

# DISHARMONIC WORD ORDER, QUIRKY MORPHOLOGY AND THE AFRIKAANSVERB CLUSTER\*

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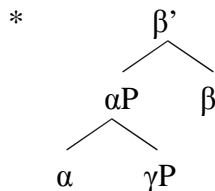
## 1. Introduction

- (1) The **Final-over-Final Constraint (FOFC)** (Biberauer, Holmberg & Roberts 2007 *et seq.*/BHR):

For all heads  $\{\alpha, \beta, \dots\}$  on a single projection line, if  $\alpha$  is a head-initial phrase and  $\beta$  is a phrase immediately dominating  $\alpha$ , then  $\beta$  must be head-initial. If  $\alpha$  is a head-final phrase, and  $\beta$  is a phrase immediately dominating  $\alpha$ , then  $\beta$  can be head-initial or head-final.

- (1) rules out structures like (2):

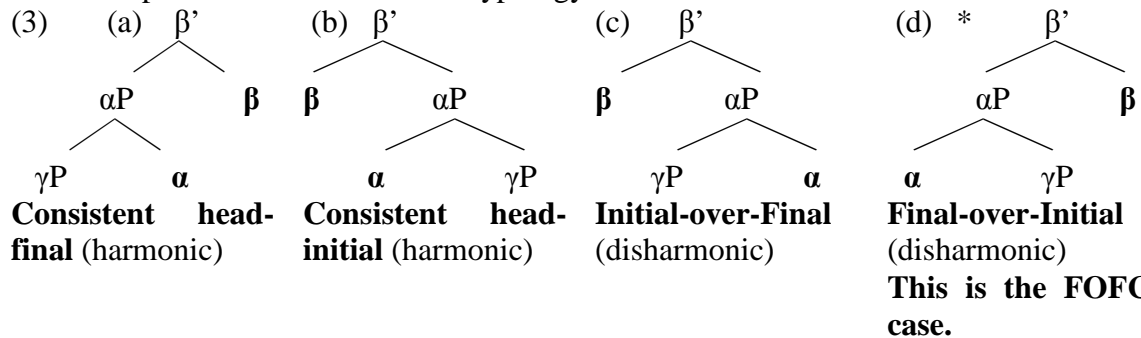
- (2) \* $[\beta_P [\alpha_P \alpha \gamma_P] \beta]$



where  $\alpha_P$  is the complement of  $\beta$  and  $\gamma_P$  is the complement of  $\alpha$ , and  $\alpha$  and  $\beta$  are part of the same projection line (cf. Grimshaw 1991 *et seq.*)

- FOFC is a genuine hierarchical universal in the sense of Whitman (2008) (cf. Biberauer, Holmberg & Roberts 2010)

- Implications for word-order typology:




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i.e. in the domain of word order, we expect to find a skewing in respect of the types of attested word orders: while both types of harmonic pattern should be readily attested, only one type of disharmony should surface.

- FOFC, Germanic, particularly Afrikaans, and this paper:
  - Germanic varieties, synchronic and diachronic, appear to provide striking evidence in favour of (1) (cf. i.a. BHR 2007, 2008, Biberauer, Newton & Sheehan 2009, Biberauer, Sheehan & Newton 2010, and Section 2 for an overview)
  - BUT: certain West Germanic varieties appear to permit FOFC-violating 3-verb clusters, with Afrikaans in particular being a serial offender ...
  - My objective
    - (a) to identify the relevant 3-verb clusters (Section 3);
    - (b) to consider their properties relative to “well-behaved” 3-verb clusters (Section 4 part I); and
    - (c) to establish whether the “badly behaved” clusters constitute a genuine challenge to the proposed universality of (1), or whether, instead, they represent data that may facilitate more fine-grained understanding of this constraint, the core notions it’s built on (e.g. notions of ‘head’, ‘category’, ‘extended projection’, etc.), and the nature of verb clusters more generally (Section 4 Part II)

## 2. Empirical motivation for FOFC: a Germanic-oriented perspective

### 2.1 Clausal word order in Germanic

- West Germanic permits a mix of head-initial and head-final orders in VP and IP:

- (4) O V AUX (“head-final” order in VP and IP, assuming auxiliaries are in I):

... dass Johann das Buch gelesen hat  
 that John the book read has  
 “... that John has read the book”

(also found in Dutch, Afrikaans, all German and Dutch/Flemish dialects, Old English, Old Norse, Gothic)

- (5) O AUX V (“verb-raising”):

- a. ... dat Jan het boek wil lezen [Dutch]  
 that John the book wants read-INF  
 “... that John wants to read the book” (cf. Evers 1975 and subsequent work)
- b. ... þe æfre on gefeohte his handa wolde afylan [Old English (OE)]  
 who ever in battle his hands would defile-INF  
 “... whoever would defile his hands in battle”  
 (*Ælfric’s Lives of Saints* 25.858; Pintzuk 1991: 102, 62)

(also found in German and Dutch/Flemish dialects, Afrikaans, Old Norse)

(6) AUX O V (“verb projection raising”)

- a. ... da Jan wilt een huus kopen [West Flemish]  
that Jan wants a house buy-INF  
“... that Jan wants to buy a house” (cf. Haegeman & van Riemsdijk 1986)
- b. ... þæt hie mihton swa bealdlice Godes geleafan bodian [OE]  
that they could so boldly God’s faith preach  
“...that they could preach God’s faith so boldly”  
(*The Homilies of the Anglo-Saxon Church* I 232; van Kemenade 1987:179, 7b)

(also found in Swiss German, Afrikaans, Middle Dutch, Old High German, Old Norse – see BHR for references)

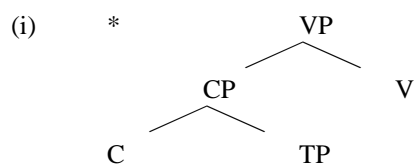
(7) V AUX O (“object extraposition”):

- a. Obligatory with clausal complements<sup>1</sup> and possible with PPs in modern West Germanic, but not really with DPs (contrast older West Germanic):  
... dat Jan verliefd is op Marie [PP] [Dutch]  
that John in-love is on Mary  
“... that John is in love with Mary” (Zwart 1997:38)
- b. ... þæt ænig mon atellan mæge ealne þone demm [OE]  
that any man relate can all the misery  
“... that any man can relate all the misery”  
(*Orosius* 52.6 – 7; Pintzuk 2002: 283, 16b)
- c. ... huuan êr the frôdo man gifrumid habdi uualdandes uuilleon [Old Saxon]  
until the old man done had God’s will  
“... until the old man had done God’s will” (*Heliand* 105-106)

(also found in German, German/Dutch dialects Afrikaans, (PPs, CPs only), ON (PPs, CPs and DPs)

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<sup>1</sup> As Biberauer & Sheehan (2010) observe, this fact circumvents what would otherwise have been a FOFC violation; owing to the fact that head-initial CPs are systematically “extraposed”, not just in Germanic, but in OV languages with initial Cs more generally, the structure in (i) is systematically avoided:



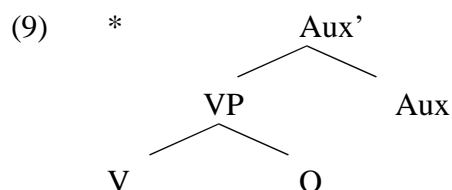
(8) AUX V O (“verb raising” combined with “object extraposition”):

a. Hy laat val die bal [Afrikaans]  
 he let fall the ball  
 “He drops the ball”

Ikh hob gezen Moishn [Yiddish]  
 I have seen Moses  
 “I saw Moses” (den Besten & Moed-van Walraven 1986: 125)

b. ... þæt he mot ehtan godra manna [OE]  
 that he might persecute good men  
 “... that he might persecute good men”  
 (*Wulfstan’s Homilies* 130.37 – 38; Pintzuk 2002: 282, 13b)

- But **V O AUX is not attested** (cf. i.a. den Besten 1986, Travis 1984:157-8, Kiparsky 1996:168-171, Pintzuk 1991/1999, Hróarsdóttir 2000, Fuss & Trips 2002).
- The unattested order is the one which violates FOFC for  $\alpha = V$ ,  $\beta = \text{Aux}$  (whatever category Aux is):



- Strikingly, VOAux does not even surface under plausible **contact conditions** (cf. Biberauer, Sheehan & Newton 2010):

e.g. South Africa: Afrikaans (OV; final AuxP and final VP) meets English (VO; initial AuxP and VP), but Kaapse Afrikaans/Kaaps:

- (10) a. ... dat ek [VP R1400 van die Revenue gekry] **het** [O-V-Aux]  
 that I R1400 from the Revenue got have  
 “... that I got R1400 from the Receiver of Revenue”
- b. ... dat ek **het** [VP R1400 van die Revenue gekry] [Aux-O-V]  
 c. ... dat ek **het** [VP gekry R1400 van die Revenue] [Aux-V-O]  
 d. ... **dat ek** [VP gekry R1400 van die Revenue] **het** [\*V-O-Aux]

- By contrast, we readily find final-over-initial structures where the dominated XP is not on the same projection line as the dominating XP:

(10) a. ... dat ek [VP [DP die boek] lees] [Afrikaans]  
 that I the book read  
 “... that I am reading the book”

- b. ... dass i [<sub>VP</sub> [<sub>PP</sub> uf Berlin] gang] [Zürich German]  
 that I to Berlin go  
 “... that I went to Berlin” (example from Salzmann 2010)

Thus: FOFC clearly needs to be defined in such a way that it is sensitive to **projection lines** and the notion ‘extended projection’ (cf. BHR 2009, 2010 and Biberauer & Sheehan 2010 for detailed discussion; see also Section 4 below)

## 2.2 Diachronic developments in Germanic

(11) “If language change is constrained by grammatical structure, then synchronic assumptions have diachronic consequences” (Kiparsky 2008:23)

- If FOFC is an absolute universal, word-order change must proceed along certain pathways:

- OV → VO (final to initial) change must go “top-down”:

(12) [[[O V] I] C] → [C [[O V] I]] → [C [I [O V]]] → [C [I [V O]]].

- VO → OV (initial to final) change must go “bottom-up”:

(13) [C [I [V O]]] → [C [I [O V]]] → [C [[O V] I]] → [[[O V] I] C].

Any other route will violate FOFC at some stage.

- See Biberauer, Newton & Sheehan (2009a,b) for detailed discussion of Germanic, Romance and Ethio-Semitic case studies corroborating the above pathways. Further evidence comes from Niger-Congo languages that have undergone a VO to OV change that is limited to VP and vP (cf. Nikitina 2008 for recent discussion and references) and the Sami languages within Finno-Ugric, which have undergone the reverse change.

Here, we offer only the most well-known case study (but cf. also the history of the Scandinavian languages (Hróarsdóttir 2000), Yiddish (Wallenberg 2009) and Afrikaans (Biberauer, Sheehan & Newton 2010)).

### English as a case study

- Lightfoot (1991, 1999), building on Canale (1978) and van Kemenade (1987): “catastrophic” reanalysis in 12<sup>th</sup> century led to IP- and VP-final Old English (OE) being reanalysed as IP- and VP-initial Middle English (ME)
- Pintzuk (1991/1999): transition to IP-initial ordering = a longer-term trend, in progress throughout OE and completed during the Early ME period (examples from Kroch & Taylor 2000):

(14) a. er þanne þe heuene oðer eorðe **shapen were** [V-AUX]  
 before that heaven or earth created were  
 “before heaven or earth were created” (*Trinity Homilies*, 133.1776)

- b. for ði ðat godd **isæd hadde** to Adame: Morte morieris! [V-AUX]  
 because that God said had to Adam Morte morieris  
 “because God had said to Adam: “Dying, you will die!”  
 (*Vices and Virtues*, 105.1276)
- c. þat þurh soð scrifte synnes **ben forgeuene** [AUX-V]  
 that through true shrift sins are forgiven  
 “that sins are forgiven following sincere confession”  
 (*Trinity Homilies*, 23.304)
- d. ei wel itohe muð for scheome **mahe seggen** [AUX-V]  
 than any well-disciplined mouth for shame may say  
 “that any well-disciplined mouth may say for shame”  
 (*Hali Meidhad*, 146.262)

- sharp decline in OV order at the end of the OE period (cf. Lightfoot 1991, Pintzuk 1991/1999), but OV orderings remained until late ME, and:

- (15) “there is a period when INFL-medial [i.e. I-initial – TB/GW] surface order is frequent. ... The languages, therefore, has both OV and VO verb phrases, as well as both INFL-final and INFL-medial clauses. **It is natural then to expect that the INFL-medial and OV options would combine. Of course, it is true that INFL-final and VO do not combine, but this failure seems to be due to some property of UG** (Kiparsky 1996).” (Kroch & Taylor 2000: 153).

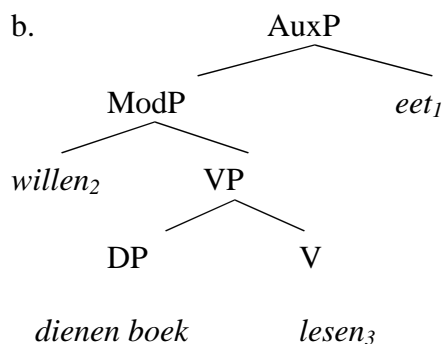
Thus, OE and ME permitted a range of word-order options in the clausal domain, but never FOFC-violating VOAux.

### 3. A Germanic challenge to FOFC?

#### 3.1 Introduction

- Walkden (2009): West Flemish (WF) appears to permit a FOFC-violating structure (where 1,2,3 reflects the standardly employed West Germanic verb-cluster hierarchy-indicating notation in terms of which 1 signifies the least embedded verb [structurally highest] and 3 the most embedded [structurally lowest] one):

- (16) a. ... da Valère willen<sub>2</sub> dienen boek lezen<sub>3</sub> eet<sub>1</sub>  
 that Valère want.INF that book read.INF has  
 “... that Valère has wanted to read that book” (Haegeman 1998b: 634)



i.e. head-final VP dominated by head-initial ModalP (“permissible” disharmony); AND head-initial ModalP dominated by head-final AuxP ← **FOFC violation!**

And the same 231-structure is possible in infinitival structures:<sup>2</sup>

- (17) Willen en us kuopen een was en misse  
want.INF a house buy.INF have.INF was a mistake  
“Having wanted to buy a house was a mistake” (Haegeman 2001: 214)

### HOW WIDESPREAD ARE STRUCTURES OF THIS TYPE?

- On the distribution of (superficially) FOFC-violating 231 in Germanic more generally:
  - Wurmbrand (2005:8): 231 structures involving Mod<sub>2</sub>-V<sub>3</sub>-Aux<sub>1</sub> are restricted to West Flemish (WF) ... and Afrikaans *Infinitivus Pro Participio (IPP)* structures
  - Barbiers (2005:245): 231 structures involving Mod<sub>2</sub>-V<sub>3</sub>-Aux<sub>1</sub> also occur in 26 locations within the area surveyed by the *Syntactic Atlas of the Dutch Dialects (SAND)* project
  - Schmid (2006): 231 structures occur in WF, Afrikaans and Zürich German (ZG), with the first two being the most “prolific” offenders; cf. also Salzmann (2010) on Bodensee Alemannic German

[By contrast, **213** is systematically missing ... the wrong gap from a FOFC perspective, but Abels (2009) suggests it’s the one we find generally in Germanic, and it’s also the one which Cinque (2005) highlights in the DP context in relation to Greenberg’s Universal 20.]

**THE QUESTION:** Do 231 clusters in Germanic undermine the status of the Final-over-Final Constraint as a genuine hierarchical universal?

### 3.2 231 clusters in Afrikaans

- See the Appendix and Biberauer & Walkden (2010) for more detailed discussion of 231 clusters in West Flemish, Dutch and Swiss German varieties:
- Our focus here: Afrikaans

#### 3.2.1. *Afrikaans*<sup>3</sup>

- Afrikaans is the most prolific offender in relation to available 231 orders:

<sup>2</sup> Wurmbrand (2005: 8) observes that 231 is the obligatory order in infinitival structures; the same is not true in finite contexts; cf. Section 3.2 for further details

<sup>3</sup> The data in this section are based on Biberauer’s judgements, which have been checked with further native speakers. Where noted, they depart from those reported in Schmid (2006).

- (18) a. ... dat hy die medisyne **kon**<sub>2</sub> drink<sub>3</sub> het<sub>1</sub><sup>4</sup> [modal]  
 that he the medicine could.INF drink.INF have  
 “... that he could drink the medicine”
- b. ... dat hy hom die medisyne **maak**<sub>2</sub>/ **laat**<sub>2</sub> drink<sub>3</sub> het<sub>1</sub> [causative]  
 that he him the medicine make.INF let.INF drink.INF have  
 “... that he made/let him drink the medicine”
- c. ... dat hy haar **hoor**<sub>2</sub> roep<sub>3</sub> het<sub>1</sub> [perception]  
 that he her hear.INF call.INF have  
 “... that he heard her call”
- d. ... dat ek haar die bokse **help**<sub>2</sub> dra<sub>3</sub> het<sub>1</sub> [benefactive]  
 that I her the boxes help.INF carry.INF have  
 “... that I helped her carry the boxes”
- e. ... dat die mense **bly**<sub>2</sub> staan<sub>3</sub> het<sub>1</sub> [durative]  
 that the people remain.INF stand.INF have  
 “... that the people remained standing”
- f. ... dat dit **ophou**<sub>2</sub> reën<sub>3</sub> het<sub>1</sub><sup>5</sup> [inchoative]  
 that it stop.INF rain.INF have  
 “... that it has stopped raining”
- g. ... dat hy **probeer**<sub>2</sub> voorgee<sub>3</sub> het<sub>1</sub> [control]  
 that he try.INF pretend.INF have  
 “... that he tried to pretend”
- h. ... dat hy die boek **gaan**<sub>2</sub> lees<sub>3</sub> het<sub>1</sub> [motion]  
 that he the book go.INF buy.INF have  
 “... that he went to buy the book”
- i. ... dat hy die boek **loop**<sub>2</sub> (en) koop<sub>3</sub> het<sub>1</sub> [linking]<sup>6</sup>  
 that he the book walk.INF and buy.INF have  
 “... that he went and bought the book”
- j. ... dat hy die boek **sit**<sub>2</sub> en lees<sub>3</sub> het<sub>1</sub> [linking]  
 that he the book sit and read have  
 “... that he was sitting and reading the book”

<sup>4</sup> Schmid (2006:43) has (i):

(i) ? ... dat ek dit altyd wil doen het  
 that I it always want do have  
 “... that I have always wanted to do it”

This structure is, however, not grammatical in modern Afrikaans.

**Worth noting about the Afrikaans perfect auxiliary *het*: the finite and non-finite forms are identical.**

<sup>5</sup> Schmid (2006:65) marks this example ?, but it is fully grammatical, even in standard Afrikaans.

<sup>6</sup> Cf. de Vos (2005) for detailed discussion of the so-called *linking verb* construction that Afrikaans has innovated.

- Crucially, V<sub>1</sub> is subject to strict constraint, which also holds in the other West Germanic varieties, barring Bodensee Alemannic (where V<sub>1</sub> and V<sub>2</sub> have to be “the same verb” in some sense; see Appendix): it cannot be a modal or any auxiliary other than the **present perfect auxiliary**.
- Consequently, all of these 231 structures are *Infinitivus pro Participio (IPP) structures*.
- V<sub>2</sub> is a restructuring verb or one that participates in pseudo-coordination (cf. i.a. de Vos 2005, Kjeldahl 2010)
- 123 order is possible alongside 231 order in all of the above cases. Importantly, though, **231 order is the neutral order** in all cases, with 123 being colloquial (contra Schmid 2006), with the exception of inchoatives, where 123 is marginal:

- (19) a. ... dat hy die medisyne het<sub>1</sub> kon<sub>2</sub> drink<sub>3</sub> [modal]  
 that he the medicine have can.INF drink.INF  
 “... that he could drink the medicine”
- b. ??... dat dit het<sub>1</sub> ophou<sub>2</sub> reën<sub>3</sub> [inchoative]  
 that it have stop.INF rain.INF  
 “... that it has stopped raining”

BUT:

- 231 orders aren’t limited to IPP contexts in Afrikaans (contrast WF, Dutch and Swiss German, barring Bodensee Alemannic) – structures involving causative, perception, benefactive and, more marginally, durative and linking verbs also permit 231 orders where V<sub>2</sub> is a **past participle**; for inchoatives, this is very natural; for motion *gaan*, it is out (cf. also Schmid 2006 and Zwart 2007:95):

- (20) a. ... dat hy hom die medisyne gemaak<sub>2</sub>/ gelaat<sub>2</sub> drink<sub>3</sub> het<sub>1</sub> [causative]  
 that he him the medicine make.PRT let.PRT drink.INF have  
 “... that he made/let him drink the medicine”
- b. ... dat hy haar gehoor<sub>2</sub> roep<sub>3</sub> het<sub>1</sub> [perception]  
 that he her hear.PRT call.INF have  
 “... that he heard her call”
- c. ... dat ek haar die bokse gehelp<sub>2</sub> dra<sub>3</sub> het<sub>1</sub> [benefactive]  
 that I her the boxes help.PRT carry.INF have  
 “... that I helped her carry the boxes”
- d. ?... dat die mense daar gebly<sub>2</sub> staan<sub>3</sub> het<sub>1</sub><sup>7</sup> [durative]  
 that the people there remain.PRT stand.INF have  
 “... that the people remained standing”
- e. ... dat dit opgehou<sub>2</sub> reën<sub>3</sub> het<sub>1</sub> [inchoative]  
 that it stop.PRT rain.INF have  
 “... that it stopped raining”

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<sup>7</sup> This is an extremely colloquial structure, significantly more so than (31a-c).

f. ??... dat hy dit geprobeer<sub>2</sub> verkoop<sub>3</sub> het<sub>1</sub> [control]  
 that he it try.PRT sell.INF have  
 “... that he tried to sell it”

g. ... dat hy die boek geloop<sub>2</sub> (\*en) koop<sub>3</sub> het<sub>1</sub> [linking]  
 that he the book walk-PRT and buy.INF have  
 “... that went to buy the book”

h. ... dat hy die boek gesit<sub>2</sub> en lees<sub>3</sub> het<sub>1</sub> [linking]  
 that he the book sit-PRT and read have  
 “... that he was sitting and reading the book”

▪ *ge-* might be semantically vacuous in these structures (spurious morphology), or ...

- Again, 123 ordering is also possible in these cases, although this is the more colloquial structure, except in the case of the control verbs, i.e. 231 is the norm in a large number of Afrikaans constructions:

- (21)
- ... dat hy hom die medisyne het<sub>1</sub> gemaak<sub>2</sub>/gelaat<sub>2</sub> drink<sub>3</sub>
  - ... dat hy haar het<sub>1</sub> gehoor<sub>2</sub> roep<sub>3</sub>
  - ... dat ek haar die bokse het<sub>1</sub> gehelp<sub>2</sub> dra<sub>3</sub>
  - ... dat die mense het<sub>1</sub> bly<sub>2</sub> staan<sub>3</sub>
  - ??... dat dit het<sub>1</sub> opgehou<sub>2</sub> reën<sub>3</sub>
  - ... dat hy dit het<sub>1</sub> probeer<sub>2</sub> voorgee<sub>3</sub>

- Also unique to Afrikaans is the behaviour of the modals in 231 structures:

(22) a. ... dat hy die medisyne **kon**<sub>2</sub> /**\*kan**<sub>2</sub> drink<sub>3</sub> het<sub>1</sub><sup>8</sup>  
 that he the medicine could.PRET.INF can.PRES.INF drink.INF have  
 “... that he could/was able to drink the medicine”

b. ... dat sy die boek **moes**<sub>2</sub> / **\*moet**<sub>2</sub> lees<sub>3</sub> het<sub>1</sub>  
 that she the book must.PRET.INF must.PRES.INF read.INF have  
 “... that she should have read the book”

c. ... dat sy die boek **sou**<sub>2</sub> / **\*sal**<sub>2</sub> lees<sub>3</sub> het<sub>1</sub>  
 that she the book should.PRET.INF /shall.PRES.INF read.INF have  
 “... that she would have read the book”

- The perfective auxiliary triggers **preterite assimilation** (cf. Ponelis 1993 and Donaldson 1993)

<sup>8</sup> Schmid (2006:43) has (i):

(ii) ? ... *dat ek dit altyd wil doen het*  
 that I it always want do have  
 “... that I have always wanted to do it”

This structure is, however, not grammatical. See the main text for further discussion of the form of Afrikaans modal-containing 231-structures.

Modals selecting modals optionally exhibit the same property, except these are necessarily 123 structures:

(23) a. ... dat sy die boek **sou**<sub>1</sub>                      **wou**<sub>2</sub>                      lees<sub>3</sub>  
           that she the book should.PRET want.PRET.INF read.INF  
           “... that she would want to read the book”  
           [finiteness test: Sy sou<sub>1</sub> die boek wou<sub>2</sub> lees<sub>3</sub> – *sou* undergoes Verb Second]

b. ... dat hy dit **moes**<sub>1</sub>                      **kon**<sub>3</sub>                      gesien<sub>4</sub> het<sub>2</sub>  
           that he it must.PRET. could.PRET.INF see.PRT have.INF  
           “... that he must have been able to see it”  
           [finiteness test: Hy moes<sub>1</sub> dit kon<sub>3</sub> gesien<sub>4</sub> het<sub>2</sub> – *moes* undergoes Verb Second]

NOT:

b'. \*... dat hy dit moes<sub>1</sub> het<sub>2</sub>                      kon<sub>3</sub>                      gesien<sub>4</sub>  
           that he it must have.INF could.PRET.INF see.PRT

i.e. the infinitival perfective auxiliary behaves like its WF counterpart in having to be final in relation to the verb it selects.

- Is the “extra” preterite morphology semantically vacuous? Or is infinitival *het* in Afrikaans defective in some sense, such that it lacks features which are, instead, expressed on the non-finite modal? In this connection, we might also want to view “extra” *ge-* as indicative of a deficiency associated with *het* (a multiply homophonous lexical item).
- In general, then, Afrikaans presents a range of superficially quirky morphology (cf. Kjeldahl 2010) in the complement of its perfective auxiliaries: IPP, “extra” *ge-* and preterite assimilation.

### 3.2.2. Summary

- 231 orders are certainly not unattested in Germanic, with Afrikaans being particularly prolific
- The structures that we do find are subject to striking constraints, however:
  - (a) V<sub>1</sub> must practically always be a perfective auxiliary (Bodensee-Alemannic is the only exception, where a different constraint holds on V<sub>1</sub>)
  - (b) V<sub>2</sub> must be a restructuring or a linking verb
- 231 order typically alternates with 123 order, although languages differ as to whether 231 or 123 is the neutral order.

## 4. Evaluating the data

- Germanic verb clusters and FOFC:
  - There are no ill-formed 2-verb clusters (\*VOAux)
  - Ill-formed 3-verb clusters are highly constrained in structure:

(24) AUX<sub>PERF1</sub> – MOD/ASP<sub>Restructuring-Inf2</sub> – V<sub>3</sub>

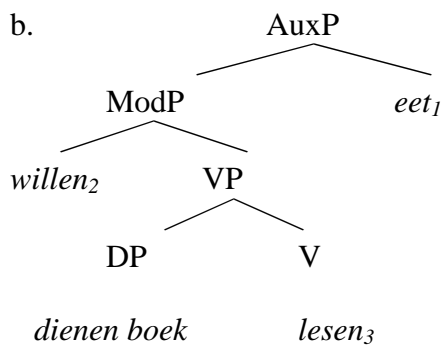
- FOFC is a **hierarchical** universal (cf. Whitman 2008, BHR 2010), which is centrally concerned with **projection** (cf. (1))

#### 4.1. West Germanic 231 and hierarchy

- Considering the hierarchical point first:
    - Svenonius (2007:273): West Germanic IPP orders can never be base-generated as material that surfaces to the left of the verbal cluster may only relate to lower parts of the cluster (the “clause-union” phenomenon)
- (25) a. ... omdat Jan het probleem **helemaal** moet<sub>1</sub> hebben<sub>2</sub> **begrepen**<sub>3</sub> [Dutch]  
 because John the problem completely must have.INF understand.INF  
 “... because John must have completely understood the problem”  
 [*helemaal* is a low adverbial, which scopes over *begrepen* and not *hebben* or *moet*; cf. Cinque’s (1999) completive Aspect]
- b. ... dat sy **dikwels** die skool **gaan**<sub>2</sub> **besoek**<sub>3</sub> het<sub>1</sub> [Afrikaans]  
 that she often the school go.INF visit.INF have  
 “... that she often went to visit the school”  
 [*dikwels* scopes over *besoek* or maybe – see below – *gaan besoek*, but not *het*, and *die skool* is the complement of *besoek*]  
 ▪ while objects may undergo leftward movement (scrambling, etc.), adverbs aren’t generally assumed to undergo independent movement.

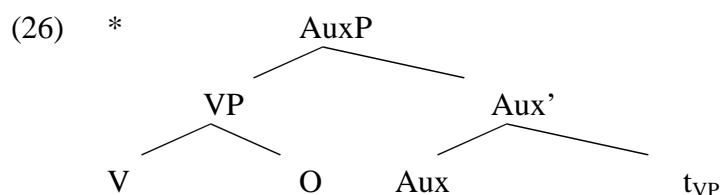
Consequence: 231 structures can’t straightforwardly have the structure indicated in (16) above:

- (16) a. ... da Valère willen<sub>2</sub> dienen boek lezen<sub>3</sub> eet<sub>1</sub>  
 that Valère want.INF that book read.INF has  
 “... that Valère has wanted to read that book” (Haegeman 1998b: 634)



- we have to assume movement of some kind to have taken place to generate these structures (even if we reject a Kaynean approach)

BUT: the structures still superficially violate FOFC, and movements creating FOFC-violating structures are ruled out by BHR (2010).



#### 4.2. West Germanic 231 and projection

- Elements that have been said not to project often surface in (apparently) FOFC-violating structures – e.g. particles (cf. the papers in Biberauer & Sheehan (forthcoming), and Biberauer (forthcoming a,b) for further discussion):

- (27) a. *Hulle het nie<sub>1</sub> verstaan nie<sub>2</sub>* [clausal negation]  
 they have not understood NEG  
 “They didn’t understand”
- b. *Nie<sub>1</sub> die boek nie<sub>2</sub>, maar die koerant moet jy lees* [DP constituent negation]  
 not the book NEG but the newspaper must you read.INF  
 “Not the book, but the newspaper is what you need to read”
- c. *Dit moet nie<sub>1</sub> langer nie<sub>2</sub> as 10 000 woorde wees* [AP constituent negation]  
 it must no longer NEG than 10 000 words be.INF  
 “It must be no longer than 10 000 words”

i.e. *nie<sub>2</sub>* superficially violates FOFC as it can be shown to dominate a range of head-initial XPs (CP, DP and AP<sup>9</sup>).

Biberauer (2008, 2009, 2010) proposes that this particle doesn’t violate FOFC by virtue of the fact that it is **acategorical**, i.e. lacks a categorial specification and, as result cannot select complements in the usual manner:

- (28) a. b. c.

#### Projection peculiarities in the 231-domain

##### 4.2.1. *WF present-perfect HAVE and extensions we might make to Afrikaans*

- Present-perfect HAVE in WF doesn’t show the behaviour expected of a **regular finite auxiliary** in negative 231 structures (in the 123 alternative, though, it behaves normally):

- (29) a. ... da Valèrè nooit willen<sub>2</sub> de waste doen<sub>3</sub> (\*en) - eet<sub>1</sub>  
 that Valèrè never want.INF the washing do.INF NEG.- has  
 “... that Valèrè has never wanted to do the washing”
- b. ... da Valèrè nooit (en)- ee<sub>1</sub> willen<sub>2</sub> de waste doen<sub>3</sub>  
 that Valèrè never NEG. has want.INF the washing do.INF  
 “... that Valèrè has never wanted to do the washing” (Haegeman 1998b:641)

- The fact that *eet* is final is not a relevant consideration as *-en* is compatible with clause-final finite verbs:

<sup>9</sup> Unlike its German and Dutch counterparts, AP is essentially head-initial in modern colloquial Afrikaans.

(30) ... da Valère Marie die boeken nie (en)- geeft  
 that Valère Marie the books not NEG gives  
 “... that Valère isn’t giving Marie the books” (Haegeman 1998a:270)

- Haegeman (1998a): final HAVE (231 orders) is featurally distinct from initial HAVE (123 orders), lacking either tense or finiteness features and thus occupying a lower projection than initial HAVE (her F<sub>2</sub>P – see (35) below )
- Afrikaans finite and non-finite *het* exhibit exactly the same positional properties, and it’s also not particularly clear that these are distinct lexical items (cf. the homophony observation in note 4).
- Our speculation: if a lack of [tense]/[finiteness] features can be established, final HAVE cannot project normally (see further below)

#### 4.2.2. *The quirky morphology associated with V<sub>2</sub> (infinitival i.p.o. participial)*

- The unexpected infinitival form of V<sub>2</sub> may signal underlying (syntax-internal) defectivity, e.g. that there isn’t the usual projection relationship between V<sub>1</sub> (the present-perfect auxiliary) and its complement (superficially infinitival V<sub>2</sub>), or that there is something unusual about the way in which V<sub>1</sub> and V<sub>2</sub> are merged together (cf. Kjeldahl 2010 on ‘clausal overcrowding’).
- Kjeldahl (2010: 53) highlights a case where IPP arises in Danish as a consequence of the fact that **it is not possible for the required perfect auxiliary to be projected**:

- (31) a. *Louise er gået ud [□] (\*hettet) avisen*  
 Louise is walked out and buy.PART the.paper  
 “Louise went and bought the paper”
- b. *Louise er gået ud [□] (\*hettet) avisen*  
 Louise is walked out and buy.INF the.paper  
 “Louise went and bought the paper”

Here the verbs have conflicting auxiliary-selection requirements, which cannot be resolved by inserting an auxiliary for each verb (by virtue of the reduced structure associated with pseudo-coordination structures) or by simply omitting the required auxiliary and employing the required participle (31a).

#### 4.2.3. *The semantically vacuous participial morphology associated with V<sub>2</sub> in Afrikaans 231 structures*

- Afrikaans *ge-* has independently been shown to have “a different status in Afrikaans than in the rest of Continental West-Germanic” (Zwart 2007:95 citing cf. de Vos 2002)
- De Vos (2002) proposes that *ge-* is a Tense marker, unrelated to perfectivity. Thus we have the same situation as that proposed by Zwart for the origins of IPP structures: present-perfect AUX selects [+past][perfect-] V<sub>2</sub>, another case of “partial projection”.
- ... or maybe the morphology isn’t semantically vacuous and, instead, points to the fact that perfective *het* lacks a past specification (cf. Afrikaans’s “extra” *ge-* and preterite assimilation)

4.2.4. *Cases where V<sub>2</sub> and V<sub>3</sub> can be shown to have an unusually close relationship*

- V<sub>2</sub> and V<sub>3</sub> appear to constitute a structural unit in certain Afrikaans and Bodensee-Alemannic 231 structures:

- 23-combinations may front as a constituent:

- (32) a. Hy het<sub>1</sub> die boek darem sonder klagte **gaan<sub>2</sub> lees<sub>3</sub>**  
he have the book PART without complaint go.INF read.INF  
“He (after all) went to read the book without complaint”
- b. **Gaan<sub>2</sub> lees<sub>3</sub>** het<sub>1</sub> hy die boek darem sonder klagte  
go-INF read.INF have he the book PART without complaint  
“As for going to read, he went and read that book without claim”
- c. \***Lees<sub>3</sub>** het<sub>1</sub> hy die boek darem sonder klagte **gaan<sub>2</sub>**  
read.INF have he the book PART without complain go.INF

Contrast:

- d. \***Kon<sub>2</sub> koop<sub>3</sub>** sou<sub>1</sub> hy die boek darem sonder klagte  
could.INF buy.INF would he the book PART without complaint

i.e. 23-combinations in 3-verb clusters that don't have the 231-required AUX-MOD/ASP-V profile cannot undergo the fronting that is available to 23-combinations associated with some of the verbs creating 231 clusters (cf. (29) above).

- Bodensee-Alemannic permits the same option (Salzmann 2010:2):

- (33) **Go poschte** gan i nöd  
go.INF shop.INF go i not  
“As for (going) shopping, I didn't go”

- In 2-verb clusters, causative, benefactive, durative, motion and linking V<sub>2</sub>s may undergo “quirky Verb Second” (cf. de Vos 2005)

- (34) a. Hulle **laat vaar** daardie plan  
they let drift that plan  
“They put that plan aside”
- b. Ek **gaan haal** die drankies  
I go fetch.INF the drinks  
“I go fetch the drinks”
- c. Hy **loop koop** die braaihout  
he walk buy.INF the barbecue-wood  
“He goes to buy the barbecue wood”
- d. Sy **staan en lees** tydskrifte by die bushalte  
she stand and read magazines at the bus-stop  
“She is standing reading magazines at the bus-stop”

[Fake co-ordination ‘unexpected event’ structures also undergo quirky V<sub>2</sub>, so we also have:

e. Sy **gaan staan en vergeet** toe die hotel se naam  
 she go stand and forget then the hotel POSS name  
 “She then went and forgot the hotel’s name [top off all the other silly things she did that day!]”]

- Some of these forms have become idioms (e.g. *laat vaar*, and numerous other forms with *laat* and *maak* in particular). Like other idioms, we might expect combinations of this sort not to project independently – they are unanalysed wholes.

#### 4.2.5. *The relation between V<sub>2</sub> and V<sub>3</sub> in IPP structures introduced by lexical restructuring verbs*

- Wurmbrand (2001) distinguishes different types of restructuring triggers, including a class (control and perception verbs) which are lexical.
- If an extended projection may contain only one lexical head (see also van Riemsdijk 1998, Emonds 2001 and Cardinaletti & Giusti 2001 below), IPP structures involving lexical restructuring verbs don’t involve a single extended projection and so don’t violate FOFC.

#### 4.2.6. “Overcrowding” effects

- Kjeldahl (2010) proposes that structures exhibiting quirky morphology (including pseudo-coordination and IPP structures) always involve verbs being merged “too close” (effectively: a Merge counterpart of anti-locality in the movement domain) and consequently lacking the full functional structure that is ordinarily available to verbs. To the extent that these structures involve defective projections, we expect 231 structures to be able to violate FOFC.

#### 4.2.7. *The close relationship between V<sub>1</sub> and V<sub>2</sub> in Bodensee-Alemannic (see Appendix)*

- V<sub>2</sub> always has to be what appears to be a reduced (particle) form of V<sub>1</sub>
- Salzmann (2010:3) further observes that *go* (and *la*) are deficient in that they cannot inflect → another potential case of a projection-related discrepancy

#### 4.2.8. *Conclusion*

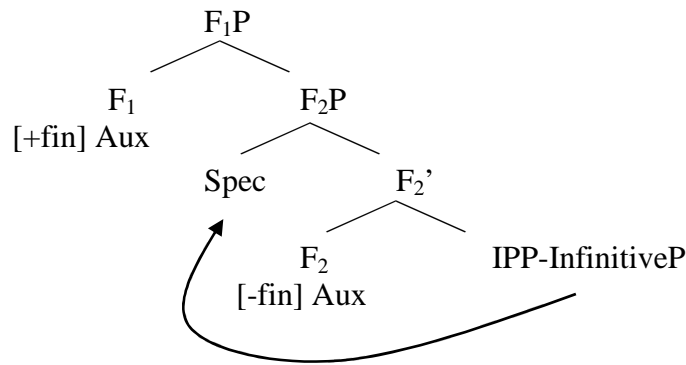
- All the 231 structures presented in Section 3 feature at least one verbal component that can be thought of as special/defective in some way.
- If this defectiveness relates to projection, we can understand why 231 structures are (superficially) able to violate FOFC: like other (superficially) FOFC-violating structures, the fact that they involve a projection-related complication means that we are not dealing with a head-final phrase which dominates a head-initial one which is *part of the same projection line*.

#### 4.3. Previous analyses of IPP structures that further point to the feasibility of pursuing the projection-oriented approach to West Germanic 231 structures

- Rizzi (1978):
  - Restructuring verbs trigger processes of structural simplification, i.e. complex verb formation, which leads to various “transparency” effects, including clause-union of the sort illustrated in (25).
- Haegeman (1998a):

- IPP structures parallel weak pronouns in Cardinaletti & Starke’s (1999) system, and are thus systematically required to move to a particular leftward specifier (her Spec-F<sub>2</sub>P, i.e. the spec associated with infinitival auxiliaries).
- The infinitival present-perfect auxiliary is necessarily final because IPP infinitives must move into its specifier. If this auxiliary lacks [tense], there may be a remarkable parallel with Afrikaans non-finite *het*.
- The properly finite (tense-bearing) present-perfect auxiliary precedes IPP-infinitives (giving non-FOFC-violating 123 order) because it heads F<sub>1</sub>.

(35)



- In projection terms:
  - Finite perfect auxiliary: the IPP clause’s defective [-finite] projection (IPP-InfinitiveP above) may well not “qualify” as part of the same extended projection as the (cluster-final) [+finite] selecting perfect auxiliary (located in F<sub>1</sub>)
  - Non-finite perfect auxiliary: *een* (in F<sub>2</sub>) seems deficient
- Van Riemsdijk (1998):
  - Categorical Identity Thesis (CIT): the categorial features of elements on the same projection line must be the same
  - BUT: there are semi-lexical elements with specifications which allow them to “act as **neutral, invisible, skippable elements** with respect to the overall principle which forces categorial uniformity within a single projection” (41)
    - cf. the case of Afrikaans negation in this connection ((27))
- Emonds (2001):
  - Restructuring structures generally involve partially “flat” structures (V<sub>2</sub> and V<sub>3</sub> are part of a “flat structure”)
  - “flat” structures are triggered by the merger of **semi-lexical heads**, which **cannot trigger extended projection** (in the sense of Grimshaw 1991).
    - restructuring verbs (V<sub>2</sub>) don’t project normally
- Barbiers (2005): hierarchy and projection
  - Recall that we already have evidence that 231 structures entail movement of some kind ((25))
  - A Kaynean approach predicts the 5 attested 3-verb cluster orders, while ruling out the unattested one (Barbiers 2005:213)
  - If we assume that movement necessarily entails Agree, it also allows us to understand why 231 orders must take the form in (36):

(36) Aux<sub>PERF1</sub> – MOD/ASP<sub>Restructuring-inf2</sub> – V<sub>3</sub>

- Consider MOD<sub>1</sub>-MOD<sub>2</sub>-V<sub>3</sub>:

(37) MOD<sub>1</sub> - MOD<sub>2</sub> - V<sub>3</sub>  
 [uEvent] [uEvent] [iEvent]

→ MOD<sub>1</sub> and MOD<sub>2</sub> don't enter into an Agree relation, and so MOD<sub>1</sub> can't move the XP containing MOD<sub>2</sub> and V<sub>3</sub> to its specifier.  
 i.e. 231 order is impossible

- Consider MOD<sub>1</sub>-AUX<sub>2</sub>-V<sub>3</sub>

(38) MOD<sub>1</sub> AUX<sub>2</sub> V<sub>3</sub>  
 [uEvent] [uEvent] [iEvent]  
 [uPerf] [iPerf]

→ MOD<sub>1</sub> and AUX<sub>2</sub> again don't enter into Agree; thus no movement of 23 to the left of 1 possible

- Consider the attested 231 structures:

(39) Aux<sub>PERF1</sub> - MOD/ASP<sub>Restructuring-inf2</sub> - V<sub>3</sub>  
 [uPerf] [uEvent] [iEvent]  
 [iPerf]

→ all 3 verbs enter into Agree relations with one another  
 i.e. Aux<sub>1</sub> can attract the 23-complement, yielding 231.

If it doesn't do so, we get 123.

- Note the distribution of the [iF]-features on V<sub>2</sub> and V<sub>3</sub> in (39), but exclusively on V<sub>3</sub> in the other cases → the closer relation between these verbs that may in some cases render them a (non-projecting) unit of a type that cannot be formed in cases like (37) or (38).

- Wallenberg (2009), chapter 6 derives the same facts via an alternative proposal which does not entail the rigid spec-head-comp structure assumed by Barbiers, but which, like Barbiers, assumes head-finality to be derived via Agree-driven movement.

## 5. Conclusion

- Undoubtedly 231 orders superficially violating FOFC in WGmc
- BUT: they're subject to constraints of the type that have previously and independently been ascribed to hierarchy- and projection-related considerations
- SO:
  - FOFC seems worth pursuing in something approaching its current conceptualisation (1); and
  - it may even be that more in-depth research into West Germanic 231 might allow us to refine our understanding both of FOFC and of the long-standing mystery of the formal nature of IPP constructions.

## References

- Abels, K. (2009). U20, verbal clusters, and fractals. Talk given at SyntaxLab (University of Cambridge).
- Barbiers, S. (2005). Word order variation in three-verb clusters and the division of labour between generative linguistics and sociolinguistics. In: L. Cornips & K. Corrigan (eds). *Syntax and Variation. Reconciling the Biological and the Social*. Amsterdam: Benjamins, 233-264.
- den Besten, H. (1986). Decidability in the Syntax of Verbs of (Not Necessarily) West Germanic Languages. *Groninger Arbeiten zur Germanistischen Linguistik* 28: 232-256. Reprinted as: H. den Besten (1989). *Studies in West Germanic Syntax*. Amsterdam: Rodopi: 111-135.
- den Besten, H. & C. Moed-van Walraven (1986). The Syntax of Verbs in Yiddish. In: H. Haider & M. Prinzhorn (eds). *Verb Second Phenomena in Germanic Languages*. Dordrecht: Foris, 111-135.
- Biberauer, T. (2008). Doubling and omission: insights from Afrikaans negation. In: S. Barbiers, M. van der Ham, O. Koenenman & M. Lekakou (eds.). *Microvariations in Syntactic Doubling*. Bingley: Emerald, 103-140.
- Biberauer, T. (2009). Jespersen off course? The case of contemporary Afrikaans negation. In: E. van Gelderen (ed.). *Cyclical Change*. Amsterdam: John Benjamins, 91-130.
- Biberauer, T. (2010). Competing reinforcements: when languages opt out of Jespersen's Cycle. To appear in: A. Van Kemenade & N. de Haas (eds.). *Historical Linguistics 2009: Selected papers from the 19th International Conference on Historical Linguistics*. Amsterdam: John Benjamins.
- Biberauer, T. (ed.) (forthcoming a). *Cambridge Occasional Papers in Linguistics*. Special Edition 1: *Particles in Syntax*.
- Biberauer, T. (ed.) (forthcoming b). Special edition of *Studia Linguistica* [focus: The Syntax of Particles]
- Biberauer, T., A. Holmberg & I. Roberts (2007). Disharmonic word-order systems and the Final-over-Final Constraint (FOFC). In Bisetto, A. & F. Barbieri (eds). *Proceedings of XXXIII Incontro di Grammatica Generativa*.
- [Available on-line at:  
[http://amsacta.cib.unibo.it/archive/00002397/01/PROCEEDINGS\\_IGG33.pdf](http://amsacta.cib.unibo.it/archive/00002397/01/PROCEEDINGS_IGG33.pdf)]
- Biberauer, T, A Holmberg & I. Roberts (2008). Structure and Linearization in Disharmonic Word Orders. In: C. Chang & H. Haynie (eds.). *Proceedings of the 26th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press.
- Biberauer, T., A. Holmberg & I. Roberts (2009). Linearization and the architecture of grammar: a view from the Final-over-Final Constraint. In: V. Moscati & E. Servidio (eds.). *StiL - Studies in Linguistics (Proceedings of XXXV Incontro di Grammatica Generativa)*: 78-91.
- Biberauer, T., G. Newton & M. Sheehan (2009). Limiting synchronic and diachronic variation and change: the Final-Over-Final Constraint. *Language and Linguistics* 10(4): 699-741.
- Biberauer, T. & M. Sheehan. (forthcoming) Disharmony, antisymmetry, and the Final-over-Final Constraint. To appear in: V. Elguea & M. Extebarria (eds.). *Ways of Structure Building*. Cambridge: CUP.
- Biberauer, T. & M. Sheehan (eds.). (forthcoming). Special edition of *The Linguistic Review* [focus: Particles through a syntactic lens]
- Biberauer, T., M. Sheehan & G. Newton (2010). Impossible changes and impossible borrowings. In: A. Breitbarth, C. Lucas, S. Watts & D. Willis (eds). *Continuity and Change in Grammar*. Amsterdam: Benjamins, 35-60.
- Biberauer, T. & G. Walkden (2010). *231 from A(frikaans) to Z(ürich German): A Challenge to the Final-over-Final Constraint?* Paper presented at the LAGB Annual Meeting (4 September, Leeds).
- Brandner, E. & M. Salzmann (2009). Crossing the Lake: Bodensee-Alemannic and Swiss German. *Groninger Arbeiten zur germanistischen Linguistik* 48: 81-113.
- Breitbarth, A. & L. Haegeman (2010). [Continuity is change: The long tail of Jespersen's cycle in Flemish](#). In: A. Breitbarth, C. Lucas, S. Watts & D. Willis (eds). *Continuity and Change in Grammar*. Amsterdam: Benjamins, 61-76.
- Cardinaletti, A. (2001). "Semi-lexical" motion in Romance and Germanic. In: N. Corver & H. van Riemsdijk (eds). *Semi-lexical Categories. The Function of Content Words and the Content of Function Words*. Berlin: Mouton, 371-414.
- Cardinaletti, A. & M. Starke (1999). The typology of structural deficiency: A case study of the three classes of pronouns. In: H. van Riemsdijk (ed.). *Clitics in the Languages of Europe*. Berlin: Mouton, 145-233.
- Cinque, G. (1999). *Adverbs and functional heads: a cross-linguistic perspective*. New York: OUP.
- Cinque, G. (2004). *Restructuring and Functional Heads*. Oxford: OUP.

- Cinque, G. (2005). Deriving Greenberg's Universal 20 and its Exceptions. *Linguistic Inquiry* 36: 315-332.
- Donaldson, B. (1993). *A Grammar of Afrikaans*. Berlin: Mouton.
- Emonds, J. (2001). The flat structure economy of semi-lexical heads. In: N. Corver & H. van Riemsdijk (eds). *Semi-lexical Categories. The Function of Content Words and the Content of Function Words*. Berlin: Mouton, 67-96.
- Evers, A. 1975. *The transformational cycle of Dutch and German*. Ph.D. dissertation: University of Utrecht.
- Fuss, E. & C. Trips (2002). Variation and change in Old and Middle English. On the validity of the Double base Hypothesis. *Journal of Comparative Germanic Linguistics* 4: 171-224.
- Grimshaw, J. (1991). *Extended Projection*. Unpublished ms: Rutgers.
- Haegeman, L. (1998a). V-positions and the Middle Field in West Flemish. *Syntax* 1: 259-299.
- Haegeman, L. (1998b) Verb Movement in Embedded Clauses in West Flemish. *Linguistic Inquiry* 29: 631-656.
- Haegeman, L. (2001) Antisymmetry and verb-final order in West Flemish. *Journal of Comparative Germanic Linguistics* 3: 207-232
- Haegeman, L. & H. van Riemsdijk (1986). Verb projection raising, scope and the typology of rules affecting verbs. *Linguistic Inquiry* 7: 417-66.
- Hinterhölzl, R. (2005). *Scrambling, Remnant Movement and Restructuring in West Germanic*. Oxford: OUP.
- Hróarsdóttir, T. (2000). *Word Order Change in Icelandic: From OV to VO*. Amsterdam: Benjamins.
- Van Kemenade, A. (1987). *Syntactic Case and Morphological Case in the History of English*. Dordrecht: Foris.
- Kiparsky, P. (1996). The shift to head-initial VP in Germanic. In: H. Thráinsson, S. Epstein & S. Peter (eds.). *Studies in Comparative Germanic Syntax II*. Dordrecht: Kluwer, 140-179.
- Kiparsky, P. (2008). Universals constrain change; change results in typological generalizations. In: J. Good (ed.). *Linguistic Universals and Language Change*. Oxford: OUP, 23-53.
- Kjeldahl, A. (2010). *The Syntax of Quirky Morphology*. Ph.D. dissertation: Århus University.
- Kroch, A. and Taylor, A. (2000). *Verb-object order in Middle English*. In: S. Pintzuk, G. Tsoulas & A. Warner (eds). *Diachronic Syntax: Models and Mechanisms*. Oxford: OUP, 132-163.
- Lightfoot, D. (1991). *How to Set Parameters. Arguments from Language Change*. Cambridge, Mass: MIT Press.
- Lightfoot, D. (1999). *The Development of Language: Acquisition, Change and Evolution*. Oxford: Blackwell.
- Nikitina, T. (2008). *Nominalisation and word-order change in Niger-Congo*. Unpublished ms: Stanford.  
[Available on-line at: [http://www.stanford.edu/~tann/word\\_order.pdf](http://www.stanford.edu/~tann/word_order.pdf)]
- Pintzuk, S. (1991). *Phrase structure in competition: variation and change in Old English word order*. Ph.D. dissertation: University of Pennsylvania. Published as: S. Pintzuk (1999). *Phrase structures in competition. Variation and change in Old English word order*. New York: Garland.
- Pintzuk, S. (2002). Verb-Object order in Old English: variation in grammatical competition. In: D Lightfoot (ed.). *Syntactic Effects of Morphological Change*. Oxford: Oxford University Press, 276-299.
- Ponelis, F. (1993). *The Development of Afrikaans*. Duisburg: Peter Lang.
- Van Riemsdijk, H. (1998). Categorical feature magnetism: the endocentricity and distribution of projections. *Journal of Comparative Germanic Linguistics* 2: 1-48.
- Rizzi, L. (1978). A Restructuring Rule in Italian Syntax. In: S. Keyser (ed.). *Recent Transformational Studies in European Languages*. Cambridge, Mass: MIT Press.
- Salzmann, M. (2010). *An Alemannic Challenge to the FOFC*. Paper presented at the DGfS Linearization Workshop.
- Schmid, T. (2006). *Infinitival Syntax*. Amsterdam: Benjamins. *Infinitivus pro Participio as a Repair Strategy*. Amsterdam: Benjamins.
- Svenonius, P. (2007). 1 ... 3-2. In: G. Ramchand & C. Reiss (eds). *Oxford Handbook of Linguistic Interfaces*. Oxford: OUP, 239-288.
- Travis, L. (1984). *Parameters and effects of word order variation*. Ph.D. dissertation: MIT.
- De Vos, M. (2002). *IPP in Afrikaans dialects and Dutch: the effects of locality on morphology*. Paper presented at WCCFL 22.
- De Vos, M. (2005). Quirky verb-second in Afrikaans: complex predicates and head movement. In: J. Hartmann & L. Molnárfi (eds). *Comparative Studies in Germanic Syntax: From A(frikaans) to Z(ürich) German*. Amsterdam: Benjamins, 89-114.
- Walkden, G. (2009). *The Final-Over-Final Constraint and West Germanic Verb Clusters*. Talk given at the LFG 'speed session' (Cambridge).
- Wallenberg, J. (2009). *Antisymmetry and the Conservation of C-Command: Scrambling and Phrase Structure in Synchronic and Diachronic Perspective*. Ph.D. dissertation: UPenn.
- Whitman, J. (2008). The classification of constituent order generalizations and diachronic explanation. In: J. Good (ed.). *Linguistic universals and language change*. Oxford: OUP, 233-252.
- Wurmbbrand. S. (2001). *Infinitives. Restructuring and Clause Structure*. Berlin: Mouton.

- Wurmbrand, S. (2005). Verb clusters, verb raising, and restructuring. In: H. van Riemsdijk & M. Everaert (eds). *The Blackwell Companion to Syntax*. Oxford: Blackwell.
- Zwart, J-W. (1997). *Morphosyntax of Verb Movement*. Dordrecht: Kluwer.
- Zwart, J-W. (2007). Some notes on the origin and distribution of the IPP-effect. *Groninger Arbeiten zur germanistischen Linguistik* 45, 77-99.

**APPENDIX: 231 ORDERS IN WEST GERMANIC VARIETIES OTHER THAN  
AFRIKAANS**

3.2.1. *West Flemish*

- Possible in **perfect tenses** involving modals (16), causatives (1a), perception verbs (1b), benefactives (1c), duratives (1d), and epistemic verbs (1e).<sup>10</sup>  
[cf. Haegeman 1998a,b and Schmid 2006]

- (1) a. ... da j' 'em die medicien **doen**<sub>2</sub> drienken<sub>3</sub> et<sub>1</sub> [causative]  
that he him the medicine make.INF drink.INF has  
“... that he has made him drink the medicine” (Schmid 2006:38)
- b. ... da' j' 'eur 'oaren<sub>2</sub> roepen<sub>3</sub> 'et<sub>1</sub> [perception]  
that he her hear.INF call.INF has  
“... that he heard her call” (Schmid 2006:49)
- c. ... da' k 'eur de dozen 'elpen<sub>2</sub> dragen<sub>3</sub> 'en<sub>1</sub> [benefactive]  
that I her the boxes help.INF carry.INF have  
“... that I helped her carry the boxes” (Schmid 2006:54)
- d. ... dan de mensen **bluven**<sub>2</sub> stoan<sub>3</sub> zyn<sub>1</sub><sup>11</sup> [durative]  
that the people remain.INF stand.INF are  
“... that the people remained standing” (Schmid 2006:60)
- e. ... da Valère Marie nog **weten**<sub>2</sub> dienen brief schryven eet<sub>1</sub>  
that Valère Marie still know.INF that letter write.INF has  
“... that Valère remembers Marie writing the letter” (Haegeman 1998a:273)

- A restriction on V<sub>1</sub>:
  - V<sub>1</sub> must be the **present perfect auxiliary**; it cannot be a modal auxiliary (2) or a non-present perfect auxiliary (3-4):

- (2) a. \*... da Valère keunen<sub>2</sub> Marie dienen boek geven<sub>3</sub> **wilt**<sub>1</sub>  
that Valère can.INF Marie that book give.INF wants
- b. ... da Valère **wilt**<sub>1</sub> keunen<sub>2</sub> Marie dienen boek geven<sub>3</sub>  
that Valère wants can.INF Marie that book give.INF  
“... that Valère wants to be able to give Marie that book” (Haegeman 1998a:287)

<sup>10</sup> WF also permits surface 231 with inchoative and control verbs, but in these cases V3 is associated with *te* or *me*, suggesting a more complex clause structure, which we therefore leave aside here. Example (i) illustrates (123 ordering is, once again, an alternative here):

(i) ... ?da' j' 'et nooit prober<sub>2</sub>(te) beweren<sub>3</sub> 'et<sub>1</sub>  
that he that never try.INF to pretend. INF has  
“... that he has never tried to pretend that”

It is worth noting that the availability of these structures is very interesting in the context of the discussion of clausal placement (cf. Biberauer & Sheehan 2010 for overview discussion).

<sup>11</sup> The AUX in this structure can also be HAVE, which is preferred by many speakers (Schmid 2006:60).

- (3) a. \*... da Valère willen<sub>2</sub> dienen boek lezen<sub>3</sub> **oat**<sub>1</sub><sup>12</sup>  
 that Valère want.INF that book read.INF have  
 (Haegeman 1998b:634)
- b. ... da Valère **oat**<sub>1</sub> willen<sub>2</sub> dienen boek lezen<sub>3</sub>  
 that Valère had want.INF that book read.INF  
 “... that Valère had wanted to read that book”
- (4) a. \*... da’ j’ em die medicien doen<sub>2</sub> drienken<sub>3</sub> **got**<sub>1</sub>  
 that he him the medicine do.INF drink.INF go
- b. ... da’ j’ em die medicien **go**<sub>1</sub> doen<sub>2</sub> drienken<sub>3</sub><sup>13</sup>  
 that he him the medicine go do.INF drink.INF  
 “... that he will make him drink the medicine” (Schmid 2006:41)
- The generalisation: 123 ordering is obligatory except in the case of present-perfect auxiliaries, which have both 123 and 231 as options, with a preference for 231.
  - (5) illustrates the availability of the 123 option for causatives and benefactives (cf. Haegeman 1998a and Schmid 2006 for exemplification of the other verbs given in (18)):
- (5) a. ... da j’ ‘em die medicien ‘et<sub>1</sub> **doen**<sub>2</sub> drienken<sub>3</sub> [causative]  
 that he him the medicine has make.INF drink.INF  
 “... that he has made him drink the medicine” (Schmid 2006:38)
- b. ... da’ k ‘eur de dozen ‘elpen<sub>2</sub> dragen<sub>3</sub> ‘en<sub>1</sub><sup>14</sup> [benefactive]  
 that I her the boxes help.INF carry.INF have  
 “... that I helped her to carry the boxes” (Schmid 2006:55)
- So we see that there is often an alternation between 231 and 123 order, with 123 being the more generally available pattern.
- (6) a. INF<sub>2</sub> – INF<sub>3</sub> – AuxPERF<sub>1</sub>  
 b. AuxPERF<sub>1</sub> – INF<sub>2</sub> – INF<sub>3</sub>
- One case where there’s no alternation: where the perfect auxiliary is infinitival (Haegeman 1998a:276):
- (7) a. ... dan ze toch moesten<sub>1</sub> willen<sub>3</sub> Marie dienen boek geven<sub>4</sub> **een**<sub>2</sub>  
 that they yet must want.INF Marie that book give.INF have  
 “... that they still should have wanted to give Marie that book”
- b. \*... dan ze toch moesten<sub>1</sub> **een**<sub>2</sub> willen<sub>3</sub> Marie dienen boek geven<sub>4</sub>

<sup>12</sup> To be absolutely accurate, Haegeman’s (1998b: 634) grammaticality indication was \*??.

<sup>13</sup> The discrepancy between the future auxiliaries in (20a,b) is purely phonological (Schmid 2006:41).

<sup>14</sup> Cf. also *leer* (“learn”) (Haegeman 1998a:273).

- Present-perfect auxiliary infinitives pattern as in (8):

- (8) a. INF<sub>2</sub> – INF<sub>3</sub> – AuxPERF.INF<sub>1</sub>  
 b. \*AuxPERF.INF<sub>1</sub> – INF<sub>2</sub> – INF<sub>3</sub>

i.e. only the FOFC-violating order is permitted

- A further restriction on V<sub>1</sub>:

- It cannot host the negation-related clitic *en-*, which is restricted to finite verbs (Haegeman 1998a:277ff; cf. Breitbarth & Haegeman 2010 on the status of *en-* in relation to negation):

- (29) a. ... da Valère nooit willen<sub>2</sub> de waste doen<sub>3</sub> (**\*en**) - eet<sub>1</sub>  
 that Valère never want.INF the washing do.INF NEG.- has  
 “... that Valère has never wanted to do the washing”

- b. ... da Valère nooit (**en**)- ee<sub>1</sub> willen<sub>2</sub> de waste doen<sub>3</sub>  
 that Valère never NEG. has want.INF the washing do.INF  
 “... that Valère has never wanted to do the washing” (Haegeman 1998b:641)

- The fact that *eet* is final is not a relevant consideration as *en* is compatible with clause-final finite verbs:

- (10) ... da Valère Marie die boeken nie (**en**)- geeft  
 that Valère Marie the books not NEG gives  
 “... that Valère isn’t giving Marie the books” (Haegeman 1998a:270)

- A restriction on V<sub>2</sub>:

- V<sub>2</sub> necessarily belongs to the class of *Infinitivus Pro Participio* (IPP) triggers (cf. i.a. Haegeman 1998a, Wurmbrand 2001 and Hinterhölzl 2005 for discussion and references)

- V<sub>2</sub> surfaces in unexpected form: infinitive instead of the past participle that we’d see when they select something other than a non-finite complement:

- (11) a. ... da Valère [DP nen brief] gewild<sub>2</sub>/ \*willen<sub>2</sub> eet<sub>1</sub>  
 that Valère a letter want.PRT want.INF has  
 “... that Valère has wanted a letter”

- b. ... da Valère gewild<sub>2</sub>/ willen<sub>2</sub> eet<sub>1</sub> [CP da ze dienen boek moet kuopen]  
 that Valère want.PRT want.INF has that they that book should buy  
 “... that Valère wanted that they buy the book”

- c. ... da Valère nen brief willen<sub>2</sub>/ \*gewild<sub>2</sub> schrijven<sub>3</sub> eet<sub>1</sub>  
 that Valère a letter want.INF want.PRT write.INF has  
 “... that Valère has wanted to write a letter” (Haegeman 1998a: 272-3)

- IPP triggers are *restructuring verbs* (cf. the references cited above and Cinque 2006), i.e. verbs which have an effect on the structure of their complements, e.g. clause-union of the type seen in (11c) (contrast (11b)). We return to this point below.

### 3.2.2. *Dutch dialects* (Barbiers 2005)

- 231 orders only found where:
  - $V_1$  = perfect auxiliary (previously observed by den Dikken 1994, Zwart 1995 and Broekhuis 1997); and
  - $V_2$  = modal or aspectual verb, a i.e. restructuring verb, which is also what we saw in WF (cf. (1))

### 3.2.4. *Swiss German*

- Swiss German doesn't generally permit 231 orders, but Zürich German (ZG) is exceptional in this regard (Schmid 2006).
- ZG permits 231 orders occur with perception verbs (12a) and benefactives (12b):<sup>15</sup>

(12) a. ? .... das er sie **ghööre**<sub>2</sub><sup>16</sup> rüeffe<sub>3</sub> hät<sub>1</sub> [perception]  
          that he her hear.INF call has  
          “... that he heard her call”

b. ...das ich ere d Chischte **hälfe**<sub>2</sub> trääge<sub>3</sub> han<sub>1</sub> [benefactive]  
          that I her the box help.INF carry have  
          “... that I helped her carry the box”

- 123 is the unmarked pattern for perception verbs, however, and 123 and 312 are alternative orders for benefactives.

- Like Afrikaans, ZG also permits **231 orders with participles** for benefactives:

(13) a. ... das ich ere d Chischte ghulfe<sub>2</sub> trääge<sub>2</sub> han<sub>1</sub>  
          that I her the box help.PRT carry.INF have  
          “... that I helped her carry the box”

- Again, there is no semantic effect (vacuous morphology ... or see Section 4)

- The past participle-containing cluster has 3 alternative orders (but 2 of these overlap with the IPP options) 123, 132 and.

- Looking beyond ZG: the Bodensee-Alemannic variety described by Salzmann (2010; cf. also Brander & Salzmann 2009)

- 3-verb clusters are all well-behaved, except those featuring a motion verb *go* (“go”) and a causative verb *la* (“let”):

<sup>15</sup> As in the case of WF, it also permits surface 231 orders with inchoatives, but since these require the presence of infinitive-marking *z* (>*zu*), we leave these structures aside here – they may entail a more complex structure.

<sup>16</sup> Despite appearances, *ghöre* is an infinitive and not a past participle, which would have had to be *ghört* in this case. The past participle structure requires 321 or 213 order (cf. Schmid 2006:47):

(i) ... das er si rüeffe<sub>3</sub> ghöört<sub>2</sub> hät<sub>1</sub>  
          that he her call.INF hear.PRT has  
          “... that he heard her call”

(ii) ... das er si ghöört<sub>2</sub> hät<sub>1</sub> rüeffe<sub>3</sub>

See Section 4 for further discussion.

- (14) a. ... dass i go<sub>2</sub> poschte<sub>3</sub> gang<sub>1</sub>  
 that I go shop.INF go  
 “... that I go shopping” (Salzmann 2010:2)
- b. ... dass er de Peter la<sub>2</sub> gaa<sub>3</sub> laat<sub>1</sub>  
 that he the Peter let go.INF let  
 “... that he lets Peter go” (Salzmann 2010:3)

i.e. once again,  $V_2$  = a member of the class of restructuring verbs

- Although the perfective-auxiliary restriction on  $V_1$  does not apply in Bodensee-Alemannic, there is clearly another restriction on  $V_1$  in this variety: Salzmann (2010:3) describes the  $V_2$  elements as *particles* which act as “some kind of double” of the finite verb, i.e.  $V_1$  and  $V_2$  must share certain core features