

**This item is the archived peer-reviewed author-version of:**

Directionals and re-autonomization in Dutch modals

**Reference:**

Nuyts Jan, Caers Wim.- Directionals and re-autonomization in Dutch modals  
Language dynamics and change - ISSN 2210-5832 - 11:2(2020), p. 241-272  
Full text (Publisher's DOI): <https://doi.org/10.1163/22105832-BJA10012>  
To cite this reference: <https://hdl.handle.net/10067/1798790151162165141>

# Directionals and re-autonomization in Dutch modals

Jan Nuyts and Wim Caers  
*University of Antwerp*

## Abstract

The modal auxiliaries in Present Day Dutch are going through a process of 're-autonomization', i.e. they are increasingly used without a main verb elsewhere in the clause, in ways which are not possible in other Germanic languages. Many Germanic languages do allow omission of the main verb when a modal is combined with a directional phrase in the clause. This paper investigates whether the latter phenomenon may have been the cause of the former process in Dutch. A diachronic corpus study of the Dutch modals shows that the answer is negative. The paper offers an alternative suggestion as to how the re-autonomization trend may have emerged.

## Keywords

modals, Dutch, directionals, degrammaticalization

## 0. Introduction<sup>1</sup>

Most Germanic languages are very restrictive in allowing their modal auxiliaries to occur without a main verb elsewhere in the clause. An important factor in many of these languages is the presence of a directional phrase, as in the Danish example in (1a) (from Hansen and Heltoft, 2011: 809). Dutch, however, is very liberal towards (what we will call) the 'autonomous use' of the modals. It also allows expressions of the kind in (1b), for instance, without a directional phrase in the clause, a pattern which is impossible in other Germanic languages.

- (1) a. *Du **skal** hjem.*  
you must home  
[lit:] 'You must [go] home.' (Danish)  
b. *Dat **kan**.*  
that can  
[lit:] 'That can [be] [i.e. is possible].' (Dutch)

Moreover, in several Dutch modals the autonomous use is drastically increasing in frequency in the present day language (Nuyts, 2013). An explanation for the developments in Dutch is lacking. This article aims to investigate whether directionals, as in the pattern in (1a), may play a role.

This paper is organized as follows. Section 1 introduces the issue. In Section 2 we present the methodology: Section 2.1 describes the corpus data, Section 2.2 defines the analytical categories. Section 3 discusses the results: in Section 3.1 we refine the earlier observations regarding the re-autonomization process in Dutch, in Section 3.2 we focus on the main issue of the role of directionals.

---

<sup>1</sup> This research was funded by FWO-Flanders and NWO 'lead agency' project G.0A18.15N. Thanks are due to Olga Fischer, Sune Gregersen, Hubert Cuyckens, as well as to four anonymous reviewers, for useful comments on earlier versions of this paper. Mistakes are entirely our own.

Section 4 addresses the question whether we are dealing with a case of degrammaticalization. Section 5 formulates the conclusions.

## 1. The Issue

The system of the Dutch modals is traditionally considered to consist of six verbs: *kunnen* 'can', *mogen* 'may', *moeten* 'must', *hoeven* 'need', *zullen* 'shall/will', and *willen* 'want' (e.g. Duinhoven, 1997: 383ff). *Hoeven* has a special status as a negative polarity item. *Zullen* is also the future tense marker, and is far more often used for that purpose than for the expression of modal meanings.

Corpus studies into the diachrony of these forms from Old Dutch till the present (Nuyts, 2013; Nuyts et al., 2018, 2019) have shown that until Early New Dutch their development is compatible with a regular grammaticalization scenario (e.g. Hopper and Traugott, 2003). They originate in main verbs, but by Early New Dutch (1550-1650) they have all become predominantly or exclusively auxiliary verbs. *Mogen*, *moeten* and *zullen* had acquired this status already in the oldest available documents, in Old and Early Middle Dutch. In *kunnen* and *willen* the original main verbal use was still rather prominent in Early Middle Dutch, but it further declined in the course of Middle Dutch. *Hoeven* is a very recent member of the set: it only emerged around the start of the New Dutch period (around 1550), developing from the main verb *behoeven* 'need'. It immediately assumed a predominantly auxiliary status, however, although it shows clear traces of its main verbal origins even today.

These studies also revealed that something less expected happened in the period after Early New Dutch: sometime after 1650 (the studies did not allow a more precise determination of the onset), *kunnen*, *mogen*, *moeten*, and *hoeven* started showing a strong increase (to varying degrees, see Section 3.1) of occurrences without a main verb elsewhere in the clause, prominently including uses of the kind in (2), which had not occurred in earlier stages of the language.

- (2) *Dat kan / mag / moet / hoeft niet.*  
that can may must need not  
[lit:] 'That can [i.e. is possible] / may [i.e. is permitted] / must [i.e. is necessary] / need not [i.e. is not necessary].' (Dutch)

It looks like these verbs have launched onto a path of at least partial re-autonomization, a process which Nuyts (2013) has argued to be a case of collective degrammaticalization.

*Zullen* and *willen*, however, do not participate in this process, at least not clearly so. *Zullen* does feature autonomous uses of the kind in (2), but in the earlier studies they only occurred in the spoken data, in marginal numbers and in formally limited conditions. The data for *willen* did not contain a single instance with the pattern in (2), even if native speakers may consider it intuitively acceptable. (See Nuyts et al., 2019 for more details.)<sup>2</sup>

---

<sup>2</sup> The reason why these two verbs stand aside in the re-autonomization trend may be semantic. All four participating verbs centrally feature the same range of modal and related meanings (including dynamic, deontic, epistemic, inferential, and directive ones), hence forming a cohesive group. In *zullen*, however, the use as a future marker predominates and the range of modal uses is limited, and *willen* is exclusively a marker of volition, a category at the edge of the domain of modal and related meanings. Hence these verbs are functionally more marginal members of the set of modal auxiliaries.

An important question left unanswered in the earlier studies is what has caused this re-autonomization process in the four modal verbs mentioned. There is no straightforward answer, but one way to look for inspiration is to consider the conditions in which related languages allow autonomous uses of their modals. Other Germanic languages are generally much more restrictive than Dutch, disallowing expressions of the kind in (2), for instance. Nevertheless, next to purely contextual elision, most of them do license autonomous uses in the presence of a directional element in the clause. The pattern in (3a) is not possible anymore in Present Day English, but was common in Old and Middle English (the example is Middle English, from Visser, 1963: 165; see also Mitchell, 1985: 415-421). It is common in present day Scandinavian languages, as illustrated in Swedish (3b) (from *Svenska Akademiens Grammatik*, 1999: 470; see also Hansen, 1972; Faarlund et al., 1997: 526-527; Brandt, 1999: 64-76; Hansen and Heltoft, 2011: 805-813), and in current German, as exemplified in (3c) (from Mortelmans et al., 2009: 29).

- (3) a. *Wrechyd sowle, þou **muste** to helle.*  
wretched soul you must to hell  
[lit:] 'Wretched soul, you must [go] to hell.' (Middle English)
- b. *Han **måste** till stan.*  
he must to town  
[lit:] 'He must [go] to town.' (Swedish)
- c. *Er **muss** nach Hause.*  
he must to home  
[lit:] 'He must [go] home.' (German)

The examples in (2) show that the new autonomous uses in Dutch do not require the presence of a directional. Still, in view of the crucial role of directionals in other Germanic languages, the question arises whether they also have a special status in the re-autonomization trend in Dutch. Olbertz and Honselaar (2017: 288), on the basis of considerations regarding *moeten*, even suggest that the process is entirely due to directionals (and that it is not a matter of degrammaticalization, contrary to what was assumed in the earlier studies cited above).<sup>3</sup>

This article offers a corpus analysis of the role of directionals in all four modal verbs participating in the re-autonomization process: *kunnen*, *mogen*, *moeten* and *hoeven*. Since the data sets used in the earlier studies of these verbs are too limited and insufficiently fine-grained for this purpose, we work with entirely new and much larger samples of corpus data, focusing exclusively on New Dutch, the period within which the re-autonomization process started.

To anticipate the results: the frequency of directionals in the autonomous uses differs strongly between the four verbs, but, in spite of their prominent presence in *moeten*, they cannot account for the re-autonomization process in the modal system.

---

<sup>3</sup> The historical data used in Olbertz and Honselaar (2017) are dictionary entries of *moeten*. Honselaar and Olbertz (2016), however, in a more substantial, corpus based, study of the same verb, leave open the origins of uses of the kind in (2). We will refrain from a detailed discussion of the latter study, because the conceptual background and analytical categories used in it are thoroughly different from and very hard to compare with our own approach. (The links which the authors assume between their categories and those used in our earlier studies and the present investigation are not adequate.)

## 2. Methodology

### 2.1. Corpus Data

We collected samples of the four modals from three different stages of New Dutch: Early New Dutch (END, 1550-1650), New Dutch (ND, 1750-1850) and Present Day Dutch (PDD, post 1950). For PDD, we made separate samples of written (PDDW) and spoken (PDDS) language. The samples consist of 1000 instances per modal per period. They are smaller for *hoeven* in END and ND, however: these samples include all instances found in the available text materials (see below).

Ideally, we would also have covered the interval periods (1650-1750 and 1850-1950). The present data setup is an attempt to strike a balance between feasibility of the project (even now, our total data set covers 14,646 instances, each of which requires substantial analysis, see Section 2.2) and the aim to get a sufficiently detailed picture of the grammatical evolution of the four modals. On the basis of our earlier studies (cf. Section 1) we could expect that for at least some of the modals in some periods (at least in END) there would be very few autonomous instances in the samples. In order to have sufficient numbers of relevant instances even in these cases, we have given preference to larger samples over full coverage of the time span.

Since there is no ready-made balanced diachronic corpus for Dutch, the samples were drawn from a self-compiled corpus of electronically available materials covering the relevant periods (including a few existing corpora for PDD). Our main sources are: the *Digitale Bibliotheek voor de Nederlandse Letteren*,<sup>4</sup> an online database containing numerous texts of many different genres for all relevant periods (we used all texts for each of the three periods available in the database at the time of consultation, 2016/2017, in total more than 750 different texts); scans of books from the relevant periods (in total nearly 360 titles) available through the Google books project for digitalizing the University of Ghent library;<sup>5</sup> the newspaper parts of the ConDiv corpus (Grondelaers et al., 2000), relevant for PDDW; and the *Corpus Gesproken Nederlands* (Nederlandse Taalunie 2004), as the source for PDDS. The choice of materials and the selection of instances from them was guided by an attempt to be as representative as possible for each period: there is an equal share of data from Northern and Southern Dutch when possible, and we have aimed for a balanced spread in terms of text genres and authors. We have also tried to achieve reasonable comparability in the written data across the different periods. Within those confines, the selection of instances was random.<sup>6</sup>

All analyses were carried out separately by the two authors of this article. Disagreements have been settled through discussion.

For statistical testing we used Fisher Exact. In line with common practice in linguistics, the significance level is set at  $p = .05$ . When we offer significance values for developments across more than two language stages, this always

---

<sup>4</sup> [www.dbnl.org](http://www.dbnl.org)

<sup>5</sup> [lib.ugent.be](http://lib.ugent.be)

<sup>6</sup> The present data differ from those in the earlier studies discussed in Section 1 in the sample size (200 instances in the earlier studies), and in the addition of ND as an extra period. For END and PDD, the materials from which the present samples are drawn include those used in the earlier studies, but are much more elaborate. The sampling method is identical, but we have compiled entirely new samples for the present purpose. If they include instances which were also present in the earlier studies, this is purely accidental.

covers the data for each of the stages involved (e.g., 'the significance of the evolution from END to PDDW' covers, separately, the data for END, ND and PDDW). When we oppose only two stages, we will state this explicitly (e.g., 'the difference between END and PDDW').

In the presentation of the results in Section 3, PDDW and PDDS figure as consecutive 'stages'. This is, however, not meant to imply that the difference between them is similar to that between ND and PDDW, or END and ND. Spoken language tends to be more progressive than written language, hence may to some extent be taken to reflect a further evolution. Still, the distance between PDDW and PDDS is not the same as that between, for instance, ND and PDDW. Moreover, there are many differences between speaking and writing that are not a matter of progression of the language. Hence in the analyses PDDS will be handled as a special category. In statistical assessments, for instance, developments over time will always be measured in two ways, one excluding and one including PDDS, and in comparisons between two stages, PDDS will only be opposed to PDDW, not to the older stages.

In all examples cited in this paper, the relevant modal form is boldfaced. In examples from the corpus, the period/genre is indicated between brackets after the English translation. Parts of the Dutch original crucial for the discussion are rendered literally in the translation, even if this may produce an ungrammatical pattern in English. Such cases are marked by means of '[lit:]' before the translation (as in (1)-(3) above). When necessary, we also provide a well-formed English equivalent. Corpus examples, especially from the *Corpus Gesproken Nederlands* (PDDS), are sometimes simplified, without explicit marking, by omitting pause fillers, repetitions, back channel cues, or irrelevant parts of the utterance.

## **2.2. Analytical Categories**

In this section we introduce the notions figuring centrally in the analyses. Section 2.2.1 defines the types of autonomous uses occurring in the data. Section 2.2.2 distinguishes types of main verbal uses, as one subcategory of the autonomous uses. In Section 2.2.3 we define our concept of a directional.<sup>7</sup>

### 2.2.1. Types of Autonomous Uses

The autonomous uses of the modals come in three different types. The distinguishing factor is whether one can assume an implied main verb or not.<sup>8</sup> They are illustrated in the corpus examples in (4).

---

<sup>7</sup> For the sake of comparability, most illustrations in this section are drawn from the data for *kunnen*, but all categories are also present in the data for the other modals. We do offer examples featuring other modals when they show special characteristics.

<sup>8</sup> The present categories of autonomous uses are identical to those in the earlier studies mentioned in Section 1, but there are some differences in how they figure in the presentation of the results: unlike in the present paper, in the frequency tables in Nuyts (2013) the 'aux V context' and 'aux V implicit' types were merged, and so were the 'old main V' and 'new main V' types; and the category 'doubt' in the tables in Nuyts (2013) is included in the 'aux V implicit' type in the present study (see below).

- (4) a. *Men doet wat men **kan**; men speelt het spel mee voor zover mogelijk.*  
 one does what one can one plays the game along for so far possible  
 'One does what one can [do], one joins playing the game so far as possible.' (PDDW)
- b. *De test onderzocht niet alleen hoe goed de sollicitanten voor logische problemen een oplossing kunnen programmeren, maar ook hoe snel ze dat **kunnen**.*  
 the test investigated not only how well the applicants for logical problems a solution can program but also how fast they that can  
 [lit:] 'The test not only investigated how well applicants manage to program a solution for logical problems, but also how fast they can [do] it.' (PDDW)
- c. *Ik vraag aan Van Agt of ik met hem kan meerijden. Dat **kan**.*  
 I ask to Van Agt if I with him can ride.along that can  
 [lit:] 'I ask Van Agt if I can ride with him. That can [i.e. is possible].' (PDDW)

(i) In the first type (henceforth 'aux V context') the main verb is elided because it is expressed in the immediate context. In (4a) *doen* 'do' is omitted after the modal in the subordinate clause since it is mentioned in the immediately preceding main clause. In this type the modal is clearly an auxiliary.

(ii) In the second type (henceforth 'aux V implicit') a main verb is more or less clearly implied, although it is not contextually given. In (4b) one can imagine the main verb *doen* 'do', although it has not been expressed in the preceding discourse. Hence the modal can still be considered an auxiliary, supporting an elided main verb. Nearly all instances of this kind are special, however, in that making the implied main verb explicit sounds rather unnatural to native speakers, and is not normally done in every day language use. Also note that main verb elision of this kind is not possible in English: the translation in (4b) is unacceptable without the explicit presence of *do*. This is unlike elision of the 'aux V context' type, which is fine in English as well (cf. e.g. Warner, 1993). This, too, suggests that autonomous instances of the present type are qualitatively different from those of the 'aux V context' type.

There are two important delimiting criteria for classifying an instance as 'aux V implicit', however: the addition of the main verb should not change the meaning of the modal, and it should not change the state of affairs expressed in the clause. Consider (5).

- (5) *Wat echter niet **kan** is dat men het onderwijs tot die aanpak verengt.*  
 what however not can is that one the teaching to that approach narrows  
 [lit:] 'What cannot [i.e. is not acceptable], however, is that one narrows down school education to that approach.' (PDDW)

One could add a verb like *gebeuren* 'happen' in this clause, but doing so would inevitably change the meaning from 'it is unacceptable' to 'it is not feasible'. (The latter does not even make sense in the context: narrowing down the focus of

school education is very well feasible, it is even threatening to happen, and that is precisely what the author is reacting to.) Or one could add a verb in the passive voice like *gedaan worden* 'be done' (though this would make the resulting clause sound highly unnatural), maybe even without changing the meaning, but this would introduce an additional, even if implicit, participant in the state of affairs (the subject of the active counterpart). This would be equivalent to adding an active verb plus an explicit subject. Such modifications go beyond the mere ellipsis of a main verb, hence they are not accepted in determining whether an instance qualifies as a member of the category 'aux V implicit'. The latter requires that the instance allows the addition of an active verb without this triggering a change in meaning.

(iii) In the third type (henceforth 'main V'), one cannot imagine an elided main verb at all (without violating the principles just mentioned). This covers instances such as (5), or (4c) in which even a meaning changing or passivized main verb is hardly imaginable. Here the modal itself must be considered the main verb of the clause. Within this category two fundamentally different subtypes can be distinguished, as will be explained in Section 2.2.2.

There are grey areas between these categories in the data. As argued in Nuyts (2013), this may be because they constitute stages on a diachronic cline: the re-autonomization of the modals presumably involves a gradual evolution from regular auxiliary uses via uses involving ellipsis of types (i) and (ii) (in this order) to 'main V' uses (type (iii)). Especially the borderline between 'aux V implicit' and 'main V' is not always sharp: in some instances it is unclear whether one can add a main verb or not (see Nuyts, 2013 for examples and discussion). In order not to complicate the presentation, cases of that type are not listed separately in the tables in Section 3 (unlike in Nuyts, 2013). They receive the benefit of the doubt and are included in the 'aux V implicit' category.

### 2.2.2. Types of 'Main V' Uses

The category of 'main V' uses covers two grammatically distinct types, as illustrated in (6).

- (6) a. *Maar kunnen ze daar een beetje Engels?*  
 but can they there a bit English  
 [lit:] 'But can they [i.e. do they know] some English there?' (PDDS)
- b. *Ik denk dat als je converseert met je kind over wat het ziet dat dat moet kunnen.*  
 I think that if you talk with your child about what  
 it sees that that must can  
 [lit:] 'I think that, if you talk to your child about what (s)he is seeing [blood and sex on TV], that must can [i.e. should be acceptable].' (PDDS)

(i) The type in (6a) concerns the original main verbal use of the modals, from which the auxiliary use emerged sometime in the past (henceforth 'old main V'). This use is transitive in all four verbs. This is attested for *kunnen* and *hoeven*: there are numerous 'old main V' instances in our present data, or in the data in Nuyts (2013) and Nuyts et al. (2018), which also preserve the original meanings 'to know' in *kunnen* (cf. (6a)) and 'to need' in *hoeven*. There are no pure instances of 'old main V' *mogen* and *moeten* in the present data (there is one of *mogen* in the data used in Nuyts (2013) though; and see the 'complications' later



in this section), but their transitivity follows from their original meanings: *mogen* meant 'to have power (over something)', *moeten* probably 'to measure (something)' (see Van Wijk, 1912: 437, 438; De Vries, 1971: 450-451), and both imply an affected entity. In all four verbs, the 'old main V' use typically has a (pro)nominal first argument referring to an animate, usually human, entity (but inanimate, concrete or abstract, entities occur as well, especially in *hoeven*, as illustrated in (11a) below). The second argument is typically a (pro)nominal group referring to a concrete or abstract entity.<sup>9</sup>

(ii) The type in (6b) concerns the main verbal use that emerged after END (henceforth 'new main V'). Here the modal is intransitive, and its single argument refers to a state of affairs. This argument most commonly involves a deictic element such as a demonstrative pronoun referring to a state of affairs mentioned or implied in the discursive context, as in (6b). But it can also involve a nominalization, as in (7a), or a nominal element which signifies a complete state of affairs, as in (7b) ('amateurism' equals 'doing things in an amateuristic way'). Or it can be a full subject clause or a free relative clause expressing a state of affairs, as in (7c).

- (7) a. *Zo doormodderen kan natuurlijk niet.*  
 so muddling.on can of.course not  
 [lit:] 'Muddling on like that obviously cannot [i.e. is not acceptable].'  
 (PDDW)
- b. *Amateurisme kan niet langer, ook niet trouwens in de ogen van*  
 amateurism can not longer also not actually in the eyes of  
*subsidiërende overheden.*  
 funding authorities  
 [lit:] 'Amateurism can no longer [i.e. is no longer acceptable], also not in  
 the eyes of the funding administrations actually.' (PDDW)
- c. *Waarom kon dit keer niet wat voor het eerste dossier tegen*  
 why could this turn not what for the first file against  
*Di Rupo wel kon?*  
 Di Rupo affirmative could  
 [lit:] 'Why could not [i.e. was unacceptable] this time what could [i.e. was  
 acceptable] for the first case against Di Rupo?' (PDDW)

There are complications for both 'main V' types, however. Concerning the 'new main V' pattern, a few intransitive instances in the data deviate from the above characterization in that they feature a nominal argument referring to an animate or inanimate entity, and not to a state of affairs. These only occur in the data for *mogen* (three instances) and *moeten* (five instances), and they are all of the type in (8), featuring the directional adverb *weg* 'away'.<sup>10</sup>

<sup>9</sup> In *mogen* the second argument may have been a prepositional phrase, though, as is suggested by the only 'old main V' instance in the data used in Nuyts (2013), from END: *gheen vianden en moghen teghens dese machtighe stede van ierusalem* [lit:] 'no enemies may against [i.e. can concur] this mighty city of Jerusalem'. This pattern is also attested for the Old English cognate *magan*, as in *ðeos eahsealf mæg wiþ ælces cynnes broc on eagon* 'this eye salve can handle [lit: may with] any kind of annoyance of the eye' (from the *Dictionary of Old English Web Corpus*, [www.doe.utoronto.ca/pages/pub/web-corpus.html](http://www.doe.utoronto.ca/pages/pub/web-corpus.html)).

<sup>10</sup> The absence of this pattern in our data for *kunnen* and *hoeven* may be accidental, though: intuitively, they can take it as well.

- (8) *En dus militair rationeel gezien **mogen** die dingen eigenlijk weg.*  
 and so militarily rational seen may those things actually  
 away  
 [lit:] 'And so from the perspective of military rational these things [nuclear weapons] may actually away [i.e. can be removed].' (PDDS)

This idiomatic combination always means that the referent of the argument may (*mogen*) or has to (*moeten*) disappear. How it should disappear is not relevant, however. In (8), for instance, the question whether the nukes should be destroyed, or be moved to another location, and how, is not important. Our data are inconclusive regarding the origins of this pattern, but a reasonable hypothesis is that it developed from a use in which the modal supports a main verb which does specify the manner of disappearing. There are many instances of that type (with *weg* or other directionals) in the 'aux V implicit' category in our data for all four modals (e.g. (13d) in Section 2.2.3). Therefore we do label this pattern as 'new main V'.

There are also a few complications regarding the 'old main V' pattern as characterized above. A first one concerns instances that correspond to this pattern grammatically (except that the second argument is a [pro]nominal phrase in the cases with *mogen*, cf. Footnote 9), but not semantically. Several instances of *mogen* express the meaning that the referent of the first argument can stand the referent of the second argument, as in (9).

- (9) *Sabrina die **mag** ook bijna niets.*  
 Sabrina she may also nearly nothing  
 [lit:] 'Sabrina may [i.e. eats] hardly anything.' (PDDS)

A few instances of the other modals express modal and related meanings. We assume that these are all cases of the 'old main V' type which have undergone meaning change. Even in instances of the type in (9), it is not hard to imagine how the non-modal meaning could have evolved from the original meaning: if something is within one's power, one can handle it, hence, in some sense, stand it. All 'old main V' instances in our data of *mogen* and *moeten*, and a small portion of them in the data of *kunnen* and *hoeven*, are of this semantically changed type.

Another complication concerns instances in which the second argument does not refer to an (abstract) entity but to a full state of affairs. This occurs occasionally in all modals, except in *mogen*, but that may be an accidental whim of the data set. A typical example is (10).

- (10) *Maar dan moet ge met Excel werken om dat te doen en dat **kan** ik niet.*  
 but then must you with Excel work for that to do and  
 that can I not  
 [lit:] 'But then you have to work with Excel to do that, and that I cannot [i.e. I don't have that ability].' (PDDS)

The deictic pronoun *dat* 'that' refers to 'working with Excel'. There can be little doubt, though, that this type of use is a variant of the 'old main V' pattern (compare (10) with (6a) above), and it will be handled as such in the analyses.

The two remaining complications concern the 'old main V' uses of *hoeven* in particular. Firstly, this verb has (what in a liberal use of the notion may be called) an 'ergative' alternative to the regular pattern characterized in (i) above. The regular pattern is illustrated in (11a), the ergative one in (11b).

- (11) a. *Schoonheydt hoeft gheen schoon cieraet.*  
 beauty needs no beautiful jewelry  
 'Beauty needs no adornments.' (END)
- b. *Daer hoeft groot opmerck, en langhen tijt toe, om vol  
 there need great attention and long time to for full  
 schoon stoffe, en vloeyende te wesen.*  
 beautiful fabric and fluent to be  
 [lit:] 'To that [good lyrics] needs [i.e. it requires] great attention and a  
 long time, in order for it to be aesthetic and fluent.' (END)

In the regular pattern the needer ('beauty' in (11a)) appears as the first argument and what is needed ('adornments') as the second argument. In the ergative pattern it is the other way around: the thing needed is the first argument ('attention' in (11b)), the needer is the second argument ('that', i.e. good lyrics). The needer in the ergative pattern sometimes appears as a prepositional phrase or pronominal adverb, as in (11b) (featuring the split pronominal adverb *daertoe* 'to that'), but even then it must be considered an argument since it cannot be omitted. The ergative variant occurs occasionally in END and ND, but largely disappears in PDD (there is one instance in our PDDW data). The cause for this alternation is to be found in the fact that *behoeven* 'need', the source of *hoeven* (see Section 1), was originally a verb with quirky case assignment, with the needer marked dative, and the thing needed marked genitive (there are remains of this pattern in the Early Middle Dutch data in Nuyts et al., 2018). When Dutch lost its case system, the two variants emerged as alternative adjustments of the valency pattern of *(be)hoeven* to a situation with unmarked, 'regular', subjects and objects (the same happened in many other quirky case marking verbs). Hence both variants belong in the 'old main V' category.

Secondly, transitive *hoeven* sometimes occurs with a first argument referring to a state of affairs, deictically or in a subject clause. This nearly always (and in END and PDD exclusively) involves the idiomatic expression *X hoeft geen betoog/uitleg* 'X needs no argumentation/explanation', with X referring to a supposition. (12) is an example.

- (12) *Het hoeft nauwelijks betoog dat deze grondrechten in dit  
 it needs hardly argumentation that these basic.rights in this  
 calvinistische systeem veelal religieus van nature zijn.*  
 calvinist system mostly religious of nature are  
 'It hardly needs argumentation that these basic rights in this Calvinist  
 system are mostly religious in nature.' (PDDW)

Our data do not reveal how this pattern has emerged. At face value it is of the regular type in (11a), with the needer (the claim) as the first argument and the thing needed ('argumentation') as the second argument. Yet in the ergative pattern the first argument (in that case the thing needed) also sometimes involves reference to a state of affairs. Whether this signals a diachronic relationship with the ergative pattern is an open question. In any case, all

instances of this kind feature the meaning of the original main verb *behoeven* 'need' (which also frequently shows the pattern in (12)), hence we consider them variants of the 'old main V' pattern.

Only the 'new main V' category is relevant for our concern with the re-autonomization process in Dutch, along with 'aux V context' and 'aux V implicit'. Henceforth we will use the label 'new autonomous use' to refer to this narrower set of categories (i.e. at the exclusion of the 'old main V' use).

### 2.2.3. Directionals

We define the notion of a directional in a very broad way. It not only includes expressions of movement towards a specified end point, as in (13a-b), but also, for instance, of movement across a landmark, as in (13c), or away from a starting point, as in (13d) (cf. also (8) in Section 2.2.2), or in an indefinite direction, as in (13e) (the directionals are underlined). It not only includes physical movement, as in (13a) and (13c), but also abstract movement, as in (13b) and (13e) ((13d) is between concrete and abstract). (All examples in (13) are of the 'aux V implicit' type.)

- (13) a. *Misschien **kunnen** we daar zaterdag naartoe.*  
 maybe can we there Saturday to  
 [lit:] 'Maybe we can [go] there on Saturday.' (PDDS)
- b. *Ik **kan** tijdens de blokuren niet op internet.*  
 I can during the block.hours not on internet  
 [lit:] 'I cannot [get] on the internet on block hours [intended: working hours].' (PDDS)
- c. *Ja maar daar **kan** je niet over de snelweg heen.*  
 yes but there can you not across the freeway away  
 [lit:] 'Yes but there you cannot [get] across the freeway.' (PDDS)
- d. ***Kan** je makkelijk een weekendje weg.*  
 can you easily a small.weekend away  
 [lit:] 'You can then easily [go/get] away for a weekend.' (PDDS)
- e. *Dat project is opgehouden om de simpele reden dat we alle limieten van de samenwerking overschreden hadden en men kon gewoon op die basis niet meer verder.*  
 that project is stopped for the simple reason that we all  
 limits of the collaboration surpassed had and one  
 could simply on that basis not more further  
 [lit:] 'That project was terminated for the simple reason that we had surpassed all limits of the collaboration and we simply couldn't [go] any further on that basis.' (PDDS)

It is not always obvious whether one is dealing with a directional, though. For instance, the adverb *verder* 'further' (cf. (13e)) can also express continuative (phasal) aspect in Dutch (as in *doe maar verder* 'continue what you are doing'). That use is not labeled as a directional. Yet the difference between the directional and aspectual use of this adverb is not always clear. In unclear cases (of this or any other type), we have given the instance the benefit of the doubt and considered it a directional.<sup>11</sup>

<sup>11</sup> Honselaar and Olbertz (2016) also include telic adjectives in their analysis (e.g. *dood* 'dead' in *hij moet dood* [lit:] 'he must dead [i.e. he must die]'). They consider these an analogical extension of the category of directionals, which they also assume to be telic in

### 3. Results

#### 3.1. The Re-Autonomization Process Revisited

As mentioned in Section 1, earlier investigations have shown that the re-autonomization process in the Dutch modals started sometime after END, but they did not offer more precise information about its timing. Before we turn to the role of directionals (in Section 3.2), let us first see what our present data tell us about the re-autonomization process as such. Tables 1 to 4 show the frequencies of the different types of uses of the four modals, as defined in Section 2.2. 'Aux' covers the regular auxiliary uses, with a main verb explicit in the clause. The tables indicate the absolute numbers, as well as the share of each category in the full samples. The sample size is indicated in the top row.

	END (n=1000)		ND (n=1000)		PDDW (n=1000)		PDDS (n=1000)	
Old main V	11	1.1%	2	0.2%	5	0.5%	43	4.3%
Aux	971	97.1%	975	97.5%	931	93.1%	801	80.1%
Aux V context	16	1.6%	14	1.4%	9	0.9%	2	0.2%
Aux V implicit	2	0.2%	9	0.9%	29	2.9%	101	10.1%
New main V	0	0.0%	0	0.0%	26	2.6%	53	5.3%
Total new autonom.	18	1.8%	23	2.3%	64	6.4%	156	15.6%

Table1: Frequency of types of uses of *kunnen*

	END (n=1000)		ND (n=1000)		PDDW (n=1000)		PDDS (n=1000)	
Old main V	1	0.1%	1	0.1%	2	0.2%	6	0.6%
Aux	990	99.0%	992	99.2%	962	96.2%	770	77.0%
Aux V context	4	0.4%	1	0.1%	0	0.0%	1	0.1%
Aux V implicit	5	0.5%	6	0.6%	20	2.0%	131	13.1%
New main V	0	0.0%	0	0.0%	16	1.6%	92	9.2%
Total new autonom.	9	0.9%	7	0.7%	36	3.6%	224	22.4%

Table 2: Frequency of types of uses of *mogen*

	END (n=1000)		ND (n=1000)		PDDW (n=1000)		PDDS (n=1000)	
Old main V	0	0.0%	1	0.1%	0	0.0%	3	0.3%
Aux	984	98.4%	992	99.2%	965	96.5%	888	88.8%
Aux V context	1	0.1%	0	0.0%	0	0.0%	1	0.1%
Aux V implicit	14	1.4%	7	0.7%	29	2.9%	98	9.8%
New main V	1	0.1%	0	0.0%	6	0.6%	10	1.0%
Total new autonom.	16	1.6%	7	0.7%	35	3.5%	109	10.9%

Table 3: Frequency of types of uses of *moeten*

	END (n=323)		ND (n=323)		PDDW (n=1000)		PDDS (n=1000)	
Old main V	76	23.5%	38	11.8%	28	2.8%	23	2.3%
Aux	243	75.2%	258	79.9%	891	89.1%	696	69.6%
Aux V context	1	0.3%	0	0.0%	0	0.0%	0	0.0%
Aux V implicit	1	0.3%	1	0.3%	46	4.6%	135	13.5%
New main V	2	0.6%	26	8.0%	35	3.5%	146	14.6%
Total new autonom.	4	1.2%	27	8.4%	81	8.1%	281	28.1%

Table 4: Frequency of types of uses of *hoeven*

These figures confirm that through time there is a clear increase in the new

most cases. There are very few telic adjectives in the new autonomous uses in our data, however (none in *kunnen*, one in *mogen*, four in *moeten*, and five in *hoeven*, across all periods). Even apart from that, since directionals are not necessarily telic ((13d-e), and maybe even (13c), for example, are not, and instances of this kind are quite numerous in our data), the relevance of telic adjectives for the discussion is disputable. Therefore we have not covered them in this study.

autonomous uses in all four modals: the overall development for the total number of new autonomous uses vs the 'old main V' and 'aux' uses together is highly significant in all of them ( $p = .000$ , both with and without PDDS). The situation in *hoeven* differs substantially from that in the other three modals, however.

In *kunnen*, *mogen*, and *moeten*, the upsurge of the new autonomous uses is very recent: in all three, it is situated after ND. In line with our assumption that the 'aux V context' and 'aux V implicit' uses are a lead way to the 'new main V' use (see Section 2.2.1), they are already present in END and ND, even if in small numbers (though they are somewhat less small in *kunnen* in ND, see below). The 'new main V' use only emerges in PDD, along with a considerable increase of the 'aux V implicit' use. (The single exception, the 'new main V' instance in *moeten* in END, is of the special type in (8) in Section 2.2.2.)<sup>12</sup> The data also show, even more convincingly than in the earlier studies, that the phenomenon is not confined to the spoken language, but is present in the written language as well. As in the earlier studies, new autonomous uses are significantly more frequent in PDDS than in PDDW in all three modals ( $p = .000$  in each). The difference between END and PDDW, however, was only significant in *kunnen*, not in *mogen* and *moeten*, in the data in Nuyts (2013). (ND was not considered there.) In the present study the difference between ND and PDDW is highly significant in all three modals ( $p = .000$  in each; the difference between END and ND is not significant in any of them).<sup>13</sup> As argued in Nuyts (2013), it is unlikely that the 'new main V' and 'aux V implicit' uses result from casual or sloppy language use, and for that reason are more frequent in spoken language. An utterance with a modal in which no other main verb is possible, or in which a main verb is possible but making it explicit is intuitively dispreferred by native speakers (cf. Section 2.2.1), can hardly be the result of a strive to minimize effort in speaking, for instance. The higher frequency of these uses in PDDS may rather be related to the more progressive nature of spoken language, and may signal the direction in which these forms are evolving.

The three modals differ, however, in terms of the frequency of the new autonomous uses. There are no significant differences in END. But in ND and PDDW *kunnen* has significantly more such uses than the other two ( $p = .005$  for *kunnen* vs *mogen* in ND and PDDW and *kunnen* vs *moeten* in ND,  $p = .004$  for *kunnen* vs *moeten* in PDDW; there is no significant difference between *mogen* and *moeten* in these periods). In PDDS there are substantial differences between all three verbs, with the highest frequency in *mogen* and the lowest in *moeten* (*kunnen* vs *mogen* and *mogen* vs *moeten* both  $p = .000$ , *kunnen* vs *moeten*  $p = .002$ ).

*Hoeven*, as a much more recent modal (see Section 1), still has a very high

---

<sup>12</sup> There is a remarkable increase of 'old main V' uses of *kunnen* in PDDS. This mainly involves a range of fixed expressions featuring this modal in combination with a prepositional phrase, such as *tegen iets kunnen* [lit:] 'can against something [i.e. be able to withstand something]', *de pot op kunnen* [lit:] 'can on the pot [i.e. go to hell]', or *niet zonder iets kunnen* [lit:] 'cannot without something [i.e. require something]'. Since the prepositional phrase cannot be omitted, it must be considered the second argument. Otherwise this kind of use is grammatically identical to the 'old main V' use, so we have no reason not to classify it as such. Why instances of this type are so frequent in PDDS but not in PDDW or the earlier stages, and how they have emerged, is an open issue.

<sup>13</sup> The relative frequencies of the different categories in the present study are very comparable to those in the earlier studies, but the differences in statistical significance are due to the sample size (200 in the earlier studies, 1000 here).

share of 'old main V' uses in END, but they decrease drastically towards PDD. Yet this modal also develops new autonomous uses right from its inception in END, even if in minimal numbers. Their frequency increases very significantly towards ND ( $p = .000$ ), though, a time slot earlier than in the other modals (the difference with each of the latter three in ND is highly significant,  $p = .000$ ). Also in PDDW, at the time of the upsurge in the other modals, *hoeven* has the highest number of new autonomous uses (though the difference with *kunnen* is not significant; the difference with *mogen* and *moeten*, however, is very significant,  $p = .000$ ). What is also remarkable is that the rise of autonomous uses in *hoeven* in ND is nearly exclusively a matter of the 'new main V' type. In PDDW this use decreases again, but the 'aux V implicit' type compensates for the loss. Hence the total number of new autonomous uses does not differ significantly between ND and PDDW. Finally, *hoeven* shares with the other modals that the new autonomous uses are significantly more frequent in PDDS than in PDDW ( $p = .000$ ). It even has by far the highest number of these uses across the four verbs in PDDS (the difference with *mogen* is significant at  $p = .004$ , with *kunnen* and *moeten* at  $p = .000$ ).

In sum, *hoeven*, in spite of being the junior member of the team, was the first to launch on the re-autonomization path, and it is most radical in pursuing it. *Kunnen* follows rather closely, while *mogen* is much slower in joining but does peak in PDDS. *Moeten*, however, participates only hesitantly in the trend, even in PDDS.<sup>14</sup> These observations might be taken to suggest that *hoeven* plays a leading role in this process, and that the other modals follow its example by analogy. That would be a remarkable scenario, however, in view of the very low frequency of *hoeven* in the language as compared to the three other modals. In the lemmatized *Corpus Gesproken Nederlands* (which counts approx. 9 million words), for instance, the incidence of *hoeven* is only 3.39 per 10,000 words, as compared to 61.10 for *kunnen*, 58.55 for *moeten*, and 10.56 for *mogen*. We have no frequency information for the other stages in the present investigation, but it is significant that for END and ND we have not even remotely managed to collect full samples for *hoeven* (cf. Table 4), whereas this was no problem for the other three modals. Hence we should be careful not to jump to quick conclusions about the role of *hoeven* in the process.

### **3.2. Directionals in the Re-Autonomization Process**

Let us now turn to our central issue: the role of directionals in the re-autonomization process. Section 3.2.1 presents the facts regarding the frequency of directionals in the data, showing that they are manifestly present in the re-

---

<sup>14</sup> A key element to explain why the re-autonomization process is strongest in *hoeven* and weakest in *moeten* might be negation. There is, to some extent, a division of labor between these verbs in terms of negation. As indicated in Section 1, *hoeven* is a negative polarity item (it occurs in negative contexts in 80% of the instances in END and in 100% in PDD; see also Nuyts et al., 2018). *Moeten*, on the other hand, occurs less often in negative contexts than *kunnen* and *mogen* (no doubt because *hoeven* occupies the 'negative space'). (There are some differences in this respect between Northern and Southern Dutch, though, see Diepeveen et al., 2006.) Negation appears to play some role in the re-autonomization process in general: on average, the share of negative instances is slightly higher in the 'new main V' uses than overall in *kunnen*, *mogen* and *moeten*. The correlation with the difference in intensity of the process in *hoeven* and *moeten* is obvious. The role of negation in the re-autonomization process is highly complex, however, and requires a paper on its own. It does not affect the present analysis of the role of directionals in the process, though.

autonomization process, even if to varying degrees in the different modals. In Section 3.2.2, we argue why they can nevertheless not be considered the key element to explain the process.

### 3.2.1. The Role of Directionals

Tables 5 to 8 show the frequency of instances with a directional in the clause in the different kinds of uses of the four modals. They offer the absolute numbers, as well as their share among all instances of the relevant usage type in our data. For all autonomous uses (old and new), this concerns the full set of instances of each type as mentioned in Tables 1-4. The set size is repeated in the present Tables, after the slash in the columns with the absolute frequencies. For the 'aux' uses, the frequency data are based on subsamples of 200 instances selected randomly from the full set of cases of this type, as also indicated in the tables.

	END		ND		PDDW		PDDS	
Old Main V	0/11	0.0%	0/2	0.0%	0/5	0.0%	2/43	4.7%
Aux	12/200	6.0%	9/200	4.5%	12/200	6.0%	10/200	5.0%
Aux V context	1/16	6.3%	1/14	7.1%	0/9	0.0%	0/2	0.0%
Aux V implicit	0/2	0.0%	3/9	33.3%	8/29	27.6%	24/101	23.8%
New Main V	0/0	0.0%	0/0	0.0%	0/26	0.0%	0/53	0.0%
Total new autonom.	1/18	5.6%	4/23	17.4%	8/64	12.5%	24/156	15.4%

Table 5: Frequency of directionals in types of uses of *kunnen*

	END		ND		PDDW		PDDS	
Old Main V	0/1	0.0%	0/1	0.0%	0/2	0.0%	0/6	0.0%
Aux	20/200	10.0%	6/200	3.0%	11/200	5.5%	7/200	3.5%
Aux V context	0/4	0.0%	0/1	0.0%	0/0	0.0%	0/1	0.0%
Aux V implicit	3/5	60.0%	1/6	16.7%	14/20	70.0%	51/131	38.9%
New Main V	0/0	0.0%	0/0	0.0%	0/16	0.0%	3/92	3.3%
Total new autonom.	3/9	33.3%	1/7	14.3%	14/36	38.9%	54/224	24.1%

Table 6: Frequency of directionals in types of uses of *mogen*

	END		ND		PDDW		PDDS	
Old Main V	0/0	0.0%	0/1	0.0%	0/0	0.0%	0/3	0.0%
Aux	12/200	6.0%	7/200	3.5%	7/200	3.5%	10/200	5.0%
Aux V context	0/1	0.0%	0/0	0.0%	0/0	0.0%	0/1	0.0%
Aux V implicit	14/14	100%	4/7	57.1%	17/29	58.6%	61/98	62.2%
New Main V	1/1	100%	0/0	0.0%	0/6	0.0%	4/10	40.0%
Total new autonom.	15/16	93.8%	4/7	57.1%	17/35	48.6%	65/109	59.6%

Table 7: Frequency of directionals in types of uses of *moeten*

	END		ND		PDDW		PDDS	
Old Main V	0/76	0.0%	0/38	0.0%	0/28	0.0%	0/23	0.0%
Aux	8/200	4.0%	12/200	6.0%	7/200	3.5%	10/200	5.0%
Aux V context	0/1	0.0%	0/0	0.0%	0/0	0.0%	0/0	0.0%
Aux V implicit	1/1	100%	0/1	0.0%	23/46	50.0%	35/135	25.9%
New Main V	0/2	0.0%	0/26	0.0%	0/35	0.0%	0/146	0.0%
Total new autonom.	1/4	25.0%	0/27	0.0%	23/81	28.4%	35/281	12.5%

Table 8: Frequency of directionals in types of uses of *hoeven*

The situation in the usage types not at stake in the re-autonomization process is fairly simple. In the 'old main V' uses directionals are more or less absent in all time slots/genres (they are only marginally present in *kunnen* in PDDS, without statistical significance; both instances are of the special type described in Footnote 12). This is not surprising since these main verbal predecessors of the modals do not involve movement. In the 'aux' uses, in which the main verb may or may not involve movement, the incidence of directionals is overall very low (roughly around 5%). The number fluctuates somewhat through time in *kunnen*, *moeten* and *hoeven*, but these evolutions are not statistically significant (no matter whether one includes PDDS or not). In *mogen* the overall evolution is



significant ( $p = .01$ , both with and without PDDS), and that is due to the somewhat higher frequency of directionals in END (only END vs ND is significant,  $p = .007$ ; ND vs PDDW and PDDW vs PDDS are not). The share of directionals in the 'aux' uses is moreover more or less equal in all four verbs. None of the differences between any two modals in any of the periods/genres is statistically significant, except for *mogen* vs *hoeven* in END ( $p = .03$ ; an effect of the higher incidence of directionals in *mogen* in END). In a comparison of all four modals jointly, even the latter effect disappears: the variation within the full set of verbs is not significant in any of the time slots/genres, not even in END. We have no information regarding the incidence of directionals in language use in general, but there is no reason to assume that it is abnormal in the 'aux' uses of these four modals.

In the new autonomous uses, however, the situation is very different, and much more complex. In absolute numbers the frequency of instances with a directional increases substantially in PDD in all four verbs, along with the general increase of new autonomous uses. But in terms of the share of directionals in the set of new autonomous uses in particular, we see another picture. In spite of some fluctuations (observed in fairly small numbers of instances in the older stages, though), the frequency of the directionals remains more or less constant through time in *kunnen* and *mogen*. The global evolution for all new autonomous uses together is not significant in these two verbs, no matter whether one includes PDDS or not. In *moeten*, however, the situation is unclear. The overall evolution is significant ( $p = .01$  if PDDS is included,  $p = .005$  if it is not), and this would mean a decrease in the share of the directionals. Yet there is no significant difference between any two successive slots (not even between END and ND, although the drop there would seem to be the cause for the significance of the overall evolution). In *hoeven* the overall evolution is significant as well ( $p = .000$  if PDDS is included,  $p = .002$  if it is not), but it involves fluctuation. The difference between END and ND is not significant, but the increase of directionals from ND to PDDW is very much so ( $p = .001$ ), as is their lower frequency in PDDS as compared to PDDW ( $p = .001$ ). How to explain this complex set of observations is not obvious.

Another relevant observation is that in all four modals directionals nearly exclusively occur in 'aux V implicit' uses, hence their incidence in this usage type separately is slightly higher than in the total set of new autonomous uses. With rare exceptions, they are absent in instances of the 'aux V context' and 'new main V' types. The few 'new main V' cases in *mogen* and *moeten* are moreover exclusively of the special type in (8) in Section 2.2.2.

There are considerable differences between the four modals, however, in how frequent directionals are in the new autonomous uses, hence in how much their share differs from that in the 'old main V' and 'aux' uses. They are relatively more frequent in the new autonomous contexts in all four modals. But in *kunnen* this is only moderately so, and the share of directionals in these uses never reaches 20%. The difference with the 'old main V' and 'aux' uses together is only significant in ND ( $p = .03$ ) and PDDS ( $p = .001$ ). It is not in END and PDDW. In *hoeven* and *mogen* the differences appear somewhat larger, but even so directionals in new autonomous contexts never reach 30% in *hoeven* and 40% in *mogen*. Moreover, in both verbs, the difference with the 'old main V' and 'aux' uses together is only significant in PDD ( $p = .002$  in *hoeven* in PDDS,  $p = .000$  in *hoeven* in PDDW and in *mogen* in PDDW and PDDS). It is not in END and ND. *Moeten* is the only verb in which the share of directionals in the new autonomous uses is convincingly higher across the board: it ranges from just below 50% to

over 90%, and the difference with the 'old main V' and 'aux' uses together is highly significant ( $p = .000$ ) in all periods.

These observations show that there is some connection between directionals and new autonomous uses in the modals, even if the extent to which this is the case differs considerably between the individual verbs. This finding should not come as a surprise, since it corresponds to the situation in other Germanic languages.

### 3.2.2. Limits to the Role of Directionals

Several elements in our data indicate, however, that the directionals are not the decisive factor in causing the general re-autonomization trend in the Dutch modals (*pace* Olbertz and Honselaar, 2017). Part of the evidence emerges from a more careful look at the frequency facts presented in the preceding section. Another part comes from a further analysis of the role of directionals in the 'new main V' instances and in their auxiliary ancestors.

Let's first turn to the frequency facts again. If one only considers *moeten* (as Olbertz and Honselaar did), in view of the high share of directionals in its new autonomous uses it may seem plausible that there has been a generalization, through analogy, from autonomous instances with to ones without a directional. Even from this narrow perspective, this assumption is jeopardized by the fact that the share of autonomous uses with directionals is very small if considered in the context of the full range of uses of *moeten*. In END, for instance, they comprise only 1.5% (cf. Table 7: 15 instances) of the full set of 1000 instances. Or in PDDW, when the upsurge of new autonomous uses happens, they only constitute 1.7%. One may wonder whether that is enough to trigger an analogy effect in this verb.

The analogy argument can, however, not be extended straightforwardly to the other modals, since the share of directionals in their new autonomous uses is much lower, and only in part significantly higher than in the 'aux' and 'old main V' uses. Moreover, while in *mogen* the stages in which the frequency is significantly higher correspond to those witnessing the upsurge of new autonomous uses (PDDW and PDDS, cf. Tables 2 and 6), this is not really the case in *kunnen* and *hoeven*. In *kunnen* (cf. Tables 1 and 5) the significantly higher incidence of directionals in ND is matched by a slightly more prominent role of the new autonomous uses in that period, but without this involving a real breakthrough. The real upsurge of the new autonomous uses happens in PDDW, but in that period these uses do not show a significantly higher share of directionals than the other usage types. In *hoeven* (cf. Tables 4 and 8) the breakthrough of new autonomous uses happens in ND, but again the directionals are not significantly more prominent in these uses in that period. This makes analogy even less obvious as a cause for the developments in these verbs.

Moreover, one can hardly consider the process in these other modals to be a spill-over from the developments in *moeten*. *Moeten* features a much smaller number of new autonomous uses than the other modals in PDD, and *hoeven* and *kunnen* start to re-autonomize earlier in time. Hence *moeten* is not leading in the re-autonomization process. It is only a backbencher which reluctantly follows the other modals. That is not really compatible with the assumption that the directionals in that verb would be the cause for the process in the entire modal system.

An even more important argument against the assumption that directionals are the trigger for the entire re-autonomization process emerges if we take a closer look at their presence in the subtypes of new autonomous uses, and

particularly in the 'new main V' uses and what may be assumed to be their auxiliary precursors. As observed in Section 3.2.1, directionals are more or less confined to new autonomous uses of the 'aux V implicit' type. In nearly all instances featuring a directional one can fairly easily imagine a main verb expressing movement, most often the verb *gaan* 'to go' or close equivalents, which brings along the directional. (The examples of main verb omission in the context of directionals in other Germanic languages, as in (3) in Section 1, are also more or less always of this kind.) There are only very few directionals in the 'new main V' category, and all instances featuring one are moreover of a special type (cf. (8) in Section 2.2.2). Yet 'new main V' is the end stage of the re-autonomization process.

This observation is further strengthened if we consider the presence of directionals in auxiliary instances of the 'aux', 'aux V context', and 'aux V implicit' types that may be considered to be the precursors of the 'new main V' uses. In view of the valency pattern of the 'new main V' type (cf. Section 2.2.2) we may assume that it has mainly emerged from auxiliary uses with a first argument referring to a state of affairs (this is except for the small set of instances of the type in (8) in Section 2.2.2). Tables 9-11 show the frequency of instances of this type in respectively the 'aux', 'aux V context', and 'aux V implicit' categories. The tables offer their absolute numbers, as well as their share, in Tables 10 and 11 in the total number of 'aux V context/implicit' instances per slot, as indicated after the slash (cf. Tables 1-4), and in Table 9 in the subsamples of 200 'aux' instances per slot used for the directionals in Tables 5-8.

	END		ND		PDDW		PDDS	
<i>Kunnen</i>	3/200	1.5%	3/200	1.5%	5/200	2.5%	5/200	2.5%
<i>Mogen</i>	5/200	2.5%	2/200	1.0%	3/200	1.5%	5/200	2.5%
<i>Moeten</i>	2/200	1.0%	4/200	2.0%	4/200	2.0%	4/200	2.0%
<i>Hoeven</i>	1/200	0.5%	2/200	1.0%	15/200	7.5%	11/200	5.5%

Table 9: Frequency of 'aux' instances with a first argument referring to a state of affairs

	END		ND		PDDW		PDDS	
<i>Kunnen</i>	0/16	0.0%	0/14	0.0%	2/9	22.2%	0/2	0.0%
<i>Mogen</i>	0/4	0.0%	0/1	0.0%	0/0	0.0%	0/1	0.0%
<i>Moeten</i>	1/1	100%	0/0	0.0%	0/0	0.0%	0/1	0.0%
<i>Hoeven</i>	0/1	0.0%	0/0	0.0%	0/0	0.0%	0/0	0.0%

Table 10: Frequency of 'aux V context' instances with a first argument referring to a state of affairs

	END		ND		PDDW		PDDS	
<i>Kunnen</i>	0/2	0.0%	2/9	22.2%	11/29	37.9%	36/101	35.6%
<i>Mogen</i>	1/5	20.0%	1/6	16.7%	3/20	15.0%	8/131	6.1%
<i>Moeten</i>	0/14	0.0%	1/7	14.3%	9/29	31.0%	12/98	12.2%
<i>Hoeven</i>	0/1	0.0%	0/1	0.0%	21/46	45.7%	48/135	35.6%

Table 11: Frequency of 'aux V implicit' instances with a first argument referring to a state of affairs

These figures cover transitive as well as intransitive instances, but the large majority is intransitive, a fact which is in line with the assumption that cases of this type are the source for the 'new main V' use (which is also intransitive). (For all four modals in all stages together, only seven 'aux' and one 'aux V implicit' instances feature a transitive verb.) Also in line with this assumption is the fact that from ND onwards instances with a first argument referring to a state of affairs are considerably more frequent in the 'aux V implicit' type, the presumed transitory stage towards the 'new main V' type, than in the 'aux' and 'aux V context' types. The difference between the three auxiliary types, for all modal verbs together, is not significant in END, but it is in ND ( $p = .001$ ) and in PDDW and PDDS ( $p = .000$  in both). The difference is especially clear in PDD, when the upsurge of the new autonomous uses happens (at least in *kunnen*, *mogen* and

*moeten*; in *hoeven* the link is less perfect, since the upsurge of new autonomous uses in that verb already starts in ND). (We return to the issue of the emergence of the 'new main V' pattern in Section 4.)

As for the presence of directionals in the precursors of the 'new main V' use, then, it is significant that there is not a single instance, in any of the periods in any of the four modals, featuring one. All auxiliary instances, of all types, containing a directional in our data have a (pro)nominal first argument referring to an entity, nearly always an animate/human being. So directionals are not only absent in the 'new main V' uses proper (the special type in (8) aside), but also in all auxiliary uses constituting the direct developmental path towards them.

All these elements together indicate that, even if directionals do play a role in triggering certain types of autonomous uses, they are not the determining factor causing the re-autonomization process in the Dutch modals.

#### **4. Degrammaticalization?**

The question remains whether the re-autonomization process in the Dutch modals is a case of degrammaticalization. Olbertz and Honselaar (2017) argue that it is not, because, in their view, the process is entirely due to autonomous uses featuring a directional. Autonomous uses in the absence of a directional would have emerged as a generalization from (i.e. in analogy with) instances with a directional. Section 3.2 has shown that this assumption is disputable. Even if it were plausible, this would not change the fact that the process involves degrammaticalization. As argued before (Nuyts, 2013; Byloo and Nuyts, 2014; Nuyts and Byloo, 2015; Nuyts et al., 2018), analogy does play a central role in the evolution of the modals, not only structurally but also semantically, even if in other ways than in the directionals hypothesis. Yet analogy and (de)grammaticalization are not mutually exclusive. On the contrary, analogy is a factor steering (de)grammaticalization, in the sense that it co-determines when, how, and how fast the process sets in or evolves (see also Fischer, 2007).

The re-autonomization process in the Dutch modals must be considered a case of degrammaticalization because the available evidence indicates that it involves an evolution starting from a regular auxiliary use and ending in a main verbal use. The 'new main V' use is grammatically too different from the 'old main V' use to be considered a continuation of the latter (in which case we would be dealing with retraction, not degrammaticalization; cf. Haspelmath, 2004; Norde, 2009). As argued in Section 3.2, a far more plausible hypothesis is that the 'new main V' pattern has evolved, along the steps sketched in Section 2.2.1, from regular auxiliary uses featuring a first argument referring to a full state of affairs via 'aux V implicit' uses of that kind.

The evolutions leading up to this process are in line with a normal grammaticalization scenario, combined with an (inter)subjectification process (Hopper and Traugott, 2003; Traugott and Dasher, 2002). Auxiliary uses with a first argument referring to a state of affairs have become possible due to the semantic change towards more (inter)subjective meanings (in Traugott and Dasher's, 2002 sense), such as deontic and epistemic modality, in all these modals (see Nuyts, 2016 on the definition of these semantic categories). The original meanings of these verbs, as well as their oldest dynamic modal meanings, ability/possibility or need/necessity, pertain to the first argument participant in the clause. For instance, in dynamic modal *John can walk* the speaker ascribes an ability to the first argument 'John'. Due to the nature of these meanings, this first argument participant is typically agentive. Meanings

such as deontic and epistemic modality, however, involve a loss of the tie with the first argument: they pertain to the state of affairs in the clause as a whole. In *the book might be on the kitchen table*, for example, the epistemic modal expresses the degree of likelihood of ‘the book being on the kitchen table’, and there is no link with ‘the book’ in particular. As a result of this widening of the scope, the restrictions on the nature of the first argument participant disappear, and other types become possible, including ones referring to states of affairs.

In line with this, in the data of *kunnen*, *mogen* and *moeten* used in Byloo and Nuyts (2014) and Nuyts and Byloo (2015), auxiliary uses with the first argument referring to a state of affairs are already present in Early Middle Dutch, at the time when the developments towards (inter)subjective meanings are on their way in *kunnen* and well advanced in *mogen* and *moeten*. They first emerge in END in the data of *(be)hoeven* used in Nuyts et al. (2018), at the moment when the (inter)subjectification process sets in in this verb.

The further developments are not in line with a normal grammaticalization scenario, however. In the Early Middle Dutch samples of *kunnen*, *mogen* and *moeten* in the earlier investigations, all instances with a first argument referring to a state of affairs, without exception, feature an explicit main verb in the clause. Yet, as is confirmed by our present data (see Tables 9-11), this use starts to lose the explicit main verb, still reluctantly in END, and increasingly in ND and PDD. (The picture in *hoeven* is much more complex due to the very rapid changes from the ‘old main V’ to the auxiliary use, and from the latter to the ‘new main V’ use, which both started in END.)<sup>15</sup>

There may be an explanation for this evolution, though. As argued in Nuyts (2014), its motivation may have been iconicity: the result is a pattern in which the semantic scope relationship between the modal meaning and the affected state of affairs is rendered directly in linguistic structure. The evolution has moreover been made possible by the fact that in the resulting pattern there still is an affected main verb, either directly, as the main verb of the subordinate clause, or indirectly, as the verb expressing the event referred to in a deictic first argument – compare (14a) with (14b) and (14c). But the affected verb is now situated at an embedded level, subordinate to rather than grammatically heading/controlling the modal (i.e. iconicity).

- (14) a. *Jan zou verhuisd kunnen zijn.*  
 John would moved can be  
 ‘John might have moved.’

---

<sup>15</sup> One might wonder whether the ‘new main V’ use in *hoeven* could have its origins in the ergative version of the ‘old main V’ use, which also occasionally features a first argument referring to a state of affairs (cf. Section 2.2.2). If so, the evolution in that verb would involve retraction, since through history its ergative pattern only occurs in ‘main V’ uses. The only change would have been the loss of the second argument. This analysis raises a few caveats, however. Firstly, ergative instances of *hoeven* are infrequent, and instances with a first argument referring to a state of affairs are a minority among them. Secondly, the ergative pattern does not exist in the other three modals. Hence in this scenario one would have to assume, not only that a very small number of cases has ‘infected’ other uses in *hoeven*, but also that their effect has spread from this very infrequent verb to the other, much more frequent, modals (see Section 3.1). This would seem far less likely than the scenario sketched in the previous and present section. Also, even if this was the scenario, the evolution in the other modals would still start from regular auxiliary uses, hence would not be a matter of retraction.

- b. *Het zou kunnen dat Jan verhuisd is.*  
 it would can that John moved is  
 [lit:] 'It might that John has moved.'
- c. *Dat zou kunnen.*  
 that would can  
 [lit:] 'That [i.e. John has moved] might.'

The re-autonomization process does not match any of the types of degrammaticalization proposed by Norde (2009). As discussed in Nuyts (2013), the structural evolution corresponds to what Norde (2009) calls 'degrammation'. Yet the process deviates from the latter in that it does not involve a return to a 'lexical' meaning: as shown in Nuyts (2013), the new autonomous uses have (inter)subjective meanings. One might conclude that we are dealing with an additional type of degrammaticalization, beyond Norde's list. The question is, however, whether it is appropriate to impose a semantic criterion on the definition of types of degrammaticalization. Grammaticalization is a process of structural evolution, (inter)subjectification one of semantic evolution, and there is increasing evidence that the two, even if often coinciding, are not inherently linked, but may occur separately (see e.g. Traugott, 2010). If so, the notion of degrammaticalization should be defined in purely structural terms as well, without invoking a semantic requirement.

In any case, as concerns the structural evolution, if the process in the Dutch modals may not be called a case of degrammaticalization, then the notion of (unidirectionality in) grammaticalization loses scientific value since it becomes irrefutable (see also e.g. Lass, 2000, or several contributions in Campbell (2001) for much earlier warnings in this regard).

## 5. Conclusion

In sum, our data show that directionals undeniably play a role in the autonomous uses of the modals in Dutch (as in many other Germanic languages), but also that they cannot be held responsible for the re-autonomization trend in these verbs in PDD. The picture emerging from the investigation is that there are at least two lines of evolution in this process. One line involves an increase in 'aux V implicit' uses with a directional. The other line involves the development of 'new main V' uses from auxiliary uses with a first argument referring to a state of affairs, via the intermediary stage of 'aux V implicit' uses of this type, which also increase in frequency.<sup>16</sup> These two evolutions appear to happen separately. It cannot be excluded that one influences the other: progress in one may stimulate progress in the other, through analogy. If so, it is not unlikely, in view of the discussion in Section 3.2, that the direction of the analogical causation is from the uses with a first argument referring to a state of affairs to those with a directional, rather than vice versa. For we can account for how the autonomization of the uses with a first argument referring to a state of affairs may have happened without invoking analogy, but we see no explanation for the

---

<sup>16</sup> There is a third line, which has not been analyzed in this paper: there is also an increase in PDD of 'aux V implicit' uses which lack a directional and of which the first argument does not refer to a state of affairs. If one combines the frequency information in Tables 5-8 and in Table 11, one can see that this concerns only a small number of instances in *moeten*, but a very large number of them in *kunnen*, *mogen* and *hoeven*. How this developmental line relates to the two others is an open issue.

increase in frequency in the directional 'aux V implicit' cases without it.

One question this paper has not addressed is why directionals do play a role in triggering autonomous uses of the type involving main verb elision, not only in Dutch, but in the Germanic languages in general, and why there are such considerable differences in this process, between the different modals, and between the Germanic languages. We currently have no answer. Another question left unanswered is why the developments in the uses with a first argument referring to a state of affairs did occur in Dutch but not in other Germanic languages. We have offered an account of the why and how of the process. Yet the same evolution, on the basis of the same mechanisms, could have happened in other languages as well. We have no idea (yet) where to look for a solution to this puzzle.

## References

- Brandt, S. 1999. *Modal Verbs in Danish*. Copenhagen: Reitzel.
- Byloo, P. and J. Nuyts. 2014. Meaning change in the Dutch core modals. *Acta Linguistica Hafniensia* 46: 85-116.
- Campbell, L. (ed.). 2001. *Grammaticalization*. *Language Sciences* 23, special issue 2-3, 93-340.
- Diepeveen, J., R. Boogaart, J. Brantjes, P. Byloo, T. Janssen and J. Nuyts. 2006. *Modale Uitdrukkingen in Belgisch-Nederlands en Nederlands-Nederlands*. Münster: Nodus.
- Duinhoven, A. M. 1997. *Middel nederlandse Syntaxis Synchron en Diachron*, Vol. 2. Groningen: Nijhoff.
- Faarlund, J., S. Lie and K. I. Vannebo. 1997. *Norsk Referansegrammatikk*. Oslo: Universitetsforlaget.
- Fischer, O. 2007. *Morpho-Syntactic Change*. Oxford: Oxford University Press.
- Grondelaers, S., K. Deygers, H. van Aken, V. van den Heede and D. Speelman. 2000. Het ConDiv-corpus geschreven Nederlands. *Nederlandse Taalkunde* 5: 356-363.
- Hansen, E. 1972. Modal interessens. *Danske Studier* 1972: 5-36.
- Hansen, E. and L. Heltoft. 2011. *Grammatik over det Danske Sprog*. Copenhagen: Det Danske Sprog- og Litteraturselskab.
- Haspelmath, M. 2004. On directionality in language change with particular reference to grammaticalization. In O. Fischer, M. Norde and H. Perridon (eds.), *Up and Down the Cline – The Nature of Grammaticalization*, 17-44. Amsterdam: Benjamins.
- Honselaar, W. and H. Olbertz. 2016. The use of Dutch *moeten* without an infinitive. In A. Bannink and W. Honselaar (eds.), *From Variation to Iconicity*, 185-201. Amsterdam: Pegasus.
- Hopper, P. and E. Traugott. 2003. *Grammaticalization*. Cambridge: Cambridge University Press.
- Lass, R. 2000. Remarks on (uni)directionality. In O. Fischer, A. Rosenbach and D. Stein (eds.), *Pathways of Change*, 207-227. Amsterdam: Benjamins.
- Mitchell, B. 1985. *Old English Syntax*, Vol. 1. Oxford: Oxford University Press.
- Mortelmans, T., K. Boye and J. van der Auwera. 2009. Modals in the Germanic languages. In B. Hansen and F. de Haan (eds.), *Modals in the Languages of Europe*, 11-69. Berlin: Mouton de Gruyter.
- Nederlandse Taalunie. 2004. *Corpus Gesproken Nederlands*, Version 2.0. Leiden: TST-Centrale INL.
- Norde, M. 2009. *Degrammaticalization*. Oxford: Oxford University Press.

- Nuyts, J. 2013. De-auxiliarization without de-modalization in the Dutch core modals. *Language Sciences* 36: 124-133.
- Nuyts, J. 2014. Zelfstandig gebruikte modalen. *Nederlandse Taalkunde* 19: 351-373.
- Nuyts, J. 2016. Analyses of the modal meanings. In J. Nuyts and J. van der Auwera (eds.), *The Oxford Handbook of Modality and Mood*, 31-49. Oxford: Oxford University Press.
- Nuyts, J. and P. Byloo. 2015. Competing modals. *Diachronica* 32: 34-68.
- Nuyts, J., H.-J. Goelen and W. Caers. 2018. *Hoeven* diachroon. *Taal & Tongval* 70: 17-46.
- Nuyts, J., H.-J. Goelen and W. Caers. 2019. Hoeveel systeem zit er in het systeem van de Nederlandse modale werkwoorden? *Leuvense Bijdragen*. In press.
- Olbertz, H. and W. Honselaar. 2017. The grammaticalization of Dutch *moeten*. In K. Hengeveld, H. Narrog and H. Olbertz (eds.), *The Grammaticalization of Tense, Aspect, Modality and Evidentiality*, 273-300. Berlin: Mouton de Gruyter.
- Svenska Akademiens Grammatik. 1999. Stockholm: Svenska Akademien.
- Traugott, E. 2010. (Inter)subjectivity and (inter)subjectification. In K. Davidse, L. Vandelanotte and H. Cuyckens (eds.), *Subjectification, Intersubjectification and Grammaticalization*, 29-71. Berlin: De Gruyter.
- Traugott, E. and R. Dasher. 2002. *Regularity in Semantic Change*. Cambridge: Cambridge University Press
- Visser, F. Th. 1963. *An Historical Syntax of the English Language*, Vol. 1. Leiden: Brill.
- Vries, J. de 1971. *Nederlands Etymologisch Woordenboek*. Leiden: Brill.
- Warner, A. R. 1993. *English Auxiliaries*. Cambridge: Cambridge University Press.
- Wijk, N. van. 1912. *Franck's Etymologisch Woordenboek der Nederlandsche Taal*. Second edition. Den Haag: Nijhoff.