Te-raising is clitic climbing

Abstract In contrast with finite verb clusters, non-finite verb clusters have thus far received little attention in the literature. In this paper, I present new data from a large-scale questionnaire study on variation in non-finite three-verb clusters in Dutch, investigating the position and presence of the infinitival marker *te* 'to'. The results revealed that a group of Dutch speakers allow *te* to occur in a higher position than it should occur in based on selection requirements. I propose that these speakers have reanalysed *te* as a clitic, whereas for all other speakers *te* is a verbal prefix. I analyse Dutch verb clusters as cases of functional restructuring. I argue that *te*-raising is an instance clitic climbing, a well-known phenomenon from other languages with restructuring, such as Italian.

Keywords: te-raising, non-finite verb clusters, clitic climbing, Dutch, restructuring

1 Introduction

In contrast with finite verb clusters (Barbiers et al. 2005, Wurmbrand 2017), non-finite verb clusters have received barely any attention in the literature. This paper presents new data on the position of the infinitival marker *te* 'to' in non-finite verb clusters in Dutch. It shows that in non-finite three-verb clusters in which one of the verbs selects a *te*-infinitive, the infinitival marker *te* can be raised to a higher position than it should occur in based on selection requirements. For example, consider the position of the infinitival marker *te* in the non-finite verb cluster in (1).¹

Vanwege de winterstop zal Koen vandaag niet [<te> hoeven1 <te> gaan2
 Because.of the winter.break will Koen today not to need.to.INF to go.INF voetballen3].
 play.football.INF.
 'Because of the winter break, Koen won't have to go and play football today.'

The V1 *hoeven* 'need to' selects a *te*-infinitive; based on selection requirements, *te* should appear on V2 *gaan* 'go'.² However, many speakers of Dutch also allow *te* to appear on the highest verb of the non-finite verb cluster, *hoeven* 'need to'. Furthermore, when the second verb within the verb cluster selects a *te*-infinitive, and *te* should thus appear on V3, some speakers allow *te* to raise not only onto V2, but even onto V1. In (2), progressively-used *zitten* 'sit' (V2) selects a *te*-infinite, i.e. *te* should

¹ As is common in the literature on verb clusters, numbers are used to indicate the hierarchical position of the verbs in the cluster: V1 selects V2, and V2 in turn selects V3.

 $^{^{2}}$ Note that in addition to the non-finite three-verb cluster, this example also contains a finite verb in V2-position. Given that this verb is not a part of the cluster and does not participate in *te*-raising, it will be ignored throughout the rest of the paper.

appear on V3 *wachten* 'wait'. However, speakers allow *te* also to appear on V2 *zitten* 'sit' or V1 *moeten* 'must'.

Peter zal vanwege de nieuwe dienstregeling binnenkort nog langer op de trein [<te> Peter will because.of the new schedule soon even longer on the train to moeten1 <te> zitten2 <te> wachten3].
 must.INF to sit.INF to wait.INF.
 'Because of the new schedule, Peter will soon have to wait even longer for the train.'

Based on these new data, I argue that Dutch non-finite three-verb clusters are cases of functional restructuring, and that *te*-raising is an instance of clitic climbing, a well-known phenomenon from other languages with restructuring, such as Italian (Rizzi 1982). Furthermore, I propose that there is variation among Dutch speakers regarding the morphosyntactic status of *te*. For some, it is a prefix, whereas others have reanalysed it as a clitic, allowing them to raise *te*. In addition, I provide an analysis of the progressively-used posture verb *zitten* 'sit'. The outline of this paper is as follows. In section 2 I present the data of a large-scale questionnaire on the presence and position of *te* in three types of verb clusters; in section 3 I discuss the position and morphosyntactic make-up of *te* and the size of the complement of Dutch modals; in section 4 I present the analysis of the data, in which I analyse *te*-raising as clitic climbing.

2 The data: The position and presence of te

In this section, I present the data collected in a large-scale questionnaire study on *te*-placement in three types of non-finite clusters in 123-order.³ The three types of clusters are given in (3), (4) and (5) below. For the the first cluster type, the entire test sentence is given. The second cluster type was embedded in the test sentence given in (1), and the third cluster type in the test sentence given in (2).

(3) Anne zegt op haar comfortabele stoel [*te* willen₁ blijven₂ zitten₃].
 Anne says on her comfortable chair to want.INF remain.INF sit.INF.
 'Anne says that she wants to remain seated on her comfortable chair.'

(4) [...hoeven₁ te gaan₂ voetballen₃]. ...need.to.INF to go.INF play.football.INF. '...need to go and play football.'

³ The questionnaire consisted of 5 practice items, 28 test items and 32 filler items, which the participants were asked to rate on a 5-point Likert scale. For each cluster type, there were seven test items, three with *te* on all theoretically possible positions within the cluster (*te*-V1-V2-V3, V1-*te*-V2-V3, V1-V2-*te*-V3), one with *te* absent (V1-V2-V3) and three with *te* occurring twice (*te*-V2-*te*-V3, *te*-V1-V2-*te*-V3, V1-*te*-V2-*te*-V3). There was a second variant of the cluster type in (3), *te hebben kunnen kopen* 'to have.INF can.INF buy.INF', which gave the same results as the other *te*-V1-V2-V3 cluster and is therefore not further discussed in this paper.

In (3), the finite verb *zegt* 'says' in verb second position selects a *te*-infinitive. Therefore, selection requirements dictate *te* should appear on V1, *willen* 'want'. Henceforth, I will refer to this cluster as '*te*-V1-V2-V3'. In (4), 'V1-*te*-V2-V3', the highest verb within the cluster, V1 *hoeven* 'need to', selects a *te*-infinitive: *te* should thus appear on V2 *gaan* 'go'. In (5), 'V1-V2-*te*-V3', the second verb within the cluster, V2 progressive *zitten* 'sit', selects a *te*-infinitive; *te* should thus appear on V3 *wachten* 'wait'.

459 participants were included for analysis.⁴ The results of the questionnaire revealed that there is variation among speakers regarding the position of *te* in V1-*te*-V2-V3 and V1-V2-*te*-V3, cf. Table 1, and regarding the presence/absence of *te* in all cluster types, cf. Table 2.⁵

Type of cluster	<i>Te</i> in situ	Optional te-raising	Obligatory <i>te</i> -raising	All rejected
II. V1- <i>te</i> -V2-V3	378	165	20	62
III. V1-V2- <i>te</i> -V3	172	39	9	64

 Table 1: Frequency overview of te-raising per type of cluster.

Table 1 shows that *te*-raising is much more frequent in V1-*te*-V2-V3 than in V1-V2-*te*-V3. In addition, *te*-raising is almost always optional. The small number of exceptions in the third column notwithstanding, we thus find the following implicational relation: if speakers allow *te*-raising, they also allow *te* in situ. Finally, of the 48 speakers who allow *te*-raising in V1-V2-*te*-V3, the majority also allows *te*-raising in V1-*te*-V2-V3.⁶ There are also speakers however, who neither allow *te* in situ nor *te*-raising in both cluster types: these speakers need *te* to be absent, cf. Table 2.

Type of cluster	No <i>te</i> -drop	Optional <i>te</i> -drop	Obligatory te-drop	All rejected
I. te-V1-V2-V3	451	8	0	0
II. V1- <i>te</i> -V2-V3	191	187	19	62
III. V1-V2- <i>te</i> -V3	20	152	223	64

Table 2: Frequency overview of presence/absence of te per type of cluster.

⁴ 531 native speakers of Dutch from the Netherlands and Flanders filled in the questionnaire. 70 of these speakers were excluded because they had lived abroad for at least 10 percent of their lives, and 2 speakers based on inconsistent ratings of the fillers.

⁵ Ratings of 4 or 5 are counted as grammatical, and ratings of 1, 2 or 3 as ungrammatical. 62 speakers rejected all versions of V1-*te*-V2-V3, 64 speakers rejected all versions of V1-V2-*te*-V3. For V1-*te*-V2-V3, this might either be due to the use of V1 *hoeven* 'need to', as many Belgian speakers do not use this verb, or the prospective use of *gaan* 'go'. For V1-V2-*te*-V3, the rejection might be due to the speakers' preference for leaving out progressively-used V2 *zitten* 'sit'.

⁶ Only eleven speakers who allow *te*-raising in V1-V2-*te*-V3 do not allow this in V1-*te*-V2-V3, of whom two do not allow any version of V1-*te*-V2-V3.

Table 2 shows that in *te*-V1-V2-V3, virtually all speakers need *te* to be present.⁷ In V1-*te*-V2-V3 however, there is much smaller group of people who require *te* to be present, a similarly sized group of speakers for whom *te* is optional, and a very small group of speakers who need *te* to be absent. In V1-V2-*te*-V3, we see that only a very small group of speakers need *te* to be present, a large group of speakers for whom *te* is optional, and the largest group of speakers who need *te* to be absent.

3 Prerequisites for the analysis

In this section, I discuss three theoretical tenets of the analysis. In section 3.1 I address the position of *te* in the syntactic structure. In section 3.2 I discuss the morphosyntactic status of *te*. In section 3.3 I consider the size of the complement of Dutch modals.

3.1 Te in T

I follow Bennis and Hoekstra (1989) among others, in assuming that *te* is merged in T. One piece of evidence for this comes from verbs, such as *leren* 'to teach' and *helpen* 'to help', that can take either a bare infinitive or a *te*-infinitive. Only when they select a *te*-infinitive is it possible to modify the matrix verb and embedded verb with temporally-conflicting adverbs (IJbema 2001:74) (6).

- a. Vandaag leer ik hem (*morgen) koken.
 Today teach I him tomorrow koken.
 Intended: 'Today I teach him to cook tomorrow.'
 - b. **Vandaag** leer ik hem **morgen** *te* koken. Today teach I him tomorrow to cook. 'Today I teach him to cook tomorrow.'

The contrast between (6a) and (6b) shows that when a *te*-infinitive is selected, i.e. when there is a *te* present in the embedded clause, there must be at least a TP layer in that embedded clause. It thus seems likely that *te* is generated in $T.^8$

3.2 Te: a prefix or clitic?

Bennis (2000) analyses *te* as a verbal prefix, since *te* and the infinitive cannot be separated (7a), which is also impossible with the verbal prefix *ge*- and the verb (7b).

(7) a. Ik beloof hem $\langle te \rangle$ op $\langle te \rangle$ bellen. I promise him to up to call.

⁷ At present I have no account for the eight speakers for whom *te*-drop is optional in this cluster type.

⁸ Though see Wurmbrand (2001:109-110) for a different view.

'I promise to call him.'

b. Ik heb hem <*ge-> op- < ge-> beld.
I have him GE- up- GE- called.
'I have called him.'

Contrastively, Zwart (1993) argues, based on the data in (8), that *te* cannot be a prefix, as it can scope over two infinitives (8a). This is not possible with prefix *ge*- (8b) (Zwart 1993:104).

- (8) a. Om in L.A. *te* leven en sterven. For in L.A. to live.INF and die.INF. 'To live and die in L.A.'
 - b. Om in L.A. *ge*-boren en *(*ge*-)storven te zijn. For in L.A. GE-born and GE-died to be. 'To be born and have died in L.A.'

Note that Bennis (2000) uses coordination constructions similar to the one in (8a) as an argument for *te* to be a prefix (the judgment is that of Bennis 2000:115):

(9) De generaal moedigt het leger aan om te strijden en *(te) winnen. The general encourages the army PRT for to fight and to win. 'The general encourages the army to fight and win.

IJbema (2001:70) agrees with the judgments of Zwart (1993) in (8a), and argues based on that example that *te* is a clitic, given that clitics can have scope over two elements, whereas prefixes cannot (Miller 1991).⁹ A second argument from Zwart (1993:103-104) against the prefix status of *te* comes from one of the Dutch dialects, namely Gronings, in which *te* can be separated from the infinitive by an object (10) (Schuurman and Wierenga 1986:341).

(10) Dat hai begunt *te* kraant lezen. That he begins to news.paper read.
'That he starts to read the newspaper.'

In light of the arguments for and against the prefixal status of *te*, I propose that there is in fact variation among speakers of Dutch regarding *te*: for most speakers, *te* is a prefix and can therefore not be separated from the infinitive. In section 4.2, I argue that these are the speakers who do not allow *te*-raising. There is also a group of speakers who have reanalysed *te* as a clitic: these speakers allow *te*-raising.

⁹ Although the possibility of clitics having scope over two elements depends both on the type of clitic and the type of coordination, see Poletto (2000)

3.3 The size of the complement of Dutch modals

I follow Aelbrecht (2009) in assuming that Dutch modals select a TP complement. Support for this comes from the fact that a modal and the verb it selects can be modified by conflicting temporal adverbs. An example is given for modal *moeten* in (11) (see Aelbrecht 2009:35-36 for similar examples for modal *willen* 'want' and *kunnen* 'can') (Aelbrecht 2009:35).

(11) Gisteren moest ik nog volgende week optreden en nu zijn de plannen alweer een Yesterday must.PAST I still next week perform and now are the plans again a week opgeschoven.
week delayed.
'Yesterday, it was still planned that I would perform next week, and now the plans have been delayed with another week.'

In (11) we see that the modal *moest* 'must' can be modified by an adverb that refers to a time in the past, whereas the verb that the modal selects, *optreden* 'perform', is modified by an adverb that refers to a time in the future. We can thus conclude that the size of the complement of Dutch modals is a TP.

4 The analysis

In this section I present the analysis of *te*-raising and *te*-drop. In section 4.2 I discuss the *te*-V1-V2-V3 cluster, in which *te*-raising is not possible, and in which *te*-drop is virtually unattested. In section 4.3 I move on to V1-*te*-V2-V3, in which many speakers allow *te*-raising. I analyse this as an instance of clitic climbing. Finally, in section 4.4 I discuss V1-V2-*te*-V3, in which some speakers allow *te* to raise, and many speakers allow or even need *te* to be dropped.

4.1 Presence and position of te in the te-V1-V2-V3 cluster

I consider Dutch verb clusters to be cases of restructuring (see Ter Beek 2008 and references therein). I take a mono-clausal approach to restructuring, in which modal, aspectual and motion verbs are inserted in functional heads above the lexical verb (Cinque 2001, Wurmbrand 2001). Let us first consider the structure of *te*-V1-V2-V3: *(zegt) ...te willen blijven zitten* '(says) ...to want.INF remain.INF sit.INF', given in (12).



In (12) the finite verb *zegt* 'says' is merged in C, *te* in T, V1 *willen* 'want' in Mod, selecting a TP, V2 *blijven* 'remain' in Asp and V3 *zitten* 'sit' in V.¹⁰ As finite *zegt* in verb second position is a verb that selects a *te*-infinitive, it is expected that speakers need *te* to occur in this cluster. This is exactly what we find in the data (see Table 2, section 2). In section 3, I argued that *te* is merged in T. The structure also shows why there is no *te*-raising possible in this cluster: there is no higher T above the T in which *te* is merged, for *te* to raise to.

4.2 Presence and position of te in the V1-te-V2-V3 cluster

Let us now consider the structure of V1-*te*-V2-V3 *(zal)* ...*hoeven te gaan voetballen* '(will) ...need.to.INF to go.INF play.football.INF', given in (13).

¹⁰ I give a simplified version of the functional sequence here, only representing the functional heads that are relevant for the analysis. In addition, I present head-initial structures for Dutch. This is for ease of exposition; I do not take a position in the head-initial versus head-final debate in this paper.



voetballen3

In (13) the finite verb *zal* 'will' is merged in C, V1 *hoeven* 'need to' in Mod, selecting a TP, *te* is merged in T₂, V2 *blijven* 'remain' in Asp and V3 *zitten* 'sit' in V. There is also an empty clausal T position above Mod, T₁. Recall from section 2 that 185 speakers allow *te* to appear on V1 in the cluster, i.e. higher than it should appear based on selection requirements. This *te*-raising is optional; *te* in situ also allowed. The other speakers only allow *te* in situ (there are 19 speakers who need *te* to be absent; I come back to this below). In section 3.2 I proposed that there is variation among speakers regarding the morphosyntactic status of *te*. This is exactly what causes the variation regarding *te*-raising. That is, speakers for whom *te* is a clitic allow *te* to raise from T₂ to T₁ in (13). Speakers for whom *te* is a prefix only allow *te* in situ. An argument for this is that clitics can also appear on a different host than it is syntactically associated with in other languages (e.g. Italian), whereas we never find verbal prefixes occurring on a different verb than the verb it syntactically belongs to.

In Italian (Rizzi 1982, Cinque 2001), clitics can climb up to a higher position in restructuring constructions, i.e. when the matrix verb is a modal, aspectual or motion verb, such as *vorrei* 'would like' in (14a). This clitic climbing is blocked when the matrix verb is a lexical verb, i.e. *detesterei* 'would hate' in (14b) (Cardinaletti and Shlonsky 2004:521).

- (14) a. *<Ci>* vorrei andar*<ci>* con Maria. There I.would.want go.INF.there with Maria. 'I would like to go there with Maria.'
 - b. $\langle *Ci \rangle$ detesterei and $ar \langle ci \rangle$ con Maria. There I.would.hate go.INF.there with Maria.

'I would hate to go there with Maria.'

Cardinaletti and Shlonsky (2004) argue for Italian that there are two clitic positions in restructuring constructions: one on the lexical infinitive, and one clausal clitic position higher in the clause. In Dutch, *te* can only be merged in T. In the structure of V1-*te*-V2-V3, however, there is also an empty T position above the verb *hoeven*, see (13). So, for speakers who have reanalysed *te* as a clitic, *te* can climb up from T_2 to T_1 (15).

(15)



Note that *te*-raising in (15) seems to violate the Head Movement constraint, since *te* crosses Mod on its way to T_1 . Roberts (2001) has argued, however, that head movement is sensitive to the features that heads bear. That is, head movement can cross an intervening head when this head has a different set of features than the higher head (Roberts 2001:141). Furthermore, it is well-known that clitics needs specific hosts (Poletto 2000). *Te* needs T as host, and can thus cross the intervening head Mod, as Mod has a different set of features than T.

There are also speakers who can drop *te* in V1-*te*-V2-V3, which I do not predict based on the structure in (13). Van de Velde (2017) shows that there is a rapid increase of *hoeven* selecting bare infinitives over the last 50 years. Based on these diachronic facts, it is clear that *hoeven* is losing its capacity to select *te*-infinitives. For the 19 speakers who need *te* to be absent in V1-*te*-V2-V3, *hoeven* can no longer select *te*-infinitives. As with all syntactic changes in language, at some point

speakers' grammars contain two competing structures. The 187 speakers who optionally allow *te*-drop in V1-*te*-V2-V3 thus have both structures in their grammar.

4.3 Presence and position of te in the V1-V2-te-V3 cluster

Finally, let us consider the structure of V1-V2-*te*-V3 (*zal*) ...*moeten zitten te wachten* '(will) ...must.INF sit.INF to wait' (lit. 'must be waiting'). In this cluster the posture verb *zitten* 'sit' is used progressively; the structure thus has to include a ProgP. In line with Harwood (2013), I take there to be a vP_{prog} head above ProgP (see Harwood 2013 and references therein for discussion). The verb *zitten* 'sit' is merged in v_{prog} . The structure of V1-V2-*te*-V3 is given in (16).



Recall that *te*-drop is very frequent in this cluster type, and that *te*-raising is much less frequent than in V1-*te*-V2-V3. (16) shows that there is no T position below vP_{prog} in which *te* can be merged; I thus predict all speakers to drop *te* in this cluster type. As for those who do allow it, I propose the following: while all speakers can merge *te* in T, a subset of them can spell out Prog as *te*. That is, they have reanalysed *te* as a progressive marker.

Recall that there were only 20 speakers who need *te* to be present in V1-V2-*te*-V3, whereas for 152 speakers *te*-drop is optional. I propose that spelling out Prog as *te* is a more marked option than not spelling it out, which means that even if speakers can spell out Prog as *te*, not doing so is still the

preferred option. I can now also account for the low frequency of *te*-raising in V1-V2-*te*-V3. In order for raising to occur, two conditions have to be met, namely (i) speakers have to have reanalysed *te* as a clitic and (ii) speakers have to be able to spell out Prog as *te*. As these are arguably two marked options in Dutch, I predict *te*-raising in V1-V2-*te*-V3 to also be more marked than in V1-*te*-V2-V3. This is indeed what we find: only 48 speakers allow *te*-raising in V1-V2-*te*-V3, compared to 185 speakers allowing this in V1-*te*-V2-V3. The fact that there are speakers who allow *te* in V1-V2-*te*-V3 to raise to V2, but also speakers who allow *te* to raise to V1, is explained by there being two T positions in the structure of V1-V2-*te*-V3. *Te*-raising to V2 is illustrated in (17), and to V1 in (18).

(17)



wachten₃



Taken together, the fact that *te*-raising is much less frequent in V1-V2-*te*-V3 than in V1-*te*-V2-V3 is explained by the different syntactic structures of these clusters. In V1-V2-*te*-V3 there is no T position for *te* to be merged in below the verb that selects the *te*-infinitive, in contrast to V1-*te*-V2-V3. The high frequency of *te*-drop in V1-V2-*te*-V3 can also be explained by structure of V1-V2-*te*-V3: as most speakers can only merge *te* in T, which is lacking in the structure of V1-V2-*te*-V3, *te*-drop is expected.

5 Conclusion

This study presented new data on the position and presence of *te* in non-finite three-verb clusters in Dutch. The results of a large-scale questionnaire study revealed that *te* can raise to a higher position in the verb cluster than in should appear in based on selection requirements. I argued that there is variation among speakers regarding the morphological status of *te*: for some it is a prefix, whereas others have reanalysed it as a clitic. I presented an analysis in which Dutch verb clusters are cases of functional restructuring, and *te*-raising is analysed as an instance of clitic climbing.

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