V(P)-fronting in Asante Twi and Limbum*

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1 Introduction

V(P)-fronting is a widespread phenomenon cross-linguistically and refers to constructions in which a verbal constituent (i.e. the verbal head alone or the verb plus its strongly-selected dependents) appears in the left periphery of the clause. In many languages, this configuration is optional, often expresses verbal topicalization or focus and differs from the canonical word order of a neutral declarative sentence in which the verb appears in clause-medial or clause-final position. For some languages, it has also been argued to be obligatory, thus deriving the standard declarative verb-initial word order of these so-called V1-languages.

In this article, I will be concerned with the former type of V(P)-fronting which commonly involves syntactic movement of the verb (phrase) from its base position into the left periphery of the clause. The fronted constituent in this dependency is often called the head of the movement dependency while the following sentence is referred to as the tail. A prototypical example of V- and VP-fronting (in this case for topicalization) is given in (1a, b) from German with the respective neutral declarative sentences in (2).

(1) a. [Gelesen] hat das Buch keiner.
read.PTCP has the book no-one
'As for reading, no-one has read the book.'
b. [Das Buch gelesen] hat keiner.
the book read.PTCP has no-one
'As for reading the book, no-one has read (it).' (Müller, 1998: vii)

(2) Keiner hat das Buch gelesen.
no-one has read.PTCP the book
'No-one has read the book.'

In (2a), the verb (here as a past participle) has been moved to the sentence-initial position while in (2b) the verb and its direct object have been fronted. As in many examples of verbal fronting in the literature, in (1) there is another verbal element (namely the perfect auxiliary *hat* 'has') in the sentence that is stranded by the fronting and expresses finiteness and tense properties of the clause. In the absence of such an element, the sentence would in effect be left without a finite verb (whose position is indicated by the underlined empty space) and therefore be ungrammatical (3).

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(3) a. *Lesen __ das Buch keiner.
read.INF the book no-one
b. *Das Buch lesen __ keiner.
the book read.INF no-one

In other words, the possibility of V(P)-fronting is dependent on the presence of at least two verbs in the clause. The immediate question then is, what happens if V(P)-fronting is applied to a clause without a second verb?

2 Two gap avoidance strategies

Two strategies can be observed in the world's languages that are employed in a situation where V(P)-fronting takes place in a clause without a second verbal element to bear tense and agreement: (i) A fully inflected copy of the displaced verb appears in the tail as in Polish (4) and many other languages including Brazilian Portuguese, Buli, Dagaare, Hebrew, Krachi, Mani, Nupe (for an overview see Hein, 2018 and references cited therein), or (ii) a semantically vacuous dummy verb appears in the tail as is the case in German (5) and other languages including Dutch, Norwegian, Skou, Swedish, Wolof (for an overview see Hein, 2018 and references cited therein).

(4) *Polish verb doubling* (Bondaruk, 2012: 55)
a. **Wypić** (to) Marek **wypije** herbatę, ale nie wypije kawy.
drink.INF TO Marek will-drink tea but not will-drink coffee
'As for drinking, Marek will drink tea, but he will not drink coffee.'
b. [**Wypić** herbatę] (to) Marek **wypije**, ale nie wypije kawy.
drink.INF tea TO Marek will-drink but not will-drink coffee
'As for drinking tea, Marek will drink it, but he will not drink coffee.'

(5) *German dummy verb insertion* (Diedrichsen, 2008: 221)
a. **Waschen tut** er das Auto nie.
wash.INF does he the car never
'As for washing, he never washes the car.'
b. [Das Auto **waschen**] **tut** er nie.
the car wash.INF does he never
'As for washing the car, he never does it.'

Concerning the question whether the choice between the two strategies in a language can be related to some other, independent property of the language, there is no immediately obvious candidate for such a property.

One could contend that the interpretation of the fronted constituent might have an influence on the gap avoidance. However, this is immediately disproved when considering (4), where topicalization cooccurs with verb doubling and (5), where it occurs with dummy verb insertion. A similar minimal pair can be found for focalization. Therefore, each of the four combinations of gap avoidance strategy and information structural function is instantiated by at least one language.[1]

[1]For the classification of V(P)-fronting in a language as expressing topic or focus I have to rely here on the descriptions and sometimes even the translation of the glossed examples as given in the cited sources for the respective languages.

(6) *Cross-classification of gap avoidance strategy and information structural function*

	FOC	TOP
verb copy	Nupe (Kandybowicz, 2008), Buli (Hiraiwa, 2005a,b)	Polish (Bondaruk, 2009, 2012), Hebrew (Landau, 2006)
dummy verb	Hausa (Jaggar, 2001), Wolof (Torrence, 2013a,b)	German, Swedish (Källgren and Prince, 1989)

Equally, one could argue that dummy verb insertion occurs in order to avoid two very similar verbs occurring adjacent to each other as would be the case if an OV-language like German had verb doubling. Dummy verb insertion would thus occur in OV-languages (with the V2-property) and verb doubling to VO-languages (and OV-languages without V2). This explanation also does not hold up to closer inspection. First, V-fronting in V2-languages should always result in dummy verb insertion. As the Yiddish example (7) shows, this is not the case.

(7) **Essen est** Maks fish.
eat.INF eats Max fish
'As for eating, Max eats fish.' (Cable, 2004: 2)

Second, the Mainland Scandinavian languages, taking Norwegian as an example here (8), are VO-languages with the V2-property and nonetheless show dummy verb insertion rather than verb doubling despite the latter being unproblematic concerning the direct adjacency of almost identical verbs.

(8) [Å **lese** bøk-er] **gjør** han hele dag-en.
to read.INF book.PL-PL.INDEF does he whole day-DEF
'Reading books he does all day.' (Siri M. Gjersøe, p.c.)

Thus, there is no obvious correlation between information structural function of the fronting construction or word order in a language and the type of gap avoidance occurring in that language.

3 Gap avoidance patterns in V(P)-fronting

Generally, if a language allows the fronting of a single verb as well as the fronting of a verb and its closely selected dependents, the type of gap repair is the same for both types of fronting. Hence, in Polish, V-fronting triggers verb doubling and VP-fronting also triggers verb doubling while in German V-fronting results in dummy verb insertion and VP-fronting also results in dummy verb insertion. As shown in Hein (2018), this is also true in an additional 18 languages. Of the four logically possible combinations of fronting-type and repair-type only two, which I will call the symmetric patterns, seem to have been documented hitherto (9).

(9) *Typology of repair patterns in verbal fronting (incomplete)*

	Fronted element		
	Verb	Verb phrase	Languages
I	verb copy	verb copy	Polish, Hebrew, …
II	dummy verb	dummy verb	German, Dutch, …
III	verb copy	dummy verb	—
IV	dummy verb	verb copy	—

Pattern III and IV, the asymmetric patterns, seem to be unattested. However, only pattern IV appears to constitute a systematic typological gap as argued by Hein (2018) based on a survey of 47 V(P)-fronting languages. Pattern III is actually attested in (at least) two languages, the Niger-Congo languages Asante Twi (10) and the Grassfields language Limbum (11). In both of them fronting of a verb without dependents triggers verb doubling (10a) and (11a) while fronting of a verb and its direct object results in dummy verb insertion (10b) and (11b).

(10) a. **Sí**(-é) na Kofí á-**sí**/*á-yɔ́ dán.
build-NMLZ FOC Kofi PRF-build/PRF-do house
'Kofi has BUILT a house. (not e.g. bought one)'
b. [Dán **sí**](-é) na Kofí *á-sí/á-**y**ɔ́.
house build-NMLZ FOC Kofi PRF-build/PRF-do
'Kofi has BUILT A HOUSE. (not e.g. bought a boat)' (*Asante Twi*)

(11) a. Á r-**yū** (cí) njíŋwɛ̀ fɔ̄ bí **yū**/*gī msāŋ.
FOC 5-buy (COMP) woman DET FUT1 buy/do rice
'The woman will BUY rice.'
b. Á r-[**yū** msāŋ] (cí) njíŋwɛ̀ fɔ̄ bí *yū/**gī**.
FOC 5-buy rice (COMP) woman DET FUT1 buy/do
'The woman will BUY RICE.' (*Limbum*)

In Asante Twi, the fronted constituent receives a contrastive focus interpretation while in Limbum, the fronted constituent expresses new information focus. In both languages, the fronted constituent, be it a verb or a verb phrase, is nominalized. Overt expression of this nominalization is optional in Asante Twi but obligatory in Limbum. In fact, many African languages show this nominalization of verbal constituents when they undergo focus fronting.

The systematic absence of pattern IV can be captured by the following generalization (12).

(12) *VP-fronting generalization*
If a language shows both verb and verb phrase fronting it either exhibits the same repair strategy in both frontings (verb doubling or dummy verb insertion), or verb doubling in verb fronting and dummy verb insertion in verb phrase fronting. The reverse pattern is inexistent.

Interestingly, the observation that pattern IV is unattested fits well with another observation which will not be discussed further here due to space restrictions. Within the 47 investigated languages in Hein (2018) those that only allow either verb fronting, like Nupe (13), or verb phrase fronting, like Norwegian (14), but not both consistently show verb doubling in the former case and dummy verb insertion in the latter (see Hein, 2018 for data and discussion).

(13) *Nupe* (Kandybowicz, 2008: 79, 86)
a. **Bi-ba** Musa à *(**ba**) nakàn (*ba/*bi-ba) o.
RED-cut Musa FUT cut meat cut/RED-cut FOC
'It is CUTTING that Musa will do to the meat (as opposed to say, *cooking*.)'
b. *[(Cènkafa) **du-du** (cènkafa)] Musa à **du** (cènkafa) o.
rice RED-cook rice Musa FUT cook rice FOC
'It is COOKING RICE that Musa will do.'

(14) *Norwegian* (Siri M. Gjersøe, p.c.)
a. *Å **lese gjør** han bøk-er hele dag-en.
INF read do.PRES he book.PL-PL.INDEF whole day-DEF
'Reading he does to books all day.'

b. [Å **lese** bøk-er] **gjør** han hele dag-en.
INF read book.PL-PL.INDEF do.PRES he whole day-DEF
'Reading books he does all day.'

In the remainder of the article, I will first describe V(P)-fronting in Asante Twi and Limbum in greater detail in section 4. In section 5, I will provide an analysis of V(P)-fronting and verb doubling that derives all attested patterns to the exclusion of the unattested pattern IV. In a nutshell, verb copies are the result of head movement (HM) of V out of the low VP copy (to Asp or T) before it undergoes regular postsyntactic copy deletion (CD). If HM is assumed to be postsyntactic, too, then languages may have different orders of application of HM and CD. If HM follows CD, V cannot move out of the VP copy due to it already having been deleted. In that case a dummy verb is inserted to express finiteness of the clause. This derives both symmetric orders as the consequence of the order of application between CD and HM in the postsyntax. Languages may further differ with regard to what kind of movement they employ for V-fronting, remnant VP movement or direct $\bar{A}$-head movement of V (into SpecCP/FocP/TopP, Koopman, 1984; Landau, 2006; Vicente, 2007, 2009; Ott, 2010). In the former case, the result is still directly dependent on the order of operations CD and HM. In the latter case, however, a special property of $\bar{A}$-head movement protects its lowest copies from being deleted thereby neutralizing the difference between the two orders of application in favour of HM being possible even if CD has applied prior to it. Section 6 discusses some evidence for the non-deletability of low copies of $\bar{A}$-head movement. Section 7 concludes the paper.

4 V(P)-fronting in Asante Twi and Limbum

4.1 Asante Twi

Asante Twi, a dialect of Akan, is a Kwa language (Niger-Congo) spoken by about nine million people in Ghana, centered around the city of Kumasi. It has a two-way tone distinction with high tones marked with an acute and low tones left unmarked. Its basic word order is SVO (15).[2]

(15) Kofí á-si dán.
Kofi PRF-build house
'Kofi has built a house.'

As we have seen in (10) above, verb fronting in Asante Twi leads to verb doubling (10a) while verb phrase fronting results in dummy verb insertion (10b). The respective alternative repair in each case renders the sentence ungrammatical.

The preposed constituent can optionally be marked with an overt nominalizing suffix *-é*. While this is generally true for both verb and verb phrase fronting, my informant stresses that there is a strong preference to omit the overt nominalizer, in verb fronting even more than in verb phrase fronting. In VP-fronting, there is additionally a word order switch from the regular VO to OV. I take this to be an effect of nominalization (see discussion on page 10). Since this switch is independent of the presence of *-é* but obligatory in a fronted VP it indicates that this VP (and, as I assume, a fronted V as well) is obligatorily nominalized. The focus marker *na* is the same that appears in standard nominal focus constructions (16a, b) and *ex-situ* wh-questions (17a, b). Hence, as expected, verbal fronting, too, has a (contrastive) focus interpretation.

[2] Unless otherwise noted, all data in this section were elicited from my informant Sampson Korsah. Any occurring errors are mine.

(16) a. Kofí na ɔ-bóá-a Afíá.
Kofi FOC 3SG-help-PST Afia
'It is Kofi who helped Afia.'
(Marfo, 2005: 9)

b. Dán na Kofí á-sí.
house FOC Kofi PRF-build
'It is a house that Kofi has built.'

(17) a. Hwáń na Baá ré-séré nó.
who FOC Baa PROG-laugh 3SG
'Who is Baa laughing at?'
(Marfo, 2005: 81)

b. Déɛ́n na Ámˈmá pɛ́.
what FOC Ama like
'What does Ama like?'
(Korsah and Murphy, 2016: 228)

Although it might seem reasonable to regard V(P)-fronting as regular nominal focus applied to an independently available structure containing a nominalized V(P), there are arguments against this view. First, a nominalized V(P) embedded under a verb or *yɔ* is ungrammatical (18).

(18) *Kofí á-yɔ/á-si dán sí(-é).
Kofi PFV-do/PFV-build house build-NMLZ

Second, as Korsah and Murphy (2016) show, nominal fronting always requires a resumptive pronoun to be left in the base position (19). The presence of this pronoun can be obscured because under certain conditions, i.e. for inanimates, it can be deleted making it look like a gap. Nonetheless, the fact that there is indeed a resumptive pronoun present in regular nominal fronting is attested to by the island-insensitivity of the dependency (Saah and Goodluck, 1995) which is a well-known effect of resumptive pronouns (Borer, 1984). If V(P)-fronting were in fact fronting of a previously nominalized V(P), we would expect it to require resumption akin to fronting of regular nominal arguments. However, verb doubling and *do*-support in Asante Twi cannot be conceived of as resumption (i.e. "verbal resumption") because one would expect them, akin to proper nominal resumption, to render the dependency insensitive to islands, contrary to fact (see examples (23), (24), and (25) below). V(P)-fronting therefore cannot be regular nominal fronting of a nominalized V(P). Rather, nominalization must be a direct consequence of the fronting of a verbal constituent.

In the remainder of this section, I will investigate the syntactic properties of verb and verb phrase fronting. Besides having the same information structural interpretation, both constructions behave alike with respect to $\bar{A}$-diagnostics, negation, and possible additional material in the fronted constituent. Further, there is evidence for $\bar{A}$-head movement in verb fronting and for the fronted constituent being of category V rather than *v*. In addition, I present an argument against an approach that derives verb phrase fronting from cognate object constructions or an underlying *yɔ*-periphrase.

First, verbal focalization in Asante Twi is not verbal relativization. As shown above, the focus marker *na* also occurs with regular noun focus and wh-extraction. Proper relative clauses, however, are marked with the relative marker *áa* as exemplified in (19).

(19) [$_{DP}$ Kŕataá nó [$_{CP}$ áa Kofi hú-u-ɛ́ nó]] da [$_{PP}$ pónó nó só.]
paper DEF REL K. see-PST-YE CD lie table DEF on
'The paper that Kofi saw is on the table.' (Korsah and Murphy, 2016: 9)

Further note that verb phrase fronting with definite objects (20a) is considerably degraded compared to verb phrase fronting with indefinites (20b).[3]

[3] At first glance, this might be taken as an indication that the object in verb phrase fronting constructions incorporates into the verb which is subsequently nominalized and displaced into the left periphery. However, the fronted object may be overtly marked for plural (i), which is untypical for incorporated nouns.

(i) [A-dán sí](-é) na Kofí á-yɔ́.
PL-house build-NMLZ FOC Kofi PFV-do

(20) a. ??[Dán nó **sí**](-é) na Kofí á-**y**ɔ́.
house DEF build-NMLZ FOC Kofi PRF-do
'Kofi has BUILT THE HOUSE (not, say, bought the car).'
b. [Dán **sí**](-é) na Kofí á-**y**ɔ́.
house build-NMLZ FOC Kofi PRF-do
'Kofi has BUILT A HOUSE (not, say, bought a car).'

It is also not possible to have a copy of the object appear alongside the sentence-internal verb in verb phrase fronting (21).

(21) *[Nam di](-e) na Ama a-yɔ/a-di nam.
fish eat-NMLZ FOC Ama PFV-do/PFV-eat fish

With regard to the question whether verbal fronting involves Ā-movement there are several arguments in favour of this. First, the dependency can cross finite clause boundaries (22) and is sensitive to islands such as inter alia Complex NP islands (23), Adjunct islands (24) and the Coordinate Structure Constraint (25) (see Hein, 2018 for examples of other islands).[4]

(22) a. **Sí**(-é) na Ama ká-a [sɛ́ Kofí á-**si** dán].
build-NMLZ FOC Ama say-PST COMP Kofi PRF-build house
'Ama said that Kofi has BUILT a house.'
b. [Dán **sí**](-é) na Ama ká-a [sɛ́ Kofí á-**y**ɔ́].
house build-NMLZ FOC Ama say.PST COMP Kofi PRF-do
'Ama said that Kofi has BUILT A HOUSE.'

(23) a. *__Sí__(-é) na mé-ń-té-e [atétɛ́sɛm bíárá sɛ Kofí á-**si** dán].
build-NMLZ FOC 1SG-NEG-hear-PST rumour.PL any COMP Kofi PRF-build house
'I didn't hear any rumours that Kofi has BUILT a house.'
b. *?[Dán **sí**](-é) na mé-ń-té-e [atétɛ́sɛm bíárá sɛ́ Kofí á-**y**ɔ́].
house build-NMLZ FOC 1SG-NEG-hear-PST rumour.PL any COMP Kofi PRF-do
'I didn't hear any rumours that Kofi has BUILT A HOUSE.'

(24) a. *__sí__(-é) na Kofí nóm nsúó [ésánsɛ́ ɔ-a-**sí** dán].
build-NMLZ FOC Kofi drink water because 3.SG-PRF-build house
'Kofi drinks water because he has BUILT a house.'
b. *?[dán **sí**](-é) na Kofí nóm nsúó [ésánsɛ́ ɔ́-á-**y**ɔ́]
house build-NMLZ FOC Kofi drink water because 3.SG-PRF-do
'Kofi drinks water because he has BUILT A HOUSE.'

(25) a. *__Nóm__ na Kofí á-di bayérɛ́ ne á-**nóm** nsúó.
drink FOC Kofi PFV-eat yam and PFV-drink water

'Kofi has BUILT HOUSES. (not e.g. bought cars)'

Furthermore, if the structure were indeed derived by noun incorporation, this would require massive look-ahead, because it would have to only be possible in case the incorporation structure is moved to the left periphery at a very late stage of the derivation. As (ii) attests, noun incorporation and the connected word order change is not possible if the object-verb complex stays *in-situ*.

(ii) *Kofí dán-si.
Kofi house-build

I conclude that the impossibility of definite marking must be caused by something else.

[4] This contradicts Saah and Goodluck (1995), who show that Asante Twi does not exhibit island effects in question formation, relativization, and topicalization. However they only tested cases of Ā-movement from argument positions the island insensitivity of which is, as Korsah and Murphy (2016) argue, due to Asante Twi having obligatory resumption with DP-movement, where resumption can obviate island effects (Borer, 1984).

'Kofi has eaten a yam and DRUNK water.'

b. *[Nsúó **nóm**](-é) na Kofí á-di bayéɛ́ ne á-**y**ɔ́.
water drink-NMLZ FOC Kofi PFV-eat yam and PFV-do
'Kofi has eaten yam and DRUNK WATER.'

Second, there are a number of TAM constructions and some morphosyntactic processes in Asante Twi that lead to tonal changes on the verb (Boadi, 2008; Paster, 2010). Among these changes is a process of low tone raising on verbs with underlying L tones. It is triggered in certain syntactic environments, all of which typically involve Ā-movement, like *ex situ* wh-questions (26b) and nominal focus fronting (27b). It raises all L tones on the verb and attached aspectual (but not tense) affixes. The following examples illustrate this for the verbs *pɛ* 'like' (26a) and *boá* 'help' (27a) which contain at least one L tone (unmarked).

(26) a. Ámꜜmá **p**ɛ bayéɛ́.
Ama like yam
'Ama likes yam.'

b. Déɛ́n na Ámꜜmá **p**ɛ?
what FOC Ama like
'What does Ama like?'
(Korsah and Murphy, 2016: 228)

(27) a. Kofí **boá**-a Afíá.
Kofi help-PST Afia
'Kofi helped Afia.'

b. Kofí na ɔ-**bóá**-a Afíá.
Kofi FOC 3SG-help-PST Afia
'It is Kofi who helped Afia.'
(Marfo, 2005: 9)

Korsah and Murphy (2016) argue that L tone raising is not a specific property of the *na*-construction (pace Marfo, 2005; Marfo and Bodomo, 2005), as one might suspect from (26) and (27), because it is also attested in relative clauses (28b) and affects every verb in a long-distance dependency, where only one instance of *na* is present (29b) (with (29a) as baseline).

(28) a. Kofí **waré**-e ɔbáá nó.
Kofi marry-PST woman DEF
'Kofi married the woman.'

b. [$_{DP}$ ɔbáá$_i$ [$_{CP}$ áa ɔ$_i$-**wáré**-e Kofí nó]] fi Aburí.
woman REL 3SG-marry-PST Kofi CD be.from Aburi
'The woman who married Kofi is from Aburi.' (Saah, 2010: 92)

(29) a. [$_{CP}$ Kofí **nim** [$_{CP}$ sɛ́ Ési á-**ka** [$_{CP}$ sɛ́ Ámꜜmá **p**ɛ bayéɛ́]]].
Kofi know COMP Esi PRF-say COMP Ama like yam
'Kofi knows that Esi has said that Ama likes yam.'

b. [$_{CP}$ Déɛ́n na Kofí **ním** [$_{CP}$ sɛ Esi á-**ká** [$_{CP}$ sɛ Ámꜜmá **p**ɛ́?]]].
what FOC Kofi know COMP Esi PRF-say COMP Ama like
'What does Kofi know that Esi has said that Ama likes.'
(Korsah and Murphy, 2016: 232)

Since tonal changes as reflexes of movement are well-attested cross-linguistically (Lahne, 2008; Georgi, 2014) and they are associated with verbs (i.e. *v*) in Asante Twi, thus corresponding to what is standardly assumed to be a phase head (Chomsky, 2000, 2001), Korsah and Murphy (2016) analyse low tone raising on verbs in Asante Twi as a reflex of successive-cyclic Ā-movement through Spec*v*P. Crucially, this tonal change also occurs on the lower verb copy or *y*ɔ in the predicate cleft constructions under discussion here (30).

(30) a. **P**ɛ na Ama **p**ɛ́ bayéɛ́.
like FOC Ama like yam
'Ama LIKES yam.'

b. [Bayéɛ́ **p**ɛ](-é) na Ama **y**ɔ́.
yam like-NMLZ FOC Ama do
'It is liking yam that Ama does.'

If Korsah and Murphy's analysis is on the right track, this means that these constructions involve an Ā-dependency, too. In conclusion, this means that verb and verb phrase fronting in Asante Twi cannot be a case of base-generation.

Fourth, verbal fronting shows reconstruction effects for Principle C (31), which are usually associated with Ā-dependencies.

(31) *[Kofí$_i$ ḿfónírí **hú**](-é) na ɔ$_i$-á-**y**ɔ́ t$_{VP}$.
Kofi picture see-NMLZ FOC 3SG-PRF-do
'He has SEEN A PICTURE OF KOFI.'

Reconstruction for Principle A could not be tested due to the ban on definite objects in fronted VP. As an anaphor is necessarily definite, fronting is always illicit independent of the coindexation pattern (32a). Fronting the object anaphor on its own shows reconstruction (32b).

(32) a. ??[Ne-hó$_i$ **pírá**](-é) na ɔ$_i$-á-**y**ɔ́.
3SG-REFL hurt-NMLZ FOC 3SG-PRF-do
'He$_i$ has HURT HIMSELF$_i$.'
b. Ne-hó$_i$ na ɔ$_i$-á-pírá.
3SG-REFL FOC 3SG-PFV-hurt
'Himself, Kofi has hurt.'

In conclusion, the three arguments presented above all corroborate treating verbal fronting in Asante Twi as an Ā-dependency rather than a base-generated structure.

Let us then turn to the size/category of the fronted constituent. The verb inside it can neither be marked with negation (33a, c) nor with aspectual affixes (33b, d).

(33) a. *N-**sí**(-é) na Kofí á-(n-)**sí** dán.
NEG-build(-NMLZ) FOC Kofi PRF-NEG-build house
'Kofi has NOT BUILT a house.'
b. *Á-**sí**(-é) na Kofí á-**si** dán.
PRF-build-NMLZ FOC Kofi PRF-build house
'Kofi has BUILT a house.'
c. *[Dán n-**sí**](-é) na Kofí á-(n-)**y**ɔ́.
house NEG-build-NMLZ FOC Kofi PRF-NEG-do
'Kofi has NOT BUILT A HOUSE.'
d. *[Dán á-**sí**](-é) na Kofí á-(n-)**y**ɔ́.
house PFV-build-NMLZ FOC Kofi PRF-do
'Kofi has NOT BUILT A HOUSE.'

Taking the phrase structure proposed by Kandybowicz (2015) for Asante Twi as a basis, where aspect is located between *v* and V, this implies that the fronted constituent is a V(P) rather than a *v*(P).

Concerning the phrasal status of the sentence-initial constituent in verb fronting, there are two possibilities: (i) The verb is the head of a remnant verb phrase or (ii) it is a bare head. In order for the first option to hold, it is necessary to show that Asante Twi comprises of an independent VP-evacuating object movement. The simplest evidence for such a movement would be the possibility to have the object appear either pre-verbally (34b) (or before the indirect object in ditransitive constructions (34d)) or after low VP-adverbs like *ntɛm* 'quickly' (35b) which linearize verb phrase finally. As is evident from the examples below, neither option is grammatical.

(34) a. Kofí á-si dán.
Kofi PRF-build house
'Kofi has built a house.'

b. *Kofí dán á-si.
Kofi house PRF-build
'Kofi has built a house.'

c. Kofí ma-a mmɔfŕá nó kŕataá.
Kofi give-PST children DET book
'Kofi gave the children a book.'

d. *Kofí ma-a kŕataá mmɔfŕá nó.
Kofi give-PST book children DET
'Kofi gave a book to the children.'

(35) a. Kofí á-si dán ntɛm.
Kofi PFV-build house quickly
'Kofi has quickly built a house.'

b. *Kofí á-si ntɛm dán.
Kofi PFV-build quickly house
'Kofi has quickly built a house.'

Nonetheless, there is an environment in which the direct object appears before the verb, namely when the verb is embedded under a restructuring verb like *kyiri* 'hate', *gyae* 'stop', or *pɛ* 'like' (36a). These verbs require their complements to exhibit OV order rather than the standard VO order which is ungrammatical in this context (36b) (this has also been noted by Kobele and Torrence, 2004).

(36) a. Ghánàní bíárá pɛ̀ [ǹsúó nóḿ].
Ghanaian every like water drink
'Every Ghanaian likes to drink water.'

b. *Ghánàní bíárá pɛ̀ [nóḿ ǹsúó].
Ghanaian every like drink water

Curiously, this 'object shift' looks very similar to the order reversal that we have seen in verb phrase fronting, where the fronted constituent also shows OV instead of VO order. This suggests that they are both plausibly derived by the same syntactic mechanism.

As I suggested in Hein (2018), this mechanism could be a Last Resort flexible linearization to avoid a violation of the Final-over-Final Condition (Biberauer et al., 2008) in nominalized verb phrases. Nominalization is achieved by late attachment of a dissociated nominalizing head *n* Embick and Noyer (2001). Since the verb phrase is head-initial but the nominalizer is a suffix the resulting structure [$_{nP}$ [$_{VP}$ V Obj] *n*] violates the FOFC.[5] Thus, the word order of the verb phrase is reversed so as to avoid this violation. If both OV constructions indeed share a common analysis, (36) cannot be evidence for VP-evacuating movement of the object since the object clearly has not moved out of the VP in examples of verb phrase fronting.

Consequently, verb fronting in Asante Twi cannot be remnant verb phrase fronting but must in fact be a case of $\overline{\text{A}}$-head movement (Koopman, 1984; Landau, 2006; Vicente, 2007, 2009; Ott, 2010).

A further restriction is observed for verb phrase fronting. It is not possible to front a ditransitive verb phrase, neither full (37a) nor partially (37b, c).

(37) a. *[Mmɔfŕá sika **má**](-é) na Kofí á-**má**/á-**y**ɔ́.
children money give-NMLZ FOC Kofi PRF-give/PRF-do
'Kofi has GIVEN MONEY TO CHILDREN.'

b. *[Mmɔfŕá **má**](-é) na Kofí á-**má**/á-**y**ɔ́ sika.
children give-NMLZ FOC Kofi PRF-give/PRF-do money
'Kofi has GIVEN CHILDREN money.'

c. ??[Sika **má**](-é) na Kofí á-**má**/*á-**y**ɔ́ mmɔfŕá.
money give-NMLZ FOC Kofi PRF-give/PRF-do children
'Kofi has GIVEN MONEY to children.'

Additionally, while verb fronting stranding a PP-adverb like *wɔ Accra* 'in Accra' is perfectly grammatical (38b), verb phrase fronting stranding the PP is slightly degraded (38c). Any attempts

[5] In fact, this word order switch in nominalized VPs can be observed in a number of VO languages, which, crucially, all have a suffixal/enclitic nominalizer. VO languages with a prefixal/proclitic nominalizer may optionally exhibit the switch while OV languages never reverse the VP-internal word order under nominalization. The overall generlization is that no language retains VO word order inside a nominalized VP is the nominalizer is suffixal/enclitic. For further details see Hein and Murphy (2018).

to front the PP-adverb together with either the verb (38d) or the verb phrase (38e) result in ungrammaticality.

(38) a. Kofí á-si dán wɔ Accra.
Kofi PRF-build house at Accra
'Kofi has built a house in Accra'

b. **Sí** na Kofí á-**sí** dán wɔ Accra.
build FOC Kofi PRF-build house at Accra
'Kofi has BUILT a house in Accra.'

c. ?[Dán **sí**](-é) na Kofí á-**y**ɔ́ wɔ Accra.
house build-NMLZ FOC Kofi PRF-do at Accra
'Kofi has BUILT A HOUSE in Accra.'

d. *[(Wɔ Accra) **sí**(-é) (wɔ Accra)] na Kofí á-**sí**/á-**y**ɔ́ dán.
at Accra build-NMLZ in Accra FOC Kofi PRF-build/PRF-do house
'Kofi has BUILT a house IN ACCRA.'

e. *[(Wɔ Accra) dán **sí**(-é) (wɔ Accra)] na Kofí á-**y**ɔ́.
in Accra house build-NMLZ in Accra FOC Kofi PRF-do
'Kofi has BUILT A HOUSE IN ACCRA.'

The ungrammaticality of fronted adverbs is part of a larger pattern. In general, Asante Twi does not seem to allow the fronted constituent to be accompanied by any type of adverb, neither in verb nor in verb phrase fronting. Thus, the examples of verb fronting with a low adverb *ntɛm* 'quickly' (39a) and a high adverb *ampá* 'truly' (39b) are equally ungrammatical as their verb phrase fronting counterparts (40a, b).

(39) a. *[**Sí** ntɛm](-e) na Kofí á-**sí** dán
build quickly(-NMLZ) FOC Kofi PRF-build house
'Kofi has QUICKLY BUILT a house.' / 'It is quickly building that Kofi does to a house.'

b. *[**Sí** ampá](-e) na Kofí á-**sí** dán.
build truly(-NMLZ) FOC Kofi PRF-build house
'Kofi has TRULY BUILT a house.' / 'It is truly building that Kofi does to a house.'

(40) a. *[Dán **sí** ntɛm](-e) na Kofí á-**y**ɔ́.
house build quickly(-NMLZ) FOC Kofi PRF-do
'Kofi has QUICKLY BUILT A HOUSE.' / 'It is building a house quickly that Kofi has done.'

b. *[Dán **sí** ampá](-e) na Kofí á-**y**ɔ́.
house build truly(-NMLZ) FOC Kofi PRF-do
'Kofi has TRULY BUILT A HOUSE.' / 'It is truly building a house that Kofi has done.'

Before we can accept the Asante Twi pattern as a real asymmteric repair pattern for verbal fronting, we need to test if the dummy verb *yɔ* and the verb copy are indeed repairs and not just elements that can be found independently in other constructions. Two structures come to mind that cross-linguistically show independent verb copies and dummy verbs, respectively and might therefore serve as the basis for verbal fronting: The first are cognate object constructions and the second are so-called *do*-periphrases.

Cognate objects are rare in Asante Twi. In fact, my informant could only think of one example involving the verb *sa* 'dance' (41a). A similar construction with a cognate object of the verb *si* 'build' and the actual direct object *dán* 'house' in the same clause is ungrammatical (41b).

(41) a. Kofí sa a-sa.
Kofi dance NMLZ-dance
'Kofi dances (a dance).'

b. *Kofí si a-si dán.
Kofi build NMLZ-building house

The cognate object construction is thus not productive enough to serve as the basis from which verb fronting is derived by moving the cognate object into the left periphery (and slightly modifying its morphological form.) The verb copy that appears in the canonical verb position in verb fronting is therefore most probably the result of a genuine repair operation.

With regard to verb phrase fronting, the approach that suggests deriving it from a periphrase by moving a nominalized verb phrase complement of the dummy verb *yɔ* into the left periphery is doomed to fail. Example (42) attests to the fact that the putative base construction is ungrammatical.

(42) a. *Kofí á-yɔ dán sí(-é).
Kofi PFV-do house build-NMLZ

b. *Kofí dán sí(-é) á-yɔ.
Kofi house build-NMLZ PFV-do

A related *do*-support-like construction can be observed with *in situ* wh-questions where the questioned element is a verb phrase. The placeholder verb in this case is *yɛ́* 'do' (43a). Even if *yɛ́* could somehow turn into *yɔ*, this construction may not serve as the independent basis for verb phrase fronting either due to it being ungrammatical with a full nominalized verb phrase in place of the wh-word *déɛ́n* 'what' (43b).

(43) a. Kofí re-yɛ́ déɛ́n?
Kofi PROG-do what
'What is Kofi doing?'

b. *Kofí re-yɛ́ dán sí(-é).
Kofi PROG-do house build-NMLZ

We can therefore safely conclude that insertion of the dummy verb in verb phrase fronting constructions is a proper repair operation. Consequently, verbal fronting constructions in Asante Twi display a repair pattern that has hitherto been undescribed and has remained uninvestigated in the literature. It demonstrates that symmetric repair patterns, though quite frequent, are not the only possible repair patterns in verbal fronting.

4.2 Limbum

Limbum, a Grassfields languages of the Niger-Congo family, is spoken by an estimate of 73 000–90 000 people (Fransen, 1995: 21) (130 000 according to Ethnologue based on a census from 2005) predominantly in the Northwestern region of Cameroon. It is the native language of the Wimbum people and shows a three-way tone contrast between low (à), mid (ā), and high (á) tones. The basic word order is SVO, exemplified in (44).[6]

(44) Ŋwɛ̀ fɔ̄ àm tí ŋgū.
man DET PST3 cut wood
'The man cut the wood.' (Becker and Nformi, 2016: 58)

Like Asante Twi, Limbum shows both verb and verb phrase fronting but does not display the same repair in both of them. Rather, verb fronting triggers verb doubling (11a) whereas verb phrase fronting leads to the insertion of a dummy verb *gī* meaning 'do' (11b).

In contrast to Asante Twi, the fronted constituent has to obligatorily be nominalized, seemingly exceptionlessly by being marked with the nominal class marker of noun class five. The focus marker *á* is the same that appears in regular nominal focus constructions, like subject (45a) and object (45b) focus, as well as *ex situ* wh-questions (46a, b). Becker and Nformi (2016) argue that this construction conveys new information focus.

[6] Unless otherwise noted, all data in this section were elicited from my informant Jude Nformi. Any occurring errors are mine.

(45) a. Á Nfòr (cí) í bā zhē bāā̀. (46) a. Á ndá (cí) í bā zhē bāā.
FOC Nfor COMP 3SG PST1 eat fufu FOC who COMP 3SG PST1 eat fufu
'NFOR ate fufu.' 'Who is it that ate fufu?'

b. Á Ngàlá (cí) mɛ̀ bí kɔ̄nī. b. Á kɛ́ɛ́ wɛ̀ bā yɛ́.
FOC Ngala COMP I FUT1 meet FOC what you.SG PST1 see
'I will meet NGALA.' 'What is it that you saw?'

(Becker and Nformi, 2016: 60, 72)

In the following, I will investigate the syntactic properties of the *á*-focus constructions in more detail, demonstrating that verb and verb phrase fronting behave in the same fashion with regard to $\overline{\text{A}}$-diagnostics, negation, and possible additional material in the fronted constituent. Furthermore, it will be argued that verb fronting involves $\overline{\text{A}}$-head movement rather than remnant movement and that the category of the fronted constituent is plausibly V rather than *v*. Finally, I provide evidence that a purported independent construction displaying dummy verb insertion cannot be the basis for deriving verb phrase fronting. Equally, verb doubling in verb fronting is shown not to be derivable from an independent cognate object construction or verb doubling construction.

First, verbal focalization in Limbum is not verbal relativization. The focus marker *á*, as shown in (45) and (46), also occurs with regular noun focus and wh-extraction. Also, with proper relativization, a relative marker *zhɨ́* is present while *á* is absent (47).

(47) Mɛ̀ rɨ̀ŋ njíŋwɛ̀ [zhɨ́ í cɨ́ yɛ̄ ŋgwē fɔ̄].
1SG know woman REL.P 3SG PROG see dog DEF
'I know the woman who is seeing the dog.'

Further note that, just like Asante Twi, Limbum does not tolerate verb phrase fronting with a definite object. Thus, example (48a) where *njíŋwɛ̀* 'woman' is followed by the definite determiner *fɔ̄* is judged ungrammatical while (48b) without the determiner is fine.

(48) a. *Á r-[**klɔnì** njíŋwɛ̀ fɔ̄] (cí) mɛ̀ bí **gī**.
FOC 5-meet woman DET COMP 1SG FUT1 do
'I will MEET THE WOMAN.'

b. Á r-[**klɔnì** njíŋwɛ̀] (cí) mɛ̀ bí **gī**.
FOC 5-meet woman COMP 1SG FUT1 do
'I will MEET A WOMAN.'

This behaviour is expected given that definite DPs are usually discourse-old (or unique) and should therefore not occur in a position associated with new information.

Further, the *á*-focus fronting is not a root phenomenon. Nominal elements (49a) and wh-elements (49b) as well as verbs (49c) and verb phrases (49d) may occur in the focus position in an embedded clause. In the latter two cases we find the regular repair of verb doubling and dummy verb insertion respectively.

(49) a. Mɛ̀ kwàshī [mɛ̀-nɛ á ndāp (cí) Nfor bí bō].
1SG think 1SG-COMP FOC house COMP Nfor FUT1 build
'I think that Nfor will build A HOUSE.'

b. Shey à mū bípshī [í-nɛ á kɛ́ɛ́ (cí) Nfor bí zhē lɛ̄].
Shey 3SG PST2 ask 3SG-COMP FOC what COMP Nfor FUT1 eat Q
'Shey asked WHAT Nfor will eat.'

c. Mɛ̀ kwàshī [mɛ̀-nɛ á r-**bō** (cí) Nfor bí **bō** ndāp].
1SG think 1SG-COMP FOC 5-build COMP Nfor FUT1 build house
'I think that Nfor will BUILD a house.'

d. Mɛ̀ kwàshī [mɛ̀-nɛ á r-[**bō** ndāp] (cí) Nfor bí **gī**].
1SG think 1SG-COMP FOC 5-build house COMP Nfor FUT1 do

'I think that Nfor will BUILD A HOUSE.'

Turning to the evidence in favour of verbal fronting involving Ā-movement we first find that it may cross finite clause boundaries as shown in (50b, c).

(50) a. Mɛ̀ kwàshī mɛ̀-nɛ Nfor bí bō ndāp.
1SG think 1SG-COMP Nfor FUT1 build house
'I think that Nfor will build a house.'
b. Á r-**bò** (cí) mɛ̀ kwàshī [mɛ̀-nɛ Nfor bí **bō** ndāp].
FOC 5-build COMP 1SG think 1SG-COMP Nfor FUT1 build house
'I think that Nfor will BUILD a house.'
c. Á r-[**bò** ndāp] (cí) mɛ̀ kwàshī [mɛ̀-nɛ Nfor bí **gī**].
FOC 5-build house COMP 1SG think 1SG-COMP Nfor FUT1 do
'I think that Nfor will BUILD A HOUSE.'

Further, it is impossible to front a verb or verb phrase from inside a Complex NP island (51b, c), an Adjunct island (52b, c), or from a coordinate structure (53) (see Hein, 2018 for examples of other islands).

(51) a. Mɛ̀ mū yōʔ [nsūŋ zǐ-nɛ Nfor bí bō ndāp].
1SG PST2 hear news 3SG-COMP Nfor FUT1 build house
'I heard a rumour that Nfor will build a house.'
b. *Á r-**bò** (cí) mɛ̀ mū yōʔ [nsūŋ zǐ-nɛ Nfor bí **bō** ndāp].
FOC 5-build COMP 1SG PST2 hear news 3SG-COMP Nfor FUT1 build house
'I heard a rumour that Nfor will BUILD a house.'
c. *Á r-[**bò** ndāp] (cí) mɛ̀ mū yōʔ [nsūŋ zǐ-nɛ Nfor bí **gī**].
FOC 5-build house COMP 1SG PST2 hear news 3SG-COMP Nfor FUT1 do
'I heard a rumour that Nfor will BUILD A HOUSE.'

(52) a. Nfor à mū vū̄ ŋkàʔ kàʔ [àndzhɔ̄ʔ í mū sī bō ndāp]
Nfor 3SG PST2 come party not because he PST2 PROG build house
'Nfor didn't come to the party because he was building a house.'
b. *á r-**bò** (cí) Nfor à mū vū̄ ŋkàʔ kàʔ [àndzhɔ̄ʔ í mū sī **bō** ndāp]
FOC 5-build COMP Nfor 3SG PST2 come party not because he PST2 PROG build house
'Nfor didn't come to the party because he was BUILDING a house.'
c. *á r-[**bò** ndāp] (cí) Nfor à mū vū̄ ŋkàʔ kàʔ [àndzhɔ̄ʔ í mū sī **gī**]
FOC 5-build house COMP Nfor 3SG PST2 come party not because he PST2 PROG do
'Nfor didn't come to the party because he was BUILDING A HOUSE.'

(53) a. Nfor bí [bō ndāp kìr yū ntùmntùm].
Nfor FUT1 build house and buy motorbike
'Nfor will build a house and buy a motorbike.'
b. *Á r-**yù** (cí) Nfor bí [bō ndāp kìr **yū** ntùmntùm].
FOC 5-buy COMP Nfor FUT1 build house and buy motorbike
'Nfor will build a house and BUY a motorbike.'
c. *Á r-[**yù** ntùmntùm] (cí) Nfor bí [bō ndāp kìr **gī**].
FOC 5-buy motorbike COMP Nfor FUT1 build house and do
'Nfor will build a house and BUY A MOTORBIKE.'

The view of verbal fronting as Ā-movement is further supported by the fact that there is reconstruction for Principle A. When the fronted verb phrase contains the anaphor *zhɨ tu* '3SG.POSS head' as in (54b), it is still coreferent with the subject of the clause *Nfor* like it is in the neutral declarative version in (54a) despite being outside the latter's c-command domain on the surface.

(54) a. Nfor$_i$ à mū jàasi zhɨ$_i$ tu.
Nfor 3SG PST2 criticize 3SG.POSS head
'Nfor criticized himself.'
b. Á r-[**jàasi** zhɨ$_i$ tu] (cí) Nfor$_i$ à mū **gī**.
FOC 5-criticize 3SG.POSS head COMP Nfor 3SG PST2 do
'Nfor CRITICIZED HIMSELF.'

Let us now turn to the category of the fronted constituent. As demonstrated below, neither negation (55) nor any tense (56) or aspect markers (57) may cooccur with the fronted verb (phrase).

(55) a. *Á r-[**bò** kàʔ] (cí) Nfor bí **bō** ndāp (kàʔ).
FOC 5-build NEG COMP Nfor FUT1 build house NEG
b. *Á r-[**bò** ndāp kàʔ] (cí) Nfor bí **gī** (kàʔ).
FOC 5-build house NEG COMP Nfor FUT1 do NEG

(56) a. *Á r-[bí **bò**] (cí) Nfor (bí) **bō** ndāp.
FOC 5-FUT1 build COMP Nfor FUT1 build house
b. *Á r-[bí **bò** ndāp] (cí) Nfor (bí) **gī**.
FOC 5-FUT1 build house COMP Nfor FUT1 do

(57) a. *Á r-[ce **bò**] (cí) Nfor (ce) **bō** ndāp.
FOC 5-PROG build COMP Nfor PROG build house
b. *Á r-[ce **bò** ndāp] (cí) Nfor (ce) **gī**.
FOC 5-PROG build house COMP Nfor PROG do

Assuming, in contrast to what Kandybowicz (2015) argued for in Asante Twi, that tense and aspectual markers are located in T and *v* respectively this means that the fronted constituent cannot be of these categories. Rather, it must belong to a category that is lower in the phrase structure than both T and *v*. The fronted constituent in verbal fronting in Limbum is hence of the category V.

Given this, it is clear that the fronted constituent in verb phrase fronting is a VP. However, for verb fronting there are two possible analyses of the fronted verb: (i) It may either be the head of a remnant VP or (ii) it is a bare V head. Option (i) presupposes the availability of a productive VP-evacuating movement like scrambling or object shift. As evidenced by (58), however, it is not possible to scramble the direct object across the indirect object in a ditransitive constructions. The order where the direct object precedes the indirect object is, like in English, only licit when the indirect object is a PP (59a). However, in this DP-PP-construction, changing the order of both objects results in ungrammaticality again (59b).

(58) a. Nfor à mū fā Shey bzhī.
Nfor 3SG PST2 give Shey food
'Nfor gave Shey some food.'
b. *Nfor à mū fā bzhī Shey.
Nfor 3SG PST2 give food Shey
'Nfor gave Shey some food.'

(59) a. Nfor à mū fā bzhī nì Shey.
Nfor 3SG PST2 give food PREP Shey
'Nfor gave some food to Shey.'
b. *Nfor à mū fā nì Shey bzhī.
Nfor 3SG PST2 give PREP Shey food
'Nfor gave some food to Shey.'

A productive VP-evacuating is thus not available in Limbum. Therefore, verb fronting cannot be movement of a remnant VP. Rather, it must be the case that the fronted verb is a bare head with verb fronting being an instance of $\overline{\text{A}}$-head movement as in Asante Twi.

In contrast to Asante Twi, verb phrase fronting is available for ditransitives like *fā* 'give'. A regular declarative sentence containing *fā* is given in (60a). Example (60b) is an instance of verb phrase fronting resulting, as expected, in insertion of the dummy *gī*.

(60) a. Nfor à mū fā Shey bzhī.
Nfor 3SG PST2 give Shey food
'Nfor gave Shey some food.'
b. Á r-[**fá** Shey bzhī] (cí) Nfor à mū **gī**.
FOC 5-give Shey food COMP Nfor 3SG PST2 do
'Nfor GAVE SHEY SOME FOOD.'

Partial verb phrase fronting, that is, the fronting of the verb and only one of its two objects, however, is as in Asante Twi not licit in Limbum either as shown in (61a) for the direct object and in (61b) for the indirect object.

(61) a. *Á r-[**fá** bzhī] (cí) Nfor à **fā/gī** Shey.
FOC 5-give food COMP Nfor PST2 give/do Shey
'Nfor GAVE SOME FOOD to Shey.'
b. *Á r-[**fá** Shey] (cí) Nfor à **fā/gī** bzhī.
FOC 5-give Shey COMP Nfor PST2 give/do food
'Nfor GAVE SHEY some food.'

This could be taken as further evidence for the absence of scrambling/object shift in Limbum. In order for partial VP-fronting to be possible, one of the objects (the indirect object in (61a) and the direct object in (61b)) would have to vacate the VP prior to its fronting. The ungrammaticality of partial VP-fronting thus results from the ungrammaticality of the required scrambling/object shift.

The behaviour of locative PP-adverbials like *ní Yaounde* 'in Yaounde' under verbal fronting is partly parallel to what we observed in Asante Twi. Adverbs in general have to always occur sentence-finally like in (62a). In contrast to Asante Twi, both verb and verb phrase fronting that strands the PP is grammatical (62b, c). However, just like in Asante Twi, the PP incurs ungrammaticality when it is fronted alongside a verb or a verb phrase (62d, e).

(62) a. Nfor bí bō ndāp ní Yaounde.
Nfor FUT build house in Yaounde
'Nfor will build a house in Yaounde.'
b. *Á r-**bō** (cí) Nfor bí **bō** ndāp ní Yaounde.
FOC 5-build COMP Nfor FUT1 build house in Yaounde
'Nfor will BUILD a house in Yaounde.'
c. Á r-[**bō** ndāp] (cí) Nfor bí **gī** ní Yaounde.
FOC 5-build house COMP Nfor FUT1 do in Yaounde
'Nfor will BUILD A HOUSE in Yaounde.'
d. *Á r-[**bō** ní Yaounde] (cí) Nfor bí **bō** ndāp.
FOC 5-build in Yaounde COMP Nfor FUT1 build house
e. *Á r-[**bō** ndāp ní Yaounde] (cí) Nfor bí **gī**.
FOC 5-build house in Yaounde COMP Nfor FUT1 do

Paralleling Asante Twi, the ungrammaticality extends to other fronted adverbs. Thus verb fronting as well as verb phrase fronting where the fronted constituent is accompanied by the adverb *chéchér* 'quickly' is ungrammatical (63).

(63) a. Nfor bí bō ndāp chéchér.
Nfor FUT1 build house quickly
'Nfor will quickly build a house.'
b. *Á r-**bō** chéchér (cí) Nfor bí **bō** ndāp (chéchér).
FOC 5-build quickly COMP Nfor FUT1 build house quickly
c. *Á r-[**bō** ndāp chéchér] (cí) Nfor bí **gī** (chéchér).
FOC 5-build house quickly COMP Nfor FUT1 do quickly

As was the case for Asante Twi above, in order for Limbum to serve as a convincing instantiation of the asymmetric repair pattern it needs to be shown that verb doubling as well as dummy verb insertion are not derived from independent constructions like cognate object constructions or *do*-periphrases.

Starting with cognate object constructions we find that Limbum indeed exhibits a few verbs that can take cognate objects. One example is again the verb *bī* 'dance' (64).

(64) Nfor bí bī bī.
Nfor FUT1 dance(V) dance(N)
'Nfor will dance (a dance).'

An argument against verb fronting being derived from constructions like (64) is that cognate objects are quite restricted in their distribution in the language. They can only occur with a handful of verbs and do not cooccur with the direct object of a transitive verb. It is, for instance, not possible for the transitive verb *bō* 'build' to take a cognate object in addition to its direct object *ndāp* 'house' in the following example.

(65) *Nfor bí bō (r-)bō ndāp.
Nfor FUT1 build(V) 5-build(N) house

Thus, cognate object formation is not productive enough to provide the necessary base construction for all attested verb fronting examples. It is, therefore, quite clear that verb doubling in verb fronting cannot be reanalysed as fronting of a cognate object.

Concerning dummy verb insertion in verb phrase fronting, a purported base construction with a dummy verb embedding a verb phrase is ungrammatical (66).

(66) a. *Njíŋwɛ̀ fɔ̄ bí gī (r-)yū msāŋ.
woman DET FUT1 do 5-buy rice
'The woman will buy rice.'
b. *Nfor à mū gī (r-)bò ndāp.
Nfor 3SG PST2 do 5-build house
'Nfor built/did build a house.'

Consequently, dummy verb insertion as it occurs in verb phrase fronting cannot be traced back to an independent construction containing a dummy verb that selects a verb phrase.

In conclusion, both verb doubling and dummy verb insertion in Limbum verbal fronting must be considered proper repair strategies for an illicit gap. In turn, besides Asante Twi, Limbum then constitutes a second instance of the asymmetric repair pattern, whose status as a real pattern is thereby further strengthened.

5 Analysis

Given that the asymmetric pattern III is a licit gap avoidance pattern in verbal fronting alongside symmetric verb doubling and symmetric dummy verb insertion, and that the other asymmetric pattern IV constitutes a systematic gap, it is desirable to provide a common analysis of all attested patterns that is able to exclude the unattested one.

5.1 Background assumptions

I assume the Copy Theory of movement (Chomsky, 1993, 1995) under which verb doubling can be easily accounted for as being a consequence of spell-out of two copies of the verb (Abels, 2001; Nunes, 2004). Internal Merge thus involves the creation of a copy of an element (modulo its saturated features), which is then merged with the current phrase marker. Usually, only one link/copy in a movement chain is pronounced, namely the head of that chain, while the others are left unpronounced. I thus assume an operation copy deletion (CD) that deletes superfluous copies post-syntactically. However, this operation is not triggered by a linearization conflict, but rather applies generally, identifying copies of an element and deleting them according to the definition in (67). For concreteness, I will assume that copying of an element entails coindexing of the two resulting elements in order to mark them as copies of each other (these indices will be symbolized by superscripted lowercase letters) and that CD selectively applies to elements marked with such an index only.[7]

(67) *Copy Deletion (CD)*
In a structure that contains multiple copies $X^i_1, X^i_2, \ldots, X^i_n$ of a constituent X (i.e. several elements 1–n that share the same movement-assigned index i) delete every X^i_m that does not fulfill a. or b.

a. X^i_m c-commands X^i_x and there is no other X^i_y such that X^i_y c-commands X^i_m,
b. X^i_m is a projecting head.

Note that this definition of Copy Deletion, although formulated over c-command, correctly deletes the object copy in a fronted VP in a remnant movement configuration. This is because it by default deletes all copies in a movement path unless they are the highest copy defined here as c-commanding another copy *and* not being c-commanded itself. Consider the remnant VP-movement configuration in (68).

(68) $[\ [_{\mathrm{VP}^j_2}\ \mathrm{V}\ \mathrm{Obj}^i_3\ ]\ \ldots\ \mathrm{Obj}^i_2\ [_{\mathrm{VP}^j_1}\ \mathrm{V}\ \mathrm{Obj}^i_1]\ ]$

[7] Although this introduction of indices by copying violates the Inclusiveness Condition (Chomsky, 1995: 225) it is necessary here in order to derive the correct (non-)deletion of copies. One might be able to identify copies in other ways not violating this condition, either by assuming that every lexical item bears a prespecified index already when it enters the derivation which is copied along when the item is copied, or by making reference to the numeration such that some elements in the derivation can be identified as copies of each other because they have only one corresponding item in the numeration (in what way this correspondence would be modelled, however, is not clear to me). However, under these accounts, the verbs inside the VP copies in VP-fronting would necessarily be identified as copies of each other and would thus be subject to Copy Deletion. Under the current definition, this would lead to the incorrect deletion of the highest V copy (inside the fronted VP) as it does not c-command another copy of V (clause a.), and also to incorrect non-deletion (at least in non-verb doubling languages) of the lowest V copy as it is a projecting head (clause b.). It is thus vital (in VP-fronting) that VP copies are identifiable as copies while at the same time the contained verbal heads are not discernible as copies.

Concerning the condition of Full Interpretation (Chomsky, 1986), the indices do not pose a problem as they are interpreted by Copy Deletion at the PF interface and by whatever mechanism at the LF interface that determines which copy of an element (usually the lowest one) is interpreted.

Both Obj_1 and Obj_3, although to a different degree, do not fulfill clause a. of (67). Obj_1 does not c-command another Obj-copy and is itself c-commanded by Obj_2. Obj_3 only does not c-command another Obj-copy. Nonetheless, both Obj_1 and Obj_3 are deleted according to (67). Clause b. is the special property of $\overline{A}$-head movement paths mentioned in the introduction. Some corroborating evidence for this property is discussed in section 6.

I will further adopt head movement (HM) as a post-syntactic operation (see e.g. Boeckx and Stjepanović, 2001; Schoorlemmer and Temmerman, 2012; Zwart, 2016) that does not leave any copies (or traces) (Sauerland and Elbourne, 2002). Finally, as has been argued by Koopman (1984); Landau (2006); Vicente (2009), in order to account for single verbs in the left periphery in languages where remnant movement is not available heads must be allowed to move into a specifier position, known as $\overline{A}$-head movement.

5.2 Proposal

Following a recent line of research on the order of application of operations in both syntax and post-syntax (Müller, 2009; Arregi and Nevins, 2012; Schoorlemmer, 2012; Georgi, 2014; Murphy and Puškar, 2015), I propose that there is a strict language-specific order of operations between copy deletion and head movement in the post-syntax. When HM applies before CD, V can head-move out of the low VP copy to T/C and evade deletion giving rise to verb doubling (counter-bleeding). When CD applies before HM, V is deleted as part of the low VP copy and subsequent head movement applies vacuously (bleeding). In order to express finiteness of the clause, a dummy verb is inserted into T/C to host inflectional affixes. Languages where verb fronting is $\overline{A}$-head movement rather than remnant VP movement show verb doubling independent of the order of operations because by clause b. of copy deletion (67) low copies in head position are prevented from being deleted. This order interacts with the kind of movement that leads to verb fronting, namely either remnant VP movement or $\overline{A}$-head movement of V. The effect of the ordering is summarized in (69).

(69) *Effect of order of operations in verbal fronting*[8]

	Order of post-syntactic operations		
Moved item	HM < CD	CD < HM	Surface
full verb phrase	verb doubling	dummy verb insertion	verb phrase fronting
remnant verb phrase	verb doubling	dummy verb insertion	verb fronting
bare verb	verb doubling	**verb doubling**	verb fronting

5.3 Symmetric verb doubling

Consider symmetric verb doubling first, discussing Polish as an example. Starting with VP-fronting, in syntax, the VP undergoes $\overline{A}$-movement into SpecCP leaving a copy in its base position. Both copies are assigned the same index to identify them as copies of each other.

(70) *Syntactic derivation for Polish VP fronting*

$[_{CP}\ [_{VP^i}\ V\ O\ ][_{C'}\ C\ [_{TP}\ S^j\ [_{T'}\ T\ [_{AspP}\ Asp\ [_{vP}\ S^j\ [_{v'}\ v\ [_{VP^i}\ V\ O\ ]]]]]]]]$

[8] In other publications on the topic, I have used the symbol '>' to indicate the precedence relation between HM and CD when it actually denotes a succession relation. Thus, I use the correct symbol '<' denoting precedence, here. Thanks to Dennis Ott for pointing this out to me.

In the post-syntax, HM precedes CD and given that V-to-some higher functional head movement exists in the language, as is the case in Polish (V-to-Asp, Witkoś, 1998), the verb leaves the low copy of VP before it is deleted (counter-bleeding). As it is itself not index-marked because it has not undergone syntactic movement it remains unaffected by CD. There are thus two copies of V in the structure which results in verb doubling on the surface. A concrete derivation is given in (71) for the Polish sentence (4b) where V head-moves to *v* and Asp thereby evacuating the low VP copy before the latter's deletion (indicated by strikethrough). The low copy of the subject is equally deleted by CD.

(71) *Post-syntactic derivation for Polish VP fronting (HM ≺ CD)*[9]

HM: [$_{CP}$ [$_{VP^i}$ V O][$_{C'}$ C [$_{TP}$ S^j [$_{T'}$ T [$_{AspP}$ V+*v*+Asp [$_{vP}$ S^j [$_{v'}$ [$_{VP^i}$ O]]]]]]]]

CD: [$_{CP}$ [$_{VP^i}$ **V** O][$_{C'}$ C [$_{TP}$ S [$_{T'}$ T [$_{AspP}$ **V**+*v*+Asp [$_{vP}$ ~~S^j~~ [$_{v'}$ ~~[$_{VP^i}$ O]~~]]]]]]]

VI: [$_{CP}$ [$_{VP}$ **Wypić** herbatę][$_{C'}$ to [$_{TP}$ Marek [$_{T'}$ [$_{AspP}$ **wypije**]]]]]

Turning to verb fronting, Polish arguably employs remnant VP movement rather than direct $\bar{A}$-head movement of the verbal head (Bondaruk, 2012). In the syntax, remnant VP movement behaves like full phrasal VP movement with the difference that there is an additional copy of the object outside the VP (72).

(72) *Syntactic derivation for Polish V fronting (remnant VP)*[10]

[$_{CP}$ [$_{VP^j}$ V O^i][$_{C'}$ C [$_{TP}$ S^k [$_{T'}$ T [$_{AspP}$ Asp [$_{vP}$ S^k [$_{v'}$ O^i [$_{v'}$ *v* [$_{VP^j}$ V O^i]]]]]]]]]

As there is a full VP copy both in SpecCP as well as in the base position, remnant VP movement interacts with the orders of operations in the same way as full VP movement. As is the case in Polish, HM precedes CD and the low V copy leaves the low VP copy before deletion. Thus, verb doubling results (73).

(73) *Post-syntactic derivation of Polish V fronting (HM ≺ CD)*[11]

HM: [$_{CP}$ [$_{VP^j}$ V O^i][$_{C'}$ C [$_{TP}$ S^k [$_{T'}$ T [$_{AspP}$ V+*v*+Asp [$_{vP}$ S^k [$_{v'}$ O^i [$_{v'}$ [$_{VP^j}$ O^i]]]]]]]]]

CD: [$_{CP}$ [$_{VP^j}$ **V** ~~O^i~~][$_{C'}$ C [$_{TP}$ S^k [$_{T'}$ T [$_{AspP}$ **V**+*v*+Asp [$_{vP}$ ~~S^k~~ [$_{v'}$ O^i [$_{v'}$ ~~[$_{VP^j}$ O^i]~~]]]]]]]]

VI: [$_{CP}$ [$_{VP}$ **Wypić**][$_{C'}$ to [$_{TP}$ Marek [$_{T'}$ [$_{AspP}$ **wypije** [$_{vP}$ [$_{v'}$ herbatę]]]]]]]

Symmetric verb doubling is therefore a consequence of the order of postsyntactic operations where HM precedes CD and an independent head movement of V to a higher functional head.

5.4 Symmetric dummy verb insertion

Symmetric dummy verb insertion, taking German as an example here, is the result of the reverse order of operations where CD applies before HM.

[9] Somewhere after CD but before Vocabulary Insertion (VI) T must have lowered onto the V+*v*+Asp complex because tense and subject agreement information is realised by the verb form *wypije*.

[10] I treat object movement as movement into an inner Spec*v*P here for expository purposes only. It is equally possible that it targets a different position or is adjoined rather than merged as long as its final landing site is below Asp.

[11] Note that deletion of the object copy in the higher VP is ensured by clause a. of the definition of copy deletion: This copy does not c-command another copy of the same element.

Let us consider verb phrase fronting first. The syntactic part of the derivation is parallel to the Polish example in (70) with the qualification that German is a head-final language and plausibly lacks an Asp-layer (74).

(74) *Syntactic derivation for German VP fronting*
$[_{CP}\ [_{VP^i}\ O\ V\ ][_{C'}\ C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ [_{VP^i}\ O\ V\ ]\ v\ ]]\ T\ ]]]$

In the postsyntax, CD precedes HM and the low copy of V is deleted as part of the lower VP copy, before it undergoes head movement to C (bleeding). Other head movements, however, such as *v*-to-T-to-C are assumed to take place as usual. A dummy verb *tun* is then inserted as a Last Resort to host inflection in *v*+T/C. The post-syntactic part of the derivation of a sentence like (5b) is given in (75).[12]

(75) *Post-syntactic derivation for German VP fronting (CD ≺ HM)*
CD: $[_{CP}\ [_{VP^i}\ O\ V\ ][_{C'}\ C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ \sout{[_{VP^i}\ O\ V\ ]}\ v\ ]]\ T\ ]]]$
HM: $[_{CP}\ [_{VP^i}\ O\ \mathbf{V}\ ][_{C'}\ v\text{+}T\text{+}C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ \sout{[_{VP^i}\ O\ V\ ]}\ ]]\ ]]]$
VI: $[_{CP}\ [_{VP}$ das_Auto **waschen** $][_{C'}$ **tut** $[_{TP}\ [_{vP}$ er (nie) $]]]]$

For verb fronting, German, like Polish, arguably employs remnant VP movement (den Besten and Webelhuth, 1990; Grewendorf and Sabel, 1994; Koopman, 1997; Müller, 1998; Hinterhölzl, 2002, see Fanselow, 2002; Ott, 2010 for counter-evidence and Müller, 2014: 99-121, for rebuttal thereof). Hence, the syntactic part of the derivation for verb fronting is again parallel to the one for Polish in (72) modulo the Asp-layer and with the adjustment of head-finality (76).

(76) *Syntactic derivation for German V fronting (remnant VP)*[13]
$[_{CP}\ [_{VP^j}\ \sout{O^i}\ V\ ][_{C'}\ C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ O^i\ [_{v'}\ [_{VP^j}\ O^i\ V\ ]\ v\ ]]]\ T\ ]]]$

In the postsyntax, contrary to Polish, CD precedes HM. Thus, the low V copy is deleted as part of the low VP copy and a dummy verb is inserted to act as a host for expression of finiteness just as in VP fronting. The postsyntactic part of the derivation of the German sentence (5a) is given in (77).

(77) *Post-syntactic derivation for German V fronting (CD ≺ HM)*
CD: $[_{CP}\ [_{VP^j}\ \sout{O^i}\ V\ ][_{C'}\ C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ O^i\ [_{v'}\ \sout{[_{VP^j}\ O^i\ V\ ]}\ v\ ]]]\ T\ ]]]$
HM: $[_{CP}\ [_{VP^j}\ \sout{O^i}\ \mathbf{V}\ ][_{C'}\ v\text{+}T\text{+}C\ [_{TP}\ [_{vP}\ S\ [_{v'}\ O^i\ [_{v'}\ \sout{[_{VP^j}\ O^i\ V\ ]}\ ]]]\ ]]]$
VI: $[_{CP}\ [_{VP}$ **Waschen** $][_{C'}$ **tut** $[_{TP}\ [_{vP}$ er $[_{v'}$ das_Auto (nie) $]]]]]$

Symmetric dummy verb insertion is therefore a consequence of CD preceding HM in the post-syntax.

5.5 The asymmetric pattern

For languages that display the asymmetric gap avoidance pattern, it must be the case that the order of operations in the postsyntax is CD before HM because only this order generates dummy verb insertion in VP fronting contexts. In contrast to verb fronting where languages may differ in whether

[12] The subject remains in Spec*v*P as there is no evidence for it to undergo movement to SpecTP (or the existence of a TP in the first place, see e.g. Haider, 2010) in German.

[13] Again, scrambling of the object to an inner Spec*v*P is for expository purposes only and no claim about the actual landing site of object scrambling in German is made here.

they employ remnant VP movement or Ā-head movement there is only one type of movement, phrasal movement of a full VP, that achieves surface verb phrase fronting configurations.

Starting, thus, with verb phrase fronting, both Asante Twi and Limbum move the verb phrase into the left periphery. However, in Asante Twi the focus marker *na* follows the focussed VP while the focus marker *á* in Limbum precedes it. Building on the Split-C hypothesis (Rizzi, 1997), I will assume here that focussed constituents move into the specifier of a Foc head. In Limbum, this Foc head then undergoes further postsyntactic head movement to a higher functional head such as Force. The syntactic derivations of verb phrase fronting for both languages (sentences (10b) and (11b)) are thus given in (78).

(78) *Syntactic derivations for Asante Twi and Limbum VP fronting*[14]

As: [$_{\text{FocP}}$ [$_{\text{VP}^i}$ O V][$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{v\text{P}}$ S^j [$_{v'}$ *v* [$_{\text{AspP}}$ Asp [$_{\text{VP}^i}$ V O]]]]]]]]

Li: [$_{\text{FrcP}}$ Frc [$_{\text{FocP}}$ [$_{\text{VP}^i}$ V O][$_{\text{Foc}'}$ Foc [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{\text{AspP}}$ Asp [$_{v\text{P}}$ S^j [$_{v'}$ *v* [$_{\text{VP}^i}$ V O]]]]]]]]]]

Note that the word order switch is a consequence of the nominalization in Asante Twi, namely a repair to a FOFC violating word order that is constituted by a head-initial VP dominated by a head-final NominalizerP (*n*P). This switch repair is not necessary in Limbum as the nominalizer *r-* is head-initial here (for a detailed discussion see Hein and Murphy, 2018). Nominalization itself, at least in Asante Twi, is a consequence of the fronting rather than a prerequisite for it, as argued in section 4.1.

In the postsyntax, CD applies before HM. Thus, the low VP copy is deleted before V has any chance of moving to Asp and possibly on to T (79). Eventually, as a Last Resort a dummy verb *yɔ* in Asante Twi and *gī* in Limbum is inserted into Asp/T in order to express finiteness.

(79) *Post-syntactic derivation for Asante Twi VP fronting (CD ≺ HM)*

CD: [$_{\text{FocP}}$ [$_{\text{VP}^i}$ O V][$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{v\text{P}}$ ~~S^j~~ [$_{v'}$ *v* [$_{\text{AspP}}$ Asp ~~[$_{\text{VP}^i}$ V O]~~]]]]]]]]

HM: [$_{\text{FocP}}$ [$_{\text{VP}^i}$ O V][$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^j [$_{\text{T}'}$ Asp+*v*+T [$_{v\text{P}}$ ~~S^j~~ [$_{v'}$ [$_{\text{AspP}}$ ~~[$_{\text{VP}^i}$ V O]~~]]]]]]]] ✗

VI: [$_{\text{FocP}}$ [$_{n\text{P}}$ [$_{\text{VP}}$ Dán **sí**] (-é)][$_{\text{Foc}'}$ na [$_{\text{TP}}$ Kofí [$_{\text{T}'}$ á-yɔ́]]]]

(80) *Post-syntactic derivation for Limbum VP fronting (CD ≺ HM)*

CD: [$_{\text{FrcP}}$ Frc [$_{\text{FocP}}$ [$_{\text{VP}^i}$ V O][$_{\text{Foc}'}$ Foc [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{\text{AspP}}$ Asp [$_{v\text{P}}$ ~~S^j~~ [$_{v'}$ *v* ~~[$_{\text{VP}^i}$ V O]~~]]]]]]]]]

HM: [$_{\text{FrcP}}$ Foc+Frc [$_{\text{FocP}}$ [$_{\text{VP}^i}$ V O][$_{\text{Foc}'}$ [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{\text{AspP}}$ *v*+Asp [$_{v\text{P}}$ ~~S^j~~ [$_{v'}$ ~~[$_{\text{VP}^i}$ V O]~~]]]]]]]]] ✗

VI: [$_{\text{FrcP}}$ Á [$_{\text{FocP}}$ [$_{n\text{P}}$ r [$_{\text{VP}}$ **yū** msāŋ]][$_{\text{FinP}}$ (cí) [$_{\text{TP}}$ njíŋwɛ̀_fɔ̄ [$_{\text{T}'}$ bí [gī]]]]]

For verb fronting, in contrast to German and Polish, Asante Twi and Limbum arguably use direct Ā-head movement of V into SpecFocP. The syntactic derivations of sentences (10a) and (11a) thus generate the following structures (81).

(81) *Syntactic derivations for Asante Twi and Limbum V fronting*

As: [$_{\text{FocP}}$ V^i [$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{v\text{P}}$ S^j [$_{v'}$ *v* [$_{\text{AspP}}$ Asp [$_{\text{VP}}$ V^i O]]]]]]]]

Li: [$_{\text{FrcP}}$ Frc [$_{\text{FocP}}$ V^i [$_{\text{Foc}'}$ Foc [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^j [$_{\text{T}'}$ T [$_{\text{AspP}}$ Asp [$_{v\text{P}}$ S^j [$_{v'}$ *v* [$_{\text{VP}}$ V^i O]]]]]]]]]]

[14] According to Kandybowicz (2015), Asp is located between *v* and V in Asante Twi.

In the post-syntax, CD applies prior to HM. However, both copies of the V head are not affected by CD. The V head in SpecFocP is protected by clause a. of the definition of CD, it c-commands the lower copy and is itself not c-commanded by any higher copy. The low copy, on the other hand, is a projecting head (i.e. it bears a saturated structure-building feature) and therefore protected by clause b. of CD. Hence, after deletion of the low subject copy, HM may apply as usual to the low V copy and raise it to Asp/T. The two V copies are then spelled out upon Vocabulary Insertion resluting in overt verb doubling.

(82) *Post-syntactic derivation for Asante Twi V fronting (CD ≺ HM)*

CD: [$_{\text{FocP}}$ V^{i} [$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^{j} [$_{\text{T}'}$ T [$_{v\text{P}}$ ~~S^{j}~~ [$_{v'}$ v [$_{\text{AspP}}$ Asp [$_{\text{VP}}$ $\boxed{\text{V}^{\text{i}}}$ O]]]]]]]]

HM: [$_{\text{FocP}}$ **V^{i}** [$_{\text{Foc}'}$ Foc [$_{\text{TP}}$ S^{j} [$_{\text{T}'}$ **V^{i}**+Asp+v+T [$_{v\text{P}}$ ~~S^{j}~~ [$_{v'}$ [$_{\text{AspP}}$ [$_{\text{VP}}$ O]]]]]]]]

VI: [$_{\text{FocP}}$ [$_{n\text{P}}$ **Sí** (é)][$_{\text{Foc}'}$ na [$_{\text{TP}}$ Kofí [$_{\text{T}'}$ á-**sí** [$_{v\text{P}}$ [$_{v'}$ [$_{\text{AspP}}$ [$_{\text{VP}}$ dán]]]]]]]]

(83) *Post-syntactic derivation for Limbum V fronting (CD ≺ HM)*

CD: [$_{\text{FrcP}}$ Frc [$_{\text{FocP}}$ V^{i} [$_{\text{Foc}'}$ Foc [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^{j} [$_{\text{T}'}$ T [$_{\text{AspP}}$ Asp [$_{v\text{P}}$ ~~S^{j}~~ [$_{v'}$ v [$_{\text{VP}}$ $\boxed{\text{V}^{\text{i}}}$ O]]]]]]]]]]

HM: [$_{\text{FrcP}}$ Foc+Frc [$_{\text{FocP}}$ **V^{i}** [$_{\text{Foc}'}$ [$_{\text{FinP}}$ Fin [$_{\text{TP}}$ S^{j} [$_{\text{T}'}$ T [$_{\text{AspP}}$ **V^{i}**+v+Asp [$_{v\text{P}}$ ~~S^{j}~~ [$_{v'}$ [$_{\text{VP}}$ O]]]]]]]]]]

VI: [$_{\text{FrcP}}$ Á [$_{\text{FocP}}$ [$_{n\text{P}}$ r **yū**][$_{\text{Foc}'}$ [$_{\text{FinP}}$ (cí) [$_{\text{TP}}$ njíŋwɛ̀_fɔ̄ [$_{\text{T}'}$ bí [$_{\text{AspP}}$ **yū** [$_{v\text{P}}$ [$_{v'}$ [$_{\text{VP}}$ msāŋ]]]]]]]]]]

5.6 The unattested pattern

The unattested pattern is underivable under the present assumptions. In order to achieve verb doubling in verb phrase fronting, a language necessarily needs to have the order of operations HM ≺ CD. Under this order however, verb fronting always results in verb doubling, too, independent of whether a language employs remnant VP movement like Polish or $\overline{\text{A}}$-head movement like Asante Twi and Limbum. This is because remnant VP movement always patterns with full VP movement whereas $\overline{\text{A}}$-head movement invariably leads to verb doubling due to clause b. of CD.

We thus expect languages that show symmetric verb doubling like Polish, but, instead of employing remnant VP movement, make use of $\overline{\text{A}}$-head movement. A language that plausibly instantiates this combination is Hebrew (84). It has the order HM ≺ CD (determined by its showing verb doubling in verb phrase fronting (84b)) and, following Landau (2006: 50), most plausibly employs $\overline{\text{A}}$-head movement in verb fronting.

(84) a. **Liknot** hi **kanta** et ha-praxim.
to.buy she bought ACC the-flowers
'As for buying, she bought the flowers.'

b. [**Liknot** et ha-praxim], hi **kanta**.
buy.INF ACC the-flowers she bought
'As for buying the flowers, she bought (them).' (*Hebrew*, Landau, 2006: 37)

The proposed system therefore provides four combinations of order of operations and type of movement in verb fronting, two of which result in the same surface output of symmetric verb doubling, namely HM ≺ CD plus remnant VP movement and HM ≺ CD plus $\overline{\text{A}}$-head movement (85).

(85) *Repair patterns resulting from order of operations and type of movement*

	$\overline{\text{A}}$-head movement	remnant VP movement
CD ≺ HM	asymmetric pattern III	symmetric dummy verb insertion
HM ≺ CD	**symmetric verb doubling**	**symmetric verb doubling**

It thus generates only three distinct surface patterns corresponding to the three attested patterns of gap avoidance strategies.

6 Evidence for clause b. of Copy Deletion

The proposal hinges to a great part on the stipulation that the lowest copy of $\overline{\text{A}}$-head movement is exempt from CD. In the following, I provide some evidence to support this assumption.

As V-to-higher functional head movement is what usually leads to verb doubling (if HM $\prec$ CD), when this movement is blocked, i.e. when an auxiliary or modal is present or when T is nonfinite as in infinitive-embedding contexts, a gap seems to be licit and verb doubling is therefore absent as shown by Hebrew (86a) and Vietnamese (86b), two symmetric verb doubling languages arguably making use of $\overline{\text{A}}$-head movement rather than remnant VP movement.

(86) a. [Doc sach]$_1$ thi no *nen* __$_1$.
read book TOP he should
'As for reading books, he should do that.' (*Vietnamese*, Trinh, 2011: 37)

b. [Liknot et ha-sefer]$_1$ Dan *kiva* __$_1$.
buy.INF ACC the-book Dan hoped
'As for buying the book, Dan hoped to (do it).' (*Hebrew*, Trinh, 2011: 32)

In V-fronting, which involves $\overline{\text{A}}$-head movement, we would expect verb doubling to also occur in these contexts if low copies of this movement never undergo deletion. In fact, we would even expect that verb doubling is obligatory. Indeed, this is what we find in Hebrew (87a) and Vietnamese (87b).

(87) a. **Doc** thi no *nen* *(**doc**) sach.
read TOP he should read book
'As for reading, he should read books.' (*Vietnamese*, Trinh, 2009: 38)

b. **Liknot** Dan *kiva* *(**liknot**) et ha-sefer.
buy.INF Dan hoped buy.INF ACC the-book
'As for buying, Dan hoped to buy the book.' (*Hebrew*, Trinh, 2011: 32)

Equally, with fronting of intransitives, which is ambiguous between verb and verb phrase fronting, we expect optionality of verb doubling. This is because if intransitive fronting is VP-fronting, the low copy is deleted giving rise to a gap while if it is V-fronting, i.e. $\overline{\text{A}}$-head movement, the low copy of the intransitive must not be deleted. Again, this is what we observe in both languages (88).

(88) a. **Ngu** thi no nen (**ngu**).
sleep TOP he should sleep
'As for sleeping, he should sleep.'
(*Vietnamese*, Trinh, 2011: 39)

b. **Lalexet** Dan kiva (**lalexet**).
walk.INF Dan hoped walk.INF
'As for walking, Dan hoped to walk.'
(*Hebrew*, Trinh, 2011: 32)

These data lend some support to the claim that lowest copies of $\overline{\text{A}}$-head movement are indeed not as easily deletable as copies of phrasal movement.

7 Summary and conclusion

V(P)-fronting in the absence of an auxiliary or modal or other verb-embedding verb triggers a repair in order to avoid a gap left by the displaced verbal consituent. Almost all documented languages that allow both the fronting of a single verb as well as a verb and its close dependents show one of two symmetric gap avoidance strategies: They either exhibit verb doubling or dummy

verb insertion. I have shown that a third pattern is instantiated in Asante Twi and Limbum where verb doubling cooccurs with V-fronting and dummy verb insertion with VP-fronting. The fourth logically possible pattern appears to be systematically absent from the world's languages (89).

(89) *Typology of gap avoidance patterns in V(P)-fronting*

	Fronted element		
	Verb	Verb phrase	Languages
I	verb copy	verb copy	Polish, Hebrew, Buli, Dagaare, …
II	dummy verb	dummy verb	Dutch, German, Breton, Basque, …
III	verb copy	dummy verb	Asante Twi, Limbum
IV	dummy verb	verb copy	—

I suggest to derive the three attested patterns to the exclusion of the unattested one by assuming that head movement applies post-syntactically and is language-specifically ordered with respect to post-syntactic copy deletion. If HM < CD, V can move out of the low VP copy before it is deleted giving rise to verb doubling. If CD < HM, V is deleted as part of the low VP copy before it can move to a higher functional head resulting in dummy verb insertion. Given that V-fronting can be achieved by either remnant VP movement or $\overline{\text{A}}$-head movement of V, the proposal that lowest copies of the latter cannot be deleted then gives rise to a neutralization of the order of operations. Languages that use $\overline{\text{A}}$-head movement inevitably show verb doubling in V-fronting independent of the order of operations. This neutralization restricts the system to derive only three, namely the attested three, surface gap avoidance patterns from an underlying four combinations of movement type and order of operations.

References

Abels, Klaus. 2001. The predicate cleft construction in Russian. In *Annual Workshop on Formal Approaches to Slavic Linguistics: The Bloomington Meeting*, eds. S. Frank, T. Holloway King, and M. Yadroff, 1–18. Michigan: Michigan Slavic Publications.

Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque Auxiliaries and the Structure of Spellout*. Dordrecht: Springer.

Becker, Laura, and Jude Nformi. 2016. Focus and verb doubling in Limbum. In *Replicative Processes in Grammar*, eds. Katja Barnickel, Matías Guzmán Naranjo, Johannes Hein, Sampson Korsah, Andrew Murphy, Ludger Paschen, Zorica Puškar, and Joanna Zaleska. Vol. 93 of *Linguistische Arbeits Berichte (LAB)*, 57–84. Leipzig: Universität Leipzig.

Biberauer, Theresa, Anders Holmberg, and Ian Roberts. 2008. Structure and linearization in disharmonic word orders. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, eds. C. B. Chang and H. J. Haynie, 96–104. Somerville, MA: Cascadilla Proceedings Project.

Boadi, Lawrence. 2008. Tense, Aspect and Mood in Akan. In *Aspect and Modality in Kwa Languages*, eds. F. K. Ameka and M. E. Kropp Dakubu, 9–68. Philadelphia: John Benjamins.

Boeckx, Cedric, and Sandra Stjepanović. 2001. Head-ing toward PF. *Linguistic Inquiry* 32 (2): 345–355.

Bondaruk, Anna. 2009. Constraints on predicate clefting in Polish. In *Studies in Formal Slavic Phonology, Morphology, Syntax, Semantics, and Information Structure*, eds. G. Zybatow, U. Junghanns, D. Lenertová, and P. Biskup. *Proceedings of FDSL 7, Leipzig 2007*, 65–79. Frankfurt am Main: Peter Lang.

Bondaruk, Anna. 2012. Copy deletion in Polish predicate clefting. In *Sound, structure and sense. Studies in memory of Edmund Gussmann*, eds. E. Cyran, H. Kardela, and B. Szymanek, 55–70. Lublin: Katolicki Uniwersytet Lubelski.

Borer, Hagit. 1984. Restrictive relatives in Modern Hebrew. *Natural Language and Linguistic Theory* 2: 219–260.
Cable, Seth. 2004. Predicate clefts and base-generation: Evidence from Yiddish and Brazilian Portuguese. Ms., MIT, Cambridge, MA.
Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
Chomsky, Noam. 1993. A Minimalist Program for Linguistic Theory. In *The View from Building 20: Essays in Linguistics in Honour of Sylvain Bromberger*, eds. K. Hale and S. J. Keyser, 1–52. Cambridge, Mass.: MIT Press.
Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step*, eds. R. Martin, D. Michaels, and J. Uriagereka, 89–155. Cambridge, Mass.: MIT Press.
Chomsky, Noam. 2001. Derivation by Phase. In *Ken Hale. A life in Language*, ed. M. Kenstowicz, 1–52. Cambridge, Mass.: MIT Press.
den Besten, Hans, and Gert Webelhuth. 1990. Stranding. In *Scrambling and Barriers*, eds. G. Grewendorf and W. Sternefeld, 77–92. Amsterdam: John Benjamins.
Diedrichsen, Elke. 2008. Where is the precore slot? Mapping the layered structure of the clause and German sentence topology. In *Investigations of the Syntax-Semantics-Pragmatics Interface*, ed. Robert D. Van Valin, Jr. . Vol. 105 of *Studies in Language Companion Series*. Amsterdam/Philadelphia: John Benjamins.
Embick, David, and Rolf Noyer. 2001. Movement Operations after Syntax. *Linguisti Inquiry* 32 (4): 555–595.
Fanselow, Gisbert. 2002. Against remnant VP-movement. In *Dimensions of movement: From features to remnants*, eds. A. Alexiadou, E. Anagnostopoulou, S. Barbiers, and H. M. Gärtner, 91–125. Amsterdam: John Benjamins.
Fransen, Margo Astrid Eleonora. 1995. A grammar of Limbum: A Grassfields Bantu language. PhD diss, Vrije Universitet Amsterdam, The Netherlands.
Georgi, Doreen. 2014. Opaque Interaction of Merge and Agree: On the Nature and Order of Elementary Operations. PhD diss, Universität Leipzig.
Grewendorf, Günther, and Joachim Sabel. 1994. Long scrambling and incorporation. *Linguistic Inquiry* 25: 263–308.
Haider, Hubert. 2010. *The Syntax of German*. Cambridge: Cambridge University Press.
Hein, Johannes. 2018. Verbal Fronting: Typology and Theory. PhD diss, Universität Leipzig, Leipzig.
Hein, Johannes, and Andrew Murphy. 2018. VP nominalization and the Final-over-Final Condition. Ms., Universität Potsdam and Universität Leipzig.
Hinterhölzl, Roland. 2002. Remnant movement and partial deletion. In *Dimensions of movement: From features to remnants*, eds. A. Alexiadou, E. Anagnostopoulou, S. Barbiers, and H. M. Gärtner, 127–149. Amsterdam: John Benjamins.
Hiraiwa, Ken. 2005a. Dimensions of Symmetry in Syntax: Agreement and Clausal Architecture. PhD diss, MIT.
Hiraiwa, Ken. 2005b. Predicate clefts in Bùlì: Categories and Phases. *Linguistic Analysis* 32: 544–583.
Jaggar, Philip J. 2001. *Hausa*. Amsterdam/Philadelphia: John Benjamins.
Källgren, Gunnel, and Ellen F. Prince. 1989. Swedish VP-Topicalization and Yiddish Verb-Topicalization. *Nordic Journal of Linguistics* 12: 47–58.
Kandybowicz, Jason. 2008. *The Grammar of Repetition. Nupe grammar at the syntax-phonology interface*. Vol. 136 of *Linguistik Aktuell/Linguistics Today*. Amsterdam/Philadelphia: John Benjamins.
Kandybowicz, Jason. 2015. On prosodic vacuity and verbal resumption in Asante Twi. *Linguistic Inquiry* 46 (2): 243–272.

Kobele, Gregory M., and Harold Torrence. 2004. The syntax of complement clauses in Asante Twi. Paper presented at the 35th Annual Conference on African Linguistics.

Koopman, Hilda. 1984. *The syntax of verbs: From verb movement rules in the Kru languages to Universal Grammar*. Dordrecht: Foris.

Koopman, Hilda. 1997. Unifying predicate cleft constructions. *Proceedings of the Twenty-Third Annual Meeting of the Berkeley Linguistics Society* 23 (2): 71–85.

Korsah, Sampson, and Andrew Murphy. 2016. What can tone tell us about successive-cyclic movement? Evidence from Asante Twi. In *Proceedings of NELS 46*, eds. C. Hammerly and B. Prickett, 227–240. Amherst: GLSA.

Lahne, Antje. 2008. Excluding SVO in ergative languages: A new view on Mahajan's Generalisation. In *Varieties of Competition*, eds. Fabian Heck, Gereon Müller, and Jochen Trommer. Vol. 87 of *Linguistische Arbeits Berichte (LAB)*, 65–80. Leipzig: Universität Leipzig.

Landau, Idan. 2006. Chain Resolution in Hebrew V(P)-fronting. *Syntax* 9 (1): 32–66.

Marfo, Charles. 2005. Aspects of Akan Grammar and the Phonology-Syntax Interface. PhD diss, University of Hong Kong.

Marfo, Charles, and Adams Bodomo. 2005. Information structuring in Akan question-word fronting and focus constructions. *Studies in African Linguistics* 32 (4): 179–208.

Müller, Gereon. 1998. *Incomplete category fronting: A derivational approach to remnant movement in German*. Dordrecht: Kluwer.

Müller, Gereon. 2009. Ergativity, Accusativity, and the Order of Merge and Agree. In *Explorations of Phase Theory. Features and Arguments*, ed. Kleanthes K. Grohmann, 269–308. Berlin: Mouton de Gruyter.

Müller, Gereon. 2014. Circassian case-marker omission via structure removal. lecture notes, University of Leipzig.

Murphy, Andrew, and Zorica Puškar. 2015. Closest conjunct agreement in Serbo-Croatian: A rule-ordering account. In *Topics at InfL*, eds. Anke Assmann, Sebastian Bank, Doreen Georgi, Timo Klein, Philipp Weisser, and Eva Zimmermann. Vol. 92 of *Linguistische Arbeits Berichte (LAB)*, 441–482. Universität Leipzig.

Nunes, Jairo. 2004. *Linearization of chains and sideward movement*. Vol. 43 of *LI Monographs*. Cambridge, Mass.: MIT Press.

Ott, Dennis. 2010. Varieties of VP-fronting. Ms., Harvard University, available from LingBuzz http://ling.auf.net/lingbuzz/001024.

Paster, Mary. 2010. The verbal morphology and phonology of Asante Twi. *Studies in African Linguistics* 39 (1): 77–120.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of Grammar*, ed. Liliane Haegeman, 281–337. Dordrecht: Kluwer.

Saah, Kofi. 2010. Relative clauses in Akan. In *Topics in Kwa Syntax*, eds. Enoch O. Aboh and James Essegbey. *Studies in natural language and linguistic theory*, 91–109. Dordrecht: Springer.

Saah, Kofi, and Helen Goodluck. 1995. Island effects in parsing and grammar: Evidence from Akan. *The Linguistic Review* 12: 381–409.

Sauerland, Uli, and Paul Elbourne. 2002. Total reconstruction, PF movement, and derivational order. *Linguistic Inquiry* 33 (2): 283–319.

Schoorlemmer, Erik. 2012. Definiteness marking in German: Morphological variations on the same syntactic theme. *Journal of Comparative Germanic Linguistics* 15: 107–156.

Schoorlemmer, Erik, and Tanja Temmerman. 2012. Head Movement as a PF-Phenomenon: Evidence from Identity under Ellipsis. In *Proceedings of the 29th West Coast Conference on Formal Linguistics*, eds. J. Choi, E. A. Hogue, J. Punske, D. Tat, J. Schertz, and A. Trueman, 232–240. Somerville, MA: Cascadilla Proceedings Project.

Torrence, Harold. 2013a. *The Clause Structure of Wolof: Insights into the Left Periphery*. Vol. 198 of *Linguistik Aktuell/Linguistics Today*. Amsterdam/Philadelphia: John Benjamins.

Torrence, Harold. 2013b. A Promotion Analysis of Wolof Clefts. *Syntax* 16 (2): 176–215.
Trinh, Tue. 2009. A constraint on copy deletion. *Theoretical Linguistics* 35: 183–227.
Trinh, Tue. 2011. Edges and Linearization. PhD diss, MIT, Cambridge, Mass..
Vicente, Luis. 2007. The syntax of heads and phrases: A study of verb (phrase) fronting. PhD diss, University of Leiden, The Netherlands.
Vicente, Luis. 2009. An alternative to remnant movement for partial predicate fronting. *Syntax* 12 (2): 158–191.
Witkoś, Jacek. 1998. *The syntax of clitics. Steps towards a minimalist account*. Poznań: Motivex.
Zwart, Jan-Wouter. 2016. An argument against the syntactic nature of verb movement. lingbuzz/002950. Ms..