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# Lexical expansion in the HAVE and BE perfect in Dutch

## A constructionist prototype account\*

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This article investigates lexical expansion in the HAVE and BE perfect in Dutch. It is known from previous research that early perfects show more lexical restrictions than their modern counterparts. The aim of this article is to uncover how perfects change their collocational preferences over time. The present study tackles this issue taking a quantitative corpus perspective. The empirical basis for this study is a sample of HAVE and BE perfects taken from a corpus of Dutch legal texts (1250–1800). The sample is analyzed using the method of diachronic distinctive collexeme analysis. The statistical analysis indicates that both perfect constructions show fine-grained shifts in collocational preferences over time. The observed lexical expansion has the following properties: it (a) proceeds gradually, (b) through semantically related verb classes, (c) away from a prototype. These properties are accounted for making use of insights from prototype theory and construction grammar.

**Keywords:** perfect, grammaticalization, semantic compatibility, construction grammar, lexical expansion, colostruational analysis, prototype, transitivity

### 1. Introduction

This article addresses the historical development of two related verbal constructions in the Germanic and Romance languages, i.e. the HAVE perfect and the BE perfect. The most widespread construction is the HAVE perfect, consisting of the auxiliary HAVE and a past participle that functions as the main verb of the clause, as exemplified in (1). Some Germanic and Romance languages (e.g. Dutch, German, French and Italian) have an alternate perfect construction, the BE perfect, that also consists of a past participle combined with the auxiliary BE, illustrated in (2).<sup>1</sup>

- (1) a. *Mary **has eaten** an apple.* (English)  
b. *Marie **heeft** een appel **gegeten**.* (Dutch)  
c. *Marie **hat** einen Apfel **gegessen**.* (German)  
d. *Maria **har ätit** ett äpple.* (Swedish)  
e. *Marie **a mangé** une pomme.* (French)

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<sup>1</sup> HAVE and BE will be used throughout to refer to any cognate of the English *have* and *be* in Germanic and Romance languages, abstracting away from cross-linguistic and diachronic differences in realization.

- (2) a. *Jan is naar huis gegaan.* (Dutch)  
b. *Jan ist nach Hause gegangen.* (German)  
c. *Jean est rentré à la maison.* (French)  
“John has gone home”

Both periphrastic verbal constructions are used with a present perfect meaning, i.e. they refer to an event in the past that has some relevance at the moment of speech (Comrie 1976: 52). In (1), for instance, the event of eating an apple is situated before the moment of speaking and has led to the current result that the apple is consumed.

The historical development of the perfect has been investigated thoroughly, especially within the framework of grammaticalization research (e.g. Vincent 1982; Bybee & Dahl 1989; Bybee et al. 1994; Carey 1994; Detges 2000; McFadden & Alexiadou 2006, 2010; de Acosta 2011, 2012). Recent research has mainly focused on the origins of the perfect meaning. Typical questions include: What is the source of the perfect meaning? How does the perfect meaning arise from this source? What are the motivations and mechanisms involved in this semantic change? Research investigating the stages after the initial emergence of the perfect meaning is much scarcer. Bybee & Dahl (1989: 69) and Bybee et al. (1994: 66) suggest that both perfect constructions have gradually expanded their use to new contexts that were not possible before. This hypothesis is primarily based on the comparison of early perfects, which had a rather limited use, and their modern counterparts, which in principle can be used for all types of events. This article presents a diachronic corpus study that aims to uncover what exactly happened in between these two stages. The following questions are central: Can we observe the hypothesized expansion in real time? What are the properties of this expansion? What is its exact path of change? Does it proceed gradually?

The article focuses on lexical expansion in the HAVE and BE perfect in Dutch. An empirical analysis will be presented of past participles in a historical sample of HAVE and BE perfects. §2 provides more details on the exact compilation of the corpus and the sampling procedure for the perfect constructions. The sample is analyzed using the method of diachronic distinctive collexeme analysis developed within the framework of construction grammar. §3 introduces the basic principles of this method and its potential for the study of lexical expansion. The results of the data analysis are discussed in §§4 and 5. §6 presents a theoretical discussion of the properties of the observed lexical expansion in terms of prototype theory and construction grammar. The main findings are summarized in §7.

## 2. Corpus and data collection

The diachronic development of the HAVE and BE perfect stretches over many centuries. Studying such a long-term development requires a corpus of historical texts covering an extensive and continuous period. The Compilation Corpus of Historical Dutch meets this requirement. This corpus was originally compiled for a research project on word order changes in the history of Dutch (Coussé 2008) and described in detail in Coussé (2010). It contains legal texts (such as charters, statutes and contracts) dating from the middle of the 13th century until the end of the 18th century. The corpus is a balanced sample of documents taken from existing digital text collections—i.e. the Corpus Gysseling (Pijnenburg &

Schoonheim 1998) and the Corpus Van Reenen-Mulder (Van Reenen & Mulder 1993)—complemented with a selection of chancery documents that were digitized by the author. The texts are systematically sampled from the chanceries of 15 larger cities in three central dialect areas in the Low Countries (Brugge, Ieper, Kortrijk, Gent and Oudenaarde in Flanders; Brussel, Leuven, Mechelen, Antwerpen and Breda in Brabant; Dordrecht, Amsterdam, Haarlem, Gouda and Leiden in Holland).<sup>2</sup> Great care is taken in distributing these texts evenly in time and space. However, a lack of available texts has led to underrepresentation of texts from the 17th and 18th century, as seen in the last column of Table 1.

All sentences containing the finite verb HAVE or BE plus a past participle were extracted from the corpus. The extraction was performed semi-automatically, as the Compilation Corpus comes without linguistic annotation. Firstly, the corpus was searched automatically for all spelling variants of the finite forms of HAVE and BE. Secondly, the results of the automatic search were manually checked, retaining only the sentences that contain a finite form of HAVE or BE plus a past participle. Finally, within the sample of BE perfects, only the attestations with an intransitive past participle were retained, as the perfect meaning is only expected to arise in this limited context (see §4). In total, 1344 instances of the HAVE perfect and 499 instances of the BE perfect were collected for this study. The distribution of the collected perfects per century is presented in Table 1.

**Table 1.** Distribution of the HAVE and BE perfect per century.

|              | HAVE perfect |          | BE perfect |          | corpus  |
|--------------|--------------|----------|------------|----------|---------|
|              | n            | n/10,000 | n          | n/10,000 | n       |
| 13th century | 244          | 25.1     | 91         | 9.4      | 97,066  |
| 14th century | 333          | 39.7     | 136        | 16.2     | 83,954  |
| 15th century | 443          | 52.8     | 127        | 15.1     | 83,975  |
| 16th century | 200          | 29.0     | 85         | 12.3     | 68,872  |
| 17th century | 70           | 19.3     | 31         | 8.6      | 36,221  |
| 18th century | 54           | 22.6     | 29         | 12.1     | 23,869  |
| total        | 1344         | 34.1     | 499        | 12.7     | 393,957 |

Table 1 shows that the HAVE and BE perfects are attested relatively frequently in all periods of the corpus. As expected, the number of perfects found in the 17th and 18th century is lower due to the overall shortage of data for these time periods. Therefore extra care will be taken in analyzing results from these last two periods.

### 3. Method

The past participles in the collected sample of perfects were lemmatized in order to normalize spelling variation across time and regions. In total 293 different past participles (called types) were found in a total of 1344 observations (called tokens) of the HAVE perfect and 56 different

<sup>2</sup> Some of these cities have an established exonym in English: Brugge = Bruges, Ieper = Ypres, Kortrijk = Courtray, Gent = Ghent, Brussel = Brussels, Leuven = Louvain, Mechelen = Mechlin, Antwerpen = Antwerp.

past participles in a total of 499 observations of the BE perfect. In order to get a first impression of the degree of lexical variation in the sample, the type-token ratio is calculated as the proportion between the type and token frequencies.

**Table 2.** Type and token frequency in the HAVE and BE perfect per century.

|              | HAVE perfect   |                 |                  | BE perfect     |                 |                  |
|--------------|----------------|-----------------|------------------|----------------|-----------------|------------------|
|              | type frequency | token frequency | type-token ratio | type frequency | token frequency | type-token ratio |
| 13th century | 64             | 244             | 0.26             | 12             | 91              | 0.13             |
| 14th century | 82             | 333             | 0.25             | 14             | 136             | 0.10             |
| 15th century | 152            | 443             | 0.34             | 28             | 127             | 0.22             |
| 16th century | 104            | 200             | 0.52             | 26             | 85              | 0.31             |
| 17th century | 48             | 70              | 0.69             | 16             | 31              | 0.52             |
| 18th century | 44             | 54              | 0.81             | 20             | 29              | 0.69             |
| total        | 293            | 1344            | 0.22             | 56             | 499             | 0.11             |

Table 2 shows that the type-token ratio gradually increases in both the HAVE and the BE perfect over time. This diachronic trend indicates that both constructions are increasingly combined with more types of past participles in the sample. This development can be seen as a first indication of lexical expansion in the HAVE and BE perfect. However, as Baayen (2008: 223) points out, type-token ratio is not a particularly reliable measure for comparing lexical variation in samples of different sizes. Smaller samples (the 17th and 18th century) tend to have higher type-token ratios than larger ones (the previous periods). Therefore, an alternative method taken from construction grammar will be used to assess lexical expansion.

Hilpert (2006) has developed a statistical method for uncovering semantic change in a construction, known as diachronic distinctive collexeme analysis. This method is part of a larger family of statistical measures called collostructional analysis which was originally developed by Stefanowitsch & Gries (2003) and Gries & Stefanowitsch (2004). Collostructional analysis in general measures whether a lexical item appears in the open slot of a construction with a higher or lower frequency than expected by chance or, in collostructional terms, it measures the degree of attraction or repulsion that lexical items have to a construction. Attracted lexical items, also known as collexemes, give us an insight in the semantics of the construction as a whole, which is grounded in construction grammar.

The basic tenet of construction grammar is that constructions, i.e. conventional pairings of form and meaning, are the basic units of language (Langacker 1987, Goldberg 1995, Croft 2001). The meaning of a construction in this framework is not considered fully compositional but rather “the result of integrating the meaning of the lexical items into the meanings of the construction” (Goldberg 1995: 16). This integration is not random but requires that the meaning of the lexical items is ‘semantically compatible’ with the overall meaning of the construction (Goldberg 1995: 50, Stefanowitsch & Gries 2003: 213, Yoon 2012). Goldberg (1995: 60–61) illustrates

this semantic integration with the ditransitive construction, arguing that the event type of the verb needs to be conceptually consistent with the general transfer meaning of the construction. This includes verbs that denote a transfer meaning themselves (e.g. *She handed him the ball*) or verbs that denote the means by which the transfer is effected (e.g. *Joe kicked Bob the ball*). However, verbs that are not compatible with a transfer meaning (e.g. \**Joe angered Bob the pink slip*) are unacceptable and will accordingly not appear in the ditransitive construction.

Diachronic distinctive collexeme analysis compares the attraction of lexical items to one construction over sequential periods of time. More specifically, the method compares the frequency of each lexical item in one time period to its frequency in other investigated periods and to the frequency of the other lexical items occurring in the construction during the same period.<sup>3</sup> Lexical items that appear more frequently in one period in comparison to the other periods are judged to be distinctive for that period. Hilpert (2006: 248) argues that diachronic distinctive collexeme analysis is thus able to abstract away from lexical items that are common throughout time and highlight the items that are more frequent in one time period than others. Hilpert considers this an advantage, as generally frequent lexical items tend to be semantically light, and thus are not very instructive for the meaning of a construction. Diachronic distinctive collexeme analysis helps us to isolate the lexical items that are distinctive for one period and thereby accentuates the changes in collocational preferences of a construction over time. Hilpert (2008) has applied diachronic distinctive collexeme analysis to future constructions in the Germanic languages. He was able to uncover changes in the collocational preferences of future constructions and could relate these collocational shifts to semantic changes that were predicted in the literature.

Diachronic distinctive collexeme analysis is not undisputed. Bybee (2010: 97-101) criticizes it generally for downplaying the role of raw frequency in assessing the meaning of a construction. Recall that diachronic distinctive collexeme analysis in particular abstracts away from lexical items with an overall high frequency and highlights the ones that are distinctive for one period. Bybee argues that highly frequent items constitute central exemplars in the open slot of a construction, citing the work of Goldberg et al. (2004) on the role of highly frequent verbs in the acquisition of argument constructions in child language. Goldberg and colleagues found that frequent verbs are very general in meaning and closely resemble the meaning of the construction they are used in. They conclude that these frequent verbs help establish the association between the meaning of a particular verb and the meaning of the construction it is used in during the process of language acquisition. Such findings suggest that highly frequent words should play a central role in assessing the meaning of a construction. Bybee (2010) accordingly promotes the method developed in Bybee & Eddington (2006) where an analysis of raw frequencies is combined with an assessment of semantic similarity between lexical items in order to uncover the meaning of the construction under investigation.

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<sup>3</sup> For the mathematical details of the statistical analysis, see Hilpert 2006 and Gries & Stefanowitsch 2004.

Stefanowitsch (2006) evaluates diachronic distinctive collexeme analysis from a collostructional perspective, concluding that the method does not give a cognitively plausible account of semantic change. He remarks that the method is a diachronic extension of the distinctive collexeme analysis that compares the frequencies of all lexical items in a construction to their frequencies in other comparable constructions. Distinctive collexeme analysis abstracts away from lexical items that are common in all constructions under investigation and highlights those lexical items that are distinctive for each construction separately. Within collostructional analysis it is assumed that these statistical associations reflect the psychological associations in the mind of the language user (Gries & Stefanowitsch 2004: 123, Stefanowitsch 2006: 258). Diachronic distinctive collexeme analysis is an extension in that it compares the frequencies of all lexical items in one time period with their frequencies in other periods. Stefanowitsch (2006: 259) argues that this cannot reflect a cognitive reality since no speaker lives long enough to be able to compare lexical items across time periods. He proposes therefore to complement diachronic distinctive collexeme analysis with a simple collexeme analysis for each time period in order to compare the frequency of all lexical items in a construction with their overall frequency.<sup>4</sup>

It is striking that both Bybee (2010) and Stefanowitsch (2006) criticize diachronic distinctive collexeme analysis for not giving a cognitively realistic account of semantic change but suggest quite opposite solutions. This has to do with their divergent standpoints on how frequency affects the cognitive association between constructions and their component parts. It should be clear that this is an important debate within usage-based grammar that still needs to be settled.<sup>5</sup> I will remain agnostic on this matter and rather pursue the pragmatic approach of Hilpert (2008) by presenting both frequency lists and lists of distinctive collexemes in order to assess meaning change in the HAVE and BE perfect. Studying past participles with a high frequency will give us an insight into the most frequent association between past participles and the HAVE/BE perfect per time period. Diachronic distinctive collexeme analysis enables us to highlight the past participles that are most distinctive for both constructions per time period.

The lists of past participles resulting from both analyses will be presented in §§4 and 5. Following common practice in collostructional analysis, the participles will be grouped into semantically coherent categories based on a careful analysis of these items in context. The past participles in the HAVE perfect are categorized using the verb classes of Levin (1993) whereas the participles in the BE perfect are grouped using the intransitive verb classes of Sorace (2000) and Levin & Rappaport Hovav (1995). Verb classes allow us to discern diachronic trends in the lists of highly frequent and distinctive past participles.

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<sup>4</sup> Another criticism raised by an anonymous reviewer is that diachronic distinctive collexeme analysis does not allow us to control for changes in the overall frequency of lexical items. It is indeed possible that the overall frequency of a lexical item will change over time as words enter into and disappear from the language. This problem has also been recognized by Hilpert (2008). This problem is not unique to diachronic distinctive collexeme analysis but also holds for the study of raw frequencies. In this article, the problem is mitigated by investigating a corpus of legal texts restricted in topic range.

<sup>5</sup> See Gries 2012 for a recent contribution to this debate in favour of collostructional analysis.

#### 4. Lexical expansion in the HAVE perfect

With methodological choices introduced, we can turn to empirical results. This section provides a diachronic analysis of past participles in the HAVE perfect. Let us first look at the expected lexical expansion for this specific construction.

Bybee & Dahl (1989: 69) and Bybee et al. (1994: 66) argue that early perfects have a preference for change-of-state events. These selectional restrictions reflect the resultative origins of the perfect construction. Resultatives in general express a state resulting from a previous event (Nedjalkov & Jaxontov 1988: 6). This resultative aspect is semantically consistent with telic events that involve some kind of change. The general selectional restrictions also hold for the resultative source of the HAVE perfect, illustrated in (3), where the past participle denotes a change-of-state event that leads to the “state of being bound” of the direct object.

- (3) *Ic hæfde hine gebundenne* (Traugott 1972: 94)  
“I had him in a state of being bound”

Early HAVE perfects are also limited to transitive events. This second restriction is related to the specific context in which the HAVE perfect emerged from its resultative source. It can be argued that HAVE constructions with a telic transitive participle formed a bridging context from a resultative to a perfect reading. These participles have namely both a patient that is affected by the change-of-state event (required for a resultative reading, cf. Coussé 2011: 619) and an agent that can be interpreted as the subject of the clause (needed for a perfect reading, cf. Benveniste 1968: 88, Vincent 1982: 84, Harris 2003: 542). In this context, the resultative meaning, with a focus on the resultant state of the direct object, may give way to a perfect meaning, in which the past event performed by the subject is in focus. Nedjalkov & Jaxontov (1988: 15) point out that perfects in principle are compatible with all types of events, both telic and atelic, transitive and intransitive. This implies that early perfects are susceptible to lexical expansion from telic transitive events to all events types. The remainder of this section examines whether such an expansion can be observed in diachronic data.

Table 3 lists the 10 most frequent past participles in the HAVE perfect per century. These participles are lemmatized in order to normalize the abundant spelling variation in the sample. The glosses in the table represent the meaning of the participles in context.<sup>6</sup>

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<sup>6</sup> Some participles are used with a meaning that is unusual or even has become obsolete in modern Dutch (e.g. *geloven* now typically means “believe”, *bevinden* “find oneself” and *erven* “inherit”). The glosses are systematically checked for their historical accuracy in the available historical dictionaries of Dutch, i.e. *Vroegmiddelnederlands Woordenboek* “Early Middle Dutch Dictionary” for 13th century verbs, *Middelnederlandsch Woordenboek* “Middle Dutch Dictionary” for 14th–16th century verbs and *Woordenboek der Nederlandsche Taal* “Dictionary of the Dutch Language” for 16th–18th century verbs. All dictionaries were consulted electronically on <http://gtb.inl.nl>.

**Table 3.** Ten most frequent past participles in HAVE perfect per century.<sup>7</sup>

| 13th century       |           |    | 14th century      |           |    | 15th century       |           |    |
|--------------------|-----------|----|-------------------|-----------|----|--------------------|-----------|----|
| <i>geven</i>       | “give”    | 34 | <i>verkopen</i>   | “sell”    | 48 | <i>doen</i>        | “do”      | 34 |
| <i>doen</i>        | “do”      | 25 | <i>geven</i>      | “give”    | 30 | <i>verkopen</i>    | “sell”    | 18 |
| <i>kopen</i>       | “buy”     | 21 | <i>ontvangen</i>  | “receive” | 27 | <i>kopen</i>       | “buy”     | 16 |
| <i>verkopen</i>    | “sell”    | 16 | <i>kopen</i>      | “buy”     | 20 | <i>maken</i>       | “make”    | 13 |
| <i>geloven</i>     | “promise” | 11 | <i>doen</i>       | “do”      | 17 | <i>bezitten</i>    | “own”     | 13 |
| <i>krijgen</i>     | “get”     | 10 | <i>beliggen</i>   | “border”  | 14 | <i>geven</i>       | “give”    | 13 |
| <i>zien</i>        | “see”     | 10 | <i>geloven</i>    | “promise” | 11 | <i>zijn</i>        | “be”      | 12 |
| <i>vergelden</i>   | “pay”     | 9  | <i>huren</i>      | “rent”    | 11 | <i>horen</i>       | “hear”    | 11 |
| <i>huizen</i>      | “build”   | 8  | <i>bewijzen</i>   | “assign”  | 9  | <i>brengen</i>     | “bring”   | 11 |
| <i>ontvangen</i>   | “receive” | 7  | <i>zijn</i>       | “be”      | 7  | <i>zien</i>        | “see”     | 10 |
| 16th century       |           |    | 17th century      |           |    | 18th century       |           |    |
| <i>doen</i>        | “do”      | 21 | <i>doen</i>       | “do”      | 6  | <i>geven</i>       | “give”    | 3  |
| <i>ordineren</i>   | “decree”  | 11 | <i>ordineren</i>  | “decree”  | 5  | <i>nemen</i>       | “take”    | 2  |
| <i>hebben</i>      | “have”    | 7  | <i>goedvinden</i> | “approve” | 4  | <i>ordineren</i>   | “decree”  | 2  |
| <i>stellen</i>     | “assign”  | 6  | <i>aannemen</i>   | “recruit” | 3  | <i>ondervinden</i> | “observe” | 2  |
| <i>verkrijgen</i>  | “obtain”  | 5  | <i>hebben</i>     | “have”    | 3  | <i>goedvinden</i>  | “approve” | 2  |
| <i>bevinden</i>    | “observe” | 5  | <i>verven</i>     | “paint”   | 2  | <i>houden</i>      | “hold”    | 2  |
| <i>consenteren</i> | “grant”   | 5  | <i>verklaren</i>  | “explain” | 2  | <i>zien</i>        | “see”     | 2  |
| <i>zijn</i>        | “be”      | 5  | <i>besteden</i>   | “spend”   | 2  | <i>leren</i>       | “learn”   | 2  |
| <i>verkopen</i>    | “sell”    | 4  | <i>zien</i>       | “see”     | 2  | <i>ontzien</i>     | “excuse”  | 2  |
| <i>kopen</i>       | “buy”     | 4  | <i>verkopen</i>   | “sell”    | 2  | <i>doen</i>        | “do”      | 1  |

Table 3 shows relatively little lexical variation. Verbs such as *geven* “give”, *kopen* “buy”, *verkopen* “sell”, *zien* “see” and *doen* “do” appear among the ten most frequent past participles in all time periods. Many of these verbs have very general meanings typical of high frequency words. Although this relative lack of lexical variation confirms the overall homogeneity of the sample (recall footnote 4), it does not provide much information on possible lexical expansion in the HAVE perfect. Diachronic distinctive collexeme analysis in Table 4 helps to identify the past participles that are distinctive for a certain period and thus to accentuate collocational shifts in the HAVE perfect. Table 3 nevertheless gives us a first impression of the participles in the sample.

The majority of these participles denote some general transitive telic event. The verbs *geven* “give”, *krijgen* “get”, *kopen* “buy”, *verkopen* “sell”, *ontvangen* “receive” for instance denote the transfer of concrete objects between two participants, as in (4) and (5).

- (4) *Vort soe heuet soe ghegheuen den vorseiden gasthuse xxx lib vlaemscer* (Gent 1286)<sup>8</sup>  
“furthermore, she has given the aforementioned guest house 30 Flemish pounds”

<sup>7</sup> No lexical item reaches a particularly high frequency in the 17th and 18th century. This observation reflects the relatively small corpus and the overall high lexical variation in both time periods (see §§2 and 3).

<sup>8</sup> The information in brackets indicates the city and the year in which the attestation is written.

- (5) *dese voerghenoemde borghen die wi hem ghezeth hebben* (Dordrecht 1291)  
“these aforementioned guarantors who we have assigned to him”

These participles reflect the legal character of the chancery documents in the corpus, which largely regulate the transaction of goods and services between the inhabitants of medieval cities. As noted above, telic transitive events are both compatible with a resultative and a perfect reading. The glosses in (5) and (6) represent perfect readings. A resultative interpretation of (5) is likewise possible: the direct object “30 pounds” has been fully transferred from the possessor to the recipient and as a result of this transfer has reached a state of “being given” at the moment of speaking. The distinction between resultative and perfect readings of similar examples is discussed in detail in Coussé (2011).

Table 3 also contains some atelic transitive and intransitive verbs such as *doen* “do”, *zien* “see”, *horen* “hear” and *zijn* “be”. These verbs do not denote a change-of-state event that affects the direct object, thus excluding a potential resultative reading. Rather, these participles focus on the past event which has some current relevance. Occasionally, this perfect interpretation is made explicit by a temporal adverbial, as in (6) and (7).

- (6) *alle den tviste onbescedenheiden die tusschen hen gheweest heeft vanden tide die leden es tote opten dach van heden* (Brussel 1312)  
“all the conflict and rudeness that has been between them from the time that has passed until the present day”
- (7) *voir die laetste veranderinghe die men gedaen heeft in jair XXV laestleden* (Gouda 1531)  
“for the last change that one did in the year 1525”

In (9) the underlined adverbial delimits a time interval that starts in the past and continues up to the present. The event described in the participle holds throughout this whole interval up to the present moment. This particular type of perfect is known as the perfect of persistent situation (Comrie 1976: 60). Although such perfects do not entail a current resultant state (atelic events do not produce such states) they do have an explicit link to the present, as is demonstrated by (6). The adverbial in (7) indicates that the event happened in the past while remaining implicit whether it still holds at present. The example demonstrates that the Dutch HAVE perfect is able to refer to past events that only have a weak (if any) link to the present.<sup>9</sup>

Now let us turn to a diachronic distinctive collexeme analysis of the HAVE perfect. Frequency lists of lemmatized participles were fed into the program *Coll.analysis 3.2a*, written by Gries (2007) for the statistical package R (R Core Team 2012). The program returns these participles together with their so-called collostructional strength. Participles with a collostructional strength higher than 1.30 are significantly attracted (at the 0.05 level) to the HAVE perfect in a particular century. Table 4 lists the top 10 distinctive collexemes per century together with their gloss and collostructional strength.<sup>10</sup>

<sup>9</sup> Such definite past time adverbials are impossible with the HAVE perfect in English. See Boogaart 1996 on the tense and aspect properties of the HAVE perfect in Dutch in comparison to English.

<sup>10</sup> Only significant distinctive collexemes are reported in the table. Significant distinctive participles with an overall frequency below three are excluded.

**Table 4.** Ten most distinctive collexemes in the HAVE perfect per century.

| 13th century       |            |      | 14th century      |           |      | 15th century         |              |      |
|--------------------|------------|------|-------------------|-----------|------|----------------------|--------------|------|
| <i>geven</i>       | “give”     | 5.96 | <i>verkopen</i>   | “sell”    | 8.64 | <i>horen</i>         | “hear”       | 4.38 |
| <i>huizen</i>      | “build”    | 5.93 | <i>beliggen</i>   | “border”  | 8.48 | <i>bezitten</i>      | “own”        | 3.99 |
| <i>krijgen</i>     | “get”      | 4.32 | <i>ontvangen</i>  | “receive” | 7.47 | <i>brenghen</i>      | “bring”      | 2.79 |
| <i>vergelden</i>   | “pay”      | 4.12 | <i>bewijzen</i>   | “assign”  | 5.45 | <i>trekken</i>       | “acquire”    | 1.93 |
| <i>bezetten</i>    | “allocate” | 3.00 | <i>verkennen</i>  | “assign”  | 3.64 | <i>verantwoorden</i> | “reply”      | 1.93 |
| <i>kopen</i>       | “buy”      | 2.64 | <i>huren</i>      | “rent”    | 3.24 | <i>panden</i>        | “confiscate” | 1.77 |
| <i>hangen</i>      | “hang”     | 2.33 | <i>geven</i>      | “give”    | 1.86 | <i>maken</i>         | “make”       | 1.59 |
| <i>geloven</i>     | “promise”  | 2.01 | <i>verbieden</i>  | “forbid”  | 1.82 | <i>aanvaarden</i>    | “annex”      | 1.45 |
| <i>zetten</i>      | “allocate” | 1.72 |                   |           |      | <i>opbrengen</i>     | “declare”    | 1.45 |
| <i>bezegelen</i>   | “seal”     | 1.62 |                   |           |      | <i>betrekken</i>     | “summon”     | 1.45 |
| 16th century       |            |      | 17th century      |           |      | 18th century         |              |      |
| <i>stellen</i>     | “assign”   | 3.22 | <i>goedvinden</i> | “approve” | 3.99 | <i>ondervinden</i>   | “observe”    | 2.33 |
| <i>useren</i>      | “practise” | 2.67 | <i>aannemen</i>   | “recruit” | 2.37 | <i>leren</i>         | “learn”      | 2.04 |
| <i>komen</i>       | “come”     | 2.48 | <i>ordineren</i>  | “decree”  | 1.68 | <i>goedvinden</i>    | “approve”    | 1.66 |
| <i>ordineren</i>   | “decree”   | 2.43 |                   |           |      | <i>houden</i>        | “hold”       | 1.66 |
| <i>bevinden</i>    | “observe”  | 2.26 |                   |           |      |                      |              |      |
| <i>consenteren</i> | “consent”  | 2.02 |                   |           |      |                      |              |      |

Table 4 shows much more lexical variation than Table 3. In order to uncover changes in the collocational preferences of the HAVE perfect, the past participles are grouped in a number of verb classes, using Levin (1993) on verb classification.

In the 13th and 14th centuries, most of the distinctive participles are change-of-possession verbs (Levin 1993: §13). These include both verbs of giving and getting (*geven* “give”, *krijgen* “get”, *vergelden* “pay”, *kopen* “buy”, *verkopen* “sell”, *ontvangen* “receive”, *huren* “rent”) and verbs of future having (*bezetten* “allocate”, *zetten* “allocate”, *bewijzen* “assign”, *verkennen* “assign”). These verbs denote prototypical telic transitive events, and are as such compatible with both a resultative and a perfect reading. This was demonstrated earlier for examples (5). Diachronic distinctive collexeme analysis now reveals that these verbs are significantly attracted to the earliest time periods of the sample, suggesting that the early collocational preferences of the HAVE perfect closely reflect the original selectional restrictions of its resultative source.

In the 15th century, a number of new event types can be distinguished. The collexemes *verantwoorden* “reply” and *opbrengen* “declare” classify as verbs of communication (Levin 1993: §37). They denote a telic transitive event, which makes them in principle compatible with both a resultative and a perfect reading. However, examination of these verbs in context reveals that they often take a predicative complement, as can be observed in (8) and (9).

- (8) *alsoo 't behoort heeft de vornoemde mer Jan verandwordt dat de hauder met quader causen 't vornoemde leen an hem ghetrocken heeft als zyn proper ghoed* (Gent 1451)  
 “as is proper, the aforementioned mister Jan has replied that the leaseholder has acquired the aforementioned lease as his property with bad causes”

- (9) *Eerst hebben gheordonneert dat men byden commissarissen vernieuwen zal de voornomde wethouders* (Ieper 1524)  
 “firstly, we have decreed that one shall reappoint the aforementioned aldermen before the commissioners”

These sentential direct objects are not compatible with a resultative reading (cf. Pinkster 1987: 204 for a similar observation about Latin). Thus, verbs of communication can be assumed to represent a later stage in the development of the HAVE perfect, where the construction has expanded to telic transitives not compatible with a resultative reading. This is corroborated by the fact that verbs of communication are only distinctive from the 15th century onwards.

Table 4 also lists a number of stative transitives in the 15th century. These include both the perception verbs (Levin 1993: §30) *horen* “hear”, *bevinden* and *ondervinden* “observe”, and the possession verbs *bezitten* “own” and *houden* “hold”. Some of the perception verbs also take a predicative complement, as is illustrated in (10).

- (10) *Utedien dat men bevonden heeft dat diverssche prochessen daeghelix ghepertraheert ende verlinct worden duer tvercrighen van diverssche requesten civillen* (Kortrijk 1550)  
 “because one has observed that various trials are being prolonged and delayed on a daily basis by the obtaining of diverse civil requests”

The attraction of stative transitive participles to HAVE in the 15th century points to a further expansion of the HAVE perfect from telic to stative transitive events.

The 16th century shows a further diversification of verb classes. The distinctive collexeme *useren* “practice” classifies as a transitive activity verb.<sup>11</sup> Activity verbs do not affect their direct object and are therefore not compatible with a resultative reading. Moreover, the participle is combined with a sentential direct object in (11), and in (12), the direct object has even remained unexpressed. These contextual cues point to the fact that the participle is not used with a resultative reading but rather refers to an event in the past.

- (11) *Uute dien dat men in voorleden tyden gheuseert heeft te desen vierschaere dat zo wanneer eenich persoon zynen debytuere ende schuldenare hadde doen beclaghen dat dien debyteur vermochte [...]* (Kortrijk 1520)  
 “since one has practised in this tribunal in past times that, when any person had prosecuted his debtor and borrower, this debtor was allowed to [...]”
- (12) *zo men tot hier toe gheuseert heeft by der kuere* (Gent 1519)  
 “as one has practiced until now by the law”

Table 4 also includes the intransitive change-of-location verb *komen* “come” for the 16th century. This is surprising, since this verb is nowadays typically associated with the BE perfect

<sup>11</sup> Diachronic distinctive collexeme analysis also returns the transitive activity verbs *voorlezen* “read aloud”, *exerceren* “practice” and the intransitive activity verbs *procederen* “prosecute”, *profiteren* “exploit”, *weerstand* “dispute” and *adresseren* “address” for the 16th, 17th or 18th century. These past participles occur only once or twice in the sample and are therefore not included in Table 4 (see n. 10).

(Haeseryn et al. 1997: 73). Moreover, it is also attracted to the BE perfect in the 13th and 14th centuries, as will be shown in §5. Let us take a closer look at the use of *komen* in the HAVE perfect in the 16th century, represented by example (16).

- (13) *off die voerseide scepen mit hoerre volre last voer die voerseide stede van Dordrecht gecomen hadden* (Dordrecht 1517)  
“if these aforementioned ships had come to the aforementioned city of Dordrecht with their full load”

It appears that *komen* is used in a conditional *if*-clause expressing a hypothetical state of affairs. Kern (1912: 268-272) gives numerous similar examples from Middle Dutch texts.<sup>12</sup> He argues that the use of *komen* in the HAVE perfect is restricted to irrealis contexts. Although the early examples of Kern indicate that this irrealis switch (to use the term coined by Shannon 1993a) already existed in Middle Dutch, it does not get attracted to the HAVE perfect until the 16th century. Again, this late timing can be seen as a symptom of the ongoing expansion of the HAVE perfect in the sample.

In summary, diachronic distinctive collexeme analysis shows changing collocational preferences of the HAVE perfect in the course of time. In the 13th and 14th centuries, mainly change-of-possession verbs are attracted to the HAVE perfect. The 15th century includes new verb classes, such as verbs of communication, possession and perception. From the 16th century onwards, transitive activity verbs and intransitive telic verbs in irrealis contexts also get attracted to the HAVE perfect. These findings can be summarized in the following overview of collocational shifts.

change-of-possession verbs > verbs of communication, possession and perception >  
transitive activity verbs and intransitive telic *komen* “come” in irrealis contexts

These changing collocational preferences correlate with the expected lexical expansion from telic transitive verbs to other verb classes. In the earliest time periods, telic transitive past participles such as change-of-possession verbs and communication verbs clearly dominate the table. In later periods, new verb classes are attracted to the HAVE perfect which do not qualify as telic transitives. The table indicates that the HAVE perfect first expanded to stative transitives (i.e. verbs of possession and of perception) in the 15th century, and to transitive activity verbs and to intransitive telic verbs in irrealis contexts from the 16th century onwards.

## 5. Lexical expansion in the BE perfect

Now that the collocational preferences of the HAVE perfect have been studied, we can turn to possible collocational changes within the BE perfect. The BE perfect is widely thought to have

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<sup>12</sup> Similar examples can also be easily found in modern Dutch, e.g. *Kuyt was bij Liverpool gebleven als Van Gaal had gekomen* “Kuyt would have stayed in Liverpool if Van Gaal had come” ([http://www.nieuws.be/nieuws/Kuyt\\_was\\_bij\\_Liverpool\\_gebleven\\_als\\_Van\\_Gaal\\_had\\_gekomen\\_e6eb11df.aspx](http://www.nieuws.be/nieuws/Kuyt_was_bij_Liverpool_gebleven_als_Van_Gaal_had_gekomen_e6eb11df.aspx), accessed 16 April 2013).

originated from a source construction containing the copula verb BE and an adjectival past participle, as in the Old English example (14).

- (14) *He wæs gecumen.* (Traugott 1972: 93)  
 “he is in a state of having arrived”

The source construction in (14) has a resultative meaning, as is also suggested by the glosses, i.e. the subject is in a state of “having arrived” as a result of the event denoted in the past participle. As argued above, resultatives are only compatible with telic change-of-state events. The perfect meaning has developed out of a BE resultative with an intransitive telic past participle, also known as mutative verbs in the traditional literature on the BE perfect (Paul 1902, Kern 1912) or unaccusative verbs in more recent theoretical approaches to perfect auxiliary selection (Perlmutter 1978, Levin & Rappaport Hovav 1995, Sorace 2000).<sup>13</sup> Mutatives are compatible with a resultative reading as they denote a change-of-state event that affects their single argument. The same participant executes the event and takes the form of the subject of the clause which makes the construction also compatible with a perfect reading.<sup>14</sup> As argued earlier, the perfect meaning is not restricted to one particular event type which opens the door to lexical expansion from mutative verbs to other intransitives.

In order to get a first impression of lexical variation in the sample, Table 5 lists the most frequent past participles in the BE perfect per century. Only the top five are provided, as the total number of BE perfects is considerably lower than the number of HAVE perfects (499 vs. 1344).

**Table 5.** Five most frequent past participles in the BE perfect per century.

| 13th century      |          |    | 14th century      |          |    | 15th century      |             |    |
|-------------------|----------|----|-------------------|----------|----|-------------------|-------------|----|
| <i>liggen</i>     | “lie”    | 46 | <i>liggen</i>     | “lie”    | 73 | <i>liggen</i>     | “lie”       | 27 |
| <i>komen</i>      | “come”   | 28 | <i>komen</i>      | “come”   | 38 | <i>komen</i>      | “come”      | 20 |
| <i>worden</i>     | “become” | 4  | <i>gevallen</i>   | “occur”  | 5  | <i>geschieden</i> | “occur”     | 12 |
| <i>geschieden</i> | “occur”  | 3  | <i>lijden</i>     | “elapse” | 4  | <i>erven</i>      | “neighbour” | 12 |
| <i>lijden</i>     | “elapse” | 2  | <i>geschieden</i> | “occur”  | 3  | <i>blijven</i>    | “remain”    | 11 |
| 16th century      |          |    | 17th century      |          |    | 18th century      |             |    |
| <i>komen</i>      | “come”   | 15 | <i>komen</i>      | “come”   | 4  | <i>zijn</i>       | “be”        | 4  |
| <i>zijn</i>       | “be”     | 12 | <i>varen</i>      | “go”     | 3  | <i>gebeuren</i>   | “occur”     | 3  |
| <i>liggen</i>     | “lie”    | 10 | <i>gaan</i>       | “go”     | 3  | <i>komen</i>      | “come”      | 2  |
| <i>gebeuren</i>   | “occur”  | 5  | <i>geschieden</i> | “occur”  | 3  | <i>gevallen</i>   | “occur”     | 2  |
| <i>blijven</i>    | “remain” | 4  | <i>zijn</i>       | “be”     | 3  | <i>geschieden</i> | “occur”     | 2  |

<sup>13</sup> It is beyond the scope of this article to review the extensive literature on the distribution of intransitive verbs in the HAVE and BE perfect in Dutch, German, Italian and French.

<sup>14</sup> Telic transitive past participles did not give rise to a perfect meaning but rather developed into passives. The subject of such BE constructions only codes the undergoer of the transitive event leaving the agent unexpressed.

Table 5 shows that the majority of the listed participles are change-of-location verbs (*komen* “come”, *varen* “go” and *gaan* “go”) and change-of-state verbs (*worden* “become”, *geschieden* “occur”, *lijden* “elapse”, *gebeuren* “occur” and *gevallen* “occur”), as illustrated in (15) and (16).

- (15) *dat ter begheerten van de voorseide Jacop Carels Janne Weermout ende Aechte Weermouts bi ons **commen zyn** vp ten dach van heden Jan Bengiaert fs Jans oud lxxvj jaer ende Adriaen Willemszone oud lj jaer beede van de prochie van Breedene* (Brugge 1440)  
 “that on request of the aforementioned Jacob Karels, Jan Weermout and Agatha Weermouts has come to us on this present day: Jan Bengiaart, son of Jan, aged 66, and Adriaan Willemszoon, aged 51, both from the parish of Breedene”
- (16) *Inden selven jair voirsz opten sestienden dach in Augusto is Jan Gerijtssoen voirsz weder inder camer gecomen* (Dordrecht 1462)  
 “in the same aforementioned year [1455] on the sixteenth day of August, Jan Gerritszoon has come to the chamber again”

These telic intransitives are in principle compatible with a resultative reading. In (18), the subject has moved in space from one point to another and as a result of this displacement has reached a state of “having arrived before us” at the moment of speaking. This moment of speaking is highlighted by the temporal adverbial “on this present day”. However, a present time adverbial is not conclusive for a resultative reading as it also may highlight the current relevance of a perfect reading. Indeed, example (15) is also compatible with a perfect interpretation that focuses on the past event of coming to the present location. In (16), this past event is highlighted by a past time adverbial that indicates that the BE construction is used with a perfect interpretation.

Table 5 also contains some atelic intransitives such as *liggen* “lie”, *erven* “neighbor” and *zijn* “be”, which are incompatible with a resultative reading as they do not produce a resultant state. The examples (17) and (18) illustrate some of the perfect uses of the stative verb *zijn* “be” in the sample.

- (20) *Alzoe eenen zekeren tijt geleden ende tot nu toe die comanscepe comende van Calis zeer sober **geweest is*** (Leiden 1519)  
 “as the trade coming from Calais has been very meagre since some time ago untill now”
- (21) *die tot anderen tyden burgmeesteren ofte scepenen **geweest zijn*** (Gouda 1560)  
 “who have been mayors or aldermen in previous times”

The (underlined) temporal adverbial in (17) indicates that the BE perfect is used as a perfect of persistent situation where the stative event holds from a certain point in the past until the present. In (18), the past time adverbial indicates that the state was restricted to a period in the past.

In order to abstract away from verbs that are frequent throughout the sample, Table 6 provides the results of a diachronic distinctive collexeme analysis of the BE perfect per

century. All past participles that are significantly attracted to the construction in a particular time period, i.e. that have a collostructional strength higher than 1.30, are included in the table.<sup>15</sup>

**Table 6.** Most distinctive collexemes in BE perfect per century.

| 13th century      |            |      | 14th century    |        |      | 15th century      |             |      |
|-------------------|------------|------|-----------------|--------|------|-------------------|-------------|------|
| <i>liggen</i>     | “lie”      | 3.22 | <i>liggen</i>   | “lie”  | 6.65 | <i>erven</i>      | “neighbour” | 7.12 |
| <i>komen</i>      | “come”     | 1.57 | <i>komen</i>    | “come” | 1.46 | <i>sterven</i>    | “die”       | 4.34 |
| <i>worden</i>     | “become”   | 1.38 |                 |        |      | <i>blijven</i>    | “remain”    | 2.33 |
|                   |            |      |                 |        |      | <i>huwen</i>      | “marry”     | 1.78 |
|                   |            |      |                 |        |      | <i>geschieden</i> | “occur”     | 1.74 |
| 16th century      |            |      | 17th century    |        |      | 18th century      |             |      |
| <i>zijn</i>       | “be”       | 3.67 | <i>scheuren</i> | “tear” | 3.62 | <i>gebeuren</i>   | “occur”     | 1.53 |
| <i>expireren</i>  | “expire”   | 3.07 | <i>varen</i>    | “go”   | 2.16 | <i>zijn</i>       | “be”        | 1.32 |
| <i>afslaan</i>    | “decrease” | 2.30 | <i>gaan</i>     | “go”   | 1.68 |                   |             |      |
| <i>overlijden</i> | “die”      | 2.02 |                 |        |      |                   |             |      |
| <i>passeren</i>   | “pass”     | 1.42 |                 |        |      |                   |             |      |
| <i>gebeuren</i>   | “occur”    | 1.40 |                 |        |      |                   |             |      |

Table 6 lists more or less the same past participles as Table 5 but highlights those participles that are distinctive for a certain time period. In order to discover changes in the collocational preferences in the BE perfect, the participles are categorized into a number of verb classes that differ with respect to their telicity, inspired by Sorace (2000).

Sorace (2000: 863–864) points out that change-of-location verbs (*komen* “come”, *varen* “go” and *gaan* “go”) and change-of-state verbs (*worden* “become”, *sterven* “die”, *huwen* “marry”, *geschieden* “occur”, *expireren* “expire”, *afslaan* “decrease”, *overlijden* “die”, *passeren* “pass” and *gebeuren* “occur”) exhibit the highest degree of telicity among the intransitive verbs. This telic aspect is made explicit in (19) by means of a prepositional phrase that denotes the endpoint of the change of location.

(19) *Dat vore ons ende vore onse manne es comen ene edele joncfrowe onse liue nighte joncfrowe Sophye van mechlene* (Mechelen 1293)

“that a noble lady, our dear relative Lady Sophie of Mechelen, has come before us and before our men”

These highly telic intransitive verbs are attracted to the BE perfect from the 13th century onwards. These early collocation preferences can be considered a reflex of the original selectional restrictions of BE resultatives.

Two change-of-state verbs require some discussion of their own, i.e. *gebeuren* and *geschieden* “occur, happen”. Sorace (2000: 685) classifies them as change-of-state verbs although they are sometimes considered verbs of existence (e.g. Levin & Rappaport Hovav 1995: 120–121). Sorace argues that these particular verbs have a transition component in their

<sup>15</sup> Significant distinctive collexemes with an overall frequency below three are excluded (see n. 10).

meaning as they denote that an event comes into existence. Nevertheless, it is useful to distinguish occurrence verbs from other change-of-state verbs, as they often take predicative complements, as illustrated in (20).

- (20) *Nu ist gebuert dat Cornelis Woutersz backer ende Joest Hugenz backer gecomen sijn by den gerechte* (Leiden 1519)  
“now it has happened that the bakers Cornelis Wouterszoon and Joost Hugenzoon have come before court”

Such examples are not compatible with a resultative reading, as was the case with communication and perception verbs taking a sentential direct object in §4. Thus, verbs of occurrence represent a later stage in the development of the BE perfect, where the construction has extended to telic intransitives that are not compatible with a resultative reading. This assumption is supported by the fact that verbs of occurrence in particular are only attracted to the BE perfect from the 15th century onwards.

Sorace (2000) furthermore distinguishes verbs of continuation of pre-existing condition, such as *blijven* “remain”, that are less telic than change-of-state verbs but still have a component of change in their meaning, or, more specifically, they entail the negation of change. Kern (1912: 140) similarly argues that *hij bleef maar zitten* “he remained seated” does not mean that the subject stayed at the same place but rather that he did not stand up. Despite its weak semantic component of change, this class of verbs is hardly compatible with a resultative reading where the subject reaches a state resulting from the event denoted in the past participle. Thus, the verbs of continuation in the table can be seen as an expansion of the BE perfect to marginally telic past participles. This assumption is supported by the fact that this small verb class is only attracted to the BE perfect from the 15th century onwards.

A final group of participles emerging from the table are the existence-of-state verbs *liggen* “lie”, *erven* “neighbor” and *zijn* “be”. Sorace (2000: 869) indicates that these verbs do not entail any change at all. Let us first have a closer look at the verb *liggen* “lie”—a verb of spatial configuration (Levin 1993: §47.6)—illustrated with examples (21) and (22).

- (21) *ende dese vornomde erflicheit die es ghelegen binnen der vriheit van neckerspoele* (Mechelen 1295)  
“and this aforementioned yard lies within the hamlet of Nekkerspoel”
- (22) *Ende dit voirscreuen lant Js gheleghen in den ambochte van leyderdorp* (Leiden 1388)  
“and this aforementioned land lies in the district of Leiderdorp”

The examples specify the location of a yard or a piece of land with respect to a larger locality. As indicated by the glosses, these sentences do not have a perfect reading but instead refer to a present state. Consequently, these examples are not part of the development of the BE perfect and will be discarded henceforth.<sup>16</sup> The other frequent existence-of-state verb *zijn* “be” in the table, however, occurs with a perfect meaning in the corpus, as illustrated in (17) and

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<sup>16</sup> A topic for future work is the history of these stative constructions. Did they develop from BE resultatives, just as the BE perfect did, or do we need to explore a different scenario?

(18). The occurrence of *zijn* in the BE perfect indisputably constitutes a case of lexical expansion of the construction. The table indicates that the verb is attracted to the BE perfect in the 16th and 18th centuries.

Interestingly, the attraction of *zijn* to the BE perfect is preceded by a period in which the verb was frequently combined with the HAVE perfect. Table 3 in §4 indicates that the verb appears among the 10 most frequent past participles in the HAVE perfect in the 14th, 15th and 16th centuries. These frequency data suggest that *zijn* shifted its collocational preference from the HAVE perfect to the BE perfect in the course of time. This impression is corroborated by Table 7 that presents the distribution of the verb *zijn* in the HAVE and BE perfect per century.

**Table 7.** Distribution of *zijn* “be” in HAVE or BE perfect per century.

|              | HAVE perfect | BE perfect |
|--------------|--------------|------------|
| 13th century | 1            | 0          |
| 14th century | 7            | 1          |
| 15th century | 12           | 4          |
| 16th century | 5            | 12         |
| 17th century | 1            | 3          |
| 18th century | 1            | 4          |

Table 7 shows that *zijn* is on its way to be incorporated into the HAVE perfect in the earliest sources of the sample. The BE perfect, however, provides an alternative perfect construction for the stative verb from the 14th century onwards and increasingly gains in frequency. Kern (1912: 107) argues that the attraction of *zijn* to the BE perfect is motivated by analogy with the copula *worden* “become” that systematically occurs in the BE perfect from the earliest sources onwards. This hypothesis can be complemented by the observation that also other copula verbs such as *blijven* “remain”, *blijken* “appear, turn out” and *raken* “get” systematically occur in the BE perfect in the sample and in the modern language. The incorporation of *zijn* in the BE perfect can thus more generally be seen as a case of analogical leveling whereby all copula verbs get systematically combined with the same perfect marker. Shannon (1990: 474) moreover suggests that the earlier extension of the BE perfect to the verb of continuation *blijven* may have served as a model for the later expansion to *zijn*.

In summary, Table 6 shows shifting collocational preferences in the BE perfect. In the 13th and 14th centuries, the construction mainly attracts change-of-location verbs and change-of-state verbs. In the 15th century, verbs of occurrence and verbs of continuation of pre-existing condition are also attracted to the construction. From the 16th century onwards, the atelic existence-of-state verb *zijn* also surfaces in the table. These findings can be summarized in the following overview of collocational shifts:

change-of-location verbs and change-of-state verbs > verbs of occurrence and verbs of continuation of pre-existing condition > atelic existence of state verb *zijn* “be”

These shifting collocational preferences do not seem to correlate with the expected expansion from telic intransitives to other intransitives. All distinctive collexemes in Table 6 are telic,

with the notable exception of *zijn*, which is a clear atelic stative. However, the attracted verbs do differ with respect to their degree of telicity. Inspired by Sorace (2000) I argued that change-of-location verbs and change-of-state verbs are more telic than continuation verbs, which in their turn are higher in telicity than the existence-of-state verb *zijn*. This gradient view on telicity allows us to give a more nuanced account of lexical expansion in the BE perfect than suggested in the beginning of this section. The shifting collocational preferences of the BE perfect correlate with a decreasing degree of telicity of the collexemes.

Earlier work has noted that telicity plays a role in the susceptibility of intransitives to occur in the BE perfect. Sorace (2000) demonstrates that highly telic verbs cross-linguistically tend to occur categorically in the BE perfect whereas verbs with a lower degree of telicity vary with respect to their preference both within and across languages. This leads Sorace (2000: 863) to postulate an auxiliary selection hierarchy that captures this correlation, i.e. change-of-location verbs > change-of-state verbs > verbs of continuation of pre-existing state > existence-of-state verbs.<sup>17</sup> Our findings now suggest that this verb hierarchy also holds diachronically. More specifically, the historical development of the BE perfect is shown to be accompanied by lexical expansion along this hierarchy.

## 6. Towards a constructionist prototype account

The two preceding sections have centered on the question whether the HAVE and BE perfect show evidence of lexical expansion. This section will further elaborate on the exact properties of the observed expansion. An interesting observation that needs further discussion is the fact that lexical expansion does not appear to proceed randomly but rather through semantically related verb classes. §5 more specifically showed that the expansion in the BE perfect correlates with an decreasing degree of telicity of the past participles. This section provides a unified account for the lexical expansion in the HAVE and BE perfect in terms of extension from a prototype. This account is based on the work of Shannon on perfect auxiliary selection (1989, 1990, 1993a, 1993b, 1995) within the framework of prototype theory (see Lakoff 1987 and references therein).

Let us first look at Shannon's auxiliary selection model. A central claim is that the HAVE perfect auxiliary combines with prototypical transitive events whereas the BE perfect auxiliary is found with prototypical mutative events. He relates these two prototypical event types to the concept of transitivity developed by Hopper & Thompson (1980). In this influential study, transitivity is considered to be a global property of the clause instead of the predicate alone. Hopper & Thompson (1980: 252) break down the notion of transitivity into a number of correlating semantic-pragmatic parameters that focus on a different facet of "the effectiveness and intensity with which an action is transferred from one participant to another". These parameters are listed in the first column of Table 8. The binary parameters taken together form a continuum on which any clause can be situated. A clause is considered to be highly transitive if it has many of the features listed in the second column of Table 8. A clause with many features clustering around the third column of the table is low in transitivity.

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<sup>17</sup> The hierarchy continues to the right including verb classes with an increasing preferences for the HAVE perfect, i.e. uncontrolled process > controlled process (motional) > controlled process (nonmotional). These classes are not relevant to the BE perfect.

Shannon posits an additional column with semantic-pragmatic properties that relate to prototypical mutative events, here listed in the last column of Table 8.

**Table 8.** Transitivity and mutativity parameters (Shannon 1993a: 86).

|                    | High transitivity   | Low transitivity | High mutativity       |
|--------------------|---------------------|------------------|-----------------------|
| PARTICIPANTS       | 2 or more (A & O)   | 1 participant    | 1 participant         |
| KINESIS            | action              | nonaction        | action (event)        |
| ASPECT             | telic               | atelic           | telic                 |
| PUNCTUALITY        | punctual            | nonpunctual      | punctual              |
| VOLITIONALITY      | volitional          | nonvolitional    | nonvolitional         |
| AFFIRMATION        | affirmative         | negative         | affirmative           |
| MODE               | realis              | irrealis         | realis                |
| AGENCY OF A        | high in potency     | low in potency   | low in potency        |
| AFFECTEDNESS OF O  | totally affected    | not affected     | (=A) totally affected |
| INDIVIDUATION OF O | highly individuated | nonindividuated  | highly individuated   |

Shannon has applied his prototype model to synchronic auxiliary selection phenomena in modern Dutch and German. The model has also been used to account for some unexpected use of mutative past participles in the HAVE perfect in historical stages of Dutch and German. But the model has not yet been used in diachronic research. Shannon (1990: 471) posits, on the basis of Old High German data, the following diachronic scenario.

The claim is that there are prototypes for *HAVE* and *BE* as auxiliaries, that the development begins with these and that gradual extension takes place in various directions until all verbs are covered by one of the perfect auxiliaries.

This scenario can be tested by applying the transitivity parameters in Table 8 to the expansion data presented in §§4 and 5. One advantage of the table is that it allows for a more integrated account of the various contextual properties referred to in the preceding sections (e.g. presence of sentential complements, occurrence in irrealis context).

Let us first reconsider the observed lexical expansion in the HAVE perfect. §4 revealed the following shift in collocational preferences: change-of-possession verbs > verbs of communication, possession and perception > transitive activity verbs and intransitive telic *komen* “come” in irrealis contexts. In light of the diachronic hypothesis above it is expected that the change-of-possession verbs will classify as prototypical transitives while the other verbs will be increasingly lower in transitivity according to the parameters in Table 8.

There are a number of indications that change-of-possession verbs denote prototypical transitive events. First, these verbs were used in the corpus to encode the transaction of goods and services between the inhabitants of medieval cities, a transitive transfer meaning par excellence. Moreover, inspection of change-of-possession verbs in context uncovers clausal properties (such as the agentivity of the subject and the individuation of the direct object) that correlate with high transitivity. This can be illustrated with examples (4) and (5) taken from §4 and repeated here as (23) and (24) for convenience.

- (23) *Vort soe heuet soe ghegheuen den vorseiden gasthuse xxx lib vlaemscer* (Gent 1286)  
 “furthermore, she has given the aforementioned guest house 30 Flemish pounds”
- (24) *dese voerghenoemde borghen die wi hem ghezeth hebben* (Dordrecht 1291)  
 “these aforementioned guarantors which we have assigned to him”

The subjects of these clauses classify as highly potent agents. They are characterized as human individuals that initiate the transaction volitionally. The individuation of the direct objects is defined by Hopper & Thompson (1980: 253) as the degree to which a participant is characterized as a distinct entity or individual in actual discourse. Timberlake (1975) relates this gradual concept to factors such as animacy, countability, concreteness, number and definiteness. The direct objects in the example are highly individuated, being definite referential noun phrases that refer to a countable concrete referent such as an exact sum of money (“30 pounds”) or a delimited number of individuals (“these aforementioned guarantors”). Change-of-possession verbs can thus be considered to be prototypical transitives.

The question is now whether other distinctive collexemes of the HAVE perfect are lower in transitivity than the change-of-possession verbs. Verbs of communication can be argued to be relatively high in transitivity as they denote a voluntary transfer initiated by a potent agent. However, as opposed to change-of-possession verbs, the transferred item is not a concrete item but rather an abstract piece of communication, which results in a lower degree of individuation of the direct object. On the whole, verbs of communication are thus lower in transitivity than verbs of change of possession. Verbs of perception can likewise be argued to be lower in transitivity. These verbs still involve two participants but the event described is nonvolitional, nonactional, nonpunctional and atelic. Moreover, the patient is hardly affected by the event and can moreover take the form of a complement clause, contributing to a lower degree of individuation. Similar arguments for a lower degree of transitivity can be given for verbs of possession and transitive activity verbs. Some special attention is in place for the use of the change-of-location verb *komen* “come” in the HAVE perfect instead of the expected BE perfect. It was pointed out in §4 that the use of mutatives in HAVE perfects is limited to irrealis contexts. Shannon (1993a: 90, 1995: 141) argues that irrealis has a mutativity-reducing effect in these contexts. Indeed, Table 8 shows that irrealis is correlated with low transitivity. In summary, the HAVE perfect can be argued to expand from change of possession verbs denoting prototypical transitive events to verbs that are increasingly lower in transitivity.

The observed decrease in transitivity can be related to findings in Coussé (2013). This study explores the contextual changes accompanying the development of the HAVE perfect based on the same sample as this study. More specifically, the status of the subject and the direct object in the sample is investigated by making use of the transitivity parameters of Hopper & Thompson (1980). The study demonstrates that the HAVE perfect extended from highly transitive contexts to contexts that are lower in transitivity. The largest changes were observed with respect to the individuation of the direct objects. It appeared that direct objects in the first time periods predominantly were concrete noun phrases (e.g. *scepenen* “aldermen”, *enen brief* “a letter”, *ij sticken land* “two pieces of land”) whereas they later increasingly took the form of abstract nominal phrases (e.g. *elkerlijcs recht* “everyman’s right”, *gratien*

“mercy”) and complement clauses (e.g. *dat die sake onnosel is* “that the case is futile”). This contextual extension correlates well with the lexical expansion found in this study. Recall the expansion from change-of-possession verbs, which denote the transaction of concrete goods, to verbs of communication, which denote the transfer of an abstract piece of communication (either coded as an abstract noun phrase or a complement clause). This correlation should not come as a surprise given that the transitivity parameters pertain to properties of the clause as a whole.

The lexical expansion in the BE perfect can be analyzed along the same lines. §5 showed the following shift in collocational preferences: change-of-location verbs and change-of-state verbs > verbs of occurrence and verbs of continuation of pre-existing condition > atelic existence-of-state verb *zijn* “be”. It is expected that the change-of-location verbs and change-of-state verbs will denote prototypical mutative events while the other verb classes increasingly deviate from this prototype. Change-of-location verbs and change-of-state verbs were argued in §5 to have the highest degree of telicity among the intransitive verbs (see also Sorace 2000). High telicity now turns out to correlate with high mutativity according to Table 8. Analysis of these verbs in context also uncovers other contextual properties that correlate with high mutativity. Reconsider for instance the change-of-location verb *komen* “come” in example (19) that is repeated here as (25).

- (25) *Dat vore ons ende vore onse manne es comen ene edele joncfrowe onse liue nighte joncfrowe Sophye van mechlene* (Mechelen 1293)  
“that a noble lady, our dear relative Lady Sophie of Mechelen, has come before us and before our men”

The clause only contains one participant that undergoes the change of location denoted by the past participle. This participant is characterized as being highly individuated: it is a referential proper noun phrase that refers to a concrete referent. All these properties correlate with the parameters for high mutativity in Table 8.

Let us now investigate whether the other distinctive collexemes of the BE perfect are lower in mutativity. I argued in §5 that the lexical expansion in the BE perfect correlates with a decreasing degree of telicity of the past participles. Change-of-location verbs and change-of-state verbs appeared to be more telic than verbs of continuation of pre-existing condition which in their turn are higher in telicity than the existence-of-state verb *zijn* “be”. As just noted, telicity is one of the transitivity parameters in Table 8. A decrease in telicity of the past participles in the sample thus indicates a development away from the mutative prototype as defined by Shannon. This is corroborated by other contextual properties of the BE perfect in the sample. §5 argued that verbs of occurrence (attracted from the 15th century onwards) should be set apart from other change-of-state verbs due to their sentential subjects. Sentential complements are lower in individuation than nominal ones, which results in a lower overall mutativity of the clause. In summary, the lexical expansion observed in the BE perfect can be shown not only to correlate with a decreasing degree of telicity of the past participle but also more generally with a decline in mutativity.

The discussion above demonstrates that the lexical expansion in the HAVE and BE perfect can be insightfully described in terms of extension from a prototype. It shows that

both constructions are predominantly combined with prototypical past participles in the first time periods of the sample and in later stages expand to less prototypical participles. A point that has not been made yet is that both constructions expand towards past participles that are low in transitivity. It is exactly among these low transitive events that we have observed competition between the HAVE and BE perfect. §5 showed that the stative intransitive *zijn* “be” was first used with the HAVE perfect and later gradually shifted to the BE perfect. §4 moreover revealed that change-of-location verb *komen* “come” was used in the HAVE perfect instead of the BE perfect where highly mutative verbs are expected. I argued above that the use of *komen* in the HAVE perfect was limited to irrealis contexts which have a mutativity-reducing effect: the change-of-location event does not take place in the irrealis.

The prototype model discussed above was able to give a unified account of lexical expansion in the HAVE and BE perfect in terms of extension from a prototype. Past participles that are furthest away from these prototypes were argued to be susceptible to alternation between the two constructions. Linking prototypical transitive and mutative events with the transitivity parameters of Hopper & Thompson (1980) moreover allows us to relate the lexical properties of the past participles to concomitant properties of the wider syntactic contexts such as the degree of individuation of the direct object. However, the model remains unsatisfactory in one respect. Shannon does not elaborate on why the HAVE and BE perfect (or HAVE and BE auxiliary in his element-based approach) initially are restricted to prototypical transitive events and mutative events respectively and why both constructions expand from these prototypes. The construction-based analysis of the HAVE and BE perfect presented in the beginning of §§4 and 5 provides a solution.

The central tenet of this approach was that past participles can be integrated into the HAVE and BE perfect if they are semantically compatible with the overall constructional meaning. I have argued that both constructions originate from a resultative source. Resultatives in general are compatible with telic change-of-state events. The development of a perfect meaning from this resultative source was argued to take place in one particular type of bridging context. In HAVE resultatives, only telic transitive past participles allow for a perfect reading when the agent of the past participle coincides with the subject of the clause. These telic transitive past participles now turn out to coincide with the category of prototypical transitive events. In BE resultatives, only telic intransitive past participles are compatible with a perfect reading where the subject is the agent of the event. These telic intransitive past participles in their turn coincide with prototypical mutatives. Prototypical transitivity and mutativity in this approach are not considered to be universal categories but are defined in relation to the meaning and structure of early HAVE and BE perfects. This relates to the more general stance in (radical) construction grammar that categories do not exist outside constructions (Croft 2001: 105).

Prototypical participles in both perfect constructions are thus related to the meaning and structure of their source construction. The extension away from these prototypical participles has been argued to be a consequence of the development of the perfect meaning that is compatible with more event types. Lexical extension is not a development that is unique for the perfect but accompanies grammaticalization in general (see especially Bybee et al. 1994, Himmelmann 2004). The question is now whether lexical expansion in general can be described in terms of extension from a prototype. If we take the approach presented above

and accept that categories are defined within the boundaries of a construction, then this appears to be the case, as also claimed by Bybee (2003: 158, 2010: Ch. 5). She argues that the schematic slots in constructions have a prototype structure with central and peripheral members. New members may enter into this open slot if they are semantically similar to already existing members motivated by family resemblance. The present study gives support to this line of reasoning.

Bybee (2010: 83-90) develops some promising ideas about how these open slots in constructions are organized and how new members are integrated into them, based on an empirical study from Bybee & Eddington (2006) on the categorization of adjectives combining with verbs of becoming in Spanish. She suggests that similarity and frequency plays a crucial role in the structuring of open slots in constructions. As noted in the method section, she argues that the central members in such open slots are exemplars with a high frequency. Less frequent items then cluster around these central exemplars if they are semantically similar. Bybee (2010: 90) suggests that historical change can be expected “to emanate outwardly of the central member of a category”. This model of categorization could be tested on the sample of HAVE and BE perfect used for this contribution. Such an analysis goes further than this study that has focused on the most frequent past participles in the sample. The frequency of all past participles would have to be taken into account and a semantic analysis needs to be performed on the past participles in order to judge their semantic similarity. Bybee & Eddington (2006) assess semantic similarity by relying on native speaker intuitions. This section shows that the transitivity/mutativity parameters in Table 8 could provide an interesting data-driven alternative for uncovering the semantic properties of past participles in historical data, a task for future research.

## 7. Conclusion

This article investigated lexical expansion in the HAVE and BE perfect in Dutch. Recent research shows that early perfects show more lexical restrictions than their modern counterparts. This article has aimed to uncover how perfects change their collocational preferences over time. The central questions were: Can we observe lexical expansion in real time? What is the exact path of change? What are the properties of the expansion?

To answer these questions, a quantitative corpus analysis was performed on a sample of HAVE and BE perfects taken from a corpus of legal texts covering the period 1250–1800. The past participles in the sample were analyzed using the method of diachronic distinctive collexeme analysis. This statistical analysis highlights participles that are more frequent in one time period compared to other periods (i.e. that are distinctive for that particular period) and thus accentuates potential changes in the collocational preferences of the perfect constructions.

The statistical analysis revealed that both the HAVE and BE perfect shift in collocational preferences over time. This is taken as evidence that both constructions do show lexical expansion in the investigated sample. Classification of distinctive participles into small verb classes moreover uncovered the pathway of both expansions. The HAVE perfect successively attracts the verb classes: change-of-possession verbs > verbs of communication, possession and perception > transitive activity verbs and intransitive telic *komen* “come” in irrealis

contexts. The BE perfect in turn shifts collocational preferences from: change-of-location verbs and change-of-state verbs > verbs of occurrence and verbs of continuation of pre-existing condition > atelic existence-of-state verb *zijn* “be”. Combining diachronic distinctive collexeme analysis with a subsequent grouping into small verb classes revealed a more fine-grained pathway of expansion than ever has been (and can be) achieved on the basis of mere comparison of early perfects with their present-day counterparts.

The observed expansion proceeds gradually through semantically related verb classes. §5 demonstrated that the distinctive past participles in the BE perfect become less telic in the course of time. §6 integrated these findings into a broader prototype account that does not only apply to the BE perfect but also includes the HAVE perfect. I argued that the observed expansion in both the HAVE and BE perfect can be interpreted as a gradual extension away from a prototype event. The HAVE perfect has initially a preference for prototypical transitive past participles whereas the BE perfect prefers prototypical mutative participles in the earliest periods of the sample. With time, the distinctive past participles in the sample gradually move away from these prototypical event types.

The proposed prototype account of lexical expansion is not only relevant for the historical study of perfects but has also a wider potential for construction-based studies of grammaticalization. Lexical expansion is indeed not unique to the development of the perfect but accompanies grammaticalization in general. §6 pursued the case that schematic slots in a construction have a prototype structure. My findings suggest that prototypical items in the open slot reflect the original selectional restrictions of this construction. It was demonstrated for the HAVE and BE perfect that the schematic participle slot mainly attracts either prototypical transitive or mutative verbs in the beginning of the sample. These prototypical verbs were argued to be semantically consistent with the bridging contexts in which both perfect constructions emerged. Peripheral items in the open slot of a construction in turn can be considered as later extensions from these prototypical items. The diachronic study of the HAVE and BE perfect more specifically showed how the participle slot gradually attracts verbs that are semantically more and more distant from prototypical transitives and mutatives. Future research needs to verify whether this constructionist prototype account of lexical expansion holds for other cases of grammaticalization.

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## Résumé

Dans le présent article on étudie l'expansion lexicale du parfait en *avoir* et en *être* en néerlandais. Des recherches récentes montrent que les premiers parfaits sont soumis à davantage de restrictions lexicales que leurs équivalents modernes. Pour montrer comment se transforment dans le temps les préférences combinatoires des parfaits, nous adoptons une approche quantitative qui s'appuie sur un corpus. Ce corpus consiste en un échantillon de parfaits en *avoir* et *être* extraits de textes légaux en néerlandais (1250-1800), que nous soumettons à la méthode de l'analyse collexémique distinctive diachronique. Les statistiques indiquent que les deux types de construction du parfait subissent des modifications délicates de leurs préférences combinatoires dans le temps. L'expansion lexicale observée présente les propriétés suivantes: elle correspond à un processus (a) graduel, (b) qui touche des classes verbales liées entre elles sémantiquement, (c) qui s'éloigne d'un prototype. Nous utilisons la théorie des prototypes et la grammaire de construction pour expliquer ces propriétés.

## Zusammenfassung

Dieser Artikel widmet sich der lexikalischen Expansion des *haben-* und *sein-*Perfekts im Niederländischen. Wie aus bereits bestehender Forschung bekannt ist, unterliegt das Perfekt in seinen frühen Vorkommen stärkeren lexikalischen Restriktionen als in jüngerer Zeit. Dieser Artikel betrachtet den diachronen Wandel der Kontexte, in denen das Perfekt präferiert gebraucht wird. Zu diesem Zweck wird eine quantitative Korpusanalyse vorgenommen, in der Belege des *haben-* bzw. *sein-*Perfekts aus niederländischen Gesetzestexten (1250-1800) untersucht werden. Dabei wird die Methode der distinktiven Kollexemanalyse angewandt. Die statistische Analyse zeigt, dass sich die präferierten Gebrauchskontexte bei der Perfektkonstruktionen diachron in kleinen Schritten verändern. Diese lexikalische Expansion zeichnet sich durch folgende Eigenschaften aus: Sie (a) verläuft graduell, (b) über semantisch verwandte Verbklassen, und (c) entfernt sich zunehmend von einem Prototypen. Diese Eigenschaften werden vor dem Hintergrund neuerer Erkenntnisse aus der Prototypentheorie sowie der Konstruktionsgrammatik erklärt.

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