Factors Favoring Aux-V Order in 15th-century German Subordinate Clauses *

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This is a study of the relative order of finite and non-finite verbs in Early New High German subordinate clauses. I argue that Early New High German was underlyingly SOV and V-Aux and that the Aux-V order involves adjunction to the right. I test several hypotheses about the causes of the Aux-V order on a corpus of four 15th-century texts. The effect of some phonological factors is not verified by this study. However, I do find a number of factors that favor Aux-V: separable prefixes, clause type, syntagm type, clusters of three verbs, argument postposition, focus, and coordination. I conclude that the Aux-V order is used to highlight marked information structure.

Keywords: Early New High German, subordinate clauses, Verb Raising, verb clusters, focus.

1. Verb Order in ENHG

1.1. Basic facts

Modern standard German (or New High German; NHG) has a fixed order for verbs in subordinate clauses. First, the verbs are clustered at the end of the clause, and secondly, the verbs appear in a particular order, non-finite (V) followed by finite (Aux): *

(1) a. dass Klaus seinem Sohn ein Buch kaufen will. S O V Aux
    that K. his-DAT son a book buy wants
    ‘that Klaus wants to buy a book for his son.’

b. *dass Klaus seinem Sohn ein Buch will kaufen. *S O Aux V

c. *dass Klaus {will} seinem Sohn {will} ein Buch kaufen. *S Aux O V

d. *dass Klaus will kaufen seinem Sohn ein Buch. *S Aux V O

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*I use the abbreviation “Aux” to indicate not just the auxiliaries haben ‘have’, sein ‘be’, and werden (the passive and future auxiliary), but also the modal verbs, without claiming that German modals are modal auxiliaries. Likewise, “O” does not always stand for object, but for any part of the predicate. To make the order more transparent, the verbs are italicized and postposed or intervening material appears in boldface.
This is strikingly different from the order found in main clauses, where the finite verb appears in the second position of the clause and the non-finite verb is clause-final, see (6b) below.

However, earlier stages of German, as well as many modern West Germanic dialects, show much more variation. In Early New High German (1350-1650), the modern order V-Aux is the most frequent word order:

(2) das er in kainer sund *verczweiffeln* sol  
that he in no sin despair shall  
‘that he shall not despair in any sin.’ (Pillenreuth 161)

In addition to the NHG-like order, there are also clauses where the non-finite verb follows the Aux, either directly (3) or separated by some constituent (4).²

(3) das der mensch alle sein lebtag nicht anders *scholt thun*  
that the person all his life-days nothing else should do  
‘that man should do nothing else all the days of his life’ (Pillenreuth 206)

(4) das der mensche nicht *scholt sein rew sparen* an das todpett  
that the person not should his regret save on the deathbed  
‘that one should not hold back his repentance on his deathbed’ (Pillenreuth 212)

Furthermore, whatever the order of verbs, they need not be in the clause-final position. The verb cluster may be followed by one or more constituents, especially NPs and PPs, such as the PP *an das todpett* in (4), and as in the following examples:

(5) a. Wye man *fragen sol* dy krancken  
how one ask shall the sick  
‘how one should ask the sick’ (Pillenreuth 166)

b. daz ich damit *sol pussen mein sund*  
that I therewith shall atone my sin  
‘that I should atone for my sin with that’ (Pillenreuth 163)

Over the course of the ENHG period, the frequency of Aux-V clauses and clauses with postposition declines (see e.g. Ebert 1981). By the end of the ENHG period (1650), the modern order has completely won out in the written language.

This paper reports on a pilot study of ENHG subordinate-clause word order, using a corpus of four 15th-century German texts. In the remainder of section 1, I first describe my corpus and then argue that all of the ENHG orders are best derived from an underlying SOV structure. I assume that the Aux-V orders are derived by Verb (Projection) Raising. Section 2 discusses some previous hypotheses about the causes of the Aux-V order, which are not supported by this study. In section 3, I will present the factors that are favorable to Aux-V in my 15th-century corpus. I will argue that information structure, specifically

² Note that the sixth logically possible word order, *S V O Aux*, is not attested.
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focus, plays an important role in the ordering of the verbs. Finally, in section 4, I will summarize the causes for Aux-V, present some remnants of the Aux-V construction in NHG, and discuss why information structure may have an effect on verb order.

1.2. The corpus

My corpus of 15\textsuperscript{th}-century German consists of 468 subordinate clauses, each with a finite and at least one non-finite verb, from four texts available in the on-line 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 on-line selection of the fourth text, Pillenreuth Mystik (Nürnberg, 1463), is written in two hands. I took the 97 clauses from the first hand and 80 clauses (the entire on-line selection) from the second hand.

1.3. Early New High German as an SOV language

Following Greenberg’s (1966) observation that SOV languages tend to have V-Aux order, some scholars (Lehmann 1971 and Vennemann 1974; Burridge 1993 for Dutch) have argued that the variation between V-Aux and Aux-V is a result of competition between SOV and SVO structures. However, as Kroch and Taylor argue, surface V-Aux vs. Aux-V can be independent of SOV vs. SVO and must be diagnosed separately (2000:133). Furthermore, it is possible to maintain that German has always been underlingly SOV and V-Aux, accounting for the other orders by rightward movement (Bies 1996:3). Under this approach, the development of Standard NHG word order is characterized by the loss of these optional rightward movements.

Under the “classic” generative approach to German word order (den Besten 1983), German is an SOV (and V-Aux) language, with subordinate clauses reflecting the underlying order (6a). Main clause word order is derived from the SOV structure by movement of the finite verb to the second position of the clause (6b):

\begin{align*}
(6) \quad & \text{a. dass Klaus seinem Sohn ein Buch kauf\textit{en} will.} \quad \text{Sub. clause: SOV} \\
& \text{that K. his-DAT son a book buy wants} \quad \text{‘that Klaus wants to buy a book for his son.’} \\
& \text{b. Klaus \textit{will}, seinem Sohn ein Buch kauf\textit{en} \textit{t}i.} \quad \text{Main clause: SOV + V2}
\end{align*}

Despite the fact that ENHG subordinate clauses show both SOV and SVO surface orders, I argue that the underlying order is actually SOV, as in NHG. Surface SVO order as in (5) could be a reflection either of underlying SVO or of underlying SOV with rightward movement of various elements. Kroch & Taylor (2000:145) argue that an SVO language should have both heavy and light elements to the right of V. Since light elements (pronouns, verbal particles, and stranded prepositions) cannot move rightward, their presence there would unambiguously indicate SVO. However, in my 15\textsuperscript{th}-century ENHG

\footnote{Kroch & Taylor (2000) take Aux-V order to represent I-mediated grammar, and V-Aux order to indicate I-final. In this paper, I remain agnostic on the position of I.}
corpus, there is only one example of a light element to the right of V (which does not seem to involve any contrast):

(7) 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, ENHG clauses with SVO surface order must result from underlying SOV structure with rightward movement. This is in line with Bies’ (1996:14, 20) observations that in ENHG, NPs to the right of V tend to be either heavy (8a) or have narrow focus (8b):

(8) 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 knew the omnipotence of the Father.’ (Bies 1996:19)

b. nit allein von Ihesus wegen, sunder daz sie auch sehen Lazarum
    not only for J. sake, but that they also see L.
    ‘... not just for Jesus’ sake, but also to see Lazarus’ (Bies 1996:7)

1.4. Aux-V order as Verb (Projection) Raising

If ENHG was SOV, then it must have been V-Aux (S O V Aux): the order S O Aux V is not a possible underlying structure, since O is the complement of V and should be adjacent to it. Then how are the surface orders S O Aux V (3) and S Aux O V (4) to be derived? Bies (1996:40) points out that these clauses can be accounted for by assuming that ENHG has the Verb Raising / Verb Projection Raising construction, as in West Flemish (Haegeman 1992) and Swiss German (Schönenberger & Penner 1995).

According to Haegeman (1992:193), Verb Raising (VR) in West Flemish involves adjunction of the non-finite verb to the finite verb:

(9) a. da Jan woarschijnlijk [VP da boek vuor Marie kuopen] wilt base order
    that J. probably the book for M. buy wants
    ‘that Jan probably wants to buy the book for Marie.’

b. da Jan woarschijnlijk [VP da boek vuor Marie ti] wilt [V kuopen], VR

Haegeman argues that Verb Projection Raising (VPR) involves the adjunction of VP–either intact (10b) or with some arguments previously scrambled out (10c)–to the higher VP (1992:181):

(10)a. da Jan woarschijnlijk [VP da boek vuor Marie kuopen] wilt base order

b. da Jan woarschijnlijk ti wilt [VP da boek vuor Marie kuopen]i VPR

c. da Jan woarschijnlijk da boekj ti wilt [VP ti vuor Marie kuopen]i remnant VPR
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Finally, ENHG sentences with the order S Aux V O such as (5b) require two movement operations. First, VR reverses the order of the verbs (11b), then the NP is moved to the right of the verb cluster (11c):

(11)a. daz ich damit [VP mein sund pussen] sol base order: S O V Aux

NP postposition as in (11c) is needed independently to account for S V Aux O sentences like (5a).

2. **Comparison with previous studies: inconclusive factors**

2.1. **Introduction**

In this section, 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 my ENHG corpus using GoldVarb 2001 (Robinson et al. 2001) and was unable to verify these claims.

GoldVarb 2001 is a set of statistics programs originally designed for sociolinguistic studies. GoldVarb helps determine the significance of the effect of various independent variables on a dependent variable (in this case, V-Aux vs. Aux-V). In my 15th-century corpus, the rate of Aux-V overall is 27%. As an informal approximation, a rate of Aux-V that is higher than 27% probably indicates a favoring factor. However, in order to determine whether and to what degree that effect is significant, one must look at the factor weight generated by GoldVarb. The factor weight is expressed as a probability between 1 and 0, with 0.5 indicating no effect. The further the factor weight is from 0.5, the greater the significance of the factor’s effect on the variable. In this study, a factor weight less than 0.5 indicates a factor that favors Aux-V.

2.2. **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 be V-Aux and non-sentence-final clauses Aux-V. He argues that the V-Aux order is preferred in sentence-final clauses due to falling intonation.

However, the data from my 15th-century corpus do not support Maurer’s findings:

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4 Of course, if one follows Kayne’s (1994) anti-symmetry hypothesis, S Aux V O would be the underlying order. That is what Zwart (1996) assumes for Dutch, deriving the other orders by movement. This idea will not be pursued further here.
Table 1
Effect of the position of the clause on Aux-V

<table>
<thead>
<tr>
<th>Position of clause</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence-final</td>
<td>87 (73%)</td>
<td>32 (26%)</td>
<td>0.469</td>
</tr>
<tr>
<td>Not sentence-final</td>
<td>251 (71%)</td>
<td>98 (28%)</td>
<td>0.510</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\(p = 0.102\)

Whether the clause is sentence-final or not, the rate of Aux-V order is very similar to the expected rate of 27%. This confirms Ebert’s conclusion (1981:206) that the position of the clause within the sentence does not play a role in the choice of verb orders.

### 2.3. Word/phrase preceding the verb cluster

Ebert (1981:206) finds that the distinction noun vs. pronoun influences verb order, with a preceding pronoun favoring V-Aux. In my 15th-century corpus, although the Aux-V order does occur slightly more often when preceded by a noun than when preceded by a pronoun, the factor weights show that this distinction is not very strong:

Table 2
Effect of the category of the preceding word on Aux-V

<table>
<thead>
<tr>
<th>Category of preceding word</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun</td>
<td>81 (66%)</td>
<td>40 (33%)</td>
<td>0.436</td>
</tr>
<tr>
<td>Pronoun</td>
<td>48 (75%)</td>
<td>16 (25%)</td>
<td>0.556</td>
</tr>
<tr>
<td>Adjective</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
<td>0.337</td>
</tr>
<tr>
<td>Adverb</td>
<td>91 (75%)</td>
<td>30 (24%)</td>
<td>0.514</td>
</tr>
<tr>
<td>Prepositional phrase</td>
<td>92 (77%)</td>
<td>26 (22%)</td>
<td>0.551</td>
</tr>
<tr>
<td>da-compound</td>
<td>6 (75%)</td>
<td>2 (25%)</td>
<td>0.440</td>
</tr>
<tr>
<td>Clause (infinitival or finite)</td>
<td>8 (80%)</td>
<td>2 (20%)</td>
<td>0.803</td>
</tr>
<tr>
<td>Nothing precedes</td>
<td>9 (45%)</td>
<td>11 (55%)</td>
<td>0.246</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\(p = 0.085\)

Ebert attributed the difference that he finds between nouns and pronouns to phonological stress, speculating that the heavier stress of nouns compared to pronouns favored the Aux-V order (1981:207). Ebert also finds this to be the case in further studies (1998). This observation goes back to Behaghel, who claims that the combination of a

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\(^5\) GoldVarb gives the percentages with no additional decimal places and unrounded, so they often add up to 99% rather than 100%. I report the probabilities here exactly as given by GoldVarb, except that I have changed GoldVarb’s \(p = 0.000\) to \(p < 0.001\).
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A stressed word such as a noun plus Aux-V order produces the sequence “Hochton, Unton, Hochton” (“stressed word, unstressed word, stressed word”), while the combination of a light word plus V-Aux produces the sequence “Unton, Hochton, Unton” (1932:IV, 87). 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 corpus. Treating 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 (confirming Bies 1996:59):

**Table 3**
Effect of the stress of the preceding word on Aux-V

<table>
<thead>
<tr>
<th>Stress of preceding word</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stressed</td>
<td>218 (73%)</td>
<td>79 (26%)</td>
<td>0.498</td>
</tr>
<tr>
<td>Unstressed</td>
<td>111 (73%)</td>
<td>40 (26%)</td>
<td>0.540</td>
</tr>
<tr>
<td>Nothing precedes</td>
<td>9 (45%)</td>
<td>11 (55%)</td>
<td>0.246</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

p = 0.036

In section 3.5, I will show that the NP preceding the verb cluster does influence the order of the verbs, not in terms of stress or noun vs. pronoun, but in terms of new information vs. old information.

**2.4. Separable prefixes (alternation of stressed and unstressed syllables)**

ENHG, like modern German, has a series of verbal prefixes. There are a number of stressed, separable prefixes (SSPs), most derived from prepositions. There are also unstressed prefixes, which are inseparable from the verb. Ebert (1981:207) finds that non-finite verbs with a SSP favor the Aux-V order, and that holds true for my 15th-century corpus as well:

**Table 4**
Effect of verbal prefix on Aux-V

<table>
<thead>
<tr>
<th>Prefix type</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stressed</td>
<td>25 (54%)</td>
<td>21 (45%)</td>
<td>0.264</td>
</tr>
<tr>
<td>Unstressed</td>
<td>224 (79%)</td>
<td>59 (20%)</td>
<td>0.542</td>
</tr>
<tr>
<td>No prefix</td>
<td>89 (64%)</td>
<td>50 (35%)</td>
<td>0.492</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

p < 0.001
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. According to Ebert, some patterns should favor either order (sólłēn schrēibēn–sólłēn sólłēn ‘should write’), since both orders produce an alternation of stressed and unstressed syllables. For other patterns, reordering to Aux-V results in a clash of syllables (bērichtēn sóllēn–sollēn bērichtēn ‘should report’) and thus should not favor Aux-V. Likewise, the Aux-V order should be favored when it results in alternating stressed and unstressed syllables. However, this explanation does not hold for my 15th-century corpus:

Table 5
Effect of syllable pattern on Aux-V

<table>
<thead>
<tr>
<th>Alternating syllables</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both orders result in clash</td>
<td>14 (70%)</td>
<td>6 (30%)</td>
<td>0.448</td>
</tr>
<tr>
<td>Neither order clashes</td>
<td>168 (77%)</td>
<td>50 (22%)</td>
<td>0.515</td>
</tr>
<tr>
<td>V-Aux no clash, Aux-V clashes</td>
<td>64 (55%)</td>
<td>52 (44%)</td>
<td>0.434</td>
</tr>
<tr>
<td>V-Aux clashes, Aux-V no clash</td>
<td>92 (80%)</td>
<td>22 (19%)</td>
<td>0.548</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.001

In fact, the results here are the opposite of what one would expect. When the underlying V-Aux order has alternating stressed and unstressed syllables but reordering to Aux-V would produce a clash of syllables, the frequency of Aux-V order (44%) is actually higher than the expected rate of 27%. Moreover, when the V-Aux order involves clashing syllables but reordering to Aux-V would resolve that, the rate of Aux-V is lower than expected (19%). Finally, clusters like schrēibēn sōllēn, which Ebert (1981) finds to have a high frequency of Aux-V, have a lower rate of Aux-V than expected (22%).

Thus, the preference for Aux-V 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. A possible explanation could be the fact that a verb and its SSP form a complex predicate, as argued for NHG by Müller (2002:409).

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6 Ebert concedes that his sample is too small for statistical significance. Ebert does not maintain this explanation in a later study; however, he continues to find that when the V has the pattern as in bērichtēn, V-Aux is favored (1998:162). However, this pattern does not strongly favor either order in my corpus, since the factor weight is 0.542. Finally, note that the issue of alternating syllables within the verb cluster is independent of the alternation of stressed and unstressed words discussed in Ebert (1981) limits his conclusions to modal + infinitive clusters. I tested this again on only modal + infinitive, and found very similar results to those in Table 5.
3. Factors favoring VR (Aux-V) order in 15th-century German

3.1. Introduction

In the previous section, I discussed two factors for which I was unable to find any effect on verb order–position of the clause and word preceding the verb cluster. I also discussed a third factor, verbal prefixes, that does affect word order, but found that the previous explanation for this correlation does not hold. In this section, I present six factors that do affect verb order in ENHG subordinate clauses: clause type, syntagm type, number of verbs in the cluster (discussed under syntagm type), NP/PP postposition, focus, and coordination.

3.2. Clause type

In complement clauses with verb clusters, the order Aux-V is favored slightly. Relative clauses, on the other hand, favor V-Aux:

Table 6
Effect of clause type on Aux-V

<table>
<thead>
<tr>
<th>Clause type</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complement clause</td>
<td>107 (63%)</td>
<td>61 (36%)</td>
<td>0.421</td>
</tr>
<tr>
<td>Relative clause</td>
<td>109 (84%)</td>
<td>20 (15%)</td>
<td>0.646</td>
</tr>
<tr>
<td>Adverbial clause</td>
<td>46 (77%)</td>
<td>13 (22%)</td>
<td>0.558</td>
</tr>
<tr>
<td>Other</td>
<td>76 (67%)</td>
<td>36 (32%)</td>
<td>0.417</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p < 0.001$

To my knowledge, this pattern has not been mentioned before. It is unclear to me why clause type should have any effect on the verb order.

3.3. Syntagm type

In those West Germanic dialects (including Standard Dutch) that allow Aux-V order, there is a preference for V-Aux in constructions with participles, and for Aux-V with a modal + infinitive (Wurmbrand 2001:7-10). This also seems to be the case in ENHG, where the future construction werden + infinitive patterns with the modal construction in showing a higher preference for the Aux-V order:
Table 7
Effect of general syntagm types on Aux-V

<table>
<thead>
<tr>
<th>Syntagm</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aux + PPP (perfect, passive)</td>
<td>221 (82%)</td>
<td>46 (17%)</td>
<td>0.625</td>
</tr>
<tr>
<td>Modal (causative, future) + inf.</td>
<td>113 (62%)</td>
<td>69 (37%)</td>
<td>0.390</td>
</tr>
<tr>
<td>Three verbs</td>
<td>4 (21%)</td>
<td>15 (78%)</td>
<td>0.053</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\[ p < 0.001 \]

Clusters of three verbs have the highest rate of Aux-V, and indeed this is the only context in ENHG where Aux-V is much more frequent than V-Aux. There are only four instances of the order V₂-V₁-Aux, as in (12), which represents underlying order according to my assumptions.

(12) das so darvorgesetzt ist in fragweis verstanden werden soll. V²-V¹-Aux
    that rel. before.set is in questionwise understood be should
    ‘that what is set before should be understood as a question’  (Eunuchus 14)

The other orders—V²-Aux-V¹ (13), Aux-V²-V¹ (14), and Aux-V¹-V² (15)—can all be treated as instances of Verb (Projection) Raising (see Wurmbrand 2001 for a discussion of various ways to derive these orders).\(^8\)

(13) dy er ... getan ti solt haben, V²-Aux-V¹
    which he done should have
    ‘which he should have done’ (Pillenreuth 159)

(14) als er des tages ti scholt [begraben werden], Aux-V²-V¹
    as he the day-GEN should buried become
    ‘when he should be buried on that day’ (Pillenreuth 212)

(15) so er dan den menschen nicht ti hat [ti mugen vberwinden], Aux-V¹-V²
    when he then the person not has can overcome
    ‘when he has not been able to overcome the person’ (Pillenreuth 158)

This strong preference for Aux-V when more than two verbs are involved has left its mark on standard NHG: in NHG only clusters of three verbs can ever show Aux-V order (see Wurmbrand 2001).

For the sake of comparison with previous studies, the data in table 7 can be broken down further:

---

\(^8\) The two other logically possible orders, V₁-Aux-V₂ and V₁-V₂-Aux, are unattested in my ENHG corpus. These orders are also rare to non-existent in contemporary dialects of German (Schmid & Vogel 2004).
Factors Favoring Aux-V Order in 15\textsuperscript{th}-century German Subordinate Clauses

Table 8
Effect of specific syntagm types on Aux-V

<table>
<thead>
<tr>
<th>Syntagm</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{sein} passive</td>
<td>29 (87%)</td>
<td>4 (12%)</td>
<td>0.650</td>
</tr>
<tr>
<td>\textit{werden} passive</td>
<td>59 (85%)</td>
<td>10 (14%)</td>
<td>0.735</td>
</tr>
<tr>
<td>perfect with \textit{sein}</td>
<td>29 (82%)</td>
<td>6 (17%)</td>
<td>0.629</td>
</tr>
<tr>
<td>perfect with \textit{haben}</td>
<td>104 (80%)</td>
<td>26 (20%)</td>
<td>0.552</td>
</tr>
<tr>
<td>Modal (causative, future) + inf.</td>
<td>113 (62%)</td>
<td>69 (37%)</td>
<td>0.389</td>
</tr>
<tr>
<td>Three verbs</td>
<td>4 (21%)</td>
<td>15 (78%)</td>
<td>0.055</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p < 0.001$

The resulting hierarchy from my 15\textsuperscript{th}-century corpus (16a) can now be compared to the hierarchies in Bies’ and Ebert’s ENHG corpora, listed by increasing preference for Aux-V:

(16)a. \textit{sein} passive < \textit{werden} passive < \textit{sein} perfect < \textit{haben} perfect < modal/future
   c. \textit{werden} pass. < \textit{sein} pass. < \textit{haben} pf. < future < modal < \textit{sein} pf. (Ebert 1992:5)\textsuperscript{9}

The hierarchies do not correspond exactly, but the general trend of passive < perfect < modal does hold. One difference is that while the \textit{haben} and \textit{sein} perfects pattern together in my corpus and Bies’, the \textit{sein} perfect is the least frequent in Ebert’s corpus.

3.4. NP/PP postposition

Ebert notes that when the verb cluster is in clause-final position, V-Aux order is preferred (1981:209). In other words, there is a correlation between Aux-V order and the postposition of NP and PP. This holds true in my 15\textsuperscript{th}-century corpus as well:

Table 9
Effect of postposition on Aux-V

<table>
<thead>
<tr>
<th>Postposition</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing postposed</td>
<td>269 (75%)</td>
<td>85 (24%)</td>
<td>0.543</td>
</tr>
<tr>
<td>Anything postposed</td>
<td>69 (60%)</td>
<td>45 (39%)</td>
<td>0.369</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p = 0.003$

Breaking down the ENHG data, the postposition of NPs and argument PPs is more favorable to Aux-V order than the postposition of adjunct PPs is:

\textsuperscript{9} As reported in Bies (1996:58). Similar trends are found throughout Ebert (1998).
Table 10
Effect of category of postposed constituent on Aux-V

<table>
<thead>
<tr>
<th>Category of postposed constituent</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing postposed</td>
<td>269 (75%)</td>
<td>85 (24%)</td>
<td>0.541</td>
</tr>
<tr>
<td>Postposed NP</td>
<td>9 (50%)</td>
<td>9 (50%)</td>
<td>0.307</td>
</tr>
<tr>
<td>Postposed argument PP</td>
<td>18 (54%)</td>
<td>15 (45%)</td>
<td>0.265</td>
</tr>
<tr>
<td>Postposed adjunct PP</td>
<td>26 (65%)</td>
<td>14 (35%)</td>
<td>0.470</td>
</tr>
<tr>
<td>Multiple constituents postposed</td>
<td>11 (68%)</td>
<td>5 (31%)</td>
<td>0.451</td>
</tr>
<tr>
<td>Postposed infinitival clause</td>
<td>3 (75%)</td>
<td>1 (25%)</td>
<td>0.396</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p = 0.035$

Combining argument PPs with NPs improves the significance ($p = 0.017$), but combining them with adjunct PPs worsens it ($p = 0.045$). Thus, the type of postposition most favorable to Aux-V order is argument postposition. However, the mere presence or absence of postposition, as in Table 9, is the most significant factor ($p = 0.003$).

3.5. Focus

For the purposes of this paper, the most interesting factor favoring Aux-V is focus. By focus, I mean both contrastive focus and new information. If there is new information focus or contrastive focus on an object NP or a PP, or on the V itself, the rate of Aux-V order is higher than expected:

Table 11
Effect of focus on Aux-V

<table>
<thead>
<tr>
<th>Focus</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old information</td>
<td>323 (73%)</td>
<td>114 (26%)</td>
<td>0.523</td>
</tr>
<tr>
<td>New information/contrastive focus</td>
<td>15 (48%)</td>
<td>16 (51%)</td>
<td>0.216</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p = 0.006$

Below are some examples of narrow focus on an NP (17a), a PP (17b), and two verbs (17c). Examples (17a) and (17c) illustrate cases where contrastive focus can be detected, and in (17b) the PP *durch die mensch* is new information, thus focused.

(17)a. das der mensch alle sein lebtag [F nicht anders] scholt thun, denn lernen...

‘that the person all his life-days nothing else should do than learn...’ (Pillenreuth 206)
Factors Favoring Aux-V Order in 15th-century German Subordinate Clauses

b. das ich alles [F durch die mensch] hab gethan.
that I all for the humans have done
‘that I have done all of that for the sake of humanity.’

(Pillenreuth 220)

c. das ein cristennmensch in dem stat getar [F leben], in dem er nicht gern" wolt
that a christian.person in the place dares live, in which he not gladly would

die
‘that a Christian dares live where he would not like to die.’

(Pillenreuth 211)

Determining the focus of a sentence in a non-living language can be quite difficult. It is possible that in some cases the Aux-V order has biased me into reading the clauses with a special intonation, and there are no doubt instances of narrow 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 NP preceding the verb cluster. In section 2.2, 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 information, like pronouns and definites, from those that tend to represent new information, such as indefinites and NPs headed by the quantifiers jeder ‘every’, kein ‘none’, and alle ‘all’. When the verbs are preceded by a NP that represents new information, Aux-V is more frequent than expected (36%):

Table 12
Effect of the information status of the preceding NP on Aux-V

<table>
<thead>
<tr>
<th>Preceding NP</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>New information</td>
<td>41 (63%)</td>
<td>24 (36%)</td>
<td>0.390</td>
</tr>
<tr>
<td>Old information</td>
<td>88 (73%)</td>
<td>32 (26%)</td>
<td>0.533</td>
</tr>
<tr>
<td>Non-NP precedes</td>
<td>200 (76%)</td>
<td>63 (23%)</td>
<td>0.534</td>
</tr>
<tr>
<td>Nothing precedes</td>
<td>9 (45%)</td>
<td>11 (55%)</td>
<td>0.243</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

$p = 0.011$

Note that the distinction new information vs. old information is much more significant ($p = 0.011$) than the noun vs. pronoun distinction in Table 2 ($p = 0.085$).

Secondly, there is an interesting correlation between lack of scrambling and Aux-V order, which further supports the idea that focus influences verb order. On one analysis of scrambling (Reinhart 1995), scrambling occurs when the object is old information, but when an object is new information it will remain inside the VP where it will receive the nuclear stress accent. An object is assumed to have undergone scrambling if it is to the left of a sentential adverb or negation:
In my corpus of 15th-century ENHG, clauses with an unscrambled NP (thus representing new information) have a higher frequency of Aux-V than expected (41%), but clauses with a scrambled NP tend to have V-Aux order:

### Table 13
Correlation between scrambling and verb order

<table>
<thead>
<tr>
<th>Scrambled object?</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object not scrambled</td>
<td>10 (58%)</td>
<td>7 (41%)</td>
<td>0.298</td>
</tr>
<tr>
<td>Object is scrambled</td>
<td>78 (79%)</td>
<td>20 (20%)</td>
<td>0.685</td>
</tr>
<tr>
<td>Cannot tell10</td>
<td>250 (70%)</td>
<td>103 (29%)</td>
<td>0.457</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\( p = 0.102 \)

This would seem to indicate that new information or narrow focus favors the Aux-V order.

Finally, recall that Aux-V is more likely when an argument has been postposed (section 3.3). This may be another piece of evidence for the effects of focus on verb order: since focused arguments are likely to postpose in ENHG (Bies 1996:14), perhaps the correlation between postposition and Aux-V order is because both are sensitive to focus.

### 3.6. Coordination of verbs

In NHG, there is only one order for coordinated Vs governed by one Aux: V & V Aux, and this order is found in ENHG (19). ENHG has two additional orders: Aux V & V (20) and V Aux & V (21):

(19) dy doch got vns geraicht vnd gegeben hat zw hail vnser seel V & V Aux that God us handed and given has to salvation our souls ‘that God has handed and given to us for our souls’ salvation’ (Pillenreuth 173)

(20) daz der kranck sich mit nicht laß abweisen noch erschrecken. Aux V & V that the sick one not let himself be turned or frightened by anything.’ (Pillen. 177)

---

10 In the majority of sentences it is not possible to know whether scrambling has occurred, either because there is no object that would be a candidate for scrambling, or because there is no adverb to indicate the position of the object. I suspect that the low significance of this table is due to the high number of these ambiguous cases.
Factors Favoring Aux-V Order in 15th-century German Subordinate Clauses

(21)  
\[ \text{dy sie geren *gehört haben oder gelesen* in irem gesunt.} \]  
\[ \text{V Aux & V} \]

that they gladly heard have or read in their health

\[ \text{‘that they have gladly heard or read in their health.’} \]

(Pillenreuth 178)

I take both of the non-NHG types to represent Aux-V order. In the Aux V & V order, both conjoined verbs are adjoined to the right (20'), and in the V Aux & V order, only the second conjunct is adjoined to the right (21'):

(20')  
\[ \ldots \text{daz der kranck sich mit nicht tít laß [abweisen noch erschrecken]} \]

(21')  
\[ \ldots \text{dy sie geren *gehört* tít haben [oder gelesen]} \ldots \]

In my 15th-century texts, when Vs are coordinated and share an Aux, there is a higher-than-expected frequency of Aux-V order. However, when each V has its own Aux, the frequency of Aux-V order is also higher than expected:

**Table 14**  
Effect of type of coordination on Aux-V

<table>
<thead>
<tr>
<th>Type of coordination</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinated Vs with one Aux</td>
<td>23 (51%)</td>
<td>22 (48%)</td>
<td>0.312</td>
</tr>
<tr>
<td>Coordinated Vs, each with own Aux</td>
<td>31 (63%)</td>
<td>18 (36%)</td>
<td>0.374</td>
</tr>
<tr>
<td>No coordination</td>
<td>284 (75%)</td>
<td>90 (24%)</td>
<td>0.541</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\[ p = 0.002 \]

It is coordination, and not the sharing of an auxiliary, that is really favoring Aux-V: when coordinated Vs with one Aux are combined with those where each V has its own Aux, the significance is improved (from \( p = 0.002 \) to \( p = 0.001 \)):

**Table 15**  
Effect of coordination on Aux-V

<table>
<thead>
<tr>
<th>Coordination</th>
<th>V-Aux</th>
<th>Aux-V</th>
<th>Factor weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinated Vs</td>
<td>54 (57%)</td>
<td>40 (42%)</td>
<td>0.342</td>
</tr>
<tr>
<td>No coordination</td>
<td>284 (75%)</td>
<td>90 (24%)</td>
<td>0.541</td>
</tr>
<tr>
<td>Total</td>
<td>338 (72%)</td>
<td>130 (27%)</td>
<td></td>
</tr>
</tbody>
</table>

\[ p = 0.001 \]

Why should coordination trigger Aux-V? One possible explanation might involve the general tendency in German to place heavier elements after lighter elements, as noted by Behaghel in his “Gesetz der wachsenden Glieder” (“Law of the growing constituents”) (1932:III, 367). Since two Vs are heavier than one, this could explain why coordinated Vs
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occur after Aux at a rate higher than that of single Vs. However, this explanation fails to account for the high frequency of Aux-V among coordinated Vs where each V has its own Aux, since in those cases only individual Vs move and not the coordinated structure itself:

(22) als er *sprechen solt* oder *ti wolt [sprechen]*;
    as he speak should or would speak
    ‘as he should say or would say’  (Pillenreuth 215)

Perhaps a better explanation is that in coordinated VPs, the second VP is likely to have contrastive focus (contrasting with the first VP). There seems to be some evidence for the special status of the second conjunct in my corpus: looking only at those pairs of conjoined clauses where each V has its own Aux, there are six instances of V-Aux in the first conjunct followed by Aux-V in the second, but only one instance of Aux-V in the first and V-Aux in the second.

4. Discussion

4.1. Summary of favoring factors

This study found seven factors that favor the Aux-V order in 15th-century German: separable prefixes, clause type, syntagm type, number of verbs in the cluster, postposition of an argument, focus, and coordination. However, only for the clusters of three verbs is there an overwhelming tendency to have Aux-V order. The other factors have a frequency of Aux-V that is significantly higher than the overall rate of 27%, but none of these is much higher than 50%. Thus one might argue that the frequency of Aux-V order is not satisfactorily accounted for by any single factor by itself.

However, Aux-V order is accounted for by the combination of the favoring factors. Of the 130 clauses in my corpus with Aux-V order, all but 10 have one or more of the favoring factors:

Table 16
All favoring factors for Aux-V

<table>
<thead>
<tr>
<th>Favoring factor</th>
<th>Aux-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separable prefix verb</td>
<td>21</td>
</tr>
<tr>
<td>Modal + infinitive</td>
<td>66</td>
</tr>
<tr>
<td>Three verbs</td>
<td>12</td>
</tr>
<tr>
<td>Argument postposition</td>
<td>45</td>
</tr>
<tr>
<td>Focus</td>
<td>15</td>
</tr>
<tr>
<td>No scrambling</td>
<td>7</td>
</tr>
<tr>
<td>Preceding NP is new information</td>
<td>22</td>
</tr>
<tr>
<td>Coordinated VPs</td>
<td>41</td>
</tr>
</tbody>
</table>

11 Some clauses are represented in this table more than once, since a clause may have two or more of the favoring factors.
Factors Favoring Aux-V Order in 15\textsuperscript{th}-century German Subordinate Clauses

<table>
<thead>
<tr>
<th>Favoring factor</th>
<th>Aux-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument postposition</td>
<td>45</td>
</tr>
<tr>
<td>Focus</td>
<td>15</td>
</tr>
<tr>
<td>No scrambling</td>
<td>7</td>
</tr>
<tr>
<td>Preceding NP is new information</td>
<td>22</td>
</tr>
<tr>
<td>None of the focus-related factors</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
</tr>
</tbody>
</table>

Thus, although no individual factor \textit{forces} the Aux-V order, the relatively high frequency of Aux-V in 15\textsuperscript{th}-century German can be understood as the result of the slight favoring effect of a number of factors in combination.

Moreover, I have suggested in this paper that focus, although a minor factor at first glance, plays an important role in the verb order. Looking only at the effect of those favoring factors that I have argued are related to focus, more than half of Aux-V clauses are still accounted for:

Table 17
Focus-related factors for Aux-V

<table>
<thead>
<tr>
<th>Favoring factor</th>
<th>Aux-V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument postposition</td>
<td>45</td>
</tr>
<tr>
<td>Focus</td>
<td>15</td>
</tr>
<tr>
<td>No scrambling</td>
<td>7</td>
</tr>
<tr>
<td>Preceding NP is new information</td>
<td>22</td>
</tr>
<tr>
<td>None of the focus-related factors</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
</tr>
</tbody>
</table>

4.2. Remnants in Modern German

There is still further evidence for my hypothesis that focus favors Aux-V order. As mentioned above, Aux-V still exists in NHG in some constructions with three verbs, see (23) vs. (24). Remnants of the effect of focus can still be seen: some speakers disfavor the Aux-V order with an unstressed pronoun, which must be old information (24a), but allow it with a stressed (focused) pronoun (24b) or non-pronominal NP (24c):

(23)a. ... dass Klaus es singen können wird.
    that K. it sing can will
    ‘... that Klaus will be able to sing it.’

b. ... dass Klaus das singen können wird.
    that K. that sing can will
    ‘... that Klaus will be able to sing that.’

\(^{12}\) I.e., clauses with non-focus-related favoring factors or no favoring factors.

\(^{13}\) Here I have tested only contrastive focus and not new information focus. The fact that unstressed pronouns and definite NPs do not pattern together is puzzling in light of the fact that both represent old information. This needs to be compared to clauses with indefinite NPs, to determine whether focus is really the key here.
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c. ... dass Klaus das Lied singen können wird.
   that K. the song sing can will
   ‘... that Klaus will be able to sing the song.’

(24)a. ... dass Klaus es ... wird singen können.  Aux-V³-V²
b. ... dass Klaus das ... wird singen können.
c. ... dass Klaus das Lied wird singen können.

Moreover, Aux-V is reported to be common in some German dialects. Further research is needed to determine what factors favor Aux-V in both the dialects and (with three verbs) the standard language.¹⁴

4.3. The interaction of syntax and pragmatics

Although it is intuitively plausible that focus on the verb might affect verb order, it is unclear why verb order should be affected by focus on something other than the verb. Bies (1996:27) suggests that ENHG, unlike NHG, has a post-verbal focus position. According to my assumptions about ENHG word order, that focus position would be adjunction to the right of the Aux.¹⁵ As we have seen, multiple constituents may adjoin there, with NP postposition in addition to VR. On the other hand, not all focused objects move there, as evidenced by sentences with a pre-verbal, non-scrambled object.

Thus, focus on an object could be reflected in one of several ways in ENHG: the object could postpose with no change in the relative order of the verbs, the V could raise and the object postpose, the V and object could postpose in one move (VPR), or the object could remain in its preverbal position while the V raises. Assuming that ENHG, like the modern Germanic languages, also marks information structure with intonation, any or all of these word-order options could have been accompanied by a marked intonation (which would not be discernable in a historical text, of course).

In conclusion, the Aux-V order is a marked order in ENHG, whose main function is to reinforce the marked information structure of new or contrastive focus. Whether this apparent optionality can be derived in a features-based system is an issue that I leave open to future research.

5. Conclusion

In this paper, I have discussed a number of factors that do and do not favor the Aux-V order in 15th-century German subordinate clauses. Using a corpus of 4 texts, I was unable to verify some previous hypotheses about the causes of Aux-V order: the position of the subordinate clause within the sentence, the category or stress of the word preceding the

¹⁴ In a recent paper, Schmid and Vogel (2004) report on a study of the type of construction in (23-24) in several contemporary German dialects. They were able to test focus not only on objects, but also on individual verbs. Their results generally confirm my hypothesis that word order in these constructions is determined by focus.

¹⁵ Under the I-final phrase structure Bies assumes, VR is adjunction to I0 and VPR to IP (1996:15).
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verb cluster, and the syllable structure of the verb cluster. However, this study did find a number of factors that do have a favoring effect on Aux-V order: the presence of a separable prefix, the type of clause, the modal + infinitive construction, clusters of three verbs, postposition of an argument, focus (including the absence of scrambling and the information status of the NP preceding the verbs), and the coordination of Vs.

References


