## TE-PLACEMENT IN DUTCH INFINITIVAL THREE-VERB CLUSTERS

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## INTRODUCTION

(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 moet $_{1}$ kunnen $_{2}$ zwemmen $_{3}$.
( $\sqrt{ } 123$ )
I find that everyone must.INF can.INF swim.inf
'I think everyone should be able to swim.'
b. Ik vind dat iedereen moet $_{1}$ zwemmen $_{3}$ kunnen $_{2}$.
( $\sqrt{132)}$
c. Ik vind dat iedereen zwemmen $_{3}$ moet $_{1}$ kunnen $_{2}$.
( $\sqrt{312 \text { ) }}$
d. $I k$ vind dat iedereen zwemmen kunnen $_{2}$ moet $_{1}$.
( $\sqrt{321)}$
e. *Ik vind dat iedereen kunnen zwemmen $_{3}$ moet $_{1}$.
f. ${ }^{*}$ Ik vind dat iedereen kunnen moet $_{1}$ zwemmen $_{3}$.
(Barbiers et al. 2008)

Note: no semantic effect

## INTRODUCTION

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'

## INTRODUCTION

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

On V1: (2) Ze zegt veel boodschappen te hebben moeten $_{2}$ doen $_{3}$. she says.fin many groceries to have.INF must.INF do.INF 'She says that she had to do a lot of groceries.'

On V2: (3) Ze zal vandaag niet veel boodschappen hoeven ${ }_{1}$ te gaan doen $_{3}$. 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.'

On V3: (4) Ze zal morgen lang op de bus moeten zitten $_{2}$ te wachten $3_{3}$. 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.'

## INTRODUCTION

In German, the infinitival marker $z u$ can sometimes appear on a different verb than is required by selection in non-descending cluster orders (Salzmann 2016):
(5) a. $\ldots$ ohne das Buch lesen $_{3}$ gekönnt ${ }_{2} z u$ haben $_{1}$. without the book read.INf can.pTCP to have.INF
b. ... ohne das Buch haben lesen $_{3} z u$ können ${ }_{2}$. 132 order without the book have.INF read.INF to can.INF
'...without having been able to read the book.'
(Salzmann 2016: 406)
$\rightarrow$ In both examples, the complementizer ohne selects a $z u$-infinitive $z u$ haben.
In (5b), zu doesn't appear on V1 haben, but on V2 können

## INTRODUCTION

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 $<\boldsymbol{t} \boldsymbol{e}>$ hebben $\left._{1}<\boldsymbol{t}\right\rangle>$ moeten $_{2}<\boldsymbol{t} \boldsymbol{e}>$ doen $_{3}$. 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

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## 1. METHODOLOGY

### 1.1 DESIGN

## 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 blijven $_{2}$ zitten $_{3}$. 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.'

### 1.1 DESIGN

## Three types of test items

## Type I. $t e-\mathrm{V} 1-\mathrm{V} 2-\mathrm{V} 3$

- 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
- Two subtypes: (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'


### 1.1 DESIGN

## 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 $t e$-infinitive
'Koen zal vanwege de winterstop vandaag niet hoeven $1_{1}$ te gaan voetballen $_{3}$ ' 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.'


### 1.1 DESIGN

## 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 zal vanwege de nieuwe dienstregeling binnenkort nog langer
Peter will.fin because.of the new schedule soon even longer
```



```
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.'

### 1.1 DESIGN

## 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

### 1.1 DESIGN

## 7 different versions of all test items

| 1. | te-V1-V2-V3 |
| :--- | :--- |
| 2. | $\mathbf{V 1 - t e - V 2 - V 3 ~}$ |
| 3. | $\mathbf{V 1 - V 2 - t e - V 3 ~}$ |
| 4. | $\mathbf{V 1 - V 2 - V 3 ~}$ |
| 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

### 1.2 Procedure

## Task

- 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

- Mean age: 56 (SD 12.5; range 18-99)
- Gender: 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
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

### 2.1 TE-DROP

|  | Te cannot be <br> dropped | Te-drop is <br> optional | Te needs to be <br> dropped | All versions <br> of the test <br> item are <br> 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

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

```
V1 ------------------------------------------- V2
```

$t e$ 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

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

### 2.2.1 TE-V1-V2-V3

### 2.2.1 TE-V1-V2-V3

| rating | te willen blijven zitten te-V1-V2-V3 | willen te blijven zitten V1-te-V2-V3 | willen blijven te zitten 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'

### 2.2.1 TE-V1-V2-V3

- All versions of test item 'te willen blijven zitten' differ significantly from one another
- Recall: two subtypes of $t e-\mathrm{V} 1-\mathrm{V} 2-\mathrm{V} 3$ (depending on whether V1 is a modal or an auxiliary)
$\rightarrow$ No significant differences between the same versions of these two subtypes
$\rightarrow$ I will therefore only discuss the results of the 'te willen blijven zitten' type


### 2.2.1 TE-V1-V2-V3

| rating | te willen blijven zitten <br> te-V1-V2-V3 | willen te blijven zitten <br> V1-te-V2-V3 | willen blijven te zitten <br> 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'

### 2.2.1 TE-V1-V2-V3



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

### 2.2.1 TE-V1-V2-V3

| rating | te willen blijven zitten <br> te-V1-V2-V3 | willen te blijven zitten <br> V1-te-V2-V3 | willen blijven te zitten <br> 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'

### 2.2.1 TE-V1-V2-V3



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

### 2.2.1 TE-V1-V2-V3



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


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

### 2.2.1 TE-V1-V2-V3

## 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 <br> voetballen <br> te-V1-V2-V3 | hoeven te gaan <br> voetballen <br> V1-te-V2-V3 | hoeven gaan te <br> voetballen |
| :--- | :--- | :--- | :--- |
| 1 | 189 | 46 | V1-V2-te-V3 |

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

### 2.2.2 V1-TE-V2-V3

| rating | te hoeven gaan <br> voetballen <br> te-V1-V2-V3 | hoeven te gaan <br> voetballen <br> V1-te-V2-V3 | hoeven gaan te <br> voetballen |
| :--- | :--- | :--- | :--- |
| 1 | 189 | 46 | V1-V2-te-V3 |

Table 3. Frequency overview of test item 'hoeven te gaan voetballen'
$\rightarrow$ All versions differ significantly from one another

### 2.2.2 V1-TE-V2-V3

| rating | te hoeven gaan <br> voetballen <br> te-V1-V2-V3 | hoeven te gaan <br> voetballen <br> V1-te-V2-V3 | hoeven gaan te <br> voetballen <br> V1-V2-te-V3 |
| :--- | :--- | :--- | :--- |
| 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'
2.2.2 V1-TE-V2-V3


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

### 2.2.2 V1-TE-V2-V3

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)


### 2.2.2 V1-TE-V2-V3

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

Question: are upward te-displacement and downward te-displacement two instances of the same mechanism or not?

Answer: 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)

### 2.2.2 V1-TE-V2-V3

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).

$\rightarrow$ We can conclude that we are dealing with two different mechanisms here
$\rightarrow$ In addition, (B) is much more common than (A)

### 2.2.2 V1-TE-V2-V3

| rating | te hoeven gaan <br> voetballen <br> te-V1-V2-V3 | hoeven te gaan <br> voetballen <br> V1-te-V2-V3 | hoeven gaan te <br> voetballen |
| :--- | :--- | :--- | :--- |
| 1 | 189 | 46 | V1-V2-te-V3 |

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

### 2.2.2 V1-TE-V2-V3

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)


### 2.2.2 V1-TE-V2-V3

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

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

### 2.2.2 V1-TE-V2-V3



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

### 2.2.2 V1-TE-V2-V3

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)


### 2.2.2 V1-TE-V2-V3

## 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

### 2.2.3 V1-V2-TE-V3

### 2.2.3 V1-V2-TE-V3

| rating | te moeten zitten <br> wachten <br> te-V1-V2-V3 | moeten te zitten <br> wachten <br> V1-te-V2-V3 | moeten zitten te <br> wachten |
| :--- | :--- | :--- | :--- |
| 1 | 409 | 378 | V1-V2-te-V3 |$|$| 173 |
| :--- |
| 2 |
| 22 |
| 7 |
| 4 |

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

### 2.2.3 V1-V2-TE-V3

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

Table 4. Frequency overview of test item 'moeten zitten te wachten'
$\rightarrow$ All versions differ significantly from one another

### 2.2.3 V1-V2-TE-V3

| rating | te moeten zitten <br> wachten <br> te-V1-V2-V3 | moeten te zitten <br> wachten <br> V1-te-V2-V3 | moeten zitten te <br> wachten |
| :--- | :--- | :--- | :--- |
| 1 | 409 | 378 | V1-V2-te-V3 |$|$| 173 |
| :--- |
| 2 |
| 22 |

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

### 2.2.3 V1-V2-TE-V3



### 2.2.3 V1-V2-TE-V3

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)


### 2.2.3 V1-V2-TE-V3

| rating | te moeten zitten <br> wachten <br> te-V1-V2-V3 | moeten te zitten <br> wachten <br> V1-te-V2-V3 | moeten zitten te <br> wachten |
| :--- | :--- | :--- | :--- |
| 1 | 409 | 378 | V1-V2-te-V3 |

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

### 2.2.3 V1-V2-TE-V3



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

### 2.2.3 V1-V2-TE-V3

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 $\mathrm{V} 1-\mathrm{V} 2-t e-\mathrm{V} 3$ version, i.e. the version in which te appears on the 'correct' verb (V3)


### 2.2.3 V1-V2-TE-V3

| rating | te moeten zitten <br> wachten <br> te-V1-V2-V3 | moeten te zitten <br> wachten <br> V1-te-V2-V3 | moeten zitten te <br> wachten |
| :--- | :--- | :--- | :--- |
| 1 | 409 | 378 | V1-V2-te-V3 |$|$| 173 |
| :--- |
| 2 |
| 22 |
| 3 |

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

### 2.2.3 V1-V2-TE-V3

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)


### 2.2.3 V1-V2-TE-V3

## Summary:

- A small group of speakers allows the $t e-\mathrm{V} 1-\mathrm{V} 2-\mathrm{V} 3$ 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-tt-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
3. ANALYSIS

## 3. ANALYSIS

## 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 tedisplacement. 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

## 3. ANALYSIS

## 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 $\mathrm{V}^{0}$

- 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

## 3. ANALYSIS

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 nonfinite (Cinque 2001).
(7) $<^{*}$ Lo> detesto [vedere <lo> in quello stato] matrix verb $=$ lexical him I.detest see.Inf him in that state 'I hate to see him in that state.'
(8) <Lo> volevo [vedere <lo> subito] matrix verb $=$ modal him I.wanted see.INF him immediately 'I wanted to see him immediately.'

## 3. ANALYSIS

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

## 3. ANALYSIS

Cinque (2001) states that the modal, aspectual and motion verbs that appear in restructuring constructions correspond to the functional heads in (9)
(9) $\operatorname{Mood}_{\text {Speech Act }}>\operatorname{Mood}_{\text {Evaluative }}>\operatorname{Mood}_{\text {Evidential. }}>\operatorname{Mod}_{\text {Epistemic }}>\mathrm{T}$ (Past) $>$ $\mathrm{T}($ Future $)>\operatorname{Mood}_{\text {Irrealis }}>\operatorname{Mod}_{\text {Necessity }}>\operatorname{Mod}_{\text {Possibility }}>\operatorname{Asp}_{\text {Habitual }}>\operatorname{Asp}_{\text {Repetitive(I) }}>$ $\operatorname{Asp}_{\text {Frequentative(I) }}>\operatorname{Asp}_{\text {Celerative(I) }}>\operatorname{Mod}_{\text {Volitional }}>\operatorname{Mod}_{\text {Obligation }}>\operatorname{Mod}_{\text {Ability/Permission }}>$ Asp $_{\text {Celerative(I) }}>\mathrm{T}($ Anterior $)>$ Asp $_{\text {Terminative }}>$ Asp $_{\text {Continuative }}>$ Asp $_{\text {Perfect }}>$ $A s p_{\text {Retrospective }}>A_{\text {Proximative }}>$ Asp $_{\text {Durative }}>$ Asp $_{\text {Generic/progressive }}>$ Asp $_{\text {Prospective }}>$ $\mathrm{Asp}_{\mathrm{Sg} \text { Completive(I) }}>\mathrm{Asp}_{\text {PICompletive }}>$ Voice $\mathrm{Asp}_{\text {Celerative(II) }}>\mathrm{Asp}_{\text {SgCompletive(II) }}>$ $\operatorname{Asp}_{\text {Repetitive(II) }}>\operatorname{Asp}_{\text {Frequentative(II) }}>\operatorname{Asp}_{\text {SgCompletive(II) }}$

## 3. AnAlysis

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?

## 3. ANALYSIS

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 $\mathrm{Mood}_{\text {irrealis }}$

## 3. ANALYSIS

## Evidence for te being generated in T:

Verbs like 'leren' to learn and 'helpen' to help can select either a bare infinitive or a $t e$-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.'
$\rightarrow$ The te-infinitive has its own T projection, in which $t e$ is generated

## 3. ANALYSIS

## Evidence that te can also be generated in Moodirrealis:

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 ${ }_{2}$ Valère nen boek geven eet $_{1}$ that John wanted.inf Valère a book give.inf has
'... that John has wanted to give Valère a book.'
(13) ... da Jan $o a_{1}$ willen $_{2}$ Valère nen boek geven ${ }_{3}$ that John had want.Inf Valère a book give.Inf
'... that John had wanted to give Valère a book.' (Haegeman 1995: 51)

## 3. ANALYSIS

## Evidence that te can also be generated in Moodirrealis:

The auxiliary verb 'een' have cannot precede the other verbs if te is present, however:
(14) Mee Valère te willen 2 dienen boek kuopen een $_{1}$ with Valère to want.Inf that book buy.Inf have.Inf 'Valère having wanted to buy that book'
(15) *Mee Valère te een willen $_{2}$ dienen boek kuopen ${ }_{3}$ 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 $_{\text {irrealis }}$

## 3. ANALYSIS

## 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'


## 3. ANALYSIS

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

Anne zegt op haar comfortabele stoel te willen blijven $_{2}$ zitten $_{3}$. 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.'
(16) $\quad \operatorname{Mood}_{\text {Speech Act }}>\operatorname{Mood}_{\text {Evaluative }}>\operatorname{Mood}_{\text {Evidential. }}>\operatorname{Mod}_{\text {Epistemic }}>\mathrm{T}($ Past $)>$

T (Future) te $>\operatorname{Mood}_{\text {Irrealis }}>\operatorname{Mod}_{\text {Necessity }}>\operatorname{Mod}_{\text {Possibility }}>\operatorname{Asp}_{\text {Habitual }}>$
Asp $_{\text {Repetitive(I) }}>$ Asp $_{\text {Frequentative(I) }}>\operatorname{Asp}_{\text {Celerative(I) }}>\operatorname{Mod}_{\text {Volitional }}>$ willen $>$ $\operatorname{Mod}_{\text {Obligation }}>\operatorname{Mod}_{\text {Ability/Permission }}>$ Asp $_{\text {Celerative(I) }}>\mathrm{T}($ Anterior $)>$ Asp $_{\text {Terminative }}>$ Asp Continuative $>$ Asp $_{\text {Perfect }}>$ Asp $_{\text {Retrospective }}>$ Asp $_{\text {Proximative }}>$ Asp $_{\text {Durative }}$ blijven $>$ Asp $_{\text {Generic/progressive }}>$ Asp $_{\text {Prospective }}>$ Asp $_{\mathrm{s}_{\mathrm{g}} \mathrm{Completive(I)}}>$ Asp $_{\text {PICompletive }}>$ Voice
 Asp $_{\mathrm{sg}_{\mathrm{g}} C o m p l e t i v e(I I)} \cdots \mathrm{V}^{0}$ zitten

## 3. ANALYSIS

## 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.'
(16) $\quad \operatorname{Mood}_{\text {Speech Act }}>\operatorname{Mood}_{\text {Evaluative }}>\operatorname{Mood}_{\text {Evidential. }}>\operatorname{Mod}_{\text {Epistemic }}>\mathrm{T}$ (Past) $>$ T(Future) hoeven $>$ Mood $_{\text {Irrealis }}$ te $>\operatorname{Mod}_{\text {Necessity }}>\operatorname{Mod}_{\text {Possibility }}>\operatorname{Asp}_{\text {Habitual }}>$ Asp $_{\text {Repetitive(I) }}>\operatorname{Asp}_{\text {Frequentative(I) }}>\operatorname{Asp}_{\text {Celerative(I) }}>\operatorname{Mod}_{\text {Volitional }}>\operatorname{Mod}_{\text {Obligation }}>$ $\operatorname{Mod}_{\text {Ability } / \text { Permission }}>$ Asp $_{\text {Celerative(I) }}>\mathrm{T}($ Anterior $)>$ Asp $_{\text {Terminative }}>$ Asp $_{\text {Continuative }}>$ $A_{\text {Asperfect }}>A s p_{\text {Retrospective }}>$ Asp $_{\text {Proximative }}>$ Asp $_{\text {Durative }}>$ Asp $_{\text {Generic/progressive }}>$ Asp $_{\text {Prospective }}$ gaan $>\operatorname{Asp}_{\text {SgCompletive(I) }}>$ Asp $_{\text {PICompletive }}>$ Voice Asp $_{\text {Celerative(II) }}>$

$\mathrm{V}^{0}$ voetballen

## 3. ANALYSIS

## 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.'
(16) $\operatorname{Mood}_{\text {Speech Act }}>\operatorname{Mood}_{\text {Evaluative }}>\operatorname{Mood}_{\text {Evidential. }}>\operatorname{Mod}_{\text {Epistemic }}>\mathrm{T}($ Past $)>$ T (Future) $>\operatorname{Mood}_{\text {Irrealis }}>\operatorname{Mod}_{\text {Necessity }}>\operatorname{Mod}_{\text {Possibility }}>\mathrm{Asp}_{\text {Habitual }}>\mathrm{Asp}_{\text {Repetitive(I) }}>$ $\operatorname{Asp}_{\text {Frequentative(I) }}>\operatorname{Asp}_{\text {Celerative(I) }}>\operatorname{Mod}_{\text {Volitional }}>\operatorname{Mod}_{\text {Obligation }}$ moeten $>\operatorname{Mod}_{\text {Ability/ }}$ Permission $>\operatorname{Asp}_{\text {Celerative(I) }}>\mathrm{T}($ Anterior $)>$ Asp $_{\text {Terminative }}>$ Asp ${ }_{\text {Continuative }}>$ Asp $_{\text {Perfect }}>$ Asp $_{\text {Retrospective }}>$ Asp $_{\text {Proximative }}>$ Asp $_{\text {Durative }}>$ Asp $_{\text {Generic/progressive }} z i t t e n>$ Asp $_{\text {Prospective }}>$
 $A_{\text {Rperitive(II) }}>\operatorname{Asp}_{\text {Frequentative(II) }}>\operatorname{Asp}_{\text {SgCompletive(II) }} \cdots$
$\mathrm{V}^{0}$ wachten

## 3. ANALYSIS

Upwards te-displacement is like clitic climbing in reconstruction contexts in Italian, both of which are optional:
(27) <Lo> volevo [vedere <lo> subito] 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

## 3. ANALYSIS

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 $t e$ 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


## 3. AnAlysis

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

## 4. CONCLUSION

## 4. CONCLUSION

This study investigated the te-drop and te-displacement in three types of nonfinite 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

## 4. CONCLUSION

## Theoretical analysis:

- These clusters involve functional reconstruction
- Te can be base generated in T or Mood ${ }_{\text {irrealis }}$
- Upward te-displacement is clitic climbing
- Still to be determined: the analysis of downwards te-displacement

