

# (Re)labeling and constituency paradoxes:

## Remnant movement in Akan

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### 1 INTRODUCTION

Akan (Ghana, roughly 8,300,000 speakers) has a focus fronting construction which seems, under specific circumstances, to be capable of moving a non-constituent sequence. This movement has all the hallmarks of a classic constituency paradox (Phillips 2003): Hierarchical tests such as binding consistently diagnose right-branching constituency, while movement apparently operates on a left-branching constituent.

- (1) [ **Kofi de akwadaa biara** ] na ε kɔɔ ne fie  
K. DE child every<sub>i</sub> FOC RESUM go.PST 3s<sub>i</sub> home  
“It’s every child<sub>i</sub> that Kofi took to their<sub>i</sub> home.”

In (1), the subject and a dative argument have been moved left over the focus particle *na*; however, the intermediate object ‘every child’ is still capable of binding out of the moved constituent, implying a right-branching structure inconsistent with the observed focus movement. In addition, the moved item has left behind a resumptive pronoun which behaves morphologically like a subject, even though the moved item includes the subject and a dative-like DP along with some verbal material; this again seems to suggest a left-branching structure.

In this paper, I will argue that the unusual properties of this construction are best understood via a remnant movement analysis in which a non-maximal projection moves and then reprojects, in the spirit of recent work by Cecchetto & Donati (2015). Contra Cecchetto & Donati, however, in Akan the reprojecting element seems to be  $v'$ , suggesting that it is not only single words that may move and reproject but in fact larger, non-maximal phrases as well. The proposed reprojecting structure also has the effect of bringing the verb root into a local configuration with  $T^0$ , as required by Kandybowicz (2015), providing independent motivation for this movement.

This paper will proceed as follows. In Section 2, I give the facts of the *de*-serialization construction, the environment in which paradoxical focus fronting occurs, and will also provide an initial analysis of the syntactic structure of this construction. I will also note the problems that *de*-serialization construction poses for Kandybowicz’s model of Akan clausal structure. In Section 3, I will turn to paradoxical fronting itself. I will first outline the general facts of the focus fronting construction and then establish that the paradoxical movement really is movement and really is paradoxical. In Section 4 I will consider and reject prior analyses for constituency paradoxes, including late adjunction and left-to-right structure building (as in Phillips 2003). Section 5 will give the details of my remnant movement analysis, arguing that the troublesome aspects of both *de*-serialization and paradoxical movement can be explained by allowing  $v'$  to both raise and reproject. Finally, Section 6 considers the broader implications of allowing this kind of reprojecting movement.

### 2 *de*-SERIALIZATION

Akan has a construction used to express instrumental arguments and (direct) causation. Osam (2008) refers to this construction as *de*-serialization after its use of the particle *de*. The basic properties of this construction are illustrated in (2).

- (2) S *de* O<sub>1</sub> V O<sub>2</sub>  
me de sekan no twaa nam  
1S DE knife DEF cut.PST fish  
“I cut the fish with a knife.”

Three DPs are involved in *de*-serialization: The subject, a dative-like object  $O_1$ , and the direct object  $O_2$ . The verb intervenes between the two objects and receives all tense and aspect marking, while the morphologically-inert particle *de* precedes  $O_1$ . In the default case,  $O_1$  is understood as an instrument; however, a subset of *de*-serialization sentences allow a causative interpretation in which  $O_1$  is the causee:

- (3) S *de*  $O_1$   $O_2$   
 Yaw *de* abrofra no tenaa akonnwa no mu  
 Y. DE child DEF sit.PST chair DEF in  
 “Yaw sat the baby in the chair.”

Example (3) is due to Martin (2014).

Martin gives the generalization that unaccusative verbs allow causative readings under *de*-serialization while all other verbs get only instrumental readings. In the former case, the subject is not necessarily thematically related to the verb, while in the later case it is always the agent. This is illustrated below: In (4), the subject of the unaccusative becomes  $O_1$  under *de*-serialization, while a new causer subject is introduced. In (5), by contrast, the subject of the transitive becomes the subject under *de*-serialization, while a new instrumental  $O_1$  is introduced.

- (4) a. Adaka no si fam so  
 box DEF sit ground on  
 “The box sits on the ground.” UNACCUSATIVE  
 b. Kofi *de* adaka no si fam so  
 K. DE box DEF sit ground on  
 “Kofi put the box on the ground.” CAUSATIVE *de*
- (5) a. Kofi twaa nam  
 K. cut.PST fish  
 “Kofi chopped fish.” TRANSITIVE  
 b. Kofi *de* sekan no twaa nam  
 K. DE knife DEF cut.PST fish  
 “Kofi chopped fish with the knife.” INSTRUMENTAL *de*

While *de*-serialization might appear superficially similar to a serial verb construction, Martin (2014) argues that it is not, and that instead *de* is a functional head in the clausal spine. I will follow her in this, but while she positions *de* inside the vP, I will argue that the distributional facts of *de*-serialization can be most easily understood if *de* is a causative light verb positioned above vP in the clausal structure and taking an unaccusative  $v^\circ$  as a complement.

### 2.1 What is *de*?

As noted above, the particle *de* is morphologically inert: It receives no marking for tense or aspect, both of which are marked only on the main verb. It also cannot be focus-doubled, as illustrated in (6-c). Contrast these properties with the serial verb construction illustrated in (7), in which the first verb in the sentence receives tense and aspect marking and is the only verb available for doubling:

- |  |  |
|--|--|
| <p>(6) a. me de sekan no twaa nam<br/>         IS DE knife DEF cut.PST fish<br/>         'I cut the fish with a knife.'</p> <p>b. me de sekan no re- twa nam<br/>         IS DE knife DEF PROG cut fish<br/>         'I am cutting the fish with a knife.'</p> <p>c. {twa/*de} na me de sekan twa nam<br/>         cut/*DE FOC IS DE knife cut fish<br/>         'It's cutting I do with the knife to the fish.'</p> | <p>(7) a. me noaa nam dii ye<br/>         IS cook.PST fish eat.PST YE<br/>         'I cooked and ate fish.'</p> <p>b. me re- noa nam a- di<br/>         IS PROG cook fish INF eat<br/>         'I am cooking and eating fish.'</p> <p>c. {noa/*di} na me noa nam di<br/>         cook/*eat FOC IS cook fish eat<br/>         'It's cooking I do to the fish and eat it.'</p> |
|--|--|

I will follow Martin in taking the properties in (7) to be diagnostic of verb-hood in Akan, indicating that *de* is not a verb but rather a functional head.

## 2.2 *Where is de?*

Evidence from binding suggests that *de* is somewhere in the clausal spine. In particular, the subject of *de*-serialization seems to c-command both objects, while  $O_1$  c-commands  $O_2$ . This is established below by means of quantifier and anaphor binding:

$S > O_1$ :

- |   |                    |
|---|--------------------|
| <p>(8) Abaya biara de ne pen twerεε kraataa<br/>         girl every<sub>i</sub> DE 3s.POSS<sub>i</sub> pen write.PST letter<br/>         "Every girl<sub>i</sub> used her<sub>i</sub> pen to write a letter."</p> | Quantifier binding |
| <p>(9) Ama de neho kyerεε<br/>         A.<sub>i</sub> DE herself<sub>i</sub> present.PST<br/>         "Ama presented herself."</p>  | Condition A        |

$S > O_2$ :

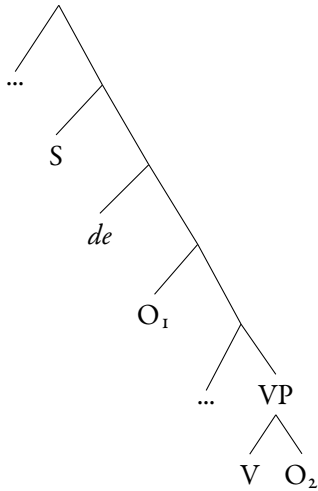
- |   |                    |
|---|--------------------|
| <p>(10) Abaya biara de bus kɔ ne fie<br/>         girl every<sub>i</sub> DE bus go 3s.POSS<sub>i</sub> fie<br/>         "Every girl rides the bus to her home."</p> | Quantifier binding |
| <p>(11) Kofi de sekan no twaa neho<br/>         K.<sub>i</sub> DE knife DEF cut.PST himself<sub>i</sub><br/>         "Kofi cut himself with the knife."</p>         | Condition A        |

$O_1 > O_2$ :

- |   |                    |                                       |
|---|--------------------|---------------------------------------|
| <p>(12) Me de akokɔ baa biara kyee ne barima<br/>         IS DE chicken female every<sub>i</sub> catch.PST 3s.POSS<sub>i</sub> male<br/>         'I used every female chicken to catch its mate.'</p> | Quantifier binding | Example (12) due to<br>Martin (2014). |
| <p>(13) Kofi de kaa no sεε neho<br/>         K. DE car<sub>i</sub> DEF destroy.PST itself<sub>i</sub><br/>         'Kofi used the car to destroy itself.'</p>   | Condition A        |                                       |

These facts are consistent with a right-branching structure for *de*-serialization, schematized in (14):

(14) Schematic structure for *de*-serialization:



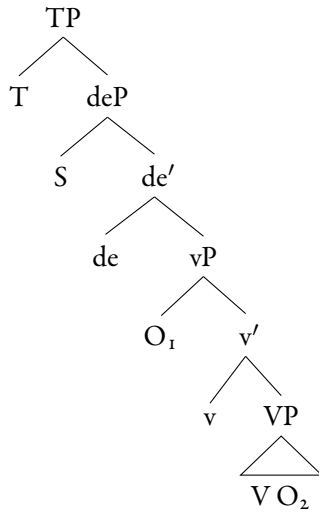
### 2.3 Accounting for causative *de*

Akan has a robust test for unaccusativity: Subjects of unergative and transitive verbs must be agentive, while unaccusatives allow undergoer subjects.

- (15) a. \*sekan no twaa nam  
 knife DEF cut.PST fish  
 Intended: “The knife cut fish.”  
 b. sekan no si table no so  
 knife DEF sit table DEF on  
 “The knife sits on the table.”

In (15), ‘knife’ is bad as an instrumental subject to the transitive verb ‘cut’, but a good undergoer subject for the unaccusative verb ‘sit’. As we have seen, however, under *de*-serialization both the instrumental ‘knife’ and the undergoer ‘box’ are equally good intermediate objects. This points to a similarity between *de*-serialization and unaccusatives: It’s exactly those DPs which are good unaccusative subjects which are good  $O_1$ s. We can explain this similarity by positing that *de*-serialization involves an unaccusative  $v^o$  with  $O_1$  in its specifier. The particle *de* is merged above this, taking the (causer) subject DP in its specifier:

(16) Structure of *de*-serialization clauses (provisional):



2.4 An unresolved problem

Under this analysis, however, *de*-serialization poses a problem for prior models of Akan clause structure. In particular, Kandybowicz (2015) provides convincing arguments that in the past tense the Akan verb raises to  $T^{\circ}$ . This raising can be diagnosed by the presence of a post-verbal particle /*ye*/. This particle does appear under *de*-serialization, indicating that the verb has raised to  $T^{\circ}$ :

- (17) Kofi de buuku no gyaa Ø \*(*ye*)  
 K. DE book DEF leave.PST 3s.OBJ YE  
 “Kofi left them a book.”

Under the structure proposed in (16), however, raising the verb to  $T^{\circ}$  in (17) violates the Head Movement Constraint (Travis 1984): *de* intervenes between the verb and  $T^{\circ}$ . We do not expect the verb to be able to move to  $T^{\circ}$  without first moving through *de*; more generally, we do not expect it to be able to move to  $T^{\circ}$  while remaining linearly right of the entire [ S de O<sub>1</sub> ] string. This problem has not been noted before, but provides motivation for revising our understanding of *de*-serialization syntax. The remnant movement analysis proposed below for paradoxical fronting will provide the necessary solution.

The presence of /*ye*/ also depends on a lack of overt post-verbal material, and is thus a sufficient but not necessary diagnostic for verb raising. See Kandybowicz (2015) for details.

3 PARADOXICAL FOCUS FRONTING

Akan has a robust focus fronting construction in which focused DPs are moved to the left edge of the clause. The fronted element precedes the focus particle /*na*/ and obligatorily leaves a resumptive pronoun with matching  $\phi$ -features and case. This is illustrated in (18).

- (18) a. Adv S V O  
 Enora Ama hunu Kofi  
 yesterday A. saw K.  
 “Ama saw Kofi yesterday.”
- b. S na Adv RESUM V O  
 Ama na enora o hunu Kofi  
 A. FOC yesterday 3s.SUBJ see.PST Kofi  
 “It’s Ama that saw Kofi yesterday.”

- c. O na Adv S V RESUM  
 Kofi na enora Ama hunu no  
 K. FOC yesterday A. see.PST 3s.OBJ  
 “It’s Kofi that Ama saw yesterday.”

(18-b) shows focus fronting of the subject ‘Ama’, while (18-c) shows object fronting of ‘Kofi’. In both cases a 3rd person resumptive pronoun bearing the appropriate case is left in the base position of the focused DP. A table of the 3rd person resumptive pronouns in Akan is given below; note in particular that subject, object, animate, and inanimate forms are fully distinguished:

(19) Akan 3rd person pronouns:

	Subject	Object
Animate	/ɔ/	/no/
Inanimate	/ε/	/Ø/

In *de*-serialization sentences, all three DPs can be individually focus fronted. Note in particular that O<sub>1</sub> leaves behind an object-form pronoun of matching  $\phi$ -features.

- (20) a. S na RESUM *de* O<sub>1</sub> V O<sub>2</sub>  
 Kofi na ɔ de akwadaa biara kɔɔ ne fie  
 K. FOC RESUM DE child every<sub>i</sub> go.PST 3s<sub>i</sub> home  
 “It’s Kofi that took every child<sub>i</sub> to their<sub>i</sub> home.”
- b. O<sub>1</sub> na S *de* RESUM V O<sub>2</sub>  
 akwadaa biara na Kofi de no kɔɔ ne fie  
 child every<sub>i</sub> FOC Kofi DE RESUM go.PST 3s<sub>i</sub> home  
 “It’s every child that Kofi took to their home.”
- c. O<sub>2</sub> na S *de* O<sub>1</sub> V RESUM  
 ne fie na Kofi de akwadaa biara kɔɔ Ø  
 3s<sub>i</sub> home FOC Kofi DE child every<sub>i</sub> go.PST RESUM  
 “It’s to their home that Kofi took every child.”

In addition to fronting each of the three DPs individually, *de*-serialization provides one more unexpected option: The substring [ S *de* O<sub>1</sub> ] can be fronted as a whole. This is illustrated in (21). Note that the resumptive pronoun unexpectedly takes the inanimate subject form.

- (21) S *de* O<sub>1</sub> na RESUM V O<sub>2</sub>  
 Kofi *de* akwadaa biara na ε kɔɔ ne fie  
 K. DE child every<sub>i</sub> FOC RESUM go.PST 3s<sub>i</sub> home  
 “It’s every child that Kofi took to their home.”

Under the structure given in (16), this movement is highly unexpected — the string [ S *de* O<sub>1</sub> ] simply isn’t a constituent. For this reason, I’ll refer to this structure throughout as ‘paradoxical’ focus fronting.

### 3.1 *Is paradoxical movement really movement?*

One hypothesis to explain the presence of an unexpected constituent in (21) is that this is not really movement — that instead this structure is base-generated in this unusual configuration. It is difficult to apply standard cross-linguistic tests for movement, such as strong crossover, in the case of paradoxical fronting; however, Murphy & Korsah (2015) provide an interesting language-specific diagnostic. They demonstrate that in all clauses exhibiting A’ movement in Akan the verb is marked with a high tone. This high tone correlates with typical cross-linguistic diagnostics of A’ movement such as reconstruction and strong-crossover effects.

Murphy & Korsah argue that this tonal marking is actually visible on every verb and complementizer the moved item passes — that is, that it is a visible marker of successive cyclic movement.

- (22) a. Kofi re- **dì** nam  
 K. PROG- eat fish  
 “Kofi is eating fish.”  
 b. nam na Kofi re- **dí** Ø  
 fish FOC K. PROG- eat RESUM  
 “It’s fish taht Kofi is eating.”

The paradoxical movement in *de*-serialization sentences also displays this high tone, strongly implying that this is true movement:

- (23) a. Kofi de sekan no **twàà** nam  
 K. DE knife DEF cut.PST fish  
 “Kofi chopped the fish with a knife.”  
 b. Kofi de sekan no na ε **twáà** nam  
 K. DE knife DEF FOC RESUM cut.PST fish  
 “It’s with a knife that Kofi chopped fish.”

In addition, Murphy & Korsah identify a topicalization construction that looks superficially similar to /*na*/ focus fronting. In this construction, as with focus fronting, a DP occurs at the left edge of the clause, is followed by a topicalization particle, and is understood to be coreferential with a pronoun in an argument position. However, this construction shows no effects of reconstruction or strong crossover, and in addition does not show the high tone on the verb identified as a correlate of movement. On this basis, Murphy & Korsah argue that this topicalization construction does not involve movement. Instead, the left-peripheral DP being base-generated in that position.

- (24) sekan no dee Kofi de Øtwàà nam  
 knife DEF sc top Kofi DE 3s cut.PST fish  
 “As for the knife, Kofi chopped fish with it.”

Strikingly, the unexpected [ S de O<sub>1</sub> ] constituent involved in paradoxical focus fronting is unavailable in this topicalization construction, implying that not only can it be moved but that in fact it can only be generated by movement:

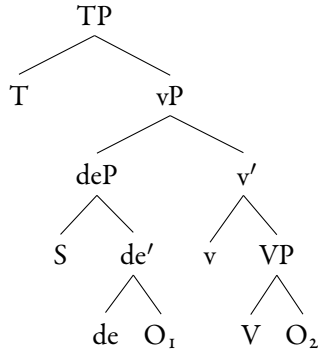
- (25) \*Kofi de sekan no dee ε twaa nam  
 K. DE knife DEF TOP 3s cut.PST fish

This is further evidence that paradoxical movement must, in fact, be true movement.

### 3.2 *Is the pre-movement structure different?*

Another possible explanation for paradoxical movement is to propose that the structure of *de*-serialization clauses is actually left-branching, as in (26). Under this analysis, the unexpected constituent [ S de O<sub>1</sub> ] would in some sense be the ‘subject’ of the verb, explaining why a subject-form resumptive is left under focus fronting; this constituent is also not a DP and thus is not expected to have  $\phi$ -features, possibly explaining the use of the inanimate / $\epsilon$ / form.

(26) Hypothetical left-branching structure for *de*-serialization:



However, the structure in (26) is completely incompatible with the binding facts: In this structure, we have no explanation for why both S and  $O_1$  are able to bind  $O_2$ . To capture this, we might hypothesize that the paradoxically fronted sentences have (26) as their pre-fronting structure, while other *de*-serialization sentences use the right branching one in (16). However, this cannot be the case: As demonstrated in (21) (repeated below), DPs inside the paradoxically fronted constituent are still able to bind  $O_2$ , implying that they are able to reconstruct into a position in which they c-command it. That is, the pre-movement structure of (27) must be a right-branching structure, and the paradoxical movement is truly paradoxical.

- (27) [ Kofi de akwadaa biara ] na ε kɔɔ ne fie  
 K. DE child every; FOC RESUM go.PST 3s; home  
 “It’s every child<sub>i</sub> that Kofi took to their<sub>i</sub> home.” (= (21))

4 PRIOR APPROACHES TO CONSTITUENCY PARADOXES

These Akan facts are hardly the first constituency paradox noted in the literature. The classic examples involve partial VP fronting, as in the following English example from Phillips (2003):

- (28) a. (John wanted to give books to them in the garden, ...)  
 b. ...and [ give the books to them<sub>i</sub> in the garden ] he did \_\_\_\_ on each other<sub>i</sub>’s birthdays.

In (28), part of the VP [ give the books to them in the garden ] has been topic-fronted, apparently stranding the final adjunct [ on each other’s birthdays ]; this is compatible with a left-branching VP structure. Despite this, the goal argument of the fronted verb is reportedly able to bind into the adjunct, a fact compatible only with a right-branching VP structure. Similar facts are observed by Landau (2007) for Hebrew, and in many other languages that allow VP-fronting.

There is a striking consistency across known constituency paradoxes. In broad strokes, the paradox consists of an apparent contradiction between two classes of syntactic tests:

1. **Constituency tests** (such as coordination, movement, and deletion / ellipsis) typically diagnose a left-branching structure in paradoxical constructions.
2. **Hierarchy tests** (such as binding and scope) typically diagnose a right-branching one.

A major goal for syntactic research, then, must be to understand what differentiates these classes of tests and what about the paradoxical constructions causes them to pull apart. There are at least three explanations in the literature. Phillips (2003) proposes a radical redefinition of our syntactic architecture to allow it to build structure from left to right; this, combined with a proposed ‘Potentially-Complete VP Constraint’, allows him to explain the English facts. Landau (2007) proposes a late-adjunction based analysis of the Hebrew facts which seems to derive the ban on incomplete VPs in these constructions. However, as will be shown in this section, neither of these analyses will work for Akan, for the simple reason that the fronted element is



not potentially complete. Instead, I will turn to the third class of analysis, remnant movement, to provide the explanation, but will reject the specific hypothesis developed in Martin (2014) in favor of a new analysis involving relabeling.

#### 4.1 *Phillips and Incremental Structure Building*

Phillips (2003) proposes a radical reworking of syntactic structure building partially to account for constituency paradoxes. While in standard Minimalist theories structure is built from bottom-to-top, Phillips proposes that it is instead built incrementally from left-to-right. This accomplishes the goal of pulling apart constituency tests and hierarchical tests by making it possible to destroy constituents in the course of the derivation. For example, under this model the derivation for the English VP-fronting example in (28) would proceed roughly as follows:

1. First construct the partial VP:  
[ *give the books to them in the garden* ]
2. Continue building structure through T<sup>o</sup>:  
[ *give books to them in the garden* ] *he did*
3. Copy the partial VP down into the complement of T<sup>o</sup>:  
[ *give books to them in the garden* ] *he did* [~~*give books to them in the garden*~~ ]
4. Merge the stranded adjunct into the lower copy:  
[ *give books to them in the garden* ] *he did* [~~*give books to them in the garden*~~ *on each other's birthdays* ]

In this way, the constituent [ *give books to them in the garden* ] is constructed early in the derivation but ‘destroyed’ later when the adjunct *on each other's birthdays* is merged. The constituency test (topic fronting) diagnoses the structure early in the derivation, while the hierarchy test (Condition A) diagnoses the structure at the end of the derivation, when the lower copy of the goal argument does in fact c-command the anaphor.

This model correctly predicts that constituency tests and hierarchy tests have the potential to diagnose different structures. Furthermore, it makes the prediction that different constituency tests may themselves diagnose different structures (by accessing different points in the derivation), while hierarchy tests will all agree with one another. Evidence from other English paradoxical constructions (including certain cases of stranding in ellipsis, right-node raising, and coordination) seems to support this. However, incremental structure building also strongly over-generates possible paradoxical constructions. VP-fronting constructions in English (and indeed in many languages) seem to resist stranding obligatory arguments:

(29) \*...and put the book he did on the table.

To account for this, Phillips proposes the Potentially-Complete VP Constraint: At least some processes (including VP fronting and VP ellipsis) can only target a VP which has all its argument positions filled. This constraint, insofar as it stipulates an adequate description of the facts in English, seems necessary under Phillips’ system in order to rule out examples like (29).

Paradoxical fronting in Akan *de*-serialization, however, in no way obeys the Potentially-Complete VP Constraint. The fronted element [ S de O<sub>1</sub> ] is not a potentially complete VP, and indeed is ungrammatical on its own:

- (30) \*Kofi de sekan no  
K. DE knife DEF  
Intended: “Kofi holds the knife.” or similar.

As such, in order to correctly capture the facts of Akan paradoxical fronting, we would need to relax the Potentially-Complete VP Constraint, leaving unexplained why that constraint should apparently be active in some languages and not others. But even with this constraint relaxed,

there is another issue with incremental structure building as an explanation for the Akan facts, namely the presence of the resumptive pronoun. Consider the final structure built by such a derivation:

(31) [ S de O<sub>1</sub> ] FOC [ T [~~S de O<sub>1</sub>~~ V O<sub>2</sub> ] ]

What portion of this is realized by the resumptive pronoun /ε/? If it is the lower copy of either S or O<sub>1</sub>, we have no explanation for the lack of matching φ-features on the argument. But the entire lower copy of the substring *S de O<sub>1</sub>* is not, in fact, a constituent, by virtue of the merger of the VP. While it is generally thought to be possible for a contiguous string of heads on the functional spine to receive a single morphological exponent, it seems highly unlikely for the head *de* and two DPs S and O<sub>1</sub> to be spelled out by a single element when they do not themselves form a constituent. Given this, incremental structure building is at best an unsatisfying explanation for the Akan facts.

#### 4.2 Landau and late adjunction

Landau (2007) proposes a much more modest solution that nonetheless similarly relies on derivational timing as the explanation for constituency paradoxes. He proposes that in VP-fronting constructions the stranded element is late-adjoined into the structure. Similar to Phillips, this accounts for the constituency paradox by destroying a constituent that was created early in the derivation, allowing constituency tests to access a constituent which does not exist when hierarchy tests are evaluated. Thus, the derivation of an English VP-fronting paradoxical sentence such as (28) would proceed as follows:

1. Building from the bottom up, construct the entire clause without the stranded adjunct:  
[ *he did give books to them in the garden* ]
2. Front the VP, leaving the lower copy:  
[ *give books to them in the garden* ] *he did* [~~*give books to them in the garden*~~]
3. Late-adjoin *on each other's birthdays* into the lower copy of the VP:  
[ *give books to them in the garden* ] *he did* [~~*give books to them in the garden*~~ *on each other's birthdays*]

As in Phillips' analysis, this correctly derives the contradiction between constituency and hierarchy tests. Furthermore, in so far as late adjunction is assumed to operate on otherwise-completed derivations, this seems to derive the Potentially-Complete VP Constraint, or something like it: Whatever prevents the derivation from proceeding to build higher levels of structure before the VP has its argument roles filled also prevents fronting an incomplete VP and then rescuing the derivation by late-adjunction. Note, however, that the final is identical to the one proposed by Phillips, and thus suffers the same deficiencies with regards to the resumptive pronoun — we have no more explanation for that pronoun under this analysis than under incremental structure building.

While Landau's analysis has the advantage of not needing to stipulate the Potentially-Complete VP Constraint, this is in fact a disadvantage in the case of Akan. As noted above, the fronted [ S de O<sub>1</sub> ] constituent is simply not potentially complete. Recall that with unaccusative main verbs, *de*-serialization acquires a causative reading, with O<sub>1</sub> corresponding to the subject of the unaccusative. Consider the derivation of paradoxical fronting under Landau's late adjunction analysis in the case of (32):

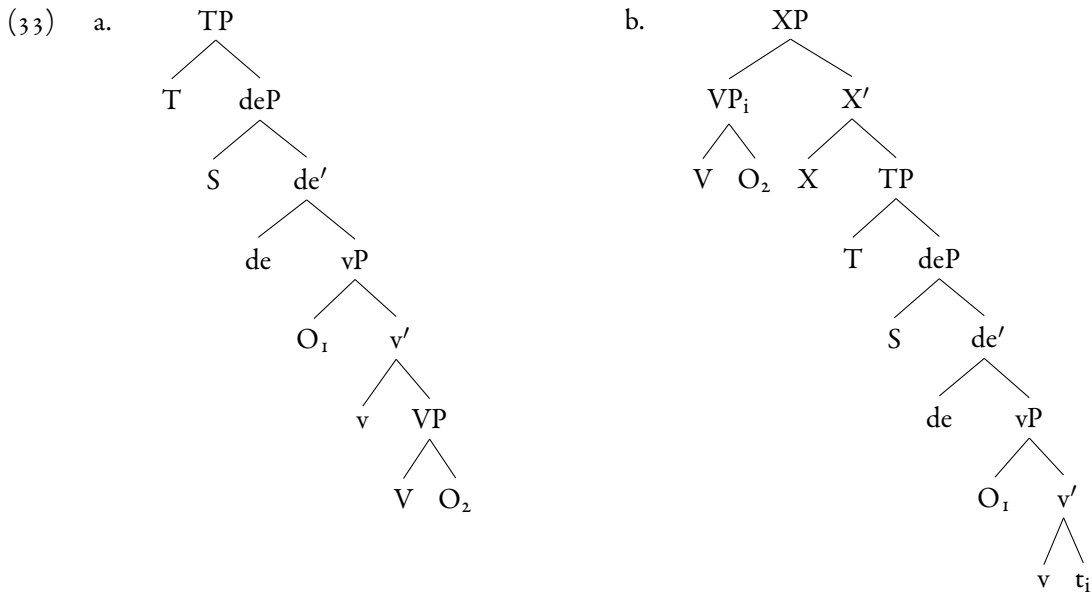
(32) S V<sub>1</sub> O<sub>1</sub> na RESUM V<sub>2</sub> O<sub>2</sub>  
 [ Ama de adaka no ] na ε sii table no so  
 A. DE box DEF FOC 3s.INAN sit.PST table DEF on  
 "It's the box that Ama put on the table."

1. Construct an ungrammatical string:  
*Ama de box* “Ama caused the box ...”
2. Continue building structure until the left periphery is reached.
3. Front [ S de O<sub>1</sub> ].
4. Late adjoin the verb ‘sit’ and assign a  $\theta$ -role to ‘box’.
5. Further late-adjoin the locative ‘on the table’.

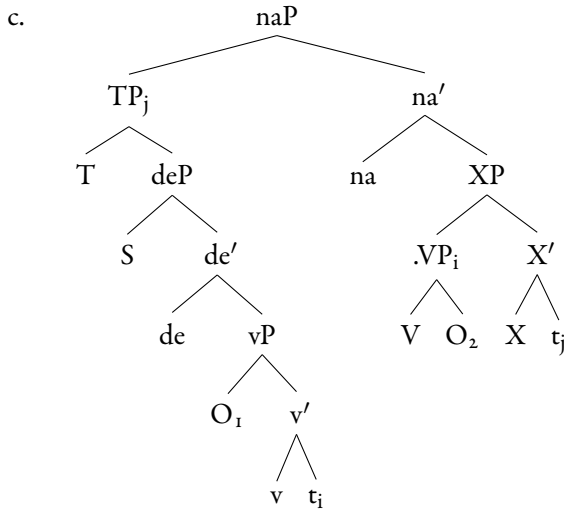
The Akan data thus not only fails to motivate a late adjunction analysis, but in fact would require a theory of late adjunction in which it could be used as a last-resort operation to rescue ungrammatical structures. This seems highly undesirable — at the very least, it would leave us without an explanation for the ungrammaticality of stranded arguments in English VP fronting such as \*... *and put the book he did on the table*, in that such sentences could be easily derived by late adjunction of the argument *on the table*.

#### 4.3 Remnant movement

A third, more conventional option for deriving constituency paradox effects is remnant movement. Such an analysis is proposed specifically for Akan by Martin (2014). In her analysis, the VP is first raised to a left-peripheral position, emptying vP and creating the constituent [ S de O<sub>1</sub> ]. The remnant material then focus-fronts to a higher position, deriving the correct word order. This is illustrated below.



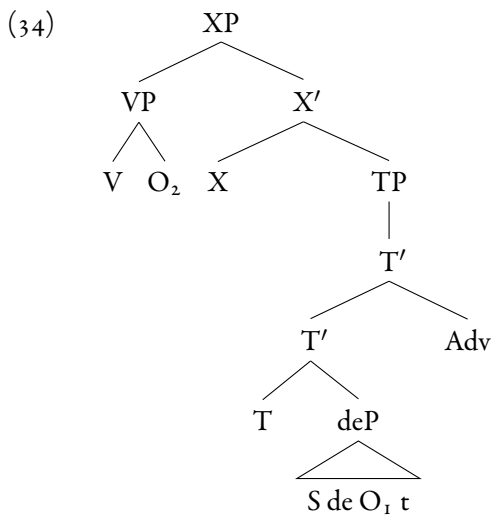
Martin begins with a structure in which *de* heads a projection below vP and introduces O<sub>1</sub> in its specifier. It is unclear to me that this analysis can derive either the correct word order or the correct distribution of the causative reading this construction; I’ve adjusted the trees in (33) to reflect my analysis of the structure of *de*-serialization.



While this analysis correctly captures the paradoxical facts, it falls down on several points. First, no independent evidence for the movement to spec,XP is given; in fact, XP is never identified. This derivation seems to rely on a kind of counter-cyclic triggering: Movement to spec,XP happens exactly when the later movement to naP must occur.

Second, this analysis fails to predict the location of the resumptive pronoun: If the resumptive pronoun is related to the movement of the material containing *de*, then the structure above seems to predict that it should occur sentence finally! In fact, Martin proposes that the TP first moves to some intermediate position YP above XP but below naP, and that it is movement out of this position that is resumed. This seems extremely stipulative.

Finally, this sentence incorrectly predicts that it should be possible to place temporal adverbs between  $O_1$  and /na/ in paradoxical focus-fronting sentences. To see this, consider the structure below, which represents an intermediary step in the derivation:



In (34), when the VP moves to spec,XP, the right-peripheral adverb is left behind. When TP undergoes focus fronting, that adverb moves with it. This is contrary to the empirical facts:

- (35) Ama de adaka no \*ɛnora na ɛ sii table no so  
 A. DE box DEF \*yesterday FOC RESUM sit.PST table DEF on  
 “It’s the box (\*yesterday) that Ama put on the table.”

One solution would be to focus-front only deP, stranding  $T^0$  at the right edge of the clause. This,

however, is also contrary to fact: The past tense in Akan may be optionally marked by an analytic T° /ná/; this marker is always left peripheral, even in paradoxical focus-fronting sentences:

- (36) a. ná Ama de adaka no ná ε si table no so  
 PST A. DE box DEF FOC RESUM sit table DEF on  
 “It’s the box Ama put on the table.”  
 b. \*Ama de adaka no ná ε si table no so ná  
 A. DE box DEF FOC RESUM sit table DEF on PST

The analytic past /ná/ is distinct from the focus marker /ná/.

In summary, Martin’s analysis, while much more conservative in the syntactic technology introduced, is highly stipulative and fails to account for the empirical facts. In the next section, I will propose a revised remnant movement analysis which I believe resolves all these issues.

## 5 RELABELLING AND REMNANT MOVEMENT

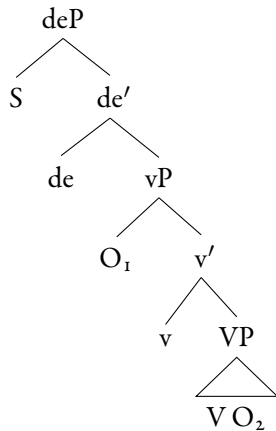
The crux of any proposed remnant movement is not the remnant movement proper, but rather the earlier movement which empties the remnant of the material not to be moved; for convenience, I will refer to this initial movement as ‘emptying’. Optimally, the emptying movement is independently motivated and occurs regardless of whether the remnant will proceed to move, avoiding the sort of countercyclic triggering in which emptying occurs exactly when a later remnant movement must occur. The analysis presented here will argue for an emptying movement which occurs in all *de*-serialization sentences, creating the [ S de O<sub>1</sub> ] constituent for later focus fronting. The justification for this emptying movement comes from the need to preserve certain locality relations in the functional sequence, most particularly between T° and V°.

I will start by proposing that the target of emptying movement is v’, and that it moves up to Merge with deP. This moved item is small enough, and the landing site local enough, to maintain the correct linear order of constituents in *de*-serialization sentences. I will then consider what the label for this new constituent should be and will propose that it is, perhaps unexpectedly, v’ that projects, creating a vP with deP in its specifier. This provides an explanation for the form of the resumptive pronoun left when deP moves. Finally, I’ll consider remnant-movement proper and show that this proposal correctly captures the facts of the constituency paradox.

### 5.1 *Emptying movement*

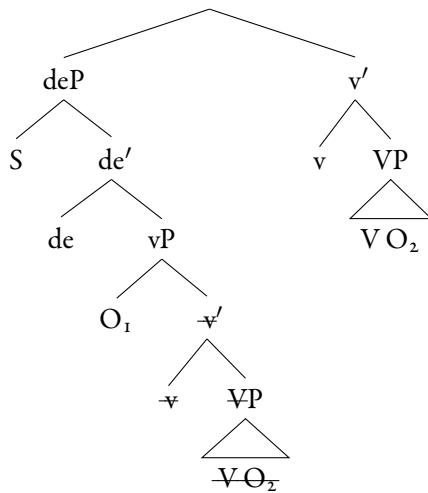
If emptying movement always occurs in base *de*-serialization sentences, it must be string vacuous. Consider the base structure proposed for *de*-serialization above, repeated in (37) for convenience. This structure already derives the correct linear order, and in fact is the simplest possible Merge order which will do so. As such, any deviation from this structure must occur in such a way as to leave the linear order of terminals undisturbed. This fact alone points to rightward movement of some constituent. I propose that that constituent is v’, which is moved right to the edge of deP giving the structure in (38):

(37) Structure of *de*-serialization clauses before emptying:



The root of the tree in (39) is left deliberately unlabeled at present.

(38) Emptying movement (provisional):



It may seem unusual to move an intermediary projection of  $v^{\circ}$ , but in fact this is the only constituent which is big enough to include all the emptied items but small enough to exclude  $O_1$ . Kandybowicz (2015) argues that Akan clausal structure is best understood to have  $Asp^{\circ}$  low, inside the vP. Furthermore, he argues that in all Akan clauses in which  $Asp^{\circ}$  is empty,  $V^{\circ}$  raises through it to  $v^{\circ}$ ; if  $Asp^{\circ}$  is filled, then the verb stays low and only  $Asp^{\circ}$  raises. Given these facts, the target of emptying movement must be big enough to include both  $Asp^{\circ}$  and  $v^{\circ}$  — if the target of the movement were either VP or  $AspP$ , we would expect it to be capable of stranding the verb (or the aspect marker) inside the remnant. This would further predict that the verb (or aspect marker) would be fronted along with the [ S de  $O_1$  ] constituent, contrary to fact. As such, the only constituent which is both big enough to contain  $v^{\circ}$  but to exclude  $O_1$  is  $v'$ .

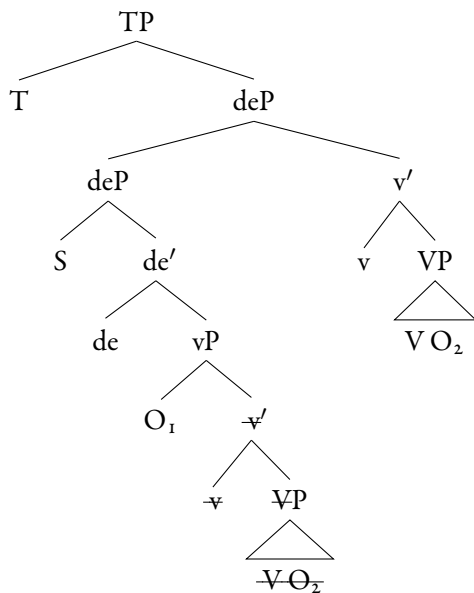
Moving  $v'$  to deP correctly derives the linear order of constituents. In particular, the target of movement is large enough to include any low-attaching adverbs (i.e. manner), while the landing site is low enough to be below any high-attaching ones (i.e. temporal). This does not permit the emptying movement to leave any adverbs in sentence-medial position, which is empirically true:

- (39) a. Kofi de sekan no (\*ntemntem) twaa nam (ntemntem).  
 K. DE knife DEF (\*quickly) cut.PST fish (quickly)  
 “Kofi quickly cut fish with the knife.”
- b. Kofi de sekan no (\*enora) twaa nam (enora).  
 K. DE knife DEF (\*yesterday) cut.PST fish (yesterday)  
 “Kofi cut fish with a knife yesterday.”

## 5.2 Relabelling

Chomsky (2013) argues that Merge is a symmetric operation — in principle, either argument can become the head of the output object. When emptying movement merges  $v'$  and  $deP$ , either one can head the newly-created constituent. The more orthodox option projects the target of movement (namely  $deP$ ). The derivation would continue by merging  $T^{\circ}$ , yielding the structure in (40):

### (40) Emptying movement (rejected):



This structure has several undesirable consequences. The first of these is that  $v'$  is now adjoined to  $deP$ . Under the standard assumption that adjuncts are islands for further movement, this should predict that  $O_2$  is unavailable for further movement, in particular for focus fronting. However, this is contrary to fact:

- (41) nam na Kofi de sekan no re- twa Ø.  
 fish FOC K. DE knife DEF PROG- cut RESUM  
 “It’s fish that Kofi is cutting with the knife.”

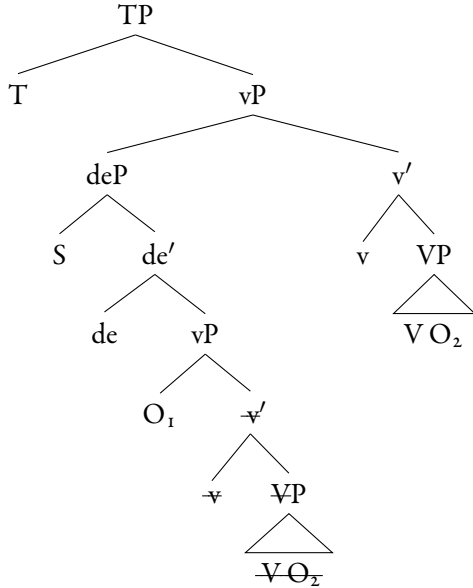
A further undesirable consequence comes from considering V-to-T movement. As noted above, Akan verbs raise to T in the past tense (Kandybowicz 2015). However, in (40), this raising is ruled out by the Head Movement Constraint: The most local head to  $T^{\circ}$  is not  $v^{\circ}$  (which  $V^{\circ}$  is assumed to occupy) but rather  $de^{\circ}$ , and so the verb is prevented from raising.

The final undesirable consequence of allowing  $deP$  to project comes from paradoxical focus fronting itself. If the category  $deP$  (in the sense of the category/segment distinction from May 1985) is the target of focus fronting, and if this fronting is triggered by probing from above, then the probe should find the higher segment of  $deP$ , not the lower — that is, it should target the  $deP$  which also dominates the raised  $v'$ . It should not be able to target only the lower  $deP$  even though it is in fact the lower  $deP$  which constitutes the remnant we need to move. In short, the

structure in (40) fails to even accomplish the goal of making the [ S de O<sub>1</sub> ] constituent available for remnant movement!

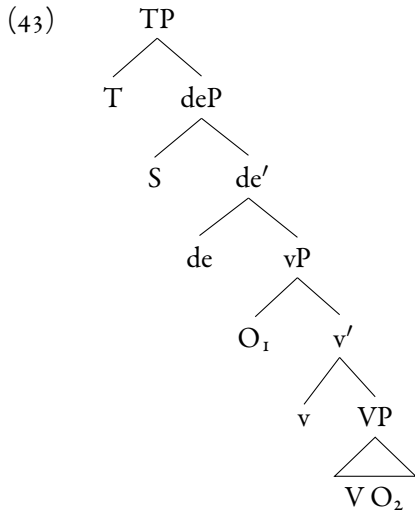
Instead, then, I propose that it is not deP but rather v' that projects. This follows the spirit (if not the letter) of Cecchetto & Donati (2015) in that it is the moved item that projects the label for the new constituent, 'relabeling' that constituent from deP to vP. After merging T°, this yields the structure in (42):

(42) Emptying movement (final):



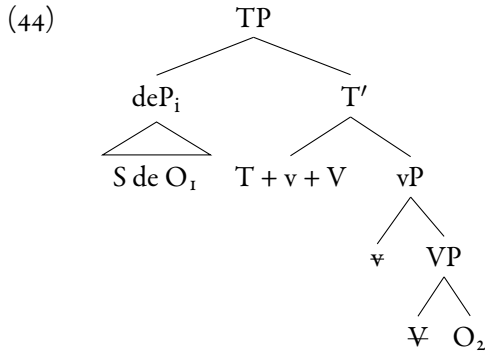
This structure has the valuable property that deP is now located in the specifier of vP. Thus, vP itself is not an adjunct, and we have an explanation for the availability of O<sub>2</sub> for extraction; further, no head now intervenes between T° and v°, making V-to-T raising possible. Finally, deP itself is now available for extraction, making possible the [ S de O<sub>1</sub> ] fronting we are seeking to explain.

It is worth pausing here to consider the justification for this emptying movement. Consider the proposed structure for *de*-serialization clauses without the emptying movement, shown below:





In (43), V-to-T raising should be impossible by the Head Movement Constraint:  $de^{\circ}$  intervenes and prevents raising. Thus, the structure in (43) seems insufficient. By contrast, the emptying movement proposed in (42) does allow verb-raising, though one additional fact is necessary to derive the correct word order. Kandybowicz provides evidence from quantifier float that, exactly when the verb raises to T, the subject raises to Spec,T. By extending this generalization to say that it is not the subject *per se* but rather the contents of spec,vP that raises, we derive the correct word order:



Thus, we seem to have independent evidence that this emptying movement must occur in all *de*-serialization sentences.

### 5.3 Remnant movement proper

Once the emptying movement has occurred, focus fronting is free to apply to the remnant deP. We must now consider the location of the fronted phrase. In particular, there is a surprising contrast between ordinary and paradoxical focus fronting with respect to the placement of temporal adverbs: While ordinary fronting may cross adverbs, paradoxical fronting apparently may not:

- (45) a. Kofi na ɔkyina ɔ de kaa be- kɔ fie  
 K. FOC tomorrow RESUM DE car FUT- go home  
 'It's Kofi who will drive home tomorrow.'  
 b. \*Kofi de kaa na ɔkyina ε be- kɔ fie  
 K. DE car FOC tomorrow RESUM FUT- go home

However, recall that Akan has an analytic past tense marker, *na*. Kandybowicz notes that this particle is a direct spellout of  $T_{PAST}$ . If we take this particle to always mark the location of  $T^{\circ}$ , we have direct evidence that there are two focus positions in Akan, one above TP and one below:

- (46) (Kofi na) na (Kofi na) re- didi bayere  
 K. FOC PST K. FOC PROG eat yam  
 "It's Kofi who was eating yam."

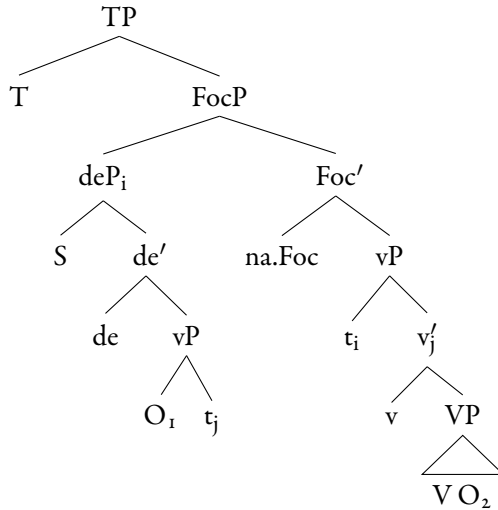
It seems that the paradoxical constituent is only capable of moving to the lower position:

- (47) (na) Kofi de sekan na (\*na) ε re- twa nam  
 PST K. de knife FOC PST EXPL PROG cut fish  
 "It's Kofi with the knife that was cutting the fish."

While the explanation for this is unclear, we might speculate that *de*, as a light verb, is verbal enough that it can't be interpreted above TP. Verbs in general cannot be focus fronted in Akan without leaving an explicit copy below TP, lending plausibility to this account.

This leaves us with the structure in (48) for paradoxical fronting after remnant movement has occurred:

(48)



Note that deP has been extracted from Spec,vP. A' extraction from this position is independently known to trigger subject-form resumptive pronouns — in particular, all subjects are obligatorily resumed when focus fronted:

- (49) Kofi na \*(o) re- di bayere  
 K. FOC RESUM PROG- eat yam  
 “It’s Kofi that’s eating yam.”

As such, allowing emptying movement to create a structure in which deP sits in the specifier of vP gives independent reason to expect that it should leave a subject-form resumptive. That this pronoun is the inanimate form  $\epsilon$  rather than the animate  $o$  follows from the fact that deP is not a DP would be unexpected to bear  $\phi$ -features. In fact, Korsah (2015) has shown that  $\epsilon$  is in fact used as an expletive form elsewhere in the language; it seems expected that the language would default to this unmarked form for resuming an object like deP.

In sum, the remnant movement analysis proposed here derives all the unusual features of Akan paradoxical movement: A short, relabeling movement of v' empties the deP for later remnant movement, while also creating a structure in which it is expected that deP would leave behind an expletive subject resumptive pronoun. This emptying movement serves to bring the verb back into a local configuration with T° in *de*-serialization, providing independent justification that does not rely on countercyclic triggering by the later remnant movement.

## 6 CONCLUSIONS

The remnant movement analysis provided here has several critical advantages over the similar analysis proposed by Martin (2014). That analysis relied on leftward movement into the specifiers of several unidentified heads; in addition, no independent justification was provided for the emptying movement, and no solution was given for de° apparently intervening between T° and V°. By contrast, the analysis here involves an emptying movement that solves the verb raising locality issue in addition to explaining why focus fronting of deP should leave behind a subject resumptive.

As far as the constituency paradox facts, it seems that the emptying movement obligatorily reconstructs — this allows each DP to c-command those that linearly follow it, true to fact. Given that right-extraposition is known to reconstruct in other languages, this seems a very reasonable assumption. Remnant movement and reconstruction are both commonly-posed operations, certainly unlike Phillips’ incremental structure building and also Landau’s late adjunction, making the proposal conceptually simpler as an account of constituency paradoxes.

However, the relabeling movement proposed here is comparatively new. While Minimalist

theorizing has typically assumed since Chomsky (1995) that labeling must be independent of Merge, comparatively few theories have made use of relabelling movement. The most notable recent example is Cecchetto & Donati (2015). They argue that relabelling accounts for many phenomena cross-linguistically, most notably free relatives, and propose a formal mechanism to capture when it will be possible for a moved item to project a label.

The relabelling movement proposed here differs from the C&D proposal in one crucial respect. They argue for a system in which ‘words’ (by which they roughly mean syntactic terminals) have special ‘labeling power’ and are uniquely able to project even when not simultaneously selecting their sister. That is, in C&D’s proposal, only movement of a bare head (and not of a multi-word phrase) can cause relabelling. This limitation is crucial to their analysis of free relatives, enabling them to (correctly) rule out sentences like (50):

(50) \*I read which book you read.

In C&D’s account, (50) is ungrammatical on the grounds that the *wh*-phrase ‘which book’ cannot move and project a DP label to create the free relative, being too big; only individual words are capable of projecting movement.

By contrast, in the proposal developed here for Akan,  $v'$ , which is certainly larger than just a bare head, moves and projects. It seems, then, that at least some larger units are capable of relabelling, contra C&D. It may be that we should abandon their restriction and entirely and find some other means to rule out (50). However, there is at least one possible way to maintain the C&D account while also capturing the Akan facts.

In C&D’s proposal, there are two ways in which a syntactic object can project:

- A. SELECTION: If in the operation  $\text{Merge}(\alpha, \beta)$   $\alpha$  selects  $\beta$ , then  $\alpha$  may project.
- B. WORDHOOD: If in the operation  $\text{Merge}(\alpha, \beta)$   $\alpha$  is a word,  $\alpha$  may project.

C&D call option (1) the ‘probing principle’ and characterize selection in terms of probing.

As  $v'$  is certainly not a word, we might hypothesize that it is principle (A) which is responsible for its projection. This amounts to saying that it is  $v'$ , and not  $\text{deP}$ , which triggers the emptying movement. While this is perhaps unusual, consider for a moment the alternative, namely that  $\text{deP}$  is responsible for moving  $v'$ . The head of  $\text{deP}$  is already sister to  $v\text{P}$ ; any selectional features looking for  $v^\circ$  must surely have been satisfied beforehand; furthermore, any probe from  $\text{de}^\circ$  or from  $\text{deP}$  should see the maximal  $v\text{P}$ , not the intermediary  $v'$ . It thus seems unlikely that  $\text{deP}$  is responsible for this movement. While allowing  $v'$  to select  $\text{deP}$  from this configuration requires some modification to our current syntactic machinery, it would allow us to keep the letter of C&D’s proposal. It remains to weigh the consequences of such an adjustment with the consequences of relaxing C&D’s restriction and simply allowing non-minimal projects to trigger relabelling. Such considerations are beyond the scope of this paper and remain for future research.

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