Qualitatively and Quantitatively Correlating Microvariation
Parameter interactions in Dutch dialects

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1 Introduction

- CENTRAL DATA: ten dialect phenomena in 267 dialects of Dutch
- METHODOLOGICAL GOAL: develop a quantitative-qualitative methodology for studying and analyzing syntactic microvariation patterns
- EMPIRICAL GOAL: describe and correlate variation patterns in Dutch dialects
- THEORETICAL GOAL: analyze the variation patterns, identify the relevant parameters, and establish the parameter hierarchies they are part of

2 Raw data of ten dialect phenomena

complementizer agreement (CA)

(1) da-n Pol en Jan gaan komen
‘that PL Pol and Jan go-PL come’

clitic doubling (CD)

(2) da-ze zaaile lachen.
‘that they CL.INIT, they STRONG, laugh’

short do replies (SDR)

‘A: He sleeps not. B: He does’

negative clitic (NEG)

(4) K en goa nie noar schole.
‘I NEG go not to school’

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2 Raw data of ten dialect phenomena
3 Statistical analysis of the aggregate data
4 From statistics to linguistics: interpreting the results
5 The bigger picture: parameter interaction & parameter hierarchies
6 The smaller picture: nanovariation
7 Summary
clitics on yes and no (CYN)

(5) A: Wilde nog koffie, Jan? B: Ja-k.
want you PART coffee Jan Yes-1
'A: Do you want some more coffee, Jan? B: Yes.' (Malderen)

't 'it' as there-expletive (EXPL-T)

(6) Ten goa niemand nie dansan.
it NEG goes no one not dance
'There will be no dancing.' (Brugge)

if as a comparative complementizer (CMPR-IF)

(7) Zie peist daj eer ga thuis zijn of ik.
she thinks that you sooner go home be if I
'She thinks you'll be home sooner than me.' (Oostkerke)

have as the perfect auxiliary for ergative verbs like be/fall/come (HAVE+ERG)

(8) K en noa de markt geweest.
I have to the market been
'I've been to the market.' (Izenberge)

determiner+demonstrative in NP-ellipsis (THE+THAT)

(9) De die zou k ik wiln op eetn.
the those would l CLITIC l STRONG want up eat
'I would like to eat those.' (Merelbeke)

go get in imperatives (GO GET)

(10) Gon haalt die bestelling ne keer!
go INF get IMP that order a time
'Go get that order!' (Ghent)

→ these minimaps suggest that the ten phenomena in (1)–(10) might be related to one another, but where should we start and how should we proceed in making sense of these similarities?
3 Statistical analysis of the aggregate data

starting point: van Craenenbroeck (2014): explore the extent to which formal theoretical (generative) linguistics can benefit from exploratory statistical methods for mining large datasets (and vice versa)

technique used in this paper: Correspondence Analysis (CA, Greenacre (2007))

→ proceeds in a number of steps:

step #1: data table with the raw data:

<table>
<thead>
<tr>
<th></th>
<th>Brugge</th>
<th>Hulst</th>
<th>Dirksland</th>
<th>Ossendrecht</th>
<th>Diksmuide</th>
</tr>
</thead>
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<tr>
<td>CA</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<tr>
<td>CD</td>
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</tr>
<tr>
<td>SDR</td>
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<td>0</td>
<td>0</td>
<td>1</td>
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<td>0</td>
<td>1</td>
</tr>
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<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CMPR-IF</td>
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<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>HAVE+ERG</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>THE+THAT</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
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<tr>
<td>GO GET</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

step #2: this data table is converted into a distance matrix:

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<th>CD</th>
<th>SDR</th>
<th>NEG</th>
<th>CYN</th>
<th>EXPL-T</th>
<th>CMPR-IF</th>
<th>HAVE+ERG</th>
<th>THE+THAT</th>
<th>GO-GET</th>
</tr>
</thead>
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<td>5.66</td>
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<td>6.66</td>
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<td>6.93</td>
<td>8.12</td>
<td>8.49</td>
<td>8.19</td>
<td>0.00</td>
<td>7.94</td>
<td>6.78</td>
</tr>
<tr>
<td>10.86</td>
<td>8.49</td>
<td>5.29</td>
<td>6.56</td>
<td>6.00</td>
<td>5.57</td>
<td>5.39</td>
<td>6.78</td>
<td>7.94</td>
<td>6.00</td>
</tr>
</tbody>
</table>

step #3: these (dis)similarities are then plotted in a low-dimensional (here: 3D) space:
4 From statistics to linguistics: interpreting the results

FIRST AND SECOND DIMENSION

• the first dimension sets complementizer agreement (CA) apart from all other phenomena
• the second dimension bundles clitic doubling (CD) and combinations of determiner+demonstrative (THE+THAT) and sets them apart from the remaining phenomena
• the third dimension sets the ergative auxiliary have apart from the remaining phenomena
together the first three dimensions account for roughly 70% of the variance in the raw data set:

hypothesis: the data patterns unearthed by the CA-based analysis are epiphenomenal representations of underlying parametric choices → we identify four such parameters
4.1 FIRST PARAMETER: setting apart CA

- van Koppen (to appear) and references mentioned there: complementizer agreement is the overt reflex of unvalued \( \phi \)-features on C undergoing Agree with the subject

- supporting evidence: the \( \phi \)-feature specification of C(omplementizer agreement) can be different from—and is hence independent from—that of T (Haegeman and Koppen (2012), van Koppen (2005)):

\[
(11) \quad \text{Ich dink des doow en ich ös treffe.}
\]
\[
\text{I think that-2SG you and I ourselves meet-PL}
\]
\[
\text{‘I think that you and I will meet.’}
\]

(12) the AgrC-parameter:
Dialects [have/don’t have] unvalued \( \phi \)-features on C.

4.2 SECOND PARAMETER: setting apart CD and THE+THAT

(13) da-ze zaail lachen.
that-they_{CLITIC} they_{STRONG} laugh
‘that they are laughing.’ (CD)

(14) De die zou k ik wiln op eetn.
the those would I_{CLITIC} I_{STRONG} want up eat
‘I would like to eat those.’ (THE+THAT)

CD: van Craenenbroeck and van Koppen (2008)’s analysis of clitic doubling:

- step one: according to the tests in Déchaine and Witschko (2004) strong pronouns in doubling dialects are pro-DPs, while subject clitics are pro-\( \phi \)Ps

\[
(15) \quad \text{strong pronoun}
\]
\[
\text{DP}
\]
\[
\text{D} \quad \phi P
\]
\[
\phi \text{NP}
\]
\[
N
\]

\[
(16) \quad \text{subject clitic}
\]
\[
\phi P
\]
\[
\phi \text{NP}
\]
\[
N
\]


\[
\Rightarrow \quad \text{there has to be an additional layer above DP to host the movement of the clitic (call it FP) in order to avoid an anti-locality violation (Abels (2003))}
\]
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(17) FP
   CLITIC
      F’
         F’ D’ > STRONG
                  D’
                     D’ P > CLITIC
                        NP
                           N

- **step three**: when the resulting structure is handed over to PF, the moved \( \phi P \) is spelled out as a subject clitic, while the the DP is realized as a strong pronoun.

THE+THAT: Barbiers et al. (2013) argue for a similar big DP-movement-analysis.

- **step one**: the definite article in THE+THAT pronominalizes \( \phi P \), i.e. the part of the DP-structure hosting the noun, numerals, and adjectives:

(18) 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.’

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

(19) DP
   THE
      D’
         D’
            D’
               D P > THE
                  NP
                     N

(20) the D-parameter:
DP [has/does not have] an extended left periphery.

Supporting evidence from possessive structures:

1. dialects with a negative setting of the D-parameter lack THE+THAT 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 of the D-parameter) do have DE+POSS(ESSOR) (see Corver and van Koppen (2010))

(21) *Ik vin de zaine ech geweldig.
   I find the his really great
   ‘I find his really great.’ (Rotterdam)
3. however, only dialects with a positive setting of the D-parameter allow doubling in THE+POSS:

(23) "Ik vin Teun de zinnen echt geweldig."
    I find Teun the his really great
    'I find Teun's really great.' Asten (+D-Parameter)

(24) "Ik vin (* Teun) de zaine ech geweldig."
    I find Teun the his really great
    'I find his really great.' Rotterdam (-D-Parameter)

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

4.3 THIRD PARAMETER: linking CYN/NEG/SDR/EXPL-T/CMPR-IF/GO GET

    he sleeps not he does
    'A: He's not sleeping. B: Yes, he is.' (SDR)

(27) K en goa nie naor schole.
    I NEG go not to school
    'I'm not going to school.' (NEG)

(28) 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.' (CYN)
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1. There will be no dancing. (EXPL-T)

2. She thinks you’ll be home sooner than me. (CMPR-IF)

3. Go get that order! (GOGET)

4.3.1 NEG/CYN/SDR

NEG: van Craenenbroeck (2010): the negative clitic en occupies a high Pol-head in the left periphery

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

4.3.2 EXPL-T

EXPL-T only occurs in subject initial main clauses in the relevant dialects; in all other positions expletive er/daar ‘there’ is used:

− Dialects with EXPL-T

THE C-PARAMETER (FIRST VERSION)

The CP-domain [has/does not have] a PolP.
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‘Three students came yesterday.’

b. *Zyn t gisteren drie studenten gekomen?
   are it yesterday three students come
   INTENDED: ‘Did three students come yesterday?’

c. *dan t gisteren drie studenten gekomen zyn.
   that.PL it yesterday three students come are
   INTENDED: ‘that three students came yesterday.’

– Dialects without EXPL-T

(38) a. D'r staan twee venten in den of.
   there stand two men in the garden
   ‘There are two men standing in the garden.’

b. Staan d'r twee venten in den of?
   stand there two men in the garden
   ‘Are there two men standing in the garden?’

c. dat er twee venten in den of staan.
   that there two men in the garden stand
   ‘that there are two men standing in the garden.’

van Craenenbroeck (2011): EXPL-T is the result of an additional CP-layer:

• EXPL-T is a main clause complementizer/particle much like Breton bez or Welsh fe: (i) these are also disallowed in embedded clauses and inverted main clauses; (ii) they also do not trigger agreement on the verb

(39) Bez’e ra glva.
   PRT does rain
   ‘It rains.’
   (Breton, Jouitteau (2008))

(40) Fe glywes i'r cloc.
   PRT heard.1SG the clock
   ‘I heard the clock.’
   (Welsh, Jouitteau (2008))

• assumption: in expletive-initial main clauses the C-domain needs to be overtly realized in all dialect regions

• analysis: in dialects without EXPL-T the regular there-expletive can move to specCP to accomplish this, but in dialects with EXPL-T there is an additional CP-layer which prevents this movement. As a result, the C-domain is realized by spelling out C as EXPL-T

(41) CP

(42) CP

(43) the C-parameter (FINAL VERSION)
   The CP-domain [has/does not have] an extended left periphery.
4.3.3 CMPR-IF & GO-GET

GO-GET:

- infinitive GO and infinitive COME appear within the left periphery of imperative clauses.

(44) Gon haalt die bestelling ne keer!
    goINF getIMP that order a time
    ‘Go get that order!’ (GO-GET)

(45) Komen eet maar al gauw want ’t is gereed!
    comeINF eatIMP PART PART fast because it is ready
    ‘Come and eat quickly, because it is ready!’ (COME-EAT)

- they appear to be functional, grammaticalized discourse particles rather than ‘real’ lexical verbs, i.e. functional items rather than lexical ones (see Abney (1987), Hopper and Traugott (1993)):
  - functional items have a semantically bleached meaning
    → GO/COME appear to be semantically bleached (but more research is necessary), i.e. there does not seem to be a real going or coming event:

(46) Gaan kijkt e keer oe late dat es!
    go see one time how late that is
    ‘See what time it is.’

- functional items form a closed class
  → GO and COME are the only verbs that can be used in this way
- functional items can be morphologically defective
  → GO and COME appear only in their infinitival form and only in imperative clauses
  → Benjamin (2010), Waltereit and Detges (2007), van Craenenbroeck and van Koppen (2013): discourse markers are typically derived from imperatives

• the dialects that allow grammaticalization of GO and COME into discourse particles might have an additional CP-layer to host this particle; in dialects without this additional layer specCP is occupied by the pro-subject.

CMPR-IF:

- dialects with CMPR-IF differ from dialects without CMPR-IF in that they have an unique form for the conditional complementizer:

<table>
<thead>
<tr>
<th>West-Flemish</th>
<th>East-Flemish</th>
<th>(other) Southern Dutch</th>
<th>Northern Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>conditional</td>
<td>o/a</td>
<td>os/as</td>
<td>as</td>
</tr>
<tr>
<td>comparative</td>
<td>of</td>
<td>of</td>
<td>as</td>
</tr>
</tbody>
</table>

Functional elements COME/GO

- bleached meaning + +?
- closed class + +
- morphological defectiveness + +
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→ this might indicate that the CMPR-IF dialects have two separate C-layers to express conditional and comparative information separately, whereas the other dialects express both features on one head.

(48)

CondP
   ↓
 Cond'
   ↓
Cond o/a

CompP
   ↓
 Comp'
   ↓
Comp als

(49)

Cond/CompP
   ↓
 Cond/Comp'
   ↓
 Cond/Comp als

4.3.4 Summary

• CYN, NEG, SDR, EXPL-T, CMPR-IF, GO GET all point in the same direction: the dialects that display these phenomena have an extended left periphery.

(50) the C-parameter (FINAL VERSION)
The CP-domain [has/does not have] an extended left periphery.

4.4 FOURTH PARAMETER: HAVE-ERG

(51) Ken noa de Markt geweest.
    I have to the market been
    ‘I’ve been to the market.’

(52) the v-parameter
The vP-domain [has/does not have] an extended periphery.

• have is more complex than be:
  → Kayne (1993) has argued that have incorporates an additional preposition: have = be + P
  → alternatively, Benveniste (1960), Hoekstra (1990) have argued that have has an additional accusative case position: have = be + Acc
  → Schoorlemmer (2007) argues that these insights should be implemented in the current theory as have = be + v

→ if have = be + v then dialects with HAVE-ERG have an additional vP-layer:

• additional support for more space in the vP-periphery comes from external possession (data from Buelens (2016):

(53) Peter ging Theo toen just zijn handjes wassen.
    Peter went Theo then exactly his hands wash
    ‘Peter was going to wash Theo’s hands just then.’

• the external possessor construction occurs in the same area as HAVE-ERG (Buelens and D’Hulster (2014)).

• interestingly, Buelens (2016) shows that the external possessor moves from the possessive DP to a designated position within the vP-periphery.

→ we take this to mean that the external possessor can only move in the dialects with an extended vP-domain, since only in these dialects is there a landing site for this element.
5 The bigger picture: parameter interaction & parameter hierarchies

note: the four parameters introduced above seem to be of different types: the AgrC-parameter is about the presence/absence of a specific unvalued feature on a specific functional head, while the other three pertain to the distribution of formal features across phasal peripheries. Both types can be implemented in terms of parameter hierarchies (Biberauer et al. 2014, Biberauer and Roberts 2015).

AGRC-PARAMETER: represents a choice point at some (relatively low) point in the null argument hierarchy of Biberauer et al. (2014):

(55)

Are \( \phi \)-features present on probes?

Yes

No

Radical pro-drop

Are \( \phi \)-features present on all probes?

No

Yes

Pronominal arguments

Are \( \phi \)-features fully specified on some probes?

No

Yes

Non-pro-drop

Are \( \phi \)-features fully specified on T?

No

Yes

Consistent null subject

No

Yes

supporting evidence: some types of COMP-agreement license null subjects:

(56) *Et geberde doest fot giest.*

*It happened when you went away.* (Lies)

D/C/V-PARAMETERS: we propose these parameters constitute choice points in a single parameter hierarchy regulating the grammaticalization of A'-features on phase heads and their surrounding projections → we implement the variation as a parametrization of Feature Inheritance (Chomsky 2007), cf. also Ouali (2008), van Craenenbroeck and van Koppen (2007).
Are A′-features grammaticalized on phase heads (C, v, D)?

- No
- Yes

Do phase heads trigger Feature Inheritance?

- No
- Do phase heads trigger multiple Feature Inheritance?
- Yes

Consistently rich left periphery

Consistently poor left periphery

- No

Do all phase heads trigger multiple Feature Inheritance?

- Yes

C, V, D

---

note: missing from this hierarchy is the possibility of Feature Inheritance being parametrized according to types of features, cf. Miyagawa (2010), Jiménez-Fernández and Miyagawa (2014). This might instantiate the 'No'-option at the second level.

→ with this in mind we can explore the interaction between the three parameters in our dataset:

- there is a consistent area (the Dutch province of North Brabant) with an extended nominal left periphery, but not a clausal or verbal one.
- there is a more or less consistent area (the Belgian provinces of Brabant and Antwerp) that have an extended periphery at the clausal and nominal level, but not at the verbal one.
- there is no dialect that has an extended left periphery at the clausal and verbal, but not at the nominal level.

→ this tentatively suggests that there might be more structure at the bottom parts of the hierarchy than is suggested by the structure in (57): a negative choice for the D-parameter implies a negative choice for either the C- or the v-parameter.
6 The smaller picture: nanovariation

**recall:** while the v-parameter is based on a single linguistic feature (*have*-auxiliary in ergatives), the D- and C-parameters are based on multiple such features (two and six respectively)

**question:** what is the internal consistency of the D- and C-parameters? to what extent is the microlevel variation further muddled by nanoparametric differences?

- on the whole, the geographic overlap between the two phenomena is substantial, with limited amounts of ‘fraying’ at the edges of the core area
  - the only exception seems to be the Dutch province of Zeeland, which consistently shows THE+THAT, but lacks any form of CD

→ interestingly, Barbiers et al. (2016) argue about precisely this phenomenon in this area that it does not represent a genuine, productive case of demonstrative doubling, but rather a lexicalized substantive pronoun that merely has the appearance of demonstrative doubling:

**North Brabant demonstrative doubling**

(58) a. *den* / *dien* / *dizzen* opa
   the.MASC that.MASC this.MASC grandfather
   ‘the/that/this grandfather’

b. *de* / *die* / *dees* tante
   the.FEM that.FEM this.FEM aunt
   ‘the/that/this aunt’
   (Asten)

(59) a. *den* *dien* / *den* *dizzen*
   the.MASC that.MASC the.MASC this.MASC
   [speaking of grandfathers:] ‘that/this one’

b. *de* *die* / *de* *dees*
   the.FEM that.FEM the.FEM this.FEM
   [speaking of aunts:] ‘that/this one’
   (Asten)

→ both the determiner and the demonstrative in THE+THAT-doubling display completely regular agreement that is also attested in non-elliptical contexts

**Zeeland demonstrative doubling**

(60) a. *de* / *die* / *deze* opa
   the that this grandfather
   ‘the/that/this grandfather’

b. *de* / *die* / *deze* tante
   the that this aunt
   ‘the/that/this aunt’
   (Zierikzee)
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(61) a. *den diejen / ?? den dizzen*
the.MASC that.MASC the.MASC this.MASC
[Speaking of grandfathers:] ‘that/??this one’
b. *den diejen / ?? den dizzen*
the.MASC that.MASC the.MASC this.MASC
[Speaking of aunts:] ‘that/??this one’
(Zierikzee)

→ both the determiner and the demonstrative in THE+THAT-doubling display an archaic and fixed type of agreement otherwise unattested in the nominal paradigm + only distal demonstratives can partake in this pattern

C-PARAMETER

• here, the variation is more systematic than in the case of the D-parameter: while in French/West/East Flanders all six phenomena are well represented, the positive setting of the C-parameter in Brabant, Antwerp, and Limburg is typically restricted to SDR, CYN, and/or NEG

→ two options:

1. the real cutoff point for the C-parameter is Flanders, and the limited use of SDR/CYN/NEG represent lexicalized remnants (nanovariation)

(62) A: IJ zal nie komen. B: Toetoe ijt komt nog wel
he will nog come it.does.it.does he comes PRT AFF
‘A: He’s not going to come. B: Sure he will.’ (Meer)

2. the C-parameter needs to be subdivided into two subparameters: SDR/CYN/NEG signal the presence of a left-peripheral Pol-head, while EXPL-T/CMPR-IF/GO-GET signal the presence of an even higher C-head (cf. van Craenenbroeck and van Koppen 2007) on multiple phase boundaries in the clausal left periphery

7 Summary

• a quantitative correlation between variation patterns can be translated into a qualitative analysis in terms of grammatical parameters

• the ten dialect phenomena (CA, THE+THAT, CD, CYN, SDR, NEG, CMPR-IF, GO-GET, and EXPL-T) reduce to four parameters: CA-parameter, C-parameter, D-parameter, v-Parameter

• the C/D/v-parameters form part of the same parameter hierarchy, whereas the CA-parameter is part of a different one

References

