Corpus-based investigations on word order change: The case of Old Nordic

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The Research Center on Multilingualism focusses on microanalyses of oral and written communication in multilingual settings and of language development in the bilingual individual. Its work is based on the assumption that human cognition predisposes the individual to become multilingual, that the knowledge of more than one language increases communicative possibilities rather than decreasing them, and that diachronic studies of multilingualism can lead to a better understanding of contemporary situations and to solutions for emerging problems. Hypotheses based on these assumptions are empirically tested through cultural as well as cognitive studies. Among the multilingual settings investigated are societal and family bilingualism, situations arising from labor migration, as well as contexts where more than one language is used in education or at the workplace, at home or during extended or short-term stays in a foreign country. By comparing a range of different linguistic, cultural and social settings, it is hoped that both general and situation-specific factors can be identified which either favour multilingualism or else render it a disadvantage to the individual or the society.

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Languages currently studied at the Research Center comprise Basque, Catalan, Danish, English, Faroese, French, German, German Sign Language, Irish, Norwegian, Portuguese, Swedish, Spanish, and Turkish, as well as a number of historical and geographical varieties of some of these languages.

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Abstract

This paper presents results from an interdisciplinary cooperation within the Collaborative Research Centre on Multilingualism. First results of this cooperation were published in an earlier paper (BAUMGARTEN et al. 2007) concentrating on an investigation of functional characteristics of coordinating elements in English, German, Old Swedish and Turkish corpora. The aim of the second part of the cooperation was to develop corpus linguistic methods in order to be able to examine word order change in subordinate clauses in older Swedish and Danish texts in comparison to Old West Norse.

The starting point for the investigation was the observation that the word order in Swedish main clauses is rather stable from the earliest written sources up to contemporary Swedish, whereas in subordinate clauses, from a diachronic perspective, far-reaching changes can be observed. Starting from the hypothesis that language contact triggered this change, a comparison of an Old Swedish, an Old Danish and an Old West Norse version of the Story of Charlemagne was performed. The West Norse version almost exclusively shows verb second order and no examples of verb late order. In the Danish and the Swedish versions, verb second is also the main option, but more examples of the finite verb in a later position can be found in both texts. In our opinion it seems to be reasonable to suggest that the development of new text types based on Latin models triggered the change that can be observed in the East Norse texts.
1. Introduction: research goals, context and aim of the cooperation

This study is a sequel to an interdisciplinary cooperation within the Collaborative Research Centre on Multilingualism, of which the first results were published in BAUMGARTEN et al. (2007). The general aim of the cooperation is to develop corpus-linguistic tools allowing for an interdisciplinary comparison of related phenomena in diversely structured corpora, incorporating written, spoken, and historical data. While the previous work was based on coordinating devices, the present study attempts to establish a comparison of diachronic developments in subordinating constructions in language contact. The languages under investigation are Old and Early Modern Swedish and Old Danish. The contact languages involved are Middle Low German, Early Modern High German and Medieval Latin.

The methodological aim of the cooperation has been to develop quantitative search tools which enable a generalisation of qualitative analyses originally undertaken on the basis of only a few exemplary text or discourse passages. This generalisation has been made possible by means of software and tools such as the Z2-Tagger developed by the members of a project in the research centre. These tools enable an automatic search in larger corpora, the establishment of concordances of the sought-after expressions, elements or phenomena, and a recontextualisation of the obtained findings for qualitative interpretations, categorisations, and finally, quantifications. Thus, they allow for a more flexible and recursive interaction of qualitative and quantitative analytical steps.

While these goals have, in principle, been achieved (see BAUMGARTEN et al. 2007), the present study conducts a refinement of the methodological cooperation to be developed in the context of a diachronic study of subordination in a historical contact situation.

2. The diachronic development of word order and subordination in Old Nordic in a multilingual context

2.1. Prerequisites

In the following contribution we would like to present a methodological approach and some first results from a study in which we investigate the influence of language contact on the syntax of the Mainland Scandinavian languages. The research project is based on the investigation of the typological change that can be observed when com-
paring texts from the earliest written North Germanic sources (first century AD) to the contemporary Mainland Scandinavian languages Danish, Norwegian and Swedish.

The study is concerned with a smaller period within this development and focusses specifically on the diacronic change that can be observed in the word order of subordinate clauses in a corpus of Old Danish and Old Swedish texts (thirteenth to sixteenth century). The study was carried out in a workgroup focussing on the diachronic development of the function and the use of connectivity devices. The starting point for the investigation is an observation that was performed on a part of the Old Swedish corpus. In a previous study, Ludger ZEEVAERT (2005) showed that the word order in Swedish main clauses is rather stable from the earliest written sources (runsvenska) up to contemporary Swedish, whereas in subordinate clauses, from a diachronic perspective, far-reaching changes can be observed. Those changes regard, in particular, the position of the finite verb.

Different approaches of language internal explanations for diachronic syntactic change can be found in the literature. However, this study focusses mainly on the role of language contact within this development. In addition, such an external explanation is by no means far-fetched for this type of language change: the important role of Middle Low German-Scandinavian language contact in the formation of the contemporary Mainland Scandinavian languages is a well-known fact among scholars of Nordic studies.1

When applying the findings from modern case studies of language contact research,2 we are in a position to link different contact phenomena with typical contact situations. Contact-induced language change always implies individual multilingualism. The outcome of this contact is dependent on different variables, such as the number of bilingual individuals in a speech community, the type of acquisition of the second language (early or late), the duration of the contact or the relationship between the speech communities involved (substratum/superstratum).

Such a typological approach is of great interest for the investigation of Low German and Scandinavian language contact since this contact is commonly described as very intensive and, moreover, fundamental for the genesis of the modern Mainland

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1 Cf. e.g. HAUGEN (1984), GROENKE (1998), WINGE (2005).
2 Cf. e.g. THOMASON (2003).
Scandinavian languages Danish, Norwegian and Swedish. However, it has to be stated that the motivation for an assessment of the intensity of this specific contact very much relies on loanword studies. In Thomason’s model, reliable statements can be made only if the syntactical domain is also considered. Syntactical influence from language contact would have to be seen as an indicator for intensive contact, i.e. a rather high number of multilingual individuals, or it would be seen as typical for sub-stratum influence.

2.2. Theoretical Foundation

The assumption that the language contact with German, and especially with Middle Low German, between the thirteenth and the sixteenth century had a formative influence on the Mainland Scandinavian languages is by no means new. Diachronic studies on the Scandinavian languages and research on German-Scandinavian language contact, however, are very often confined to a mere description of the results of this contact. The reason for this is the shortage of contemporary metalinguistic sources, which means that a description of the mechanisms of this example of contact-induced language change is very difficult.

This can lead to a rather unsatisfactory explanation of contact-induced change since it implies a rather abstract concept of languages in contact which is not conform to modern contact linguistics. Uriel Weinreich (1964), one of the pioneers of this research field, already describes language contact as a phenomenon originated first and foremost by particular bilingual individuals. More recent models emphasise the role of bilingual speakers for changes in the syntactic domain. Aitchison, for example, connects the areal convergence in word order that was observed by Nichols (1992) to the influence of bilingual speakers:

Words are easily borrowed, but linguistic constructions are not. They creep across from one language to another very, very slowly, usually via bilingual speakers. (Aitchison 2001: 31)

Nettle gives a more detailed description of the special language processing of bilinguals:

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4 Cf. recently Veturiði Óskarsson (2003).
Word order, on the other hand, is extremely prone to areal convergence. The chief vector for this appears to be bilingualism. The processing and parsing habits of the bilingual brain lead to the word order of one language interfering with that of another wherever there is a substantial number of people speaking both languages. (Nettle 1999: 138)

However, investigations on multiethnic varieties in European cities\(^6\) show that such a language change in a bilingual context also implies creative linguistic innovations that go far beyond basic foreign language interference. Incidentally, the assumption that a specific linguistic creativity of bilingual speakers can play an important role in language change was already made by Moberg (1989).\(^7\)

It should be pointed out, though, that the case of contact-induced change that is dealt with in this context, namely the word order in Scandinavian subordinate clauses, is a phenomenon that can first and foremost be traced to the written language and to a lesser extent to oral communication. Standardisation can have an impact on both internally or externally motivated language developments. Teleman (1991)\(^8\) provides a depiction of such efforts for standardisation that at first concern the written language but at a later stage also apply to spoken language. Standardisation can be puristic or directed against foreign influence, as shown by the modern Icelandic language policy, but also by the development in Estonia in the twentieth century\(^9\) or in Sweden in the sixteenth century.\(^10\) However, it is even possible to follow the model of a language that is esteemed to be superior as was the case with Latin for German authors in the Middle Ages.\(^11\) This implies that tendencies of language change that can be derived from a diachronic corpus analysis have to be correlated with the historical, cultural and social context in order to attain a plausible explanation.

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\(^7\) Cf. also Braunmüller (1995).
\(^8\) Cf. Teleman (2002) for a more detailed overview of the role of standardisation in the development of the Swedish language.
3. Investigating word order differences in Old Nordic

3.1. Method

The research project ‘Scandinavian syntax in a multilingual perspective’ is concerned with the diachronic syntactic development of the Scandinavian languages in contact with other languages (Latin, Middle Low German, Early Modern High German). Lexical and morphological studies can easily be carried out by means of corpus linguistic methods. Other linguistic domains, however, constitute a methodologically more difficult task for the analysis of larger text corpora. In the context of syntactic or pragmatic questions, concordance programmes, which are very useful tools when searching for text strings (words or morphemes), are only of very limited use. Hence, a rather elaborate preparation of the texts is required in order to be able to carry out automatic corpus analyses.

First, a digital representation of the text is produced – either by transcribing, by scanning or by using a text provided by a digital corpus that already exists. In several steps this text is transferred into an XML version. Having in mind the possibility of using this database after our project is finished, it is not only important to carefully correct and document the texts, but also to encode information that might not be of primary interest for a syntactic analysis but is usually provided by a diplomatic edition (e.g. page breaks in the manuscript or edition, special characters, marking of abbreviations, r- and s-allographs etc.) and to document this encoding in a comprehensible manner for future researchers.

All required information is added to the text by means of XML tags that are compatible with the TEI standard.12 By providing XSL style sheets, visual representations for different purposes can be produced. For philological demands a representation as shown in Figure 1 would be appropriate. It provides information on the page numbers of the edition, chapter numbers added by the editor, certain allographs found in the original text (in this case initials) and expanded abbreviations.

By modifying the style sheet it is possible to suppress information that is not needed – for didactical use the text could be displayed in a normalised version without annotating the editor’s intervention, while using a standardised orthography including punctuation. This would require a complete lemmatisation relying on the normalised spelling of a lexicon for the period under consideration. This rather time consuming operation is, however, not aimed at within the project ‘Scandinavian syntax’ at this moment in time, although it would be possible to supplement the texts with the necessary annotations at a later stage.

The first steps in the preparation of the texts are performed with a conventional text editing programme (Microsoft Word in our case) which displays the texts...
in a manner that is more compliant with usual reading habits in comparison to an XML editor.

A segmentation of the text is important for the syntactic analysis, which is the main aim of the project. In this context, it is not sufficient to rely on the punctuation of editions or facsimiles. Varying from modern punctuation, the use of punctuation marks in historical texts does not follow syntactical but far more rhetorical principles and is generally used to divide a text into smaller segments (chapters and paragraphs). Therefore, the beginning and the end of the sentences have to be marked manually.

The transformation of formats and other information into XML tags that correspond to the TEI recommendations is partly done with the help of macros designed by Steffen Höder, partly also by using special functions of the Z2-tagger which was developed by Kai Wörner in the project Z2 ‘Computer assisted methods for the creation and analysis of multilingual data’ at our research centre, especially for the purposes of

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13 Cf. footnote 12.
this cooperation. The tagger is mainly used for the computer-assisted tagging of XML texts but is also useful for some steps within the preparatory stage of the texts, for example for the automatic segmenting of a text.

In contrast to the work on spoken language, the problem when working with texts lays not so much in the building of the corpus but far more in the preparation and the analysis of the data. The identification of certain structures in a text would not suffice for the investigation at hand: it is necessary to quantify the data in order to be able to describe how the frequency of a certain structure develops over time in comparison to a competing structure. For such a comparative analysis it is necessary to annotate the corpus grammatically in order to identify finite and non-finite verbs, subjects, objects and adverbials.

The complete POS-tagging of a larger corpus requires more extensive research than a confined project like ‘Scandinavian syntax’ is able to provide. Therefore, this has to be left to larger projects such as Menota. To make the most out of our resources, our work concentrates on the development of procedures aimed at tagging only those parts of speech that are necessary for our research questions. Thus, a gradual enlargement of the tagged part of the corpus is reached that can be supplemented at a later stage. For historical texts that reveal very irregular spelling the development of an automatic tagger is a very complex matter – given the limited amount of available texts, it is basically impossible. The Z2-tagger is a solution that provides assistance for manual tagging.

The main function of the Z2-tagger in our project is to display sentences of the text in their context and allow for grammatical information to be added to each word within the text. For a variety of reasons it is not possible for our project to begin with the syntactic analysis after having finished the compilation and preparation of the corpus. In order to make part of the results of tagging accessible to analyses quickly, a modular approach to tagging was chosen.

Within the scope of the investigation of enclitic pronouns, for instance, we tagged all finite verbs with enclitic pronouns in a part of our corpus. Those verbs are rather easy to extract by means of a retrograde word list that can be created with the help of a concordance programme. A list containing all possible instances of enclitic verbs is then fed into the tagger and each verb can be marked with the correct tag by selecting it from the menu (cf. figure 4).

For a different investigation concerning the word order in main clauses all conjunctions were tagged using the same method. Conjunctions are especially suitable for such a working method because they form a rather small closed word class. Subsequently, in an XML editor, all finite verbs which followed the tagged conjunctions were displayed and tagged. In a third step, all words situated between the conjunctions and the finite verbs were dealt with in the same manner. In this way the tagging is extended with every new analysis.

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17 Cf. fn. 16.
Some tasks can only be completed manually. It is possible to find finite verbs in a word list, but it is easier to tag them manually in the XML editor. However, not all grammatical information has to be tagged by hand: it is sufficient to first only mark parts of speech and to then expand the tagging with the help of the tagger which is able to display all items tagged as verbs in their context. Consequently, this allows for a more thorough analysis by offering different buttons, for instance, for finite and non-finite verbs. More categories (tense, mood, number, person) can be added if desired; for a study based on word order, however, information on finiteness usually suffices.

By using standardised data formats, the corpus remains open for additional annotations (and, for that matter, for removing annotations), either by our project or by other researchers interested in different research questions.

### 3.2. Tagging conventions

When working on a question like the one described in this paper, it is necessary to be able to make separate evaluations of different clause types. Since the grammatical analysis involves a part-of-speech tagging (see below), one has to differentiate between different element types below the clause level as well. To this end, the tagging conventions applied in this study allow for a grammatical annotation at three different levels within the text, namely at clause level, constituent level, and word level. To ensure that the corpus remains open for later modifications or additions, it is essential that the tagging follows existing standards as far as possible, and that any necessary expansions of such standards are as transparent – and of course well-documented – as possible.

The Menota standard\(^{19}\) is a framework established for encoding medieval Nordic texts based on the general scheme defined by the Text Encoding Initiative (TEI). It provides a detailed tag set for the encoding of morphological (and, partly, morphosyntactic) information at the word level. In general, words are treated as the basic unit of a text and identified as `<w>` elements in the XML document. All grammatical information at this level is specified in the attribute `pos`\(^{20}\) that contains a string of name

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\(^{19}\) The Menota handbook, currently v. 2.0β, http://www.menota.org/guidelines/ (visited 14 June 2007).

\(^{20}\) The `pos` attribute is currently being replaced by a new attribute `msa` (for morphosyntactic analysis) in order to avoid problems with the TEI usage of `pos`. 
tokens for different morphological categories. An infinite verb, for example, may be
encoded as `<w pos="xVB vA fI">`, i.e. a word (`<w>`) of the word class (`x`) verb
(`VB`) which has the category ‘voice’ (`v`) with the value ‘active’ (`A`) and the category
‘finiteness’ (`f`) with the value ‘infinite’ (`I`). However, none of these tokens are
obligatory, so that the annotation of the corpus may progress modularly (see above).
The representation of different categories in one string can be seen as a drawback of
the Menota standard since encoding them in different attributes (i.e. `<w
posClass="VB" posVoice="A" posFin="I">` for the above example) would
not only improve readability but also facilitate better processing when using standard
XML mechanisms.

The Menota standard does not specify any tagging conventions for the analysis
of elements above the word level. According to the TEI standard, however, it is pos-
sible to identify groups of words as `<phr>` elements (‘phrases’ in this technical
sense). Grammatical information can be encoded in the attribute `type`. Since the
morphological (or morphosyntactic) features of constituents usually correspond to
those of their respective heads, the Menota framework can also be adapted to the an-
notation of constituents. Thus, the noun phrase `þiuff sin ‘his thief’` (cf. example 6),
may be represented in a transparent and convenient way as `<phr type="xNC">` `<w
pos="xNC">þiuff</w> `<w pos="xDP">sin</w> `</phr>.

At the clause level, new conventions for the encoding of relevant information
have to be implemented. Again, the TEI standard provides a tag for grouping several
word and phrase elements into clauses (`<cl>`) which can be classified in the attribute
`type`. Here, we developed a set of relevant criteria for our study that can be repre-
sented by strings of tokens for different categories and values, similar to the procedure
carried out at the morphological level in the Menota standard. Since the differen-
tiation between main and subordinate clauses is most important, this information is en-
coded obligatorily by the tokens `1MAI` and `1SUB` respectively. Furthermore, a distinc-
tion between different clause types (complement clauses, relative clauses, etc.) and
subtypes of subordinate clauses (e.g. subjunctival, pronominal, adverbial relative
clauses, etc.) may be relevant and can be encoded by similar tokens as well.21

21 This tag set will be documented in detail in a forthcoming paper by Steffen Höder and Ludger
Zeevaert.
3.3. Research Question

Contemporary Icelandic and contemporary Swedish show a difference with reference to the word order in subordinate clauses. In modern Swedish subordinate clauses the sentence adverb precedes the finite verb, whereas modern Icelandic has the opposite word order and hence does not exhibit any difference between main and subordinate clauses. Thus, following Platzack, Modern Swedish main clauses can be described as verb second, whereas subordinate clauses can be classified as verb third (cf. the order of the underlined constituents in example (1)).

(1) Swedish main and subordinate clause

a) Fatta! Världens dyraste kött! Jag hade (= had) två år inte (= unfortunately not) tid att gå in och kolla kilopriset, men det där med öl och massage verkar onödigt intressant.

b) Och efter lite googlande på nätet inser jag att wagyu-biff inte (= not) är (= is) att leka med.

‘Imagine! The world’s most expensive meat! Unfortunately, I didn’t have time to go in and check the price per kilo, but of course the oil and massage thing sounds interesting. And after some googling on the internet I understand that wagyu-beef is not to trifle with.’

In contrast to other Germanic languages, in Modern Icelandic the word order can be described as V2 both in main and subordinate clauses.

(2) Icelandic main and subordinate clause (Morgunblaðið, 13 May 2007)

a) ÍSLENDINGAR gengu seint og snemma til kosninga í gær og þessi tvö léttu (= let-3PL.PST) ekki (= not) sitt eftir liggja, kusu rétt fyrir hádegi.

b) Blaðið hefur eftir heimildarmönnum í bankanum að stjórnin vilji (= want-3SG.PRS.SBJV) ekki (= not) víkja Wolfowitz úr starfi.

‘Yesterday early and late Icelanders went to the polls, and those two finished their business and voted right before noon.’

‘The newspaper knows from sources inside the bank that the management does not want to sack Wolfowitz.’

As the strong impact of Low German on Swedish is uncontroversial in the research on Scandinavian languages, and since Icelandic is commonly assumed to be the Nordic

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22 “Like in all Germanic languages except English, the finite verb of Swedish must occur in second position in declarative main clauses [...]” and p. 28: “[the finite verb is typically found in third position in subordinate clauses with a sentence adverbial [...]” (PLATZACK 1985: 27)


24 “Icelandic has a somewhat special status in that the V/2 order is the main rule in both main clauses and subordinate clauses, whereas V/2 is pretty much restricted to main clauses in the other Germanic V/2 languages.” (THRÁINSSON 1985: 173)

25 The glossing generally conforms to the Leipzig Glossing Rules (http://www.eva.mpg.de/lingua/ files/morpheme.html, visited 14 August 2007; cf. also CROFT 2003: xix-xxiii). For a list of the abbreviations used in this paper, see the appendix.
language least influenced by language contact it seems to be a reasonable assumption
that this difference is due to the varying degree of contact with Low German. This
hypothesis is supported by Larsson’s (1931: 26ff.) suggestion that the Swedish inscrip-
tions in the younger fuþark, which are the earliest written Swedish sources, show
verb second order both in main and subordinate clauses, exactly like Modern Ice-
landic.

It has to be stated, though, that the younger runic inscriptions constitute a
rather unreliable source for word order studies in subordinate clauses. The inscriptions
are usually rather short, and, consequently, subordinate clauses with sentence adverbs
do not occur very often. In a corpus of younger fuþark inscriptions26 we were only
able to identify one Swedish inscription with a negation27 in a subordinate clause:

(3) Younger Swedish runes: Vg 5928

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sua : hif-iR :  os-a :  as :  igi : mun-∅ :  sum :
s  have-3SG.PRS.IND  Åsa-SG.NOM as not will-3SG.PRS.IND some-SG.NOM.F
kuin-∅ :  uir-∅ :  sipon :  kauru-a :: hialm-R :  auk :
wife-SG.NOM after husband-SG.ACC since do-INF Hjalmr-SG.NOM and
hial-i :  hiao-u :  run-aR
Hjalli-SG.NOM hew-3PL.PST.IND rune-PL.ACC
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‘Thus has Ása made, as no other wife in memory of (her) husband will. Hjalmr and Hjalli cut
the runes.’

Unfortunately, this example does not support Larsson’s suggestion of an identical
syntactic structure in runic Swedish main and subordinate clauses. On the other hand,
it should not be considered as being a counterexample, as it is a scaldic stanza, and
scaldic poetry, with its extremely free word order, cannot be regarded as reliable evi-
dence for the unmarked word order of Old Norse.

From the classical Old Swedish period (1225-1375) we are equipped with
longer texts containing a sufficient amount of examples for negations in subordinate
clauses. In the Genesis of the Old Swedish Pentateuch periphrasis from 1350 we
found 68 examples showing the word order subject – finite verb – negation in subor-
dinate clauses and not a single one showing the Modern Swedish word order subject –

27 Negations are the most frequent sentence adverbs and, in addition, can be identified quite reliably
even in historical corpuses with unstandardised orthography.
28 Cf. the list of primary sources at the end of the paper.
negation – finite verb. In other words, main clauses exhibit the same word order as subordinate clauses in this text.

(4) Old Swedish Genesis, p. 177, p. 112

a) Än saray-∅ mat-te ekke barn-∅ fōdh-a
   but Sarah-SG.NOM can-3PL.PST.IND not child-PL.ACC give.birth-INF
   ‘But Sarah was not able to give birth to children.’

b) at hon-∅ ma-∅ ey son-∅ fōdh-a
   that she-NOM can-3PL.PRS.IND not son-SG.ACC give.birth-INF
   ‘that she is not able to give birth to a son.’

It seems to be a widespread opinion in the research on Old Swedish word order that this is in fact the original order used in subordinate clauses in Swedish, which was first pushed back and finally replaced by the Modern Swedish word order, an opinion that is supported by Zeevaert’s analysis of nine Old Swedish texts.

From the fifteenth century onwards the usage of the modern, subordinate clause word order with the sentence adverb positioned before the finite verb increases dramatically. In the Genesis of Gustav Vasa’s Bible from 1541 over 85% of the subordinate clauses with a negation reveal this word order (cf. e.g. 5 a) and b)).

(5) Gustav Vasa’s Bible, fol. XVIIIv, fol. 1Xr

a) Man gör-∅ icke så j wår-o land-e
   one do-PRS not so in our-SG.DAT.N country- SG.DAT
   ‘We do not act like this in our country.’

b) HERRE-N haffu-er igenluch-t migh at iagh icke
   lord-SG.NOM.DEF have-SG.PRS lock-SUP I.SG.ACC that I.SG.NOM not
   kan-∅ fā-∅ barn-∅
   can-PRS get-INF child-PL.ACC
   ‘The Lord has shut me off from giving birth.’

When taking a closer look, however, some objections may be raised against the rather straightforward assumption that the growing Low German influence on Swedish between the fourteenth and the sixteenth century was the lone cause for the differences between Icelandic and Swedish or Old and New Swedish word order:

29 For a brief overview see NYSTRÖM (1985): 129-144.
1. For chronological reasons such a description seems rather difficult: The new subordinate clause structure with the finite verb in final position appears in Swedish texts some hundred years before it becomes obligatory in German.\footnote{Cf. CHIRITA (1997, 2003).}

2. In a previous study, Ludger ZEEVAERT (2006) showed that Swedish texts from the fourteenth century onwards show an increase in relative clauses with finite verbs in late or final position. This word order is also typical of German subordinate clauses. This development, however, recedes at a later stage. In contemporary Swedish, subordinate clauses with the finite verb in final position are found only in a stylistically marked context (e.g. in religious or juridical language).

3. The results from an investigation carried out by JÖRGENSEN (1978) suggest that the differentiation of main and subordinate clauses by means of word order, i.e. the marking of the position of the sentence adverb and finite verb, is a phenomenon based on written language that was not carried forward completely into spoken language.\footnote{Cf. ZEEVAERT (2006).} Therefore, it is not very plausible to look at this structure as the result of oral communication between Swedes and Low German speaking craftsmen and merchants that later made its way to the written language.

4. Texts that precede the Old Swedish Genesis, e.g. the provincial laws, exhibit a much less regular word order in which subordinate clauses also occur with the finite verb in final position:

\begin{verbatim}
(6) Upplandslagen, p. 37, p. 171
\end{verbatim}

\begin{verbatim}
a) at han-∅ æi buþ-∅ fik-∅
   that he-SG.NOM not summons-SG.ACC get.PST-3SG
   ‘that he did not receive the summons’

b) at han-∅ kunn-i æi þiuff-∅ sin-∅ fa-∅
   that he-SG.NOM can.PRS-3SG.SBJV not thief-SG.ACC POSS.REFL-SG.ACC.M get-INF
   ‘that he could not catch his thief’
\end{verbatim}

\textbf{3.4. Hypothesis}

ZEEVAERT (2005) therefore argued in favour of written standardisation in the modern Swedish period being the main reason for this development. The hypothesis is sup-
ported by the fact that research carried out on a late Medieval and early Modern Swedish corpus showed that the presence of a fixed word order for subordinate clauses is a rather late phenomenon in Swedish texts.

This does not rule out the assumption that Low German played a part in the development of Modern Swedish word order in subordinate clauses, even though this influence has to be regarded as being indirect. It is possible that the difference in word order between main and subordinate clauses as such was induced by Low German, even though the outcome in the end is a structure which differs from the source structure.

Nevertheless, the problem of chronology still remains. A fixed word order for subordinate clauses does not seem to exist in the Low German sources before its appearance in Swedish, and since Latin is said to be responsible for the emergence of this word order in German, \(^{33}\) one could assume that this is also the case for Swedish. This assumption would imply that subordinate clauses that structurally differ from main clauses have to be regarded as a phenomenon of (the) written language.

In fact, the development of a literacy in Sweden that exceeds short runic inscriptions \(^{34}\) is very much linked to Latin. Latin was the language of the church and the official written language in Sweden up to about 1350. \(^{35}\) The introduction of a new religion from the South also brought new types of texts to the North that obviously required the further development of linguistic means, including the formal marking of syntactic subordination.

To verify this hypothesis the following steps have to be taken:

1. It has to be shown that the syntactical marking of subordination in Swedish spreads out only after the introduction of Christianity.

2. It has to be explained why Icelandic, which, exactly like Swedish, developed a writing culture under the influence of the Church, pursued a different route, although also in Iceland the oldest written sources are in Latin.

\(^{33}\) Cf. the discussion in CHIRITA (2003).

\(^{34}\) Following BRAUNMÜLLER (2004a, 2004b), even the development of runic literacy has to be seen in connection with Latin.

\(^{35}\) Cf. SÖDERBERG/LARSSON (1993: 142).
3. It has to be shown that the typical German subordinate word order with the finite verb in final position does not evolve before the fourteenth century.

4. It has to be shown that Latin texts circulating in Sweden in the thirteenth century reveal a formal differentiation of coordinating and subordinating structures that could have been a model for a corresponding differentiation in Swedish.

5. It has to be shown that a special word order for subordination is found first in texts that are strongly influenced by Latin (translations, religious texts).

3.5. Investigation of Basic Word Order
In his analysis of the word order in Old Swedish texts, Zeevaert\textsuperscript{36} has demonstrated that even though Old Swedish has a less rigid word order than Modern Swedish, the place of the finite verb is, in both cases, the second position. Thus, Old Swedish\textsuperscript{37}, just like Old Norse\textsuperscript{38}, can generally be characterised as a verb second language with SVO as unmarked word order.\textsuperscript{39}

With respect to subordinate clauses, ZEEVAERT’s (2006) analysis has also provided evidence suggesting an increasing variation in word order over time. Verb second is still the most common word order even in the youngest text, namely the Genesis in Gustav Vasa’s Bible, but in 27% of the cases the finite verb is found in a later position in the sentence. To test these results we eventually wish to analyse all subordinate clauses in the whole corpus. The analysis carried out for this paper, however, was limited to a smaller part of the corpus.

A typical definition of subordinate clauses from grammar books or linguistic dictionaries is that found in Svenska Akademiens Grammatik: ”En bisats är en syntaktisk underordnad sats, dvs. en sats som är satsled i en annan sats.”\textsuperscript{40} Such a definition might be practicable for a large amount of subordinate clauses but can be difficult to

\textsuperscript{36} ZEEVAERT (2006) investigates an autograph of Saint Bridget and five other texts from the time/written between 1350 and 1541.

\textsuperscript{37} Following LARSSON (1931), this is already true for the Swedish inscriptions in the younger fuþark (from ca. 800 A D), see also p. 13.

\textsuperscript{38} Cf. e.g. CHRISTOFFERSEN (2002).

\textsuperscript{39} The narrative inversion (finite verb in the first position) has to be characterised as a marked word order with a special discourse function, cf. CHRISTOFFERSEN (2002: 185-186).

\textsuperscript{40} ‘A subordinate clause is a syntactically subordinate clause, i.e. a clause which is a phrase in a different clause’, TELEMAN/HELLBERG/ANDERSSON (1999: 462).
apply to certain types, for example relative clauses. To integrate even such examples one might prefer to say that subordinate clauses elaborate on information given in the main clause. Another possibility is the definition by means of formal criteria, typically word order and the use of certain types of conjunctions.

ASHER/VIEU (2005) developed a very interesting system of subordinating and coordinating rhetorical functions or relations between discourse segments and developed tests in order to determine them. Criteria used in these tests are e.g. the linear order in a narration or topic permanence. According to their model, elaboration induces subordination, whereas narration induces coordination. Unfortunately, they do not succeed in linking those functions with respective linguistic indicators for sub- and coordination. This can be illustrated by means of a very prominent example taken from the German language. Sentences introduced with the conjunction weil (‘because’) clearly have an elaborating function, but can have the typical word order for subordinate clauses as well as for main clauses, as can be seen in example (7):

(7) Redder (2004: 51)

a) [...] und die hätten mich behalten, weil (= because) die so wenig Mädchen gehabt haben (= had).

‘[...] and they would have kept me because they had so few girls.’

b) Lange konnten wir überhaupt nicht heiraten, weil (= because) ich konnte (= could) aus Italien nicht ohne weiteres nach Deutschland [...] ‘For a long time we were not able to marry because I could not come from Italy to Germany without problems [...]’

Similar problems have led scholars to speak of ‘so-called’ subordinate clauses. Surely this difficulty was also observed earlier. Already in 1880, Hermann Paul came to the conclusion that subordination had existed in language from the very beginning, even though a corresponding grammatical marking was developed only later in the course of language history. Nevertheless, he doubted that a functional differentiation of coordination and subordination could be possible, since even in the case of coordinated main clauses the second clause usually contains a closer determination of the first one. This complies very much with modern theories like Asher and Vieu’s.
To sum up the crucial theoretical problem this study is faced with: if one wishes to describe a diachronic development of the word order in subordinate clauses, one needs to apply formal criteria in order to distinguish between subordinate and main clauses; however, if the above mentioned hypothesis is correct, a formal distinction between both clause types did not exist in the earliest stages of Swedish.⁴⁴

VENNEMANN (1984) presents an interesting opinion on the formal distinction of main and subordinate clauses in the Germanic languages that may help to solve this problem. He sets out from the assumption that earliest Germanic was a SOV language and that conjunctional and relative clauses arose from loosely adjoined main clauses with demonstrative anaphora. Consequently, a difference between postmodifying declarative sentences and premodifying explicative sentences emerged from this⁴⁵ which in turn led to the verb moving to the second position in main clauses, whereas it stayed at the end in subordinate clauses.

As for Nordic languages, Vennemann proposes a different distinction. He suggests that, in contrast to German, a distinct category of subjunctions was developed, with the following result:

Once a category of subjunctions had been established, the analogical remodeling of subordinate clauses after main clauses was innocuous, even in cases where the subjunction was still homophonous with some coordinating constituent: Main clause word order, i.e. verb-second, amounts to verb third after a subjunction, and thus main clause word order itself became a new mark of subordination, viz. after subjunctions, e.g. in Icelandic. (VENNEMANN 1984: 633)

(8) Vennemann (1984: 633)

a) kaffið var hitað
   ‘the coffee was heated’

---

⁴⁴ Cf. SAARI (1983: 80) for the problem of distinguishing between main and subordinate clauses in Old Swedish.

⁴⁵ “My hypothesis is that postspecifying expansion of verbs by subordinate clauses set up a model for postspecification with sub-clausal constituents, and that postverbal clausal specifiers of nouns exerted a rightward pull on their head nouns according to Behagel’s First Law – but, of course, only in main clauses, because only main clauses would normally be expanded by subordinate clauses.” (VENNEMANN 1984: 628)
b) á meðan var kaffið hitað
   ‘in the meantime the coffee was heated’
c) á meðan kaffið var hitað
   ‘while the coffee was heated’

Since Old Swedish behaves very much like Modern Icelandic with respect to word order, one would expect the same to apply to Old Swedish texts, meaning that, also here, word order, in combination with different types of clause initiation, might represent a definite criterion to distinguish between clause types. Thus, as a first step, we looked at the word order in subordinate clauses in three different versions of the Story of Charlemagne.

3.6. Some Remarks on the Nordic Versions of the Story of Charlemagne

It is clear that the advantage of a tagged corpus lies in the fact that data for linguistic analyses can be obtained very easily and quickly with the help of style sheets. The disadvantage, on the other hand, is the time-consuming work involved in the preparing and tagging of the texts, which meant that for this paper we resolved to limit ourselves to one text, the Story of Charlemagne, which is interesting for different reasons.

The saga in question has survived in a Danish, a Swedish and a West Norse version and can thus be regarded as an adequate basis for a comparison of West and East Norse word order. In addition, the probability of syntactic interferences from a source text is rather low, as the translation was made from an Old French versified narrative.46

1. The West Norse version is only preserved in several Icelandic manuscripts, but is said to have been compiled in Norway in the first half of the thirteenth century. It exists in an older redaction and a younger one, A and B. It is a prose translation of French epic poems based on Charlemagne and his Paladins. The text used for this publication was AM 180 c fol from approx. 1400 as found in Togeby’s edition.47

46 Not from Latin or (Middle Low) German prose texts like many other Swedish or Danish texts from this period.
47 For complete references of the editions used cf. the primary sources at the end of the paper.
2. The Swedish version is preserved in four paper manuscripts from the fifteenth century: Codex Holmiensis D4, Codex Holmiensis D4 a (‘Fru Märetas bok’ or ‘Codex Verelianus’), Codex Holmiensis D 3 (‘Fru Elins bok’) and Codex AM 191, fol. (‘Codex Askabyensis’). The text used for this publication was Codex Holmiensis D4 a from approx. 1420-1445 as found in Kornhall’s edition.

3. The Danish version is preserved in one manuscript, Codex Holmiensis Vu 82, and two printed books, a Ghenem-print from the beginning of the sixteenth century and Christiern Pedersen’s edition from 1534 with the title ‘Keyser Karl's Magnus Krønicke’, which in turn was the source for a popular chapbook that was eventually translated back to Icelandic. The text used for this publication was Codex Holmiensis Vu 82 from 1480 as found in Hjorth’s edition.

The Swedish and Danish versions go back to a West Norse version. They show a rather close relationship, even though the Swedish text is much shorter and contains only two of the ten chapters of the saga.

3.7. Word Order in Subordinate Clauses in the three Versions of the Story of Charlemagne

Provided that a text is tagged properly, the different word order patterns can be displayed and counted very easily with the help of style sheets using XPath expressions. As an example, the XPath expression used to count subordinate clauses (lSUB) containing a subordinator and (having) a finite verb (xVB fF) in second position reads:

\[
\text{count}(/\text{cl}[\text{contains}(@type,'lSUB') \text{ and not(contains} (@type,'mZER'))]/\text{w}[\text{count(preceding-sibling::phr)} + \text{count(preceding-sibling::w)} + \text{count(preceding-sibling::seg/w)}=2 \text{ and contains} (@pos,'xVB fF'))])
\]

By modifying the style sheets it is even possible to count and display only specific types of subordinate clauses, e.g. relative or conjunctional clauses, or to exclude clause types, such as zero marked conditional clauses. The figures 5 to 7 are screenshots from countings and the output of word order patterns in all types of subordinate clauses.

49 Cf. the stemma given by Kornhall (1959: 112).
clauses from the three different versions of *the Story of Charlemagne*. On screen the matching instances are displayed in colour for easier identification, whereas here capital letters are used for that purpose. For reasons of space only the first examples of the output are presented.

![Figure 5: Counting of word order patterns in subordinate clauses in *Karlamagnús saga*, West Norse](image)

To make a reliable statement, all occurrences of the different word order patterns have to be checked in order to rule out errors in the tagging. This manual checking is helped by the fact that the different word order patterns are displayed in different colours.
A comparison of the figures\textsuperscript{51} from the West Norse and the Swedish text shows that the Swedish text shows more variation with respect to the position of the finite verb in subordinate clauses than the West Norse text. The three examples of subordinate clauses without a finite verb in the West Norse version are Acl-constructions as shown in example (9), a type of subordination found neither in the Swedish nor in the Danish version.

(9) *Karlamagnús saga, West Norse, p. 248*

\begin{verbatim}
Karl Magnus enligt Codex Vereianus (Karl Magnus D4aS28)


Sentences: 301
Clauses: 534
Words: 4719

subordinate clauses: 148
[A] subordinate clauses without finite verbs: 0
[B] subordinate clauses with w-elements with pos=VVB IF: 148
[C] zero marked subordinate clauses: 3
[D] zero marked conditional clauses: 0
[E] subordinate clauses having w-Elements with pos=VVB IF\textsuperscript{2} in first position: 8
[F] subordinate clauses having w-Elements with pos=VVB IF\textsuperscript{2} in second position: 132
[G] subordinate clauses having w-Elements with pos=VVB IF\textsuperscript{2} in past-second position: 5

\end{verbatim}

\textit{Karlamagnús saga, West Norse, p. 248}

\begin{verbatim}
king-r kue-z suo ger-a skyll-du.
king-SG.NOM address-3 SG.PST.IND.REFL so do-INF shall-INF.PST

‘The king said that they should do so.’
\end{verbatim}

Subordinate clauses with the finite verb in first position in all three versions consist, without exception, of relative clauses in which the relative particle refers to the subject of the main clause. However, differences in the usage can be observed between

\textsuperscript{51} Only the ‘Jórsalaféðr’-chapter was tagged in all three versions and hence is used as the basis for the counting.
the different texts. While the Swedish version makes frequent use of this word order pattern (cf. (10) a)), the West Norse text preferably uses verb second order (cf. (10) b)), whereas in the Danish version zero marked relative clauses are often employed in such cases (cf. (10) c)), an option that is hardly used in the Swedish version and does not occur at all in the West Norse text.

![Figure 7: Counting of word order patterns in subordinate clauses in Karl Magnus, Danish](image)

(10) Swedish, West Norse and Danish relative clauses

a) iach haw-er hær-th nemp-d-an konung-∅
   I.SG.NOM have-1.SG.PRS hear-SUP called-PTCP.PST-ACC.M king-SG.ACC

   th-en som het-er hwghin
   DEM-SG.ACC.M REL he called-3SG.PRS Hugin-SG.NOM

   ‘I have heard the king called Hugin being mentioned.’

b) heyr-t hef-i ek get-id kong-s
   hear-PTCP.PST have-1.SG.PRS I.NOM.SG mention-PTCP.PST king-SG.GEN

   þ-ess or Hugon heitir
   DEM-GEN.SG.M REL Hugon-SG.NOM be.called-3SG.PRS

   ‘I have heard the King who’s name is Hugon being referred to.’
The Danish version, just like the Swedish one, shows more variation than the West Norse text, even though the number of examples is much lower than in the other two texts, since the Danish version is much shorter (2051 words in the Jörsalaferð-chapter compared to 4719 in the Swedish and 5016 in the West Norse text).

Figure 8: Word order patterns in the different versions of the Story of Charlemagne

4. Conclusion

The West Norse version almost exclusively shows verb second order and at the same time no examples of verb late order. In the Danish and the Swedish versions, verb second is also the main option, but more examples of the finite verb in a later position can be found in both texts. According to Kornhall\(^52\), the Danish and the Swedish versions are translations from a West Norse source, which suggests that direct syntactic interference from a third language can be excluded. The divergence in word order from West Norse thus reflects the beginning of a differing development in Old Swedish and Old Danish.

Of special interest for this development are the occurrences of subordinate clauses with verb late word order in the different texts. The evaluation of the word

\(^{52}\) Kornhall (1959: 104).
order in subordinate clauses in the Old West Norse, Old Swedish and Old Danish versions of the *Story of Charlemagne* leads to some interesting results that seem to support the hypothesis referring to the different syntactical developments between Icelandic and the Mainland Scandinavian languages that was formulated at the beginning of this article.

Even though the number of examples in the Swedish and the Danish text does not seem very impressive at a first glance, it has to be seen in contrast to the complete absence of the verb late pattern in the West Norse version. Thus, in our opinion, the hypothesis suggesting that the development of new text types based on Latin models triggered this change seems to be reasonable. In order to reliably support this hypothesis a larger part of the corpus has to be investigated. In addition, a refinement of the theoretical instruments, an upgrade of the methods used for annotating the texts and a continuation of the preparation and tagging of the corpus has to be carried out. If the hypothesis is correct, we would expect a stronger tendency towards verb late in Latin based text types, such as diploma and religious texts, and in translations from Latin than in texts depending to a lesser extent on foreign models like the *Story of Charlemagne*.

The main goal of the cooperation presented in this paper, however, was to develop corpus linguistic methods in order to be able to examine word order change in subordinate clauses in older Swedish and Danish texts in comparison to Old West Norse sources within a larger corpus, a goal we are convinced to have reached successfully.

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### Appendix: List of Abbreviations

| 1  | first person | NOM | nominative |
| 3  | third person | PL  | plural     |
| ACC | accusative  | POSS | possessive |
| DAT | dative      | PRS  | present    |
| DEF | definite    | PST  | past       |
| DEM | determiner  | PTCP | participle |
| F   | feminine    | REFL | reflexive  |
| GEN | genitive    | REL  | relative   |
| IND | indicative  | SG   | singular   |
| INF | infinitive  | SBJV | subjunctive |
| M   | masculine   | SUP  | supine     |
| N   | neuter      | SUPL | superlative |
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