# TE-PLACEMENT IN DUTCH INFINITIVAL THREE-VERB CLUSTERS

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(Morpho)syntactic variation in Dutch finite three-verb clusters has been studied extensively (Barbiers et al. 2005, 2008; Wurmbrand 2015 amongst others)

- (1) a. Ik vind dat iedereen moet₁ kunnen₂ zwemmen₃. (✓123)
   I find that everyone must.INF can.INF swim.INF
   'I think everyone should be able to swim.'
  - b. Ik vind dat iedereen moet<sub>1</sub> zwemmen<sub>3</sub> kunnen<sub>2</sub>. ( $\checkmark$ 132) c. Ik vind dat iedereen zwemmen<sub>3</sub> moet<sub>1</sub> kunnen<sub>2</sub>. ( $\checkmark$ 312) d. Ik vind dat iedereen zwemmen<sub>3</sub> kunnen<sub>2</sub> moet<sub>1</sub>. ( $\checkmark$ 321) e. \*Ik vind dat iedereen kunnen<sub>2</sub> zwemmen<sub>3</sub> moet<sub>1</sub>. (\*231) f. \*Ik vind dat iedereen kunnen<sub>2</sub> moet<sub>1</sub> zwemmen<sub>3</sub>. (\*213)

(Barbiers et al. 2008)

Note: no semantic effect

However, (morpho)syntactic variation in non-finite clusters have so far not been investigated in much detail

In non-finite clusters, an extra factor that might cause variation is the placement of infinitival marker *te* 'to'

*Te* needs to appear on different verbs in the cluster depending on the selection requirements of the verbs in the cluster

<u>On V1</u>: (2) Ze zegt veel boodschappen *te* hebben<sub>1</sub> moeten<sub>2</sub> doen<sub>3</sub>. she says.FIN many groceries to have.INF must.INF do.INF 'She says that she had to do a lot of groceries.'

<u>On V2</u>: (3) Ze zal vandaag niet veel boodschappen hoeven<sub>1</sub> *te* gaan<sub>2</sub> doen<sub>3</sub>. she will today not many groceries have.to.INF to go.INF do.INF 'She won't have to do a lot of groceries today.'

<u>On V3</u>: (4) Ze zal morgen lang op de bus moeten<sub>1</sub> zitten<sub>2</sub> *te* wachten<sub>3</sub>. she will tomorrow long on the bus must.INF sit.INF to wait.INF 'She will have to wait for the bus for a long time tomorrow.'

**In German**, the infinitival marker *zu* can sometimes appear on a different verb than is required by selection in non-descending cluster orders (Salzmann 2016):

- (5) a.... ohne das Buch lesen<sub>3</sub> gekönnt<sub>2</sub> zu haben<sub>1</sub>. 321 order without the book read.INF can.PTCP to have.INF
  - b. ... ohne das Buch haben<sub>1</sub> lesen<sub>3</sub> *zu* können<sub>2</sub>. 132 order without the book have.INF read.INF to can.INF
    '...without having been able to read the book.'

(Salzmann 2016: 406)

→ In both examples, the complementizer *ohne* selects a *zu*-infinitive *zu haben*. In (5b), *zu* doesn't appear on V1 *haben*, but on V2 *können* 

**Starting point**: hypothesis that the placement of *te* in non-finite three-verb clusters can also vary in different varieties of Dutch

(6) Ze zegt veel boodschappen <*te*> hebben<sub>1</sub> <*te*> moeten<sub>2</sub> <*te*> doen<sub>3</sub>.
she says.FIN many groceries to have.INF to must.INF to do.INF
'She says that she had to do a lot of groceries.'

**Topic of this talk**: new data on the **variation in** *te***-placement** in non-finite three-verb clusters in 123-order

### OUTLINE

- <u>1. Methodology</u> <u>1.1 Design</u> <u>1.2 Task & procedure</u> <u>1.3 Participants</u>
- <u>2. Results</u> <u>2.1 Te-drop</u> <u>2.2 Te-placement</u> 2.2.1 te-V1-V2-V3 2.2.2 V1-te-V2-V3 2.2.3 V1-V3-te-V3
- 3. Analysis

#### 4. Conclusion

# 1. METHODOLOGY

#### **Test items**

Sentences with a infinitival cluster of three infinitival verbs, selected by a finite verb in verb second position

Example:

Anne **zegt** op haar comfortabele stoel *te* **willen**<sub>1</sub> **blijven**<sub>2</sub> **zitten**<sub>3</sub>. Anne says.FIN on her comfortable chair to want.INF remain.INF sit.INF 'Anne says she wants to remain seated on her comfortable chair.'

#### **Three types of test items**

#### <u>Type I.</u> *te*-V1-V2-V3

- Infinitival three-verb cluster in which *te* is selected by the finite verb (*zeggen* 'to say', *beweren* 'to claim') in verb second position, i.e. selection requirements dictate that *te* should appear on V1
- <u>Two subtypes</u>: (i) Modal V1, aspectual auxiliary V2, lexical verb V3 *'te willen blijven zitten'* to want.INF remain.INF sit.INF *'to want to remain seated'*
  - (ii) Auxiliary V1, modal V2, lexical verb V3 *'te hebben kunnen kopen'*to have.INF can.INF buy.INF *'to have been able to buy'*

#### Type II. V1-te-V2-V3

- Infinitival three-verb cluster in which V1 selects a *te*-infinitive, i.e. selection requirements dictate that *te* should appear on V2
- The finite verb in verb second position is *zullen* 'will', which does not select a *te*-infinitive

*'Koen zal vanwege de winterstop vandaag niet hoeven*<sub>1</sub> *te gaan*<sub>2</sub> *voetballen*<sub>3</sub>*'* Koen will because.of the winter.break today not need.to.INF to go.INF play.football.INF 'Due to the winter break, Koen doesn't need to go play football today.'

#### Type III. V1-V2-te-V3

- Infinitival three-verb cluster in which V2 selects a *te*-infinitive, i.e. selection requirements dictate that *te* should appear on V3
- The finite verb in verb second position is *zullen* 'will', which does not select a *te*-infinitive

'Peter zalvanwegedenieuwe dienstregelingbinnenkortnoglangerPeter will.FINbecause.ofthenewschedulesoonevenlonger

op de trein moeten<sub>1</sub> zitten<sub>2</sub> te wachten<sub>3</sub>' on the train must.INF sit.INF to wait.INF

'Because of the new schedule, Peter will soon have to wait even longer for the train.'

#### 7 different versions of all test items

- 1. te-V1-V2-V3
- 2. V1-te-V2-V3
- 3. V1-V2-te-V3
- 4. V1-V2-V3
- 5. te-V1-te-V2-V3
- 6. te-V1-V2-te-V3
- 7. V1-te-V2-te-V3

28 test items, 32 filler items, 5 practice items

#### 7 different versions of all test items



- 6. te-V1-V2-te-V3
- 7. V1-te-V2-te-V3

28 test items, 32 filler items, 5 practice items

# **1.2 PROCEDURE**

#### <u>Task</u>

- Grammatical judgment task, using a 5-point Likert scale
- Written questionnaire
- The participants performed the task online
- Afterwards, the participants were asked to provide some personal information, including information about where they live, if they ever lived abroad and if so, for how long, et cetera.
- The test items were presented in randomized order

### **1.2 PROCEDURE**

#### **Instruction**

• They were instructed to answer the following question after reading the test sentence out loud:

'Is this a possible sentence in Dutch as it is spoken in your immediate environment?'

- 'Immediate environment' was defined as 'friends, family, town or city'
- If the answer was 'certainly not', they had to assign a 1, if the answer was 'certainly', they had to assign a 5. They could also assign 2,3,4 or choose 'I don't know'. A comment field was provided in case they wanted to comment on their rating

# **1.3 PARTICIPANTS**

#### **Participants**

- 531 native speakers filled in the questionnaire, of which 459 are included in the analysis
- 70 participants were excluded due to having lived abroad for at least 10% of their life
- 2 participants were excluded due to their responses on the filler items

### **1.3 PARTICIPANTS**

#### **Participants**

- <u>Mean age</u>: 56 (SD 12.5; range 18-99)
- <u>Gender</u>: 250 female, 209 male
- Born in: 361 in The Netherlands, 95 in Belgium (other: 3)

### **1.3 PARTICIPANTS**



Map 1. Locations of the included participants

# 2.1 Results: Te-drop

### 2.1 TE-DROP

#### 7 different versions of all test items

- 1. te-V1-V2-V3
- 2. V1-te-V2-V3
- V1-V2-te-V3
   V1-V2-V3
- 5. te-V1-te-V2-V3
- 6. te-V1-V2-te-V3
- 7. V1-te-V2-te-V3

# 2.1 TE-DROP

	<i>Te</i> cannot be dropped	<i>Te-</i> drop is optional	<i>Te</i> needs to be dropped	All versions of the test item are rejected
te-V1-V2-V3	451	8	0	0
V1-te-V2-V3	190	189	19	62
V1-V2-te-V3	20	152	223	64

Table 1. Frequency overwiew Te-drop in all three types of test items

### 2.1 TE-DROP

<u>The results show the following pattern</u>: the lower the verb *te* should appear on, the more optional it becomes (even to the point of it being necessarily absent)



*te* needs to be present ------ *te* needs to be absent

# **2.2 RESULTS:** *TE*-PLACEMENT

#### 2.2 TE-PLACEMENT

#### 7 different versions of all test items

- te-V1-V2-V3
   V1-te-V2-V3
- 3. V1-V2-te-V3
- 4. V1-V2-V3
- 5. te-V1-te-V2-V3
- 6. te-V1-V2-te-V3
- 7. V1-te-V2-te-V3



rating	te willen blijven zitten	willen te blijven zitten	willen blijven te zitten
	te-V1-V2-V3	V1-te-V2-V3	V1-V2-te-V3
1	1	312	383
2	3	49	45
3	2	39	14
4	19	38	11
5	434	21	6

Table 2. Frequency overview of test item 'te willen blijven zitten'

- All versions of test item '*te willen blijven zitten*' differ significantly from one another
- Recall: two subtypes of *te*-V1-V2-V3 (depending on whether V1 is a modal or an auxiliary)
  - →No significant differences between the same versions of these two subtypes
  - →I will therefore only discuss the results of the 'te willen blijven zitten' type

rating	te willen blijven zitten	willen te blijven zitten	willen blijven te zitten
	te-V1-V2-V3	V1-te-V2-V3	V1-V2-te-V3
1	1	312	383
2	3	49	45
3	2	39	14
4	19	38	11
5	434	21	6

Table 2. Frequency overview of test item 'te willen blijven zitten'



Map 2. Geographical distribution of *'willen te blijven zitten'* 

rating	te willen blijven zitten	willen te blijven zitten	willen blijven te zitten
	te-V1-V2-V3	V1-te-V2-V3	V1-V2-te-V3
1	1	312	383
2	3	49	45
3	2	39	14
4	19	38	11
5	434	21	6

Table 2. Frequency overview of test item 'te willen blijven zitten'



Map 3. Geographical distribution of 'willen blijven te zitten'



Map 2. Geographical distribution of 'willen te blijven zitten'

Map 3. Geographical distribution of 'willen blijven te zitten'

#### Summary:

- All speakers allow *te* in the 'correct' position: *te*-V1-V2-V3
- A group of 59 speakers allow *te* to appear on V2: V1-*te*-V2-V3.
- A subgroup of these speakers also allows *te* to appear on V3: V1-V2-*te*-V3. The following implicational relation holds: IF V1-V2-*te*-V3 THEN ALSO V1-*te*-V2-V3

2.2.2 V1-TE-V2-V3



# 2.2.2 V1-TE-V2-V3

rating	te hoeven gaan voetballen <i>te-V1-V2-V3</i>	hoeven te gaan voetballen <i>V1-te-V2-V3</i>	hoeven gaan te voetballen <i>V1-V2-te-V3</i>
1	189	46	345
2	51	34	44
3	34	37	30
4	77	84	22
5	108	258	18

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'
rating	te hoeven gaan voetballen <i>te-V1-V2-V3</i>	hoeven te gaan voetballen <i>V1-te-V2-V3</i>	hoeven gaan te voetballen <i>V1-V2-te-V3</i>
1	189	46	345
2	51	34	44
3	34	37	30
4	77	84	22
5	108	258	18

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'

 $\rightarrow$  All versions differ significantly from one another

rating	te hoeven gaan voetballen <i>te-V1-V2-V3</i>	hoeven te gaan voetballen <i>V1-te-V2-V3</i>	hoeven gaan te voetballen <i>V1-V2-te-V3</i>
1	189	46	345
2	51	34	44
3	34	37	30
4	77	84	22
5	108	258	18

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'



Map 4. Geographical distribution of 'te hoeven gaan voetballen'

There are 185 speakers who rated *'te hoeven gaan voetballen'* in which *te* appears on the 'wrong' verb (V1), with a 4 or 5

• The majority of these speakers (80%), also allows the V1-*te*-V2-V3 version, i.e. the version in which *te* appears on the 'correct' verb (V2)

**Recall**: for the test item *'te willen blijven zitten'* in which *te* should appear on V1, there was a group of 59 speakers who allowed *te* to be displaced on V2

<u>*Question*</u>: are upward *te*-displacement and downward *te*-displacement two instances of the same mechanism or not?

<u>Answer</u>: no, not all of the 59 speakers who allow upwards *te*-displacement also allow downwards *te*-displacement. The cluster *'te hoeven gaan voetballen'* is allowed by a much larger group of speakers (185)

In other words, it is not the case that speakers who allow (A) also allow (B), nor that speakers who allow (B) also allow (A).

→ We can conclude that we are dealing with two different mechanisms here

 $\rightarrow$  In addition, (B) is much more common than (A)

rating	te hoeven gaan voetballen <i>te-V1-V2-V3</i>	hoeven te gaan voetballen <u>V1-te-V2-V3</u>	hoeven gaan te voetballen <i>V1-V2-te-V3</i>
1	189	46	345
2	51	34	44
3	34	37	30
4	77	84	22
5	108	258	18

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'

There are 80 speakers did not allow 'hoeven te gaan voetballen', i.e. in which *te* appears on the 'correct' verb (V2)

• The majority of these speakers (72,5%) do not accept any version of the test item with *te* (i.e. speakers who require *te* to be dropped, or who had a different issue with the test item, as discussed in section 2.1)

rating	te hoeven gaan voetballen <i>te-V1-V2-V3</i>	hoeven te gaan voetballen <i>V1-te-V2-V3</i>	hoeven gaan te voetballen <i>V1-V2-te-V3</i>
1	189	46	345
2	51	34	44
3	34	37	30
4	77	84	22
5	108	258	18

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'



Map 5. Geographical distribution of 'hoeven gaan te voetballen'

There are 40 speakers who allow 'hoeven gaan te voetballen', i.e. in which *te* appears on the 'wrong' verb (V3)

• All of these speakers also allow the V1-*te*-V2-V3 version, i.e. the version in which *te* appears on the 'correct' verb (V2)

#### **Summary:**

- Almost half of the speakers (185) allow the *te*-V1-V2-V3 order. The following implicational relation holds: IF *te*-V1-V2-V3 THEN ALSO V1-*te*-V2-V3
- Most speakers allow the V1-*te*-V2-V3 order. The following implicational relation holds:

IF NOT V1-te-V2-V3 THEN V1-V2-V3

• A small group of speakers allows the V1-V2-*te*-V3 order. The following implicational relation holds:

IF V1-V2-te-V3 THEN ALSO V1-te-V2-V3



rating	te moeten zitten wachten <i>te-V1-V2-V</i> 3	moeten te zitten wachten <i>V1-te-V2-V</i> 3	moeten zitten te wachten <i>V1-V2-te-V</i> 3
		11101210	
1	409	378	173
2	22	42	73
3	7	14	59
4	12	18	75
5	9	7	79

Table 4. Frequency overview of test item 'moeten zitten te wachten'

rating	te moeten zitten wachten <i>te-V1-V2-V3</i>	moeten te zitten wachten <i>V1-te-V2-V3</i>	moeten zitten te wachten <i>V1-V2-te-V3</i>
1	409	378	173
2	22	42	73
3	7	14	59
4	12	18	75
5	9	7	79

Table 4. Frequency overview of test item 'moeten zitten te wachten'

#### $\rightarrow$ All versions differ significantly from one another

rating	te moeten zitten wachten <i>te-V1-V2-V3</i>	moeten te zitten wachten <i>V1-te-V2-V3</i>	moeten zitten te wachten <i>V1-V2-te-V3</i>
1	409	378	173
2	22	42	73
3	7	14	59
4	12	18	75
5	9	7	79

Table 4. Frequency overview of test item 'moeten zitten te wachten'



Map 6. Geographical distribution of 'te moeten zitten wachten'

There are 21 speakers who rated *'te moeten zitten wachten'*, in which *te* appears on the 'wrong' verb (V1), with a 4 or 5

• The majority of these speakers (15/21), also allows the V1-V2-*te*-V3 version, i.e. the version in which *te* appears on the 'correct' verb (V3)

rating	te moeten zitten wachten <i>te-V1-V2-V3</i>	moeten te zitten wachten <i>V1-te-V2-V3</i>	moeten zitten te wachten <i>V1-V2-te-V3</i>
1	409	378	173
2	22	42	73
3	7	14	59
4	12	18	75
5	9	7	79

Table 4. Frequency overview of test item 'moeten zitten te wachten'



Map 7. Geographical distribution of 'moeten te zitten wachten'

There are 25 speakers who rated *'moeten te zitten wachten'*, in which *te* appears on the 'wrong' verb (V2), with a 4 or 5

• The majority of these speakers (17/25), also allows the V1-V2-*te*-V3 version, i.e. the version in which *te* appears on the 'correct' verb (V3)

rating	te moeten zitten wachten	moeten te zitten wachten	moeten zitten te wachten
	le-v1-v2-v3	V 1-le-V 2-V 3	<u>v1-v2-le-v5</u>
1	409	378	173
2	22	42	73
3	7	14	59
4	12	18	75
5	9	7	79

Table 4. Frequency overview of test item 'moeten zitten te wachten'

There are 246 speakers did not allow 'moeten zitten te wachten', i.e. in which *te* appears on the 'correct' verb

• The majority of these speakers (93%) do not accept any version of the test items with *te* (i.e. speakers who require *te* to be dropped, or who had a different issue with the test item, as discussed in section 2.1)

#### **Summary:**

• A small group of speakers allows the *te*-V1-V2-V3 order. The following implicational relation holds:

IF te-V1-V2-V3 THEN ALSO V1-V2-te-V3

• A small group of speakers allows the V1-*te*-V2-V3 order. The following implicational relation holds:

IF V1-te-V2-V3 THEN ALSO V1-V2-te-V3

 A large group of speakers (246) do not allow the 'correct' V1-V2-te-V3 order. The following implicational relation holds: IF NOT V1-V2-te-V3 THEN V1-V2-V3

#### Three major findings:

- I. There is a clear interaction between the position of *te* and its optionality: the deeper the *te*-verb is embedded, the more optional *te* becomes (even up to the point of it being necessarily absent)
- II. Upward *te*-displacement is not the same mechanism as downwards *te*-displacement. The former is much more frequent than the latter.
- III. Both of these displacement mechanisms are optional. The following implicational relation holds:

IF Upwards Te-Displacement version THEN ALSO Selection Requirements Te-Placement version

I will argue that:

These findings can be explained if we adopt an analysis in which non-finite three-verb clusters are cases of *functional restructuring* (Cinque 2001; in line with Wurmbrand 2001, 2004, 2016; IJbema 2001), in which V1 and V2 occupy a position in the functional sequence (Fseq), with V3 as lexical verb in V<sup>0</sup>

- The fact that the deeper the *te*-verb is embedded, the more optional *te* becomes, can be explained by the positions *te* can occupy in Fseq, and the position of the specific verbs in the cluster
- Upwards *te*-displacement can be explained as clitic climbing, an optional phenomenon in which clitics can move upwards, which occurs in restructuring contexts
- The implicational relation

IF Upwards Te-Displacement version THEN ALSO Selection Requirements Te-Placement version

follows: *te* can only appear on a higher verb if there is a *te* in a lower position, which then can climb up and attach to a higher verb

**Restructuring effects**: certain phenomena such as clitic climbing, which are normally clause-bound, appear to be able to span two clauses when the matrix verb is a modal, an aspectual or a motion verb, and the complement is non-finite (Cinque 2001).

(7) <\*Lo> <u>detesto</u> [vedere <lo> in quello stato] him I.detest see.INF him in that state 'I hate to see him in that state.'

*matrix verb = lexical* 

(8) <Lo> volevo [vedere <lo> subito]
 him I.wanted see.INF him immediately
 'I wanted to see him immediately.'

matrix verb = modal

**Functional restructuring (mono-clausal approach)**: a restructuring verb is a functional head (Cinque 1997, 2001, 2002), which combines with the restructuring infinitive; the restructuring infinitive is the main predicate of the clause

Cinque (2001) states that the modal, aspectual and motion verbs that appear in restructuring constructions correspond to the functional heads in (9)

Two questions that need to be answered for the current analysis:

I. In which positions of Fseq can *te* appear?

II. In which positions are V1 and V2 generated?

#### I. In which positions of Fseq can *te* appear?

I follow IJbema (2001) in assuming that *te* can appear either in T(Past/Future) or in Mood<sub>irrealis</sub>

Evidence for *te* being generated in T:

Verbs like 'leren' *to learn* and 'helpen' *to help* can select either a bare infinitive or a *te*-infinitive. Only when they select a *te*-infinitive, the matrix verb and the complement can both be modified by conflicting temporal adverbs:

- (10) a. \*Vandaag leer ik hem morgen werken. Today learn.FIN I him tomorrow work.INF
  - b. Vandaag leer ik hem morgen *te* werken.
    Today learn.FIN I him tomorrow to work.INF
    'Today I learn him he should work tomorrow.'
- → The *te*-infinitive has its own T projection, in which *te* is generated

Evidence that *te* can also be generated in Mood<sub>irrealis</sub>:

Haegeman (1995) notes that the auxiliary 'een' *have* appears in a different position when in present tense (12), than when in past tense associated with a modal, irrealis interpretation (13).

(12) ... da Jan willen<sub>2</sub> Valère nen boek geven<sub>3</sub> eet<sub>1</sub> that John wanted.INF Valère a book give.INF has
'... that John has wanted to give Valère a book.'

(13) ... da Jan *oa*<sub>1</sub> willen<sub>2</sub> Valère nen boek geven<sub>3</sub>
that John had want.INF Valère a book give.INF
'... that John had wanted to give Valère a book.' (Haegeman 1995: 51)

Evidence that *te* can also be generated in Mood<sub>irrealis</sub>:

The auxiliary verb 'een' *have* cannot precede the other verbs if *te* is present, however:

- (14) Mee Valère *te* willen<sub>2</sub> dienen boek kuopen<sub>3</sub> *een*<sub>1</sub>
  with Valère to want.INF that book buy.INF have.INF
  'Valère having wanted to buy that book'
- (15) \*Mee Valère *te een*<sub>1</sub> willen<sub>2</sub> dienen boek kuopen<sub>3</sub> with Valère to have.INF want.INF that book buy.INF (Haegeman 1995: 53)

 $\rightarrow$  'een' *have* and *te* compete for the same position: Mood<sub>irrealis</sub>
II. In which positions are V1 and V2 generated?

The following clusters were tested in this study:

- 'te willen blijven zitten to want.INF remain.INF sit.INF 'to want to remain seated'
- 'hoeven te gaan voetballen' need to go.INF play.football.INF
  'need to go play football'
- *'moeten zitten te wachten'* must.INF sit.INF to wait.INF 'must be waiting'

#### I. Cluster type *te*-V1-V2-V3

Anne **zegt** op haar comfortabele stoel *te* **willen**<sub>1</sub> **blijven**<sub>2</sub> **zitten**<sub>3</sub>. Anne says.FIN on her comfortable chair to want.INF remain.INF sit.INF 'Anne says she wants to remain seated on her comfortable chair.'

 $\begin{array}{ll} (16) & \operatorname{Mood}_{\operatorname{Speech}\operatorname{Act}} > \operatorname{Mood}_{\operatorname{Evaluative}} > \operatorname{Mood}_{\operatorname{Evidential.}} > \operatorname{Mod}_{\operatorname{Epistemic}} > \operatorname{T}(\operatorname{Past}) > \\ & \operatorname{T}(\operatorname{Future}) \ te \ > \operatorname{Mood}_{\operatorname{Irrealis}} > \operatorname{Mod}_{\operatorname{Necessity}} > \operatorname{Mod}_{\operatorname{Possibility}} > \operatorname{Asp}_{\operatorname{Habitual}} > \\ & \operatorname{Asp}_{\operatorname{Repetitive(I)}} > \operatorname{Asp}_{\operatorname{Frequentative(I)}} > \operatorname{Asp}_{\operatorname{Celerative(I)}} > \operatorname{Mod}_{\operatorname{Volitional}} \ willen > \\ & \operatorname{Mod}_{\operatorname{Obligation}} > \operatorname{Mod}_{\operatorname{Ability/Permission}} > \operatorname{Asp}_{\operatorname{Celerative(I)}} > \operatorname{T}(\operatorname{Anterior}) > \operatorname{Asp}_{\operatorname{Terminative}} > \\ & \operatorname{Asp}_{\operatorname{Continuative}} > \operatorname{Asp}_{\operatorname{Perfect}} > \operatorname{Asp}_{\operatorname{Retrospective}} > \operatorname{Asp}_{\operatorname{Proximative}} > \operatorname{Asp}_{\operatorname{Durative}} \ blijven > \\ & \operatorname{Asp}_{\operatorname{Generic/progressive}} > \operatorname{Asp}_{\operatorname{Prospective}} > \operatorname{Asp}_{\operatorname{SgCompletive(II)}} > \operatorname{Asp}_{\operatorname{PlCompletive}} > \\ & \operatorname{Voice} \\ & \operatorname{Asp}_{\operatorname{SgCompletive(II)}} > \operatorname{Asp}_{\operatorname{SgCompletive(II)}} > \operatorname{Asp}_{\operatorname{Frequentative(II)}} > \\ & \operatorname{Asp}_{\operatorname{SgCompletive(II)}} > \operatorname{Mod}_{\operatorname{Sp}_{\operatorname{Frequentative(II)}}} > \\ & \operatorname{Asp}_{\operatorname{SgCompletive(II)}} > \cdots \ V^{0} \ zitten \end{array} \right.$ 

#### II. Cluster type V1-te-V2-V3

'Koen zal vanwege de winterstop vandaag niet **hoeven** *te* **gaan voetballen**' Koen will because.of the winter.break today not need.to.INF to go.INF play.football.INF 'Due to the winter break, Koen doesn't need to go play football today.'

#### III. Cluster type V1-V2-te-V3

'Peter zal vanwege de nieuwe dienstregeling binnenkort nog langer Peter will.FIN because.of the new schedule soon even longer

op de trein **moeten zitten** *te* **wachten**' on the train must.INF sit.INF to wait.INF

'Because of the new schedule, Peter will soon have to wait even longer for the train.'

Upwards *te*-displacement is like clitic climbing in reconstruction contexts in Italian, both of which are optional:

(27) <Lo> volevo [vedere <lo> subito] clitic climbing
him I.wanted see.INF him immediately
'I wanted to see him immediately.'

(28) ... niet <te> hoeven <te> gaan voetballen upwards te-displacement not to have.to.INF to go.INF play.football '... not having to go play football.'

 $\rightarrow$  I propose that upwards te displacement is a case of clitic climbing

**Recall** that a small group of speakers also allow upwards *te*-displacement in the cluster 'moeten zitten te wachten'; i.e. 'moeten te zitten wachten' and/or 'te moeten zitten wachten' (29)

(29) ... <te> moeten <te> zitten <te> wachten
to must.INF to sit.INF to wait.INF
'... having to wait.'

- The implicational relation: IF V1-*te*-V2-V3 or V1-V2-*te*-V3 THEN ALSO V1-V2-*te*-V3
- In other words, upwards *te*-displacement in the cluster 'moeten zitten te wachten' is also a case of clitic climbing. The fact that it occurs much less frequent, can be explained by the fact that *te* for most speakers cannot be generated in the Fseq of the cluster 'moeten zitten te wachten', and therefore also cannot climb up in the cluster

**Topic for further research**: downwards *te*-displacement (a different and less frequent mechanism than upwards *te*-displacement

# 4. CONCLUSION

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This study investigated the *te*-drop and *te*-displacement in three types of non-finite three-verb clusters

### **Empirical results**:

- I. There is a clear interaction between the position of *te* and its optionality: the deeper the *te*-verb is embedded, the more optional *te* becomes (even up to the point of it being necessarily absent)
- II. A large group of speakers allows upwards *te*-displacement, i.e. *te* to appear on a higher verb than it should appear on
- III. A much smaller group of speakers allows downwards *te*-displacement, i.e. *te* to appear on a lower verb than it should appear on

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### **Theoretical analysis:**

- These clusters involve functional reconstruction
- *Te* can be base generated in T or Mood<sub>irrealis</sub>
- Upward *te*-displacement is clitic climbing
- Still to be determined: the analysis of downwards *te*-displacement