VP Nominalization and the Final-over-Final Condition*

Johannes Hein[1] and Andrew Murphy[2]

[1]Universität Potsdam
[2]Universität Leipzig
johannes.hein@uni-potsdam.de, andrew.murphy@uni-leipzig.de

August 23, 2019

Abstract
The Final-over-Final Condition has emerged as a robust and explanatory generalization for a wide range of phenomena (Biberauer et. al. 2014; Sheehan et al. 2017). In this paper, we argue that it also holds in another domain, nominalization. In languages which show overt nominalization of VPs, we find that one word order is routinely unattested, namely a head-initial VP with a suffixal nominalizer. This typological gap can be accounted for by the FOFC, if we allow it to hold within mixed extended projections. Furthermore, we show that this view also makes correct predictions about agentive nominalizations, as well as nominalized serial verb constructions.

1 Introduction

Biberauer et al. (2014) argue that the following restriction on the linearization of phrase structure is a syntactic universal:[1]

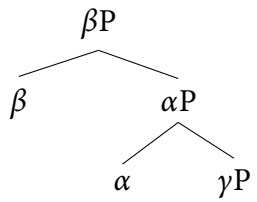
(1) *The Final-over-Final Condition (FOFC)* (Holmberg 2000:124; Biberauer et al. 2014:171):
A head-final phrase αP cannot immediately dominate a head-initial phrase βP, if α and β are members of the same extended projection.

A consequence of this is that head-final phrases must select other head-final phrases (i.e. 'if final, then final'). This means that, of the four logically possible abstract patterns, only three are predicted to be attested. In particular, the two harmonic orders, *initial-over-initial* (2a) and *final-over-final* (2b) and only one disharmonic order, *initial-over-final* (2c), are permitted.

*This research was partly funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – project number 317633480 – SFB 1287, project C05.

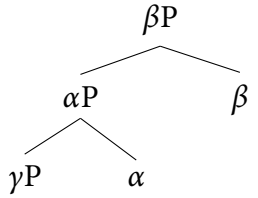
[1]The FOFC was originally proposed as an acronym for *Final-over-Final Constraint*. In Sheehan et al. (2017), *constraint* was replaced with *condition*, since 'syntactic constraints are typically named after a construction where some operation or relation is not permitted, for example *Complex NP Constraint*' (Holmberg 2017:2). Since the FOFC enforces, rather than prohibits, final-over-final structures, it seems more appropriately termed a 'condition'. We therefore adopt this nomenclature in the following paper.

(2) a.



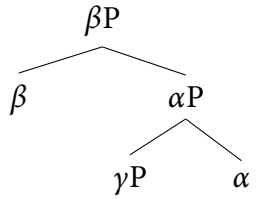
Consistent head-initial (harmonic)

b.



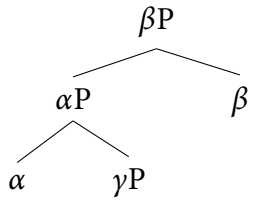
Consistent head-final (harmonic)

c.



Initial-over-final (disharmonic)

d. *



Final-over-initial (disharmonic)

One of the original observations that led to the postulation of the FOFC came from the possible orders of auxiliaries, verbs and direct objects in Finnish. Holmberg (2000) noticed that Finnish allows for various permutations of auxiliaries and VP-internal constituents (3a–c), but crucially not the order V O AUX (3d).

(3) *3/4 orders possible in Finnish* (Holmberg 2000:128):

a. Milloin Jussi [$_{\text{AuxP}}$ olisi [$_{\text{VP}}$ krijoittanut romaanin]] ?
when Jussi AUX written novel
'When would Jussi have written a novel?' (AUX V O)

b. Milloin Jussi [$_{\text{AuxP}}$ olisi [$_{\text{VP}}$ romaanin krijoittanut]] ?
when Jussi AUX novel written
'When would Jussi have written a novel?' (AUX O V)

c. Milloin Jussi [$_{\text{AuxP}}$ [$_{\text{VP}}$ romaanin krijoittanut] olisi] ?
when Jussi novel written AUX
'When would Jussi have written a novel?' (O V AUX)

d. *Milloin Jussi [$_{\text{AuxP}}$ [$_{\text{VP}}$ krijoittanut romaanin] olisi] ?
when Jussi written novel AUX
'When would Jussi have written a novel?' (*V O AUX)

It is this configuration that corresponds to the one disharmonic order prohibited by the FOFC. Similar ¾-patterns with regard to the order of V, O, and AUX have been documented for Basque (Haddican 2004:116) and Kaaps (Biberauer et al. 2010).

The FOFC not only constrains the possible linearization of VPs and auxiliaries within a single language, but also across languages. It has been observed that of the six logically possible word order permutations between the three elements AUX (including restructuring verbs), V and O, only five are attested across the Germanic languages (see a.o. Travis 1984; Kiparsky 1996; Fuss & Trips 2002). These are given in (4).

(4) *5/6 orders attested across Germanic* (Biberauer et al. 2014:173ff.):

a. …dass Johann [$_{\text{AuxP}}$ [$_{\text{VP}}$ das Buch gelesen] hat]
that Johann the book read.PTCP has
'…that Johann has read the book.' (*German*; O V AUX)

b. …oyb dos yingl [$_{AuxP}$ vet oyfn veg [$_{VP}$ zen a kats]]
whether the boy will on.the way see a cat
'…whether the boy will see a cat on the way.' (*Yiddish*, AUX V O)

c. …da Jan [$_{AuxP}$ wilt [$_{VP}$ een huis kopen]]
that Jan wants a house buy.INF
'…that Jan wants to buy a house.' (*West Flemish*; AUX O V)

d. …dat Jan het boek wil lezen.
that Jan the book wants read.INF
'…that Jan wants to read the book.' (*Dutch*; O AUX V)

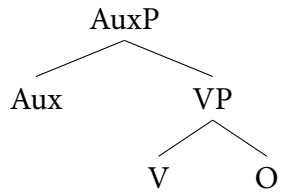
e. …dat hy die boek gegee het vir sy suster.
that he the book give.PTCP has for his sister
'…that he gave the book to his sister.' (*Colloquial Afrikaans*; V AUX O)

All of these orders are compliant with the FOFC. Importantly, what we do not find is a language such as the hypothetical German′ in (5), where a final auxiliary embeds a head-initial VP.

(5) *… dass Johann [$_{AuxP}$ [$_{VP}$ gelesen das Buch] hat]
that Johann read the book has
'that Johan has read the book.' (*German′*; *V O AUX)

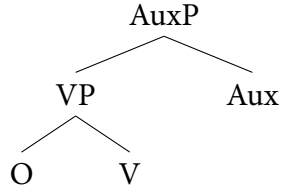
Under the assumption that the auxiliary directly embeds the VP, the missing order in both Finnish and German, namely V-O-AUX, corresponds exactly to the configuration prohibited by the FOFC, as indicated in (6) (Biberauer et al. 2008, 2014).

(6) a.



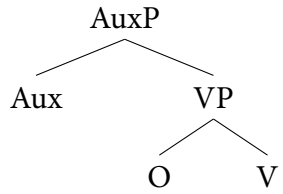
Consistent head-initial (English)

b.



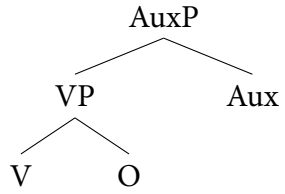
Consistent head-final (German)

c.



Initial-over-final (West Flemish)

d. *



Final-over-initial (German′)

The FOFC has since been argued to hold in a number of different empirical domains, e.g. sentence-final particles (Erlewine 2017), VP-internal word order under negation (Branan 2019) adverbs (Sheehan 2017; Erlewine to appear), NP-internal order (Holmberg 2000; Roberts 2017*a*), word formation (Myler 2009; Roberts 2017*b*), the distribution of complementizers (Biberauer et al. 2014), extraposition (Biberauer & Sheehan 2012), and diachronic change (Ledgeway 2012). As such, it constitutes an important potential universal constraint on word order. In this paper, we argue that the scope of the FOFC should be extended to nominalizations. In particular, doing so correctly derives the 3/4 pattern we find with overt VP nominalization in many West African languages, where VO order is avoided in nominalizations with suffixal nominalizers.

2 Word order and the FOFC in VP nominalization

Many languages (West African languages in particular) require a verb phrase to be nominalized in certain contexts. These contexts include focus fronting and embedding under certain types of predicates or aspect markers. The nominalization is often detectable by an overt morpheme that is attached to the VP in question. In this section, we will see that of the four logical possible patterns between the elements V, O and NMLZ, only three are attested. Not only is the order VO-NMLZ not attested, it is actively avoided in all the cases in which we might expect it to arise. We will argue that this can be captured under a FOFC-based approach.

2.1 VO languages with prefixal nominalizers

We will start by considering VO languages with prefixal nominalizers. Consider the data from Mani (Mel, Niger-Congo), which shows VO order in ordinary declarative clauses (7a). When a VP is nominalized in a predicate focus construction, the nominalizing prefix *ù-* attaches to the verb with no change in VP-internal word order (7b).

(7) *Mani* (Childs 2011:148, 219):

a. Ù ká [$_{VP}$ tɔ̀k dòmɔ̀ mì]
1SG PST wash shirt 1SG
'I washed my shirt.' (V O)

b. Ù- [$_{VP}$ bán wɔ́m] kɔ́ ḿbòm wɔ̀ báŋ-yɛ̀
NMLZ- build boat PRO.FOC Mbom 3SG build-STAT
'It is building a boat Mbom built a boat.' (NMLZ V O)

This is a relatively common pattern cross-linguistically and is also found in other West African languages such as Limbum (Grassfields Bantu) (8) and Yoruba (Niger-Congo) (9), as well as in Thai (Kra-Dai) (10).

(8) *Limbum* (Becker & Nformi 2016:58, 74f.):

a. Ŋwɛ̀ fɔ̄ àm [$_{VP}$ tí ŋgū]
man DET PST3 cut wood
'The man cut the wood.' (V O)

b. Á r- [$_{VP}$ yū msāŋ] (cí) njíŋwɛ̀ fɔ̄ bí gī
FOC NMLZ- buy rice COMP woman DET FUT1 do
'The woman will BUY RICE.' (NMLZ V O)

(9) *Yoruba* (Manfredi 1993:19f.):

a. Ajé [$_{VP}$ ra ìwé]
Aje buy paper
'Aje {is buying/bought} {a book/books}.' (V O)

b. Rí- [$_{VP}$ rà ìwé] ni Ajé ra ìwé
NMLZ- buy paper FOC Aje buy paper
'It is book-buying that Aje {is doing/did}.' (NMLZ V O)

(10) *Thai* (Jenks 2011:17,166):

a. Nát [$_{VP}$ kin thúrian] kɛ́ɛw
Nat eat durian already
'Nat already ate the durian.' (V O)

b. kaan- [$_{VP}$ khĭian còt-măay] nâa-búa
NMLZ- write letters boring
'Writing letters is boring.' (NMLZ V O)

In each case, a head-initial VP retains VO order when combined with an overt prefixal nominalizer.

2.2 VO languages with suffixal nominalizers

There is, however, another class of VO languages which do exhibit a change in word order under nominalization. Importantly, all of these languages have a suffixal, rather than prefixal nominalizer. To see this, first consider the data from Buli (Gur, Niger-Congo) in (11). Like the languages in the preceding section, Buli shows VO order in discourse-neutral declarative clauses (11a). If the VP is focused, however, it appears in the left periphery of the clause and bears the overt nominalizer *kā* (11b). What is striking here is that the order of object and verb is now OV, and obligatorily so.

(11) *Buli* (Hiraiwa 2005*a*:262; Hiraiwa 2005*b*:546):

a. Àtìm [$_{VP}$ dɛ̀ mángò-kú-lá] dīēm
Àtìm ate mango-DEF-DEM yesterday
'Àtìm ate that mango yesterday.'

b. (Ká) [$_{VP}$ mángò-kú dɛ̄]-kā àlī/àtì Àtìm dɛ̀ dīēm
FOC mango-DEF eat -NMLZ C Àtìm ate yesterday
'It is eating the mango that Àtìm ate yesterday (not e.g. buying a banana).'

Buli is by no means extraordinary in this regard. Other languages in which the word order inside the VP is usually VO also require a switch to OV when the VP is nominalized. In Dagaare (Gur, Niger-Congo) (12) and Ewe (Gbe, Niger-Congo) (13), this occurs in VPs which are nominalized in focus fronting constructions.

(12) *Dagaare* (Hiraiwa & Bodomo 2008:802,805):

a. Ǹ dà [$_{VP}$ dá lá bóɔ́]
1SG PST buy FOC goat
'I bought a goat.' (V O)

b. [$_{VP}$ Bóɔ́ dáá]-ó lá ká ń dà dà
goat buy -NMLZ FOC C 1SG PST buy
'It is buying a goat that I did (as opposed to e.g. selling a hen).' (O V NMLZ)

(13) *Ewe* (Buell 2012):

a. Đèví lá [$_{VP}$ dù àkɔ̀ dú]
child the eat banana
'The child ate a banana.' (V O)

b. [$_{VP}$ Mɔ́lì dù]-gé mè-lè
rice eat -NMLZ 1SG-be.at
'I am about to EAT SOME RICE.' (O V NMLZ)

c. [$_{VP}$ Núkà dù]-ḿ nè-lè?
what eat -NMLZ 2SG-be.at
'What are you eating?' (O V NMLZ)

In Dangme (Kwa, Niger-Congo), formation of a gerund requires nominalization of the VP, and a concomitant shift from VO to OV order (14).

(14) *Dangme* (Ameka & Kropp Dakubu 2008:273,274):

a. Ì [$_{VP}$ kɛ̀ɛ́ né womi ɔ]
1SG read book DEF
'I read the book' (V O)

b. [$_{VP}$ womi ɔ kɛ̀ɛ́]-mĩ
book DEF read -NMLZ
'reading the book' (O V NMLZ)

Gengbe (Gbe, Niger-Congo) differs somewhat in requiring overt nominalization of VPs under certain aspect markers, e.g. the progressive marker *lè*. This results in OV order inside the complements of these markers (15) (also see Sande et al. to appear).

(15) *Gengbe* (Manfredi 1997:90; Aboh 2005:165f.):

a. Mù [$_{VP}$ dù nú]
1SG eat thing
'I ate (something).' (V O)

b. Kwésí lè [$_{VP}$ mɔ́lú dù]-ɔ̀
Kwesi AUX rice eat -NMLZ
'Kwesi is eating rice' (O V NMLZ)

c. [$_{VP}$ Mɔ́lú dù]-ɔ̀ yè Kwésí lè
rice eat -NMLZ FOC Kwesi AUX
'Kwesi is EATING RICE.' (O V NMLZ)

Finally, in Asante Twi/Akan (Kwa, Niger Congo), VPs are nominalized in focus fronting contexts (16b), as well as in a gerund-like usage when embedded under predicates such as 'hate' (16c) and 'like' (16d) (see Kobele & Torrence 2004).

(16) *Asante Twi/Akan* (Hein 2017:7; S. Korsah, p.c.):

a. Kofí [$_{VP}$ á-si dán]
Kofi PRF-build house
'Kofi has built a house.' (V O)

b. [$_{VP}$ Dán sí](-é) na Kofí á-yɔ́
house build -NMLZ FOC Kofi PRF-do
'Kofi has BUILT A HOUSE. (not e.g. bought a boat)' (O V NMLZ)

c. Me-kyiri [$_{VP}$ dan si](-e)
1SG-hate house build -NMLZ
'I hate building houses.' (O V NMLZ)

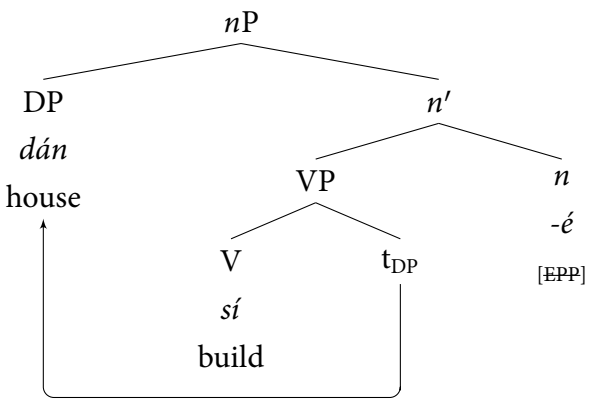
d. Ghánaní bíárá pɛ [$_{VP}$ nam di](-e)
Ghanaian every like fish eat -NMLZ
'Every Ghanaian likes eating fish.' (O V NMLZ)

Strikingly, all of the languages discussed in this section show an obligatory change in word order from VO to OV under nominalization. What all of these VO languages have in common, and also what distinguishes them from the VO languages discussed in the preceding section, is that the nominalizer is a suffix, rather than a prefix. In fact, we were not able to find any language with a suffixal nominalizer that retained VO order under nominalization. For this reason, we propose the empirical generalization in (17).

(17) *Generalization:*
No language retains VO word order inside a nominalized VP if the nominalizer is a suffix.

The change from VO to OV inside nominalized VPs has often been analyzed as *Object Shift* in previous analyses, i.e. movement of the object DP to a higher position above the verb (e.g. Manfredi 1997; Aboh 2004, 2005; Hiraiwa & Bodomo 2008). While this is a reasonable analysis for an individual language, it fails to capture the cross-linguistic generalization in (17). This kind of Object Shift can be implemented as an EPP feature on *n* triggering movement of the object to Spec-*n*P (18) (cf. Chomsky 2000; Hiraiwa 2001). This analysis is shown below for example (16a).

(18)

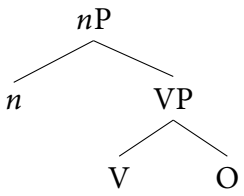


The problem with this view, however, is that it gives us no obvious explanation for the suffix/prefix-asymmetry. It is unclear why an arbitrary movement-triggering feature should be seemingly obligatory if the head happens to be realized as a suffix, whereas optional or absent if it is a prefix. What we need is an explanation that captures why the change from VO to OV order is required only with a suffixal nominalizers. The following section argues that this explanation follows if we are dealing with a repair to a violation of the Final-over-Final Condition.

2.3 The Final-over-Condition in nominalizations

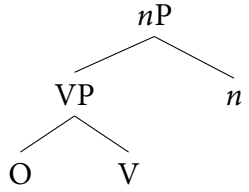
The key part of the generalization in (17) is that the morphological realization of the nominalizer, i.e. prefix vs. suffix, determines whether or not VO is possible inside the nominalized VP. Crucially, the configuration which is avoided, namely VO-NMLZ, is one which would violate the FOFC, assuming that suffixes realize head-final projections. To see this, consider the abstract nominalization configurations in (19). Of these four combinations of verb, object and nominalizer, three of them (19a–c) are compatible with the FOFC. A final nominalizer embedding a head-initial VP is predicted to be impossible (19d).

(19) a.



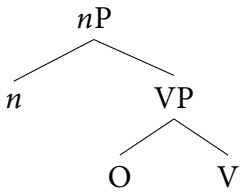
Consistent head-initial

b.



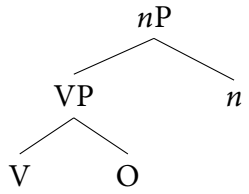
Consistent head-final

c.



Initial-over-final

d. *



Final-over-initial

We argue that the VO languages with a suffixal nominalizer constitute precisely this illicit configuration, and thus, this is why we do not find VO order with suffixal nominalizers. Instead, this structure is neutralized to the consistent head-final configuration in (19b) by reversing the order of verb and object. A prefixal nominalizer attaching to a head-initial VP realizes the structure in (19a) and is therefore entirely unproblematic from the point of view of the FOFC. Thus, this FOFC-based account explains why VO order is incompatible with suffixal nominalizers. This provides a principled account for the generalization in (17), whereas it would be an odd conspiracy on the Object Shift account.[2]

Furthermore, the FOFC account also makes predictions. For example, we have seen overt instantiations of both harmonic orders in (19a) and (19b), we also predict one disharmonic order, namely the initial-over-final configuration in (19c). As the following section will show, this order is indeed also attested.

2.4 Prefixal nominalizers with OV order

There are some VO languages with prefixal nominalizers that also exhibit OV order in nominalizations. This would then be an instantiation of the third pattern in (19c) that the FOFC predicts to be attested. Perhaps the clearest example comes from Krachi (Kwa, Niger-Congo) (also Hansford 1990:243 describes the same pattern in Chumburung). The discourse neutral word order in Krachi is SVO, as shown in (20a). It has a prefixal nominalizer *kɛ-* that attaches to VPs. As we expect, VO order is possible (20b), but what makes Krachi different is that OV order is also possible in nominalized VPs (20c).

[2] A potential alternative explanation, suggested by a reviewer, would be that the object of the nominalized VP is realized as a possessor (analogous to *John's death* or *the death of John*). For example, Atlamaz & Baker (2018:204) show that the object of a nominalized verb is realized as an oblique phrase (like possessors) in Kurmanji (also cf. Bodomo 2004 on Dagaare SVCs). If possessors are prenominal in the languages in question, then this could explain why the object appears before a nominalized verb. However, this cannot provide a general explanation of the VO→OV switch described in section 2.2. While some of the discussed languages do not mark prenominal possessors in any way, i.e. Buli (Sulemana 2012:103) and Dagaare (Hiraiwa & Bodomo 2008:818), many of the other languages indicate prenominal possessors with an overt morpheme, e.g. *fé* in Ewe (Ameka 2010:164), *sín* in Gengbe (Aboh 2010:31) and *ne* in Akan (Sampson Korsah, p.c.). Crucially, this possessive morpheme cannot occur with the object in nominalized VPs.

(20) *Krachi* (Kandybowicz & Torrence 2016:227f.):

a. ɔkyɪ wʊ [$_{VP}$ ɛ-dɪkɛ i-gyo]
woman the PST-cook PL-yam
'The woman cooked yams.' (V O)

b. Kɛ- [$_{VP}$ dɪkɛ i-gyo] yɪ ɔkyɪ wʊ ɛ-dɪkɛ
NMLZ- cook PL-yam FOC woman the PST-cook
'The woman only cooked yams (i.e. she did nothing else).' (NMLZ V O)

c. Ke- [$_{VP}$ i-gyo dɪkɛ] yɪ ɔkyɪ wʊ ɛ-dɪkɛ
NMLZ- PL-yam cook FOC woman the PST-cook
'It was COOKING YAMS that the woman did (not eating rice).' (NMLZ O V)

Thus, we see two possible word orders (regular VO and switched OV) with a prefixal nominalizer.[3] The nominalizer *kɛ-* here exhibits clitic-like properties in that it can 'lean' onto whichever VP-internal constituent follows it (also see Dan in section 2.6). This provides evidence for the nominalizer attaching outside the VP.

The Krachi case is important, since the prefixal nominalizer is a proclitic and can lean onto the adjacent object in its OV complement. In other languages, the nominalizer is strictly a verbal affix and must, hence, attach to the verb. We therefore expect to find a surface O NMLZ-V order in such languages. Nevertheless, there are languages that, like Krachi, still clearly exhibit a change from VO to OV order in such configurations. In Yoruba, the nominalizing prefix *V-* (which harmonizes with the preceding vowel) is affixed to the verb. In these nominalized VPs, both the standard VO order (21a) and the switched OV order (21b) is possible.

(21) *Yoruba* (Manfredi 1997:96):

a. Mo fẹ́ [$_{VP}$ ẹ́-hun aso]
1SG want NMLZ-weave cloth
'I want to weave (some) cloth.' (NMLZ-V O)

b. Mo fẹ́ [$_{VP}$ aso ọ́-hun]
1SG want cloth NMLZ-weave
'I want to weave (some) cloth' (O NMLZ-V)

In Igbo, the neutral word order is SVO, as in embedded infinitival clauses (22a). Nominalized VPs exhibit a switch to OV order and the nominalizing prefix appears attached to the verb (22b).

(22) *Igbo* (Manfredi 1997:97f.):

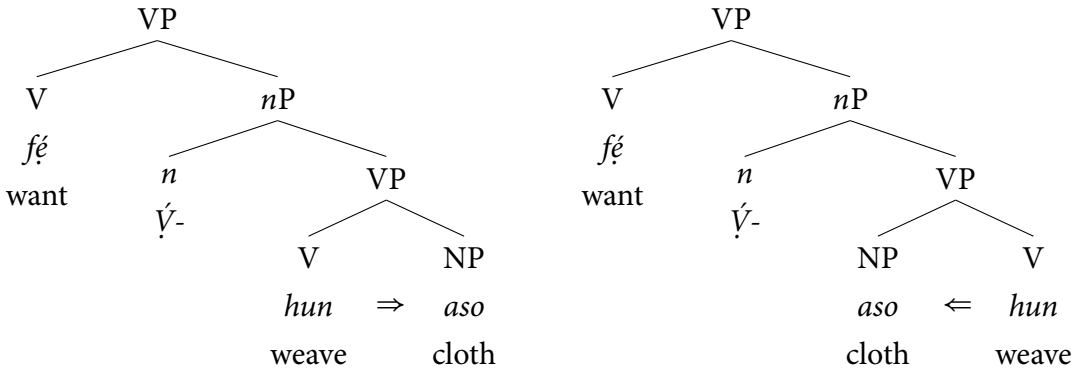
a. Ó kúzhi-ri m [$_{VP}$ i-gbá igwè]
3SG teach-ASP 1SG INF-move iron
'S/he taught me to ride a bike.' (NMLZ-V O)

b. Ó mára-na [$_{VP}$ igwè a-gbá]
3SG know-PERF iron NMLZ-move
'S/he knows how to ride a bike.' (O NMLZ-V)

[3] Note from the translations that the two orders have different meanings, in that they express different types of focus (Kandybowicz & Torrence 2016:227). VO order in (20b) expresses exhaustive predicate focus, whereas the alternative OV order in (20c) yields a contrastive focus interpretation. It is not clear why the change in word order would be required for a contrastive focus interpretation. Furthermore, the proclitic nature of the nominalizer *kɛ-* means that we can be confident that the object has not scrambled out of the fronted VP. Since we are clearly dealing with word order variation internal to the nominalized VP, this pattern therefore falls under the auspices of the FOFC.

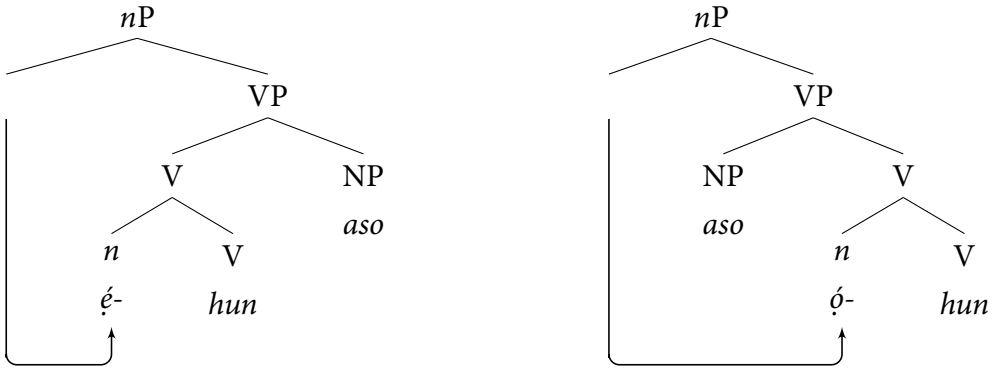
We argue that the underlying structures in Yoruba and Igbo are the same as in Krachi (20c), i.e. they are NMLZ-OV configurations with a later process of affixation to derive the surface O NMLZ-V order. In Yoruba, merging a nominalizer leads to flexible linearization inside the embedded VP (23). This could be implemented as the deletion of previous established linearization statements (see Sheehan 2013*b*; Richards 2016 on establishing linear relations in syntax).

(23) *Flexible linearization of verb and complement in Yoruba*:



Independent of the word order change, which is optional in Yoruba and obligatory in Igbo, the affix in *n* must be attached to a verbal host. We implement this as postsyntactic Lowering (Embick & Noyer 2001) as shown in (24).

(24) *Postsyntactic lowering of prefixal nominalizer*:



On this view, Yoruba and Igbo also show the basic Krachi pattern of a (potentially optional) shift from VO to OV under a prefixal nominalizer, with independent affixation of the nominalizer.

Yoruba and Igbo are examples of VO languages that allow OV order with a nominalizing prefix. Another possible source for this order would be a head-final OV language with a nominalizing prefix. Due to the strong tendency for head-final languages to be suffixing, this pattern is rather rare (see section 2.5). However, Amharic seems to instantiate it. As (25) shows, the basic word order of Amharic is OV.

(25) *Basic OV order in Amharic* (Baker & Kramer 2014:142):

Almaz [$_{VP}$ bet-u-n ayy-ätʃtʃ]
Almaz house-DEF-ACC see-3.FSG
'Almaz saw the house.'

What are analyzed as VP nominalizations by Baker & Kramer (2014) involve the nominalizing

prefix *mä-* attached to the verb (26).

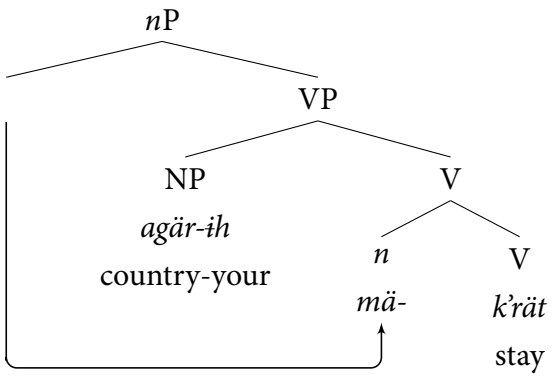
(26) *OV with prefixal nominalizer in Amharic* (Leslau 1995:395ff.; Baker & Kramer 2014:152):

a. [$_{VP}$ agär-ih mä-k'rät-u-n] bi-tti-wädd …
country-your NMLZ-stay-DEF-ACC if-2SG-want
'If you want to stay in your country…'

b. [$_{VP}$ mist-u-n bä-mä-gdäl] tä-kässäs-ä
wife-his-ACC against-NMLZ-kill PASS-accuse-3MSG
'He was accused of murdering his wife.'

We can employ the same analysis here, where the nominalizing prefix is lowered postsyntactically to the verb (27). Importantly, the underlying configuration prior to lowering would be the disharmonic initial-over-final configuration permitted by the FOFC.

(27)



An important implicit assumption for this argument is that there is a relatively strict correlation between headedness and affix type. In other words, the headedness of a phrase mirrors whether or not its head is a prefix or a suffix. We make this assumption explicit in (28).

(28) *Affix-directionality correlation*:
Prefixes realize head-initial structures, suffixes realize head-final structures.

We have taken this as the null hypothesis for our investigation of nominalization and assume that it is at least a strong tendency across languages (although principled deviations from it may be possible; see e.g. Mithun 2003). This assumption receives some post-hoc justification by the generalization in (17). If languages could vary arbitrarily with regard to whether suffixes occupy either head-initial or head-final phrases, then we would not expect this morphological property to correlate with what appears to be a syntactic restriction (i.e. the FOFC). The strongest form of (28) therefore leads us to postulate that both Krachi and Amharic instantiate underlying NMLZ-VO and NMLZ-OV configurations, respectively. Furthermore, if something like (28) did not hold, we might expect that a language could opt to change the headedness of the *n*P headed by a suffix to avoid a FOFC-violating final-over-initial configuration. If this were to happen, we would expect to find exceptions to the generalization in (17). Instead, what we have seen is that languages manipulate the word order inside the VP, rather than change the directionality of the *n* head. This restriction makes sense in light of (28).

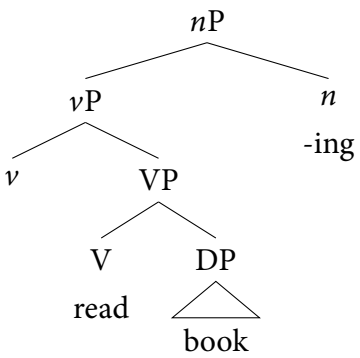
Note that this analysis is not unfalsifiable. It makes the clear prediction that we should not

find VO languages with a surface V-NMLZ O order. Under the present account, this could only derive from an underlying FOFC-violating final-over-initial configuration (VO-NMLZ) prior to lowering of the nominalizer. While we have seen languages with affixal nominalizing prefixes with both VO and OV order, we have been unable to find genuine instances of this unpredicted configuration.

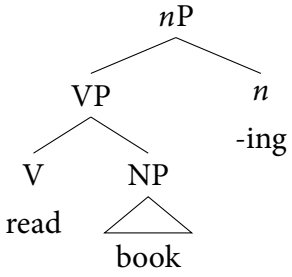
One potential candidate instantiating it could be English gerunds such as *read-ing books (is fun)*. Here, it seems like we have a nominalizing suffix *-ing* and still retain VO order inside the nominalization. However, there are various reasons to think that English gerunds are not problematic for the current FOFC analysis. For example, one could assume, as Ackema & Neeleman (2004:177f.) do, that the *-ing* in English gerunds is not actually a nominalizer, but instead an inflectional suffix. Following Adger (2003), we assume inflectional dependencies in English to involve a sequence of Agree dependencies (rather than ''Affix Hopping', for example). In this case, the nominalizer in English gerunds would be a null affix as in zero derivations such as *(a big) jump-*$Ø_N$.

An alternative analysis could be that the FOFC is not violated in gerunds because they contain additional structure. The prevailing view of gerunds is that they contain a *v*P or VoiceP projection (e.g. Fu et al. 2001; Alexiadou 2001; Baker & Vinokurova 2009; Bruening 2013). This can be seen by their ability to host adverbs (e.g. *reading books thoroughly*) (Fu et al. 2001) and certain instrumental modifiers *reading books with a magnifying glass* (Bruening 2013). Even if we were to treat *-ing* as a nominalizing suffix, the relevant structure for gerunds in (29a) would not violate the FOFC. Because of the silent *v*P projection, there is no immediate domination between *n* and VP, as required by the definition of the FOFC in (1).[4]

(29) a.



b.



This is in contrast to genuine VP nominalizations such as *book read-ing*, which would have the underlying structure in (29b) (see section 3.2 for further discussion). The lack of a *v*P projection (which can be seen by its inability to host adverbs, etc.) means that this structure is not FOFC-compliant, leading to OV order inside the VP (as with the languages we saw in section 2.2). Not all such FOFC-violating configurations are necessarily repaired, however. Ackema & Neeleman

[4]This of course raises the question of how null heads are evaluated with regard to the FOFC. For example, silent head-final nominalizers in VP nominalization have been assumed for Modern French (Sleeman 2010) and Spanish (Ackema & Neeleman 2004:178), while not leading to an apparent FOFC-violation. While this is inevitably a difficult issue, it is possible that there is variation regarding whether null heads are taken into account by the FOFC. One could imagine, if the FOFC holds at PF, that this variation could stem from the timing of its evaluation relative to an operation that removes null heads, such as *Pruning* (Embick 2015). However, we will largely leave this as an open issue for future research.

(2004) argue that the nominalizing suffix *-ing* in Norwegian cannot nominalize VPs. This nominalizer only attaches to the verb directly as a kind of 'lexical nominalization' (30a), as shown in (31a) (see Baker & Gondo 2019 for recent discussion). A syntactic nominalization strategy, on the other hand, where *n* combines with an entire VP is ungrammatical (30b).

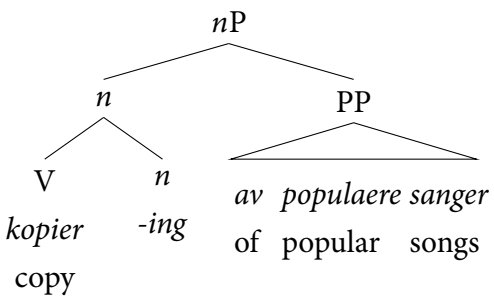
(30) *No phrasal nominalization in Norwegian* (Ackema & Neeleman 2004:181):

a. den ulovlige kopier-*ing*-en [$_{PP}$ av populaere sanger]
that illegal.DEF copy-NMLZ-DEF of popular.PL songs

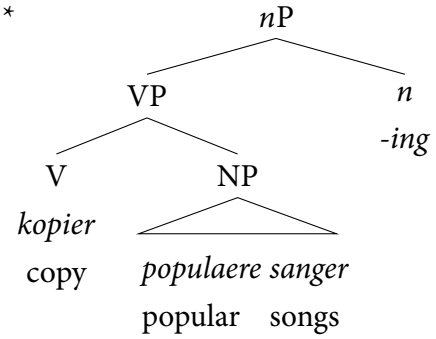
b. *den ulovlige [$_{VP}$ kopier-*ing*-en populaere sanger]
that illegal.DEF copy-NMLZ-DEF popular.PL songs
'that illegal copying of popular songs.'

The nominalization in (30b) has the FOFC-violating structure in (31b) with the affix being lowered to the verb to give rise to the surface order V-NMLZ O. Recall that this was the pattern that we predict not to be attested, given (28). Here, we do not find OV order inside the nominalized VP as a repair, but instead this nominalization strategy is simply unavailable.

(31) a.



b. *



This suggests that not all violations of the FOFC in nominalizations will result in a 'repair' based on re-linearization, but instead sometimes in simple ungrammaticality.

2.5 OV languages

We have seen examples of OV-NMLZ pattern from VO languages, where the change in word order is motivated by the FOFC. However, we also find instantiations of the OV-NMLZ pattern in OV languages, for example in Korean (32), Southern Paiute (33), Khoekhoe (34) and Bzhedug Adyghe (35).

(32) *Korean* (Choi 2000:333; Cho & Kim 2002:679):

a. John-i [$_{VP}$ Mary-lul manna-ss-ta]
John-NOM Mary-ACC meet-PST-DECL
'John met Mary.' (O V)

b. [$_{VP}$ Sakwa-lul mek]-ki-nun John-i mek-ess-ta.
apple-ACC eat -NMLZ-TOP John-NOM eat-PST-DECL
'As for eating apples, John did.' (O V NMLZ)

(33) *Southern Paiute* (Givón 2011:229f.):

a. ʼÁapachi ʼu [$_{VP}$ kwanachi ʼuway paqha-qa]
boy the eagle the kill-ANT
'The boy killed the eagle.' (O V)

b. [$_{VP}$ ʼInay kwanachi paqha]-ta ka-ʼay-wa-t̶u̶ ʼura-qa.
this eagle kill -NMLZ NEG-good-NEG-NMLZ be-ANT
'Killing this eagle was bad.' (O V NMLZ)

(34) *Khoekhoe* (den Besten 2002:25,37):

a. Tita ge [$_{VP}$ ti ||naoba [goro gurin ei-!â] ge mû]
1SG DECL 1SG.POSS uncle five years ago RM.PST see
'I have seen my uncle five years ago.' (O V)

b. [$_{VP}$ ||nãã'n hòá'nà ||nãũ]-s
that all hear -NMLZ
'hear all that' (O V NMLZ)

(35) *Bzhedug Adyghe* (Ershova 2015:99,103):

a. Haču̯e-me s-ja-že.
guest-PL 1SG.ABS-3PL.IO-wait
'I'm waiting for guests.' (O V)

b. [$_{VP}$ Haču̯'e-xe-m ja-je-že]-n Zarine jəʔʷef.
guest-PL-OBL 3PL.POSS-DAT-wait -NMLZ Zarina POSS.work
'Waiting for guests is Zarina's task.' (O V NMLZ)

The FOFC-based account advocated here predicts that we should also find OV languages with prefixal nominalizers. In section 2.4, we saw that Amharic can be viewed as an example of this. So far, we have not been able to find other examples of OV languages with prefixal nominalizers. This is perhaps not too surprising though, since head-final languages tend to be overwhelmingly suffixal (Hawkins & Gilligan 1988:230). What is more, disharmonic word orders are also claimed to be rarer in general (Biberauer & Sheehan 2012:209). This conspiracy of factors may mean that, although this order NMLZ-OV is theoretically possible, it is rare due to the overwhelming preference for suffixation in OV languages.

2.6 Postverbal arguments in Dan

Thus far, we have seen that the FOFC account correctly predicts the absence of head-final VPs in the presence of suffixal nominalizers. An interesting challenge to this view comes from the Mandean language Dan spoken in Côte d'Ivoire (Doneux 1968; Gondo 2014; Baker & Gondo 2019).[5] In Dan, ditransitive VPs show the order NP-V-PP (36a). When a VP is nominalized, we do not observe any change in word order (36b).

(36) *VP nominalization in Dan* (Baker & Gondo 2019:15):

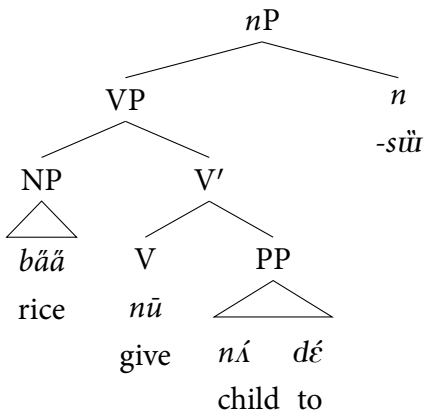
a. Klà ɛ̀ [$_{VP}$ bɑ́ɑ́ nū Zɔ̀tɑ́dɛ́]
Kla 3SG.PRS rice give Zota to
'Kla gives rice to Zota.'

[5] Thanks to an anonymous reviewer for bringing the relevance of Dan to our attention.

b. [$_{VP}$ bǎ̋ǎ́ nū nʌ́ dɛ́]-sʉ̈ʉ̀ è sʌ̄
rice give child to -NMLZ 3SG.PRS good
'Giving rice to a child is good.'

Baker & Gondo (2019) assign the ditransitive VP an analogous structure to what is typically assumed for English prepositional datives (e.g. Larson 1988; Bruening 2001), where the direct object c-commands the goal argument PP (37). The nominalizing suffix attaches to the entire VP and leans onto the final constituent, as we saw for the nominalizing prefix in Krachi (20).

(37)



The structure in (37) would be a violation of the FOFC, since a head-final *n* embeds a head-initial VP phrase (a *final-over-initial* configuration).

However, there is an alternative view that would be compatible with the aforementioned generalization. First, consider that, with nominal direct objects, the VP in Dan is strictly head-final (38a) (Doneux 1968:77). Under nominalization, this OV order within the VP is maintained (38b).

(38) *Nominalization with nominal object in Dan* (Gondo 2014:111; Baker & Gondo 2019:13):

a. Klà è [$_{VP}$ bǎ̋ǎ́ bɤ̀]
Kla 3SG.PRS rice eat
'Kla eats rice.'

b. [$_{VP}$ bǎ̋ǎ́ bɤ̀]-sʉ̀ɪ è sʌ̄
rice eat -NMLZ 3SG.PRS good
'Eating rice is good.'

Unlike canonical object arguments, goal arguments (39a) and PPs (39b) appear post-verbally (also see Nikitina 2009:20 on the related language Wan). Furthermore, they appear in the same postverbal position as adverbs (39c) (which can also be part of VP nominalizations).

(39) *PPs and adverbs are post-verbal in Dan* (Gondo 2014:157, 184, 281):

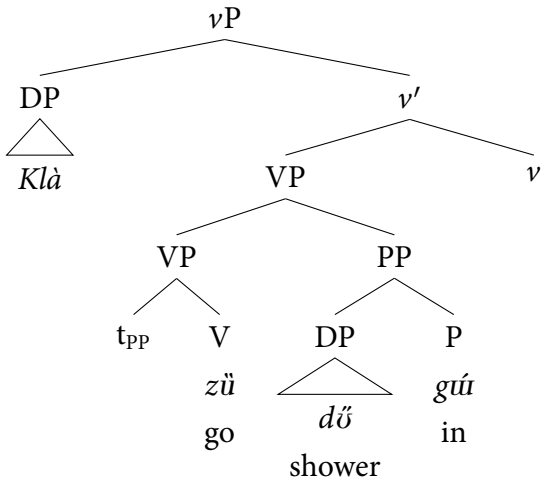
a. Klà è [$_{VP}$ dò plɤ́ɤ́]
Kla 3SG.PRS go village
'Kla goes to the village.'

b. Klà è [$_{VP}$ zù [$_{PP}$ dʊ̋ gúɪ]]
Kla 3SG.PRS go shower in
'Kla is washing himself in the shower.'

c. Zòtā̋ bà gɔ̀ [$_{VP}$ dò [$_{AdvP}$ vɑ̰̀vɑ̰̀dɤ́]]
Zota POSS car go quickly
'Zota's car goes fast.'

One way of accounting for this apparent mixed headedness would be to assume that the surface position of goal arguments is not the complement of the verb. As we saw in (39), they occupy the same surface position as rightward VP adjuncts. We will therefore propose that such goal arguments are either projected as adjuncts/rightward specifiers, or undergo obligatory short extraposition to the right edge of VP, the same structural position as adjuncts.[6] The latter option is shown in (40).

(40)



When nominalized, these postverbal constituents do not change their order (Baker & Gondo 2019). This is true for directional arguments (41a), adverbs (41b) and PP adjuncts (41c).

(41) a. [$_{VP}$ Klà dó plɤ́ɤ́]-súı è sᾱ̀
Kla go village -NMLZ 3SG.PRS good
'Kla going to the village is good.'

b. [$_{VP}$ mlɛ̰̀ɛ̰̀ tà [$_{AdvP}$ vɑ̰̀vɑ̰̀dɤ́]]-sʉ̈ı è sᾱ̀
snake go quickly -NMLZ 3SG.PRS good
'The snake's going along quickly is good.'

c. [$_{VP}$ Zɔ̀tā̋ bā̋ tɑ̰̀-bō [$_{PP}$ Klà gúı]]-súı è sᾱ̀
Zota POSS song-pick Kla in -NMLZ 3SG.PRS good
'Zota's singing in Kla is good.'

We analyze such nominalizations as the *n* suffix attaching to the VP containing the extraposed argument or adjunct.

With this in mind, the potentially problematic example in (36b) can be reanalyzed as in (42),

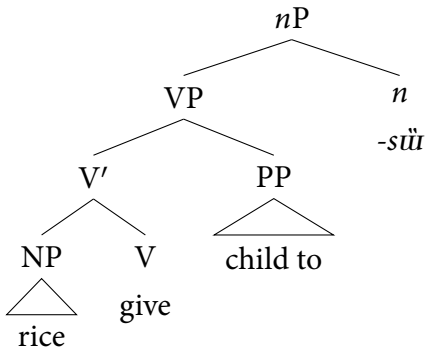
[6] Nikitina (2007) notes that in the related Mandean language Wan, PPs are obligatorily extraposed. This can be seen particularly clearly in cases of VP subordination, where the PP associated with the embedded verb appears after the matrix predicate (i).

(i) È [$_{VP}$ [$_{VP}$ t$_{PP}$ kúnɑ̀] ságlā] [$_{PP}$ yrɛ̄ é gó]
3SG.NOM climb started tree DEF in
'He began to climb (on) the tree.'

We can assume that in Wan and Dan, extraposition targets the highest accessible VP node. In restructuring configurations like (i), this would be the matrix VP.

where the PP is projected in a rightward specifier (see Bruening 2010*b* on 'R-dative shift' in English).

(42) [$_{VP}$ bā̋ā̋ nū nʌ́ dɛ́]-sʉ̈ɪ̈ ɛ̀ sɑ̄
rice give child to -NMLZ 3SG.PRS good
'Giving rice to a child is good.'



On this view, Dan would not constitute a counterexample to the proposed generalization. Here, the head-final nominalizer in *n* embeds a head-final VP. Importantly, the position of a specifier does not change the head-directionality of a given phrase.

2.7 Interim summary

In this section, we have seen that there are various configurations for VP nominalization. A summary of the languages investigated is given in (43).

(43) *Typology of VP nominalization*:

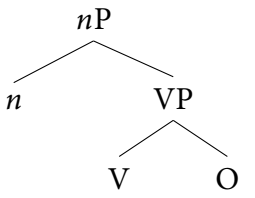
	Base order	Nominalized	
Bzhedug Adyghe	OV	OV-NMLZ	(Ershova 2015)
Jamsay	OV	OV-NMLZ	(Heath 2008)
Khoekhoe	OV	OV-NMLZ	(den Besten 2002)
Korean	OV	OV-NMLZ	(Cho & Kim 2002)
Southern Paiute	OV	OV-NMLZ	(Givón 2011)
Amharic	OV	O NMLZ-V	(Leslau 1995)
Akan	VO	OV-NMLZ	(Hein 2017)
Buli	VO	OV-NMLZ	(Hiraiwa 2005*a*,*b*)
Dagaare	VO	OV-NMLZ	(Hiraiwa & Bodomo 2008)
Dangme	VO	OV-NMLZ	(Ameka & Kropp Dakubu 2008)
Ewe	VO	OV-NMLZ	(Buell 2012)
Gengbe	VO	OV-NMLZ	(Aboh 2005)
Krachi	VO	NMLZ-OV	(Kandybowicz & Torrence 2016)
Igbo	VO	O NMLZ-V	(Manfredi 1997)
Yoruba	VO	O NMLZ-V	(Manfredi 1997)
Krachi	VO	NMLZ-VO	(Kandybowicz & Torrence 2016)
Limbum	VO	NMLZ-VO	(Becker & Nformi 2016)
Mani	VO	NMLZ-VO	(Childs 2011)
Thai	VO	NMLZ-VO	(Jenks 2011)
Yoruba	VO	NMLZ-VO	(Manfredi 1993)

As can be seen in (43), one pattern is not only unattested, but consistently avoided in the languages in which we would expect it to arise. In all of the VO languages with a suffixal nominalizer that we could find, VO order is changed to OV inside the nominalized VP. In VO languages with a prefixal nominalizer, we find VO order inside the nominalized VP, and sometimes even OV order. Furthermore, there are many OV languages with a suffixal nominalizer. As we saw, this gives rise to the descriptive generalization in (17), repeated below.

(44) *Generalization:*
No language retains VO word order inside a nominalized VP if the nominalizer is a suffix.

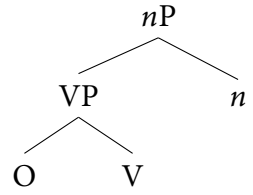
We have argued that this generalization follows from the assumption that the FOFC also constrains word order within nominalizations. Allowing the FOFC to apply to nominalization structures such as those in (45) successfully predicts the three attested patterns in (45a–c) and rules out the unattested one (45d).

(45) a.



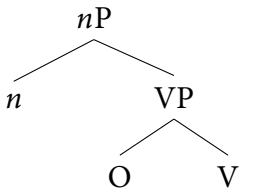
Consistent head-initial
(e.g. Yoruba, Mani)

b.



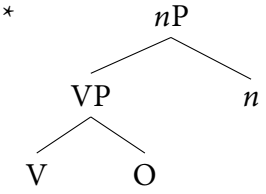
Consistent head-final
(e.g. Dagaare, Gengbe)

c.



Initial-over-final
(e.g. Krachi, Amharic)

d. *



Final-over-initial
(unattested?)

Assuming that suffixes occupy head-final positions, a suffixal nominalizer cannot embed a head-initial VP. In other words, the syntactic configuration VO-NMLZ is predicted to be impossible, since it is not compliant with the FOFC. The other three patterns that are compliant with the FOFC (NMLZ-VO, NMLZ-OV, OV-NMLZ) are attested in (45). The FOFC provides an explanatory account for this restriction. Furthermore, it also has some consequences for our understanding of the FOFC, which will be discussed in the following section.

3 Discussion

3.1 Mixed extended projections

Recall that the definition of the FOFC in (1), repeated below in (46), states that it holds inside an extended projection.

(46) *The Final-over-Final Condition (FOFC)* (Holmberg 2000:124; Biberauer et al. 2014:171):
A head-final phrase αP cannot immediately dominate a head-initial phrase βP, if α and β are members of the same extended projection.

This qualification is necessary since there are cases in which the scope of the FOFC would be too broad, e.g. in ruling out acceptable cases of head-initial DPs selected by head-final VPs, as in German (47).

(47) Ich will $[_{VP}\ [_{DP}$ das $[_{NP}$ Buch]] lesen]
I want the book read
'I want to read the book.'

Since DPs are part of a different extended projection from VPs, namely a nominal one, structures such as (47) fall outside the scope of the FOFC and are therefore not ruled out.

If *n* and V do not belong to the same extended projection, then we would not necessarily expect the FOFC to hold inside nominalizations, as it seems to. In order to maintain the present analysis, *n* and V must count as belonging to the same extended projection so that the FOFC is enforced. To this end, we assume that deverbal nominalizations constitute *mixed extended projections* (Borsley & Kornfilt 2000; Bresnan & Mugane 2006; Pietraszko 2019; *pace* Grimshaw 1991). One way of achieving this technically would be to assume that nominalizers act as 'switches' in the sense of Panagiotidis (2015:143). In other words, they turn one extended projection into another. For Panagiotidis (2015), a nominalizer has the features [*u*V, N], i.e. it selects a verbal projection and projects a nominal one. As long as extended projections are defined based on two heads bearing the same categorial feature (either selectional or not), then deverbal nominalizers will also count as part of the extended projection of V. All of this leads to the following consequence for the FOFC:

(48) *Consequence for the FOFC*:
The FOFC applies inside a mixed extended projection (i.e. nominalizations)

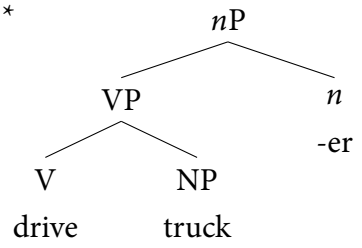
There is some precedent to assuming that the restriction of the FOFC to extended projections is perhaps too strong. For example, Biberauer & Sheehan (2012) argue that the FOFC can account for obligatory extraposition of clausal complements in underlying [C-TP]-V configurations. Also, Biberauer et al. (2014:186ff.) attribute the absence of [N-PP]-P in Finnish to the FOFC (see Holmberg 2000). According to Grimshaw (2000:120), V-CP and P-NP should not constitute extended projections, and are therefore problematic for the definition of the FOFC in (46) (see Sheehan 2013*a* for relevant discussion). Nominalizations present a similar problem *prima facie*, but can perhaps be somewhat better captured under the notion of mixed extended projections than these other cases.

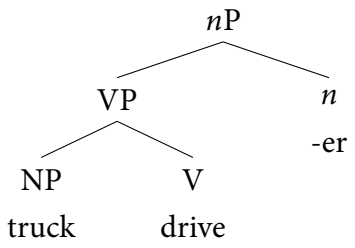
3.2 The FOFC in agent nominalizations

We might also expect that FOFC effects should be found in other kinds of nominalizations. So far, we have focused on event nominalizations, but there is also reason to believe that the FOFC

constrains agentive nominalizations (Myler 2009; Roberts 2017*b*:342f.). For example, consider canonical agent nominalizations such as *truck driver*, which presumably contains the VP *drive truck* (e.g. Roeper & Siegel 1978; Fu et al. 2001; Alexiadou 2001; Bruening 2013). When the nominalizing suffix *-er* selects this VP, an illicit final-over-initial configuration is created (49). We observe the same kind of re-linearization that we saw with event nominalizations above. This explains why nominalization of *drive truck* must be *truck driver* and not **drive trucker*, despite *trucker* itself being possible.[7]

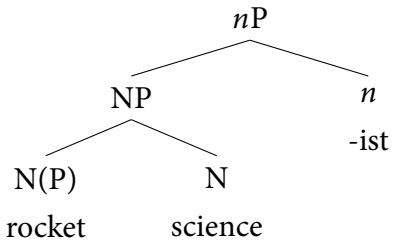
(49) *



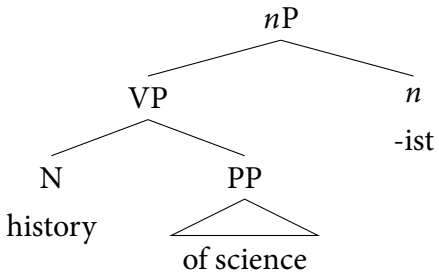


Further evidence for the activity of the FOFC in agent nominalizations comes from observations made by Ackema & Neeleman (2004). Namely, the nominalizing suffix *-ist* can attach to a nominal compound such as *rocket science* to form *rocket scientist*. However, *-ist* cannot combine with nouns taking complements, e.g. *history of science*, to form **history of scientist* (Ackema & Neeleman 2004:171). As (50) shows, *rocket scientist* is FOFC-compliant since compounds are presumably head-final, following Williams' (1981) *Righthand Head Rule* (also see Myler 2009). However, nominalization of a noun taking a genuine PP complement, as in **history of scientist*, results in a final-over-initial structure that is correctly ruled out by the FOFC.

(50)



*



[7] A reviewer asks how we can know that the constituency of *truck driver* is [[truck drive] -er] as in (49), rather than a N-N root compound such as [truck [driv-er]] (e.g. Selkirk 1982; Di Sciullo & Williams 1987; also see Spencer 2005:88ff. for discussion). A compelling argument for the former structure comes from idioms. As Ackema & Neeleman (2004:56f.) point out, the idiomatic meaning of VP idioms such as *break the ice* is preserved in synthetic compounds like *ice-breaker*, but lost in other agent nominalizations such as *#breaker of the ice*. Further examples include *trouble-maker* vs. *#maker of trouble*, *life-saver* vs. *#saver of lives*, and *whistle-blower* vs. *#blower of whistles*. Assuming that parts of an idiom must either form an underlying constituent (Koopman & Sportiche 1991:224) or a transitive selectional relationship (e.g. O'Grady 1998; Bruening 2010*a*, 2017), then the VP idiom parts in a synthetic compound must form a constituent to the exclusion of *-er* (ia). In the structure of *breaker of the ice*, the relevant idioms parts (*break* and *ice*) do not form a constituent (ib) and thus lack the idiomatic reading.

(i) a. [[ice break] -er]
b. #[[break-er] [of the ice]]
c. #[[ice] [break-er]]

In the alternative N-N compound structure in (ic), these conditions for preservation of idiomatic meaning are equally not met. Thus, if this were the correct structure we would expect it to pattern with (ib) in losing the idiomatic interpretation, contrary to fact.

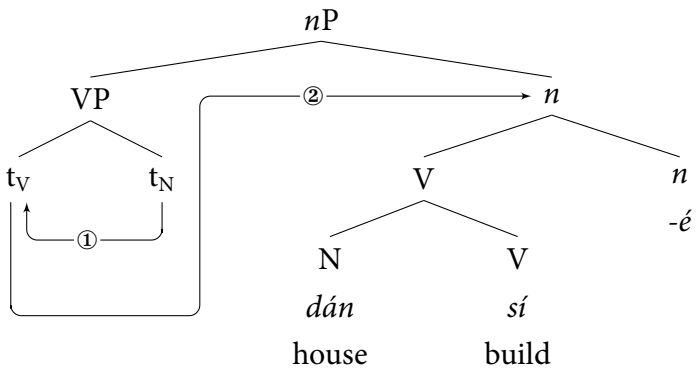
This is further bolstered by the observation by Ackema & Neeleman (2004:171) that heads taking PP complements can appear inside a nominalization if the verb is head-final.[8] In the Dutch example in (51), the suffix *-aar* embeds a head-final VP, a structure which respects the FOFC.

(51) [$_{nP}$ [$_{VP}$ [$_{PP}$ aan [$_{DP}$ de weg]] timmer] -aar]
on the way hammer -er
'careerist'

3.3 Against an incorporation analysis

There are other approaches to the kind of nominalizations discussed here. In the spirit of Baker (1988), Harley (2009:136) argues that synthetic compounds such as *truck driver* are the result of noun incorporation via head movement (also see Punske 2016; Iordăchioaia et al. 2017). In the case of *truck driver*, this is formed by successive instances of head-movement from the object, to the verb, and then to *n*. The OV order results from the way that the resulting complex head is linearized. It is also possible to adopt a similar approach for the event VP nominalizations we discussed. An example such as (16b) would then have an analysis such as (52), where the noun first incorporates into the verb and this complex head subsequently moves to *n*.[9]

(52) *Incorporation approach to VP nominalization*:



One of the properties that is supposedly accounted for by a head-movement account is that only bare roots/*n* can act as goals for incorporation. Thus, **trucks driver* is ill-formed because it would require a Num-head to bear a feature triggering head movement (Harley 2009:141). Furthermore, an incorporation analysis is also assumed to derive the fact that complex phrasal material cannot appear inside such compounds (see e.g. Roeper & Siegel 1978; Bresnan & Mchombo 1995). However, the exclusion of phrases from compounds is by no means absolute (see e.g. Botha 1981; Ackema & Neeleman 2004; Sato 2010; Bruening 2018). Indeed, the event VP nominalizations we are focusing

[8] Ackema & Neeleman (2004) offer a different explanation for the distinction between head-initial and head-final VPs with suffixal nominalizers. They assume that an affix that selects a phrase can only do so if it takes the head of that phrase as a host, and therefore requires adjacency (Ackema & Neeleman 2004:164f.). We have seen counter-examples to this in Krachi (20c) and Dan (41), where a nominalizing suffix is not adjacent to the verb.

[9] One might wonder whether the basic change from VO to OV under nominalization cannot simply be achieved by head movement from V-to-*n*. This is insufficient for several reasons. First, it has been argued by Ackema & Neeleman (2002) that there is a general restriction on rightward head movement that it cannot cross a dependent of that head (also see van Riemsdijk 1998). This rules out rightward movement of V to a head-final *n* position. Furthermore, it is clear that the change from VO to OV with initial nominalizers cannot be derived by head movement to *n*, so something additional is required in any case.

on here show some degree of variation in the complexity of the nominal argument. For example, we see in Krachi (20) that the object can bear a plural marker, unlike in English (cf. **trucks driver*). In Buli, the object can be marked as definite (53).

(53) *Definite DP object in Buli VP nominalization* (Hiraiwa 2005*a*:262):
(Ká) [$_{VP}$ mángò-kú dɛ̄]-kā àlī/àtì Àtìm dɛ̀ dīēm.
FOC mango-DEF eat -NMLZ C Àtìm ate yesterday
'It is eating the mango that Àtìm ate yesterday. (not e.g. buying a banana)'

Dagaare is even less restrictive and allows for a definite DP modified by an adjective and a demonstrative inside a nominalized VP (54).

(54) *Modified object in Dagaare VP nominalization* (Hiraiwa & Bodomo 2008:805):
[$_{VP}$ À bó-vèlàà ná dáá]-ó lá ká ń (dá) dá.
DEF goat-good DEM buy -NMLZ FOC C 1SG PST buy
'It is buying that good goat that I did.'

This would not be expected if these were genuine cases of noun incorporation (see Baker 2009:153). From this we conclude that the shift from VO to OV in nominalizations cannot be the result of incorporation via head movement. Some languages do seem to impose a 'bareness' requirement on the complement of the verb, however there is significant cross-linguistic variation in this regard. It is possible that the nominal object in deverbal nominalizations is subject to varying degrees of pseudo-incorporation, which require it to surface as a bare nominal (see Massam 2001).

4 Nominalized serial verb constructions

Recall that in VO languages with a suffixal nominalizer such as Dagaare (12), the word order inside the VP changes to OV when nominalized. There are also more complex VP structures in such languages, often referred to as serial verb constructions (SVCs). In Dagaare, these show the word order V_1 O V_2 where the direct object is shared between the two verbs (55).

(55) *Verb serialization with shared object in Dagaare* (Hiraiwa & Bodomo 2008:796):

a. Ò dà [$_{VP}$ sɛ́$_1$ lá **nɛ́nè** ɔ̀ɔ̀$_2$]
3SG PST roast F meat eat
'He roasted meat and ate it' (V_1 O V_2)

b. *Ò dà [$_{VP}$ sɛ́$_1$ lá ɔ̀ɔ̀$_2$ **nɛ́nè**]
3SG PST roast F eat meat
'He roasted meat and ate it' (*V_1 V_2 O)

When this complex VP is nominalized, it shows a different word order, however. The base V_1 O V_2 in (55a) changes to O V_1 V_2 (56).

(56) *Word in nominalized SVCs in Dagaare* (Hiraiwa & Bodomo 2008:798):
[$_{VP}$ **Nɛ́nè** sɛ́$_1$ ɔ̀ɔ̀$_2$]-ó lá ká ó sɛ́$_1$ ɔ̀ɔ̀$_2$.
meat roast eat -NMLZ F C 3SG roast eat
'It is roasting meat and eating it that he did'

The same pattern is also found in Buli (57) (Hiraiwa 2005*a*).

(57) *Verb serialization with shared object in Buli* (Hiraiwa 2005*a*:263):

a. Atìm [$_{VP}$ sè$_1$ **lām** ŋɔ̀bí$_2$]
Atim roast meat eat
'Atim roasted and ate meat.'

b. (ká) [$_{VP}$ **lām** sè$_1$ ŋɔ̀bí$_2$]-kā àlī/átí Atìm sé$_1$ ŋɔ̀bí$_2$
FOC meat roast eat -NMLZ C Atim roast eat
'It's roasting and eating meat that Atim did.'

A central feature of these SVCs is that the object is 'shared' between the two verbs. There have been a number of proposals for how to reconcile object-sharing with strict binary branching (Hale 1991; Collins 1997; Aboh 2009). Simplifying somewhat, we could imagine two basic constituencies for the object sharing configuration in Dagaare and Buli (58).

(58) a. [$_{VP}$ V [$_{VP}$ O V]]
b. [$_{VP}$ [$_{VP}$ V O] V]

However, Hiraiwa & Bodomo (2008) provide evidence from extraction that neither is adequate. As (59a) shows, it is possible to move the first verb (V_1) in the series together with the direct object. Furthermore, the direct object can also be fronted along with V_2 (59b). Finally, it is possible to extract both verbs together with the shared object (59c).[10]

(59) *Extraction in SVCs in Dagaare* (Hiraiwa & Bodomo 2008:798):

a. [$_{VP_1}$ **Nɛ́nè** séɛ́$_1$]-ó lá ká ó sɛ́$_1$ ɔ̀ɔ̀$_2$.
meat roast -NMLZ F C 3SG roast eat
'It is roasting meat that he did and ate (it)' (extraction of DP+V_1)

b. [$_{VP_2}$ **Nɛ́nè** ɔ̀ɔ̀$_2$]-ó lá ká ó sɛ́$_1$ ɔ̀ɔ̀$_2$.
meat eat -NMLZ F C 3SG roast eat
'It is eating meat that he roasted and did' (extraction of DP+V_2)

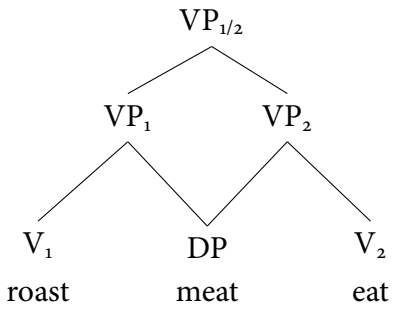
c. [$_{VP_{1/2}}$ **Nɛ́nè** sɛ́$_1$ ɔ̀ɔ̀$_2$]-ó lá ká ó sɛ́$_1$ ɔ̀ɔ̀$_2$.
meat roast eat -NMLZ F C 3SG roast eat
'It is roasting meat and eating it that he did' (extraction of DP+V_1+V_2)

These data suggest that the direct object forms a constituent both with V_1 and V_2 to the exclusion of the other verb. Thus, neither of the structures in (58) can account for these constituency facts. The same is also true for the structure proposed in Bodomo (2004:19), where the object is analyzed as a possessor.

To capture this, Hiraiwa & Bodomo (2008) argue that object-sharing SVCs involve a 'double-headed' VP in the sense of Baker (1989) and Baker & Stewart (1999). Object sharing is the result of a multidominant structure (e.g. Citko 2005, 2011; Gračanin-Yüksek 2013; Bachrach & Katzir 2017) as in (60), where each verb takes the DP as its complement.

[10] Note that extracted verbs are doubled in their base-position, as is often found in predicate focus constructions (see e.g. Hein 2017, 2018). Hiraiwa & Bodomo (2008:804) assume that this construction involves movement in Dagaare since it is both unbounded and constrained by islands. Hiraiwa (2005*b*:551f.) shows that Buli predicate fronting is also sensitive to islands and additionally shows reconstruction effects.

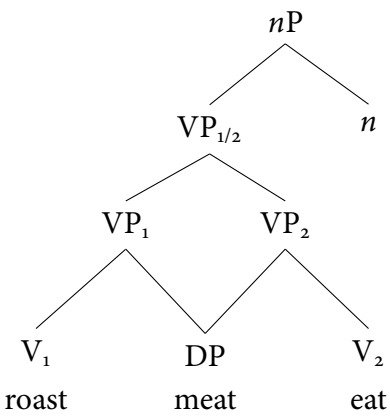
(60) *Multidominance approach to sharing in SVCs*:



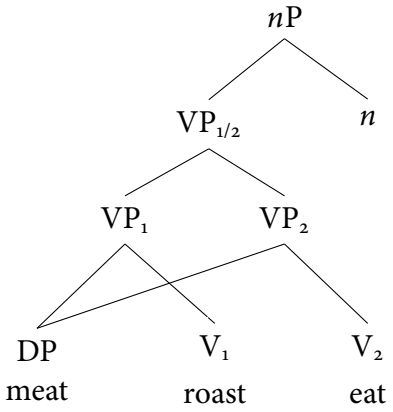
This now provides three phrasal constituents that can be targeted for movement, corresponding to the extraction possibilities in (59). Either of the lower VP constituents (VP_1 or VP_2) can be moved, corresponding to (59a) and (59b) respectively. In addition, the larger $VP_{1/2}$ constituent can also be extracted, as in (59c).

Importantly, when the entire $VP_{1/2}$ constituent is nominalized under extraction, we do not find the otherwise expected V_1 O V_2 order, but rather a shifted O V_1 V_2 configuration inside the VP. We argue that this follows from the structure in (60) and the assumption that the FOFC holds in nominalizations. The nominalizer attaches to the larger $VP_{1/2}$ constituent, which consists of a head-initial VP_1 and a head-final VP_2 (61a). This creates a FOFC-compliant structure with regard to V_2, but a banned final-over-initial configuration with regard to V_1. The prediction of the FOFC account is that we should find an obligatory change in word order in VP_1, but not in VP_2, leading to head-final order in VP_1 (61).

(61) a. *



b.



Recall from (59c) that this is indeed what we find, namely a change of word order from V_1 O V_2 to O V_1 V_2. Thus, when double-headed VP structures such as (60) are nominalized, the FOFC must be respected by each VP independently.

5 Conclusion

In this paper, we have argued that the scope of the Final-over-Final Condition should be extended to nominalizations. The motivation for this comes from the consistent avoidance of VO order inside nominalized VPs with a suffixal nominalizer. No comparable restriction was found with prefixal nominalizers. We have argued that this directional asymmetry follows naturally under

an explanation that invokes the FOFC, since the unattested order would constitute an illicit final-over-initial configuration. Extending the FOFC to nominalizations is somewhat problematic given the fact that has been assumed to only hold within an extended projection (Biberauer et al. 2014). This can be accommodated by assuming that nominalizations constitute mixed extended projections (Borsley & Kornfilt 2000), which would then also fall under the scope of the FOFC.

References

Aboh, Enoch O. (2004). *The Morphosyntax of Complement-Head Sequences: Clause Structure and Word Order Patterns in Kwa*. Oxford University Press: Oxford.

Aboh, Enoch O. (2005). Object Shift, Verb Movement and Verb Reduplication. In G. Cinque & R. S. Kayne (eds). *The Oxford Handbook of Comparative Syntax*. Oxford University Press: Oxford. 138–177.

Aboh, Enoch O. (2009). Clause Structure and Verb Series. *Linguistic Inquiry* 40(1). 1–33.

Aboh, Enoch O. (2010). The Morphosyntax of the Noun Phrase. In E. O. Aboh & J. Essegbey (eds). *Topics in Kwa Syntax*. Springer: Dordrecht. 11–37.

Ackema, Peter & Ad Neeleman (2002). Effects of Short Term Storage in Processing Rightward Movement. In S. Nooteboom, F. Weerman & F. Wijnen (eds). *Storage and Computation in the Language Faculty*. Kluwer: Dordrecht. 219–256.

Ackema, Peter & Ad Neeleman (2004). *Beyond Morphology: Interface Conditions on Word Formation*. Oxford University Press: Oxford.

Adger, David (2003). *Core Syntax*. Oxford University Press: Oxford.

Alexiadou, Artemis (2001). *Functional Structure in Nominals: Nominalization and Ergativity*. John Benjamins: Amsterdam.

Ameka, Felix K. (2010). Information Packaging Constructions in Kwa: Microvariation and Typology. In E. O. Aboh & J. Essegbey (eds). *Topics in Kwa Syntax*. Springer: Dordrecht. 141–176.

Ameka, Felix K. & Mary E. Kropp Dakubu (2008). Imperfective Constructions: Progressive and Prospective in Ewe and Dangme. In F. K. Ameka & M. E. Kropp Dakubu (eds). *Aspect and Modality in Kwa Languages*. John Benjamins: Amsterdam. 215–289.

Atlamaz, Ümit & Mark Baker (2018). On Partial Agreement and Oblique Case. *Syntax* 21(3). 195–237.

Bachrach, Asaf & Roni Katzir (2017). Linearizing Structures. *Syntax* 20(1). 1–40.

Baker, Mark (1988). *Incorporation: A Theory of Grammatical Function Changing*. Chicago University Press: Chicago.

Baker, Mark C. (1989). Object Sharing and Projection in Serial Verb Constructions. *Linguistic Inquiry* 20(4). 513–553.

Baker, Mark C. (2009). Is Head Movement Still Needed For Noun Incorporation?. *Lingua* 119. 148–165.

Baker, Mark C. & Bleu Gildas Gondo (2019). Possession and Nominalzation in Dan: Evidence for a General Theory of Categories. Ms. Rutgers University & Felix Houphouët Boigny University.

Baker, Mark C. & Nadya Vinokurova (2009). On Agent Nominalizations and Why They Are Not like Event Nominalizations. *Language* 85(3). 517–556.

Baker, Mark & Osamuyimen T. Stewart (1999). On Double-Headedness and the Anatomy of the Clause. Ms. Rutgers.

Baker, Mark & Ruth Kramer (2014). Rethinking Amharmic prepositions as case markers inserted at PF. *Lingua* 145. 141–172.

Becker, Laura & Jude Nformi (2016). Focus and Verb Doubling in Limbum. In K. Barnickel, M. G. Naranjo, J. Hein, S. Korsah, A. Murphy, L. Paschen, Z. Puškar & J. Zaleska (eds). *Replicative Processes in Grammar*. Vol. 93. of *Linguistische Arbeits Berichte (LAB)*. Universität Leipzig: Leipzig. 57–84.

Biberauer, Theresa, Anders Holmberg & Ian Roberts (2008). Structure and Linearization in Disharmonic Word Orders. In C. B. Chang & H. J. Haynie (eds). *Proceedings of the 26th West Coast Conference on Formal Linguistics*. Cascadilla Proceedings Project Somerville, MA 96–104.

Biberauer, Theresa, Anders Holmberg & Ian Roberts (2014). A Syntactic Universal and its Consequences. *Linguistic Inquiry* 45(2). 169–225.

Biberauer, Theresa & Michelle Sheehan (2012). Disharmony, Antisymmetry and the Final-over-Final Constraint. In M. Uribe-Etxebarria & V. Valmala (eds). *Ways of Structure Building*. Oxford University Press: Oxford. 206–244.

Biberauer, Theresa, Michelle Sheehan & Glenda Newton (2010). Impossible Changes and Impossible Borrowings: The Final-over-Final Constraint. In A. Breitbarth, C. Lucas, S. Watts & D. Willis (eds). *Continuity and Change in Grammar*. John Benjamins: Amsterdam. 35–60.

Bodomo, Adams (2004). The Syntax of Nominalized Complex Verbal Predicates in Dagaare. *Studia Linguistica* 58(1). 1–22.

Borsley, Robert. D. & Jaklin Kornfilt (2000). Mixed Extended Projections. In R. Borsley (ed.). *The Nature and Functioning of Syntactic Categories*. Academic Press: London. 133–166.

Botha, Rudolf (1981). A Base Rule Theory of Afrikaans Synthetic Compounding. In M. Moortgat, H. van der Hulst & T. Hoekstra (eds). *The Scope of Lexical Rules*. Foris: Dordrecht. 1–77.

Branan, Kenyon (2019). FOFC-motivated movement: Evidence from Skou. Ms. National University of Singapore.

Bresnan, Joan & John Mugane (2006). Agentive Nominalizations in Gĩkũyũ and the Theory of Mixed Categories. In R. M. Kaplan, M. Butt, M. Dalrymple & T. H. King (eds). *Intelligent Linguistic Architectures*. CSLI Publications: Stanford, CA. 201–234.

Bresnan, Joan & Sam A. Mchombo (1995). The Lexical Integrity Principle: Evidence from Bantu. *Natural Language and Linguistic Theory* 13(2). 181–254.

Bruening, Benjamin (2001). QR Obeys Superiority: Frozen Scope and ACD. *Linguistic Inquiry* 32(2). 233–273.

Bruening, Benjamin (2010*a*). Ditransitive Asymmetries and a Theory of Idiom Formation. *Linguistic Inquiry* 41(4). 519–562.

Bruening, Benjamin (2010*b*). Double Object Constructions Disguised as Prepositional Datives. *Linguistic Inquiry* 41(2). 287–305.

Bruening, Benjamin (2013). By-Phrases in Passives and Nominals. *Syntax* 16(1). 1–41.

Bruening, Benjamin (2017). Syntactic Constraints on Idioms (Do Not Include Locality). In C. Halpert, H. Kotek & C. van Urk (eds). *A Pesky Set: Papers for David Pesetsky*. MIT Working Papers in Linguistics: Cambridge, MA. 183–192.

Bruening, Benjamin (2018). The Lexicalist Hypothesis: Both Wrong and Superfluous. *Language* 94(1). 1–42.

Buell, Leston C. (2012). Ewe VP Fronting and Derivation by Phase. Ms. University of Amsterdam.

Childs, George T. (2011). *A Grammar of Mani*. De Gruyter Mouton: Berlin/Boston.

Cho, Sae-Youn & Jong-Bok Kim (2002). Echoed Verb Constructions in Korean: A Construction-Based HPSG Analysis. *Korean Journal of Linguistics* 27(4). 661–681.

Choi, Kiyong (2000). Korean VP-Focus Constructions: Another Case of Base Adjunction of X^0 to Y^0. *Studies in Generative Grammar* 10(2). 329–356.

Chomsky, Noam (2000). Minimalist Inquiries: The Framework. In R. Martin, D. Michaels, J. Uriagereka & S. J. Keyser (eds). *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. MIT Press: Cambridge, MA. 89–155.

Citko, Barbara (2005). On the Nature of Merge: External Merge, Internal Merge, and Parallel Merge. *Linguistic Inquiry* 36(4). 475–496.

Citko, Barbara (2011). *Symmetry in Syntax: Merge, Move and Labels*. Cambridge University Press: Cambridge.

Collins, Chris (1997). Argument Sharing in Serial Verb Constructions. *Linguistic Inquiry* 28(3). 461–497.

den Besten, Hans (2002). Khoekhoe Syntax and Its Implications for L2 Acquisition of Dutch and Afrikaans. *Journal of Germanic Linguistics* 14(1). 3–56.

Di Sciullo, Anna Maria & Edwin Williams (1987). *On the Definition of Word*. MIT Press: Cambridge, MA.

Doneux, Jean L. (1968). *Esquisse grammaticale du dan*. Departement de linguistique generale et linguistique africaine de la Faculte des lettres et sciences humaines de l'Universite de Dakar: Dakar.

Embick, David (2015). *The Morpheme: A Theoretical Introduction*. de Gruyter: Boston.

Embick, David & Ralf Noyer (2001). Movement Operations After Syntax. *Linguistic Inquiry* 32(4). 555–595.

Erlewine, Michael Yoshitaka (2017). Low Sentence-Final Particles in Mandarin Chinese and the Final-over-Final Constraint. *Journal of East Asian Linguistics* 26(1). 37–75.

Erlewine, Michael Yoshitaka (to appear). A Syntactic Universal in a Contact Language: The Story of Singlish *Already*. In *Discourse Particles in Asian Languages*. Routledge: London. .

Ershova, Ksenia (2015). Non-canonical Noun Incorporation in Bzhedug Adyghe. In A. E. Jurgensen, H. Sande, S. Lamoureux, K. Baclawski & A. Zerbe (eds). *Proceedings of Berkeley Linguistics Society 41*. Berkeley Linguistics Society: Berkeley, CA. 99–119.

Fu, Jingqi, Thomas Roeper & Hagit Borer (2001). The VP Within Process Nominals: Evidence From Adverbs and the VP Anaphor *Do So*. *Natural Language and Linguistic Theory* 19(3). 549–582.

Fuss, Eric & Carola Trips (2002). Variation and change in Old and Middle English: On the validity

of the Double Base Hypothesis. *Journal of Comparative Germanic Linguistics* 4. 171–224.
Givón, Thomas (2011). *Ute Reference Grammar*. John Benjamins: Amsterdam.
Gondo, Bleu Gildas (2014). *Etude phonologique et morphosyntaxique du Dan-Gblewo (Côte d'Ivoire).* PhD thesis, Université Félix Houphouët Boigny.
Gračanin-Yüksek, Martina (2013). Linearizing Multidominance Structures. In T. Biberauer & I. Roberts (eds). *Challenges to Linearization*. de Gruyter: Berlin. 269–294.
Grimshaw, Jane (1991). Extended Projections. Ms. Brandeis University.
Grimshaw, Jane (2000). Locality and Extended Projection. In P. Coopmans, M. Everaert & J. Grimshaw (eds). *Lexical Specification and Insertion*. John Benjamins: Amsterdam. 115–133.
Haddican, William (2004). Sentence Polarity and Word Order in Basque. *The Linguistic Review* 21(2). 87–124.
Hale, Ken (1991). Misumalpan Verb Sequencing. In C. Lefebvre (ed.). *Serial Verbs: Grammatical, Comparative and Cognitive Approaches*. John Benjamins: Amsterdam. 1–36.
Hansford, Keir L. (1990). *A Grammar of Chumburung: A Structure-Function Hierarchical Description of the Syntax of a Ghanaian Language.* PhD thesis, SOAS University of London.
Harley, Heidi (2009). Compounding in Distributed Morphology. In R. Lieber & P. Štekauer (eds). *The Oxford Handbook of Compounding*. Oxford University Press: Oxford. 129–144.
Hawkins, John A. & Gary Gilligan (1988). Prefixing and Suffixing Universals in Relation to Basic Word Order. *Lingua* 74. 219–259.
Heath, Jeffrey (2008). *A Grammar of Jamsay*. de Gruyter: Berlin.
Hein, Johannes (2017). Doubling and *do*-Support in Verbal Fronting: Towards a Typology of Repair Operations. *Glossa* 2(1). 67. 1–36.
Hein, Johannes (2018). *Verbal Fronting: Typology and Theory.* PhD thesis, Universität Leipzig.
Hiraiwa, Ken (2001). EPP: Object Shift and Stylistic Fronting in Scandinavian. In K. Megerdoomian & L. A. Bar-el (eds). *Proceedings of WCCFL 20*. Cascadilla Press: Somerville, MA. 290–303.
Hiraiwa, Ken (2005*a*). *Dimensions of Symmetry in Syntax: Agreement and Clausal Architecture.* PhD thesis, MIT.
Hiraiwa, Ken (2005*b*). Predicate Clefts in Bùlì: Categories and Phases. *Linguistic Analysis* 32. 544–583.
Hiraiwa, Ken & Adams Bodomo (2008). Object-Sharing as Symmetric Sharing: Predicate Clefting and Serial Verbs in Dàgáárè. *Natural Language and Linguistic Theory* 26(4). 795–832.
Holmberg, Anders (2000). Deriving OV Order in Finnish. In P. Svenonius (ed.). *The Derivation of VO and OV*. John Benjamins: Amsterdam. 123–152.
Holmberg, Anders (2017). Introduction. In M. Sheehan, T. Biberauer, I. Roberts & A. Holmberg (eds). *The Final-over-Final Condition: A Syntactic Universal*. MIT Press: Cambridge, MA. 1–9.
Iordăchioaia, Gianina, Artemis Alexiadou & Andreas Pairamidis (2017). Morphosyntactic Sources for Nominal Synthetic Compounds in English and Greek. *Zeitschrift für Wortbildung* 1(1). 47–71.
Jenks, Peter (2011). *The Hidden Structure of Thai Noun Phrases.* PhD thesis, Harvard University.
Kandybowicz, Jason & Harold Torrence (2016). Predicate Focus in Krachi: 2 Probes, 1 Goal, 3 PFs. In K. Kim, P. Umbal, T. Block, Q. Chan, T. Cheng, K. Finney, M. Katz, S. Nickel-Thompson & L. Shorten (eds). *Proceedings of WCCFL 33*. Cascadilla Proceedings Project: Somerville, MA.

227–236.
Kiparsky, Paul (1996). The Shift to Head-Initial VP in Germanic. In H. Thráinsson, S. Epstein & S. Peter (eds). *Studies in Comparative Germanic Syntax II*. Kluwer: Dordrecht. 140–179.
Kobele, Gregory M. & Harold Torrence (2004). The Syntax of Complement Clauses in Asante Twi. Ms. ULCA.
Koopman, Hilda & Dominique Sportiche (1991). The Position of Subjects. *Lingua* 85. 211–258.
Larson, Richard K. (1988). On the Double Object Construction. *Linguistic Inquiry* 19(3). 335–391.
Ledgeway, Adam (2012). *From Latin to Romance: Morphosyntactic Typology and Change*. Oxford University Press: Oxford.
Leslau, Wolf (1995). *Reference Grammar of Amharic*. Harrassowitz: Wiesbaden.
Manfredi, Victor (1993). Verb Focus in the Typology of Kwa/Kru and Haitian. In F. Byrne & D. Winford (eds). *Focus and grammatical relations in Creole languages*. Benjamins: Amsterdam. 3–51.
Manfredi, Victor (1997). Aspectual Licensing and Object Shift. In R.-M. Déchaine & V. Manfredi (eds). *Object Position in Benue-Kwa*. Holland Academic Graphics: The Hague. 87–122.
Massam, Diane (2001). Pseudo Noun Incorporation. *Natural Language and Linguistic Theory* 19(1). 153–197.
Mithun, Marianne (2003). Why Prefixes?. *Acta Linguistica Hungarica* 50(1–2). 155–185.
Myler, Neil (2009). Form, Function and Explanation at the Syntax-Morphology Interface: Agreement, Agglutination and Post-Syntactic Operations. MPhil Thesis, University of Cambridge.
Nikitina, Tatiana (2007). Nominalization and Word Order Change in Niger-Congo. Ms. Stanford University.
Nikitina, Tatiana (2009). The Function and Form of Action Nominalization in Wan. *Mandenkan* 45. 17–28.
O'Grady, William (1998). The Syntax of Idioms. *Natural Language and Linguistic Theory* 16(2). 279–312.
Panagiotidis, Phoevos (2015). *Categorial Features: A Generative Theory of Word Class Categories*. Cambridge University Press: Cambridge.
Pietraszko, Asia (2019). Obligatory CP Nominalization in Ndebele. *Syntax* 22(1). 66–111.
Punske, Jeffrey (2016). Compounding. *Language and Linguistics Compass* 10(8). 382–393.
Richards, Norvin (2016). *Contiguity Theory*. MIT Press: Cambridge, MA.
Roberts, Ian (2017*a*). The Final-over-Final Condition in DP: Universal 20 and the Nature of Demonstratives. In M. Sheehan, T. Biberauer, I. Roberts & A. Holmberg (eds). *The Final-over-Final Condition: A Syntactic Universal*. MIT Press: Cambridge, MA. 151–186.
Roberts, Ian (2017*b*). The Final-over-Final Condition in Morphology. In M. Sheehan, T. Biberauer, I. Roberts & A. Holmberg (eds). *The Final-over-Final Condition: A Syntactic Universal*. MIT Press: Cambridge, MA. 323–345.
Roeper, Thomas & Muffy E. A. Siegel (1978). A Lexical Transformation for Verbal Compounds. *Linguistic Inquiry* 9(2). 199–260.
Sande, Hannah, Nico Baier & Peter Jenks (to appear). The Syntactic Diversity of SAuxOV in the Macro-Sudan Belt. In E. Clem, P. Jenks & H. Sande (eds). *Theory and Description in African*

Linguistics: Selected papers from the 47th Annual Conference on African Linguistics. Language Science Press: Berlin. .

Sato, Yosuke (2010). Complex Phrase Structures within Morphological Words: Evidence from English and Indonesian. *Lingua* 120. 379–407.

Selkirk, Elisabeth O. (1982). *The Syntax of Words*. MIT Press: Cambridge, MA.

Sheehan, Michelle (2013*a*). Explaining the Final-over-Final Constraint: Formal and Functional Approaches. In T. Biberauer & M. Sheehan (eds). *Theoretical Approaches to Disharmonic Word Order*. Oxford University Press: Oxford. 407–444.

Sheehan, Michelle (2013*b*). Some Implications of a Copy Theory of Labelling. *Syntax* 16(4). 362–396.

Sheehan, Michelle (2017). The Final-over-Final Condition and Adverbs. In M. Sheehan, T. Biberauer, I. Roberts & A. Holmberg (eds). *The Final-Over-Final Condition: A Syntactic Universal*. MIT Press: Cambridge, MA. 97–120.

Sheehan, Michelle, Theresa Biberauer, Ian Roberts & Anders Holmberg (2017). *The Final-Over-Final Condition: A Syntactic Universal*. MIT Press: Cambridge, MA.

Sleeman, Petra (2010). The Nominalized Infinitive in French: Structure and Change. *Linguistica (Oporto)* 5. 145–173.

Spencer, Andrew (2005). Word-Formation and Syntax. In P. Štekauer & R. Lieber (eds). *Handbook of Word-Formation*. Springer: Dordrecht. 73–97.

Sulemana, Abdul-Razak (2012). *The Structure of the Determiner Phrase in Buli.* Master's thesis, University of Ghana, Legon.

Travis, Lisa (1984). *Parameters and Effects of Word Order Variation.* PhD thesis, MIT.

van Riemsdijk, Henk (1998). Head Movement and Adjacency. *Natural Language and Linguistic Theory* 16(3). 633–679.

Williams, Edwin (1981). On the Notions 'Lexically Related' and 'Head of a Word'. *Linguistic Inquiry* 12(2). 245–274.