

Chapter 9

Probing the nature of the Final-over-Final Condition: The perspective from adpositions

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This paper considers the behaviour of adpositional structures in relation to the Final-over-Final Condition (FOFC) as originally formulated in Holmberg (2000). More specifically, it focuses on superficially FOFC-violating PP-structures of two main kinds – (i) circumpositional structures in which a head-initial locative preposition appears to be dominated by a head-final directional postposition, and (ii) head-initial PPs surfacing in preverbal position, i.e. structures in which head-initial PPs appear to be dominated by head-final VPs. The distribution and internal make-up of these structures, it is argued, points to a characterization of FOFC that crucially references extended projections, in the sense of Grimshaw.

1 Introduction

This paper considers the behaviour of adpositional structures in relation to the Final-over-Final Condition (FOFC). FOFC's initial formulation, due to Anders Holmberg, is given in (1) (the significance of the *unrestricted* characterization will become clear below):

(1) **The Final-over-Final Condition (FOFC) – unrestricted version**

If a phrase α is head-initial, then the phrase β immediately dominating α is head-initial. If α is head-final, β can be head-final or head-initial. (Holmberg 2000: 124)

Adposition-containing structures pose two distinct challenges to (1). Firstly, we observe that there are languages, notably including all members of the West Germanic family and also languages in what Stilo (2005) designates the Iranian “buffer zone” between Turkic and Semitic, that permit circumpositional structures in which a head-initial locative



preposition appears to be dominated by a head-final directional postposition. Consider Afrikaans (2) in this connection:¹

- (2) Hy loop by die deur uit.
 he walk by the door out
 ‘He walks out of the door.’

Secondly, as first noted by Sheehan (2008), we observe that OV-languages with initial PPs frequently seem to extrapose these PPs. (3) illustrates:

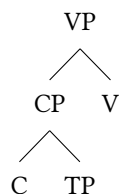
- (3) (Kairiru, Papua New Guinea)
 Ei porritamiok a-pik [gege-i nat nai].
 3SG axe 3SG-take from-3SG child that
 ‘(S)he took the axe from that child.’ (Wivell 1981: 151, via Hawkins 2008: 170)

This pattern superficially resembles the head-initial CP-extraposition pattern (near-) universally observed in OV-languages (see Dryer 2009).² Consider (4) by way of illustration:

- (4) (Bengali)
 Chele-Ta Sune-che [je or baba aS -be].
 boy-CF hear-PAST.3SG C his father come -FUT.3SG
 ‘The boy heard that his father will come.’ (Bayer 2001: 14)

Significantly, CP-extraposition produces a FOFC-compliant structure in languages which otherwise have the ingredients to produce FOFC-violating structures: as schematised in (5), a head-final VP dominating a head-initial CP, as in (5a), would violate (1); extraposition of head-initial CP circumvents this, producing a FOFC-compliant structure (5b).³

- (5) a. [VP [CP C TP] V] – FOFC-violating structure

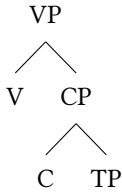


¹Unless otherwise indicated, all Afrikaans examples were constructed by the author, a native-speaker. The data in question is entirely uncontroversial.

²Dryer (2009) highlights two exceptions to the extraposition pattern, Harar Oromo and Akkadian; see Biberauer (2017) for discussion suggesting that even these do not constitute FOFC violations.

³See Holmberg (2000: 135) for discussion of another striking case in which languages with the potential to violate FOFC – in this case, by being VO-languages with a head-final WANT-element – do not in fact do so.

- b. [_{VP} V [_{CP} C TP]] – FOFC-compliant structure⁴



To the extent that OV-languages with head-initial PPs extrapose those PPs, they superficially appear to be employing another FOFC-compliance strategy (cf. Sheehan 2013). Importantly, however, the PP-extrapolation pattern differs from the CP-extrapolation one in not consistently being obligatory or, in some cases, even possible.

This paper's objective is to show how closer investigation of adpositional patterns like those in (3–4) reinforces the correctness of the view that FOFC is a narrower condition than originally envisaged in Holmberg (2000). More specifically, I will show that the notion of 'Extended Projection' (Grimshaw 1991 *et seq.*) is central to its formulation in the manner stated in (6) (*pace* i.a. Sheehan 2013; Hawkins 2013, Etxepare & Haddican 2017):

(6) **The Final-over-Final Condition (FOFC) – restricted version**

A head-final phrase α P cannot dominate a head-initial phrase β P where α and β are heads in the same Extended Projection.

(Biberauer, Holmberg, et al. 2014: 171)

Against this background, it emerges firstly, that the distribution of head-initial PPs in OV-languages does not constitute a challenge to the proposal that FOFC is a hierarchical universal in the sense of Whitman (2008), and, secondly, that attested circumpositional structures and, similarly, structures where head-final Ps dominate head-initial nominals also do not appear to instantiate FOFC-violating structures.

The paper is structured as follows: §2 briefly introduces the on-going debate regarding the nature of FOFC, which, I argue, PPs give us important insight into; §3 then considers the external distribution of head-initial PPs in OV-languages (these are expected to require obligatory extraposition on a (1)-type definition of FOFC, whereas a (6)-type definition does not rule out preverbal placement); §4 focuses on the PP-internal distribution of head-final Ps in languages with head-initial nominals and/or head-initial Ps (both (1)- and (6)-type FOFC predict head-final and head-initial Ps not to be able to co-occur in circumpositional structures, except where the latter dominate the former, giving initial-over-final structures; and (1)- but not (6)-type FOFC predicts that the combination of head-initial nominals and head-final PPs should not be attested); §5 concludes.

⁴(5b) is a simplified structure, which does not correspond to any of the extraposition structures that have been proposed in the literature; the intention is simply to show that a postverbal head-initial CP will not violate FOFC. The question of the right analysis for extraposed CPs is a very interesting one in relation to which numerous questions remain open (see Biberauer & Sheehan 2012 for some FOFC-oriented discussion and references; see also note 10).

2 FOFC: What kind of condition is it?

FOFC has been argued to hold over a wide range of domains, ruling out structures including the following (see Biberauer, Holmberg, et al. 2014; Sheehan et al. 2017 for overview discussion and references, also of cases that superficially appear to instantiate the structures below):

- (7) a. *[_{VP} VO] Aux
- b. *[_{VP} VO]... C
- c. *[_{PolP} Pol TP] C
- d. *[_{Asp} Asp VP] T
- e. *[_{D(em)P} [_{NumP} Num NP] D(em)]

It has also been shown to regulate diachronic change, including that taking place in contact scenarios (see Biberauer et al. 2009; 2010). Word-order changes necessarily proceed along FOFC-compliant pathways of the kind schematized in (8) and not along FOFC-violating routes like those in (9) [FOFC-violation **bold underlined** in each case]:

- (8) a. [[[O V] I] C] > [C [[O V] I]] > [C [I [O V]]] > [C [I [V O]]]
- b. [C [I [V O]]] > [C [I [O V]]] > [C [[O V] I]] > [[[O V] I] C]
- (9) a. *[[[O V] I] C] > [[I **[O V]**] C] > [C [I [O V]]] > [C [I [V O]]]
- b. *[[[O V] I] C] > [[[**V O**] I] C] > [[I **[V O]**] C] > [C [I [V O]]]
- c. *[C [I [V O]]] > [C [[**V O**] I]] > [C [[O V] I]] > [[[O V] I] C]
- d. *[C [I [V O]]] > [[I **[V O]**] C] > [[[**V O**] I] C] > [[[O V] I] C]

Given evidence such as the above, the question that arises is what kind of condition FOFC in fact is. Proposals to date include that it is a:

- (10) a. (tendential) processing/parsing effect (Cecchetto 2013; Hawkins 2013,⁵ Philip 2013; Mobbs 2015)
- b. (tendential) product of diachronic forces (Whitman 2013)
- c. superficial/“late” PF condition (Sheehan 2013; N. Richards 2016, Etxepare & Haddican 2017)
- d. deep syntactic condition (Biberauer et al. 2009 *et seq.*, Cecchetto 2013)

⁵It is worth noting that Hawkins (2013) disputes the validity of FOFC as a distinct condition on word-order variation, pointing out that it appears to be simultaneously too strong (in ruling out attested structures, including those that are the focus of this paper), and too weak (in failing to rule out unattested structures that don’t meet the characterisation in (1) (see following note), but seem intuitively similar, e.g. extraposed head-final CPs of the kind we will discuss in §3.2; see (i) below; and, if one adopts (6) – which Hawkins rejects – the absence of head-initial relative clauses in languages with head-final nominals; see (ii) below).

(i) * [_{VP} V [_{CP} TP CP]] – unattested (Hawkins 1990; though see §3.2 and note 29)

(ii) * [_{NP} [_{CP} C TP] N] – unattested (Lehmann 1984)

His analysis therefore attempts to account for FOFC-type disharmony in processing-efficiency terms that also apply to initial-over-final (i.e. inverse-FOFC) disharmony.

With the exception of Cecchetto (2013), which we discuss under (10d) below, (10a,b)-type approaches allow for less commonly attested, but nevertheless genuine exceptions to (1)/(6):⁶ FOFC on this view is a statistical universal, no different to the more robust of the cross-categorical word-order generalizations initially proposed by Greenberg (1963). Distinguishing between three sub-types of Greenbergian generalization – cross-categorical, hierarchical and derivational generalizations (Whitman 2008: 234; see also §5 below) – Whitman (*op. cit.*) argues that cross-categorical word-order generalizations are necessarily statistical, with Whitman (2013) specifically arguing that this is also the case for FOFC, interpreted as in (6). (10a,b), then, do not specifically rule out any of the structures we are concerned with in this paper, although processing and/or historical considerations may limit their attestation. They will be relevant to the present discussion in that we will consider the extent to which the types of external (processing and/or diachronic) forces proposed by the relevant authors correctly predict the (un)availability of the adpositional structures that are the main focus of this paper.

(10c) allows for syntax-internal final-over-initial structures, as long as these are not realized as such at PF, i.e. spellout considerations of different kinds preclude the realization of FOFC violations, with the result that apparent violations, such as those under discussion in this paper, must be shown to instantiate structures that do not pose the same spell-out obstacle as unattested final-over-initial structures. For Sheehan (2013) and Etxepare & Haddican (2017 [this volume]), who build on Sheehan's analysis, FOFC-effects arise as a result of a linearization difficulty that emerges in the presence of complex specifiers (cf. also Uriagereka 1999, who first observes that LCA-based linearization of such specifiers requires an "induction step" over and above the "basic" asymmetric c-command statement standardly associated with the LCA of Kayne 1994).⁷ As this difficulty arguably does not arise where a complex specifier has already been spelled out, a situation which has been argued to produce islands (see Sheehan 2013 for discussion and references), such structures are expected to be permitted. In the FOFC domain, this produces the prediction that apparently FOFC-violating structures will involve a head-initial *island* dominated by a head-final structure, regardless of the categorial specifications of the initial and final phrases: as the linearization difficulty outlined above applies equally to all complex specifiers, regardless of whether they are categorially the same or different to the projection with which they are merging, Sheehan is necessarily committed to the

⁶Cecchetto and Hawkins both assume unrestricted FOFC as in (1), while Whitman operates with restricted (6). The class of FOFC-violating structures that their approaches predict to be disfavoured, but nevertheless possible are therefore different, with the former authors interpreting a larger range of actually attested structures as being FOFC-violating – not only those in which a head-final XP dominates a head-initial one within its own Extended Projection, but also those in which this configuration involves a head-final XP dominating a head-initial one belonging to a **different** Extended Projection (e.g. a head-final VP dominating a head-initial PP, one of the cases of interest in this chapter).

⁷Worth noting here is that Sheehan and Etxepare & Haddican, like Biberauer, Holmberg, et al. (2014), assume head-final orders to be derived via some kind of movement. In these terms, a head-initial XP located in a (derived) specifier position constitutes a potential FOFC-violation; whether it is a *real* violation or not depends on the different assumptions these authors make about the nature of FOFC (see main text).

unrestricted FOFC in (1).⁸ Consider (11), which depicts the linearization options for complex specifiers in Sheehan's (2013) system; YP represents a complex specifier and Z the head whose specifier it has, in accordance with standard minimalist assumptions about how structure is generated, merged (11a) or moved (11b,c) to create:

- (11) a. [_{YP} [_{YP} Y XP] Z ...]
 b. [_{YP} [_{YP} Y XP] Z ... [_{YP} Y XP]]
 c. [_{YP} [_{YP} Y ~~XP~~] Z ... [_{YP} Y XP]]

(11a) represents the case of a complex specifier spelled out in its first-merge position; the prediction is that these will necessarily be islands, with YP having been spelled out prior to merger with Z. (11b) involves a moved complex specifier, which has again been spelled out prior to movement, with the result that it can be spelled out in its derived position, again as an island. (11a)- and (11b)-type structures will be superficially FOFC-violating as Z will give the appearance of being final in relation to head-initial YP. (11c), on the other hand, involves a complex specifier which has *not* been spelled out prior to merger with Z; in Sheehan's system, head-initial YP cannot be spelled out in its derived position, requiring a "scattered deletion"-type operation which produces an extraposition structure, Y-Z-XP (see Sheehan 2013 for details). For this proposal, then, superficially FOFC-violating head-initial *island-containing* structures are predicted to be possible, and we also expect to see extraposition structures of a particular kind in contexts where a non-island apparently FOFC-violating structure might be expected. The examples in (12) illustrate – in simplified form – how this proposal would apply in the case of potentially FOFC-violating VOAux structures (a broadly Kaynian analysis is assumed, and ~~strikethrough~~ indicates lower copies):

- (12) a. *... þæt [_{TP} ænig mon [_{VP} atellan [_{DP} ealne þone demm]] mæge]
 that any man relate all the misery can
 [pseudo-Old English, based on attested (12b)]
 b. [_{TP} þæt ænig mon [_{VP} atellan ealne ~~þone demm~~] mæge [~~atellan~~ ealne þone
 that any man relate all the misery can relate all the
 demmm]] > þæt ænig mon atellan mæge ealne þone demm
 misery
 '... that any man can relate all the misery ...'
 [Old English, Pintzuk 2005: 13 (coorosiu, Or_2:8.52.6.998), cited in Sheehan
 2013: 429]

Here the idea is that VP movement into the Aux-domain would result in the creation of a complex specifier containing the moved VO-VP. If VP were an island, it could be spelled out in the pre-auxiliary position, giving VOAux order of the kind illustrated in (12a). This is a scenario which potentially arises for VP-fronting structures in null-subject

⁸This means that not only the, in crosslinguistic terms, less common structures that are of central interest in this paper, but also undeniably more widely attested structures like head-initial nominals in OV languages must be interpreted as involving head-initial islands wherever they surface preverbally (see Sheehan (2013) for initial discussion).

languages.⁹ Since “regular” (i.e. non-focused or topicalized) VPs presumably do not constitute islands, however, (12a) is unattested, not only in Old English, but also more generally. What we do see, however, are structures like that illustrated in (12b), where V is spelled out in pre-Aux position with O following; this is Sheehan’s “scattered deleted” structure (11c) above, i.e. [TP [VP V Ø] T [VP V̸ O]].¹⁰

⁹The Sardinian example below illustrates:

- (i) Sardinian
 [CP [VP **Tunkatu su barkone**] C [TP asa-T]].
 shut the window have.2SG
 ‘It’s shut the window you have!’ (Jones 1988: 339)

Here we have surface VOAux, but the structure, crucially, involves A-bar movement. VP can therefore plausibly be viewed as an island, with the result that it does not violate FOFC on Sheehan’s account. It likewise does not violate FOFC on the Extended Projection (EP)-oriented analysis advocated in BHR and also in this paper as FOFC only applies to structures in which the specifier is occupied by the categorially identical head-initial XP that constitutes the complement of its head, i.e. where the EP-sister of a head X has “rolled up” into its specifier (see Biberauer 2017 for more detailed discussion).

The German examples in (ii) underline the striking difference between VOAux involving basic/neutral structures – which exhibit the ill-formedness expected in terms of FOFC (iib) – and VOAux structures involving non-neutral/A-bar movement-containing structures – which are well-formed (iia) (here, as elsewhere, we offer simplified structural representations):

- (ii) a. Colloquial German
 [CP [VP **Gesprochen mit ihr**] hat-C [TP er t_{hat} nicht mehr typ]]
 spoken with her has he not more
 ‘As for speaking with her, he no longer did that.’
 b. * ... dass er nicht mehr gesprochen mit ihr hat.
 that he not more spoken with her has
 c. ... dass er nicht mehr gesprochen hat mit ihr.
 that he not more spoken has with her
 ‘... that he didn’t talk to her anymore.’ (Haider 2013: 80)

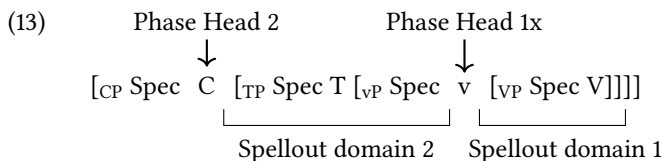
Exactly the same pattern emerges in Afrikaans, which permits PP-stranding much more readily than German.

¹⁰ Assuming CP-complements to be embedded within a (non-island-inducing and often not overtly realized) nominal shell, as suggested for different reasons by i.a. Kayne (2008); Arsenijević (2009); Moulton (2009; 2013; 2015); Biberauer & Sheehan (2012), and Franco (2012), the CP-extraposition pattern that is typical of “non-rigid” OV-languages with head-initial CPs instantiates this “scattered deletion” pattern. This is schematized in (i), with (ii) providing an example from Afrikaans:

- (i) [VP [nP n [CP C TP]]] V [nP n [CP C TP]]]
 (ii) Hy het **dit** geweet [CP **dat** ons nie ‘n kans het nie.]
 he has it known that us not a chance have POL
 ‘He knew it that we didn’t have a chance.’

Of course, if CPs are embedded within this type of nominal shell, preverbal head-initial CPs would not violate FOFC on (6)-type interpretations of this condition, raising the question why they are nevertheless always extraposed, a matter I will not go into here. Also worth noting is the fact that the grammatical PP-extraposition structure in (iic) in the immediately preceding footnote instantiates a further case of the “scattered deletion” structure predicted by Sheehan’s proposals.

Richards' PF-oriented proposals, in turn, rule out FOFC-violating structures occurring *within* the same phasal domain, or, more accurately, within the same spellout domain, with these latter corresponding to the domains defined by the original Phase Impenetrability Condition proposed in Chomsky (2000) and schematized for (a simplified version of) the clausal domain in (13) (see N. Richards 2016: Chapter 5 for detailed discussion):



For Richards, then, FOFC is an even more restricted condition than (6), holding only *within*, but not *across* phasal domains, and thus also not across an entire Extended Projection. VOAux is therefore ruled out wherever the VO-containing VP and Aux are spelled out together upon completion of a phase. One circumstance where this applies would be where V raises to v and the auxiliary is merged within the T-domain, as the v- and T-space will always be spelled out together at the point where C is merged; another is where V remains in situ, but the auxiliary is merged within the first phase, below the phase head (rather clearly, the proposal would make incorrect predictions in the absence of suitably articulated phasal domains, i.e. clausal structure entailing more than the bare V-v-T-C structure typically cited in the minimalist literature; see Biberauer & Roberts 2015 for discussion of one route via which to “join up” bare minimalist and more articulated approaches to clause structure).¹¹ Where Aux is T, VO-Aux is, in principle at least, available, which looks to be correct if we consider the attestation of VOT(ense) structures, featuring specifically Tense-marking auxiliaries: as already noted by Greenberg (1963), who consequently excluded non-inflecting auxiliaries from his V, O and Aux investigations, VOT is attested in systems where T does not inflect (see also Dryer 1992 and Biberauer 2017 for discussion, and see note 9 for another superficial VOAux structure that would be compatible with Richards’ proposals). One complication here is the fact that there is no obvious explanation for why languages with **inflecting** T-auxiliaries do not permit VOAux structures, which seems to be the case (cf. Biberauer 2017 for further discussion).

¹¹To the extent that they had not yet grammaticalised into T-elements, but instantiated spellouts of lower, non-phasal v-related heads, the Old and early Middle English auxiliaries would instantiate the types of auxiliary elements that Richards' proposals would predict to be incompatible with VOAux configurations, an accurate prediction (see Biberauer & Roberts 2010 for discussion of the plausibility of assuming non-T status for auxiliaries at the relevant stage). If, as is commonly assumed, the relevant pre-auxiliary constructions were biclausal, though, it is less clear that VOAux would be predicted to be ruled out. This looks like the incorrect prediction for earlier English, but it might fit with recent discoveries about the syntax of Latin, which permitted VO-Aux structures under certain clearly defined circumstances (cf. Danckaert to appear for discussion); these circumstances would, however, also be amenable to explanation on the basis of a (6)-type interpretation of FOFC. As the details remain to be worked out, we leave this matter aside here, noting only that Richards' proposals do entail different predictions for mono- and biclausal VOAux-containing structures.

The same question arises in relation to C-elements in VOC structures. For Richards, VOC is predicted to be possible where C belongs to the same clause as V, e.g. where it is a matrix C-particle of the type found in Sinitic and many other languages (cf. Biberauer 2017 for discussion); these particles are never spelled out at the same time as V, even if V undergoes raising into the higher phase. Structures of this type certainly exist, as predicted. More problematically, though, Richards' approach predicts that embedded clauses with VO-ordering should be compatible with final C-heads (e.g. complementizers). This is, however, strikingly at odds with typological findings about the distribution of **non-particle** subordinating complementizers (see again Dryer 2009, and also Biberauer 2017): VOC of this type simply does not seem to occur (see Biberauer 2017 for discussion of the two apparent counterexamples, neither of which ultimately constitute genuine VOC structures). Precisely why there should be such a striking difference between (subordinating) Complementizer elements of the kind that typologists have traditionally paid attention to and complementizer-particles is unclear on this approach.¹² More generally, the question for this approach, as should now be clear, is why the “inflecting” versus “non-inflecting” distinction should matter as it seems to: “inflecting” elements may not surface in FOFC-violating structures, regardless of how close or far a final inflecting element is from head-initial structure that is also part of its projection line (=Extended Projection), while “non-inflecting” elements may, again seemingly irrespective of the distance between them and the projecting initial element.

In the specific context of the structures we will be focusing our attention on here, Richards' approach does not rule out [_{VP} [_{PP} P DP] V]-type structures as PP defines its own spellout domain, meaning that PP and V could combine to produce structures of the type found in West Germanic and discussed further in §3.1. To the extent that final Ps can be shown to be located in a higher phase than the head-initial XPs they dominate (see §4 below), it also does not exclude [_{PP} [_{PP} P DP] P]- or [_{PP} [_{DP} D NP] P]-type structures. As we will see below, this approach is therefore as “strict” as the strictest version of (10d) when it comes to the adpositional structures that are the primary concern in this paper. These two approaches do, however, differ in respect of the predictions they make about the nature of the final elements dominating the head-initial XPs, a point we will return to in the following sections.

The final type of approach, (10d), outright bans the generation, at any stage of the syntactic derivation, of FOFC-violating structures; in other words, for these researchers, the ban on FOFC-violating structures is “deep”, extending to the syntactic computation,

¹²By contrast, the (6)-type, Extended Projection-oriented interpretation of this condition does allow us to understand why particle and inflecting instantiations of “the same” category do not distribute identically as far as FOFC is concerned. The key here is that particles can, on independent grounds, be shown not to be part of the Extended Projection of the verb, while the complementizers that have been the traditional focus of typological research – which typically encode multiple clause-related properties (subordination, force, finiteness, mood, etc.) – rather clearly are, at least on the assumption that Extended Projection-defining elements share features, with the result that they can Agree with one another (see Biberauer 2017 for further discussion).

which may not at any point produce final-over-initial structures.¹³ These approaches also crucially understand FOFC as in (6), i.e. as a condition which necessarily makes reference to Extended Projections. In terms of this type of approach, then, VOAux and VOC are always ruled out where Aux and C can be shown to contribute to the Extended Projection of the verb, i.e. where they reflect or are sensitive to formally encoded¹⁴ verb-related properties like finiteness, mood, agreement, etc. (see Biberauer 2017 for detailed discussion). To the extent that elements that have been designated as ‘particles’ do not give evidence of a formal connection with the verb (see note 15), we expect them to be able to surface in apparently FOFC-violating structures, thus accounting for the structures mentioned above and also those more generally discussed in Biberauer (2017).

Strikingly, Cecchetto (2013) proposes a parsing-motivated rationale as the basis for the “deep” ban on FOFC assumed in (10d)-type approaches. Building on Hawkins’ Performance-Grammar Correspondence model – i.e. the idea that grammars conventionalize syntactic structures in proportion to their degree of preference in performance – and the dependency-parsing ideas originally proposed to account for the Right Roof Constraint (Fodor 1978, Rochement 1992) and elaborated in Ackema & Neeleman (2002), Cecchetto argues that structures in which a selecting head follows and is not immediately adjacent to the head it selects will never become conventionalized in Hawkins’s sense; as a result, structures of this type are ruled out for “deep” reasons. Importantly, his approach distinguishes between heads that select another head within a single Extended Projection (e.g. *v* and *V* or *C* and *T*) and heads which select elements outside of their Extended Projection (e.g. *V* and *P*).¹⁵ The former are heads which select for the specific featural content of the selected head, and thus, by hypothesis, have to precede it to satisfy parsing

¹³Haider (2013) also explicitly states that FOFC-violating structures are ruled out by his Basic Branching Condition (BBC) as this Condition requires functional heads always to be head-initial, regardless of the headedness of the lexical projection they dominate (cf. p.71 and section 5.2 for discussion). Crucially, however, this holds only of *derived* functional heads, i.e. those which are the target of head-movement or “feature attraction” (long-distance Agree, effectively). In his own words, “a functional projection is a *functional extension of a lexical projection* if and only if the lexical content for the *non-lexical functional head* position is derived. ... Note that according to this definition, a projection of a *lexical functional head* (e.g. a lexical Complementizer or a determiner) does not qualify as the *functional extension* of the complement of the functional head.” (emphasis in the original; p.71). Final complementizers or question markers are thus equally ruled in, as his note 7 directly states, leaving us with no account of the VOC discrepancy that also poses a challenge for Richards’ analysis (see main-text discussion), or, indeed, of any structures in which a “functional head is furnished with its own lexical content” (*ibid.*).

¹⁴The *formally encoded* qualification here is crucial: auxiliary and complementizer-elements which are sensitive to semantic properties that give no evidence of having been formally encoded via features that are visible Narrow Syntax-internally (cf. Chomsky 1995, Biberauer 2011 *et seq.*) in the relevant verbal system will, by hypothesis, not lead acquirers to postulate a formally instantiated connection between auxiliaries and complementizers; following on from Grimshaw’s original definition of ‘Extended Projection’, we take the **formal** connection between verbs and higher verb-related elements like auxiliaries and complementizers to be crucial in establishing whether an element qualifies as part of an Extended Projection and, hence, whether it obeys (6)-type FOFC or not. Cf. also Wiltschko (2014 *et seq.*) on the difference between projecting versus modifying elements, which delivers the vital distinction in play here.

¹⁵CPs take on an interesting place in this context, clearly not being part of the same Extended Projection as the selecting *V*, but differing from nominal and adpositional selectees in sharing the [*V*]-related features associated with verbal Extended Projections. We leave this challenging case aside here, but see also note 11.

requirements; the latter involve heads which arguably select for phrasal complements (PPs) rather than individual heads, with the result that head-head adjacency is not specifically required. In one of the cases of interest to us in this paper, for example, V selects for a PP, rather than the P-head of the PP; as the featural relationship is between V and a phrase, that phrase can precede its selector, with the location of the head of the phrase being immaterial.¹⁶

Insofar as the specific focus of this paper is concerned, then, head-initial PPs in OV languages are not predicted by (10d)-analyses to be problematic, and neither are postpositions dominating head-initial nominals that can be shown not to be part of the Extended Projection of the nominal; similarly, postpositions dominating prepositions in circumpositional structures will only be problematic if they are part of the same Extended Projection. The difference between (10c) and (10d) is thus that the former predicts FOFC to hold across a more limited domain within an Extended Projection, with the latter also highlighting the relevance of the formal make-up of elements within an Extended Projection – broadly speaking, the difference between Extended Projection-defining heads versus non-projecting/modifying elements.

Having introduced the nature of the debate surrounding the nature of FOFC, let us now consider the adpositional structures that are our principal focus in this paper.

3 The external distribution of head-initial PPs in OV-languages

This section will be concerned with the external distribution of head-initial PPs in OV-languages. If FOFC is unrestricted, as in (1), we would expect systems of this kind either to extrapose their head-initial PPs in the manner observed for head-initial CPs (cf. (4) above), or, if Sheehan (2013) is correct, for preverbally occurring head-initial PPs to be islands, with “scattered deletion” structures arising where this is not the case (cf. 11b vs 11c above). If FOFC is restricted as in (6) or as in N. Richards’s (2016) proposal, head-initial PPs are not expected to show any special behaviour. If external considerations such as processing are a factor, we expect the relevant processing considerations to determine the nature of possible versus impossible structures. What we will see is that the distribution of head-initial PPs in OV languages does not exhibit the patterns (10a,b) would lead us to expect; both (10c) and (10d) are compatible with the observed data, however.

We start with a consideration of OV Germanic (§3.1), before looking specifically at languages which, at first sight, appear to exhibit the obligatory PP extraposition pattern predicted by unrestricted (1-type) interpretations of FOFC, i.e. (10c)-type approaches (§3.2).

¹⁶Cf. also i.a. Baltin (1989), Payne (1993), Williams (2003), Sportiche (2005), Bruening (2009), Fowlie (2014), and Bruening et al. (2015) for argumentation focusing on completely different phenomena that also points to the fact that selection *across* Extended Projections is fundamentally different to selection within an Extended Projection. This is also necessarily the case in the context of theoretical approaches like Nanosyntax (cf. i.a. Starke 2009 and Pretorius in progress for discussion).

3.1 The distribution of head-initial PPs in OV West Germanic

In all OV West Germanic languages, it is unproblematic for head-initial PPs, like nominal complements, to surface preverbally. The illustrations in this section will mostly come from Afrikaans, the most extraposition-tolerating modern OV Germanic system. As (15) shows, mixed OV/VO Mòcheno,¹⁷ which extraposes even more readily than Afrikaans, also permits preverbal PP-placement (the labelled bracketing is simplified for expository convenience):

(14) (Afrikaans)

- a. Ek het [VP [PP **in die bos**] **geloop**].
I have in the bush walked
'I walked in the bush.'
- b. Ek sal [VP die presente [PP **vir/aan hulle**] **gee**].
I shall the presents for/to them give
'I will give the presents to them.'
- c. Ek het [VP [PP (**vir**) **haar**] **gegroet**].
I have for her greeted
'I greeted her.'

(15) (Mòcheno)

- Gester hot der Mario **en de** Maria a puach gem.
yesterday has the Mario to the Mary a book given
'Yesterday Mario gave Mary a book.' (Cognola 2012: 46)

(14a,b) illustrate the preverbal placement of adjunct and argument PPs respectively, while (14c) instantiates an innovated structure in modern Afrikaans, a form of differential object-marking involving the preposition *vir*, which also serves, as (14b) shows, as one of the options for marking indirect objects. As the comparison between (16a) and (16b) shows, *vir* is optional where an object has undergone leftward scrambling, but obligatory where it is in its unscrambled position:

- (16) a. Ek het (**vir**) haar / Sarie gister gegroet.
I have for her / Sarah yesterday greeted
'I greeted her/Sarah yesterday.'
- b. Ek het gister ***(vir)** haar / Sarie gegroet.
I have yesterday for her / Sarah greeted
'I greeted her/Sarah yesterday.'

¹⁷Mòcheno, also known as Fersentalerisch, is an Upper German variety spoken in three villages in the Fersina valley in the Trentino province of northern Italy. Like neighbouring Cimbrian, it has been strongly influenced by contact with local varieties of Italian.

Assuming, in line with standard assumptions about West Germanic scrambling (cf. i.a. M. Richards 2004, Haider 2005, and Chocano 2007), that scrambled elements are located outside of VP, whereas their unscrambled counterparts are located VP-internally, the data in (16) mean that Afrikaans has innovated a context in which a head-initial PP is dominated by a head-final VP, namely (16b). This is *contra* what we might expect on the unrestricted interpretation of FOFC in (1), where it should never be possible for any head-initial XP to be dominated by a head-final XP.¹⁸ Even more significantly in view of the (1)-induced expectation that OV-languages with initial PPs should permit these to be extraposed (cf. (3) above), it is completely impossible to extrapose a differentially object-marked nominal. As (17) shows, such objects are as unextraposable (17a) as their non-object-marked counterparts (17b) and nominal objects more generally (17c):

- (17) a. *Ek het gister gegroet **vir haar** / **Sarie**.
 I have yesterday greeted for her / Sarah
 b. *Ek het gister gegroet **daardie meisie**.
 I have yesterday greeted that girl
 c. *Ek het gister gelee **daardie boek**.
 I have yesterday read that book

Further, as (18) shows, it is (colloquially) possible to extrapose from a differentially object-marked object (18b):

- (18) a. Ek het net gister **vir Sarie wat by Sam-hulle bly** gegroet.
 I have just yesterday for Sarah what by Sam-them stay greeted
 ‘I greeted Sarah who lives with Sam and them just yesterday.’
 b. Ek het net gister **vir Sarie** gegroet **wat by Sam-hulle bly**.
 I have just yesterday for Sarah greeted what by Sam-them stay

Strikingly, however, this extraposition does not resolve the superficial violation of (1) – [VP [PP P DP] V] – although it does decrease the number of elements that need to be parsed in order to identify the verb’s PP-complement, which is in line with the Minimize Domains component of Hawkins’ (1994 *et seq.*) processing proposals.¹⁹ It also does not reflect the kind of extraposition pattern predicted by Sheehan’s (2013) approach: a non-island PP-complement would, on this proposal, be expected to be linearized as in (19), which is, however, ungrammatical:

¹⁸It is usually thought (*pace* Haider 2013 and this author’s previous work) that the verbal functional structure immediately above VP is also head-final in West Germanic systems, meaning that scrambling of a head-initial PP will still result in a configuration where a head-final PP is dominated by a head-final verbal XP; the point here, though, is that *vir*-structures of the kind illustrated in (16b) represent a **novel** final-over-initial structure, i.e. an innovation of the kind that FOFC should rule out (see Biberauer et al. 2009, Biberauer et al. 2010).

¹⁹Minimize Domains (MiD): The human processor prefers to minimize the connected sequences of linguistic forms and their conventionally associated syntactic and semantic properties in which relations of combination and/or dependency are processed. (Hawkins 2004: 32)

- (19) a. ... [PP vir Sarie wat by Sam-hulle bly] gegroet [PP vir Sarie wat by Sam-hulle bly]
 b. *Ek het net gister vir gegroet Sarie wat by Sam-hulle bly.
 I have just yesterday for greeted Sarah what by Sam-them stay

As already hinted at above, there are other kinds of head-initial PPs in Afrikaans – and also to a lesser extent in Dutch and to an even lesser extent in German – that can extrapose, particularly in the spoken language. Consider the following examples (the judgments below reflect those of the author and, additionally, 11 native-speakers, who were asked to consider the acceptability of these structures in their own spoken Afrikaans²⁰):

- (20) a. Ek het geloop **in die bos**. (contrast 14a)
 I have walked in the bush
 ‘I walked in the bush.’
 b. Ek sal die present gee vir / aan ?? hulle / iemand wat dit sal
 I shall the present give for to them someone what it shall
waardeer.
 appreciate
 ‘I will give the present to them/someone who will appreciate it.’
 c. Ek het gereken **op hom**.
 I have counted on him
 ‘I counted on him.’
- (21) a. ... dat ek [AP [PP **met die antwoord**] tevrede] is.
 that I with the answer satisfied am
 ‘... that I am satisfied with the answer.’
 b. ... dat ek [AP tevrede [PP **met die antwoord**]] is.
 that I satisfied with the answer am
 c. ... dat ek [AP tevrede] is [PP **met die antwoord**].
 that I satisfied am with the answer

Here we see that adjunct PPs readily extrapose (20a), while argument PPs can be more resistant to extraposition, although weight considerations of the sort that one might expect to play a role in an approach like that of Hawkins (1994 *et seq.*) can ameliorate argument-extraposition to the point of full acceptability (20b). Since argument PPs do not constitute islands – cf. the stranding examples in (22c) and (23c) – the requirement that precisely these head-initial PPs must be placed before their selector and cannot be extraposed constitutes a challenge to Sheehan’s proposed analysis, in terms of which, recall, superficially FOFC-violating structures like [VP [PP P DP] V] and [AP [PP P DP] A] are predicted to involve head-initial **islands**:

²⁰My informants were all native-speakers of Afrikaans, who either live in South Africa or use the language daily. They ranged in age from 17 to 65, and none are speakers of a markedly regional variety.

- (22) a. (Afrikaans)
 Ek het [VP [PP **op hom**] gereken].
 I have on him counted
 ‘I counted on him.’
 b. (Standard Afrikaans)
Op wie het jy [VP [PP ~~op wie~~] gereken]?
 on who have you counted
 ‘On whom were you counting?’ (piedpiping)
 c. (Colloquial Afrikaans)
Wie het jy [VP [PP ~~wie~~²¹ **op wie**] gereken]?
 who have you on counted
 ‘Who were you counting on?’ (stranding)
- (23) a. Ek is [AP [PP **met daardie student**] tevrede].
 I am with that student satisfied
 ‘I am satisfied with the answer.’
 b. (Standard Afrikaans)
Met wie is jy [AP [PP met wie] tevrede]?
 with who are you satisfied
 ‘With whom are you satisfied?’ (piedpiping)
 c. (Colloquial Afrikaans)
Wie is jy [AP [PP ~~wie~~ **mee wie**] tevrede]?
 who are you with satisfied
 ‘Who are you satisfied with?’

Importantly, PP-selecting verbs like *reken* in (20c) differ from ditransitives like *gee* in (20b) in that they do permit extraposition as an alternative to preverbal placement. Interestingly, the same is true for the PP-complements of adjectival predicates; thus (21c) is as readily accepted by the informants I consulted as (21a), while (21b) is more marked, but was nevertheless also accepted by all informants. Here, both Hawkins’ and Sheehan’s proposed analyses may facilitate insight into the observed extraposition patterns, though not into the optionality between (21a) and (21c); further, neither of these approaches would seem to have anything to say about the difference between (21b) and the corresponding verbal-complement pattern, VOAux, which is, of course, sharply ungrammatical – cf. (iib) in note 10, which is presented as (24a) here, with (24b) showing that the same pattern holds for Afrikaans:

²¹There is strong evidence that *wh*-extraction in Afrikaans, as in other (West Germanic) languages, involves extraction via the PP-edge (cf. Abels 2003; 2012 for detailed discussion). As (23c) shows, a subset of Afrikaans Ps undergo form-change when *wh*- and other pronominal elements pass through their specifiers; in this case, *met* (‘with’) becomes *mee*.

- (24) a. (German)
 *... dass er nicht mehr [_{AuxP} [_{VP} gesprochen [_{PP} mit ihr]] hat]
 that he not more spoken with her has
- b. (Afrikaans)
 *... dat hy nie meer [_{AuxP} [_{VP} gepraat [_{PP} met haar]] het]
 that he not more spoken with her has

Importantly, PP-complements of copulas constitute an exception to the pattern that has emerged above: regardless of length, they cannot be fully extraposed (25b)²²; where a complement-PP features independently extraposable material (e.g. the adjunct-PP in 25c), extraposition of this latter material is, however, possible, something which fits with the more general pattern in Afrikaans:

- (25) a. ... dat ek by die huis met die eindelose tuine is.
 that I by the house with the endless gardens am
 ‘... that I am at house with the endless gardens.’
- b. *... dat ek is by die huis (met die eindelose tuine).
 that I am by the house with the endless gardens
- c. ... dat ek by die huis is met die eindelose tuine.
 that I by the house am with the endless gardens

As was the case for (18b) above, the extraposition pattern in (25c) does not ameliorate the (1)-type FOFC-violation, although it does conform to MiD (see note 20).

Taken together, then, what the OV West Germanic data considered here seem to show is that:

- head-initial PPs are not banned from positions in which they superficially appear to violate (1), with some structures, like the copula-complements just considered (25), and the differentially marked objects discussed in (16–18), actually *requiring* superficially (1)-violating structures, and that
- it does not appear to be the case that all of the apparently (1)-violating structures constitute islands (cf. the data in 22–23).

Unexplained at this point, however, is why PP-extraposition should seem to be *necessary* in at least some OV-systems outside of West Germanic. This fact, first noted by Sheehan (2008), leaves open the possibility that West Germanic head-initial PPs may be crosslinguistically unusual and thus deserving of more detailed study in the FOFC context. The following section presents an empirical argument that this is not in fact the case, and that the conclusion reached here – namely that the external distribution of head-initial PPs in OV Germanic points to the inadequacy of (1)-type and also of at least some PF-oriented interpretations of FOFC – should stand.

²²This mirrors the more generally observed pattern in Dutch, which, as Broekhuis (2013: 65) notes, consistently requires predicative complements to precede their selector, regardless of its nature.

3.2 The distribution of head-initial PPs in OV systems more generally

As Sheehan (2008; 2013) notes, head-initial PPs in OV systems are less common than head-final PPs in VO systems, i.e. the distribution of disharmony predicted by FOFC. Consultation of the *World Atlas of Language Structures* (WALS 2013) reveals that the current survey features just 14 OV and preposition systems, as opposed to 41 VO-languages with postpositions. Worth noting here, though, is that the West Germanic languages, like others exhibiting both pre- and postpositions, are not included in this total.²³ Nevertheless, what Sheehan (2008) showed for the 10 OV-plus-preposition systems registered in WALS 2008²⁴ is that 5 of these (Persian, Neo-Aramaic, Iraqw, Pāri and Tobelo) necessarily require PPs to be extraposed, while Mangarrayi does not obviously have Ps, and all the other systems, barring Sorbian, permit both pre- and postverbal placement of PPs.²⁵ (25), deriving from Sheehan (2013: 435–436), illustrates structures from two of the obligatorily PP-postposing systems:

- (26) a. (Pāri)
 Ā-lw'ΛΛr' kÍ kwàc.
 1SG-fear PREP leopard
 'I am afraid of leopards.' (Anderson 1988: 303)
- b. (Iraqw)
 I- na ta'<a'>ín ay dí-r konkomo.
 3SG- PAST run<HAB>3SGM PREP place.F-CON cock
 'He ran to the place where the cock was.' (Mous 1993: 100)

Evidently, then, there are languages that avoid (1)-violating PP-V structures via an extraposition pattern that superficially resembles the CP-extraposition pattern in (4); furthermore, those that do not obligatorily do so all, with the exception of Afro-Asiatic Tigré (see below), belong to a single language family, Indo-European.

Closer consideration of the obligatory-extraposition systems – Persian, Neo-Aramaic, Iraqw, Pāri and Tobelo – however highlights an important fact about the nature of the OV found in these systems: they are what Hawkins (2008) terms *OVX* systems, i.e. languages in which only nominal objects precede the verb, but elements of other kinds (e.g. PPs, CPs, etc.) follow it. For Hawkins, these languages are “basically VO” (see below and note 29 for further discussion)²⁶, a typological observation which is also readily understandable in (broadly Kaynian) generative terms. In these terms, these systems can be insightfully distinguished from more systematic (i.e. more consistently head-final) OV-languages in respect of the trigger underlying head-final orderings: in OVX languages,

²³The OV-plus-preposition systems given in WALS 2013 are: Central Kurdish (Indo-European), Persian (Indo-European), Tajik (Indo-European), Sorbian (Indo-European), Iraqw (Afro-Asiatic), Neo-Aramaic (Afro-Asiatic), Tigré (Afro-Asiatic), Tigrinya (Afro-Asiatic), Pāri (Nilo-Saharan), Tobelo (West Papuan), Tuvaluan (Austronesian), Mangarrayi (Australian), Kuku-Yalanji (Australian), and Tapiète (Tupian).

²⁴These 10 are those given in the previous footnote, except Kuku-Yalanji, Tapiète, Tigrinya, and Tuvaluan.

²⁵Sorbian is known to have had contact with German, which also exhibits fairly rigid, though, as noted in the previous section, not exceptionless PP-V behaviour.

²⁶Interestingly, Persian and Neo-Aramaic are known to have derived from initially VO-systems.

this is a specifically **nominal**-oriented trigger (e.g. a phi-probe on *v*); in more generally OV-systems, *v* (and, possibly, a contiguous subset of the verbal heads dominating it) will have a less specialized trigger – possibly a “blind” diacritic of the kind assumed in Biberauer, Holmberg, et al. (2014) – resulting in more V-final patterns;²⁷ and in rigid OV-languages (e.g. Japanese and Malayalam), the “blind” diacritic is associated with all the heads making up the clausal spine, delivering consistently V-final structures. This gives the (simplified) OV-typology in (27) (cf. Biberauer & Sheehan 2013 for discussion and references):

- (27) a. **rigid OV**: consistently V-final, e.g. Japanese, Malayalam, Sinhala, Korean, Kannada
 b. **intermediate OV**: DP/PP-V-CP/PP, e.g. West Germanic, Turkish, Hindi
 c. **OVX OV**: DP-V-X, e.g. Nupe, Mande (Niger-Congo), Pàri, Iraqw, and Neo-Aramaic

Taking this into account, then, we can understand obligatory PP-extraposition as a reflex not of a FOFC-compliance strategy of the kind observed in the CP-domain (cf. again (4) above and also the discussion below), but, instead, of a particular type of OV-system.

That this seems to be the correct conclusion is strongly suggested by a very surprising and, to the best of our knowledge, to date unremarked-on fact about the nature of the PPs in OVX systems. As Hawkins (2008: 183) shows in a table demonstrating the headedness of PP in OVX systems (see Table 1 below), 14/21 languages that he considers (i.e. 67%) are *postpositional*, and, of the remaining 7 languages, some are designated as having “no dominant order”. Table 1 reproduces Hawkins’ table, while (28) illustrates OVX systems which extrapose *postpositional* PPs:

Table 1: Headedness of PP in different types of OV and VO languages

Language type	Postpositions	Prepositions or No dominant order
XOV	97% (32)	3% (1)
OXV	94% (15)	6% (1)
OVX	67% (14)	33% (7)
VO	14% (22)	86% (134)

²⁷As will be clear from the discussion in §3.1, structures in which PPs and CPs “leak” past *V* are possible in these systems. On the view that head-final structures are always derived, data of this kind can be accounted for by appealing to devices like a “scattered-deletion” mechanism of the kind proposed by Sheehan (2013; see main text) or remnant fronting which strands the extraposed XP. What is crucial is that the explanation should allow us to understand the difference between extraposable and non-extraposable XPs, which is, as things stand, an unresolved matter.

- (28) a. (Supyire)
 U sí sɪnciiyí cya m̀̀̀ á.
 2SG FUT firewood.DEF seek 1SG POST
 ‘She will fetch firewood for me.’ (Carlson 1994: 274)
- b. (Koyraboro Senni)
 Ay ga nooru wiri ay baaba ga.
 1SG IMPF money seek 1SG father POST
 ‘I will seek money from my father.’ (Heath 1999: 139)

The OVX PP-facts, then, constitute a striking exception to the more general head-initial orientation of OVX systems: where we might have expected the postverbal PPs in OVX systems to be head-initial, making these systems more VO-like in the usual generative sense (i.e. more consistently head-initial), what we in fact find is that these PPs are head-final, i.e. that there are at least two lexical heads in these systems that are head-final.²⁸ In the present context, the fact that the extraposed PPs are head-final is particularly significant as it suggests that PP-extraposition in OVX systems is not correlated with PP-headedness in the way that CP-extraposition is. To see this, consider Bayer’s (2001) discussion of CP-placement possibilities in languages like Bengali which have both initial and final C-elements. These can be schematized as follows:

- (29) a. V [CP C [TP...]]
 b. [CP [TP ...T] C] V
 c. * [CP C[TP...]] V
 d. ?? V [CP [TP ...T] C]

Here we see that head-initial CPs must be extraposed (29a vs 29c) and that head-final CPs are perfect in preverbal position and only very marginally available (hence:

²⁸It is worth noting that Hawkins’ characterization of OVX languages as “basically VO” is not undermined by the fact that these languages so frequently have head-final PPs. This becomes clear from the way he leads into the table representing the adpositional headedness facts (Table 1 in the main text): “The OVX languages should be more head-initial and have head ordering correlations more like those of VO. ... For correlations involving postpositions vs. prepositions within a PP as XP, there is a clear tendency in this direction: one third of OVX languages have either prepositions or no dominant order within PP and are transitional between the overwhelmingly postpositional XOY and OXY and the predominantly prepositional VO” (p.183). In clausal placement terms, then, postverbal PPs fit the VO pattern, departing from the preverbal placement patterns – XOY and OXY – observed in OV languages. To the extent that OVX languages can be shown to have been “more OV” – i.e. more consistently head-final and thus less amenable to extraposition – at earlier points in their history, it may be that the 14 OV languages in Hawkins’ sample afford insight into the way in which OV languages become more VO at the lowest levels of clausal structure: PP extraposition *precedes* a change in PP headedness. From a (1)-type FOFC perspective, this would be the expected sequence as VP dominates PP, and head-final to head-initial changes are expected to proceed top-down (cf. (8) above); on the (6)-type view being advocated here, the sequence of changes could as easily be the reverse, though, as V and P do not form part of the same extended projection line. As stable OV systems with head-initial PPs are clearly attested (see main text), there do not seem to be FOFC-based grounds for ruling out the reverse sequence of changes. Systems which have undergone these changes – like Persian and Neo-Aramaic (see note 27) – would nevertheless be interesting to investigate.

??) postverbally (29b vs 29d).²⁹ Extraposition of head-final CPs, then, appears to be, at best, very marginal, whereas head-final PP-extraposition is *required* in two-thirds of OVX systems (cf. Table 1).

OVX systems clearly merit much closer attention than has been the case to date – also because the obligatory extraposition of postpositional PPs would seem to entail a decrease in processing efficiency, a point that Hawkins (2008) does not address.³⁰ For our purposes, though, it seems that the following conclusions can be drawn about the FOFC-relevant insights afforded by the external distribution of PPs in OV-languages:

- (i) uncontroversial unrestricted (i.e. (1)-type) FOFC-violating preverbal prepositional PP structures can be found in West Germanic and elsewhere (Persian, Sorbian, etc);
- (ii) obligatory PP-extraposition in OV-languages is characteristic of OVX-type OV languages, which are “minimally OV”, exhibiting many traits found in VO languages, i.e. there is an independent reason why we see PP-extraposition in the relevant languages, one which is not in force in more fundamentally OV languages; and
- (iii) because PP-extraposition affects postpositional PPs twice as frequently as prepositional PPs, PP-extraposition cannot be viewed as a FOFC-compliance strategy parallel to CP-extraposition; it appears to apply independently of the need to create FOFC-compliant structures.

Taken together, these facts suggest, firstly, that a more restricted (6)-type interpretation of FOFC is required, and also that the distribution of PPs in OV-languages cannot always be viewed as being straightforwardly dictated by processing considerations (see again note 31).

²⁹ That head-final CP-extraposition is not crashingly bad in the way immediately preverbal placement of head-initial CPs is (29d vs 29c) is worth noting in the context of one of Hawkins’ (2013) objections to FOFC as a condition that is too weak (see note 6). Hawkins’ argument is that the two structures are equally bad, but this does not seem to be the case.

³⁰ That the postverbal placement of head-final PPs is not predicted to be optimal in processing efficiency terms is shown in the schematic representations in (i-ii) below:

- (i) [VP [PP NP P] V]]
- (ii) [VP V [PP NP P]]

As the structures show, immediately preverbal placement – XVO as in (i) – would be more efficient as selectee and selector are immediately adjacent in this case, in contrast to (ii), where the NP necessarily intervenes between V and the PP it selects (since PPs *always* extrapose in OVX languages, we can reason on the basis of selected – i.e. argument – PPs as these will necessarily be affected in the way described here; it is, of course, the case that PPs can also function as adjuncts). Interestingly, a preliminary investigation of the distribution of Hungarian PPs – which are most commonly postpositional – reveals that native-speakers are very happy to accept these in postverbal rather than the optimal preverbal position when the PPs in question are short (3 words, rather than 5 or 7 words; cf. Benson 2016 for discussion). cursory investigation of some of the OVX languages listed on WALS suggests that length may more generally be a relevant consideration as the languages in question lack articles, and nominals appear to extrapose their complements, in the same way that Vs in these languages generally do. These patterns clearly deserve more detailed investigation.

In the following section, we will consider evidence from the internal make-up of PPs in languages featuring superficially (6)-type FOFC-violating structures in order to further support this conclusion.

4 The internal distribution of head-final PPs in languages with head-initial PPs (and nominals)

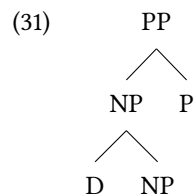
Our presentation in this section will again focus mostly on Afrikaans, a language that has been described as having all of the ingredients that are of principal interest to us here, namely prepositions, postpositions and circumpositions (and head-initial nominals).

4.1 A closer look at the Afrikaans adpositional system

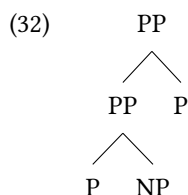
(30) illustrates Afrikaans' head-initial nominals, prepositions, postpositions and circumpositions:

- (30) a. *die boek oor Chomsky*
 the book about Chomsky
 'the book about Chomsky'
- b. *Hulle loop die bos in/ skool toe.*
 they walk the bush in school to
 'They walk into the bush/to school.'
- c. *Hy loop by die huis uit.*
 he walk by the house out
 'He walks out of the house.'

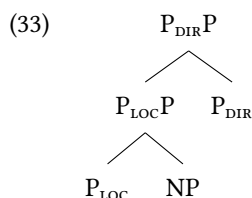
If *in* and *toe* in (29b) combine with head-initial *die bos/skool* as part of the Extended Projection of N, as shown in (31), they will violate (6)-type FOFC (see i.a. Ledgeway 2012, and Sheehan & van der Wal 2015 for an argument in favour of the idea that PPs constitute part of the Extended Projection of fully extended nominals):



Similarly, *by die huis uit* in (30c) will violate (6)-type FOFC if it can be shown that *uit* dominates *by*, as diagrammed in (32):



This does indeed seem to be the case as closer inspection of Afrikaans circumpositional structures reveals – and the same is true, more generally, for (non-English) West Germanic (cf. den Dikken 2010a and Koopman 2000; 2010 for two much-cited, comprehensive discussions of Dutch). More specifically, prepositions in these structures typically express location, while postpositions express direction,³¹ and it is by now well established that P_{DIR} dominates P_{LOC} as shown in (33).³²



Various considerations, however, point to the need for care when it comes to simply assuming that Afrikaans' pre- and postpositions are equivalent types of element which can therefore be equally straightforwardly interpreted as elements belonging to the same Extended Projection. Consider, for example, the data in (34–37):

- (34) a. Hulle het [_{PP} in die bos] geloop.
 they have in the bush walked
 'They walked (around) in the bush.'
- b. Hulle het geloop [_{PP} in die bos].
 They have walked in the bush
 'They walked (around) in the bush.'
- (35) a. Hulle het [_{PP} die bos in] geloop.³³
 they have the bush in walked
 'They walked into the bush.'

³¹See Pretorius (2015; in preparation) for more detailed discussion, which also highlights some counterexamples to this generalization, however (see also J. Oosthuizen 2000, and H. Oosthuizen 2009).

³²To the extent that P_{DIR} can be shown to be part of a different phasal domain to P_{LOC} , it will not violate the very restricted FOFC assumed by N. Richards (2016). In phasal terms, P_{DIR} could well be a plausible candidate for p (cf. Svenonius 2007; 2010), but we leave this matter aside here as it will emerge in the main text that there are good reasons not to worry about postpositional P_{DIR} as a violator of less restricted (6)-type FOFC; in other words, the restriction that Richards' proposed analysis would impose is not required as there are independent considerations.

- b. *Hulle het geloop [_{PP} die bos in].
 they have walked the bush in

Here we see a striking difference in extraposition possibilities, apparently depending on whether the PP is headed by a preposition or a postposition. Thus the PP headed by the prepositional (locative) *in* in (34) readily undergoes extraposition (cf. also the extraposition cases illustrated in (20–22) above), but it is not possible to extrapose postpositional PPs like (35). The data in (36–37), however, highlight the fact that this pre-versus postpositional distributional dichotomy is too simple:

- (36) a. Hulle het [_{PP} vir reën] gebid.
 they have for rain prayed
 ‘They prayed for rain.’
 b. Hulle het gebid [_{PP} vir reën].
 they have prayed for rain
 ‘They prayed for rain.’
- (37) a. Hulle het [_{PP} daarvoor] gebid.
 they have there.for prayed
 ‘They prayed for it.’
 b. Hulle het gebid [_{PP} daarvoor].
 they have prayed there.for
 ‘They prayed for it.’
- (38) a. (Colloquial Afrikaans)
 Hulle het [_{PP} vir dit] gebid.
 they have for it prayed
 ‘They prayed for it.’
 b. Hulle het gebid [_{PP} vir dit].
 they have prayed for it
 ‘They prayed for it.’

As (37b) shows, postpositions can extrapose when they are combined with so-called *R-pronouns*, i.e. pronouns in which a superficially locative R-containing form has replaced the expected pronominal form: here *daar* (‘there’) has replaced neuter *dit* (‘it’), for example. Strikingly, though, it is not just the form of the pronoun that differs from what might be expected here; the P also takes on a different form as *vir* in (36) becomes *voor* in (37). The expected pronominal and prepositional forms are both possible in colloquial Afrikaans, but must co-occur as indicated in (38).³⁴

³³The adposition *in* offers a particularly clear illustration of the dominant preposition = location while postposition = direction pattern in Afrikaans. The same pattern holds in Dutch (see i.a. den Dikken 2010b: 27).

³⁴*Vir daar* (‘for there’) and *voor dit* (‘before it/that’) are both possible in Afrikaans, but have different meanings, as the bracketed translations indicate.

Appealing to similarities with the behaviour of adpositions in Hungarian and other languages, Vos (2013) proposes that *voor* is in fact the *agreeing* counterpart of *vir*. That this is the correct intuition will become clear from our discussion of (47) below. For the moment, it suffices to note the important point that Afrikaans postpositions appear to be of at least two types: a non-alternating, non-extraposable type of the kind illustrated in (35), and an alternating, extrapositional type of the kind illustrated in (37).

Focusing, then, on the extraposition discrepancy between preposition-containing (34) and postposition-containing (35): Pretorius (2015) suggests a potential reason for it, proposing that postpositions in Afrikaans, for the most part, instantiate the particle-component of particle verbs (I suggest that the alternating postpositions just introduced are the exception here, a matter to which we return below). Simplifying greatly, this has implications of the following kind for (35) (in the representations to follow, we leave aside considerations such as the fact that the object DP would probably have to originate to the left of the particle V in (4.1a'), where the moved object DP would be located, etc.):

- (39) a. Hulle het [pp die bos in] geloop. (=35a) ✗
 they have the bush in walked
 'They walked into the bush.'
- a' Hulle het [vp [DP die bos] [particleV in geloop³⁵]]. ✓
- b. * Hulle het geloop [pp die bos in]. (=35b)
 they have walked the bush in

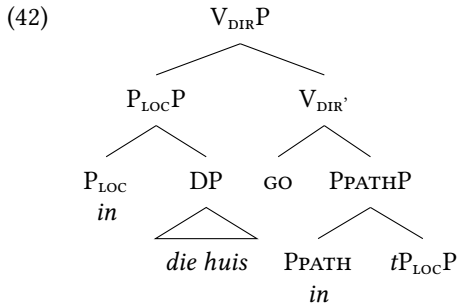
The idea here is that *in* is structurally represented in such a way that it is spelled out as part of V as in (4.1a'), rather than as part of the object as in (35/4.1a). This proposal rests on an intuition – fleshed out in more detail in Pretorius (2015; in preparation), but developed in a different way here – that also underlies the proposal made in den Dikken (2010b) for (standard spoken) Dutch, and part of what Aelbrecht & den Dikken (2013) propose in their analysis of identical doubling structures in certain Belgian varieties (e.g. Asse, illustrated in 40b), namely that postpositional elements are structurally deficient. To see how this is the case, consider, firstly, the data in (40):

- (40) a. (Afrikaans)
 Hulle het in die bos in geloop.
 they have in the bush in walked
 'They walked into the bush.'
- b. (Asse Dutch)
 Hij is op den berg op geklommen.
 he is on the hill on climbed
 'He climbed onto the hill.'

³⁵Importantly, *in geloop* ('walked in') here is distinct from *ingeloop* ('done in, cheated'). The distinction is readily captured by appealing to the distinction between separable (*in geloop*) versus non-separable particle verbs, though. Worth noting is that Afrikaans spelling conventions do not reflect the analysis proposed here; instead, they distinguish between "regular" particle verbs, which are written as a single word, and postposition-containing structures, in which the postposition – which, here, is simply another verbal particle – is written separately from the verb. I will continue to follow the Afrikaans spelling conventions in my presentation and discussion of the data.

Here we see sentences in which apparently identical pre- and postpositions create what seems to be a circumpositional structure, with the usual directional interpretation associated with these structures.³⁶ Importantly, both *in loop* ('walk in') and *op klim* ('climb up') exist as (directional) particle verbs in the respective varieties. Drawing on the further observation that both Dutch and Afrikaans have silent GO, which surfaces in structures like (41) (cf. Van Riemsdijk 2002 and Biberauer & Oosthuizen 2011), a (simplified) structure of the kind in (42) suggests itself to account for (40):

- (41) a. (Afrikaans)
 Hy is dorp toe [GEGAAN].³⁷
 he is town to gone
 'He has gone to town.'
 b. (Gaan)
 Sy moet lughawe toe [GAAN].
 she must airport to GO
 'She must go to the airport.'



In (41), we see directionally interpreted structures that superficially lack a lexical verb. Van Riemsdijk (2002) provides convincing argumentation that this is only apparently the case, and that a silent motion verb, GO, is in fact present in the structure. If this silent verb is also present in directional circumpositional structures like (40) and in directional postpositional structures more generally, we can understand why the “postpositions” in both types of directional structures are not in fact postpositions at all. Consider (42) to

³⁶As J. Oosthuizen (2000) and Aelbrecht & den Dikken (2013) both note, certain colloquial varieties appear to be in the process of *extending* this pattern to locative PPs; but it is clear in both cases that directional PPs were the starting point for this unusual pattern, an important consideration in view of the availability of silent GO (see main text).

³⁷Since Afrikaans differs from Dutch in lacking HAVE vs BE auxiliary selection in compound tenses, it might at first sight seem implausible to assume the presence of van Riemsdijk’s silent GO in structures like (41a), which contains a form of BE. Given the systematic discrepancies between null and overt elements of “the same” kind, however (cf. i.a. Nunes 2004; Kayne 2010; Biggs 2014; Douglas 2015 and Biberauer 2017), and also the minimal specification associated with BE in Afrikaans, as in Dutch, this become less troubling, however.

see why this is so. In this simplified structure, we follow den Dikken (2010a; 2010b) in assuming a PP-structure in which $P_{\text{Loc}}P$ is selected by $P_{\text{Path}}P$ which is, in turn, potentially dominated by $P_{\text{Dir}}P$ (see also Koopman 2010 for a variant of this proposal). The presence of silent GO, however, raises the possibility of structures in which the directionality component is represented not by a fully-fledged $P_{\text{Dir}}P$, but instead, by a V that incorporates Dir , the silent $V_{\text{Dir}} \text{GO}$, i.e. a structure in which the PP-component is defective, with part of what PPs can contribute to directional meaning being contributed by the verbal entity with which they combine rather than by the PP itself.³⁸ Significantly in the current context, this structure does not violate (6)-type FOFC.

That directional postpositions appear to be defective compared to locative prepositions has already been demonstrated in (34–35) above, and the same discrepancy emerges when we consider the few directional prepositions in Afrikaans relative to their postpositional counterparts. Contrast (43) with (35), repeated here as (44), for example:

- (43) a. Hy het **na die swembad** gehardloop.
 he has to the swimming.pool run
 ‘He ran to the swimming pool.’
 b. Hy het gehardloop **na die swembad**.³⁹
 he has run to the swimming.pool
- (44) a. Hulle het die bos **in** geloop.
 they have the bush in walked
 ‘They walked into the bush.’
 b. *Hulle het geloop die bos **in**.
 they have walked the bush in

While prepositional *na*-PPs can extrapose, postpositional *in*-phrases like those in (35/44b) cannot. Aelbrecht & den Dikken (2013) propose that the $P_{\text{Dir}}P$ -component of identical doubling structures lacks the full functional structure associated with the locative component of the circumposition: in lexicalization (and also “spanning”; see note 38) terms, we can think of this as doubling Ps being unspecified for Dir , with the result that they cannot themselves project $P_{\text{Dir}}P$ (*in* in (42) is the head of $PP_{\text{ATH}}P$). Here, we propose that this is also more generally true of directional postpositions in Afrikaans (and in West Germanic more generally).

This has two immediate consequences. The first of these is that P_{Path} will incorporate with V_{Dir} , and, from there, into the lexical verb with which the V_{Dir} -structure is ultimately merged. Assuming the approach to incorporation in Roberts (2010), P_{Path} constitutes a defective goal in relation to V_{Dir} , as it lacks the Dir -specification present

³⁸In Pretorius (2015), these options are conceived of as the consequence of different ‘spanning’ choices (cf. Svenonius 2011; 2016).

³⁹Significantly, the circumpositional variant of this structure, in which *na* is reinforced by *toe* – *Hulle het gehardloop na die swembad toe* – is also readily acceptable, in sharp contrast to the pattern to be discussed below and illustrated in (43). We return to this matter below.

on the latter head;⁴⁰ the incorporated $P_{\text{PATH}}-V_{\text{DIR}}$ -structure, in turn, is plausibly a defective goal in relation to the lexical verb, which will bear verbal specifications typical of fully-fledged overt lexical items (cf. again the references cited above on the idea that null elements lack properties associated with their overt “counterparts”, and i.a. Pesetsky 1995 and Bošković & Lasnik 2003). Taken together, these incorporations predict that postpositional Ps in Afrikaans (and Dutch) will always precede the lexical verb. This, in turn, allows us to understand why extraposition structures such as those in (35/44b) are barred: postpositional *in* must incorporate with a higher verbal head in order to be licensed, and, as such, cannot surface in the kind of non-adjacent, rightward position that extraposition structures would require. Further, thanks to this dependence on the relevant lexical verbs, the P-V combinations are recognized by native-speakers as (separable) particle verbs of the transparent (rather than idiomatic; cf. Wurmbrand 2000) kind.

The second immediate consequence is that we can understand the unavailability of Afrikaans (and Dutch) postpositional PP-extraposition as another manifestation of a more widely observed pattern in terms of which only “full” structures are extraposable (cf. i.a. Wurmbrand 2001: 294, Hinterhölzl 2005: 15, Biberauer & Sheehan 2012: 32ff, and Sheehan & van der Wal 2015: 8–9 for different versions of this idea). In West Germanic and many other OV-systems, for example, we observe that full CP-complements surface in postverbal position (cf. again (4) above, and (45a) below), while reduced clausal complements necessarily appear to the left of the verb (45b):

- (45) a. (German)
 Es scheint, [_{CP} dass der Hans sich rasiert].
 it seems that the John self shaves
 ‘It seems that John is shaving himself.’
 b. ... dass Hans [_{TP} sich zu rasieren] schien.
 that Hans self to shave seemed
 ‘... that Hans seemed to shave himself.’
 c. * ... dass Hans schien [_{TP} sich zu rasieren].
 that Hans seemed self to shave

If, as we have argued above, postpositional (directional) Ps lack the full functional structure associated with prepositional Ps, – which are mostly, but not exclusively locative; cf. *na* in (43) – we expect prepositional PPs to be extraposable, while postpositional PPs are not. Further, we also expect the pattern in (46), which would be puzzling if extraposition simply rested on the presence versus absence of a preposition-containing PP:

⁴⁰If P_{PATH} is to constitute a defective goal in Roberts’ terms, it has to be assumed that its categorial status will not render it partially distinct from V_{DIR} . Precisely how the formal specification of “what it means to be a V” versus “what it means to be a P” is to be captured is not a matter on which there is currently any consensus. What is clear, however, is the empirical fact that certain P-elements, like certain predicative nominal elements, can incorporate into verbal elements; if Roberts (2010) is correct in analyzing incorporation as involving the presence of defective goals, we can use cases like those under discussion here to make progress on long-standing questions about the categorial make-up of P-elements.

- (46) a. Hulle het **by/in die bos** in geloop.
 They have by/in the bush in walked
 ‘They walked into the bush.’
 b. *Hulle het geloop **by/in die bos** in.
 they have walked by/in the bush in
 c. Hulle het ingeloo**p by/in die bos**.⁴¹
 they have in.walked by/in the bush
 ‘They walked into the bush.’

Here we see that circumpositional directional PPs mirror the behaviour of their postpositional counterparts (35/44b) in resisting extraposition (46b), despite the presence of a preposition. Significantly, extraposition of the (locative) prepositional component of the structure becomes possible where the postposition is immediately left-adjacent to the verb (46c), i.e. where, in our terms, it has incorporated, via V_{DIR} (cf. 42 above), with the lexical verb and thus been licensed by it.⁴² In this case, the prepositional PP, which is, as always, a complete phasal structure, may extrapose; in (46b), by contrast, extraposition is barred because postpositional *in*, located on top of the fully phasal prepositional PP, is defective, meaning the circumpositional structure as a whole is non-phasal and thus, by hypothesis, non-extraposable. An appealing way to think about what is at stake here is via Sheehan & van der Wal’s (2015) Extend licensing mechanism, given in (47):

- (47) Extend: All categories must be part of a phase (where phases include vP, CP, nP, DP, pP, and its CP-/upper-phase counterpart – MTB).

In terms of this plausibly interface-imposed requirement, incorporation into V in cases like (46c) allows defective directional *in*, which lacks its own functional structure, to satisfy (47): via incorporation, it becomes part of the vP-phase. Because postpositional *in* is not part of a (complete) phase prior to incorporation with V, it is not extraposable along with the lower (prepositional) phase of the PP-structure it is first-merged with.

As registered in note 39, *na ... toe* circumpositions constitute an exception to the pattern illustrated in (46): a *na ... toe* circumposition can extrapose, unlike *by/in die bos in* in (46b). Strikingly, we also do not see incorporation of the type in (46c) with *na ... toe* circumpositions. This is shown in (48), which is interpretively equivalent to (43) above:

⁴¹Importantly, *Hulle het ingeloo**p by/in die bos*** in (46c) means ‘They walked into the bush’, like (46a), and not ‘They walked in the bush’, like (34b), *Hulle het geloo**p by/in die bos***.

⁴²Interestingly, this structure may at first sight seem to resemble the extraposition pattern predicted by Sheehan’s (2013) FOFC analysis (see again §2 above). As it is very clearly the *postposition* that precedes the verb, with the prepositional PP following it, this is not a possible analysis of the structure, however. This is demonstrated in (i), which shows the scattered-deletion operation that would be expected on this approach:

- (i) Hulle het **by/in die-bos-in** geloop **by/in die** bos in.
 they have by/in the bush in walked by/in the bush in

- (48) a. Hulle het **na die swembad** **toe** gehardloop.
 they have to the swimming.pool to run
 ‘They ran to the swimming pool.’
 b. Hulle het gehardloop **na die swembad** **toe**.
 they have run to the swimming.pool to
 ‘They ran to the swimming pool.’
 c. *Hulle het **toegehardloop** na die swembad.
 they have to.run to the swimming.pool

An immediate difference between (46a) and (48a) is that the preposition in (48), *na*, is already inherently directional, i.e. DIR-bearing; postpositional *toe* thus simply echoes its directional meaning in a manner semantically, though not lexically, reminiscent of the so-called German *shadow Ps* discussed in Noonan (2010). Further *toe* is one of the alternating P-forms in Afrikaans: like *vir/voor* illustrated in (36–37) above, it consistently takes a different form (*toe*) when it surfaces postnominally to that which we see when it occurs prenominally (*tot*); *met/mee* (‘with’) is the final member of this trio. (49) illustrates the alternation between *tot* and *toe*.

- (49) a. Sy het **tot** [_{PP} by die see] gehardloop (en daarna omgedraai).
 she has to by the sea run and there.after around.turn
 ‘She ran to the sea and then turned around.’
 b. Sy het see **toe** gehardloop.
 she has sea to run
 ‘She ran to(wards) the sea.’

As noted above, Vos (2013) analyses this alternation as signifying a difference between agreeing (*voor/toe/mee*) and non-agreeing (*vir/tot/met*) prepositions. Building, on the one hand, on this insight and on the idea that agreement is a property of a non-defective phasal domain (cf. i.a. Chomsky 2001), and, on the other, on the observation that *toe* differs from *tot* in giving non-telic directional interpretations, we propose that *toe* differs from the (particle) postpositions discussed to date in (i) being part of a non-defective upper (i.e. directional) phasal domain, and (ii) selecting a defective *lower* (i.e. locative) phasal domain. More specifically, I propose that *toe* is a P_{PATH}-head which consistently selects a nominal headed by silent PLACE (cf. Kayne 2008); see (51b) below. This nominal and the overt nominal structure it introduces are then always available for probing (and, in keeping with phi-probing heads in Afrikaans more generally,⁴³ subsequent movement) by the agreement-bearing P_{PATH}-head that is ultimately spelled out as *toe*.

⁴³v, T and C can all be viewed as phi-probes which raise the nominals they probe. Prepositional Ps would then be an exception to this generalization. Since agreeing Ps are crosslinguistically unusual, it is tempting to think that selection relations between Ps and their complements do not typically involve phi, with the cases where we do see agreement signifying a departure from this norm. This would, of course, require rethinking of P’s role as a licenser, with Sheehan & van der Wal’s (2015) approach presenting a possible way forward.

A simplified version of the proposed derivation is schematized in (50) (strikethrough signifies a non-spelled-out lower copy, as before; the probing P_{DIR} -phasehead remains unrealized in (49b), but see (51) below for the overt realization option, which represents an innovation in Afrikaans):

- (50) $[P_{\text{DIR}} \text{ DIR} \dots [P_{\text{PATH}} [DP \text{ PLACE } [NP \text{ see}]]] \text{ PATH-} \textit{toe} [DP \text{ PLACE } [NP \text{ see}]]]]$

Tot, by contrast, selects a non-defective locative complement, necessarily introduced by an overt preposition (e.g. *by* in (49a)⁴⁴), and lacks the phi-probe associated with *toe*, a factor which does not, however, render it defective in phasal terms, as the extraposition facts clearly show (see note 43 on the relation between P and phi); *tot* instead appears to lexicalize both PATH and DIR, suggesting that it may be the spellout of a composite head, i.e. both PATH and DIR in (50) above.

Significantly, the analysis proposed here means that *toe* in structures like (48) does not in fact combine with a PP headed by *na*, i.e. *na ... toe* structures do not involve a FOFC-violating final-over-initial configuration and are actually very different from the superficially very similar identical doubling circumpositions discussed above. The difference is schematized in (51):

- (51) a. (=42)
-
- $$\begin{array}{c}
 V_{\text{DIR}} P \\
 \swarrow \quad \searrow \\
 P_{\text{LOC}} P \quad V_{\text{DIR}}' \\
 \swarrow \quad \searrow \quad \swarrow \quad \searrow \\
 P_{\text{LOC}} \quad DP \quad GO \quad P_{\text{PATH}} P \\
 \quad \quad \quad \triangle \quad \quad \quad \swarrow \quad \searrow \\
 \quad \quad \quad \text{in} \quad \text{die huis} \quad \quad \quad P_{\text{PATH}} \quad tP_{\text{loc}} P \\
 \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \triangle \\
 \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \text{in}
 \end{array}$$
- b.
-
- $$\begin{array}{c}
 P_{\text{DIR}} P \\
 \swarrow \quad \searrow \\
 P_{\text{DIR}} \quad P_{\text{PATH}} P \\
 \text{na} \quad \quad \swarrow \quad \searrow \\
 \quad \quad \quad \text{PLACE} P \quad \text{Path}' \\
 \quad \quad \quad \swarrow \quad \searrow \quad \swarrow \quad \searrow \\
 \quad \quad \quad \text{PLACE} \quad DP \quad \text{Path} \quad t\text{PLACE} P \\
 \quad \quad \quad \quad \quad \triangle \quad \quad \quad \triangle \\
 \quad \quad \quad \quad \quad \text{die} \quad \text{see} \quad \quad \quad \text{toe}
 \end{array}$$

⁴⁴Temporal *tot* – e.g. *tot Maandag*, ‘until Monday’ – is different, systematically selecting nominals.

The proposal for Afrikaans circumpositions, then, is that they come in two types. The first and most common type is that illustrated in (51a), in which the superficial postposition is not in fact part of a PP-structure, but is instead part of a particle-verb structure in which the directional component is contributed by silent V_{DIR} GO. Not expressing DIR itself, this defective P-element incorporates into V_{DIR} and, from there, into the lexical verb, which allows it to become part of a non-defective phasal domain (vP); the fact that it necessarily surfaces adjacent to the lexical verb and cannot be extraposed as part of a circumpositional structure thus follows. This type is also found in Dutch, mostly in the non-doubling form (e.g. *by die bos in* as in (46)), but also in some varieties in the doubling form found in Afrikaans (i.e. the *in die bos in*-variant of (46); cf. the Asse Dutch example in (40b)). The second type is an innovation in Afrikaans and involves a genuine circumpositional structure. This is, however, not a FOFC-violating structure either as head-initial *na* dominates head-final *toe*, as shown in (51b). The Ps in this structure are both non-defective, with the result that we expect it to be able to extrapose as in (48b); since the postpositional element is structurally too distant from the lexical verb to undergo incorporation, the ungrammaticality of (48c) above is also expected. Afrikaans, then, does not present any challenges to (6)-type FOFC.

4.2 A brief look at circumpositions beyond Afrikaans

We do not have the space to demonstrate this here, but it appears to be the case that Afrikaans' West Germanic relatives do not present additional FOFC challenges: the majority appear to feature only particle-type postpositions and, thus, lack genuine final-over-initial PP-structures as the structure in question is that illustrated in (42/51a). Worth noting, though, is the fact that the varieties of colloquial German that permit the shadow Ps analysed in Noonan (2010) and illustrated in (52) appear to mirror Afrikaans in featuring both (51a)- and (51b)-type circumpositional structures, with the shadow-containing circumpositions instantiating the latter type:

- (52) a. **in** der Kiste **drin**
 in the box DR-in
 ‘inside the box’ (=locative; Noonan 2010: 164)
- b. **um** den Tisch **rum**
 round the table R-round
 ‘around the table’ (=directional; Noonan 2010: 169)

The Gbe languages discussed in Aboh (2005; 2010), in turn, appear only to feature the (51b)-type, i.e. initial-over-final, inverse FOFC structures. In fact, this language family facilitates particularly clear insight into how different the P-elements in circumpositional structures can be. Consider (53):

- (53) a. Kɔ́jó zé àkwɛ xɛ́lɛ́n Kwé.sí. [Gungbe]
 Kojo take money P₁ Kwesi
 ‘Kojo sent money to Kwesi.’

- b. Kɔ́jó xɛ távò lɔ jí.
 Kojo climb table DET P₂
 ‘Kojo climbed on top of the table.’
- c. Kpònɔ̀n lɛ nyì àgbà̀n cè xlá̀n gbó jí.
 police NUM throw luggage POSS P₁ trash P₂
 ‘The policemen threw my luggage onto the dumpster.’ (Aboh 2010: 227)

As Aboh demonstrates, the prepositional Ps (P₁) behave consistently differently from the postpositional Ps (P₂). The former evidently constitute a small closed class of 5 members all expressing direction/goal/path, all derive from verbs (possibly via serial constructions), seem to assign Case, and, rather unusually given the crosslinguistic trend, must necessarily be stranded. The latter, in turn, are all derived from nouns and closely resemble the elements Jackendoff (1996) originally designated *Axial Parts*;⁴⁵ there are about 30 of them, they do not assign Case, and they must be piedpiped. Following Svenonius’s (2006) characterization of Ax(ial)PartP as a nominal-peripheral (‘light noun’) projection located below the P-layers expressing location and direction (54a), Gungbe circumpositions will be initial-over-final structures (54b), with the finality of the high nominal layer being unproblematic in view of Gungbe’s head-final nominal system (54c):

- (54) a. *pP* > LocP > **AxPartP** > KP > DP
 b. *P₁P (direction/goal/path)* > **P₂P** (Aboh 2010)
 c. Mì fɔ̀n hàdòkpó̀lɔ sɔ̀n zà̀n lɔ jí!
 2PL stand immediately P₁ bed DET P₂
 ‘Get out of the bed immediately!’ (Aboh 2010: 229)

Neither the West Germanic nor the Gbe languages, then, appear to constitute a challenge to FOFC as defined in (6). Interestingly, they do not challenge Richards’s more restrictive phasal-domain-based definition either (see §2) as we have seen that none of the superficially problematic structures we have considered here involves a final head dominating an initial one that is located in the same spellout domain. What is striking about the adpositional facts discussed here, however, is the way in which Extended Projections repeatedly emerge as a relevant consideration in characterizing the structure of the observed phenomena: in some cases, postpositions can be shown to be defective, lacking the higher functional structure that would lead to their forming part of a complete phasal domain, with the result that they incorporate into another lexical category (here: V) and become part of a second Extended Projection (possibly, in line with Extend, as given in (47); this holds for particle-type postpositions as in 42/51a); in others, functional structure *below* the final element is defective, meaning that we again have a

⁴⁵Jackendoff (1996: 14) clarifies the notion “Axial Part” as follows: “The “axial parts” of an object – its top, bottom, front, back, sides, and ends – behave grammatically like parts of the object, but, unlike standard parts such as a handle or a leg, they have no distinctive shape. Rather, they are *regions* of the object (or its boundary) *determined by their relation to the object’s axes*. The up-down axis determines top and bottom, the front-back axis determines front and back, and a complex set of criteria distinguishing horizontal axes determines sides and ends.” (my emphasis –TB)

defective Extended Projection (this holds for (51b)-type postpositions). That apparently FOFC-violating structures should repeatedly exhibit some kind of Extended Projection-related peculiarity is precisely what is expected on the restricted condition in (6), while it is unexplained on Richards' phasal-domain alternative.⁴⁶ The internal structure of apparently FOFC-violating PPs, we contend, therefore provides another argument in favour of this intermediate interpretation of FOFC's restrictiveness.

5 Conclusion

Our objective in this paper was to take a closer look at adpositional phrases in order to establish what kinds of insights these may add to our understanding of a by now much-discussed word-order condition, FOFC. Adpositions present numerous superficial challenges to FOFC, in both of its most familiar formulations, (1) and (6) above. Closer inspection of, on the one hand, the external distribution of PPs in OV-languages and, on the other, the internal make-up of post- and circumpositional PPs suggests that the latter, which crucially makes reference to Extended Projections, seems the most promising. The data we have considered reveals a range of ways in which postpositions and circumpositional structures can be unproblematic in the FOFC context. This is the same finding as that which has emerged from closer investigation of two other domains in which apparently FOFC-violating structures seem to abound, final particle-containing structures (Biberauer 2017), and 231 verb-clusters in West Germanic (Biberauer 2013). In each case, it has proven productive to investigate each apparently problematic structure independently as it has become clear that apparently FOFC-violating structures can arise from quite diverse underlying structures (hence also their (relatively) frequent attestation); and, in each case, it has emerged either that there are reasons to reject the possibility that the troublesome final elements examined form part of the same Extended Projection as lower head-initial elements, or that the underlying structure is in fact the inverse-FOFC (initial-over-final) one. Many cases still require detailed investigation, but, at this stage, the hypothesis that something like the restricted, crucially Extended Projection-based FOFC defined in (6) may indeed be universal remains promising.

If this is correct, FOFC is a 'deep' universal, constituting a condition on syntactic structure-building that has wide-ranging consequences for word order. This makes it, in the terms of Whitman (2008), both a cross-categorical generalization – i.e. 'one that references the internal properties of two or more categories, irrespective of their relationship in a particular structure' (233); Greenberg's Universal 3 is an example⁴⁷ – and a hierarchical generalization – i.e. 'one that describes the relative position of two or more

⁴⁶It is worth noting that acknowledging the significance of defectivity in the FOFC context also seems like an important step in facilitating progress on the intriguing question of why VOC should be completely barred where C is a subordinating Complementizer of the kind considered in typological studies since Greenberg (1963; see again Dryer 2009 for overview discussion) while it seems extremely common where C is some kind of particle; and, similarly, why inflecting auxiliaries obey FOFC, while their particle counterparts do not. If the conforming elements contribute to Extended Projections, while particle elements do not, the discrepancy becomes less mysterious (see Biberauer 2017 for discussion).

⁴⁷Universal 3: Languages with dominant VSO order are always prepositional (Greenberg 1963: 78).

categories in a single structure' (234); Greenberg's Universal 1 is an example.⁴⁸ For Whitman, cross-categorical and hierarchical generalizations are very different, with only the latter being 'deep' (in hierarchical terms, Universal 3 follows from the universal leftness of specifiers; cf. i.a. Kayne 1994, Ackema & Neeleman 2002, and Biberauer, Roberts & Sheehan 2014). FOFC, however, would seem to be a hybrid of two of the generalization-types identified by Whitman, a truly novel kind of syntactic universal, the existence of which was first registered by the linguist to whom this volume is dedicated, Anders Holmberg.

Abbreviations

Abbreviations used in this article follow the Leipzig Glossing Rules' instructions for word-by-word transcription, available at: <https://www.eva.mpg.de/lingua/pdf/Glossing-Rules.pdf>.

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References

- Abels, Klaus. 2003. *Successive cyclicity, anti-locality and adposition stranding*. University of Connecticut (Storrs) dissertation.
- Abels, Klaus. 2012. The Italian left periphery: A view from locality. *Linguistic Inquiry* 43. 229–254.
- Aboh, Enoch. 2005. The category P: The Kwa paradox. *Linguistic Analysis* (32). 615–646.
- Aboh, Enoch. 2010. The P-route. In Cinque Guglielmo & Luigi Rizzi (eds.), *Mapping spatial PPs. The cartography of syntactic structures*, vol. 6, 225–260. New York: Oxford University Press.
- Ackema, Peter & Ad Neeleman. 2002. Effects of short-term storage in processing rightward movement. In Sieb Nooteboom, Fred Weerman & Frank Wijnen (eds.), *Storage and computation in the language faculty*, 219–256. Dordrecht: Kluwer.
- Aelbrecht, Lobke & Marcel den Dikken. 2013. Preposition doubling in Flemish dialects and its implications for the syntax of Dutch PPs. *Journal of Comparative Germanic Linguistics* 16. 33–68.

⁴⁸**Universal 1:** In declarative sentences with nominal subject and object, the dominant order is always one in which the subject precedes the object.

- Anderson, Torben. 1988. Ergativity in Pări, a Nilotic OVS language. *Lingua* 75. 289–324.
- Arsenijević, Boban. 2009. Clausal complementation as relativization. *Lingua* 119. 39–50.
- Baltin, Mark. 1989. Heads and projections. In Mark Baltin & Anthony S. Kroch (eds.), *Alternative conceptions of phrase structure*, 1–16. Chicago: UCP.
- Bayer, Josef. 2001. Two grammars in one: Sentential complements and complementizers in Bengali and other South-Asian languages. In Peri Bhaskararao & Karumuri Venkata Subbarao (eds.), *The Yearbook of South Asian Languages 2001*, 11–36. New Delhi: Sage Publications.
- Benson, Charlie. 2016. *Processing efficiency in flexible word order languages: An investigation into Hungarian*. BA dissertation, University of Cambridge.
- Biberauer, Theresa. 2011. In defence of lexico-centric parametric variation: Two 3rd factor-constrained case studies. Paper presented at the Workshop on Formal Grammar and Syntactic Variation.
- Biberauer, Theresa. 2013. Germanic verb clusters again – with Afrikaans centre-stage. Paper presented at the 28th Comparative Germanic Syntax Workshop (CGSW 29).
- Biberauer, Theresa. 2017. Optional V2 in Modern Afrikaans: Probing a Germanic peculiarity. In Bettelou Los & Pieter de Haan (eds.), *Verb-Second languages: Essays in honour of Ans van Kemenade*. Amsterdam: John Benjamins.
- Biberauer, Theresa, Anders Holmberg & Ian Roberts. 2014. A syntactic universal and its consequences. *Linguistic Inquiry* 45. 169–225.
- Biberauer, Theresa, Glenda Newton & Michelle Sheehan. 2009. Limiting synchronic and diachronic variation and change: The Final-Over-Final Constraint. *Language and Linguistics* 10(4). 699–741.
- Biberauer, Theresa & Johan Oosthuizen. 2011. More unbearably light elements? Silent verbs demanding overt complementizers in Afrikaans. *Snippets* 24. 5–6.
- Biberauer, Theresa & Ian Roberts. 2010. Subjects, tense and verb-movement. In Theresa Biberauer, Anders Holmberg, Ian Roberts & Michelle Sheehan (eds.), *Parametric variation: Null subjects in minimalist theory*, 263–303. Cambridge: Cambridge University Press.
- Biberauer, Theresa & Ian Roberts. 2015. Rethinking formal hierarchies: A proposed unification. In James Chancharu, Xuhui Hu & Moreno Mitrović (eds.), *Rethinking formal hierarchies: A proposed unification*, vol. 7, 1–31. Cambridge: Cambridge Occasional Papers in Linguistics.
- Biberauer, Theresa, Ian Roberts & Michelle Sheehan. 2014. No-choice parameters and the limits of syntactic variation. In Robert Santana-LaBarge (ed.), *Proceedings of the 31st West Coast Conference on Formal Linguistics (WCCFL 31)*, 46–55. Somerville, MA: Cascadilla Press.
- Biberauer, Theresa & Michelle Sheehan. 2012. Disharmony, antisymmetry, and the Final-over-Final Constraint. In Valmala Elguea & Miriam Extebarria (eds.), *Ways of structure building*, 206–244. Oxford: Oxford University Press.
- Biberauer, Theresa & Michelle Sheehan. 2013. Introduction. In Theresa Biberauer & Michelle Sheehan (eds.), *Theoretical approaches to disharmonic word order*, 1–46. Oxford: Oxford University Press.

- Biberauer, Theresa, Michelle Sheehan & Glenda Newton. 2010. Impossible changes and impossible borrowings. In Anne Breitbarth, Christopher Lucas, Sheila Watts & David Willis (eds.), *Continuity and change in grammar*, 35–60. Amsterdam: John Benjamins.
- Biggs, Alison. 2014. *Dissociating Case from Theta-Roles: A Comparative Investigation*. University of Cambridge. Ph.D. dissertation.
- Bošković, Željko & Howard Lasnik. 2003. On the distribution of null complementizers. *Linguistic Inquiry* 34. 527–546.
- Broekhuis, Hans. 2013. *Syntax of Dutch: Adpositions and adpositional phrases*. Amsterdam: Amsterdam University Press.
- Bruening, Benjamin. 2009. Selectional asymmetries between CP and DP suggest that the DP Hypothesis is wrong. In Laurel MacKenzie (ed.), *U. Penn Working Papers in Linguistics 15.1 : Proceedings of the 32nd Annual Penn Linguistics Colloquium*, 26–35. Philadelphia: University of Pennsylvania. <http://repository.upenn.edu/pwpl/vol15/iss1/>. last accessed 2 June 2016.
- Bruening, Benjamin, Xuyen Dinh & Lan Kim. 2015. *Selection, idioms, and the structure of nominal phrases with and without classifiers*. <http://udel.edu/~bruening/Downloads/IdiomsClassifiers7.3.pdf>, accessed 2016-6-2. Unpublished ms.
- Carlson, Robert. 1994. *A grammar of Supyire*. Berlin: Mouton.
- Cecchetto, Carlo. 2013. Backwards dependencies must be short: A unified account of the Final-over-Final and the Right Roof Constraints and its consequences for the syntax/morphology interface. In Theresa Biberauer & Ian Roberts (eds.), *Challenges to linearization*, 57–92. Berlin: Mouton de Gruyter.
- Chocano, Gema. 2007. *Narrow syntax and phonological form: Scrambling in the Germanic languages*. Amsterdam: John Benjamins.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89–155. Cambridge: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge: MIT Press.
- Cognola, Federica. 2012. *Syntactic variation and verb second: A German dialect in Northern Italy*. Amsterdam: John Benjamins.
- den Dikken, Marcel. 2010a. On the functional structure of locative and directional PPs. In Guglielmo Cinque & Luigi Rizzi (eds.), *Mapping spatial PPs*, 74–126. Oxford: Oxford University Press.
- den Dikken, Marcel. 2010b. Directions from the GET-GO: On the syntax of manner-of-motion verbs in directional constructions. *Catalan Journal of Linguistics* 9. 25–55.
- Douglas, Jamie. 2015. *Unifying that that-trace and anti-that-trace effects*. <http://ling.auf.net/lingbuzz/002793>, accessed 2016-12-15. Unpublished ms.
- Dryer, Matthew. 1992. The Greenbergian word order correlations. *Language* 68. 81–138.
- Dryer, Matthew. 2009. The branching direction theory revisited. In Sergio Scalise, Elisabetta Magni & Antonietta Bisetto (eds.), *Universals of language today*, 185–207. Berlin: Springer.

- Etxepare, Ricardo & Bill Haddican. 2017. Repairing Final-Over-Final Condition violations: Evidence from Basque verb clusters. In Laura R. Bailey & Michelle Sheehan (eds.), *Order and structure in syntax: Word order and syntactic structure*, vol. I. Berlin: Language Science Press.
- Fodor, Janet Dean. 1978. Parsing strategies and constraints on transformations. *Linguistic Inquiry* 9(3). 427–473.
- Fowlie, Meaghan. 2014. Adjunction and minimalist grammars. In Glyn Morrill, Reinhard Muskens, Rainer Osswald & Frank Richter (eds.), *Proceedings of Formal Grammar 2014, Lecture Notes in Computer Science Vol. 8612*, 34–51. Dordrecht: Springer.
- Franco, Ludovico. 2012. *Complementizers are not (demonstrative) pronouns and vice versa*. <http://ling.auf.net/lingbuzz/001539>. Unpublished ms.
- Greenberg, Joseph H. 1963. Some universals of grammar with particular reference to the order of meaningful elements. *Universals of Language* 2. 73–113.
- Grimshaw, Jane. 1991. *Extended Projection*. Unpublished ms. (Also appeared in J. Grimshaw (2005), *Words and Structure*, Stanford: CSLI).
- Haider, Hubert. 2005. Mittelfeld phenomena: Scrambling in Germanic. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, vol. 3, 204–284. Oxford: Blackwell.
- Haider, Hubert. 2013. *Symmetry breaking in syntax*. Cambridge: Cambridge University Press.
- Hawkins, John A. 1990. A parsing theory of word order universals. *Linguistic Inquiry* 21. 223–262.
- Hawkins, John A. 1994. *A performance theory of order and constituency*. Cambridge: Cambridge University Press.
- Hawkins, John A. 2004. *Efficiency and complexity in grammar*. Oxford: Oxford University Press.
- Hawkins, John A. 2008. An asymmetry between VO and OV language: The ordering of obliques. In Greville Corbett & Michael Noonan (eds.), *Case and grammatical relations: Essays in honour of Bernard Comrie*, 167–190. Amsterdam: John Benjamins.
- Hawkins, John A. 2013. Disharmonic word orders from a processing efficiency perspective. In Theresa Biberauer & Michelle Sheehan (eds.), *Theoretical approaches to disharmonic word orders*, 391–406. Oxford: Oxford University Press.
- Heath, Jeffrey. 1999. *A grammar of Koyraboro (Koroboro) senni*. Köln: Rüdiger Köppe.
- Hinterhölzl, Roland. 2005. *Scrambling, remnant movement, and restructuring in West Germanic*. Oxford: Oxford University Press.
- Holmberg, Anders. 2000. Deriving OV order in Finnish. In Peter Svenonius (ed.), *The derivation of VO and OV*, 123–152. Amsterdam: John Benjamins.
- Jackendoff, Ray S. 1996. The architecture of the linguistic-spatial interface. In Paul Bloom, Mary Peterson, Lynn Nadel & Merrill Garrett (eds.), *Language and space*, 1–30. Cambridge, MA: MIT Press.
- Jones, Michael Allan. 1988. *Sardinian syntax*. London: Routledge.
- Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge: The MIT Press.

- Kayne, Richard S. 2008. Expletives, datives, and the tension between morphology and syntax. In T. Biberauer (ed.), *The limits of syntactic variation*, 175–217. Amsterdam: John Benjamins.
- Kayne, Richard S. 2010. *Movement and silence*. Oxford: Oxford University Press.
- Koopman, Hilda J. 2000. Prepositions, postpositions, circumpositions, and particles: The structure of Dutch PPs. In Hilda J. Koopman (ed.), *The syntax of specifiers and heads: Collected essays of Hilda J. Koopman*, 204–260. London: Routledge.
- Koopman, Hilda J. 2010. Prepositions, postpositions, circumpositions and particles. In Guglielmo Cinque & Luigi Rizzi (eds.), *Mapping spatial PPs. The Cartography of syntactic structures*, 26–73. Oxford: Oxford University Press.
- Ledgeway, Adam. 2012. *From Latin to Romance: Morphosyntactic typology and change*. Oxford: Oxford University Press.
- Lehmann, Christian. 1984. *Der Relativsatz*. Tübingen: Narr.
- Mobbs, Ian. 2015. *Minimalism and the design of the language faculty*. University of Cambridge dissertation.
- Moulton, Keir. 2009. *Natural selection and the syntax of clausal complementation*. University of Massachusetts, Amherst dissertation.
- Moulton, Keir. 2013. Not moving clauses: Connectivity in clausal arguments. *Syntax* 16(3). 250–291.
- Moulton, Keir. 2015. CP: Copies and compositionality. *Linguistic Inquiry* 46(2). 305–342.
- Mous, Marten. 1993. *A grammar of Iraqw*. Hamburg: Buske.
- Noonan, Michael. 2010. *À to zu*. In Guglielmo Cinque & Luigi Rizzi (eds.), *Mapping spatial PPs. The Cartography of syntactic structures*, vol. 6, 161–195. Oxford: Oxford University Press.
- Nunes, Jairo. 2004. *Linearization of chains and sideward movement*. Cambridge, MA: MIT Press.
- Oosthuizen, Helena. 2009. *Prepositions and verb particles in Afrikaans: Dialectal variation and developmental patterns*. University of Potsdam MA thesis.
- Oosthuizen, Johan. 2000. Prepositions left and right in Afrikaans. *Stellenbosch Papers in Linguistics* 33. 67–90.
- Payne, John. 1993. The headedness of Noun phrases: Slaying the nominal hydra. In Greville Corbett, Norman Fraser & Scott McGlashan (eds.), *Heads in grammatical theory*, 114–139. Cambridge: Cambridge University Press.
- Pesetsky, David. 1995. *Zero syntax: Experiencers and cascades*. Cambridge, MA: The MIT Press.
- Philip, Joy. 2013. (Dis)harmony, the Head-Proximate filter, and linkers. *Journal of Linguistics* 49(1). 165–213.
- Pintzuk, Susan. 2005. Arguments against a universal base: Evidence from Old English. *English Language and Linguistics* 9. 115–138.
- Pretorius, Erin. in preparation. *Adpositions and verbal particles in Afrikaans: A nanosyntactic analysis*. Utrecht & Stellenbosch Universities.
- Pretorius, Erin. 2015. On the status of postpositions in Afrikaans. Paper presented at the 4th South African Microlinguistics Workshop.

- Richards, Marc. 2004. *Object shift and scrambling in North and West Germanic: A case study in symmetrical syntax*. University of Cambridge dissertation.
- Richards, Norvin. 2016. *Contiguity theory*. Cambridge, MA: MIT Press.
- Roberts, Ian. 2010. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: The MIT Press.
- Rochemont, Michael. 1992. Bounding rightward \bar{A} -dependencies. In Helen Goodluck & Michael Rochemont (eds.), *Island constraints*, 373–397. Dordrecht: Kluwer.
- Sheehan, Michelle. 2008. FOFC and phasal complements of V/v. Unpublished handout.
- Sheehan, Michelle. 2013. Explaining the Final-over-Final Constraint: Formal and functional approaches. In Theresa Biberauer & Michelle Sheehan (eds.), *Theoretical approaches to disharmonic word orders*, 407–468. Oxford: Oxford University Press.
- Sheehan, Michelle, Theresa Biberauer, Ian Roberts & Anders Holmberg (eds.). 2017. *The Final-over-Final condition*. Cambridge, MA: MIT Press.
- Sheehan, Michelle & Jenneke van der Wal. 2015. Do we need abstract case? In Kyeongmin Kim, Pocholo Umbal, Trevor Block, Queenie Chan, Tanie Cheng, Kelli Finney, Mara Katz, Sophie Nickel-Thompson & Lisa Shorten (eds.), *Proceedings of WCCFL 33*, 351–360. Somerville, MA: Cascadilla Press.
- Sportiche, Dominique. 2005. *Division of labor between Merge and Move: Strict locality of selection and apparent reconstruction paradoxes*. <http://ling.auf.net/lingbuzz/000163>, accessed 2016-6-2. Unpublished ms.
- Starke, Michal. 2009. *Nanosyntax. A short primer to a new approach to language*. ling.auf.net/lingbuzz/001230/current.pdf, accessed 2016-6-2. Unpublished ms.
- Stilo, Don. 2005. Iranian as buffer zone between the universal typologies of Turkic and Semitic. In Éva Ágnes Csató, Bo Isaksson & Carina Jahani (eds.), *Linguistic convergence and areal diffusion: Case studies from Iranian, Semitic and Turkic*, 35–63. London: Routledge/Curzon.
- Svenonius, Peter. 2006. The emergence of axial parts. *Tromsø Working Papers in Language and Linguistics (Nordlyd)* 33(1). 49–77.
- Svenonius, Peter. 2007. Adpositions, particles, and the arguments they introduce. In Eric Reuland, Tanmoy Bhattacharya & Giorgios Spathas (eds.), *Argument structure*, 63–103. Amsterdam: John Benjamins.
- Svenonius, Peter. 2010. Spatial P in English. In Guglielmo Cinque & Luigi Rizzi (eds.), *Mapping spatial PPs. The cartography of syntactic structures*, vol. 6, 127–160. New York: Oxford University Press.
- Svenonius, Peter. 2011. *Spanning*. Unpublished ms: University of Tromsø. <http://ling.auf.net/lingBuzz/001501>, accessed 2015-12-26.
- Svenonius, Peter. 2016. Spans and words. In D. Siddiqi & Heidi Harley (eds.), *Morphological metatheory*, 201–222. Amsterdam: John Benjamins.
- Uriagereka, Juan. 1999. Multiple spell-out. In Norbert Hornstein & Samuel David Epstein (eds.), *Working minimalism*, 251–282. Cambridge, MA: MIT Press.
- Van Riemsdijk, Henk. 2002. The unbearable lightness of going. The projection parameter as a pure parameter governing the distribution of elliptic motion verbs in Germanic. *Journal of Comparative Germanic Linguistics* 5. 143–196.

- Vos, M. De. 2013. Afrikaans mixed adposition orders as a PF-linearization effect. In Theresa Biberauer & Michelle Sheehan (eds.), *Theoretical approaches to disharmonic word order*, 333–357. Oxford: Oxford University Press.
- Whitman, John. 2008. The classification of constituent order generalizations and diachronic explanation. In Jeff Good (ed.), *Linguistic universals and language change*, 233–252. Oxford: Oxford University Press.
- Whitman, John. 2013. Diachronic interpretations of word order parameter cohesion. Paper presented at the 15th Diachronic Generative Syntax Conference (Ottawa).
- Williams, Edwin. 2003. *Representation theory*. Cambridge, MA: MIT Press.
- Wiltschko, Martina. 2014. *The universal structure of categories: Towards a formal typology*. Cambridge: Cambridge University Press.
- Wivell, Richard. 1981. *Kairiru grammar*. University of Auckland MA thesis.
- Wurmbrand, Susi. 2000. *The structure(s) of particle verbs*. <http://web.mit.edu/susi/www/research/>, accessed 2015-12-26. Unpublished ms.
- Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin: Mouton.