

## **Grammaticalization and Infinitival Complements in Dutch**

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# Chapter 1

## Grammaticalization in the generative framework

### 1.1. Introduction

The notion of Universal Grammar (UG) is crucial in generative linguistics. UG was introduced by Noam Chomsky in the late 1950s and early 1960s. Under the principles-and-parameters approach to linguistic theory (Chomsky 1980), UG is taken to consist of a set of innate principles, common to all languages. These principles are associated with parameters of variation. The parameters make it possible to realize a principle in different ways in different languages. In this way, the theory can account for the variation among languages.

Although the generative theory is designed to account for synchronic variation, a lot of work has been done to extend it to diachronic changes. The importance of diachronic research is stressed by Lightfoot (1979:79), who argues that “to undertake work on syntactic change [...] is [...] desirable if the theory of grammar is to maximize its empirical content”. Historical data are considered to provide insight into the form and content of the theory of grammar.

In the principles-and-parameters framework, linguistic changes can be seen as changes in the way that parameters are set over time (Clark & Roberts 1993; Lightfoot 1979, 1991). In the *Minimalist Program* (Chomsky 1995), Chomsky proposes that all parametric variation among languages must be attributed to different properties of functional projections. Functional projections thus play a key role in the recent generative theory. An important property of functional heads is that they typically have less phonological content than lexical heads and often host morphological affixes that convey grammatical information (Von Stechow 1995). In section 1.4.1, functional projections and their properties will be discussed in detail.

Historically, functional elements often originate as lexical items. Meillet (1965[1912]) introduced the term “grammaticalization” to refer to the process by which lexical items develop into grammatical items. The theoretical discussion of grammaticalization mainly takes place in the framework of functional linguistics (a.o. Bybee, Perkins & Pagliuca 1994; Heine, Claudi & Hünnemeyer 1991; Hopper & Traugott 1993; Lehmann 1995[1982]). In the generative framework, the grammaticalization process can be captured in terms of the development from a lexical head to a functional head (Van Gelderen 1993; Haspelmath 1994; Roberts 1993; Roberts forthcoming; Roberts & Roussou 1999). Since functional projections are in the center of interest, grammaticalization phenomena are potentially of great importance to the generative approach.

## 1.2. Outline of the dissertation

The aim of this dissertation is to examine how insights of grammaticalization theory can be related to the generative framework. The general outline of the book is as follows. In this chapter, the process of grammaticalization in general is discussed. In chapters 2 and 3, I will limit my attention to historical developments in the domain of infinitival complements in Dutch.

The three chapters are organized in the following way. In section 1.3, I discuss the most important properties of grammaticalization as they are described in the literature. I investigate in section 1.4 how these properties can be expressed in a generative analysis. It will turn out that generative analyses of grammaticalization phenomena are mainly concerned with morphosyntactic changes. In the literature on grammaticalization it has been shown that next to these morphological changes there are recurrent semantic pathways along which grammatical categories pass in the course of their historical development. These semantic dimensions can be detected even when the detailed morphosyntactic changes are rather different (Van Kemenade & Vincent 1999:22). In the generative framework not much attention is paid to the question how to formally describe the process of semantic change. In section 1.5, I show that the semantic development of grammaticalizing items follows from recent proposals in the generative framework regarding the make-up of the functional domain of clauses. Specifically, I will argue that grammaticalization always involves raising of grammatical morphemes in the hierarchy of functional projections as proposed by Cinque (1999). Finally, in section 1.6, I discuss the relationship between diachronic and synchronic variation.

The main goal of the next two chapters is to further explore the hypothesis that raising in the hierarchy of functional projections is responsible for meaning changes of lexical and functional items. In chapter 2, I argue that the restriction to raising accounts for both synchronic and diachronic variation in the meanings of Dutch modal verbs. In chapter 3, I describe the grammaticalization process of the Dutch infinitival marker *te* ‘to’. I propose that *te* is a grammaticalized morpheme which has developed from a marker of irrealis mood to a tense marker. As such, it raises from a lower to a higher

functional head.

### 1.3. Properties of grammaticalization

The definition of grammaticalization that is usually adopted in the literature is given by Kurylowicz (1965:69). According to this definition, “[g]rammaticalisation consists in the increase of the range of a morpheme advancing from a lexical to a grammatical and from a less grammatical to a more grammatical status”.

Heine & Reh (1984:15) observe that the grammaticalization process affects both the form and the meaning of an item. Formally, a grammaticalizing item loses phonological substance and may become an affix that cliticizes to other elements. Semantically, a grammaticalizing item loses (part of) its meaning.

The morphosyntactic property of cliticization is illustrated by the development of the French future affix *-ai*, *-as* etcetera, as in *chanterai* ‘will sing’. Benveniste (1968) points out that this future marker arose from the auxiliary use of Latin *habere* ‘have’ as a modal verb meaning ‘must’, for example in *venire habes* ‘you have to come’. In a later stage, the modal turned into a future marker and it was reanalyzed as an affix which cliticizes to the main verb. Although cliticization is often seen as a characteristic property of grammaticalization, elements can be regarded as grammaticalized even if they are not (yet) affixes (Haspelmath 1994:5). For example, as we will see below in section 1.4.2, the English modal verbs are generally considered to be grammaticalized items (e.g. Lightfoot 1979). Morphosyntactically, these modal verbs are independent words, not affixes. Thus, grammaticalization does not necessarily result in cliticization or affixation.

The loss of meaning that is involved in the grammaticalization process is often referred to as “semantic bleaching”.<sup>1</sup> A well-known example that illustrates semantic bleaching is the development of English *go* from a lexical motion verb as in *I am going to Amsterdam* into the future marker *go* as in *I am going to read the book*. In the literature, there are different approaches to the precise nature of semantic bleaching. According to Heine & Reh (1984:15) “linguistic items lose in semantic complexity and pragmatic significance” during the grammaticalization process. This suggests that grammaticalization involves a general loss of meaning. More recently, however, Traugott & Köning (1991) and Hopper & Traugott (1993) have argued that grammaticalization involves pragmatic strengthening, not weakening. For example, as *go* becomes a future marker, the original implicatures of intention and futurity are strengthened, though the original meaning of motion is weakened. Under this perspective, “bleaching” refers to the loss of the original lexical meaning of a grammaticalizing item rather than to a general loss of meaning. The general observation is that the meaning of a lexical item changes from a basic, concrete meaning to a more

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<sup>1</sup> Other terms that can be found in the literature are ‘semantic weakening’ or ‘desemanticization’ (Heine, Claudi & Hünemeyer 1991).

abstract meaning. As Lehmann (1995[1982]:129) puts it, “[g]rammaticalization rips off the lexical features until only the grammatical features are left”. The original meaning of a grammaticalizing item plays an important role in its further development (Hopper & Traugott 1993:3). That is, the etymology of a grammaticalizing item constrains its subsequent grammatical functions. This property is called persistence.

Since grammaticalization leads to the emergence of an item with a grammatical meaning, a grammaticalized item can be integrated into a morphological paradigm. That is, it may convey the same kind of grammatical information (e.g. future tense) as a morphological paradigm in another grammatical system. For example, the future auxiliary *will* in English originates as a lexical verb meaning ‘desire’. It now expresses the same grammatical information as the future morphemes *-ai, as* etcetera in French. Lehmann (1995[1982]:135) refers to this property as paradigmaticization.

The definition of grammaticalization given by Kurylowicz (1965:69) (“[g]rammaticalisation consists in the increase of the range of a morpheme advancing from a lexical to a grammatical and from a less grammatical to a more grammatical status”) expresses that grammaticalization is a gradual process. For example, verbal tenses may originate as main verbs. This development can lead straight from main verb to tense marker, or, alternatively, it may go through an intermediate stage where the grammaticalizing verb serves as an aspect marker before becoming a tense marker (Heine & Reh 1984:129; Lehmann 1995[1982]:33, 37). Thus, items become more grammatical through time. As a result, both diachronically and synchronically intermediate stages of grammaticalization may be recognized. For example, the verb *go* in present-day English can both be used as a main verb, as in (1a), and as an auxiliary verb expressing future, as in (1b) (Hopper & Traugott 1993:1-3):

- (1) a. I am going to London  
 b. I am going to marry Bill

A further example, given by Hopper & Traugott (1993:108), is English *have* which is a full verb in (2a), a quasi-auxiliary in (2b), and a full auxiliary in (2c):<sup>2</sup>

- (2) a. I have a book  
 b. I have a book to read/I have to read a book

---

<sup>2</sup> As will be discussed in more detail in chapter 2, section 2.4, some verbs cannot be easily classified as either auxiliaries or as main verbs. Defining the notion auxiliary is a problem to begin with. Heine (1993:22-24) lists no less than twenty-two properties that are often attributed to auxiliary verbs and that separate auxiliary verbs from lexical verbs. On the basis of these properties, the English modal verbs *can, may, must*, and *will* are usually classified as auxiliary verbs instead of lexical verbs. Apart from these modal verbs, there are verbs such as *be able to, be going to, and have to*. These verbs exhibit some auxiliary-like properties and share these with their “fully modal” counterparts, but in other respects, they behave more as lexical verbs. In the literature, different terms circulate to refer to these verbs: “semi-modals”, “quasi-auxiliaries”, “half-way verbs” (Heine 1993:15, and references cited there).

## c. I have read a book

Yet another example illustrating the gradualness of grammaticalization are Dutch particle verbs. An example of such as a verb is the infinitive *opbellen* ‘call up’. The particle is originally a preposition. According to Booij (1997), Dutch particle verbs represent constructions which are subject to grammaticalization. Modern Dutch particles can be separable from the verb or unseparable. *Opbellen* ‘call up’ is a separable particle verb, since the particle *op* is stranded if the verb undergoes Verb Second (3a).<sup>3</sup> Furthermore, if the particle verb is separable, the morpheme *ge-* that marks the participle is present in the perfect tense and it is placed between the particle and the verb (3b). Unseparable particles, for example *over* ‘over’ in (4) and *om* ‘around’ in (5), are taken along under Verb Second ((4a) and (5a)) and the participial morpheme *ge-* is not present, as (4b) and (5b) illustrate:

- (3) a. Jan    \*<OP>belt mij <OP>  
 Jan    up-calls    me up  
 ‘John calls me’  
 b. Jan    heeft    mij    OP\*(ge)beld  
 John    has    me    up-called  
 ‘John has called me’
- (4) a. Jan    <over>DENKT    zijn zonden \*<over>  
 John    over-thinks    his sins    over  
 ‘John reflects on his sins’  
 b. Jan    heeft    zijn zonden    over\*(ge)DACHT  
 John    has    his sins    over-thought  
 ‘John has reflected on his sins’
- (5) a. bossen <om>RINGen    het dorp    <\*om>  
 woods around-circle    the village    around  
 ‘the village is surrounded by woods’  
 b. het dorp    is    om\*(ge)RINGD    door bossen  
 the village    is    around-circled    by woods  
 ‘the village is surrounded by woods’

Booij (1997) argues that particle verbs present clear examples of the gradual process of grammaticalization. A subset of the separable particles have further grammaticalized into bound morphemes. Originally, many unseparable particles were separable. This is shown by the following examples from Middle Dutch (±1160 - 1500), in which the particle and the verb can be separated:

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<sup>3</sup> Unseparable particles in Dutch are unstressed, whereas separable particles are stressed. I indicate stressed syllables with capitals.



- (b) *semantic bleaching*  
Grammaticalization involves a meaning change of the grammaticalizing item.
- (c) *persistence*  
The etymology of a grammaticalizing item constrains its subsequent grammatical functions.
- (d) *paradigmatization*  
A grammaticalized item can be integrated into a morphological paradigm.
- (e) *gradualness*  
Grammaticalization is a gradual process.
- (f) *unidirectionality*  
Grammaticalization is a unidirectional process.
- (g) *context dependency*  
The construction in which the grammaticalizing item appears contributes to the resulting grammatical meaning of this item.

In the following section, I will address the question how to express these properties in a generative framework.

#### 1.4. A generative analysis of grammaticalization

##### 1.4.1. Grammaticalized items as functional heads

There are several proposals in the literature which relate the insights of grammaticalization theory to the generative framework. Roberts (1993) notes that the concept of “grammaticalized element” corresponds to the notion of “functional category” in Chomskyan syntax. He argues that grammaticalization is a change from a lexical to a functional category. The idea that as a result of grammaticalization a functional category emerges is adopted in Van Gelderen (1993), Haspelmath (1994), Postma 1995, Roberts (forthcoming), and Roberts & Roussou (1999). For example, Van Gelderen (1993) discusses the development of the English preposition ( $P^0$ ) and infinitival marker *to* as an example of grammaticalization and she concludes that in present-day English *to* is generated in the head of the functional projection IP,  $I^0$ . Roberts (forthcoming) describes the grammaticalization of the Latin verb *habere* ‘have’ to the French future affix. In this case, a lexical category ( $V^0$ ) is reanalyzed as a functional head ( $I^0$ ). This affix is combined with the verb by V-to-I movement. Furthermore, Warner (1983) and Roberts (1985) argue that the grammaticalization of the English modals was accompanied by a reanalysis from lexical verbs ( $V^0$ s) to functional heads ( $I^0$ s).

In the literature, various diagnostic criteria have been proposed which distinguish lexical and functional categories. Abney (1987:64-65) gives five properties that are characteristic of functional heads: (i) they constitute a closed class, (ii) they lack descriptive content and express a grammatical meaning, (iii) they permit only one complement, which is in general not an argument, (iv) they are usually inseparable from

their complement, and (v) they are generally phonologically and morphologically dependent.

According to Roberts & Roussou (1999), the properties of grammaticalization under (8a) and (8d) have a *prima facie* plausible explanation in terms of the idea that grammaticalization involves the diachronic development of lexical into functional material. The loss of phonological substance and cliticization (8a) correspond to the properties of functional heads listed under (iv) and (v) respectively, namely the fact that functional heads typically have less phonological content than lexical heads and the inseparability of functional heads. The paradigmaticization property (8d) is related to the fact that functional heads host elements that convey grammatical information (ii) and constitute a closed class (i).

In a series of papers (Clark & Roberts 1993; Roberts forthcoming; Roberts & Roussou 1999), a number of case studies which involve the type of change mentioned above are discussed and interpreted in minimalist terms. I will briefly summarize this analysis in the next subsection.

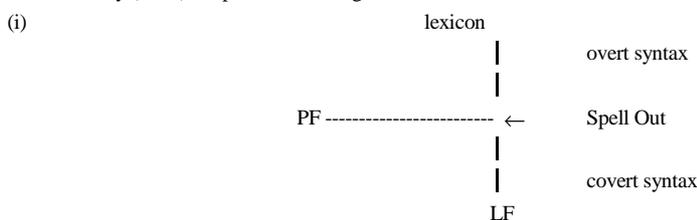
#### 1.4.2. Grammaticalization as structural simplification

Working within the framework of principles-and-parameters, Clark & Roberts (1993), Roberts (forthcoming), and Roberts & Roussou (1999) assume that parametric options are responsible for language variation. Specifically, parameters reduce to properties of functional heads (Chomsky 1995). In Chomsky's *Minimalist Program* (1995) functional projections are associated with morphological features. These features must be checked and trigger movement. Features may be weak, in which case covert movement takes place. Strong features trigger overt movement.<sup>4</sup> The minimal assumption is that the strong/weak distinction constitutes the only source of parametric variation among languages.

Roberts & Roussou (1999) develop a different approach to feature checking. They assume that all features have an LF-interpretation. There is a universal pool of substantive features and languages vary in which features are required to have a PF-interpretation (i.e. must be overtly realized). A functional feature F which requires to be realized at PF is notated  $F^*$ . In this approach, "strength" reduces to PF-realization.

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<sup>4</sup> Chomsky (1995) adopts the following model:



The operation Spell Out which leads the structure into the PF component can apply at any point in the derivation. Movement can take place before and after Spell Out.

If a functional head  $F$  has a feature that needs to be realized at PF, there are in principle three available operations to achieve this realization: by move, by merge (i.e. lexical insertion), or by a combination of merge and move. The three possibilities are listed under (9a-c):

- (9) a. If the lexicon provides a phonological matrix for a strong feature  $F^*$ , a functional element is merged in the functional head  $F^0$ .  
 b. If the lexicon does not have a phonological matrix for  $F^*$ , another element is moved to  $F^0$ .  
 c. If the lexicon provides a phonological matrix for  $F^*$ , which is a syntactic affix, a functional element is inserted in  $F^0$  and another element is moved to  $F^0$ .  
 (Roberts & Roussou 1999:1018)

Clark & Roberts (1993) argue that the language learner has a built-in preference for relatively simple representations. Under the assumption that all movement operations are adjunctions (Kayne 1994), the operation move (9b) always creates relatively complex representations in the sense that (10b) (in which the head  $Y$  is adjoined to the head  $X$ ) is a more complex structure than (10a).<sup>5</sup>

- (10) a. [<sub>XP</sub> X ]  
 b. [<sub>XP</sub> X-Y ]]  
 (Roberts & Roussou 1999:1021)

Clark & Roberts (1993) argue that language change is always driven by the preference for simple representations. This simplification can be achieved by replacing a movement operation by a merge operation. The result is a less complex structure. This is schematized in (11). In (11a),  $\alpha$  is moved to  $F$ , where  $F$  is a functional head with a strong feature. In (11b),  $\alpha$  is base generated in  $F$ . Furthermore, the projection in which  $\alpha$  originates in (11a), namely  $LP^2$ , has disappeared from the structure in (11b):

- (11) a. [<sub>FP</sub> [<sub>F</sub>  $\alpha_i$  [<sub>LP2</sub>  $t_i$  [<sub>LP1</sub> ]]]]  
 b. [<sub>FP</sub> [<sub>F</sub>  $\alpha$  [<sub>LP1</sub> ]]]]

Roberts & Roussou (1999) and Roberts (forthcoming) give several examples which illustrate the approach to grammaticalization outlined above. Here, I will briefly discuss two examples.

First, the English modal verbs are often used to illustrate the process of grammaticalization (Lightfoot 1979). It has been argued that the grammaticalization of modals is accompanied by a reanalysis from lexical verbs ( $V^0$ s) to functional heads ( $F^0$ s) (a.o. Roberts 1985; Warner 1983). Lightfoot (1979) describes how these modal verbs used to have all the characteristic properties of lexical verbs, but underwent

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<sup>5</sup> That Merge is less costly than Move is originally proposed in Chomsky (1995:348).

several changes in the 15th century and developed into auxiliaries.

Lightfoot (1979:101-109) mentions the following morphosyntactic properties that separate the Modern English modal verbs from lexical verbs. First, the modal verbs cannot be inflected. They lack the usual ending *-s* in the third person singular. Furthermore, the past tense of modal verbs does not have a temporal function anymore. That is, the past tense of *can* is not *could*, but *was able to*. The forms *could*, *might*, *must*, *should* and *would* have an epistemic modal meaning. Also, the modal verbs cannot appear as a participle (*\*have could*). Finally, some modal verbs may be reduced phonetically, as the following examples show:

- (12) I *will* see                      → I'll see  
 (13) I *should/would* like        → I'd like

A second property which distinguishes modals from lexical verbs is the following. The development of *to* as an infinitival marker starts during the Old English period and ends in the 16th century. A *to*-infinitive, however, never appears in the complement of a modal verb:

- (14) \*he can to go

Third, the modal verbs do not take direct objects any longer:

- (15) \*I can you

In Middle English, (15) is a grammatical sentence, meaning 'I know you'.

Fourth, modals are in complementary distribution with supporting *do* in negative contexts (16a) and in inversion contexts (17a). Lexical verbs, on the other hand, appear obligatorily with *do* in these contexts (16b) and (17b):

- (16) a. I cannot speak/\*I do not can speak  
       b. \*I leave not/I do not leave  
 (17) a. must they leave?/\*do they must leave?  
       b. \*leave they?/do they leave?

The particular properties of the Modern English modals mentioned above are accounted for by analyzing them as being generated in the Tense position of the clause. The lack of inflection on modal verbs can be seen as a reflection of the fact that modals occupy the position of an inflectional head and hence compete with inflectional affixes. Furthermore, under the common assumption that *to* is generated in  $T^0$ , the lack of *to* in the complement of modals (14) is predicted. Finally, since there is only one TP, it is expected that modals cannot cooccur in English (18).

- (18) \*John must can go

Roberts (forthcoming) and Roberts & Roussou (1999) argue that in pre-16th-century English, modal verbs are lexical verbs and they are generated as  $V^0$ s. They select TP complements. The modal verb is raised to the matrix T, since earlier English had productive raising of V to T. (19) represents this situation:

- (19) *before 1500*  
 [TP must<sub>i</sub> [VP t<sub>i</sub> [TP [VP speak ]]]]

After 1500, the modal verb is no longer moved to T, but merged in T. The biclausal structure in (19) changes into the monoclausal structure in (20) (Roberts & Roussou 1999:1023):

- (20) *after 1500*  
 [TP must [VP speak ]]

According to Roberts & Roussou (1999), the change is caused because language learners prefer simpler representations. The change exemplified in (19) and (20) involves the elimination of a movement operation (since the modal is merged in T, not moved to T) and it leads to a structural simplification (since a biclausal structure is replaced by a monoclausal structure). Once the modals were grammaticalized as elements of T their Modern English properties emerge, according to Roberts & Roussou (1999:1025).

A second example which illustrates the theoretical approach to grammaticalization outlined above is the grammaticalization of the Latin verb *habere* to the future affix in French (Roberts forthcoming). Adopting the universal base hypothesis of Kayne (1994), according to which all languages are underlyingly head-initial, the original (head initial) structure in Latin is as in (21):

- (21) [TP [XP amare 'love']<sub>j</sub> [T\* habeo<sub>i</sub> 'have' [VP t<sub>i</sub> t<sub>j</sub> ]]]

In (21), T\* is a functional head with a strong feature that needs to be realized at PF. In Latin, the lexicon does not have a phonological matrix for the feature of T (T\*). Therefore, another element is moved to T (cf. 9b), namely *habeo*. Furthermore, the main verb *amare* is moved as an XP to the specifier of TP. Roberts (forthcoming) leaves the reason for this movement open.

Two steps can be distinguished in the reanalysis process of *habere*. The first step is that *habere* is reanalyzed as an auxiliary which is merged in T\* (instead of moved to T\*) to check the feature of T\*:

- (22) [TP [XP amare ]<sub>i</sub> [T\* habeo t<sub>i</sub> ]]

The change from (21) to (22) is an instance of (9a): If the lexicon provides a phonological matrix for F\*, a functional element is merged in F\*.

The change from (21) to (22) involves a simplification in two respects. First, a

movement operation is eliminated in favor of a merging operation. Second, the elimination of the movement operation leads to a simpler structure, since the VP containing *habere* in (21) is eliminated in (22).

In the second step, *habere* is reanalyzed as verbal affix (*-ais*, *-as*, etcetera) and the lexical verb *amare* is moved as a head to T:

(23) [TP [T\* [V amare]<sub>i</sub>-habeo [XP t<sub>i</sub> ]]]

This is an instance of (9c). Instead of moving as an XP to Spec,TP, the main verb is now moved as a head to the affix in T. According to Roberts (forthcoming), this change involves simplification, if it is assumed that pied-piping a maximal projection is more costly than simple head movement.

Summarizing, linguistic change is caused because language learners prefer simpler representations. Change may therefore involve the elimination of a movement operation, the simplification of a structure, and/or lead to the simplification of a movement operation (X<sup>0</sup> movement instead of XP movement).

Thus, the properties (8a) and (8d) are expressed in generative terms by the assumption that grammaticalization leads to a situation in which a lexical item is moved to or base generated in the functional domain. The property of semantic bleaching (8b) is the topic of the next subsection.

### 1.4.3. Semantic bleaching as the result of movement

Roberts & Roussou (1999:1012) claim that the general loss of semantic substance (i.e. semantic bleaching) of grammaticalized items (8b) follows from the fact that functional heads are widely assumed to lack argument structure and other semantic properties (Von Stechow 1995). Roberts & Roussou (1999) refer here to the lack of lexical semantic properties. Von Stechow (1995:177) disputes the prevailing position in generative grammar that functional categories have no meaning. Rather, they have a functional, logical meaning that is “invariant under permutations of the universe of discourse”. That is, functional meanings are insensitive to specific facts about the world. The bleaching of a lexical element can be seen as the result of the syntactic movement of this element to a functional position, where its lexical meaning is overlaid with functional meaning (Von Stechow 1995:184-185; Postma 1995:27, footnote 9). That is, an item is moved into the functional domain where it acquires a grammatical meaning. In this view, the process of semantic bleaching is not an idiosyncrasy of grammaticalizing items. Rather, the “bleached” meaning is a result of the grammaticalizing item being generated in a certain functional position. Under this perspective, the existence of a movement dependency is the first step in the grammaticalization process. The semantic change is a result of this movement. This is the approach advocated by Van Kemenade (2000:55), who argues that morphological and syntactic change precedes semantic change.

The question how the unidirectionality (8f) of the grammaticalization process follows is not addressed by Roberts & Roussou and Roberts (forthcoming). As was

mentioned in the preceding section, unidirectionality implies that lexical items can develop into grammatical items, but not vice versa. Since grammaticalization is a gradual and continuous process (8e), a grammaticalized item may further grammaticalize. This further grammaticalization is also unidirectional. That is, semantic changes appear to follow predictable and cross-linguistically similar paths. For example, Bybee et al. (1994:12) note that “[r]esultative constructions generalize to anteriors, which may then evolve into perfectives or pasts [...], but the reverse direction is unknown”. According to Haspelmath (1999:1043), the question why grammaticalization is irreversible has not been asked until fairly recently, and no satisfactory explanation has been proposed so far.

The generative analysis of grammaticalization discussed in this section is based on the assumption that a lexical item changes into a functional item. Adopting two basic assumptions of this generative approach, it is not hard to see why grammaticalization is unidirectional. Although generative analyses differ with respect to the exact nature and number of functional projections that are assumed, there is general consensus that the functional projections are higher in the clausal structure than the lexical projections. Furthermore, a general assumption is that lowering in this structure is not permitted. The ban on lowering follows from the requirement that traces must be c-commanded by their antecedents. The unidirectionality of grammaticalization follows immediately from the two assumptions outlined above: a grammaticalized functional head cannot turn into a lexical item, since this development would be an instance of lowering (Beths 1999:1074).

In this dissertation, I will primarily focus on the **further** grammaticalization of grammaticalized items, i.e. the development of a functional, grammatical item into a functional item with another grammatical meaning or function. The reason for this limitation is twofold. First, as was mentioned above, there are different approaches in the generative framework with respect to the make-up of the functional domain of clauses. Recently, Cinque (1999) has proposed a very rich system of functional projections (FPs). The presence and order of these FPs is established on synchronic data and is argued to be universal. That is, there is no cross-linguistic variation in the functional domain. In the next section, 1.5, I will argue that the hierarchy of FPs proposed by Cinque (1999) is supported if diachronic data are taken into account. Specifically, I hope to show that the unidirectionality of further grammaticalization follows from the fact that diachronically, grammatical morphemes can only raise, not lower, in this hierarchy. A second reason for limiting the attention to further grammaticalization is the following. Bybee et al. (1994, chapter 8) propose that there are different mechanism of semantic change which are operative at different stages of grammaticalization. In the earliest stage, there is a mechanism of “metaphorical extension”. This earliest stage of grammaticalization involves the change from a lexical to a grammatical item. Often, a metaphorical relation can be found between the two meanings. That is, one often finds a shift from a more a basic, concrete meaning to a more abstract meaning, whereas the original relational structure is preserved. For example, Hopper & Traugott (1993:79) argue that through metaphorical extension the English verb *go* has developed from a spatial motion verb into a temporal auxiliary

expressing future. Cases of grammaticalization which are subject to this mechanism of change may not be easily expressible in a syntactic approach to grammaticalization. In later stages of grammaticalization, there are other mechanisms at work. Bybee et al. (1994:293-297) dub these mechanisms “harmony” and “absorption of context”. Harmony means that a grammatical item comes into use in a context where it initially is semantically compatible with the linguistic context. Later, its meaning bleaches so far that the original meaning is (almost) completely lost. Bybee et al. (1994) illustrate this mechanism with the development of *should* in subordinate clauses in British English. This development will be summarized in section 1.6.1. Absorption of context is a related mechanism and means the following. First, a grammatical item appears in a certain syntactic position where its meaning changes due to the linguistic context. In a later stage, this item changes its syntactic position. In the new position, it expresses the meaning that it has picked up in the old position. The exact nature of these mechanisms will become clear later, when some case studies of grammaticalization are discussed. At this point, the important thing is that the syntactic context seems to play a role in the grammaticalization process. Specifically, the syntactic context influences the meaning of items which find themselves in a later stage of grammaticalization (property (8g)). These instances of grammaticalization seem to be compatible with a generative syntactic approach.

## 1.5. Grammaticalization as raising

### 1.5.1. The structure of clauses (Cinque 1999)

A “traditional” view on the make-up of the functional domain of clauses (Pollock 1989, Chomsky 1995) is that it consists of CP, TP, and AgrPs which license subject and object arguments:

(24) [CP [AgrSP [TP [AgrOP [VP ]]]]]

This view has recently been challenged by Cinque (1999). In a detailed discussion of clause structure across languages, Cinque argues that the TP domain consists of (at least) 32 functional projections. The postulation of such a rich functional make-up of the sentence is motivated by the following observation: adverbs on the one hand and morphemes encoding mood, modality, tense, aspect, and voice on the other hand are ordered in the same way across languages. According to Cinque (1999), this systematic matching of the two hierarchies (i.e., that of adverbials and that of functional heads) suggests that each AdvP is the specifier of the phrase projected by the corresponding functional head morpheme. The hierarchy of functional heads and adverbs is given in (25):

- (25) [*frankly* Mood<sub>speech act</sub> [*fortunately* Mood<sub>evaluative</sub> [*allegedly* Mood<sub>evidential</sub>  
 [*probably* Mod<sub>epistemic</sub> [*once* T(Past) [*then* T(Future) [*perhaps* Mood<sub>irrealis</sub>  
 [*necessarily* Mod<sub>necessity</sub> [*possibly* Mod<sub>possibility</sub> [*usually* Asp<sub>habitual</sub> [*again*  
 Asp<sub>repetitive(I)</sub> [*often* Asp<sub>frequentative(I)</sub> [*intentionally* Mod<sub>volitional</sub> [*quickly*  
 Asp<sub>celerative(I)</sub> [*already* T(Anterior) [*no longer* Asp<sub>terminative</sub> [*still* Asp<sub>continuative</sub>  
 [*always* Asp<sub>perfect</sub> [*just* Asp<sub>retrospective</sub> [*soon* Asp<sub>proximative</sub> [*briefly* Asp<sub>durative</sub>  
 [*characteristically* Asp<sub>generic/progressive</sub> [*almost* Asp<sub>prospective</sub> [*completely*  
 Asp<sub>SgCompletive(I)</sub> [*tutto* Asp<sub>PlCompletive</sub> [*well* Voice [*fast/early* Asp<sub>celerative(II)</sub> [*again*  
 Asp<sub>repetitive(II)</sub> [*often* Asp<sub>frequentative(II)</sub> [*completely* Asp<sub>SgCompletive(II)</sub>  
 (Cinque 1999:106)

The structure in (25) only includes one functional projection for a deontic modal verb, namely Mod<sub>volition</sub> ('want').<sup>6</sup> However, Cinque (1999:79-81, 90) suggests that there are separate functional heads for the other deontic modals as well, namely Mod<sub>ability/permission</sub> for 'be able to' and 'be allowed to', and Mod<sub>obligation</sub> for 'have to'. The hierarchical order of these modal projections is as in (26):

- (26) [Mod<sub>volitional</sub> [Mod<sub>obligation</sub> [Mod<sub>ability/permission</sub>  
 (Cinque 1999:81)

In chapter 2, I will come back to the modal projections.

The hierarchy in (25) incorporates the well-known generalization that among languages the order of morphemes is predominantly Tense - Mood/Modality - Aspect (TMA). (25) refines the TMA order in two respects. First, Cinque (1999) follows Foley & Van Valin (1984) in distinguishing deontic modality (lower than Tense) and epistemic and evidential mood (both higher than Tense).<sup>7</sup> Second, Cinque (1999) establishes the relative ordering of functional heads within these TMA categories.

The fact that adverbs, particles, and affixes are ordered in the same way cross-linguistically strongly suggests that the clause structure in (25) is made available by UG. In section 1.1, we have seen that within the generative framework, diachronic developments ideally follow the same principles as synchronic phenomena. The null hypothesis is that the structure in (25) is also valid in the diachronic dimension.

Cinque (1999) only very briefly touches on the subject of intralinguistic synchronic variation and diachronic change. In discussing the Italian example in (27), Cinque suggests that it is possible to relate the different interpretations of verbs to the different syntactic positions they come to occupy. *Sarebbe* expresses the conditional mood. In (27), it has a "quotative usage" (it expresses evidential mood):

<sup>6</sup> Modal verbs can either have a deontic interpretation (also called root interpretation) or an epistemic interpretation. Deontic readings express modal forces like permission, obligation, and ability. Epistemic readings express the extent to which the speaker is committed to the truth of the proposition.

<sup>7</sup> Evidential mood indicates that an assertion is based on inference, or a first or second hand report.

- (27) Ci sarebbe stato un rapimento importante  
 there would have been an important kidnapping  
 ‘it is said that there was an important kidnapping’  
 (Cinque 1999:86)

Cinque (1999) proposes that in (27), the verb in the conditional mood (*sarebbe* ‘would have’), which expresses the “future of the past”, raises to the evidential mood head to check the relevant feature. Under this perspective, such a usage of the conditional would not be possible if the evidential mood head were lower than T(Future) and T(Past), as lowering is not permitted. More generally, Cinque suggests that “it is to be expected that possible acquisitions of new functional values by a head (synchronously or diachronically) will be a function of the universal hierarchy of heads, and of the limitation to upward movements only” (Cinque 1999:201, footnote 23).

Similarly, Tabor & Traugott (1998) argue that grammaticalization involves increase of structural scope, where scope is defined in terms of c-command. This conclusion is based, amongst others, on an examination of the development of English adverbs such as *indeed* and *besides*. Traugott (1995) shows that although these adverbs do not turn into bound affixes, their development nevertheless shows a cluster of other properties of grammaticalization. For example, they originate as lexical nouns (*side* and *deed*) preceded by a preposition (*by* and *in*). These nouns undergo decategorialization and form a morphological unit with the prepositions *by* and *in*. As a result, *besides* and *indeed* may be phonologically reduced to /bsaidz/ and /ndid/. Traugott (1995) shows that these adverbs originate as VP adverbs. In the course of time, they further develop into sentential IP-adverbs and ultimately into discourse markers. As such, their structural scope in the clauses increases.

In the following subsection, I will further explore the hypothesis that grammaticalization invariably involves raising.

### 1.5.2. Further grammaticalization of functional items

In this section, I will summarize several examples of grammaticalization found in the literature. These are all examples of the further grammaticalization of items which have already grammaticalized to a certain extent and which can be taken to be generated in one of the functional projections in the structures in (25)-(26). The purpose of this overview is to show that further grammaticalization involves raising of the grammaticalizing item to a higher functional projection. I will conclude that diachronic developments follow the hierarchy in (25)-(26), which is based on synchronic data.

The literature that has been consulted included the books by Bybee et al. (1994) and Heine et al. (1993), which both contain an extensive overview of grammaticalization cases in many languages. In these books and the other references mentioned in this section, I did not find counterexamples to the claim that further grammaticalization involves raising.

### 1.5.2.1. The grammaticalization of aspect markers

1. In several languages (e.g. Igbo, Yoruba, Scots Gaelic, and Turkish) progressives develop into imperfectives (Bybee & Dahl 1989:82). For example, the Turkish morpheme *-yor*, that has its origin in the verb ‘to walk, go’, expresses progressive meaning in the written language. In the current spoken language, *-yor* is used as an imperfective marker, too, which indicates that it is grammaticalizing (Bybee et al. 1994:141). The FP hosting the progressive marker ( $Asp_{generic/progressive}$ ) is lower in the hierarchy than the FP in which the imperfective marker is situated ( $Asp_{perfect}$ ).<sup>8</sup> Therefore, this development involves raising of the progressive morpheme.<sup>9</sup>

$$(28) \quad [Asp_{perfect} > \dots [Asp_{generic/progressive} \\ \uparrow \quad \quad \quad \downarrow]$$

Similarly, the English construction *be V-ing* was first only used in passive constructions, that is, with active verbs (Lehmann 1995[1982]:100). For example, *the house is building* meant ‘the house is being built’. Here, *be V-ing* is a progressive. Later, the construction could also be used with stative verbs, as in *there are many statues standing in the park*. Here, *be V-ing* expresses imperfectivity.

2. In Ewe (a West African Niger-Congo language), the durative auxiliary verb *no* ‘stay, remain’ has grammaticalized into an habitual aspect marker (Heine & Reh 1984:128). Again, this development can be understood as involving raising, namely from  $Asp_{durative}$  to  $Asp_{habitual}$ :

$$(29) \quad [Asp_{habitual} > \dots [Asp_{durative} \\ \uparrow \quad \quad \quad \downarrow]$$

3. In several languages (Atchin, Halia, Rukai (three Austronesian languages), Yessan-Mayo (spoken in New Guinea), and Inuit), morphemes may mark both habitual and repetitive aspect (Bybee et al. 1994:158-159). Bybee et al. refer to this aspectual meaning as iterative. The iterative aspect marker signals that an action is repeated on a single occasion. Cinque (1999:204-205, footnote 38) uses the term repetitive for

<sup>8</sup> According to Cinque (1999:128), every functional projection comes with two values. The functional projection T(Past), for example, has the default value [-past] and the marked value [+past]. Cinque (1999:130) assumes that imperfect is the default value of  $Asp_{perfect}$ .

<sup>9</sup> In the following,  $XP > YP$  should be interpreted as “the projection XP dominates the projection YP”.  $XP > YP$  stands for “XP directly dominates YP (i.e., YP is the complement of the head X)”. Furthermore, the direction of a certain development is indicated with arrows. Dots between two FPs ( $XP \dots > YP$ ) indicate that only the relevant FPs are represented and that there are intermediate FPs which are left out from the representation.

actions repeated once.<sup>10</sup> Bybee et al. argue that repetitive aspect is the earlier meaning. This is in line with the hierarchy developed by Cinque (1999) in which  $Asp_{habitual}$  dominates  $Asp_{repetitive}$ :

$$(30) \quad [Asp_{habitual} > [Asp_{repetitive} \\ \uparrow \quad \quad \quad \downarrow]$$

### 1.5.2.2. From aspect to tense

1. Completive markers may develop into anterior aspect markers. In many languages, the diachronic source for anterior Tense are auxiliary verbs meaning ‘finish’ (Bybee et al. 1994:61, 69-74).<sup>11</sup> This development involves raising of the completive marker to the head of T(Anterior):<sup>12</sup>

$$(31) \quad [T(Anterior) > \dots [Asp_{completive} \\ \uparrow \quad \quad \quad \downarrow]$$

2. Present tense markers (which represent the default value of T(Past), according to Cinque 1999:129) can be derived from progressive aspect markers (Anderson 1973:85; Heine & Reh 1984:135). Bybee et al. (1994:144-147) discuss three languages in which progressives have developed into present tense markers (namely Yagaria, Alyawarra, and Tigre). Furthermore, they refer to the development of the English progressive, which appears to have been generalizing and taking over some of the functions of the present tense for several centuries (Hatcher 1951):

$$(32) \quad [T(Past) > \dots [Asp_{progressive} \\ \uparrow \quad \quad \quad \downarrow]$$

3. In a large number of languages, past tenses start out as perfect markers. The past meaning results from a further grammaticalization (Bybee & Dahl 1989:73; Bybee et

<sup>10</sup> Cinque (1999) distinguishes two FPs for repetitive aspect, as can be seen from (25). The reason is that there are two positions available for adverbs expressing repetition. Since both FPs are lower than the FP hosting the habitual aspect marker, this need not further concern us here.

<sup>11</sup> Completive aspect indicates stopping a telic activity at the natural end point of that activity (Cinque 1999:187, footnote 9; 100). In English, for example, completive aspect is explicitly signalled with particles (*eat up a sandwich*). In other languages, completive aspect is expressed by a grammaticalized form of a verb meaning ‘finish’. Anterior tense indicates temporal priority, more specifically the precedence of the event time with respect to the reference time (Cinque 1999:94). See section 1.6.2.

<sup>12</sup> In discussing the remaining examples of further grammaticalization, I will refrain from stating explicitly that the development involves raising from a lower to a higher functional projection. The arrows in the structures indicate that we are dealing with an instance of raising.

al. 1994:81-87; Lehmann 1995[1982]:29). For example, in the dialect of Dahome (Ewe), the perfect marker *ko* ‘be, have finished’ is nowadays used as a past tense marker (Heine & Reh 1984:127). The same can be observed in the development of the Indo-European perfect to the Germanic past and of the Latin perfect to the Romance simple past tense (Pinkster 1987). The same is happening again with the *haben*-perfect in Bavarian German, which has completely replaced the past tense (Abraham 1998):

(33) [T(Past) > ... [Asp<sub>perfect</sub>]  
 ↑ \_\_\_\_\_ ↓

In section 1.6.2, I will discuss this development in more detail.

In the domain of language acquisition, the development depicted in (33) also takes place. Antinucci & Miller (1976) argue that Italian and English children use participles not to denote the past tense, but rather resulting states.

4. Adverbs which are grammaticalized to future and past tense markers and adjust their position with respect to the verb accordingly have been found in the Nilotic language Luo (Heine & Reh 1984:130, 132). In Luo, the adverb *nene* ‘earlier the same day’ developed into the past tense marker *n(e)*. Cinque (1999:96-98) suggests that adverbs with this meaning are associated with Asp<sub>retrospective</sub>:

(34) [T(Past) > ... [Asp<sub>retrospective</sub>]  
 ↑ \_\_\_\_\_ ↓

5. One of the major sources for future markers are constructions containing a movement verb (Ultan 1978). In many languages, future markers derive from verbs meaning ‘come’ and ‘go’. In these cases, the future markers seem to have been derived directly from a lexical source. A second possibility is that an already grammaticalized aspectual marker further develops into a future marker. Bybee & Dahl (1989:90) note that a construction containing an auxiliary whose source is a verb meaning ‘motion toward a goal’ may develop into a future marker. An example is the prospective aspect marker (*a*)*pral* in Haitian Creole (which occupies Asp<sub>prospective</sub>, according to Cinque 1999:191, footnote 30), that has developed into the future marker *ap*:

(35) [T(Future) > ... [Asp<sub>prospective</sub>]  
 ↑ \_\_\_\_\_ ↓

6. English *by and by* (which is in Spec,Asp<sub>proximative</sub> (Cinque 1999:229, footnote 10)) has become the future adverb *bambai* in the pidgin state of Tok Pisin. In the present creole language, it is a future marker, phonologically reduced to *be*. Similarly, Spanish *luego* ‘soon’ (which also belongs to Asp<sub>proximative</sub> (Cinque 1999:96-98)) has become the future marker *lo* in Papiamentu (Lehmann 1995[1982]:36):

(36) [T(Future) > ... [Asp<sub>proximative</sub>]  
 ↑ \_\_\_\_\_ ↓

7. In the Central African language Sango, the adverb *fadé* ‘quickly’ was the source of a future marker (Heine & Reh 1984:120):

(37) [T(Future) > ... [Asp<sub>celerative(1)</sub>]  
 ↑ \_\_\_\_\_ ↓

### 1.5.2.3. From deontic modality to future tense

1. In his worldwide survey of future tenses, Ultan (1978) concludes “that future tenses evolve chiefly from modals [...], and to a lesser extent from aspectuals or markers of goal-oriented categories” (quoted from Heine, Claudi & Hünnemeyer 1991:170). For example, Old English *will* ‘intend, promise’ (Mod<sub>volitional</sub>) developed into the Modern English future *will*:

(38) [T(Future) > ... [Mod<sub>volitional</sub>]  
 ↑ \_\_\_\_\_ ↓

2. A further example of the development of a future marker from a modality marker is the future modality arising from Latin *habere* as in French *viendr-ais*. It was already mentioned in section 1.3 that according to Benveniste (1968) this future marker arose from the auxiliary use of *habere* as an imperative ‘must’ modal, as in *venire habes* ‘you have to come’:

(39) [T(Future) > ... [Mod<sub>obligation</sub>]  
 ↑ \_\_\_\_\_ ↓

Further examples of modal verbs developing into future markers can be found in Bybee et al. (1994:254-264).

### 1.5.2.4. From deontic modality to epistemic mood to evidential mood<sup>13</sup>

1. Deontic modality often develops into epistemic modality. This is a well-documented change in English (a.o. Bybee & Pagliuca 1985; Goossens 1982; Lightfoot 1979; Sweetser 1984; Traugott 1989).<sup>14</sup> It has also taken place in unrelated languages such as

<sup>13</sup> See footnotes 6 and 7 for a definition of these terms.

<sup>14</sup> After a survey of several dictionaries and grammars, Goossens (1982) concludes that there are no traces of epistemic meanings for Old English verbs from which *can*, *must* and *ought* originate. *May*, *shall* and *will* can be said to show the beginnings of an epistemic usage, though for none of them is the expression of the epistemic function a clearcut part of their meaning. In Old English, there are a few lexical items that have the



### 1.5.2.5. From tense to mood

1. The future in Spanish (which is derived from Latin *habere* ‘have to’, see section 1.5.2.3) has developed epistemic uses (Bybee et al. 1994:224):

- (44) Tendr-á veinte años  
 have-FUT twenty years  
 ‘she’s probably about twenty years old’

Similarly, Dutch *zullen* ‘will’, which is a future auxiliary, can be used to express probability:

- (45) ze zal zo’n twintig jaar zijn  
 she shall about twenty years be  
 ‘she’s probably twenty years old’

- (46) [Mood<sub>epistemic</sub> > ... [T(Future)]  
 ↑ \_\_\_\_\_ ↓

2. Bybee & Dahl (1989:73) report that the use of the perfect for evidential functions is common in languages from the Balkan and adjacent parts of the Middle East, and in Newari, a Tibeto-Burman language. In some languages, including Persian, Georgian, Azerbaijani and Macedonian, the grammatical item loses its original perfect uses and functions primarily as an evidential. In Turkish, the past tense marker has further grammaticalized into an evidential marker (Aksu-Koç & Slobin 1986). In all these cases, the grammaticalization process involves raising of the aspect and tense markers to a higher functional projection:

- (47) [Mood<sub>evidential</sub> > ... [T(Past)] > ... [Asp<sub>perfect</sub>]  
 ↑ \_\_\_\_\_ ↓ ↑ \_\_\_\_\_ ↓

### 1.5.2.6. Conclusion

In the literature on grammaticalization it has been noted that it is possible to make generalizations with respect to the (lexical) source of a grammaticalizing item. Languages do not randomly choose items to grammaticalize. Rather, there tends to be a small number of preferred “channels” for each individual grammatical category. For example, in many African languages verbs with the meaning ‘say’ grammaticalize into complementizers corresponding to English *that* (Lord 1976). Likewise, further grammaticalization of functional items appears to follow predictable and cross-linguistically similar paths. For example, perfect markers are often derived from auxiliary verbs meaning ‘finish’. These are two examples of channels of grammaticalization.

In this section, I have discussed several cases of further grammaticalization of items

that have already to a certain extent undergone grammaticalization, and can be taken to correspond to one of the functional projections in Cinque's (1999) hierarchy. In this hierarchy, the main TMA-categories are ordered in the following way:

- (48) Mood<sub>evidential</sub> > Mood<sub>epistemic</sub> > Tense > Modality > Aspect

On the basis of the data, I drew the following conclusion:

- (49) Further grammaticalization of aspect, modality, and tense markers invariably involves raising of these functional elements to a higher functional head in the hierarchy of functional projections.

We have seen that for aspect markers, there appear to be two sources: they either originate as main verbs or they are derived from other aspect markers. Since the aspect projections are dominated by all other functional projections, it is excluded that tense morphemes grammaticalize into aspect morphemes. Tense markers, on the other hand, may evolve through at least four different channels. They can be derived from aspect markers, adverbs expressing aspectual meanings, modality markers, or other tense markers. These possibilities follow from the fact that the category Tense dominates both Modality and Aspect (48). Furthermore, epistemic mood markers can originate as modality markers and evidential mood markers as modality markers and tense markers. The reverse developments appear to be unattested. Again, these developments are in line with the hierarchy in (48), in which the category Mood dominates both Tense and Modality.

It was discussed above that the hierarchy of functional heads proposed by Cinque (1999) is based on synchronic data from a wide range of languages. The similar ordering of functional heads and adverbs strongly suggests that the hierarchy is made available by UG. In this section, I hope to have shown that this hierarchy is also valid in the diachronic dimension.

### 1.6. Diachronic and synchronic variation

One of the properties of grammaticalization listed in section 1.3 is the gradualness of the process. The consequence of this is that in a certain stage of a language, a grammatical or lexical item can express more than one meaning or can have more than one function. That is, both the "older" meaning and the "new", more grammaticalized meaning of an item can be represented in a language. To conclude this chapter, I will discuss two cases illustrating this synchronic variation resulting from grammaticalization: the development of English *should* in subordinate clauses (1.6.1) and the grammaticalization of the perfect tense in Dutch (1.6.2). These studies will be relevant for the next chapters, in which the development of Dutch modal verbs and the development of the Dutch infinitival marker *te* 'to' are discussed.

### 1.6.1. The development of *should* in subordinate clauses in English

In discussing the development of subjunctives, Bybee et al. (1994:212-218) note that the analysis of subjunctives is often controversial because it is unclear whether subjunctive forms actually carry meaning, or whether they are semantically empty. In many languages the use of the subjunctive is dictated by the context. In Spanish, for example, main verbs such as *querer* ‘want’ and *mandar* ‘to order’ always have a subordinate verb in the subjunctive when its subject is not the same as the main clause subject. There are, however, a few cases in Spanish where the subjunctive (SUB)/indicative (IND) contrast produces a difference in meaning:

- (50) a. Dice que vienen ahora  
       say that come (IND) now  
       ‘he says they are coming now’  
       b. Dice que vengan ahora  
       say that come (SUB) now  
       ‘he says for them to come now’  
       (Bybee et al. 1994:213)

Bybee et al. (1994) argue that grammaticalization theory can cast the problem in a light which allows a better understanding of the distribution of subjunctives. “If we view the uses of subjunctives as links on a grammaticization chain, we can accept the possibility that a gram[matical morpheme] might be meaningful in one context but not in another” (213).

According to Bybee et al. (1994:214), modalities are originally used in complement clauses with the same meaning that they have in main clauses. Gradually, their meaning weakens, until they do not make a semantic contribution but rather function as a marker of subordination of a certain type. From this point, the subordinate form is free to spread to other subordinate clause types, where it would not have originally been semantically appropriate.

An example of this development is the evolution of *should* in complement clauses in British English. In main clauses, for example *you should do that*, *should* expresses obligation. Coates (1983) shows that *should* can appear in a variety of complements. In (51)-(52), *should* can express obligation:

- (51) I suggested that they *should* put (a)round each carriage door a piece of beading  
 (52) It is essential that on this point the churches *should* learn from each other  
 (Coates 1983:68)

According to Bybee et al. (1994:215), the use of *should* in (51)-(52) is an instance of what they call “harmony”. As was already mentioned in 1.4.3, harmony is a mechanism of grammaticalization by which a grammatical item comes into use in a context where it initially is semantically compatible with the linguistic context. The main predicate in (51) and (52) imposes an obligation or expresses necessity. As such, this predicate

creates a harmonic context for the use of *should*. In a later stage of the grammaticalization process, the meaning of the item bleaches so far that the original meaning is (almost) completely lost. For example, in (53a) *should* does not have the explicit meaning of obligation. In this example, *should* can be substituted by an infinitive construction (53b):

- (53) a. Is it legitimate that they *should* seek to further that aim by democratic and constitutional means?  
 b. Is it legitimate *to* seek to further that aim by democratic and constitutional means?  
 (Coates 1983:68)

Finally, in (54a) the interpretation of *should* in which it expresses obligation is excluded. Again, the finite embedded clause can be replaced by an infinitival complement without a change of meaning (54b):

- (54) a. The police are expecting that the Libyans *should* make the first move  
 b. The police are expecting the Libyans *to* make the first move  
 (Bybee et al. 1994:215)

(52)-(54) are examples from Modern English. Bybee et al. (1994:217-218) reconstruct the following stages in the diachronic development of *should* in complement clauses:

- (55) a. Stage 1: *should* is used in contexts in which it can express obligation, as in (51)-(52).  
 b. Stage 2: *should* is extended to other environments, namely to the complements of adjectives such as *legitimate* (53a), and verbs such as *ask* and *decide*. In these complements, *should* does not have the explicit meaning of obligation.  
 c. Stage 3: *should* is extended to complements of predicates expressing belief or opinion (such as *expect* (54a), *fear*, *hope* and *think*) and evaluative or factive predicates such as *funny* and *sad*. In these contexts, *should* is not compatible with its earlier meaning of obligation. According to Bybee et al. (1994), *should* functions here merely as a marker of subordination.

Bybee et al. (1994) conclude that since all uses of *should* remain in the language, the analyst of the synchronic situation faces the difficulty of determining whether *should* is meaningful in complement clauses or not. From a diachronic point of view, *should* retains its older meaning in certain contexts, while it expresses a more generalized meaning in other contexts.

The development of *should* is another example of grammaticalization which involves raising in the hierarchy of Cinque (1999). *Should* originates as a modal verb expressing obligation (Mod<sub>obl</sub>). It gradually extends to complements of verbs such as *ask* and *decide*, i.e. irrealis verbs. This suggests that *should* is related to Mood<sub>irrealis</sub>.

Finally, *should* appears in the complements of verbs of belief or opinion, i.e. in realis complements. This indicates that *should* is generated in T(Past):

$$(56) \quad \text{T(Past)} \dots > \text{Mood}_{\text{irrealis}} \dots > \text{Mod}_{\text{obl}}$$

$$\quad \quad \quad \uparrow \quad \quad \quad \downarrow \quad \quad \quad \uparrow \quad \quad \quad \downarrow$$

(56) represents the diachronic development of *should*. Modern English *should* can express all the meanings of the functional projections in (56). It was mentioned in section 1.4.3 that the “bleaching” of an element can be seen as the result of the syntactic movement of this element to a functional position, where it acquires the meaning associated with this position. That is, a grammaticalizing (lexical or functional) item moves from its original position X to another position Y, where it expresses a different meaning. This leaves open the possibility that this item can express both its original meaning (related to position X) and its new meaning (related to position Y) in a certain stage of the language (as is hinted at by Cinque 1999:201, footnote 23). In this way, synchronic variation which is the result of grammaticalization can be described. This means in the case of *should* that synchronically (in Modern English), *should* can move from its base position,  $\text{Mod}_{\text{obl}}$ , to  $\text{Mood}_{\text{irrealis}}$  and T(Past).

Interestingly, the development of *should* described here appears to be similar to the development of Dutch *te* ‘to’, which will be discussed in chapter 3. There, we will see that *te* extended from irrealis contexts to realis contexts as well. Furthermore, I will argue that synchronically, *te* still has two meanings, similar to *should*.

In the course of time, as the grammaticalization process proceeds, the item may not be moved to Y but merged in Y. At this point, it will have lost its original meaning, which was related to position X. This will be illustrated in section 2.6 by the development of Dutch modal verbs.

## 1.6.2. The development of PERFECT aspect and PAST tense

### 1.6.2.1. Definitions

It was mentioned briefly in 1.5.2.2 that in many languages, past tenses start out as perfects. This development has also taken place in Dutch, and is described in Kern (1912).<sup>15</sup> Before summarizing it, I will first clarify the notions “past tense” and “perfect aspect”.

The terms “past” and “perfect” can be used in two ways. First, as a semantic notion they refer to a temporal or an aspectual interpretation. I will use small capitals to indicate this semantic interpretation (PAST, PERFECT). Second, the terms can be used as formal notions, to refer to the morphological shape of a verb. This will be indicated with “past tense” (*walk-ed*) and “perfect tense” (*has walk-ed*).

It has often been noted in the literature that is not easy to define the distinction

<sup>15</sup> See Grimm (1898), Behaghel (1924) and Dal (1962) for German.

between tense and aspect. First, there are many different definitions of the semantic notions PAST and PERFECT. Second, the views differ on whether the morphological perfect tense in a language such as Dutch should be categorized as PAST or PERFECT. There is an extensive literature on this topic. Here, I can only summarize some of the proposals that have been put forward in the literature.<sup>16</sup>

The definition of PERFECT that is generally agreed upon is that it signals “continuing relevance of a previous situation” (Comrie 1976:54). Comrie (1976:56-61) distinguishes four specific manifestations of this general property of the PERFECT. These four PERFECT meanings are listed below under (57). The English perfect tense (i.e. the form *have* + participle) can express all four types:

(57)

(a) The PERFECT OF RESULT.

The PERFECT can refer to a present state which is the result of some past event. For example, (58) implies that the result of the bath (i.e., being clean) still holds (Comrie 1976:56):

(58) I have had a bath

Resultatives may be applied to intransitive verbs, but they are only compatible with telic verbs (i.e. verbs which describe events which have inherent endpoints) (Bybee et al. 1994:54).

(b) The EXPERIENTIAL PERFECT.

Here, the PERFECT indicates that a given eventuality has held at least once during some time in the past leading up to the present. An example is (59). According to Bybee et al. (1994:62), the experiential past expresses that the agent has certain qualities or knowledge due to past experiences.<sup>17</sup>

(59) Bill has been to America

(c) The PERFECT OF PERSISTENT SITUATION.

This is the characteristic use of the perfect tense in English. It signals that an eventuality occurred prior to reference time and is relevant to the situation at reference time. Bybee et al. (1994:54) call this PERFECT meaning ANTERIOR. Henceforth, I will use this term to refer to this meaning of the PERFECT. Anteriors are often accompanied by the adverbs *already* or *just*. An example of this use is

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<sup>16</sup> See e.g. Ehrlich & Vater (1989:104-106) and references cited there for an overview of the different approaches to the perfect tense in present-day German.

<sup>17</sup> Some languages (e.g. Mandarin Chinese) have a special marker to contrast this PERFECT meaning with the RESULTATIVE meaning (57a).

(60), where the perfect tense describes an eventuality that started in the past but continues into the present:

(60) we have lived here (already) for ten years

Anteriors may occur with past or future tense marking. In the system of Reichenbach (1947), an anterior marks the relation E-R (which stands for: Event time precedes Reference time). The relation E-R is compatible with the past tense, yielding the past perfect (E-R-S (where S indicates the time of speech)) (61) and it is compatible with the future tense, yielding the future perfect (S-E-R) (62):

(61) John had read the book when he left the house

(62) John will have read the book when he leaves the house

(d) The PERFECT OF RECENT PAST.

In English, it is not possible to combine the perfect with an adverb such as *one hundred years ago* or *yesterday*:

(63) a. John (\*has) read the book yesterday

b. John's grandfather (\*has) died one hundred years ago

This constraint does not hold when the time specification is expressed by the adverb *recently*:

(64) I have recently learned that the match is to be postponed  
(Comrie 1976:61)

Thus, the perfect tense may be used when the present relevance of the past eventuality referred to is simply one of temporal closeness, that is, if the past eventuality is very recent.

Comrie (1976:61) notes that in the case of (64), the perfect tense seems to acquire the function of PAST in the theory of tense according to which tense expresses the relation between the time of utterance and the time of the eventuality. The PAST indicates that an eventuality occurred before the moment of utterance. The usage of the perfect tense in (64) looks like the beginning of the development by which the perfect tense becomes a PAST marker. We will see in the next subsection that in many languages, markers of the PAST start out as PERFECT markers. According to Comrie (1976:61), this development can be understood as a gradual relaxation of the requirement that the past eventuality has taken place very recently.

### 1.6.2.2. The development of the periphrastic perfect tense in Dutch and other Germanic languages

In earlier stages of Dutch, English, and German the verb *have* in the periphrastic perfect tense construction is a main verb with the meaning 'possess'. The participle functions as an adjective modifying the object. This can be seen from the examples from Old High German (65) and Old English (66), in which the participle is inflected and agrees with the object:

- (65) phigboum habeta sum giflanzotan  
 fig tree has (one) as planted  
 'somebody has a fig tree which is (in the state of being) planted'  
 (Dal 1962:121)
- (66) ic hæfde hine gebundenne  
 I had him bound  
 'I had him in a state of being bound'  
 (Traugott 1972:94)

In Middle Dutch, examples in which the participle is inflected do not occur. However, constructions which are clear instances of the resultative PERFECT (57a) are very common in Middle Dutch. (67) refers to a state which is the result of a past event, and the adverb *noch* 'still' occurs:

- (67) haer spere hebben si noch verheven  
 their spears have they still raised  
 'they still have their spears raised'  
 (Duinhoven 1997:321)

The construction *zijn* 'be' + participle derives from a construction in which the participle is an adjective modifying the subject. Duinhoven (1997:311) notes that in Middle Dutch many constructions consisting of *zijn* + participle occur (68) that are no longer possible in Modern Dutch (69):

- (68) hi vant enen Sarrasijn die geschuult was in dat wout  
 he found a Sarrasijn that hidden was in the forest  
 'he found a Sarrasijn who was hiding in the forest'  
 (Duinhoven 1997:311)
- (69) hij vond een Sarrasijn die \*geschuuld (PART)/verscholen (ADJ) was  
 he found a Sarrasijn that hidden /hidden was  
 in het bos  
 in the forest  
 'he found a Sarrasijn who was hiding in the forest'

The development of the periphrastic perfect tense is connected with a categorial

change of both *hebben* ‘have’/*zijn* ‘be’ and the participle. The main verbs *hebben* and *zijn* are both reinterpreted as auxiliary verbs. Furthermore, the categorial status of the participle changes from adjectival to verbal.

Thus, at first the construction *hebben* ‘have’/*zijn* ‘be’ + participle refers to a state in which an object is situated as a result of a certain activity or event. This is the RESULTATIVE meaning of the construction. Gradually, the construction starts to refer to the activity/event itself. According to Bybee et al. (1994:68), the development from RESULTATIVE (57a) to ANTERIOR (57c) has taken place in Dutch, German, English, French, and Spanish. As a result, the periphrastic perfect tense could also be used with atelic activity verbs.

In Dutch, German, and French, the ANTERIOR marker further develops into a marker of the PAST (Bybee et al. 1994:81). As was noted above, the spread of the perfect tense to refer to eventualities in the recent past (57d) is the first step in this process. That the use of the perfect tense to express the PAST in German has developed further than in English can be seen from the fact that the perfect tense in German is fully compatible with PAST time adverbials (Klein 1994:128), as opposed to English (63):

- (70) er hat das Buch gestern gelesen  
 he has the book yesterday read  
 ‘he read the book yesterday’

Past time adverbials refer to a specific time in the past. These adverbials are compatible with past tense markers (which indicate that an eventuality occurred before the moment of speech), but not with anteriors, whose goal is not to locate an eventuality at some definite point in the past, but only to offer it as relevant to the current moment (Bybee et al. 1994:62). Thus, compatibility with PAST adverbials such as *yesterday* is a sign that a certain morphological item has a temporal interpretation (Comrie 1976:54).

The question is whether the development outlined above is in accordance with Cinque’s (1999) hierarchy of functional projections. In this hierarchy, PAST is represented in T(Past). The functional heads that correspond to the meanings of the PERFECT listed above are T(Anterior) and Asp<sub>perfect</sub>. Cinque (1999:73) notes that in many cases, it is not easy to tell apart anterior tense from perfect aspect. Cinque (1999:94) takes T(Anterior) to indicate temporal priority, more specifically the precedence of the event time with respect to the reference time. Anteriors can refer to a time point just prior to a future time or to a past time. Cinque (1999) argues that if a certain item gives rise to the pluperfect (the anterior of the past), it is a marker of T(Anterior) rather than Asp<sub>perfect</sub> (though he notes that “T(Anterior) morphology sometimes expresses perfect aspect syncretically” (Cinque 1999:196, footnote 59)). Furthermore, Cinque (1999) assumes that in English, PERFECT aspect is expressed by the auxiliary verb *have*.

With respect to the PERFECT OF RESULT, we have seen under (57a) that the resultative interpretation arises if a telic verb is embedded under the auxiliary verb *have*. Because of the compositional meaning of the resultative PERFECT (i.e. its

interaction with lexical aspect (“Aktionsart”)), it is not plausible that the auxiliary verb is positioned in a functional head which corresponds to this resultative meaning. Furthermore, as was noted above, in earlier stages of Dutch (as well as in earlier stages of German and English), the verb *have* in the RESULTATIVE perfect seems to be a main verb rather than an auxiliary that is situated in a functional head, since it combines with an adjective.

Summarizing, the perfect tense underwent the following expansion. From a RESULTATIVE marker it developed into an ANTERIOR marker and further into a PAST marker. In the hierarchy proposed by Cinque (1999), this development of the perfect tense can be summarized as follows:

$$(71) \quad [T(\text{Past}) > \dots [T(\text{Anterior})/\text{Asp}_{\text{perfect}} > \dots [V$$

$$\quad \quad \quad \uparrow \quad \quad \quad \downarrow \quad \quad \quad \uparrow \quad \quad \quad \downarrow$$

Following Cinque’s (1999) assumption that the PERFECT or PAST meaning is carried by the auxiliary verb, the path depicted in (71) involves raising of the auxiliary in the structure of functional projections.

In Modern Dutch, both the older aspectual and the more recent temporal meaning of the perfect tense can be distinguished (Janssen 1985, 1986). The construction in which *hebben* ‘have’ is a main verb and the participle functions as an adjective modifying the object still occurs in Modern Dutch. In (72), the participle *gebonden* ‘tied’ is an adjective, which can be seen from the fact that it obligatorily precedes *heeft* ‘has’ and the fact that the verb *zitten* ‘sit’ can be added, stressing the state reading:<sup>18</sup>

- (72) dat Peter zijn handen op zijn rug <gebonden> heeft  
 that Peter his hands on his back tied has  
 <\*gebonden> zitten  
 tied sit  
 ‘that Peter has his hands tied on his back’  
 (cf. Janssen 1985:61)

The construction in (73) is an example of (57c), the PERFECT OF PERSISTENT SITUATION. The perfect tense describes a situation that started in the past but continues into the present. The participle is not an adjective here, since it follows the auxiliary verb *is*:

<sup>18</sup> In Dutch, adjectives precede the finite verb in embedded clauses:

- (i) dat Jan hier niet <bekend> is \*<bekend>  
 that John here not known is known  
 ‘that John is a stranger here’

- (73) dat Walcheren vrijwel geheel door water is omgeven  
 that Walcheren almost completely by water is surrounded  
 ‘that Walcheren is almost completely surrounded by water’  
 (cf. Janssen 1986:71)

In the example in (74), the perfect tense has a temporal function, according to Janssen (1986:71). Here, the activity/event (*verlaten* ‘leave’) is stressed rather than a resulting situation.<sup>19</sup>

- (74) Jan heeft gisteren om tien uur de auto verlaten  
 John has yesterday at ten o’clock the car left  
 ‘John left the car yesterday at ten o’clock’

Thus, synchronically the perfect tense in Dutch can both express its more original

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<sup>19</sup> De Mey (1999) also argues that the Dutch perfect tense can express PAST, i.e. anchor an eventuality on the time axis. Although the perfect tense and the past tense both have a temporal function, there are differences in use. For example, (i) and (ii) have different interpretations (De Mey 1999:12):

- (i) de politie heeft gister een man gearresteerd die *deelnam* aan  
 the police has yesterday a man arrested that took-part in  
 een protest-demonstratie  
 a protest demonstration  
 ‘Yesterday the police arrested a man while he took part in a protest demonstration’
- (ii) de politie heeft gister een man gearresteerd die *heeft deelgenomen*  
 the police has yesterday a man arrested that has taken-part  
 aan een protest-demonstratie  
 in a protest demonstration  
 ‘Yesterday the police arrested a man who took part in a protest demonstration’

(i) expresses simultaneity: the apprehension took part during the demonstration. This is not the case in (ii): the arrest can be construed either as preceding the demonstration, as being simultaneous with it, or as following it. De Mey (1999) argues that this can be explained by the assumption that the past tense in the subordinate clause in (i) is anaphoric: it takes the event time of the main clause as antecedent. The perfect tense of the subordinate clause in (ii), on the other hand, is not anaphoric, so that its temporal interpretation is not determined by the event time of the main clause. The anaphoric nature of the past tense versus the non-anaphoric nature of the perfect furthermore explains why in out-of-the-blue contexts in Dutch the present perfect is obligatory. In Dutch, a sentence such as (iii) would not be uttered without any further discourse. In this case, the perfect tense is used (iv) (De Mey 1999:9):

- (iii) Gisteren las ik een boek  
 yesterday read I a book  
 ‘yesterday, I read a book’
- (iv) Gisteren heb ik een boek gelezen  
 yesterday have I a book read  
 ‘yesterday, I read a book’

aspectual PERFECT meanings and its derived temporal meaning. As was the case with *should* (discussed in section 1.6.1), this variation is accounted for by the assumption that synchronically, the auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ can raise in the hierarchy, from V to T(Anterior) to T(Past) (see (71)).

Similarly, the German perfect tense can both express PAST and PERFECT, according to Klein (1994). Klein (1994:128-129) argues that the historical process by which the aspectual function of the perfect tense was slowly replaced by a temporal function is incomplete, since in appropriate contexts the old reading surfaces. For example, the aspectual (ANTERIOR) meaning of the perfect is entirely intact in the case of (75), where the perfect tense is embedded under the future auxiliary *wird* ‘will’:

(75) ich werde gearbeitet haben  
 I will worked have  
 ‘I will have worked’

Thus, in specific contexts the perfect tense in German can have an aspectual, PERFECT meaning.

In chapters 2 and 3, I will come back to the polysemy of the auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’. There, I will show that in constructions with modal verbs (comparable to (75)), the auxiliary verbs can either precede or follow the modal. I will argue that this variable order corresponds to a meaning difference, namely whether *hebben/zijn* express PAST tense or PERFECT aspect. Furthermore, I will show that the variable orders of modals and *hebben/zijn* follow from the hierarchy of functional projections as proposed by Cinque (1999).

The next two chapters are concerned with infinitival complements in Middle and Modern Dutch. In these chapters, we will encounter more examples of synchronic variation which is the result of grammaticalization, namely synchronic variation in the meanings of modal verbs and synchronic variation in the meaning of the infinitival marker *te* ‘to’. The goals of these chapters are the following. First, I will apply the approach of Roberts & Roussou (1999) and Roberts (forthcoming) to grammaticalization that was outlined above to various developments in the domain of Dutch infinitival complements. Second, I will further explore the hypothesis that raising is responsible for meaning changes of functional items.



## Chapter 2

### Grammaticalization and bare infinitival complements in Dutch

#### 2.1. Introduction

Infinitival complements in Dutch come in two varieties. First, there are infinitival complements which lack the infinitival marker *te* ‘to’ (1a). These will be referred to as bare infinitival complements. Second, there are infinitival complements which contain *te* ‘to’ (1b). I will refer to them as *te*-infinitival complements.

- (1) a. dat    Jan    *wil*    *lezen*  
      that    John    wants    read  
          ‘that John wants to read’
- b. dat    Jan    *probeert*    *te lezen*  
      that    John    tries        to    read  
          ‘that John tries to read’

*Te*-infinitival complements are discussed in chapter 3. In this chapter, I focus on bare infinitival complements.

The chapter is organized as follows. In section 2.2, I give an overview of the distribution of bare infinitives in Dutch. Section 2.3 contains a brief summary of previous analyses of bare infinitival complements in Dutch. We will see that it is generally assumed that modal and auxiliary verbs are lexical V heads. As opposed to these analyses, I argue in the sections 2.4. through 2.7 that there are several advantages if modals and auxiliaries are analyzed as functional heads in the hierarchy proposed by Cinque (1999).

## 2.2. The syntactic distribution of bare infinitives in Modern Dutch

Bare infinitives occur in the following contexts:

(2)

(A) In the complement of the modal verbs *kunnen* ‘can’, *moeten* ‘must’, *mogen* ‘may’, *willen* ‘want’, and *zullen* ‘shall’:

(3) dat Jan een boek kan (\*te) lezen  
 that John a book can to read  
 ‘that John can read a book’

(B) In the complement of the aspectual auxiliary verbs *blijven* ‘stay’ and *gaan* ‘go’:

(4) dat Jan een boek gaat (\*te) lezen  
 that John a book goes to read  
 ‘that John is going to read a book’

(C) In the complement of Exceptional Case Marking (ECM) verbs, namely the perception verbs *horen* ‘hear’, *ruiken* ‘smell’, *voelen* ‘feel’, and *zien* ‘see’ (5) and the causative verbs *doen* ‘make’ and *laten* ‘make, let’ (6):

(5) dat Jan mij een boek ziet (\*te) lezen  
 that John me a book sees to read  
 ‘that John sees me read a book’

(6) dat Jan mij een boek laat (\*te) lezen  
 that John me a book lets to read  
 ‘that John lets me read a book’

(D) In infinitival main clauses:

(7) Jan een boek (\*te) lezen? (Onmogelijk)<sup>20</sup>  
 John a book to read (Impossible)  
 John reading a book? (Impossible)

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<sup>20</sup> We will see in the next chapter, section 3.7, that under certain circumstances *te*-infinitives can occur in infinitival main clauses.

- (E) In nominalizations:
- (8) a. het (\*te) lezen van een boek is saai  
 the to read of a book is boring  
 ‘reading a book is boring’  
 b. boeken (\*te) lezen is saai<sup>21</sup>  
 books to read is boring  
 ‘reading books is boring’  
 c. ik houd van boeken (\*te) lezen  
 I like of books to read  
 ‘I like reading books’

### 2.3. Previous analyses of bare infinitival complements

In his pioneering work on Dutch verb clusters, Evers (1975) analyzes every verbal complement as an S’ (i.e. CP). In later work (e.g. Bennis & Hoekstra 1989a,b, Den Besten & Broekhuis 1989, Rutten 1991) it is generally assumed that bare infinitival complements are VPs.

Verbs that select bare infinitival complements are all so-called *Verb Raising* verbs. Verb Raising constructions are characterized by a cluster of verbs at the end of embedded clauses. In standard Dutch, this cluster cannot contain direct objects nor adverbs:<sup>22</sup>

- (9) a. dat Jan <het boek> wil <\*het boek> lezen  
 that John the book wants the book read  
 ‘that John wants to read the book’  
 b. dat Jan <nu> wil <\*nu> lezen  
 that John now wants now read  
 ‘that John wants to read now’

The authors cited above all work from the hypothesis that Dutch is an OV (head final) language. (10) represents the underlying head final structure of the VPs in (9a) (*het*

<sup>21</sup> In this type of nominalization, *te*-infinitives are sometimes possible (see chapter 3, section 3.7).

<sup>22</sup> In many varieties of Flemish (Vanacker 1970) and in earlier stages of Dutch (i) (Hoeksema 1993), the verb cluster can be interrupted by nonverbal material. In the generative literature, this construction has been dubbed *Verb Projection Raising* construction (Den Besten, Rutten, Veenstra & Veld 1988):

(i) Hoe hi sal vier scoen ghewinnen  
 how he shall four shoes gain  
 ‘how he will gain four shoes’  
 (Vanden Vos Reynaerde, quoted from Hoeksema 1993:157)

*boek wil gaan lezen*):

- (10) [VP [VP [VP [NP het boek ] lezen ] gaan ] wil ]

The operation Verb Raising adjoins the embedded verb to its selecting verb. That is, the lexical verb *lezen* is right-adjoined to the verb *gaan*, and the complex *gaan lezen* is right-adjoined to the highest verb, *wil*. As a result, no element can appear within the verbal cluster.

- (11) [VP [VP [VP [NP het boek ] t<sub>i</sub> ] t<sub>j</sub> ] wil [gaan [lezen]<sub>i</sub> ]<sub>j</sub> ]

Zwart (1993) follows Kayne (1994) in assuming that all languages have an underlying head initial order. That is, all maximal projections are head-initial. It follows that the underlying structure of *het boek wil gaan lezen* is as in (12):

- (12) [VP wil [VP gaan [VP lezen [NP het boek ]]]]

Since the underlying order of the verbs already represents the surface order, the operation Verb Raising does not take place.<sup>23</sup> Zwart (1993) assumes that the direct object moves to the specifier of AgrOP. In the Verb Raising construction, the AgrOP is in the matrix clause:

- (13) [<sub>AgrOP</sub> [NP het boek ]<sub>i</sub> AgrO [VP wil [VP gaan [VP lezen t<sub>i</sub> ]]]]  
(Zwart 1993:345)

Thus, according to traditional analyses, modal and aspectual verbs are V<sup>0</sup>s that select a VP. In the following, I will argue that this analysis has several drawbacks. The goal of this chapter is to show that an analysis along the lines of Cinque (1997a,b, 1999), in which modal and aspectual verbs head their own functional projection, is to be preferred above the analyses in (10)-(13).

In the following section, I will first summarize Cinque's (1997a,b, 1999) proposal to merge modal verbs and aspectual verbs in a functional head (2.4.1) and then discuss its consequences for Dutch (2.4.2). The advantages of this approach will be discussed in the sections 2.5 through 2.7.

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<sup>23</sup> The West Germanic languages show an enormous amount of word order variations within the right-peripheral verbal complex (cf. a.o. Den Besten & Edmondson 1981; Den Besten & Broekhuis 1989; Haegeman 1995; Hoekstra 1994; Rutten 1991; Zwart 1995). Since this dissertation is only concerned with standard Dutch, in which the surface order of verbs in bare infinitival complements corresponds to the underlying (VO) order, this variation will not be discussed.

## 2.4. Modals and auxiliaries as functional heads

### 2.4.1. A monoclausal analysis of modals and auxiliaries (Cinque 1997a,b)

Cinque (1997a,b) suggests that modals and auxiliaries correspond to the modal and aspectual functional heads in the hierarchy of functional projections discussed in the previous chapter. This hierarchy is repeated in (14):

- (14) [Mood<sub>speech act</sub> [Mood<sub>evaluative</sub> [Mood<sub>evidential</sub> [Mod<sub>epistemic</sub> [T(Past) [T(Future)  
 [Mood<sub>irrealis</sub> [Mod<sub>necessity</sub> [Mod<sub>possibility</sub> [Mod<sub>volitional</sub> [Mod<sub>obligation</sub>  
 [Mod<sub>ability/permission</sub> [Asp<sub>habitual</sub> [Asp<sub>repetitive(I)</sub> [Asp<sub>frequentative</sub> [Asp<sub>celerative(I)</sub>  
 [T(Anterior) [Asp<sub>terminative</sub> [Asp<sub>continuative</sub> [Asp<sub>perfect</sub> [Asp<sub>retrospective</sub> [Asp<sub>proximative</sub>  
 [Asp<sub>durative</sub> [Asp<sub>generic/progressive</sub> [Asp<sub>prospective</sub> [Asp<sub>SgCompletive(I)</sub> [Asp<sub>PlCompletive</sub>  
 [Voice [Asp<sub>celerative(II)</sub> [Asp<sub>SgCompletive(II)</sub> [Asp<sub>repetitive(II)</sub> [Asp<sub>frequentative(II)</sub> ..  
 (Cinque 1999:81, 106)

According to Cinque (1997a,b), Italian modal verbs (e.g. *volere* ‘want’, *dovere* ‘must’) and aspectual verbs (e.g. *venire* ‘come’, *andare* ‘go’) are generated in one of the functional heads in (14).

In the literature, these modal and aspectual verbs are known as “restructuring verbs” (a.o. Rizzi 1982). Restructuring verbs have several characteristics which distinguish them from lexical verbs. One of these properties is that they allow a clitic pronoun (CL) to be moved out of the infinitival complement into the matrix clause (clitic climbing). This is illustrated in (15b):

- (15) a. Gianni vuole far-lo  
 Gianni wants make-it (CL)  
 ‘Gianni wants to make it’  
 b. Gianni lo vuole fare  
 Gianni it (CL) wants make  
 ‘Gianni wants to make it’

Cinque (1997a,b) argues that the transparency of restructuring complements illustrated in (15b) suggests that sentences containing restructuring verbs are monoclausal. This monoclausal nature can be expressed in the following way: a restructuring verb ( $V_{restr}$ ) is not generated as a  $V^0$  that selects a CP infinitival complement (as in 16a), but as a functional head in the extended projection of the lexical verb (16b):

- (16) a. [CP... [FP... [FP... [VP  $V_{restr}$  [CP... [FP... [FP ...[VP V ]]]]]]]]  
 b. [CP... [FP... [FP  $V_{restr}$  [FP... [VP V ]]]]]

Thus, modal and aspectual verbs are not generated in a lexical VP, but in the semantically corresponding functional head (14). The modal/aspectual verb and the main verb share one layer of FPs.

We have seen in the preceding section that modal verbs and aspectual auxiliaries in Dutch are all Verb Raising verbs in the sense that elements such as direct objects or adverbs cannot surface in the infinitival complement (9a-b). In this respect, these bare infinitival constructions resemble restructuring constructions in Italian (as is noted by Rizzi 1982 and Rutten 1991, chapter 4). In most analyses, Verb Raising constructions are analyzed as monoclausal structures that do not take a CP complement, but a VP complement, as in (17). Under this analysis, modals and aspectual verbs are lexical V heads:

(17) [CP... [FP... [VP V<sub>restr</sub> [VP V ]]]]

Cinque does not mention (17) as a possible structure for restructuring constructions, since he assumes that every VP is dominated by the full range of functional projections (Cinque 1999:127). This is a theoretical assumption, which could be abandoned. The question is whether there are any empirical reasons to adopt the analysis in (16b) (that is, to adopt the assumption that verbs taking bare infinitives are functional heads) for Dutch.

#### 2.4.2. Dutch modals and auxiliaries as functional heads

In section 1.4.2, we have seen that it has been argued that the grammaticalization of the English modal verbs was accompanied by a reanalysis of lexical verbs ( $V^0$ s) to functional heads ( $T^0$ s). The analysis in which modals are base generated in  $T^0$  accounts for their particular (morphosyntactic) properties: the lack of inflection on modals, the incompatibility with *do* and *to*, the non-iterativity of modals, and the fact that modals do not take object NPs.

The Dutch modal verbs share some properties with their English counterparts, but not all. As opposed to English, Dutch modals can appear in the past tense (18):

(18) Jan    kon/                mocht/                moest/                wilde        lezen  
       John   was able to/    was allowed to/ had to/        wanted to    read  
       'John was able to/was allowed to/had to/wanted to read'

Furthermore, unlike English, modals in Dutch can cooccur (19):

(19) Jan    *moet kunnen*    lezen  
       John   must    can        read  
       'John must be able to read'

A similarity between English and Dutch modals is that Dutch modal verbs do not select *te*-infinitives (3). Furthermore, as in English, Dutch modals have less inflection in comparison to non-modal, lexical verbs. First, Dutch modal verbs cannot appear as a

perfect participle if they select another verb (i.e., if they are used as an auxiliary verb).<sup>24</sup>

- (20) dat Jan het boek heeft willen (INF) /\*gewild (PART) lezen  
 that John the book has want wanted read  
 ‘that John has wanted to read the book’

The IPP-effect is not a unique property of modal verbs, however. Lexical verbs such as *leren* ‘learn’ and *zien* ‘see’ cannot show up as a participle in verb clusters either:

- (21) dat Jan heeft leren (INF) /\*geleerd (PART) lezen  
 that John has learn learned read  
 ‘that John has learned to read’  
 (22) dat Jan mij heeft zien (INF) /\*gezien (PART) lezen  
 that John me has see seen read  
 ‘that John saw me read’

Thus, the IPP-effect is not a solid test to establish the functional status of verbs.

Second, modals cannot be passivized (23). Passives can be embedded under the modals (24):

- (23) \*dat het boek wordt moeten/gemoeten lezen  
 that the book is must/must read  
 (24) dat het boek moet worden gelezen  
 that the book must be read  
 ‘that the book must be read’

The prohibition against passivization also holds for German modals. Wurmbrand (1998:268-269) considers this to be an argument in favor of the analysis of modals as functional heads instead of lexical heads. As can be seen from (14), the modal projections are in a position higher than the head that encodes voice properties (Voice<sup>0</sup>). Under the assumption that for a verb to be passivized it must raise to Voice<sup>0</sup> to pick up passive morphology, it follows that modal verbs will be unable to bear passive morphology, as lowering is excluded.<sup>25</sup> However, Barbiers (1995:157-158)

<sup>24</sup> In the perfect tense, the verb following the auxiliary *hebben* (‘have’) or *zijn* (‘be’) has the shape of a participle (PART):

- (i) dat hij dat niet heeft gewild (PART)  
 that he that not has wanted  
 ‘that he did not want that’

However, if the verb cluster contains more than two verbs, an infinitive (INF) replaces the expected participle in the perfect tense, as in (20). This phenomenon is called the IPP (*Infinitivus pro Participio*)-effect (e.g. Den Besten & Edmondson 1981; Den Dikken 1989; Van Helten 1892; Ilbema 1997; Ponten 1971).

<sup>25</sup> This argument originates from Cinque (1997a), who argues that the non-passivizability of Romance

argues that the non-passivizability of modals is related to the fact that they are stative verbs. Stative verbs can never be passivized (25):

- (25) \*het antwoord wordt geweten  
 the answer is known

Thus, the behaviour of modals with respect to passivization can be explained without assuming that these verbs are functional. This property, then, does not decide in favor of the functional status of modals either.

It is controversial whether Dutch modals lack a direct object like their English counterparts. In (26), *moeten* ‘must’ seems to select a DP:

- (26) Jan moet een boek  
 John must a book  
 ‘John wants to have a book’

Vanden Wyngaerd (1994:65-68) proposes that if a modal verb selects a non-verbal complement, a silent infinitive is present. In his view, (26) is derived from (27):

- (27) Jan moet een boek hebben  
 John must a book have  
 ‘John wants to have a book’

In (27), *moeten* has a verbal complement (*een boek hebben* ‘a book have’). Barbiers (1995:150-161), on the contrary, argues that modals can take non-verbal complements. That is, in (26) *moeten* directly selects the DP *een boek*. Barbiers (1995:156) rejects the third possibility, namely that each modal verb can be used as an auxiliary and as a main verb, i.e. the possibility that there are two lexical entries for each modal. The reason for rejecting this analysis is that the interpretation of the “auxiliary” *mogen* in (28a) is identical to the interpretation of the “main verb” *mogen* in (28b), namely ‘like’:

- (28) a. Jan mag graag een uur per dag hardlopen  
 John may gladly an hour a day run  
 ‘John likes it to run one hour a day’

---

restructuring verbs follows from the fact that these restructuring verbs are generated in a higher functional projection than Voice<sup>0</sup>. The following examples are from Italian:

- (i) \*mi è stato voluto dare (da Gianni)  
 me was wanted give by Gianni  
 ‘it was wanted to give to me (by Gianni)’  
 (Cinque 1997a:45-46)

- b. Jan mag Marie graag  
 John likes Mary gladly  
 ‘John likes Mary’  
 (Barbiers 1995:156)

According to Barbiers, the examples in (28) suggest that we are dealing with the same lexical item *mogen*. However, *mogen* in (28a) and (28b) differ in that *graag* ‘gladly’ in (28b) is optionally present. That is, if *graag* is deleted, *mag* still has the meaning ‘like’ (29b). If *graag* is left out in (28a), on the other hand, the meaning of *mag* shifts to ‘be allowed to’ (29a):

- (29) a. Jan mag een uur per dag hardlopen  
 John may an hour a day run  
 ‘John is allowed to run one hour a day’  
 b. Jan mag Marie  
 John likes Mary  
 ‘John likes Mary’

The meaning shift in (29) is unexpected if *mogen* is the same lexical item with the same meaning in these sentences. Rather, (29) seems to be more compatible with an analysis in which there are two entries for modal verbs. If they select a non-verbal complement, they are generated as  $V^0$ s, if they have a verbal complement, they are generated as  $F^0$ s.

The modal *willen* ‘want’ differs from the other modal verbs in that it can take a CP complement, as (31b) shows:

- (30) a. dat Jan gelukkig kan/mag/moet zijn  
 that John happy can/may/must be  
 ‘that John is able to/is allowed to/has to be happy’  
 b. \*dat Jan kan/mag/moet dat hij gelukkig is  
 that John can/may/must that he happy is
- (31) a. dat Jan gelukkig wil zijn  
 that John happy wants be  
 b. dat Jan wil dat hij gelukkig is  
 that John wants that he happy is  
 ‘that John wants that he is happy’

(31b) suggests that Dutch *willen* ‘want’ is not a functional, but a lexical verb. In the next two sections, we will encounter more evidence for this assumption.<sup>26</sup>

<sup>26</sup> In English, the modal ‘want’ behaves different from other modal verbs as well. *Want* does not exhibit the properties of English modals mentioned above. It can be inflected (*wants*, *wanted*), it selects a *to*-infinitive (i), and it can select an NP (ii):

- (i) John wants to read  
 (ii) John wants a beer

A further property of Dutch modals is that they can be reduced phonetically in inversion contexts (Booij & Rubach 1987; Van Koppen 1999a,b). In the following examples, a weak subject pronoun is incorporated in a modal verb. The result is that the verb is reduced in the sense that it loses the last consonant of its stem (in 32-36) and, if present, its verbal ending (-en in 32):

- |      |   |                            |
|------|---|----------------------------|
| (32) | <i>Moeten</i> we komen?<br>must we come<br>'should we come?'  | → <i>moe-we</i><br>must-we |
| (33) | Morgen <i>mag</i> je langskomen<br>tomorrow may you pass-by<br>'you can pass by tomorrow'                           | → <i>ma-je</i><br>may-you  |
| (34) | Morgen <i>kan</i> ze komen kijken<br>tomorrow can she come look<br>'she can come and take a look tomorrow'          | → <i>ka-ze</i><br>can-she  |
| (35) | Morgen willen we de papieren hebben<br>tomorrow want we the papers have<br>'we want to have the papers by tomorrow' | → <i>wi-we</i><br>want-we  |
| (36) | <i>Zal</i> ik dat doen?<br>will I that do?<br>'shall I do that?'  | → <i>za-k</i><br>will-I    |

Van Koppen (1999b) shows that the possibility of phonetic reduction is limited to modal verbs in their use as an auxiliary verb. If they are used as a main verb, the subject pronoun cannot be incorporated, as (37) and (38) show:

- |      |   |  |
|------|---|--|
| (37) | <i>mag</i> je Truus niet?<br>may you Truus not<br>'don't you like Truus?' | → * <i>ma-je/mag-je</i><br>may-you/may-you       |
| (38) | jou moeten we niet<br>you must we not<br>'we don't like you'              | → * <i>moe-we/moete(n)-we</i><br>must-we/must-we |

Van Koppen (1999b) draws the same conclusion for the verbs *blijven* 'stay', *lopen* 'walk', and *zitten* 'sit'. They can only undergo phonetic reduction in constructions in which they function as an aspectual auxiliary. Furthermore, the temporal auxiliaries *hebben* 'have' and *zijn* 'be' can be phonetically reduced. Verbs such as *horen* 'hear' and *beloven* 'believe' (in their use as verbs selecting an infinitival complement) cannot be reduced. Generally, it appears that only functional elements can undergo phonetic reduction. Besides verbs, elements that can be reduced in Dutch are function words such as the complementizer *dat* 'that' (Booij 1996) and the complementizer *als* 'if'

(Van Koppen 1999a).<sup>27</sup>

As was already mentioned above, Wurmbrand (1998, chapter 6) proposes that German modal verbs are base generated in functional heads. Modals in German differ from English modals in a similar way as Dutch modals: they can appear in the past tense and they can cooccur. According to Wurmbrand (1998), German modals are not base generated in  $T^0$  (as the English modals), but as the head of one of the ModPs in Cinque's (1999) hierarchy (14). Since the ModPs are dominated by Tense (see 14), modals can be combined with inflectional elements. Furthermore, since there are several ModPs, modal verbs can be stacked.

### 2.4.3. Conclusion

Summarizing this section, the English modal verbs share a cluster of syntactic and morphological characteristics. These properties cannot be used as defining characteristics of modals in Dutch. As was mentioned above, Heine (1993:69-70) notes that auxiliary-hood is a gradual notion. That is, auxiliary verbs (under which the modal verbs) may exhibit properties of lexical verbs and of auxiliary verbs at the same time. This is hard to express in a framework which forces one to categorize an auxiliary as either a lexical item (a  $V^0$ ) or a functional item (a  $F^0$ ). Since the special properties of English modals are expressed by assuming that they are generated in Tense, and since Dutch modals lack most of these properties, the latter are usually categorized as  $V^0$ s. We have, however, encountered some evidence that modal verbs are different from lexical verbs: modals can be phonetically reduced. The assumption that Dutch modals are ModPs makes it possible to analyze them as functional heads without making the false prediction that they are in complementary distribution with Tense, since the tense node is higher than the ModPs. It must be admitted, though, that the syntactic argumentation for this analysis is rather weak. It is not obvious how exactly the possibility of phonetic reduction follows from the fact that a modal is generated in a ModP, especially not since reduction only takes place in inversion contexts, in which the modal verb is situated in  $C^0$ . I will leave this for further research.

In the next sections, I will focus on the meanings of modal verbs from a diachronic and a synchronic perspective. Furthermore, I will limit myself to the modals that take an infinitival complement. I will not further address constructions containing root modals, such as (26) and (29b). I will show that considering modals as functional heads in the hierarchy proposed by Cinque (1999) and adopting a monoclausal analysis of constructions containing a modal and/or an auxiliary verb has several advantages.

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<sup>27</sup> The verb *hoeven* 'need' was not tested in Van Koppen (1999a,b). In some analyses, this verb is treated on a par with the modals *kunnen* 'can' etc. (Barbiers 1995). It seems to me that *hoeven* does not allow reduction:

- (i)        ??hoe-ze    geen boek    te lezen?  
              need-she   no book     to read

This could be taken as evidence that *hoeven* 'need' is not a functional head.

These advantages will be introduced here shortly and discussed in detail in the remaining sections. First, there are restrictions on the order of auxiliaries and modals in Modern Dutch which remain unexplained under the analyses in (10)-(13) (i.e., the analyses in which these verbs are lexical V heads selecting a VP complement). These ordering restrictions will be discussed extensively in section 2.5. Second, we will see in section 2.6 that modal verbs in Dutch have undergone semantic changes in the course of time. I will argue that these diachronic meaning changes can be described in the same way as synchronic differences in meaning, namely as raising of the modal verbs in the hierarchy proposed by Cinque (1999). These semantic changes, then, present another example of the development in which a grammaticalizing item “climbs” in this hierarchy of functional projections. Third, modal verbs in Modern Dutch can express different modal meanings. The possibilities are restricted, however: modal verbs cannot be substituted for each other randomly. It will be shown in the second part of section 2.6 that the different meanings of modal verbs and their restrictions follow from the restriction to leftward movement in Cinque’s hierarchy. Thus, both synchronic and diachronic variation will be shown to follow from this hierarchy. Fourth, a further ordering restriction concerns the auxiliary verbs *hebben* ‘have’/*zijn* ‘be’ on the one hand and deontic modal verbs on the other hand. In section 2.7, it will turn out that temporal auxiliaries can both follow and precede deontic modals, depending on the context. I will argue that this follows from the fact that the Dutch auxiliaries *hebben* ‘have’ and *zijn* ‘be’ have different meanings, namely an aspectual and a temporal meaning, as was already discussed in section 1.6.2.2. I will argue that the interpretation of these auxiliaries corresponds to two different positions of *hebben* ‘have’/*zijn* ‘be’ in the functional hierarchy. Fifth, I will argue in chapter 3 that the Dutch infinitival marker *te* ‘to’ is situated in either Mood<sub>irrealis</sub> or T(Past). Since these projections both dominate the ModPs, and since modal verbs are restructuring verbs (i.e. have a monoclausal structure with only one layer of functional projections, as in (16b)), it follows that *te* ‘to’ is excluded in the infinitival complement of modal verbs.

## 2.5. Ordering restrictions on modal and aspectual verbs in Modern Dutch

We have seen in section 2.3 that according to traditional analyses, modal and aspectual verbs are V<sup>0</sup>s that select a VP. However, there are systematic restrictions on the order of modals and aspectual verbs that do not follow from these analyses, but that are predicted by the hierarchy of functional projections in (14).

I will first discuss the modal verbs with an epistemic meaning. Cinque (1999) distinguishes different nodes for epistemic verbs: Mod<sub>epistemic</sub>, Mod<sub>necessity</sub> and Mod<sub>possibility</sub>. I will come back to this in 3.6.3.2. All the epistemic projections dominate the deontic modal projections (Mod<sub>volitional</sub>, Mod<sub>obligation</sub>, and Mod<sub>ability/permission</sub>) and the aspectual projections. The relevant part of the hierarchy is represented in (39):

- (39) [Mood<sub>epistemic</sub> ... [Mod<sub>necessity</sub> [Mod<sub>possibility</sub> [Mod<sub>vol(itional)</sub> [Mod<sub>obl(igation)</sub>  
[Mod<sub>ab(ility)/perm(ission)</sub> ... [Asp<sub>perfect</sub> ... [Asp<sub>durative</sub> ... [Asp<sub>prospective</sub>

First, since in (39) the deontic modal projections are lower than the epistemic projections, (39) correctly predicts that deontic modal verbs cannot embed epistemic modals:

- (40) \*dat Jan morgen wel mag<sub>perm</sub> kunnen<sub>ep</sub> lezen  
that John tomorrow well may can read

Second, it follows from (39) that epistemic modals can select the verbs which correspond to the lower functional heads. It will be shown below under (46) that *kunnen* ‘can’ with a deontic interpretation cannot embed another modal verb. If *kunnen* has an epistemic meaning (denoting a possibility), however, it can select deontic modals:

- (41) a. Jan kan<sub>ep</sub> morgen wel een boek mogen<sub>perm</sub> lezen  
John can tomorrow well a book may read  
‘John might be allowed to read a book tomorrow’  
b. Jan kan<sub>ep</sub> morgen wel in het ziekenhuis moeten<sub>obl</sub>  
John can tomorrow well in the hospital must  
worden opgenomen  
be admitted  
‘John might be admitted to hospital tomorrow’

Similarly, the epistemic verb *moeten* ‘must’ can select a deontic modal:

- (42) De kinderen moeten<sub>ep</sub> wel buiten mogen<sub>perm</sub> spelen  
the children must well outside may play  
(want er ligt allemaal speelgoed op het schoolplein)  
(because there lie a lot of toys on the school yard)  
‘It must be that the children are allowed to play outside (since there are a lot of toys on the schoolyard)’

Turning now to the deontic modals, it can be shown that the possibilities to mutually combine deontic modals in Dutch largely follows from the order of ModPs in (39). Following Cinque (1999:138-140), I assume that *moeten* ‘have to’ is base generated in the functional projection Mod<sub>obligation</sub>, and *zullen* ‘will’ in T(Future).<sup>28</sup> As can be seen from (39), Cinque (1999) takes the notions ‘ability’ and ‘permission’ to represent two different values of one and the same head (Mod<sub>ability/permission</sub>). According

<sup>28</sup> I do not include *willen* ‘want’ here, since we have seen in the preceding section that it is doubtful whether *willen* ‘want’ is a functional head.

to Cinque (1999:81), there is no clear evidence for ordering these two notions. However, in Dutch at least ability and permission can be expressed separately, with permission having scope over ability (43). The reverse order seems to be impossible (44).<sup>29</sup>

- (43) iedereen mag<sub>perm</sub> van mij kunnen<sub>ab</sub> lezen wat er staat  
 everybody may of me can read what there stands  
 ‘every is allowed (by me) to be able to read what it says’
- (44) \*je kan<sub>ab</sub> mogen<sub>perm</sub> lezen wat er staat  
 you can may read what there stands

With this addition, the relevant part of the hierarchy of deontic modals is as in (45):

- (45) [Mod<sub>vol(itional)</sub>] [Mod<sub>obl(igation)</sub> *moeten* ‘have to’] [Mod<sub>perm(ission)</sub> *mogen* ‘be allowed to’] [Mod<sub>ab(ility)</sub> *kunnen* ‘be able to’]

The example in (46) shows that *kunnen* ‘be able to’ as a deontic verb cannot embed the modal verb *moeten* ‘have to’.<sup>30</sup> This follows from (45), in which Mod<sub>ability</sub> is dominated by Mod<sub>obligation</sub>:

- (46) \*Jan kan<sub>ab</sub> moeten<sub>obl</sub> lezen  
 John can must read

The order of modal projections in (45) furthermore predicts the impossibility of the combination in (47) and the grammaticality of (48a-b):

- (47) \*Jan mag<sub>perm</sub> moeten<sub>obl</sub> lezen  
 John may must read
- (48) a. Jan moet<sub>obl</sub> kunnen<sub>ab</sub> lezen  
 John must can read  
 ‘John must be able to read’
- b. Jan moet<sub>obl</sub> wel mogen<sub>perm</sub> komen van z’n ouders  
 John must well may come from his parents  
 ‘John’s parents must allow him to come’

The following examples show that *willen* ‘want’ can follow other modal verbs. If *willen* were a functional head in Mod<sub>volition</sub>, this would be unexpected, since Mod<sub>vol</sub> is the highest modal projection. However, we have seen in the preceding section that *willen*

<sup>29</sup> Note that the order in (44) is only excluded if *kunnen* ‘can’ has a deontic interpretation. *Kunnen* can express possibility in (44) as an epistemic verb.

<sup>30</sup> Again, (46) is grammatical if *kunnen* is used as an epistemic verb, expressing a possibility.

can select CP complements, which suggests that it is a lexical rather than a functional head.

- (49) Je mag van mij best willen weten wat er staat  
 you may of me well want know what there stands  
 ‘you are allowed to want to know what it says’
- (50) Je moet het wel willen leren (anders lukt  
 you must it well want learn (otherwise succeeds  
 het nooit)  
 it never  
 ‘you have to be willing to learn it, otherwise you’ll never succeed’

Cinque (1997a,b) suggests that aspectual auxiliary verbs are generated as functional heads as well. Assume that *blijven* ‘remain’ corresponds to Asp<sub>durative</sub>, and *gaan* ‘go’ and *komen* ‘come’ to Asp<sub>prospective</sub>.<sup>31</sup> The relevant part of the functional hierarchy is given in (51):

- (51) [Mod<sub>volitional</sub> [Mod<sub>obligation</sub> [Mod<sub>permission</sub> [Mod<sub>ability</sub> ... [Asp<sub>durative</sub> *blijven*  
 ‘remain’ [Asp<sub>prospective</sub> *gaan* ‘go’, *komen* ‘come’

Since the Aspect projections are dominated by the deontic Modality projections, it is predicted that deontic modals can embed aspectual auxiliaries:

- (52) Jan kan/moet/mag hier blijven/gaan/komen werken  
 John can/must/may here stay/go/come work  
 ‘John is able to/has to/is allowed to stay here and work’  
 ‘John is able to/has to/is allowed to come here and work’

Furthermore, the fact that aspectual auxiliaries cannot embed the modal verbs (53) follows from the hierarchy in (39), in which the Aspect projections are dominated by the Tense and Modality projections.

- (53) \*Jan blijft/gaat/komt kunnen/moeten/mogen lezen  
 John remains/goes/comes can/must/may read

The relative order of the Aspect projections, Asp<sub>durative</sub> > Asp<sub>prospective</sub> predicts the ungrammaticality of (54a-b). It also predicts that (54c) is possible. Although (54c) sounds somewhat odd, it is more acceptable than (54a-b):

- (54) a. \*Jan gaat hier blijven/komen wonen  
 John goes here remain/come live

<sup>31</sup> Cinque (1999:99) refers to the English construction ‘be going to’ as denoting prospective aspect.

- b. \*Jan komt hier een boek blijven/gaan lezen  
 John comes here a book remain/go read
- c. ?ze blijven hier maar aan de deur komen zeuren  
 they remain here but at the door come bother  
 ‘they keep bothering us at the door’

Zwart (p.c.) gives the following (slightly marked) example which seems to contradict the hierarchical order  $Asp_{durative} > Asp_{prospective}$ :

- (55) ?gaat<sub>prosp</sub> Jan hier zomaar een boek blijven<sub>dur</sub> staan  
 goes John here for no reason a book remain stand  
 lezen  
 read  
 ‘for no reason, John came here and kept on reading a book’

The question is, however, whether *gaan* ‘go’ is an instance of  $Asp_{prospective}$ . The sentence seems to express an evaluation of the situation that *John* all of a sudden stays here and reads a book, rather than expressing the intention of John to do so. *Gaan* might be considered a semantically empty (light) verb here.

In the example in (56) (Zwart p.c.), there seem to be two instances of the functional head  $Asp_{prosp}$ . Although (56) is no counterexample against the hierarchy of functional projections, the question is whether the system allows for one functional head to be occupied by two verbs:

- (56) ?komt<sub>prosp</sub> Jan hier zomaar een boek gaan<sub>prosp</sub> staan  
 comes John here for no reason a book go stand  
 lezen  
 read  
 ‘for no reason, John came here and started to read a book’

The example in (56) is marked. Furthermore, according to my judgement, the acceptability of (56) decreases if the verb *komen* ‘come’ immediately precedes the other verbs in an embedded sentence.

- (57) ??dat Jan hier zomaar een boek komt gaan staan  
 that John here for no reason a book comes go stand  
 lezen  
 read

Also, if the durative verb *staan* ‘stand’ is left out, the example becomes less acceptable:

- (58) ??komt Jan hier zomaar een boek gaan lezen  
 comes John here for no reason a book go read

At this point, it is not clear to me what the exact conditions are under which *komen* ‘come’ and *gaan* ‘go’ can be combined and what consequences the conditions have for the identification of these two verbs. I will leave this for further research.

I conclude that it seems that certain ordering restrictions of modals and auxiliaries follow from the hierarchy of functional projections in (14). This is the advantage of adopting a structure such as (16b) compared to the VP structure (10)-(13), in which all these restrictions need to be stipulated or treated as a lexical phenomenon.

Until now, the Tense projections have not been taken into account. (59) shows that these projections dominate the deontic modal projections and the aspectual projections:

- (59) [Mood<sub>epistemic</sub> [T(Past) [T(Future) [Mood<sub>irrealis</sub> [Mod<sub>necessity</sub> [Mod<sub>possibility</sub>  
[Mod<sub>volitional</sub> [Mod<sub>obligation</sub> [Mod<sub>ability/permission</sub> [Asp<sub>perfect</sub> [Asp<sub>durative</sub> [Asp<sub>prospective</sub>

Assuming that the future auxiliary verb *zullen* ‘shall, will’ is base generated in T(Future), the correct prediction is that *zullen* can embed the deontic modals and aspectual auxiliaries:

- (60) Jan zal morgen een boek kunnen kopen  
John will tomorrow a book can buy  
‘John will be able to buy a book tomorrow’
- (61) Jan zal morgen een boek gaan kopen  
John will tomorrow a book go buy  
‘John will buy a book tomorrow’

The exact position of epistemic modal verbs will be established later in section 3.6.2.3. Therefore, I will postpone the discussion of epistemic modals and temporal auxiliaries.

The auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ might be taken as temporal auxiliaries, generated in T(Past), or as aspectual auxiliaries, generated in one of the aspectual projections. In section 2.7, I will show that there is a peculiar difference with respect to the order of these auxiliary verbs and deontic modal verbs. Following up on the discussion of the grammaticalization of the perfect tense in Dutch (1.6.2.2), I will argue that *hebben* ‘have’ and *zijn* ‘be’ can express two meanings: an aspectual and a temporal meaning. These two meanings correspond to two different positions of *hebben* in the functional hierarchy.

In the following section, we will first have a closer look at the deontic modal verbs, both from a synchronic and a diachronic point of view.

## 2.6. The meanings of modal verbs in Middle and Modern Dutch

In the preceding section, Modern Dutch modal verbs in their basic meaning were discussed. That is, *kunnen* means ‘be able’, *mogen* ‘be allowed’, *moeten* ‘have to’, and *zullen* ‘will’. In this section, we will see that both diachronically and synchronically, the meanings of modals are more flexible in the sense that one modal can express more

modal meanings than its basic meaning (*Algemene Nederlandse Spraakkunst* (ANS) 1997; Conradie 1987).

In **Middle Dutch**, the meaning of the modal *kunnen* (spelt *connen*) is *in staat zijn* ‘be able’ (*Middelnederlandsch Woordenboek* (MNW) 1894:1797-1801). In Middle Dutch, this is the only meaning of *kunnen*:

- (62) Die kinder    *consten*    Latijn spreken  
 the children    could    Latin speak  
 ‘the children were able to speak Latin’

The modal *mogen* also has the basic meaning ‘be able’ in Middle Dutch (63). The MNW (1899) notes that in some contexts the meaning of *mogen* is close to ‘be allowed’ (which is the basic meaning of *mogen* in Modern Dutch), but usually this meaning of permission is expressed by *moeten*. Furthermore, *mogen* can express obligation, as in (64) (MNW 1899:1841-1852):

- (63) die wonden    waren noch    so open, dat    hi daer    qualic    op  
 the wounds    were still    so open, that    he there    difficult    on  
*mocht* lopen  
 may walk  
 ‘the wounds were still open, so that he could hardly walk on them’
- (64) doe    oft    *mach*, sprac    tscone    wijf  
 do    if-it    must, said    the-beautiful    woman  
 ‘do it if you must, the beautiful woman said’

Middle Dutch *moeten* was the modal normally used to express permission (MNW 1899:1849). That is, the basic meaning of *moeten* was ‘be allowed’ (65). Furthermore, *moeten* could mean ‘have to’ (66) (MNW 1899:1825-1829):

- (65) Die man    bat    hem ... ,    dat    hi met    hem    *moeste*  
 that man    asked him    that    he with    him    may(PAST)  
 varen maer    Jhesus ontseid    hem  
 drive but    Jesus forbid-it    him  
 ‘that man asked him ... whether he was allowed to go with him, but Jesus forbade him’
- (66) dit    *moetic* eten    dor    den noot  
 this    must-I eat    through    the need  
 ‘I have to eat this because I am in need’

Finally, *zullen* (Middle Dutch *sullen*) expresses obligation in its basic meaning in Middle Dutch (67). From this meaning, its use as the future marker ‘will’ (68) developed (MNW 1912:2423-2425):

- (67) *Wi sollen rekeninge houden van onsen sundeliken daden*  
 we must account keep of our sinful deeds  
 ‘We must take into account our sinful deeds’
- (68) *dat men my menet zullen versceiden*  
 that they me believe will die  
 ‘that they believe that I will die’

(69) summarizes which modal meanings can be expressed by the modal verbs in Middle Dutch:

- (69) *Meanings of modal verbs in Middle Dutch*
- a. *kunnen* → Mod<sub>ab</sub>
  - b. *mogen* → Mod<sub>ab</sub>, (Mod<sub>perm</sub>), Mod<sub>obl</sub>
  - c. *moeten* → Mod<sub>perm</sub>, Mod<sub>obl</sub>
  - d. *zullen* → Mod<sub>obl</sub>, T(Fut)

In **Modern Dutch**, the modal verbs can express different modal meanings, too. For example, *kunnen* ‘be able’ expresses ability as its basic meaning (70). In (71), *kunnen* expresses permission. *Kunnen* in (71) cannot be paraphrased with ‘have the ability’ (the deontic meaning of *kunnen*) or ‘be possible’ (the epistemic meaning of *kunnen*). In (72), *kunnen* expresses obligation (ANS 1997:996). A paraphrasis with ‘have the ability’ or ‘be possible’ is excluded here, as well:

- (70) *Jan kan lezen (= ‘be able’)*  
 John can lezen  
 ‘John is able/has the ability to read’
- (71) *Van de baas kan je Jan’s computer wel gebruiken (= ‘be allowed’)*  
 Of the boss can you John’s computer well use  
 #‘You have the ability to use John’s computer (according to the boss)’  
 #‘It is possible to use John’s computer (according to the boss)’  
 ‘The boss allows you/gives you permission to use John’s computer’
- (72) *Ze laten alles maar staan, en ik kan het opruimen (= ‘have to’)*  
 they let everything but stand and I can it  
 up clean  
 #‘They just leave everything standing there, and I have the ability to clean it up’  
 #‘They just leave everything standing there, and for me it is possible to clean it up’  
 ‘They just leave everything standing there, and I have to clean it up’

The modal verb *mogen*, next to its basic meaning of permission as in (73), can indicate obligation, as in (74). As the paraphrases of the latter example show, *mogen* cannot be interpreted as ‘have the permission’ or ‘may be true’ (the epistemic meaning of *mogen*):

- (73) Jan *mag* lezen (= 'be allowed')  
 John may read  
 'John is allowed/has the permission to read a book'
- (74) Hij *mag* blij zijn dat hij er levend afgekomen  
 he may glad be that he there alive through-come  
 is (= 'have to')  
 is  
 #'He has the permission to be glad that he survived it'  
 #'It may be true that he is happy that he survived it'  
 'He should be glad that he survived it'  
 (ANS 1997:1003)

The modal *moeten* has its basis meaning of obligation in (75). In (76)-(77), it does not express obligation or certainty (which is the epistemic meaning of *moeten*). Rather, *moeten* means *willen* 'want':

- (75) Jan *moet* lezen (= 'have to')  
 John must read  
 'John has (the obligation) to read'
- (76) En *moeten* jullie ook koffie hebben? (= 'want')  
 And must you also coffee have  
 #'And do you have (the obligation) to have coffee, too?'  
 #'And is it certain that you have coffee, too?'  
 'And would you like to have coffee, too?'  
 (ANS 1997:996)
- (77) Wat *moet* je voor je verjaardag hebben? (= 'want')  
 What must you for your birthday have  
 #'What presents do you have (the obligation) to get at your birthday?'  
 #'What presents is it certain that you get at your birthday?'  
 'What presents do you want at your birthday?'

Finally, *zullen* can be used with the meaning *moeten* 'have to' if *zullen* is stressed:

- (78) Je *ZULT*/\*zult dat boek lezen (= 'have to')  
 you will/will that book read  
 'You have to read that book'

Thus, modal verbs can take over the meanings of other modal verbs. However, modal verbs cannot be substituted for each other randomly. For example, the verb *moeten* cannot express the meanings of *kunnen* 'be able to' or *mogen* 'be allowed to'. Similarly, *zullen* 'will' cannot replace *kunnen* 'be able to' or *mogen* 'be allowed to'. It must be added that it is only in a specific context that for example *moeten* 'have to' expresses volition. That is, a neutral sentence such as *Jan moet lezen* 'John must read' does not have the reading 'John wants to read'. But crucially, it appears that there are

no contexts in which for example *moeten* ‘have to’ expresses ability or permission.

The overview in (79) shows which meanings the Modern Dutch modal verbs can and cannot (indicated with #) express:

- (79) *Meanings of modal verbs in Modern Dutch*
- a. *kunnen* → Mod<sub>ab</sub>, Mod<sub>perm</sub>, Mod<sub>obl</sub>  
#Mod<sub>vol</sub>, #T(Fut)
  - b. *mogen* → Mod<sub>perm</sub>, Mod<sub>obl</sub>  
#Mod<sub>ab</sub>, #Mod<sub>vol</sub>, #T(Fut)
  - c. *moeten* → Mod<sub>obl</sub>, Mod<sub>vol</sub>  
#Mod<sub>ab</sub>, #Mod<sub>perm</sub>, #T(Fut)
  - d. *zullen* → (Mod<sub>obl</sub>), T(Fut)  
#Mod<sub>ab</sub>, #Mod<sub>perm</sub>, #Mod<sub>vol</sub>

The meanings of Middle Dutch modals (69) are repeated below in (80):

- (80) *Meanings of modal verbs in Middle Dutch* [= (69)]
- a. *kunnen* → Mod<sub>ab</sub>
  - b. *mogen* → Mod<sub>ab</sub>, (Mod<sub>perm</sub>), Mod<sub>obl</sub>
  - c. *moeten* → Mod<sub>perm</sub>, Mod<sub>obl</sub>
  - d. *zullen* → Mod<sub>obl</sub>, T(Fut)

The overview in (79)-(80) represents the diachronic development of modal verbs in Dutch. As Conradie (1987:171) notes, “the root meanings [...] of the Dutch modal auxiliaries [...] have since the Middle Ages undergone a systematic shift in one direction”, namely along a semantic axis stretching through semantic fields such as ability, permission, obligation, and future. According to Conradie (1987:171), the modals suffer from a general fuzziness in their meanings, which make their relocation in the semantic field possible. What needs to be explained is why the changes seem to be unidirectional rather than arbitrary.

If we compare (79) and (80), we see that modal verbs raise in the functional hierarchy represented in (81):

- (81) [T(Fut) *zullen* [... [Mod<sub>vol</sub>(itional) [Mod<sub>obl</sub>(igation) *moeten* [Mod<sub>perm</sub>(ission) *mogen*  
[Mod<sub>ab</sub>(ility) *kunnen*

*Kunnen* in Middle Dutch could only lexicalize Mod<sub>ab</sub>, which is the lowest Modality Phrase in the hierarchy. In Modern Dutch, it can also express other modal meanings, namely Mod<sub>perm</sub> and Mod<sub>obl</sub>. Since both Mod<sub>perm</sub> and Mod<sub>obl</sub> are higher in the hierarchy than Mod<sub>ab</sub>, we can say that *kunnen* has “climbed” in the hierarchy. The basic meaning of Middle Dutch *mogen*, namely ‘ability’, changed to ‘permission’ in Modern Dutch. The projection hosting the permissive modal (Mod<sub>perm</sub>) is higher in the hierarchy than the projection hosting the ability marker (Mod<sub>ab</sub>). Thus, diachronically, *mogen* raises in the hierarchy. Similarly, the basic meaning of *moeten* changed from ‘permission’ to

‘obligation’, where  $\text{Mod}_{\text{obl}}$  is higher in the hierarchy than  $\text{Mod}_{\text{perm}}$ . Furthermore, contrary to Middle Dutch (80c), Modern Dutch *moeten* can express volition (80c). Thus, *moeten* spread its use to  $\text{Mod}_{\text{vol}}$ , the highest ModP. Finally, the future auxiliary *zullen* developed out of the use of *zullen* as a modal verb expressing obligation ( $\text{Mod}_{\text{obl}}$ ). This development (which is a common path in the development of future markers cross-linguistically, as we have seen in chapter 1, section 1.5.2.3) involves raising of *zullen* from  $\text{Mod}_{\text{obl}}$  to T(Fut). Thus, diachronically the semantic bleaching of modal verbs follows a predictable pattern: modals “climb” in the hierarchy.

With respect to the synchronic variation, I will adopt the approach presented in 1.4.3 and illustrated by the development of English *should* and Dutch *hebben* ‘have’/*zijn* ‘be’ (see section 1.6), namely that a modal verb can express another modal meaning by moving from the modal head where it is base generated to another modal head. For example, Modern Dutch *kunnen* (which is base generated in  $\text{Mod}_{\text{ab}}$ ) can be moved to  $\text{Mod}_{\text{perm}}$ , where it will acquire a sense of permission. Synchronic restrictions on the meanings of modal verbs follow from the hierarchy of modal projections in (81), too. If we look at (79) and (80), we see that the different meanings that modal verbs can express follow a predictable pattern. Modal verbs that are generated in the lowest Mods can also lexicalize higher Mods. For example, Modern Dutch *kunnen* ( $\text{Mod}_{\text{ab}}$ ) can move to  $\text{Mod}_{\text{perm}}$  and  $\text{Mod}_{\text{obl}}$  to express the meanings related to these functional projections. Modals that are generated in higher Mods cannot express the meanings of lower Mods. For example, *mogen* in Modern Dutch (79b) cannot express ability. Similarly, *moeten* (79c) cannot be used to express the meanings of permission or ability. This follows from the ban on lowering of *mogen* and *moeten* to the lower modal projections.

Thus, both the diachronic and the synchronic variation in the meanings of modal verbs follows from the freedom of these modals to move in the hierarchy of functional heads. This variation is restricted because movement to lower heads is excluded.

### 2.7. The ambiguity of *hebben* ‘have’ and *zijn* ‘be’

In Modern Dutch, there are two possible orders of the auxiliary verbs *hebben* ‘have’/*zijn* ‘be’ on the one hand and modal verbs on the other hand. This is shown in (82) and (83):

- (82) dat Jan een boek heeft moeten lezen  
 that John a book has must read  
 ‘that John had to read a book’
- (83) dat Jan een boek moet hebben gelezen  
 that John a book must have read  
 ‘that John has to have read the book’  
 ‘that John must have read a book’

It will be shown below that in the order *auxiliary verb - modal verb* in (82), the modal

verb can only have a deontic interpretation. In the reverse order, *modal verb - auxiliary verb* (83), the modal verb can both have a deontic and an epistemic interpretation.

According to Cinque (1997a,b, 1999), clauses containing modals are monoclausal. Assuming that the deontic modal verb *moeten* ‘must’ in (82)-(83) has a fixed position in the modal head  $\text{Mod}_{\text{obl}}$ , the fact that the auxiliary verb *hebben* ‘have’ in these examples has different positions with respect to the modal is problematic for the monoclausal analysis if *hebben* has only one possible position as well.

I would like to suggest the following solution to this problem. In the hierarchy of functional projections, functional items are situated in the semantically corresponding functional projection. If a functional item can express more meanings, this means that it can occur in different positions in the functional hierarchy (Cinque 1999:201, footnote 23). In section 1.6.2.2 we have seen that the auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ in Dutch can have two different meanings: an aspectual (PERFECT) meaning and a temporal (PAST) meaning. If it can be shown that *hebben* has these two different meanings in constructions containing modals, we might be able to explain the order variation witnessed in (82)-(83).

In 1.6.2.1 under (57) we have seen that Comrie (1976) distinguishes four different types of PERFECT aspect. They are summarized briefly below:

(84)

- (a) The PERFECT OF RESULT refers to a present state which is the result of some past eventuality.
- (b) The EXPERIENTIAL PERFECT indicates that a given eventuality has held at least once during some time in the past leading up to the present.
- (c) The PERFECT OF PERSISTENT SITUATION describes an eventuality that started in the past but continues into the present. Bybee et al. (1994) call this use ANTERIOR.
- (d) The PERFECT OF RECENT PAST refers to an eventuality which took place in the recent past.

PAST is a temporal notion and it indicates that an eventuality occurred before the time of speech. It was furthermore mentioned in 1.6.2.1 that compatibility with the adverbs *yesterday* and *once* shows that a certain item represents PAST rather than PERFECT. In Cinque’s (1999) hierarchy, the functional heads that correspond to the PERFECT meanings are T(Anterior) and  $\text{Asp}_{\text{perfect}}$ . Cinque (1999:94) takes T(Anterior) to indicate temporal priority, more specifically the precedence of the event time with respect to the reference time. PAST tense is represented in T(Past).

It is plausible that in the order *modal verb - auxiliary verb*, the auxiliary verb is an ANTERIOR marker. This order occurs if an adverb referring to the future is added:

- (85) dat Jan morgen om vijf uur een boek moet hebben gelezen  
 that John tomorrow at five o'clock a book must have read  
 ‘that John has to have read a book by five o'clock tomorrow’

In (85), *morgen om vijf uur* ‘five o'clock tomorrow’ indicates the reference time. The

sentences expresses that there is an obligation that before this time, the event *een boek lezen* takes place. Thus, *hebben* 'have' marks anteriority of the embedded predicate with respect to the reference time in (85).

In Cinque's (1999) hierarchy, T(Anterior) is situated below the deontic modal heads. This is compatible with the view that in the order *modal verb - auxiliary verb*, the auxiliary verb is a marker of T(Anterior):

(86) [Mod<sub>volitional</sub> [Mod<sub>obligation</sub> > [Mod<sub>ability/permission</sub> ... [T(Anterior)

The question is whether the perfect tense of modals (i.e. *hebben* 'have' preceding a modal verb, as in (82)) has one of the meanings of the PERFECT listed under (84). Modal verbs are stative (section 2.4). Therefore, the construction cannot be a RESULTATIVE PERFECT, since resultatives only combine with telic, non-stative predicates. Furthermore, there is no sense of current relevance of the eventuality expressed by the combination modal verb + infinitive in (82), nor does the construction necessarily refer to the recent past.

If the sentence contains a past tense adverb, both orders are possible. However, only with the order *auxiliary verb - modal verb*, the modal verb can have a deontic interpretation, as in (87). *Moet* 'must' in (88) can only be interpreted epistemically:

- (87) dat Jan gisteren een boek heeft moeten lezen  
 that John yesterday a book has must read  
 'that John had to read a book yesterday'
- (88) dat Jan gisteren een boek moet hebben gelezen  
 that John tomorrow a book must have read  
 'that it must be the case that John read a book yesterday'

The occurrence of the past tense adverb suggests that *hebben* 'have' is a temporal auxiliary rather than an aspectual (PERFECT) auxiliary. Under the assumption that past tense markers are situated in T(Past), the order *auxiliary verb - deontic modal verb* in (82) and (87) follows from the fact that the T(Past) projection dominates the modal projections:

(89) [T(Past) .. > [Mod<sub>volitional</sub> [Mod<sub>obligation</sub> > [Mod<sub>ability/permission</sub>

According to the ANS (1997:1066), the order *deontic modal verb - auxiliary verb* is only possible if the sentence contains a time adverbial. However, in the sentences below no time adverb is present, and still the order *modal verb - auxiliary verb* is used. The modal verb is also used in its deontic sense here:

- (90) dat je dat boek echt gelezen moet hebben  
 that you that book really read must have  
 ‘that you really must have read that book’
- (91) dat ik dat boek graag wil hebben gelezen  
 that I that book gladly want have read  
 ‘that I would like to have read that book’
- (92) dat de toeschouwers eerst hun entreebewijs moeten  
 that the spectators first their ticket must  
 hebben getoond  
 have shown  
 ‘that the spectators must have shown their tickets first’
- (93) dat ik niet alles kan hebben gelezen  
 that I not everything can have read  
 ‘that it is impossible for me to have read everything’

Reversing the order *modal verb - hebben* in (90)-(93) into the order *hebben - modal verb* does not make the sentences ungrammatical:

- (94) dat je dat boek echt hebt moeten lezen  
 that you that book really have must read  
 ‘that you really had to read that book’
- (95) dat ik dat boek graag heb willen lezen  
 that I that book gladly have want read  
 ‘that I really wanted to read that book’
- (96) dat de toeschouwers eerst hun entreebewijs hebben  
 that the spectators first their ticket have  
 moeten tonen  
 must show  
 ‘that the spectators had to show their ticket first’
- (97) dat ik niet alles heb kunnen lezen  
 that I not everything have can read  
 ‘that I was not able to read everything’

However, the examples in (94)-(97) do not carry the same meaning as (90)-(93). Whereas (94)-(97) describe a particular situation, the examples in (90)-(93) have a generic meaning. In (92), for example, the determiner *de* ‘the’ preceding *toeschouwers* ‘spectators’ can be left out, turning it into a non-specific, generic subject. Furthermore, a generic modifier such as *over het algemeen* ‘generally’ can be added to this example (see (98)). Adding *over het algemeen* ‘generally’ and a generic subject to (96), on the other hand, yields an ungrammatical result (99):

- (98) toeschouwers *moeten* over het algemeen eerst hun entreebewijs  
 spectators must generally first their ticket  
*hebben* getoond voor ze naar binnen mogen  
 have shown before they inside may  
 ‘generally, spectators must have shown their tickets first before they are allowed to enter’
- (99) \*?toeschouwers *hebben* over het algemeen eerst hun entreebewijs  
 spectators have generally first their ticket  
*moeten* tonen voor ze naar binnen mogen  
 must show before they inside may

(90)-(93) are generic sentences that describe a situation that holds at all times. Generic statements are normally rendered in the present tense, but the present tense lacks a deictic tense component in this context (Bohnemeyer 1998:584). In this sense, generic sentences have an atemporal reading. Since this reading is not compatible with the appearance of temporal auxiliaries, the order *modal verb - hebben* in the examples (90)-(93) is expected: *hebben* ‘have’ is not a temporal auxiliary here, but an aspectual auxiliary. Hence, it appears below the modal verbs.

Summarizing, *hebben* ‘have’/*zijn* ‘be’ can express two meanings: an aspectual meaning and a temporal meaning. I argued that these two meanings correspond to two different positions of *hebben* and *zijn* in the functional hierarchy. If *hebben* is generated in an aspectual functional head (T(Anterior) it carries an aspectual meaning. In its temporal interpretation, *hebben/zijn* is generated in a temporal head (T(Past). This accounts for the variable orders *auxiliary verb - modal verb* and *modal verb - auxiliary verb*.

## 2.8. Summary

In this chapter, I argued that there are several advantages if Dutch modal and auxiliary verbs are analyzed as functional heads, more specifically, as functional heads in the hierarchy proposed by Cinque (1999):

- (100) [T(Future) *zullen* ‘will’ [Mod<sub>vol(itional)</sub> [Mod<sub>obl(igation)</sub> *moeten* ‘have to’  
 [Mod<sub>perm(ission)</sub> *mogen* ‘be allowed to’ [Mod<sub>ab(ility)</sub> *kunnen* ‘be able to’ [Asp<sub>durative</sub>  
*blijven* ‘remain’ [Asp<sub>prospective</sub> *gaan* ‘go’, *komen* ‘come’

The advantages are the following. First, both diachronic developments and synchronic variation in the meanings of modal verbs can be described in the same way, namely as raising of the modal verbs in the hierarchy of modal projections. Second, there are restrictions on the order of auxiliaries and modals in Modern Dutch which cannot be expressed under the traditional VP analyses. These ordering restrictions concern modal verbs, aspectual auxiliaries and temporal auxiliaries. The restrictions are predicted by the hierarchy of temporal, modal, and aspectual projections in Cinque (1999). With

respect to the temporal auxiliaries *hebben* 'have' / *zijn* 'be', I argued that synchronically, they can have their earlier aspectual meaning as well as their more recent temporal meaning. These two meanings correspond to the two different positions that these auxiliaries can occupy in the functional hierarchy.



# Chapter 3

## Grammaticalization and *te*-infinitival complements in Dutch

### 3.1. Introduction

In this chapter, the discussion will center around *te* ‘to’-infinitives. The chapter is organized as follows. Section 3.2 contains an overview of the distribution of *te*-infinitives in Modern Dutch. In section 3.3, the syntactic status of Modern Dutch *te* is discussed. Furthermore, 3.3 contains a review of previous analyses of *te*. In the next two sections, 3.4 and 3.5, I focus on the historical development of *te* and the introduction of the *te*-infinitive in Middle Dutch. In 3.6, I discuss the temporal and modal properties of *te*-infinitival complements in Modern Dutch. The conclusions of this discussion are the following: *te* is a grammaticalized item, it has raised in the functional hierarchy, it has different meanings in Modern Dutch, and its interpretation depends on the position it occupies. I will relate the different positions of *te* to a discussion of other functional elements which can and cannot show up in *te*-infinitival complements. In section 3.7, I will discuss (*te*)-infinitives in non-selected environments, namely subject clauses and infinitival main clauses. I will show that in these contexts, *te* can only have one interpretation, namely its original interpretation. Furthermore, I will point out that there is a parallel between the development of infinitivals in child Dutch and the development of (*te*-)infinitivals in the history of Dutch. I will propose to capture both these developments with the notion underspecification. Specifically, I will argue that semantic bleaching of an item means that it gets underspecified. This line of analysis will be continued in section 3.8, in which the development of clauses introduced by *om* ‘for’ are discussed. After a summary of chapter 3 in section 3.9, the chapter concludes with a discussion of some remaining issues and consequences of the proposed analysis in section 3.10.

### 3.2. The syntactic distribution of *te*-infinitives in Modern Dutch

*Te* 'to'-infinitives occur in the following contexts:

(A) In fixed expressions:

- (1) a. wat \*(te) beginnen met  
 what to begin with  
 'what to do with...'  
 b. niet \*(te) vergeten  
 not to forget  
 'not forgetting'

(B) In exclamations (2a) and subjects (2b) with a counterfactual meaning:<sup>32</sup>

- (2) a. nu op het strand \*(te) liggen!  
 now on the beach to lie  
 'to be on the beach now!'  
 b. later veel geld (te) verdienen is Jan's grootste wens  
 later much money to make is John's biggest wish  
 'making much money later is John's biggest wish'

(C) In adjunct clauses introduced by the elements *alvorens* 'before', *door* 'by', *in plaats van* 'instead', *met* 'with', *na* 'after', *om* 'in order to', *zonder* 'without':

- (3) door dit \*(te) zeggen zul je hem beledigen  
 with this to say will you him insult  
 'by saying this you will insult him'  
 (4) je moet lezen om het examen \*(te) halen  
 you must read for the exam to pass  
 'you have to read in order to pass the exam'  
 (5) zonder \*(te) lezen heeft Jan het examen gehaald  
 without to read has John the exam passed  
 'without reading one book, John has passed the exam'

(D) In the complement of a noun (6) or an adjective (7):

- (6) de angst \*(te) mislukken  
 the fear to fail  
 'the fear to fail'

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<sup>32</sup> The specific conditions under which *te*-infinitives appear in these contexts is discussed in detail in section 3.7.

- (7) blij alles \*(te) hebben gedaan  
 glad everything to have done  
 'glad to have done everything'
- (E) In the complement of a verb:
- (8) Jan probeert het boek \*(te) lezen  
 John tries the book to read  
 'John tries to read the book'
- (9) Jan beweert het boek \*(te) lezen  
 John claims the book to read  
 'John claims that he is reading the book'

The focus in this chapter is on *te*-infinitives in verbal complements, as in (8)-(9). Appendix C contains a list of verbs selecting infinitival complements in Modern Standard Dutch. Table 1 in this appendix indicates for every verb whether its complement contains *te*. As can be seen from this table, some verbs can take both a *te*-infinitive and a bare infinitive (which is indicated by *+/-te*). These cases will be discussed below in section 3.3.

### 3.3. The status of *te*

#### 3.3.1. Previous analyses of *te*

Before turning to the historical development of *te*, I will first review some analyses of Modern Dutch *te*.

In the literature we find several answers to the question what the function of *te* is. Chomsky's (1986:25) analysis of English *to* as an infinitival marker which is situated in  $I^0$  is often transferred to Dutch *te* (a.o. Bennis & Hoekstra 1989a,b; Den Besten & Broekhuis 1989; Beukema & Den Dikken 1989; Rutten 1991). In these analyses it is assumed that *te* serves as an infinitival marker: its function is to mark the following element as an infinitive. Zwart (1993) rejects this analysis, since not every infinitive is preceded by *te*. The morphological element that typically accompanies infinitives is the ending *-en*, not *te*. We have seen in chapter 2, section 2.1 that *te* is excluded in the complement of modal verbs, aspectual auxiliary verbs, and ECM verbs. These verbs select a bare infinitive. Zwart concludes that "[*t*]e [...] appears to be involved in expressing a syntactic relation rather than tense. In this respect, *te* looks like a complementizer or a preposition" (Zwart 1993:102).

I would like to argue that *te* is neither a preposition nor a complementizer. If *te* is analyzed as a preposition, there are three problems. First, we would expect *te* to precede separable particles, as in the example (10), in which the preposition *van* precedes the separable particle *uit*:

- (10) Jan houdt <van> UIT <\*van> gaan  
 John loves of out of go  
 ‘John likes to go out’

However, *te* follows separable particles, as the following example illustrates:

- (11) Jan besluit <\*te> UIT <te> gaan  
 John decides to out to go  
 ‘John decides to go out’

Second, *te*-infinitives in Modern Dutch do not have the distribution of regular PPs. In embedded clauses in standard Dutch, adjunct PPs (12a) and argument PPs (12b) may appear both to the left and to the right of the verb:

- (12) a. dat Jan het boek <in de tuin> leest <in de tuin>  
 that John the book in the garden reads in the garden  
 ‘that John reads the book in the garden’  
 b. dat Jan <van zijn vader> houdt <van zijn vader>  
 that John of his father loves of his father  
 ‘that John loves his father’

*Te*-infinitives, on the other hand, are only allowed at the right hand side of the matrix verb:

- (13) dat Jan het boek <\*te lezen> probeert <te lezen>  
 that John the book to read tries to read  
 ‘that John tries to read the book’

Third, the analysis of *te* as a preposition is not in accordance with the historical development of *te*. This development will be discussed in section 3.4. I will argue that *te* has grammaticalized from a preposition (i.e. the head of a PP) to a functional element in the extended projection of a verb.

The second possibility mentioned by Zwart (1993) is that *te* might be a complementizer. This has been argued by Leys (1985:434), who considers *te* to be a complementizer that introduces extraposed infinitival complements. Infinitival complements in Dutch come in different shapes. Traditionally, three different constructions are distinguished: the *Verb Raising* construction, the *Extraposition* construction, and the *Third Construction* (also called *Remnant Extraposition*). Both the Verb Raising construction and the Third Construction are characterized by a clause final verb cluster. In the perfect tense, the constructions differ with respect to the morphological form of the verb selected by the auxiliary *hebben* ‘have’. In the Verb Raising construction, the selected verb shows up as an infinitive (INF) (14) and not as a participle (PART) (see footnote 24 in chapter 2). In the Third Construction, the verb selected by *hebben* ‘have’ appears as a participle (15). In both constructions, the direct

object of the embedded infinitive precedes all verbs:

- (14) *Verb Raising Construction*  
 dat Jan een boek heeft willen (INF) lezen  
 that John a book has want read  
 'that John has wanted to read a book'
- (15) *Third Construction*  
 dat Jan een boek heeft geweigerd (PART) te lezen  
 that John a book has refused to read  
 'that John has refused to read a book'

In the Extraposition construction, the verb selected by *hebben* has the shape of a participle. The construction differs from the Third Construction in that the direct object of the embedded verb is contained in the infinitival complement:

- (16) *Extraposition Construction*  
 dat Jan heeft geprobeerd (PART) het boek te lezen  
 that John has tried the book to read  
 'that John has tried to read the book'

Analyzing *te* as a complementizer is problematic in three respects. First, the verb *proberen* 'try' not only allows the Extraposition construction (16), but also the Verb Raising construction (17) and the Third Construction (18):

- (17) dat Jan een boek heeft proberen te lezen  
 that John a book has try to read  
 'that John has tried to read the book'
- (18) dat Jan een boek heeft geprobeerd te lezen  
 that John a book has tried to read  
 'that John has tried to read a book'

In all three constructions, *te* is present, not only in the Extraposition construction, as Leys (1985) proposes.

Second, *te* can appear in the complement of verbs which do not allow the Extraposition construction, such as the aspectual verb *zitten* 'sit'. The ungrammaticality of (19) shows that direct objects cannot occur in the complement of this verb:

- (19) \*dat Jan zit een boek te lezen  
 that John sits a book to read
- (20) dat Jan een boek zit te lezen  
 that John a book sits to read  
 'that John is sitting down and reading a book'

A third problem for the analysis of *te* as a complementizer is that (some) extraposed

*te*-infinitival complements can be introduced by the element *om* ‘for’.<sup>33</sup> Generally, *om* is considered to be the non-finite counterpart of the complementizer *dat* ‘that’:

- (21) *dat* Jan probeert om het boek te lezen  
 that John tries for the book to read  
 ‘that John tries to read the book’

The distribution and analysis of *om* is the topic of section 3.8.

We saw above that Zwart (1993:102) concludes that *te* does not express tense. He argues that the assumption that *te* in Modern Dutch functions as a tense marker is strange, given the fact that there is a clear infinitival marker *-en* on Dutch infinitives, and given the fact that *te* is excluded in a number of contexts where infinitivals appear. However, I would like to defend a different position in this chapter and argue that *te* can function both as a tense marker and as a mood marker in Modern Dutch. It is generated in either T(Past) or in Mood<sub>irrealis</sub>. The precise contexts in which *te* is a tense marker and in which it is a mood marker will be made explicit in section 3.6. In the following section, 3.4, I will show that although the infinitival ending *-en* did function as a mood/tense marker in earlier stages of Dutch, it lost its meaning already before the Middle Dutch period. This loss of meaning of *-en* led to the introduction of *te* in infinitival complements.

Before turning to the discussion of the meaning of *te*, I will address the question what the morphosyntactic status of *te* is.

### 3.3.2. The morphosyntactic status of *te*

In this section, it will be shown that *te* and the infinitive are unseparable. I will argue that there are several reasons to analyze *te* as a morpheme which is combined with the infinitive in syntax rather than a lexically attached morpheme.

In standard Dutch, *te* and the infinitive are strictly adjacent. Negation (22a) and adverbs (22b) cannot appear in between *te* and the infinitive:

- (22) a. Jan probeert het boek <\*te> niet <te> lezen  
 John tries the book to not to read  
 ‘John tries not to read the book’

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<sup>33</sup> *Om* in Dutch is not equivalent to English *for*. In contrast to *for* (i) (Haegeman 1994:167), *om* cannot license an overt subject in an infinitival clause (ii):

- (i) a. For him to attack Bill would be illegal  
 b. I prefer very much for him to go now  
 (ii) a. \*Om hem Bill aan te vallen zou illegaal zijn  
 b. \*Ik prefereer om hem nu te gaan

Despite this difference, I will gloss *te* as ‘to’ and *om* as ‘for’, in order to distinguish *te* and *om*.

- b. Jan probeert het boek <\*te> vaak <te> lezen  
 John tries the book to often to read  
 'John tries to read the book often'

Furthermore, *te* cannot precede separable particles:

- (23) dat Jan mij <op> schijnt <op> te <\*op>bellen  
 that John me up seems up to up call  
 'that John seems to call me'

Finally, *te* cannot appear without an infinitive:

- (24) Jan probeert te rennen en ik probeer ook te \*(rennen)  
 John tries to run and I try also to run  
 'John tries to run and I try to (run) also'

The unseparability of *te* and the infinitive illustrated in (22) through (24) suggests that *te* is a bound morpheme.<sup>34</sup>

In the literature, two different kinds of bound morphemes are distinguished, namely affixes and clitics. Both affixes and clitics cannot occur independently as a word (e.g. Spencer 1991:5, 14). Some criteria to distinguish clitics and affixes are the following. First, clitics may attach to one word phonologically, but relate to another word syntactically and semantically. For example, in the noun phrase in (25), the genitive 's is attached to *campsite*. However, from a semantic point of view, 's belongs to *farmer*: the farmer is the owner of the tractor:

- (25) the farmer next to our campsite's tractor

Affixes, on the other hand, such as the plural suffix *-s* in (26a) cannot turn up on another noun in the sentence (26b):

- (26) a. I bought three skirts from that boutique  
 b. \*I bought three skirt from that boutiques

Second, clitics have the capability to have phrasal scope, whereas affixes cannot have

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<sup>34</sup> In this respect, *te* differs from English *to*. *To* and the infinitive can be separated by negation (i) and adverbs (ii). Furthermore, *to* can be stranded (iii):

- (i) Peter expects his friends *to not object* to his proposals  
 (ii) John is said *to seldom arrive* on time  
 (Pollock 1989:375,382)  
 (iii) John tried *to run* and I tried *to also*  
 (Van Gelderen 1993:17)

phrasal scope (e.g. Miller 1991). In French, for example, pronominal elements such as *l(e)* in (27) cannot have wide scope over two conjoined lexical verbs. *Le* must be repeated in the second conjunct in (27):

- (27) Marie le voit et \*(l')entend  
 Mary him sees and him hears  
 'Mary sees and hears him'

According to Miller (1991), *le* in (27) is not a clitic, but an affix. The different behaviour of clitics and affixes illustrated in (25)-27) can be explained by the assumption that clitics are attached at the post-lexical level (e.g. Miller 1991). That is, clitics are appended after syntactic rules have built up phrases. Affixes, on the other hand, are attached at the lexical level. As a result, affixes can only attach to words, not to phrases.

*Te* does not behave as a prefix that is joined with the infinitival verb in the lexicon. Zwart (1993) shows that it is possible to coordinate a *te*-infinitive and a bare infinitive:

- (28) om in L.A. te leven en sterven  
 for in L.A. to live and die  
 'to live and die in L.A.'  
 (Zwart 1993:104)

Thus, *te* can have scope over two infinitives. The participial prefix *ge-* cannot have scope over two conjoined verbs, as (29) shows:

- (29) om in L.A. geboren en \*(ge)storven te zijn  
 for in L.A. born and died to be  
 'to have been born and to have died in L.A.'

Under this criterium, *te* is not an affix, since it can have scope over two infinitives.

A further difference between *ge-* and *te* is that *ge-* cannot be attached to complex verbs with an unstressed prefix. *Te*, on the other hand, is compatible with these verbs:

- (30) a. (\*ge)be(\*ge)STELD (PART)  
 'ordered'  
 b. (\*ge)onder(\*ge)HOUDen (PART)  
 'maintained'
- (31) a. te beSTELLen  
 'to order'  
 b. te onderHOUDen  
 'to maintain'

(30a-b) follow from a phonological rule which excludes the sequence of two unstressed prefixes (Schultink 1973). Since affixes are attached at the lexical level, it is expected

that there are phonological rules which apply between affixes and their hosts (Miller 1991). Clitics, on the other hand, can be combined with material containing affixes (Zwicky & Pullum 1983). This follows from the assumption that clitics are not attached in the lexicon, so that clitic formation is opaque to phonological constraints. Under this view, the compatibility of *te* and unstressed prefixes (31a-b) suggests that *te* is not attached lexically, i.e. that *te* is a clitic rather than an affix.

Taking other West Germanic OV languages into account, there are two more arguments against the prefix analysis of *te*. A first argument, mentioned by Zwart (1993:103-104), comes from the Groningen dialect. In this dialect, *te* and the infinitive can be separated (Schuurman 1987; Schuurman & Wierenga 1986):

- (32) dat hai begunt te kraant lezen  
 that he begins to news paper read  
 'that he begins to read the news paper'  
 (Schuurman & Wierenga 1986:341)

Furthermore, Schuurman (1987) notes that a modified noun which is marked for number (*foto's van ons leste vekaansie* 'photos of our latest holidays') can appear between *te* and the infinitive:

- (33) wils wel leuven dat e haile doagen niks aans dut  
 want-you well believe that he whole days nothing else does  
 as bie toavel zitten te foto's van ons leste vekaansie ienplakken?  
 as at table sit to photo's of our last holidays paste?  
 'would you believe that he doesn't do anything else but pasting photo's of our latest holidays?'

Second, Hinterhölzl (2000:296-297) mentions the West Flemish example in (34) (taken from Haegeman 1995) as an argument against the analysis of *te* as a verbal affix:

- (34) mee Valère te [willen (2) dienen boek kuopen (3)] een (1)  
 with Valère to want that book buy have  
 'with Valère having wanted to buy that book'  
 (Haegeman 1995:53)

The numbers behind the verbs in (34) indicate the underlying hierarchical order of the verbs. (1) ('have') is the hierarchically highest verb which selects (2) ('want'). (35) represents the relevant part of the underlying head initial order of (34):

- (35) [FP te [VP een (1) [VP willen (2) [VP kuopen (3) dienen boek ]]]]  
 to have want buy that book

In (34), the material in square brackets separates *te* 'to' and the verb it 'belongs' to, namely *een* 'have'. According to Haegeman (1995), the complement of *een* 'have' is

moved to a position in between *te* and *een*.<sup>35</sup> The direct object *dienen boek* ‘that book’ is taken along with the verbs. Therefore, this movement operation must involve XP movement to a specifier.<sup>36</sup> Since in (34) an XP intervenes between the infinitival marker and the corresponding infinitival verb, Hinterhölzl (2000) concludes that *te* cannot be a prefix and must be analyzed as occupying a functional position within the IP domain. Hinterhölzl (2000) furthermore presents the example from Afrikaans in (36) as evidence that *te* and the infinitive can be broken up by other material:

- (36) om dit gister      *te* [kan (2)betaal (3) ] het (1)  
 for it yesterday to can pay have  
 ‘in order to have been able to pay it yesterday’

As in (34), the complement of the highest verb *het* ‘has’ is moved to a position in between *te* and *het*.

Summarizing, the unseparability of *te* and the infinitive (illustrated in (22)-(24)) suggests that *te* is a bound morpheme. There are two reasons to analyze *te* as a clitic which is combined with the infinitive in the syntax rather than a lexically attached affix. First, *te* can have scope over two infinitives (28). Second, *te* is compatible with unstressed prefixes, as opposed to the prefix *ge-* (30)-(31). Other languages than Dutch, namely Gronings, West Flemish, and Afrikaans provide yet another argument against the analysis of *te* as a prefix, since in these languages *te* and the infinitive can be separated by an XP (33)-(34), (36).

I conclude that *te* is not a lexically attached prefix. Rather, it is a functional head which can be attached to the infinitive in syntax. Below, in section 3.4, I will discuss the syntactic derivation of *te*-infinitival complements in more detail, while discussing Middle Dutch. First, I will present some initial evidence that *te* is associated with a functional head which expresses tense.

### 3.3.3. *Te* as a mood and tense marker

In Modern Dutch, several verbs can select both a bare infinitive and a *te*-infinitive. The temporal properties of these complements differ, depending on which infinitive (with or without *te*) is present in the complement. The examples in (37)-(39) show that the perception verbs *horen* ‘hear’, *voelen* ‘feel’, and *zien* ‘see’ can have different meanings. These differences correlate with the presence or absence of *te* in the complement. For example, *horen* ‘hear’ in (37a) has the literal meaning ‘perceive’. Similarly, *voelen* and *zien* in (38a) and (39a) mean literally ‘feel’ and ‘see’. The examples show that the bare

<sup>35</sup> Specifically, the auxiliary verb is situated in a functional head below *te* and the complement moves to the specifier of this FP. I will come back to this below, when I discuss the examples in (45) and (46).

<sup>36</sup> The object is moved into an AgrOP which is situated in between *willen* ‘want’ and *kuopen* ‘buy’ (cf. Kaan 1992, Zwart 1993).

infinitival complements to these three verbs cannot contain modal verbs and cannot be independently modified by a future adverbial such as *volgende week* 'next week'. In (37b)-(39b), on the other hand, *horen*, *voelen* and *zien* are used as verbs of intention, meaning 'learn/understand' (37b), 'think' (38b) and 'try' (39b). In these complements, *te* is present. Furthermore, the complements can include adverbials modifying the embedded infinitive. Finally, the complements of *horen* and *voelen* can only contain a modal verb if they contain *te* as well.<sup>37</sup>

- (37) a. hij hoorde mij (\*volgende week) een liedje \*(te) (\*kunnen)  
 he heard me next week a song to can  
 zingen  
 sing  
 'he heard me sing a song'
- b. hij hoorde volgende week een liedje \*(te) moeten  
 he heard next week a song to must  
 zingen  
 sing  
 'he heard that he has to sing a song next week'
- (38) a. de moeder voelde het kind (\*spoedig) \*(te) (\*kunnen)  
 the mother felt the child soon to can  
 bewegen  
 move  
 'the mother felt the child moving'
- b. ik voelde spoedig \*(te) moeten ingrijpen  
 I felt soon to must intervene  
 'I felt that I had to intervene soon'
- (39) a. ik zag hem (\*morgen) \*(te) lopen  
 I saw him tomorrow to walk  
 'I saw him walk'
- b. ik zal zien hem morgen over \*(te) halen  
 I will see him tomorrow over to persuade  
 'I will try to persuade him tomorrow'

The verb *vinden* 'be of the opinion' (40a) can also embed a *te*-infinitive (40b). The *te*-infinitive seems to be only possible if this complement furthermore contains a modal verb (40c):

<sup>37</sup> The complement of *zien* cannot contain a modal verb. This is probably related to the fact that its meaning turns into *proberen* 'try' if it selects a *te*-infinitive. *Proberen* cannot embed modal verbs either:

- (i) Jan probeert het boek te ??(kunnen) lezen  
 John tries the book to can read  
 'John tries to read the book'

- (40) a. ik vond hem (\*morgen) (\*te) zeuren  
 I found him tomorrow to nag  
 'I think that he is nagging'
- b. hij vond (kennelijk) morgen een liedje \*(te) moeten  
 he found apparently tomorrow a song to must  
 zingen  
 sing  
 'apparently he found that he had to sing a song tomorrow'
- c. \*hij vond (kennelijk) een liedje te zingen  
 he found apparently a song to sing

The verb *leren* 'teach' combined with a bare infinitive means 'teach how to' (41a). *Leren* + *te*-infinitive has the meaning 'teach that' (41b) (Pardoen 1986:69):

- (41) a. ik leer hem lezen  
 I teach him read  
 = 'ik leer hem *hoe* hij moet lezen'  
 I teach him how he must read  
 'I teach him how to read'
- b. ik leer hem te lezen  
 I teach him to read  
 = 'ik leer hem *dat* hij moet lezen'  
 I teach him that he must read  
 'I teach him that he should read'

The following examples show that only if a *te*-infinitive is used, the embedded verb can be independently modified by an adverb. In (42a), the adverb *elke dag* refers to *leren*, not to *lezen*. In (42b), *elke dag* can only refer to *lezen*:

- (42) a. ik leer hem elke dag lezen  
 I teach him every day read  
 = 'ik leer hem elke dag hoe hij moet lezen'  
 I teach him every day how he must read  
 ≠ 'ik leer hem dat hij elke dag moet lezen'  
 I teach him that he every day must read  
 'I teach him every day how he must read'
- b. ik leer hem elke dag te lezen  
 I teach him every day to read  
 = 'ik leer hem dat hij elke dag moet lezen'  
 I teach him that he every day must read  
 ≠ 'ik leer hem elke dag hoe hij moet lezen'  
 I teach him every day how he must read  
 'I teach him that he must read every day'

Furthermore, only if a *te*-infinitive is selected, modal verbs can occur in the complement of *leren*:

- (43) hij leert het kind niet \*(te) mogen zeuren  
 he teaches the child not to may nag  
 'he teaches the child that it shouldn't nag'

If the verb *helpen* 'help' selects a *te*-infinitive, the same observations hold. Only if *te* is present, the complement of *helpen* can contain a modal (44a) and an adverb which refers to the embedded verb (44b):

- (44) a. ik help hem het examen \*(te) ?kunnen halen  
 I help him the exam to can pass  
 'I help him so that he can pass the exam'  
 b. ik help hem het examen morgen \*(te) halen  
 I help him the exam tomorrow to pass  
 'I help him so that he can pass the exam tomorrow'

Table 1 summarizes the differences between complements with and without *te*:

Table 1.

Verb	Verb meaning	Modal in complement	Adverb in complement
<i>horen</i> -te +te	'hear, perceive' 'learn'	no yes	no yes
<i>voelen</i> -te +te	'feel, perceive' 'have the feeling'	no yes	no yes
<i>zien</i> -te +te	'see, perceive' 'try'	no no	no yes
<i>vinden</i> -te +te	'have the opinion' 'think, feel'	no yes	no yes
<i>leren</i> -te +te	'learn/teach how to' 'learn/teach that'	no yes	no yes
<i>helpen</i> -te +te	'help' 'help'	no (?)yes	no yes

The observation that *te*-complements can contain modal verbs and adverbs, in contrast to their *te*-less counterparts, suggests that *te*-complements contain more functional structure. Specifically, in the absence of *te*, the construction expresses simultaneous events (De Geest 1973). If *te* is present, the two events are not simultaneous. These data suggest that the presence of *te* is related to tense.

A second piece of evidence that *te* is associated with a functional projection with a temporal meaning comes from West Flemish. Above we already encountered an example in which the auxiliary *een* 'have' in this language follows the other verbs (34). Haegeman (1995) presents the following examples which show that the finite form of this auxiliary can both follow (45) and precede (46) the other verbs:

- (45) da Jan willen (2) Valère nen boek geven (3) eet (1)  
 that John want Valère a book give has  
 'that John has wanted to give Valère a book'

- (46) da Jan *oa* (1) willen (2) Valère nen boek geven (3)  
 that John had want Valère a book give  
 'that John had wanted to give Valère a book'  
 (Haegeman 1995:51)

Haegeman (1995:58-59) notes that the order variation correlates with a different interpretation of finite 'have'. In (45), the finite verb *eet* 'has' is in the present tense, whereas in (46), *oa* 'had' is a past tense which has a modal, irrealis interpretation.<sup>38</sup>

Haegeman (1995) proposes the following analysis of (45)-(46). In (45), the complement of *eet* 'has' moves to the specifier of this auxiliary, Spec,FP2.<sup>39</sup> The derivation is represented in (47). (46) is also derived by moving the complement of the finite verb to its specifier. In addition to this movement, the finite verb is optionally moved to the head of a higher functional projection (48):

- (47) da Jan [<sub>FP1</sub> [<sub>FP2</sub> [ willen Valère nen boek geven ]<sub>i</sub> eet t<sub>i</sub> ]]  
 that John want Valère a book give has  
 'that John has wanted to give Mary a book'
- (48) da Jan [<sub>FP1</sub> *oa/ee<sub>j</sub>* [<sub>FP2</sub> [willen Valère nen boek geven ]<sub>i</sub> t<sub>j</sub> t<sub>i</sub> ]]

Haegeman (1995) proposes that the non-finite sentences in (49)-(50) support the assumption that there are two movement operations deriving (48) (rather than assuming that in (48) the finite verb remains in its base position):

- (49) Mee Valère te willen (2) dienen boek kuopen (3) een (1)  
 with Valère to want that book buy have  
 'Valère having wanted to buy that book'
- (50) \*Mee Valère te een (1) willen (2) dienen boek kuopen (3)  
 (Haegeman 1995:53)

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<sup>38</sup> According to Haegeman (1995), the ordering difference reflects a preference rather than an absolute judgment. That is, if the perfect auxiliary 'have' is a present tense it can marginally precede the other verbs (i). Similarly, if it is a past tense, it may appear in clause-final position (ii):

- (i) dan ze oan/ ?een willen dienen boek lezen  
 that they had/ have want that book read  
 'that they had/?have wanted to read that book'
- (ii) dan ze willen dienen boek lezen een/ ?oan  
 that they want that book read have/ had  
 'that they have/?had wanted to read that book'  
 (Haegeman 1995:59)

<sup>39</sup> Haegeman (1995) leaves open whether F2 is the base position of the auxiliary *een* 'have' or whether it is moved into that position.

As (50) shows, the auxiliary verb *een* ‘have’ cannot precede the other verbs if *te* is present. (50) is excluded under the assumption that F1 is occupied by *te*. That is, in finite sentences (without *te*) the finite auxiliary can move to F1, whereas F1 is not an available landing site in infinite sentences since it is occupied by *te*. Thus, the auxiliary verb ‘have’ can be moved into the position F1 (as in (48)), but only if this position is not already occupied by the element *te* (which excludes (50)):

- (51)    mee Valère [FP1 te [FP2 [ willen    dienen boek    kuopen ]i    een ti ]]  
          with Valère    to            want    that book        buy                have

As we have seen above, finite *een* ‘have’ preferably moves into the position F1 if it is irrealis (*oa* ‘had’ in (46)). According to Haegeman (1995:59), this suggests that F1 is a position associated with irrealis mood. Since F1 is also the functional head in which *te* is situated, we can conclude that *te* occupies the head of a functional projection related to irrealis mood.

In section 3.6, the different modal and temporal properties of *te*-infinitives will be worked out in more detail. In the next two sections, I will discuss the historical development of the *te*-infinitive in Dutch.

### 3.4. The historical development of the *te*-infinitive in Dutch

In the literature, the development of *te* is described in Van Helten (1891), *Middelnederlandsch Woordenboek* ((MNW) 1916:106-120), Stoett (1923:202-205), *Woordenboek der Nederlandsche Taal* ((WNT) 1934:1082-1102), and Duinhoven (1997:190-198). As far as I know, there is no analysis of this development within the generative framework. The main goal of the remaining sections is to provide such an analysis.

In this section, I will first describe the historical development of *te* and the *te*-infinitive in Dutch. I will then show that *te* has the properties of a grammaticalizing morpheme.

According to the WNT (1934:1051), *te* is a weakened form of Old Germanic *tô* ‘toward’. Originally, *te* is a spatial, purposive preposition with a directional meaning:

- (52)    “Oorspronkelijk gaf het voorz[etsel] een richting te kennen, waaruit de bereiking of het bereikt hebben van een doel voortvloeit” (WNT 1934:1052).  
          (originally, *te* indicated a direction, which results in reaching a goal)

(53)-(54) are examples from Middle Dutch in which *te* has this directional meaning:

- (53)    maerghin als            die zonne    up gaet Willic *te*    Roeme om aflat  
          tomorrow when    the sun        rises    want-I to    Rome for absolution  
          ‘tomorrow when the sun rises I want to go to Rome for absolution’  
          (Vanden Vos Reynaerde, 2717-8)

- (54) (Hi) ontboot .. de heren, dat si *te hem* quamen  
 he summoned ..the lords that they to him came  
 ‘he summoned the lords to come to him’  
 (MNW 1916:110)

In Modern Dutch, *te* is no longer a productive preposition. *Te* with a directional meaning only occurs in fixed expressions such as (55a-b):

- (55) a. hij hief zijn handen *ten hemel*  
 he raised his hands to heaven  
 b. hij richt zichzelf *te gronde*  
 he brings himself to earth  
 ‘he ruins himself’

In the course of time, the meaning of *te* extends from a directional meaning to a locative meaning (WNT 1934:1052):

- (56) “uit zoo’n gebruik [(52)] [...] laat zich dat van *te* ter aanduiding van een aanwezigheid op een plaats gereedelijk verklaren.” (WNT 1934:1052).  
 (the use of *te* as indicating a location easily explains its use as a directional preposition)

In the Middle Dutch examples (57a-b) *te* is a locative preposition:

- (57) a. Men kent *te hove* niet dan ghelt  
 they know at court nothing than money  
 ‘at court they only know money’  
 b. (Hi) sit *te sijnre rechter siden*  
 he sits to his right side  
 ‘he is sitting to his right’  
 (MNW 1916:107)

In Modern Dutch, the locative preposition *te* can only precede geographical names as in (58) and it can occur in fixed expressions such as (59a-c):

- (58) *te Amsterdam*  
 to Amsterdam  
 ‘in Amsterdam’  
 (59) a. *ten noorden van ...*  
 to north of ...  
 ‘north of ...’  
 b. *ten overstaan van ...*  
 to presence of ...  
 ‘in the presence of ...’

- c. te boek staan als ...  
 to book stand as ...  
 'be known as ...'

In Middle Dutch, *te* assigns dative Case (WNT 1934:1052-1082). This can be seen in the example (57a), where the noun appears with a dative Case ending (*hov-e*). In (57b), the possessive pronoun carries dative morphology (*sijn-re* 'his'). In fixed expressions in Modern Dutch, the dative Case ending is present on *te* (*te-u* in (55a) and (59a-b)) or on the noun (*grond-e* in 55b).

Gradually, the preposition *te* comes into use in infinitival complements. The example in (60) shows that in Middle Dutch, an infinitive following *te* can be inflected. Here, the infinitive *scriven* 'write' appears as a dative (DAT) with the ending *-e*:

- (60) soe weet wel dusdanich dinc *te scrivene*  
 she knows well such thing to write (DAT)  
 'she can write such a thing very well'  
 (Van Helten 1891:223)

The fact that Middle Dutch *te* in infinitival complements assigns Case to the infinitive suggests that *te* in Middle Dutch is still a preposition. I will come back to this below. In Modern Dutch, the inflected infinitive (*gerund*) has disappeared:

- (61) zij weet zoiets goed op *te schrijven(\*e)*  
 she knows such thing good up to write  
 'she can write such a thing very well'

The introduction of the *te*-infinitive in Dutch is a gradual process. Van Helten (1891) shows that in Middle Dutch, there are many verbs selecting bare infinitives which nowadays select a *te*-infinitive. His findings are based on an examination of 82 Middle Dutch texts. The verbs he lists can be classified into three groups:

- (62)  
 (A) Verbs that always select a bare infinitive:

*beseffen* 'realize', *dorren* 'dare, have to, be allowed, need to', *dunken* 'think', *geven* 'give', *gevoelen* 'feel', *hebben* 'have', *heeten* 'be said', *hooren* 'find out', *liggen* 'lay', *loopen* 'walk', *pleghen* 'be used to', *scinen* 'seem', *sitten* 'sit', *staen* 'stand', *verhersen* 'find out', *vernemen* 'see, hear', *wanen* 'be under the impression', *weten* 'know', *zeggen* 'say, claim', *wesen*<sup>40</sup> 'be'

<sup>40</sup> An example in which *wesen* 'be' selects a bare infinitive is (i):

- (i) hi was jagen  
 he was hunting

This construction must be distinguished from constructions like (ii) and (iii), in which *te* is present:

- (63) a. dat si scheen sonder pine liden  
 that she seemed without pain suffer  
 'that she seemed to suffer without pain'  
 b. wine hebben wat eten  
 we-not have something eat  
 'we don't have anything to eat'  
 (Van Helten 1891:225, 240)

(B) Verbs that can both select a bare infinitive and a *te*-infinitive:

*beginnen* 'begin', *bevelen* 'order', *bidden* 'request', *denken* 'think', *duchten* 'fear', *heeten* 'order', *helpen* 'help', *hem scamen* 'be ashamed', *leeren* 'teach', *leeren* 'learn', *meenen* 'think', *mercken* 'notice', *raden* 'advise', *vermanen* 'admonish', *weten* 'be able to, manage'

- (64) a. hadden si gheweten daer aen comen  
 had they known there at come  
 'had they been able to get that'  
 b. soe weet wel dusdanich dinc te scrivene  
 she knows good such thing to write  
 'she is able to write such a thing very well'  
 (Van Helten 1891:222-223)

(C) Verbs that usually select a *te*-infinitive:

*achten* 'intend', *begheren* 'want', *bestaen* 'begin', *bringen* 'persuade', *dwingen* 'force', *gebieden* 'command, order', *hopen* 'hope', *peinsen* 'consider'

- 
- (ii) het es te doene  
 it is to do  
 'it can/must be done'  
 (iii) het es te ghesciene nog  
 it is to happen still  
 'it still has to happen'  
 (Van Helten 1891:234)

*Wesen* expresses a possibility or an obligation in (ii) and a future event in (iii).

- (65) dat wi ghebidden den hemelschen viere desen lieden te  
 that we command the heavenly fire these people te  
 verterne  
 consume  
 ‘that we command the fire from heaven to consume these people’  
 (Van Helten 1891:234)

In Modern Dutch, *te* is obligatorily present in the infinitival complements of the verbs under (62A-C):<sup>41</sup>

- (66) hij schijnt een boek \*(te) lezen  
 he seems a book to read  
 ‘he seems to read a book’  
 (67) hij weet mij altijd \*(te) vinden  
 he knows me always to find  
 ‘he always manages to find me’  
 (68) hij gebiedt mij een boek \*(te) lezen  
 he orders me a book to read  
 ‘he orders me to read a book’

The comparison between Middle Dutch and Modern Dutch shows that the number of verbs selecting *te*-infinitives has increased considerably in the course of time. Thus, *te* was gradually introduced in infinitival complements.

After this brief discussion of the development of the *te*-infinitive in Dutch the following questions arise:

- (69) Why does the *te*-infinitive arise first in the complements of the verbs listed under (62B-C)?  
 (70) What explains the considerable expansion of the use of the *te*-infinitive in the history of Dutch?

In the following, I will show that the answers to (69)-(70) are related to the ongoing semantic bleaching of *te*.

According to Haspelmath (1989) (who discusses the development of *zu*, the German counterpart of *te*) and Duinhoven (1997:181-198), the preposition *te* is added to infinitives because it originally expresses purpose (see (52)).<sup>42</sup> The infinitive itself has its diachronic origin in a nominal purposive form. The infinitival ending *-en* goes

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<sup>41</sup> Some verbs are extinct or do not select an infinitival complement any longer in Modern Dutch, namely *achten* with the meaning ‘intend’, *bestaen* ‘begin’, *peinsen* ‘consider’, and *verherschen* ‘find out’.

<sup>42</sup> The development of German *zu* is furthermore described in Paul (1920:95-119), Wunderlich & Reis (1924:435), and Demske-Neumann (1994:121-122).

back to Proto-Germanic *-anam*, which is the accusative Case of a verbal noun in *-ana*. Accusative Case was one of the Cases (next to dative and locative Case) that was available in old Indo-European to express direction, goal, and purpose (Haspelmath 1989:291). Through grammaticalization the infinitival ending has lost this purposive meaning. A characteristic property of grammaticalization is that grammaticalized items tend to be reinforced after some time. That is, as the meaning of an item is increasingly weakening, another item is added as a reinforcement of the original meaning. In the case of infinitives, the preposition *zu* ‘to’ was added to reinforce the purposive meaning of infinitives. Haspelmath (1989) and Duinhoven (1997) furthermore argue that the more extensive use of *te* is due to the fact that it underwent semantic bleaching: *te* gradually lost this meaning of purpose. The consequence of the semantic weakening of *te* was that the conceptual connection with the preposition *te* was lost. As a result, *te* could not assign Case any longer in infinitival complements. For this reason, the inflected infinitive (as in (60)) in Dutch has disappeared (61).

Thus, according to Duinhoven (1997) and Haspelmath (1989) the occurrence of *te* in verbal complements is due to the original purposive meaning of the preposition *te*. Furthermore, the considerable expansion of the use of the *te*-infinitive can be attributed to the ungoing grammaticalization of *te*. That is, since *te* gradually lost its meaning, it could occur in more and more constructions.

Haspelmath (1989) argues that in German, the semantics of the verbal complement play a determining role in the introduction of the *zu*-infinitive. *Zu* is first used in “irrealis” complements. Only later, in early New High German and modern German, it also occurs in “realis” complements. Before further discussing Haspelmath’s (1989) findings, I will summarize the literature on the semantics of verbal complements very briefly below.

It is usually assumed that the following complements can be distinguished: propositional, irrealis, factive, and implicative complements (a.o. Givón 1973; Kiparsky & Kiparsky 1970; Karttunen 1971; Noonan 1985; Pesetsky 1991). Verbs such as *beweren* ‘claim’ select *propositional* complements. Truth and falsity can be predicated of these complements:

- (71) *propositional*  
 Jan beweert een boek te lezen (wat waar/onwaar is)  
 John claims a book to read what true/false is  
 ‘John claims that he is reading a book, (which is true/false)’

The infinitival complement to verbs such as *proberen* ‘try’ is interpreted as unrealized at the time of the matrix clause, with its truth at the time of utterance left unspecified. These verbs select for *irrealis* complements. Truth and falsity cannot be predicated of these complements:<sup>43</sup>

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<sup>43</sup> There are several complement selecting verbs which are ambiguous. Depending on the meaning of the selecting verb, the complement behaves as either propositional or irrealis according to the test discussed here. For example, the verb *denken* can mean *menen* ‘think, have the opinion’ or *verwachten* ‘expect’. In the first

- (72) *irrealis*  
 Jan probeert een boek te lezen (#wat waar/onwaar is)  
 John tries a book to read what true/false is  
 'John tries to read a book (#which is true/false)'

The truth of both propositional and irrealis complements is not asserted or presupposed. Thus, (71) and (72) do not presuppose that John reads a book. In this respect, these complements differ from factive and implicative complements. *Factive* verbs such as *beseffen* 'realize' presuppose the truth of their complements. (73) presupposes that John reads a book:

- (73) *factive*  
 Jan beseft een boek te lezen  
 John realizes a book to read  
 'John realizes that he is reading a book'

*Implicative* verbs such as *lukken* 'succeed, manage' assert the truth of their complements. (74) asserts that John reads a book:

- (74) *implicative*  
 het lukt Jan een boek te lezen  
 it succeeds John a book to read  
 'John manages to read a book'

An important difference between factive and implicative verbs is the following. A characteristic property of factive verbs is that negation in the main sentence does not affect the presupposition expressed in the complement. That is, (75) still presupposes that John reads a book. On the other hand, if an implicative verb is negated, so is its complement. For example, (76) implies that John did not read a book:

- (75) dat Jan zich niet realiseert een boek te lezen  
 that John himself not realises a book to read  
 'that John doesn't realize that he is reading a book'

case, *denken* is a propositional verb (i), in the second case an irrealis verb (ii):

- (i) *propositional*  
 Jan denkt de wedstrijd te winnen (wat niet waar is want hij schiet in eigen doel)  
 John thinks the game to win what not true is since he scores an own goal  
 'John thinks that he wins the game, (which is false, since he scores an own goal)'
- (ii) *irrealis*  
 Jan denkt de wedstrijd volgend jaar te winnen, (#wat niet waar is)  
 John thinks the game next year to win what false is  
 'John expects to win the game next year'

- (76) dat    het Jan   niet    lukt        een boek   te lezen  
       that   it John   not    succeeds   a book    to read  
       ‘that John doesn’t manage to read a book’

Haspelmath (1989:298-299) distinguishes the following four modalities of complement clauses:

- (77)
- (A) *realis factive* is the modality of complements of factive verbs and complements of implicative verbs
  - (B) *realis non-factive* is the modality of complements of propositional verbs. The situation is presented as real, although the speaker is not committed to its truth.
  - (C) *irrealis directive* is the modality of complements of irrealis verbs. Irrealis directive means that the complement situation is presented as not realized, and its possible realization is expected for the future.
  - (D) *irrealis potential* is the modality of complements of modal verbs. These verbs also belong to the class of irrealis verbs. Here, the complement situation is not realized either, but it is not expected to be realized in the future. Rather, it is presented as potentially occurring anytime.

According to Haspelmath (1989), it can be shown that in Old High German the *zu*-infinitive is used in irrealis directive infinitival complements (77C). The irrealis directive modality is still fairly close to the original meaning of *zu* in that it expresses non-realization and expected future time reference. Only later, *zu* can also appear in infinitival complements with a realis modality (77A-B).

In order to find out whether the same development has taken place in Dutch, I classified the three groups of verbs listed in Van Helten (1891) (62A-C above) according to their semantic class and to the corresponding modality meaning of their complements (irrealis or realis). This classification can be found in appendix A. Table 2 summarizes the results:<sup>44</sup>

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<sup>44</sup> In table 2, “verbs selecting  $\emptyset$ ” means “verbs selecting an infinitival complement without *te*”. “Verbs selecting *te*” stands for “verbs selecting an infinitival complement containing *te*”.

Table 2.

complement modality	verbs selecting $\emptyset$ (total 22)	verbs selecting <i>te</i> or $\emptyset$ (total 16)	verbs selecting <i>te</i> (total 8)
realis factive	13 (59,1%)	3 (18,8%)	0 (0%)
realis non-factive	5 (22,7%)	4 (25%)	1 (12,5%)
irrealis directive	2 (9,1%)	8 (50%)	7 (87,5%)
irrealis potential	2 (9,1%)	1 (6,2%)	0 (0%)

Table 2 shows that the majority of verbs without *te* in their complements are verbs that select a realis complement in Middle Dutch. The group of infinitival complements that optionally contain *te* is mixed. These complements can both be in the irrealis and realis modality. The group of verbs that always select *te* almost exclusively contains verbs which select a complement with an irrealis directive modality. Table 2 suggests that *te* appears first in irrealis directive complements.

Van Helten's (1891) list contains verbs that select *te*-infinitives in Modern Dutch and did not (obligatorily) select *te*-infinitives in Middle Dutch. This means that the conclusion that all verbs that select *te*-infinitives also select irrealis complements is premature. At this point, only a negative conclusion can be drawn, namely that verbs without *te* in their complements mainly select realis complements in Middle Dutch.

In order to establish that the *te*-infinitive is more widespread in irrealis complements, I examined a small number of Middle Dutch texts to investigate in which verbal complements *te*-infinitives occur. The investigation included the following texts: *Vanden Vos Reynaerde* (1200), *Strofische gedichten* (Hadewych, 1250), *Beatrijs* (1300), *Lanceloet en het Hert met de Witte Voet* (1300-1400), *Het Roelandlied* (1300-1400), *Die Borchgravinne van Vergi* (1315), *Karel ende Elegast* (1350), *Esmoreit* (1350-1400), *Gloriant* (1350-1400), *Die Hystorie van Alexander* (1400), *Lanseloet van Denemerken* (1400), *Den Spyghel der Salicheyt van Elckerlijc* (1470-1500), and *Mariken van Nieumeghen* (1500).<sup>45</sup>

<sup>45</sup> These texts come from the Coster project, a project devoted to providing electronic versions of Dutch texts. It can be found on the World Wide Web at <http://www.dds.nl/~jcooster/>.

Although Middle Dutch was one language, with one inflectional system and one syntax, there are some distinctions on the basis of which the following four dialect groups can be distinguished (Van Helten 1887; Kerckvoorde 1993):

- A. Flemish (Flanders: Bruges, Ypres, Ghent, Courtray) and Zeeuws (Zeeland)
- B. Brabantic (areas of Brussels, Louvain, Antwerp, Mechelen and Breda)
- C. Hollandic (county of Holland (nowadays North and South Holland), Northern part of Zeeland, Utrecht, West and South West Gelderland)
- D. Limburgic (Limburg, East Brabant, Roermond)

The 13 texts belong to the following dialect groups:

In total, these texts contain 160 *te*-infinitives. The list of verbs that select these *te*-infinitives can be found in appendix B. There, the verbs are classified according to their semantic class, and it is indicated how often the verb appears with a *te*-infinitive in its complement. The results are given in table 3:

Table 3.

complement modality	number of <i>te</i> -infinitives
realis factive	26 (16,25) <sup>46</sup>
realis non-factive	2 (1,25%)
irrealis directive	82 (51,25%)
irrealis potential	50 (31,25%)

Table 3 shows that 82,5% of all *te*-infinitives occurs in irrealis complements. This supports the suggestion that the *te*-infinitive in Dutch first came into use in irrealis complements.

Of course, much more work needs to be done before this suggestion can be turned into a conclusion. That is, the number of texts investigated needs to be extended and the investigation should not only include literary texts. Furthermore, the exact conditions under which *te*-infinitives appear in Middle Dutch are undoubtedly more fine-grained than what is shown in tables 2 and 3. At this point, I will leave this for further research. Here, I will work from the suggestion that in Middle Dutch, *te*-infinitives are more common in irrealis contexts and assume that Haspelmath's (1989) findings with respect to the rise of *zu*-infinitives in German carry over to Dutch. That is, the *te*-infinitive in Dutch arose in irrealis complements.

As we have seen above, *te* is originally a spatial preposition with a directional meaning ('toward') (52). The original spatial meaning of the preposition *te* "bleaches" so that *te* appears in infinitival complements. More specifically, the spatial meaning of the preposition *te* is extended to include a temporal meaning.<sup>47</sup> In the literature on

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- (i) Flemish: *Vanden Vos Reynaerde, Beatrijs, Karel ende Elegast, Het Roelandslied*.
  - (ii) Brabant: *Esmoreit, Gloriant and Lanceloet van Denemerken* (all three belong to the so-called *Abele Spelen*), *Strofische gedichten, Die Borchgravinne van Vergi, Den Spyghel der Salicheyt van Elckerlijc, Mariken van Nieuweghen*.
  - (iii) Hollandic: *Lanceloet en het Hert met de Witte Voet, Die Hystorie van Alexander*.

<sup>46</sup> 24 instances of *te*-infinitives occur in the complement of the verb *beginnen* 'start'. These complements share an important meaning aspect with irrealis directive complements. I will come back to this below.

<sup>47</sup> Haspelmath (1989) shows that in many unrelated languages an allative preposition or case marker (which expresses movement toward a certain goal) comes to be used in infinitival complements.

grammaticalization, it has been noted that this is a very common path of grammaticalization. For example, the development of *te* can be compared with the development of English *go*, which according to Hopper & Traugott (1993:79) has developed from a spatial motion verb into a temporal auxiliary expressing future through “metaphorical extension”. As we have seen in chapter 1, section 1.4.3, metaphorical extension takes place in the earliest stages of grammaticalization. In this stage, the meaning of an item shifts from a concrete meaning to a more abstract meaning, whereas the original relational structure is preserved. The fact that *te* first occurs in irrealis directive infinitival complements is explained if it is assumed that the original directional, purposive meaning of *te* was preserved when it began to precede infinitives. In irrealis directive complements, the complement situation is presented as not realized, but its possible realization is expected for the future (77C) (Haspelmath 1989:299). In these infinitival complements, *te* expresses “motion toward a certain goal”. This goal is denoted by the embedded infinitive and it is temporally remote from the subject rather than spatially remote (as is the case with the preposition *te* in the examples (53-55)). In this way, *te* reinforces the bleached irrealis meaning of the infinitival ending *-en*.<sup>48</sup>

At this point, the question arises to which semantic category Middle Dutch *te* belongs. The considerations above suggest that *te* in Middle Dutch contributes to the expression of “future” or “irrealis”. In the literature, it has often been noted that these two semantic categories are closely connected (e.g. Comrie 1989; Fleischman 1982:24-31, 133-134; Kratzer 1991; Sarkar 1998). According to Bickerton (1975:42), irrealis mood indicates “unreal time”. Cinque (1999:78, 230, footnote 12) takes irrealis mood (expressed in Mood<sub>irrealis</sub>) to indicate that an event has not been realized. Chung & Timberlake (1985:241) consider irrealis to distinguish between actual and non-actual events. “Future” is defined by Bybee et al. (1994:244) as equivalent to a prediction on the part of the speaker that the situation in the proposition, which refers to an event taking place after the moment of speech, will hold. This definition shows that it is difficult to assign the category future to either tense or mood, since it refers both to the attitude of the speaker toward a proposition, which is mood (Lyons 1977:452) and to the position of an event with respect to the moment of utterance, which is tense. Future is inherently less certain than past or present tense: future events are not facts. That is, future tense inevitably involves a modal attitude. Comrie (1985:43-48) notes that languages often use an irrealis mood marker to refer to the future, thus making overt the lower degree of certainty which is usually associated with statements about the future.

It has been noted that it is particularly hard to distinguish between future and irrealis in complement clauses (e.g. Bohnemeyer 2000:9). In irrealis complements such as (78), the tense of the infinitival complement is understood as being unrealized, i.e. in the future with respect to the tense of the matrix verb (Stowell 1982). That is, in (78) Jim has not yet succeeded in locking the door at the point at which he tries to do so:

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<sup>48</sup> In section 3.7, I will be more explicit about the exact nature of the bleaching of *-en* and *te* and give a formalization in syntactic terms.

- (78) Jim tried to lock the door  
(Stowell 1982:563)

Since irrealis and future are closely connected, especially in complements like (78), it is not easy to categorize Middle Dutch *te* (which only appeared in irrealis directive complements) as either irrealis or future. In the remainder, I will refer to *te* as an irrealis marker, taking into account that it expresses future reference in infinitival complement clauses such as (78).

The history of English *to* is similar to that of *te*. Los (2000:257-273) shows that the *to*-infinitive became the non-finite counterpart of the finite subjunctive complement clause, i.e. the complement which expresses irrealis. In Middle English, the use of the *to*-infinitive shows a massive increase. Los (2000) shows that this increase has occurred at the expense of subjunctive complements.

In Modern Dutch, *te* is no longer restricted to infinitival complements with an irrealis modality. The following examples show that *te* appears in the complement of factive (79), implicative (80), and propositional (81) verbs. These verbs select a realis complement:

- (79) hij beseft/weet    morgen    een boek    \*(te)    moeten    lezen  
 he realizes/knows    tomorrow    a book    to    must    read  
 'he realizes/knows that he has to read a book tomorrow'
- (80) hij verzuimde    een boek    \*(te)    lezen  
 he failed    a book    to    read  
 'he failed to read a book'
- (81) hij denkt/zegt    een boek    \*(te)    lezen  
 he thinks/says    a book    to    read  
 'he thinks/says that he reads a book'

It will be shown in section 3.6 that the complements to the verbs in (79)-(81) all have independent time reference in the sense that the complement can contain the time adverbial *gisteren* 'yesterday' modifying the embedded verb, as in (82):

- (82) hij beseft    het boek    gisteren    te hebben gelezen  
 he realizes    the book    yesterday    to have read  
 'he realizes that he read the book yesterday'

Coming back to the verb *beginnen* 'begin', which from early on selects *te*-infinitives, it is shown in (83) that the complement of this verb cannot be independently modified by the adverb *gisteren* 'yesterday':

- (83) \*hi    begint het boek    gisteren    te hebben gelezen  
 he    begins the book    yesterday    to have read

The ungrammaticality of (83) follows from the inherent meaning of *beginnen*.

*Beginnen* as an inchoative verb indicates the start of the eventuality denoted by the complement verb. Inchoative verbs differ from irrealis verbs in that the latter verbs do not specify a specific point of time at which the embedded eventuality will take place. The similarity of inchoative aspect and irrealis mood is that they both have future reference: the embedded eventuality takes place in the future with respect to the selecting verb. Because of this shared meaning component, the regular presence of the irrealis marker *te* in the complement of *beginnen* is not unexpected.

I will conclude this discussion of the development of *te* by arguing that *te* has the properties of a grammaticalizing item. The characteristic properties of the grammaticalization process as discussed in section 1.3 are repeated below:

- (84) (a) *phonological reduction and cliticization*  
Grammaticalization can lead to cliticization of the grammaticalizing item (i.e. the grammaticalizing item becomes an affix).
- (b) *semantic bleaching*  
Grammaticalization involves a meaning change of the grammaticalizing item.
- (c) *persistence*  
The etymology of a grammaticalizing item constrains its subsequent grammatical functions.
- (d) *paradigmatization*  
A grammaticalized item can be integrated into a morphological paradigm.
- (e) *gradualness*  
Grammaticalization is a gradual process.
- (f) *unidirectionality*  
Grammaticalization is a unidirectional process.
- (g) *context dependency*  
The construction in which the grammaticalizing item appears contributes to the resulting grammatical meaning of this item.

We have seen in this section that originally, *te* is a spatial preposition meaning ‘toward’. *Te* is gradually introduced in infinitival complements, illustrating the gradualness of the grammaticalization process (property (84e)). As *te* appears in infinitival complements, its basic spatial meaning is “bleached” (property (84b)). At first, *te* preserves its directional, goal oriented meaning, illustrating the property of persistence (84c). This explains that *te* first occurs in infinitival complements with an irrealis directive modality. After the Middle Dutch period, *te* appears more and more in realis complements such as (79)-(81). In Modern Dutch, *te* is obligatory in the infinitival complements of factive and propositional verbs. The expansion of the use of *te* in infinitival clauses shows that in the course of time, *te* has lost its irrealis meaning. Thus, *te* has undergone further semantic bleaching.

In the following sections, I will show that *te* also exhibits the other properties of grammaticalization mentioned above. First, I will argue that *te* is generated under a functional head expressing mood or tense. In other words, *te* conveys a meaning related

to mood or tense, illustrating the paradigmaticization property (84d). Second, I show in these sections that the development of *te* is unidirectional (84f) in the sense discussed in the previous sections: as *te* further grammaticalizes, it raises in the hierarchy of functional projections proposed by Cinque (1999). Third, I argue that the meaning of *te* is dependent on the context it appears in, i.e. in which functional head *te* appears. That is, the construction in which *te* appears contributes to its resulting grammatical meaning (84g).

A further property of grammaticalization is cliticization (84a). In the following section, we will see that in Middle Dutch, *te* immediately precedes the infinitive (as in Modern Dutch (22)-(24)). There are no differences in word order on the basis of which it can be shown that *te* has developed from a free morpheme into a bound morpheme.

### 3.5. The status and position of *te* in Middle Dutch

In the preceding sections, I have argued that *te* is a grammaticalized item: it developed from a preposition into a functional head. It has been noted often that prepositions are problematic in terms of their status as a functional or a lexical category (e.g. Ouhalla 1991:202). As has been mentioned in section 1.4.1, Abney (1987:64-65) lists the following five properties that are characteristic of functional categories: (i) they constitute a closed class, (ii) they lack descriptive content, (iii) they permit only one complement, which is in general not an argument, (iv) they are usually inseparable from their complement, and (v) they are generally phonologically and morphologically dependent. The prepositions constitute a closed class and their function is to link nouns and pronouns to other parts of the sentence, so their meaning is more grammatical than the meaning of lexical categories such as nouns and verbs. Thus, with respect to the properties (i) and (ii) prepositions behave as functional categories. With respect to (iii)-(v), prepositions pattern more like lexical elements. They can assign Case to their complement (overtly in a language such as German), showing that the complement is an argument. Furthermore, prepositions can be stranded (i.e. separated from their complement), and they are usually not phonologically and morphologically deficient. Thus, the whole class of prepositions is not easily categorized as either lexical or functional. The statement that *te* has grammaticalized from a preposition to a functional element makes of course no sense if all prepositions are functional elements to begin with.

However, it is plausible that the infinitival marker *te* derives from a preposition which shares its properties with other prepositions such as *in* 'in' and *over* 'over'. Middle Dutch *te* productively combines with infinitives, proper names (53), and nouns preceded by a determiner:

- (85) dat ghi met ons gaet Ten putte  
 that you with us go to-the (DAT) well  
 ‘that you go with us to the well’  
 (Vanden Vos Reynaerde, 2695-2696):

Furthermore, *te* assigns dative Case in Middle Dutch, showing that the complement of *te* is an argument. Thus, according to the criterium under (iii), the element *te* from which the infinitival marker *te* emerged is a normal preposition.

With respect to the criteria (iv) and (v), Middle Dutch *te* differs from other prepositions, since it ends in an unstressed schwa and is phonologically deficient. If *te* selects a DP, *te* and the following D head are fused. This is shown in (85), where *ten putte* ‘to the well’ derives from *te den putte* ‘to the well’. The form *te*, however, goes back to a preposition which is not phonologically deficient, namely *tô* in older Germanic (52). Next to *te*, non-reduced forms of *te* occur in Middle Dutch, namely *to*, *toe*, and *tot(e)*. These forms have the same meaning as *te*, namely ‘toward’.<sup>49</sup>

- (86) dat hi die sielen to Gode brochte  
 that he the souls to God brought  
 ‘that he brought the souls to God’  
 (MNW 1916:376)
- (87) doe ic toe Macedoniën ghinc  
 when I to Macedonia went  
 ‘when I went to Macedonia’  
 (MNW 1916:383)
- (88) (si) liep toter fonteine drinken  
 she went to-the fountain drink  
 ‘she went to the fountain in order to drink’

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<sup>49</sup> In Modern Dutch, *toe* and *tot* still exist. *Toe* only occurs as a postposition, indicating direction (i). *Tot* can express direction, although with this meaning it is mainly used in fixed expressions (ii). *Tot* usually means ‘until, till’ (iii) (MNW 1916:605):

- (i) hij gaat naar huis toe  
 he goes to house to  
 ‘he goes home’
- (ii) a. tot zijn vaderen gaan  
 to his fathers go  
 ‘to die’  
 b. hij keerde terug tot zijn geboorteplaats  
 he returned back to his birthplace  
 ‘he returned to his place of birth’
- (iii) het duurt tot vijf uur  
 it lasts till five o’clock

Furthermore, *te* is interchangeable with other prepositions such as *in* 'in' and *na(e)* 'to' (which is the precursor of Modern Dutch *naar* 'to'):

- (89) het quam gheronnen elc man doe in sine wachte  
 it came run every man then in his sentry  
 'every man came running to this sentry'  
 (MNW 1894:816)
- (90) Ghi moet nae Nimmeghen nemen u vertreck  
 you must to Nijmegen take your leave  
 'you have to leave for Nijmegen'  
 Mariken van Nieumeghen, 3)

Since Middle Dutch *te* assigns Case, productively combines with various complements, and is interchangeable with other prepositions, whereas Modern Dutch *te* is not a productive preposition any longer, I will assume that *te* used to be a regular preposition which in the course of time acquired more functional properties.

In section 1.4, we have seen that it is generally assumed that grammaticalized items are generated in a functional projection. The question is whether *te* if it precedes an infinitive in Middle Dutch is still a preposition (i.e. the head of a PP) or already a functional head in the extended projection of a verb. With respect to their external syntax, *te*-infinitives are at first sight similar to PPs in that they have a free order with respect to the selecting verb. In Middle Dutch, PPs can appear both at the left hand side and at the right hand side of the verb (Van der Berg 1983:28; De Schutter 1988:390). The following examples illustrate these possibilities for PP arguments (91) and prepositional Small Clause complements (92):

- (91) a. Hoe Reynaert sinen erdschen vader *Met verradenessen* sal  
 how Reynaert his earthly father with betrayal will  
 bedraghen  
 accuse  
 'how Reynaert will accuse his earthly father of betrayal'  
 (Vanden Vos Reynaerde, 2228-2229)
- b. Hine hadde *te* claghene *over Reynaerde*  
 he-not had to complain about Reynaerde  
 'he could not complain about Reynaerde'  
 (Vanden Vos Reynaerde, 59)
- (92) a. Ic soude *te hove* sijn ghegaen  
 I would to court be gone  
 'I would have gone to court'  
 (Vanden Vos Reynaerde, 554)
- b. dat ghi met ons gaet *Ten putte*  
 that you with us go to-the (DAT) well  
 'that you go with us to the well'  
 (Vanden Vos Reynaerde, 2695-2696)

Like PPs, *te*-infinitives can precede and follow the selecting verb as (93a-b) show:

- (93) a. Ende u desen berch lanc Over *te loepene* dede bestaen  
 and you this mountain over to walk made dare  
 ‘and made you cross this mountain’  
 (Vanden Vos Reynaerde, 552-553)
- b. Dat ic wel dar bestaen *te doene*  
 that I well dare undertake to do  
 ‘I dare to do that’  
 (Vanden Vos Reynaerde, 1354)

In comparison to PPs, the percentage of *te*-infinitives that precedes the verb is less. In *Vanden Vos Reynaerde*, an early Middle Dutch text (1200), 96% of all *te*-infinitives are gerunds. 79% of these *te*-infinitives follows the selecting verb, and 21% precedes the selecting verb. The PPs in *Vanden Vos Reynaerde* show a different distribution. Of the PP arguments (in embedded sentences or selected by an infinitival verb), 47% follows the selecting verb. The Small Clause complements have almost the same distribution. 46% of them follows the verb in embedded sentences or in infinitival clauses. This different distribution of “real” PPs and *te*-infinitives in Middle Dutch might suggest that *te*-infinitives are not PPs. However, the material investigated is too small to draw firm conclusions with respect to the categorial status of *te*-infinitival clauses.

The existence of the gerund (the inflected infinitive) is often taken to indicate that *te* is still a preposition in Middle Dutch. For example, Zwart (1993:99) argues that the prepositional status of *te* is apparent from the dative Case morphology on the infinitive. Similarly, Haspelmath (1989:297) claims that the infinitive with *te* originally started out as a PP. Hoekstra (1997:85) (for Frisian) and Abraham (1997:6) (for German) also conclude on the basis of the existence of the gerund in (older stages of) these languages that *te*-infinitives must have set out as prepositional phrases.

The main problem with the assumption that *te*-infinitives have the categorial status of a PP is that they freely allow extraction. As in Modern Dutch, extraction from PP is possible in Middle Dutch, but only if an *R*-word such as *daer* ‘there’ or *er* ‘there’ is present (Duihoven 1988:43-45, Kerckvoorde 1993:51-52):

- (94) si en stonder in gescreven  
 it not stood-there in written  
 ‘it was not written on it’  
 (Kerckvoorde 1993:52)
- (95) daerom so sende ic u enen bal, *daer* gi mede spelen  
 therefore so send I you a ball there you with play  
 mocht  
 could  
 ‘for this reason I send you a ball that you can play with’  
 (Die Hystorie van Alexander den Groote, 246-247)

If elements are extracted from *te* + infinitive, on the other hand, no *R*-word is present:

- (96) [wat]<sub>i</sub> hebdi nu hier te doene t<sub>i</sub>?  
 what have-you now here to do  
 ‘what are you doing here?’  
 (Mariken van Nieuweghen, 67)
- (97) [Rethorijcke]<sub>i</sub> en is met crachte niet te leerene t<sub>i</sub>  
 rhetoric not is with force not to learn  
 ‘it is not possible to learn rhetoric through force’  
 (Mariken van Nieuweghen, 510)
- (98) Hi beloofde hem [selver ende gout]<sub>i</sub> Te ghevene t<sub>i</sub>  
 he promised him silver and gold to give  
 ‘he promised to give him silver and gold’  
 (Vanden Vos Reynaerde, 2430-2431)

Since Middle Dutch *te*-infinitives do not require the presence of an *R*-word if an element is extracted, they do not behave as PPs.

Summarizing, on the one hand *te* looks like a preposition, since it assigns Case. On the other hand, the *te*-infinitive does not behave as a PP, since it allows elements to be extracted from it. In the literature, it is often assumed that infinitives preceded by an infinitival marker have undergone categorial changes, namely from the structure in (99) to the one in (100) (see e.g. Duinhoven 1997:187 for Dutch and Lightfoot 1979:186-195 for English):

- (99) [PP *te* [NP infinitive ]]  
 (100) [IP *te* [VP infinitive ]]

The structures in (99) and (100) represent two diachronic stages. However, in the same stage of the language, constructions containing an infinitival marker and an infinitive can exhibit properties which are characteristic of the PP - NP structure in (99) and of the IP - VP structure in (100). This is the case in Middle Dutch. How can this hybrid behaviour of the *te*-infinitive be described? A possibility is that *te* in infinitival complements in Middle Dutch has already grammaticalized to the extent that it is base generated in a functional head. The existence of the *gerund* must then be seen as a historical relict. Another possibility is that the Middle Dutch *te*-infinitive has a structure which combines the structures in (99)-(100). An analysis along these lines is developed by Bayer (1993), who describes the *zum* ‘to’-infinitive in Bavarian. Since this infinitive has similar properties as the *te*-infinitive in Middle Dutch, I will discuss this analysis briefly below.

According to Bayer (1993), *zu* ‘to’ in Bavarian is still a preposition that assigns dative Case. Although the infinitive does not carry dative morphology (as in Middle Dutch), the dative clearly appears on the cliticized determiner (*de)m* ‘the’:

- (101) er hod zum Singa oog'fangt  
 he has to-the sing begun  
 'he has begun to sing'  
 (Bayer 1993:51)

Furthermore, *zum* + infinitive has the same distribution as PPs in Bavarian. For this reason, Bayer (1993) concludes that the *zum*-infinitive is a PP.

However, the *zum*-infinitive differs from regular PPs in that it cannot contain XPs, i.e. adverbial modifiers or direct objects:

- (102) a. \*er hod zum *schmain* laffa oog'fangt  
 he has to-the fast run started  
 b. \*er hod zum *de Sei* fiadan vagesn  
 he has to-the the pigs feed forgotten  
 (Bayer 1993:55)

The direct object of the embedded infinitive can only be licensed outside the *zum*-infinitive:

- (103) er hod *de Sei* vagesn zum fiadan  
 he has the pigs forgotten to-the feed  
 'he has forgotten to feed the pigs'  
 (Bayer 1993:58)

The extraction possibility of the direct object is a problem for the PP analysis of the *zum*-infinitive, for reasons described above.

Bayer (1993) proposes a "two-dimensional" analysis to account for the properties of the *zum*-infinitive in Bavarian. The infinitive is an NP of the form  $[_{NP} [_{N} [V]]]$ , i.e. the infinitival verb has been converted into a noun by a morphological process. The determiner *dem* is a D head, and *zu* is a preposition. The infinitive raises to D and this amalgam moves to the P head *zu*. This head movement analysis explains why the *zum*-infinitive cannot contain XPs:

- (104)  $[_{PP} [_{P} zu-[_{D} -m [_{N} [v \text{ fiadan } ] ] ] ] ] [_{DP} t_j [_{NP} t_i ] ] ]$

At the same time, in the second dimension of the structure, the PP *zum* + infinitive behaves as a head in that it selects a VP, according to Bayer (1993:60). In this VP the direct object is generated:<sup>50</sup>

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<sup>50</sup> Bayer (1993) uses the notation P\* to indicate that one dimension of *zum* + infinitive serves as a head, while the other behaves as an XP. The part of the structure in (105) indicated by P\* is the PP represented in (104).

- (105) [VP [PP [VP [DP de Sei ] V ] [P\* [P\* zu-[D -m [N [v fiadan ]]i ]j ] [DP t<sub>j</sub> [NP t<sub>i</sub> ]]]  
vagesn ]]

The derivation of (105) continues by moving P\* (*zum fiadan*) out of the PP to the matrix verb *vagesn*. This head movement operation removes the barrier status of the PP (the *zum*-infinitive) under Baker's (1988:56) definition of barrierhood. Under this definition, a potential barrier XP is removed via government by a head Y, if Y selects XP and the head X moves to Y. This allows the direct object to be extracted and moved to the specifier of an AgrOP in the matrix clause, deriving (103) (Bayer 1993:62-63).

The properties of the Middle Dutch *te*-infinitive can be described in a way compatible with the framework of Roberts & Roussou (1999) by adopting some of the assumptions of Bayer's (1993) analysis. Suppose that *te*, like *zu* in Bavarian, is base generated as a preposition in Middle Dutch. That is, *te* is the head of a PP which takes the infinitive as its complement. Since the infinitive can be Case marked, this complement must be an NP:

- (106) [PP te [NP doenne ]]  
to do

As we have seen above, the preposition *te* differs from other prepositions in that it is phonologically deficient. It seems that as in Modern Dutch (section 3.3.2), Middle Dutch *te* is a clitic. Because of its lack of independent prosodic status *te* must be attached to an adjacent word. If the complement of *te* is a DP, the determiner is incorporated in the preposition *te*. In the infinitival domain, *te* and the infinitive are always adjacent in Middle Dutch.<sup>51</sup> The direct object of the infinitive appears either to the left hand side of the infinitive and *te* (see (98)) or to the right hand side of the infinitive.<sup>52</sup> Direct objects (and separable particles) never appear in between *te* and the infinitive (Van Loey 1976:3). This adjacency suggests that the infinitive adjoins to *te*, comparable to the movement of the D head to *te* if the complement is a DP (as for example in 92b).

<sup>51</sup> In Middle Dutch, the unstressed ending *-e* of *te* can be apocoped (i) and *t-* and the infinitive can be written together. In Modern Dutch, this is not possible any longer.

(i) mine vriende ...die mi gherne plaghen *tsiene*  
my friends ...that me gladly used to-see  
'my friends that used to like to see me'  
(MNW 1916:117)

<sup>52</sup> An example is (i):

(i) die sijn vercoren Te draghenne dat joc  
that are chosen to carry that yoke  
'who are chosen to carry that yoke'  
(Strofische gedichten, 12:3-4)

The question is then how the direct object of the infinitive is licensed. I will adopt Bayer's (1993) idea that the movement of the *te*-infinitive from the PP (here to the functional head  $\text{Mood}_{\text{irrealis}}$ ) allows the direct object to be extracted from this PP in order to be licensed in AgrOP. Suppose that the PP in (106) is embedded in a clausal functional structure. We have seen that Cinque (1999) argues that the structure of "IP" consists of (at least) 32 functional projections with the following hierarchy:

- (107) [ $\text{Mood}_{\text{speech act}}$  [ $\text{Mood}_{\text{evaluative}}$  [ $\text{Mood}_{\text{evidential}}$  [ $\text{Mod}_{\text{epistemic}}$  [ $\text{T(Past)}$  [ $\text{T(Future)}$  [ $\text{Mood}_{\text{irrealis}}$  [ $\text{Mod}_{\text{necessity}}$  [ $\text{Mod}_{\text{possibility}}$  [ $\text{Mod}_{\text{volitional}}$  [ $\text{Mod}_{\text{obligation}}$  [ $\text{Mod}_{\text{ability/permission}}$  [ $\text{Asp}_{\text{habitual}}$  [ $\text{Asp}_{\text{repetitive(I)}}$  [ $\text{Asp}_{\text{frequentative}}$  [ $\text{Asp}_{\text{celerative(I)}}$  [ $\text{T(Anterior)}$  [ $\text{Asp}_{\text{terminative}}$  [ $\text{Asp}_{\text{continuative}}$  [ $\text{Asp}_{\text{perfect}}$  [ $\text{Asp}_{\text{retrospective}}$  [ $\text{Asp}_{\text{proximative}}$  [ $\text{Asp}_{\text{durative}}$  [ $\text{Asp}_{\text{generic/progressive}}$  [ $\text{Asp}_{\text{prospective}}$  [ $\text{Asp}_{\text{SgCompletive(I)}}$  [ $\text{Asp}_{\text{PlCompletive}}$  [ $\text{Voice}$  [ $\text{Asp}_{\text{celerative(II)}}$  [ $\text{Asp}_{\text{SgCompletive(II)}}$  [ $\text{Asp}_{\text{repetitive(II)}}$  [ $\text{Asp}_{\text{frequentative(II)}}$  ..  
(Cinque 1999:81, 106)

The data in section 3.4 have shown that *te* was first used in infinitival complements with an irrealis modality. Therefore, I take the complex *te* + infinitive to move from  $\text{P}^0$  to  $\text{Mood}_{\text{irrealis}}$ :

- (108) [ $\text{Mood}_{\text{(irrealis)}}$  [ $\text{te-}[\text{lezene}]_i$  ]<sub>j</sub> [ $\text{PP}$   $t_j$  [ $\text{NP}$   $t_i$  ]]]

Since the prepositional head has moved from the PP to a functional head, elements can be extracted from prepositional *te*-infinitives. In this respect, *te*-infinitives differ from regular PPs.<sup>53</sup>

Since the direct object precedes the *te*-infinitive (as in (98)), the AgrOP which provides the landing site for this direct object must be higher than  $\text{Mood}_{\text{irrealis}}$ . Cinque (1999, chapter 5) notes that the enlarged functional structure of clauses that he proposes has direct implications regarding the position of DPs. If adverbs are in a fixed position, it must be assumed that there are several DP-related positions, since DPs can occur in different positions with respect to adverbs. In section 3.10, I will come back to this issue when discussing the derivation of *te*-infinitival complements in Modern Dutch.

The analysis in (108) describes the properties of Middle Dutch *te*-infinitives discussed above, namely that *te* behaves as a preposition in that it assigns Case, whereas the *te*-infinitive freely allows extraction of the DP complement of the infinitive.<sup>54</sup>

<sup>53</sup> As was discussed above, Bayer (1993) adopts Baker's (1988) definition of barrierhood which is based on the notion of government. In the Minimalist Program (Chomsky 1995), the mechanism of government has been abandoned. It is unclear how in this framework the circumvention of barriers as described in Baker (1988) can be expressed. I will put this question aside here.

<sup>54</sup> A similar analysis may account for the properties of a construction in Modern Dutch that involves a "functional preposition" as well, namely the *aan het* 'at the' - construction. This construction expresses progressive aspect:

In the course of time, the gerund disappears in Dutch. This change can be described in the following way. Suppose that *te* is base generated in Mood<sub>irrealis</sub>, instead of being moved into this position. As a result, the PP + NP structure (108) is reanalyzed as a simple VP. The gerund disappears from the language since it is not assigned Case by a preposition any longer:

(109) [Mood(irrealis) *te* [VP lezen ]]

The change from the structure in (108) to the one in (109) is an instance of the change from the less economical operation ‘move’ to the more economical operation ‘merge’. Under this analysis, the syntactic development of the *te*-infinitive is an instance of the structural simplification that according to Roberts & Roussou (1999) and Roberts (forthcoming) accompanies the process of grammaticalization (as discussed in section 1.4.2).

In Modern Dutch, *te* is no longer restricted to infinitival complements with an

- (i) Jan is het boek aan het lezen  
 John is the book at the read  
 ‘John is reading the book’

On the one hand, the presence of the determiner *het* ‘it’ suggests that the construction involves a preposition *aan* ‘at’ which selects a DP nominalization. On the other hand, the direct object of the infinitive must precede *aan het*, as (i) shows. Furthermore, this direct object cannot be the complement of the dummy Case assigner *van* ‘of’ (ii) as in regular PPs selecting a DP complement (iii):

- (ii) \*hij is aan het lezen van boeken  
 he is at the reading of books
- (iii) hij houdt van het lezen van boeken  
 he loves of the reading of books  
 ‘he loves reading books’

Under an analysis that treats the *aan het*-construction as a PP (Boogaart 1991; Van Gelderen 1993:181-184) the extraction possibility remains unexplained. An analysis in which *aan* is generated in the head of a functional projection (cf. Bhatt & Schmidt 1993) faces the difficulty to fit in *het* ‘it’. *Aan* and *het* cannot be analyzed as a base generated complex head, since they can be separated under conjunction (Van Gelderen 1993:182):

- (iv) ik ben borden aan het wassen en het drogen  
 I am plates at the washing and the drying  
 ‘I am washing and drying plates’

Thus, like the *te*-infinitive in Middle Dutch, the Modern Dutch *aan het*-construction shows characteristics of both a PP with a nominal complement and a construction which is transparent to extraction. An analysis along the lines of (108) expresses the hybrid behaviour of the *aan het*-construction. In (v), *aan het* + infinitive starts out as a PP - DP construction. The head of the DP, *het*, moves to *aan*. This complex, *aan het*, then moves to a higher functional head (I will assume Asp<sub>progressive</sub>). These two movement operations allow the direct object to be extracted from the DP and the PP and to be moved to a higher AgrOP:

- (v) [AgrOP DO<sub>k</sub> [Asp(Progressive) [aan het]<sub>j</sub> [PP t<sub>j</sub> [DP t<sub>i</sub> [NP infinitive t<sub>k</sub>]]]]]

irrealis modality. This has been shown by the examples in (66)-(68). In the following section, I will argue that in these cases, *te* is situated in T(Past). This means that in the course of time, *te* has developed from a preposition into an irrealis marker, expressing mood, and further into a tense marker. Since the tense projections dominate the mood projections (see 107), the development of *te* is an example of raising in the functional domain of clauses.

### 3.6. Modern Dutch *te*-infinitival complements

In this section, I will further investigate the position and meaning of *te* in Modern Dutch. I will provide support for the assumption that *te* has developed from a mood marker into a tense marker. Specifically, I will argue that *te*-infinitival complements in Modern Dutch can be specified for the feature [+past].

First, I discuss a number of previous analyses concerning the tense of *te*-infinitival complements in Dutch, namely the analyses of Bennis & Hoekstra (1989b) and Cremers (1983).

#### 3.6.1. Previous analyses

It has already been mentioned in section 3.3.1 that in analyses in which it is assumed that *te* is an infinitival marker, it is taken to be generated in  $I^0$  or  $T^0$  (a.o. Bennis & Hoekstra 1989a,b; Den Besten & Broekhuis 1989; Rutten 1991). The structure in (110) represents the standard view on Dutch *te*. The underlying structure in (110a) is head final. The order *te* - infinitive is derived by right-adjunction of the infinitive to *te* (110b):

- (110) a.  $V [_{IP/TP} [_{VP} \text{ infinitive } ] te ]$   
 b.  $V [_{IP/TP} [_{VP} t_i ] te\text{-infinitive}_i ]$

I will argue in this section that a distinction must be made between two types of *te*-infinitival complements in Dutch (following Cremers 1983). Within the functional structure of these two types, *te* is situated in different positions.

The structure in (110) implies that there is a correlation between the presence of *te* and the presence of Tense in infinitival complements. This dependency is made explicit in Bennis & Hoekstra's (1989b) analysis of perception verbs. They claim that their analysis "accounts for the fact that no lexical complementizer and no lexical realization of T (i.e. *te*) are possible in an infinitival complement to a perception verb" (Bennis & Hoekstra 1989b:34). They adopt the structure proposed by Pollock (1989):

- (111)  $[_{CP} [_{TP} [_{NegP} [_{AgrP} [_{VP} ]]]]]$   
 (Pollock 1989:397)

Bennis & Hoekstra (1989b) propose that the complement of a perception verb is an

AgrP. Since this complement does not contain a TP (TP is situated above AgrP in (111)), this analysis explains the specific temporal interpretation of complements of perception verbs (De Geest 1973). The state or event expressed in these complements holds at the moment at which the matrix event holds. If it is furthermore assumed that *te* is situated in T<sup>0</sup>, it follows that complements of perception verbs never contain *te*.

Thus, in the analysis of Bennis & Hoekstra (1989b) temporal dependency is expressed by the lack of TP. This analysis predicts that the absence of *te* indicates that an infinitival complement does not have its own tense domain. Furthermore, the analysis implies that the presence of *te* in an infinitival complement indicates that the infinitival complement is “tensed”.

Cremers (1983) argues that the tense in infinitival complements correlates with the presence of a tense node in these complements, too. However, contrary to Bennis & Hoekstra (1989b), Cremers (1983) proposes that some infinitival complements containing *te* are “timeless”, i.e. do not independently refer to time. Specifically, Cremers (1983:171) argues that a distinction must be made between the following two types of infinitival complements in Dutch:

- (112) a. verbs taking VP complements:  
           e.g. *proberen* ‘try’, *durven* ‘dare’, *kunnen* ‘can’, *dwingen* ‘force’  
       b. verbs taking sentential (S’) complements:  
           e.g. *zeggen* ‘say’, *denken* ‘think’, *beweren* ‘claim’, *beseffen* ‘realize’,  
           *meedelen* ‘announce’

The structure of these two verb classes is represented in (113). The labels S’ and S are replaced by CP and IP:

- (113) a. [IP [VP *proberen* [VP V ]]]  
       b. [IP [VP *zeggen* [CP [IP [VP V ]]]]]

Cremers (1983) shows that VP infinitival complements (112a) do not independently refer to time. That is, the selecting verb (e.g. *proberen* ‘try’) and its infinitival complement form a temporal unit. He illustrates this in two ways. First, (114a) shows that VP complements cannot contain the future auxiliary *zullen* ‘will’. Sentential complements, on the other hand, are perfectly acceptable with *zullen* (114b):

- (114) a. \**Jacoba probeert jou te zullen bezoeken*  
           *Jacoba tries you to will visit*  
       b. *Jacoba zegt jou te zullen bezoeken*  
           *Jacoba says you to will visit*  
           ‘*Jacoba says that she will visit you*’  
           (Cremers 1983:181)

Second, VP complements cannot contain a temporal adverb that contradicts a temporal adverb modifying the matrix verb (115a). In the case of sentential complements, the

selecting verb and the embedded verb can combine with temporal adverbs that refer to different points of time (115b):

- (115) a. \**vandaag* probeert Jan je *morgen* te bellen  
 today tries John you tomorrow to call  
 b. *vandaag* deelt Jan mee jou *morgen* te bellen  
 today announces John with you tomorrow to call  
 ‘today John announces that he will call you tomorrow’  
 (Cremers 1983:182-183)

Cremers (1983) concludes that VP infinitival complements (112a) form a temporal unit with the matrix clause, as opposed to sentential infinitival complements (112b). The latter can have independent time reference.<sup>55</sup>

However, the following example sheds doubt on the assumption that VP infinitival complements lack tense altogether. Pardoën (1986) gives the example in (116) which shows that it is possible to independently modify both the matrix and the embedded verb with an adverb:

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<sup>55</sup> Cremers (1983) assumes that the presence of adverbs such as *gisteren* ‘yesterday’ and  *vorig jaar* ‘last year’ detects the presence of a tense projection. According to S. Barbières (p.c.), constructions such as (i) shed doubt on the validity of this test. (i) shows that a temporal adverb can appear as a modifier in the nominal domain as well:

- (i) de gisteren nog zieke jongen loopt vandaag alweer op straat  
 the yesterday still ill boy walks today already on the street  
 ‘the boy that was still ill yesterday is walking on the street again today already’

It is unclear whether we want to assume that not only verbal clauses, but also the adjectival domain can contain a tense node. However, Rijkhoek (1998:43, footnote 31) notes that prenominal modification appears to involve a full clausal structure in Dutch. She gives the following examples that show that all types of modifiers that appear in the clausal domain (ii) are allowed as prenominal modifiers as well (iii):

- (ii) die kok werkt nog altijd met oude keukenhulpjes  
 that cook works still always with old kitchen-tools  
 ‘that cook still uses old kitchen tools’  
 (iii) de nog altijd met oude keukenhulpjes werkendekok  
 the still always with old kitchen-tools working cook  
 ‘the cook who still uses old kitchen tools as ever’

The following example further illustrates that noun phrases can contain various adverbs, including epistemic adverbs:

- (iv) de waarschijnlijk ooit snel even gekochte boeken  
 the probably once quickly briefly bought books  
 ‘the books that probably once were bought very quickly’

Since the internal structure of noun phrases and adjective phrases has not been settled yet, I will adopt the assumption that the presence of temporal adverbs indicates the presence of a corresponding tense projection.

- (116) ik heb *gisteren* geprobeerd hem *vandaag* niet te  
 I have yesterday tried him today not to  
 hoeven ontmoeten  
 need meet  
 'yesterday I tried not having to meet him today'  
 (Pardoen 1986:54)

Furthermore, there are several verbs which do not allow *zullen* in their complement (117)-(120). Under Cremers' (1983) analysis this implies that these complements do not independently refer to time. The same verbs allow independent modification of their embedded verbs, though, as (121)-(126) show:

- (117) Jan probeert morgen een huis te (\*zullen) vinden  
 John tries tomorrow a house to will find  
 'John tries to find a house tomorrow'
- (118) Jan durft/weigert/adviseert mij morgen een boek te  
 John dares/refuses/advises me tomorrow a book to  
 (\*zullen) kopen  
 will buy  
 'John dares/refuses/advises me to buy a book tomorrow'
- (119) Jan denkt ('is van plan') het werkstuk morgen af te  
 John thinks (intends) the paper tomorrow ready to  
 (??zullen) hebben  
 will have  
 'John intends to have finished the paper by tomorrow'
- (120) Jan leert mij de vragen goed te (\*zullen) lezen  
 John teaches me the questions good to will read  
 tijdens het examen  
 during the exam  
 'John teaches me to read the questions carefully during the exam'
- (121) ik heb *gisteren* gepoogd/getracht hem *vandaag* niet te  
 I have yesterday tried/tried him today not to  
 hoeven ontmoeten  
 need meet  
 'yesterday I tried not having to meet him today'
- (122) ?*gisteren* durfde Jan *vandaag* ineens niet meer  
 yesterday dared John today all of a sudden not any longer  
 op vakantie te gaan  
 on holiday to go  
 'yesterday, all of a sudden, John didn't dare to go on holiday today'

- (123) gisteren weigerde Jan nog volgend jaar op vakantie  
 yesterday refused John still next year on holiday  
 te gaan  
 to go  
 'yesterday John refused to go on holiday next year'
- (124) gisteren adviseerde Jan mij vandaag een boek te kopen  
 yesterday advised John me today a book to buy  
 'yesterday John advised me to buy a book today'
- (125) gisteren dacht Jan het werkstuk morgen af te maken  
 yesterday thought John the paper tomorrow ready to make  
 'yesterday John intended to finish the paper tomorrow'
- (126) gisteren leerde Jan mij morgen tijdens het examen  
 yesterday taught John me tomorrow during the exam  
 de vragen goed te lezen  
 the questions well to read  
 'yesterday John taught me to read the questions carefully during the exam'

(121)-(126) show that the event denoted by the matrix verb and the event denoted by the embedded verb do not necessarily take place at the same time. This means that the statement that the complement of verbs like *proberen* (Cremers' 'VP complements') lack tense is too strong.

To conclude, I will not adopt Cremers' (1983) VP analysis of infinitival complements of verbs such as *proberen* 'try'. I have shown his claim that these complements cannot be independently modified by a temporal adverb to be incorrect. The examples in (121)-(126) show that the embedded infinitive can be modified by an adverb referring to the future. Thus, these complements do not form a temporal unit with the matrix verb.

Summarizing, in this section we have encountered two different approaches to the tense of Dutch *te*-infinitives. Bennis & Hoekstra (1989b) relate the presence of *te* to Tense, but their analysis does not take into account the different properties of *te*-infinitivals that Cremers (1983) discusses. These different properties were illustrated in (114)-(115) above and concern the (im)possibility of *zullen* 'will' and adverbs to appear in *te*-infinitival complements. However, the examples in (117)-(126) show that the possibility for *te*-infinitival complements to contain these elements does not allow a clear-cut distinction between *te*-infinitives. Furthermore, these examples show that the *te*-infinitives to verbs such as (112a) can be independently modified by adverbs and hence do not form a temporal unit with their complements.

In the following section, I will address the temporal properties of infinitival complements in more detail.

### 3.6.2. The tense and mood of *te*-infinitival complements

#### 3.6.2.1. Tensed *te*-infinitives

Lyons (1995:313) notes that traditional definitions of tense are usually based on the assumption that tense is a property that only finite verbs can express. A finite verb is defined as a verb which is delimited by properties of person, number and tense. In the Dutch example (127), the verb form *wandelden* ‘walked’ is inflected for tense (the ending *-de*) and number (the plural ending *-n*):

- (127) zij wandel-de-n naar het station  
 they walk-PAST-PLURAL to the railway station  
 ‘they walked to the railway station’

According to Lyons (1995:312), tense is the grammaticalization of time: tense is a deictic system which relates the time of a situation to the time of utterance. In (127), the time of the event is prior to the time of the utterance. The past ending on the verb reflects this.

Infinitives, on the other hand, do not morphologically express the tense contrast. Furthermore, infinitives are not inflected for person or number. These observations have led to the approach to finiteness represented below:

- (128) a. [+finite] = [+tense][+agreement]  
 b. [-finite] = [-tense] [-agreement]

The description of infinitives in terms of the features [-tense] and [-agreement] (128b) has been challenged by the following observations. First, Portuguese infinitives can be inflected for person and number (Raposo 1987). This sheds doubt on the characterization of infinitives as [-agreement]. Second, Stowell (1982) argues that *to*-infinitives in English are tensed.

Stowell (1982) proposes that the tense of a *to*-infinitive is that of a possible future. He argues that two classes of infinitival complements must be distinguished: irrealis vs. propositional infinitival complements. Propositional infinitives are tenseless, according to Stowell (1982). For example, the situation described in the infinitival complement in (129) is not in the future with respect to the tense of the matrix verb:

- (129) Bill considers himself to be the smartest  
 (Stowell 1982:565)

Rather, the understood tense of propositional complements is determined largely by the tense of the matrix verb. The infinitival complement is understood as present tense in (129), as future tense in (130), and as past tense in (131):

- (130) I expect John to win the race

- (131) I remembered John to be the smartest  
(Stowell 1982:565)

In irrealis complements such as (132), on the other hand, the tense of the infinitival complement is understood as being unrealized, i.e. in the future with respect to the tense of the matrix verb:

- (132) Jim tried to lock the door  
(Stowell 1982:563)

In (132), Jim has not yet succeeded in locking the door at the point at which he tries to do so.

Thus, *to*-infinitives in English can only be “tensed” in the sense that they refer to the future. In the remainder of this section, we will see that in this respect there is a difference between English *to*-infinitives and Dutch *te*-infinitives.

At the beginning of this section, “tense” was defined as a deictic system which relates the time of a situation to the time of utterance. Under this definition, the unrealized tense of infinitives is not really a tense. Stowell (1982:563, footnote 1) notes that “it is essential to consider the tense of the infinitive strictly in relation to that of the matrix.” For example, if the selecting verb is a past tense, as in (133), the eventuality denoted by the infinitival clause (*bring the wine*) may have taken place in the past with respect to the time of utterance. With respect to the time of the eventuality denoted by the matrix itself (*remembered*), the tense of the infinitival clauses is unrealized. That is, Jenny has not yet brought the wine at the point at which she remembers to do so:

- (133) Jenny remembered to bring the wine  
(Stowell 1982:563)

Dutch *te*-infinitival complements to verbs such as *besluiten* ‘decide’ have the same reading. That is, the eventuality denoted by the *te*-infinitive takes place in the future with respect to the time of the matrix verbs. This reading can be strengthened by adding an adverbial which refers to the future with respect to the time of the matrix verb. This has been shown by the examples under (117)-(126).

The selecting verbs in (117)-(126) cannot have a complement that refers to a past event. This is demonstrated by the examples in (134)-(137), in which the *te*-complement contains a time adverbial that makes the embedded event refer to an earlier time than the time of event of the matrix verb:

- (134) \*vandaag poog/ probeer/ tracht/ durf/ weiger ik hem  
today try/ try/ try/ dare/ refuse I him  
gisteren te hebben ontmoet  
yesterday to have met

- (135) \*vandaag adviseert Jan mij gisteren een boek te hebben  
 today advises John me yesterday a book to have  
 gekocht  
 bought
- (136) \*vandaag denkt Jan het paper gisteren af te maken  
 today intends John the paper yesterday ready to make
- (137) \*vandaag leert Jan mij gisteren de vragen  
 today teaches John me yesterday the questions  
 goed te lezen tijdens het examen  
 well to read during the exam

According to Stowell (1982:562), tensed infinitival complements all involve unrealized Tense. That is, English *to*-infinitivals cannot be specified for [+/-past]. This means that an interpretation of (133) in which Jenny first brings the wine and then later remembers this is excluded. Furthermore, this reading cannot be forced by using the perfect tense in the infinitival complement. The result is ungrammatical (E. Thrift, p.c.):

- (138) \*John remembered to have brought the wine

In Dutch, however, *te*-infinitival clauses do not necessarily denote a possible future. The example in (139) contains a perfect tense and it has the reading that is excluded for English, namely that Jenny first brings the wine and then later remembers this:

- (139) Jenny herinnerde zich de wijn te hebben meegebracht  
 Jenny remembered herself the wine to have brought  
 'Jenny remembered that she had brought wine'

The following examples further illustrate that in *te*-infinitival complements the tense of the eventuality denoted by the infinitival complement can be in the past with respect to the tense of the matrix:

- (140) morgen zal ze wel beweren/ meedelen/ zeggen jou  
 tomorrow will she well claim/ announce/ say you  
 vandaag te hebben gebeld  
 today to have called  
 'she will probably claim/announce/say tomorrow that she called you today'
- (141) vandaag beseft Jan gisteren een enorme fout te  
 today realizes John yesterday a huge mistake to  
 hebben gemaakt  
 have made  
 'today John realizes that he made a huge mistake yesterday'

It seems that we need to distinguish between *te*-infinitival complements selected by verbs such as listed under (142a), and *te*-infinitival complements selected by verbs such

as subsumed under (142b). The verbs in (142a) all select an irrealis complement. This complement can only refer to the future. The verbs in (142b) are factive or propositional verbs that select a realis complement (cf. (77A-B)). This complement can have independent time reference. That is, the *te*-infinitive can refer to an event which either temporally follows or temporally precedes the eventuality denoted by the matrix verb.

- (142) a. *verbs selecting an irrealis complement*  
 e.g. *adviseren* ‘advise’, *beloven* ‘promise’, *besluiten* ‘decide’, *denken* ‘intend’, *durven* ‘dare’, *proberen* ‘try’, *weigeren* ‘refuse’  
 b. *verbs selecting a realis complement*  
 e.g. *beseffen* ‘realize’, *beweren* ‘claim’, *meedelen* ‘announce’, *zeggen* ‘say’

Appendix C contains a more extensive list of verbs selecting *te*-complements and the capability of their complements to independently refer to the future and/or the past.

The question is how the different temporal properties of the two classes of *te*-infinitival in (142) complements can be expressed.

An answer which comes to mind is to express the different properties directly in structural terms and assume that infinitival complements of the verbs in (142a) have a Mood<sub>irrealis</sub> node, but lack a T(Past) node. That is, the complement of a verb such as *besluiten* only projects up to Mood<sub>irrealis</sub>. Complements of the verbs in (142b), on the other hand, which can independently refer to tense, do contain a T(Past) node. This is, however, not the position advocated in Cinque (1999). Cinque not only defends the idea that all languages have at their disposal the full array of FPs, he also proposes that every sentence contains this full array of FPs. That is, a sentence such as (143) has exactly the same functional structure as the apparently much richer sentence (144):

- (143) prices rise  
 (144) prices must not have been being raised

Cinque (1999:127-134) argues that it is the least costly assumption that every sentence contains all FPs once it is recognized that each functional head comes with a marked and a default value (see footnote 8). Cinque assumes that a default or unmarked value is not morphologically expressed, whereas a marked value is expressed by overt morphology. Adopting the notion of markedness, the only difference between (143) and (144) lies in the presence of more morphology in the latter sentence, due to the association of particular morphemes with the marked values of the functional heads Voice<sup>0</sup>, Asp<sub>progressive</sub>, Asp<sub>perfect</sub>, Neg<sup>0</sup>, and Mod<sub>epistemic</sub>. The sentence in (143) has the corresponding default values, though it contains the same FPs.

The question is how it can be expressed in this analysis that a particular item can appear in one context, whereas it is excluded in another context. For example, in section 3.6.2.2 we will see that the past tense auxiliary *hebben* ‘have’ can appear in the infinitival complement of realis verbs in Dutch, but not in irrealis infinitival complements. Adopting Cinque’s (1999) approach outlined above, the most plausible

answer is that the T(Past) node in irrealis infinitival complements has the unmarked value, so that it cannot be morphologically realized by an auxiliary verb. This approach, however, is problematic in two respects. First, if T(Past) has the unmarked value, it has the value [+present] (Cinque 1999:130). If T(Past) in irrealis complements has the value [+present], the prediction is that the event denoted by the embedded infinitive takes place simultaneously with the event denoted by the matrix verb. This, however, is not correct: the event denoted in the irrealis complement takes place in the future with respect to the matrix event rather than simultaneously.<sup>56</sup> A second problem is that it is not always true that the unmarked value remains morphologically covert. In chapter 1, we have encountered some examples of overt morphology expressing a default value of a functional head. For example, imperfect aspect can be expressed morphologically, where imperfect is the overt default value of Asp<sub>perfect</sub> (cf. 1. in section 1.5.2.1). Similarly, languages have present tense markers, where present is the default value of T(Past) (cf. case 2. in 1.5.2.2). In the light of these two problems, I will assume that sentences can differ as to which FPs they contain and propose to express the different temporal properties of infinitival complements structurally. That is, in infinitival complements of the verbs in (142a) (in which only future reference is possible, not past reference), T(Past) is absent. The Mood<sub>irrealis</sub> node is lexicalized by *te*:

- (146) *irrealis infinitival complements*  
 [VP besluiten [Mood<sub>irrealis</sub> te [... [VP V ]]]]

Complements of the verbs in (142b), on the other hand, which can independently refer to tense, contain a T(Past) node. *Te* is situated in the head of this FP:

- (147) *realis infinitival complements*  
 [VP zegt [T(Past) te [Mood<sub>irrealis</sub> [... [VP V ]]]]]]

In the following two subsections, I will show that irrealis and realis infinitival complements differ with respect to the possibility to contain auxiliary verbs and modals. These differences will provide further evidence in favor of the distinction between the complements in (146) and (147).

### 3.6.2.2. Temporal and aspectual auxiliaries in *te*-infinitival complements

We have seen in section 2.7 that there is a peculiar difference with respect to the order of the auxiliary verbs *hebben* 'have'/'zijn' 'be' and deontic modal verbs in Dutch. If the sentence refers to the past, the order *auxiliary verb - deontic modal verb* is used (148). If the sentence refers to the future, on the other hand, the order *deontic modal verb - auxiliary verb* is the only possibility (149):

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<sup>56</sup> In sections 3.7.4 and 3.8.2, I will come back to the temporal interpretation of infinitival complements in more detail.

- (148) dat Jan gisteren het boek heeft moeten lezen  
 that John yesterday the book has must read  
 ‘that John had to read the book yesterday’
- (149) dat Jan morgen het boek moet hebben gelezen  
 that John tomorrow the book must have read  
 ‘that John must have read the book by tomorrow’

I argued in 1.6.2.2 and 2.7 that the auxiliaries *hebben* ‘have’ and *zijn* ‘be’ can express an aspectual meaning and a temporal meaning. These two meanings correspond to two different positions of *hebben/zijn* in the functional hierarchy. If *hebben/zijn* is generated in an aspectual functional head (namely T(Anterior)) it carries an aspectual meaning. In its temporal interpretation, *hebben/zijn* is moved to a temporal head, namely T(Past). In (148), *hebben/zijn* has a temporal (PAST) meaning, whereas in (149) it expresses an aspectual, ANTERIOR meaning. Since T(Past) dominates the deontic modal projections, the order *auxiliary verb - modal verb* in (148) is predicted. The order *modal verb - auxiliary verb* in (149) follows from the fact that the T(Anterior) node is below the modal projections.

The same ordering difference shows up if the combination *modal verb - auxiliary verb* occurs in an infinitival complement. We have seen above that realis infinitival complements (i.e. complements to verbs such as *beweren* ‘claim’) can refer to the past. In these complements, the order *auxiliary verb - modal verb* corresponds to the deontic interpretation of the modal verb (150). This can be concluded from the English translation:

- (150) Jan beweert het boek gisteren te hebben moeten lezen  
 John claims the book yesterday to have must read  
 ‘John claims that he had to read that book yesterday’

In irrealis complements (i.e. complements to verbs such as *besluiten* ‘decide’), on the other hand, the only possible order is *modal verb - auxiliary verb*, as in (151b):

- (151) a. \*Jan besluit het boek morgen te hebben kunnen lezen  
 John decides the book tomorrow to have can read  
 b. Jan besluit het boek morgen te kunnen hebben gelezen  
 John decides the book tomorrow to can have read  
 ‘John decides that he is able to have read the book by tomorrow’

I argued above that realis infinitival complements contain a T(Past) node (147), since they can contain the temporal adverb *gisteren* ‘yesterday’. This correctly predicts that in these complements, *hebben* ‘have’ can have a temporal interpretation and can precede deontic modal verbs, as in (150). In irrealis complements, on the other hand, in which the adverb *gisteren* cannot occur, the T(Past) node is not present (146). This correctly predicts that the order *auxiliary verb - modal verb* is excluded (151a). The grammaticality of (151b), in which we find the order *modal verb - auxiliary verb*,

suggests that *hebben* is not a temporal but an aspectual auxiliary here, which is situated in T(Anterior).

### 3.6.2.3. Epistemic modals in *te*-infinitival complements

Another difference between irrealis and realis infinitival complements, mentioned by Cremers (1983), is the following. Modal verbs in irrealis infinitival complements can only receive a deontic interpretation, not an epistemic interpretation. That is, the sentences in (152a) and (153a) only have the interpretation in (152b) and (153b) respectively. They cannot be paraphrased as in (152c) and (153c):

- (152) a. ?Marie probeert binnen één jaar Arabisch te kunnen lezen  
 Marie tries within one year Arabic to can read  
 (Cremers 1983:176)  
 b. Mary tries to be able to read Arabic within one year (deontic)  
 c. \*Mary tries that it is possible to read Arabic within one year (epistemic)
- (153) a. Marie besluit binnen één jaar Arabisch te kunnen lezen  
 Marie decides within one year Arabic to can read  
 b. Mary decides to be able to read Arabic within one year (deontic)  
 c. \*Mary decides that it is possible to read Arabic within one year (epistemic)

Modal verbs in realis complements, on the other hand, can be interpreted both as an epistemic (154) and as a deontic modal (155):

- (154) zij beseft niet jou op weg hierheen te moeten zijn gepasseerd  
 she realizes not you down here to must be passed  
 ‘she doesn’t realize that she must have passed you down here’  
 = she doesn’t realize that it must have been the case that she passed you down here (epistemic)  
 (Cremers 1983:177)
- (155) zij beseft morgen een liedje te moeten zingen  
 she realizes tomorrow a song to must sing  
 ‘she realizes that she has to sing a song tomorrow’  
 = she realizes that she has the obligation to sing a song tomorrow (deontic)

The question is how we can account for the observation that epistemic modals are excluded in irrealis complements, and possible in realis complements.

As we have seen above, Cremers (1983) proposes that the verbs selecting an irrealis infinitival complement take VP complements, whereas verbs selecting a realis infinitival complement take sentential (S’/CP) complements. Infinitival complements of the category VP semantically denote properties, whereas infinitival complements of the category CP denote propositions. The distribution of the epistemic modals follows from the assumption that epistemic modality is a proposition level modality (Cremers 1983:175). Thus, epistemic modality can only be expressed in CP complements, not in

VP complements, since the latter lack a propositional domain.

Above, I argued that irrealis infinitival complements are not VPs, but at least project up to Mood<sub>irrealis</sub>. The question is how the absence of epistemic modals follows from this ‘‘Cinquean’’ approach to clause structure.

Cinque (1999) distinguishes different nodes for epistemic verbs: Mod<sub>epistemic</sub> (above T(Past), T(Future), and Mood<sub>irrealis</sub>) and Mod<sub>necessity</sub> > Mod<sub>possibility</sub> (both below Tense), as (156) shows:

(156) [Mod<sub>epistemic</sub> [T(Past) [T(Future) [Mood<sub>irrealis</sub> [Mod<sub>necessity</sub> [Mod<sub>possibility</sub>

Barbiers (1995:201-202) shows for Dutch that epistemic modals are situated below Tense. This means that in the structure in (156), epistemic modals are generated in Mod<sub>necessity</sub> and Mod<sub>possibility</sub>, which are below T(Future)/Mood<sub>irrealis</sub>. The question is then why epistemic modals cannot appear in irrealis complements.

In the literature, several proposals have been made with respect to the licensing of epistemic modals. Evers & Scholten (1980) and Abraham (2001) state that modals in Dutch must be finite in order to be interpreted epistemically. According to Rigter (1981) epistemic modals can be non-finite, but they must be dominated by another finite epistemic modal, as in (157):

(157) het *moet* hier toch *kunnen* sneeuwen  
 it must here surely can snow  
 ‘surely it must be possible to get some snow here’  
 (Rigter 1981:36, footnote 5)

The relationship between finiteness and the epistemic interpretation of modals has been explained by the analysis in which epistemic modals are base generated in INFL. This proposal has been put forward by Picallo (1990). Under this analysis, the example in (157) suggests that Dutch epistemic modals can also be licensed if they are dominated by INFL.

However, the example in (154) has already shown that the requirements mentioned above are not correct. Dutch modals can be interpreted epistemically in *te*-infinitival complements. The following example further illustrates this:

(158) Jan vreest gisteren een fout te moeten/kunnen hebben gemaakt  
 John fears yesterday a mistake to must/can have made  
 ‘John is afraid that it must/might be the case that he made a mistake yesterday’

In (158), the epistemic modals *moeten/kunnen* appear as a non-finite verb and they are not dominated by a finite epistemic modal. I would like to propose that epistemic modals must be licensed by tense rather than by finiteness. I argued above that realis complements contain the node T(Past). The presence of T(Past) licenses the presence of epistemic modals. In irrealis complements, on the other hand, the T(Past) node is absent, so that epistemics cannot be licensed. For this reason, epistemic modals are

excluded from irrealis infinitival complements.

### 3.6.3. Conclusion

In section 3.4, I showed that *te* first arose in irrealis complements. I argued in 3.5 that already in Middle Dutch, *te* was a functional head. I identified this functional head as Mood<sub>irrealis</sub>. In the course of time, the use of *te* spread to realis complements, i.e. to complements to factive and propositional verbs. In 3.6.1, I showed that these complements can have independent time reference in the sense that they can refer to the past. I argued that independent time reference implies that these realis complements contain the tense node T(Past) and that this assumption accounts for the fact that they can contain the auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ as temporal auxiliaries and epistemic modals.

I conclude that *te* developed from an irrealis marker to a T(Past) marker. Since grammaticalization invariably involves raising of grammaticalizing items in the functional domain, this development of *te* is in accordance with the make-up of the functional domain of clauses, in which T(Past) dominates Mood<sub>irrealis</sub>.

Interestingly, the development of *te* described here appears to be similar to the development of English *should* in subordinate clauses, which has been discussed in 1.6.1. For convenience, the stages in this development are repeated below:

- (159) a. Stage 1: *should* is used in contexts in which it can express obligation  
 b. Stage 2: *should* is extended to the complements of verbs such as *ask* and *decide*. In these complements, *should* does not have the explicit meaning of obligation, and is semantically empty.  
 c. Stage 3: *should* is extended to complements of predicates expressing belief or opinion (such as *expect*, *fear*, *hope* and *think*). In these contexts, *should* is not compatible with its earlier meaning of obligation. According to Bybee et al. (1994), *should* functions here merely as a marker of subordination.

Thus, like *te*, *should* first appeared in irrealis contexts. Only later, in stage 3, its use was extended to realis contexts. Furthermore, Modern English *should* is still used with the three meanings listed in (159a-c). We can conclude from this section that the meaning of *te* also depends on the context it appears in. *Te* has retained its older irrealis meaning in the irrealis complement of verbs such as *proberen* ‘try’ and *besluiten* ‘decide’. In the complement of realis verbs such as *menen* ‘think’ and *vrezen* ‘fear’, *te* does not express this irrealis meaning. Like *should* in (159c), *te* can be analyzed here as a subordinator.

We have seen above that the use of *te* as a temporal directional infinitival marker develops from *te* as a spatial directional preposition. More specifically, both *te* as a spatial preposition and *te* as an infinitival marker express direction toward a certain goal. Both the preposition *te* and the infinitival marker *te* extend their meaning: from spatial/temporal directional to spatial/temporal locative. Table 3 summarizes this development and provides examples of each use:

Table 3.

preposition	infinitival marker
spatial directional <i>te Rome</i> ‘to Rome’	→ temporal directional <i>ghebieden te lesene</i> ‘order to read’
↓	↓
spatial locative <i>te Rome</i> ‘in Rome’	temporal locative <i>beseffen te weten</i> ‘realize to know’

I argued that the temporal directional interpretation is represented in Mood<sub>irrealis</sub>, whereas T(Past) is the locus of the temporal locative meaning.

Although this dissertation is mainly concerned with verbal infinitival complements, I will make an excursion to (*te*)-infinitives in other environments in the next section. The goal of this section is threefold. First, I provide further evidence that the meaning of *te* in Modern Dutch is related to different functional heads. Second, I show that the development of infinitivals in child Dutch appears to display the same pattern as the grammaticalization of infinitives in the history of Dutch. Third, I try to formalize the process of the semantic bleaching of infinitives and *te* in syntactic terms.

### 3.7. Infinitives in non-selected contexts

#### 3.7.1. *Te*-infinitives in main clauses and subjects

In the overview of the distribution of *te*-infinitives in section 3.2 we already encountered some *te*-infinitives in non-complement position. In this section, I discuss the conditions under which *te*-infinitives appear in infinitival main clauses and in subjects (i.e., in non-selected environments). It will turn out that *te*-infinitives are only possible in irrealis contexts. I argue that in non-selected environments, *te* can only be generated in Mood<sub>irrealis</sub>.

In exclamations that express an ideal or wish, *te* is (optionally or obligatorily) present, as is shown by the examples in (160)-(163). These sentences were judged by seven native speakers of Dutch:

- (160) Ooit een wereldreis (te) maken!  
 ever a world-tour to make!  
 ‘to make a world-tour!’
- (161) Nooit meer (te) werken!  
 never more to work  
 ‘to work never again!’

- (162) Zulke boeken \*(te) kunnen schrijven!  
 such books to can write  
 'Being able to write such books!'
- (163) Nu op het strand \*(te) liggen!  
 now on the beach to lie  
 'to be lying on the beach now!'

*Te* is obligatorily present in the following fixed expressions:

- (164) wat \*(te) denken van...  
 what to think of...  
 'what about...'
- (165) wat \*(te) beginnen met  
 what to begin with  
 'what to do with...'
- (166) wel \*(te) verstaan  
 well to understand  
 'that is to say'
- (167) niet \*(te) vergeten  
 not to forget  
 'not forgetting'
- (168) en dan \*(te) bedenken dat...  
 and then to think that...  
 'to think that...'
- (169) zo \*(te) zien...  
 so to see  
 'it looks as if...'

Furthermore, *te*-infinitives can occur as subjects. Hoekstra & Wehrmann (1985) distinguish the following three types of nominalizations:

- (170) a. aardappels schillen is leuk  
 potatoes peel is fun  
 'peeling potatoes is fun'
- b. het aardappels schillen is leuk  
 the potatoes peel is fun  
 'peeling potatoes is fun'
- c. het schillen van aardappels is leuk  
 the peeling of potatoes is fun  
 'peeling potatoes is fun'

Hoekstra & Wehrmann (1985:258) claim that all three types behave as NPs with respect to their external syntax. In this respect, these constructions differ from constructions with *te*-infinitives. The examples in (171)-(172) show that *te*-infinitives

cannot appear in NP-positions:

- (171) a. Jan houdt van aardappels (\*te) schillen  
 John likes of potatoes to peel  
 'John likes to peel potatoes'  
 b. Jan houdt ervan aardappels \*(te) schillen  
 John likes there-of potatoes to peel  
 'John likes it to peel potatoes'
- (172) a. Jan zei dat Marie (\*te) zoenen leuk is  
 John said that Mary to kiss fun is  
 'John said that kissing Mary is fun'  
 b. Jan zei dat het leuk is Marie \*(te) zoenen  
 John said that it fun is Mary to kiss  
 'John said that it is fun to kiss Mary'

"The *te*-infinitival constructions show here the same distribution as *dat* 'that'-sentences, whereas the *te*-less constructions are distributed in the same way as real NPs." (Hoekstra & Wehrmann 1985:238) (my translation).

However, the difference between bare infinitives and *te*-infinitives is not as clear-cut as Hoekstra & Wehrmann (1985) claim. Sometimes *te*-infinitives can appear in subjects.<sup>57</sup> This possibility is restricted to the *het*-less nominalization type (170a) (which, according to Hoekstra & Wehrmann, is maximally different from *te*-infinitives). This is shown by the following examples. In (173a) and (174a), a clause containing a *te*-infinitive is the subject of a generic sentence. In (175a), (176a), and (177a), a *te*-infinitive is the subject of a sentence with an irrealis interpretation. Again, the sentences were judged by seven native speakers of Dutch:

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<sup>57</sup> It is unclear in which position the subject clause surfaces. The subject clause and the verb can (optionally) be separated by the *d*-word *dat* 'that':

- (i) nooit iets te lezen dat is niet verstandig  
 never something to read that is not wise  
 'to never read something, that is not wise'

Following the analysis of Koster (1978), it may be assumed that in (i) *dat* 'that' is the subject and that *nooit iets te lezen* 'to never read something' is generated in a left adjoined position. I will not further discuss this, since the crucial point is that the *te*-infinitive is generated in a non-selected position, i.e. that it is not a verbal complement.

*generic*

- (173) a. \*/\*?/?/oknooit iets te lezen is niet verstandig  
 never something to read is not wise  
 ‘to never read something is not wise’  
 b. nooit iets lezen is niet verstandig
- (174) a. \*//?/okveel boeken te lezen is altijd nuttig  
 many books to read is always useful  
 ‘reading many books is always useful’  
 b. veel boeken lezen is altijd nuttig

*irrealis*<sup>58</sup>

- (175) a. na zijn pensionering veel boeken te lezen is zijn grootste wens  
 after his retirement many books to read is his biggest wish  
 ‘reading many books after his retirement is his biggest wish’  
 b. \*//?/okna zijn pensionering veel boeken lezen is zijn grootste wens
- (176) a. de tien kilometer te rijden onder de dertien minuten is zijn  
 the ten kilometers to skate under the thirteen minutes is his  
 grootste wens  
 biggest wish  
 ‘skating the ten kilometers in under thirteen minutes is his biggest wish’  
 b. \*//?/okde tien kilometer rijden onder de dertien minuten is zijn grootste wens
- (177) a. onder deze omstandigheden een wereldrecord te rijden zou  
 under these circumstances a world record to skate would  
 fantastisch zijn  
 great be  
 ‘skating a world record under these circumstances would be great’  
 b. \*//?/okonder deze omstandigheden een wereldrecord rijden zou fantastisch  
 zijn

The examples in (178)-(180) contain an infinitive as the subject of a sentence with a realis interpretation. That is, the sentence refers to a situation or event that is actually occurring at the moment at which the sentence is uttered (178-179) or it refers to a situation or event from which it is certain that it will not occur (180):

*realis*

- (178) a. \*op het rechte eind onderuit te gaan is hem nooit  
 on the last stretch down to fall is him never  
 eerder overkomen  
 earlier happened  
 ‘falling down on the last stretch has never happened to him before’

<sup>58</sup> The ‘\*?’-judgments in (175b), (176b), and (177b) are the judgments of one speaker. The other six speakers accept both the a- and the b-examples.

- b. op het rechte eind onderuit gaan is hem nooit eerder overkomen
- (179) a. \*de tien kilometer te rijden is duidelijk niet zijn favoriete  
 the ten kilometers to skate is clearly not his favorite  
 bezigheid  
 activity  
 ‘skating the ten kilometers is clearly not his favorite activity’
- b. de tien kilometer rijden is duidelijk niet zijn favoriete bezigheid
- (180) a. \*een wereldrecord te rijden zit er nu niet meer in  
 a world record to skate sits there now not anymore in  
 ‘skating a world record is not possible anymore’
- b. een wereldrecord rijden zit er nu niet meer in

Table 4 summarizes the grammaticality judgments of the sentences in (173)-(180):

Table 4.

Context	<i>te</i> -infinitive	bare infinitive
generic	*/*?/?/ok	ok
irrealis	ok	ok/*?
realis	*	ok

The conclusion can be drawn that *te* is possible if the infinitive is the subject of a sentence with an irrealis interpretation. One speaker prefers *te* above the bare infinitive in irrealis sentences. Some speakers also accept *te* in generic sentences introduced by *veel* ‘many’ and *nooit* ‘never’. In realis contexts, on the other hand, bare infinitives are the only possibility in subjects.

### 3.7.2. Bare infinitives in main clauses in adult and child Dutch

Infinitival main clauses can contain bare infinitives, as well. These clauses are discussed extensively in Blom (2000) and Blom & Wijnen (2000). Bare infinitives in main clauses in adult Dutch occur in the following contexts. First, they can occur in declarative clauses. These clauses can be subdivided into exclamations, announcements and narratives, as in (181)-(183):

- (181) *exclamation*  
 m’n bord leeg eten? Mooi niet!  
 my plate empty eat Nice not  
 ‘empty my plate? No way!’
- (182) *announcement*  
 even m’n bord leeg eten  
 just my plate empty eat  
 ‘I am just going to empty my plate’

- (183) *narrative*  
 de conducteur floot al, dus ik rennen  
 the conductor whistled already so I run  
 ‘the conductor already blew his whistle, so I ran’  
 (Blom 2000:5)

Second, bare infinitives can be used in imperative sentence types:

- (184) en nu ophoepelen!  
 and now get lost  
 ‘get lost now!’  
 (Blom 2000:4)

The use of bare infinitives in clauses such as (181)-(184) is often compared to the phenomenon of *Root Infinitives* in child Dutch (Blom 2000; Blom & Wijnen 2000; Hoekstra & Hyams 1998; Wijnen 1997). Research has shown that children acquiring a language pass through a stage in which they use infinitives in root contexts. An example of a root infinitive (RI) is given in (185):

- (185) Niekje buiten spelen  
 Niekje outside play  
 ‘Niek (= speaker) wants to play outside’

Root infinitives in child Dutch are characterized by the following properties. First, Wijnen (1997) shows that RIs typically do not get a tense interpretation, but rather a modal interpretation. That is, RIs typically express necessities and desires, as in (185). For example, (185) does not mean that Niekje is playing outside at this moment, but that s/he wants to play outside. Hoekstra & Hyams (1998:91) call this the Modal Reference Effect:

- (186) *The modal reference effect (MRE)*  
 With overwhelming frequency, RIs in child Dutch have modal interpretations

The MRE furthermore holds for Swedish, German and French. In English, on the other hand, RIs have mostly a temporal interpretation: they refer to the present or to the past.

A second property of RIs in child Dutch mentioned by Hoekstra & Hyams (1998) is that RIs do not allow stative predicates. Rather, RIs are restricted to event-denoting predicates. Hoekstra & Hyams (1998:91) formulate this as the Eventivity Constraint:

- (187) *The Eventivity Constraint (EC)*  
 RIs in child Dutch are restricted to event-denoting predicates

Hoekstra & Hyams (1998) propose a unified account of the properties of RIs summarized in (186) and (187). Their analysis will be discussed in the next subsection.

### 3.7.3. Hoekstra & Hyams' (1998) analysis of root infinitives

Hoekstra & Hyams (1998) correlate the MRE in Dutch and the lack of the MRE in English with the morphological shape of the infinitive. They argue that the infinitival ending in Dutch is the source of the modality of RIs. The ending *-en* on Dutch infinitives has the feature [-realized], so that infinitives refer to eventualities that are not realized. RIs are therefore interpreted as statements of desire with respect to these eventualities. English infinitives lack the infinitival ending. For this reason, infinitives in English do not carry the feature [-realized] and RIs in English do not give rise to a future/modal interpretation.<sup>59</sup> Rather, English infinitives have the feature [+perfective] (Giorgi & Pianesi 1997).

Hoekstra & Hyams (1998) argue that the Eventivity Constraint (187) follows from the analysis outlined above. It is often observed that deontic modal verbs embed eventive predicates, whereas epistemic modal verbs combine with stative predicates. Barbiers (1995) argues that the difference between the deontic and the epistemic reading is a function of different scales upon which the modal operates. Deontic modals involve a polarity transition, whereas epistemic modals do not. For example, if *moeten* 'must' is interpreted as a deontic modal in (188), i.e. if the sentence has the interpretations in (188a-c), a transition is involved from a stage in which John does not have ten dollars to a stage in which John has ten dollars:

- (188) Jan   moet   tien dollar hebben  
       John   must   ten dollars have  
       a. 'John definitely wants to have ten dollars'  
       b. 'John has the obligation to have ten dollars'  
       c. 'It is required that John has ten dollars'  
       (Barbiers 1995:147)

Complements of epistemic modals, on the other hand, are not understood to involve a polarity transition. Barbiers (1995) proposes that epistemics operate on a scale which involves the truth value of the proposition that the modal modifies. The scale ranges from 0 (false) to 1 (true). For example, under the epistemic interpretation of *moeten* 'must' in (189), the speaker expresses his belief that John has ten dollars at the moment of speech:

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<sup>59</sup> The MRE might be accounted for by postulating a finite null modal in constructions with RIs (Ferdinand 1996; Krämer 1993). This null modal provides the infinitive with its modal interpretation. However, Hoekstra & Hyams (1998:98-101) point out a number of shortcomings of the null modal hypothesis. The core problem is that RIs miss the properties that are dependent on finiteness.

- (189) Jan moet tien dollar hebben  
 John must ten dollars have  
 'It must be true that John has ten dollar'  
 (Barbiers 1995:147)

Thus, complements of epistemics do not require a polarity transition. It has been mentioned above in chapter 1, section 1.5.2.4 that children under three years of age have not yet acquired the epistemic meaning of modality. Hoekstra & Hyams (1998) note that the early restriction to deontic modality provides an account of the restriction of RIs to eventive predicates (187).

The general development of RIs and modality in child Dutch can be summarized in the following way. In the first stage, RIs in child Dutch have a [-realized] interpretation. The [-realized] meaning is carried by the infinitival morpheme *-en*. In a later stage, deontic modal verbs with an infinitival complement take over the function of RIs (Jordens 1991). The [-realized] meaning is then carried by the modal verbs. Finally, deontic modal verbs further grammaticalize into epistemic verbs. Complements of epistemic modals do not involve a polarity transition. That is, they can refer to ongoing events:

- (190) Jan moet aan het lezen zijn  
 John must at the reading be  
 'it must be the case that John is reading'

In (190), there is no temporal ordering between the modal verb and *lezen*. Furthermore, epistemic verbs can refer to events that have taken place in the past, as (191) shows:

- (191) Jan moet gisteren gelezen hebben  
 John must yesterday read have  
 'it must be the case that John was reading yesterday'

Note that the further grammaticalization of modal verbs from deontic to epistemic does not lead to the disappearance of the deontic interpretation of modals. Both deontic and epistemic meanings are expressed by the same lexical items. This can be seen as synchronic variation which is the result of grammaticalization, as discussed in chapter 1, section 1.6.

(192) gives a brief overview of the different stages in the development of RIs and modal verbs in child Dutch:

- (192) a. Stage 1: *-en* yields the meaning [-realized] of RIs  
 b. Stage 2: deontic modal verbs yield the [-realized] meaning of infinitives  
 c. Stage 3: deontic modal verbs further develop into epistemic modal verbs

RIs in adult Dutch are very similar to children's RIs, according to Hoekstra &

Hyams (1998:103). On the basis of examples such as (181) and (184), they conclude that adult RIs in Dutch have a similar [-realized] meaning, with an imperative or counterfactual meaning. For this reason, Hoekstra & Hyams (1998) propose that the infinitival ending has a [-realized] feature both in child Dutch and in adult Dutch.

As Blom (to appear) notes, the feature [-realized] is rather vague. [-realized] could be an aspectual (inchoative) feature, a modal feature, or a feature expressing future. Whatever is meant by [-realized], the postulation of this feature for both child Dutch and adult Dutch would predict that RIs in both these varieties have the same meaning. However, the exclamation in (181), repeated here as (193), does not have the exact same meaning as the RIs in child Dutch.

(193) m'n bord leeg eten? Mooi niet! [= (181)]  
 my plate empty eat Nice not  
 'empty my plate? No way!'

As we have seen above, children's RIs express **deontic** modality. Exclamatives of the type in (193), on the other hand, do not have a deontic meaning. Rather, they express **epistemic** modality, because there is always some qualification of the possible truth of the proposition (Blom & Wijnen 2000:133).

Furthermore, the examples in (182)-(183) show that root infinitives in adult Dutch can be used in declarative (narrative) contexts. The situation or event described by the infinitive can take place in the future (182), but also in the past (183). In (183), the root infinitive does not have a modal, unrealized interpretation.

I conclude that although the postulation of the feature [-realized] on the *-en* ending of infinitives accounts for the deontic modal interpretation of infinitives in child Dutch, it seems that in adult Dutch, root infinitives can carry an epistemic modal interpretation and a temporal interpretation (the infinitive can both refer to the future and the past). For this reason, I do not agree with Hoekstra & Hyams' (1998) conclusion that the feature [-realized] is present on infinitives in adult Dutch. Rather, I would like to propose that *-en* in adult Dutch is underspecified for the feature [realized]. That is, *-en* can both be [-realized] and [+realized]. I will explore this analysis in the next subsection.

#### 3.7.4. An analysis in terms of underspecification

The puzzle I would like to address first is why we find contexts in which *te* can be present (namely (160)-(163) and (173)-(177)) or must be present (164)-(169)) on the one hand, and contexts in which *te* is excluded (178)-(180) on the other hand. The exclamatives with *te* and the fixed expressions all have a deontic modal interpretation. If we look at the fixed expressions in (164)-(169) (here repeated as (194a)-(199a)), it appears that these examples can be paraphrased with deontic modal verbs, as in (194b)-(199b):

- (194) a. wat \*(te) denken van... [= (164)]  
 what to think of...  
 'what about...'  
 b. wat moeten/kunnen we denken van  
 what must/can we think of
- (195) a. wat \*(te) beginnen met [= (165)]  
 what to begin with  
 'what to do with...'  
 b. wat moeten/kunnen we beginnen met  
 what must/can we begin with
- (196) a. wel \*(te) verstaan [= (166)]  
 well to understand  
 'that is to say'  
 b. het moet wel verstaan worden  
 it must well understood be
- (197) a. niet \*(te) vergeten [= (167)]  
 not to forget  
 'not to forget'  
 b. het mag/moet niet vergeten worden  
 it may/must not forgot become
- (198) a. en dan \*(te) bedenken dat... [= (168)]  
 and then to think that...  
 'to think that...'  
 b. en dan te moeten/kunnen bedenken dat..  
 and then to must/can think that
- (199) a. zo \*(te) zien... [= (169)]  
 so to see  
 'it looks as if...'  
 b. zoals we kunnen zien  
 as we can see

Furthermore, the exclamations (160)-(163) and the subject clauses (173)-(177) in which *te* is present all express an ideal or a wish. Thus, these clauses have a deontic modal interpretation reading, too.

Recall that according to Hoekstra & Hyams (1998) the feature [-realized] is present on infinitives in child Dutch. This feature is responsible for the deontic modal interpretation of children's RIs. Furthermore, they claim that infinitives in adult Dutch carry the same feature [-realized]. Curiously, however, in root contexts in adult Dutch the modal interpretation is expressed by *te*-infinitives rather than bare infinitives. Thus, it seems that in non-selected contexts in adult Dutch, the morpheme *te* provides the modal meaning, whereas in child Dutch this modal meaning is provided by the infinitival ending *-en*.

Interestingly, the development of the infinitive in child Dutch recalls the development of the infinitive in earlier stages of Dutch. We have seen in section 3.4

that the infinitival ending originally had a purposive, irrealis meaning, thus expressing mood. Through grammaticalization this irrealis meaning was lost (Haspelmath 1989). In other words, in the course of time the infinitival ending *-en* lost its mood related meaning. We could say that both in earlier Dutch and in child Dutch, the ending *-en* is originally [-realized]. That is, *-en* adds an irrealis meaning. In a later stage, *-en* becomes underspecified in the sense that it can occur in contexts which can refer to the future, the present tense, and the past. In other words, both from a diachronic perspective and from a language acquisition perspective, *-en* grammaticalizes.

In infinitival complements in Middle Dutch the preposition *te* is added to reinforce the [-realized] meaning of infinitives. That is, the modal interpretation of infinitives was expressed by *te* rather than by the ending *-en*. At the end of the Middle Dutch period, *te* starts to appear in realis infinitival complements (see section 3.5). Realis complements do not necessarily involve a polarity transition. That is, in realis complements the eventuality denoted by the infinitival complement and the eventuality denoted by the matrix verb can take place at the same time (200). Furthermore, realis complements can contain stative predicates (201):

- (200) Jan   beweert   nu     het boek   te lezen  
       John   claims   now    the book   to read  
       ‘John claims that he is reading the book now’
- (201) Jan   beweert   ziek   te zijn  
       John   claims   ill     to be  
       ‘John claims that he is ill’

Finally, realis complements can refer to events that have taken place in the past:

- (202) vandaag   beweert   Jan   het boek   gisteren   te hebben gelezen  
       today       claims   John   the book   yesterday   to have read  
       ‘today John claims that he read the book yesterday’

I argued in 3.6 that *te* grammaticalizes and loses its irrealis meaning. In this sense, *te* becomes underspecified, too: after the Middle Dutch period, *te* can appear in contexts which refer to the future, the past and the present.

If we compare the development of RIs and modal verbs in child Dutch summarized in (192) with the development of infinitives and *te* in Dutch (depicted in (203)), the resemblance is striking:

- (203) a. Stage 1: *-en* yields the meaning [-realized] of infinitives  
       b. Stage 2: *te* yields the [-realized] meaning of infinitives  
       c. Stage 3: *te* as a mood marker further develops into a tense marker

The development sketched in stage 3 is similar to the development of deontic to epistemic modality in the sense that both deontic modals and *te* as a mood marker occur in eventive environments, whereas both epistemic modals and *te* as a Tense marker

occur in stative environments (cf. (190)-(191) and (200)-(202)).

Above, I labeled the infinitival ending *-en* and the morpheme *te* in Modern Dutch “underspecified morphemes”. The notion of underspecification, which originates in phonological theory, has recently been extended to syntax.<sup>60</sup> Cheng & Rooryck (2000) use the notion of underspecification to account for *wh*-in-situ constructions in French such as (204):

- (204) Jean a acheté quoi?  
 John has bought what  
 ‘what has John bought?’

I will briefly summarize Cheng & Rooryck’s (2000) analysis here and then apply it to Dutch. The relevance of this analysis is that it is proposed that functional elements can become underspecified for a certain meaning, while the meaning can be recovered through the context.

Assuming that in questions,  $C^0$  has a *Q*- or *wh*-feature that must be checked, the question is how in (204) this feature checking takes place, since no element moves overly to  $C^0$  or Spec,CP. Cheng & Rooryck (2000) propose that the *Q*-feature is checked by an intonation morpheme. The sentence in (204) has a rising intonation. Intonation can be represented as a question morpheme (*Q* morpheme). This *Q* morpheme is inserted in  $C^0$  and checks the *Q*-feature of  $C^0$ . The intonation pattern in (204) is comparable to the intonation in the yes-no question in (205):

- (205) Jean a acheté un livre?  
 John has bought a book  
 ‘John has bought a book?’

Cheng & Rooryck suggest that among languages, *Q*-morphemes can be specified or underspecified. In some languages, *Q* is specified as either [yes/no] or as [wh]. For example, the *Q* morpheme *-la* in Navajo is specified as [wh]. Because it is specified for [wh], this *Q* morpheme cannot occur in yes-no questions. In Chinese, the yes-no particle *ma* is specified as [yes/no]. This particle cannot occur in *wh*-questions. In French, on the other hand, the intonational *Q* morpheme is compatible with both types of questions, (204) and (205). Therefore, it can be assumed that the French *Q* morpheme is underspecified.<sup>61</sup> Depending on the context, the value of [Q: ] is set to either [Q: y/n] or to [Q: wh]. If the sentence contains a *wh*-word, this *wh*-word sets the value of [Q: ] to [Q: wh]. If the sentence does not contain a *wh*-word, the value of [Q: ] is set to [Q: y/n] by default. Thus, [Q: y/n] is the default value of *Q*.

<sup>60</sup> A.o. in Cheng & Rooryck (2000); Kayne (1989); Rooryck (1994); Vanden Wyngaerd (1994).

<sup>61</sup> The specification of features is represented as pairs of attributes and values (Scobbie 1991). “Question” is an attribute which can take two values: [Q: y/n] and [Q: wh]. An unspecified *Q* morpheme is represented as [Q: ].

Summarizing, Cheng & Rooryck (2000) propose that certain functional elements (such as intonational morphemes) can be underspecified and acquire a value depending on their context.

Similarly, I would like to propose that the underspecified morphemes *-en* and *te* must acquire a value. I will assume that the need to set these values follows from the requirement that clauses must contain a Tense chain (Bennis & Hoekstra 1989a,b; Enç 1987; Guéron & Hoekstra 1995). Bennis & Hoekstra (1989a:143; 1989b:24) propose the following condition:

- (206) T-linking  
A verb must be identified by Tense

The condition in (206) is based on Enç's (1987:642) *Anchoring Principe*. Enç (1987:641-43) argues that Tense, which is located in INFL, is a referential expression denoting a particular interval. This interval must be interpreted with reference to some other interval. For example, if INFL contains a past tense, it must be interpreted with respect to the time of speech. Enç (1987) proposes that in matrix sentences Comp denotes the speech time. The anchoring of tense takes place through binding. A matrix past tense is interpreted as denoting a past interval with respect to the speech time, because Comp binds Infl.

Contrary to the tense in matrix clauses, the tense in embedded sentences is not directly linked to the speech time. Instead, it is linked to the tense of the matrix clause. In this sense, complement tenses are indirectly anchored by the speech time. The notion T(ense) in (206) applies both to finite and infinitival tense. Bennis & Hoekstra propose that Tense and the verb are related by means of a T-chain. A T-chain in sentences existing of a matrix clause and an embedded infinitival clause is composed in the following way:

- (207) *T-chain composition*  
If  $C_1$  is the chain of a dependent T and  $C_2$  is the chain of the governing T, then  $C_1$  and  $C_2$  can be composed iff some link of  $C_1$  is a sister to some link of  $C_2$ .  
(Bennis & Hoekstra 1989b:26, cf. also Bennis & Hoekstra 1989a:144)

It follows from (206) and (207) that in the following complement structure, there must be a link between  $C_1$ ,  $T_1$ ,  $V_1$ ,  $C_2$ ,  $T_2$  and  $V_2$ :

- (208) [ $CP_1 C_1$  [ $TP_1 T_1$  [ $VP_1 V_1$  [ $CP_2 C_2$  [ $TP_2 T_2$  [ $VP V_2$  ]]]]]]]]

I will assume that *te* is always base generated in  $Mood_{irrealis}$  and that *te* receives the value [+irrealis] or [-irrealis] depending on the semantic class of the matrix verb that functions as a binder. If this selecting verb is an irrealis verb, *te* is assigned the value [+irrealis]. If the selecting verb is propositional or factive, the value [-irrealis] is assigned to *te*. Since in infinitival complements *te* dominates the infinitive, it can be assumed that the value of the infinitival ending *-en* is set by *te*. If *te* is in  $Mood_{irrealis}$ , the

infinitive receives the value [+irrealis]. If *te* is in T(Past), the value of the infinitive is set to [-irrealis].

As has been discussed extensively in section 3.6, [-irrealis] (i.e. realis) complements contain a T(Past) node. Furthermore, I argued that in realis complements, *te* is in T(Past). Therefore, I propose that in realis complements *te* raises from Mood<sub>irrealis</sub> to T(Past). T(Past) itself can have the values [+past] or [-past] (i.e. present). Here, too, the value of T(Past) is set by the matrix verb through binding.

Thus, in *te*-infinitival complements, the basic grammatical mechanisms by which the values of *-en* and *te* are set are selection and binding.

In non-complements (infinitival main clauses and subject clauses), on the other hand, there is no selecting verb and a T-chain such as the one in (208) cannot be formed. Hence, there must be different means to resolve the underspecification of the ending *-en* and *te*. It has been argued by Partee (1973) and Enç (1987) that Tense shares semantic properties with pronouns. Like pronouns, tense can have a sentence-internal antecedent or it can have a discourse antecedent. According to Hoekstra & Hyams (1998:109), the interpretation of RIs depends on discourse and other contextual and presuppositional information, since RIs are unanchored structures in which the eventuality is not fixed through the grammatical mechanism of syntactic binding.<sup>62</sup> Thus, there must be something in the discourse that licenses RIs.

Exclamatives of the type in (181) are usually followed by a quantificational element such as *niet* 'not', *nooit* 'never', *altijd* 'always' (Blom & Wijnen 2000:133) or an expression which carries this meaning (*onmogelijk* 'impossible' *ik denk er niet over* 'I don't even consider it'). It might be assumed that the quantificational element sets the value of the infinitival ending. Narrative RIs are always embedded in a context which contains an anchoring event that sets up a reference time for the RI. For example, in (183) (here repeated as (209)) it is the reference time set up by the preceding finite clause (*de conducteur floot al*) that serves as the anchorer of the RI *rennen* (Blom & Wijnen 2000:133):

- (209) *de conducteur floot al, dus ik rennen* [= (183)]  
 the conductor whistled already so I run  
 'the conductor already blew his whistle, so I had to run'

The final question is what sets the value of *te* in non-selected environments. We have seen above that *te* here is [-realized] (i.e. [+irrealis]). I would like to propose that *te* receives the [+irrealis] value as a default value. We have seen above in the discussion about the French question morpheme that depending on the context, the value of [Q: ] is set to either [Q: y/n] or to [Q: wh]. In the absence of a wh-word that sets the value of

<sup>62</sup> Hoekstra & Hyams (1998:109) argue that in child language, both the grammatical mechanism and the discourse-related mechanism are available in the interpretation of functional material. In adult language, grammatically determined interpretations take precedence. For this reason, the use of RIs in adult language is more restricted than in child language.

[Q: ] to [Q: wh], the value of [Q: ] is set to [Q: y/n] by default. Thus, [Q: y/n] is the default value of Q. Cheng & Rooryck (2000:11) note that in the history of French, the Q morpheme has originated as a yes-no marker. This yes-no marker gradually became underspecified enough to license wh-elements. Thus, specified [Q: y/n] has become underspecified [Q: ]. Notably, the original value of Q (namely [Q: y/n]) is also the default value of Q. Here, we can see a parallel with *te*. Like the French intonational Q morpheme, *te* has gradually become underspecified in Dutch, so that it now can license both T(Past) and Mood(irrealis). Depending on the context, the value of *te* is set to either [irrealis] or to [tense]. If the infinitival clause is selected by a verb, this verb can set the value of *te* to [tense]. If the infinitival clause is not selected, the value of *te* is set to [+irrealis] by default. Thus, like the French Q morpheme, the default value of *te* is the same as its original value, which is [+irrealis].

### 3.7.5. Summary

In this section I provided further evidence that *te* in Dutch can occupy different functional heads: Mood<sub>irrealis</sub> and T(Past). Furthermore, I showed that there are parallels between the development of infinitivals in child Dutch and the development of infinitivals in the history of Dutch. I proposed to capture both these developments with the notion underspecification: in the course of time, functional morphemes can change from being specified for a certain value to being underspecified for this value. This opens the way to a more formal approach to semantic bleaching: semantic bleaching of an item means that it gets underspecified. The underspecification must be resolved by the syntactic context. Since the contexts can differ syntactically, it is expected that grammaticalized underspecified items receive different meanings in different positions. In this way, the property of grammaticalization mentioned under (8h) in chapter 1, namely its context dependency, is expressed in syntactic terms.

In the following section, in which clauses with *om...te* 'for to'-infinitives are discussed, I will continue to follow this line of reasoning.

## 3.8. *Om ... te*-infinitives

### 3.8.1. The historical development of the *om ... te*-construction

There is not much literature on the rise of *om* 'for' in verbal infinitival complements (i.e. in the complement of verbs such as *proberen* 'try'). Most research is devoted to the development of *om* in other contexts, such as purposive adjunct clauses and complements of nouns and adjectives (Blom 1990; Duinhoven 1997; Gerritsen 1987; Overdiep & Van Es 1949).

The original meaning of *om* is 'around'. *Om* expresses that an object moves around or is positioned around another object (WNT 1893:129). In Modern Dutch, *om* can still express this meaning:

- (210) de jongens lopen/zitten om de stoel  
 the boys walk/sit around the chair

In the course of time, the meaning of *om* has generalized so that it can appear in more contexts. According to the WNT (1893:129-147), the other uses of *om* are derived from the meaning 'around'. *Om* can follow verbs such as *denken* 'think' and *treuren* 'mourn', in which case there is a 'movement of the mind' around the object one is thinking about or mourning for. Following these verbs, *om* refers to the object that causes a certain emotion. More generally, *om* can refer to the cause of or motivation for an activity. With this sense, *om* occurs in *waarom* 'why' and *omdat* 'because'. The motivation for an activity is usually the wish to obtain a certain object or the wish to reach a certain goal. *Om* expresses this meaning in connection to verbs such as *roepen* (*roepen om* 'call for'), *vragen* (*vragen om* 'ask for') and *sturen* 'send', as in the Modern Dutch example in (211):

- (211) iemand om een boodschap sturen  
 somebody for a message send  
 'to send somebody for a message'

Because *om* can express that one wishes to reach a goal, as in (211), *om* comes into use in connection with *te*-infinitives to express this meaning (WNT (1893).

Thus, like *te*, *om* is originally a locative preposition. In the course of time, the meaning of *om* is extended to express cause and purpose.

At first, *om* only combines with nouns. Later, *om* can be used with *te*-infinitives. Gerritsen (1987, 1990), who investigated a sample of non-literary prose texts from Middle Dutch (in the dialect of Bruges), found that 87% of all *om ... te*-constructions are purposive adverbial clauses (Gerritsen 1987:143, 1990:164). *Om* hardly ever appears in verbal infinitival complements. In total, Gerritsen (1987:185) found 147 examples of verbal complement constructions in which in Modern Dutch *om* is optional. In only 5 examples, *om* appears (= 3%). In the other 142 examples (= 97%), *om* is not present.

The findings of Gerritsen (1990) are confirmed by the occurrence of *om ... (te)*-constructions in the 13 literary texts I discussed in section 3.4, namely: *Vanden Vos Reynaerde* (1200), *Strofische gedichten* (Hadewych, 1250), *Beatrijs* (1300), *Lanceloet en het Hert met de Witte Voet* (1300-1400), *Het Roelandslied* (1300-1400), *Die Borchgravinne van Vergi* (1315), *Karel ende Elegast* (1350), *Esmoreit* (1350-1400), *Gloriant* (1350-1400), *Die Hystorie van Alexander* (1400), *Lanseloet van Denemerken* (1400), *Den Spyghel der Salicheyt van Elckerlijc* (1470-1500), and *Mariken van Nieumeghen* (1500). In total, these texts contain 76 *om ... te*-constructions. In the first 12 texts, these are all adverbial purposive clauses as in (212)-(213):

- (212) Als Gi quaemt in aertrike Ende wort sone ende  
 when you came in earth and become son and  
 vader, *Om ons te verlossen* alle gader Dat Adam hadde  
 father, for us to redeem all what that Adam had  
 verloren  
 lost  
 ‘when you came on earth, and became son and father, (in order) to redeem us  
 from all that Adam had lost’  
 (Karel ende Elegast, 171-174)
- (213) Ghi moet nae Nimmeghen nemen u vertreck  
 you must to Nijmegen take your departure  
*Om ons proviande te halen*  
 for us provisions to get  
 ‘you have to go to Nijmegen (in order) to deliver us with provisions’  
 (Mariken van Nieumeghen, 3-5)

Only in the last text, *Mariken van Nieumeghen* (1500), *om*-constructions occur in other contexts, namely in the complement of adjectives and adverbs (9 examples, e.g. (214)) and in the modal passive construction (2 examples, e.g. (215)):

- (214) soe wert Emmeken verlangende *om haeren oom ende*  
 so became Emmeken wishing for her uncle and  
*haer vriendekens in den lande van Ghelre te besoeken*  
 her friends in the country of Ghelre to visit  
 ‘Emmeken got the desire to visit her uncle and her friends in the country of  
 Gelderland’  
 (Mariken van Nieumeghen, IX: 4-7)
- (215) Ende tvrouken en es niet *om versoeten*  
 and the-woman NEG is not for beautify  
 ‘and the woman could not be (made) more beautiful’<sup>63</sup>  
 (Mariken van Nieumeghen, 468)

In verbal infinitival complements, *om* very rarely appears in Middle Dutch. I found only one example which looks like an *om*-clause in a verbal context. This example is a topicalization in which *te* is missing:

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<sup>63</sup> Constructions such as (215), in which *om* occurs without *te* are very common in Middle Dutch, and still occur in southern Dutch (Duinhoven 1997:197; Stoett 1923:204). An example is (i):

(i) dat is niet gemakkelijk om zeggen  
 that is not easy for say  
 ‘that is not easy to say’  
 (Stoett 1923:204)

- (216) *Om sterven* dat ic in deser noot wensche!  
 for dying that I in this need wish  
 'I wish to die in this need'  
 (Mariken van Nieumeghen, 912)

The WNT (1893:146) notes that starting from 1750, *om* was introduced in complements, for example in the complement of adjectives such as *onnodig* 'unnecessary' and *gewoon (zijn)* 'be used to' and in the complement of verbs such as *gelasten* 'order' and *weigeren* 'refuse' (217):

- (217) Jan weigert om dat boek te lezen  
 John refuses for that book to read  
 'John refuses to read that book'

The history of English *for* is similar to *om*. Originally, *for* is a locative preposition, meaning 'in front of'. In Old English, *for* is also used to express purpose (meaning 'for the purpose of') and cause (meaning 'because of'). In this stage of English, *for* is only combined with nouns. In early Middle English, *for* starts to introduce purposive infinitival clauses (Van Gelderen 1998).

With respect to Modern Dutch, Dutch grammars and dictionaries do not pay much attention to the distribution of *om* in verbal infinitival complements. According to the WNT (1893), *om* should only be used in contexts in which it expresses purpose or goal. It states that the use of *om* in the complements of verbs should be avoided, since it is semantically vacuous: the use of *te* suffices.<sup>64</sup> In the *Groot Woordenboek der Nederlandse Taal* (1999), the use of *om* in verbal infinitival complements is not mentioned. According to the ANS (1997:1111), *om* is excluded in the complement of verbs which express the meaning 'say' or 'claim' (e.g. *beweren* 'claim', *verklaren* 'declare', and *zeggen* 'say'):

- (218) dat moeder zei (\*om) vroeg thuis te zijn  
 that mother said for early home to be  
 'that mother said that she would be home early'

The ANS (1997) does not explicitly distinguish between semantic classes of verbs that allow *om* in their complements. The examples in (219)-(222) show that the following generalization holds: *om* can optionally appear in infinitival complement clauses with irrealis modality such as (219). *Om* is excluded in propositional (220), factive (221), and implicative infinitival complements (222):

<sup>64</sup> See Jansen (1987/1988) for an overview of the '*om*-rule' in Dutch normative grammars.

- (219) Jan   belooft/   besluit/   dwingt mij/ raad mij aan/   weigert  
 John   promises/ decides/   forces me/ advises me/   refuses  
 (om)   een boek   te lezen  
 for   a book   to read  
 ‘John promises/decides/forces me/tries/advises me/refuses to read a book’
- (220) Jan   beweert/   zegt   (\*om) erg intelligent te zijn  
 John   claims/   says   for   very intelligent to be  
 ‘John claims/says that he is very intelligent’
- (221) Jan   beseft/   realiseert zich   (\*om) erg   intelligent   te   zijn  
 John   realizes/   realizes himself for   very   intelligent   to   be  
 ‘John realizes that he is very intelligent’
- (222) Jan   begint (\*om) een boek   te lezen  
 John   begins for   a book   to read  
 ‘John begins to read a book’

Table 1 in appendix C contains a more complete overview of the distribution of *om*. Specifically, this table shows that *om* is excluded in exactly those complements that allow past reference, i.e. realis complements. The following examples illustrate this:

- (223) *irrealis*  
 Jan   besluit om morgen   een boek   te lezen  
 John   decides for tomorrow a book   to read  
 ‘John decides to read a book tomorrow’
- (224) *realis (propositional)*  
 Jan   beweert   (\*om) gisteren   een boek   te hebben gelezen  
 John   claims   for   yesterday a book   to have read  
 ‘John claims that he read a book yesterday’

### 3.8.2. The rise of CP in infinitival complements

It is often assumed that *om* was introduced in infinitival clauses to reinforce the bleached meaning of *te* (Duihoven 1997:198; De Vooys 1960:163). Leys (1989) argues that this explanation only holds for adverbial adjunct clauses. In verbal infinitival complements such as (223), *om* was introduced purely for syntactic reasons, i.e. as a complementizer. That is, *om* is semantically neutral in these contexts. However, we have seen above that there are restrictions on the use of *om* in verbal infinitival complements: *om* only introduces verbal infinitival complements with an irrealis modality. This is unexpected if *om* is semantically neutral.

In most analyses, *om* is considered to be the non-finite counterpart of the complementizer *dat* ‘that’. Like *te*-infinitives, *om*-infinitival clauses (226) do not have the distribution of regular Dutch PPs, which can both precede and follow the verb in embedded clauses (225):

- (225) a. dat Jan het boek <in de tuin> leest <in de tuin>  
 that John the book in the garden reads in the garden  
 ‘that John reads the book in the garden’  
 b. dat Jan <van zijn vader> houdt <van zijn vader>  
 that John of his father loves of his father  
 ‘that John loves his father’
- (226) dat Jan <\*om het boek te lezen> probeert  
 that John for the book to read tries  
 <om het boek te lezen>  
 for the book to read  
 ‘that John tries to read the book’

As a complementizer, *om* occupies the head of CP,  $C^0$  (Bennis & Hoekstra 1989a,b; Den Besten & Broekhuis 1989a; Broekhuis & Hoekstra 1990; Rutten 1991). That *om* surfaces in the CP domain can be seen from the ungrammaticality of (227a), which is predicted to be grammatical if *om* would surface in a lower position than  $C^0$ :

- (227) a. \*dat Jan besluit morgen om te lezen  
 that John decides tomorrow for to read  
 b. dat Jan besluit om morgen te lezen  
 that John decides for tomorrow to read  
 ‘that John decides to read tomorrow’

In the preceding section, 3.7, I proposed that in realis complements *te* raises from Mood<sub>irrealis</sub> to T(Past), where it can be assigned the values [+past] or [-past] (i.e. present). The need to recover the underspecified morpheme *te* follows from the requirement that clauses must contain a Tense chain (see 206-207)). That is, the tense in embedded clauses must be bound by the tense of the matrix clause. For example, in (228) the matrix past tense denotes a time prior to the speech time. The embedded tense is evaluated with respect to the matrix past tense. Thus, both the matrix and subordinate clause are understood as involving past time:

- (228) hij beseft/ geloofde/ meende een boek te lezen  
 he realized/ believed/ thought a book to read  
 ‘he realized/believed/thought that he was reading a book’

If the matrix tense changes, the temporal interpretation of the embedded *te*-infinitive changes, too. In (229), the matrix present tense binds the embedded tense, so that both the matrix and subordinate clause are understood as involving present tense:

- (229) hij beseft/ gelooft/ meent een boek te lezen  
 he realizes/ believes/ thinks a book to read  
 ‘he realizes/believes/thinks that he is reading a book’

The examples in (228)-(229) contain factive (*beseffen* ‘realize’) and propositional (*geloven* ‘believe’, *menen* ‘think’) matrix verbs. These verbs select a realis infinitival complement. The situation is different in the case of irrealis infinitival complements. In the following example, the matrix verbs are in the past tense. The tense of the eventuality denoted by the complement (*lezen*) can be past, but this is not necessary. *Lezen* can also be in future with respect to the evaluation time set up by the matrix tense (Stowell 1982:563):

- (230) a. Jan    beloofde/   besloot    een boek   te   lezen  
           John  promised/  decided   a book   to  read  
           ‘John promised/decided to read a book’  
       b. Jan    beval/       dwong mij een boek   te   lezen  
           John  ordered/  forced me a book   to  read  
           ‘John ordered/forced/asked me to read a book’

Thus, in irrealis complements the temporal interpretation of the infinitive is not fixed by the matrix tense.

The fact that complements referring to the future are never directly bound by the matrix T can be expressed if we assume that  $C^0$  in irrealis complement is assigned the feature [+irrealis] by the matrix verb. This feature assures that the eventuality denoted by the complement clause is interpreted as taking place in the future with respect to the time of the matrix eventuality (Van Gelderen 1993:118).

In realis complements,  $C^0$  is not assigned an inherent feature by the matrix verb. For this reason, the embedded Tense can be bound by the matrix Tense. This explains why in the examples in (228) and (229) the matrix eventuality and the embedded eventuality are interpreted as taking place simultaneously.

In the example in (231), on the other hand, the matrix and the embedded eventuality are not taking place at the same time:

- (231) Jan    beweert   gisteren   een boek   te hebben gelezen  
           John  claims   yesterday  a book   to have  read  
           ‘John claims that he read a book yesterday’

In the sections 1.6.2.2 and 2.6, I argued that the Dutch auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ can have both a temporal and an aspectual use. If they are used as aspectual auxiliaries, they refer to a state which is the result of a certain eventuality. *Hebben/zijn* can also be used as temporal auxiliaries. In this case, the eventuality itself is stressed and there is not necessarily a result state. I argued in 3.6.2.2 that only in realis complements such as (231), *hebben/zijn* can function as a temporal auxiliary. Assuming that *hebben/zijn* is a temporal auxiliary in (231), it functions as a past tense which must be evaluated with respect to the event time of the matrix verb. This event time is represented in the embedded clause itself, more specifically in the embedded CP (Enç 1987).

According to Overdiep & Van Es (1949:382), the grammaticalization of *te* leads to

development of the perfective infinitive, as in (232):

- (232) hij meende die opmerking reeds te hebben gemaakt  
 he thought that remark already to have made  
 ‘he thought that he had already made that remark’  
 (Overdiep & Van Es 1949:382)

Constructions such as (232), in which *hebben* is used as an auxiliary verb in realis *te*-infinitival complements came into use after the Middle Dutch period, in 17th century Dutch. That means that by this time, *te*-infinitival complements project up to CP. In irrealis infinitival complements, *om* can be inserted in CP.

The next question is why and how the meaning of *om* has changed in the course of time. As we have seen, *om* in infinitival clauses originally expresses purpose (212)-(213). Similarly, in the Modern Dutch example in (233), *om* has a purposive meaning:

- (233) hij gaat weg om een boek te lezen  
 he goes away for a book to read  
 ‘he goes home in order to read a book’

In verbal infinitival complements, on the other hand, a paraphrase with ‘in order to’ is not possible. *Om* in infinitival complement clauses merely expresses future without the purposive meaning component. In the following section, I will address the question why this is the case.

### 3.8.3. The structural basis of semantic bleaching

One of the properties of the grammaticalization process mentioned in 1.3 is that the construction in which the grammaticalizing item appears contributes to the resulting grammatical meaning of this item. That is, the “semantic bleaching” of a grammaticalizing item depends on the context it occurs in. In the preceding section we have seen that if *te* appears in subjects and infinitival main clauses, it still expresses its original meaning (irrealis). In this sense, the meaning of *te* is determined by the context. The idea that items acquire their meaning on a structural basis has recently been put forward in the generative literature by a.o. Barbiers (1995), Bennis (1995), and Postma (1995). With respect to the meaning of the underspecified morpheme *te* (i.e., the value it is assigned), I argued in section 3.7 that it depends on the syntactic context it appears in, more specifically on the FPs that are present in the *te*-clause. Similarly, the meaning of *om* seems to be determined by the syntactic environment it appears in. As we have seen above, *om* in infinitival adjunct clauses expresses “purpose”, whereas *om* in infinitival complement clauses lacks this meaning component and merely expresses future.<sup>65</sup>

<sup>65</sup> Haspelmath (1989) shows that this development is a cross-linguistically common path of grammaticalization. In many (unrelated) languages, the use of both finite and non-finite purposive markers

A formal difference between verbal *om*-complements (234) and purposive *om*-clauses (235) is that extraction is only allowed from purposive *om*-clauses:

- (234) wat heeft hij geprobeerd om te lezen  $t_i$ ?  
 what has he tried for to read  
 ‘what did he try to read?’
- (235) \*wat $_i$  gaat hij naar huis om te lezen  $t_i$ ?  
 what goes he home for to read

It is usually assumed that the contrast between (234) and (235) shows that the *om*-clause in (235) is an adjunct, from which extraction is impossible, whereas the *om*-clause in (234) is a complement which allows extraction. In the *Barriers* framework (Chomsky 1986), the explanation of the extraction contrast is based on the assumption that complement CPs are L-marked (i.e. selected) by the selecting verb, whereas adjunct CPs are not L-marked and are barriers to extraction. The meaning differences of the complementizer *om* can be related to this. I assumed above that in complements, the selecting verb assigns the feature [+irrealis] to C. Hence, in these complement *om* receives a modal meaning. In adjunct CPs, on the other hand, C does not receive a feature from a selecting verb. For this reason, *om* expresses its “older”, purposive meaning in adjuncts.

### 3.9. Summary and conclusion

In the first chapter of this dissertation, I have discussed several cases of further grammaticalization of items that have already to a certain extent undergone grammaticalization, and can be taken to correspond to one of the functional projections in Cinque’s (1999) hierarchy of functional projections. On the basis of data from several unrelated languages, I concluded that grammaticalization invariably involves raising of a functional element to a higher functional head. The unidirectionality of (further) grammaticalization of functional items follows from the fact that items cannot be lowered. I concluded that the hierarchy proposed by Cinque (1999), which is based on synchronic data, is also valid in the diachronic dimension.

In the chapters 2 and 3, I discussed historical developments in the domain of Dutch infinitival complements. In chapter 2, I showed that there is diachronic and synchronic variation in the meanings that modal verbs can express in Middle and Modern Dutch. I argued that this variation can be described by assuming that these modal verbs are generated in ModPs that are hierarchically ordered, and that modal verbs can be moved

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spread from adverbial clauses to complement clauses. For example, classical Greek had a finite purposive marker *hina*, meaning ‘in order for ... to’. In a later stage, *hina* introduces finite irrealis complements (e.g. complements of *want*). In Modern Greek, *hina* is reduced to *ná* and it is extended to realis complement clauses (e.g. the complement of *believe*) (Haspelmath 1989:306-307).

from one modal head to another modal head. The restriction to leftward movement accounts for the restrictions in the meanings that modals can express (both diachronically and synchronically). In chapter 3, I discussed *te*-infinitival complements in Dutch. In 3.4, I described the historical development of the infinitival marker *te* ‘to’ in Dutch. I showed that *te*, when it began to precede infinitives, started out as an irrealis marker. Since *te* does not have the distribution of a preposition in Middle Dutch infinitival complements, I proposed in 3.5 that *te* is a functional head lexicalizing Mood<sub>irrealis</sub>. In the course of time, *te* extended its use from irrealis to realis complements. Since realis complements have independent time reference, and arguably contain a T(Past) node, I concluded that in the course of time, *te* has raised from Mood<sub>irrealis</sub> to T(Past). In this way, the development of *te* presents another example of grammaticalization as raising in the functional hierarchy. In section 3.6, I focussed on the synchrony of *te*-infinitival complements in Dutch. I proposed that two kinds of infinitival complements must be distinguished: realis and irrealis infinitival complements. In irrealis complements, *te* occupies Mood<sub>irrealis</sub>. In realis complements, *te* is situated in the T(Past) node. I argued that since in realis complements T(Past) is present, they can contain more grammatical elements than irrealis complements, namely time adverbials referring to the past (*gisteren* ‘yesterday’), epistemic modals, and the auxiliary verbs *hebben* ‘have’ and *zijn* ‘be’ as temporal auxiliaries. In section 3.7, I discussed (*te*)-infinitives in non-selected environments, namely subject clauses and infinitival main clauses. I pointed out that there appears to be a parallel between the phenomenon of *Root Infinitives* in child Dutch and the infinitive in earlier stages of Dutch: both typically have a modal, irrealis interpretation. Following Hoekstra & Hyams (1998), I proposed that the infinitival ending *-en* in child Dutch and in earlier stages of Dutch has the feature [-realized]. In a later stage (both in child Dutch and in the history of Dutch), *-en* becomes underspecified in the sense that it can occur in contexts which can refer to the future, the present tense, and the past. In other words, both from a diachronic perspective and from a language acquisition perspective, *-en* grammaticalizes. I furthermore showed that in non-selected contexts, the occurrence of *te*-infinitives is restricted: they only appear in irrealis contexts. I argued that in these contexts, *te* provides the irrealis interpretation.

### 3.10. Remaining questions and further research

The discussion in this question has mainly concentrated on semantic properties of *te*-infinitival complements and the elements that can appear in these complements. In this section, I will discuss some remaining questions and consequences of my proposal with respect to the syntactic derivation of *te*-infinitivals.

In chapter 2, section 2.8, several advantages were mentioned of the analysis in which modal verbs and aspectual verbs are generated in one of the functional heads in the sentential functional domain. Adopting a monoclausal analysis, the analysis predicts that modals and aspectual verbs cannot embed *te*-infinitives, since the corresponding modal and aspectual FPs dominate the projections in which *te* is generated, namely

Mood<sub>irrealis</sub> and T(Past):

- (236) [T(Past) (te) ... [Mood<sub>irrealis</sub> (te) ... [Mod<sub>vol(itional)</sub> [Mod<sub>obl(igation)</sub> *moeten* 'have to' [Mod<sub>perm(ission)</sub> *mogen* 'be allowed to' [Mod<sub>ab(ility)</sub> *kunnen* 'be able to' [Asp<sub>durative</sub> *blijven* 'remain' [Asp<sub>prospective</sub> *gaan* 'go', *komen* 'come'

However, the examples in (237) and (238) seem to contract this prediction. In these examples, *te* follows the modal verb *kunnen* 'can' and the aspectual verb *gaan* 'go':

- (237) voor aan eten kunnen te geraken  
for at food can to get  
'in order to get food'
- (238) het begint weer terug in de mode gaan te komen  
it begins again back into fashion go to come  
'it is getting into fashion again'  
(Vanacker 1969:242)

According to Vanacker (1969), examples such as (237)-(238) can be found in East Flanders, Antwerp, Belgian and Dutch Brabant. Next to (237) and (238), the standard Dutch order (in which *te* precedes the first infinitive) is also possible in these dialects:

- (239) voor aan eten te kunnen geraken  
for at food to can get  
'in order to get food'
- (240) het begint weer terug in de mode te gaan komen  
it begins again back into fashion to go come  
'it is getting into fashion again'  
(Vanacker 1969:242)

Vanacker (1969) gives no examples in which *te* is present twice in the clause. According to J. van Craenenbroeck (p.c.), who accepts both the order in (237)-(238) and the order in (239)-(240), the examples in (241) and (242) are excluded:

- (241) \*voor aan eten te kunnen te geraken  
(242) \*het begint weer terug in de mode te gaan te komen

The ungrammaticality of (241)-(242) suggests that modals and aspectual verbs in the relevant dialects do not select *te*-infinitives. Rather, the variable order of *te* and modal/aspectual verbs seems to be derived by syntactic movement of the elements involved. Obviously, the desired result is that the auxiliary verbs undergo leftward movement to a position to the left of *te*, instead of lowering *te* to the right of these verbs. At this point, however, I do not have arguments in favor of this analysis and I will leave it for further research.

A second issue that has only briefly been touched upon is the syntactic derivation of

*te*-infinitival complements. The analysis in this chapter is based on the assumptions summarized in (243):

- (243) a. The verbal domain is dominated by the functional domain as proposed in Cinque (1999) (chapter 1)  
 b. *Te* is generated in a functional head (Mood<sub>irrealis</sub> or T(Past)) (sections 3.6 and 3.7)  
 c. *Te* is a clitic (section 3.3.2)

It is a well-known observation that clitics always form a prosodic unit with their host. For this reason, clitic placement is often analyzed as adjunction (a.o. Zwart 1993; Van Craenenbroeck & Van Koppen 2000), more specifically right-adjunction. Zwart (1993:151) proposes that there are two possibilities: the clitic right-adjoins to a functional head, or a verb right-adjoins to a clitic. Similarly, Van Craenenbroeck & Van Koppen (2000) argue that PF-adjunction is generally to the right. In section 3.5, I proposed to derive the adjacency of *te* and the infinitive by right-adjoining the infinitive to *te*.

In Dutch, non-verbal material such as objects, predicates, adverbs, and particles precedes the *te*-infinitive:

- (244) a. dat Jan beweert *het boek uit* te lezen  
 that John claims the book out to read  
 ‘that John claims that he finishes the book’  
 b. dat Jan beweert *morgen op* te bellen  
 that John claims tomorrow up to call  
 ‘that John claims that he will call tomorrow’

Under a head final analysis, the surface order *object/predicate/particle - te-infinitive* immediately follows, as the structure in (245) shows:

- (245) [<sub>T(Past)/Mood(irrealis)</sub> [<sub>VP</sub> object/predicate/particle t<sub>i</sub> ] te-[infinitive]<sub>i</sub> ]

Following Cinque (1999) in the assumption that adverbs are in the specifier positions of the functional projections, the structure in (245) furthermore accounts for the fact that adverbs in Dutch (such as *morgen* in 244b) precede the *te*-infinitive.

The Cinquan framework has consequences for the position of objects in Dutch. Objects can precede adverbs, as (246) shows:<sup>66</sup>

<sup>66</sup> De Hoop (1992) shows that both definite and indefinite objects that precede adverbs in Dutch receive a specific interpretation.



The adverbs in the structure in (249), however, surface in a position preceding the *te*-infinitive. Second, the assumption that there is a PredP hosting particles and predicates accounts for the fact that these elements precede the *te*-infinitive, but it falsely predicts that they precede adverbs as well:

- (250) dat Jan beweerde <\*op> gisteren <op> te bellen  
 that John claimed up yesterday up to call  
 ‘that John claimed that he called yesterday’

The two problems mentioned above might be accounted for by assuming an analysis which involves remnant movement. Recently, many syntactic structures which used to be derived by head movement are reanalyzed as involving (remnant) XP movement.<sup>67</sup> Kayne (1999) proposes an analysis of infinitival complements in which an infinitival complement moves to the specifier of the infinitival marker. The reason for postulating this movement is that “prepositional complementizers” such as Romance *de/di* and English *to* are restricted to occurring with infinitivals. Kayne explains this selectional restriction by assuming that infinitives have a nominal feature that must be checked. Checking takes place by moving the infinitival IP to the specifier of *de/di/to*.

Following this analysis, it might be assumed that *te* is checked by moving the infinitival complement into its specifier. That is, in (249) the complement of *te* moves to the specifier of T(Past) or Mood<sub>irrealis</sub>. Since this complement includes all the FPs in the complement of *te*, moving it to the specifier of *te* ensures that all the adverbs precede the *te*-infinitive. The motivation for an analysis along these lines and its consequences need to be explored in more depth, however. At this point, I will leave this for further research.

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<sup>67</sup> Several authors have proposed that Verb Raising involves VP movement rather than head movement (Hinterhölzl 1997; Koopman & Szabolcsi 2000; Lattewitz 1994).



## Appendix A

### Semantic classification of verbs selecting bare and/or *te*-infinitives in Middle Dutch

#### (1) Verbs that select a bare infinitive

Factive and implicative verbs with a complement in the realis factive modality:

*beseffen* 'realize', *geven* 'give', *gevoelen* 'feel', *hebben* 'have', *hooren* 'find out', *kennen* 'know', *liggen* 'lay', *loopen* 'walk', *sitten* 'sit', *staen* 'stand', *vernemen* 'learn, hear', *wesen* 'be', *weten* 'know'

Propositional verbs with a realis non-factive complement:

*dunken* 'think', *heeten* 'be said', *scinen* 'seem', *wanen* 'be under the impression', *zeggen* 'say, claim'

Irrealis verbs with an irrealis directive complement:

*vanden* 'try, want', *wanen* 'intend, hope, expect'

Irrealis verbs with an irrealis potential complement:

*dorren* 'dare, have to, be allowed, need to', *pleghen* 'be used to'

#### (2) Verbs that can both select a bare infinitive and a *te*-infinitive:

Factive and implicative verbs with a realis factive complement:

*beginnen* 'begin', *bestaen* 'begin', *mercken* 'notice'

Propositional verbs with a realis non-factive complement:

*denken* 'think', *duchten* 'fear', *hem scamen* 'shrink from', *meenen* 'think'

Irrealis verbs with an irrealis directive complement:

*bevelen* 'order', *bidden* 'request', *heeten* 'order', *helpen* 'help', *leeren* 'learn', *leeren* 'teach', *raden* 'advise', *vermanen* 'admonish'

Irrealis verbs with an irrealis potential complement:

*weten* 'be able to'

(3) Verbs that usually select a *te*-infinitive:

Factive and implicative verbs with a realis factive complement:

-

Propositional verbs with a realis non-factive complement:

*peïnsen* 'consider'

Irrealis verbs with an irrealis directive complement:

*achten* 'intend', *begheren* 'want', *bringen* 'persuade', *dwingen* 'force', *gebieden* 'command', *hopen* 'hope', *lusten* 'want'

Irrealis verbs with an irrealis potential complement:

-

## Appendix B

In the Middle Dutch texts *Vanden Vos Reynaerde* (1200), *Strofische gedichten* (Hadewych, 1250), *Beatrijs* (1300), *Lanceloet en het Hert met de Witte Voet* (1300-1400), *Het Roelandslied* (1300-1400), *Die Borchgravinne van Vergi* (1315), *Karel ende Elegast* (1350), *Esmoreit* (1350-1400), *Gloriant* (1350-1400), *Die Hystorie van Alexander* (1400), *Lanseloet van Denemerken* (1400), *Den Spyghel der Salicheyt van Elckerlijc* (1470-1500), and *Mariken van Nieumeghen* (1500) *te*-infinitives occur in the complement of the following verbs (the numbers between brackets indicate how often the verb occurs in the 13 texts):

(1) *factive and implicative verbs with a realis factive complement:*  
*beginnen* ‘begin’ (24), *nalaten* ‘omit’ (1), *vergeten* ‘forget’ (1)

*propositional verbs with a realis non-factive complement:*  
*dencken* ‘think’ (1), *zweren* ‘swear’ (1)

*irrealis verbs with an irrealis directive complement:*  
*begeren* ‘want’ (11), *behoren* ‘ought to’ (2), *beletten* ‘prevent’ (1), *beloven* ‘promise’ (3), *beraden* ‘intend’ (1), *bereyden* ‘prepare’ (1), *bestaen* ‘persuade’ (2), *betamen* ‘ought to’ (1), *betrecken* ‘lead to, make (someone to do something)’ (1), *bevelen* ‘order’ (4), *bidden* ‘request’ (3), *doen* (te verstanen/wetene) ‘make’ (5), *eyschen* ‘demand’ (1), *gebieden* ‘command’ (2), *geven* (te kennen/verstaan) ‘give’ (1), *ghewaghen* ‘ask’ (1), *hebben* ‘want’ (7), *hem pijnen* ‘exert oneself’ (1), *heten* ‘order’ (1), *hopen* ‘hope’ (1), *laten* ‘let’ (1), *lusten* ‘want’ (4), *menen* ‘plan, intend, wish’ (5), *ontbieden* ‘summon’ (2), *overeendragen* ‘agree’ (1), *pogen* ‘try’ (1), *raden* ‘advise’ (7), *segghen* ‘tell, order’ (1), *te voren legghen* ‘suggest’ (1), *verbieden* ‘forbid’ (3), *weerdichen* ‘condescent to, ‘want’ (1), *zich ertoe zetten* ‘make oneself (do something)’ (1)

*irrealis verbs with an irrealis potential complement:*  
*hebben* ‘must’ (10), *plegen* ‘be used to’ (20), *staen* ‘must’ (4), *wesen/zijn* ‘must’, ‘can’ (14), *weten* ‘can’ (7)



## Appendix C

### Overview of (some) properties of complement-taking verbs in Dutch

This appendix contains a (non-exhaustive) list of verbs selecting an infinitival complement and some of the properties of these complements in standard Dutch. The table below under (18) indicates whether the following elements can appear in the infinitival complement of the listed verbs:

(a) *te* 'to'

There are several infinitival complements in Dutch in which *te* is optional. This is indicated with '+/-'. The presence or absence of *te* has been discussed in section 3.3 with respect to the perception verb *horen* 'hear', *voelen* 'feel' and *zien* 'see' and the verbs *helpen* 'help' and *leren* 'learn'. Furthermore, *te* is optional in the complements of the following verbs: *durven* 'dare' and *(be)hoeven* 'need', and the aspectual verbs *liggen* 'lie', *lopen* 'walk', *staan* 'stand', and *zitten* 'sit'. If these selecting verbs appear as a finite verb, *te* cannot be left out (1)-(2). If they appear as an infinitive, *te* can be omitted (3)-(4):

- |     |   |                        |                           |            |
|-----|---|------------------------|---------------------------|------------|
| (1) | dat hij het boek                              | niet durft/hoeft       | *?(te)                    | lezen      |
|     | that he the book                              | not dares/needs to     |                           | read       |
|     | 'that he does not dare/need to read the book' |                        |                           |            |
| (2) | dat hij het boek                              | ligt/loopt/staat/zit   | *(te)                     | lezen      |
|     | that he the book                              | lies/walks/stands/sits | to                        | read       |
|     | 'that he is not reading the book'             |                        |                           |            |
| (3) | dat hij het boek                              | niet heeft             | durven/hoeven             | (te) lezen |
|     | that he the book                              | not has                | dare/need                 | to read    |
|     | 'that he did not dare/need to read the book'  |                        |                           |            |
| (4) | dat hij het boek                              | heeft                  | liggen/lopen/staan/zitten | (te) lezen |
|     | that he the book                              | has                    | lie/walk/stand/sit        | to read    |
|     | 'that he was not reading to the book'         |                        |                           |            |

Furthermore, *komen* 'come' take both a *te*-complement and a bare infinitive. If *komen* selects a bare infinitive (5), it has an agentive meaning. If *komen* selects a *te*-infinitive, it has a non-agentive meaning (6) (ANS 1997:982):

- |     |                              |
|-----|------------------------------|
| (5) | hij kwam naast mij zitten    |
|     | he came next to me sit       |
|     | = he chose to sit next to me |
| (6) | hij kwam naast mij te zitten |
|     | he came next to me to sit    |
|     | = he was placed next to me   |

With respect to *weten* 'know', there are regional differences with respect to the

presence of *te* in this construction (see De Rooij 1969, Den Dikken & Zwart 1996):

- (7) Ik weet hem (te) wonen  
 I know him to live  
 'I know where he lives'

(b) *om* 'for'

In section 3.8 we have seen that *om* is possible in irrealis complements, such as (8):

- (8) Jan probeert (om) een boek te lezen  
 John tries for a book to read  
 'John tries to read a book'

Furthermore, if the verbs *bevallen* 'please', *haten* 'hate', *irriteren* 'irritate', *lukken* 'succeed', *opgeven* 'give up', *verafschuwen* 'abhor' select another verb, the expletive *het* must be present in the matrix clause. In this case, the embedded infinitival clause is optionally introduced by *om*:

- (9) dat \*(het) hem niet bevalt (om) te moeten vertrekken  
 that it him not pleases for to must leave  
 'that he does not like that the has to leave'

If *betreuren* 'regret', *verwijten* 'reproach', *zich herinneren* 'remember' and *wagen* 'dare' select another verb, *het* is optionally present. Only if *het* is present, *om* is possible in the infinitival clause:

- (10) dat hij betreurt (\*om) te moeten vertrekken  
 that he regrets for to must leave  
 'that he regrets it that he has to leave'
- (11) dat hij het betreurt (om) te moeten vertrekken  
 that he it regrets for to must leave  
 'that he regrets it that he has to leave'

There are some verbs that have *er* 'there' and a preposition in the matrix clause. If *brenge*n selects another verb, *er* + *preposition* must be present (12). If *ophouden* 'stop' selects another verb, *er* + *preposition* is optionally present (13). As with *het*, the presence of *om* depends on the presence of *er*.

- (12) dat hij mij \*(ertoe) brengt (om) te lezen  
 that he me there-to brings for to read  
 'that he makes me read a book'
- (13) a. dat hij ophoudt een boek te lezen  
 that he stops a book to read  
 'that he stops reading a book'

- b. dat hij ermee ophoudt (om) een boek te lezen  
 that he there-with stops for a book to read

If the presence of *om* depends on the presence of *het/er*, this is indicated as ‘+(het/er)’ in the table below.

(c) Future (FUT) and past (PST) reference.

‘Future’ and ‘past’ means that the infinitival complement can be independently modified by a time adverbial referring to the future (such as *morgen* ‘tomorrow’ (14)), or by a time adverbial referring to the past (such as *gisteren* ‘yesterday’) (14):

- (14) vandaag besloot Jan morgen een huis te kopen  
 today decided John tomorrow a house to buy  
 ‘today John decided to buy a house tomorrow’
- (15) morgen zal ze wel beweren jou vandaag te hebben gebeld  
 tomorrow will she claim you today to have called  
 ‘she will probably claim tomorrow that she called you today’

(d) Epistemic modals (EP)

(e) Deontic modals (DEO)

(f) Aspectual auxiliaries (ASP) (*blijven* ‘stay’, *gaan* ‘go’, *komen* ‘come’)

Third, we have seen in section 3.3 that in standard Dutch, three different constructions can be distinguished: *Verb Raising* constructions, *Extraposition* constructions and *Third Constructions*. For an illustration of these constructions, I refer the reader back to section 3.3. In table 1, the selecting verbs are classified according to the construction type(s) they allow. An important note must be made here. As has been shown by Wurmbrand (1998) for German, *zu* ‘to’-infinitival complements have different temporal properties depending on the construction type they appear in. Specifically, a distinction must be made between the Third Construction/Verb Raising construction on the one hand and the Extraposition construction on the other hand. The former does not allow independent temporal modification of their complement, whereas the latter does allow this. This is also the case in Dutch. For example, the embedded infinitive of *besluiten* allows independent modification by an adverb referring to the future. However, this is only possible in the Extraposition construction (16a), not in the Third Construction (16b):

- (16) a. dat Jan vandaag besloot morgen een huis te kopen  
 that John today decides tomorrow a house to buy
- b. \*dat Jan vandaag <morgen> een huis besloot <morgen>  
 that John today tomorrow a house decided tomorrow  
 te kopen  
 to buy

Thus, the possibility to modify the embedded infinitive independently not only depends on the semantics of the selecting verb, but also on the syntactic configuration. Furthermore, *om* can only be present in the Extraposition construction (17b), not in the Verb Raising construction (17a). The judgments of speakers differ with respect to the grammaticality of (17c), in which *om* is present in the Third Construction:

- (17) a. dat hij het boek heeft proberen (\*om) te lezen  
b. dat hij heeft geprobeerd (om) het boek te lezen  
c. dat hij het boek heeft geprobeerd (?om) te lezen

In table 1, these differences between the construction types are ignored.

Table 1.

<i>Obligatory Verb Raising verbs</i>							
	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
blijven 'stay'	-	-	-	-	-	-	-
doen 'make'	-	-	-	-	-	-	-
gaan 'go'	-	-	-	-	-	-	-
kunnen 'be able'	-	-	-	-	-	-	+
laten 'make'	-	-	-	-	-	-	+
moeten 'have to'	-	-	-	-	-	+	+
mogen 'be allowed'	-	-	-	-	-	-	+
willen 'want'	-	-	-	-	-	+	+
zullen 'will'	-	-	-	-	+	+	+
kunnen (ep) 'can'	-	-	-	-	-	+	+
moeten (ep) 'must'	-	-	-	-	+	+	+
mogen (ep) 'may'	-	-	-	-	-	+	+
willen (ep) 'is said'	-	-	-	-	-	+	+
horen 'hear'	-	-	-	-	-	-	-
ruiken 'smell'	-	-	-	-	-	-	-
vinden 'find'	-	-	-	-	-	-	-
voelen 'feel'	-	-	-	-	-	-	-
zien 'see'	-	-	-	-	-	-	-
(be)hoeven 'need'	+/-	-	-	-	-	+	+
(be)horen 'ought to'	+	-	-	-	-	+	+
blijken 'appear'	+	-	+	+	+	+	+
dienen 'must'	+	-	-	-	-	+	+
hangen 'hang'	+	-	-	-	-	-	-
hebben 'have to'	+	-	-	-	-	-	+

	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
komen 'come'	+/-	-	-	-	-	-	-
liggen 'lay'	+/-	-	-	-	-	-	-
lijken 'seem'	+	-	+	+	+	+	+
lopen 'walk'	+/-	-	-	-	-	-	-
plegen 'be used'	+	-	-	-	-	-	+
schijnen 'seem'	+	-	+	+	+	+	+
staan 'stand'	+/-	-	-	-	-	-	-
weten 'know (where)'	+/-	-	-	-	-	-	-
zien 'try'	+	-	+	-	-	-	-
zitten 'sit'	+/-	-	-	-	-	-	-
<i>Verbs allowing Verb Raising, the Third Construction and Extraposition</i>							
	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
beginnen 'begin'	+	-	-	-	-	-	-
denken 'think'	+	-	+	+	+	+	+
durven 'dare'	+/-	-	+	-	-	-	+
helpen 'help' <sup>68</sup>	+/-	+/-	+	-	-	+/-	+/-
leren 'learn/teach'	+/-	+/-	+	-	-	+/-	+/-
menen 'think'	+	-	+	+	+	+	+
pogen 'try'	+	+	+	-	-	-	+
proberen 'try'	+	+	+	-	-	-	+
trachten 'try'	+	+	+	-	-	-	+
wagen 'dare'	+	+(het)	-	-	-	-	+

<sup>68</sup> As we have seen in section 3.3.3, the presence or absence of *om*, deontic modals, passive participles and aspectual auxiliaries are correlated with the presence of *te* in the complement of *helpen* 'help' and *leren* 'learn, teach'.

	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
weigeren 'refuse'	+	+	+	-	-	+	+
wensen 'wish'	+	+/-	+	+/-	-	+	+
<i>Verbs allowing the Third Construction and Extraposition</i>							
aanraden 'advise'	+	+	+	-	-	+	+
adviseren 'advise'	+	+	+	-	-	+	+
begeren 'desire'	+	+	+	-	-	+	+
beloven 'promise'	+	+	+	-	-	+	+
beogen 'intend'	+	+	+	-	-	+	+
besluiten 'decide'	+	+	+	-	-	+	+
bevelen 'order'	+	+	+	-	-	-	+
beweren 'claim'	+	-	+	+	+	+	+
denken 'plan'	+	+	+	-	-	+	+
dreigen 'threaten'	+	+	+	-	-	-	+
dwingen 'force'	+	+	+	-	-	-	+
eisen 'demand'	+	+	+	-	-	+	-
gebieden 'order'	+	+	+	-	-	+	+
gelasten 'order'	+	+	+	-	-	+	+
geloven 'believe'	+	-	+	+	+	+	+
hopen 'hope'	+	+/-	+	+	-	+	+
opdragen 'appoint'	+	+	+	-	-	+	+
verbieden 'forbid'	+	+	+	-	-	+	+
vergeten 'forget'	+	+/-	+	+	+	+	+
verklaren 'declare'	+	-	+	+	+	+	+
verlangen 'demand'	+	+	+	-	-	+	+
verleren 'unlearn'	+	+(het)	-	-	-	-	-

	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
vermijden 'avoid'	+	+(het)	-	-	-	-	+
vermogen 'be able'	+	-	-	-	-	-	-
verplichten 'oblige'	+	+	+	-	-	+	+
vertellen 'tell'	+	-	+	+	+	+	+
verwachten 'expect'	+	+/-	+	+	-	+	+
verzoeken 'request'	+	+	+	-	-	+	+
verzuimen 'fail'	+	+(het)	-	-	-	-	+
voorstellen 'propose'	+	+	+	-	-	-	+
vragen 'ask'	+	+	+	-	-	+	+
vrezen 'fear'	+	-	+	+	+	+	+
zeggen 'say'	+	-	+	+	+	+	+
<i>Obligatory extraposition verbs</i>							
aansporen 'urge'	+	+	+	-	-	+	+
begrijpen 'understand'	+	-	+	+	+	+	+
bemerken 'notice'	+	-	+	+	+	+	+
beseffen 'realize'	+	-	+	+	+	+	+
betreuren 'regret'	+	+(het)	+	+	+	+	+
brenge(n) 'persuade'	+	+(er)	+	-	-	-	+
haten 'hate'	+	+(het)	+	+	+	+	+
zich herinneren 'remember'	+	+(het)	+	+	+	+	+
inzien 'realize'	+	-	+	+	+	+	+
irriteren 'irritate'	+	+(het)	+	+	+	+	+
lukken 'succeed'	+	+(het)	-	-	-	-	+

	<i>te</i>	<i>om</i>	FUT	PST	EP	DEO	ASP
ontdekken 'discover'	+	-	+	+	+	+	+
opgeven 'give up'	+	+(het)	-	-	-	-	-
ophouden 'stop'	+	+(er)	-	-	-	-	-
zich realiseren 'realize'	+	-	+	+	+	+	-
toestaan 'permit'	+	+	+	-	-	-	+
uitnodigen 'invite'	+	+	+	-	-	-	+
verafschuwen 'abort'	+	+(het)	+	+	+	+	+
veronderstellen 'suppose'	+	-	+	+	+	+	+
verwijten 'reproach'	+	-	-	+	-	+	+
voelen 'feel'	+	-	+	+	+	+	+
weten 'know'	+	-	+	+	+	+	+



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