-2-1 order is disfavored only by physicians (factor weight = 0.158), and is slightly favored by all other occupations (factor weights = 0.584-0.663). The 1-3-2 and 1-2-3 orders are not statistically significant, but for the record, 1-3-2 is favored by scribes/printers (factor weight = 0.622) and clerics (factor weight = 0.575) and 1-2-3 is favored by university officials (factor weight = 0.590) and clerics (factor weight = 0.643). Finally, in the most significant result, the 3-1-2 order is favored by nobles (factor weight = 0.764) and physicians (factor weight = 0.845).

[53] The IPP construction maintains a high rate of 1-2-3, while this order declines for the modal + inf. + inf. constructions, and the rate of 1-2-3 order is unreported for other constructions (Härd 1981:61).

[54] All of the data for Hessian are included in this table, but statistical analyses were conducted without the text *Walter Ralegh*, which has a very high rate of 3-2-1. Furthermore, the 3-2-1 order was tested without Nuremberg and Thuringia, and the 1-2-3 order was also tested without Thuringia, since those dialects had no instances of the respective word orders.

Table 58: Effect of occupation on three-verb clusters

Occupation[55]	3-2-1	1-3-2	1-2-3	3-1-2
university officials	5 (26%)	7 (36%)	4 (21%)	3 (15%)
nobles	4 (33%)	3 (25%)	0 (0%)	5 (41%)
scribes/printers	6 (28%)	10 (47%)	1 (4%)	4 (19%)
physicians	1 (4%)	5 (22%)	4 (18%)	12 (54%)
clerics	8 (28%)	12 (42%)	7 (25%)	1 (3%)
Total	24 (23%)	37 (36%)	16 (15%)	25 (24%)
significance	$p = 0.050$	$p = 0.257$	$p = 0.236$	$p < 0.001$

There are a few parallels between the distributions of two-verb clusters and three-verb clusters. First, recall from Table 41 that nobles (along with university officials) had the highest rate of 2-1; likewise, nobles have the highest rate of 3-2-1 order. Second, clerics had the highest rates of 1-2, and indeed they have the highest rate of 1-2-3 order. On the other hand, there are a number of facts that do not correlate with the distribution of two-verb clusters, such as the very high rate of the 3-1-2 order among nobles and physicians.

Genre is only statistically significant for the 3-1-2 order, as seen in Table 59. However, for completeness' sake I briefly discuss the favoring effect on all four orders. The 3-2-1 order is favored in chronicles (factor weight = 0.641) and literary texts (factor weight = 0.656). Literary texts also favor the 1-3-2 order (0.656). The 1-2-3 order is favored in religious texts (factor weight = 0.632) but strongly disfavored in chronicles (factor weight = 0.166). Finally, and significantly, the 3-1-2 order is favored in chronicles (factor weight = 0.680) and technical texts (factor weight = 0.804).

Table 59: Effect of genre on three-verb clusters

Genre	3-2-1	1-3-2	1-2-3	3-1-2
literature	5 (27%)	9 (50%)	3 (16%)	1 (5%)
religious	13 (16%)	35 (45%)	16 (20%)	13 (16%)
technical prose	1 (4%)	5 (22%)	4 (18%)	12 (54%)
chronicle[56]	9 (26%)	11 (32%)	1 (2%)	13 (38%)
Total	28 (18%)	60 (39%)	24 (15%)	39 (25%)
significance	$p = 0.104$	$p = 0.148$	$p = 0.062$	$p < 0.001$

Note first of all, that all of the texts in the genre technical prose are written by physicians, thus the distributions of the different word orders are exactly the same for those two factors. Disregarding technical prose and literature, which have few tokens, the following parallels between the two-verb clusters and three-verb clusters obtain. Recall from Table 42 that chronicles have the highest frequency of the 2-1 order, and similarly they favor the 3-2-1 order and strongly disfavor the 1-2-3 order. Conversely, religious texts have the highest rate of 1-2, and indeed they favor the 1-2-3 order as well. On a final note, the high frequency of 3-1-2 order in chronicles, a relatively formal genre, is surprising, since this order is ungrammatical in (written) Modern Standard German.

[55] This data excludes the many anonymous texts (including *Walter Ralegh*), as well as the occupations judge and merchant, which had only one representative each.
[56] Excludes *Walter Ralegh.*

This section also found a high rate of this order with nobles. Recall from 5.4.1 that this order sharply decreased from the 15th to the 16th centuries. Sociolinguistic pressures may have caused the increase in the 3-2-1 and 1-3-2 orders, as argued by Hammarström (1923), who found higher rates of 3-2-1 in official documents than in literature. However, the impact of sociolinguistic factors on the decline of the 3-1-2 order is much less clear, since it was frequent in formal genres and among the highest-status writers.

5.5 Conclusion

In this section, I have discussed the factors that do and do not favor various word orders in clusters of three verbs in ENHG and drawn comparisons where possible with the more extensive study by Härd (1981). The three factors that do not affect verb order in two-verb clusters have no effect in three-verb clusters either, but one factor that did affect two-verb clusters, extraposition, had no effect on three-verb clusters.

Syntagm plays a major role in the choice of word orders, with the IPP construction favoring the 1-2-3 order and most others favoring the 3-2-1 and 1-3-2 orders. Focus disfavors the 3-2-1 order, and slightly favors the others. The type of prefix on the lexical verb also affects word order, although this is largely due to interaction with syntagm type. The frequency of the different orders varies in somewhat unpredictable ways by date, dialect, occupation of the author, and genre of the text. Finally, I have suggested that the 1-3-2 is the unmarked order in ENHG, since it exhibits the least syntactic and sociolinguistic variation.

6 Conclusion

6.1 Summary of findings

This chapter reports on a study of verb order in ENHG subordinate clauses. Unlike some previous research (Ebert 1981, 1998; Reifsnyder 2003), the corpus used in this study includes materials from many ENHG dialects. Unlike others (Härd 1981, Bies 1996), this study examined both two-verb and three-verb clusters and attempted to determine what linguistic factors favor the various orders. Finally, unlike some early research (Maurer 1927, Hammarström 1923, and even Härd 1981), this study presented not only the raw data, but also a statistical analysis.

A number of linguistic and sociolinguistic factors were tested for an effect on word order. This study refutes some findings of previous scholarship, confirms others, and makes some new findings as well.

For five factors, little or no effect on verb order was determined. First of all, no effect of the position of the subordinate clause within the sentence could be found, contra Maurer (1927) (see section 3.2.1). Secondly, contra Ebert (1981), neither the category nor the phonological weight of the word preceding the verb cluster had any effect (sections 3.2.2, 4.2.1, and 5.2.1). Thirdly, this study was unable to confirm Ebert's (1981) hypothesis that the syllable structure of the verbs helps determine their relative order (section 3.2.3). Finally, contrary to my own pilot study (Sapp 2005; sections 3.3.4 and 3.3.5), the effect of coordination (sections 4.2.2 and 5.2.2) and clause type (sections 4.2.3 and 5.2.3) in the complete ENHG corpus were reducible to other factors.

The following factors did have an effect on the order of verbs. First of all, as has been pointed out by most previous studies, syntagm had a significant effect on verb order,

with participial constructions favoring the 2-1 order and infinitival constructions favoring 1-2 (section 4.3.1). This effect was even stronger with clusters of three verbs, where some constructions appear to be ungrammatical with certain word orders (section 5.3.1). Secondly, Ebert's (1981) observation that NP/PP extraposition favors the 2-1 order was confirmed (section 4.3.2), although no effect on clusters of three verbs could be determined (section 5.2.4). Thirdly, new information and contrastive focus favored the 1-2 order for two verbs (section 4.3.3), and every order but 3-2-1 for three verbs (section 5.3.2). Finally, as pointed out by Ebert (1981), verbs with stressed, separable prefixes favored the 1-2 order, while verbs with unstressed prefixes favored the 2-1 order (section 4.3.4). In clusters of three verbs, however, the effect of prefix type was not distinct from that of syntagm (section 5.3.3).

Over the course of the ENHG period, the 1-2 and 3-1-2 orders decreased in frequency, while the 2-1 and 1-3-2 orders become firmly established in the written language (sections 4.4.1 and 5.4.1). The frequencies of these orders varied widely by dialect (see Chapter 3). Finally, as argued in previous studies, the social status of the author and genre of the text played a major role in word order variation, with less formal styles preferring the 1-2 and 1-2-3 orders but more formal styles favoring 2-1 and 3-2-1 (sections 4.4.3 and 5.4.3).

6.2 The combined effect of the favoring factors

In this chapter, I have discussed a number of factors that favor the 1-2 order in ENHG. However, none of these alone can account for the high frequency of the 1-2 in ENHG. Rather, only when taken together do they account for this word order.[57] As seen in Table 60, only 98 of the 674 clauses with the 1-2 order, or 14.5%, have none of the favoring factors.

Table 60: All favoring factors for 1-2[58]

Favoring factor	1-(X)-2
Syntagm with infinitive	359
Separable prefix verb	104
Focus	382
Extraposition	151
No scrambling	28
None of the favoring factors	98
Total	674

Throughout this chapter, I have argued that focus plays a major role in verb order. Table 61 lists only those factors that are focus-related. Looking only at the effect of those favoring factors that I have argued are related to focus, the majority of 1-2 clauses

[57] Lötscher (1978:11) makes a similar point: "The additional complication, that one single rule type is hardly sufficient to account for word order, must be taken into account as well. Rather, there are at least three interacting but primarily independent kinds of rules: first, grammatical rules […] that determine an order more or less arbitrarily […]; performance rules […]; at last, functional rules […] that allow for certain functional relations in a sentence in the sense of the topic-comment distinction." [translation in Schmid & Vogel 2004:242-243]

[58] Many clauses are represented in this table more than once, since a clause may have two or more of the favoring factors.

are still accounted for. Only 251, or 37.2%, of the clauses are not accounted for by a focus-related factor.

Table 61: Focus-related favoring factors for 1-2

Favoring factor	1-2
Focus	382
Extraposition	151
No scrambling	28
None of the above	251
Total	674

In Chapter 3, we will see that these factors have the same effect in most individual texts as in the whole corpus. Chapter 4 will investigate variation in verb order in some varieties of Modern German: we will see that syntagm type and focus continue to be the major factors affecting verb order today.

Chapter 3: Dialect Differences in ENHG

1 Introduction

The previous chapter discussed the factors that favor various word orders in ENHG subordinate clauses. One of the factors that affect word order is dialect. The purpose of this chapter is to explore in detail the effect of dialect on word order.

This chapter is organized as follows. Section 2 discusses the frequencies of the different orders in each dialect, and compares the results of this study to earlier research. Section 3 examines the favoring factors determined in Chapter 2, analyzing them in each dialect and each text. Section 4 uses the results of sections 2 and 3 to group the ENHG dialects into larger dialect groups. This chapter is concluded in section 5.

2 Frequency of verb orders by dialect

2.1 Introduction

This section takes a closer look at the dialect differences presented in Chapter 2. First, the rate of the 1-2 order in each dialect is discussed, followed by a comparison to earlier studies of ENHG dialects. The distribution of the 1-X-2 order by dialect is also examined. Then, clusters of three verbs are treated, and the results are compared to Härd (1981).

2.2 Two-verb clusters

2.2.1 Basic distribution

As mentioned in Chapter 2, section 4.4.2 above, the dialect variation in ENHG with respect to verb order in subordinate clauses is considerable.

Table 1: Effect of dialect on 1-2 order

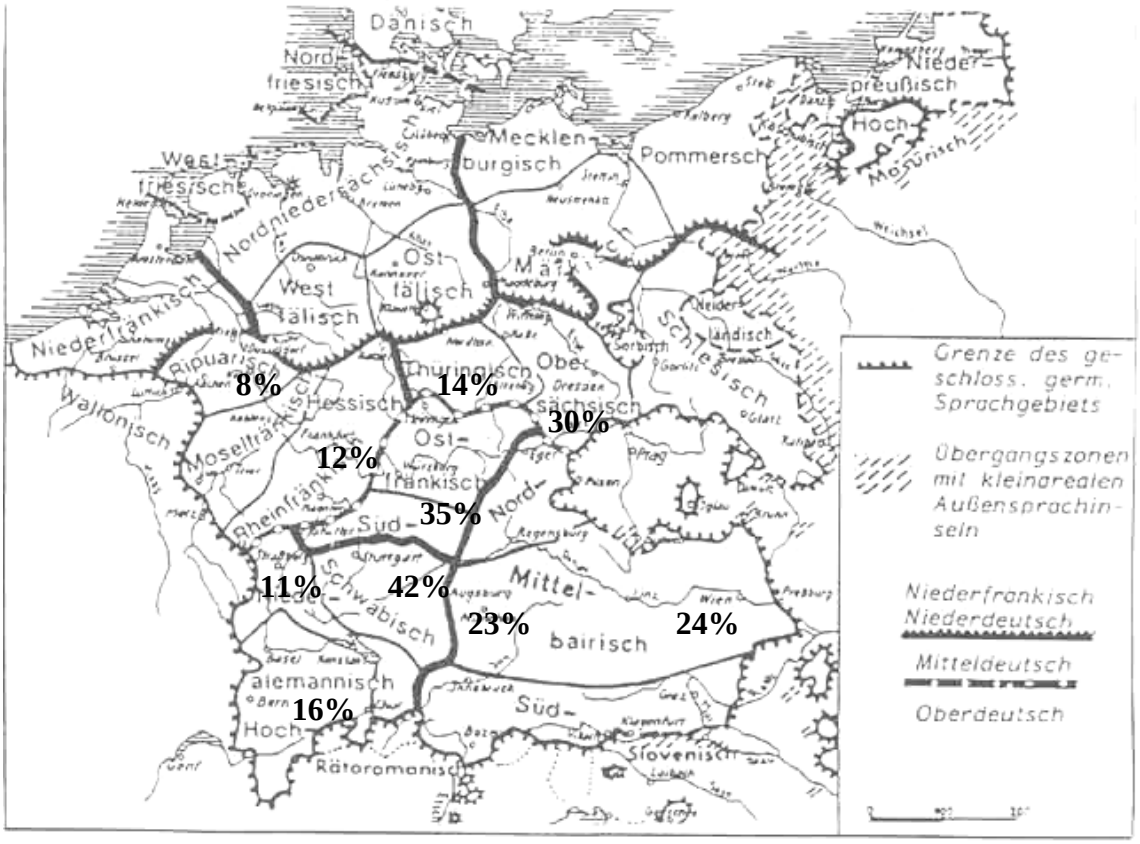
Dialect	2-1	1-2	Factor weight
Cologne	256 (91%)	24 (8%)	0.742
Hesse[1]	155 (87%)	23 (12%)	0.645
Alsace	247 (88%)	33 (11%)	0.669
Zurich	192 (83%)	37 (16%)	0.584
Swabia	162 (57%)	118 (42%)	0.271
Nuremberg	226 (64%)	126 (35%)	0.326
Thuringia	180 (85%)	31 (14%)	0.611
Saxony	194 (69%)	87 (30%)	0.376
Augsburg	216 (76%)	68 (23%)	0.462
Vienna	215 (75%)	70 (24%)	0.453
Total	2043 (76%)	617 (23%)	
$p < 0.001$			

[1] This excludes the 16th-century Hessian text *Walter Ralegh*, which has an unusually high frequency of the 1-2 order. This text will be discussed more thoroughly in section 3.8 below.

As seen in Table 1 (repeated from Table 40 in Chapter 2), the frequency of the 1-2 order (including 1-X-2, verb clusters with an intervening constituent) ranges from 8% in Cologne to 42% in Swabia.

The geographical distribution of the 1-2 order is clearest when seen on a map of the German-speaking area, as in Figure 1. It appears that the main division is between the northern and western dialects (Cologne, Hesse, Alsace, Thuringia, and Zurich), with a frequency of 16% or less, and the southern and eastern dialects (Nuremberg, Swabia, Saxony, Augsburg, and Vienna), with a frequency of 23% or more. With the exceptions of Zurich and Saxony, this division corresponds to the isogloss bundle between Middle German or *Mitteldeutsch* (with varying degrees of the High German consonant shift) and Upper German or *Oberdeutsch* (with the complete consonant shift), which on the map is a medium-thick line broken by small circles. The correspondence with phonological isoglosses suggests that this north-west/south-east distribution is a genuine one.

Figure 1: Frequency of the 1-2 order by dialect[2]



Looking at the rate of 1-2 across the dialects and by century, however, complicates this picture a great deal. The percentages are given in Table 2 (the raw numbers can be found throughout section 3 below), and this is illustrated as a graph in Figure 2.[3]

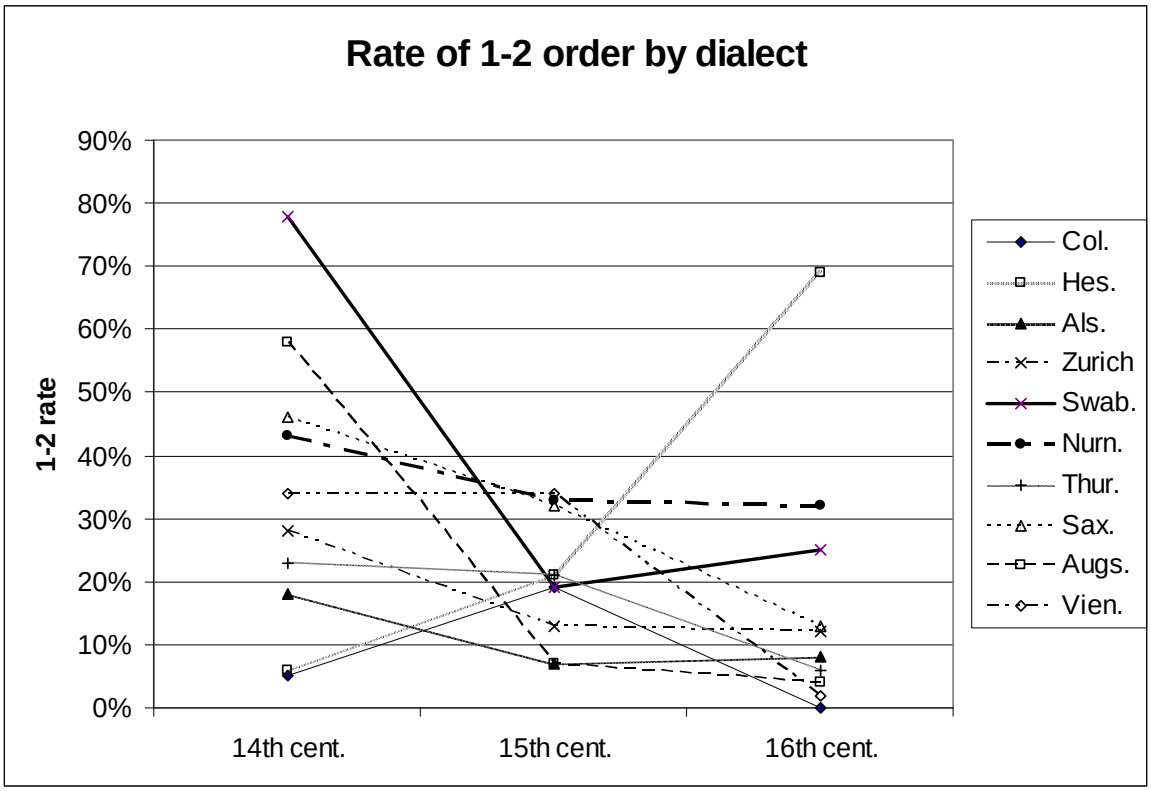
[2] Note that this map (from Niebaum & Macha 1999:193) is of German dialects in the early 20th century, thus the dialect boundaries are not necessarily those of the ENHG period.

[3] Since the *BFnhdK* has one text per dialect per century, the percentages here represent the results for just one individual text. This may account for much of the fluctuation seen here. For example, the drop in

Table 2: Effect of dialect and century on 1-2 order

	Col.	Hes.	Als.	Zur.	Swab.	Nur.	Thur.	Sax.	Augs.	Vien.
1350-1399	5%	6%	18%	28%	78%	43%	23%	46%	58%	34%
1450-1499	19%	21%	7%	13%	19%	33%	21%	32%	7%	34%
1550-1599	0%	69%	8%	12%	25%	32%	6%	13%	4%	2%
Total	8%	30%	11%	16%	42%	35%	14%	30%	23%	24%

Figure 2: Frequency of the 1-2 order by dialect and century



There are several points to be made here. First of all, every dialect shows a decrease in the rate of 1-2 from the 14th to the 16th century, some with a slight increase in the 15th (the obvious exception is Hessian, see footnote 1 above). Secondly, the north-west/south-east distinction is much less clear than before. In the 14th century, Cologne and Hesse have very low rates of 1-2, while Zurich and Thuringia have considerably higher rates (although still lower than 35%, the 14th-century average). Then in the 15th century, Cologne, Hesse, and Thuringia have higher rates of the 1-2 order (close to the overall rate for the 15th century, 22%), while Alsace and Zurich have somewhat lower rates. In the 16th century, the south-eastern dialects have very low rates of 1-2, patterning more with the north-western dialects. This will be discussed in detail in section 4.1 below.

Augsburg from 58% in the 14th century to 7% in the 15th probably reflects the fact that the 14th-century text is literary while the 15th-century representative is a chronicle (see Chapter 2 for the effect of genre).

2.2.2 Comparison to previous research

Let us compare the results discussed above with those from previous scholarship. To my knowledge, the only discussion of variation in two-verb clusters across ENHG dialects is Maurer (1926). Recall from Chapter 2, section 2.2 that Maurer finds the highest rates of 1-2 in Switzerland, Alsace, and Swabia, while EMG and Nuremberg have the lowest rates. In order to more easily compare Maurer's study with the current study, I have calculated the percentages of the1-2 with both *haben* and *sein* perfects in Maurer (1926 *passim*) and present them in Table 3 alongside the results from my ENHG corpus.

Table 3: Frequency of 1-2 order compared to Maurer (1926)

ENHG Dialect[4]	Frequency of 1-2 order	
	Maurer (1926)	my corpus (from Table 1)
Hesse	9%	12%
Alsace	28%	11%
Switzerland	22%	16%
Swabia	27%	42%
N. Bavaria (Nuremberg)	20%	35%
Thuringia-Saxony	17%	24%
Bavaria-Austria	23%	24%

Note that my percentages are higher than Maurer's for almost every dialect. This is likely due to the fact that Maurer's study includes only perfect constructions, while mine also includes modals, which have a higher rate of 1-2. Otherwise, there are two main differences between Maurer's data and mine. First, Maurer has Nuremberg among the dialects with the lowest rates of 1-2, while in my study it is among the highest. Secondly, in Maurer's data, Alsatian and Swiss have some of the highest rates of 1-2, whereas in my study they rank among the lowest.

Ebert (1981, 1998) looks only at texts from Nuremberg. The results of his studies can be compared to the frequencies of 1-2 in the texts from Nuremberg in my ENHG corpus, as in Table 4. Although my percentages for Nuremberg are higher than Ebert's, there is general agreement between Ebert's studies and my own. This supports my conclusion about the Nuremberg dialect: the 1-2 order declined less quickly in Nuremberg at the end of the ENHG period than in most other dialects.

[4] Maurer gives percentages only for perfects with *sein* (see Table 4 in Chapter 2) so this table reflects my recount of his perfects with both *sein* and *haben*. I have excluded a few texts from before 1300 and after 1600. Moreover, I have excluded texts from one dialect area, Baden, which is not represented in my ENHG corpus. Note that in some cases I have renamed Maurer's dialect areas (for example 'Rhine Franconian' to 'Hesse') to match my own. Maurer does not have data for Cologne, so my data for Cologne are not included here. In addition, Maurer includes Augsburg as part of Swabia, but I have counted his texts from Augsburg as Bavaria in this table.

Table 4: Frequency of 1-2 order in Nuremberg compared to Ebert (1981, 1998)

Period	Ebert (1981) (from Table 35 above)	Ebert (1998)[5]	my Nuremberg texts (from Table 2)
1300-1350	30.7%		
1350-1400			43%
1400-1450	25.2%		
1450-1500			33%
1500-1550	32.3%	35%	
1550-1600	23.6%	12%	32%

In Table 5, I compare my results for Augsburg with those of Reifsnyder's (2003) study of the dialect of Augsburg in the period 1500-1660. The rate of 1-2 in my 16th-century text from Augsburg, *Bericht Nachtmahl*, is 4%, much lower than Reifsnyder's average for 1500-1660. However, it is very close to the percentages she reports for the text types official letters and reports (4.76%) and city ordinances (5.07%). (*Nachtmahl* is a religious text, a text type not included in Reifsnyder's study.) On the other hand, the very high frequency of the 1-2 in my 14th-century Augsburg text does not seem so extreme, given the fact that some text types in Reifsnyder's study have rates approaching or exceeding 50%. Thus the apparent dramatic drop in the rate of 1-2 in my data from Augsburg may be due more to the style of the texts represented than to an actual change in the dialect. (See Chapter 2, section 4.4.3 for the effect of genre on verb order.)

Table 5: Frequency of 1-2 order in Augsburg compared to Reifsnyder (2003)

Period	Reifsnyder (2003)[6]	my Augsburg texts (from Table 2)
1300-1350		
1350-1400		58%
1400-1450		
1450-1500		7%
1500-1550	26.6%	
1550-1600		4%

Finally, den Besten and Edmondson (1983) propose that Verb Raising originated in the north-west of the continental West Germanic area (i.e. Dutch), then spread south and east.[7] The ENHG data (Table 2) suggests that their conclusion cannot be correct for two-verb clusters. In 14th-century ENHG, the dialects with the highest frequencies of the 1-2 order are in the south-east, and the north-western dialects have extremely low rates of 1-2. It appears that in the 15th century, the 1-2 order actually spread to the north-west, since Cologne and Hesse show an increase from the 14th to the 15th century. Of course, this discussion is incomplete without a knowledge of the percentages in Dutch dialects of

[5] The percentages reported here are for private letters written by teenagers (Ebert 1998:166), the main object of the study.

[6] The percentages reported here are calculated from Reifsnyder's Table 7.4 (2003:224). The raw numbers are 622 instances of 2-1, 192 of 1-2, and 33 of 1-X-2. The percentage is obtained by adding the 1-2 and 1-X-2 figures and dividing by the total.

[7] Note that they primarily treat clusters of three verbs, specifically double infinitive constructions. They base these conclusions mainly on word orders in contemporary continental West Germanic dialects and on historical data from Dutch.

that period, but den Besten and Edmondson's view of a change beginning in Dutch and spreading south-eastward looks very implausible.

2.2.3 The orders 1-2 vs. 1-X-2

Next, I will compare the frequency of 1-2 in the narrow sense with the 1-X-2 order across dialects, which to my knowledge has not been done before. The results are given in Table 6, and illustrated in graphic form in Figure 3. Table 7 gives the frequencies of the 1-2 and 1-X-2 order as a percentage of the two orders combined. There does not seem to be any clear pattern to the distribution of 1-X-2 order versus 1-2 in the narrow sense. In some dialects with a low rate of the 1-2 orders in general, the 1-X-2 order makes up a relatively large percentage of that, as in Cologne and Zurich. Among dialects that have a high frequency of the 1-2 orders, some (such as Swabian) have 1-X-2 infrequently, while others (such as Nuremberg) have it relatively frequently. This seems to indicate that the dialect groups proposed in section 4.5 below for the 1-2 order in the wider sense do not make predictions about preferences for 1-X-2.

Table 6: Effect of dialect on 1-2 and 1-X-2 orders

Dialect	2-1	1-2	1-X-2
Cologne	256 (91%)	18 (8%)	6 (2%)
Hesse[8]	152 (86%)	18 (10%)	5 (2%)
Alsace	247 (88%)	29 (10%)	4 (1%)
Zurich	192 (83%)	28 (12%)	9 (3%)
Swabia	162 (57%)	109 (38%)	9 (3%)
Nuremberg	226 (64%)	94 (26%)	32 (9%)
Thuringia	180 (85%)	23 (10%)	8 (3%)
Saxony	194 (69%)	69 (24%)	18 (6%)
Augsburg	216 (76%)	56 (19%)	12 (4%)
Vienna	215 (75%)	61 (21%)	9 (3%)
Total	2040 (76%)	505 (19%)	112 (4%)

[8] Excluding *Walter Ralegh*.

Figure 3: Frequency of the 1-2 and 1-X-2 orders by dialect

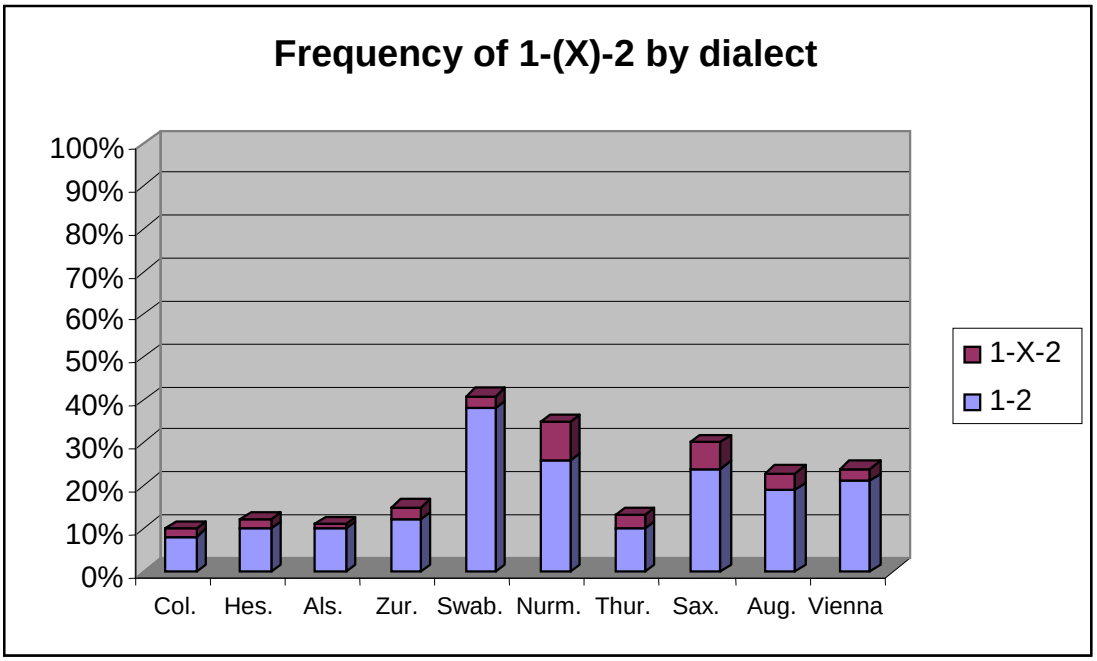


Table 7: Effect of dialect, 1-2 vs. 1-X-2 order

Dialect	1-2	1-X-2
Cologne	18 (75%)	6 (25%)
Hesse	18 (78%)	5 (22%)
Alsace	29 (88%)	4 (12%)
Zurich	28 (76%)	9 (24%)
Swabia	109 (91%)	9 (9%)
Nuremberg	94 (75%)	32 (25%)
Thuringia	23 (74%)	8 (26%)
Saxony	69 (79%)	18 (21%)
Augsburg	56 (82%)	12 (18%)
Vienna	61 (83%)	9 (13%)
Total	505 (85%)	112 (15%)

In order to determine whether the 1-X-2 order is mainly due to a VPR-type construction or merely main-clause-like word order, we can test the 1-2 versus 1-X-2 orders again, this time removing V2 clauses. This is shown in Table 8, and a comparison with Table 6 shows that the difference is very small. Thus the high rate of 1-X-2 order in some dialects is not merely a tendency to have main clause word order in subordinate clauses.

Table 8: Effect of dialect on 1-2 and 1-X-2 orders, excluding V2 clauses

Dialect	2-1	1-2	1-X-2
Cologne	256 (92%)	15 (5%)	5 (1%)
Hesse[9]	152 (92%)	12 (7%)	0 (0%)
Alsace	247 (89%)	27 (9%)	3 (1%)
Zurich	192 (87%)	21 (9%)	6 (2%)
Swabia	162 (61%)	96 (36%)	7 (2%)
Nuremberg	226 (67%)	87 (25%)	23 (6%)
Thuringia	179 (87%)	22 (10%)	4 (1%)
Saxony	193 (71%)	62 (22%)	16 (5%)
Augsburg	216 (77%)	52 (18%)	11 (3%)
Vienna	215 (78%)	53 (19%)	7 (2%)
Total	2038 (79%)	447 (17%)	82 (3%)

To sum up section 2.2, the 1-2 order varies considerably by dialect in ENHG. Comparing the dialects over the whole ENHG period, there is a difference between northern and western dialects, with lower rates of 1-2, and southern and eastern ones, with higher rates. However, when the dialect data is broken down by century, this pattern is blurred. The dialectal data are to a large degree corroborated by Ebert (1981), although less so by Maurer (1926) and Reifsnyder (2003). Finally, the rate of the 1-X-2 order also varies by dialect, but with neither a predictable relation to the rate of the 1-2 order nor a clear geographical pattern.

2.3 Three-verb clusters

2.3.1 Basic distribution

Considering the rather complex dialectal distribution of two-verb clusters discussed above, the situation with three-verb clusters is even more complex. Given the small number of tokens per dialect, dialect is not a statistically significant factor group for any of the four word orders, as shown in Table 9 (repeated from Table 57 in Chapter 2). However, for completeness' sake, I will discuss which dialects favor each word order.

The 3-2-1 order is favored most strongly in Cologne at 45% (factor weight = 0.779), and is also favored in Augsburg (factor weight = 0.589) and Vienna (factor weight = 0.610), all three of which also prefer the 2-1 order. The 1-3-2 order is favored in Thuringia (factor weight = 0.850) and Saxony (factor weight = 0.615), whereas with two-verb clusters these two dialects differ in their preferences, with Thuringia favoring 2-1 and Saxony 1-2. The 1-2-3 order is favored most strongly in Zurich at 33% (factor weight = 0.734), followed by Swabia and Nuremberg (factor weight = 0.648 for both). Recall that Swabia and Nuremberg also showed high rates of the 1-2 order but Swiss less so. Finally, the 3-1-2 order is favored in Nuremberg (factor weight = 0.660), Vienna (factor weight = 0.643), and Alsace (factor weight = 0.643). This is a puzzling distribution, since this is the only favored order in Alsace, while Nuremberg also favors 1-2-3 but Vienna also favors 3-2-1. The failure of the 3-1-2 order to show either a clear

[9] Excluding *Walter Ralegh*.

geographic distribution or a clear correlation with other word orders is perhaps indicative of its marginality.

Table 9: Effect of dialect on three-verb clusters

Dialect[10]	3-2-1	1-3-2	1-2-3	3-1-2
Cologne	9 (45%)	8 (40%)	1 (5%)	2 (10%)
Hesse	2 (8%)	10 (41%)	7 (29%)	5 (20%)
Alsace	3 (16%)	8 (44%)	1 (5%)	6 (33%)
Zurich	2 (11%)	5 (27%)	6 (33%)	5 (27%)
Swabia	3 (18%)	6 (37%)	4 (25%)	3 (18%)
Nuremberg	0 (0%)	8 (40%)	5 (25%)	7 (35%)
Thuringia	0 (0%)	4 (80%)	0 (0%)	1 (20%)
Saxony	3 (17%)	9 (52%)	3 (17%)	2 (11%)
Augsburg	4 (25%)	7 (43%)	2 (12%)	3 (18%)
Vienna	4 (26%)	5 (33%)	1 (6%)	5 (33%)
Total	30 (20%)	70 (41%)	30 (17%)	39 (23%)
significance	$p = 0.173$	$p = 0.616$	$p = 0.216$	$p = 0.054$

2.3.2 Comparison to Härd (1981)

To test whether the frequencies of the various word orders by dialect are really representative of those dialects, and not just due to the texts selected for the corpus, my results can be compared to those in Härd (1981). Table 10 represents Härd's data for 1450-1580, divided by dialect. To facilitate comparison, Table 11 takes my data from Table 9, removes the two dialects that are not covered in Härd, and combines the 1-3-2 and 1-2-3 orders.

Table 10: Effect of dialect on three-verb clusters in Härd (1981)

Dialect[11]	3-2-1	1-3-2 / 1-2-3	3-1-2
Hesse	0 (0%)	13 (81%)	3 (19%)
Alsace	45 (26%)	115 (66%)	13 (8%)
Switzerland (incl. Zurich)	29 (15%)	103 (53%)	61 (32%)
Swabia	74 (20%)	179 (49%)	111 (30%)
Franconian (incl. Nuremb.)	154 (31%)	174 (35%)	169 (34%)
Thuringia	0 (0%)	15 (79%)	4 (21%)
Saxony	44 (25%)	102 (59%)	27 (16%)
Bavarian (incl. Augsburg)	129 (44%)	107 (36%)	60 (20%)
Total	327 (21%)	808 (51%)	448 (28%)

[10] All of the data for Hessian are included in this table, but statistical analyses were conducted with the text *Walter Ralegh* excluded. The relatively high rate of 1-2-3 order in that text supports my contention that its syntax is influenced by Dutch, where 1-2-3 is the normal order (Wurmbrand 2001:5). Furthermore, the 3-2-1 order was tested without the knock-out dialects Nuremberg and Thuringia, and the 1-2-3 order was also tested without Thuringia.

[11] Calculated from the tables in Härd (1981:38-44). I only took tokens from texts for which Härd indicates the dialect, ignoring Low German texts as well as those with the imprecise designations 'Alemannic' and 'East Middle German'. Härd has no texts from Cologne or Austria.

Table 11: Effect of dialect on three-verb clusters (1-3-2 and 1-2-3 orders combined)

Dialect	3-2-1	1-3-2 / 1-2-3	3-1-2
Hesse	2 (8%)	17 (70%)	5 (20%)
Alsace	3 (16%)	9 (49%)	6 (33%)
Zurich	2 (11%)	11 (70%)	5 (27%)
Swabia	3 (18%)	10 (62%)	3 (18%)
Nuremberg	0 (0%)	13 (65%)	7 (35%)
Thuringia	0 (0%)	4 (80%)	1 (20%)
Saxony	3 (17%)	12 (69%)	2 (11%)
Augsburg	4 (25%)	9 (55%)	3 (18%)
Total	30 (20%)	100 (58%)	39 (23%)

In the discussion that follows, I will compare my results to Härd's only for the dialects that were argued above to favor a given order. Note first of all that the overall rates of each word order are quite similar across both studies, e.g. 21% vs. 20% for the 3-2-1 order. In my study, Augsburg is found to favor 3-2-1 at 25%, and this effect is even stronger in Härd at 44%. I argue above that Thuringia and Saxony favor the 1-3-2 order, and indeed the frequencies of 1-3-2/1-2-3 are quite similar across the two studies. In my study, the 1-2-3 order is favored in Zurich, Swabia, and Nuremberg, but in Härd's study all three of these dialects have a lower rate of 1-3-2/1-2-3 than in mine. Nuremberg shows the largest difference between the two studies, with the 1-3-2/1-2-3 orders at 65% and no instances of the 3-2-1 order in my study, but a very even distribution in Härd's. Finally, the two studies have almost identical rates of the 3-1-2 order in Nuremberg, while in Alsace, my study shows 3-1-2 at 33% (and this was the only order favored by Alsace) but Härd finds only 8%.

To finish section 2.3, a few conclusions can be made based on my findings that are supported by Härd. First, the 1-3-2 order is the most frequent order in ENHG, followed by 3-1-2 and 3-2-1. Secondly, the 3-2-1 order is favored in Augsburg. Thirdly, East Middle German dialects favor the 1-3-2 order. Finally, 3-1-2 is a favored order in Nuremberg.

2.4 Conclusion

In this section, we have seen that the frequencies of different word orders in ENHG vary greatly by dialect. With respect to two-verb clusters, southern and eastern dialects tend to favor the 1-2 order, while northern and western ones disfavor it. However, no such clear pattern can be detected for clusters of three verbs.

3 Factors favoring the 1-2 order, by dialect

3.1 Introduction

In Chapter 2, four factors were determined to have a favoring effect on the 1-2 order in my corpus of ENHG subordinate clauses. These factors were syntagm, extraposition, focus (corroborated by scrambling), and prefix type. However, the large degree of variation in the frequency of that order across dialects and over time raises the question whether the favoring factors are consistent, or whether the 1-2 order is favored by one factor in some dialects but by another in other dialects.

This section therefore analyzes each dialect separately, and even analyzes individually the three texts from each dialect. Only the four factors that were significant in the analyses of the whole corpus are tested here, plus the factor preceding constituent (since Ebert 1981 claims it to be a favoring factor). Given the small number of clusters with three verbs per text, only clusters of two verbs are treated.

In order to facilitate comparison, the recode used for each analysis is the same. Whereas in Chapter 2, a KNOCKOUT FACTOR (i.e. a factor for which all instances occur in the same word order) could be combined with a closely related factor, in the analyses presented in this section knockout factors are simply excluded from the analysis. In those cases, the notation 'n/a' will be listed under factor weight.

Because each text has only about 100 tokens, the number of tokens per factor can be quite small. The result is that few factor groups in the analyses of the individual texts are statistically significant. The analyses of the dialects, each with nearly 300 tokens, generally have higher significance. Each factor group will be discussed regardless of whether it is significant, especially if it reflects the favoring effect expected from Chapter 2.

Finally, in Chapter 2 the step-up/step-down function of *GoldVarb* was not discussed, since most tables in Chapter 2 represent the analysis of just one factor group. *GoldVarb*'s step-up/step-down function compares the factor groups, combining them in various ways in order to determine which ones in combination have the strongest effect on the dependent variable. In the analyses presented here, an asterisk in front of the name of the factor group indicates that it was selected by both the step-up and step-down runs, whereas an asterisk in parentheses indicates that it was chosen by only one of the two runs. This plays little role in the discussion here and largely correlates to statistical significance anyway.

3.2 Nuremberg

3.2.1 Favoring factors in the current study

The first dialect to be discussed is Nuremberg, since it is the best studied of the ENHG dialects thanks to Ebert (1980, 1981, 1998). The favoring factors for the 1-2 order in the three texts from Nuremberg, shown in Table 12, are similar to those in the corpus as a whole (see Chapter 2, section 4).

First of all, syntagm is extremely significant. The 1-2 order appears in 46% of the clauses with infinitives, above the expected rate of 35%, but in only 22% of participial constructions, below the expected rate.

The preceding constituent has a statistically significant effect on verb order in these texts. A preceding non-pronominal NP favors the 1-2 order (45% versus the expected rate of 35%), whereas a preceding pronoun disfavors it at 26%. The factor weights indicate that this effect is moderate. This is in line with Ebert's (1981) study of letters from Nuremberg, but contrary to the results for my ENHG corpus, presented in Chapter 2 section 4.2.1. My results for Nuremberg will be compared to Ebert's in section 3.2.2 below.

Extraposition has a favoring effect on verb order, although it is not statistically significant. When some constituent is extraposed, the rate of the1-2 is 40%, slightly above the expected rate of 35%. However, unlike the ENHG corpus as a whole, the

extraposition of adjunct PPs actually has a greater favoring effect on 1-2 (52%) than the extraposition of other types of constituents.

Table 12: Favoring factors in texts from Nuremberg

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p < 0.001$	passive/perfect	117 (78%)	33 (22%)	0.656
	infinitive	109 (53%)	93 (46%)	0.383
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.014$	full NP	44 (55%)	36 (45%)	0.436
	quantified NP	14 (56%)	11 (44%)	0.515
	pronoun	39 (73%)	14 (26%)	0.606
	PP	52 (72%)	20 (27%)	0.583
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	5 (41%)	7 (58%)	0.260
	adverb	67 (68%)	31 (31%)	0.489
	clause	3 (100%)	0 (0%)	n/a
	nothing	2 (25%)	6 (75%)	0.201
extraposed constituent $p = 0.135$	adjunct PP	12 (48%)	13 (52%)	0.335
	other const.	35 (59%)	24 (40%)	0.446
	nothing	179 (66%)	89 (33%)	0.528
*focus $p < 0.001$	old info.	146 (76%)	46 (23%)	0.615
	new info.	76 (52%)	69 (47%)	0.388
	contrastive	4 (26%)	11 (73%)	0.166
*scrambled object $p < 0.001$	unscrambled	1 (9%)	10 (90%)	0.068
	scrambled	25 (65%)	13 (34%)	0.536
	can't tell	200 (66%)	103 (33%)	0.519
prefix type $p < 0.001$	stressed	16 (45%)	19 (54%)	0.302
	unstressed	130 (74%)	44 (25%)	0.576
	none	80 (55%)	63 (44%)	0.458
text (century) $p = 0.222$	*Namen* (14^{th})	54 (56%)	41 (43%)	0.389
	Pillenreuth (15^{th})	114 (66%)	57 (33%)	0.541
	Summaria (16^{th})	58 (67%)	28 (32%)	0.542
Total		226 (64%)	126 (35%)	

Focus is extremely significant,[12] affecting verb order the same way as in the entire corpus. Contrastive focus has the strongest favoring effect on the 1-2 order, occurring at the rate of 73%. New information also strongly favors the 1-2 order at 47%, still well above the expected rate of 35%. The effect of focus is corroborated by the extremely significant effect of scrambling: 90% of the clauses with an unscrambled (thus probably focused) object have 1-2 (90%).

Prefix type is also extremely significant, and shows the expected effect on verb order. As in the ENHG corpus as a whole, verbs with stressed prefixes favor the 1-2 order at 54%, versus the expected 35%, while those with unstressed prefixes disfavor it at 25%.

[12] 'Extremely significant' = $p < 0.001$, 'very significant' = $p < 0.01$, and 'significant' = $p < 0.05$.

Finally, although not significant, there is a sharp drop in the rate of 1-2 from the 14th to the 15th centuries, but little difference between the 15th and 16th centuries.

In the step-up/step-down function, *GoldVarb* found the most significant factor groups to be syntagm, focus, and scrambling. Prefix type, which is extremely significant, was probably not selected by *GoldVarb* due to the interaction between prefix type and syntagm.

The next three tables present the results of the individual tests of the three Nuremberg texts. The first text is *Von den sechs Namen des Fronleichnams* ('On the six names of the body of Christ'), a theological text written in Nuremberg in the second half of the 14th century by a monk from Heilsbronn (*BFnhdK*). The results of the analysis of this text are presented in Table 13.

Table 13: Favoring factors in *Namen* (Nuremberg, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm *p* = 0.005	passive/perfect	35 (71%)	14 (28%)	0.666
	infinitive	19 (41%)	27 (58%)	0.324
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent *p* = 0.209	full NP	11 (42%)	15 (57%)	0.331
	quantified NP	5 (50%)	5 (50%)	0.510
	pronoun	8 (66%)	4 (33%)	0.537
	PP	12 (70%)	5 (29%)	0.598
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	5 (100%)	n/a
	adverb	17 (73%)	6 (26%)	0.621
	clause	0 (0%)	0 (0%)	n/a
	nothing	1 (50%)	1 (50%)	0.275
extraposed constituent *p* = 0.261	adjunct PP	5 (50%)	5 (50%)	0.337
	other const.	8 (80%)	2 (20%)	0.723
	nothing	41 (54%)	34 (45%)	0.491
focus *p* = 0.304	old info.	32 (64%)	18 (36%)	0.583
	new info.	20 (50%)	20 (50%)	0.437
	contrastive	2 (40%)	3 (60%)	0.211
scrambled object *p* = 0.835	unscrambled	0 (0%)	6 (100%)	n/a
	scrambled	6 (50%)	6 (50%)	0.345
	can't tell	48 (62%)	29 (37%)	0.525
prefix type *p* = 0.280	stressed	4 (50%)	4 (50%)	0.397
	unstressed	36 (59%)	25 (40%)	0.486
	none	14 (53%)	12 (46%)	0.565
Total		54 (56%)	41 (43%)	

The effect of syntagm type on verb order is very significant. In fact, this was the only significant factor and the only factor selected in the step-up/step-down operation. Infinitival constructions favor the 1-2 order at 58%, versus the expected rate of 43%, while participial constructions disfavor it at 28%. The other factor groups, although not significant, show the same patterns as in the analysis of Nuremberg as a whole, with

preceding non-pronominal NPs, focus, unscrambled objects, and unstressed prefixes favoring the 1-2 order.

The second text from Nuremberg is *Pillenreuth Mystik*, a religious manuscript from the monastery of Pillenreuth, written in the second half of the 15th century. The on-line selection of this text is written by two different nuns (*BFnhdK*). The two hands show somewhat different orthographic features (the modal verb *sollen* 'shall' is spelled <sollen> in the first hand but <schollen> in the second), and the second hand has a higher rate of the 1-2 order (especially the 1-X-2 order). I took 97 clauses from the first hand and 80 clauses (the entire on-line selection) from the second hand. The results of the analysis of the two hands together are presented in Table 14, below. (The two hands were also analyzed separately, but with decreased statistical significance. Both hands showed the same favoring factors as the manuscript as a whole, and so differences between them will not be discussed further.) Note that because more clauses were selected for this text, the number of significant factor groups is greater and the significance is better than in analyses of other individual texts.

Table 14: Favoring factors in *Pillenreuth Mystik* (Nuremberg, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.005$	passive/perfect	57 (79%)	15 (20%)	0.579
	infinitive	57 (57%)	42 (42%)	0.442
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.065$	full NP	16 (59%)	11 (40%)	0.509
	quantified NP	4 (40%)	6 (60%)	0.405
	pronoun	29 (74%)	10 (25%)	0.564
	PP	21 (72%)	8 (27%)	0.600
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	3 (75%)	1 (25%)	0.599
	adverb	38 (70%)	15 (29%)	0.446
	clause	2 (100%)	0 (0%)	n/a
	nothing	1 (16%)	5 (83%)	0.185
extraposed constituent $p = 0.029$	adjunct PP	7 (50%)	7 (50%)	0.461
	other const.	27 (55%)	22 (44%)	0.432
	nothing	80 (74%)	28 (25%)	0.536
*focus $p < 0.001$	old info.	84 (85%)	14 (14%)	0.695
	new info.	28 (44%)	35 (55%)	0.282
	contrastive	2 (20%)	8 (80%)	0.101
scrambled object $p = 0.072$	unscrambled	1 (20%)	4 (80%)	0.112
	scrambled	18 (75%)	6 (25%)	0.598
	can't tell	95 (66%)	47 (33%)	0.502
prefix type $p = 0.003$	stressed	7 (46%)	8 (53%)	0.385
	unstressed	64 (80%)	16 (20%)	0.620
	none	43 (56%)	33 (43%)	0.396
Total		114 (66%)	57 (33%)	

Syntagm type is very significant and shows the expected pattern, with infinitives favoring the 1-2 order at 42% versus the overall rate of 33%, although the factor weight

indicates that this effect is not as strong as in other analyses. Preceding non-pronominal NPs versus pronouns have the same effect on verb order as in other Nuremberg texts, although not statistically significant. Extraposition does have a significant effect on verb order, with the same pattern as in Table 12. Focus is extremely significant, with contrastive focus overwhelmingly favoring the 1-2 order (80%), and new information strongly favoring it (55%). Finally, prefix type is very significant, with stressed prefixes favoring and unstressed prefixes disfavoring the 1-2 order.

The third text is *Summaria vber die gantze Bibel* ('Summary of the entire bible'), written by the Nuremberg preacher Veit Dietrich and printed in Nuremberg in 1578. The results, shown in Table 15, are similar to those for other Nuremberg texts.

Table 15: Favoring factors in *Summaria* (Nuremberg, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.008$	passive/perfect	25 (86%)	4 (13%)	0.541
	infinitive	33 (57%)	24 (42%)	0.479
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.662$	full NP	17 (62%)	10 (37%)	0.515
	quantified NP	5 (100%)	0 (0%)	n/a
	pronoun	2 (100%)	0 (0%)	n/a
	PP	19 (73%)	7 (26%)	0.524
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	2 (66%)	1 (33%)	0.623
	adverb	12 (57%)	9 (42%)	0.434
	clause	1 (100%)	0 (0%)	n/a
	nothing	0 (0%)	0 (0%)	n/a
extraposed constituent p = n/a	adjunct PP	0 (0%)	1 (100%)	n/a[13]
	other const.	0 (0%)	0 (0%)	
	nothing	58 (68%)	27 (31%)	
focus $p = 0.886$	old info.	30 (68%)	14 (31%)	0.544
	new info.	28 (66%)	14 (33%)	0.454
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.623$	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	1 (50%)	1 (50%)	0.698
	can't tell	57 (67%)	27 (32%)	0.495
*prefix type $p < 0.001$	stressed	5 (41%)	7 (58%)	0.200
	unstressed	30 (90%)	3 (9%)	0.778
	none	23 (56%)	18 (43%)	0.353
Total		58 (67%)	28 (32%)	

Syntagm type has a very significant effect on verb order, and prefix type is extremely significant. Both factor groups show the same distributions as other Nuremberg texts. Preceding constituent, focus, and scrambling are all statistically

[13] When 'n/a' is given for the whole factor group, as here, it indicates a SINGLETON GROUP, i.e. a factor group with only one viable factor. In this case, the factor 'postposed adjunct PP' was removed from the analysis (being a knockout factor), leaving only the factor 'nothing extraposed'. With only one factor in a factor group, a binominal analysis is not possible, thus there are neither factor weights nor a *p* number.

insignificant, with no observable favoring effect on verb order. This may indicate that the conditions which favor the 1-2 order are being lost, ultimately leading to the loss of that order.

To sum up this section, syntagms with an infinitive have a very significant favoring effect on 1-2 in the texts from Nuremberg, both individually and together. A preceding non-pronominal NP favors the 1-2 order in the texts from the 14th and 15th centuries and for the dialect as a whole (although only in the latter was it significant), as in Ebert but unlike in Chapter 2. Extraposition also favors 1-2 order in the 14th and 15th centuries and in the three texts together, although only significantly so in *Pillenreuth*. Focus favors the 1-2 order, again in all analyses except for that of *Summaria*, and is extremely significant both in *Pillenreuth* and the dialect as a whole. Scrambling correlates highly with verb order in the same analyses where focus plays a role. Finally, stressed prefixes favor and unstressed prefixes disfavor the 1-2 order in all analyses, and these results were very to extremely significant for all but *Namen*.

A number of conclusions can be drawn from this summary. First of all, the favoring factors are largely the same across the three texts from Nuremberg, despite the difference in time. Secondly, syntagm, and to a lesser degree prefix type, has a very significant favoring effect in all analyses, despite the small number of tokens in each text. Thirdly, for several factor groups, the 16th-century text *Summaria* fails to show favoring effects that were present in the previous centuries. This is a pattern that will be found in other dialects, although in many of those cases the rate of 1-2 is extremely low. The relatively high frequency of the 1-2 order in *Summaria* (32%) suggests that in Nuremberg the loss of the favoring factors preceded the loss of the 1-2 order, rather than vice-versa.

3.2.2 Comparison with Ebert (1998)

The results above for Nuremberg can be compared to Ebert (1998), an analysis also conducted using *GoldVarb*.[14] In both studies, syntagm, prefix type, and time have similar effects on verb order. In addition, Ebert (1998:7) finds an effect of the preceding constituent (as in Ebert 1981), both in terms of stress and grammatical category. For several individuals (Ebert 1998:65), the stress of the preceding word has a significant effect on word order, and for some of those individuals, the effect of grammatical category was even more significant.

Recall from the previous section that, unlike in my ENHG corpus as a whole, in Nuremberg a preceding non-pronominal NP favors 1-2 while a preceding pronoun disfavors it. As in Chapter 2, section 4.2.1, let us test Ebert's (1981, 1998) hypothesis that the full-NP vs. pronoun difference is due to the general effect of stress, this time only looking at the texts from Nuremberg. As seen in Table 16, this is less significant that the NP/pronoun distinction ($p = 0.025$ versus $p = 0.014$ in Table 12). Moreover, the favoring effect is diminished considerably, with stressed words favoring the 1-2 order at 38%, and unstressed words disfavoring it at 30%, a spread much smaller than that for NPs versus pronouns (45% and 26%, respectively). The factor weights, 0.484 and 0.584, are also closer together than in Table 12 (0.436 and 0.606).

[14] Ebert (1998) is discussed in detail in Chapter 2, section 2.2.5 above.

Table 16: Effect of 'stress' of preceding word in texts from Nuremberg

Factor group	Factor	2-1	1-2	Factor weight
preceding constituent $p = 0.025$	stressed	130 (61%)	80 (38%)	0.484
	unstressed	91 (70%)	39 (30%)	0.548
	nothing	2 (25%)	6 (75%)	0.187
Total		223 (64%)	125 (35%)	

These results support Ebert's (1998) observation that the effect on word order of the grammatical category of a preceding word is more significant than stress. In so doing, however, they indicate that, contra Ebert (1981), the NP/pronoun distinction is not reducible to stress, even in Nuremberg.

3.3 Swabia

In the three texts from Swabia, the factors favoring the 1-2 order are similar to those in Nuremberg and the whole corpus. The results for the analysis of the Swabian texts together are presented in Table 17.

The first factor that favors 1-2 is syntagm, which shows the expected pattern. As in other analyses, participial constructions disfavor the 1-2 order, with a frequency of 37% versus the expected rate of 41%. Conversely, constructions with infinitives prefer the 1-2 order at 48%. However, although the step-up/step-down function of *GoldVarb* selected syntagm as one of the most significant factor groups, it is not statistically significant.

Unlike in Nuremberg, the preceding constituent does not have a statistically significant effect on verb order in Swabian texts. However, a preceding non-pronominal NP does favor the 1-2 order (46% versus the expected rate of 41%), whereas after a pronoun the rate of 1-2 is the same as the expected rate.

Extraposition is a statistically significant factor group, with extraposed constituents strongly favoring the 1-2 order. As in Nuremberg, but unlike the rest of my ENHG corpus, the extraposition of adjunct PPs has a greater favoring effect on the 1-2 order (75%) than the extraposition of other types of constituents (66%).

Surprisingly, focus has no favoring effect on verb order in the Swabian texts. The factor group is not at all statistically significant, and the rate of 1-2 is nearly identical following old information (42%) and new information (41%). Interestingly, the complete lack of a favoring effect is mirrored by the statistical insignificance of the factor group scrambling and the tiny difference between scrambled and unscrambled objects (55% versus 52%). This indicates that scrambling and focus do indeed correlate strongly in ENHG.

Like syntagm, prefix type is not statistically significant but was selected by *GoldVarb* as one of the most significant factor groups. Despite this lack of significance, the expected pattern is found, with stressed prefixes favoring 1-2 at a rate of 47%.

Finally, the only factor group that is extremely significant is century, with a huge difference between the 14th century on the one hand (with 1-2 at 77%) and the 15th and 16th centuries on the other hand (19% and 25%, respectively). I believe that it is this large difference that is responsible for the poor significance of the factor groups in this analysis: with such a high frequency of 1-2 in *Altväter*, many clauses likely have the 1-2 order but none of the favoring factors, resulting in a poorer model fit. It also helps explain why syntagm and prefix type were selected in the step-up/step-down process,

despite their insignificance: when *GoldVarb* combined these factors with the factor century, the model fit was greatly improved.

Table 17: Favoring factors in texts from Swabia

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.082$	passive/perfect	109 (62%)	66 (37%)	0.605
	infinitive	53 (51%)	50 (48%)	0.327
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.392$	full NP	33 (53%)	29 (46%)	0.364
	quantified NP	4 (50%)	4 (50%)	0.473
	pronoun	18 (58%)	13 (41%)	0.692
	PP	62 (64%)	34 (35%)	0.468
	stranded P	0 (0%)	3 (100%)	n/a
	adjective	1 (25%)	3 (75%)	0.109
	adverb	31 (56%)	24 (43%)	0.608
	clause	7 (70%)	3 (30%)	0.445
	nothing	6 (85%)	1 (14%)	0.784
extraposed constituent $p = 0.045$	adjunct PP	2 (25%)	6 (75%)	0.228
	other const.	3 (33%)	6 (66%)	0.132
	nothing	157 (60%)	104 (39%)	0.526
focus $p = 0.949$	old info.	79 (57%)	58 (42%)	0.460
	new info.	82 (58%)	57 (41%)	0.544
	contrastive	1 (50%)	1 (50%)	0.197
scrambled object $p = 0.434$	unscrambled	4 (44%)	5 (55%)	0.358
	scrambled	8 (47%)	9 (52%)	0.606
	can't tell	150 (59%)	102 (40%)	0.498
*prefix type $p = 0.745$	stressed	19 (52%)	17 (47%)	0.207
	unstressed	106 (58%)	75 (41%)	0.496
	none	37 (60%)	24 (39%)	0.699
*text (century) $p < 0.001$	*Altväter* (14^{th})	22 (22%)	76 (77%)	0.113
	Eunuchus (15^{th})	72 (80%)	17 (19%)	0.789
	Beschreib. (16^{th})	68 (74%)	23 (25%)	0.717
Total		162 (58%)	116 (41%)	

The three texts from Swabia are analyzed and discussed individually in the next three tables. The first text is the *Buch Altväter* ('Book of the old [church] fathers'), an anonymous, religious text written in the monastery of Reute around 1400 (*BFnhdK*). The results of the analysis of this text are presented in Table 18.

None of the factor groups in this analysis is statistically significant. Moreover, in the step-up/step-down function the factors syntagm, preceding constituent, and focus were only selected by step down, with no groups selected by step up.[15]

Syntagm, preceding constituent, and prefix type show the same pattern as in Swabia as a whole, with infinitival constructions, non-pronominal NPs, and stressed prefixes

[15] A discrepancy between the step-up and step-down analysis often indicates an interaction of factors. In this case, however, the discrepancy is probably due to the poor significance of all of the factor groups.

preferring the 1-2 order. Surprisingly, focus shows the opposite of the usual pattern, with old information having higher rates of the 1-2 order than new information. This unusual pattern is probably what accounts for the absence of an old/new information distinction in the analysis of the three Swabian texts together.

Table 18: Favoring factors in *Altväter* (Swabia, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.117$	passive/perfect	17 (27%)	45 (72%)	0.628
	infinitive	5 (13%)	31 (86%)	0.289
	progressive	0 (0%)	0 (0%)	n/a
(*)preceding constituent $p = 0.238$	full NP	3 (15%)	17 (85%)	0.274
	quantified NP	0 (0%)	4 (100%)	n/a
	pronoun	7 (43%)	9 (56%)	0.868
	PP	6 (22%)	21 (77%)	0.363
	stranded P	0 (0%)	3 (100%)	n/a
	adjective	0 (0%)	1 (100%)	n/a
	adverb	6 (23%)	20 (76%)	0.544
	clause	0 (0%)	0 (0%)	n/a
	nothing	0 (0%)	0 (0%)	n/a
extraposed constituent $p = 0.776$	adjunct PP	0 (0%)	4 (100%)	n/a
	other const.	1 (20%)	4 (80%)	0.156
	nothing	21 (23%)	68 (76%)	0.524
(*)focus $p = 0.105$	old info.	9 (16%)	46 (83%)	0.298
	new info.	13 (30%)	30 (69%)	0.749
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.398$	unscrambled	0 (0%)	3 (100%)	n/a
	scrambled	4 (33%)	8 (66%)	0.593
	can't tell	18 (21%)	65 (78%)	0.486
prefix type $p = 0.380$	stressed	0 (0%)	3 (100%)	n/a
	unstressed	18 (25%)	53 (74%)	0.490
	none	4 (16%)	20 (83%)	0.530
Total		22 (22%)	76 (77%)	

The 15th-century text from Swabia is a translation of the Latin play *Eunuchus* by Terence. The play was translated into German in 1486 by Hans Neidhart, a councilman, judge and mayor of Ulm (*BFnhdK*). In order to avoid the possibility of interference from Latin, only the German commentary was analyzed and not the play itself.[16] The results of the analysis of *Eunuchus* are presented below in Table 19.

[16] However, the commentary often includes quotations from the play, so some clauses from the play are included in the analysis.

Table 19: Favoring factors in *Eunuchus* (Swabia, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.558$	passive/perfect	48 (82%)	10 (17%)	0.634
	infinitive	24 (77%)	7 (22%)	0.264
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.846$	full NP	14 (73%)	5 (26%)	0.283
	quantified NP	2 (100%)	0 (0%)	n/a
	pronoun	9 (81%)	2 (18%)	0.583
	PP	27 (84%)	5 (15%)	0.418
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	1 (100%)	n/a
	adverb	14 (87%)	2 (12%)	0.753
	clause	1 (100%)	0 (0%)	n/a
	nothing	5 (83%)	1 (16%)	0.752
extraposed constituent $p = 0.111$	adjunct PP	0 (0%)	2 (100%)	n/a
	other const.	2 (50%)	2 (50%)	0.058
	nothing	70 (84%)	13 (15%)	0.534
focus $p = 0.435$	old info.	48 (84%)	9 (15%)	0.529
	new info.	23 (76%)	7 (23%)	0.469
	contrastive	1 (50%)	1 (50%)	0.197
scrambled object $p = 0.536$	unscrambled	3 (60%)	2 (40%)	0.314
	scrambled	4 (80%)	1 (20%)	0.458
	can't tell	65 (82%)	14 (17%)	0.515
*prefix type $p = 0.009$	stressed	7 (50%)	7 (50%)	0.082
	unstressed	50 (84%)	9 (15%)	0.512
	none	15 (93%)	1 (6%)	0.873
Total		72 (80%)	17 (19%)	

As expected, the 1-2 order is preferred in infinitival constructions, following a non-pronominal NP, with extraposition, and with focus, although none of these are statistically significant. Prefix type is very significant, with stressed prefixes strongly favoring the 1-2 order (50% versus the expected rate of 19%).

The 16th-century text from Swabia is Leonhart Rauwolf's *Beschreibung* or description of his journey to the Near East. The text was printed in Lauingen in 1582 and is categorized as *Fachprosa* or technical prose (*BFnhdK*).[17] The *GoldVarb* analysis of this text is presented in Table 20.

Although not statistically significant, infinitival syntagms, new information, and stressed prefixes favor the 1-2 order as in other texts. As in the 16th-century text from Nuremberg, extraposition is extremely rare, occurring only twice, and thus can have no effect on verb order. Finally, note that *GoldVarb* did not select any factor group in the step-up calculation, but syntagm and prefix type were selected by step-down.

[17] Although Rauwolf lived in Augsburg at the time, the *BFnhdK* characterizes the language of the text as Swabian.

Table 20: Favoring factors in *Beschreibung* (Swabia, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.165$	passive/perfect	44 (80%)	11 (20%)	0.660
	infinitive	24 (66%)	12 (33%)	0.267
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.655$	full NP	16 (69%)	7 (30%)	0.580
	quantified NP	2 (100%)	0 (0%)	n/a
	pronoun	2 (50%)	2 (50%)	0.134
	PP	29 (78%)	8 (21%)	0.492
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (50%)	1 (50%)	0.219
	adverb	11 (84%)	2 (15%)	0.602
	clause	6 (66%)	3 (33%)	0.457
	nothing	1 (100%)	0 (0%)	n/a
extraposed constituent $p =$ n/a	adjunct PP	2 (100%)	0 (0%)	n/a
	other const.	0 (0%)	0 (0%)	
	nothing	66 (74%)	23 (25%)	
focus $p = 0.062$	old info.	22 (88%)	3 (12%)	0.750
	new info.	46 (69%)	20 (30%)	0.398
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p =$ n/a	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	0 (0%)	0 (100%)	
	can't tell	67 (74%)	23 (25%)	
(*)prefix type $p = 0.257$	stressed	12 (63%)	7 (36%)	0.371
	unstressed	38 (74%)	13 (25%)	0.386
	none	18 (85%)	3 (14%)	0.833
Total		68 (74%)	23 (25%)	

Summing up the results from Swabia, infinitival constructions favor the 1-2 order in all three texts. However, the preceding constituent shows a clear NP versus pronoun distinction only in the 14th and 15th centuries. Likewise, extraposition favors the 1-2 order in the first two periods. Focus departs from this pattern, with new information disfavoring the 1-2 order in the 14th-century text but favoring it in the two later texts. Finally, prefix type shows the predicted effect on verb order, with better statistical significance than other factor groups.

Except for the anomalous behavior of focus in *Altväter*, these results are quite similar to those for Nuremberg. In both dialects, syntagm and prefix type have a consistent effect on verb order. Also in both dialects, the favoring effects of the preceding constituent and extraposition are lost in the 16th century. Given the fact that the 1-2 order is still robust in *Beschreibung* (25%), this strengthens the hypothesis that the favoring factors for 1-2 began to be lost before the order itself.

3.4 Augsburg

The next dialect to be discussed is that of Augsburg. According to many dialect maps (e.g. Niebaum/Macha 1999:193), the city of Augsburg is on the boundary between Swabian and Bavarian. The *Bonner Frühneuhochdeutsch-Korpus* classifies the texts

from Augsburg as 'Ostschwäbisch (Augsburg)' ('Eastern Swabian'). However, in the discussion in section 4 below I refer to Augsburg as Bavarian, given the close proximity of Augsburg to the Bavarian dialect area proper, the fact that the *Bonner Frühneuhochdeutsch-Korpus* does not have any Bavarian texts, and the similarities between the results from Augsburg and Vienna. The analysis of the three texts from Augsburg is presented in Table 21 below.

Syntagm has a strong and very significant effect on verb order in this analysis. In the modal + infinitive construction, the 1-2 order occurs 34% of the time, well above the expected rate of 1-2 in Augsburg, 23%. On the other hand, in syntagms with a participle, the 1-2 order is disfavored at 18%.

Table 21: Favoring factors in texts from Augsburg

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.006$	passive/perfect	150 (81%)	34 (18%)	0.605
	infinitive	66 (66%)	34 (34%)	0.313
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p < 0.001$	full NP	55 (84%)	10 (15%)	0.640
	quantified NP	5 (71%)	2 (28%)	0.481
	pronoun	24 (60%)	16 (40%)	0.364
	PP	75 (87%)	11 (12%)	0.637
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	7 (87%)	1 (12%)	0.490
	adverb	36 (58%)	26 (41%)	0.281
	clause	5 (71%)	2 (28%)	0.351
	nothing	6 (100%)	0 (0%)	n/a
extraposed constituent $p = 0.041$	adjunct PP	7 (63%)	4 (36%)	0.537
	other const.	12 (54%)	10 (45%)	0.543
	nothing	197 (78%)	54 (21%)	0.495
focus $p = 0.048$	old info.	121 (81%)	27 (18%)	0.620
	new info.	90 (69%)	40 (30%)	0.368
	contrastive	5 (83%)	1 (16%)	0.408
scrambled object $p = 0.102$	unscrambled	9 (64%)	5 (35%)	0.194
	scrambled	11 (57%)	8 (42%)	0.539
	can't tell	196 (78%)	55 (21%)	0.517
*prefix type $p = 0.343$	stressed	23 (65%)	12 (34%)	0.169
	unstressed	138 (77%)	40 (22%)	0.474
	none	55 (77%)	16 (22%)	0.741
*text (century) $p < 0.001$	*Troja* (14^{th})	41 (41%)	57 (58%)	0.090
	Vita (15^{th})	87 (92%)	7 (7%)	0.729
	Nachtmahl (16^{th})	88 (95%)	4 (4%)	0.810
Total		216 (76%)	68 (23%)	

The effect of the preceding constituent on verb order is extremely significant. However, as in the analysis of the corpus as a whole (see Chapter 2, section 4.2.1) but unlike in Nuremberg and Swabia, the pattern predicted by Ebert (1981) is not found. Instead, the preferences in Augsburg are reversed. When the verb cluster follows a non-

pronominal NP, the rate of 1-2 is just 15%, well below the expected 23%, while after a pronoun 1-2 is more frequent than expected at 40%.

Extraposition is statistically significant, and shows the same pattern as in the ENHG corpus as a whole. When some constituent (excluding adjunct PPs) is extraposed, the rate of the 1-2 order is 45%, well above the expected rate. When an adjunct PP is extraposed, the 1-2 order is still favored, but to a lesser degree (36%). This is in agreement with the results from Chapter 2, as opposed to Nuremberg and Swabia, where adjunct PPs favored 1-2 more strongly than other constituents.

Focus is also a statistically significant factor group. Predictably, after new information the 1-2 order is favored, occurring 30% of the time, while after old information it is disfavored at just 18%. After contrastive focus, the rate of 1-2 is surprisingly low (at 16%, actually lower than with old information), but the number of tokens is too small to draw any conclusions from this. (The effect of focus cannot be confirmed by scrambling in this analysis, since clauses both with and without scrambling have a higher-than-expected rate of 1-2.)

Surprisingly, prefix type is not significant in this analysis, probably because the rates of 1-2 with an unstressed prefix and no prefix are identical (22%). With a stressed prefix, however, there is the expected preference for the 1-2 order (34%). Note that *GoldVarb*'s step-up/step-down function selected prefix type as one of the most significant factor groups, likely because its significance was improved when combined with syntagm and date.

Finally, there is an extremely significant difference in the frequency of the 1-2 order over time. In the 14th-century text, the rate of 1-2 is 58%, among the highest in the corpus. By the 15th century, this falls to just 7% and is even lower in the final century.

Next, we turn to the analyses of each individual text. The text from the 14th century is *Das Buch von Troja* ('The book of Troy'), written by Hans Mair in Nördlingen in 1392 and based on the 13th-century *Historia destructionis Troiae* ('The history of the destruction of Troy') by Guido de Columnis (*BFhndK*). The results of the analysis for this text are given in Table 22.

Syntagm is statistically significant, with the usual favoring effect of infinitives on the 1-2 order. The preceding constituent is very significant and, as in the analysis of Augsburg as a whole, shows the reverse of Ebert's predicted effect of NPs versus pronouns. Extraposition is not significant and shows no clear effect on verb order. Likewise, there is almost no difference in verb order following new versus old information. Prefix type, on the other hand, is significant, with stressed prefixes strongly favoring 1-2. Finally, note that *GoldVarb*'s step-up function selected only preceding constituent as a significant factor group, while the step-down function additionally selected syntagm and prefix.

Table 22: Favoring factors in *Troja* (Augsburg, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.048$	passive/perfect	29 (50%)	29 (50%)	0.697
	infinitive	12 (30%)	28 (70%)	0.230
	progressive	0 (0%)	0 (0%)	n/a
*preceding constituent $p = 0.004$	full NP	15 (65%)	8 (34%)	0.698
	quantified NP	1 (50%)	1 (50%)	0.872
	pronoun	9 (39%)	14 (60%)	0.437
	PP	10 (55%)	8 (44%)	0.667
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	4 (14%)	24 (85%)	0.257
	clause	0 (0%)	2 (100%)	n/a
	nothing	0 (0%)	0 (0%)	n/a
extraposed constituent $p = 0.889$	adjunct PP	4 (50%)	4 (50%)	0.476
	other const.	7 (41%)	10 (58%)	0.555
	nothing	30 (41%)	43 (58%)	0.490
focus $p = 0.952$	old info.	18 (42%)	24 (57%)	0.624
	new info.	22 (40%)	32 (59%)	0.408
	contrastive	1 (50%)	1 (50%)	0.360
scrambled object $p = 0.339$	unscrambled	3 (60%)	2 (40%)	0.590
	scrambled	0 (0%)	8 (100%)	n/a
	can't tell	38 (44%)	47 (55%)	0.495
(*)prefix type $p = 0.034$	stressed	1 (11%)	8 (88%)	0.091
	unstressed	23 (38%)	36 (61%)	0.413
	none	17 (56%)	13 (43%)	0.800
Total		41 (41%)	57 (58%)	

Table 23 shows the results for the 15th-century text from Augsburg, *Vita* or *Das Bůch von dem Leben und Sitten der heydnischen Maister* ('The book of the life and customs of the heathen teachers'). The author is unknown, but the book was printed by Anton Sorg in Augsburg in 1490 and based on *De moribus philosophorum* ('On the deaths of the philosophers') by Gualtherus Burlaeus (*BFhndK*).

Note first of all that the rate of the 1-2 order is quite low, just 7%, so the numbers from this analysis are not very reliable and statistical significance is poor. With that in mind, infinitive syntagms, new information, and no prefix all show a slight favoring effect on the 1-2 order. The only significant factor group is scrambling, and clauses with unscrambled objects appear to strongly favor 1-2, but the number of tokens is too low to be sure.

Table 23: Favoring factors in *Vita* (Augsburg, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.757$	passive/perfect	55 (93%)	4 (6%)	0.426
	infinitive	32 (91%)	3 (8%)	0.623
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.822$	full NP	21 (95%)	1 (4%)	0.808
	quantified NP	2 (100%)	0 (0%)	n/a
	pronoun	10 (90%)	1 (9%)	0.214
	PP	27 (90%)	3 (10%)	0.464
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	4 (80%)	1 (20%)	0.338
	adverb	17 (94%)	1 (5%)	0.370
	clause	3 (100%)	0 (0%)	n/a
	nothing	2 (100%)	0 (0%)	n/a
extraposed constituent p = n/a	adjunct PP	0 (0%)	0 (0%)	n/a
	other const.	3 (100%)	0 (0%)	
	nothing	84 (92%)	7 (7%)	
focus $p = 0.460$	old info.	37 (94%)	2 (5%)	0.650
	new info.	49 (90%)	5 (9%)	0.390
	contrastive	1 (100%)	0 (0%)	n/a
*scrambled object $p = 0.003$	unscrambled	2 (40%)	3 (60%)	0.029
	scrambled	7 (100%)	0 (0%)	n/a
	can't tell	78 (95%)	4 (4%)	0.553
prefix type $p = 0.381$	stressed	9 (100%)	0 (0%)	n/a
	unstressed	57 (93%)	4 (6%)	0.574
	none	21 (87%)	3 (12%)	0.319
Total		87 (92%)	7 (7%)	

The 16th-century Augsburg text is *Kurtzer vnd einfa^{e}ltiger Bericht / von des Herren Nachtmal* ('Short and simple account of the Lord's Last Supper'), written in Göppingen in 1557 by the Swabian theologian Jacob Andreae (*BFhndK*).[18] The results of the analysis are presented below in Table 24.

Like the previous text, *Nachtmahl* has just a few occurrences of the 1-2 order, in this case only four. The result is poor statistical significance and a number of singleton factor groups. Syntagm is significant, and of the four instances of 1-2, three of them involve an infinitive. Focus is also significant, and of the four instances of 1-2, three of them involve new information focus. Oddly, the step-up function selected only focus as significant, but the step-down function selected only syntagm and preceding constituent. Finally, note that although prefix type is a singleton factor group and thus could not be analyzed, all four instances of 1-2 have a stressed prefix.

[18] Although the author is Swabian and the text was composed in Swabia, it was printed in Augsburg and the *Bonner Frühneuhochdeutsch-Korpus* characterizes its language as 'East Swabian (Augsburg)'.

Table 24: Favoring factors in *Nachtmahl* (Augsburg, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm *p* = 0.044	passive/perfect	68 (98%)	1 (1%)	0.809
	infinitive	22 (88%)	3 (12%)	0.021
	progressive	0 (0%)	0 (0%)	n/a
(*)preceding constituent *p* = 0.257	full NP	19 (95%)	1 (5%)	0.669
	quantified NP	2 (66%)	1 (33%)	0.006
	pronoun	5 (83%)	1 (16%)	0.085
	PP	38 (100%)	0 (0%)	n/a
	stranded P	0 (%)	0 (0%)	n/a
	adjective	3 (100%)	0 (0%)	n/a
	adverb	15 (93%)	1 (6%)	0.725
	clause	2 (100%)	0 (0%)	n/a
	nothing	2 (100%)	0 (0%)	n/a
extraposed constituent *p* = n/a	adjunct PP	3 (100%)	0 (0%)	n/a
	other const.	2 (100%)	0 (0%)	
	nothing	83 (95%)	4 (4%)	
(*)focus *p* = 0.033	old info.	66 (98%)	1 (1%)	0.572
	new info.	19 (86%)	3 (13%)	0.293
	contrastive	3 (100%)	0 (0%)	n/a
scrambled object *p* = n/a	unscrambled	80 (95%)	4 (4%)	n/a
	scrambled	4 (100%)	0 (0%)	
	can't tell	4 (100%)	0 (0%)	
prefix type *p* = n/a	stressed	13 (76%)	4 (23%)	n/a
	unstressed	58 (100%)	0 (0%)	
	none	17 (100%)	0 (0%)	
Total		88 (95%)	4 (4%)	

Summarizing the results from this section, all of the factor groups have an effect on verb order (although in the case of preceding constituent, with the reverse of the predicted preferences) in the analysis of the three texts together. However, in the individual texts some of these effects are not detectable. In *Troja*, there is no favoring effect of extraposition or focus. In the latter two texts, preceding constituent and extraposition (which is virtually nonexistent) have no favoring effect. A comparison between Augsburg and Nuremberg/Swabia will be discussed at the end of the section on Vienna below.

3.5 Vienna

Table 25 below presents the results for the analysis of the three texts from Vienna. The first factor group, syntagm type, is very significant and follows the pattern from other analyses in this study. The 1-2 order occurs in 35% of the infinitival constructions, versus the expected rate of 24%, indicating a strong favoring effect. In participial constructions, on the other hand, the 1-2 order occurs just 18% of the time, below the expected rate.

The constituent preceding the verb cluster does not have a statistically significant effect on word order.[19] Nor do we find the preference (expected from the analyses of Nuremberg and Swabia) for the 1-2 order with non-pronominal NPs. Rather, as in Augsburg the opposite pattern occurs here: after a non-pronominal NP, the rate of 1-2 is just 16%, while after a pronoun it is 30%.

Extraposition is not statistically significant either, but does have the same effect on verb order as in the whole ENHG corpus and Augsburg. The extraposition of adjunct PPs has no effect on word order: the rate of the 1-2 order is 21%, very close to the rate when nothing is extraposed (22%). On the other hand, extraposition of other constituents has a strong favoring effect on the 1-2 order, which occurs at 41%.

Table 25: Favoring factors in texts from Vienna

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.009$	passive/perfect	153 (81%)	35 (18%)	0.565
	infinitive	59 (64%)	33 (35%)	0.367
	progressive	3 (75%)	1 (25%)	0.580
*preceding constituent $p = 0.153$	full NP	74 (83%)	15 (16%)	0.613
	quantified NP	8 (66%)	4 (33%)	0.408
	pronoun	29 (69%)	13 (30%)	0.447
	PP	47 (71%)	19 (28%)	0.298
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	2 (100%)	n/a
	adverb	48 (84%)	9 (15%)	0.649
	clause	3 (100%)	0 (0%)	n/a
	nothing	5 (62%)	3 (37%)	0.323
extraposed constituent $p = 0.071$	adjunct PP	11 (78%)	3 (21%)	0.707
	other const.	20 (58%)	14 (41%)	0.484
	nothing	184 (77%)	52 (22%)	0.489
focus $p = 0.324$	old info.	123 (78%)	33 (21%)	0.575
	new info.	91 (72%)	35 (27%)	0.411
	contrastive	1 (50%)	1 (50%)	0.307
scrambled object $p = 0.522$	unscrambled	8 (80%)	2 (20%)	0.662
	scrambled	13 (86%)	2 (13%)	0.574
	can't tell	194 (74%)	65 (25%)	0.489
*prefix type $p < 0.001$	stressed	12 (41%)	17 (58%)	0.123
	unstressed	151 (85%)	25 (14%)	0.597
	none	52 (65%)	27 (34%)	0.461
*text (century) $p < 0.001$	*Rationale* (14^{th})	65 (65%)	34 (34%)	0.196
	Denkwürd. (15^{th})	64 (65%)	33 (34%)	0.270
	Moscovia (16^{th})	86 (97%)	2 (2%)	0.936
Total		215 (75%)	69 (24%)	

[19] However, this was chosen in the step-up/step-down function as one of the most significant factor groups. I have no explanation for this anomaly.

Like extraposition, focus is not statistically significant but has the expected effect on word order. After a constituent representing old information, the rate of 1-2 is 21%, below the expected rate. Following new information, the 1-2 order occurs 27% of the time, slightly more frequent than the expected rate of 24%. There are too few clear instances of scrambling to draw any conclusions about its correlation with verb order.

The effect of prefix type has an extremely significant effect on verb order, and shows the usual pattern. When the main verb in the cluster has a stressed prefix, the 1-2 order is strongly favored at 58%, a rate more than double the expected 24%. With an unstressed prefix, the 1-2 order occurs just 14% of the time.

Finally, there is an extremely significant difference in the frequencies of 1-2 in the three texts from Vienna. In the 14th and 15th-century texts, the rate of 1-2 is 34%, while in the 16th century this drops to a mere 2%. This factor group, prefix type, and preceding constituent were selected as the most significant factors in the step-up/step-down function.

Table 26: Favoring factors in *Rationale* (Vienna, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.013$	passive/perfect	55 (72%)	21 (27%)	0.559
	infinitive	10 (43%)	13 (56%)	0.312
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.669$	full NP	27 (75%)	9 (25%)	0.616
	quantified NP	3 (42%)	4 (57%)	0.290
	pronoun	9 (50%)	9 (50%)	0.323
	PP	8 (61%)	5 (38%)	0.361
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	14 (70%)	6 (30%)	0.600
	clause	0 (0%)	0 (0%)	n/a
	nothing	4 (80%)	1 (20%)	0.595
extraposed constituent $p = 0.204$	adjunct PP	7 (87%)	1 (12%)	0.769
	other const.	12 (54%)	10 (45%)	0.488
	nothing	46 (66%)	23 (33%)	0.469
focus $p = 0.328$	old info.	31 (73%)	11 (26%)	0.565
	new info.	33 (60%)	22 (40%)	0.460
	contrastive	1 (50%)	1 (50%)	0.241
scrambled object $p = 0.265$	unscrambled	6 (85%)	1 (14%)	0.870
	scrambled	5 (83%)	1 (16%)	0.652
	can't tell	54 (62%)	32 (37%)	0.450
*prefix type $p = 0.005$	stressed	3 (33%)	6 (66%)	0.167
	unstressed	54 (76%)	17 (23%)	0.576
	none	8 (42%)	11 (57%)	0.405
Total		65 (65%)	34 (34%)	

We now turn to the analyses of the three individual texts from Vienna. The 14th-century example is *Rationale*, a theological text by Wilhelm Durandus, translated into German by the Augustine monk Leopold Stainreuter (1340-1400) in Vienna in 1384

(*BFnhdK*). The results of the analysis of this text, presented in Table 26, are nearly identical to those for Vienna as a whole.

Syntagm, which is statistically significant, shows the expected pattern, with infinitives strongly favoring the 1-2 order. As in the analysis for Vienna as a whole, the preceding constituent shows non-pronominal NPs disfavoring and pronouns favoring the 1-2 order. Extraposition and focus show the expected favoring effect on the 1-2 order. Finally, prefix type is very significant (and the only factor group selected by step-up/step-down), with the expected preference for 1-2 with a stressed prefix.

The second text from Vienna, *Denkwürdigkeiten* ('Considerations'), is a chronicle written in Vienna from 1445 to 1452 by Helene Kottanerin (*BFnhdK*). The analysis for this text is presented in Table 27.

Syntagm shows the usual preference for the 1-2 order with infinitives, but is not statistically significant. The effect of the preceding constituent is very significant, but it is not clear what this means: unlike the analyses for ENHG or Vienna as a whole, both non-pronominal NPs and pronouns disfavor 1-2, while PPs strongly favor it. Extraposition and focus both favor the 1-2 order, as expected. Finally, prefix type is very significant, with the expected preferences.

Table 27: Favoring factors in *Denkwürdigkeiten* (Vienna, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.133$	passive/perfect	38 (74%)	13 (25%)	0.536
	infinitive	23 (54%)	19 (45%)	0.429
	progressive	3 (75%)	1 (25%)	0.763
*preceding constituent $p = 0.002$	full NP	19 (76%)	6 (24%)	0.579
	quantified NP	1 (100%)	0 (0%)	n/a
	pronoun	15 (83%)	3 (16%)	0.632
	PP	9 (39%)	14 (60%)	0.170
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	1 (100%)	n/a
	adverb	19 (86%)	3 (13%)	0.700
	clause	0 (0%)	0 (0%)	n/a
	nothing	0 (0%)	2 (100%)	n/a
extraposed constituent $p = 0.917$	adjunct PP	4 (66%)	2 (33%)	0.717
	other const.	6 (60%)	4 (40%)	0.608
	nothing	54 (66%)	27 (33%)	0.469
focus $p = 0.253$	old info.	48 (69%)	21 (30%)	0.572
	new info.	16 (57%)	12 (42%)	0.328
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.216$	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	6 (85%)	1 (14%)	0.489
	can't tell	57 (64%)	32 (35%)	0.501
*prefix type $p < 0.001$	stressed	2 (16%)	10 (83%)	0.093
	unstressed	36 (83%)	7 (16%)	0.676
	none	26 (61%)	16 (38%)	0.474
Total		64 (65%)	33 (34%)	

These results can be compared to Bassola's (1978) study of the entire text of *Denkwürdigkeiten*. Bassola (1978:25) found 122 instances of the 2-1 order, or 57%, and 93 instances or 43% of 1-2. As in my study, Bassola found that syntagms with an infinitive have a higher rate of 1-2; however, he finds that clauses with an extraposed constituent have a lower rate.

The third text from Vienna is *Mosovia der Hauptstadt der Reissen* ('Moscow the capital of Russia'), a report of the journey of the Viennese diplomat Sigmund Freiherr von Herberstein, printed in 1557 in Vienna (*BFnhdK*). The results for this text are given in Table 28 below. Given the fact that this text has only two instances of the 1-2 order, no real analysis is possible.

Table 28: Favoring factors in *Moscovia* (Vienna, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm p = 0.580	passive/perfect	60 (98%)	1 (1%)	0.640
	infinitive	26 (96%)	1 (3%)	0.215
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent p = n/a	full NP	28 (100%)	0 (0%)	n/a
	quantified NP	4 (100%)	0 (0%)	
	pronoun	5 (83%)	1 (16%)	
	PP	30 (100%)	0 (0%)	
	stranded P	0 (0%)	0 (0%)	
	adjective	1 (100%)	0 (0%)	
	adverb	15 (100%)	0 (0%)	
	clause	3 (100%)	0 (0%)	
	nothing	1 (100%)	0 (0%)	
extraposed constituent p = n/a	adjunct PP	0 (0%)	0 (0%)	n/a
	other const.	2 (100%)	0 (0%)	
	nothing	84 (97%)	2 (2%)	
focus p = 0.976	old info.	44 (97%)	1 (2%)	0.196
	new info.	42 (97%)	1 (2%)	0.814
	contrastive	0 (0%)	0 (0%)	n/a
*scrambled object p = 0.021	unscrambled	1 (50%)	1 (50%)	0.000
	scrambled	2 (100%)	0 (0%)	n/a
	can't tell	83 (98%)	1 (1%)	0.557
*prefix type p = 0.167	stressed	7 (87%)	1 (12%)	0.055
	unstressed	61 (98%)	1 (1%)	0.591
	none	18 (0%)	0 (0%)	n/a
Total		86 (97%)	2 (2%)	

To summarize the results from Vienna, infinitival constructions, extraposition, focus, and stressed prefixes favor the 1-2 order, as in the other dialects tested so far. The preceding constituents that favor 1-2 differ between the 14th and 15th-century texts. Finally, the 16th-century text has too few tokens of 1-2 to tell if what (if any) factors favor it.

Having examined four dialects, three differences have emerged between Nuremberg-Swabia on the one hand and Augsburg-Vienna on the other. First, in Nuremberg and Swabia a preceding non-pronominal NP favors the 1-2 order and a preceding pronoun disfavors it,

but in Augsburg and Vienna the reverse is true. (Recall from Chapter 2, section 4.2.1 that in the analysis of the whole corpus, the rate of 1-2 after pronouns and NPs was exactly the same.) Secondly, in Nuremberg and Swabia, the 1-2 order is more strongly favored with the extraposition of adjunct PPs than with other types of extraposition, while in Augsburg and Vienna (as in the ENHG corpus as a whole), the extraposition of adjunct PPs favors the 1-2 order less strongly. Finally, with regard to the 16th-century text from each dialect, in Nuremberg and Swabia the frequency of 1-2 was lower than previous centuries but favoring factors were still detected, whereas in Augsburg and Vienna the 1-2 order (along with any favoring factors) has all but disappeared.

3.6 Saxony

The next dialect to be discussed here is Saxony. The analysis for this dialect is presented in Table 29. The first factor group, syntagm type, is very significant. Moreover, it exhibits the by-now familiar preference for the 1-2 order with infinitives. In infinitival syntagms, the frequency of 1-2 is 42%, compared to the overall rate of 31%. Not surprisingly, then, passive and perfect constructions disfavor the 1-2 order, at a rate of just 23%.

The effect of the preceding constituent on verb order is not statistically significant; however, it does show the same distribution after NPs as in Nuremberg and Swabia. After a non-pronominal NP, the rate of 1-2 is 38%, whereas after a pronoun it is 28%. Note however, that this effect is weaker than in those other dialects: the factor weights are fairly close to 0.5, at 0.456 versus 0.566, compared to 0.436 versus 0.606 in Nuremberg and 0.364 versus 0.692 in Swabia.

The effect of extraposition on verb order is very significant. When an adjunct PP is extraposed, the frequency of the 1-2 order is 42%, and when other constituents are extraposed, the rate of 1-2 is even higher at 51%. Note that this is the same pattern found in Augsburg, Vienna, and the whole ENHG corpus, unlike Nuremberg and Swabia where adjunct PPs favor 1-2 more strongly than other types.

Focus has an extremely significant effect on verb order in Saxony. When the preceding constituent is new information, the 1-2 order is strongly favored at 43%, well above the expected 31%. Conversely, old information disfavors the 1-2 order at just 20%. Unfortunately, this effect cannot be corroborated by scrambling, which shows the opposite of the expected effect. With a scrambled object, which is supposed to correlate with old information, the rate of 1-2 is 54%, but in any event the number of tokens is quite small.

Prefix type is very significant, and shows the usual pattern. When the verb complex contains a stressed prefix, the rate of the 1-2 order is 46%, well above the expected rate. Conversely, with an unstressed prefix, 1-2 occurs only 24% of the time.

Finally, the difference between the three Saxon texts is extremely significant. There is a steady decline in the rate of 1-2 from the 14th century (47%) to the 15th (32%) to the 16th (12%).

Table 29: Favoring factors in texts from Saxony

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.001$	passive/perfect	117 (76%)	35 (23%)	0.568
	infinitive	73 (57%)	53 (42%)	0.418
	progressive	3 (100%)	0 (0%)	n/a
preceding constituent $p = 0.547$	full NP	34 (61%)	21 (38%)	0.456
	quantified NP	5 (71%)	2 (28%)	0.421
	pronoun	43 (71%)	17 (28%)	0.566
	PP	59 (76%)	18 (23%)	0.512
	stranded P	2 (66%)	1 (33%)	0.397
	adjective	3 (50%)	3 (50%)	0.284
	adverb	32 (61%)	20 (38%)	0.503
	clause	3 (100%)	0 (0%)	n/a
	nothing	12 (70%)	5 (29%)	0.421
extraposed constituent $p = 0.008$	adjunct PP	27 (57%)	20 (42%)	0.538
	other const.	13 (48%)	14 (51%)	0.419
	nothing	153 (73%)	54 (26%)	0.502
*focus $p < 0.001$	old info.	121 (79%)	32 (20%)	0.619
	new info.	72 (56%)	56 (43%)	0.359
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.264$	unscrambled	3 (75%)	1 (25%)	0.483
	scrambled	5 (45%)	6 (54%)	0.488
	can't tell	185 (69%)	81 (30%)	0.501
*prefix type $p = 0.009$	stressed	15 (53%)	13 (46%)	0.238
	unstressed	132 (75%)	43 (24%)	0.583
	none	46 (58%)	32 (41%)	0.417
*text (century) $p < 0.001$	*Predigten* (14^{th})	49 (52%)	45 (47%)	0.298
	Sermon (15^{th})	66 (67%)	32 (32%)	0.448
	Passionale (16^{th})	78 (87%)	11 (12%)	0.757
Total		193 (68%)	88 (31%)	

Next we turn to the individual analyses of the three texts from Saxony. The first text is *Altdeutsche Predigten* ('Old German sermons'), a collection of sermons, written by one scribe in Saxony in the first half of the 14^{th} century (*BFnhdK*). The results of the analysis of this text are presented below in Table 30.

Table 30: Favoring factors in *Altdeutsche Predigten* (Saxony, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.621$	passive/perfect	26 (54%)	22 (45%)	0.469
	infinitive	22 (48%)	23 (51%)	0.533
	progressive	1 (100%)	0 (0%)	n/a
preceding constituent $p = 0.870$	full NP	10 (55%)	8 (44%)	0.540
	quantified NP	0 (0%)	0 (0%)	n/a
	pronoun	15 (55%)	12 (44%)	0.528
	PP	5 (38%)	8 (61%)	0.323
	stranded P	1 (50%)	1 (50%)	0.387
	adjective	0 (0%)	2 (100%)	n/a
	adverb	15 (60%)	10 (40%)	0.574
	clause	0 (0%)	0 (0%)	n/a
	nothing	3 (50%)	3 (50%)	0.384
extraposed constituent $p = 0.255$	adjunct PP	18 (64%)	10 (35%)	0.713
	other const.	6 (40%)	9 (60%)	0.389
	nothing	25 (49%)	26 (50%)	0.409
focus $p = 0.768$	old info.	20 (54%)	17 (45%)	0.570
	new info.	29 (50%)	28 (49%)	0.454
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.992$	unscrambled	1 (50%)	1 (50%)	0.530
	scrambled	3 (50%)	3 (50%)	0.529
	can't tell	45 (52%)	41 (47%)	0.497
*prefix type $p = 0.031$	stressed	1 (14%)	6 (85%)	0.077
	unstressed	39 (60%)	26 (40%)	0.635
	none	9 (40%)	13 (59%)	0.302
Total		49 (52%)	45 (47%)	

Syntagm is not significant, and although it shows the usual preference for the 1-2 order with infinitives, this effect is slight. There is no difference in the rate of the 1-2 order following non-pronominal NPs versus pronouns (both 44%). Extraposition does have a strong favoring effect on 1-2, although not statistically significant. New information focus shows only the slightest of preferences for the 1-2 order. Finally, prefix type is the only significant factor group in this text, with a very strong preference for 1-2 with stressed prefixes.

Table 31 below presents the results of the analysis of Johannes Tauler's *Sermon*. Although Johannes Tauler lived in 14th-century Strasbourg, the text was printed in Leipzig in 1498 and is characterized by the *BFhndK* as Saxon.

Table 31: Favoring factors in *Sermon* (Saxony, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.031$	passive/perfect	35 (77%)	10 (22%)	0.836
	infinitive	29 (56%)	22 (43%)	0.192
	progressive	2 (100%)	0 (0%)	n/a
*preceding constituent $p = 0.137$	full NP	10 (50%)	10 (50%)	0.327
	quantified NP	4 (66%)	2 (33%)	0.486
	pronoun	14 (82%)	3 (17%)	0.452
	PP	18 (78%)	5 (21%)	0.920
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	1 (50%)	1 (50%)	0.109
	adverb	11 (52%)	10 (47%)	0.193
	clause	0 (0%)	0 (0%)	n/a
	nothing	7 (87%)	1 (12%)	0.378
extraposed constituent $p = 0.026$	adjunct PP	7 (41%)	10 (58%)	0.262
	other const.	7 (58%)	5 (41%)	0.323
	nothing	52 (75%)	17 (24%)	0.595
*focus $p < 0.001$	old info.	53 (84%)	10 (15%)	0.840
	new info.	13 (37%)	22 (62%)	0.048
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.084$	unscrambled	2 (100%)	0 (0%)	n/a
	scrambled	1 (25%)	3 (75%)	0.704
	can't tell	63 (68%)	29 (31%)	0.491
prefix type $p = 0.096$	stressed	6 (60%)	4 (40%)	0.130
	unstressed	42 (76%)	13 (23%)	0.626
	none	18 (54%)	15 (45%)	0.431
Total		66 (67%)	32 (32%)	

Syntagm is significant in this text, and shows a strong preference for the 1-2 order with infinitives. Although not significant, preceding non-pronominal NPs show a strong favoring effect on the 1-2 order, whereas pronouns disfavor it. Extraposition also favors 1-2 (with adjunct PPs favoring it more strongly than other types), and is significant. Focus is extremely significant, with new information showing a very strong preference for the 1-2 order. Finally, prefix type, although not significant, shows the usual distribution of stressed prefixes favoring 1-2.

The 16th-century text from Saxony is *Passionale*, a sermon by the Saxon preacher Johannes Mathesius. The text was printed in Leipzig in 1587 (*BFhndK*). The results for this analysis are presented in Table 32.

Syntagm is very significant, with infinitives favoring the 1-2 order. The effect of the preceding constituent is insignificant, and there is little difference in verb order following non-pronominal NPs versus pronouns. Extraposition is very rare in this text, as in some other 16th-century texts. Focus is not statistically significant, but the text does show a higher frequency of the 1-2 order after new information. Prefix type is not significant either, but there is a preference for 1-2 with stressed prefixes.

Table 32: Favoring factors in *Passionale* (Saxony, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm *p* = 0.007	passive/perfect	56 (94%)	3 (5%)	0.680
	infinitive	22 (73%)	8 (26%)	0.185
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent *p* = 0.733	full NP	14 (82%)	3 (17%)	0.551
	quantified NP	1 (100%)	0 (0%)	n/a
	pronoun	14 (87%)	2 (12%)	0.499
	PP	36 (87%)	5 (12%)	0.503
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	2 (100%)	0 (0%)	n/a
	adverb	6 (100%)	0 (0%)	n/a
	clause	3 (100%)	0 (0%)	n/a
	nothing	2 (66%)	1 (33%)	0.217
extraposed constituent *p* = n/a	adjunct PP	2 (100%)	0 (0%)	n/a
	other const.	0 (0%)	0 (0%)	
	nothing	76 (87%)	11 (12%)	
focus *p* = 0.319	old info.	48 (90%)	5 (9%)	0.534
	new info.	30 (83%)	6 (16%)	0.450
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object *p* = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	2 (100%)	0 (0%)	
	can't tell	77 (87%)	11 (12%)	
prefix type *p* = 0.161	stressed	8 (72%)	3 (27%)	0.259
	unstressed	51 (92%)	4 (7%)	0.478
	none	19 (82%)	4 (17%)	0.670
Total		78 (87%)	11 (12%)	

Summing up this section, the favoring factors in Saxony are the same as those for the ENHG corpus as a whole, with very similar distributions. Since all three Saxon texts are sermons, we can assume that the changes in Saxony–the steady decline of the 1-2 order and the loss of extraposition in the 16th century–are not due to differences in the genres of the texts but are genuinely reflective of changes occurring in spoken ENHG. The fact that these texts are closer to the spoken language also helps explain why the frequency of 1-2 in Saxony is consistently higher than that in neighboring Thuringia.

Compared to other texts discussed so far, Saxony has some things in common with the Nuremberg-Swabia group and others with the Augsburg-Vienna group. As in Nuremberg and Swabia, the 1-2 order is favored by preceding non-pronominal NPs and disfavored by preceding pronouns (although this effect in Saxony is entirely due to the 15th-century text). Also as in those dialects, the favoring factors are still very much detectable in the 16th century, despite the fact that the rate of 1-2 is quite low in *Passionale*. On the other hand, like Augsburg and Vienna, the extraposition of adjunct PPs has a weaker favoring effect on the 1-2 order than the extraposition of other constituent types.

3.7 Thuringia

Like Saxony, Thuringia is in the East Middle German dialect area. The results for the analysis of Thuringia are presented in Table 33 below. First, syntagm has a statistically significant effect on verb order, and shows the predictable pattern. In verbal clusters with an infinitive, the rate of the 1-2 order is 23%, versus the expected rate of 14%. Conversely, participial syntagms disfavor 1-2 at 10%.

The effect of the constituent preceding the verbal complex is not statistically significant. Moreover, instead of the preferences after different NP types predicted by Ebert, the opposite is found. This effect, however, is a slight one: after non-pronominal NPs, the frequency of 1-2 is 15%, while after pronouns it is 18%. Extraposition is not statistically significant either, and here the number of tokens is too small to see any patterns.

Table 33: Favoring factors in texts from Thuringia

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.017$	passive/perfect	127 (89%)	15 (10%)	0.608
	infinitive	52 (76%)	16 (23%)	0.417
	progressive	0 (0%)	0 (0%)	n/a
*preceding constituent $p = 0.123$	full NP	51 (85%)	9 (15%)	0.417
	quantified NP	10 (90%)	1 (9%)	0.680
	pronoun	27 (81%)	6 (18%)	0.419
	PP	45 (90%)	5 (10%)	0.649
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	1 (25%)	3 (75%)	0.020
	adverb	35 (89%)	4 (10%)	0.609
	clause	3 (100%)	0 (0%)	n/a
	nothing	6 (75%)	2 (25%)	0.223
extraposed constituent $p = 0.900$	adjunct PP	9 (90%)	1 (10%)	0.830
	other const.	11 (84%)	2 (15%)	0.468
	nothing	159 (85%)	28 (14%)	0.481
focus $p = 0.253$	old info.	118 (88%)	16 (11%)	0.563
	new info.	61 (82%)	13 (17%)	0.387
	contrastive	0 (0%)	2 (100%)	n/a
scrambled object $p = 0.609$	unscrambled	5 (100%)	0 (0%)	n/a
	scrambled	16 (88%)	2 (11%)	0.498
	can't tell	158 (84%)	29 (15%)	0.500
prefix type $p = 0.036$	stressed	16 (76%)	5 (23%)	0.245
	unstressed	125 (89%)	14 (10%)	0.566
	none	38 (76%)	12 (24%)	0.433
*text (century) $p = 0.006$	*Psalter* (14^{th})	12 (75%)	4 (25%)	0.164
	Rothe Chr. (15^{th})	76 (78%)	21 (21%)	0.248
	Bange Chr. (16^{th})	91 (93%)	6 (6%)	0.799
Total		179 (85%)	31 (14%)	

Although focus is not a statistically significant factor group, it does show the favoring effect on verb order. When preceded by new information, the 1-2 order occurs 17% of the time, only a bit more frequently than the expected 14% but with a factor weight of 0.387, far enough from 0.5 to indicate a solid favoring effect. Unfortunately, this effect is not confirmed by the scrambling test.

Prefix type is a statistically significant factor group, with the familiar pattern. In a cluster with a stressed prefix, the rate of the 1-2 order is 23%, well above the expected rate of 14%. With an unstressed prefix, the rate of 1-2 is just 10%.

The difference between the three Thuringian texts is very significant, with the 14th and 15th-century texts having a moderate rate of 1-2 (25% and 21% respectively), followed by a sharp drop in the 16th to just 6%.

The favoring factors in each text are discussed next. The 14th-century representative is the *Psalter Dresden*. The text was written by a single scribe, completed in 1378, and despite its name, was written in Erfurt (*BFnhdK*). The *GoldVarb* analysis of this text is presented below in Table 34. The text is much shorter than others, with only sixteen qualifying subordinate clauses, so the results are difficult to interpret.

Table 34: Favoring factors in *Psalter Dresden* (Thuringian, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm *p* = n/a	passive/perfect	12 (75%)	4 (25%)	n/a
	infinitive	0 (0%)	0 (0%)	
	progressive	0 (0%)	0 (0%)	
*preceding constituent *p* = 0.039	full NP	3 (75%)	1 (25%)	0.723
	quantified NP	0 (0%)	0 (0%)	n/a
	pronoun	5 (100%)	0 (0%)	n/a
	PP	1 (100%)	0 (0%)	n/a
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	1 (25%)	3 (75%)	0.277
	clause	0 (0%)	0 (0%)	n/a
	nothing	2 (100%)	0 (0%)	n/a
extraposed constituent *p* = 0.461	adjunct PP	2 (100%)	0 (0%)	n/a
	other const.	1 (50%)	1 (50%)	0.201
	nothing	9 (75%)	3 (25%)	0.557
focus *p* = n/a	old info.	8 (100%)	0 (0%)	n/a
	new info.	4 (50%)	4 (50%)	
	contrastive	0 (0%)	0 (0%)	
scrambled object *p* = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	0 (0%)	0 (0%)	
	can't tell	12 (75%)	4 (25%)	
prefix type *p* = n/a	stressed	2 (100%)	0 (0%)	n/a
	unstressed	10 (71%)	4 (28%)	
	none	0 (0%)	0 (0%)	
Total		12 (75%)	4 (25%)	

All sixteen clauses are either perfects or passives, so no effect of syntagm can be determined. Preceding constituent is statistically significant, but with no clear pattern. Focus is a singleton factor group and so no statistical analysis was possible, but note that all four 1-2 clauses in this text have new information. Since all four also have an unstressed prefix (usually disfavoring 1-2), the obvious conclusion is that focus is the cause of the 1-2 order in these clauses.

The second text from Thuringian is *Düringische Chronik* ('Thuringian chronicle'), written in the second half of the 15th century by Johannes Rothe, a priest in Eisenach (*BFnhdK*). The analysis of this text is shown in Table 35.

Syntagm is statistically significant and shows the usual favoring effect of infinitives on the 1-2 order. Preceding constituent is not significant, but the 1-2 order is more frequent following non-pronominal NPs than following pronouns. Extraposition has no discernable impact on word order. Focus is not statistically significant but does show higher rates of 1-2 with new information than with old information. Finally, prefix type is significant and shows a strong preference for the 1-2 order with stressed prefixes.

Table 35: Favoring factors in *Rothe Chronik* (Thuringian, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.030$	passive/perfect	59 (84%)	11 (15%)	0.567
	infinitive	17 (62%)	10 (37%)	0.331
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.404$	full NP	18 (72%)	7 (28%)	0.321
	quantified NP	5 (83%)	1 (16%)	0.531
	pronoun	13 (76%)	4 (23%)	0.461
	PP	20 (80%)	5 (20%)	0.532
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	0 (0%)	1 (100%)	n/a
	adverb	15 (93%)	1 (6%)	0.825
	clause	2 (100%)	0 (0%)	n/a
	nothing	2 (50%)	2 (50%)	0.134
extraposed constituent $p = 0.736$	adjunct PP	7 (87%)	1 (12%)	0.734
	other const.	5 (83%)	1 (16%)	0.575
	nothing	64 (77%)	19 (22%)	0.470
focus $p = 0.456$	old info.	54 (81%)	12 (18%)	0.512
	new info.	22 (75%)	7 (24%)	0.472
	contrastive	0 (0%)	2 (100%)	n/a
scrambled object $p = 0.786$	unscrambled	5 (100%)	0 (0%)	n/a
	scrambled	7 (77%)	2 (22%)	0.465
	can't tell	64 (77%)	19 (22%)	0.504
*prefix type $p = 0.032$	stressed	3 (50%)	3 (50%)	0.231
	unstressed	59 (85%)	10 (14%)	0.570
	none	14 (63%)	8 (36%)	0.365
Total		76 (78%)	21 (21%)	

Table 36 shows the results for Johan Bange's *Thüringische Chronick* (also 'Thuringian chronicle'), redacted from an earlier source and printed in Mühlhausen in

1599 (*BFnhdK*). Note that the step-up function of *GoldVarb* selected focus as the most significant factor group, while three factor groups were selected in the step-down run.

Table 36: Favoring factors in *Bange Chronik* (Thuringian, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm *p* = n/a	passive/perfect	56 (100%)	0 (0%)	n/a
	infinitive	35 (85%)	6 (14%)	
	progressive	0 (0%)	0 (0%)	
(*)preceding constituent *p* = 0.009	full NP	30 (96%)	1 (3%)	0.748
	quantified NP	5 (100%)	0 (0%)	n/a
	pronoun	9 (81%)	2 (18%)	0.109
	PP	24 (100%)	0 (0%)	n/a
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (33%)	2 (66%)	0.028
	adverb	19 (100%)	0 (0%)	n/a
	clause	1 (100%)	0 (0%)	n/a
	nothing	2 (100%)	0 (0%)	n/a
extraposed constituent *p* = n/a	adjunct PP	0 (0%)	0 (0%)	n/a
	other const.	5 (100%)	0 (0%)	
	nothing	86 (93%)	6 (6%)	
*focus *p* = 0.801	old info.	56 (93%)	4 (6%)	0.518
	new info.	35 (94%)	2 (5%)	0.470
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object *p* = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	9 (100%)	0 (0%)	
	can't tell	82 (93%)	6 (6%)	
(*)prefix type *p* = 0.055	stressed	11 (84%)	2 (15%)	0.199
	unstressed	56 (100%)	0 (0%)	n/a
	none	24 (85%)	4 (14%)	0.656
Total		91 (93%)	6 (6%)	

Infinitives strongly favor the 1-2 order in this text (14% versus the expected 6%), but because there are no examples of 1-2 with participles, this is a singleton group and statistical significance is not available. Preceding constituent is the only significant factor group but shows the opposite effect from the test for all Thuringian texts together: NPs favor and pronouns disfavor 1-2. Extraposition is too infrequent to discern an impact it might have on verb order. Focus is not significant, and there is no difference in the rate of 1-2 after old versus new information. Finally, prefix type is just above the threshold for statistical significance, and stressed prefixes strongly favor the 1-2 order while unstressed prefixes are unattested with it.

To summarize this section, syntagm type, focus, and prefix type have a favoring effect on verb order in Thuringia, while preceding constituent and extraposition do not. However, given the small number of tokens in the 14th-century and the low rate of 1-2 from the 16th-century, it is difficult to say whether these favoring factors are coincidental or a genuine property of this dialect. Since the 15th-century text shows a higher rate of 1-2 after NPs than after nouns and does not show a higher rate of the 1-2 order with adjunct

PPs than with other types, we can tentatively conclude that Thuringian patterns most closely with Saxon with respect to the factors favoring 1-2.

3.8 Hesse

We now turn to the texts from Hesse, or more specifically, the transition zone between southern Hessian and Rhine Franconian (see map above). The analysis for this dialect is presented in Table 37.

The first factor group, syntagm, is very significant. Here, as in most other analyses, infinitives strongly favor the 1-2 order, which occurs in 46% of verb clusters with infinitives, well above the expected rate of 30%. Conversely, only 24% of the clusters with a participle show the 1-2 order.

Table 37: Favoring factors in texts from Hesse

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.007$	passive/perfect	141 (75%)	46 (24%)	0.622
	infinitive	37 (53%)	32 (46%)	0.206
	progressive	2 (66%)	1 (33%)	0.466
preceding constituent $p = 0.071$	full NP	34 (61%)	21 (38%)	0.363
	quantified NP	8 (72%)	3 (27%)	0.459
	pronoun	41 (82%)	9 (18%)	0.491
	PP	39 (60%)	26 (40%)	0.559
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	3 (60%)	2 (40%)	0.076
	adverb	38 (71%)	15 (28%)	0.572
	clause	4 (66%)	2 (33%)	0.562
	nothing	13 (92%)	1 (7%)	0.740
extraposed constituent $p = 0.009$	adjunct PP	36 (87%)	5 (12%)	0.504
	other const.	22 (73%)	8 (26%)	0.207
	nothing	122 (64%)	66 (35%)	0.552
focus $p = 0.026$	old info.	108 (76%)	33 (23%)	0.535
	new info.	71 (61%)	45 (38%)	0.462
	contrastive	1 (50%)	1 (50%)	0.290
scrambled object $p = 0.196$	unscrambled	0 (0%)	4 (100%)	n/a
	scrambled	4 (50%)	4 (50%)	0.474
	can't tell	176 (71%)	71 (28%)	0.501
prefix type $p = 0.005$	stressed	9 (50%)	9 (50%)	0.282
	unstressed	146 (75%)	48 (24%)	0.546
	none	25 (53%)	22 (46%)	0.401
*text (century) $p < 0.001$	*Benediktin.* (14^{th})	93 (93%)	6 (6%)	0.883
	Hortus San. (15^{th})	62 (79%)	16 (20%)	0.593
	Walter Ral. (16^{th})	25 (30%)	57 (69%)	0.058
Total		180 (69%)	79 (30%)	

Preceding constituent is not statistically significant, but shows the same effect on verb order as in Nuremberg and Swabia. After a non-pronominal NP, the rate of 1-2 is higher than expected at 38% but only 18% after a pronoun.

Extraposition is very significant, but with a distribution that is the opposite of that in other dialects and the ENHG corpus as a whole. In this test, it is actually the lack of extraposition that favors the 1-2 order at 35%. Extraposition of most constituent types slightly disfavors 1-2 (26%), and extraposition of adjunct PPs disfavors it even more (12%). (This unusual state of affairs is due to the anomalous *Walter Ralegh*, which has a very high rate of 1-2, but almost no extraposition.)

Focus, on the other hand, shows the expected effect on word order, and is statistically significant. New information somewhat favors the 1-2 order at 38%, while old information disfavors it at 23%. Scrambling appears to confirm this: all four instances of an unscrambled object occur with the 1-2 order.

Prefix type has a very significant effect on verb order. As in other analyses, a stressed prefix accompanies the 1-2 order 50% of the time, indicating a strong favoring effect. Likewise, unstressed prefixes disfavor 1-2 at 24%.

Finally, the difference in the frequency of the 1-2 order between the three Hessian texts is extremely significant. However, this factor group also exhibits an unusual pattern: the rate of 1-2 actually increases over time, from 6% in the 14th century to 69% in the 16th. This remarkable difference between the three texts will be discussed below.

Table 38: Favoring factors in *Oxforder Benediktinerregel* (Hesse, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm p = n/a	passive/perfect	71 (100%)	0 (0%)	n/a
	infinitive	22 (78%)	6 (21%)	
	progressive	0 (0%)	0 (0%)	
(*)preceding constituent p = 0.332	full NP	16 (88%)	2 (11%)	0.464
	quantified NP	8 (100%)	0 (0%)	n/a
	pronoun	26 (96%)	1 (3%)	0.711
	PP	14 (100%)	0 (0%)	n/a
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	2 (66%)	1 (33%)	0.021
	adverb	18 (90%)	2 (10%)	0.375
	clause	2 (100%)	0 (0%)	n/a
	nothing	7 (100%)	0 (0%)	n/a
(*)extraposed constituent p = 0.961	adjunct PP	18 (94%)	1 (5%)	0.868
	other const.	12 (92%)	1 (7%)	0.040
	nothing	63 (94%)	4 (5%)	0.521
focus p = 0.865	old info.	58 (93%)	4 (6%)	0.402
	new info.	34 (94%)	2 (5%)	0.665
	contrastive	1 (100%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	2 (100%)	0 (0%)	
	can't tell	91 (93%)	6 (6%)	
*prefix type p < 0.001	stressed	4 (100%)	0 (0%)	n/a
	unstressed	77 (98%)	1 (1%)	0.718
	none	12 (70%)	5 (29%)	0.013
Total		93 (93%)	6 (6%)	

The first text from Hesse, *Oxforder Benediktinerregel* ('Bendectine rule of Oxford'), is presented in Table 38. The text was written by one scribe in 14th-century Nassau (*BFnhdK*). It is possibly a reworking of an older interlinear translation, but the *BFnhdK* does not give any more information than that. The frequency of the 1-2 order in this text is extremely low compared to most other 14th-century texts, but it is actually about the same as in nearby Cologne (see section 3.9, below).

Infinitives appear to strongly favor the 1-2 order in this text, since all six instances of that order involve infinitives. However, the number of tokens is too low to determine what effect the other factor groups might have. The effect of prefix, which is extremely significant and the only factor group selected by step-up/step-down, is not distinguishable from that of syntagm, since five out of the six infinitives with 1-2 are prefixless.

Table 39 gives the results for *Hortus sanitatis* ('The garden of health'), the 15th-century Hessian text. This piece of technical prose, a description of the health effects of various plants, was written by Johann Wonnecke von Kaub, a physician in Frankfurt. It was printed in Mainz in 1485 (*BFnhdK*).

Table 39: Favoring factors in *Hortus Sanitatis* (Hesse, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.403$	passive/perfect	46 (83%)	9 (16%)	0.632
	infinitive	14 (70%)	6 (30%)	0.172
	progressive	2 (66%)	1 (33%)	0.634
preceding constituent $p = 0.483$	full NP	14 (70%)	6 (30%)	0.342
	quantified NP	0 (0%)	0 (0%)	n/a
	pronoun	13 (72%)	5 (27%)	0.470
	PP	13 (100%)	0 (0%)	n/a
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (50%)	1 (50%)	0.023
	adverb	15 (88%)	2 (11%)	0.697
	clause	0 (0%)	1 (100%)	n/a
	nothing	6 (85%)	1 (14%)	0.774
extraposed constituent $p = 0.054$	adjunct PP	18 (85%)	3 (14%)	0.513
	other const.	9 (56%)	7 (43%)	0.163
	nothing	35 (85%)	6 (14%)	0.648
focus $p = 0.366$	old info.	39 (82%)	8 (17%)	0.523
	new info.	23 (74%)	8 (25%)	0.465
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	2 (100%)	0 (0%)	
	can't tell	60 (78%)	16 (21%)	
prefix type $p = 0.670$	stressed	4 (66%)	2 (33%)	0.226
	unstressed	45 (81%)	10 (18%)	0.464
	none	13 (76%)	4 (23%)	0.711
Total		62 (79%)	16 (20%)	

Syntagm, although not statistically significant, shows the expected preference for the 1-2 order with infinitives and the 2-1 order with participles. There is little difference

in the rate of 1-2 depending on the type of preceding NP. Extraposition, the factor group which comes closest to statistical significance, shows a strong favoring effect on the 1-2 order when the extraposition of adjunct PPs is excluded. There is a slight although insignificant preference for the 1-2 order with new information. Finally, stressed prefixes seem to strongly favor the 1-2 order, although the number of tokens is too small to be certain. Note that no factor group was selected in *GoldVarb*'s step-up/step-down function.

The analysis of the final text from Hesse, *Walter Ralegh*, is presented in Table 40, below. This is a German translation of a Dutch translation of Sir Walter Raleigh's account of his travels in Guyana. The German version was printed in Frankfurt in 1599. The translator, Augustinus Cassiodorus Reinius, was born in Seville in 1520 but lived in Germany and Switzerland beginning in 1557, before settling in Frankfurt in 1571 (*BFnhdK*). Given the fact that this text is a translation from the closely-related Dutch, and that the translator was not a native speaker of German, it should not have been included in this study. However, the results are interesting for their differences from and similarities to those of the other texts.

Table 40: Favoring factors in *Walter Ralegh* (Hesse, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm *p* = 0.001	passive/perfect	24 (39%)	37 (60%)	0.673
	infinitive	1 (4%)	20 (95%)	0.109
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent *p* = 0.683	full NP	4 (23%)	13 (76%)	0.391
	quantified NP	0 (0%)	3 (100%)	n/a
	pronoun	2 (40%)	3 (60%)	0.669
	PP	12 (31%)	26 (68%)	0.429
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	5 (31%)	11 (68%)	0.631
	clause	2 (66%)	1 (33%)	0.889
	nothing	0 (0%)	0 (0%)	n/a
extraposed constituent *p* = n/a	adjunct PP	0 (0%)	1 (100%)	n/a
	other const.	1 (100%)	0 (0%)	
	nothing	24 (30%)	56 (70%)	
focus *p* = 0.595	old info.	11 (34%)	21 (65%)	0.509
	new info.	14 (28%)	35 (71%)	0.494
	contrastive	0 (0%)	1 (100%)	n/a
scrambled object *p* = n/a	unscrambled	0 (0%)	4 (100%)	n/a
	scrambled	0 (0%)	4 (100%)	
	can't tell	25 (33%)	49 (66%)	
prefix type *p* = 0.061	stressed	1 (12%)	7 (87%)	0.346
	unstressed	24 (39%)	37 (60%)	0.521
	none	0 (0%)	13 (100%)	n/a
Total		25 (30%)	57 (69%)	

First of all, the frequency of the 1-2 order in this text is 69%, far higher than any other 16th-century text in the corpus, and higher than all but one 14th-century text. I believe the extremely high frequency of 1-2 (as well as 1-2-3, see footnote10) is a result of the fact that the ENHG *Walter Ralegh* is a translation from Dutch. However, with respect to the factors that favor the 1-2 order, *Walter Ralegh* behaves very similarly to the other texts in the corpus. Syntagm is very significant: infinitives overwhelmingly favor the 1-2 order, and participles disfavor it somewhat. A preceding non-pronominal NP somewhat favors the 1-2 order. Interestingly, extraposition is virtually unattested in this text, as in most other 16th-century texts. There is a very slight favoring effect of new information on 1-2. Finally, prefix type shows the usual pattern, although here it appears that the clusters with unstressed prefixes correspond exactly to the participial syntagms.

To summarize the data from Hessian, the favoring factors are much the same as in other dialects. The 1-2 order is favored by infinitives, preceding NPs, new information, and stressed prefixes. The failure of extraposition to show a favoring effect is due to its absence in *Walter Ralegh*, but *Hortus Sanitatis* (perhaps a more representative text for the dialect) shows a strong effect of extraposition. With this in mind, then, we can safely conclude that Hessian has the same favoring factors as other ENHG dialects.

Finally, despite its extremely high frequency of the 1-2 order, *Walter Ralegh* shows the same favoring factors as in other texts. The reason for this state of affairs is unclear. Perhaps the Dutch *Vorlage* has a very high rate of the 1-2 order, but with ENHG-like favoring factors, and word order was slavishly copied by the non-native translator. Or perhaps the translator preferred the 1-2 order because of his native language (Spanish) but was still constrained by his ENHG *Sprachgefühl* to use the 2-1 order in certain contexts (i.e. with participial syntagms). Given the extremely low rate of extraposition in this text, the first explanation seems more likely; however, it is beyond the scope of this study to pursue the matter further.

3.9 Cologne

We next turn to Cologne, which is close to Hessian both geographically and in its treatment of verb clusters, at least in the first two periods. Cologne has an interesting dialect, because it is a Low Franconian dialect which borders both on Dutch (also Low Franconian) and Low German. Orthographically, the texts from Cologne are very similar to Dutch, while syntactically sharing with Low German a strong preference for the 2-1 order.[20] The analysis for the texts from Cologne is presented below in Table 41.

[20] Low German is claimed by den Besten & Edmondson (1983:157) to strongly or exclusively prefer the right-headed orders 2-1 and 3-2-1.

Table 41: Favoring factors in texts from Cologne

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.084$	passive/perfect	184 (93%)	13 (6%)	0.638
	infinitive	72 (86%)	11 (13%)	0.206
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.040$	full NP	46 (83%)	9 (16%)	0.290
	quantified NP	15 (93%)	1 (6%)	0.651
	pronoun	28 (96%)	1 (3%)	0.722
	PP	87 (96%)	3 (3%)	0.614
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	8 (88%)	1 (11%)	0.355
	adverb	52 (94%)	3 (5%)	0.497
	clause	10 (00%)	1 (9%)	0.408
	nothing	9 (69%)	4 (30%)	0.176
extraposed constituent $p = 0.615$	adjunct PP	25 (92%)	2 (7%)	0.624
	other const.	25 (86%)	4 (13%)	0.527
	nothing	206 (91%)	18 (8%)	0.481
focus $p = 0.078$	old info.	143 (94%)	9 (5%)	0.590
	new info.	110 (88%)	15 (12%)	0.391
	contrastive	3 (100%)	0 (0%)	n/a
scrambled object $p = 0.839$	unscrambled	2 (100%)	0 (0%)	n/a
	scrambled	13 (92%)	1 (7%)	0.628
	can't tell	241 (91%)	23 (8%)	0.493
prefix type $p = 0.589$	stressed	27 (87%)	4 (12%)	0.350
	unstressed	174 (92%)	14 (7%)	0.470
	none	55 (90%)	6 (9%)	0.664
text (century) $*p < 0.001$	*Buch Köln* (14^{th})	93 (94%)	5 (5%)	0.695
	Koelhoff (15^{th})	79 (80%)	19 (19%)	0.305
	Gegenwärt. (16^{th})	84 (100%)	0 (0%)	n/a
Total		256 (91%)	24 (8%)	

Syntagm is not statistically significant, but was selected as one of the most significant factor groups by *GoldVarb*'s step-up/step-down function. In this analysis, when the verb cluster contains an infinitive, the frequency of the 1-2 order is 13%, versus the expected rate of 8%. The factor weight (0.206) indicates that this is a strong effect. Constructions with participles show the 1-2 order 6% of the time, slightly below the expected rate.

Preceding constituent is a statistically significant factor group, and the same effect of NP type on verb order is found as in Swabia and Nuremberg. After a non-pronominal NP, the 1-2 order is strongly favored at 16%, whereas after a pronoun, the 1-2 order is strongly disfavored (just 3%).

Extraposition is not statistically significant, but appears to favor the 1-2 order at 13% versus the expected 8%. As in the ENHG corpus as a whole, the extraposition of adjunct PPs has no effect on verb order. However, note that the number of tokens is quite low and thus the factor weights are all relatively close to 0.5.

Focus is not statistically significant either, but does show the usual favoring effect. When preceded by new information, the rate of the 1-2 order is 12%, but just 5% after old information.

Prefix type, like extraposition and focus, shows the expected pattern but is not statistically significant. With a stressed prefix, the 1-2 order occurs 12% of the time, whereas with an unstressed prefix it is just 7%.

Finally, century is extremely significant.[21] From a very low frequency in the 14th century (5%), the rate of 1-2 rises somewhat in the 15th to 19%, before disappearing completely in the 16th. The absence of the 1-2 order in the last text may help explain the poor significance of many of the factor groups in this analysis.

The 14th-century text, *Buch Köln* ('The book of Cologne'), is a chronicle of the city recorded from 1360 to 1396, probably by the scribe of the city council (*BFnhdK*). The analysis of this text is presented below in Table 42.

Table 42: Favoring factors in *Buch Köln* (Cologne, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm *p* = 0.036	passive/perfect	63 (98%)	1 (1%)	0.768
	infinitive	30 (88%)	4 (11%)	0.095
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent *p* = 0.653	full NP	18 (94%)	1 (5%)	0.602
	quantified NP	5 (83%)	1 (16%)	0.043
	pronoun	8 (88%)	1 (11%)	0.419
	PP	35 (100%)	0 (0%)	n/a
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (100%)	0 (0%)	n/a
	adverb	24 (96%)	1 (4%)	0.635
	clause	0 (0%)	0 (0%)	n/a
	nothing	2 (100%)	0 (0%)	n/a
extraposed constituent *p* = n/a	adjunct PP	12 (100%)	0 (0%)	n/a
	other const.	8 (100%)	0 (0%)	
	nothing	73 (93%)	5 (6%)	
focus *p* = 0.403	old info.	56 (93%)	4 (6%)	0.338
	new info.	35 (97%)	1 (2%)	0.755
	contrastive	2 (100%)	0 (0%)	n/a
scrambled object *p* = n/a	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	9 (100%)	0 (0%)	
	can't tell	83 (94%)	5 (5%)	
*prefix type *p* = 0.043	stressed	13 (81%)	3 (18%)	0.164
	unstressed	58 (96%)	2 (3%)	0.607
	none	22 (100%)	0 (0%)	n/a
Total		93 (94%)	5 (5%)	

[21] Note that since the 16th-century text has no instances of 1-2 and is thus a knockout factor, the statistical significance of this factor group refers only to the difference between the 14th and 15th centuries.

Syntagm is statistically significant and shows the usual favoring effect of infinitives on the 1-2 order (11% versus the expected 5%). There are too few tokens to make any conclusions about the effect of the preceding constituent, extraposition, or focus on verb order. Although prefix type is statistically significant and stressed prefixes seem to favor 1-2, it is difficult to say whether this effect is independent of syntagm, given the small number of tokens.

The 15th-century text from Cologne is *Die Cronica van der hilliger Stat va Coelle* ('The chronicle of the holy city of Cologne'), a compilation of numerous chronicles, printed in 1499 by Johann Koelhoff the Younger (*BFnhdK*). The analysis for this text is shown in Table 43.

Table 43: Favoring factors in *Koehloff Chronik* (Cologne, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
*syntagm $p = 0.014$	passive/perfect	70 (85%)	12 (14%)	0.558
	infinitive	9 (56%)	7 (43%)	0.234
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.172$	full NP	14 (63%)	8 (36%)	0.342
	quantified NP	6 (100%)	0 (0%)	n/a
	pronoun	10 (100%)	0 (0%)	n/a
	PP	27 (90%)	3 (10%)	0.690
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	3 (75%)	1 (25%)	0.508
	adverb	9 (81%)	2 (18%)	0.592
	clause	3 (75%)	1 (25%)	0.364
	nothing	6 (60%)	4 (40%)	0.239
extraposed constituent $p = 0.945$	adjunct PP	9 (81%)	2 (18%)	0.644
	other const.	14 (77%)	4 (22%)	0.574
	nothing	56 (81%)	13 (18%)	0.457
focus $p = 0.141$	old info.	35 (87%)	5 (12%)	0.675
	new info.	43 (75%)	14 (24%)	0.375
	contrastive	1 (100%)	0 (0%)	n/a
scrambled object $p = 0.958$	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	4 (80%)	1 (20%)	0.630
	can't tell	74 (80%)	18 (19%)	0.493
prefix type $p = 0.084$	stressed	8 (88%)	1 (11%)	0.752
	unstressed	63 (84%)	12 (16%)	0.474
	none	8 (57%)	6 (42%)	0.463
Total		79 (80%)	19 (19%)	

Syntagm is statistically significant, and shows a strong favoring effect of infinitives on the 1-2 order (43% versus the expected 19%). Preceding constituent, although not significant, shows the favoring effect of non-pronominal NPs on the 1-2 order and no instances at all of the 1-2 order with a preceding pronoun. Extraposition has a slight (at best) favoring effect on 1-2. Focus, although not significant, does show a preference for 1-2 with new and 2-1 with old information. Finally, stressed prefixes

surprisingly appear to disfavor 1-2, and any effect of prefixless verbs is probably due to the fact that most of them are infinitives.

The 16th-century text is *Vonn warer / wesenlicher / vnd pleibeder Gegenwertigkeit des Leybs und Blu^{o}ts Christi* ('On the true, essential, and remaining presence of the body and blood of Christ'), a treatise on the Roman Catholic position on the Eucharist written by Johann Gropper, an archdeacon and important counter-reformer in Cologne, and printed in 1556 (*BFnhdK*). The 100 clauses selected from this text have no instances of the 1-2 order, thus no *GoldVarb* analysis is possible. However, for the sake of completeness, the results are presented in Table 44. Note that the text has only 7 instances of extraposition, similar to other 16th-century texts.

Table 44: Favoring factors in *Gegenwärtigkeiten* (Cologne, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm *p* = n/a	passive/perfect	51 (100%)	0 (0%)	n/a
	infinitive	33 (100%)	0 (0%)	
	progressive	0 (0%)	0 (0%)	
preceding constituent *p* = n/a	full NP	14 (100%)	0 (0%)	n/a
	quantified NP	4 (100%)	0 (0%)	
	pronoun	10 (100%)	0 (0%)	
	PP	25 (100%)	0 (0%)	
	stranded P	0 (0%)	0 (0%)	
	adjective	4 (100%)	0 (0%)	
	adverb	19 (100%)	0 (0%)	
	clause	7 (100%)	0 (0%)	
	nothing	1 (100%)	0 (0%)	
extraposed constituent *p* = n/a	adjunct PP	4 (100%)	0 (0%)	n/a
	other const.	3 (100%)	0 (0%)	
	nothing	77 (100%)	0 (0%)	
focus *p* = n/a	old info.	52 (100%)	0 (0%)	n/a
	new info.	32 (100%)	0 (0%)	
	contrastive	0 (0%)	0 (0%)	
scrambled object *p* = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	0 (0%)	0 (0%)	
	can't tell	84 (100%)	0 (0%)	
prefix type *p* = n/a	stressed	6 (100%)	0 (0%)	n/a
	unstressed	53 (100%)	0 (0%)	
	none	25 (100%)	0 (0%)	
Total		84 (100%)	0 (0%)	

Summing up the data from Cologne, the favoring factors are the same as in other dialects, and these effects were visible despite the absence of the 1-2 order in the 16th-century text. In terms of the frequency of 1-2 in the 14th and 15th centuries, the percentages are remarkably similar in Cologne and Hesse. In the 14th-century texts, the rate of 1-2 is 5% and 6%, respectively, and the 15th-century texts have 19% and 20%, respectively.

Since Hesse and Cologne have similar rates of 1-2 and the same favoring factors, let us compare those two dialects with the other dialect groupings discussed so far. First, Hesse-Cologne share with Nuremberg-Swabia and Saxony-Thuringia the preference for the 1-2 order after non-pronominal NPs, which was not found in the analyses of the whole corpus (Chapter 2). Secondly, they share with Augsburg-Vienna and Saxony-Thuringia the fact that the extraposition of adjunct PPs has a weaker effect on verb order than the extraposition of other types of constituents. Finally, Cologne (but not Hesse, due to *Walter Ralegh*) has an extremely low rate of 1-2 in the 16th-century, like Augsburg-Vienna and Saxony-Thuringia.

3.10 Alsace

From Cologne, we now move south along the Rhine to Strasbourg in Alsace. Along with Swiss and Swabian, Alsatian is part of the Alemannic group of dialects. The analysis for the three texts from Strasbourg is presented in Table 45 below.

Table 45: Favoring factors in texts from Alsace

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.067$	passive/perfect	143 (92%)	12 (7%)	0.639
	infinitive	92 (82%)	19 (17%)	0.307
	progressive	12 (85%)	2 (14%)	0.526
preceding constituent $p = 0.598$	full NP	54 (90%)	6 (10%)	0.536
	quantified NP	10 (100%)	0 (0%)	n/a
	pronoun	37 (90%)	4 (9%)	0.585
	PP	69 (89%)	8 (10%)	0.547
	stranded P	1 (100%)	0 (0%)	n/a
	adjective	10 (71%)	4 (28%)	0.199
	adverb	50 (89%)	6 (10%)	0.503
	clause	5 (83%)	1 (16%)	0.499
	nothing	11 (78%)	3 (21%)	0.210
(*)extraposed constituent $p = 0.125$	adjunct PP	9 (81%)	2 (18%)	0.367
	other const.	13 (72%)	5 (27%)	0.129
	nothing	225 (89%)	26 (10%)	0.540
(*)focus $p = 0.041$	old info.	166 (91%)	16 (8%)	0.564
	new info.	81 (82%)	17 (17%)	0.382
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.907$	unscrambled	9 (90%)	1 (10%)	0.626
	scrambled	11 (91%)	1 (8%)	0.549
	can't tell	227 (87%)	31 (12%)	0.493
prefix type $p = 0.903$	stressed	32 (88%)	4 (11%)	0.618
	unstressed	135 (88%)	17 (11%)	0.423
	none	227 (87%)	31 (12%)	0.581
(*)text (century) $p = 0.049$	*Mannen* (14th)	80 (81%)	18 (18%)	0.324
	Chirurgie (15th)	84 (92%)	7 (7%)	0.670
	Nachbarn (16th)	83 (91%)	8 (8%)	0.520
Total		247 (88%)	33 (11%)	

The significance of the factor groups in this analysis was fairly low, and *GoldVarb*'s step-up/step-down function selected focus in the step-up run but syntagm, preceding constituent, and century in the step-down run. The first factor group, syntagm, is not statistically significant but does show the predictable effect on verb order. Infinitives favor the 1-2 order, which occurs 17% of the time with infinitives versus 11% overall. Participles disfavor the 1-2 order at just 7%. (The progressives are all from one text, and so will be discussed below.)Preceding constituent is not statistically significant, nor does it show any difference in word order depending on the type of the preceding NP, much as in the test of the whole ENHG corpus. After non-pronominal NPs, 10% of the verb clusters have the 1-2 order, and after pronouns, 9% of them do.

Extraposition is not statistically significant either, but does have the expected effect on verb order. When an adjunct PP is extraposed, the frequency of the 1-2 order is 18% (versus the expected 11%). When other constituents are extraposed, the rate of 1-2 is even higher at 27%, indicating a strong favoring effect.

Focus is statistically significant, with the usual impact on verb order. New information favors the 1-2 order at 17%, while old information disfavors it at 8%. However, these results cannot be confirmed by scrambling, since the rate of 1-2 is very similar both with and without scrambling.

Surprisingly, prefix type is not statistically significant in Alsace, and appears to have no effect at all on word order. The frequency of the 1-2 order is very similar, whether there is a stressed (11%), unstressed (11%), or no prefix (12%).

Finally, the difference in verb order between the three texts in this dialect is statistically significant. From 18% in the 14th century, the rate of 1-2 drops to just 7% in the 15th century and remains roughly the same in the following century.

The 14th-century text from Strasbourg is *Buch von den zwei Mannen* ('Book of the two men'), a religious text written from 1352 to 1370 by the Strasbourg merchant Rulmann Merswin (*BFnhdK*). The results for this text are presented in Table 46. There are no statistically significant factor groups in this analysis.

Table 46: Favoring factors in *Mannen* (Alsace, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.099$	passive/perfect	41 (89%)	5 (10%)	0.772
	infinitive	27 (71%)	11 (28%)	0.215
	progressive	12 (85%)	2 (14%)	0.378
preceding constituent $p = 0.782$	full NP	14 (77%)	4 (22%)	0.219
	quantified NP	1 (100%)	0 (0%)	n/a
	pronoun	12 (75%)	4 (25%)	0.655
	PP	25 (89%)	3 (10%)	0.688
	stranded P	1 (0%)	0 (0%)	n/a
	adjective	6 (75%)	2 (25%)	0.199
	adverb	19 (82%)	4 (17%)	0.571
	clause	4 (100%)	0 (0%)	n/a
	nothing	2 (66%)	1 (33%)	0.164
(*)extraposed constituent $p = 0.051$	adjunct PP	2 (50%)	2 (50%)	0.030
	other const.	1 (33%)	2 (66%)	0.003
	nothing	77 (84%)	14 (15%)	0.584
focus $p = 0.203$	old info.	53 (85%)	9 (14%)	0.479
	new info.	27 (75%)	9 (25%)	0.536
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object $p = 0.544$	unscrambled	2 (66%)	1 (33%)	0.316
	scrambled	4 (100%)	0 (0%)	n/a
	can't tell	74 (81%)	17 (18%)	0.506
(*)prefix type $p = 0.948$	stressed	11 (84%)	2 (15%)	0.905
	unstressed	42 (80%)	10 (19%)	0.263
	none	27 (81%)	6 (18%)	0.675
Total		80 (91%)	18 (18%)	

Syntagm has a strong effect on word order, with infinitives favoring the 1-2 order, progressives disfavoring it slightly, and passives and perfects disfavoring it more strongly. Preceding constituent has no obvious effect on word order. Extraposition, on the other hand, very strongly favors the 1-2 order, and is the most significant factor group (although just above the threshold for statistical significance). New information favors the 1-2 order, although not significantly. Finally, prefix type has no discernable effect on verb order, as in the test for Alsace as a whole. Note that step-up did not select any factor groups, while step-down selected syntagm, extraposition, and prefix.

The 15th-century text from Alsace is *Das Buch der Chirurgia* ('The book of surgery'), a medical text by the Strasbourg doctor Hieronymus Brunschwig, printed in Strasbourg in 1497 (*BFnhdK*). The analysis for this text is presented in Table 47.

Table 47: Favoring factors in *Chirurgie* (Alsace, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
(*)syntagm $p = 0.455$	passive/perfect	60 (93%)	4 (6%)	0.630
	infinitive	24 (88%)	3 (11%)	0.220
	progressive	0 (0%)	0 (0%)	n/a
(*)preceding constituent $p = 0.093$	full NP	21 (95%)	1 (4%)	0.766
	quantified NP	2 (100%)	0 (0%)	n/a
	pronoun	17 (100%)	0 (0%)	n/a
	PP	14 (92%)	1 (6%)	0.509
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	2 (50%)	2 (50%)	0.068
	adverb	18 (100%)	0 (0%)	n/a
	clause	1 (50%)	1 (50%)	0.153
	nothing	9 (81%)	2 (18%)	0.239
extraposed constituent $p = 0.069$	adjunct PP	7 (100%)	0 (0%)	n/a
	other const.	10 (76%)	3 (23%)	0.194
	nothing	67 (94%)	4 (5%)	0.565
focus $p = 0.730$	old info.	65 (92%)	5 (7%)	0.541
	new info.	19 (90%)	2 (10%)	0.368
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	0 (0%)	0 (0%)	n/a
	scrambled	3 (100%)	0 (0%)	
	can't tell	81 (92%)	7 (7%)	
prefix type $p = 0.682$	stressed	13 (100%)	0 (0%)	n/a
	unstressed	50 (90%)	5 (9%)	0.402
	none	21 (91%)	2 (8%)	0.721
Total		84 (92%)	7 (7%)	

As in *Mannen*, there are no statistically significant factor groups in this analysis, and the favoring factors in this text are largely similar to those in *Mannen*. Like *Mannen*, infinitives, extraposition, and focus favor the 1-2 order, while preceding constituent and prefix type have no effect. Also, step-up did not select any factor groups, as in *Mannen*, but step-down selected syntagm and preceding constituent.

The 16th-century representative from Strasbourg is Georg Wickram's *Von gu^{o}ten vnd bo^{e}sen Nachbaurn* ('On good and evil neighbors'). Georg Wickram was born in Colmar (in Alsace) and was an artisan and scribe. The text was printed in Strasbourg in 1556 (*BFnhdK*). The results of the analysis of *Nachbarn* are presented below in Table 48.

As in the two other texts from Strasbourg, none of the factor groups are statistically significant, and for this text, no factor groups were selected by the step-up/step-down function. However, the favoring factors are somewhat different in this text. As in *Mannen* and *Chirurgie*, infinitives and focus favor the 1-2 order, while preceding constituent has no effect. Unlike those texts, however, *Nachbarn* has only one instance of extraposition (thus no discernible effect on verb order), but stressed prefixes do seem to favor the 1-2 order.

Table 48: Favoring factors in *Nachbarn* (Alsace, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm p = 0.483	passive/perfect	42 (93%)	3 (6%)	0.561
	infinitive	41 (89%)	5 (10%)	0.440
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent p = 0.585	full NP	19 (95%)	1 (5%)	0.737
	quantified NP	7 (100%)	0 (0%)	n/a
	pronoun	8 (100%)	0 (0%)	n/a
	PP	30 (88%)	4 (11%)	0.489
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	4 (100%)	0 (0%)	n/a
	adverb	13 (86%)	2 (13%)	0.219
	clause	4 (100%)	0 (0%)	n/a
	nothing	0 (0%)	0 (0%)	n/a
extraposed constituent p = n/a	adjunct PP	0 (0%)	0 (0%)	n/a
	other const.	1 (100%)	0 (0%)	
	nothing	81 (91%)	8 (8%)	
focus p = 0.076	old info.	48 (96%)	2 (4%)	0.723
	new info.	35 (85%)	6 (14%)	0.237
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = 0.455	unscrambled	7 (100%)	0 (0%)	n/a
	scrambled	4 (80%)	1 (20%)	0.457
	can't tell	72 (91%)	7 (8%)	0.503
prefix type p = 0.265	stressed	8 (80%)	2 (20%)	0.250
	unstressed	43 (95%)	2 (4%)	0.618
	none	32 (88%)	4 (1%)	0.427
Total		83 (91%)	8 (9%)	

Summarizing this section, the tests from Alsace had very poor significance, even the test of the three texts together. Like most other dialects, syntagm, extraposition, and focus all have a favoring effect on verb order. However, preceding constituent and (surprisingly) prefix type did not have an effect on verb order.

How do these favoring factors compare to those in other dialects? The equal distribution of the 1-2 order after pronouns versus non-pronominal NPs makes Alsace look similar to Augsburg and Vienna. Alsace also shares with Augsburg-Vienna (and Saxony-Thuringia) the weaker effect of adjunct-PP extraposition on verb order. Finally, Alsace shares with most other dialects (with the exception of Nuremberg and Swabia) the low rate of the 1-2 order in the 16th-century. Interestingly, in none of these criteria does Alsace pattern with Swabia, the other Alemannic dialect treated thus far.

3.11 Switzerland

The final ENHG dialect to be treated here is that of Switzerland, or more precisely, East High Alemannic. As the name East High Alemannic implies, its closest relatives (treated in this study) are Alsatian and Swabian. The *GoldVarb* analysis for the three Swiss texts is presented below in Table 49.

Table 49: Favoring factors in texts from Switzerland

Factor group	Factor	2-1	1-2	Factor weight
*syntagm p = 0.017	passive/perfect	138 (87%)	19 (12%)	0.565
	infinitive	54 (75%)	18 (25%)	0.361
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent p = 0.199	full NP	56 (87%)	8 (12%)	0.611
	quantified NP	8 (100%)	0 (0%)	n/a
	pronoun	19 (79%)	5 (20%)	0.568
	PP	60 (82%)	13 (17%)	0.404
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (100%)	0 (0%)	n/a
	adverb	44 (88%)	6 (12%)	0.551
	clause	2 (66%)	1 (33%)	0.169
	nothing	2 (40%)	3 (60%)	0.074
extraposed constituent p = 0.392	adjunct PP	14 (87%)	2 (12%)	0.738
	other const.	9 (69%)	4 (30%)	0.421
	nothing	169 (84%)	31 (15%)	0.484
focus p = 0.478	old info.	111 (85%)	19 (14%)	0.547
	new info.	81 (81%)	18 (18%)	0.438
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	4 (100%)	0 (0%)	n/a
	scrambled	9 (100%)	0 (0%)	
	can't tell	179 (82%)	37 (17%)	
prefix type p = 0.596	stressed	18 (81%)	4 (18%)	0.422
	unstressed	111 (86%)	18 (13%)	0.526
	none	63 (80%)	15 (19%)	0.478
text (century) p = 0.044	*Naturlehre* (14th)	35 (71%)	14 (28%)	0.245
	Edlibach C. (15th)	79 (86%)	12 (13%)	0.554
	Gespenster (16th)	78 (87%)	11 (12%)	0.599
Total		192 (83%)	37 (16%)	

The first factor group, syntagm, is statistically significant. As usual, infinitives favor the 1-2 order: 25% of the clusters with an infinitive are 1-2, which is considerably higher than the expected rate of 1-2 (16%). Conversely, only 12% of the clusters with participles are in the 1-2 order.

Preceding constituent is not a statistically significant factor group in this dialect. Moreover, the difference in the rate of the 1-2 order depending on the type of preceding NP (predicted by Ebert) is not found, but rather the opposite pattern occurs. After a non-pronominal NP, the rate of 1-2 is 12%, but after a pronoun it is 20%.

Extraposition is not statistically significant either; however it does appear to have an effect on verb order. When some constituent (aside from adjunct PPs) is extraposed, the frequency of the 1-2 order is 30%, well above the expected 16%. When an adjunct PP is extraposed, the frequency of 1-2 is much lower at 12%.

Focus is not a statistically significant factor group, and although it has the expected effect on verb order, this is a very slight effect. With new information, the rate

of 1-2 is 18%, only a bit higher than expected, whereas with old information it is 14%, slightly lower than expected. The factor weight in both cases is close to 0.5. Given the small number of tokens, scrambling cannot be used to confirm the effect of focus.

Prefix type is not statistically significant, but does show a small effect on verb order. With a stressed prefix or no prefix, the 1-2 order occurs more often than expected (18% and 19%, respectively), while with an unstressed prefix the rate of 1-2 is just 13%. The low significance of this factor group is probably due to the fact that stressed prefix and no prefix have very similar rates.

Finally, the difference in the rate of 1-2 between the three Swiss texts is statistically significant. The frequency of the 1-2 order in the 14th-century text is relatively high at 28%, falling to just 12%-13% in the 15th and 16th centuries.

Next we turn to the separate analyses of the three texts from Switzerland. The first is *Mainauer Naturlehre* ('The Mainau nature guide'), a scientific work written at the end of the 14th century by the scribe Konrad of St. Gallen, probably based on a 13th-century version written by the lord of Mainau. The analysis for this text is presented below in Table 50.

Table 50: Favoring factors in *Naturlehre Mainau* (Swiss, 14th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.316$	passive/perfect	23 (76%)	7 (23%)	0.681
	infinitive	12 (63%)	7 (36%)	0.232
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.993$	full NP	13 (68%)	6 (31%)	0.450
	quantified NP	1 (100%)	0 (0%)	n/a
	pronoun	10 (71%)	4 (28%)	0.547
	PP	5 (71%)	2 (28%)	0.437
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	5 (71%)	2 (28%)	0.604
	clause	0 (0%)	0 (0%)	n/a
	nothing	1 (100%)	0 (0%)	n/a
extraposed constituent $p = 0.890$	adjunct PP	4 (80%)	1 (20%)	0.804
	other const.	2 (66%)	1 (33%)	0.546
	nothing	29 (70%)	12 (29%)	0.454
focus $p = 0.354$	old info.	25 (75%)	8 (24%)	0.581
	new info.	10 (62%)	6 (37%)	0.338
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	0 (0%)	0 (0%)	
	can't tell	34 (70%)	14 (29%)	
prefix type $p = 0.956$	stressed	2 (66%)	1 (33%)	0.787
	unstressed	24 (72%)	9 (27%)	0.415
	none	9 (69%)	4 (30%)	0.638
Total		35 (71%)	14 (28%)	

First of all, note that no factor groups in this analysis were statistically significant, and none were selected by *GoldVarb*'s step-up/step-down function. With that caveat in mind, syntagm shows the usual difference in frequency, with infinitives favoring the 1-2 order. The rate of 1-2 is very similar whether the preceding constituent is a pronoun or full NP. Extraposition shows only a slight favoring effect on 1-2, and the number of tokens is really too small to draw conclusions. New information does show a higher rate of 1-2 than old information does. Finally, the rate of 1-2 order is roughly the same regardless of prefix type.

The 15th-century text is Gerold Edlibach's *Chronik* ('Chronicle'), written in Zurich, primarily in 1485-1486. The *GoldVarb* analysis for this text is given in Table 51 below. Note that although this text has a relatively low rate of 1-2, it is characterized by Keller (1965:142) as a typical example of the Swiss writing tradition of the time.

Table 51: Favoring factors in *Edlibach Chronik* (Swiss, 15th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm $p = 0.218$	passive/perfect	60 (89%)	7 (10%)	0.604
	infinitive	19 (79%)	5 (20%)	0.236
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent $p = 0.586$	full NP	15 (93%)	1 (6%)	0.685
	quantified NP	3 (100%)	0 (0%)	n/a
	pronoun	4 (100%)	0 (0%)	n/a
	PP	29 (85%)	5 (14%)	0.398
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	0 (0%)	0 (0%)	n/a
	adverb	26 (89%)	3 (10%)	0.515
	clause	2 (100%)	0 (0%)	n/a
	nothing	0 (0%)	2 (100%)	n/a
extraposed constituent $p = 0.323$	adjunct PP	10 (90%)	1 (9%)	0.618
	other const.	7 (70%)	3 (30%)	0.247
	nothing	62 (88%)	8 (11%)	0.521
focus $p = 0.478$	old info.	44 (84%)	8 (15%)	0.437
	new info.	35 (89%)	4 (10%)	0.584
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	2 (100%)	0 (0%)	n/a
	scrambled	9 (100%)	0 (0%)	
	can't tell	68 (85%)	12 (15%)	
prefix type $p = 0.948$	stressed	9 (90%)	1 (10%)	0.446
	unstressed	51 (86%)	8 (13%)	0.415
	none	19 (86%)	3 (13%)	0.734
Total		79 (86%)	12 (13%)	

Like the previous analysis, this text fails to show any statistically significant factor groups. Infinitives favor the 1-2 order, as in *Naturlehre*, and there is little difference in the frequency of 1-2 depending on the type of preceding NP. Unlike the previous text, extraposition (aside from adjunct PPs) shows a rather strong favoring effect

on 1-2. Unusually, the frequency of the 1-2 order is actually lower with new information than with old. Finally, prefix type has no apparent effect on verb order.

My sample of this chronicle appears to be quite representative of Edlibach's language, as shown by a comparison with Keller's (1965) study of the whole text. The frequency of the 1-2 order is similar to what Keller (1965:116-118) finds: 29% with infinitives and 9% with participles. Moreover, Keller (1965:117) also determines that the 1-2 order is most common when something is extraposed.

The 16th-century Swiss text is *Gespenster* ('Ghosts') or *Von Genspa^{e}nsten Vnghüren / Fa^{e}len / vn anderen wunderbare Dingen…* ('On ghosts, monsters, and other amazing things'), written by the theologian Ludwig Lavater in 1578 in Zurich. This text, like the previous, has a relatively low rate of 1-2, but clearly has Swiss phonological and morphological features, so the word order cannot be simply attributed to the adoption of a non-Swiss writing practice. The analysis for this text is presented in Table 52, below.

Table 52: Favoring factors in *Gespenster* (Swiss, 16th century)

Factor group	Factor	2-1	1-2	Factor weight
syntagm p = 0.111	passive/perfect	55 (91%)	5 (8%)	0.593
	infinitive	23 (79%)	6 (20%)	0.314
	progressive	0 (0%)	0 (0%)	n/a
preceding constituent p = 0.193	full NP	28 (96%)	1 (3%)	0.859
	quantified NP	4 (100%)	0 (0%)	n/a
	pronoun	5 (83%)	1 (16%)	0.150
	PP	26 (81%)	6 (18%)	0.314
	stranded P	0 (0%)	0 (0%)	n/a
	adjective	1 (100%)	0 (0%)	n/a
	adverb	13 (92%)	1 (7%)	0.345
	clause	0 (0%)	1 (100%)	n/a
	nothing	1 (50%)	1 (50%)	0.019
extraposed constituent p = n/a	adjunct PP	0 (0%)	0 (0%)	n/a
	other const.	0 (0%)	0 (0%)	
	nothing	78 (87%)	11 (12%)	
focus p = 0.095	old info.	42 (93%)	3 (6%)	0.736
	new info.	36 (81%)	8 (18%)	0.259
	contrastive	0 (0%)	0 (0%)	n/a
scrambled object p = n/a	unscrambled	1 (100%)	0 (0%)	n/a
	scrambled	0 (0%)	0 (0%)	
	can't tell	77 (87%)	11 (12%)	
*prefix type p = 0.041	stressed	7 (77%)	2 (22%)	0.162
	unstressed	36 (97%)	1 (2%)	0.832
	none	35 (81%)	8 (18%)	0.263
Total		78 (87%)	11 (12%)	

Syntagm, although not significant, shows a preference for the 1-2 order with infinitives. No effect of the preceding constituent can be determined. There are no instances of extraposition in this text, as in many other 16th-century texts. Focus shows the usual preference for the 1-2 order with new information, unlike the previous text.

Finally, prefix type is the only statistically significant factor group and shows a very clear difference between stressed prefix and no prefix on the one hand, and unstressed prefix on the other.

Summarizing the section on Switzerland, the analyses yielded generally poorer statistical significance than in other dialects. Despite this lack of significance, syntagm type and extraposition have a clear favoring effect on verb order. Focus and prefix type also show a favoring effect, but only to a slight extent. Extraposition has a strong effect only in the 15th-century text. Preceding constituent has an effect on verb order, but opposite that found in Nuremberg.

Switzerland patterns with Alsace in a number of features. In both dialects, the statistical significance of the analyses was poor. For both preceding constituent and prefix type, there is no effect in Alsace and only a slight one in Switzerland. Finally, in both dialects, the extraposition of adjunct PPs has a smaller favoring effect on 1-2 than other types of extraposition.

3.12 Conclusion

In this section, the most significant favoring factors from Chapter 2 were used to conduct separate *GoldVarb* analyses on each dialect and each text in the corpus. In general, the factors that favor the 1-2 order in the whole ENHG corpus also favor it in the individual analyses (albeit with reduced significance due to the lower number of tokens).

Syntagms with infinitives favor the 1-2 order in every dialect, and in most of the individual texts. Preceding constituent was the most inconsistent factor group, showing one effect in some dialects, the opposite effect in others, and sometimes no effect (as in the whole corpus). Extraposition favors the 1-2 order in every dialect (assuming that *Hortus Sanitatis* is representative of Hessian), although in many dialects this effect disappears by the 16th century. Focus also favors 1-2 in all dialects, although due to the small number of tokens no difference between new information and contrastive focus could be determined, nor could the effect of focus be supported by scrambling. Prefix type has an effect on word order in every dialect except Alsatian.

Finally, a number of factors were used to explore the possible relations between different dialects. This will be discussed more thoroughly in section 4.4 below.

4 Dialect groups in ENHG

4.1 Introduction

In this section, I will arrange the ENHG dialects into larger groups. Three criteria will be used: the frequency of the 1-2 order (section 4.2), the frequencies of the orders in clusters of three verbs (section 4.3), and the behavior of the dialects with respect to the factors favoring the 1-2 order (section 4.4). In section 4.5, these criteria will be compared, resulting in five dialect groups.

4.2 Evidence from 2-verb clusters

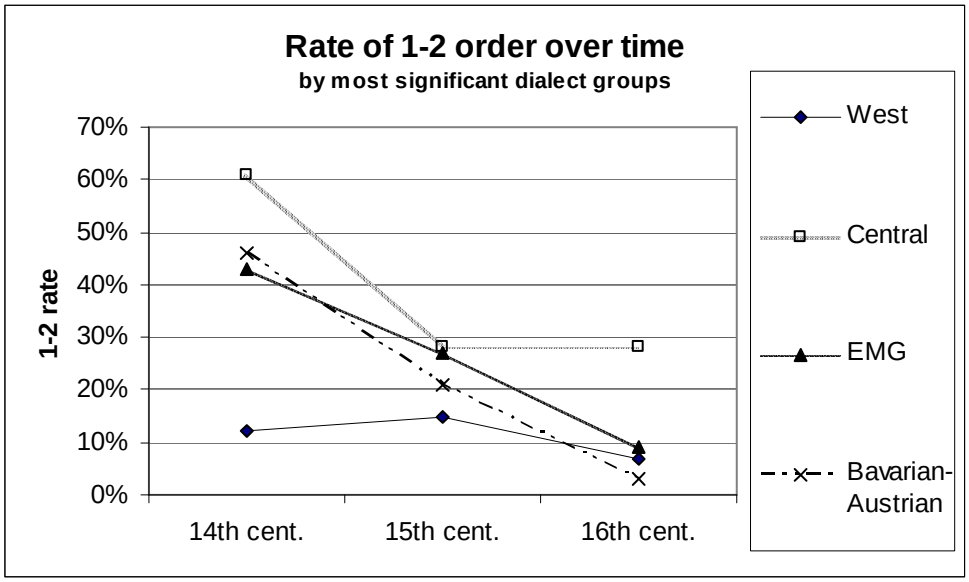
In section 2.2.1 above, when the frequency of the 1-2 order was viewed in each dialect over the entire ENHG period, there appeared to be a neat north-west versus south-east distinction (see Table 1 and Figure 1). When the rate of the 1-2 order was broken down by century, however, this clear pattern became obscured (see Table 2 and Figure

2). Thus it is necessary to use *GoldVarb 2001* to determine the best dialect groups. The best model fit resulted from the following grouping, with the percentages given in Table 53, illustrated graphically in Figure 4.

Table 53: Effect of dialect and century on 1-2 order, most significant groups

Dialect group	1350-99	1450-99	1550-99	Total
West (Col., Hes.,[22] Als., Zur.)	12%	15%	7%	12%
Central (Swabia, Nuremb.)	61%	28%	28%	38%
EMG (Saxony, Thuringia)	43%	27%	9%	24%
Bavarian-Austrian	46%	21%	3%	24%

Figure 4: Frequency of the 1-2 order by dialect and century, most significant groups



The first group is a western group consisting of dialects along the Rhine, including Cologne, Hesse, Alsace, and Zurich. As can be seen in Table 53 (and also in Table 2), these dialects have a low rate of 1-2 order in the 14th century, with a slight decrease from the 15th to the 16th century, resulting in a very low rate by the end of the period. Zurich is something of an outlier in this group, with slightly higher rates of 1-2 order. The second group consists of two dialects in the center of the ENHG area, Nuremberg and Swabia. These two dialects have a high rate of 1-2 in the 14th century, with a sharp drop in the 15th century, followed by little change from the 15th to the 16th century. The frequency of 1-2 order in this group is higher than in all other groups, especially at the end of the period. The third group is East Middle German (Thuringia and Saxony), and the fourth group is Bavarian/Austrian (Augsburg and Vienna). These two groups behave very similarly.[23] In the 14th century, they have a relatively high rate of 1-2, which decreases steadily in the 15th century along the lines of the central dialects. In the 16th century, however, the 1-2 order continues to decrease to the point where it is as infrequent as in the western dialects.

[22] Excludes *Walter Ralegh*.

[23] In fact, the model fit is improved if they are combined. However, I treat them as separate dialect areas because they are not geographically contiguous.

4.3 Evidence from 3-verb clusters

The four main dialect groups suggested for clusters of two verbs in section 4.1 above do not hold for clusters of three verbs. For example, in the proposed Western group of dialects, Cologne, Alsace, and Zurich each prefer a different order for three-verb clusters (see section 2.3.1).

The best model fit for clusters of three verbs requires the dialects to be divided up in a slightly different way, with Zurich moved to the proposed Central group, as in Table 54. This represents the best recode for the 1-2-3 order, but the recode is statistically significant only for that order. The combined dialects Zurich, Swabia, and Nuremberg strongly favor 1-2-3 at 28% versus the expected 15% (factor weight = 0.706). Note that the *p* number of the 3-2-1 order is quite low, although still not statistically significant.[24] Although not significant, in this recode, 3-2-1 is favored in Cologne-Hesse-Alsace at 27% (factor weight = 0.647) and Bavaria-Austria at 25% (factor weight = 0.630).

Table 54: Effect of dialect on three-verb clusters, most significant groups

Dialect	3-2-1	1-3-2	1-2-3	3-1-2
Cologne-Hesse[25]-Alsace	12 (27%)	16 (36%)	3 (6%)	13 (29%)
Zurich-Swabia-Nuremb.	5 (9%)	19 (35%)	15 (28%)	15 (28%)
EMG (Thuringia-Saxony)	3 (13%)	13 (59%)	3 (13%)	3 (13%)
Bavarian-Austrian	8 (25%)	12 (38%)	3 (9%)	8 (25%)
Total	28 (18%)	60 (39%)	24 (15%)	39 (25%)
significance	$p = 0.076$	$p = 0.261$	$p = 0.028$	$p = 0.500$

In Table 55, I have taken the percentages from Härd's data from Table 10 and my data from Table 9, and combined them into the dialect groups discussed above. The conclusion reached above that the dialect area containing Cologne, Hesse, and Alsace favors the 3-2-1 order is untenable, since in Härd's study this area has this order at a rate of only 24%, which is comparable with other dialects. Doubt is also cast on my conclusion that the 1-2-3 order is favored in Switzerland, Swabia, and Nuremberg, since their rate of the 1-3-2/1-2-3 orders is much lower in Härd's study (43%) than in mine (63%). On the other hand, the comparison with Härd (1981) lends some support to my conclusions that the 1-3-2 order is favored in East Middle German while the 3-2-1 order is favored in Bavarian-Austrian.

[24] This is just about as close to statistical significance as I could come for this order by recoding. Another recode, with Alsace and Zurich grouped together, yielded the slightly better $p = 0.074$, with Cologne-Hesse favoring the 3-2-1 order more strongly at 34% (factor weight = 0.724).
[25] Excludes *Walter Ralegh.*

Table 55: Frequency of verb orders by dialect group: compared to Härd (1981)

Dialect	3-2-1	1-3-2 / 1-2-3	3-1-2
Härd: Hesse-Alsace	45 (24%)	128 (68%)	16 (8%)
Sapp: Cologne-Hesse-Alsace	12 (27%)	19 (42%)	13 (29%)
Härd: Switz.-Swabia-Franc.	257 (24%)	456 (43%)	341 (32%)
Sapp: Zurich-Swabia-Nuremb.	5 (9%)	34 (63%)	15 (28%)
Härd: Thuringia-Saxony	44 (23%)	117 (61%)	31 (16%)
Sapp: EMG (Thuringia-Saxony)	3 (13%)	16 (72%)	3 (13%)
Härd: Bavaria	129 (44%)	107 (36%)	60 (20%)
Sapp: Bavarian-Austrian	8 (25%)	15 (47%)	8 (25%)

4.4 Evidence from the favoring factors

In section 2.4 above, it was demonstrated that four factors have a consistent favoring effect on the 1-2 order in every dialect, and indeed in almost every text. In fact, these are the four factors that were shown to favor that order in the whole ENHG corpus in Chapter 2: syntagm, extraposition, focus, and prefix type. However, throughout section 3 above, I discussed a number of differences between the dialects with respect to the factors favoring the 1-2 order. These were the effect of the preceding constituent, the differing behavior of adjunct-PP extraposition versus extraposition of other constituents, and the presence or absence of any favoring factors in the 16th century text. The results are summarized in Table 56 below.

First of all, recall that Ebert (1981) found that preceding non-pronominal NPs favor and pronouns disfavor the 1-2 order in letters from Nuremberg. However, in Chapter 2, section 4.2.1 no such effect was found in the ENHG corpus as a whole. There are a number of dialects that do indeed show the effect that Ebert observed: Cologne, Hesse, Saxony, Thuringia, Nuremberg, and Swabia. Three dialects actually show the opposite effect: Augsburg, Vienna, and Swiss. The remaining dialect, Alsatian, shows no effect at all. Thus it appears that the lack of any difference between preceding non-pronominal NPs and pronouns in Chapter 2 is due to the fact that the dialects where NPs favor the 1-2 order are cancelled out by those where NPs disfavor 1-2.

Secondly, recall from Chapter 2, section 4.3.2 that in the whole corpus, the extraposition of an adjunct PP has a weaker favoring effect on the 1-2 order than the extraposition of other constituents. This is also true in almost all of the individual dialects. In Swabia and Nuremberg, however, adjunct-PP extraposition actually favors 1-2 more strongly than other types of extraposition.

Third, with the decline of the 1-2 order in the 16th century, some dialects cease to show any factors that favor that order. Cologne has no instances of 1-2, Vienna has some instances but with no favoring effects, and in Augsburg only syntagm shows any effect. In the other dialects, however, many favoring factors are still detectable despite the very low rate of 1-2.

Table 56: Differences in the favoring factors, by dialect

Dialect	preceding NP favors 1-2	lower % of 1-2 with adj.-PP extraposition	favoring factors in 16th century
Cologne	yes	yes	no
Hesse[26]	yes	yes	n/a
Alsace	no effect	yes	yes
Zurich	no	yes	yes
Swabia	yes	no	yes
Nuremberg	yes	no	yes
Thuringia	yes	yes	yes
Saxony	yes	yes	yes
Augsburg	no	yes	no
Vienna	no	yes	no

Using these criteria (illustrated in Table 56), five different dialect groups emerge. First, Cologne and Hesse show a favoring effect of the preceding non-pronominal NP on the 1-2 order and a lower rate of the 1-2 order with the extraposition of adjunct PPs. (The third criterion is inconclusive, due to the exclusion of *Walter Ralegh*.) Second, Alsace and Zurich show either a disfavoring or no effect of a preceding NP on 1-2, a lower rate of 1-2 with adjunct-PP extraposition, and the effect of favoring factors in the 16th century. Third, in Swabia and Nuremberg, a preceding NP and adjunct-PP extraposition favor 1-2 and some factors continue to favor 1-2 in the 16th century. East Middle German has the favoring effect of preceding NPs on the 1-2 order, a reduced effect of adjunct-PP extraposition, and the presence of favoring factors in the 16th century. Finally, in Augsburg and Vienna, a preceding NP disfavors 1-2, adjunct-PPs have a lesser effect on verb order than other types of extraposition, and favoring factors disappear in the 16th century.

Note that in each of these five groups, the two dialects are geographically contiguous. Note also that each group differs in at least one feature from every other group. Finally, each group except Swabia-Nuremberg is consistent with the traditional German dialect groups: Cologne and Hesse are Franconian, Alsace and Zurich are Alemannic, Thuringia and Saxony are EMG, and Augsburg and Vienna are Bavarian.

4.5 Conclusion: proposed dialect groups

The favoring factors discussed in the previous section can now help complete the discussion of the dialect groups in sections 4.2 and 4.3. Recall that in section 4.2, using the frequency of the 1-2 order as the criterion, a Western group was proposed, which included Cologne, Hesse, Alsace, and Zurich. (In section 4.3, this group was modified to exclude Zurich.) However, this group is untenable in light of the differences in the favoring factors discussed above between Cologne and Hesse on the one hand and Alsace and Zurich on the other (see Table 56). Similarly, although East Middle German and Bavarian-Austrian have similar rates of the 1-2 order, clusters of three verbs and the favoring factors are different in the two dialect groups. Let us then re-examine the first

[26] Excluding *Walter Ralegh*, thus there is no result for 16th-century Hessian.

two criteria (the frequency of verb orders in two- and three-verb clusters) in light of the best groups for the third criterion (the favoring factors).

Beginning with the two-verb clusters, when placed into these five dialect groups, the frequency of the 1-2 order has the distribution shown in Table 57. This result is very similar to Table 53, and both are extremely significant ($p < 0.001$). In light of the different behavior of Cologne-Hesse versus Alsace-Zurich with respect to the favoring factors, and in light of the fact that this analysis is also significant, it thus makes sense to split up the Western group this way.

Table 57: Effect of dialect and century on 1-2 order, five best groups

Dialect group	1350-1399	1450-1499	1550-1599	Total
Cologne-Hesse[27]	5%	19%	0%	10%
Alsace-Zurich	21%	10%	10%	13%
Central (Swabia, Nuremb.)	61%	28%	28%	38%
EMG (Saxony, Thuringia)	43%	27%	9%	24%
Bavarian-Austrian	46%	21%	3%	24%

With respect to clusters of three verbs, grouping the dialects this way gives the result shown in Table 58. These groups are less statistically significant than those in Table 54, aside from the 3-2-1 order, which is nearly the same ($p = 0.073$ versus $p = 0.076$). The largest difference between the two groupings is the 1-2-3 group, which is significant in Table 54 but not here. This is probably because Alsace, which disfavors 1-2-3, is grouped with Zurich, which favors it. However, recall from section 4.3 that the preference for 1-2-3 in the Central group (including Zurich) was not found by Härd (1981). Moreover, the dialects remaining in the Western group showed different word-order preferences for three-verb clusters. The only coherent groups in section 4.3 were East Middle German and Bavarian-Austrian. Thus grouping the dialects according to the criteria established in section 4.4 is unproblematic for three-verb clusters, since it keeps the two coherent groups and dispenses with the two incoherent ones.

Table 58: Effect of dialect on three-verb clusters, five best groups

Dialect	3-2-1	1-3-2	1-2-3	3-1-2
Cologne-Hesse[28]	9 (33%)	8 (29%)	2 (7%)	7 (25%)
Alsace-Zurich	5 (13%)	13 (36%)	7 (19%)	11 (30%)
Central (Swabia-Nuremb.)	3 (7%)	14 (36%)	9 (23%)	10 (26%)
EMG (Thuringia-Saxony)	3 (13%)	13 (59%)	3 (13%)	3 (13%)
Bavarian-Austrian	8 (25%)	12 (38%)	3 (9%)	8 (25%)
Total	28 (18%)	60 (39%)	24 (15%)	39 (25%)
significance	$p = 0.073$	$p = 0.373$	$p = 0.264$	$p = 0.525$

In conclusion, the five groups determined in section 4.4 are probably the best ones. Each of these five groups consists of two geographically contiguous dialects that behave similarly with respect to the favoring factors and have similar distributions of the 1-2 order over time. Moreover, two of these groups, EMG and Bavarian-Austrian, have

[27] Excludes *Walter Ralegh.*
[28] Excludes *Walter Ralegh.*

coherent preferences for clusters of three verbs. Finally, with the exception of the Central group, these groups correspond largely to conventional dialect divisions (see Figure 1).

5 Conclusion

In this section, we have taken the findings of Chapter 2 and re-examined them with respect to each individual dialect and each text in the ENHG corpus. The frequency of verb orders in clusters of two and three verbs was discussed, as well as the factors that favor the 1-2 order. Based on those criteria, the ten dialects represented in the corpus were paired into five larger dialect groups: Cologne-Hesse, Alsace-Zurich, Nuremberg-Swabia, Saxony-Thuringia, and Bavaria-Austria.

Chapter 4: Modern German

1 Introduction

The previous chapters addressed subordinate clause word order in Early New High German. This chapter will discuss verb order in subordinate clauses in Modern Standard German and contemporary dialects of German. In Chapter 2, I claimed that focus has an effect on the choice of verb orders within the subordinate clause in ENHG. Because focus can only occasionally be detected in a historical text, one of the main goals of this chapter is to establish that focus plays a role in modern German verb order, thus supporting my findings from ENHG.

Section 2 reviews previous scholarship on subordinate-clause word order in contemporary standard and dialectal German. Section 3 reports on new research that I conducted on Swabian and several Austrian dialects. Section 4 discusses verb order in the Standard German *werden* + modal construction, based on two surveys using the magnitude estimation method. A summary of the contemporary German data and a discussion of its implications for ENHG are presented in section 5.

2 Previous studies

2.1 Introduction

This section reviews some of the literature on verb order in subordinate clauses in Modern Standard German and contemporary dialects of German. There are, of course, many more grammars of German dialects than could be discussed here. The dialects presented here were chosen based on two criteria. First, the descriptions of these dialects specifically address subordinate-clause verb order, providing information about ungrammatical as well as grammatical orders. Thus this section does not cover the many studies of Thuringian, although verb clusters in those dialects display very interesting morphological phenomena (see Spangenberg 1993:262-270 for an overview). Secondly, these dialects are more or less direct descendants of the ENHG dialects treated in Chapters 2 and 3 above. Therefore, well-described dialects such as Low German (Matras & Reershemius 2003), Luxembourgish (Bruch 1973), and Saarlandish (Labouvie 1938) are excluded from this study.

This part of the chapter is organized as follows. First, section 2.2 discusses clusters of two verbs in several varieties of German. Three-verb clusters in these varieties are treated in section 2.3. Section 2.4 provides a brief discussion of clusters of more than three verbs. Finally, verb clusters with an intervening constituent (1-X-2 or Verb Projection Raising) are covered in section 2.5.

2.2 Two-verb clusters

2.2.1 Standard German

In Modern Standard German, the 2-1 order is the only possible word order for two-verb clusters in subordinate clauses (Duden 1995:786). This is true for all syntagms:

(1) … dass Klaus heute das Buch *lesen will.* 2-1
that K. today the book read-INF$_2$ wants$_1$
'… that Klaus wants to read the book today.'

(2) … dass Klaus gestern das Buch *gelesen hat.* 2-1
that K. yesterday the book read-PPP$_2$ has$_1$
'… that Klaus read the book yesterday.'

The 1-2 or Verb Raising order (3) and the 1-X-2 or Verb Projection Raising order (4) are completely ungrammatical according to prescriptive grammars.

(3) *… dass Klaus heute das Buch *will lesen.* *1-2
that K. today the book wants$_1$ read$_2$
'… that Klaus wants to read the book today.'

(4) *… dass Klaus heute *will* das Buch *lesen*. *1-X-2
that K. today wants$_1$ the book read$_2$
'… that Klaus wants to read the book today.'

These orders are not only disallowed by prescriptive grammars but are also extremely rare in written German: Grubačić (1965:9) found only eight instances in a corpus of 16,000 pages of 20th-century German. To my knowledge, there are no studies showing exactly how infrequent the 1-2 and 1-X-2 orders are in spoken Standard German; however, in informal discussions with native speakers of German, these orders are consistently judged as completely ungrammatical or possible only in poetry.

There are, of course, other word-order possibilities in colloquial forms of the standard language. The subordinate clause must display main clause word order if the clause is not introduced by a complementizer (Duden 1995:784):

(5) Ich glaube, Klaus *will* heute das Buch *lesen*. MC order
I think K. wants$_1$ today the book read$_2$
'I think Klaus wants to read the book today.'

Additionally, some constituent may be extraposed, i.e. may appear to the right of the verb cluster:

(6) ??… dass Klaus heute *lesen will* **das Buch**. ?extraposed object
that K. today read$_2$ wants$_1$ the book
'… that Klaus wants to read the book today.'

(7) ?… dass Klaus das Buch *lesen will* **heute**. ?extraposed adverb
that K. the book read wants$_1$ today
'… that Klaus wants to read the book today.'

This is not the usual word order, but is possible under certain discourse conditions (Duden 1995:790-791). Extraposed arguments (6) are more marked than extraposed adjuncts (7), as Lambert's (1976) corpus study of extraposition in Standard German shows.

2.2.2 Cross-dialect studies

Wurmbrand (2004) reports on a questionnaire-based survey of possible word orders in German verb clusters. Participants were first asked for information about where

they lived and for how long and then to characterize their everyday language as dialect, standard German, or a mixture. The first task on the questionnaire presented the participants with words in random order in standard German orthography and asked them to form a sentence from those words as they would say it in their everyday speech, including changing the orthography to reflect pronunciation. The second task asked participants to give grammaticality judgments of sentences written in standard German orthography, based on whether the word order would be natural in their dialect. Most of the sentences involved clusters of three and four verbs (discussed in section 2.3 below), with only two sentences per task involving two-verb clusters. Wurmbrand's (2004:16) result for clusters of two verbs is that German and Austrian speakers only allow the 2-1 order, as in Modern Standard German.[1]

Wurmbrand's study indicates that 2-1 is the most natural order in these dialects; however, her finding that no German or Austrian speakers accepted the 1-2 order contradicts the findings of other studies, including those discussed below in this section and my own surveys of Swabian and Austrian German (section 3, below). As Wurmbrand points out (2004:7, fn. 33), the format of her study makes it difficult to rule out influence of the standard language on the participants' judgments. Moreover, the study may have shown so little word-order variation because the sentences did not have any factors which favor the 1-2 order, such as focus or extraposition. Finally, participants were presented with only the 1-2 order, and were asked to rate the sentence as 'yes', 'no', or 'maybe'. Perhaps a more fine-grained rating scale would have shown some dialects to be more tolerant of the 1-2 order than others.

In his seminal research on German dialects, Wenker (1888-1923) presents some information on subordinate-clause word order. Participants were asked to translate into their dialect a Standard German sentence beginning with the following clause:

(8) Als wir gestern Abend zurück kamen … (Wenker's sentence 24)
when we yesterday evening back came
'When we came back yesterday evening …'

Speakers of southern dialects, which lack the preterit tense, rendered the preterit in (8) with a present perfect as in (9). Wenker reported the following word orders (as discussed in Maurer 1926:33 and König 1994:163):

(9) a. wie mir gestern abend heim *komme sinn* 2-1
when we yesterday evening home come-PPP_2 are_1
'When we came home yesterday evening …'
b. wie mir gestern abend heim $sinn_1$ $komme_2$ 1-2
c. wie mir gestern abend $sinn_1$ **heim** $komme_2$ 1-X-2
d. wie mir $sinn_1$ **gestern abend heim** $komme_2$ V2 or 1-X-2

Southern Alsace, Baden, northern Swabia, northern Bavaria, and Franconia have the 2-1 order (9a). Northern Alsatian and Rhine Hessian have only the 1-2 order (9b). Dialects of the Palatinate, along the river Main, and in most of Bavarian display both of these orders plus 1-X-2 (9c). Finally, Swabian speakers also reported the order in (9d), which is ambiguous between a 1-X-2 order and a V2 order, given the limited data.

[1] Wurmbrand's results for Swiss German will be discussed in section 2.2.7 below.

2.2.3 Austrian dialects

Since Wenker's study does not include information from outside the German Empire, Maurer (1926) supplements Wenker's data with the following information about Austrian dialects. According to Maurer (1926:60-63) the dialects of Upper Austria and Lower Austria mainly have the 2-1 order, while Tyrolean has both the 2-1 and 1-2 orders.

These observations about Austrian dialects are largely confirmed in the more recent study by Patocka (1997). He finds, however, a great deal of variation not only by dialect, but also by syntagm. First of all, the passive with *werden* allows only the 2-1 order, in all dialects:

(10) daß des Flaisch a weng *gmischt wiad* — Lower Austrian, 2-1
that the meat a bit mixed$_2$ AUX$_1$
'that the meat is mixed a little bit' — (Patocka 1997:271)

The modal-infinitive (11) and perfect syntagms (12), on the other hand, allow both word orders, depending on the dialect.

(11)a. wäö(l) i då mit n Wagl so wäät *fåan muaß* — Viennese, 2-1
because I there with the wagon so far travel$_2$ must$_1$
'because I had to travel there so far by wagon'

b. wo des a Håathulz *muaß sai(n)* — Styrian, 1-2
where that a hardwood must$_2$ be$_1$
'where there must be hardwood' — (Patocka 1997:275)

(12)a. wia ma da Våta voa zwoanzg Jåh(r)n s Haus *gebm håt* — Upper Austrian, 2-1
how me the father ago twenty years the house given$_2$ has$_1$
'how my father gave me the house twenty years ago'

b. dea den Gaia *håt åhagschossn* — Styrian, 1-2
REL the hawk has$_1$ down.shot$_2$
'who shot down the hawk' — (Patocka 1997:290)

Judging by a comparison of Patocka's map 5 (1997:277) and map 9 (1997:292), the 1-2 order is possible (sometimes alongside the 2-1 order, sometimes the only possible order) in both of these syntagms in the western and southern regions of Austria, i.e. most of Tyrol, Carinthia, and Styria.[2] Only the 2-1 order is possible in Upper Austria, most of Salzburg, and western Lower Austria. Eastern Lower Austria, Vienna, and Burgenland form a transitional zone where only 2-1 is allowed for infinitives but both orders are attested for perfects.

2.2.4 Bavarian

According to Weiß (1998), both the 2-1 and 1-2 orders are possible in Bavarian, although 2-1 is the unmarked order:

(13)a. daß'a'da des *gschengd hod* — 2-1
that he her-dat that given$_2$ has$_1$
'that he gave that to her'

[2] The westernmost province, Vorarlberg, is not included in Patocka's study, as the dialect there is Alemannic.

b. und wia's a soo *hand furtganga* **midanand** 1-2
and how they too thus have$_1$ away.gone$_2$ with.eachother
'and how they left together like that too'

(Weiß' (1998:51) ex. (56a-b))

The 1-2 order is more acceptable, however, when an element that is 'closely associated with the verb' is extraposed, as in (13b). This observation is especially interesting given the correlation between extraposition and the 1-2 order in ENHG (see Chapters 2 and 3). Weiß (1998:52) finds that both orders are also possible when a modal selects an infinitive, although as with perfects, the 2-1 order is preferred.

2.2.5 Swabian

Steil (1989:39) finds that the 1-2 order is also possible in Swabian, although as in Bavarian, the 2-1 order is preferred. The 1-2 order occurs mainly in the perfect tenses:

(14) …, bis di(a) Franzosa *sen' komm(e)n* … 1-2
until the French are$_1$ come-PPP$_2$
'… until the French came …'

(Steil's (1989:40) ex. (33d))

According to Steil (1989:40), the 1-2 order 'very rarely' occurs in the modal + infinitive construction. This state of affairs, like the situation in eastern Austrian dialects, is the opposite of the pattern found in some other West Germanic dialects, such as Dutch and ENHG, where 1-2 is preferred with infinitives.

2.2.6 Alsatian

According to Heitzler (1975), Alsatian also prefers the 2-1 order (15), as in dialects in Germany and Austria. However, when the syntagm is the modal plus infinitive, both orders are allowed (16).

(15)a. van ər åmə sundig šbōd *ufgšdåndə eš* 2-1
when he on Sunday late up.stood$_2$ is$_1$
'when he got up late on Sunday' (Heitzler 1975:34)[3]

(16)a. van ər əmōl *fordgē vel* 2-1
if he even away.go$_2$ wants$_1$
'if he even wants to go away'
b. van ər əmōl *vel*$_1$ *fordgē*$_2$ 1-2
(Heitzler 1975:35)

This is similar to the state of affairs in Dutch, Swiss German, and Tyrolean but unlike that in eastern Austrian dialects and Swabian, where the 1-2 order is more acceptable in the perfect.

2.2.7 Swiss dialects

In Swiss German, the 1-2 order is much more frequent than in German and Austrian dialects. However, there seem to be dialect differences within Swiss German with respect to the acceptability of the 1-2 order with participial syntagms.

[3] I do not reproduce all of the diacritics in Heitzler's transcription system here.

In the dialect of Zurich (Lötscher 1978), participial syntagms allow only the 2-1 order (17). In syntagms with infinitives, however, both orders are possible, although the 1-2 order is preferred (18).[4]

(17) wil mer em Hans es velo *gschänkt händ* 2-1
because we the Hans the bike given$_2$ have$_1$
'because we have given Hans the bike'
(Lötscher's (1978:2) ex. (4b))

(18) wil mer em Hans es velo *wänd schänke* 1-2
because we the Hans the bike want$_1$ give$_2$
'because we want to give Hans the bike'
(Lötscher's (1978:4) ex. (7b))

In Hodler's (1969:691) study of texts from the Bern region, both orders are attested for both syntagms. For perfects, Hodler finds that the 2-1 order is somewhat preferred, with 133 instances versus 81 examples of 1-2. For infinitives, the opposite is true, with only 23 instances of 2-1 versus 76 occurrences of 1-2. Thus a difference between the Bern and Zurich dialects is that Bernese is more tolerant of the 1-2 order with participles.

Wurmbrand's (2004:10) Swiss data confirm one of the basic findings here, that 2-1 is preferred with perfects: all five of her participants accepted this order, with only one accepting the 1-2 order. On the other hand, her study does not confirm the preference for 1-2 with modals that Hodler and Lötscher found. Each order was accepted by four out of five participants, so the two orders appear to be equally grammatical, although this does not rule out the possibility that some of the participants prefer 1-2.

2.2.8 Summary and discussion

The data for clusters of two verbs in contemporary German are summarized in Table 1.

Table 1: Word order in two-verb clusters

Dialect	modal-infinitive	auxiliary-participle
Standard German	2-1	2-1
German & Austrian dialects (Wurmbrand)	2-1	2-1
S and W Austria	1-2 / (2-1)	1-2 / 2-1
N Austria	2-1	2-1
E Austria	2-1	1-2 / 2-1
Bavarian	2-1 / (1-2)	2-1 / (1-2)
Swabian	2-1	2-1 / (1-2)
Alsatian	2-1 / (1-2)	2-1
Swiss	1-2 / (2-1)	2-1 / (1-2)

Recall from section 2.2.2 above that Wurmbrand's (2004) survey found that speakers of German and Austrian dialects accepted only the 2-1 order. In light of the more detailed dialect data summarized in Table 1, it is now clear that Wurmbrand (2004) fails to adequately describe these dialects. In Bavarian, Swabian, and Alsatian, it is true

[4] St. Galler German behaves similarly to Zurich German (Schönenberger 1995:366).

that 2-1 is the preferred order, but 1-2 is also possible to a limited degree. Moreover, in some Austrian dialects, 1-2 is the preferred order for some syntagms. Thus Wurmbrand's survey only managed to elicit the preferred order (not all possible orders) for the German dialects and missed altogether the Austrian dialects where 1-2 may be the preferred order.

Based on the results of this dialect survey, as well as other West Germanic languages, Wurmbrand reaches this generalization: 'if the "1-2" order is possible in an auxiliary-participle construction it is also possible in the modal-infinitive constructions (but not vice versa)' (2004:3). In Dutch and Swiss German, both orders are possible, but 1-2 is preferred with infinitives and 2-1 in perfects. Some dialects, including West Flemish and Afrikaans, allow only 1-2 with infinitives and only 2-1 with perfects (see Wurmbrand 2004:3 for references). Recall from Chapters 2 and 3 above that ENHG shows similar preferences. However, when more of the German dialects are taken into account, Wurmbrand's generalization is weakened. Although it holds for Swiss German, Alsatian, and southern and western Austrian dialects, Swabian and eastern Austrian dialects show the opposite pattern: the 2-1 order is allowed for perfects but not for the modal + infinitive syntagm.

Finally, let us compare these contemporary dialects with their ENHG predecessors as shown in Table 2. Recall from Chapter 3 that all dialects of ENHG showed a preference for the 2-1 order, especially in the participial syntagms. Not surprisingly, most of the dialects prefer the 2-1 order in both the ENHG period and currently. Two oddities stand out, however. First, Early Modern Swabian shows a very high frequency of the 1-2 order with modals, and yet, unlike neighboring dialects (Bavarian, Alsatian, and Swiss), this order is ungrammatical with modals today. On the other hand, Early Modern Swabian has a relatively high rate of 1-2 with perfects, which is still grammatical in the contemporary dialect.

Table 2: Two-verb clusters, ENHG vs. contemporary dialects

Dialect	modal-infinitive		auxiliary-participle	
	% of 1-2 in ENHG	preferred order today	% of 1-2 in ENHG	preferred order today
German & Austrian dialects (Wurmbrand)	34%	2-1	18%	2-1
E Austria	35%	2-1	18%	2-1
Bavarian	34%	2-1	18%	2-1
Swabian	48%	2-1	37%	2-1
Alsatian	17%	2-1	7%	2-1
Swiss	25%	1-2	12%	2-1

Secondly, Modern Swiss strongly prefers the 1-2 order with modals; however, in the ENHG period the rate of 1-2 with infinitives in Switzerland is surprisingly low at just 25%, lower than the ENHG average for infinitives (34%). This could simply be a result of the genres of the texts selected in the *Bonner Frühneuhochdeutsch-Korpus*: they consist of one scientific text and two chronicles. Lötscher (2000:201) finds that Early Modern Swiss chronicles have a much lower rate of the 1-2 order than personal letters from the same period. On the other hand, in Lötscher's (2000:207) study, the word-order difference between the modal-infinitive and auxiliary-participle syntagms starts to increase at the end of the 16th century, so that the strong preference for 1-2 with modals

is a relatively recent phenomenon in Swiss German. Therefore the low rate of 1-2 in the ENHG Swiss texts vis-à-vis the modern language may be due in part to the genres represented but also reflects a real increase in this order over time.

2.3 Three-verb clusters

2.3.1 Standard German

For most syntagms involving three verbs, the left-governing order 3-2-1 is the only possible order (Duden 1995:786). This is the case when a modal verb selects another modal and infinitive (19), a perfect (20), or a passive (21), and in the perfect of the passive (22).

(19) weil er es *kaufen können muss* 3-2-1
because he it buy$_3$ can$_2$ must$_1$
'because he must be able to buy it'

(20) weil er es *gekauft haben muss* 3-2-1
because he it bought$_3$ have$_2$ must$_1$
'because he must have bought it'

(21) weil es *gekauft werden muss* 3-2-1
because it bought$_3$ AUX$_2$ must$_1$
'because it must be bought'

(22) weil es *gekauft worden ist* 3-2-1
because it bought$_3$ AUX$_2$ AUX$_1$
'because is has been bought'

In the IPP (*infinitivus pro participio* or *Ersatzinfinitiv*) construction, i.e. in the present perfect of a modal which governs an infinitive, 1-3-2 is the only possible order (Duden 1995:786):

(23) weil er es *hat kaufen müssen* 1-3-2
because he it has$_1$ buy$_3$ must-INF$_2$
'because he had to buy it'

When the IPP effect is optional, e.g. when the perfect auxiliary governs an ACI verb, the 1-3-2 order occurs with the IPP (24a) but the 3-2-1 order with the participle (24b) (Duden 1995:786).

(24)a. weil er sie *hat singen hören* 1-3-2
because he her has$_1$ sing$_3$ hear-INF$_2$
'because he (has) heard her sing'

b. weil er sie *singen gehört hat* 3-2-1
because he her sing$_3$ heard$_2$ has$_1$
'because he (has) heard her sing'

Finally, when the future auxiliary *werden* governs two infinitives, both the 3-2-1 and 1-3-2 orders are possible (Duden 1995:786):

(25)a. weil er es *kaufen können wird* 3-2-1
because he it buy$_3$ can$_2$ will$_1$
'because he will be able to buy it'
b. weil er es *wird*$_1$ *kaufen*$_3$ *können*$_2$ 1-3-2
c. %weil er es *kaufen*$_3$ *wird*$_1$ *können*$_2$ %3-1-2

In addition, the 3-1-2 order (25c) may be becoming more frequent in colloquial Standard German (Tilman Höhle, p.c.), even appearing in writing in the *Süddeutsche Zeitung* (Wolfgang Sternefeld, p.c.). According to Schmid & Vogel (2004:239), 3-1-2 is also a possible order for this syntagm under the right focus conditions. The effect of focus on the choice between 3-2-1, 1-3-2, and 3-1-2 in this construction in Standard German will be discussed in section 4 below.

2.3.2 Cross-dialect studies

In Wurmbrand's (2004) questionnaire-based study, dialect speakers in Germany show judgments that agree with the standard language for some syntagms but not others. The syntagms that, according to Duden, only allow the 3-2-1 order in the standard also strongly favor 3-2-1 in these dialects. For the syntagms modal + modal + infinitive (19), modal + perfect (20), modal + passive (21), and the perfect of the passive (22), Wurmbrand's (2004:13) participants from Germany overwhelmingly (above 80%) rejected any order besides 3-2-1.[5]

The judgments in Wurmbrand (2004:13) for the IPP construction (23) show much more deviation from the standard language. Adding the scores for 'yes' and 'maybe', the standard-like 1-3-2 order received 100%, followed by 3-1-2 (73.3%), 3-2-1 (65.2%), and 1-2-3 (41.1%). The other logically possible orders, 2-3-1 and 2-1-3, were strongly rejected.

For the *werden* + modal construction (25), Wurmbrand's (2004:13) participants found 3-2-1, one of the standard orders, to be grammatical (83.9%), but were less certain about the other standard order, 1-3-2, with 54.5% accepting it and 43.6% unsure. The 3-1-2 is accepted by very few speakers (3.6%), with the remainder of participants evenly split between ungrammatical and unsure.

Schmid & Vogel (2004) examine the word order possibilities in the *werden* + modal construction in various dialects. The results for some specific dialects will be discussed in the following sections, and their study will be evaluated in section 4.2 below. At this point, I will just point out some of their general findings. First of all, Schmid & Vogel (2004:238) find that 2-3-1 is ungrammatical in the dialects they discuss, and 2-1-3 is found mainly in South Tyrol. This confirms my finding that these orders are ungrammatical in ENHG. Secondly, in almost every dialect, multiple word orders are possible, and the word order preferences vary according to which word bears the sentential stress (Schmid & Vogel 2004:238). Thirdly, Schmid & Vogel (2004:239) classify the dialects into two major groups: 'Standard German dialects', which have as default word orders the Standard German orders 3-2-1 and 1-3-2, and Swiss German dialects with 1-2-3 as the default.

[5] Wurmbrand's (2004) results for Austria will be treated in the next section and those for Switzerland in section 2.3.7.

2.3.3 Austrian dialects

First of all, let us look at Wurmbrand's (2004:13) general findings for Austrian dialects. Austrians showed similar judgments to Germans for the syntagms modal + perfect (20), modal + passive (21), and the perfect of the passive (22), in strongly rejecting all orders other than 3-2-1. However, Austrians less decisively rejected the 1-3-2 order with two modals (19): only 36.4% of them found it ungrammatical and 54.5% were unsure. Austrians' judgments of the IPP construction (23) and *werden* + modal construction (25) were also similar to Germans', except that they were much more tolerant of the 3-1-2 order.

Patocka's (1997) corpus study treats only two syntagms–the perfect of the passive[6] and the IPP. In the perfect of the passive, the 3-2-1 and 3-1-2 orders are usual, with only one attestation of 1-3-2:

(26)a. daß amåi *bààt woadn wa(r)* Lower Austria, 3-2-1
that once built-PPP_3 AUX-PPP_2 were-$SUBJ_1$
'that (it) would have been built once'

b. daß in Triant aa oans *gmartart isch woadn* Tyrol, 3-1-2
that in Trent also one tortured-PPP_3 is_1 AUX-PPP_2
'that one was also tortured in Trent'

c. wånn a Kind *is taaft gwoadn* Styria, 1-3-2
when a child is_1 baptized-PPP_3 AUX-PPP_2
'when a child was baptized' (Patocka 1997:289)

Patocka does not show the distribution of these orders geographically.

Patocka finds three word orders for the IPP in Austrian dialects, the standard-like 1-3-2, the 'typically Austrian' 3-1-2, and the 'more conservative' 1-2-3:

(27)a. wiar i mit Knecht und Dian *håun åabatn miassn* Lower Austria, 1-3-2
how I with servant and maid $have_1$ $work_3$ must-INF_2
'how I had to work with servants and maids'

b. da ma wås *leana hettn soin* Lower Austria, 3-1-2
that wir something $learn_3$ had_1 shall-INF_2
'that we should have learned something'

c. daß i s *håb miassn låussn* Salzburg, 1-2-3
that I it $have_1$ must-INF_2 $leave_3$
'that I had to leave it' (Patocka 1997:278)

Although there are few examples of each type, the following geographical distribution emerges in Patocka (1997:281): 1-3-2 is found mainly in the east of the country, and it is not clear whether this is chiefly due to the influence of standard German. The 3-1-2 order is found in all parts of Austria, and seems to be the normal order in colloquial speech, even appearing in writing. The 1-2-3 order is rarer, but is also evenly distributed geographically.

Patocka's results are somewhat at odds with Wurmbrand's (2004). First of all, Wurmbrand's participants accepted only the 3-2-1 order for the perfect of the passive,

[6] He treats the syntactic passive with *werden* separately from the adjectival passive with *sein*, but they behave largely the same.

while Patocka's study finds that 3-1-2 is also frequent. Secondly, in Wurmbrand (2004), 1-3-2 is the most grammatical order for the IPP, while Patocka shows that 3-1-2 is more common than 1-3-2. There may be several reasons for these discrepancies. First, it is possible that Wurmbrand's participants were influenced by the standard language to reject non-standard orders. Secondly, it is possible that Wurmbrand's participants were not distributed evenly over Austria. Finally, it may be that Patocka's corpus study highlights moribund features, and that Wurmbrand's is more reflective of contemporary Austrian speech.

Schmid & Vogel (2004:238) examine the *werden* + modal syntagm in one dialect that is closely related to Austrian dialects: South Tyrolean, spoken in northern Italy. Of the dialects they investigate, this one shows the greatest number of word-order possibilities, and is the only one to display the 2-1-3 order. With stress on the auxiliary, three orders are possible (3-2-1, 1-2-3, and 1-3-2), but with stress on any other word in the clause, five orders are possible: 3-2-1, 1-2-3, 1-3-2, 3-1-2, and 2-1-3. It is unclear why this dialect shows such tolerance for so many word orders–whether it is a genuine difference from other Austrian dialects or results from Schmid & Vogel's method of data collection (see section 4.1 below).

2.3.4 Bavarian

According to Weiß (1998), three orders are possible in the perfect of the passive and in the 'double perfect' construction,[7] 3-2-1, 3-1-2, and 1-3-2 (Weiß 1998:51):

(28)a. wia Bayern zum Königreich *gmocht woarn ist* 3-2-1
how Bavaria to kingdom made-PPP_3 AUX-PPP_2 is_1
'how Bavaria was made a kingdom'

b. wia'ra des *gheerd hod ghod* 3-1-2
how he it heard-PPP_3 had-PPP_2 has_1
'how he had heard it'

c. wia de Doudn e da Schdum am Bred *hand afbohrd woan* 1-3-2
how the dead in the room on.the board $have_1$ out.$laid_3$ AUX-PPP_2
'how the dead were laid out on the board in the living room'

(Weiß' (1998:52) ex. (58a-b, d))

Although both syntagms allow all three orders, the perfect of the passive strongly prefers the 3-2-1 order as in (28a), and the double perfect strongly prefers the 3-1-2 order as in (28b). It is not clear what the distribution of 1-3-2 is, since Weiß (1998:52) states that it is only possible with *sein*, but his only example (28c) has *haben*.

For the IPP construction, Weiß reports that the orders 3-1-2, 1-2-3, and 1-3-2 are grammatical:

(29)a. wa' a nimmer *reen hod kina / kind* 3-1-2
what he never say_3 has_1 can-INF_2 can-PPP_2
'what he never could say'

[7] Dialects without a preterit tense cannot form the pluperfect in the usual way (with preterit of the perfect auxiliary plus the participle of the lexical verb), so the pluperfect consists of the perfect tense of the perfect auxiliary (i.e. present tense of the auxiliary plus the participle of the auxiliary) plus the participle of the lexical verb, as in (28b).

b. woa 's *heijd sooln hairaddn* 1-2-3
where they had-SUBJ$_1$ shall-INF$_2$ marry$_3$
'where they should have married'

c. daß ned a jeda Firmdöd extra *hod einspanna brauha* 1-3-2
that not an every sponsor extra has$_1$ team.up$_3$ need-INF$_2$
'that not every confirmation sponsor needed to go out of his way to team up (the horses)'

(Weiß' (1998:53) ex. (60a-c))

According to Weiβ (1998:53), the 3-1-2 order, as in (29a), is the unmarked and most common order, while 1-2-3 (29b) and 1-3-2 (29c) are marked.[8] Weiß (1998:53) claims that the orders 2-1-3, 2-3-1, and 3-2-1 are ungrammatical in Bavarian with this construction.

Although Weiß (1988) does not mention the *werden* + modal construction, Schmid & Vogel (2004:238) provide some information from the Bavarian Forest. When the subject, object, or auxiliary *werden* is stressed, the orders 3-2-1, 1-3-2, and 3-1-2 are possible, and when the lexical verb or modal verb is stressed, those orders plus 1-2-3 are possible.

2.3.5 Swabian

Steil (1989) deals only with verb clusters that have *haben*, *werden*, or a modal as the finite verb. In general, Steil (1989:1) finds that the most common word order in Swabian is the one used in Standard German, but that Swabian allows for additional orders. In the double modal construction, two orders are possible:[9]

(30)a. Glaubsch, daß mr des rad nomol *richda lasse ka*? 3-2-1
think-2SG that we the wheel again straighten$_3$ let$_2$ can$_1$
'Do you think that we can have the wheel straightened again?'

b. Glaubsch, daß mr des rad nomol *ka*$_1$ *richda*$_3$ *lasse*$_2$? 1-3-2

(Steil's (1989:19) ex. (6a-b))

Note that these are the two orders that occur in Standard German, although for this syntagm, only 3-2-1 is allowed in the standard language.

In the IPP construction, four word orders are possible:[10]

---

[8] When the modal verb is *können* 'can', the IPP effect is optional, as shown in (29a).

[9] Two additional orders are possible when the second verb is *helfen* 'to help':

(i) a. Frag dr vaddr, ob r dir d kardoffl *ka hälfa scheela.* 1-2-3
ask the father if he you the potatoes can$_1$ help$_2$ peel$_3$
'Ask Father if he can help you peel the potatoes.'

b. Frag dr vaddr, ob e m *hälfa kocha soll.* 2-3-1
ask the father if he me help$_2$ cook$_3$ shall$_1$
'Ask Father if he will help me cook.'

(Steil's (1989:19) ex. (5c))

The verb *helfen* in Swabian generally shows very different word orders from other verbs that take an infinitive (Steil 1989:103).

[10] Here, too, an additional order is possible when *helfen* is the second verb in the cluster:

(i) I han denkt, daß r dir *hälfa kocha had.* 2-3-1
I have thought that he you help-INF$_2$ cook$_3$ has$_1$
'I thought that he helped you cook.'

(Steil's (1989:17) ex. (1e))

(31)a. I glaub, daß d Anna ons *bsuacha wella hat.* 3-2-1
I think that the A. us visit$_3$ will-INF$_2$ has$_1$
'I think that Anna wanted to visit us.'
b. I glaub, daß d Anna ons *hat*$_1$ *bsuacha*$_3$ *wella*$_2$. 1-3-2
c. I glaub, daß d Anna ons *bsuacha*$_3$ *hat*$_1$ *wella*$_2$. 3-1-2
b. I glaub, daß d Anna ons *hat*$_1$ *wella*$_2$ *bsuacha*$_3$. 1-2-3
(Steil's (1989:17) ex. (1a-d))

This is much more variation than is allowed in the standard language, where only 1-3-2 is possible.

In the *werden* + modal syntagm, only the two standard German orders are possible:[11]

(32)a. Moinsch, daß r des fahrrrad *macha kenna wird*? 3-2-1
think-2SG that he the bicycle make$_3$ can$_2$ will$_1$
'Do you think that he will be able to build the bicycle?'
b. Moinsch, daß r des fahrrrad *wird*$_1$ *macha*$_3$ *kenna*$_2$? 1-3-2
(Steil's (1989:19) ex. (4a-b))

However, in this case Swabian actually shows a more restricted distribution than does the standard language (Steil 1989:18): when the modal is *sollen* 'shall' or *dürfen* 'may', only the 1-3-2 order is possible.

Schmid & Vogel show a different picture for the *werden* + modal syntagm in Swabian. Whereas Steil accepts only 3-2-1 and 1-3-2, Schmid & Vogel (2004:238) find that two additional orders are possible, depending on the stress. Their data for Swabian is the most complex of any dialect they investigate, and bears repeating in full:

Table 3: Word orders in Swabian *werden* + modal clusters (S&V 2004)

Stressed word	Possible orders
subject	123 132
object	123 132 312
lexical verb	12**3** 1**3**2 **3**12
modal	13**2** 31**2**
auxiliary	32**1**

There may be two reasons for the differences between Steil's and Schmid & Vogel's data for Swabian. First, it is possible that Steil did not take stress differences into account. Secondly, perhaps this is due to dialect differences within Swabian: Steil is from greater Stuttgart, while Schmid & Vogel's participant was from Tübingen, about 40 km south of Stuttgart.

2.3.6 Alsatian

Heitzler (1975) gives only one example of a three-verb cluster in Alsatian, which happens to be the double perfect syntagm:

[11] Again, when *helfen* rather than a modal is the second verb, 1-2-3 and 2-3-1 are allowed.

(33) van ər *gasə* *k^{h}ed* *hed* 3-2-1
when he eaten$_3$ had-PPP$_2$ has$_1$
'when he had eaten' (Heitzler 1975:34)

Heitzler gives no indication as to whether other word orders are possible in this or any other three-verb syntagm.

2.3.7 Swiss dialects

In St. Galler German, four out of the 6 logically possible orders are allowed for the IPP construction:

(34)a. das de Jonas *schwimme müese* *hät* 3-2-1
that the J. swim$_3$ must-INF$_2$ has$_1$
'that Jonas had to swim'
b. das de Jonas *hät*$_1$ *schwimme*$_3$ *müese*$_2$ 1-3-2
c. das de Jonas *schwimme*$_3$ *hät*$_1$ *müese*$_2$ 3-1-2
d. das de Jonas *hät*$_1$ *müese*$_2$ *schwimme*$_3$. 1-2-3
(Schönenberger's (1995:367) ex. (43a-c))

In Wurmbrand's study, word order judgments vary wildly by syntagm in Swiss German. Because the data are not broken down by dialect, it is difficult to know how much of this variation is due to dialect differences. For the IPP, all of Wurmbrand's (2004:14) participants liked 1-2-3, and most liked 1-3-2 and 3-1-2; however, a majority rejected 3-2-1, contrary to Schönenberger's acceptance of this order. Other syntagms are very different. With the modal + perfect, the 3-1-2 and 1-3-2 orders are grammatical, 3-2-1 is marginal, and 1-2-3 (the best order for the IPP) is ungrammatical. With two modals, the situation is reversed: 1-2-3 and 3-2-1 are grammatical and the other two orders ungrammatical. Wurmbrand's (2004:16) participants allowed only 3-2-1 in the perfect of the passive. Finally, in the *werden* + modal syntagm, Wurmbrand's (2004:14) study finds that 1-2-3, 1-3-2, and 3-1-2 are grammatical, while the majority of participants were unsure about 3-2-1.

Schmid & Vogel (2004:238) show a possible dialect difference between St. Galler German and Bernese with respect to the *werden* + modal syntagm. Their participant from Bern allowed only the 1-2-3 order, while the one from St. Gallen additionally allowed 3-1-2 when the lexical verb was stressed and 2-1-3 when the modal was stressed.

2.3.8 Summary and discussion

The data for three-verb clusters in Modern Standard German and contemporary dialects of German are summarized in Table 4.[12] Judging from this table, it looks as if the *werden* + modal syntagm shows the greatest word-order variability. That may indeed be the case, since it is the only syntagm to allow any variation in written Standard German. On the other hand, this may be merely due to the fact that this construction is

[12] In this table, the superscripts are used as follows: the percentage sign has its conventional value, i.e. grammatical in one (micro-)dialect and ungrammatical in another. For other judgments that are split by dialect, the slash is used, so e.g. *$^{/!}$ indicates that the order is reported to be ungrammatical in one dialect, but possible under the appropriate focus conditions in another.

the object of Schmid & Vogel's (2005) study, which reports very detailed and stress-sensitive results.

Table 4: Word orders in three-verb clusters

Dialect	modal+ passive	modal+ perfect	passive perfect	double perfect	double modal	*werden*+ modal	IPP
Standard German	3-2-1	3-2-1	3-2-1	n/a	3-2-1	3-2-1 1-3-2	1-3-2
German dialects (Wurm-brand)	3-2-1	3-2-1	3-2-1		3-2-1	3-2-1 1-3-2 ?3-1-2	3-2-1 1-3-2 3-1-2 ?1-2-3
Austrian	3-2-1	3-2-1	3-2-1 3-1-2		3-2-1 ?1-3-2	3-2-1 1-3-2 3-1-2 1-2-3 */!2-1-3	3-2-1 1-3-2 3-1-2 ?1-2-3
Bavarian			3-2-1 1-3-2 3-1-2	3-2-1 1-3-2 3-1-2		3-2-1 1-3-2 3-1-2 !1-2-3	1-3-2 3-1-2 1-2-3
Swabian					3-2-1 1-3-2	3-2-1 1-3-2 */!3-1-2 */!1-2-3	3-2-1 1-3-2 3-1-2 1-2-3
Alsatian				3-2-1			
Swiss		?3-2-1 1-3-2 3-1-2 *1-2-3			3-2-1 ?1-3-2 ?3-1-2 1-2-3	*/?3-2-1 ok/!1-3-2 ok/!3-1-2 1-2-3 */!2-1-3	%3-2-1 1-3-2 3-1-2 1-2-3

A few generalizations can be drawn from the data on three-verb clusters presented here. First of all, it appears that if a dialect displays the 1-2-3 order at all, it will do so at least in the IPP construction, followed by the *werden* + modal syntagm, and with the double modal syntagm only in Swiss. Secondly, the IPP does not force a particular word order: even 3-2-1 can occur with the IPP (also noted by Zwart 2005). Thirdly, the 1-2-3 order is ungrammatical if the cluster contains a participle, even in Swiss.[13] Fourthly, the *werden* + modal syntagm tends to show a mixture of IPP and participial word orders, as seen most clearly in Standard German, but also in Bavarian and Swabian. Finally, the 2-1-3 and 2-3-1 orders are extremely rare, with the former being found only under the right focus conditions in Austrian and Swiss, and the latter found only with the verb *helfen* in Swabian.

Recall from Chapter 2 that the 2-1-3 and 2-3-1 orders did not occur in my ENHG corpus. However, the similarities between the three-verb clusters in ENHG and Modern

[13] According to Wurmbrand (2004:5), this also holds true for Afrikaans, but not for Dutch.

German seem to end there. Whereas all modern (non-Swiss) varieties treated here prefer the 3-2-1 order for the syntagms with participles, this was not the most frequent order in ENHG. In my ENHG corpus (excluding the Swiss data), in the perfect of the passive 3-1-2 is the most frequent order (nine times), followed by 3-2-1 (seven times) and 1-3-2 (six times). In the modal + passive and modal + perfect syntagms, 1-3-2 is the most frequent (twenty-seven times), with only sixteen instances of 3-2-1 and fifteen of 3-1-2. In the IPP construction, the least common order in the modern dialects (1-2-3) is the most frequent in ENHG with fourteen instances, followed by eight examples of the modern order 1-3-2 and just one of the 3-1-2 order. Thus it appears that the preference in Standard German and in modern Austrian and German dialects for the 3-2-1 order with participles and the 1-3-2 order with the IPP arises after the ENHG period.

Table 5: Three-verb clusters, ENHG vs. contemporary dialects

Dialect	Passive perfect		Modal + participle		IPP	
	ENHG	Wurmbrand	ENHG	Wurmbrand	ENHG	Wurmbrand
German & Austrian	3-1-2 > 3-2-1 > 1-3-2 >	3-2-1 > 1-3-2	1-3-2 > 3-2-1 > 3-1-2 >	3-2-1	1-2-3 > 1-3-2 > 3-1-2	1-3-2 > 3-1-2 > 3-2-1 > (1-2-3)
Swiss	1-3-2 > 3-2-1 / 3-1-2	3-2-1 > 1-3-2 > 3-1-2	3-1-2 > 1-3-2 / 3-2-1	3-1-2 > 1-3-2 > (3-2-1)	1-2-3	1-2-3 > 1-3-2 > 3-1-2 > (3-2-1)

On the other hand, there is much more agreement between my ENHG results from Switzerland and Wurmbrand's (2004) results from modern Swiss German. Modern Swiss prefers the 1-2-3 order for the IPP, and indeed all four instances of the IPP in my data from Zurich are in that order. For the modal + perfect, modern speakers prefer the 3-1-2 and 1-3-2 orders, with 3-2-1 marginal and 1-2-3 ungrammatical, and in ENHG 3-1-2 is most frequent with three occurrences, with one attestation each of 1-3-2 and 3-2-1 and none of 1-2-3. In the passive perfect in Swiss German, 3-2-1 is clearly preferred, 1-3-2 and 3-1-2 are marginal, and 1-2-3 is ungrammatical. Early Modern Swiss German shows somewhat different rankings, with three instances of 1-3-2 and one each of 3-2-1 and 3-1-2; however, here 1-2-3 is unattested as well. In sum, the preference in Modern Swiss German for the 1-2-3 order with the IPP and for other orders with participial syntagms has clear parallels in the ENHG data from Switzerland.

2.4 Clusters of four or more verbs

2.4.1 Standard German

According to Duden (1995:786-7), the normal order in Standard German with clusters of four verbs is 4-3-2-1. The 1-4-3-2 may optionally occur with *werden* plus two infinitives (35) and is obligatory in the 'high IPP', i.e. when *haben* is the finite verb in the cluster (36). In the 'low IPP', i.e. when *haben* is an infinitive selected by another verb, the 1-2-4-3 order is found (37).

(35)a. weil er es *kaufen können müssen wird* 4-3-2-1
because he it buy$_4$ can$_3$ must$_2$ will$_1$
'because he will have to be able to buy it'

b. weil er es *wird kaufen können müssen* 1-4-3-2
because he it will$_1$ buy$_4$ can$_3$ must$_2$

(36) weil er es *hat kaufen können müssen* 1-4-3-2
because he it has$_1$ buy$_4$ can$_3$ must-INF$_2$
'because he must have been able to buy it'

(37) weil er es *wird haben kaufen können* 1-2-4-3
because he it will$_1$ have$_2$ buy$_4$ can-INF$_3$
'because he will have been able to buy it' (Duden 1995:786-7)

There are certainly other word order possibilities in the standard language than Duden (1995) prescribes. In addition to the 1-4-3-2 order, Haegeman & van Riemsdijk (1986) claim that the high IPP allows the 1-2-4-3 order:

(38)a. dass er *hätte kommen wollen können* 1-4-3-2
that he has-SUBJ$_1$ come$_4$ want$_3$ can-INF$_2$
'that he could have wanted to come'

b. dass er *hätte*$_1$ *können*$_2$ *kommen*$_4$ *wollen*$_3$ 1-4-3-2

Haegeman & van Riemsdijk (1986:427)

Wöllstein-Leisten et al. (1997:70-71) indicate that *lassen* 'to let' behaves like *werden*, allowing both the usual verb-final order (39a) and the 1-3-2 order (39b). When itself selected by another verb, *lassen* may additionally show either IPP-like order (40b-c). Finally, in a cluster of five verbs, a total of four orders are possible (41).[14]

(39)a. ... daß man ihn hier *liegen blieben lässt* 3-2-1
that one him here lie$_3$ remain$_2$ lets$_1$
'… that one lets him remain lying here'

b. ... daß man ihn hier *lässt*$_1$ *liegen*$_3$ *blieben*$_2$ 1-3-2

(40)a. ... daß man ihn hier *liegen blieben lassen kann* 4-3-2-1
that one him here lie$_4$ remain$_3$ let$_2$ can$_1$
'… that one can let him remain lying here'

b. ... daß man ihn hier *kann*$_1$ *liegen*$_4$ *blieben*$_3$ *lassen*$_2$ 1-4-3-2

c. ... daß man ihn hier *kann*$_1$ *lassen*$_2$ *liegen*$_4$ *blieben*$_3$ 1-2-4-3

(41)a. ... daß man ihn hier *liegen blieben lassen können wird* 5-4-3-2-1
that one him here lie$_5$ remain$_4$ let$_3$ can$_2$ will$_1$
'… that one will be able to let him remain lying here'

b. ... daß man ihn hier *wird*$_1$ *liegen*$_5$ *blieben*$_4$ *lassen*$_3$ *können*$_2$ 1-5-4-3-2

c. ... daß man ihn hier *wird*$_1$ *können*$_2$ *liegen*$_5$ *blieben*$_4$ *lassen*$_3$ 1-2-5-4-3

d. ?... daß man ihn hier *wird*$_1$ *können*$_2$ *lassen*$_3$ *liegen*$_5$ *blieben*$_4$?1-2-3-5-4

(Wöllstein-Leisten et al.'s (1997:70-71) ex. (19-21))

[14] In an informal survey of four native speakers of German, (41d) was consistently rated as ungrammatical. Therefore, although Wöllstein-Leisten et al. list it as grammatical, I give it a question mark.

The generalization from these examples is that the two lowest verbs in the cluster must remain in the descending order.

2.4.2 Dialects

Wurmbrand (2004) included in her questionnaire a section involving clusters of four verbs with the high and low IPP constructions. Participants completed two tasks: first they arranged a scrambled-up clause into the best order, and then they judged the grammaticality of several orders. Wurmbrand (2004:14) notes that many speakers commented that these constructions were rare in their dialect, and some participants simplified the clusters in the re-arranging task. For the high IPP construction, the majority of Wurmbrand's (2004:35) German and Austrian participants accepted only the 1-4-3-2 order, as in the standard language, while the Swiss preferred 1-2-3-4 and 1-2-4-3 while also accepting other orders. For the low IPP construction, speakers of all three nationalities rejected every word order in the second task, although in the first task the most frequent arrangement was 1-4-3-2, followed by 4-3-2-1 and the standard-like 1-2-4-3.

According to Steil (1989:36), with the high IPP in Swabian, the orders 1-4-3-2, 1-2-4-3, and 4-3-1-2 are possible when V_2 is a modal:[15]

(42)a. Woisch du, worom mr den ned *had ganga lassa wella*? 1-4-3-2
know you why we him not have$_1$ go$_4$ let$_3$ want-INF$_2$
'Do you know why we did not want to let him go?'
b. Woisch du, worom mr den ned *had*$_1$ *wella*$_2$ *ganga*$_4$ *lassa*$_3$? 1-2-4-3
c. Woisch du, worom mr den ned *ganga*$_4$ *lassa*$_3$ *had*$_1$ *wella*$_2$? 4-3-1-2
(Steil's (1989:36) ex. (26a-c))

When a modal governs *lassen*, as in the Standard German examples in (40), the 4-3-2-1 and 1-4-3-2 orders are possible:

(43)a. Glaubsch, daß mr den ma so *liega bleibe lassa ka*? 4-3-2-1
think-2SG that we him PART so lie$_4$ stay$_3$ let$_2$ can$_1$
'Do you think that we can just let him stay lying like that?'
b. Glaubsch, daß mr den ma so *ka*$_1$ *liega*$_4$ *bleibe*$_3$ *lassa*$_2$? 1-4-3-2
c. *Glaubsch, daß mr den ma so *ka*$_1$ *lassa*$_2$ *liega*$_4$ *bleibe*$_3$? *1-2-4-3
d. *Glaubsch, daß mr den ma so *liega*$_4$ *bleibe*$_3$ *ka*$_1$ *lassa*$_2$? *4-3-1-2
(Steil's (1989:38) ex. (30a-d))

Oddly, although Swabian allows 1-2-4-3 for the IPP, it does not allow it for modal + *lassen* (43c), although that is grammatical in Standard German (40c).

Not surprisingly, Swiss German shows much more variation with four-verb clusters than other varieties of German. There are eight, perhaps nine, possible word orders in the dialect of St. Gallen: [16]

[15] When V_2 is *lassen*, only 1-4-3-2 and 1-2-4-3 are acceptable.

[16] Schönenberger is unsure about the interpretation of (45h). If it means 'has wanted to be able to fight', then it has the structure indicated by the subscripts in (45h). However, if it means 'has been able to want to fight', then in represents a ninth order as in (45h').

(44)a. *hät wöle chöne kämpfe* 1-2-3-4
has$_1$ want-INF$_2$ can$_3$ fight$_4$
'has wanted to be able to fight'

b. *hät$_1$ wöle$_2$ kämpfe$_4$ chöne$_3$* 1-2-4-3
c. *hät$_1$ kämpfe$_4$ wöle$_2$ chöne$_3$* 1-4-3-2
d. *kämpfe$_4$ hät$_1$ wöle$_2$ chöne$_3$* 4-1-2-3
e. *wöle$_2$ hät$_1$ kämpfe$_4$ chöne$_3$* 2-1-4-3
f. *wöle$_2$ hät$_1$ chöne$_3$ kämpfe$_4$* 2-1-3-4
g. *chöne$_3$ kämpfe$_4$ hät$_1$ wöle$_2$* 3-4-1-2
h. *kämpfe$_4$ chöne$_3$ hät$_1$ wöle$_2$* 4-3-1-2
h'. *kämpfe$_4$ chöne$_2$ hät$_1$ wöle$_3$* 4-2-1-3

(Schönenberger's (1995:383-4) ex. (80a-h))

This state of affairs is largely in agreement with the results from the second four-verb task in Wurmbrand's (2004:35) questionnaire: a majority of Swiss respondents agreed with Schönenberger in allowing 1-2-4-3, 1-2-3-4, 4-1-2-3, and 1-4-3-2, but unlike Schönenberger also accepted 1-4-2-3. Like Schönenberger, they rejected 4-3-2-1 and 4-1-3-2, and only 30% of them accepted 4-3-1-2, the order that Schönenberger is not sure about.

2.4.3 Comparison to ENHG

Recall from Chapter 2 section 1.1 that there are only four instances of a four-verb cluster in ENHG, and all four of these are in the 1-2-4-3 order. Two of them have a modal as the finite verb governing *lassen*, and two are IPP constructions. Although four examples are not sufficient to make any firm claims, the tendency to have the 1-2-4-3 order in ENHG is supported by Härd's (1981) data from 1450-1580. Of the forty IPP four-verb clusters in Härd's study, twenty-two display the 1-2-4-3 order, eight are 1-2-3-4, and there are just a few examples of each of the other five orders (1981:63-64). Thus it appears that there is a strong ENHG tendency with four-verb clusters, as with three-verb clusters, to place the finite verb at the front of the cluster. Moreover, 1-2-4-3 is the preferred order.

This is quite different from the state of affairs in Modern German. Although the standard language requires 1-2-4-3 with the low IPP, Wurmbrand's (2004) participants preferred 1-4-3-2 even with the low IPP, and in Swabian 1-2-4-3 is not possible when the finite verb is a modal. Thus it appears that there has been a trend from 1-2-4-3 to 1-4-3-2 in both the standard language and (non-Swiss) dialects. Härd (1981:175) finds that these word order preferences arise in the early 19th century in Standard German.

2.5 Verb clusters with an intervening constituent (1-X-2, etc.)

2.5.1 Standard German

This section deals with verb clusters that are separated by some constituent. In the generative literature, this phenomenon is called Verb Projection Raising (see chapter 5, section 2.3.2), but throughout the current study, the orders have been given the theory-neutral labels 1-X-2, 1-X-3-2, etc. In my ENHG data, there is a robust generalization that a verb cluster can never broken up if the verbs are in their left-governing order, i.e., the orders *2-X-1 and *3-{X}-2-{X}-1 do not occur.

Not surprisingly, this generalization holds for Modern Standard German. This means that breaking up verb clusters is limited to the two syntagms which allow 1-3-2, the only possible right-governing order in the standard language. According to Duden (1995:787), the 1-X-3-2 order is possible only in the IPP construction (45) and with *werden* plus two infinitives (46). This is confirmed by Kefer & Lejeune (1974), who find what they term '*Einklammerung*' only in these two syntagms:

(45) … obwohl ich mich *hätte* **nützlich** *machen können* … 1-X-3-2
although I REFL have-SUBJ$_1$ useful make$_3$ can-INF$_2$
'… although I could have made myself useful …'
(Kefer & Lejeune's (1974:330) ex. (22d))

(46) … daß er mich *wird* **an die Front** *schicken lassen.* 1-X-3-2
that he me will$_1$ on the front send$_2$ let$_3$
'… that he will have me sent to the front.'
(Kefer & Lejeune's (1974:322) ex. (2))

2.5.2 Dialects

Contemporary dialects of German are much more tolerant of breaking up the verb cluster than the standard language is. A similar state of affairs exists in Dutch, where dialects such as West Flemish, but not Standard Dutch, display 1-X-2 and similar orders (Haegeman 1992). In what follows, examples are given of these orders in some dialects of German. Note that most of the studies that report on these orders do not indicate whether they differ in meaning from other orders.

For Austrian dialects, Patocka (1997:298-317) finds the orders 1-X-2 (47), 1-2-X-3 (48), and 1-X-3-2 (49).

(47) und wia s *san* **friah** *weggånga* 1-X-2
and how they are$_1$ early away.gone$_2$
'and how they went away early' (Patocka 1997:305)

(48) und wås ma då *håbm miassn* **nåchar** *ààflegn* 1-2-X-3
and what we there have$_1$ must-INF$_2$ afterwards on.lay$_3$
'and what we had to put on there afterwards' (Patocka 1997:299)

(49) wånn i wein *håb* **aus da Not** *hö(l)fa kina* 1-X-3-2
when I someone have$_1$ out the need help$_3$ can-INF$_2$
'when I was able to help someone in need' (Patocka 1997:299)

Note that Patocka does not report an order which is found in ENHG, 1-X-2-3 (see Chapter 2, section 1.1 above). Patocka (1997:317) finds that these orders are completely optional, although he speculates that they may be favored by factors such as focus and semantic closeness between the intervening constituent and the verb.

Weiß (1998) shows that the verbal complex can be split by some constituent in main clauses:

(50) der hod *wolln* **sei Sau** *abstecha* MC: 2-X-3
he has$_1$ want-INF$_2$ his sow off.stab$_3$
'he wanted to slaughter his sow'
(Weiß' (1998:54) ex. (61e))

He refers to this as main-clause phenomenon, implying that breaking up the verb cluster is not possible in subordinate clauses.

Steil (1989:85-93) discusses intervening constituents only in three-verb clusters. (For the ungrammaticality of 1-X-2 in Swabian, see section 3.3 below). The orders 1-X-3-2 (51), and 1-2-X-3 (52) are grammatical, as in Austrian dialects. Also as in Austrian, the 1-X-2-3 order (53) is ungrammatical. Oddly, a similar yet more complex order, 1-X-2-X-3 (54) is more acceptable.[17]

(51) …, wenn se *han* **da Kuu(r)zkratta** *traga kenna*. 1-X-3-2
when they have$_1$ the short.basket carry$_3$ can-INF$_2$
'… when they were able to carry the short basket'

(52) …, daß se *hot kenna* **en Kaffee** *macha*. 1-2-X-3
that she has$_1$ can-INF$_2$ a coffee make$_3$
'… that she was able to make coffee.'

(53) *I woiß ned, ob r *had* **dera frao** *solla aruafa.* *****1-X-2-3
I know not if he has$_1$ the woman shall$_2$ call$_3$
'I don't know whether he was supposed to call the woman.'

(54) ?…, daß mir *hedded* **den briaf** *solla* **dr Sabine** *zaiga*? ?1-X-2-X-3
that we have$_1$ the letter shall$_2$ the Sabine show$_3$
'… that we were supposed to show the letter to Sabine'
(Steil's (1989:85-87) ex. (7c), (8b), (8h), (8g))

Although both Austrian and Swabian allow 1-2-X-3, they appear to be more restrictive than Swiss (see below) and ENHG in disfavoring 1-X-2-3. However, as in ENHG, no constituent can break up a verb cluster in the 3-2-1 or 3-1-2 orders (e.g. Steil 1989:23).

In Alsatian, the 1-X-2 order is possible (55a) with the modal plus infinitive syntagm (Heitzler 1975:35). Heitzler explicitly states that the 2-X-1 order is ungrammatical (55a), supporting the generalization discussed above that constituents may not break up a left-governing cluster.

(55)a. van ər *vel* **åmə ōvə** *fordgē* 1-X-2
if he wants$_1$ on evening away.go$_2$
b. *van ər *fordgē* **åmə ōvə** *vel* *2-X-1
if he away.go$_2$ on evening wants$_1$
'if he wants to go out in the evening' (Heitzler 1975:35)

Heitzler does not discuss constituents intervening in three-verb clusters.

According to Lötscher (1978:4) and Schönenberger (1995:347), Swiss dialects allow the 1-X-2 order (at least in those cases where the 1-2 order is possible):

(56) wil mer em Hans *wänd* **es velo** *schänke* 1-2
because we the Hans want$_1$ the bike give$_2$
'because we want to give Hans the bike'
(Lötscher's (1978:4) ex. (8b))

[17] The grammaticality of this order seems to depend on the part of speech of the first X: an adverb is more acceptable here than an object (Steil 1989:22).

Clusters of three verbs also allow one or more constituents to appear between the verbs, at least in the 1-2-3 order:

(57)a. das er *wil* **em Karajan en arie** *chöne vorsinge* 1-X-2-3
that he wants$_1$ the-DAT K. an aria can-INF$_2$ sing$_3$
'that he wants to be able to sing an aria to Karajan'
b. das er *wil*$_1$ *chöne*$_2$ **em Karajan en arie** *vorsinge*$_3$ 1-2-X-3
c. das er *wil*$_1$ **em Karajan** *chöne*$_2$ **en arie** *vorsinge*$_3$ 1-X-2-X-3
(Schönenberger's (1995:376-377) ex. (66c), (66f), (66e))

2.5.3 Discussion

Kefer & Lejeune (1974:329) find that in most instances, the placement of the constituent within the verb cluster is optional. It occurs most often when there is a close semantic connection between the intervening constituent and one of the verbs, as in idioms (also noted by Duden 1995:787). It may also serve to resolve an ambiguity that would result if the constituent were placed in the usual position. In (58a), *selbst* unambiguously emphasizes *der Herr*, since it is not adjacent to *heute*, whereas in (58b) *selbst* may emphasize either *der Herr* or *heute*.

(58)a. …den der Herr selbst *hätte* **heute** *nehmen wollen.* 1-X-3-2
REL the lord EMPH have-SUBJ$_1$ today take$_3$ want-INF$_2$
'… which the lord himself would have wanted to take today.'
b. … den der Herr selbst heute *hätte nehmen wollen.* 1-3-2
ibid or '… which the lord would have wanted to take this very day.'
(Kefer & Lejeune's (1974:335) ex. (31a))

Most interestingly, Kefer & Lejeune point out some properties of this phenomenon that are related to focus. First of all, they claim that the constituent that breaks up the verb cluster is often the 'last heavily stressed element of the sentence' (Kefer & Lejeune 1974:331). The fact that such a constituent is stressed indicates that it is part of the focus.

Secondly, Kefer & Lejeune (1974:326) make an interesting observation with respect to contrastive focus. They argue that in (59a), the contrastive element is *einen Roman* 'a novel', contrasting for example with *die Zeitung* 'the newspaper'. This would then have the focus structure in (59b).

(59)a. Er weiß, daß er (eher) einen Roman *hätte lesen sollen.* 1-3-2
he knows that he rather a novel have-SUBJ$_1$ read-INF$_3$ shall-INF$_2$
'He knows that he should have read a novel (instead).'
b. daß er eher [$_F$ einen Roman] hätte lesen sollen
(Kefer & Lejeune's (1974:326) ex. (12a-b))

In (60a), however, the contrastive element is *einen Roman lesen* 'read a novel', contrasting with another VP such as *Hunden nachlaufen* 'chase dogs' (Kefer & Lejeune 1974:326). This focus structure could be represented as in (60b).

(60)a. Er weiß, daß er (eher) *hätte* **einen Roman** *lesen sollen.* 1-X-3-2
b. daß er eher hätte [$_F$ einen Roman lesen] sollen

Lötscher (1978:4-6) also discusses functional (focus) differences between 1-2 and 1-X-2 in Swiss German. His findings about Swiss German are similar to Kefer & Lejeune's claims about Standard German. First, Lötscher (1978:5) finds that the 1-X-2 order forces the sentential accent to be on the X. Secondly, the order is not possible in Swiss when the X alone is the focus, but only when both the X and the verb that governs it are included in the focus (1978:6). However, Lötscher (1978:5) finds no such functional difference between the 2-1 and 1-2 orders.

Recall from Chapter 2, section 4.3.3, that in ENHG intervening NPs pattern with preceding indefinite NPs in favoring the 1-2 order. This is part of the reason for believing that the 1-2 order is associated with focus. Although there are too few examples of the 1-X-2 and similar orders in my ENHG corpus to be certain, I suspect that this order has similar focus effects in ENHG as in Modern Standard German and Swiss German.

2.6 Conclusion

This section has yielded a number of interesting results. In clusters of two verbs, there are several dialects that allow the 1-2 order in at least some syntagms, but all of these except Swiss German prefer the 2-1 order. Moreover, there seems to be little connection between the dialects which strongly favored the 1-2 order in ENHG and those which allow the order today.

In three-verb clusters, ENHG and the contemporary dialects are similar in that the 2-1-3 and 2-3-1 orders range from rare to ungrammatical. Contemporary Swiss German largely maintains the preferences of Early Modern Swiss texts; however, other contemporary dialects and Modern Standard German developed a strong preference for the 3-2-1 and 1-3-2 orders after the ENHG period. Swiss German also differs from other dialects in allowing many possible orders in four-verb clusters, whereas other dialects and the standard language prefer 1-4-3-2.

Finally, although very restricted in Modern Standard German, contemporary dialects allow the verb cluster to be split up by some constituent, as in ENHG. In all of these varieties, the generalization holds that the constituent may only intervene between verbs in the right-governing order. In addition, several dialect studies indicate that there is some connection between focus and these word orders with intervening constituents. The next two sections attempt to determine whether right-governing orders with no intervention (1-2, 1-3-2 etc.) also show focus effects in modern varieties of German.

3 Focus and two-verb clusters in dialects

3.1 Introduction

This part of the chapter attempts to determine the effect of focus on clusters of two verbs in two dialects of German, specifically Swabian and Austrian German.[18] These two informal studies look at the same word orders and use the same methods, and

[18] I collected the data presented here while on research grants at the University of Tübingen (2004-2005) and the University of Vienna (2005-2006). I thank the Deutscher Akademischer Austauschdienst and the William J. Fulbright Program, respectively, for generous funding making this research possible. The data were gathered with the approval of the Indiana University Bloomington Human Subjects Committee (#03-8702).

so the design of both studies is discussed together in the next section. Then the results of those studies are treated in sections 3.3 (Swabian) and 3.4 (Austrian). Section 3.5 compares the two dialects and draws some conclusions.

3.2 Design

For each dialect, I asked the first study participant to give me the dialect equivalent of some Standard German words. These dialect words were entered into a computer, which was used to generate sentences in that dialect. From then on, the first participant saw only these dialect sentences on the computer screen. Subsequent participants were shown a print out of the first participant's sentences and were allowed to write down phonological adjustments if necessary. This process was intended to minimize the effect of the standard language by limiting the participants' exposure to the Standard German equivalents of the test sentences. The spoken exchange, however, took place in Standard German.

Each participant was asked to perform two tasks. First, he or she was shown a list of sentences and asked to judge their grammaticality, giving each sentence a score from 1 to 5. These sentences were the dialect translations of the Standard German sentences in (61), with each sentence appearing in fourteen different word orders.

(61)a. Ich glaube, dass Klaus heute das Buch lesen will.
I think that Klaus today the book read-INF_2 $wants_1$
'I think that Klaus wants to read the book today.'

b. Ich glaube, dass Klaus gestern das Buch gelesen hat.
I think that Klaus yesterday the book read-PPP_2 has_1
'I think that Klaus read the book yesterday.'

The word-order variations involved various combinations of relative verb order (2-1, 1-2, 1-X-2, and 2-X-1), with different placements of the adverb and object (scrambling), extraposition, and within the verb cluster. All of these orders will be illustrated below.

The second task involved judging dialect versions of the same basic sentences in (61), with the only variation being verb order (2-1 versus 1-2). However, in this task each pair of sentences was given a context question to elicit focus on the object, verb, VP, or the entire clause. Participants were asked to judge the naturalness of the sentences as a response to the question. These sentences will also be illustrated in the next section.

3.3 Swabian

3.3.1 Introduction

Swabian is an Alemannic dialect of southwestern Germany. Recall from section 2.2.5 above that the 2-1 order is preferred but the 1-2 order is also possible, being more acceptable in perfects than with modals. For Swabian, I interviewed two speakers, one male and one female. Both were students at the University of Tübingen, who were approximately twenty-five years old. The first speaker was from a large suburb of Stuttgart, and the second was from a village just outside of Tübingen. The dialects are similar enough that the second interviewee did not need to make any phonological adjustments to the sentences generated by the first participant.

3.3.2 Task one: judgments

The following are the Swabian sentences in the present perfect that were judged in the first task:[19]

(62)a.	I glaub, dass Glaus geschdern des Buach *glese had*. I think that Klaus yesterday the book read-PPP_2 has_1 'I think that Klaus read the book yesterday.'	unscrambled, 2-1
b.	I glaub, dass Glaus des Buach geschdern *glese had*.	scrambled, 2-1
c.	?I glaub, dass Glaus geschdern des Buach *had glese*.	?unscrambled, 1-2
d.	?I glaub, dass Glaus des Buach geschdern *had glese*.	?scrambled, 1-2
e.	??I glaub, dass Glaus *had* geschdern des Buach *glese*.	??unscrambled, V2
f.	??I glaub, dass Glaus *had* des Buach geschdern *glese*.	??scrambled, V2
g.	?*I glaub, dass Glaus geschdern *had* des Buach *glese*.	?*1-obj-2
h.	?*I glaub, dass Glaus des Buach *had* geschdern *glese*.	?*1-adv-2
i.	*I glaub, dass Glaus geschdern *glese* des Buach *had*.	*2-obj-1
j.	*I glaub, dass Glaus des Buach *glese* geschdern *had*.	*2-adv-1
k.	??I glaub, dass Glaus geschdern *glese had* des Buach.	??extraposed obj., 2-1
l.	?*I glaub, dass Glaus geschdern *had glese* des Buach.	?*extraposed obj., 1-2
m.	I glaub, dass Glaus des Buach *glese had* geschdern.	extraposed adv., 2-1
n.	??I glaub, dass Glaus des Buach *had glese* geschdern.	??extraposed adv., 1-2

The participants judged these same orders in the modal + infinitive syntagm:

(63)a.	I glaub, dass Glaus heud des Buach *lese mecht*. I think that Klaus today the book read-INF_2 $wants_1$ 'I think that Klaus read the book yesterday.'	unscrambled, 2-1
b.	I glaub, dass Glaus des Buach heud *lese mecht*.	scrambled, 2-1
c.	??I glaub, dass Glaus heud des Buach *mecht lese*.	??unscrambled, 1-2
d.	?*I glaub, dass Glaus des Buach heud *mecht lese*.	?*scrambled, 1-2
e.	??I glaub, dass Glaus *mecht* heud des Buach *lese*.	??unscrambled, V2
f.	??I glaub, dass Glaus *mecht* des Buach heud *lese*.	??scrambled, V2
g.	??I glaub, dass Glaus heud *mecht* des Buach *lese*.	??1-obj-2
h.	?*I glaub, dass Glaus des Buach *mecht* heud *lese*.	?*1-adv-2
i.	*I glaub, dass Glaus heud *lese* des Buach *mecht*.	*2-obj-1
j.	?*I glaub, dass Glaus des Buach *lese* heud *mecht*.	?*2-adv-1
k.	??I glaub, dass Glaus heud *lese mecht* des Buach.	??extraposed obj., 2-1
l.	??I glaub, dass Glaus heud *mecht lese* des Buach.	??extraposed obj., 1-2
m.	??I glaub, dass Glaus des Buach *lese mecht* heud.	??extraposed adv., 2-1
n.	?*I glaub, dass Glaus des Buach *mecht lese* heud.	?*extraposed adv., 1-2

Several observations can be made from this data. First of all, Steil's (1989) claim holds that the 1-2 order in Swabian is more grammatical with the perfect than with

[19] As has been the practice throughout this work, parts of the verb cluster are italicized. Of course, the sentences seen by the participants followed Standard German punctuation and capitalization rules and did not have superscripts indicating grammaticality. These judgments were determined as follows. The participants' numerical judgments were averaged and rounded up to the nearest whole number. The superscripts were then assigned, with 5 indicated with no mark, 4 with ?, 3 with ??, 2 with ?*, and 1 with *.

modals. My participants both ranked this order one or two points higher in the present perfect version (62c-d) than in the modal-infinitive version (63c-d).

Secondly, there is a correlation between scrambling and the 1-2 order. Whereas there is no difference in grammaticality between the variants of the 2-1 clauses with and without scrambling in the modal-infinitive, both participants rated the 1-2 order higher when the object was not scrambled (63c) than when it was scrambled (63d).

Thirdly, the clauses with a V2-like order, (62e-f) and (63e-f) are better than the clauses that are unambiguous cases of 1-X-2 or VPR, (62g-h) and (63g-h). However, it is unclear what this means exactly. It could be that VPR in Swabian is less grammatical than a subordinate clause with main-clause word order, or that VPR in Swabian is better when more constituents are between the verbs.[20] Recall that Wenker (1888-1923) also found this order in Swabian (9d).

Fourthly, note that the 2-X-1 order, as in (62i-j) and (63i-j), which is not attested in any dialect, is indeed judged much worse than other orders. The participant from Tübingen gave most instances of these a 1 (otherwise practically unused), and the Stuttgart participant gave them a 0 because they were so much worse than other ungrammatical clauses.

Finally, the clauses with extraposition showed a great deal of variation between participants, so it is unclear how the data should be interpreted. However, to the extent that the average of the two participants' scores is meaningful, it appears that extraposition does not favor the 1-2 order, but actually seems to make the clause worse: (62l, n) are worse than (62c-d).

3.3.3 Task two: judgments

In the second task, participants judged the 2-1 and 1-2 orders in different focus conditions, which were elicited using context questions. The focus conditions tested were object focus (64), focus on the lexical verb (65), focus on the VP, i.e. the object and lexical verb (66), and focus on the entire subordinate clause (67). Note that what is being tested here is focus in the syntactic sense, rather than phonological stress, as all sentences except (65) have the sentential accent on the direct object. All of these sentences have both a present perfect and a modal-infinitive variant; they are illustrated here using the present perfect sentences.[21]

(64)	Was had Glaus geschdern glese? 'What did Klaus read yesterday?'	Object focus
a.	I glaub, dass Glaus [$_F$ des BUACH] *glese had*.	2-1
b.	$^?$I glaub, dass Glaus [$_F$ des BUACH] *had glese*.	$^?$1-2
(65)	Was had Glaus geschdern mit dem Buach gmacht? 'What did Klaus do yesterday?'	V focus

[20] These clauses likely involve V2 rather than VPR, as both the scrambled and unscrambled variants are equally acceptable. If they involve VPR, the scrambled version is problematic, since on most accounts scrambling removes the object from the VP (as in Haegeman 1992; see Chapter 5, section 2.3.2 below for discussion).

[21] In addition to italicizing the verb forms, sentential accent is marked by all capitals and the focus is indicated with brackets. The sentences seen by the participants used conventional German punctuation and capitalization. The judgments here are for the present perfect sentences only, with the modal + infinitive sentences showing slightly different results, calculated as in the judgments for task one.

a. I glaub, dass Glaus des Buach [$_F$ *GLESE*] *had*. 2-1
b. $^{??}$I glaub, dass Glaus des Buach *had* [$_F$ *GLESE*]. $^{??}$1-2

(66) Was had Glaus geschdern gmacht? VP focus
'What did Klaus do yesterday?'
a. I glaub, dass Glaus [$_F$ des BUACH *glese had*]. 2-1
b. $^{??}$I glaub, dass Glaus [$_F$ des BUACH *had glese*]. $^{??}$1-2

(67) Was isch geschdern bassierd? all new information
'What happened yesterday?'
a. I glaub, dass [$_F$ Glaus des BUACH *glese had*]. 2-1
b. $^{??}$I glaub, dass [$_F$ Glaus des BUACH *had glese*]. $^{??}$1-2

Unfortunately, in this task there was considerable inter-speaker variation, and within-speaker variation between the two syntagms. The only consistent result was that for both speakers, the 1-2 variants were clearly less acceptable than the 2-1 variants in all contexts and with both syntagms. Interestingly, in this task there was little difference in the acceptability of 1-2 in the present perfect versus the modal-infinitive syntagm. One of the participants, however, did find a difference between the grammaticality of the 1-2 order when the object was focused (64b), which was judged with 4 out of 5 points, versus the 1-2 order in all of the other conditions, which all received a 3. I followed up on this by asking if (64b) really was better than the other clauses with 1-2, and the participant confirmed the original judgment.

3.3.4 Discussion

Two results of this small study indicate that object focus may have an effect on word order, as argued for ENHG in Chapter 2. First of all, to the extent that the judgment is reliable, one speaker indicated in the second task that 1-2 was better under object focus than other focus types. Secondly, in the first task both participants showed that the 1-2 order is more acceptable when the object is not scrambled. Since an object that fails to scramble receives focus, this observation seems to confirm the effect of object focus on the 1-2 order.

However, even under the ideal focus conditions, the 1-2 order is clearly less acceptable than 2-1. Thus the 1-2 order is not the usual way of marking focus, since the default verb order actually works better. I believe that the correlation between object focus and the 1-2 order in Swabian is merely a remnant of the situation in ENHG, when this effect was much more robust.

There is an additional difference between the situation in modern Swabian and that of ENHG. Recall from Chapter 3, section 3.3 that extraposition had a very strong favoring effect on the 1-2 order in early-modern Swabian. In the modern dialect, however, the opposite appears to be true: clauses with both extraposition and 1-2 are worse than clauses with only one of these features. It seems that when both extraposition and the 1-2 order became marginal in the modern dialect, the favoring effect was replaced by one of cumulative ungrammaticality.

3.4 Austrian

3.4.1 Introduction

Austria has considerable dialectal variation. Most Austrian dialects are classified as Bavarian dialects, except the dialect of the small, westernmost province Vorarlberg, which along with dialects of Switzerland and south-west Germany is an Alemannic dialect. This study was conducted with five speakers from different regions of Austria, two male and three female and all students at the University of Vienna in their mid-twenties.

The first interviewee was from a small town in Lower Austria near the border with Styria. The same method was used as in the Swabian study; i.e., as the first interviewee, this participant translated the lexical items from Standard German into dialect and then was asked to judge dialect sentences generated from those lexical items, which were shown on a computer screen. This speaker rejected all clauses with the 1-2 order, contrary to Patocka's (1997) finding that this dialect allows 1-2 with perfects (see section 2.2.3 above). Therefore, this speaker's judgments are not included in the discussion below.

Three subsequent participants were shown the sentences on paper in the Lower Austrian dialect (based on the first participant) and allowed to make phonological adjustments in addition to judging the word order. These three participants were from small towns in Styria, Tyrol, and Vorarlberg. The final participant, another speaker from Tyrol, was shown the sentences reflecting the phonological adjustments from the first Tyrolean's interview. Despite the strong dialect differences, especially between Vorarlberg and other Austrian dialects, the judgments in these tasks were largely similar.

3.4.2 Task one: judgments

The judgments for the sentences in task one are presented below. Unlike the Swabian study, the Austrian judgments showed very little difference by syntagm, so I have averaged the scores for the perfect and modal-infinitive syntagms. The sentences are illustrated using the perfect syntagm and are given in the Lower Austrian form in which most of the participants saw them:[22]

(68)a.	I glaub, dass da Klaus gestan des Buach *glesn hot.* I think that the Klaus yesterday the book read$_2$ has$_1$ 'I think that Klaus read the book yesterday.'	unscrambled, 2-1
b.	I glaub, dass da Klaus des Buach gestan *glesn hot*.	scrambled, 2-1
c.	??I glaub, dass da Klaus gestan des Buach *hot glesn*.	??unscrambled, 1-2
d.	?*I glaub, dass da Klaus des Buach gestan *hot glesn*.	?*scrambled, 1-2
e.	*I glaub, dass da Klaus *hot* gestan des Buach *glesn*.	*unscrambled, V2
f.	*I glaub, dass da Klaus *hot* des Buach gestan *glesn*.	*scrambled, V2
g.	??I glaub, dass da Klaus gestan *hot* des Buach *glesn*.	??1-obj-2
h.	*I glaub, dass da Klaus des Buach *hot* gestan *glesn*.	*1-adv-2
i.	*I glaub, dass da Klaus gestan *glesn* des Buach *hot*.	*2-obj-1

[22] As in the Swabian study, the sentences seen by the participants followed Standard German punctuation and capitalization rules and did not have superscripts indicating grammaticality. The superscripts were determined in the same manner as in the Swabian study (see fn. 19).

j.	?*I glaub, dass da Klaus des Buach *glesn* gestan *hot*.	?*2-adv-1
k.	?*I glaub, dass da Klaus gestan *glesn hot* des Buach.	?*extrapos. obj, 2-1
l.	*I glaub, dass da Klaus gestan *hot glesn* des Buach.	*extrapos. obj, 1-2
m.	??I glaub, dass da Klaus des Buach *glesn hot* gestan.	??extraposed adv., 2-1
n.	*I glaub, dass da Klaus des Buach *hot glesn* gestan.	*extraposed adv., 1-2

There are a number of interesting results from this study. First of all, recall from section 2.2.3 above that previous scholarship has found the 1-2 order to be grammatical in Austrian dialects, especially in western Austria. In this study, however, the 2-1 order (68a-b) is clearly more grammatical than the 1-2 (68c-d), which was judged to be marginal. Moreover, despite numerous claims that the 1-2 order should be more acceptable with infinitives than with participles in western Austria, no speaker showed a clear difference in the acceptability of 1-2 by syntagm.

Secondly, as in the Swabian study, although the 1-2 order is not fully grammatical, it is better when the object is unscrambled (68c) than when it is scrambled (68d). For some speakers, this distinction was as strong as 5/5 (fully grammatical) with an unscrambled object to 1/5 (completely ungrammatical) with scrambling.

Thirdly, unlike in Swabian, in Austrian dialects the 1-X-2 order is as grammatical as the 1-2 order, at least when the intervening constituent is the object (68g). The one participant in this study with any formal training in syntax indicated that this order was totally ungrammatical under normal intonation but much improved when the intervening constituent is focused. This supports the finding, discussed in section 2.5.3 above, that the 1-X-2 order is related to focus. As in Swabian and ENHG, the 2-X-1 orders are ungrammatical.

Finally, the extraposition of an adverb (68m) is more grammatical than the extraposition of an object (68k), which is in line with studies of extraposition in Modern Standard German (Lambert 1976). Unlike ENHG but like Swabian, extraposition does not make the 1-2 order more acceptable, instead making the sentence even more ungrammatical (68 l, n).

3.4.3 Task two: judgments

As in the Swabian study, the Austrian participants were given a second task, in which they were presented with pairs of sentences differing only by verb order (2-1 vs. 1-2), using questions to elicit different focus structures. In this task, none of the four participants showed any difference in acceptance of the 1-2 order based on focus (elicited in this manner). Nevertheless, a number of interesting points arise from this task.

First of all, after completing the survey, the speaker from Styria mentioned that the 1-2 order sounds better when the object is stressed:

(68)c.	??I glaub, dass da Klaus gestan des Buach *hot glesn*.	??1-2 unscramb. obj.
c'.	?I glaub, dass da Klaus gestan des BUACH *hot glesn*.	?1-2 stressed obj.

The fact that the participant mentioned this but did not show any difference in task two between the different focus conditions could mean one of two things. One possibility is that new information focus alone is not enough to make the 1-2 order more acceptable, but that contrastive focus is necessary. The second possibility is that the background question was not sufficient to elicit the intended focus interpretation.

Secondly, the first Tyrolean speaker rejected every 1-2 clause in the second task, giving each the lowest possible score. However, this participant rated the exact same sentences 3 or 5 out of 5 on the previous task. This probably indicates the effect of the way the clauses were presented. Whereas the first task listed the sentences to be judged with no grouping indicated, much as they appear in (68), the second task had the 2-1 and 1-2 sentences paired, as in (64)-(67). This probably encouraged the participant in the second task to compare the 2-1 and 1-2 sentences to each other and maximize the differentiation between them in the second task.[23]

Finally, the participant from Vorarlberg, like the first Tyrolean participant, scored all 2-1 sentences with a '5' and all 1-2 sentences with a '1' in the modal-infinitive syntagm. However, in the present perfect syntagm, all 2-1 sentences were judged as '4' and all 1-2 clauses as '5', contrary to Wurmbrand's (2004:10) finding that Vorarlberg speakers prefer 2-1 for both syntagms. Note, however, that there may be an unusual interaction with scrambling for this speaker. In task one, in the modal-infinitive syntagm, the 1-2 order was judged ungrammatical with an unscrambled object but fully grammatical with a scrambled one (the opposite of the pattern for other speakers); however, the 1-2 order in the present perfect showed the expected pattern, i.e. grammatical only with an unscrambled object. Thus the strong difference between the judgments for the two syntagms in the second task could be due to the fact that the sentences all have an unscrambled object, which results in differing judgments by syntagm for this speaker.

3.4.4 Discussion

Although task two of the Austrian study failed to show a direct link between information structure and verb order in subordinate clauses, there are three minor results of the study that support such a link. First of all, the 1-2 order is better with an unscrambled object than with a scrambled one, possibly indicating that 1-2 is associated with focus. Secondly, the Styrian participant confirmed that the 1-2 order is more felicitous under heavy stress. Finally, the first Tyrolean participant indicated that the 1-X-2 order improves with stress or focus on the intervening X.

Despite studies such as Maurer (1926) and Patocka (1997), which found that the 1-2 order was acceptable in many Austrian dialects, the respondents in my study show a clear preference for the 2-1 order. This may reflect that these dialects are continuing to undergo the loss of 1-2, which has been characteristic of (non-Swiss) dialects of German since the ENHG period, as these are all younger speakers. On the other hand, these speakers may reject the 1-2 order not because it is ungrammatical in the dialect, but because they, as university students in Vienna, are under influence of both Standard German and other Austrian dialects, which do not allow the 1-2 order.

[23] On the version of the questionnaire shown to the second Tyrolean, I attempted to remedy this by breaking up the pairs: each sentence was given its own background question, and the order of the sentences was randomized. However, this speaker was from the eastern part of Tyrol (the 'Unterland', close to Salzburg) and therefore rejected most 1-2 sentences on both tasks. On the other hand, the randomization did have a minor effect, as this speaker's judgments on the second task were much less uniform than for other participants, with one 1-2 clause scored with a '2' and another with '3'.

3.5 Conclusion

This section discussed two small studies on possible word orders in Swabian and Austrian German, as well as the effect of focus on those word orders. One difference between the two dialects involves the 1-X-2 and V2 orders. In Austrian German, the 1-X-2 order is marginal, although probably better when the intervening argument is focused, while the V2 order is completely ungrammatical. In Swabian, on the other hand, the 1-X-2 is in most cases worse than the V2 order.

A number of similarities between these two quite different dialects have emerged in this discussion. First of all, younger speakers of both Swabian and Austrian German strongly prefer the 2-1 order, even for dialects where older studies indicate that the 1-2 order is possible. Secondly, task two found little detectable difference in word order under different focus conditions, except for one Swabian speaker. However, in both dialects, the 1-2 order is clearly more grammatical with an unscrambled object than with a scrambled one. Furthermore, several participants indicated that the 1-2 order sounds more natural if the object is stressed.

The conclusion to be drawn from this data is that the 1-2 order is very marked. Although there may be a preference for the 1-2 order with a focused object (as indicated by one Swabian), for most speakers, mere new information focus is not enough to improve the acceptability of that order. Rather, the highly marked 1-2 order may be only really acceptable with contrastive focus, along with the accompanying heavy stress.

Note, however, that these results can only be considered preliminary, since the studies did not follow the usual practices to ensure reliable results in experimental linguistics, such as filler sentences, lexical variation, randomized presentation, and tests for statistical significance, as recommended by Coward (1997). In fact, during the course of the activities, some participants did begin to show weariness at the repetitiveness of the tasks. However, it was necessary to use the same lexical items throughout the tasks, so that the participants could translate one basic sentence from Standard German into the dialect and then let the computer generate the different word order permutations. Requiring the participants to translate and then evaluate multiple sentences (including fillers) would have made the tasks even longer and more tiresome.

4 Focus and the *werden* + modal construction in Standard German

4.1 Introduction

Having demonstrated evidence that focus has an effect on verb order within the verb cluster in some dialects of German, let us turn to the standard language. This discussion is necessarily restricted to the one construction in Modern Standard German that allows any variation within the verbal complex. Recall from section 2.3.1 above that when the future auxiliary *werden* governs two infinitives, both the 3-2-1 and 1-3-2 orders are possible, and the 3-1-2 order is possible in some colloquial varieties:

(25)a.	weil er es *kaufen können wird* because he it buy$_3$ can$_2$ will$_1$ 'because he will be able to buy it'	3-2-1
b.	weil er es *wird*$_1$ *kaufen*$_3$ *können*$_2$	1-3-2
c.	$^{\%}$weil er es *kaufen*$_3$ *wird*$_1$ *können*$_2$	$^{\%}$3-1-2

Schmid & Vogel (2004) find that the word orders in this construction are influenced by stress, both in Standard German and in some German dialects. Their study will be discussed in detail in the next section. After that, I will describe two experiments that I conducted in order to determine exactly which focus conditions favor which orders in Standard German.

4.2 Schmid & Vogel (2004)

4.2.1 Results

Schmid & Vogel (2004) conducted an empirical study of the *werden* + modal + infinitive syntagm in Standard German and several dialects of German.[24] For most dialects, they had one participant. The participant was asked to translate sentences containing this syntagm with various word orders from Standard German to their dialect, and then give a grammaticality judgment for each sentence. Schmid & Vogel do not indicate who their participants for Standard German were.

For Standard German, Schmid & Vogel (2004:239) report the following data:[25]

Table 6: Word orders in Standard German *werden*-modal clusters (S&V 2004)

Stressed word	Possible orders
subject	132 321 (312)
object	132 321 (312)
lexical verb	1**3**2 **3**21 **3**12
modal	13**2** (3**2**1) 31**2**
auxiliary	(**1**32) 32**1** (3**1**2)

The 1-3-2 order is acceptable in every stress pattern except stress on the auxiliary. Likewise, 3-2-1 is acceptable unless the modal is stressed. The more marginal 3-1-2 order, rejected by prescriptive grammars but sometimes found in writing, becomes grammatical with stress on the lexical verb or modal verb.

For the German dialects that they study, Schmid & Vogel (2004:238) present the following data:

[24] Although in Standard German, *werden* plus any two infinitives shows this kind of word order variation, Schmid and Vogel (2004:236) limit their study to *werden* + modal + infinitive to control for the possible effect of verb class.

[25] Orders in parentheses are dispreferred, with some speakers accepting and some rejecting them. For clarity, I have indicated the stressed verb with a bold number.

Table 7: Word orders in *werden*-modal clusters in dialects (S&V 2004)

Stressed word	Rheid. Platt	Upper Hessen	Tüb. Swab.	Franc.	Bav. Forest	St. Gallen	Bern	Meran
subject	321 132	132	123 132	321 132	321 132 312	123	123	321 123 132 312 213
object	321 132	132	123 132 312	132	321 132 312	123	123	321 123 132 312 213
lexical verb	**3**21 1**3**2 21**3**	1**3**2 **3**12	12**3** 1**3**2 **3**12	**3**21 1**3**2	**3**21 12**3** 1**3**2 **3**12	12**3** **3**12	12**3**	**3**21 12**3** 1**3**2 **3**12 21**3**
modal	3**2**1 13**2** 31**2**	13**2** 31**2**	13**2** 31**2**	3**2**1 13**2** 31**2**	3**2**1 1**2**3 13**2** 31**2**	1**2**3 **2**13	1**2**3	3**2**1 1**2**3 13**2** 31**2** **2**13
aux.	32**1** **1**32	**1**32	32**1**	32**1** **1**32 31**2**	32**1** **1**32 31**2**	**1**23	**1**23	32**1** **1**32 31**2**

Note that of the six logically possible orders, only five occur, with 2-3-1 unattested in dialects of German.[26]

Schmid & Vogel (2004:239-240) divide these dialects into two groups. Swiss German dialects have as their default order 1-2-3, with the default order being the most common order and/or the order found with verum focus, i.e. stress on the auxiliary. All of the other dialects are termed 'Standard German dialects' by Schmid and Vogel (2004:239), by which they mean not varieties of the standard language, but rather dialects which have as their default orders the Standard German orders 3-2-1 and 1-3-2.

4.2.2 Criticism

Despite the complex and intriguing results of Schmid & Vogel's study, it is subject to a number of methodological problems. First of all, each dialect is represented by at most one speaker. Schütze (1996:98ff.) argues that inter-speaker variation within a given language or dialect can be consequential, so it is difficult to know whether the effects that Schmid & Vogel find can be generalized beyond an idiolect. Secondly, it is impossible to rule out the effect of the standard language on the judgments, since the participants had translated the sentence from the standard, and the language of the interviews was presumably Standard German. Marga Reis (p.c.) has suggested that participants may be more likely to 'clean up' their dialect speech if the interviewer is not a dialect speaker. Thirdly, Tanja Schmid (p.c.) has conceded that the non-standard orders were difficult to elicit from the participants. This not only points to the probability that Standard German had an influence on the judgments, but also increases the likelihood of

[26] Note that these are the four ENHG word orders plus 2-1-3, which is quite limited, being found only in Meran, in St. Gallen only with stress on the modal, and in Rheiderländer Platt only with stress on the lexical verb.

the problem discussed by Schütze (1996:101), that the presence of the experimenter may have an effect on a participant's judgments. Finally, Schmid & Vogel do not indicate whether they used filler sentences, whether the sentences showed lexical variation, whether the length and frequency of the lexemes used were controlled for, etc. Moreover, there was no testing for statistical significance, raising doubts about Schmid & Vogel's (2004:235) characterization of their experiment as an 'empirical investigation'.

In addition, there are a couple of issues which are not necessarily methodological flaws, but do leave unanswered questions. First of all, the word orders reported are not ranked by grammaticality. For the dialects, a given word order is reported as either grammatical or ungrammatical. However, as mentioned above, Schmid (p.c.) reports that some orders were easier to elicit than others, raising the possibility that some orders reported as possible may be only marginally so. For Standard German, an additional category is indicated by parentheses, but Schmid & Vogel's (2004:239) description of this use–'dispreferred under a given stress pattern and […] rejected by some speakers and accepted by others'–conflates grammatical marginality and inter-speaker variation. The reader could have benefited from more fine-grained distinctions, e.g. with the use of superscripted question marks, even at the expense of complicating their tables.

Secondly, Schmid & Vogel test phonological stress rather than focus. This is only a problem in so far as it makes their results difficult to compare with ENHG, where focus may be recoverable from the data but stress is not. Moreover, since stress on the object is the default in German and may be associated with narrow focus on the object or wider focus on the VP or even the entire clause (Höhle 1982:126), the placement of stress does not always clearly delineate the information structure of the sentence.

Given these problems with Schmid & Vogel (2004) and in order to facilitate better comparison with my ENHG focus data, I conducted two experiments on the *werden* + modal + infinitive construction in Standard German using the magnitude estimation method. These studies were designed using standard practices for psycholinguistics, thus avoiding many of the methodological problems associated with Schmid & Vogel (2004). In addition, these experiments were intended to be comparable to those of my ENHG study: the magnitude estimation method results in fine-grained grammaticality judgments, and the experiments test focus rather than stress.

4.3 First magnitude estimation experiment

4.3.1 Magnitude estimation

Magnitude estimation is an experimental method originally developed for psycho-physics. Participants estimate the degree of a stimulus, e.g. the brightness of light, placing their judgments on an interval scale relative to other judgments. Bard et al. (1996) demonstrate the applicability of this method to elicit grammaticality judgments, and it has become an increasingly common method of linguistic research in recent years.

Using magnitude estimation to elicit grammaticality judgments has a number of benefits. First of all, many sentences are tested, helping to abstract away from the possible effects of individual lexical items. Secondly, the study involves multiple participants, abstracting away from the possibly idiosyncratic judgments of individuals. Thirdly, rather than eliciting absolute grammaticality judgments, each sentence is judged relative to a reference sentence and to the other sentences in the experiment, often resulting in fine-grained judgments.

Finally, note that in magnitude estimation, there is no fixed scale for judgments. Rather, participants are instructed to rate sentences on a scale of their own choosing. After one or two practice exercises, participants are shown a reference sentence and asked to rate the sentence with a number. Thereafter, sentences that are deemed more natural should be assigned a higher number and less natural ones should receive a lower number. Participants are encouraged to distinguish between degrees of naturalness as much as possible and are allowed to use decimal points. For the statistical analysis, judgments are normalized into z-scores, which allows for comparison across participants.[27]

4.3.2 Design

The first study was designed to test the effect of focus on the acceptability of the four word orders that are attested in ENHG and most common in contemporary dialects of German: 3-2-1, 1-3-2, 3-1-2, and 1-2-3. Each of these word orders occurred in seven focus conditions: all new focus (69a), subject focus (69b), object focus (69c), focus on the VP (69d), focus on the lexical verb (69e), focus on the modal verb (69f), and focus on the auxiliary (69g). These focus types are illustrated using the 3-2-1 order and one of the lexical variants:[28]

(69)a. Ich glaube, [$_{Foc}$ dass Klaus einen Roman *schreiben müssen wird*].
I think that K. a novel write must will
'I think that Klaus will have to write a novel.'

b. Maria wird wohl einen Roman schreiben müssen, aber ich weiß nicht, ob [$_{Foc}$ Klaus] einen Roman *schreiben müssen wird*.
M. will probably a novel write must but I know not if K. a novel write must will
'Maria will probably have to write a novel, but I don't know if Klaus will have to write a novel.'

c. Klaus wird wohl eine Geschichte schreiben müssen, aber ich weiß nicht, ob er [$_{Foc}$ einen Roman] *schreiben müssen wird*.
K. will probably a story write must …
'Klaus will probably have to write a story, but I don't know if he will have to write a novel.'

d. Klaus ist Autor, aber ich weiß nicht, ob er [$_{Foc}$ einen Roman *schreiben müssen wird*].
K. is author …
'Klaus is an author, but I don't know if he will have to write a novel.'

e. Klaus wird wohl einen Roman lesen müssen, aber ich weiß nicht, ob er einen Roman [$_{Foc}$ *schreiben*] *müssen wird*.
K. will probably a novel read must …

[27] The z-score equals the grammaticality judgment minus the participant's mean grammaticality judgment, divided by the participant's standard deviation of grammaticality judgments.
[28] Following the practice throughout this paper, the verb cluster is italicized; in addition, the focus element has been placed in brackets. Note, however, that in the experiment, only standard orthography was used.

'Klaus will probably have to read a novel, but I don't know if he will have to write a novel.'

f. Klaus kann einen Roman schreiben, aber ich weiß nicht, ob er einen Roman *schreiben* [$_{Foc}$ *müssen*] *wird*.
K. can a novel write …
'Klaus can write a novel, but I don't know if he will have to write a novel.'

g. Klaus hat früher einen Roman schreiben müssen, aber ich weiß nicht, ob er einen Roman *schreiben müssen* [$_{Foc}$ *wird*].
K. has earlier a roman write must …
'Earlier, Klaus had to write a novel, but I don't know if he will have to write a novel.'

Four word orders times seven focus conditions resulted in 28 experimental sentences. In addition, there were 13 filler sentences, so there were a total of 41 sentences to be judged in the main part of the experiment. There were two types of filler sentences. Eight of the 13 fillers were items for an unrelated experiment, as in (70). The remaining filler items were five sentences frequently used in magnitude estimation experiments on syntax at the University of Tübingen, which range from completely grammatical (71a) to completely ungrammatical (71b). In previous experiments the judgments of these five fillers have been consistent, so they serve as anchor sentences to which the experimental sentences may be compared.

(70)a. Das ist der Mann den ich oft im Bus sah.
that is the man REL I often in-the bus saw
'That is the man that I often saw in the bus.'
b. *Das ist der Kerl ich konnte nie leiden.
that is the guy I could never stand
'That is the guy I could never stand.'

(71)a. In der Mensa essen viele Studenten zu Mittag.
in the cafeteria eat many students at lunch
'Many students eat lunch in the cafeteria.'
b. *Beim Stammtisch die drei Freunde spielen mit Vorliebe Skat.
at-the regular-table the three friends play with preference Skat
'At the regular customers' table, the three friends prefer to play Skat.'

In addition to the use of filler sentences, the standard procedures for psycholinguistic experiments were followed. First of all, there were 14 different sets of lexical items. For example, the first set of lexical items is that illustrated in (69), the second involves Susan singing opera, the third Stephan eating rolls, etc. The lexical items were balanced for frequency and word length, to minimize the negative impact of long or rare words on grammaticality judgments.[29] Secondly, there were 14 versions of the experiment. In each version, the 28 combinations of focus and word order were

[29] The subjects of the clauses were seven male and seven female proper names, 4-7 characters long and with a mean frequency of 2.13 million hits on www.google.de (sites in German only). The other lexical items were 4-11 characters long and had the following mean frequencies in the *CELEX* corpus (Baayen et al. 1995): objects 543.79, lexical verbs 1547.8, and adjectives 364.6.

represented by different sets of lexical items, and no participant saw any set of lexical items more than twice. Thirdly, the order of the sentences was randomized to reduce the possibility that seeing the sentences in a particular order would affect the judgments. Since the order of the sentences was randomized by computer when the participant began the experiment, even participants who saw the same version of the experiment were presented the sentences in a different order. Fourthly, participants were given two short practice activities to ensure familiarity with the evaluation method. Finally, the experiment was conducted on-line, so the experimenter was not present during the process.

The experiment was conducted using the WebExp program (Keller et al. 1998) accessed via the World Wide Web. Participants were instructed to judge sentences based on how natural they sound, not worrying too much about spelling and comma rules.[30] After entering some demographic data (name, age, sex, dialect, profession, and handedness), participants proceeded to the practice activities. The first activity was to give numerical judgments to lines of different lengths, to familiarize participants with magnitude estimation. The second activity was to judge the naturalness of sentences (unrelated to the experimental sentences) so that they would be familiar with giving numerical scores to sentences. After these two practices, the main part of the experiment began. First participants were shown the reference sentence and asked to give it a score:

(72) Welches Zimmer weißt du nicht, wo sich befindet?
which room know you not where REFL locates
'Which room don't you know where is?'

The reference sentence was intended to be different from the experimental sentences, and also to be neither completely grammatical nor ungrammatical, so that some sentences would be scored above and others below it. After scoring the reference sentence, subsequent screens presented the reference sentence with its score and the sentence to be judged. Judgments were only recorded for participants who completed the entire experiment.

Flyers were distributed in public areas at Tübingen University such as the cafeteria. The flyers indicated that the only requirement was that participants had to be native speakers of German and that the participants would be entered into a drawing for two prizes of 25 Euros each. Those interested in participating were instructed to go to a website to begin the experiment or to make an appointment to do the experiment on a computer in the linguistics department; all participants chose the former option.

Twenty-three participants completed the experiment: 15 women and eight men, average age 24.2, and all students at the University of Tübingen. Seven gave their native language as 'Hochdeutsch' (i.e. Standard German) and 11 answered with 'Swabian' or a similar term.

[30] This caveat is necessary, as many German speakers are confused about or have strong opinions about the recent orthographic reforms.

4.3.3 Results

The results of the experiment are illustrated in Table 8, including the five fillers which serve as anchor sentences.[31] Note first of all that filler sentences A and B, the completely grammatical and nearly grammatical anchors, are far better than any of the experimental sentences, even those that should be fully grammatical. Secondly, the experimental sentences and filler sentences C-E (the marginal to completely ungrammatical anchors) are compressed at the bottom of the scale, with little differentiation between marginal and ungrammatical sentences. (The anchor sentences should be evenly distributed, as in Table 10.) Sam Featherston (p.c.) suggested that this probably indicates that the sentences were judged to be so unnatural in comparison to the grammatical fillers that the participants did not leave enough room at the bottom of the scale to make finer numerical distinctions. The possible reasons that the experimental sentences were judged so low will be discussed in section 4.3.4, below.

Table 8: Results of first experiment, including anchors

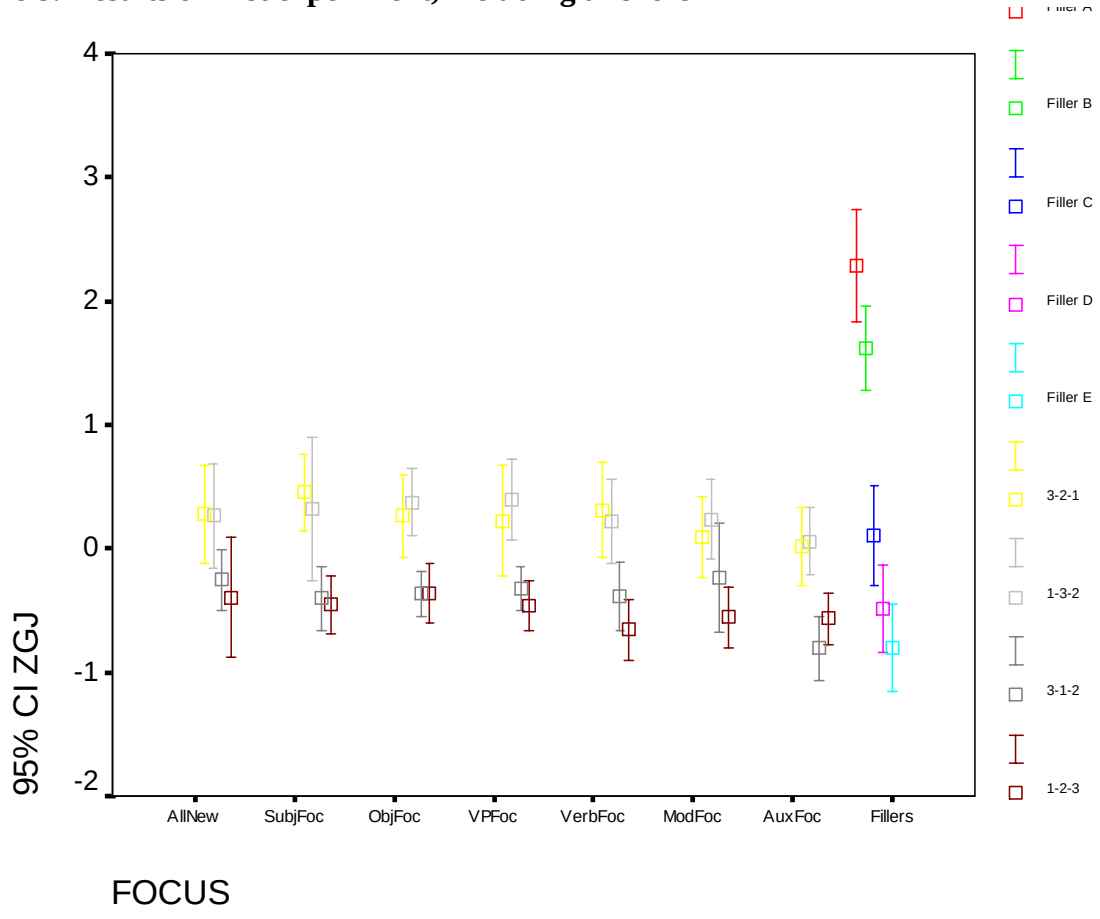
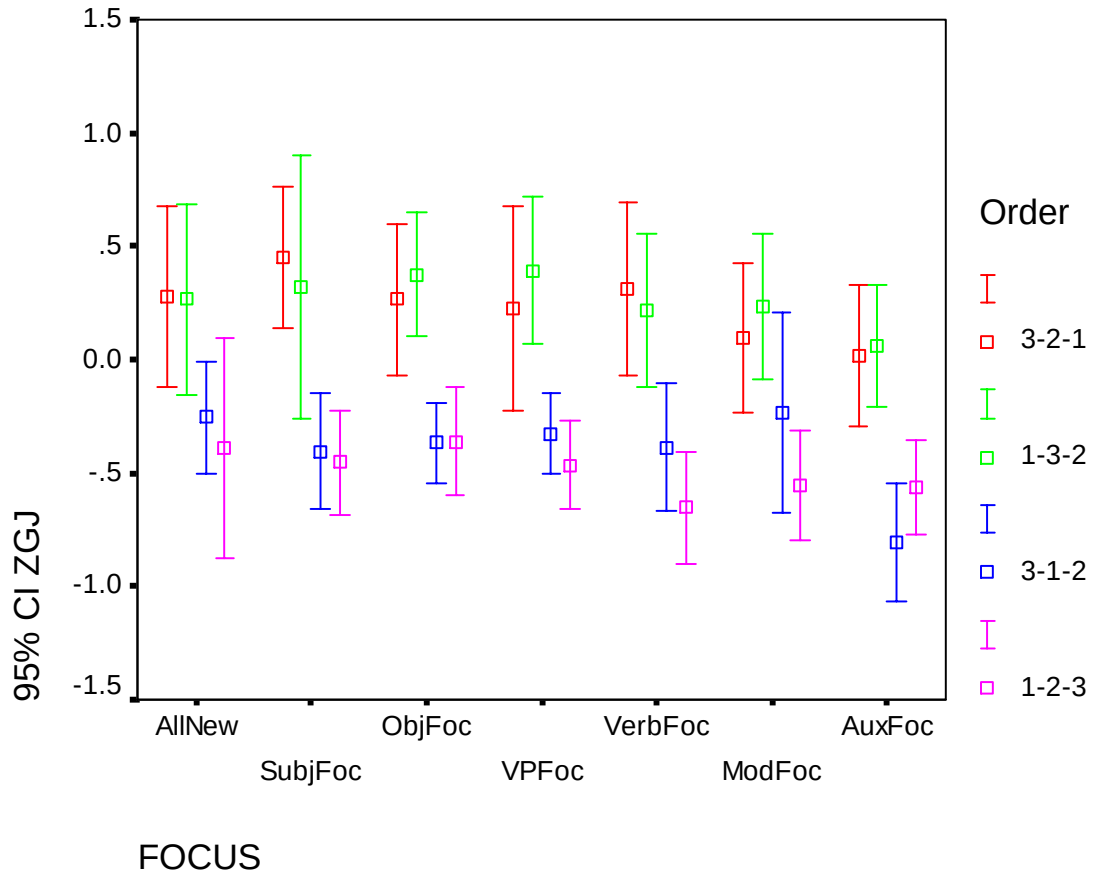


Table 9 represents the same data as in Table 8, but with the anchor sentences removed so that the experimental sentences may be seen more clearly. First of all, note that the 3-2-1 and 1-3-2 orders are about equally good and are both scored just above

[31] 95% confidence interval of the normalized z-scores of the grammaticality judgments calculated with the program SPSS. Outliers were removed using the box-plot test.

average. This is expected, since prescriptive grammars of Standard German allow both of these orders in this construction (Duden 1995:786).

Table 9: Results of first experiment, without anchors



Secondly, note that both 3-1-2 and 1-2-3 are about equally bad. It is to be expected that these orders are ungrammatical, but 3-1-2 should be considerably better than 1-2-3 according to Schmid & Vogel (2004) and Wurmbrand (2004). This may be due to the compression effect mentioned earlier; perhaps participants had already rated 3-1-2 so low that there was not much space on the scale to score 1-2-3 lower. On the other hand, the equally low scores of 3-1-2 and 1-2-3 could be due to the awareness that 3-1-2 is ungrammatical according to prescriptive grammars of German, however natural it may be in speech.

Third, the overall judgments for modal focus are lower than for other focus conditions, and auxiliary focus was judged worst of all. Possible reasons for this will be discussed in the next section.

Finally, note that although there are slight differences in judgments by focus condition, none of these is large enough to be remarkable, except perhaps the increased acceptability of 3-1-2 under modal focus. Moreover, these results were not statistically significant.[32]

[32] Clark (1973) establishes that two separate tests are necessary for determining whether a linguistic phenomenon is significant. The first is to ensure that the phenomenon can be generalized across the

4.3.4 Problems

Several aspects of this experiment remain unsatisfactory: the low score of the grammatical experimental sentences vis-à-vis the grammatical fillers, the compression effect, and the lack of statistical significance. These probably result from some inherent problems with the construction being tested, as well as several flaws in the design of the experiment.

The first problem may be the *werden* + modal construction itself. First of all, the primary semantics of *werden* in Modern Standard German do not involve future tense, but rather probability. The probability reading of *werden* may not have fit with the certainty of the main clause with *ich weiß* 'I know'. Secondly, without this probability reading, *werden* is superfluous since the present tense alone is generally sufficient to express future time, and so participants may have been judging sentences with *werden* + modal + infinitive worse than potential equivalents with modal + infinitive alone.

A second set of problems resulted from the way focus was elicited. First of all, the background was a main clause, followed by a second, conjoined main clause with the (experimental) subordinate clause contrasting with the first main clause and thus containing the focus. Sam Featherston (p.c.) has pointed out that in psycholinguistic experiments, longer, more complicated sentences tend to receive lower scores than shorter, simpler sentences, even when fully grammatical, and this may account for the poor scores of the grammatical experimental sentences versus the grammatical fillers. Secondly, in order to control for additional variables such as pronoun versus non-pronominal NP, the experimental sentences are as similar to each other as possible. This means that where a pronoun (in the case of nouns) or ellipsis (in the case of verbs or VPs) would normally have been used in the second conjunct to avoid repetition, the sentences used in the experiment simply repeated the lexical item, as in *einen Roman* in (73a) or *einen Roman schreiben* in (73b). Thirdly, this method may not have been obvious enough to elicit contrastive focus: focus on the auxiliary (73c) was especially difficult to elicit.[33] The awkwardness of the repetitions in the German originals is accurately reflected in the English glosses.

(73)a. Klaus wird wohl einen Roman lesen müssen, aber ich weiß nicht, ob er einen Roman *schreiben müssen wird*.
K. will probably a novel read must but I know not if he a novel write must will
'Klaus will probably have to read a novel, but I don't know if he will have to write a novel.'

b. Klaus kann einen Roman schreiben, aber ich weiß nicht, ob er einen Roman *schreiben müssen wird*.
K. can a novel write …
'Klaus can write a novel, but I don't know if he will have to write a novel.'

---

population, so significance should be tested between participants (F1). The second is to make certain that the phenomenon holds for the whole lexicon of a language, so significance should be tested between the lexical variants used in the experiment (F2). Repeated measures ANOVAs on these results did not yield significance for either test (F1 $p = 0.902$; F2 $p = 0.672$).

c. Klaus hat früher einen Roman schreiben müssen, aber ich weiß nicht, ob er einen Roman *schreiben müssen wird*.
K. has earlier a roman write must …
'Earlier, Klaus had to write a novel, but I don't know if he will have to write a novel.'

Other problems could be the result of the reference sentence and filler sentences used. None of those were nearly as long and complex as the experimental sentences, and none involved contrastive focus. These factors probably contribute to the fact that the grammatical experimental sentences pattern more with the ungrammatical ones than with the grammatical fillers.

Finally, each participant saw only one combination of word order and focus structure. Thus part of the reason for the poor significance of the experiment could be that there were not enough tokens.

4.4 Second magnitude estimation experiment

4.4.1 Design

The purpose of the second experiment was the same as in the first experiment: to test the effect of focus on word order in subordinate clauses with the Standard German *werden* + modal + infinitive construction. Three changes in the design of the experiment were intended to more clearly elicit focus, improve the judgments of the sentences, and produce better distinctions between marginal and truly ungrammatical sentences.

The first change involves the way focus was elicited. Rather than presenting participants with subordinate clauses embedded in a conjoined sentence (73), a correction format was used. In the instructions, participants were asked to imagine that they are speaking with a friend, who always misunderstands everything, and so they have to constantly repeat themselves. The situation was illustrated with the following sentence:

(74) Was? Udo hat die Bohnen gegessen?
what U. has the beans eaten
Nein! Ich habe gesagt, dass Ute die Möhren gegessen hat.
no I have said that U. the carrots eaten has
'What? Udo ate the beans?'
'No! I said that Ute ate the carrots.'

Participants were instructed to judge only the answer. This format has a number of advantages over that of the first experiment. First of all, it clearly elicits contrastive focus. Secondly, the sentence to be judged is as short and simple as a sentence containing a subordinate clause can be. Thirdly, the format allows all of the experimental sentences to have identical structures (nouns rather than pronouns, no ellipsis, etc.) despite repetition, because repetition is a normal feature of these correction sentences.

[33] The native speaker of German who helped me proofread the sentences continued to stumble over the sentences with auxiliary focus, even though she knew they were supposed to be interpreted that way.

Secondly, five rather than seven focus conditions were tested: subject focus (75a), object focus (75b), VP focus (75c), focus on the lexical verb (75d), and focus on the modal (75e).[34]

(75)a. Was? Maria wird einen Roman schreiben müssen?
what M. will a novel write must
Nein! Ich habe gesagt, dass [$_{Foc}$ Klaus] einen Roman *schreiben müssen wird*.
no I have said that K. a novel write must will
'What? Maria will have to write a novel?'
'No! I said that Klaus will have to write a novel.'

b. Was? Klaus wird eine Geschichte schreiben müssen?
what K. will a story write must
Nein! Ich habe gesagt, dass Klaus [$_{Foc}$ einen Roman] *schreiben müssen wird*.
'What? Klaus will have to write a story?'
'No! I said that Klaus will have to write a novel.'

c. Was? Klaus wird eine Geschichte lesen müssen?
what K. will a story read must
Nein! Ich habe gesagt, dass Klaus [$_{Foc}$ einen Roman *schreiben*] *müssen wird*.
'What? Klaus will have to read a story?'
'No! I said that Klaus will have to write a novel.'

d. Was? Klaus wird einen Roman lesen müssen?
what K. will a novel read must
Nein! Ich habe gesagt, dass Klaus einen Roman [$_{Foc}$ *schreiben*] *müssen wird*.
'What? Klaus will have to read a novel?'
'No! I said that Klaus will have to write a novel.'

e. Was? Klaus wird einen Roman schreiben können?
what K. will a novel write can
Nein! Ich habe gesagt, dass Klaus einen Roman *schreiben* [$_{Foc}$ *müssen*] *wird*.
'What? Klaus will be able to write a novel?'
'No! I said that Klaus will have to write a novel.

By leaving out all new focus (a condition that would have been incompatible with the correction format) and focus on the auxiliary (which is difficult to elicit), each combination of focus and word order could be tested more than once without making the experiment too long. Each focus condition was tested twice for the three word orders that were expected to be fully to partially grammatical (3-2-1, 1-3-2, and 3-1-2) and just once for the word order expected to be ungrammatical (1-2-3). The result was 35 experimental sentences.

The third change involves the filler and reference sentences. There were five filler sentences (for a total of 40 sentences). The fillers were essentially the five anchors used in the previous experiment (71), but modified to fit the correction format of the experimental sentences:

[34] Again, the focus conditions are illustrated using only one word order and one set of lexical items. In the experiment, the sentences appeared in standard orthography and punctuation.

(76)a. Was? In der Mensa essen wenige Studenten zu Mittag?
what in the cafeteria eat few students at lunch
Nein! In der Mensa essen viele Studenten zu Mittag.
no in the cafeteria eat many students at lunch
'What? Few students eat lunch in the cafeteria?'
'No! Many students eat lunch in the cafeteria.'

b. Was? Beim Stammtisch die drei Freunde spielen mit Vorliebe Poker?
what at-the regular-table the three friends play with preference poker
Nein! Beim Stammtisch die drei Freunde spielen mit Vorliebe Skat.
no at-the regular-table the three friends play with preference skat
'What? At the regular customers' table, the three friends prefer to play poker?'
'No! At the regular customers' table, the three friends prefer to play skat.'

The reference sentence also used the correction format:

(77) Was? Richard tanzt gern Tango?
what R. dances gladly tango
Nein! Ich habe gesagt, dass Edith gern Walzer tanzt.
no I have said that E. gladly waltz dances
'What? Richard likes to dance Tango?'
'No! I said, that Edith likes to dance waltz.'

Using the correction format for the reference and filler sentences was intended to result in better comparison with the experimental sentences. Note, however, that neither the fillers nor the reference sentence contained verb clusters and that that the focus condition in the reference sentence (multiple focus on the subject and object) was not tested in the experiment. Thus despite the similar format, these sentences should not have any effect on the judgments of the word orders under consideration.

A final difference in the implementation of the second experiment was necessitated by technical problems with the *WebExp* software: rather than an on-line experiment, the second experiment was conducted on paper. The first two pages consisted of the instructions and a practice activity, and the experiment itself occupied the remaining two pages.

As in the first experiment, the second experiment followed the standard procedures for psycholinguistic experiments. First, there were 20 different sets of lexical items, such that no participant saw any set of lexical items more than twice.[35] Secondly, there were 20 versions of the experiment, with the 20 combinations of focus and word order represented by different sets of lexical items in each experiment. Third, the order of the sentences was randomized. Finally, although the experimenter was present when most of the surveys were completed, the only instructions were written and there was almost no interaction between the experimenter and the participants during the completion of the survey.

There were a total of 20 participants in the experiment, 17 women and three men, with a mean age of 23.6. All were native speakers of Austrian German, and 13 were

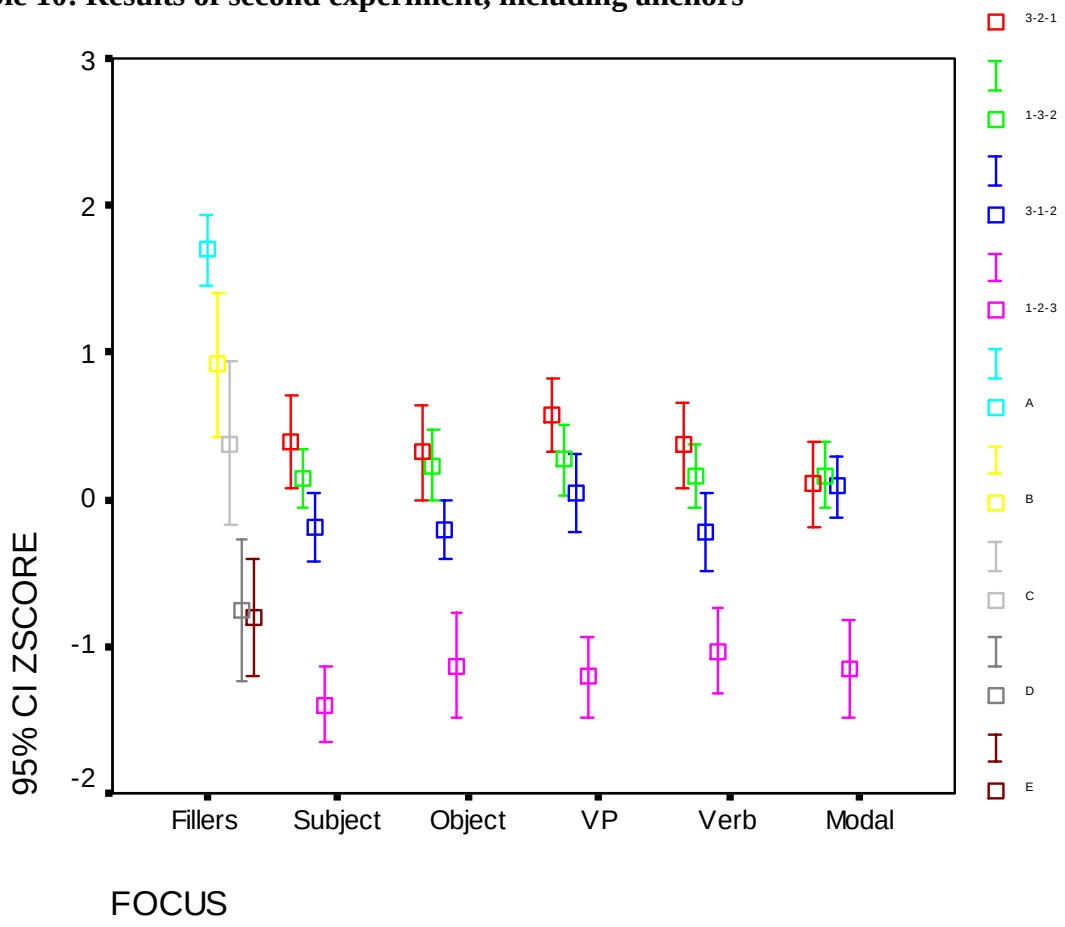
[35] Subjects were ten male and ten female first names, 4-8 characters long and with a mean frequency of 2.9 million hits on www.google.de (German-language sites only). The objects were 4-11 characters long with a mean frequency of 468.6 in the *CELEX* corpus (Baayen et al. 1995), and the verbs were 5-10 characters with a mean frequency of 1081.88 in *CELEX*.

from Vienna and its suburbs. Thirteen of the surveys were administered in an introductory course on German grammar at the University of Vienna. The seven remaining surveys were completed by acquaintances of the experimenter.[36]

4.4.2 Results

Table 10 illustrates the overall results for this experiment.[37] These results are a clear improvement over those of the first experiment (see Table 8).

Table 10: Results of second experiment, including anchors



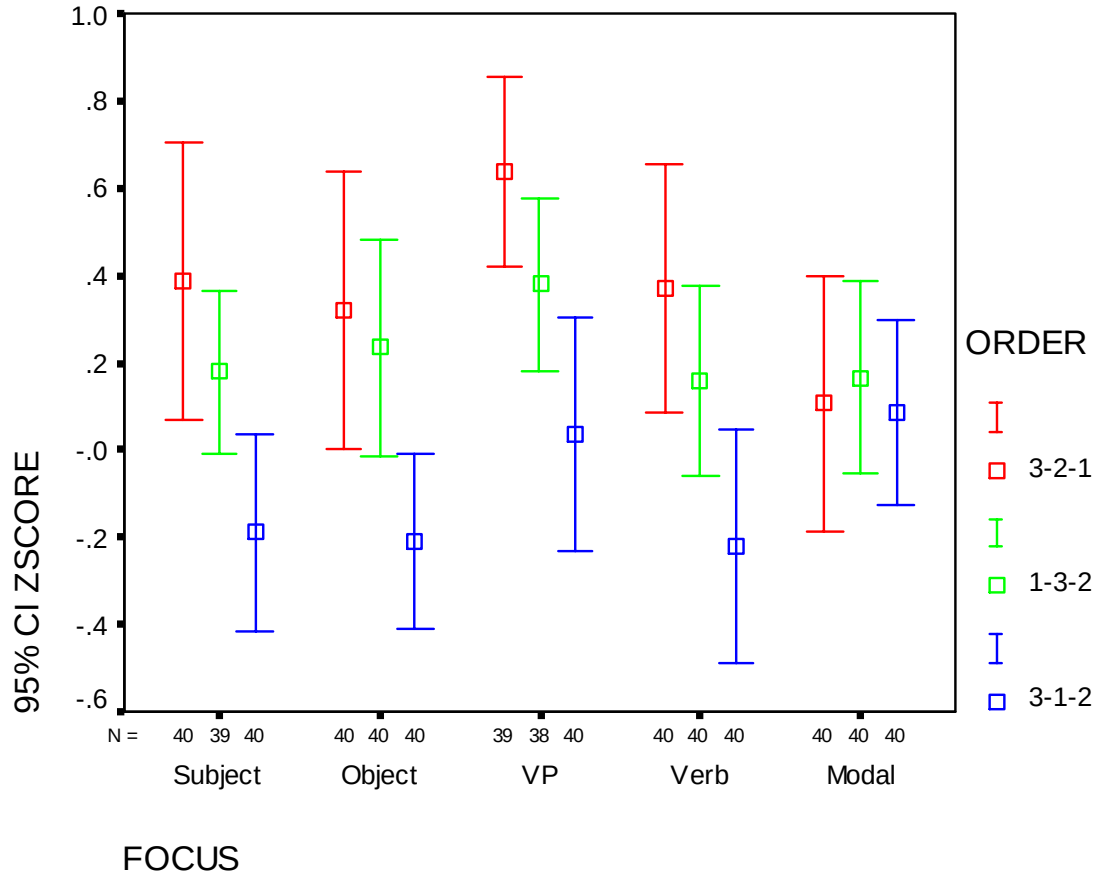
First and foremost, the word orders that should be grammatical (3-2-1 and 1-3-2) are: they score in about the same range as anchor sentences B (not perfect but grammatical) and C (marginal). Thus the design of the experiment solved the most important problem of the first experiment (grammatical experimental sentences being rated poorly.) Secondly, note that the marginal word order 3-1-2 scores below the two grammatical orders but above the ungrammatical 1-2-3, as expected. Thus the compression problem has been solved (except that anchors D and E are scored almost equally, rather than being evenly distributed like anchors A-C).

[36] The course on German grammar had not discussed subordinate-clause word order or focus up to that point, and none of the participants were professional linguists.

[37] 95% confidence interval of the normalized z-scores of the grammaticality judgments calculated with the program SPSS. Outliers were removed using the box-plot test.

Table 11 presents the same results as Table 10, but with the anchor sentences and the clearly ungrammatical 1-2-3 sentences removed. These results will now be compared to the ENHG results from Chapter 2. [38]

Table 11: Results of second experiment, without anchors or 1-2-3



Recall from Chapter 2 that in ENHG, focus on the object has a favoring effect on the 1-2 order (section 4.3.3) and probably on the 1-3-2 order as well (section 5.3.2). In this experiment, with focus on the VP, the 3-2-1 order is considerably better than the 1-3-2 order; however, under object focus, 3-2-1 and 1-3-2 are scored about equal. The improved acceptability of the 1-3-2 order appears to confirm the favoring effect of object focus on the 1-3-2 order in Modern Standard German as well as in ENHG.

[38] Although the results of this second experiment are clearer and more significant than those of the first experiment, statistical significance has only been partly achieved. Repeated measures ANOVAs yielded significance for across-participant variation (F1 p = 0.011), but only when the number of focus conditions was reduced from five to three (object, VP, and modal focus). The failure to show statistical significance is probably due to the similar results of subject and object focus and of VP and verb focus. However, no combination resulted in significance for variation across the lexicon; the best result was with the same three focus conditions (F2 p = 0.157). Thus, although the following discussion mainly hinges on the distinction between object and VP focus and that distinction is significant by one of the tests, the results here are tentative.

4.5 Discussion

Let us compare the results of the second magnitude estimation study with the results reported by Schmid & Vogel (2004). Some of the latter's conclusions are confirmed by this study, but others are not. First of all, recall from Table 6 that with stress on the subject or object, Schmid & Vogel (2004) found that 3-2-1 and 1-3-2 are both grammatical but 3-1-2 is marginal. The data in Table 11 confirm that these results also hold for focus, rather than just stress, on the subject or object. Secondly, Table 6 claims that with stress on the lexical verb, the three orders should be equally grammatical. However, Table 11 shows that with focus on the verb, there is a preference for 3-2-1, followed by 1-3-2, with 3-1-2 the least preferred, as in most other conditions. Finally, Schmid & Vogel found that with stress on the modal, the 1-3-2 and 3-1-2 orders are grammatical, while 3-2-1 is marginal (see Table 6). Table 11, however, shows that with focus on the modal, the three orders are about equally grammatical. Thus this experiment confirms Schmid & Vogel's claim only in so far as the 3-2-1 order is much less acceptable, and the 3-1-2 order more acceptable, under modal focus than under other focus conditions.

On the whole, despite my criticism of their method, Schmid & Vogel's (2004) results turn out to hold, even when tested by a strikingly different method. Therefore, their claims cannot be dismissed as the results of idiosyncratic judgments by a few speakers or of researcher bias.

As a final note, recall that Schmid & Vogel (2004) test stress, and that object stress is compatible with a number of focus interpretations, including object focus and VP focus. Thus if stress were the most important factor in determining word order in the *werden* + modal construction, we would expect to find that object focus and VP focus show similar word-order preferences. However, Table 11 shows that object focus and VP focus show differing preferences, especially with respect to the 1-3-2 order. Therefore, this experiment shows that stress alone cannot account for the word orders in this construction.

To sum up this section, in the Modern Standard German *werden* + modal + infinitive construction, focus has an effect on word order within the verb cluster. Generally speaking, this supports my findings from ENHG. More specifically, however, the Modern German data cannot be directly compared to ENHG, as there is only one instance of the *werden* + modal construction in my ENHG corpus.

5 Conclusion

5.1 Summary of findings

In clusters of two verbs in subordinate clauses, previous scholarship has found that most contemporary dialects of German, with Swiss German the notable exception, strongly prefer the 2-1 order, which is the only possible order in the standard language (section 2.2 above). This was also the result of my studies of Swabian and Austrian dialects (section 3 above). However, in both Austrian German and Swabian, the acceptability of the 1-2 order is slightly improved if there is focus on the object, especially if it is strong contrastive focus.

In three-verb clusters, the word-order possibilities are largely restricted by syntagm. The only possible orders in Modern Standard German are 3-2-1 and 1-3-2, with

only the *werden* + modal + infinitive construction allowing both orders. Many contemporary dialects additionally allow the orders 3-1-2 and 1-2-3 (section 2.3 above). Schmid & Vogel (2004) demonstrate that the choice of word orders within *werden*-modal-infinitive clusters is sensitive to stress in both Standard and dialectal German. My second magnitude estimation experiment (section 4.4) largely confirms Schmid & Vogel's results for Standard German but also suggests that stress alone may not be able to account for all of the word order differences, as object focus and VP focus have differing effects on verb order.

Finally, contemporary dialects of German allow a constituent to appear within the verb cluster (1-X-2, 1-X-3-2, etc.), and Standard German allows this in the syntagms that have the 1-3-2 order (section 2.5). One Austrian dialect speaker with whom I consulted maintained that these orders are associated with focus, confirming the findings of previous scholarship.

5.2 From ENHG to Modern German

A number of changes in subordinate-clause word order over time have come to light in this study. The most dramatic differences are between ENHG, with its great variation in word order, and Modern Standard German, in which the position of the verb varies very little. In Modern Standard German, the orders 1-2 and 1-2-3 (with or without intervening constituents) are ungrammatical, 3-1-2 is found only in colloquial and Austrian varieties of the standard language, and 1-3-2 (along with 1-X-3-2) is restricted to the IPP and *werden*-modal-infinitive syntagms.

Although many dialects appear to have the same kind of word-order variation as ENHG, there have also been some important historical developments here as well. Most of these dialects now follow Standard German in preferring the 2-1 order. In some of those dialects, as in ENHG, the 1-2 order is better with the modal-infinitive syntagm than with the perfect tense; however, other dialects, namely Swabian and Eastern Austrian, have reversed that preference. With respect to three-verb clusters, most dialects agree with Standard German in allowing only 3-2-1 for most syntagms, with more variation in the IPP and *werden*-modal-infinitive constructions.

The ENHG state of affairs is best preserved in Swiss German, which allows both the 1-2 and 2-1 orders and has great variety in three-verb clusters. In fact, Swiss German has carried the effect of the modal + infinitive syntagm on the 1-2 order even further than in ENHG, with that word order now being preferred for that syntagm. On the other hand, although Swiss German and ENHG are similar with respect to the possible verb orders, Swiss dialects, just like most other contemporary varieties of German, have lost argument extraposition, which was very frequent in ENHG.

Despite the numerous differences between ENHG and most contemporary varieties of German, there are several aspects that have remained constant. These generalizations will be important in the following chapter, as any analysis of German verb order needs to take them into account. First of all, the word orders 2-1-3 and 2-3-1 are unattested in my ENHG corpus and ungrammatical in nearly every variety of German today. Secondly, it is possible for a constituent to break up the verb cluster only when the verbs are in the right-governing order: orders such as 2-X-1 or 3-2-X-1 are unattested in ENHG and ungrammatical in contemporary German, including the dialects surveyed here. Thirdly, focus has some effect on verb order in ENHG, Modern Standard German (in the *werden*-modal-infinitive syntagm), and at least two dialects of German, namely

Swabian and Austrian German. Fourthly, the favoring effect of extraposition on the 1-2 order seen in ENHG continues in Bavarian (see section 2.2.4), although not in other dialects, as seen in (62k-n), (63k-n), and (68k-n).

As a final note, this chapter has shown the usefulness of examining data from modern varieties of a language when attempting to analyze the syntax of its earlier stages. This is especially true when the issue involved is not easily accessible in texts, as is the case with focus. Since direct evidence for focus (such as intonation and native speaker intuition) is not available in ENHG, such evidence was found in dialectal and standard German. On the other hand, unrelated changes in the language can make this task difficult: for example, only the *werden*-modal-infinitive syntagm allows verb-order variation in Modern Standard German, but this is the least frequent three-verb syntagm in ENHG due to the fact that the future with *werden* was a late development.

Chapter 5: The Derivation of German Clause Structure and the Relationship between Focus and Word Order

1 Introduction

The previous chapters provide a detailed description of subordinate-clause word order in Early New High German (ENHG), Modern Standard German (MSG), and several contemporary dialects of German. A number of generalizations have emerged, the most important of which involve the effect of focus on word order. However, up until this point the discussion has been purely descriptive, neither discussing the formal derivation of German subordinate-clause word orders nor attempting to explain the effect of focus on those word orders. Addressing those two issues is the aim of this chapter.

In the next section, I will review the scholarship on the basic clause structure of German, with special attention to the question of whether German is an SOV or SVO language. Since ENHG has largely been ignored in that debate, each hypothesis will be evaluated in terms of its ability to account for the empirical findings of Chapters 2 and 3. The conclusion will be that the more traditional OV account has only a slight empirical advantage over the newer VO hypothesis.

Section 3 examines the relationship between focus and word order. First, we will see that current formal approaches to focus and word order cannot adequately account for the complex facts presented here. Therefore, I offer a functional account that depends on linear word order but can be made compatible with formal approaches to syntax.

2 The structure of German subordinate clauses

2.1 Introduction

In this section, I will discuss some of the previous scholarship on word order in German subordinate clauses. Section 2.2 discusses two of the non-generative attempts to account for the alternation between the 2-1 and 1-2 orders, which are primarily concerned with language change. Section 2.3 presents the classic generative OV approach to German clause structure and shows how the Verb (Projection) Raising analysis can account for the various orders in the verb cluster. A more recent line of analysis, which assumes that the base order in German is VO, is discussed in section 2.4. Section 2.5 compares the two approaches, concluding that both require about the same number of stipulations in order to account for the data discussed in previous chapters; however, the classic OV analysis maintains a slight empirical advantage with respect to possible verb orders.

2.2 Diachronic approaches

2.2.1 Lehmann (1971)

The first of the diachronic approaches to be discussed here is in the typological tradition of Joseph Greenberg. Greenberg's (1963:85) Universal 16 states that '[i]n languages with dominant order SOV, an inflected auxiliary always follows the main verb.' There is an obvious syntactic reason for this universal: since verbs in these languages govern their objects to the left, auxiliary verbs, qua verbs, should also left-

govern dependent verbs and thus yield the 2-1 order. Following Greenberg (1963), Lehmann (1971) believes that the competition between the 2-1 and 1-2 orders in the history of German is a result of the competition between SOV and SVO orders. Based on the high frequency of extraposition in earlier stages of German, Lehmann (1971:19) claims that medieval German was an SVO language. Modern German, however, which consistently has SOV order in subordinate clauses, is according to Lehmann (1971:23) gaining more and more SOV features, such as postpositions and 2-1 order. Thus for Lehmann the fixing of the 2-1 order in subordinate clauses at the end of the ENHG period is a direct result of the fixing of the SOV order.

There are a number of problems with Lehmann's account. First of all, he ignores data that go against his typological generalization: ENHG had the order genitive-noun *meines Vaters Haus* 'my father's house', an SOV feature in Greenberg's framework, but Modern Standard German is noun-genitive *das Haus meines Vaters* 'the house of my father', an SVO feature in Greenberg's framework. Moreover, it is not really clear that German has undergone a shift from SVO to SOV; in fact, Venneman (1974) makes the opposite claim. Secondly, as Kroch and Taylor (2000) argue, the 2-1 vs. 1-2 distinction can be independent of SOV vs. SVO order and must be diagnosed separately, calling into question the reliability of typological arguments in general. Finally, it is possible to maintain that German has always been underlyingly SOV, with apparently SVO orders accounted for by rightward movement, as discussed in section 2.3 below. If the underlying structure of German has not changed, the competition between the 2-1 and 1-2 orders cannot be accounted for by a typological shift.

2.2.2 Ebert (1981)

Ebert (1981:234) shows that there is indeed a correlation between the SOV and 2-1 orders, since the two show 'great similarities in social stratification and time curves.' Both SOV and 2-1 declined from the 14th to 15th centuries and then increased in the 16th century.[1] Moreover, the sharpest rise in the SOV order in the 16th century preceded the sharpest rise in the 2-1 order, which lends some support to Lehmann's hypothesis that the 2-1 order follows from the fixing of SOV order. However, Ebert stops short of claiming that the increase in the frequency of verb-final orders was the cause of the increase in the frequency of the 2-1 order, and he indicates in a footnote that he is critical of Lehmann's approach (Ebert 1981:234, fn. 14).

Rather than explaining the variation in verb order as a change in linguistic typology, Ebert's account is a variationist one. (Ebert's findings are discussed in detail in Chapter 2 section 2.5). Ebert demonstrates that the variation between verb orders is not only syntactically but also sociolinguistically conditioned, with the 2-1 order eventually winning out because it was preferred in the prestigious chancery style. However, Ebert does not discuss this variation in structural terms, leaving open the question of how the word orders are derived.

[1] Burridge finds very similar trends in Early Modern Dutch (1993:115).

2.3 The OV approach to German clause structure

2.3.1 The classic account: den Besten (1983)

The previous section discussed some approaches that take the alternation between 1-2 and 2-1 orders at face value. However, in mainstream generative syntax, two word orders may reflect a single underlying structure, with one order being derived from the other via a movement operation. This section discusses some generative accounts of subordinate-clause word order in German (and other continental West German languages) that are based on the assumption that the underlying order of the object and verb is OV. First, I will outline the 'classic' account by den Besten (1983). Following that, the derivation of the 1-2 order from an underlying SOV structure is discussed, with Haegeman's (1992) Verb Raising/Verb Projection Raising analysis reviewed in detail. Finally, I will discuss how these accounts can be extended to account for all of the ENHG word orders, maintaining that German has been OV throughout its history, as in Bies (1996).

The classic generative approach to German word order is laid out in den Besten (1983). According to this account, German is an OV language, with subordinate clauses reflecting the underlying order, as in (1a). Den Besten (1983:24) derives main clause word order from the OV structure by two transformations or movement rules.[2] The first involves movement of the finite verb to the second position of the clause, resulting in the word order found in verb-initial structures, such as interrogatives (1b) and conditionals (1c). Declarative main clauses have that transformation plus a second transformation that moves either the subject (1d) or some other constituent (1e) to the left of the finite verb.

(1) a. ... dass Klaus seinem Sohn ein Buch *kaufen will*.
that K. his-dat. son a book buy wants
'... that Klaus wants to buy a book for his son.'
b. *Will*$_i$ Klaus seinem Sohn ein Buch *kaufen* t_i ?
'Does Klaus want to buy a book for his son?'
c. *Will*$_i$ Klaus seinem Sohn ein Buch *kaufen* t_i ...
'If Klaus wants to buy a book for his son …'
d. Klaus$_j$ *will*$_i$ t_j seinem Sohn ein Buch *kaufen* t_i.
'Klaus wants to buy a book for his son.'
e. Seinem Sohn$_j$ *will*$_i$ Klaus t_j ein Buch *kaufen* t_i.
'For his son, Klaus wants to buy a book.'

Den Besten (1983:24) maintains that the position of the finite verb in main clauses–whether verb-initial, subject-initial, or non-subject-initial–is C, the position of the complementizer in subordinate clauses. Thus the verb-final word order of subordinate clauses can be seen as the result of the finite verb remaining in its underlying position, its potential landing site being occupied by the complementizer. Regarding the second transformation, den Besten maintains that it is similar to topicalization or *wh*-movement. This is uncontroversial for non-subject-initial declaratives such as (1e), but den Besten's account is innovative in claiming that even the subject moves into the initial

[2] Den Besten (1983) illustrates these transformations with Dutch examples, but describes them as applying to both Dutch and German.

position by 'topicalization' (1d). As evidence that the main-clause finite verb and subordinate-clause complementizer occupy the same position, and that the pre-verbal position is the same both for subjects and non-subjects, den Besten (1983:25-27) presents the following data on the distribution of strong and weak pronouns in Dutch.

First of all, in Dutch subordinate clauses, weak pronouns such as *ze* 'she' must be adjacent to the complementizer (2), but the strong variants like *zij* do not have to be (3).

(2) a. ... dat ze gisteren ziek was.
that she yesterday sick was
'... that she was sick yesterday.'
b. *... dat gisteren ze ziek was.

(Den Besten's (1983:25) ex. (25))

(3) a. ... dat zij gisteren ziek was.
that she yesterday sick was
'... that she was sick yesterday.'
b. ... dat gisteren zij ziek was.

(Den Besten's (1983:26) ex. (26))

Likewise, the weak pronouns must be adjacent to the finite verb in all kinds of main clauses (4), whereas the strong ones do not have to be (5). For den Besten (1983:26), this is evidence that the position of the finite verb in these clauses is equivalent to the complementizer position.

(4) a. Was ze gisteren ziek?
was she yesterday sick
'Was she sick yesterday?'
b. *Was gisteren ze ziek?
c. Waarom was ze gisteren ziek?
why was she yesterday sick
'Why was she sick yesterday?'
d. *Waarom was gisteren ze ziek?
e. Toch was ze gisteren ziek.
still was she yesterday sick
'She was still sick yesterday.'
f. *Toch was gisteren ze ziek.

(Den Besten's (1983:26) ex. (28-30))

(5) a. Was zij gisteren ziek?
was she yesterday sick
'Was she sick yesterday?'
b. Was gisteren zij ziek?
c. Waarom was zij gisteren ziek?
why was she yesterday sick
'Why was she sick yesterday?'
d. Waarom was gisteren zij ziek?
e. Toch was zij gisteren ziek.
still was she yesterday sick
'She was still sick yesterday.'

f. Toch was gisteren zij ziek.

(Den Besten's (1983:26-27) ex. (31-35))

Secondly, there are two weak forms of the masculine 3.sg. pronoun, *ie* and *hij*.[3] The distribution of *ie* is the same as that of *ze*: it occurs to the right of the complementizer (6a) and the main-clause finite verb (6b). However, it cannot be found in the first position of the sentence (6c).

(6) a. ... dat ie niet kan komen.
that he not can come
'... that he can't come.'
b. Daarom wil ie niet komen.
therefore wants he not come
'Therefore, he doesn't want to come.'
c. *Ie wil niet komen.
he wants not come
'He doesn't want to come.'

(Den Besten's (1983:27) ex. (37b-39b))

The weak form *hij*, on the other hand, only occurs in subject-initial main clauses (7c). The fact that the subject pronoun takes a different form when sentence-initial is taken by den Besten (1983:27) as support for his claim that the pre-verbal position is derived by movement even for subjects.[4]

(7) a. *... dat hij niet kan komen.
that he not can come
'... that he can't come.'
b. *Daarom wil hij niet komen.
therefore wants he not come
'Therefore, he doesn't want to come.'
c. Hij wil niet komen.
he wants not come
'He doesn't want to come.'

(Den Besten's (1983:27) ex. (37a-39a))

2.3.2 Verb Raising/Verb Projection Raising (Haegeman 1992)

Although the OV analysis outlined above applies to both German and Dutch, there is a substantial difference between the two languages regarding the order of the verbs within the verb-final position. Whereas Modern Standard German allows only the 2-1 order, Modern Standard Dutch allows both the 2-1 and the 1-2 orders:

[3] Additionally, there is a strong form *HIJ*, phonologically identical with weak *hij* but with the same distribution as *zij*.

[4] However, see Travis (1991) for an SOV-based analysis of German with one subject position (Spec-IP): non-subject-initial main clauses are CPs with movement of the verb to C plus topicalization (as in den Besten 1983), but subject-initial main clauses are bare IPs. See Schwarz and Vikner (1996) for some arguments against Travis (1991) using additional data from German.

(8) a. ... dass er nicht kommen kann / *kann kommen. German
that he not come$_2$ can$_1$ can$_1$ come$_2$
'... that he can't come.'
b. ... dat ie niet komen kan / kan komen. Dutch
that he not come$_2$ can$_1$ can$_1$ come$_2$
'... that he can't come.'

Beginning with Evers (1975), the Dutch 1-2 construction has been analyzed as Verb Raising. This section reviews the most extensive discussion of this construction using the Verb Raising analysis, that of Haegeman (1992).

Haegeman (1992) concentrates on the West Flemish dialect of Dutch. She treats the 1-2 and 1-X-2 orders in West Flemish as instances of Verb Raising (VR) and Verb Projection Raising (VPR), respectively. Haegeman analyzes VPR as VP-movement, while maintaining that VR is an instance of head incorporation.

Haegeman (1992:181) takes Den Besten and Webelhuth's (1987) scrambling-and-adjunction analysis of VP-topicalization and applies it to VPR. From the underlying order in (9), the entire VP is right-adjoined to the higher VP (10). The difference between the three VPR sentences in (10) is that while in (10a) the entire VP is adjoined, in (10b) and (10c) some argument has scrambled out of the VP first. After scrambling, the remainder of the VP moves to the right.

(9) da Jan [$_{VP}$ vuor Marie da boek kuopen] wilt WF: base order
that Jan for Marie that book buy wants

(10)a. da Jan t_{VP} wil [$_{VP}$ vuor Marie da boek kuopen] VPR
that Jan wants for Marie that book buy
b. da Jan [$_{PP}$ vuor Marie] t_{VP} wil [$_{VP}$ t_{PP} da boek kuopen] VPR
that Jan for Marie wants that book buy
c. da Jan [$_{NP}$ da boek] t_{VP} wil [$_{VP}$ vuor Marie t_{NP} kuopen] VPR
that Jan that book wants for Marie buy
'that Jan wants to buy the book for Marie'
(Haegeman's (1992:181-184) ex. (149-152))

One could attempt to account for VR as an instance of VPR in which all elements except the verb have scrambled out. The difference between West Flemish and Standard Dutch (which allows 1-2 but not 1-X-2) would then be that in Standard Dutch all elements must obligatorily scramble before the VP can raise. But Haegeman (1992:192) points out a problem with this explanation: in Standard Dutch, there are some elements that do not scramble (11b) but allow VR (12), such as the predicate phrase of small clauses.

(11)a. dat zij waarschijnlijk [$_{sc}$ Max heel lief] vond. Dutch
that she probably Max very nice found
b. *dat zij [heel lief]$_i$ waarschijnlijk Max t_i vond.
that she very nice probably Max found
'that she probably thought Max very nice.'
(Haegeman's (1992:192) ex. (164a-b))

(12) dat zij Max heel lief t_i zal vinden$_i$. Dutch
that she Max very nice will find
'that she will find Max very nice.'

(Haegeman's (1992:192) ex. (165a))

Since scrambling these elements is ungrammatical, the VR-as-VPR hypothesis would predict that VR should not be possible. Thus according to Haegeman, VR, at least in Standard Dutch, requires an analysis other than VPR with scrambling.

Haegeman's (1992:193) analysis for VR is that the non-finite V adjoins to the higher, finite V; thus VR is head-to-head movement. In (13), *geven* adjoins to the higher verb *willen* by head movement, forming a complex predicate:

(13) dat Jan Marie da boek t_V wil-geven$_V$ WF
that Jan Marie that book wants give
'that Jan want to give Marie that book'

Haegeman (1992:196) argues that VR must be head-to-head adjunction not only in Standard Dutch, but also in West Flemish. She finds empirical support for this argument from data with the West Flemish doubling verb *goan*:

(14)a. dan-ze in den lak goan/willen t_i goan vissen$_i$ WF: VR
that-they in the lake go/want go fish
b. dan-ze goan/willen in den lak t_i goan vissen$_i$ VR
that-they go/want in the lake go fish
c. *dan-ze goan/willen t_{VP} goan [$_{VP}$ in den lak vissen] VPR
that-they go/want go in the lake fish
'that they (want to) go fishing in the lake' (Haegeman's (1992:196) ex. (169a-c))

Since *goan* triggers VR but disallows VPR, this suggests that VR and VPR instantiate distinct kinds of movement. However, other West Germanic dialects may behave differently: based on data from Swiss German doubling verbs, Schönenberger & Penner (1995) argue that both VR and VPR are derived via scrambling and adjunction of the VP in Swiss German.

2.3.3 Early German as an OV language (Bies 1996)

Thus far, we have seen that Modern German and Dutch can be analyzed as SOV languages, and that the 1-2 order can be derived from an OV base via VR/VPR. We now turn to earlier stages of these languages. Recall from section 2.2 that the high frequency of non-verb-final clauses in earlier stages of German has led some scholars to propose that German has changed its basic clause structure. However, if one assumes that varying word orders may be derived from a single basic word order via movement, then it is possible to maintain that German has been underlyingly OV throughout its attested history. To my knowledge, Bies (1996) is the first to make such an argument for Early New High German.

Bies (1996) argues against the idea that there is any change in the clausal structure in the history of German. She maintains that German has been OV from OHG to the present, with surface VO word orders accounted for by movement. Bies (1996:14) accounts for extraposition as right-adjunction of the extraposed phrase to IP, similar to Heavy NP Shift in English. Using a large corpus of personal and business letters and

other prose texts, she demonstrates that in ENHG, NPs and PPs to the right of V tend to be either heavy (15a) or focused (15b):

(15)a. Also *hat* die himelisch kayserin *bekant* **die almechtikait deß vaters.** ENHG
thus has the heavenly empress known the omnipotence of-the father
'Thus the heavenly empress has known the omnipotence of the Father.'
(Bies' (1996:19) ex. (10a))

b. do gieng ein grosse menig ... nit allein von Ihesus wegen, sunder daz sie auch *sehen* **Lazarum**...
then went a great crowd not only for J. sake, but that they also see L.
'Then a great crowd went not just for Jesus' sake, but also to see Lazarus.'
(Bies' (1996:7) ex. (6))

According to Bies, the apparent rise of the OV order at the end of the ENHG period is merely the loss of the possibility to shift heavy and focused complements to the right.

My study of ENHG subordinate clauses provides additional evidence for Bies' OV analysis. According to Kroch & Taylor's (2000:145) work on the diachronic syntax of English, a VO language should have both heavy and light elements to the right of V. Since light elements (pronouns and verbal particles)[5] cannot move rightward, their presence there would unambiguously indicate VO. However, in my ENHG corpus, there are very few examples of a light element to the right of V. Of the three extraposed adverbs, all are relatively heavy: *franstrechlÿchen* 'obstinately', *liplich* 'physically', and *gotlich* 'godly'. Of the three extraposed pronouns, there is only one that is not the head of a relative clause:

(16) ... als vor *gemelt ist* **vns**. S V Aux O
as before said is us
'... as was said to us before.' (*Pillenreuth* 155)

Since (with just one exception) only heavy elements occur to the right of V, it is very unlikely that ENHG is underlyingly VO, by Kroch & Taylor's (2000) criterion.

If ENHG is an OV language, then the basic order within the verb cluster must be 2-1 (S O V Aux). The order S O Aux V is not a possible underlying structure, since V and O need to be underlyingly adjacent on any analysis within mainstream generative grammar. Recall from the previous chapters, however, that ENHG allows not only the 2-1 order, but also the 1-2 and 1-X-2 orders. As Bies (1996:40) first points out, these orders can be accounted for while maintaining the OV analysis, by assuming that ENHG, like West Flemish and Swiss German, has the Verb Raising / Verb Projection Raising constructions.

[5] The third kind of light element in Kroch & Taylor (2000) is stranded prepositions, but preposition stranding is very rare in ENHG.

2.3.4 ENHG subordinate clauses under the SOV approach

Let us conclude this section by illustrating how the ENHG subordinate-clause word orders may be derived under the OV analysis outlined above.[6] The verb-final, 2-1 order represents the underlying order, with no additional movement assumed:

(17) das er in kainer sund *verczweiffeln sol* 2-1
that he in no sin despair$_2$ shall$_1$
'that he shall not despair in any sin' (*Pillen.* 161)

The verb-final, 1-2 order (18b) is derived from that underlying structure by Verb Raising (ignoring for the moment whether that involves movement of only V or of a larger phrase containing V):

(18)a. *das der mensch alle sein lebttag nicht anders *thun scholt* underlying
that the person all his life.days nothing else do$_2$ should$_1$
b. das der mensch alle sein lebttag nicht anders t_i *scholt thun*$_i$ 1-2
'that man should do nothing else all the days of his life' (*Pillen.* 206)

The 1-X-2 order (19b) is derived from the underlying structure by VPR, i.e. the rightward movement of the VP:

(19)a. *das der mensche nicht sein rew *sparen scholt* underlying
that the person not his regret save$_2$ should$_1$
b. das der mensche nicht t_i *scholt* [sein rew *sparen*]$_i$ 1-X-2
'that one should not hold back his repentance on his deathbed' (*Pillen.* 212)

The non-verb-final, 1-2 order (20c), although appearing to be an SVO clause, can be derived from the OV structure in two steps, VR followed by extraposition:

(20)a. *daz ich damit mein sund *pussen sol* underlying
that I therewith my sin atone$_2$ shall$_1$
b. *daz ich damit mein sund t_i *sol pussen*$_i$ VR
c. daz ich damit t_j t_i *sol pussen*$_i$ [mein sund]$_j$ extraposition
'that I should atone for my sin with that' (*Pillen.* 163)

Although such an analysis of (20c) may appear more complex than assuming that it is underlyingly VO, the two steps are independently needed: VR for clauses like (18b) and extraposition for clauses like (21b).

(21)a. *Wye man dy krancken *fragen sol* underlying
how one the sick ask$_2$ shall$_1$
b. Wye man t_i *fragen sol* [dy krancken]$_i$ extraposition
'how one should ask the sick' (*Pillen.* 166)

One advantage of the OV/VR analysis is that it nicely accounts for the fact that the 2-X-1 order is virtually unattested in ENHG and ungrammatical in contemporary dialects of German. Under this approach, the two verbs are underlyingly adjacent, with no potential landing site between them. Thus the only possible derivation of this order

[6] In this discussion, asterisks are used not to indicate ungrammatical surface patterns, but rather unattested (but presumably grammatical) sentences.

would require that the intervening constituent be head-adjoined to one of the verbs, ruling out the possibility that a phrase could occur there. Recall from Chapter 2 that there are only three instances of the 2-X-1 order in my ENHG corpus; crucially, all of these involve a single lexical item, the negative adverb:

(22) daz sie mit missetroste *virloren* **nit** *inwerde* 2-X-1
that she with false.comfort lost$_2$ not NEG-be$_1$
'that she not be lost because of false comfort' (*Benedikt.* 16)

Finally, the ENHG data discussed here support Haegeman's (1992) contention that VR involves head adjunction of the verb, rather than scrambling of all non-verbal elements followed by adjunction of the remnant VP as Schönenberger & Penner (1995) maintain for Swiss German. Clauses such as (20c), repeated here as (23d), would be difficult to account for under the remnant-VP-adjunction analysis. One would have to assume that the extraposed constituent moves first leftward (via scrambling), then rightward (via adjunction). If, as Haider & Rosengren (2003) maintain, scrambling is a defocusing operation, it is unclear why the scrambled object then undergoes extraposition, which marks focus in ENHG (Bies 1996:14).

(23)a. *daz ich … [$_{VP}$ mein sund *pussen*] *sol* underlying
b. *daz ich … [mein sund]$_i$ [$_{VP}$ t_i *pussen*] *sol* scrambling
c. *daz ich … [mein sund]$_i$ t_j *sol* [$_{VP}$ t_i *pussen*]$_j$ VP-adjunct.
d. daz ich … t_k t_j *sol* [$_{VP}$ t_i *pussen*]$_j$ [mein sund]$_k$ extraposition

Haegeman's (1992) analysis that the raised verb is a head allows for a much more elegant derivation of the clause, with the object moving only once, as in (20c).

2.4 The VO approach to German clause structure (Zwart 1996)

According to Kayne's (1994) Anti-symmetry Hypothesis, there is a universal order for phrase structure, specifier-head-complement, and thus all languages are underlyingly VO. In addition, the only possible direction for movement is leftward. Zwart (1996) demonstrates how Dutch syntax (and by extension, German), with its surface OV order in subordinate clauses, can be made compatible with Kayne's approach.

According to Zwart's account, the underlying order for subordinate clauses should be SVO, as in (24a). In both Dutch and German, surface OV order is derived by moving the object to the left of the verb (24b). At this step in the derivation, the verbs are in the 1-2 or 'Verb Raising' order, which under Zwart's approach is a misnomer, since no verbs have moved at all (1996:7). Finally, to yield the 2-1 order which is possible in Dutch and required in German, the participle moves to the left and adjoins to the finite verb (24c) (Zwart 1996:8).

(24)a. ...dat Jan heeft gelezen [het boek] Dutch: underlying
that John has read the book
b. ...dat Jan [het boek]$_j$ heeft gelezen t_j 1-2
that John the book has read
c. ...dat Jan [het boek]$_j$ gelezen$_i$-heeft t_i t_j 2-1
that John the book read has
'that John has read the book' (Zwart's (1996:7-8) ex. (19a-b), (24a-b))

Thus the order in (24c), which is considered the underlying order in the OV approach, is derived by movement in Zwart's approach.

So-called 'VPR' can also be accounted for under Zwart's assumptions. Instead of the complement moving to the right of all of the verbs, Zwart (1996:7) claims that it moves to a position between the non-finite and finite verbs. Taking a previous West Flemish example, the derivation would be as follows, with one complement moving to a position between the verbs and the other moving all the way to the right:

(25) da Jan [vuor Marie]$_i$ wil [da boek]$_j$ kuopen t_i t_j WF: 'VPR'
that Jan for Marie wants that book buy
'that Jan want to buy that book for Marie' (cf. (10b))

Zwart (1996:8) claims that such an approach dispenses with the need under Haegeman's (1992) approach to assume both V and VP movement to account for 'VR' and 'VPR'. In addition, it eliminates the need to assume rightward movement (extraposition) of NPs and PPs in ENHG, since sentences with 'extraposition' would represent the underlying position of the object:

(26) daz ich damit *sol pussen* **mein sund** ENHG: underlying
that I therewith shall repent my sin
'that I shall repent my sin with that' (*PM* 163)

In fact, the VO approach to West Germanic word order seems even more appropriate for ENHG than for modern German and Dutch, since the underlying order in this analysis actually appears as a possible surface order in ENHG.

2.5 The OV and VO approaches compared

It is, however, still not clear whether a more traditional OV approach like Haegeman (1992) or a Kaynean VO approach such as Zwart (1996) is to be preferred. Wurmbrand (2001) makes a detailed comparison of the OV and VO approaches with respect to West Germanic verb clusters. Rather than repeating Wurmbrand's comparison, which involves the derivations of three-verb clusters, I will illustrate her point by making a similar comparison of the two base orders using ENHG two-verb clusters and extraposition. The ENHG orders that need to be accounted for (illustrated in section 2.3.4 above) are:

(27)a. S O V Aux
b. S O Aux V
c. S V Aux O
d. S Aux V O
e. S Aux O V

Moreover, the non-occurrence of *S V O Aux needs to be explained.

Under the OV approach, S O V Aux represents the underlying order (28a). S O Aux V or 1-2 is derived by VR (28b), S V Aux O by extraposition (28c), S Aux V O by the combination of VR and extraposition (28d), and S Aux O V or 1-X-2 by VPR (28e):

(28)a. S O V Aux underlying
b. S O t_i Aux-V_i VR
c. S t_i V Aux O_i extraposition

d. S t_j t_i Aux-V_i O_j VR and extraposition
e. S t_{VP} Aux $[_{VP}$ O V] VPR

Under this analysis, three different operations (extraposition, VR, and VPR) and a total of five instances of movement are required to account for all orders.

Under the VO approach, S Aux V O represents the underlying order (29a). S Aux O V (traditionally 'VPR') involves the movement of the object to the specifier of one functional projection (FP_1) (29b), S O Aux V (traditionally 'VR') moves the object to a second, higher FP (29c), S V Aux O (extraposition) has the object *in situ* with left-adjunction of the V to Aux (29d), and S O V Aux (the base order under the SOV analysis) combines the two latter movements (29e).

(29)a. S Aux V O underlying
b. S Aux O_i V t_i O moves to FP_1
c. S O_i Aux V t_i O moves to FP_2
d. S V_i-Aux t_i O V-adjunction
e. S O_j V_i-Aux t_i t_j V-adjunction and O moves to FP_2

Just like the OV approach, this analysis requires three operations (movement of O to two different landing sites and V-adjunction) and five instances of movement to account for the above orders.

Therefore, neither the OV nor the VO analysis offers a simpler account of the extant ENHG word orders. The only advantage of the OV assumption is that it can easily account for the non-occurrence of the 2-X-1 or S V O Aux order: there is no potential landing site between the V and the Aux. Under the VO analysis, this order can be blocked only by an additional stipulation that VP (or whatever functional projection contains V and O in clauses with surface S Aux V O order) may not move across Aux:

(30) *S $[_{VP}$ V O] Aux t_{VP}

Based on her comparison of potential derivations of clusters of three verbs, Wurmbrand (2001) concludes that neither approach has any real empirical advantages over the other. Both approaches require a number of construction- and language-specific stipulations. In Wurmbrand's (2001:68-69) view, all that Zwart (1996) demonstrates is that if one is committed to Kayne's (1994) hypothesis about the universal structure of language, one can still derive Dutch word order; Zwart does not actually demonstrate that this approach is empirically more adequate. The discussion of the ENHG data presented here leads to the same conclusion.

Besides requiring an equal number of steps to derive the word orders in question, both the OV and VO approaches to word order within the verb cluster have the disadvantage that the movements required are not well motivated. One of Zwart's criticisms of the OV approach to VR is that 'it is not clear what triggers the various movements' (1996:6). In Zwart's analysis, the motivation for movement is stated in terms of a need to check abstract features. However, Wurmbrand (2001:69) points out that this is not much of an explanation: 'If the features triggering movement are not motivated by any other syntactic or semantic property and are only postulated for the constructions or languages they are needed for, they boil down to simple "word order" features, which can hardly be claimed to be motivated.' Therefore, the motivation for movement is not a criterion that lends support to either base order.

There is another problem besides the motivation for movement, which is that movement within the verb cluster seems to be optional in many cases. According to current syntactic theory (e.g. Chomsky 1995), there should be no optional movement. However, the variation between 2-1 and 1-2 in languages such as Dutch and ENHG appears to be truly optional. There have essentially been three ways proposed to account for this optionality. First, Zwart (1996:12) stipulates that the non-finite verb always moves, but it may move to one of two positions: in front of the finite verb or following it. This seems to solve the optionality problem, since movement always occurs, but it introduces a new problem, since the landing site of the movement is optional. Secondly, Wurmbrand (2003:287) suggests that the re-ordering of verbs within the verb cluster is not syntactic movement at all, but is rather a post-syntactic, phonological operation. Thirdly, one could see variation between different word orders not as derivations from an underlying order, but as a result of competition between two grammars within the same language. This what Pintzuk (1991) proposes for Old English. This is also suggested (but later rejected) for Dutch by Zwart (1996:3), who points out that Standard Dutch is a composite of various dialects, some of which prefer 1-2 and others 2-1.

The possibility still remains, however, that syntactic movement is involved, and that there is a motivation for these movement operations that has not yet been discovered. This was the case for a long time with the basic structure of Yiddish, which has both OV and VO word orders:

(31)a. Maks hot [$_{VP}$ geleyent a bukh]. Yiddish: VO
Max has read a book
'Max has read a book.'

b. Maks hot [dos bukh]$_i$ [$_{VP}$ geleyent t_i]. Yiddish: OV
Max has the book read
'Max has read the book.'

(Diesing's (1997:381) ex. (17a-b))

This had lead scholars to believe that Yiddish has both SVO and SOV as base orders (Santorini 1993). Then Diesing (1997:377) discovered that Yiddish word order is sensitive to semantics: it is underlyingly VO as in (61a), but the object scrambles to the left out of the VP when definite, as in (61b).

In conclusion, neither the OV nor the VO approach to German clause structure has any major empirical advantage with respect to the word order facts discussed in this study, aside from the fact that the ungrammaticality of S V O Aux follows straightforwardly from an OV base. Moreover, both approaches suffer from the theory-internal problems of unmotivated and optional movement. Throughout this study, evidence has been presented that focus has an effect on subordinate-clause word order in ENHG and contemporary varieties of German. The next section concludes that, although the movement operations that derive the various verb orders cannot be motivated in terms of syntactic features, they are motivated by their post-syntactic effects on focus.

3 Focus and verb order

3.1 Introduction

This section addresses the issue of how the relationship between focus and verb order is to be best analyzed. In previous chapters, a number of findings regarding the relationship between focus and word order have been made. These findings, which should be taken into account if the variable word orders in the verbal cluster are to be understood, are reiterated below.

(F1) Focus on an object favors the 1-2 order, contrastive focus more so than new information focus. In ENHG, the favoring effect of new information focus on the 1-2 order is statistically significant, but contrastive focus is the only factor to result in a rate of 1-2 higher than 50% (see Chapter 2, section 4.3.3). In clusters of three verbs (Chapter 2, section 5.3.2), a similar fact obtains: focus disfavors the 3-2-1 order. Focus is likely the single most important factor in determining word order within the verb cluster: over half of the instances of the 1-2 order in my ENHG database can be attributed directly to focus, and nearly two-thirds involve a focus-related factor (focus *per se*, extraposition, and/or an unscrambled object). My surveys of Austrian German and Swabian were unable to elicit a favoring effect on 1-2 under new information focus, but some speakers did report a favoring effect with a heavily stressed object (Chapter 4, section 3). Finally, in the Modern Standard German *werden*-modal-infinitive syntagm, object focus favors, and VP focus disfavors, the 1-3-2 order relative to the 3-2-1 and 3-1-2 orders.

(F2) Focus on different members of the verbal cluster results in different orders within the cluster. Although not tested in ENHG, this was tested in Modern Standard German, with the results largely confirming Schmid & Vogel (2004), see Chapter 5 section 4.

(F3) The 1-X-2 order (VPR) indicates focus on the object and main verb (VP). This was not tested in ENHG due to its relative infrequency. However, previous studies have shown that VPR orders are used to focus the VP in Standard German (Kefer & Lejeune 1974) and Swiss German (Lötscher 1978).

(F4) Extraposition favors the 1-2 order. This is true in ENHG, where extraposition probably marks focus (Chapter 2, section 4.3.2), as well as in contemporary Bavarian (Chapter 4, section 2.2.4). However, most contemporary varieties of German do not allow extraposition to the same extent as in ENHG, and thus the correlation between extraposition and 1-2 has been lost.

(F5) Scrambling disfavors the 1-2 order. This is true in both ENHG (Chapter 2, section 4.3.3) and contemporary Austrian and Swabian (Chapter 4, section 3).

(F6) ENHG has perhaps four different ways of marking object focus by word order: extraposition, the 1-2 order alone, extraposition plus 1-2, and the 1-X-2 order. This is certainly the case for extraposition (Bies 1996) and for the 1-2 order (Chapter 2, section 4.3.3 above). It is unclear, however, whether extraposition plus 1-2 should be considered a method of marking focus, or whether the 1-2 order is merely a consequence of extraposition. Moreover, my investigation of ENHG did find not differences between object and VP focus given the small number of tokens, so it is unclear whether 1-X-2 marks object focus or (as in contemporary German) VP focus.

In the next section (3.2), we will examine four formal analyses of focus and subordinate clause word order. In the current literature, there are two major approaches

to focus: one in which focus is related to particular word orders because of where the sentential accent falls (Cinque 1993) and one in which there are specific focus positions in the clause (Koopman & Szabolcsi 2000). It will be demonstrated that neither of these allows a straightforward account of the complex empirical data reviewed above, regardless of whether one assumes an OV or VO base. Thus section 3.3 presents a functional account that can account for the data F1-F6, and I will outline how such a functional approach can be made compatible with a formal analysis of German syntax.

3.2 Potential formal analyses of focus and verb order

3.2.1 OV: focus on most deeply embedded word (Cinque 1993/Reinhart 1995)

Cinque (1993) provides an interesting hypothesis on the relationship between syntactic structure and sentential accent, which has proven to be a fruitful analysis for exploring the relationship between focus and word order. Cinque (1993:45) argues that language-specific rules for the assignment of sentential stress may be dispensed with by assuming that the most deeply-embedded word in a clause will received the nuclear stress accent, i.e. the strongest accent in the sentence. This accounts for the fact that in German under normal intonation, the stress is on the object when pre-verbal (32a), since the head noun of the object NP is the deepest constituent in the VP, but on the verb if there is no pre-verbal object (32b), since in that case the verb is the most deeply embedded:

(32)a. $[_{CP}$ Hans$_i$ $[_{C'}$ hat$_k$ $[_{IP}$ t_i $[_{VP}$ kein BUCH gelesen] t_k]]].
Hans has no book read
'Hans has read no book.'

b. $[_{CP}$ Den$_i$ $[_{C'}$ hat$_k$ $[_{IP}$ Hans $[_{VP}$ t_i GELESEN] t_k]]].
that has Hans read
'Hans has read that one.'

(Cinque's (1993:254) ex. (36a-b))

When the focus of the sentence contains the most deeply-embedded constituent, there are numerous possibilities for focus interpretation (Cinque 1993:259).[7] This can be illustrated for German using the example in Stechow & Sternefeld (1988:461). In their example, the possible focus interpretations of the sentence *Gestern hat Karl dem Kind das Buch geschenkt* 'yesterday Karl gave the book to the child', with the sentential accent on *Buch* 'book', are indicated by posing a background question. The lines indicate which part of the sentence, as an answer to the given background question, is the focus:

[7] In Selkirk's (1995:555) formulation, if a head is accented (thus focus-marked), its phrase can also be focus-marked. In this way, focus can 'project' from the stressed word up the tree.

(33)a. Gestern hat Karl dem Kind das BUCH geschenkt
yesterday has Karl the child the book given

b. Was hat K. dem Kind gestern geschenkt? ----------
'What did Karl give the child yesterday?'

c. Was hat K. dem Kind gestern getan? ----------
'What did Karl do to the child yesterday?'

d. Was hat Karl gestern getan? ----------
'What did Karl do yesterday?'

e. Was hat das Kind gestern erlebt? ----- ----------
'What did the child experience yesterday?'

f. Was ist gestern geschehen? ----------
'What happened yesterday?'

(Stechow & Sternefeld's (1988:461) ex. (25))[8]

If the most deeply-embedded constituent is not a part of the focus, that constituent may be de-accented and the focus accented (Cinque 1993:261). This shifting of the accent, with no change in word order, is the normal way of moving the focus in English and is also possible in German (34a). However, as Reinhart (1995) points out, in German it is more natural to scramble the deepest constituent, leaving the focused constituent in the most deeply-embedded position (34b):[9]

(34)a. Gestern hat Karl dem KIND das Buch geschenkt.
b. Gestern hat Karl das Buch$_i$ dem KIND t_i geschenkt.

Thus in Reinhart's expansion of Cinque's system, movement can displace a constituent that is not a part of the focus, allowing the focused constituent to become the most deeply-embedded constituent and thus receive the sentential stress in the usual manner.

Having introduced Reinhart's application of Cinque's system, let us see if something like it can account for the relationship between focus and verb order in ENHG subordinate clauses. We will assume that the base order is OV, and that 1-2, 1-X-2, and extraposition are derived by rightward movement as discussed in sections 2.3.2 and 2.3.3 above.[10]

(35)a.	S	$[_{IP}\,[_{VP}\,[_{NP}$ O] V] Aux]	underlying
b.	S	$[_{IP}\,[_{VP}\,[_{NP}$ O] t_i] Aux-V$_i$]	1-2 = VR
c.	S	$[_{IP}\,[_{IP}\,[_{VP}$ t_{NP} V] Aux] $[_{NP}$ O]]	extraposition
d.	S	$[_{IP}\,[_{IP}\,[_{VP}$ t_{NP} t_i] Aux-V$_i$] $[_{NP}$ O]]	VR and extraposition
e.	S	$[_{IP}\,[_{IP}$ t_{VP} Aux] $[_{VP}\,[_{NP}$ O] V]]	VPR

A system like this can account for the incompatibility of scrambling and 1-2 (F5): since scrambling is a de-focusing operation, it should not occur with the focus-marking 1-

[8] These data are first discussed in Höhle (1986:120-121), but here I reproduce Sternefeld & von Stechow's (1988:461) much clearer presentation of Höhle's data.

[9] Since Reinhart (1995) is mainly concerned with Dutch scrambling, which may change the order of the objects with respect to adverbs but not with respect to each other, her examples involve cases where scrambling an object results in focus on the verb.

[10] For ease of exposition, the finite verb is labeled 'Aux' (although German modals are not auxiliaries) and the projection containing the finite verb is labeled 'IP' (disregarding the question of whether I^0 is head-initial or head-final).

2 order. However, it is unable to account for the other focus facts presented in 3.1. There is no obvious reason why the 1-2 order should be associated with object focus (F1), since the object is the deepest constituent and thus stressed, regardless of the order of the verbs, compare (35a) and (35b). Furthermore, moving a focused element to the right is not compatible with the most-deeply-embedded principle of stress assignment: the 1-2 order should not indicate focus on the verb (F2), extraposition should not indicate focus on the extraposed constituent (F4), and VPR should not indicate focus on the VP (F3), since in every case the focused element has moved up the tree (35b-e). Finally, there is no reason under this system that four different word orders should be used to mark focus (F6).

3.2.2 OV: focus position to the right

Besides Cinque's (1993) system, the other way of correlating focus with word order in the current literature is to propose that there is a focus position into which focused elements can or must move. Most linguists working with this idea assume that the focus position is a functional position in the expanded CP, thus in the left periphery of the clause (see section 3.2.4 for such an analysis). However, Bies (1996:14) suggests that extraposition in ENHG moves the constituent to a focus position on the right edge of the clause. Let us consider whether all of the focus effects of the various ENHG word orders (and similar effects in modern varieties of German) may be derived by assuming a focus position to the right.[11]

Assuming that there is a focus position at the right edge of the clause allows an account for two other correlations between focus and word order, in addition to the association between extraposition and focus. The association between a changed order in the verb cluster and focus on a particular part of the verb cluster (F2) derives from the movement of V to the right edge of the clause.[12] Likewise, under the VPR analysis, the VP moves to the right, so the correlation between VPR and focus on the VP (F3) is straightforwardly derived.

On the other hand, such an analysis is unable to account for the favoring effect of a focused object (F1) or a non-scrambled object (F5) on the 1-2 order. There is no reason that the verb should move rightward into a focus position when the object is focused *in situ*. Likewise, if the object is focused and thereby extraposed, there is no obvious reason why the order in the verb cluster should change (F4). Therefore such an analysis is only able to account for two of the four word orders that mark focus in ENHG (F6).

3.2.3 VO: focus on most deeply embedded word

Although no one to my knowledge has argued for such an analysis in print, the VO analysis of German may still be compatible with a Cinque-style approach to focus, given certain assumptions. One would have to assume that the NP has so much internal structure that the head of the lowest object NP will always be the most deeply-embedded constituent, even when the phrase has moved to a position above the verb (Roland Hinterhölzl, p.c.). This section investigates whether such an approach can account for the desired facts.

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[11] We leave aside the issue of whether this focus position is a functional projection (FocusP) or merely adjunction to IP (as in the previous section).

[12] See also Schmid & Vogel (2004), where focused verbs tend to appear at the edge of the verb cluster.

Let us first consider the underlying word order on this account (36a). Here the object is the deepest constituent and thus will receive the sentential stress. This is compatible with the fact that this word order (traditionally 'extraposition') is one way to mark focus on the object in ENHG (F6). On the other hand, the object also receives stress in the 1-X-2 configuration (36b) and when appearing to the left of the verbs (36c) and (36e), so these movements cannot be motivated for reasons of stress assignment and focus, thus F2 and F3 are not explained. Furthermore, if the object is always deep enough to receive sentential stress no matter what position it is in (under the stipulation that its phrase must be sufficiently complex to always receive the sentential accent), there is no reason why verb order should correlate to object focus (F1, F4, and F5).

(36)a.	S $[_{FP\text{-}2}$	$[_{IP}$ Aux $[_{FP\text{-}1}$ $[_{VP}$ V $[_{NP}$ O]]]]]	underlying
b.	S $[_{FP\text{-}2}$	$[_{IP}$ Aux $[_{FP\text{-}1}$ $[_{NP}$ O] $[_{VP}$ V t_{NP}]]]]	O moves to FP_1
c.	S $[_{FP\text{-}2}$ $[_{NP}$ O]	$[_{IP}$ Aux $[_{FP\text{-}1}$ $[_{VP}$ V t_{NP}]]]]	O moves to FP_2
d.	S $[_{FP\text{-}2}$	$[_{IP}$ Aux-V $[_{FP\text{-}1}$ $[_{VP}$ t_i $[_{NP}$ O]]]]]	V-adjunction
e.	S $[_{FP\text{-}2}$ $[_{NP}$ O]	$[_{IP}$ Aux-V $[_{FP\text{-}1}$ $[_{VP}$ t_i t_{NP}]]]]	V-adj.; O to FP_2

In sum, assuming a VO base for German renders Cinque's (1993) analysis of stress assignment very inelegant. Moreover, under these assumptions, it is not possible to motivate any of the focus-related word orders other than extraposition.

3.2.4 VO: focus position to the left (Koopman & Szabolcsi 2000)

The final analysis to be considered here is that of Koopman & Szabolcsi (2000). Like Zwart (1996), they follow Kayne (1994) in assuming a VO base order for German and Dutch. However, Koopman & Szabolcsi (2000:127-128) posit a much more complex structure than Zwart's, given their assumption that every morpho-syntactic feature is associated with a head. Most importantly for this discussion, Koopman & Szabolcsi (2000:137) posit three positions for object NPs between C (the complementizer position) and Agr_SP (the position of the finite verb in subordinate clauses), in the following hierarchy: C > RefP > DistP > NegP > FP > NegP > Agr_SP. Focused NPs move to F(ocus)P, quantified ones to DistP, and specific ('scrambled') ones to RefP. Let us see how one can account for the focus and word order data presented above under such an analysis.

First of all, let us take the situation where an object is focused and pre-verbal, and the verbs are in the 1-2 order. This object would be in the focus position (FP), with the finite verb in its usual position (Agr_SP) and the non-finite verb below that (37a).[13] If, on the other hand, there is a focused, pre-verbal object and the verbs are in the 2-1 order, one must assume that the non-finite V has moved to the left of the Aux, and that the phrase containing the two verbs moves to Agr_SP (37b). Since (37a) and (37b) are both equally good structures (the former being equivalent to the usual order in Standard Dutch and the latter to Standard German), there is no obvious reason for object focus to favor 1-2 in ENHG (37a); thus F1 is not accounted for. Nor is there any obvious reason why a scrambled object (i.e. an object that has moved to DistP) should be associated with the verbal positions in (37b), leaving F5 unaccounted for.

[13] Koopman and Szabolcsi (2000) assume that each member of the verbal cluster projects its own CP.

(37)a. S [$_{DistP}$ [$_{FP}$ O [$_{AgrsP}$ Aux … [$_{CP}$ …V … obj. focus with 1-2
b. S [$_{DistP}$ [$_{FP}$ O [$_{AgrsP}$ [V_i Aux] … [$_{CP}$ … t_i … obj. focus with 2-1
c. S [$_{DistP}$ [$_{AgrsP}$ Aux … V …]$_j$ [$_{FP}$ O t_{AgrsP} … ‘extraposition’ with 1-2
d. S [$_{DistP}$ [V_i Aux]$_j$ [$_{FP}$ O [$_{AgrsP}$ t_j … [$_{CP}$ … t_i … ‘extraposition’ with 2-1

The other word orders are even more difficult to account for under these assumptions. For a focused, extraposed object, one would either need to assume that there is a lower FP to the right of Agr_SP (not illustrated), or that some phrase containing the verbs has moved to some position above the focused object (37c-d). Again, there is no obvious reason why object focus should favor moving a phrase containing the verb cluster in the 1-2 order to the left of FP (37c) over moving a phrase containing the verb cluster in the 2-1 order there (37d); thus F4 is not explained.

Finally, it is unclear how focus on verbs or larger constituents is to be treated under Koopman & Szabolcsi’s (2000) assumptions. They do not indicate whether FP is available to constituents other than NPs. Therefore, it is unclear whether the assumption of a pre-verbal focus position can explain word order within the verb cluster under different focus conditions (F2) or the association between VP focus and the 1-X-2 order (F3). In conclusion, although Koopman & Szabolcsi’s (2000) system neatly accounts for the simplest focus facts (those concerning scrambling), much work needs to be done to rectify the assumption of a pre-verbal focus position with more complex focus data.

3.2.5 Discussion

None of the four analyses discussed above has any clear empirical advantages over the others in explaining the desired facts summarized in section 3.1. Each approach is able to account for at most two of the facts, but none of them even approximates being able to account for all of the data. Most problematically, no approach can explain the correlation between object focus and verb order (F1). Therefore, it appears that it is not possible to maintain that the word orders discussed here are motivated by syntactic features related to focus. The focus-related word orders continue to be syntactically unmotivated and optional. Therefore, the account to be proposed below treats the relationship between focus and word order not as a formal syntactic mechanism, but rather as a functional effect of optional word orders on pragmatic interpretation.

As a final note, since neither approach to focus offers a straightforward explanation of the facts discussed here under either the OV or the VO approach, the focus and word order facts do not provide any additional evidence for either approach to German clause structure. Thus the conclusion of section 2.5, that the OV approach to German has only a slight empirical advantage, still holds.

3.3 A functional account

3.3.1 Höhle’s hypothesis

In this section, I propose a functional account for the effect of focus on verb order in ENHG and contemporary varieties of German, but one which is compatible with a formal syntactic analysis. This account is inspired by Höhle’s (1986) hypothesis of focus and word order. First, I will briefly outline Höhle’s account and show how it can explain the favoring effect of object focus on the 1-2 order. Then, in section 3.3.2, I will expand Höhle’s basic idea into a more general principle that can account for all of the desired

facts. Finally, in section 3.3.3, I will show how this functional account can be reconciled with formal syntactic derivations of the word orders.

Höhle's goal is to establish what 'normal intonation' and 'normal word order' mean. He demonstrates that these two concepts depend on focus. According to Höhle (1986:141), the 'normal' intonation for any given word order is the intonation that allows the maximum number of focus interpretations. The 'stylistically normal word order' is for Höhle (1986:141) the word order that, under normal intonation, allows more focus interpretations than the other word orders under normal intonation. For example, take the two following sentences, both of which display the normal intonation:

(38)a. Gestern hat Karl dem Kind das BUCH geschenkt
yesterday has Karl the child the book given

b. Was hat K. dem Kind gestern geschenkt? ----------
'What did Karl give the child yesterday?'

c. Was hat K. dem Kind gestern getan? ----------
'What did Karl do to the child yesterday?'

d. Was hat Karl gestern getan? ----------
'What did Karl do yesterday?'

e. Was hat das Kind gestern erlebt? ----- ----------
'What did the child experience yesterday?'

f. Was ist gestern geschehen? ----------
'What happened yesterday?'

(39)a. Gestern hat Karl das Buch dem KIND geschenkt
yesterday has Karl the book the child given

b. Wem hat K. das Buch gestern geschenkt? ----------
'To whom did Karl give the book yesterday?'

c. Was hat K. mit dem Buch gestern getan? ----------
'What did Karl do with the book yesterday?'

d. Was ist gestern mit dem Buch geschehen? ----- ----------
'What happened with the book yesterday?'

(Stechow & Sternefeld's (1988:461) ex. (25-26))

Sentence (38a) is the normal word order, since it allows more focus interpretations than (39a).

To account for the fact that *das Buch* cannot be a part of focus in (39a), Höhle postulates the following hypothesis:

(40) Höhle's hypothesis on displacement and word order:
If the order of constituents $C_1 > C_2$ is the normal word order, then C_2 is not part of the focus projection in the order $C_2 > C_1$ (Höhle 1982:126).[14]

Put more simply, Höhle's hypothesis states that when a constituent has been displaced from the normal order, it will not be part of the focus.

This hypothesis can help answer one of the more puzzling facts about focus and word order in ENHG and some contemporary dialects: focus on an object favors the 1-2

[14] My translation of the original: 'Wenn … bei normaler Wortstellung die Konstituentenfolge $K_j > K_i$ gilt, dann nimmt, wenn $K_i > K_j$ …, K_i an keiner Fokusprojektion teil'.

order (F1). Consider the following data from Swabian (Chapter 4, section 3.3.3). Whereas the 2-1 order with stress on the object allows focus on the object, the object and verb, or the entire clause (41), the 1-2 order allows only the object focus interpretation (42).

(41)a. I glaub, dass Glaus des BUACH *glese had.*
I think that Klaus the book read has

b. Was had Glaus geschdern glese? ----------
'What did Klaus read yesterday?'

c. Was had Glaus geschdern gmacht? ----------
'What did Klaus do yesterday?'

d. Was isch geschdern bassierd? ----------
'What happened yesterday?'

(42)a. I glaub, dass Glaus des BUACH *had glese.*
I think that Klaus the book has read

b. Was had Glaus geschdern glese? ----------
'What did Klaus read yesterday?'

This is accounted for straightforwardly by Höhle's hypothesis. The normal word order is 2-1, so in that order, the verb can be part of the focus (41c-d). In the 1-2 order, on the other hand, the verb is not in its usual position, and thus is not part of the focus (42).[15]

Thus the 1-2 order can have a discourse function: since stress on the object does not unambiguously indicate focus on the object in the normal word order, the 1-2 order may be used to disambiguate object focus. This approach is consistent with the fact that scrambling disfavors the 1-2 order (F5). As shown in (39), scrambling has the effect of defocusing an object, and now we see that 1-2 is used to indicate focus on the object. Therefore, scrambling and the 1-2 order are incompatible.

3.3.2 A more general hypothesis on focus and word order

There is, as far as I can tell, just one problem with trying to implement Höhle's hypothesis in (40) to additional data. His formulation seems too restrictive, failing to account for cases where the displaced constituent is itself the focus:

[15] Höhle's hypothesis in (40) may imply to the generativist something unintended by Höhle. In some generative treatments of focus, the focus projection is equivalent to a syntactic constituent (as in Selkirk 1995). Höhle's statement that the displaced constituent is not part of the focus projection may then imply that it has been moved out of the focus projection. Such a treatment makes sense for some instances, such as (39c): the direct object *das Buch* has scrambled, and the focus is on the remnant VP *dem Kind geschenkt*. Judging from these sentences, the generativist might be tempted to hypothesize that the scrambled object in (39c) or the raised verb in (42) have been moved out of the syntactic phrase that is equivalent to the focus projection. However, as Höhle points out, sentences like (39d) are evidence that the focus projection is not necessarily a syntactic constituent, as the focus is discontinuous (1986:121). In this case, there is no possibility that *das Buch* has been moved out of the focus projection, as it is surrounded by parts of the focus.

(43) Gestern hat Karl das BUCH dem Kind geschenkt.
yesterday has Karl the book the child given

As in (38a), *das Buch* appears in the non-normal position before *dem Kind* and so according to (40) should not be part of focus. However, in this case, there is narrow focus on *das Buch*.

In order to maintain Höhle's insight, while still being able to account for cases like (43), I propose the following modification to (40):

(44) Generalization on displacement and word order:
If the order of constituents $C_1 > C_2$ is the normal word order, then C_2 *receives an interpretation that is marked with respect to focus* in the order $C_2 > C_1$.

That is, a displaced constituent receives a marked focus interpretation. The marked focus interpretation may take the form of defocusing, as in Höhle's formulation of the rule, or, when the displaced constituent contains the sentential stress, the marked focus interpretation is narrow focus.

Let us see how this hypothesis accounts for the desired facts. This formulation can account for the scrambling data in (39) as well as F1, the correlation between object focus and the 1-2 order (42): in each case the displaced constituent receives a marked focus interpretation, i.e. it is defocused. (F5 is accounted for in the same way as under Höhle's hypothesis.) In addition, this hypothesis can account for cases where the displaced constituent is itself the focus, as in (43). In this case, the displaced constituent *das Buch* is accented and thus the marked focus interpretation that it receives is narrow focus. Likewise, this hypothesis accounts for F3 and F4. In the case of F3 (1-X-2 marks VP focus), the focused VP is in a marked order with respect to the finite verb, and since part of the raised VP (usually the object) is stressed, this clearly indicates narrow focus on the VP. In the case of ENHG extraposition (F4), the non-normal position of the object, to the right of the verb, indicates that it is focused.

Moreover, this more general formulation captures the complex word order possibilities within the verb cluster when one verb is focused (F2). Recall Schmid & Vogel's (2004:239) findings concerning focus on parts of the *werden*-modal-infinitive cluster. For example, focus on the lexical verb ('3') allows the orders 3-2-1, 1-3-2, and 3-1-2. If we were to assume that a displacement defocuses a constituent, as implied by Höhle, these data would be difficult to account for. However, they follow quite naturally from the more general principle that displacement indicates marked focus. Assuming that 3-2-1 is the normal word order and assuming Haegeman's (1992) analysis of verb clusters, focus on 3 can be ambiguously indicated by stress alone (3-2-1). Or, by moving 3-2 to the right, verb 3 receives the marked focus interpretation that it is narrowly focused (1-3-2). Or 3 can be focused by displacing and thereby defocusing 2 (3-1-2).

Similarly, this approach to focus and word order can account for the fact that there are four ways to mark object focus in ENHG (F6). The object may be left in situ with the non-finite verb displaced and thereby defocused, the object may be extraposed and thus focused, the object and the non-finite verb may be displaced, or the whole VP may be extraposed marking the object in the VP as focused. What all of these have in common is that they are non-normal orders vis-à-vis the normal order of object and verbs.

Finally, this hypothesis can help account for the fact that contrastive focus has a stronger favoring effect on marginal orders than mere new information focus does. We may attach an addendum to (44) to the effect that if a word order is very marked in a given variety, it may be licensed only under very marked (i.e. contrastive) focus.[16] This would explain the increased preference in ENHG for the 1-2 order with contrastive focus as opposed to new information focus. Recall also that some speakers of Austrian German rejected the 1-2 order with new information focus on the object but accepted it when the object was strongly stressed, thus probably contrastive. New information focus may not always be strong enough for the speaker/writer to disambiguate it using the 1-2 order, but the need to indicate a contrast might be enough to prompt the use of the very marked order.

The hypothesis in (44) has a couple of interesting consequences. One is that 'marked focus interpretation' has two outcomes that are the opposite of each other: the displaced constituent is either focused or defocused. This disjunction is perhaps surprising. Therefore, let us examine one more piece of evidence supporting the dual nature of marked focus. Recall from Table 11 in Chapter 4 that with focus on the VP, the 3-2-1 order is much better than the 1-3-2 order. This is presumably because this is the normal order, and allows focus to project from the stressed object to the entire VP:

(45) ... dass Klaus [$_{Foc}$ einen ROMAN *schreiben*] *müssen wird*.
that K. a novel write$_3$ must$_2$ will$_1$
'(I said) that Klaus will have to write a novel.'

Under object focus, however, both orders are about equally good:

(46)a. ... dass Klaus [$_{Foc}$ einen ROMAN] *schreiben*$_3$ *müssen*$_2$ *wird*$_1$.
b. ... dass Klaus [$_{Foc}$ einen ROMAN] t_i *wird*$_1$ [*schreiben*$_3$ *müssen*$_2$]$_i$.

This is because object focus can be ambiguously indicated by stress on the object *einen Roman* (46a), or this is disambiguated if the verbs are moved out of their normal order (46b). Finally, if the main verb is focused, the 3-2-1 order is better than 1-3-2 (although the difference is not as dramatic as with VP focus):[17]

(47)a. ... dass Klaus einen Roman [$_{Foc}$ *SCHREIBEN*$_3$] *müssen*$_2$ *wird*$_1$.
b. ... dass Klaus einen Roman t_i *wird*$_1$ [[$_{Foc}$ *SCHREIBEN*$_3$] *müssen*$_2$]$_i$.

This confirms that a single word order pattern (i.e. the displacement of *schreiben müssen*) can focus a constituent (47b) as well as defocusing it (46b), with the distinction between the two indicated by differing stress patterns.

The second consequence is that this hypothesis predicts that if two varieties differ in their normal word order, they will show the opposite patterns with respect to focus. This may explain a puzzling fact presented in Chapter 3, section 3.3. In the 14th-century text from Swabia, the 1-2 order occurs 77% of the time and thus is very likely the normal word order, contrary to most ENHG texts. Therefore, this text shows the opposite of the

[16] For evidence that new information focus and contrastive focus have semantic and phonological differences, see Selkirk & Kratzer (2005).
[17] The reason that the 3-2-1 order may be preferable to 1-3-2 in this context is that focus on the verb is already unambiguously marked in speech by the accent on the verb (46a).

usual ENHG pattern: the presumably normal 1-2 order is favored by old information, and the 2-1 order is favored by focus.

3.3.3 Optional movement, exploited at interface

The above account relies not on hierarchical structure, but on linear word order. However, throughout this chapter, we have sought a syntactic account for the focus and word order facts. Therefore, this section attempts to reconcile the functional approach to the relationship between focus and word order outlined above with a formal analysis of its syntax.

First of all, since this account relies on linear word order, the exact derivation of the orders in question is not necessarily crucial. This is perhaps a desirable state of affairs, given the controversy surrounding the basic clause structure in German. What is crucial, though, is the notion of the 'normal order', which for German seems to be S O V Aux, however that may be derived. It is possible that the normal order in German subordinate clauses is the underlying order, as in the classic generative account (section 2.3 above).[18] However, it is also possible that the normal word order is derived: for example, in an approach like Zwart (1996), although the underlying order is VO, one could maintain that the normal order is OV because the object always moves to that position (see section 2.4 above). It was concluded in sections 2.5 and 3.2.5 above that neither approach has a clear empirical advantage regarding the issues explored here. I believe that, with some modification, the account described below will be compatible with either approach. However, given the slight empirical advantage of the OV account, and for ease of exposition, I present the following discussion from the assumption that German is underlyingly SOV.

This account offered here is similar to Haider & Rosengren's (2003) treatment of scrambling. Haider & Rosengren (2003:223) also rely on the notion of basic word order, which is determined in the same manner as in Höhle (1986): the basic word order is that which allows the widest focus.[19] For Haider & Rosengren (2003:210), scrambling is a truly optional movement operation, which takes an argument and adjoins it to VP. Similarly to Reinhart (1995), Haider & Rosengren (2003:223) maintain that since the nuclear stress accent will then fall on the next deepest argument, that argument will be focused, rather than the scrambled one. Most importantly for my account, Haider & Rosengren view scrambling as syntactic movement that is not triggered by any syntactic feature. Rather, this optional movement is 'exploited at the interface between syntax and semantics/pragmatics' (Haider & Rosengren 2003:215).

A similar view of optional movement can help reconcile the functional approach to focus and verb order outlined above in 3.3.2 with the framework of generative grammar. Let us take the case of object focus in ENHG. As discussed above, focus on the object may be indicated in several ways. First, since the nuclear stress accent falls on the object in the base order, object focus may be (ambiguously) indicated by the normal word order and intonation. Secondly, the non-finite verb may undergo VR, leaving the

[18] But see Müller (1999:9) for problems with the assumption that the underlying order is the unmarked order.

[19] Note that there is no basic order such as IO > DO that holds across the language; rather, base order is dependent on the argument structure of a given verb. For example, the base order is nominative > accusative for *interpretierien* 'interpret', but accusative > nominative for *interessieren* 'interest' (2003:224).

stressed object unambiguously focused. Third, the object may be extraposed, and being stressed will be unambiguously focused. Fourth, extraposition of the object may be accompanied by VR, and finally, the VP may undergo VPR. Crucially, the movement operations proposed here are optional. They are not triggered by syntactic features, nor are they obligatory under a particular pragmatic interpretation. Rather, as in Haider & Rosengren (2003), the orders derived from these optional movements may be exploited at the interface to favor a given focus interpretation. In other words, although the operation is not syntactically triggered, it takes place because it will be pragmatically felicitous.

The above discussion shows how these word orders may be derived syntactically, if one allows the controversial assumption of syntactically optional movement. However, if one rules out optional syntactic movement for theoretical reasons, as in Chomsky (1995), one may simply relocate the operations which derive the word orders in question to another part of the grammar. Thus Chomsky (1995:324) relegates scrambling and extraposition outside the realm of syntax and into stylistic rules. Likewise, Wurmbrand (2003:287) suggests that the orders within the verb clusters are derived at PF (Phonological Form). More recently, however, Chomsky (2001:34) suggests that some syntactic operations may indeed be optional, if they result in a 'new outcome', such as a different focus interpretation. In any event, my hypothesis that a non-normal order results in a marked focus interpretation (44) may still hold, whether one places the locus of the re-orderings in syntax or some other domain of grammar.

4 Conclusion

This chapter began by reviewing previous scholarship on the basic architecture of the German clause. In section 2.3 we found that the history of German exhibits periods in which the set of permitted surface word order patterns has varied, as well as the frequency with which certain word order patterns are attested. Nevertheless, the most plausible hypothesis appears to be that the underlying word order in German has been OV throughout its attested history, as in the classic account of the syntax of Modern German. Moreover, assuming the basic OV structure, there is evidence from ENHG supporting Haegeman's (1992) contention that VR involves head adjunction while VPR is phrasal adjunction. However, the alternative VO approach is also feasible if one is drawn to it for theoretical reasons (2.4), with the more traditional OV approach maintaining only a slight empirical advantage (2.5).

Section 3.2 considered whether the focus data from previous chapters could be analyzed under current syntactic approaches to focus and word order. These approaches were determined to be inadequate; moreover, the focus data do not contribute any new arguments to the OV/VO debate.

Therefore, the analysis adopted in 3.3 is independent of syntactic structure, depending on the notion of 'normal order'. The hypothesis proposed in (44), that a displaced constituent will be either defocused or narrowly focused, seems to be the best account of the facts at hand. Under the view presented here, movement operations may be optional, with some outcomes preferred because of their pragmatic effect. If one accepts that movement can be optional, this proposal is consistent with a formal syntactic analysis.

Chapter 6: Conclusion

1 Summary of findings

This final chapter begins with a brief summary of the main findings of the previous chapters. Following that, some implications of these findings will be discussed.

Chapter 2 presents a corpus study of ENHG subordinate clauses. Five factors were determined to have no effect on verb order, contrary to previous research: the position of the subordinate clause within the sentence, the category or stress of the word preceding the verbs, the syllable structure of the verb cluster, coordination, and clause type. On the other hand, the study confirms the effect of five factors discovered in previous work: syntagm, extraposition, prefix type, sociolinguistic status of the author, and genre of the text. This study also discovered a new and important favoring factor, focus. In fact, nearly two-thirds of the clauses with the 1-2 order have either focus or a focus-related factor.

Chapter 3 breaks down the data from Chapter 2 by dialect and individual text. The factors that affect verb order in the entire corpus also have an effect in most of the texts. On the basis of the frequency of particular verb orders and the factors that favor those orders, the dialects were combined into larger dialect groups: Cologne-Hesse, Alsace-Zurich, Nuremberg-Swabia, Saxony-Thuringia, and Bavaria-Austria.

Chapter 4 examines the word-order possibilities in Modern Standard German and some contemporary dialects of German. Although much of the ENHG variation has been lost in the standard language, word orders within the verb clusters may still vary in some dialects and continue to be influenced by syntagm and in some cases extraposition. Most importantly, a questionnaire-based study of two-verb clusters in Austrian German and Swabian and a Magnitude Estimation study of Standard German *werden*-modal-infinitive clusters demonstrated that focus continues to affect verb order in those varieties.

Chapter 5 discusses possible analyses for subordinate-clause word order in ENHG and modern varieties of German. The most adequate analysis turns out to be the traditional SOV approach to subordinate clauses, with 1-2, 1-3-2, etc. derived by Verb Raising and 1-X-2, etc. derived by Verb Projection Raising. The effect of focus on verb order is accounted for by the hypothesis that a constituent displaced from the normal order will be either defocused or narrowly focused.

2 Implications

2.1 The origin of Standard German

Unlike the state of affairs in the histories of English and French, where the speech of the capital became the model for the standard languages (Burke 2004:99-100), Standard German did not develop straightforwardly from any particular dialect. Rather, Modern Standard German represents a compromise between phonological and morphological forms from different dialects, with some Middle German and some Upper German features. Hartweg & Wegera (2005:45-58) summarize the three most influential approaches of the last century to the development of Standard German.

First, Burdach (1925) maintains that the variety of German used in Prague in the 14th century became the model for the standard language, since Prague at that time was

the site of the chancery of the Holy Roman Empire and an important cultural center, e.g. for the reception of the Italian Renaissance. According to Burdach's hypothesis, scribal practices from the prestigious Prague chancery spread to other chanceries, eventually reaching influential authors such as Martin Luther. The blend of Upper and Middle German features in Modern Standard German is in this view a result of the fact that Prague is in neither dialect region, being in the center of Czech-speaking Bohemia. Critics of this hypothesis, however, have pointed out that the chancery writings from Prague are far less uniform than writings from other chanceries.

The second approach comes from Frings (1936, etc.), who maintained that written German is based on the early-modern speech of the East Middle German (EMG) region. The EMG region was colonized in the 11th to 13th centuries by speakers of different German dialects, and Frings maintains that the spoken language of the region reflected the mixture of dialect features which characterizes Standard German. For Frings, the language used in the Saxon chancery at Meissen was directly based on the local dialect. However, later studies find that both Frings' characterization of EMG as a blend of Middle and Upper German and his emphasis on the Saxon chancery are overstated.

Finally, more recent studies on the origins of Standard German have emphasized its supra-regional character, rather than attempting to associate it with particular dialects. Besch (1968) maintains that the standard language has its origin in the 16th century as a compromise between EMG, East Franconian, and Bavarian. Many studies, such as those by Ebert (1980, 1981), have paid attention to the sociolinguistic variation in ENHG. Based on syntactic evidence, Ebert concludes that chancery usage had a top-down effect in Nuremberg, with the writers most exposed to chancery documents most quickly adopting features that eventually became part of the standard language.

What does the research on verb order presented in previous chapters tell us about the likelihood of these hypotheses? Since my ENHG corpus does not include texts from Prague, this study offers no additional evidence for or against Burdach's (1925) Prague hypothesis. However, Swinburne's (1953) investigation of word order in the *Ackermann aus Böhmen*, written in Bohemia in the early 15th century, may provide an argument against Burdach's theory. According to Swinburne (1953:415-416), over half of the auxiliary-participle clusters in the *Ackermann* are in the 1-2 order (27, vs. 21 in the 2-1 order) and the 1-2 order is also robust for modal-infinitive clusters (12, vs. 44 examples of 2-1). Thus the preference for 2-1 in later Standard German is not likely based on early-modern usage in Prague.

As for the EMG theory of Frings (1936), it appears unlikely that the spoken dialect of this region is the source for the overwhelming preference for 2-1 in chancery writings and later authors such as Luther. First of all, recall from Chapter 2, section 2.2, that Maurer (1926) finds a dramatic split in EMG between what he terms 'written language' texts, with very low rates of 1-2, and 'dialect' texts, with the 1-2 order as frequent as 60%. Secondly, my ENHG study (Chapter 3, see table 53) shows that the frequency of 1-2 declines over time in EMG just as in other regions, and in fact declines more slowly than in other regions. Finally, in the 16th-century text from Saxony, which happens to be a sermon, the 1-2 order is still fairly high at 12% (Chapter 3, section 3.6). All of this suggests that Standard German preference for the 2-1 order must come from somewhere other than the spoken language of early-modern Saxony.

The hypothesis on the origin of Standard German that is most in line with the findings of this study is that of Besch (1968). Chapter 3 shows that the 1-2 order declined in all of the dialects surveyed here (see table 53), suggesting that the rise of the 2-1 order was a supra-regional phenomenon. Chapter 2, section 4.4.3 finds that word order in ENHG is subject to the genre of the text and the social status of the author, confirming Ebert's (1981) findings that the 2-1 order spread from the chancery style downward through society. Moreover, the fact that contemporary varieties such as Swiss German, which allow the 1-2 order today, had a low rate of 1-2 in the 16th century suggests that at the end of the ENHG period writers were beginning to adopt syntactic patterns that corresponded to the supra-regional norm but were at odds with their native dialects. In conclusion, the development of the exclusive use of the 2-1 order was not a result of its dominance in a particular dialect but rather resulted from its adoption as the norm in the supra-regional chancery style.

2.2 The clause structure of German

Chapter 5 concludes that the traditional SOV analysis of German clause structure is best able to account for the word order facts in ENHG and contemporary varieties of German. There is an additional argument to be made for the SOV approach to German, based on the diachronic developments from ENHG to present-day varieties.

Under the SOV analysis adopted in Chapter 5, the word-order difference between ENHG and Modern Standard German is that the former variety allows three types of optional, rightward movement, whereas in the latter these orders are very restricted.[1] These three movement types are extraposition, Verb Raising (1-2), and Verb Projection Raising (1-X-2). Under this approach, the decline of the ENHG orders can be straightforwardly accounted for: movement of constituents to the right of the finite verb becomes increasingly restricted. Moreover, the correlation between the decline of the 1-2 order and the decline of extraposition during the ENHG period can be accounted for, since these are both rightward movements.

Under the VO analysis, the diachronic developments are not nearly as neat. The decline of the 'extraposition' order has to be seen as the increasingly obligatory movement of the object to the left of the verbs. Likewise, the decline of 1-2 represents the tendency of the non-finite verb to move to the left. In a framework where movement has to be motivated by feature checking, these developments would have to be seen as the strengthening of some feature of the landing sites of these movements. Since the morpho-syntax of German is virtually unchanged from ENHG to the present, it is unclear whether the changes in feature strength would correlate to other linguistic changes. Wurmbrand (2001:69) criticized the feature-checking approach for stipulating 'word order features'; viewed diachronically, the stipulative nature of such features becomes even clearer.

2.3 Syntactic change

As discussed in the introduction, the loss of the 1-2 order (as well as the fixing of orders in three-verb clusters) provides an interesting case of syntactic change, because it does not seem to have any one linguistic trigger. Rather, in the ENHG period, the 1-2

[1] We will assume for ease of discussion that this is syntactic movement but leave open the possibility that the re-orderings take place outside of syntax.

order is favored by a number of structural and sociolinguistic factors, and the decline of this order is characterized by the interplay of these factors. The evidence presented in this study has largely confirmed Ebert's (1981) conclusion that the loss of 1-2 is an example of 'change from above', i.e. a development that began with the most prestigious users of the language and eventually filtered downward through the population. In addition, we have seen in Chapter 3 that in some dialects, the structural factors that had a favoring effect on the 1-2 order continued to do so even when the frequency of 1-2 became very low. This is confirmed in the studies of Modern German in Chapter 4: although verb order is no longer a very salient way to mark focus, focus still has an effect on verb order in those varieties and constructions that show some variability.

The complex development discussed in this work is an argument against overly simplistic models of syntactic change. Perhaps some changes can be regarded as parametric changes, as Lightfoot (1991) proposes, but it is hard to see the developments discussed here as parameters. More likely, as Uriagereka (2004) suggests, there is a distinction between changes to the core grammar of the language, which may involve resetting parameters and are acquired subconsciously by children, and changes to the peripheral grammar, which are sensitive to sociolinguistics and may be consciously manipulated by adults. This approach easily applies to the change in subordinate-clause word order in the history of German. The headedness of VP is a core parameter and remains head-final (OV and 2-1) throughout the attested history of German. The variation between 2-1 and 1-2, on the other hand, is at the periphery.

There are a number of good reasons to believe that the 2-1 vs. 1-2 distinction is peripheral in Urigereka's (2004) sense. First of all, as seen in Chapter 4, the continental West Germanic dialects are a prime example of microvariation, displaying a bewildering number of possibilities in verb orders (especially when three or more verbs are involved), varying from dialect to dialect and construction to construction. Secondly, as discussed in Chapter 2 and by Ebert (1981, 1998), the choice between 2-1 and 1-2 in ENHG was dependent on a number of syntactic and sociolinguistic factors. Finally, the choice of verb orders in ENHG was subject to conscious choice by adults: Ebert (1998) shows that some individuals used the 1-2 order less as they received more education.

In conclusion, German has remained SOV throughout its attested history. However, there has been considerable variation in the periphery of the grammar, especially at the right edge of the clause. The order of the verbs within the verbal complex has been subject to a great deal of syntactically and sociolinguistically conditioned variation. The former variation not only continues in many contemporary dialects, but has left its mark on Modern Standard German as well.

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Publications

In progress. "Focus and verb order in Early New High German: Historical and contemporary evidence". In *Linguistic Evidence, Volume 2.* Ed. Marga Reis.

To appear. "The Rise of the Suffixal Article in the Early North Germanic DP". Co-authored with Dorian Roehrs. In *Proceedings of WECOL 2004.*

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