

## **Auxiliaries in Old Dutch. A diachronic parallel corpus exploration**

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### **Abstract**

This study explores the use of auxiliaries in the oldest text available for Old Dutch, the Wachtendonck Psalter, dating from the tenth century. Our aim is to understand why there are so few different auxiliaries in this text in comparison to other texts in Old Dutch. We tackle this question by taking a historical comparative perspective, using methodological insights and techniques from corpus-based contrastive linguistics and typology. More specifically, we build a diachronic parallel corpus of psalm translations, and compare the contexts in which auxiliaries and inflectional alternatives are used in these parallel texts by means of multidimensional scaling. Our historical comparative method results in five proximity maps which allow us to explore and compare the inventory of verb constructions of the Wachtendonck Psalter both retrospectively, with its source text in Latin, and prospectively, with later translations in Dutch. Our analysis looks into the role of grammaticalization, as well as the specific nature of the text as an interlinear translation, as possible motivations for the presence and absence of auxiliaries in the Wachtendonck Psalter.

### **Keywords**

Dutch, Psalms, Parallel Corpus, Multi-Dimensional Scaling, Grammaticalization, Translation, Auxiliary, Verb

## **1 Introduction**

Dutch today has a wide range of verbs taking nonfinite verbal complements such as infinitives or past participles (Haeseryn et al. 1997). Many of these verbs have grammaticalized over the course of time into auxiliaries expressing grammatical meanings such as tense, aspect, modality and voice. In this article, we want to look into the earliest roots of these auxiliaries in Dutch.

The first text in Dutch that is long enough for the systematic study of auxiliaries is the Wachtendonck Psalter, an Old Dutch translation of the Vulgate Book of Psalms, which dates back to the tenth century (Gysseling 1980, Quak 1981, De Grauwe 1982). Coussé (2020) provides us with a list of verbs taking nonfinite verbal complements in the Wachtendonck Psalter. The inventory of potential auxiliaries turns out to be very restricted: only six different verbs are found taking nonfinite complements such as infinitives or past participles. The potential meanings of these verbs are also limited: most of them are compatible with either a future tense or passive voice interpretation. This limited inventory contrasts with the wider range of potential auxiliaries in two of the other available texts in Old Dutch, the Leiden Willeram and the Central Franconian Rhyming Bible, both from the first half of the twelfth century (Sanders 1971, Wells 2004). Coussé (2020) lists twenty verbs taking nonfinite verbal complements in these two texts, potentially expressing passive, future, perfect, modal,

aspectual and causative meanings. The central question of our article is: what motivates the limited inventory of auxiliaries in the Wachtendonck Psalter?

We investigate two hypotheses in this article. One explanation for the limited inventory may be that no other auxiliaries had yet been grammaticalized at the time of writing. This implies that the inventory of auxiliaries in the Wachtendonck Psalter represents the first set of verbs that were grammaticalized into auxiliaries in Dutch. Quak & Van der Horst (2002) and Van der Horst (2008) think along these lines when reflecting on the lack of perfect auxiliaries in the Wachtendonck Psalter. They suggest that “apparently the periphrastic perfect is hardly a common option among the translator(s) of the Wachtendonck Psalter”.<sup>1</sup> Another explanation may be sought in the specific nature of the Wachtendonck Psalter as an interlinear translation of the Vulgate Book of Psalms. Latin, the language of the source text, is known to express distinctions in the domains of tense and voice by means of verbal inflections rather than auxiliaries. Translating the Latin source text into Dutch thus implies adding auxiliaries to some extent, something that the translator may have avoided in the context of a strict word-by-word interlinear translation. Quak (1983, 2020) has explored this line of reasoning for future and passive constructions in the Latin source text. He finds that the translator does add auxiliaries and other functional elements in the translation, “which were lacking in the Latin text, but were necessary in Old Dutch, to render the text adequately”.<sup>2</sup> However, we do not know in what contexts the translator has chosen not to add an auxiliary.

We explore the above hypotheses by taking a historical comparative approach. We first take a retrospective perspective, comparing the Wachtendonck Psalter with its Latin source text in the Vulgate Bible. We not only focus on contexts in which auxiliaries are used, but also include contexts where they are not used. This implies that we are covering the full inventory of verb constructions that appears in the Wachtendonck Psalter. This wider inventory perspective will enable us to systematically chart the contexts in which the translation either diverges or converges from the source text in its use of auxiliaries. Additionally, we complement our *retrospective* perspective on the Wachtendonck Psalter with a *prospective* one by comparing the Wachtendonck Psalter with later Dutch translations of the Vulgate Bible, notably the Vorsterman Bible (1528), the Louvain Bible (1548) and the Dutch Professors’ Bible (1911). This type of prospective comparison has, to the best of our knowledge, not been performed on the Wachtendonck Psalter, and is not widespread within historical linguistics. It will help us to see the use of auxiliaries in the Wachtendonck Psalter in the light of alternative usage patterns in later translations. We will, in particular, explore whether later translations show as few auxiliaries as the Wachtendonck Psalter, and in what contexts the later translations diverge in their use of auxiliaries. By combining a retrospective with a prospective approach, we aim to explore the early roots of auxiliaries in Dutch through the lens of several historical psalm translations.

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<sup>1</sup> Our translation of “Blijkbaar is het omschreven perfectum bij de vertaler(s) van de Wachtendonckse Psalmen nog nauwelijks gebruikelijk” (Van der Horst 2008: 200).

<sup>2</sup> Our translation of “die im lateinischen Text fehlen, aber im Altniederfränkischen notwendig waren, um den Text adäquat wiederzugeben” (Quak 1983: 100).

We systematically compare the psalm translations in our study by means of a diachronic parallel corpus. A traditional parallel corpus consists of a source text with its translation into one or more languages (Aijmer 2008: 276). It is a well-established method in corpus-based contrastive linguistics for studying the similarities and differences between two or more languages (see Hasselgård 2020 for a recent overview). A *diachronic* parallel corpus, then, consists of a source text with its translations into two or more historical varieties of the same language. As such, our study ties in with a recent trend in historical linguistics to create parallel corpora of historical translations based on the same source text (Haug & Jöhndal 2008, Enrique-Arias 2013, Chiarcos et al. 2014, Kalouli et al. 2019, Birkenes et al. 2020, Bouma et al. 2020). We elaborate on the design of our diachronic parallel corpus and its potential for the retrospective and prospective comparison of historical psalm translations in Section 3.1. More information on the texts in our corpus and on the compilation of the corpus are given in Sections 3.2 and 3.3 respectively.

In our diachronic parallel corpus, we then manually identify and annotate all verb constructions that appear in the Wachtendonck Psalter and in the corresponding psalm translations. Details on the annotation procedure are given in Section 4.1. We visualize the translation correspondences in our corpus in a series of maps using multidimensional scaling. The application of multidimensional scaling to parallel corpus data was developed in typology (Wälchli 2010, Wälchli & Cysouw 2012) and has now been incorporated into corpus-based contrastive linguistics (Van der Klis et al. 2017). To the best of our knowledge, its potential has not been explored in historical linguistics. We give more details on multidimensional scaling and its application to diachronic parallel data in Section 4.2. Our visualization in a series of maps is presented in Section 4.3. Further details on the tools used for annotation and visualization are given in Section 4.4.

The results of our corpus study are given in Section 5. Before we go into the details of our corpus study, we start by reviewing the existing literature on the use of auxiliaries in the Wachtendonck Psalter in the next section, Section 2.

## **2 Literature review**

As mentioned in the introduction, a striking feature of the Wachtendonck Psalter is its limited inventory of auxiliaries. Table 1 gives an overview of the verbs that take nonfinite verbal complements in the Wachtendonck Psalter. The list is collected by Coussé (2020: 298–299) on the basis of information found in the Old Dutch Corpus (Schoonheim 2008) and the historical grammar of Van der Horst (2008). The first three verbs on the list represent the majority of instances; the last three verbs occur only one or twice each in the text.

Old Dutch	Contemporary Dutch	English gloss	Nonfinite complement	Potential meaning
<i>sullan</i>	<i>zullen</i>	shall, will	infinitive	future tense
<i>werthan</i>	<i>worden</i>	become, be	past participle	passive voice
<i>sīn/wesan</i>	<i>zijn</i>	be	past participle	passive voice
<i>hebben</i>	<i>hebben</i>	have	past participle	perfect tense
<i>mugan</i>	<i>mogen</i>	may	infinitive	modality
<i>duon</i>	<i>doen</i>	do, let	infinitive	causativity

**Table 1.** Potential auxiliaries

The term “potential meaning” in the last column indicates that it is difficult to assess whether the verbs listed were already used with their modern grammaticalized meaning in the text. Van der Horst (2008) addresses this issue for passive auxiliaries in Old Dutch. He considers passives to be “combinations of *zijn* or *worden* + past participle insofar there is a passive meaning recognizable”.<sup>3</sup> We take a similar approach, following Coussé (2020: 289), considering verbs to be “potential auxiliaries” when “they are combined with a nonfinite verbal complement in a constellation that corresponds to a present-day verb construction in form and meaning”.

The psalm verses in (1) illustrate the uses of future and passive auxiliaries in context. The future auxiliary *sullan* combines with an infinitive, whereas the passive auxiliary *werthan* takes a past participle. The nonfinite complements of both auxiliaries are the main verbs of the clauses they belong to. Auxiliary and main verb together form a periphrastic verb construction consisting of two verbs, or a two-verb construction for short. The entire verb construction is marked in bold; relevant morphological features (see Section 4.1) of the verbs are annotated using the Leipzig Glossing Rules (2015).<sup>4</sup>

- (1) *Inde uuesan sal also holz*  
and be.INF shall.PRS as tree  
‘And he **shall be** like a tree
- that gesazt uuart bi fluzze uuassere*  
that plant.PTCP become.PRT by flood water  
which **is planted** near the running waters,’ (Ps 1:3)<sup>5</sup>

Coussé (2020) points out that the Wachtendonck Psalter also contains six three-verb constructions, in which a future and a passive auxiliary are stacked on top of a nonfinite main

<sup>3</sup> Our translation of “combinaties van *zijn* of *worden* + voltooid deelwoord voor zover daarbij een ‘passieve betekenis’ herkenbaar is” (Van der Horst 2008: 204–209).

<sup>4</sup> The morphological marking of person and number agreement on finite verbs is not of relevance for our study and is therefore not annotated.

<sup>5</sup> The English translation, as well as the numbering of verses, is taken from the Old Testament of the Douay-Rheims Bible. This translation is based on the Latin Vulgate, which makes it maximally comparable to our Dutch translations. We consulted the digitized photographic reproduction of the 1899 edition published by John Murphy Company at <https://archive.org/details/holybible00balt/>. Note that the psalm and verse numbers may not be the same between translations. Only the Douay-Rheims numbering will be indicated in the rest of this article.

verb. The psalm verse in (2) illustrates such a three-verb construction with the future auxiliary *sullan* and the passive auxiliary *werthan* (marked in bold).

- (2) *Bekerda sulun uuerthun te auandi*  
 return.PTCP shall.PRS become.INF to evening  
 ‘They **shall return** at evening,’ (Ps 58:7)

The limited inventory of potential auxiliaries in the Wachtendonck Psalm predominantly comes with either a future tense or passive voice interpretation. Additional grammatical meanings in the verbal domain are expressed in the Wachtendonck Psalter by means of finite inflection. Quak (1992: §5) indicates, in his morphological study of the Wachtendonck Psalter, that finite verbs may be inflected in the present indicative, preterit indicative, present subjunctive, preterit subjunctive and imperative (see also Quak & Van der Horst 2002: §4.6). He notes that the inflectional paradigms for the subjunctive, particularly the preterit subjunctive, cannot be fully reconstructed, as they are rather infrequent in the Wachtendonck Psalter.

The psalm verse in (3) illustrates the use of finite inflection in the Wachtendonck Psalter. In *beuuirpis*, the present indicative inflection is attached to the only verb in the clause, forming a one-verb construction. In the two-verb construction *irbolgan uuard*, the passive auxiliary *uuard* is the finite verb, showing the preterit indicative inflection.

- (3) *Beuue got beuuirpis tu an ende*  
 why God cast.PRS you on end  
 ‘O GOD, why **hast** thou **cast** us off unto the end:  
*irbolgan uuard heitmuot thin ouir scap uueithon thino.*  
 enrage.PTCP become.PRT wrath your over sheep pasture your  
 why **is** thy wrath **enkindled** against the sheep of thy pasture?’ (Ps 73:1)

This literature review has given us a first overview of the verbal repertoire of the Wachtendonck Psalter. The aim of our corpus study is to further explore this repertoire, and particularly the use of auxiliaries, through the lens of subsequent translations in time.

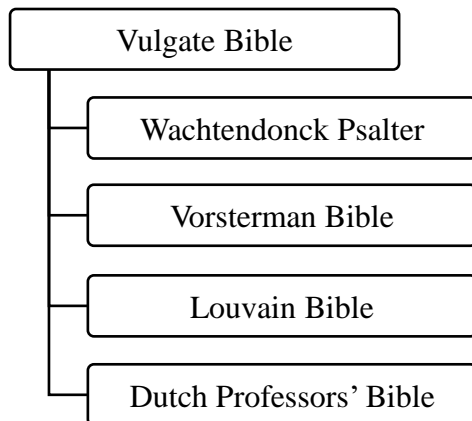
### 3 Corpus

This section first presents the design of the diachronic parallel corpus developed for this study and its potential for retrospective and prospective comparisons of translations across time (Section 3.1). Thereafter, we give more details about the specific texts that make up our corpus of psalm translations (Section 3.2). Finally, we dwell on the compilation of our corpus (Section 3.3).

#### 3.1 Diachronic parallel corpus

For our comparison of the Wachtendonck Psalter with its source text and subsequent historical translations we have built a diachronic parallel corpus. The design of our corpus is presented in Figure 1. The first box represents the Latin source text; the other boxes represent the four subsequent Dutch translations from this source text. The Vulgate Bible is, of course,

itself a translation (see Section 3.2), but its relevance in our corpus is that it is the source of the four Dutch translations considered.



**Figure 1.** Design of diachronic parallel corpus of psalm translations

We link each of the historical psalm translations to its source text on the verse level. Example (4) illustrates this alignment for one verse. Psalm verse 2:3 from the Wachtendonck Psalter is aligned to the corresponding verse in the Vulgate, the Vorsterman Bible, the Louvain Bible and the Professors' Bible.

(4) Ps 2:3 ‘**Let** us **break** their bonds asunder: and let us cast away their yoke from us.’

Vulgate	<b>Dirumpamus</b> vincula eorum: et proiiciamus a nobis iugum ipsorum.	present subjunctive
Wachtendonck	<b>Cebrecan</b> uuir gebende iro. in ueruerfon uuir fan uns joh iro.	present subjunctive
Vorsterman	<b>Laet</b> ons haer banden in stucken <b>breken</b> , ende haer iocken van ons worpen.	hortative
Louvain	<b>Laet</b> ons van een <b>breken</b> hen banden, ende van ons worpen hen gareel.	hortative
Professor	<b>Laat</b> ons <b>verbreken</b> hun banden en weg van ons werpen/ hun juk!	hortative

Within these aligned verses, the corresponding verb constructions are highlighted in bold. These corresponding constructions form a quintuple of translation correspondences. Such quintuples can be analysed from a wealth of perspectives. In this study, we take the verb construction in the Wachtendonck Psalter as our pivot for comparison. In (4), we encounter the verb *cebrecan* ‘break’, which is inflected for the present subjunctive. Retrospective comparison of this verb construction learns that it corresponds to *dirumpamus* ‘break’ in the Vulgate, which is also inflected in the present subjunctive. We are thus looking at a fully congruent translation of the source, in which an inflectional subjunctive in Latin is rendered by a corresponding inflectional marker in Old Dutch. Prospective comparison of *cebrecan* indicates that later translators chose the hortative auxiliary *laten* ‘let’ rather than a subjunctive inflection marker to render the meaning of the same source construction. These later translations are thus incongruent with the Wachtendonck Psalter in terms of structure.

Semantically, both constructions can be considered congruent, as they both express meanings in the domain of mood/modality.

The prospective comparison of the Wachtendonck Psalter with three subsequent psalm translations builds on the facts that all of these translations go back to the same Latin source text. This shared source is exploited as a *tertium comparationis* for a diachronic comparison of the translations. In such a diachronic comparison, we are not so much interested in the source construction itself, as in the fact that each of the target constructions has a relationship of semantic equivalence with the source construction. In other words, we assume that each of the target constructions is chosen by the translator to render the specific meaning of the source construction in one particular context of use. This shared relationship of equivalence forms the semantic background against which we can compare historical translations in the same language from the same source text.

### 3.2 Corpus texts

The texts in our diachronic parallel corpus are psalm translations. Psalms are lyrical texts, originally composed in Biblical Hebrew, and are a canonical part of the Christian Old Testament. The Book of Psalms is also among the most translated books of the Bible in Middle Dutch and has been included in Dutch translations of the entire Bible from the Liesvelt Bible (1526) onwards.

The Wachtendonck Psalter is the pivotal translation of our corpus. This translation only covers parts of the Book of Psalms (Ps 1 to Ps 3:6, Ps 19, and Ps 53:7 to Ps 73:9; Douay-Rheims numbering) due to its fragmentary textual transmission.<sup>6</sup> The Old Dutch translation is based on the Psalterium Gallicanum, that is, the Latin translation made by Jerome (finalized in 392) of the Greek Septagint translation of the Hebrew psalms. The other psalm translations in our corpus are based on the same Latin source text to maximize comparability.

The historical psalm translations in our corpus can be characterized as highly source-oriented, yet they all have their unique “skopos”; that is, each of them is made for a specific religious community and context to fulfill particular goals and needs (De Vries 2007). The Wachtendonck Psalter, for instance, has been argued to serve educational and liturgical purposes in a monastic context in the south-east of the Dutch language area (Gysseling 1980, Desplenter 2015a). As an interlinear translation it follows the linear structure of the source text in a strict word-by-word fashion. As mentioned earlier, Quak (1983, 2020) shows that this does not stop the translator from routinely inserting additional words into the translation, such as auxiliaries. The psalms in the Vorsterman Bible (printed in 1528) are argued to go back to a fifteenth-century translation made for exegetical and educational purposes in the context of the Modern Devotion religious movement in the region of Holland (Desplenter 2015b). The Louvain Bible and the Dutch Professors’ Bible served as authoritative Catholic

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<sup>6</sup> We do not include the list of glosses that has been recovered from several historical sources (see Desplenter 2015a for an overview), as these glosses do not have a straightforward correspondence to the other psalm translations in our diachronic parallel corpus. A reviewer notes that these glosses contain more than 40 verb constructions, of which one is actually a three-verb construction. This particular three-verb construction, of the type illustrated in (2), is reported and discussed in more detail in Coussé (2020: 291).

translations after the Protestant Reformation. The Dutch Professors' Bible foreshadows the later, more target-oriented Bible translations of the twentieth century and is characterized by Bloemen (2015) as being somewhere between a formal-equivalent and an idiomatic translation.

The historical psalm translations in our corpus represent only part of the language of its time, as is the case for all historical texts. We treat them as “doculects” in our parallel corpus, in the sense of Wälchli & Cysouw (2012: 706): we “compare empirical samples of languages, rather than [...] assume that any particular sample fully represents a language”. Historical psalm translations can be considered as special kinds of Dutch, as source-oriented translations of sacred texts rooted in an ancient Hebrew oral tradition. Yet they are by no means isolated from the rest of the language. Psalters are known to have been the most widespread books of the Bible in the Middle Ages (Gross-Diaz 2012). Psalm translations have been used in pedagogical, liturgical and devotional contexts throughout the history of Dutch (Desplenter 2015c) and, as such, have been part of the lives of countless people for centuries.

Our corpus also includes the Latin source of the psalm translations as a point of reference. We more specifically chose the Sixto-Clementine Vulgate (1592), as this version is the direct source of the Professors' Bible (Bloemen 2015), and is also very close to the Hentenian Vulgate (1547), on which the Louvain Bible is based (François 2015). Furthermore, Van Liere (2012: 109) argues that, “for medieval scholars interested in the text as it was read in, for instance, thirteenth-century Paris, this Sixto-Clementine Vulgate might actually be a better representation of the scholastic biblical text than the modern critical edition of the text in its pre-Carolingian form”. The psalter in the Sixto-Clementine Vulgate goes back to the *Psalterium Gallicanum*.

### **3.3 Corpus compilation**

Our corpus of psalm translations is compiled on the basis of existing digital editions coming from three sources. We used the Wachtendonck Psalter in the digital version that is part of the Old Dutch Corpus (Schoonheim 2008), which goes back to Quak's (1981) edition.<sup>7</sup> The corresponding psalm translations from the Vorsterman Bible, the Louvain Bible and the Professors' Bible are taken from the EDGeS Diachronic Bible Corpus v1.01 (Bouma et al. 2020).<sup>8</sup> The Latin psalms come from the *Biblia sacra Vulgatae editionis, Romae 1592*, digitized as part of the project La Bibbia nel '500.<sup>9</sup> In our corpus, the Wachtendonck Psalter contains about 5 750 tokens, taken from a combined 541 verses from 25 different psalms, of which some are only partial. All psalm translations were manually aligned to the Wachtendonck Psalter at the level of the verse. Where needed, we have allowed one or more Wachtendonck verses to be aligned to one or more verses in the parallel translation.

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<sup>7</sup> See <http://hdl.handle.net/10032/tm-a2-u6> for access to the online searchable Corpus Old Dutch and documentation (last consulted 20 June 2023).

<sup>8</sup> Materials and documentation on the digital and printed sources are downloadable from <https://hdl.handle.net/10794/openedges> (last consulted 20 June 2023).

<sup>9</sup> See <https://www.insr.it/bibbia> (last consulted 20 June 2023).



## 4 Data annotation and visualization

We now present how we identified and annotated verb constructions in our corpus (Section 4.1), and how we compared corresponding verb constructions by means of multidimensional scaling (Section 4.2). The visualization of our diachronic parallel data in a series of maps is discussed in Section 4.3. We round off with some information on the tools used for annotating and visualizing our data (Section 4.4).

### 4.1 Annotation

We take a wide perspective on verb constructions in this study, including both verb constructions with an auxiliary (two- and three-verb constructions) and without (one-verb constructions). We focus on verb constructions in finite clauses, which implies that every verb construction in our study contains a finite verb with inflectional marking.

We identified and annotated verb constructions in our corpus in two stages. First, we marked up all verb constructions in the Wachtendonck Psalter and their corresponding verb constructions in the aligned verses of the other translations. We consider two verb constructions as corresponding when they express the same core state of affairs. We also allow correspondences where part of the state of affairs is expressed using a combination of verbal and non-verbal (nominal, adjectival) material.

In the second stage, all verb constructions identified were annotated manually for the presence of auxiliaries and finite inflectional markers (be it affixation or stem alternation). We annotated inflectional markers alongside auxiliaries, as we wanted to find out whether there are systematic translation correspondences between certain inflectional markers and auxiliaries in our corpus. Because of the systematic differences between Latin on the one hand and the different stages of Dutch on the other, we used two slightly different guidelines. We start by describing the annotation of the Dutch materials, after which we briefly outline the differences for Latin.

Dutch auxiliaries are annotated for one of the six semantic categories given in Table 2. The auxiliaries in this table are given in their present-day form.

<b>Auxiliaries</b>	<b>Meaning</b>	<b>Label</b>
<i>zullen</i> ‘will’	Future tense	FUT
<i>worden</i> ‘be’, <i>zijn</i> ‘be’	Passive voice	PASS
<i>hebben</i> ‘have’, <i>zijn</i> ‘be’	Perfect tense	PRF
<i>moeten</i> ‘must’, <i>mogen</i> ‘may’, <i>kunnen</i> ‘can’, <i>willen</i> ‘want’	Modality	MOD
<i>laten</i> ‘let’, <i>doen</i> ‘do’	Causativity	CAUS
<i>blijven</i> ‘stay’	Aspectuality	ASPL

**Table 2.** Annotation labels for auxiliaries

Finite verbs are also annotated for inflection, using the distinctions given in Table 3. Following common practice in Dutch historical grammar, we do not explicitly spell out indicative mood or active voice in our annotation. Non-finite verbs are not annotated for inflection.

Finite inflection	Label
Present indicative	PRS
Preterit indicative	PRT
Present subjunctive	PRS.SBJV
Preterit subjunctive	PRT.SBJV
Imperative	IMP

**Table 3.** Annotation labels for finite inflection

Example annotations of the verb constructions occurring in (1) to (3) are given in Table 4. As this study does not focus on main verb semantics, we use a single V to mark the main verb in a verb construction. The two parts of the annotation on the main verb are separated by a semicolon. The annotations for different verbs are separated by spaces. The order of the labels is always from least embedded (finite verb) on the left to most embedded (main verb) on the right, irrespective of the actual linearization of the verbs themselves.

Verb construction	Gloss	Annotation
(1) <i>uuesan sal gesazt uuart</i>	be.INF shall.PRS plant.PTCP become.PRT	FUT;PRS V PASS;PRT V
(2) <i>bekerda sulun uuerthun</i>	return.PTCP shall.PRS become.INF	FUT;PRS PASS V
(3) <i>beuuirpis irbolgan uuard</i>	cast.PRS enrage.PTCP become.PRT	V;PRS PASS;PRT V

**Table 4.** Example annotations

Three particular auxiliary-inflection combinations are replaced with a single label, as they represent special non-compositional usages. The imperative form of the causative auxiliary *laten* ‘let’ is not labeled as CAUS;IMP but rather as HORT to indicate that the combination as a whole is used to mark the hortative, as illustrated in (4) above. Likewise, the preterit forms of the perfect auxiliary *hebben* ‘have’ and the future auxiliary *zullen* ‘will’ are used to express irrealis and are therefore annotated with the unified label IRR.

Our annotation of Latin verb constructions makes use of the traditional labels in Latin grammar (Panhuis 2006). These labels systematically spell out the tense, voice and mood of all verb forms. We chose to leave the labels for active voice and indicative mood implicit in our annotation, following standard practice in Latin grammar. The present active subjunctive verb form *dirumpamus* ‘let us break’ in (4) is thus annotated as V;PRS.SBJV. The label PASS is used for both deponent verbs and “real” passives. Compared to the annotation of the Dutch verb constructions, we do not explicitly annotate which information is expressed inflectionally and which is expressed with the help of auxiliaries. Inflectional marking dominates in the Latin parallel material, except for the combination of passive and perfect, which requires a periphrastic construction with an auxiliary (for instance *constitutus sum* ‘am appointed’ discussed in 7, below), and for the odd causative. We refer to the appendix for details of the labels used for Latin verbs.

Our extraction and annotation process yielded an initial dataset of 884 quintuples with analyses of parallel passages. From these, we removed quintuples where one or more of the corresponding constructions was marked as non-verbal (for instance, when a translation uses

a nominal construction, whereas the Wachtendonck Psalter – and the Vulgate – have relative clauses), where one or more was marked as verbal but non-finite, or where the annotators could not decide upon an analysis. This resulted in our final dataset of 764 quintuples.

#### ***4.2 Multidimensional scaling***

To help us gain insight into the correspondences in our dataset of 764 quintuples, we use multidimensional scaling (MDS), a “technique that represents proximities among objects as distances among points in a low-dimensional space” (Mair et al 2022: 1). In this article, we use two-dimensional representations, which can be visualized as maps. The objects on these maps are the parallel passages, that is, the situations described in these passages, which we take to be essentially the same between the translations. These situations are thus our “analytic primitives” (Wälchli & Cysouw 2012: 676) that form the basis of the data representations we will be working with.

The use of MDS in linguistic research was pioneered by Croft & Poole (2008). Seminal work on the combination of parallel corpora and MDS is presented in Wälchli (2010) and Wälchli & Cysouw (2012). This seminal work is situated in the field of typology, incorporating data from more than a hundred parallel texts written in languages from all continents. MDS has been introduced in contrastive corpus-based linguistics by Van der Klis et al. (2017), who investigate the use of the perfect in a corpus of five parallel texts. Our study builds on this contrastive research, extending the application of multidimensional scaling from synchronic parallel data to diachronic parallel texts. This has not been done before in a stand-alone historical linguistic study, to the best of our knowledge. The only diachronic parallel data submitted to multidimensional scaling that we are aware of is one sixteenth-century Spanish Bible translation included in the otherwise synchronic parallel Bible corpus of Wälchli & Cysouw (2012).

The term MDS covers a number of related mathematical techniques. The goals when using these techniques and the interpretation of their outcomes differs between linguistic studies that use MDS. A recent, comprehensive overview can be found in Van der Klis & Tellings (2022). In the current study, we use MDS as a tool for exploratory data analysis through visualization, and as support for our presentation and discussion of the data. Unlike some the referenced studies, we do not focus on the interpretation of the MDS outcome as a semantic map itself, nor will we emphasize the possibility of seeing single dimensions or divisions of two-dimensional maps as linguistically meaningful.

MDS allows us to visually compare the entire inventory of verb constructions used in our five historical psalm translations. Other methods of comparing parallel texts fall short in one way or another. A widely used way of presenting parallel data in contrastive linguistics is the translation paradigm: a table in which the translation correspondences of a particular source construction are listed with their frequency (Aijmer 2008: 285). As this approach focuses on one particular source construction and its translation correspondences, it is not suitable for contrasting a large inventory of source constructions with their correspondences across parallel texts. We also prefer visualization rather than a table-based presentation because the former makes it easier to quickly see the main tendencies in the data. A less explored

visualization method in contrastive linguistics is the Sankey diagram, which links multiple source constructions with their translation correspondences and encodes the frequency of a combination with the thickness of the connecting arrow (Roeder 2017, Kalouli et al. 2019). However, as Roeder (2017: 120) points out, “Sankey diagrams have their limitations, as they produce less clarity and much more confusion in cases that are more complex: A display of a huge amount of variants would result in an unreadable, giant, spaghetti-like diagram”. In our own trials with using Sankey diagrams for the data presented in this article, we encountered exactly this problem. In this article, we therefore explore the use of MDS as a new visualization technique for the investigation of complex parallel data across time.

As said, the analytic primitives, the objects to be placed on a map, are the situations in the Psalter that are found to be corresponding passages in our material. The linguistic realizations of these situations in the parallel texts have been annotated with the properties of the verb constructions used. An excerpt from our annotated dataset is given in Table 5. We can now talk about the proximity between the situations in terms of this annotation: we consider two situations to be most similar (maximally proximate) when each of the translations uses the same form between situations, and least similar (maximally distant) when none of the translations shows the same form. The distance between two situations is quantified by counting the number of translations that switch form between them.<sup>10</sup> Consider situations Ps 1:1 *b* and Ps 73:9 *a*. The Vulgate, the Vorsterman and Louvain Bibles and the Professor’s Bible have identical annotations between these two situations. Only the Wachtendonck Psalter uses different constructions: V;PRT in the former and FUT;PRS V in the latter. This makes for a distance of 1. If we compare Ps 1:1 *b* and Ps 1:2, however, we see that only the Professors’ Bible received the same label in both situations, which makes for a distance of 4. This quantification of proximity between situations is known as the Hamming distance, a default choice in parallel corpus-based MDS applications (Van der Klis & Tellings 2022).

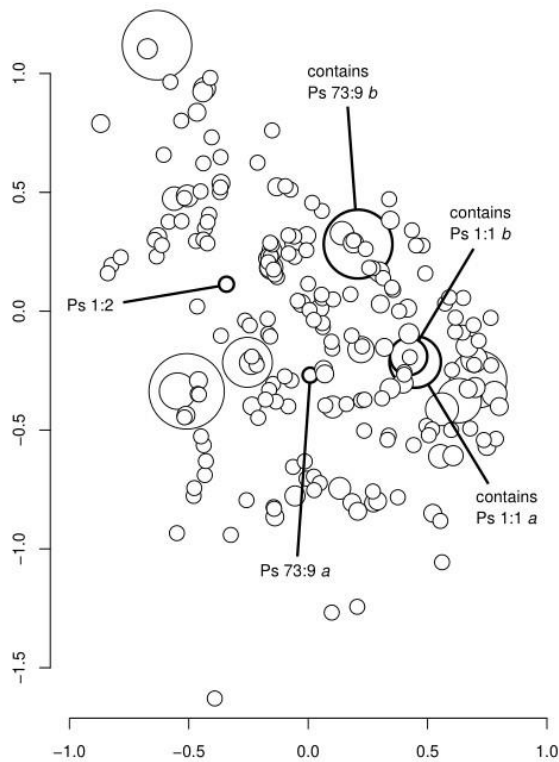
Situation	Translation				
	Vulgate	Wachtendonck	Vorsterman	Louvain	Professor
Ps 1:1 <i>a</i>	V;PRF	V;PRT	PRF;PRS V	PRF;PRS V	V;PRS
Ps 1:1 <i>b</i>	V;PRF	V;PRT	V;PRT	PRF;PRS V	V;PRS
Ps 1:2	V;FUT.PASS	FUT;PRS V	V;IMP	FUT;PRS V	V;PRS
⋮					
Ps 73:9 <i>a</i>	V;PRF	FUT;PRS V	V;PRT	PRF;PRS V	V;PRS
Ps 73:9 <i>b</i>	V;PRS	V;PRS	V;PRS	V;PRS	V;PRS

**Table 5.** The annotated corpus as a list of quintuples of annotation labels.

<sup>10</sup> At this stage we only compare labels between situations in the same translation, and do not directly compare forms between translations. We do not even use the information about the conceptual relation between verb construction types across translations, for instance, between a perfect in the Wachtendonck Psalter and a perfect in the Professors’ Bible.

Hamming distance gives us a proximity for each pair of situations. Generally, MDS tries to approximate these distances as closely as possible in terms of the Euclidean distance in the lower dimensional target space. As a result, we expect to see similar situations being positioned near each other.

### 4.3 Visualization as proximity maps



**Figure 2.** Basic layout of our proximity maps

Figure 2 visualizes the application of MDS to our dataset of 764 situations by means of a proximity map. Each point on the map represents a set of situations. As explained above, the distance between points on this map correlates with how similar the two associated quintuples of verb construction annotations are, that is, how similarly these situations have been realized across translations. In the map above, we have indicated the position of the quintuples listed in Table 5. As mentioned, situations Ps 1:1 *b* and Ps 73:9 *a* (Hamming distance 1) are more similar than Ps 1:1 *b* and Ps 1:2 (Hamming distance 4). This is reflected on the map by the former pair being closer to each other than the latter. The correspondence is not perfect: Ps 1:1 *a* and Ps 1:1 *b* also have a Hamming distance of 1, and they are put even more closely together. Looking at the actual contrast involved, it may be tempting to conclude that MDS is sensitive to the idea that preterit and present perfect (Ps 1:1 *a* vs Ps 1:1 *b*) lie closer to each other than preterite and future tense (Ps 1:1 *b* vs Ps 73:9 *a*). We note, however, that the input to the MDS does not include such a contrast, and that this is in fact an outcome of the procedure.

We collect multiple situations into a set – and thus one point on the map – when they are maximally similar, that is, when they have identical quintuples and a Hamming distance of 0. On the maps, the size of the shape plotted at each point is such that its area is scaled linearly with the number of situations in the set. For instance, Ps 1:1 *a* is in a set containing 40 situations, whereas Ps 1:2 is on its own, a singleton.

The two dimensions, here simply labeled D1 and D2, are not inherently meaningful. However, as we will see in our discussion of the results, we can talk about areas on the map in terms of the general type of verb constructions that ends up occurring in an area.

The layout of the map shown in Figure 2 forms the basis for the visual comparison method we will employ below. The layout remains constant across all the representations for the individual translations. To show how the different Psalters differ from each other, we will use different colors for verb construction semantics and we will use shapes to represent the number of verbs involved. Depending on the translation, we may have around 20–30 different annotation labels, which is too much detail to visualize effectively. We therefore map these annotation labels to a set of seven semantic categories. This mapping can be applied to the Dutch translations as well as to the Vulgate, which facilitates visual comparison of the proximity maps across all translations. The categories and prose descriptions are given in Table 6.

Category	Description
passive	Passive voice, irrespective of mood/modality or tense
imperative	Active, imperative mood
subjunctive/modal	Active, subjunctive mood or containing a modal auxiliary
past	Active indicative with past tense (perfect/imperfect/preterit)
present	Active indicative in present tense
future	Active indicative with future tense inflection or future auxiliary
rest	Contains causative/aspectual auxiliaries, or internally conflicting information with respect to the categories above.

**Table 6.** The coarse-grained categories used for visualization

Proximity maps have several advantages over other ways of representing translation correspondences (e.g., the translation paradigms and Sankey diagrams mentioned above). The proximity maps on their own already provide an overview of the distribution of categories in each translation. By putting maps next to each other, we can also visually inspect how category usage corresponds between two translations. This use of maps is very economical in that it allows us to insightfully visualize complex material with a large number of categories. Peeking ahead to the results section, we can note that, even using the reduction of annotation labels to the smaller set of semantic categories, we are dealing with 30–50 different combinations of categories for any pair of translations.

#### 4.4 Process and tools

For our annotation, we used TimeAlign (Van der Klis et al. 2017), a web application for annotating aligned fragments in multiple parallel corpora, and for visualizing relations between the corpora. The annotation was performed by the three co-authors. Initial exploration of the data was also done in TimeAlign.

The maps in this paper were prepared with the R statistical software (R Core Team 2020), using the *smacof* library (v2.1-5, Mair et al. 2022) to produce MDS solutions. For MDS, we treated distance between two situations as an *ordinal variable*. This means that we consider the levels to be ordered – a dissimilarity of 4 is more than a dissimilarity of 3 – but we make no assumptions about the sizes of differences between levels. We cannot say, for instance, that the difference between level 4 and level 3 is like the difference between 3 and 2, or that a dissimilarity of 4 is twice as much as a dissimilarity of 2. On first sight, this seems counterintuitive: after all, distances between situations are the result of counting contrasts, and we can make meaningful statements about sizes of differences when dealing with counts. However, Hamming distance used on quintuples such as those in our data tallies differences of very diverse kinds: a contrasting feature counts as one extra dissimilarity point irrespective of the translation it occurred in and irrespective of the kind of difference. A contrast between perfect and preterit is not counted any differently than one between subjunctive and passive. Closer consideration of our data therefore lets us conclude that we are not conceptually forced to treat our Hamming distances as a straightforward type of counts.<sup>11</sup> The choice of ordinal MDS results in compact maps, but with clearly clustered general areas in terms of verb construction semantics.

Otherwise, we used all the default settings of *smacof*'s MDS implementation.<sup>12</sup> In these default settings, the process is deterministic, which means that the exact MDS solutions used in this paper can be reproduced by other researchers. The Stress-1 value for the two-dimensional ordinal MDS solution used in the rest of the article is 0.054. Inspection of Stress-1 values for solutions with higher dimensionality does not suggest a need to go beyond two dimensions.

## 5 Results

Our corpus annotation and visualization resulted in five proximity maps, each of which represents the inventory of verb constructions in one of the psalm versions in our diachronic parallel corpus. We will present them one by one.

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<sup>11</sup> Levshina (2015) addresses some of these issues by assigning weights to types of deviations, allowing, for instance, the possibility of expressing that variation in voice is more severe than variation in type of past tense. We do not explore this any further in this paper.

<sup>12</sup> In particular, *smacof*'s `mDS` function by default uses the deterministic Torgerson's method (a.k.a. classical MDS) to initialize the majorization algorithm used by *smacof*, and approximates the input distance matrix using two dimensions.

### 5.1 Synchronic inventory of the *Wachtendonck Psalter*

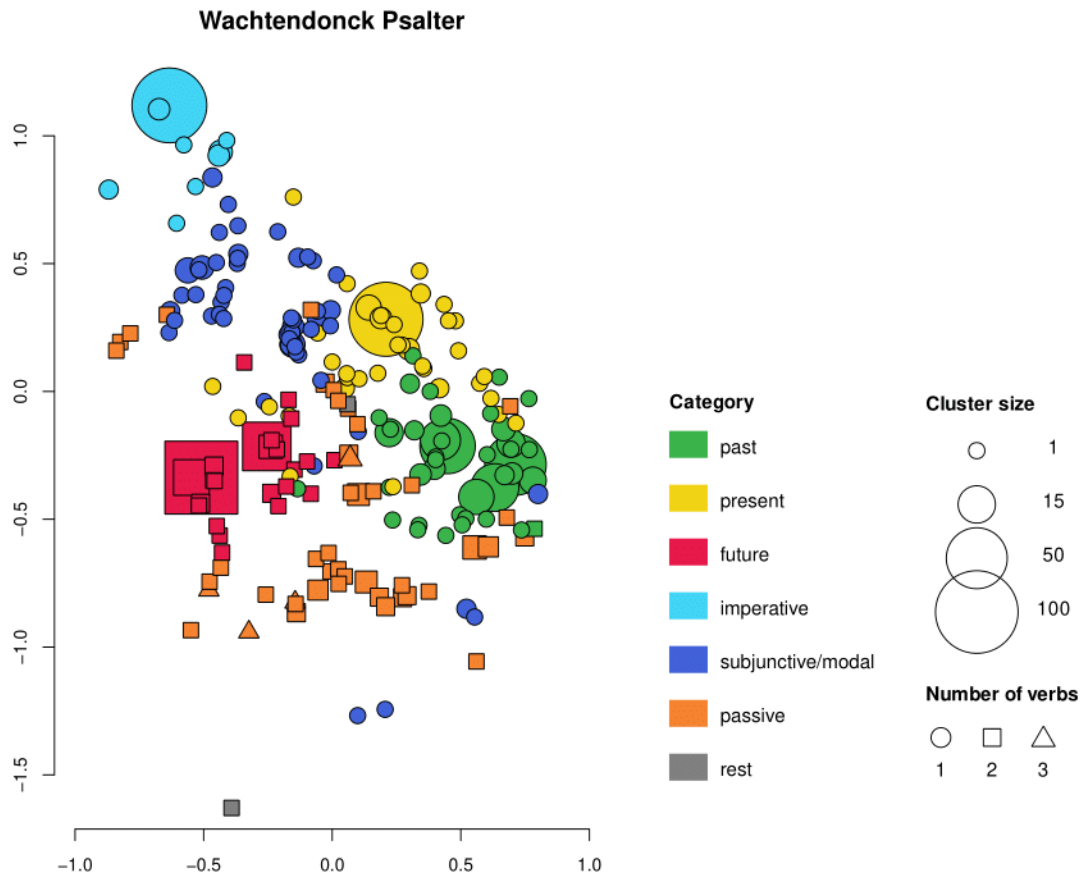
Table 7 offers a first overview of the construction types used in the *Wachtendonck Psalter*. The table groups the constructions according to the number of verbs they contain. Present tense inflection on auxiliaries is left implicit for increased readability. The symbol before each construction type corresponds to its representation on the proximity map in Figure 3 (more information will be given below).

One-verb construction		Two-verb construction		Three-verb construction	
● V;PRT	216	■ FUT V	178	▲ FUT PASS V	5
● V;PRS	125	■ PASS V	41		
● V;IMP	96	■ PASS;SBJV V	16		
● V;PRS.SBJV	71	■ PASS;PRT V	5		
● V;PRT.SBJV	8	■ PASS;PRT.SBJV V	1		
		■ CAUS V	2		
		■ PRF V	1		
67%	516	32%	244	<1%	5

**Table 7.** Inventory of finite verb constructions in the *Wachtendonck Psalter* (tenth century)

Table 7 shows that the *Wachtendonck Psalter* only uses a limited number of construction types. One-verb constructions, consisting of only a main verb with finite inflection, turn out to be the most frequent type overall (67%). Preterit subjunctives are relatively infrequent, in line with observations given in the historical grammars (Quak & Van der Horst 2002). Two-verb constructions, combining an inflected auxiliary with a main verb, are less frequent (32%). They are predominantly future and passive constructions, as was expected on the basis of the historical grammars (Quak & Van der Horst 2002, Van der Horst 2008), with a few additional cases of perfect and causative constructions. Only five instances of three-verb constructions are found, all combining a future and passive auxiliary with a main verb, which is in line with the findings in Coussé (2020). The auxiliaries are predominantly inflected for present tense, although passive auxiliaries also occur in the subjunctive and, to a lesser extent, as preterites.





**Figure 3.** Proximity map of the Wachtendonck Psalter

Figure 3 visualizes the inventory of verb constructions in the Wachtendonck Psalter as a proximity map. As detailed in Section 4.3, each dot on the map represents an individual verb construction in the Wachtendonck Psalter in relation to its diachronic translation correspondences. The dots have different colors and shapes, representing their constructional semantics (the seven semantic categories in Table 6) and complexity (number of verbs). Figure 3 shows that constructions marked with the same color and shape cluster into relatively homogeneous areas. Imperative constructions, for instance, form a cluster of light blue circles in the upper left corner of the map, whereas future tense constructions make up a cluster of red squares on the left-hand side of the map. This clustering behavior is a consequence of the rearrangement of similar correspondences by the multidimensional scaling algorithm. This feature will allow us to assess translation correspondences at an aggregate level without abstracting away from the individual level. This is what we will do in the following subsections.

The clustering also helps us to gain a deeper insight into the place of auxiliaries in the larger inventory of verb constructions in the Wachtendonck Psalter. Closer inspection of the configuration of colors and shapes in Figure 3 shows that most clusters only combine one color and shape. The light blue cluster of imperative constructions, for instance, only consists of circles, whereas the red cluster of future tense constructions only contains squares. This implies that each semantic domain on the map is populated by one type of construction: an inflectional one (circles) or a periphrastic one (squares, and a few triangles). Or, if we look at

the data from the perspective of verb constructions, inflectional constructions on the one hand and periphrastic constructions on the other are systematically used in different semantic domains. The monopoly of periphrastic constructions in the domains of future tense and passive voice should not come as a surprise, as there is no finite inflection available in Dutch for these meanings. In other words, future and passive auxiliaries are the only means to express these meanings explicitly. The dominance of inflectional constructions in the domains of present tense and imperative is also to be expected, as there are no designated auxiliaries in Dutch for explicitly marking these meanings. However, within the domain of past tense and subjunctive mood/modality we only see inflectional constructions, although periphrastic constructions do exist in Dutch. Quak & Van der Horst (2002: 57) and Van der Horst (2008: 200) explicitly note that the absence of perfect auxiliaries in the Wachtendonck Psalter is striking in the light of the fact that these auxiliaries are already common in later Old Dutch texts. We could extend this line of reasoning for modal auxiliaries, which are frequent in later Old Dutch texts (Coussé 2020), but are all but lacking from the Wachtendonck Psalter. We will come back to the clusters with past tense and subjunctive/modal systematically in the following subsections, in order to gain a deeper insight into the absence of perfect and modal auxiliaries in the Wachtendonck Psalter.

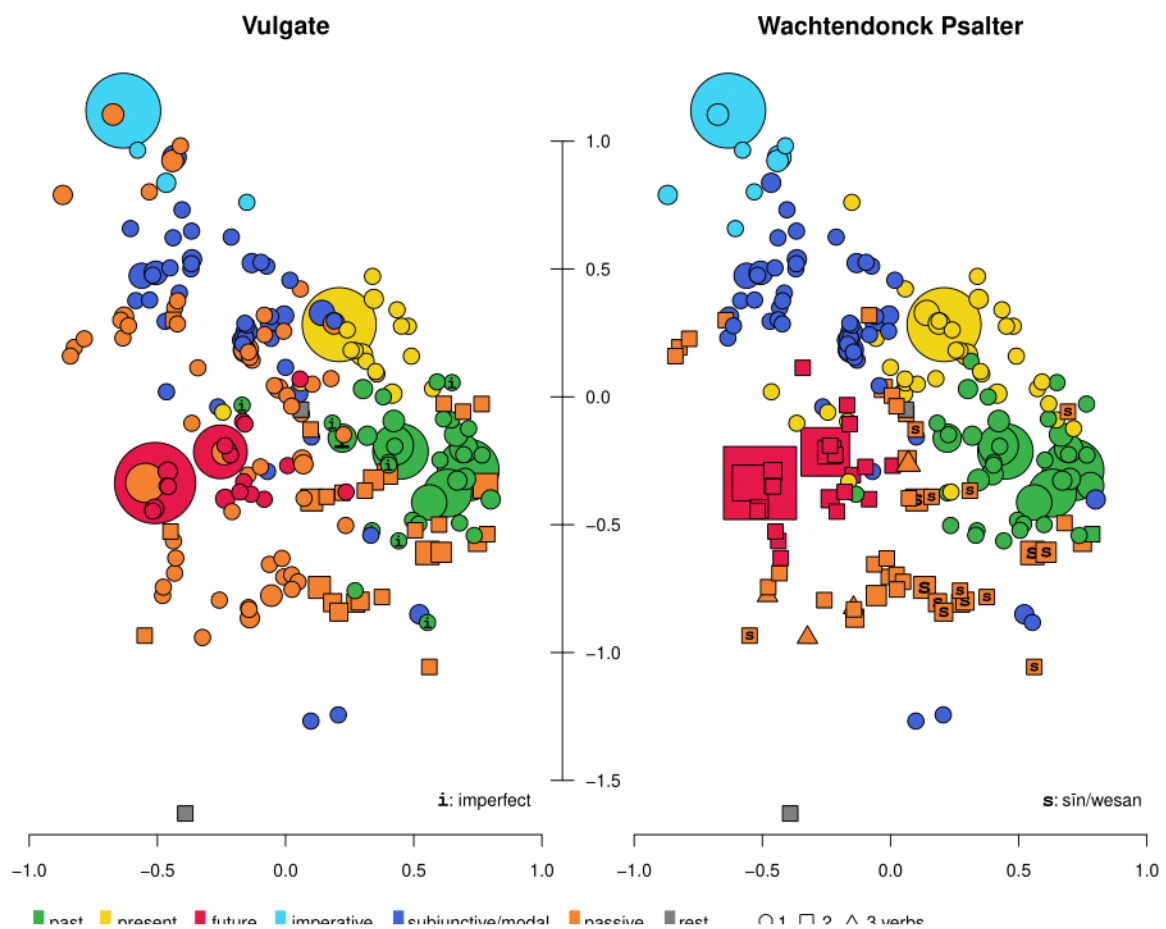
### 5.2 Retrospective comparison with the Vulgate Bible

We first look back in time to the source text of our psalm translations. We know from Quak (1983, 2020) that the translator of the Wachtendonck Psalter has inserted auxiliaries when translating inflectional futures and passives in Latin, but in what contexts has the translator chosen not to add an auxiliary? We first explore the inventory of verb constructions found in the psalms of the Vulgate Bible in Table 8.

One-verb construction		Two-verb construction	
● V;PRF	190	■ PRF.PASS V	50
● V;FUT	152	■ CAUS V	2
● V;PRS	98	■ FUTPRF.PASS V	1
● V;PRS.IMP	82	■ PRF.PASS.SBJV V	1
● V;PRS.SBJV	54	■ PLUPRF.PASS.SBJV V	1
● V;FUT.PASS	49		
● V;PASS.SBJV	37		
● V;IPRF	14		
● V;PRS.PASS	10		
● V;PRF.SBJV	7		
● V;PRS.PASS.IMP	5		
● V;IPRF.SBJV	4		
● V;PLUPRF.SBJV	3		
● V;IPRF.PASS	2		
● V;FUT.IMP	2		
● V;FUTPRF	1		
93%	710	7%	55

**Table 8.** Inventory of finite verb constructions in the Vulgate Bible

Table 8 shows that the Latin source text has many more construction types than its Old Dutch translation in the Wachtendonck Psalter. This suggests that some semantic distinctions made by verb constructions in the source text are not rendered in the Old Dutch translation but are instead left implicit. One-verb constructions, consisting of a main verb with finite inflection, are by far the most frequent construction type in the source text (93%). Two-verb constructions, combining one inflected auxiliary with a main verb, are limited to perfect passive conjugation forms and a few causative constructions (7%). On the whole, the source text makes much less use of auxiliaries than its translation in the Wachtendonck Psalter (7% versus 33%).



**Figure 4.** Proximity maps of the Vulgate Bible and the Wachtendonck Psalter

While the proximity maps in principle allow for the comparison of translation correspondences on the level of individual dots, we will take more of a bird’s eye perspective, exploring congruent and incongruent translation correspondences by comparing clusters of dots with the same color and shape. Consider the cluster of light blue circles on the upper left corner of the Wachtendonck Psalter map in Figure 4, representing the entire set of imperatives used in the Old Dutch psalm translation. Comparison with dots in the same area on the Vulgate Bible map in Figure 4, representing the parallel verb constructions in the Latin source text, shows that many of them are also represented with light blue circles. This reveals a larger pattern of congruent correspondences between the Wachtendonck Psalter and the

Vulgate, where inflectional imperatives in Old Dutch can be traced back to an inflectional imperative in Latin.

In what follows, we review one cluster at a time, starting with the clusters containing auxiliaries in the Wachtendonck Psalter, and then continuing with the clusters where auxiliaries are lacking.

The red cluster of **future tense constructions** is located on the left-hand side of both maps. The cluster of future auxiliaries in the Wachtendonck Psalter largely overlaps with a cluster of inflectional futures in the Vulgate Bible. This translation correspondence is illustrated in (5).

- (5) Ps 71:10 ‘The kings of Tharsis and the islands **shall offer** presents: the kings of the Arabians and of Saba shall bring gifts:’

Vulgate	Reges Tharsis et insulae munera <b>offerent</b> : reges Arabum, et Saba dona adducent:	V;FUT
Wachtendonck	Cuninga tharsis in alende geuon <b>bringon sulun</b> cuninga arabum in saba geua bringon sulun.	FUT V
Vorsterman	Die coninghen van Tharsen, ende vanden eylanden <b>sullen</b> ghiften <b>offeren</b> , Die coninghen van dat rijck van Arabien ende Saba sullen gauen brenghen.	FUT V
Louvain	Die coninghen van Tharsis ende die eylanden <b>sullen</b> ghiften <b>offeren</b> , die coninghen van Arabien ende Saba sullen gauen aenbrenghen.	FUT V
Professor	De koningen van Tharsis en de eilanden <b>zullen</b> geschenken <b>aanbieden</b> , de koningen van Arabië en Saba zullen giften aanbrengen,	FUT V

The fact that *sullan* ‘shall, will’ is systematically chosen to translate Latin future constructions indicates that it must have been grammaticalized by the time of writing as an auxiliary with an established future tense meaning. The use of this auxiliary also implies the addition of a word that is not present in the Latin source, which goes against the word-by-word translation principle of the Wachtendonck Psalter. This suggests that, as Van der Horst (2008: 202) puts it, “this kind of periphrastic future was self-evident for the translator”.<sup>13</sup> It also underlines that this auxiliary was the only available way of expressing future tense explicitly in Old Dutch.

We now move on to the orange cluster of **passive voice constructions**, located at the bottom of the Wachtendonck Psalter map. Before we focus on that cluster, however, we note that passive constructions in the Vulgate Bible are distributed much more freely over the map. The Latin passives in the higher regions of the map are deponent verbs, that is, verbs with a passive conjugation but an active meaning. This well-known mismatch between form and meaning in Latin is absent in Dutch. Quak (1983: 101) reports that that deponent verbs in the Vulgate Bible are systematically translated by active constructions in the Wachtendonck

<sup>13</sup> Our translation of “zo’n omschreven futurum voor de vertaler vanzelfsprekend was”.

Psalter. Indeed, the deponent verbs on the Vulgate Bible map correspond to active constructions in the domains of both tense and subjunctive/modal on the Wachtendonck Psalter map.

Coming back to the passive auxiliaries at the bottom of the Wachtendonck Psalter map, we see that they correspond to both inflectional and periphrastic passives in the same area on the Vulgate Bible map. We differentiate between the Old Dutch passive auxiliaries *werthan* and *sīn/wesan* by adding the label “s” to the orange squares for *sīn/wesan*. Passive *werthan* turns out to predominantly translate inflectional passives in Latin, as illustrated in (6).

- (6) Ps 2:10 ‘And now, O ye kings, understand: **receive** instruction, you that judge the earth.’

Vulgate	Et nunc, reges, intelligite: <b>erudimini</b> qui   iudicatis terram.	V;PRS.PASS
Wachtendonck	Inde nu kununga fornemot, <b>gelierot uwerthet</b> irther dermot ertha.	PASS V
Vorsterman	Ende nv ghi coningen verstaet ende <b>wort onderwesen</b> ghi diet aertrijc oordeelt	PASS V
Louvain	Ende nu ghy coninghen verstaet, <b>wort onderwesen</b> die dat aertrijck ordeelt.	PASS V
Professor	En nu, o koningen, woest verstandig; <b>laat u vermanen</b> , rechters der aarde.	CAUS V

Passive *sīn/wesan*, on the other hand, mainly translates periphrastic perfect passives, which are built with the auxiliary *esse* ‘be’, illustrated in (7).

- (7) Ps 2:6 ‘But I **am appointed** king by him over Sion his holy mountain, preaching his commandment.’

Vulgate	Ego autem <b>constitutus sum</b> rex ab eo   super Sion, montem sanctum eius, praedicans praeceptum eius.	PRF.PASS V
Wachtendonck	Ik gunnisso <b>gesazt bin</b> kuingnan himo uer Syon berg heilenen sinan sagende gebot sina.	PASS V
Vorsterman	Want ic <b>ben</b> van hem <b>ghestelt</b> een coninc ouer Sion, sinen heyligen berch predikende zijn ghebot.	PASS V
Louvain	Maer ic <b>ben</b> een coninck <b>ghestelt</b> van hem, ouer Sion sijnen heyligen berch, prekende sijn ghebodt.	PASS V
Professor	Ik echter <b>ben</b> door Hem als Koning <b>aangesteld</b> op Sion, zijnen heiligen berg; Ik zal zijn bevel verkonden:	PASS V

The choice of *sīn/wesan* for translating *esse* may be the result of the very source-oriented nature of the translation, which aims to preserve the exact wording of the source text as accurately as possible. However, it may also represent the actual semantic flavor of this verb, especially considering that its present-day cognate *zijn* ‘be’ is still considered the perfect tense of *worden* ‘be’ today (Haeseryn et al. 1997).

The green cluster with **past tense constructions**, to the right of both maps, is dominated by inflectional constructions in both the Wachtendonck Psalter and the Vulgate Bible. More specifically, the inflectional preterits in Old Dutch translate two types of inflectional past tense constructions in Latin: perfects and imperfects (the latter, the minority, are marked by the label “i” in the green circle). The psalm verse in (8) illustrates how an imperfect and a perfect in Latin are translated by preterits in Old Dutch.

(8) Ps 54:15 ‘Who **didst take** sweat meats together with me: in the house of God we **walked** with consent.’

Vulgate	qui simul mecum dulces <b>capiebas</b> cibos: in domo Dei <b>ambulavimus</b> cum consensu.	V;IPRF V;PRF
Wachtendonck	Thu [...] Thu samon mit mi suota <b>nami</b> muos, an huse godes <b>giengon</b> uuir mit geluui.	V;PRT V;PRT
Vorsterman	Die met mi te samen spijse <b>nuttede</b> die soet was, wi <b>hebben</b> inden huuse Gods met eendrachticheyt <b>gewandelt</b> .	V;PRT PRF V
Louvain	Die te samen met my soete spijsen <b>nuttede</b> , int huys Godts <b>hebben</b> wy <b>ghewandelt</b> met eendrachticheyt.	V;PRT PRF V
Professor	gij, die gezamenlijk met mij zoete gerechten <b>nuttigdet</b> , in Gods huis <b>verkeerden</b> wij eendrachtig.	V;PRT V;PRT

This two-to-one correspondence implies that a semantic distinction in the source text is leveled out in the translation. More specifically, an alternation between two constructions in the same semantic domain is lost. This is surprising in the light of the source-oriented nature of the Wachtendonck Psalter. One motivation could be that perfect auxiliaries were not grammaticalized enough at the time of writing to serve as a translation of the Latin perfect. Van der Horst (2008: 200) suggests, along these lines, that “apparently the periphrastic perfect is hardly a common option among the translator(s) of the Wachtendonck Psalter”. Another motivation could be that the translator of the Wachtendonck Psalter has prioritized formal congruence over the explicit rendering of a semantic distinction. Choosing the preterit allows both the inflectional perfect and the imperfect to be translated in a word-by-word fashion, whereas using a periphrastic perfect would imply adding auxiliaries into the interlinear translation.<sup>14</sup>

<sup>14</sup> A reviewer raises the interesting possibility that the prefix *ge-* is used to translate Latin perfects in the Wachtendonck Psalter (see also Van der Horst 2008 on the perfective meaning of the prefix *ge-* in Old Dutch). This might help to explain the absence of perfect auxiliaries in the Wachtendonck Psalter. We start by observing that this cannot be the whole picture: there are 183 preterits in the Wachtendonck psalter that correspond to single verb perfects in Latin. Of them, only 33 (1 out of 6) have the prefix *ge-*. If *ge-* itself is a strategy for perfect marking, it is far from being a pervasive one. However, we can still ask whether there is some association between *ge-* marking in the Wachtendonck Psalter and the Latin perfect. To answer this, we compare the distribution of *ge-* in situations where Latin uses a perfect (in any mood/voice/tense/complexity) to its distribution in other situations. We restrict our attention to active forms (in any mood/tense/complexity) in the Wachtendonck Psalter. We find the following numbers:

Vulgate	Wachtendonck unmarked (%)	Wachtendonck <i>ge-</i> prefix (%)	Wachtendonck compound/ prefixed (%)	Total (#)
No perfect	62	16	22	478
Perfect	58	17	26	218

Finally, we turn our attention to the dark blue cluster of constructions expressing **subjunctive mood/modality** in the upper left corner of both maps. This area is dominated by inflectional subjunctives in the Wachtendonck Psalter, which do not show any trace of modal auxiliaries. The lack of modal auxiliaries makes sense upon examination of the corresponding dark blue area on the Vulgate Bible map. The source constructions of the inflectional subjunctive in Dutch turn out to be inflectional subjunctives (some of these are inflectional passive subjunctives, which are actually deponent verbs). This translation correspondence is illustrated in (9).

- (9) Ps 67:3 ‘As smoke vanisheth, so **let** them **vanish** away: as wax melteth before the fire, so **let** the wicked **perish** at the presence of God.’

Vulgate	Sicut deficit fumus, <b>deficiant</b> : sicut fluit cera a facie ignis, sic <b>pereant</b> peccatores a facie Dei.	V;PRS.SBJV V;PRS.SBJV
Wachtendonck	Also teferit rouc <b>tefarin</b> , also flutit uuahs fan antsceine fuiris, so <b>farfarin</b> sundiga fan antsceine godis	V;PRS.SBJV V;PRS.SBJV
Vorsterman	Ghelijck den roock verghaet, so <b>laetse verghaen</b> , ghelijck dat wasch versmilt vanden viere, So <b>moeten</b> die ongodlicke <b>verghaen</b> voor gods aensichte.	HORT V MOD V
Louvain	Ghelijck eenen roock vergaet, alsoe <b>moeten</b> zij <b>vergaen</b> , ghelijck was versmelt voer daenschijn des viers, alsoo <b>moeten</b> die sondaers <b>vergaen</b> van daenschijn Godts.	MOD V MOD V
Professor	Gelijk rook verdwijnt, zoo <b>mogen</b> zij <b>verdwijnen</b> ; gelijk was versmelt voor het gezicht des vuurs, zoo <b>mogen</b> de zondaars voor het aangezicht van God <b>vergaan</b> !	MOD V MOD V

The translator has thus systematically translated Latin subjunctives with congruent subjunctives in Dutch, which fits in nicely with the word-by-word translation principle of the text.

### 5.3 Prospective comparison with the Vorsterman Bible

We now move forward in time to the psalm translation of the Vorsterman Bible, dating from around the fifteenth century. Table 9 gives an overview of the inventory of verb constructions. Recall that the present tense labels on auxiliaries are not spelled out, for increased readability. The labels HORT and IRR are unified labels for non-compositional combinations of an auxiliary and an inflectional marker (see Section 4.2).

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In the table, we have separated three forms in the Wachtendonck translation: unmarked, *ge-* marked and those with compound/prefixed stems. We separate out the latter since the presence of another prefix may inhibit the use of *ge-*. As we can see from the relative numbers, the incidence of *ge-* marking is basically identical between the two situation types. There is therefore no evidence that the Wachtendonck translator(s) have systematically used *ge-* to indicate the perfect.

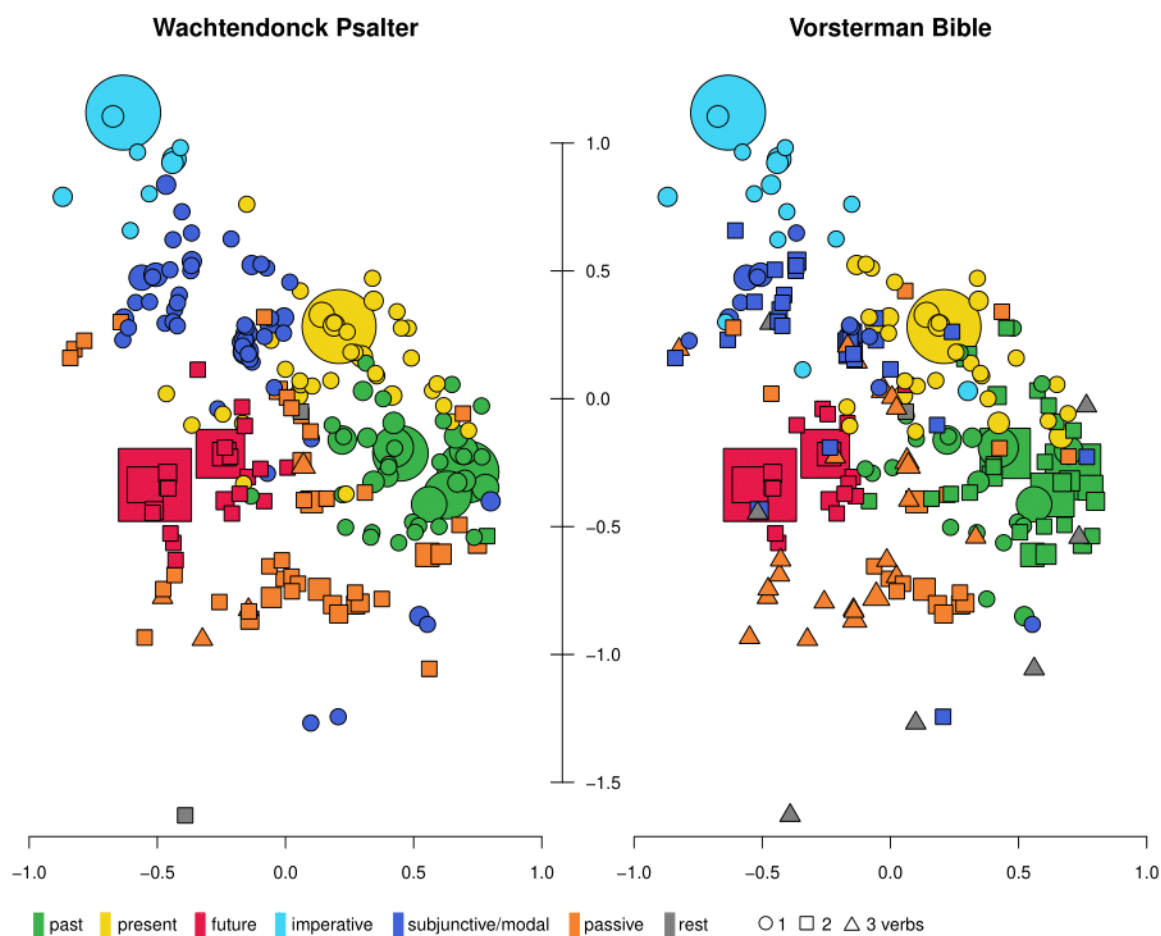
One-verb construction		Two-verb construction		Three-verb construction	
● V;PRS	126	■ FUT V	173	▲ FUT PASS V	21
● V;IMP	105	■ PRF V	166	▲ MOD PASS V	5
● V;PRT	67	■ PASS V	26	▲ HORT PASS V	4
● V;PRS.SBJV	18	■ MOD V	21	▲ PRF PRF V	3
● V;PRT.SBJV	2	■ HORT V	11	▲ IRR PRF V	2
		■ IRR V	9	▲ IRR CAUS V	1
		■ PASS;PRS.SBJV V	2	▲ FUT ASPL V	1
		■ CAUS;PRS.SBJV V	1		
		■ CAUS V	1		
42%	318	54%	410	5%	37

**Table 9.** Inventory of finite verb constructions in the Vorsterman Bible (fifteenth century)

Table 9 shows that the verb inventory of the Vorsterman Bible has many more constructions types than the Wachtendonck Psalter. New construction types appear in the list of both two-verb and three-verb constructions. Among the two-verb constructions, we see the arrival of modal, hortative and irrealis auxiliaries. The three-verb constructions show innovative combinations of new and already established auxiliaries. Two-verb constructions that were already in use in the Wachtendonck Psalter remain stable or increase in frequency. Two-verb constructions with perfect auxiliaries stand out as they rise from a marginal position in the Wachtendonck Psalter to being the second most frequent two-verb constructions in the Vorsterman Bible. The three-verb future passive construction also gains ground. Both the influx of new construction types and the rise of already existing constructions mean that periphrastic verb constructions with auxiliaries on the whole are much more frequent in the Vorsterman Bible than in the Wachtendonck Psalter. The rise of periphrastic verb constructions with auxiliaries comes at the cost of one-verb constructions with finite inflections only. We see, in particular, that the preterit and the subjunctive inflection lose ground in comparison to the Wachtendonck Psalter.

Turning to a prospective comparison of the inventory of verb constructions in the Wachtendonck Psalter with that of the Vorsterman Bible in Figure 5, we see both continuity and change in the use of auxiliaries between the two psalm translations.





**Figure 5.** Proximity maps for the Wachtendonck Psalter and the Vorsterman Bible

The largest degree of continuity can be found in the red cluster of **future tense constructions**. The cluster of future auxiliaries in the Wachtendonck Psalter overlaps almost entirely with congruent future auxiliaries in the Vorsterman Bible. This shows that the translators of both psalm translations have chosen auxiliaries to render the future tense meaning of the source constructions. This underlines the fact that future auxiliaries are the only option available in Dutch to explicitly express future with verbal means.

We also see quite some continuity in the orange cluster of **passive constructions**. In general, constructions with a passive auxiliary (orange squares and triangles) in the Wachtendonck Psalter overlap quite nicely with passive auxiliaries in the Vorsterman Bible. This implies that passive auxiliaries continue to be the preferred translation strategy for rendering the passive meaning of Latin source constructions. Again, this is the only option available in Dutch. Interestingly, passive auxiliaries are more often combined with another auxiliary in three-verb constructions (orange triangles) in the Vorsterman Bible. The psalm verse in (10) illustrates a translation quintuple in which a Latin passive is translated by a passive two-verb construction in the Wachtendonck Psalter and a passive three-verb construction in the Vorsterman Bible.

- (10) Ps 64:13 ‘The beautiful places of the wilderness shall grow fat: and the hills **shall be girded** about with joy,’

Vulgate	Pinguescent speciosa deserti: et exsultatione colles <b>accingentur.</b>	V;FUT.PASS
Wachtendonck	Feita sulun uuerthun sconitha uuostinnon in mendisle huuela <b>begurdida uuerthunt.</b>	PASS V
Vorsterman	De soonste plaetsen der woestinen sullen vet worden, ende die houelen <b>sullen omuaen worden</b> met vrolicheyt.	FUT PASS V
Louvain	Vet sullen worden die schoon plaetsen der woestijnen, ende met vrolijcheyt <b>sullen</b> die hueuelen <b>omvaen worden.</b>	FUT PASS V
Professor	Vet worden de schoonheden der woestijn, en met gejubel <b>omgorden</b> zich de heuvelen.	V;PRS

The source construction is inflected for the future passive. The three-verb passive in the Vorsterman Bible expresses the future and passive meaning components of this inflection separately by means of a future and a passive auxiliary, whereas the two-verb passive in the Wachtendonck Psalter only encodes the passive component overtly using a passive auxiliary. This is quite surprising in the light of the source-oriented nature of the Wachtendonck Psalter. What stops the translator from routinely inserting two auxiliaries to explicitly render the meaning nuances of the Latin source? Three-verb passives do exist in the Wachtendonck Psalter, as illustrated in example (2) on page 4, but they are rare. Coussé (2020) finds that three-verb constructions are rare overall in Old Dutch, not only in the Wachtendonck Psalter, but also in the Leiden Willeram and the Central Franconian Rhyming Bible. This suggests that the combination of auxiliaries into three-verb constructions was still in its infancy in Old Dutch, which might have hampered the translator of the Wachtendonck Psalter from fully exploiting this construction.

We see change in the green cluster of **past tense constructions**. The large cluster of preterits in the Wachtendonck Psalter breaks up into two distinct clusters of inflectional preterits and periphrastic perfects in the Vorsterman Bible. The cluster of periphrastic perfects in the Vorsterman Bible overlaps in part with the larger area of perfects in the Latin source text (Figure 4). This correspondence is illustrated in (8), above, where the Latin perfect *ambulavimus* ‘walk.PRF’ in the Vulgate is translated by the preterit *giengon* ‘walk.PRT’ in the Wachtendonck Psalter and the perfect *hebben gewandelt* ‘have walked’ in the Vorsterman Bible. The introduction of the periphrastic perfect in the Vorsterman Bible suggests that it has grammaticalized sufficiently to translate part of the usage of the Latin perfect source construction. It also implies that the alternation between the perfect and imperfect in the source text, which was leveled out in the Wachtendonck Psalter, is now rendered explicitly, to some extent, in the Vorsterman Bible. We argued earlier that the translator of the Wachtendonck Psalter prioritized formal congruence, translating one past tense inflectional marker with another one, in order not to violate the strict word-by-word mold of his interlinear translation. The translator of the Vorsterman Bible, however, is not bound to this strict interlinear translation principle. We see that in these circumstances perfect auxiliaries are introduced alongside preterits to translate Latin perfects.

The dark blue cluster of constructions expressing **subjunctive mood/modality** (dark blue dots) also shows considerable change. The cluster of subjunctives in the Wachtendonck Psalter has fallen apart into a number of different constructions in the Vorsterman Bible. We focus here on the periphrastic modal constructions that appear in this area. Example (9) above illustrates how two modal auxiliaries, hortative *laten* ‘let’ and modal *moeten* ‘must’, are used in the Vorsterman Bible instead of the subjunctive in the Wachtendonck Psalter. See also (4) for an additional example of hortative *laten* ‘let’. The appearance of modal auxiliaries in these contexts demonstrates that they are appropriate translations of the Latin subjunctive. However, they do not appear in the Wachtendonck Psalter. We argued that the translator of the Wachtendonck Psalter systematically chose to translate a Latin subjunctive with a congruent subjunctive in Dutch, as it does not violate the strict word-by-word translation mold. Again, the translator of the Vorsterman Bible does not have to take into account these kinds of limitations. We see that under these circumstances modal auxiliaries are introduced alongside the inflectional alternative to translate Latin subjunctives.<sup>15</sup>

#### 5.4 Prospective comparison with the Louvain Bible

The Louvain Bible brings us to the middle of the sixteenth century, at most only a century later than the Vorsterman Bible. Table 10 gives the inventory of verb constructions in the psalm of this sixteenth-century Bible translation.

One-verb construction		Two-verb construction		Three-verb constructions	
● V;PRS	114	■ PRF V	218	▲ FUT PASS V	24
● V;IMP	93	■ FUT V	182	▲ HORT PASS V	12
● V;PRT	24	■ PASS V	25	▲ PRF PRF V	4
● V;PRS.SBJV	13	■ HORT V	20	▲ MOD PASS V	3
		■ MOD V	15	▲ IRR PRF V	2
		■ IRR V	4	▲ HORT CAUS V	1
		■ PASS;PRS.SBJV V	4		
		■ PASS;IMP V	3		
		■ MOD;IMP V	3		
		■ CAUS V	1		
32%	244	62%	475	6%	46

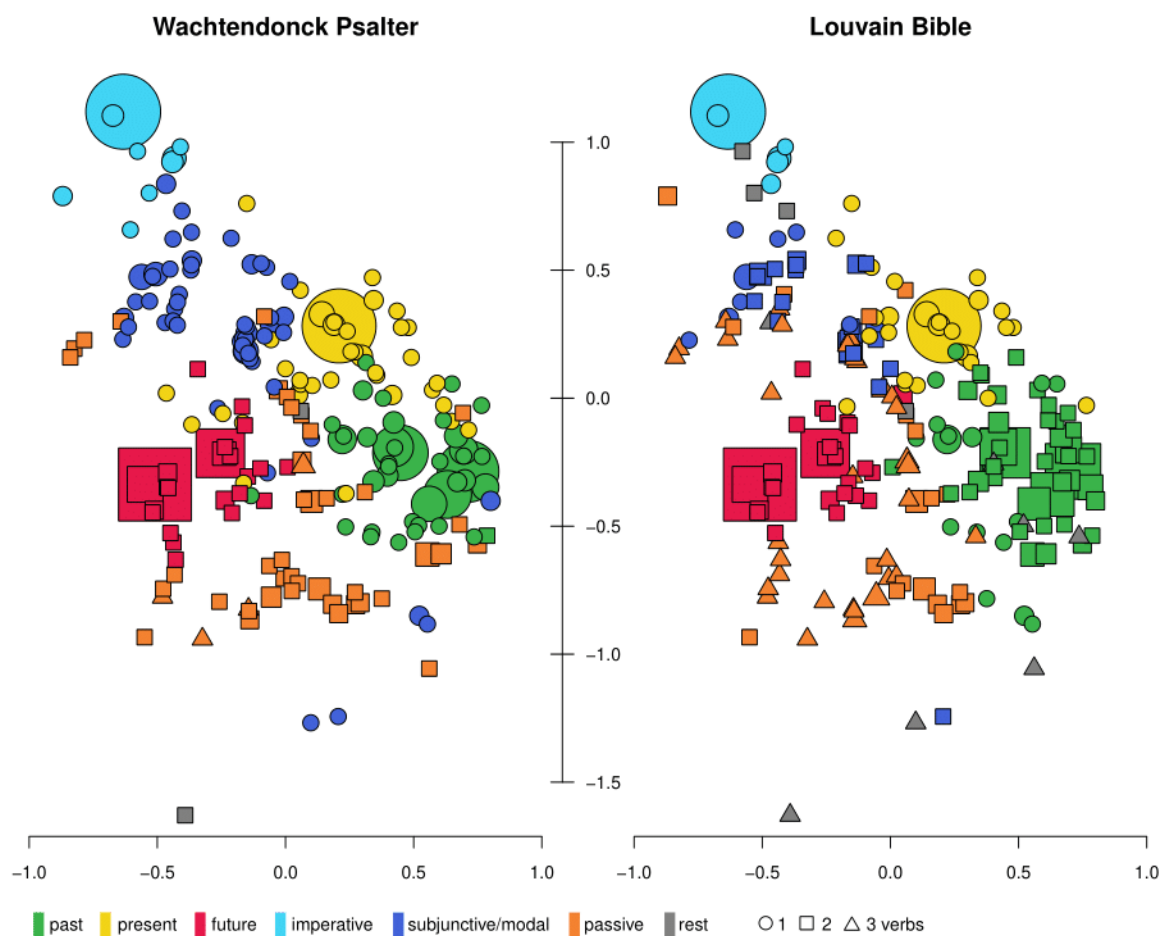
**Table 10.** Inventory of finite verb constructions in the Louvain Bible (1548)

The inventory of verb constructions in the Louvain Bible very much resembles that of the Vorsterman Bible. Table 10 shows that the periphrastic perfect continues to gain in frequency – now ousting the future construction as the most frequent periphrastic verb construction. Two-verb hortatives also increase in frequency but remain a fairly infrequent construction on the whole. Hortative auxiliaries are also used more often in three-verb constructions, which

<sup>15</sup> Note that imperatives and the present tense are also introduced as inflectional alternatives to subjunctives in the Vorsterman Bible. This points to the ongoing loss of the subjunctive in Middle Dutch. Van der Horst (2008: II§9.3) indicates that the paradigm of the present subjunctive increasingly merges with that of the present indicative in Middle Dutch until only the ending *-e* remains as a separate form in the third person singular.

boosts the overall frequency of three-verb constructions somewhat. On the whole, periphrastic verb constructions with one or two auxiliaries become even more frequent in the Louvain Bible than they already were in the Vorsterman Bible (62% and 6% in the latter versus 54% and 5% in the former). Inflectional verb constructions, conversely, continue to lose ground in the Louvain Bible. The preterit has shrunk to a fraction of its original frequency in the Wachtendonck Psalter and the preterit subjunctive has disappeared altogether.

The map of the Louvain Bible very much resembles the map of the Vorsterman Bible we discussed earlier (Figure 5). The largest difference between the two maps is situated in the green cluster with the past tense constructions. We will therefore focus on this area in our prospective comparison of the Wachtendonck Psalter and the Louvain Bible in Figure 6.



**Figure 6.** Proximity maps of the Wachtendonck Psalter and the Louvain Bible

The green cluster with **past tense constructions** in the Louvain Bible consists predominantly of periphrastic perfect constructions, alongside a small set of inflectional preterits. In comparison to the Wachtendonck Psalter, the periphrastic perfect has substantially increased its contextual range and has taken over most of the passages that previously contained preterits. The expansion of the perfect at the cost of the preterit is reminiscent of the process of the *Präteritumschwund* ‘preterit loss’ in some High German dialects (Fischer 2019 and references therein). The cluster of periphrastic perfects now overlaps almost completely with

the inflectional perfects of the Latin source text (Figure 4). This suggests that the periphrastic perfect has now grammaticalized into a fully equivalent alternative to the Latin perfect. The translator exploits this to reflect the alternation of the perfect and the imperfect in Latin faithfully, with a matching alternation between the perfect and the preterit in Dutch.

### 5.5 Prospective comparison with the Dutch Professors' Bible

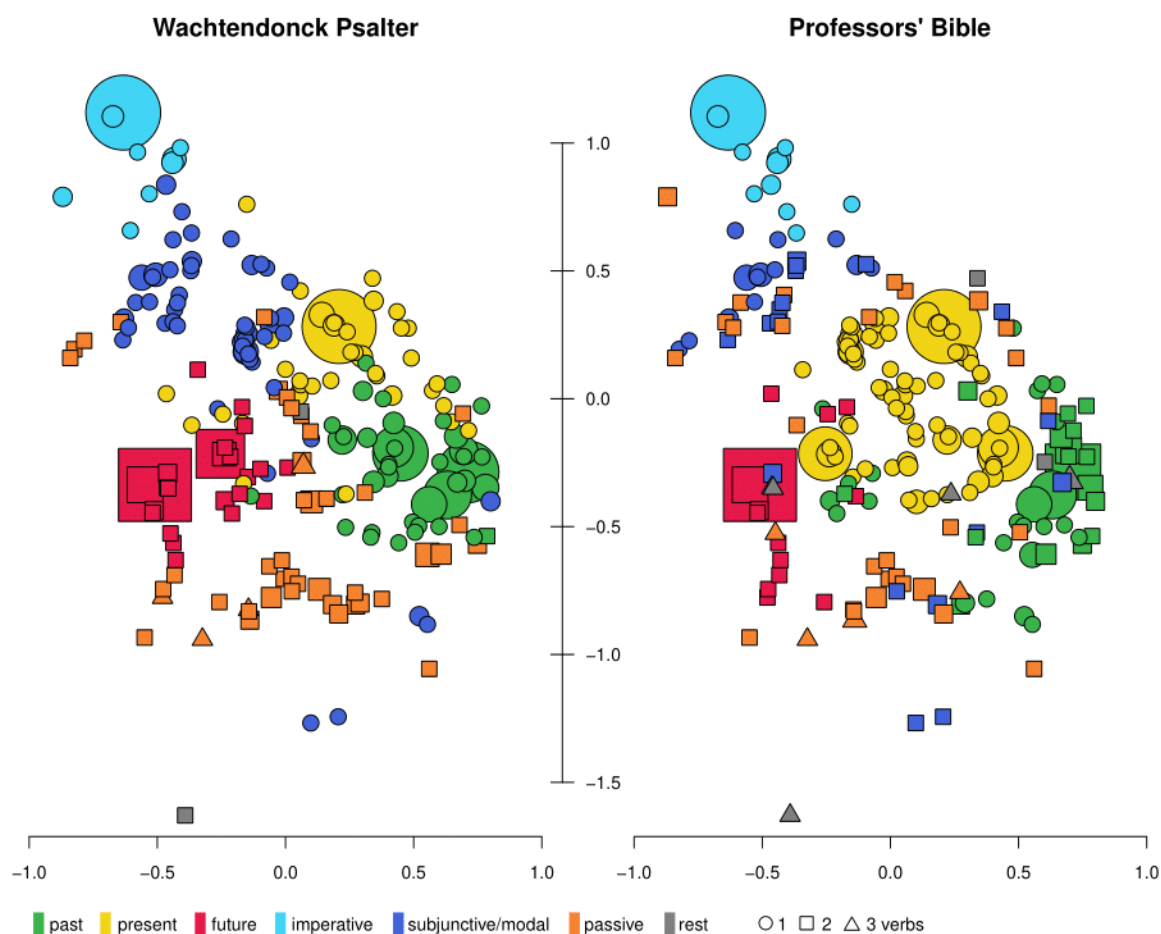
The Dutch Professors' Bible moves us a couple of centuries forward in time, to the beginning of the twentieth century. It is the last representative of a millennium-long tradition of Bible translations based on the Latin Vulgate in the Dutch language area. Table 11 presents the inventory of verb constructions in the psalms of this twentieth-century Bible translation.

One-verb construction		Two-verb construction		Three-verb construction	
● V;PRS	288	■ FUT V	126	▲ FUT PASS V	3
● V;IMP	98	■ PRF V	87	▲ PRF CAUS V	3
● V;PRT	70	■ PASS V	24	▲ FUT CAUS V	2
● V;PRS.SBJV	23	■ IRR V	11	▲ HORT CAUS V	1
		■ PASS;PRS.SBJV V	9	▲ IRR PRF V	1
		■ MOD V	7	▲ IRR PASS V	1
		■ PASS;PRT V	4	▲ PRF PASS V	1
		■ HORT V	3		
		■ CAUS V	2		
		■ MOD;PRS.SBJV V	1		
63%	479	36%	274	2%	12

**Table 11.** Inventory of finite verb constructions in the Dutch Professors' Bible (1911)

The inventory of verb constructions in the Dutch Professors' Bible overlaps to a large extent with the inventories of the psalm translations of the fifteenth and sixteenth century. This points to diachronic stability in the types of constructions used in all three translations. A striking difference from these earlier translations, however, is the relative frequency of inflectional and periphrastic verb constructions. Among the periphrastic verb constructions, there is a sharp drop in the frequency of periphrastic perfects, and future constructions also seem to lose some ground. Three-verb constructions on the whole are also used less frequently. Among the purely inflectional verb constructions, it is mainly the present tense that dramatically gains in frequency. The subjunctive and preterit also recover somewhat from their previous loss in frequency in the two earlier translations. These combined trends lead to an overall dominance of inflectional verb constructions again, at about the same level as in the Wachtendonck Psalter (63% versus 67%).

Do these findings imply that the Dutch Professor's Bible somehow returns to the translation patterns of the Wachtendonck Psalter? Prospective comparison of the Wachtendonck Psalter and the Dutch Professors' Bible in Figure 7 shows that the distribution of inflectional and periphrastic constructions is very different across the parallel passages represented on the map.



**Figure 7.** Proximity maps of the Wachtendonck Psalter and the Dutch Professors' Bible

In the Dutch Professors' Bible, we find periphrastic constructions with one or two auxiliaries in the domains of future tense, passive voice, past tense and subjunctive/modality, whereas auxiliaries only appear in the domains of future tense and passive voice in the Wachtendonck Psalter. The inventory of auxiliaries in the Dutch Professors' Bible thus corresponds more closely to that of the Vorsterman Bible and the Louvain Bible than to the Wachtendonck Psalter. However, what we see is that the contextual range of auxiliaries has become restricted in the Dutch Professors' Bible. Instead, the present tense has extended far beyond its original range of contexts in the center of the map, into whole new semantic domains. The present pops up in the past tense domain, alongside the inflectional preterit and perfect auxiliaries, and in the domain of subjunctive/modality, alongside subjunctives and modal auxiliaries. We also find it in areas where previously only future and passive auxiliaries were used. The only area that seems to be rather unaffected by the vast contextual extension of the present are most of the original contexts of the imperative.

The massive contextual expansion of the present is not expected on the basis of the literature. Van der Horst (2008: 201–202) does mention that the present may be used to refer to the past, a special usage known as the historical present, from the sixteenth or seventeenth century onwards. The expansion of the present in our data, however, goes far beyond past tense. It implies that the distinction between present, past, future and passive contexts in the source text is no longer coded explicitly but is leveled out in some contexts. This marks a shift from

a source-oriented translation, that aims to reflect the distribution of source constructions as faithfully as possible, to a more target-oriented translation. Apparently, translating every past, future and passive source construction with its direct equivalent does not result in idiomatic Dutch.

This finding is relevant for the Wachtendonck Psalter, as it shows that the use of verb constructions is not only strictly guided by formal congruence, but also by the drive to render the meaning of the source constructions as faithfully as possible. In this light, the inventory of verb constructions in the Wachtendonck Psalter reflects the form and meaning of the verb constructions used in the Latin source text, rather than the actual distribution of verb constructions in Old Dutch. This is of course not a surprise in the light of the highly source-oriented nature of the Wachtendonck Psalter, but prospective comparison with a more target-oriented translation such as the Dutch Professors' Bible uncovers the extent to which the verb inventory of the source text actually shines through.

## 6 Conclusion

We set out to investigate the use of auxiliaries in the oldest text available in Dutch, the Wachtendonck Psalter, dating from the tenth century. Our aim was to understand why there are so few different auxiliaries in this text in comparison to other texts in Old Dutch.

We first inspected the inventory of the Wachtendonck Psalter in its own right. As was expected on the basis of the literature, we found that most auxiliaries in the text express meanings either in the domain of future tense or of passive voice. Only a few perfect and modal auxiliaries are attested. Our inventory does not only contain verb constructions with auxiliaries but also includes verb constructions that only consist of a main verb with finite inflection. This new wider inventory perspective allowed us to assess the use of auxiliaries in relation to contexts in which they were absent. We found that constructions with auxiliaries are used in other semantic domains than constructions with only finite inflections: auxiliaries dominate in the domains of future tense and passive voice; inflectional markers are used for present tense, past tense, imperative and subjunctive mood/modality.

We then made a retrospective comparison of the verbs in the Wachtendonck Psalter with their Latin sources in the Vulgate Bible. On the whole, the Wachtendonck Psalter makes more extensive use of auxiliaries than does the Vulgate (33% vs. 7%). This implies that the translator has added quite a few auxiliaries to his translation, a fact that has also been highlighted in the literature. We found that the future auxiliary *sullen* 'shall' is systematically used to translate Latin future inflections. The passive auxiliary *werthan* 'be' is predominantly used to translate inflectional passives, whereas passive *sīn/wesan* translates periphrastic perfect passives formed with the auxiliary *esse* 'be'. The systematic use of these auxiliaries as translations for future and passive source constructions indicates that they were grammaticalized enough to render these grammatical meanings. The constructions without auxiliaries in the Wachtendonck Psalter correspond to inflectional source constructions with a cognate meaning. What is striking is that inflectional preterits in the Wachtendonck Psalter translate both inflectional preterits and perfects, as such obscuring a semantic difference in the source text. This could point to the fact that perfect auxiliaries were not grammaticalized

enough to serve as a translation for the Latin perfect, as is suggested in the literature. However, it is also conceivable that the translator of the Wachtendonck Psalter has prioritized formal congruence in his interlinear translation over the explicit rendering of a semantic distinction.

As a complement to the retrospective analysis, we added a prospective perspective to our analysis, comparing the inventory of the Wachtendonck Psalter to later Dutch translations of the Latin Book of Psalms. The Vosterman Bible and the Louvain Bible are very similar to the Wachtendonck Psalter when it comes to their use of future and passive auxiliaries, but differ from it by using auxiliaries alongside inflectional markers in the domains of past tense and mood/modality. In the past tense domain, perfect auxiliaries are introduced alongside preterit inflections to render the semantic opposition between preterits and perfects in the Latin source text. In the domain of mood/modality, modal auxiliaries are inserted alongside subjective inflections to translate Latin subjunctives. The prospective comparison thus uncovers multiple contexts in which auxiliaries are appropriate translations in later translations but are lacking in the Wachtendonck Psalter. This absence of perfect and modal auxiliaries in the Wachtendonck Psalter may be the result of lack of grammaticalization, but it may also be motivated by the strict interlinear translation strategy of this text. We see that auxiliaries are only inserted in the Wachtendonck Psalter when there is no inflectional alternative present in the language. More specifically, we find future and passive auxiliaries in the text, which are the only verbal means available in Dutch to express future tense and passive voice explicitly, but no perfect and modal auxiliaries, as there are inflectional alternatives in Old Dutch for expressing these meanings, such as preterit or subjunctive inflection.

Our prospective analysis also involved comparing the Dutch Professors' Bible with the Wachtendonck Psalter. The Dutch Professors' Bible contains about the same number of auxiliaries as the Wachtendonck Psalter, but the contexts in which these auxiliaries are used change substantially. A striking difference is that many of the contexts with auxiliaries in the Wachtendonck Psalter are rendered in the Dutch Professors' Bible by one-verb constructions inflected for the present tense. This change casts an interesting light on the source-oriented nature of the Wachtendonck Psalter. It highlights the fact that the translator of the Wachtendonck Psalter aimed not only for formal congruence, only inserting an auxiliary when there was no inflectional alternative available, but also for semantic congruence, translating source constructions with the corresponding semantic equivalent. The Dutch Professor's Bible makes use of an alternative, more target-oriented strategy, in which not all semantic distinctions in the source texts are marked explicitly, but are leveled out with the use of the more general-purpose present tense marker. This suggests that the meaning and contextual distribution of auxiliaries and finite inflections in the Wachtendonck Psalter primarily reflects the usage patterns of the Latin source. As such, the translation gives us an insight into the meaning potential of auxiliaries rather than into their authentic usage patterns in Old Dutch.

Now we are in a position to answer the central question of this study: what motivates the limited inventory of auxiliaries in the Wachtendonck Psalter? One hypothesis was that the



auxiliaries present in the text are the only ones that were grammaticalized at the time. Retrospective comparison with the source text gave us good reason to assume that future and passive auxiliaries were sufficiently grammaticalized to render the grammatical meanings of future tense and passive voice. The grammaticalization status of perfect and modal auxiliaries, which were used in later translations but are absent in the Wachtendonck Psalter, is less clear. It is possible that the absence of perfect and modal auxiliaries in the Wachtendonck Psalter is due to their lack of grammaticalization, but we have no way of knowing for sure. It is only when these auxiliaries appear in later translations that we have factual grounds to assume that they were grammaticalized.

Our other hypothesis focused on the special nature of the Wachtendonck Psalter as an interlinear translation. We have found that the translator has only added auxiliaries to this translation when there was no inflectional alternative present in the language. As such, future and passive auxiliaries were inserted into the text, as there is no inflectional alternative available in Dutch to express future tense and passive voice explicitly, but no perfect and modal auxiliaries, as there are inflectional alternatives for these meanings. In this scenario, it is possible that the perfect and modal auxiliaries were grammaticalized at the time of writing, but that these auxiliaries were not chosen by the translator because there were inflectional alternatives available in the language that were formally congruent with the source text. We see that, when this constraint of formal congruence is relaxed in later translations, perfect and modal auxiliaries do appear in a number of contexts. However, there is no way of telling whether the appearance of perfect and modal auxiliaries in later translations is the result of language change or of changing translation strategies.

The answer to our central research question remains somewhat inconclusive, as we are not able to disentangle the grammar of the text from its special nature as an interlinear translation. The question is, however, whether this is not an issue for every translated text. This issue is especially pressing for historical linguistics, where many of the oldest texts available are only translations. We would like to argue that taking a historical comparative perspective on these historical translations allows us to turn this challenge into an opportunity. By combining retrospective and prospective comparisons of historical translations, looking both backward and forward in time, we are able to give a multifaceted picture of the place of these texts both in language history and in changing translation strategies.

The retrospective analysis has given us a deeper insight into the contexts in which auxiliaries are used in the Wachtendonck Psalter by looking into the semantic and structural correspondences with their source constructions in the Latin Vulgate. The structural correspondences of the Old Dutch auxiliaries and their Latin source constructions have been in focus of previous literature. It has been pointed out that Old Dutch auxiliaries often correspond to Latin inflectional constructions, and are thus inserted by the translator to adequately render the meaning of the source constructions. The retrospective analysis, however, has also given us insight into the semantic profile of the auxiliaries in the Wachtendonck Psalter. It has helped us determine that future and passive auxiliaries are systematically used to translate future and passive source constructions, and that they can

thus be assumed to have been grammaticalized enough to express these meanings in Old Dutch.

The prospective analysis is the most innovative part of our study, as its potential has not been explored for the Wachtendonck Psalter. As opposed to the retrospective perspective, where the use of auxiliaries was in focus, it looked more closely into the contexts in which auxiliaries were absent. More specifically, our prospective analysis singled out contexts in which auxiliaries are lacking in Wachtendonck Psalter, but do appear in later translations. By looking into the motivations for the use of auxiliaries in the later translations, we gain a deeper insight into the question of why these auxiliaries are lacking in the corresponding contexts in the Wachtendonck Psalter. We showed that the translators of the Vorsterman Bible and the Louvain Bible use perfect and modal auxiliaries to translate Latin perfect and subjunctive source constructions, whereas the translator of the Wachtendonck Psalter opted for congruent inflectional constructions. We argued that the auxiliaries in the later translations could be either the result of ongoing grammaticalization or of divergent translation strategies in which the translators prioritized semantic over structural congruence. The latter motivation highlights the specific nature of the source-oriented translation of the Wachtendonck Psalter, where the interlinear translation principle takes precedence over the accurate rendering of semantic nuances in the source text. Prospective comparison with the Professors' Bible highlights another aspect of the specific source-oriented nature of the Wachtendonck Psalter. It shows that the use of verb constructions in the early psalm translation primarily reflects the distribution of the Latin source constructions, rather than the actual usage patterns of Old Dutch.

### **Acknowledgements**

The research reported on in this article is part of the project 'The rise of complex verb constructions in Germanic', funded by the Swedish Research Council (Dnr. 2017-01848). We thank the 'Time in Translation' project at the University of Utrecht for giving us access to the online application TimeAlign. We are particularly grateful to Martijn van der Klis for his generous help with handling the application behind the screens. We also gratefully acknowledge the constructive and insightful feedback we got from Karin Aijmer, Magdalena Charzyńska-Wójcik, Hilde Hasselgård and Lotte Sommerer on an earlier version of this article.

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### **Appendix: Annotation of Latin verbs**

Following Panhuis (2006), we make the following distinctions in the annotation of Latin verbs. The values within square brackets are left unmarked in the annotation labels.

**tense/aspect:** present PRS, imperfect IPRF, future FUT, perfect PRF, pluperfect PLUPRF, future perfect FUTPRF

**mood:** [indicative], subjunctive SBJV, imperative IMP

**voice:** [active], passive/deponent PASS

Indicative mood combines with all tense/aspect values, subjunctive mood with the non-future values, and the imperative mood with present or future. Note that the combination *future imperative* is known in other grammars of Latin as *imperative II*. We do not distinguish between (real) passives and deponent verbs in our annotation.

Most Latin markables contain only one verb. Exceptions to this are formed by combinations of *passive/deponens* and any of *perfect*, *pluperfect* or *future perfect*, which use periphrasis, but which as a whole are annotated as PRF.PASS, PLUPRF.PASS and FUTPRF.PASS. Another exception is the combination of a main verb with a causative, for which a special label, *causative* CAUS, was used.