

# Seeking order in chaos

## Morphosyntactic variation in Dutch dialects

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LinG colloquium  
Universität Göttingen  
16 June 2022

# Outline

## Main goals for today

Introduction: Kayne's dream

## Quantitative analysis

Correspondence Analysis

Cluster Analysis

Cluster Description

Conclusion

## Qualitative analysis

Case study #1: PoIP

Case study #2: split DP

Case study #3: split Force/Fin

Combining the case studies: 7 parameters

The bigger picture: determinants of variation

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2. Advocate for the combined use of quantitative (statistical) and qualitative (formal-theoretical) methods as a way towards achieving such an analysis.
3. Consider the bigger implications of this one case study for understanding the properties of and mechanisms behind variation in natural language.

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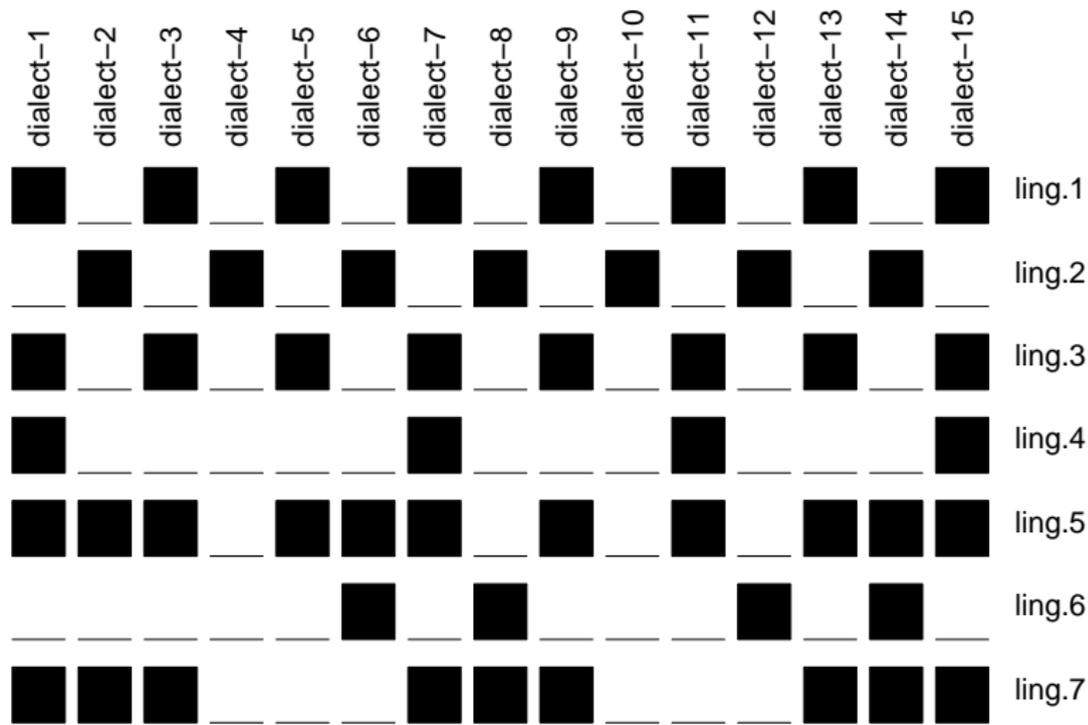
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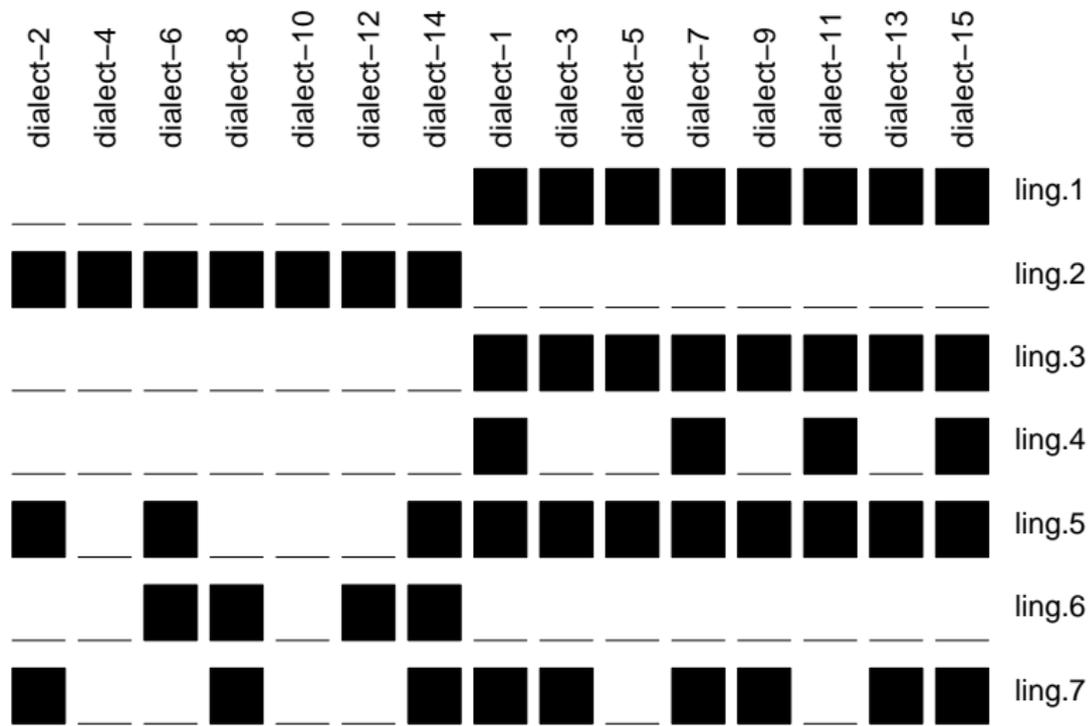
## Introduction: Kayne's dream

*"If it were possible to experiment on languages, a syntactician would construct an experiment of the following type: take a language, alter a single one of its observable syntactic properties, examine the result to see what, if any, other property has changed as a consequence of the original manipulation."* (Kayne 1996:xii)

# Introduction: Kayne's dream



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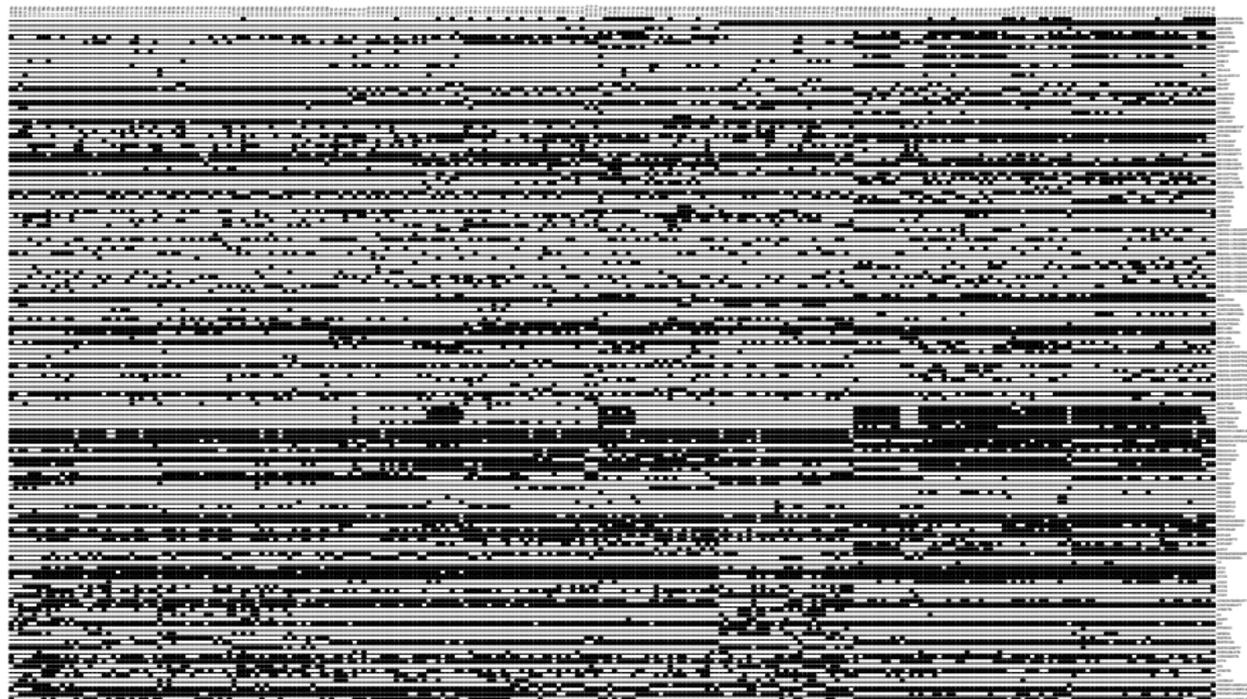
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2. **Cluster Analysis:** cluster the dialects into groups based on those tendencies
3. **Cluster Description:** identify the linguistic phenomena that are characteristic for those clusters

# Quantitative analysis: Correspondence Analysis

Correspondence Analysis:

1. We start from the raw data table:

	AUXDOUBL	AUXSEL	GERUND	ABSWITH	PERPASS	...
Midsland	0	1	0	0	0	...
Lies	0	1	0	0	1	...
West-Terschelling	0	1	0	0	0	...
Oosterend	0	0	0	0	1	...
Hollum	0	1	0	0	0	...
Schiermonnikoog	0	0	0	0	0	...
Ferwerd	0	1	0	0	0	...
Anjum	0	1	0	0	0	...
Kollum	0	1	0	0	0	...
Visvliet	0	1	0	0	0	...
...	...	...	...	...	...	...



## Quantitative analysis: Cluster Analysis

- ▶ Cluster Analysis is a technique for combining observations into groups (clusters)

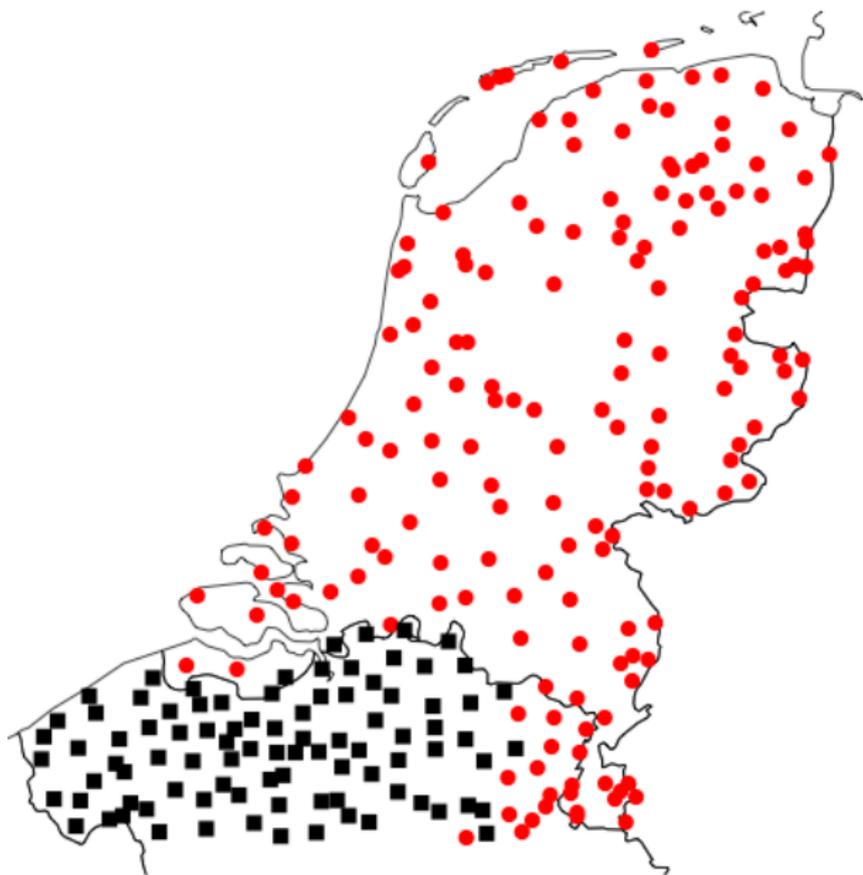
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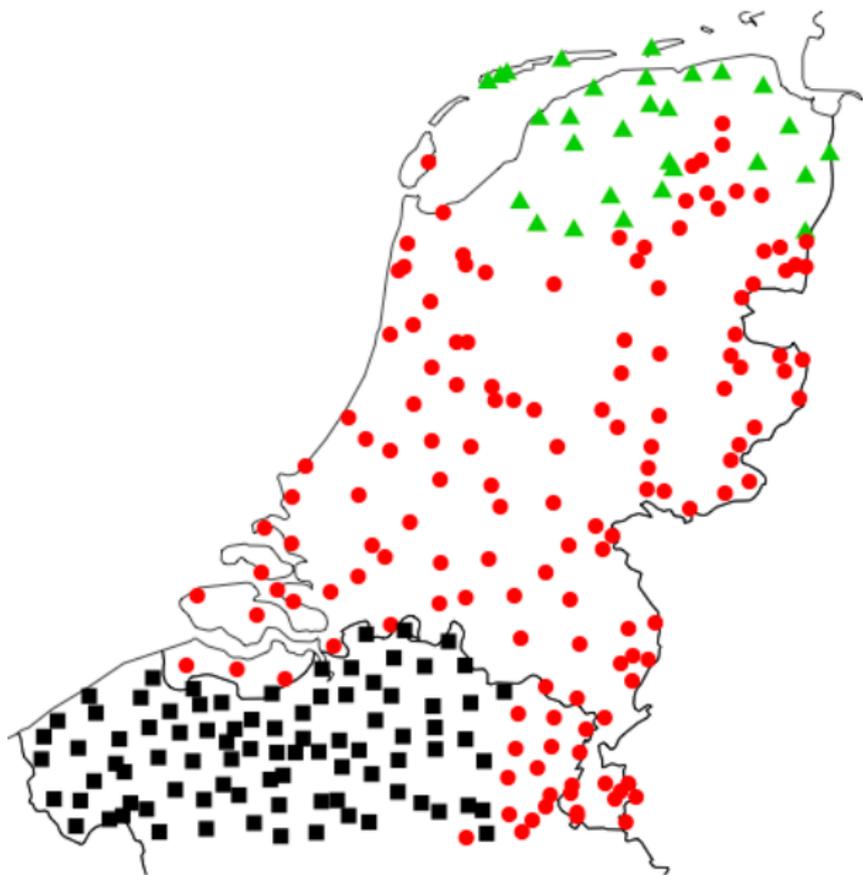
## Quantitative analysis: Cluster Analysis

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- ▶ we are performing the Cluster Analysis based on the results of the Correspondence Analysis
- ▶ varying the number of clusters is a way of varying the granularity of the morphosyntactic variation patterns we are looking at

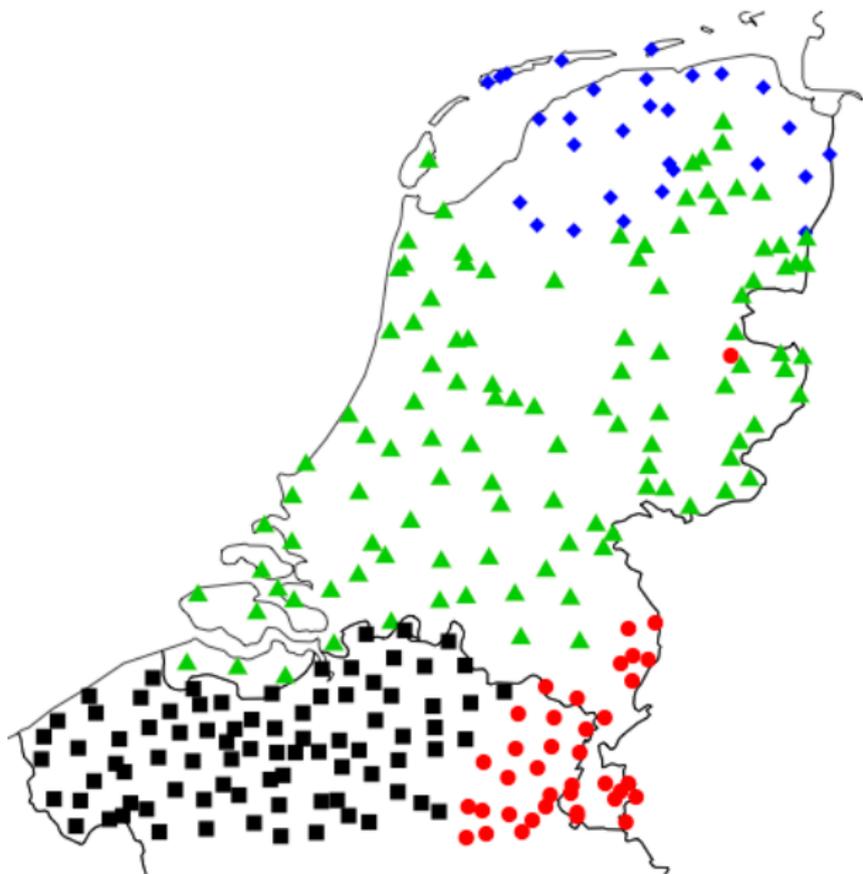
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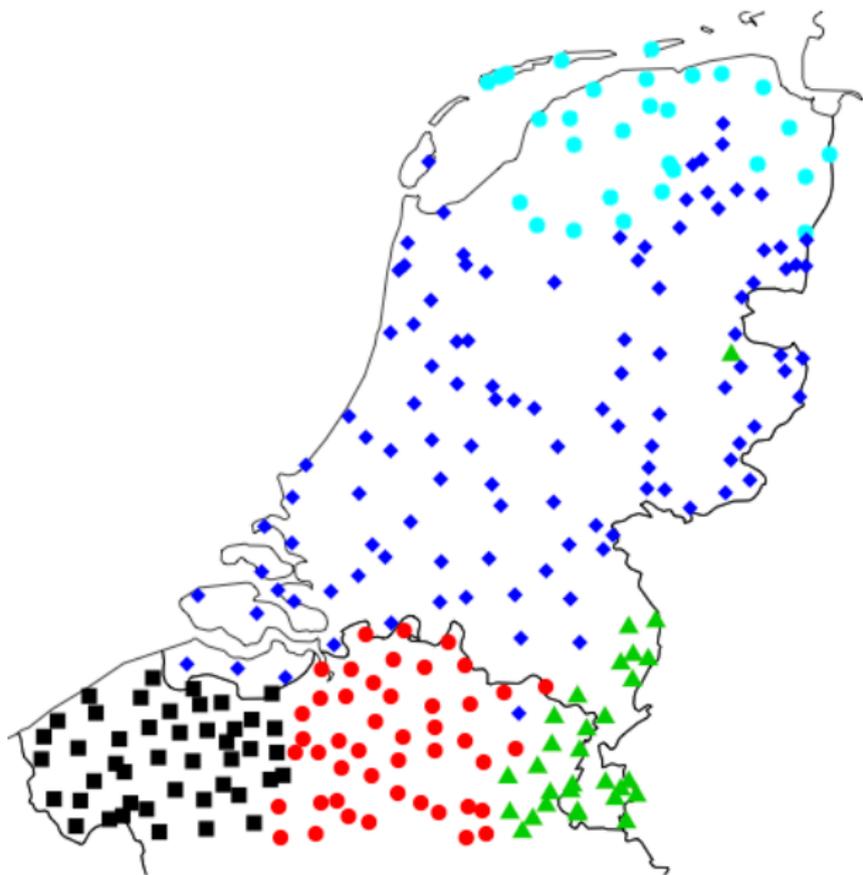
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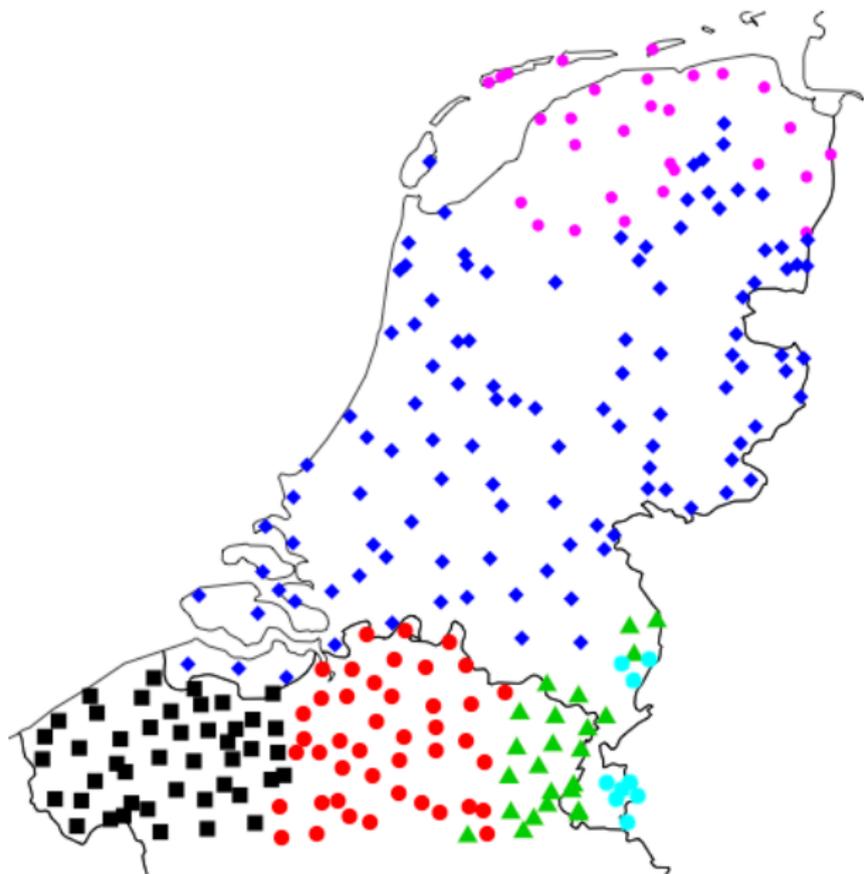
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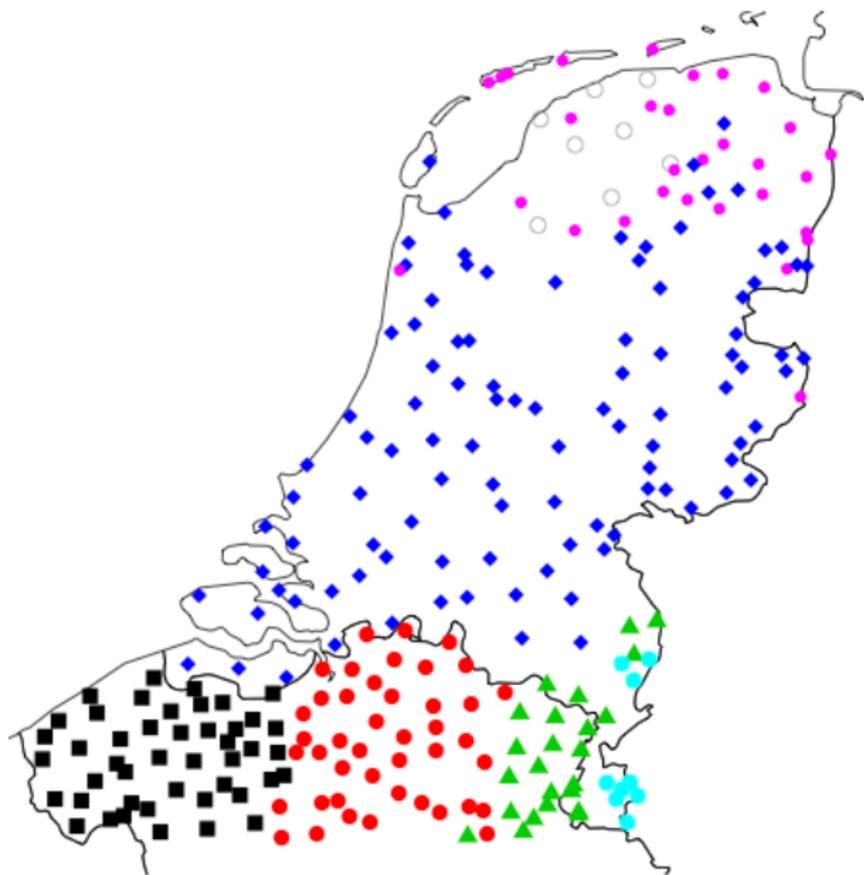
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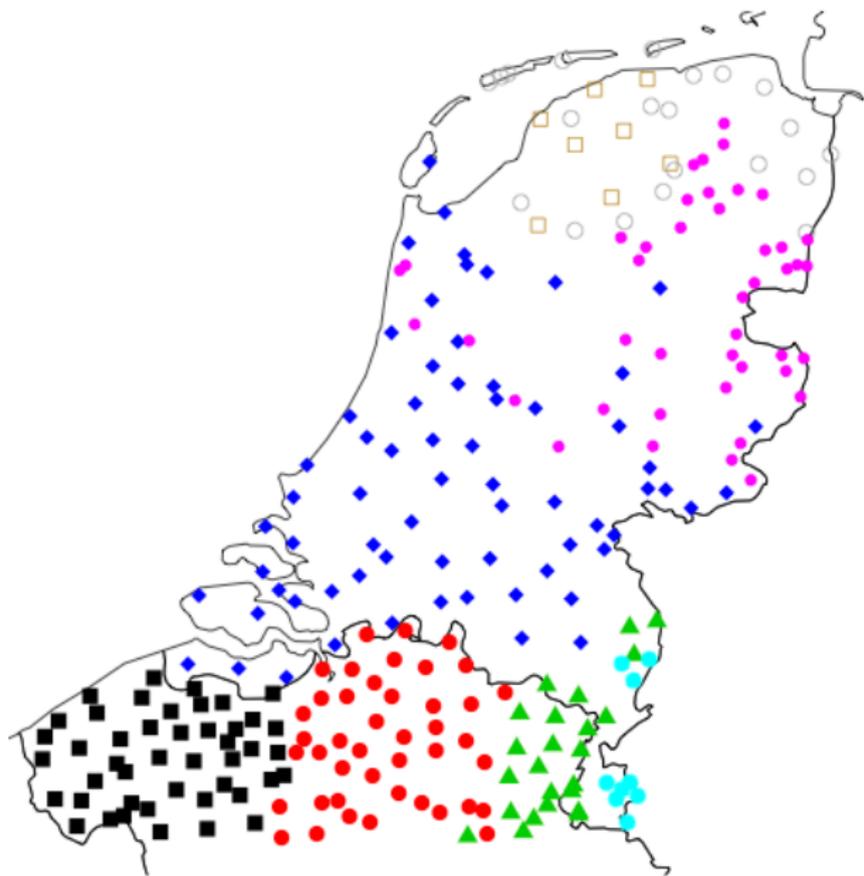
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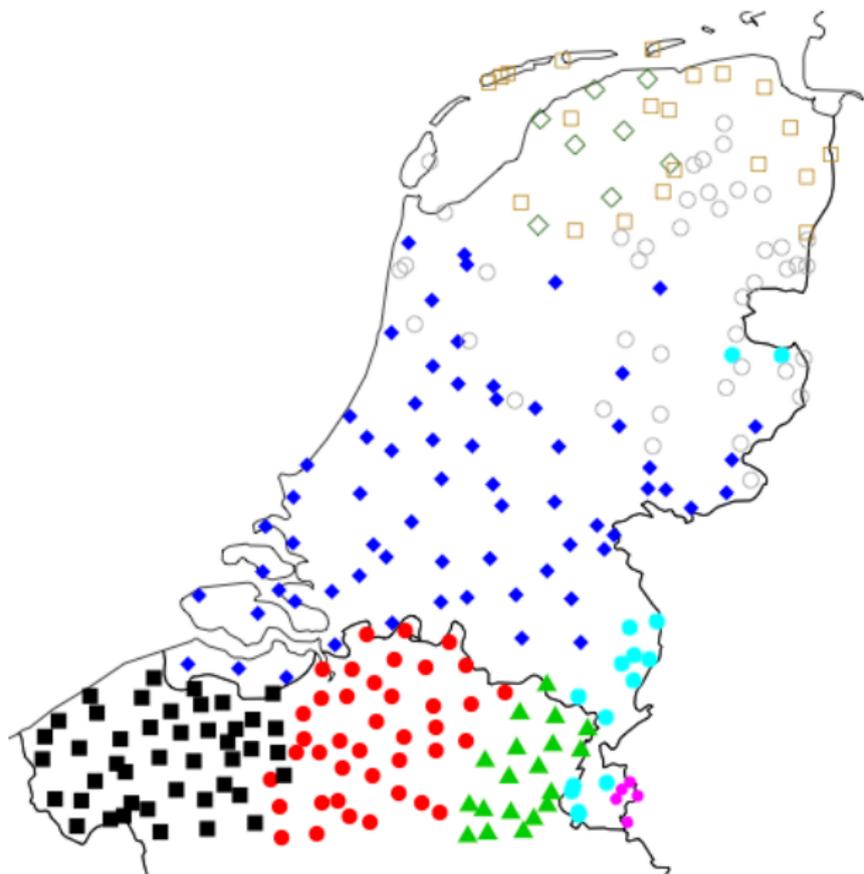
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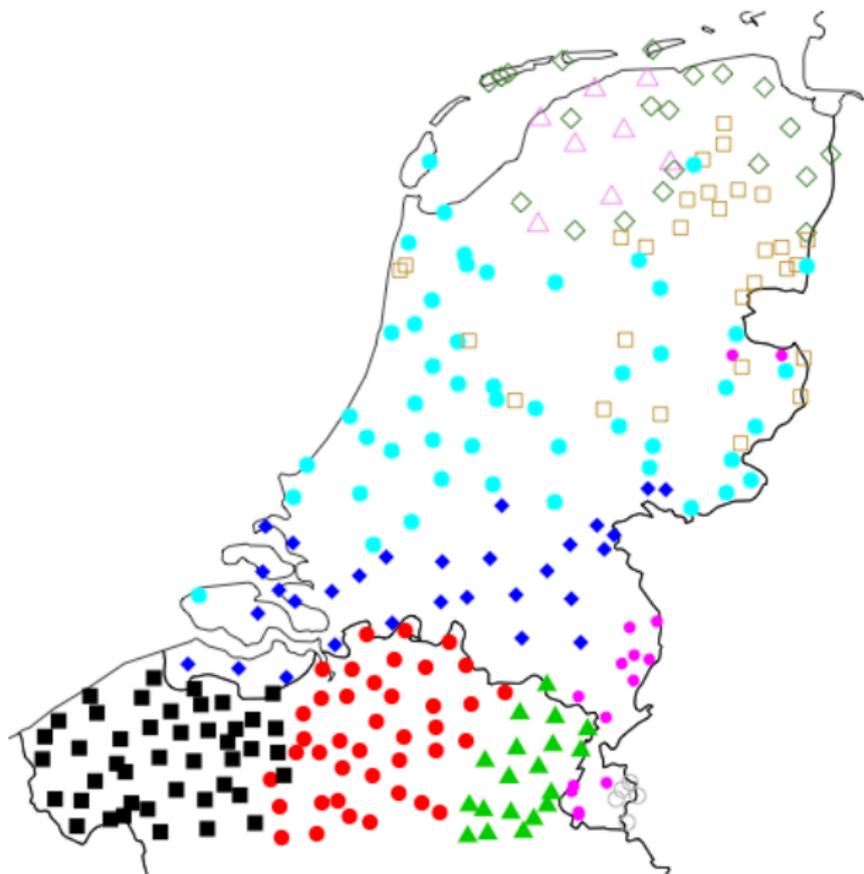
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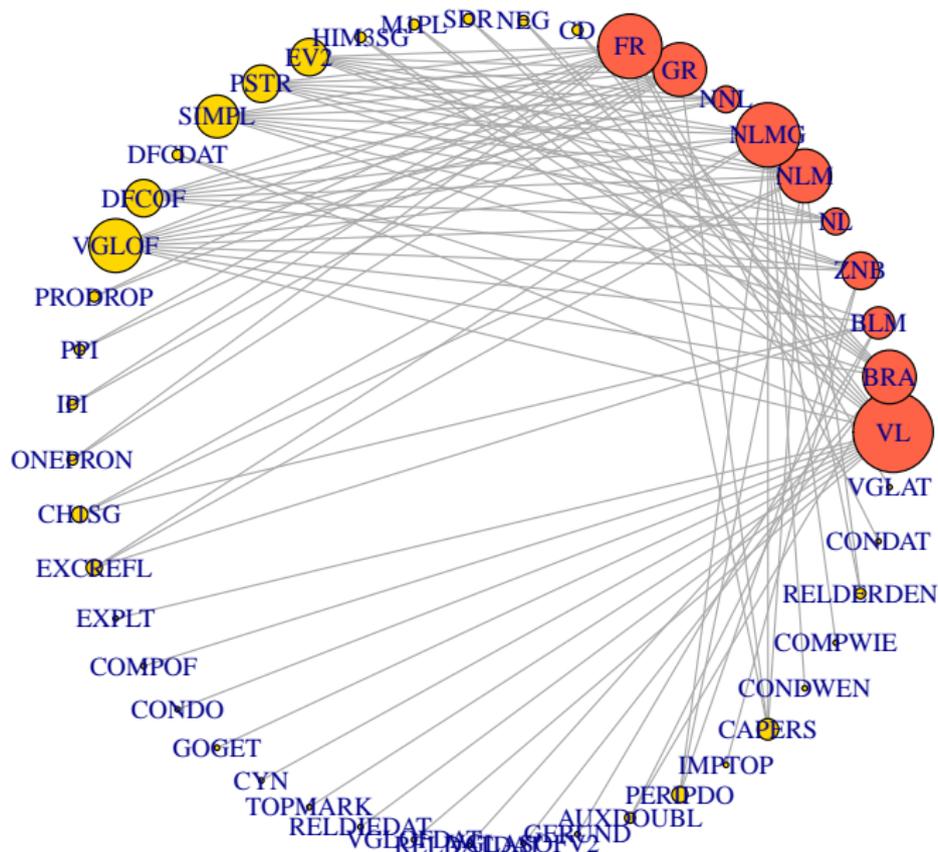
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- ▶ in other words, which linguistic features are characteristic for which dialect area?

# Quantitative analysis: Cluster Description



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- they will serve as input for the qualitative analysis

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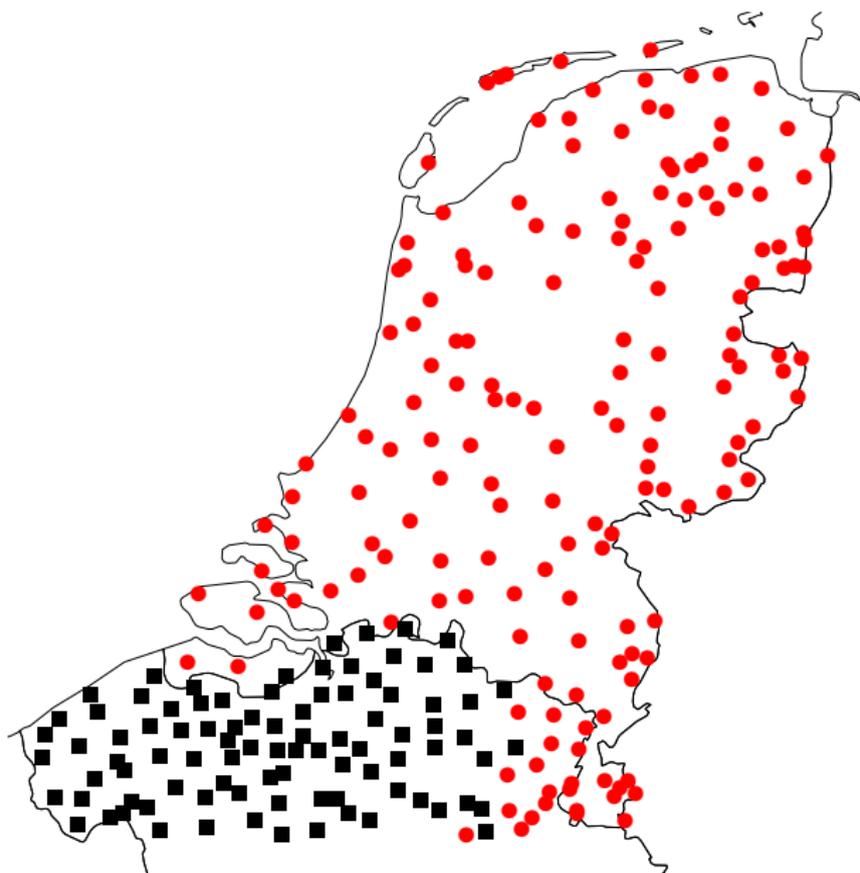
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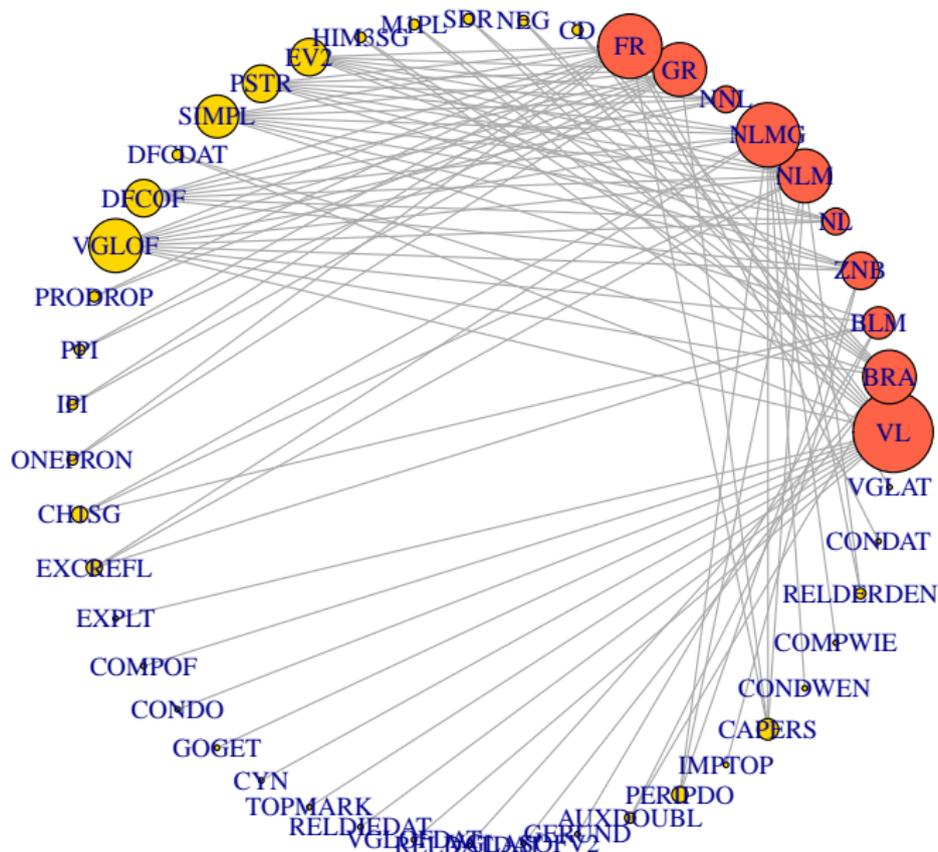
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  1. a separate polarity phrase
  2. a split DP-layer
  3. a split Force/Fin-layer

## Qualitative analysis



# Case study #1: PoIP





## Case study #1: PolP

- ▶ The following phenomena are characteristic of the South:

### short *do* replies

- (1) A: IJ zal nie komen. B: **IJ doet.**  
he will not come he does  
'A: He won't come. B: Yes, he will.'

### negative clitic

- (2) K **en** goa nie noar schole.  
I NEG go not to school  
'I'm not going to school.'

### clitics on *yes* and *no*

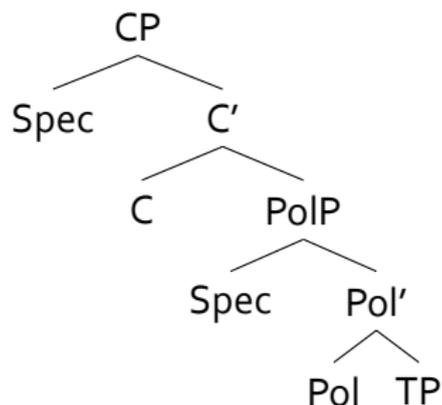
- (3) A: Wilde nog koffie, Jan? B: **Ja-k.**  
want.you PART coffee Jan Yes-I  
'A: Do you want some more coffee, Jan? B: Yes.'

## Case study #1: PolP

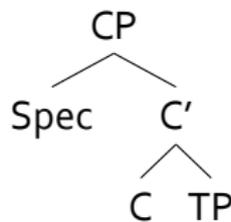
### the SPLIT C-POL Parameter

The CP-domain {does/does not} project a separate PolP.

#### + Split C-Pol-parameter



#### - Split C-Pol-parameter



## Case study #1: PolP

- (4) A: IJ zal nie komen. B: **IJ doet.**  
he will not come he does  
'A: He won't come. B: Yes, he will.

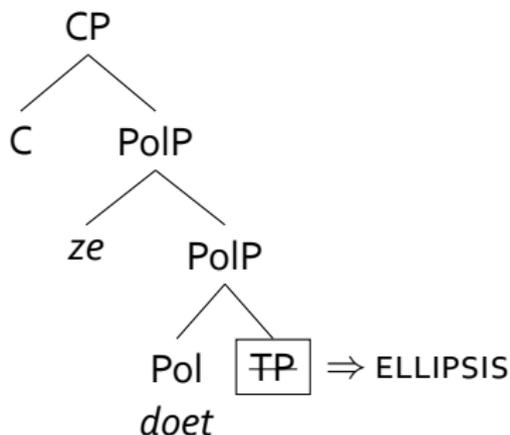
- ▶ van Craenenbroeck (2010): short *do* replies only occur in non-embedded contradictory polar replies to declarative clauses → TP-ellipsis licensed by a left peripheral polarity head:

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(5)



## Case study #1: PolP

- ▶ **supporting evidence:** short *do* replies are only compatible with high left-peripheral adverbs:

- (6) A: Jef zeit da gou veel geldj etj. B: K'en duu {pertang  
Jef says that you much money have I.NEG doe however  
/\* nie mieje. }  
not anymore  
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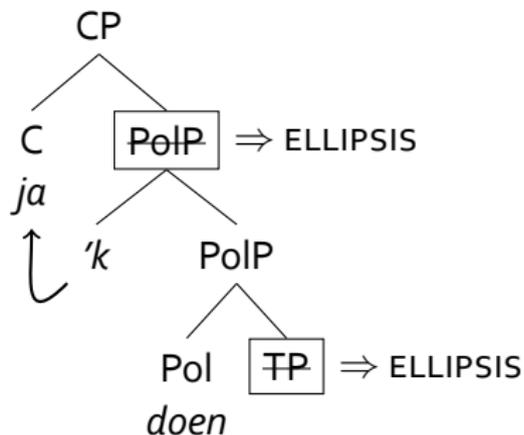
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- ▶ the negative clitic *en* also fits this pattern: it too occupies a high Pol-head in the left periphery (van Craenenbroeck 2010).

## Case study #1: PolP

- ▶ the occurrence of clitics on 'yes' and 'no' are derived from short *do* replies: they involve further (higher) ellipsis of an already truncated structure (van Craenenbroeck 2010)

(7)



## Case study #1: PolP

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	NEG	SDR	CYN
SOUTH (FL)	+	+	+
SOUTH (BRA)	+	+	-
NORTH	-	-	-

## Case study #1: PolP

### the SPLIT C-POL Parameter

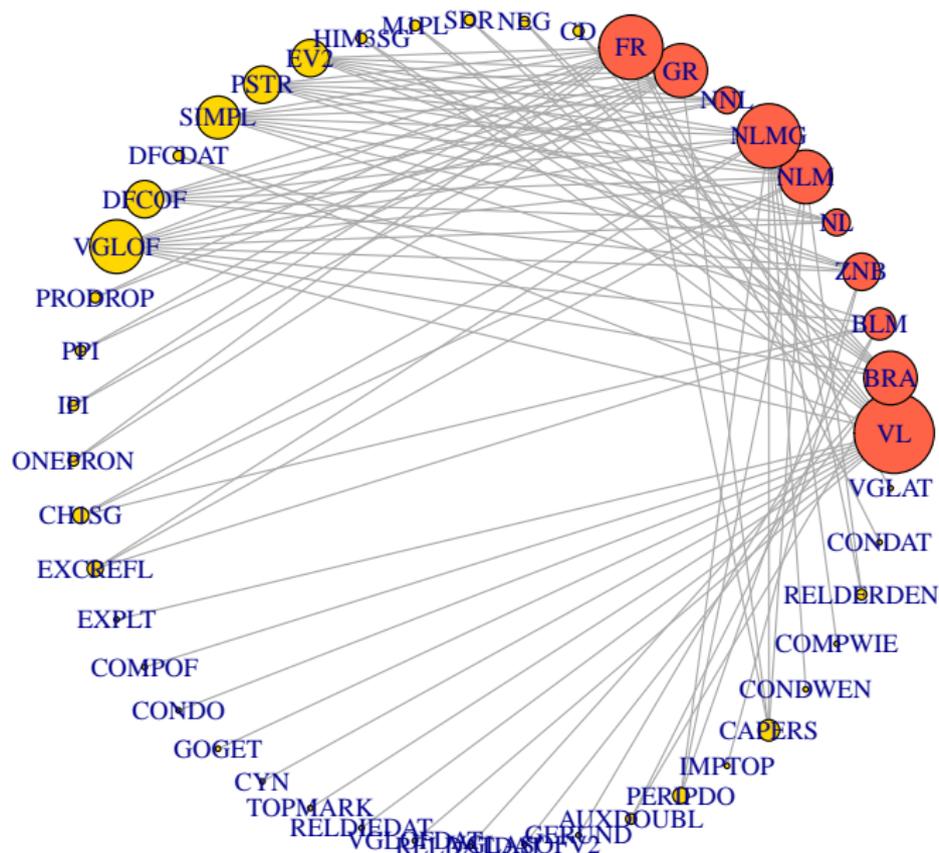
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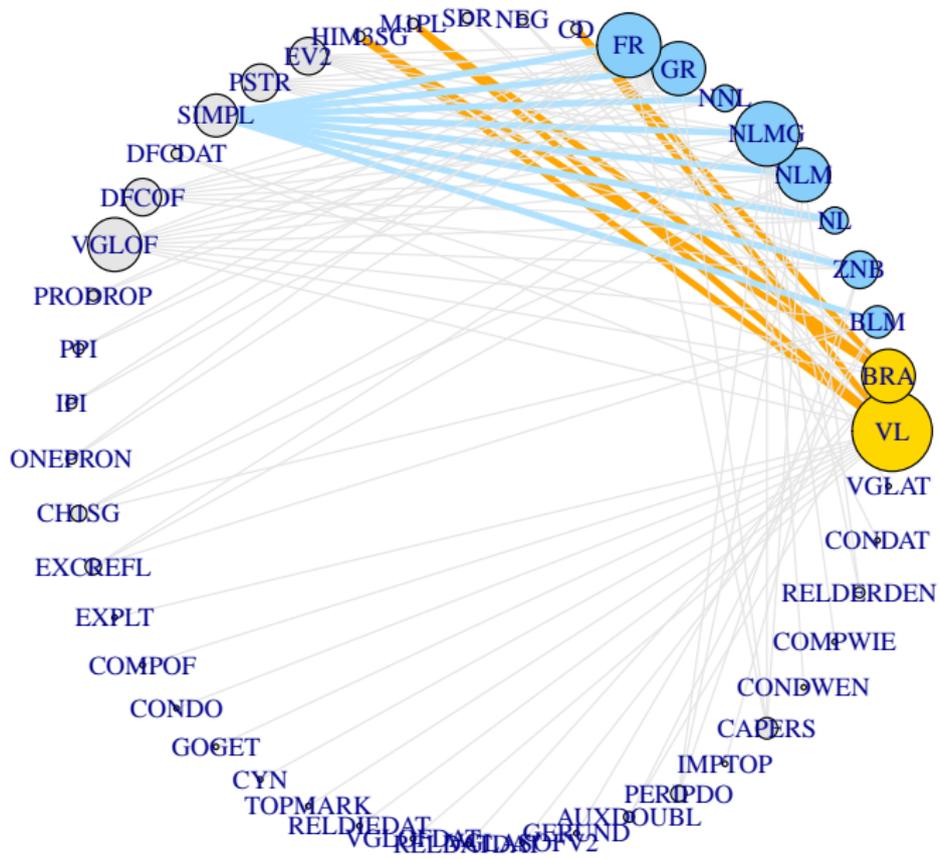
	NEG	SDR	CYN
SOUTH (FL)	+	+	+
SOUTH (BRA)	+	+	-
NORTH	-	-	-

**note:** For CYN a SPLIT C-POL parameter is a necessary but not a sufficient condition. A further parameter is necessary to license CYN. This parameter is set to + in FL but not in BRA.

## Case study #2: split DP



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- ▶ The following phenomena are characteristic of the South:

### clitic doubling

- (8) da-ze                    zaaile            lachen.  
that-they<sub>CLITIC</sub> they<sub>STRONG</sub> laugh  
'that they are laughing.'

### m-form of 1.pl subject pronoun

- (9) **Me** zijn doa    nooit geweest.  
we are there never been  
'We have never been there.'

### accusative 3.sg.masc pronoun in subject position

- (10) **Em** is dood.  
him is dead  
'He is dead.'

## Case study #2: split DP

- ▶ In addition: complex plural pronouns in the South (11) and simplex plural pronouns in the North (12):

### complex plural pronouns

- (11) **Gu-lder** gelooft toch nie da **zu-lder** armer zijn  
you-people believe PART not that they-people poorer are  
dan **wu-lder**.  
than we-people  
'You won't believe that they are poorer than us.'

### simplex plural pronouns

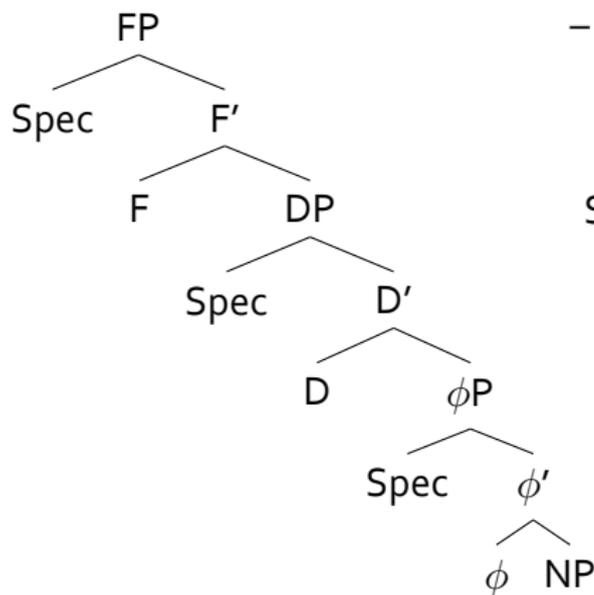
- (12) **Jim** gelove jammer genoeg net dat  
You<sub>pl</sub>-SIMPLEX believe unfortunately enough not that  
**sij** it minder ha dan **wij**  
they-SIMPLEX it less have than we-SIMPLEX.  
'Unfortunately you do not believe that they are less well off  
than we are.'

## Case study #2: split DP

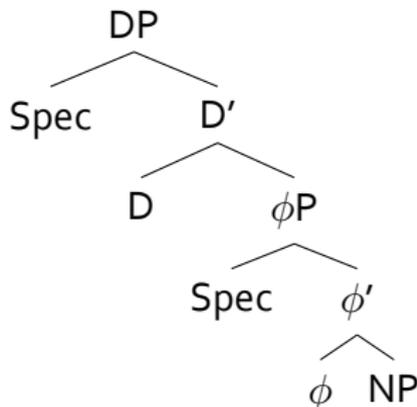
### the SPLIT-D Parameter

DP {does/does not} have an extended left periphery.

#### + Split D-parameter



#### - Split D-parameter



## Case study #2: split DP

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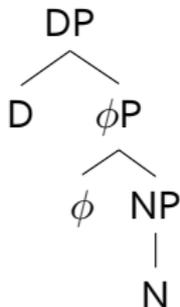
- ▶ **starting point:** van Craenenbroeck and van Koppen (2008)'s analysis of clitic doubling:

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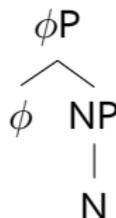
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- ▶ **starting point:** van Craenenbroeck and van Koppen (2008)'s analysis of clitic doubling:
- ▶ **step one:** strong pronouns in doubling dialects are pro-DPs, while subject clitics are pro- $\phi$ Ps (Déchaine and Wiltschko 2002)

- (14) **strong subject pronoun**

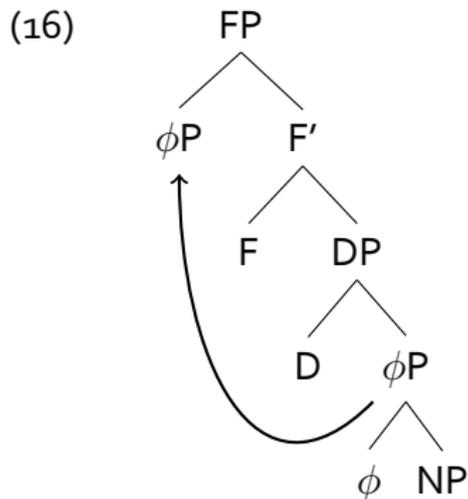


- (15) **subject clitic**



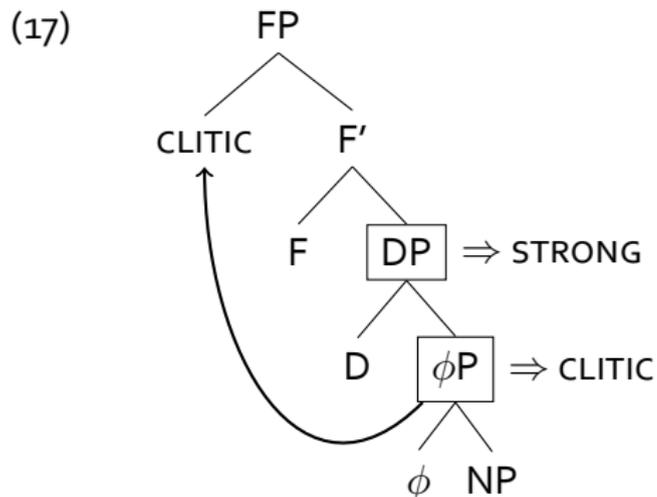
## Case study #2: split DP

- ▶ **step two:** a clitic-doubled subject is base-generated as a big DP; clitics are the result of  $\phi$ P-movement into the extended left periphery of the DP
- ⇒ there has to be an additional layer above DP to host the movement of the clitic (FP) in order to avoid an anti-locality violation (Abels (2003)):



## Case study #2: split DP

- ▶ **step three:** when the resulting structure is handed over to PF, the moved  $\phi$ P is spelled out as a subject clitic, and the DP as a strong pronoun



## Case study #2: split DP

### the SPLIT-D Parameter

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	CD
SOUTH	+
NORTH	-

## Case study #2: split DP

- ▶ **supporting evidence:** Barbiers et al. (2016) argue for a similar big DP+movement-analysis for another linguistic phenomenon that is characteristic of the South: demonstrative doubling.

(18) **De die** zou k ik wiln op eetn.  
the those would I<sub>CLITIC</sub> I<sub>STRONG</sub> want up eat  
'I would like to eat those.'

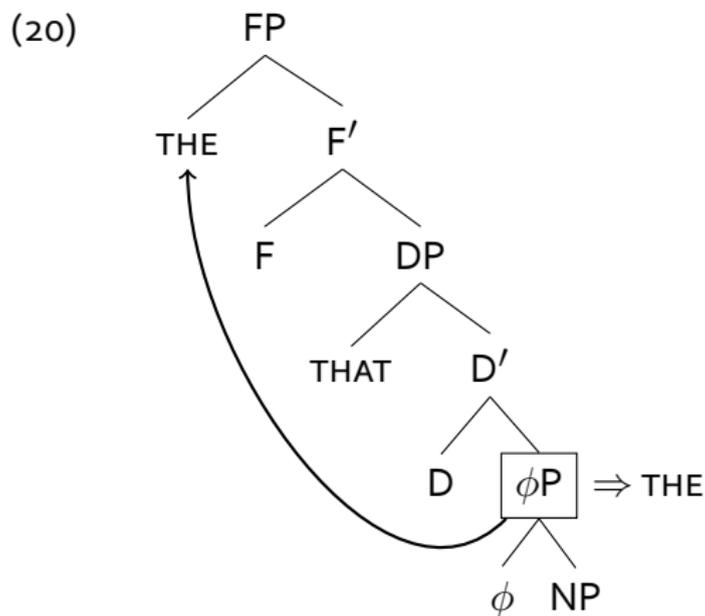
## Case study #2: split DP

- ▶ **step one:** the definite article in demonstrative doubling pronominalizes  $\phi_P$ , i.e. the part of the DP-structure hosting the noun, numerals, and adjectives:

- (19)
- a. de dien  
the that  
'that one'
  - b. (\* de) dien opa  
the that grandfather  
'that grandfather'
  - c. De dieje (\* twee) (\* rode) liggen op de tafel.  
the those two red are on the table  
'Those are on the table.'

## Case study #2: split DP

- ▶ **step two:**  $\phi$ P moves into the left periphery of the DP; anti-locality again requires that the left periphery of DP be complex.



## Case study #2: split DP

**Further supporting evidence** from possessive structures:

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1. dialects with a negative setting for the D-parameter lack demonstrative doubling because they lack the additional DP-layer (no landing site for the definite article)
2. these dialects (as well as the dialects with a positive setting for the D-parameter) do have THE+possessive pronoun:

(21) Ik vin **de zaine** ech geweldig.

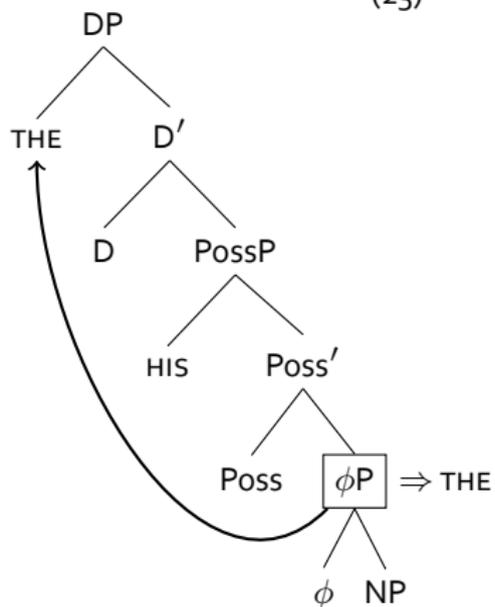
I find the his really great

'I find his really great.'

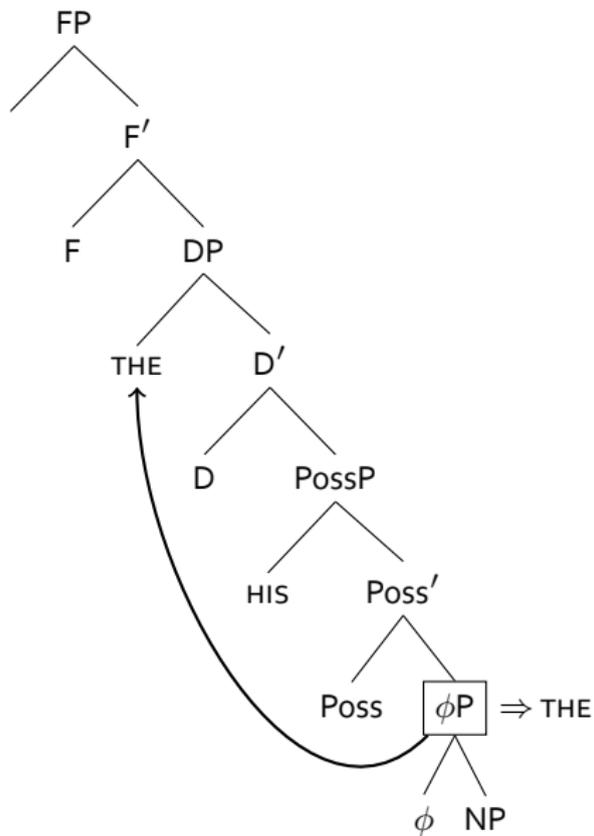
(–split DP parameter)

## Case study #2: split DP

(22)



(23)



## Case study #2: split DP

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(24) **Toin de zijnen** is geweldig.

Teun the his is great

'Teun's is great.'

(+SPLIT DP-Parameter)

## Case study #2: split DP

3. however, only dialects with a positive setting of the D-parameter allow doubling in THE+possessive pronoun:

- (24) **Toin de zijnen** is geweldig.  
Teun the his is great  
'Teun's is great.' (+SPLIT DP-Parameter)
- (25) Ik vin (\***Teun**) **de zaine** ech geweldig.  
I find Teun the his really great  
'I find his really great.' (-SPLIT DP-Parameter)

## Case study #2: split DP

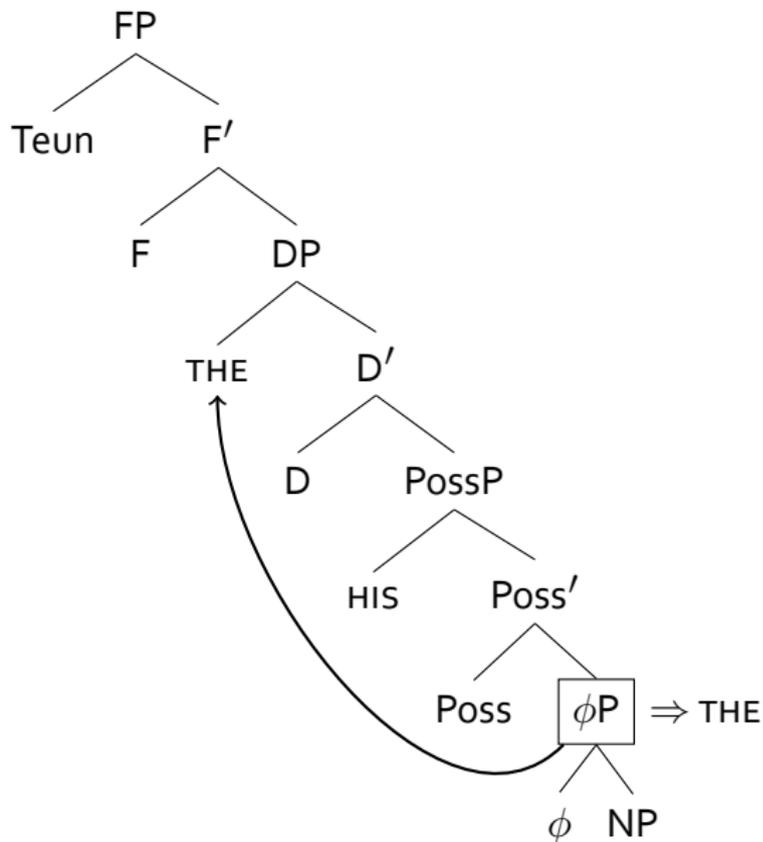
3. however, only dialects with a positive setting of the D-parameter allow doubling in THE+possessive pronoun:

- (24) **Toin de zijnen** is geweldig.  
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'Teun's is great.' (+SPLIT DP-Parameter)
- (25) Ik vin (\***Teun**) **de zaine** ech geweldig.  
I find Teun the his really great  
'I find his really great.' (-SPLIT DP-Parameter)

→ this can be explained by the presence of an additional layer in the +Split D-dialects:

## Case study #2: split DP

(26)



## Case study #2: split DP

### the SPLIT-D Parameter

DP {does/does not} have an extended left periphery.

- ▶ **SOUTH:** the DP-domain DOES have an extended left periphery
- ▶ **NORTH:** the DP-domain DOES NOT have an extended left periphery

## Case study #2: split DP

### the SPLIT-D Parameter

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	CD	DD	THE POSS	POSS THE POSS
SOUTH	+	+	+	+
NORTH	-	-	+	-

## Case study #2: split DP

- ▶ Can this analysis also give us a handle on the variation concerning pronouns?

### m-form of 1.pl subject pronoun

- (27) **Me** zijn doa nooit geweest.  
we are there never been  
'We have never been there.'

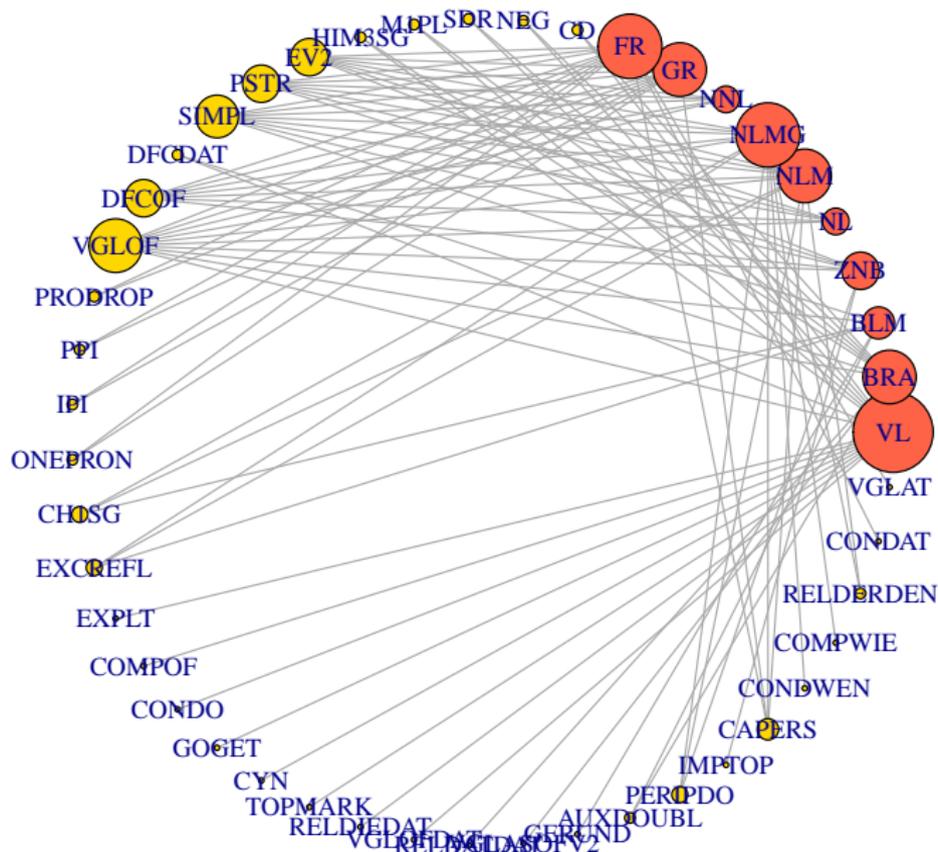
### accusative 3.sg.masc pronoun in subject position

- (28) **Em** is dood.  
him is dead  
'He is dead'

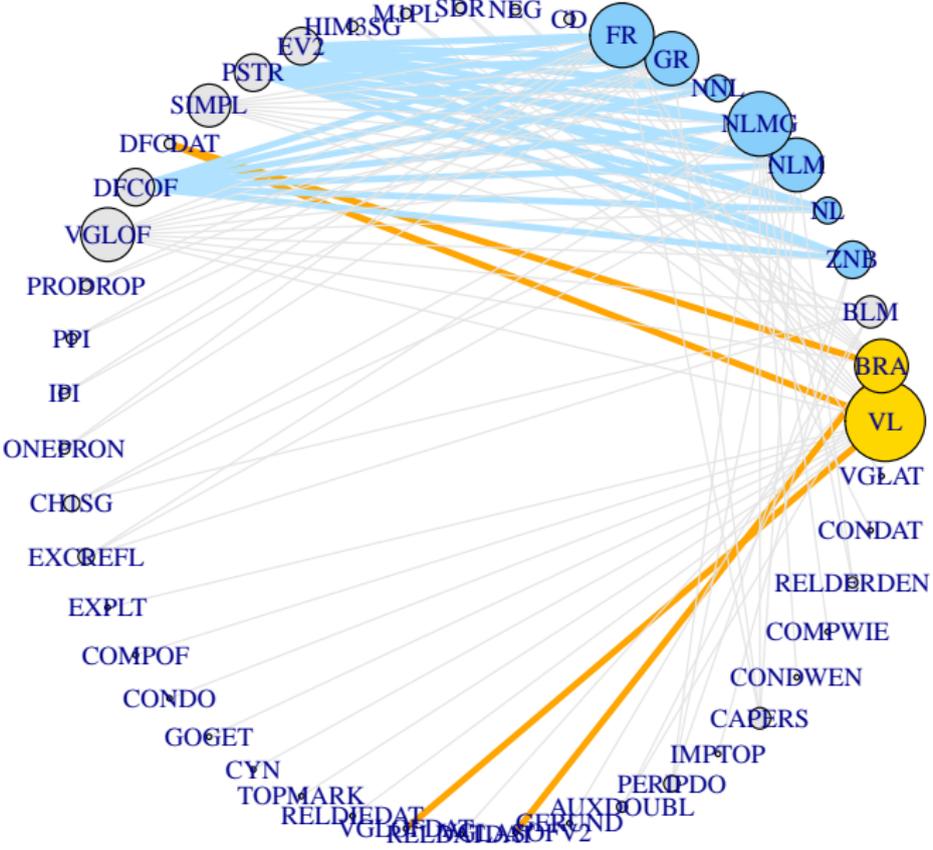
### complex plural pronouns

- (29) **Gu-lder** gelooft toch nie da **zu-lder** armer zijn dan  
you-people believe PART not that they-people poorer are than  
**wu-lder**.  
we-people  
'You won't believe that they are poorer than us.'

# Case study #3: split Force/Fin



# Case study #3: split Force/Fin



## Case study #3: split Force/Fin

- ▶ The following phenomena are characteristic of the South:

### **doubly filled COMP with *dat* 'that'**

(30) Zeg ma nie **wien da**-se            zie            hadde wiln roepn.  
tell but not who that-they<sub>clitic</sub> they<sub>strong</sub> had want call  
'Don't tell me who they planned to call.'

### ***of* 'if' + *dat* 'that' in an 'as if'-clause**

(31) T is juist lijk **of dat**-er    etwien    in dn hof    stoat.  
it is just like if that-there someone in the garden stands  
'It looks as if there is someone in the garden.'

### ***of* 'if' + embedded V2 in an 'as if'-clause**

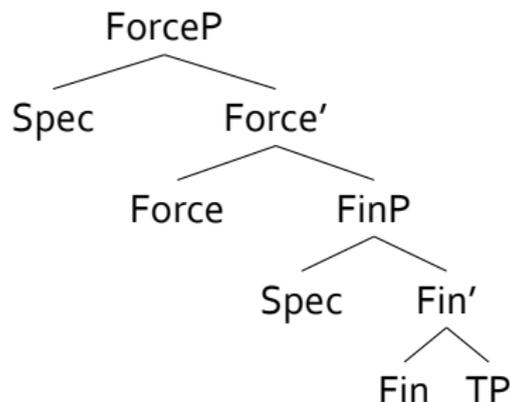
(32) T is precies **of d'r staat** d'r    enen    in den hof.  
it is exactly if there stands there someone in the garden  
'It looks as if there is someone in the garden.'

## Case study #3: split Force/Fin

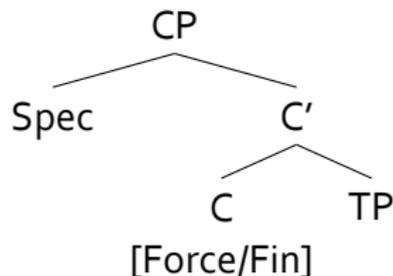
### the Split Force/Fin-Parameter

the CP-domain {does/does not} have a split Force/Fin.

#### + Split Force/Fin-parameter



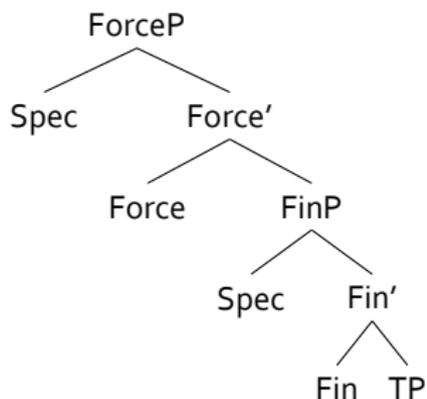
#### - Split Force/Fin-parameter



## Case study #3: split Force/Fin

### SOUTH: Split Force/Fin

(33)



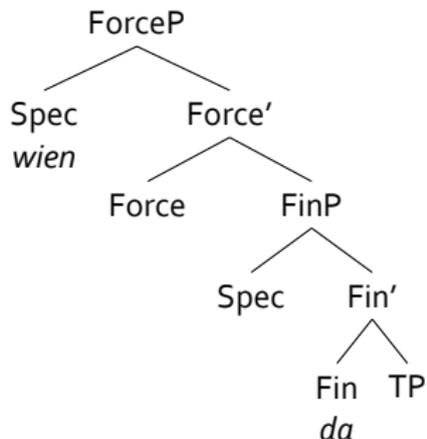
#### Assumptions about the left periphery:

1. FinP has to contain overt material (every sentence has to be marked as finite).
2. *wh*-phrases are merged in specForceP
3. Generalized Doubly Filled Comp Filter (GDFCF): A feature cannot be spelled out twice

## Case study #3: split Force/Fin

- (34) ... **wien da**-se            zie            hadde wiln roepn.  
          who that-they<sub>clitic</sub> they<sub>strong</sub> had    want call  
'... who they planned to call.'

(35)

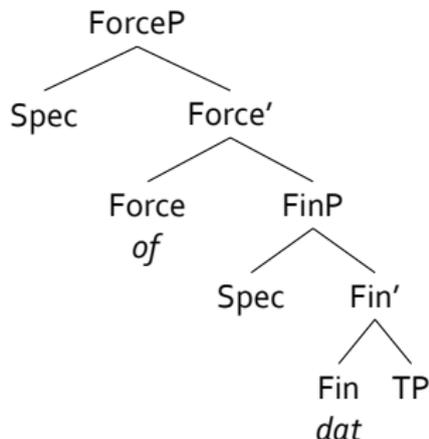


- ▶ feature specification of *dat*: +Fin
- ▶ *dat* has to be spelled out to realize FinP

## Case study #3: split Force/Fin

- (36) T is juist lijk **of dat**-er etwien in dn hof stoat.  
it is just like if that-there someone in the garden stands  
'It looks as if there is someone in the garden.'

(37)

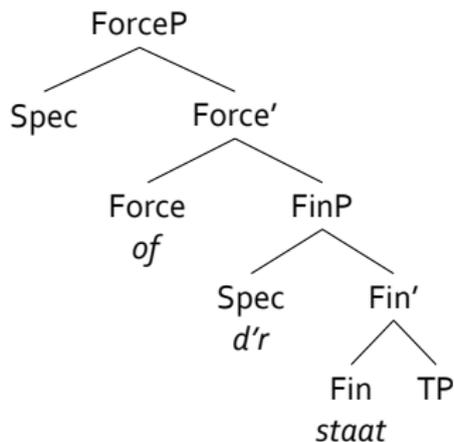


- ▶ feature specification of the complementizers: *dat*:+Fin, *of*:+Force
- ▶ *dat* has to be spelled out to realize FinP.

## Case study #3: split Force/Fin

- (38) T is precies **of** d'r **staat** d'r enen in den hof.  
it is exactly if there stands there someone in the garden  
'It looks as if there is someone in the garden.'

(39)



- ▶ feature specification of *of*: +Force
- ▶ the verb realizes FinP

## Case study #3: split Force/Fin

### Predictions:

1. Doubly filled COMP should be obligatory in embedded *wh*-clauses in the South → confirmed

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(40) ... **wien** \*(**da** )se        zie        hadde wiln roepn.  
          who    that they<sub>clitic</sub> they<sub>strong</sub> had    want call  
          '... who they planned to call.'

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2. No doubly filled COMP with *of* 'if' in the South → confirmed

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      who    that they<sub>clitic</sub> they<sub>strong</sub> had    want call  
      '... who they planned to call.'

2. No doubly filled COMP with *of* 'if' in the South → confirmed

(41) \*... **wien of** se        zie        hadde wiln roepn.  
      who if they<sub>clitic</sub> they<sub>strong</sub> had    want call  
      '... who they planned to call.'

## Case study #3: split Force/Fin

- ▶ The following phenomena are characteristic of the North:

### **doubly filled COMP with of 'if'**

- (42) Vertel mie eens **wel of** ze had kenn roepn.  
Tell me PART who if she had can call  
'Tell me who she could have been calling.'

### **embedded V2 with complementizer drop**

- (43) Ik geloof **deze jongens vindt** ze allemaal wel aardig.  
I believe these guys finds she all PART nice  
'I believe that she likes all of these guys.'

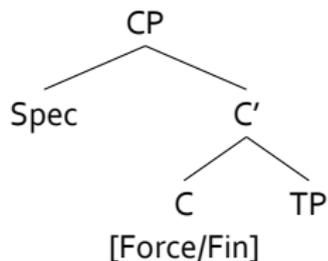
### **preposition stranding**

- (44) **Die rare jongen** ben ik **mee** naar de markt west.  
that strange boy am I with to the market been  
'With that strange boy I went to the market.'

## Case study #3: split Force/Fin

### NORTH: NO Split Force/Fin

(45)



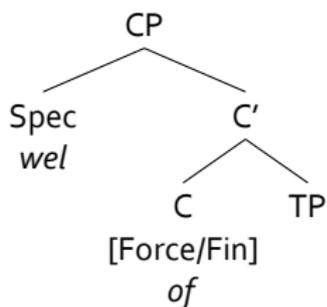
### Assumptions about the left periphery:

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## Case study #3: split Force/Fin

- (46) Vertel mie eens **wel of** ze had kenn roepn.  
Tell me PART who if she had can call  
'Tell me who she could have been calling.'

(47)



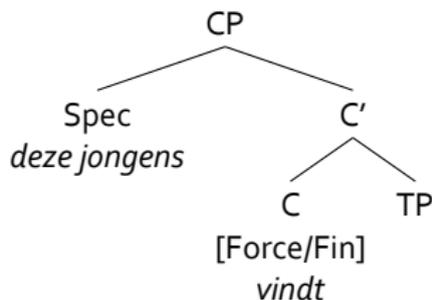
- ▶ feature specification of the complementizers: *dat*: [+Force, +Fin], *of*: [+Force, +Fin]
- ▶ doubly filled COMP: *dat* has the wrong value for Force, *of* is allowed if it spells out Fin (GDFCF).

## Case study #3: split Force/Fin

- (48) Ik geloof **deze jongens vindt** ze allemaal wel aardig.  
I believe these guys finds she all PART nice  
'I believe that she likes all of these guys.'

(EV<sub>2</sub>)

(49)



- ▶ the finite verb realizes FinP

## Case study #3: split Force/Fin

### Predictions:

1. No doubly filled COMP with *dat* 'that' in the North → confirmed

## Case study #3: split Force/Fin

### Predictions:

1. No doubly filled COMP with *dat* 'that' in the North → confirmed

(50) \*Vertel mie eens **wel dat** ze had kenn roepn.  
Tell me PART who that she had can call  
'Tell me who she could have been calling.'

## Case study #3: split Force/Fin

### Predictions:

1. No doubly filled COMP with *dat* 'that' in the North → confirmed

(50) \*Vertel mie eens **wel dat** ze had kenn roepn.  
Tell me PART who that she had can call  
'Tell me who she could have been calling.'

2. Doubly filled COMP should be optional in the North → confirmed

## Case study #3: split Force/Fin

### Predictions:

1. No doubly filled COMP with *dat* 'that' in the North → confirmed

(50) \*Vertel mie eens **wel dat** ze had kenn roepn.  
Tell me PART who that she had can call  
'Tell me who she could have been calling.'

2. Doubly filled COMP should be optional in the North → confirmed

(51) Vertel mie eens **wel ( of )** ze had kenn roepn.  
Tell me PART who if she had can call  
'Tell me who she could have been calling.'

## Case study #3: split Force/Fin

### the Split Force/Fin-Parameter

the CP-domain {does/does not} have a split Force/Fin.

- ▶ **SOUTH:** the CP-domain DOES have a split Force/Fin
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	WH-DAT	WH-OF	WH-EMPTY	EV <sub>2</sub>	VGLOFV <sub>2</sub>	VGLOFDAT
SOUTH (FL)	+	-	-	-	-	+
SOUTH (BRA)	+	-	-	-	+	-
NORTH	-	+	+	+	-	-

## Case study #3: split Force/Fin

- ▶ Can this analysis also give us a handle on the variation concerning P-stranding?

- (52) **Die rare jongen** ben ik **mee** naar de markt west.  
that strange boy am I with to the market been  
'With that strange boy I went to the market.' NORTH
- (53) \***Die rare jongen** ben ik **mee** naar de markt west.  
that strange boy am I with to the market been  
'With that strange boy I went to the market.' SOUTH



## Combining the case studies: 7 parameters

- ▶ We can bring back these 37 linguistic phenomena to 7 parameters:

	VL	BRA	BLM	ZNB	NL	NLM	NLMG	NNL	GR	FR
SPLIT C-POL	+	+	-	-	-	-	-	-	-	-
SPLIT D	+	+	-	-	-	-	-	-	-	-
SPLIT Force/FIN	+	+	-	-	-	-	-	-	-	-
SPLIT TP	-	-	+	+	-	+	+	-	-	-
SPLIT C <sub>3</sub>	+	-	-	-	-	-	+	-	-	+
AGR C-num	+	-	-	-	-	-	-	-	-	-
AGR C-pers	-	-	-	-	-	+	+	-	+	+

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SPLIT D	+	+	-	-	-	-	-	-	-	-
SPLIT Force/FIN	+	+	-	-	-	-	-	-	-	-
SPLIT TP	-	-	+	+	-	+	+	-	-	-
SPLIT C <sub>3</sub>	+	-	-	-	-	-	+	-	-	+
AGR C-num	+	-	-	-	-	-	-	-	-	-
AGR C-pers	-	-	-	-	-	+	+	-	+	+

- ▶ **Split TP-parameter:** The TP-domain {is/is not} split.

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SPLIT C-POL	+	+	-	-	-	-	-	-	-	-
SPLIT D	+	+	-	-	-	-	-	-	-	-
SPLIT Force/FIN	+	+	-	-	-	-	-	-	-	-
SPLIT TP	-	-	+	+	-	+	+	-	-	-
SPLIT C <sub>3</sub>	+	-	-	-	-	-	+	-	-	+
AGR C-num	+	-	-	-	-	-	-	-	-	-
AGR C-pers	-	-	-	-	-	+	+	-	+	+

- ▶ **Split TP-parameter:** The TP-domain {is/is not} split.
- ▶ **Split C<sub>3</sub>-parameter:** The CP-domain {does/does not} have separate projections for comparatives and conditionals.

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	VL	BRA	BLM	ZNB	NL	NLM	NLMG	NNL	GR	FR
SPLIT C-POL	+	+	-	-	-	-	-	-	-	-
SPLIT D	+	+	-	-	-	-	-	-	-	-
SPLIT Force/FIN	+	+	-	-	-	-	-	-	-	-
SPLIT TP	-	-	+	+	-	+	+	-	-	-
SPLIT C <sub>3</sub>	+	-	-	-	-	-	+	-	-	+
AGR C-num	+	-	-	-	-	-	-	-	-	-
AGR C-pers	-	-	-	-	-	+	+	-	+	+

- ▶ **Split TP-parameter:** The TP-domain {is/is not} split.
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- ▶ **AGR C-num-parameter:** C {does/does not} bear an unvalued number feature.

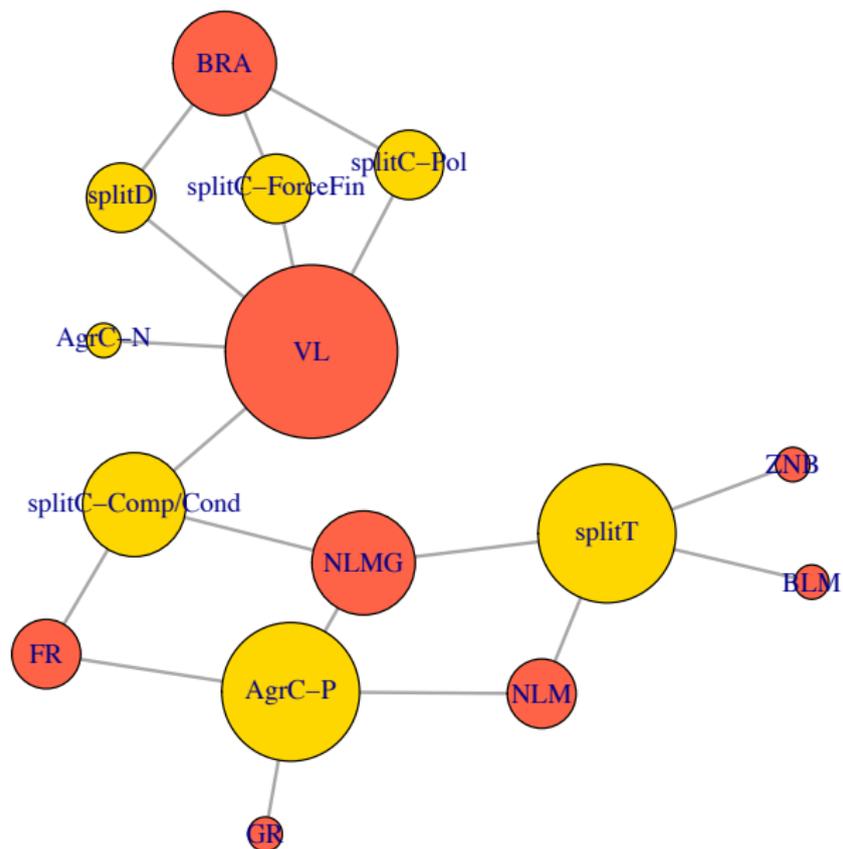
## Combining the case studies: 7 parameters

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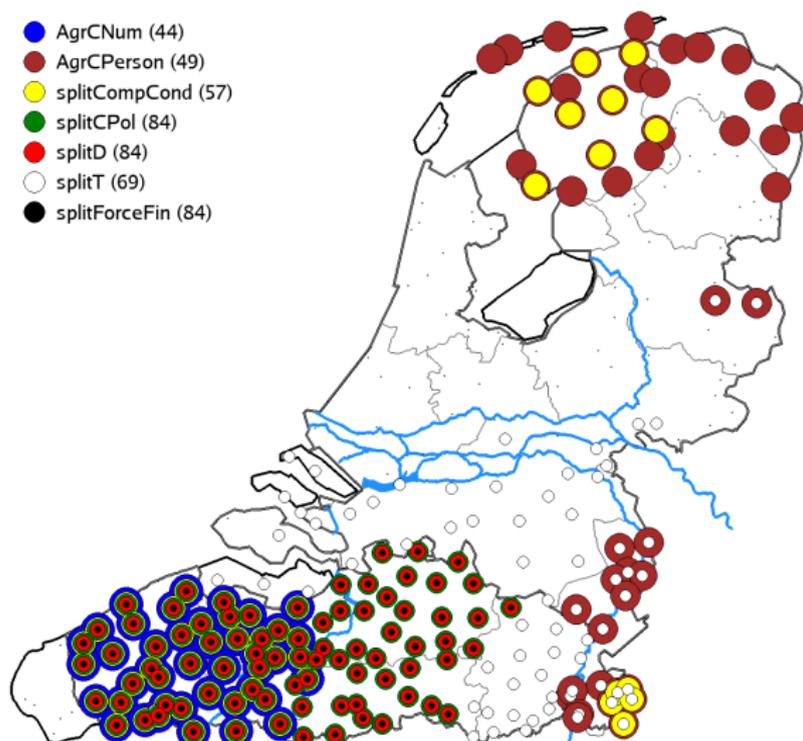
	VL	BRA	BLM	ZNB	NL	NLM	NLMG	NNL	GR	FR
SPLIT C-POL	+	+	-	-	-	-	-	-	-	-
SPLIT D	+	+	-	-	-	-	-	-	-	-
SPLIT Force/FIN	+	+	-	-	-	-	-	-	-	-
SPLIT TP	-	-	+	+	-	+	+	-	-	-
SPLIT C <sub>3</sub>	+	-	-	-	-	-	+	-	-	+
AGR C-num	+	-	-	-	-	-	-	-	-	-
AGR C-pers	-	-	-	-	-	+	+	-	+	+

- ▶ **Split TP-parameter:** The TP-domain {is/is not} split.
- ▶ **Split C<sub>3</sub>-parameter:** The CP-domain {does/does not} have separate projections for comparatives and conditionals.
- ▶ **AGR C-num-parameter:** C {does/does not} bear an unvalued number feature.
- ▶ **AGR C-pers-parameter:** C {does/does not} bear an unvalued person feature.

## Combining the case studies: 7 parameters



# Combining the case studies: 7 parameters



# Outline

Main goals for today

Introduction: Kayne's dream

Quantitative analysis

- Correspondence Analysis

- Cluster Analysis

- Cluster Description

- Conclusion

Qualitative analysis

- Case study #1: PoIP

- Case study #2: split DP

- Case study #3: split Force/Fin

- Combining the case studies: 7 parameters

The bigger picture: determinants of variation

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## The bigger picture: determinants of variation

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  1. in whether or not a morphosyntactic feature heads its own projection (SPLIT)
  2. in the extent to which this happens
  3. in whether or not a morphosyntactic feature triggers Agree (AGR)

→ reminiscent of Longobardi (2005)'s Principles & Schemata:

### (54) **Parameter Schema:**

- a. Is F, F a functional feature, grammaticalized?
- b. Is F, F a grammaticalized feature, checked by X, X a lexical category?
- c. Is F, F a grammaticalized feature, spread on Y, Y a lexical category?
- d. Is F, F a grammaticalized feature checked by X, strong (i.e. overtly attracts X)?

# The bigger picture: determinants of variation

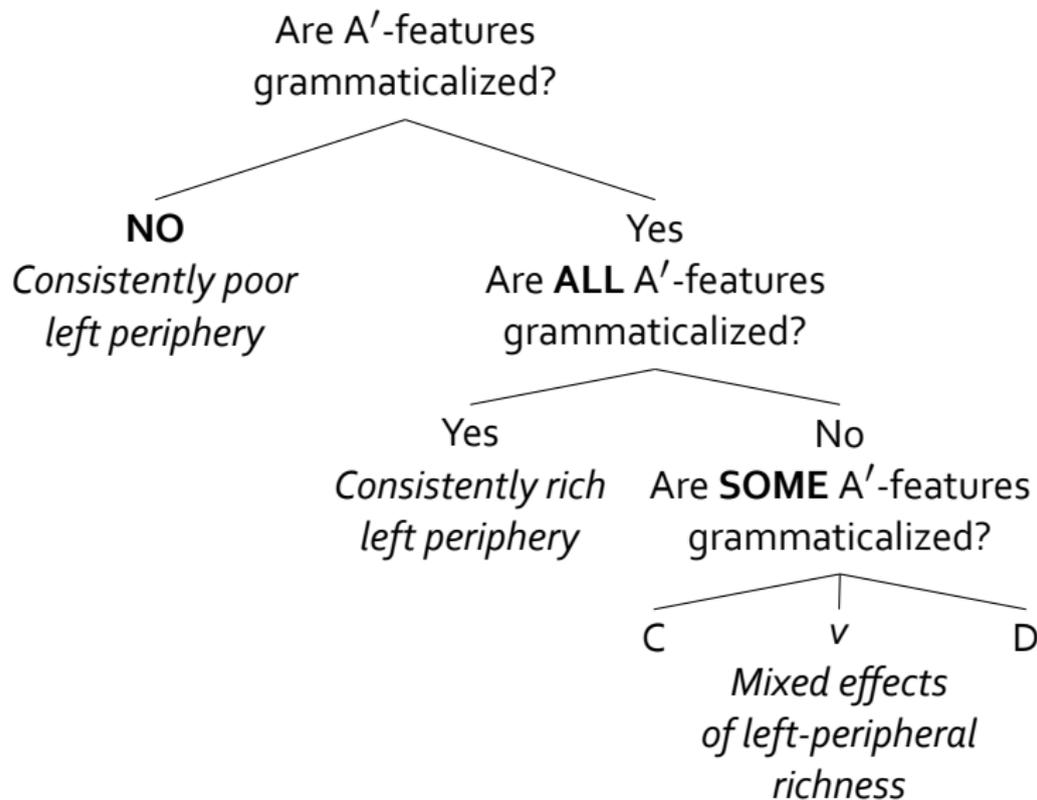
- ▶ our ten dialect groups differ:
  1. in whether or not a morphosyntactic feature heads its own projection (SPLIT)
  2. in the extent to which this happens
  3. in whether or not a morphosyntactic feature triggers Agree (AGR)
- and of Biberauer and Roberts (2013)'s parameter hierarchies:

## Parameter Hierarchy

For a given value  $v_i$  of a parametrically variant feature F:

- ▶ **Macroparameters:** all heads of the relevant type share  $v_i$
- ▶ **Mesoparameters:** all heads of a given naturally definable class, a subset of the full class of heads of the relevant type, e.g. [+V], share  $v_i$
- ▶ **Microparameters:** a small subclass of functional heads (e.g. modal auxiliaries, pronouns) shows  $v_i$
- ▶ **Nanoparameters:** one or more individual lexical items is/are specified for  $v_i$

## The bigger picture: determinants of variation



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## To sum up

1. We have developed a parametric analysis for a large data set of morphosyntactic variation in Dutch dialects and have reduced the core tendencies in that variation to seven grammatical parameters.
2. In identifying those core tendencies we have crucially relied on quantitative-statistical means, but in identifying the grammatical parameters we started from formal-theoretical analyses.
3. At a more general level, these dialects seem to differ from one another in the choice of the morphosyntactic features that are grammaticalized and the degree to which they are.

# References I

- Abels, Klaus. 2003. Successive cyclicity, anti-locality, and adposition stranding. Doctoral Dissertation, University of Connecticut at Storrs.
- Barbiers, Sjef, Marjo van Koppen, Hans Bennis, and Norbert Corver. 2016. Microcomparative MORphosyntactic REsearch (MIMORE): Mapping partial grammars of Flemish, Brabantish and Dutch. *Lingua* 178:5–31.
- Bayer, Josef. 1984. COMP in Bavarian syntax. *The Linguistic Review* 3:209–274.
- Benincà, Paola, and Cecilia Poletto. 2004. Topic, focus, and V2: Defining the CP sublayers. In *The structure of CP and IP*, ed. Luigi Rizzi, 52–75. Oxford: Oxford University Press.
- Biberauer, Theresa, and Ian Roberts. 2013. *Challenges to linearization*. Berlin: Mouton de Gruyter.
- van Craenenbroeck, Jeroen. 2010. *The syntax of ellipsis. Evidence from Dutch dialects*. New York: OUP.
- van Craenenbroeck, Jeroen, and Marjo van Koppen. 2008. Pronominal doubling in Dutch dialects: big DPs and coordinations. In *Microvariation in syntactic doubling.*, ed. Sjef Barbiers, Olaf Koenenman, Marika Lekakou, and Margreet van der Ham, volume 36 of *Syntax and Semantics*, 207–249. Bingley: Emerald.
- Déchaine, Rose-Marie, and Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33:409–442.
- Haegeman, Liliane. 1992. *Theory and description in generative syntax*. Cambridge: Cambridge University Press.
- Heeringa, Wilbert. 2004. Measuring dialect pronunciation differences using Levenshtein distance. Doctoral Dissertation, University of Groningen.
- Heeringa, Wilbert, and John Nerbonne. 2013. Dialectometry. In *Language and Space. An International Handbook of Linguistic Variation. Volume 3: Dutch*, ed. Frans Hinskens and Johan Taeldeman, volume 30 of *Handbooks of Linguistics and Communication Science*, 624–645. Berlin/Boston: De Gruyter.
- Hoekstra, Eric. 1993. Dialectal variation inside CP as parametric variation. In *Dialektsyntax*, ed. Werner Abraham and Josef Bayer, volume 5 of *Linguistische Berichte/Sonderheft*, 161–179. Opladen: Westdeutscher Verlag.
- Kayne, Richard. 1996. Microparametric syntax: some introductory remarks. In *Microparametric syntax and dialect variation*, ed. J.R. Black and Virginia Motapanyane, ix–xviii. Amsterdam: John Benjamins.
- Longobardi, Giuseppe. 2005. A minimalist program for parametric linguistics? In *Organizing grammar. studies in honor of Henk van Riemsdijk*, ed. Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz, and Jan Koster, 407–414. Berlin: Mouton de Gruyter.

## References II

- Penner, Zvi. 1994. Asking questions without CPs? On the acquisition of root wh-questions in Bernese Swiss German and Standard German. In *Language acquisition studies in generative grammar*, ed. Teun Hoekstra and Bonnie D. Schwartz, 177–214. Amsterdam: John Benjamins Publishing Company.
- Poletto, Cecilia. 2000. *The higher functional field: Evidence from Northern Italian dialects*. Oxford University Press.
- Spruit, Marco René. 2008. Quantitative perspectives on syntactic variation in Dutch dialects. Doctoral Dissertation, Universiteit van Amsterdam.
- Wieling, Martijn, and John Nerbonne. 2015. Advances in dialectometry. *Annual Review of Linguistics* 1:243–264.