

On fusion and multiple copy spell-out

The case of verbal repetition*

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Focusing on the case of verbal repetition in Nupe, a Benue-Congo language spoken in central Nigeria, this chapter shows that verbal repetition constructions are mono-clausal syntactic objects in which the participating verbs are neither independently base-merged, as in the case of verb serialization for instance, nor are they related through reduplicative copying in the morphology/phonology. Rather, it is argued that these constructions involve chain formation and post-syntactic morphological reanalysis, which allows phonetic realization of multiple links/copies at PF. The chapter also adds some refinements to Nunes's (1999, 2004) proposal on the interaction of the syntactic component with the PF wing of grammar as far as phonetic realization of multiple copies is concerned.

1. Introduction

The Copy theory of movement (Chomsky 1995a) receives strong empirical support from instances of displacement that leave behind phonetically detectable copies. This article discusses the consequences of one such phenomenon for the Minimalist conception of movement: the phenomenon of verbal repetition. A verbal

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repetition construction (VRC hereafter) is a string in which multiple discrete and segmentally non-distinct verbal occurrences surface within a single clause. These doubled occurrences are realized without the multiplication of the verb's overt arguments or the mediation of coordination/subordination. VRCs are attested in a number of languages and encode a variety of meanings typically associated with functional projections above vP (e.g. polarity, emphasis, topic, and focus). Nonetheless, they are often overlooked in the descriptive and theoretical literature. The data below represent a small sampling.

- (1) I. Polarity-related VRCs
- a. Nupe
Musa è **gi** bise **gi**.
Musa PRS eat hen eat
'Musa IS eating the hen.'
 - b. European Portuguese (Martins this volume):
O João **comprou** o carro, **comprou**.
the John bought the car bought
'John DID buy the car.'
 - c. Mandarin Chinese (Huang 1991):
Tā **xihuan** bu **xihuan** zhe ben shu?
he like not like this CL book
'Does he like this book (or not)?'
- II. Emphatic VRCs
- d. Haitian (Harbour to appear):
Lame a **kraze kraze** vil la.
army the destroy destroy town the
'The army *really* destroyed the town.'
 - e. English (Ghameshi et al 2004):¹
I don't just like her. I **LIKE** like her.
cf. 'I *really* like her.'

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Unless otherwise indicated, the data in this article comes from fieldwork and reflects the dialect of Nupe spoken in Lafiagi. High tone is marked with an acute accent over the vowel and low tone is indicated by a grave accent. Mid tones are unmarked.

1. In English, it is possible to generate multiple copies of the verb along with the verb's arguments (see Ghameshi et al. 2004).

(i) I don't just like her. I **LIKE** HER like her.

Thus, the mechanism of verbal repetition in English is flexible with respect to the quantity of syntactic material it can copy and thus differs from the other languages presented in (1). Furthermore, in certain dialects it is possible to double the auxiliary provided that the initial auxiliary element

- III. Contrastive topic/focus VRCs
- f. Russian (Lee 2002):
 Maria **pri**-dti-to **pri**-shl-a. . .
 Maria come-dti-TOP come-PST-FEM
 'Maria CAME (but. . .)'
- g. Hungarian (Lee 2002):
 Meg-erkez-ni meg-erkez-ett. . .
 PREV-arrive-INF PREV-arrive-PST
 'S/he ARRIVED (but. . .)'
- h. Brazilian Sign Language (Nunes and Quadros 2004):
 I LOSE BOOK LOSE
 'I LOST the book (as opposed to say, *sold* it).'

Focusing on the case of verbal repetition in Nupe (cf. (1a)), a Benue-Congo language spoken in central Nigeria, we will demonstrate that VRCs are mono-clausal syntactic objects in which the participating verbs are neither independently base-merged, as in the case of verb serialization for instance, nor are they related through reduplicative copying. Rather, we will argue that VRCs involve chain formation and phonetic realization of multiple links at PF (i.e. multiple copy spell-out).

The conceptual tools made available by both the Copy theory of movement and Distributed Morphology (Halle and Marantz 1993, 1994) pave the way for a rigorous analysis of Nupe verbal repetition. In this article, we argue that unlike typical cases of movement, the derivation of a Nupe VRC includes a special post-syntactic operation that enables the phonetic realization of multiple copies of a Root morpheme in both the head and a lower intermediate position of a non-trivial chain. We follow Nunes (1999, 2004) in assuming that post-syntactic Morphological Reanalysis (interpreted as FUSION in Distributed Morphology) allows for the linearization and subsequent spell-out of multiple chain links. Nonetheless, we present two motives for refining his analysis of chain linearization in its current state. One, the analysis crucially rests on the stipulation that fused chain links are invisible to the linearization algorithm (understood as the Linear Correspondence Axiom (Kayne 1994)). In response, a modification of Nunes' system is proposed which eliminates this stipulation and instead appeals solely to the status of an n-tuple of

is reduced and the two auxiliary copies are not string adjacent. The data below illustrates this fact (data from David Adger, personal communication to Jairo Nunes as cited in Nunes 2004: 170).

- (ii) a. %They might've not **have** left.
 b. *They might have not have left.
 c. *They might've have left.
 d. *They might have have left.

We draw attention to verbal repetition in English merely to highlight the existence of the phenomenon close to home, although it may turn out that verbal repetition in English does not involve the variety of syntactic copying proposed in this article (cf. Travis 2001).

chain links as *distinct* or *non-distinct*, notions that are conceptually necessary once the Copy theory of movement is assumed. We show that once this move is made, the previously mentioned stipulation can be derived. A second desideratum for revising Nunes' framework is that the Fusion operation is ultimately empirically unmotivated. That is, there are currently no proposals on the table that seek to derive, constrain, and motivate the functions of the operation. Consequently, accounts of multiple copy spell-out that appeal solely to Fusion lose considerable explanatory force and thus fall short of principled explanation. In response to this state of affairs, we offer an account of the forces at work driving the operation, as illuminated by the Nupe VRC. We conclude that Fusion is triggered by purely phonological/prosodic requirements. Once all is said and done, these modifications allow for a principled account of Nupe VRCs, something that is anomalous under a Government-Binding style trace-theoretic approach to movement. The article thus provides empirical motivation for the Copy theory of movement, sheds light on the mechanics of Copy spell-out operations, and contributes to a refined understanding of the Fusion operation.

The article unfolds as follows. Section two provides the reader with a brief introduction to Nupe syntax. In Section three, we provide a brief descriptive overview of the Nupe VRC and adduce evidence that it is a derived mono-clausal construction owing to syntactic non-reduplicative copying. Section four advances an analysis of the phenomenon and proposes the modifications to Nunes' framework alluded to above. The article concludes in Section five with a brief summary and some closing remarks.

2. Brief overview of Nupe syntax

Here we consider only those aspects of Nupe syntax that will be directly relevant to our analysis of VRCs. The claims advanced in this section were previously laid out in Kandybowicz and Baker 2003 and Kandybowicz 2006a. The interested reader is invited to consult these sources for further information.

Nupe verb phrases appear to exhibit a degree of mixed directionality. Whether VO or OV word order surfaces depends both on the tense/"aspect" of the clause (in a way reminiscent of Vata (Koopman 1984)) and the Case status of the verb's object. As shown below in (2b), accusative objects that normally follow the verb come to precede the verb in the "perfect". Locative objects, however, follow V in the "perfect" (2c).

- (2) a. Musa è si dukùn. (VO)
 Musa PRES buy pot
 'Musa is buying a pot.'

- b. Musa á dukùn si. (OV)
 Musa PERF pot buy
 ‘Musa has bought a pot.’
- c. Musa á ci kata-o. (VO_{LOC})
 Musa PRF lie house-LOC
 ‘Musa has laid down in the house.’

There is telling evidence that the tense and the “perfect” marker (cf. note 2) occupy hierarchically distinct syntactic positions in the language. VP-initial adverbs cannot precede tense markers (3a), while the same adverbs must precede the “perfect” element (3b). In addition, tense and “perfect” morphemes can be stacked and separated by adverbs (3c), further suggesting their autonomy.

- (3) a. Musa (*dàdà) à dàdà si dukùn.
 Musa quickly FUT quickly buy pot
 ‘Musa will quickly buy the pot.’
- b. Musa dàdà á (*dàdà) dukùn si.
 Musa quickly PRF quickly pot buy
 ‘Musa has quickly bought the pot.’
- c. Musa (g)à dàdà á nakàn ba aní.
 Musa FUT quickly PRF meat cut already
 ‘Musa will have quickly cut the meat already.’

This suggests that tense markers are independent particles as opposed to verbal prefixes. It also suggests that the Nupe “perfect” marker does not occupy a T/Infl position, but rather inhabits some lower head, say v^0 .² Because tense markers are not prefixed to verbs, there is evidence that verbs do not raise to T^0 in the language. However, on the standard assumption that v^0 is a bound morpheme and must not be stranded (Lasnik 1981, 1995), we assume that verbs raise to v^0 in order to lend support just in case the head is syntactically unfilled (i.e. not occupied by the “perfect” morpheme *á*). If we postulate the existence of Accusative and Locative Case-checking functional projections between the shells of the verb phrase as in Travis

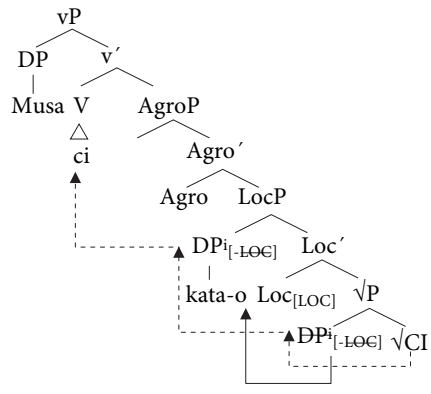
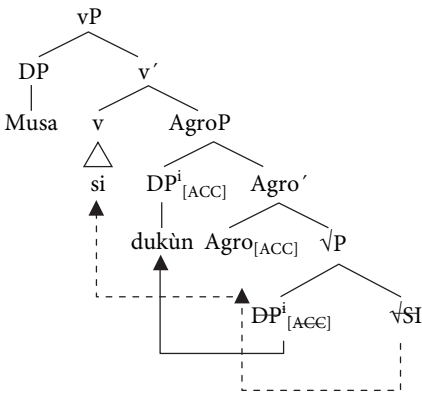
2. Justification for generating “perfect” *á* in v^0 rather than some other functional head such as Aspect⁰ comes from the fact that Nupe *á* is historically related to *lá* ‘take’, as in many other West African languages (Stahlke 1970), and v^0 is the natural home for light verbs like ‘take’. Thus, the Nupe “perfect” construction has its historical origins in a serial verb construction source. What’s more, apart from *á*, Nupe does not appear to make use of any additional aspectual morphology, rendering the postulation of an Aspect projection somewhat dubious. Of course, nothing crucially hinges on this assumption. If we were to generate the perfect marker in a functional head higher than v^0 , we would simply have to shift our structures up accordingly. We assume that little *v* is present in all transitive and unergative clauses, where it plays a role in assigning the external theta-role. Whether it is also present in unaccusative clauses is more controversial. We assume that it is, but does not assign a theta-role in that context (cf. Bowers 1993, Baker 2003, Chomsky 2001, 2005, among others).

1991, Koizumi 1995, Baker and Collins 2006, among others, we can account for the mixed word order patterns discussed above. VO orders arise whenever the verb Root is able to raise to a head position higher than the Case-licensing position occupied by the object. OV orders, on the other hand, obtain when the verb Root fails to reach v^0 , but Case-driven movement proceeds as usual. This difference is illustrated below.³ In this way, Nupe is head-initial in the base and verb raising is motivated.

(4) VO → Acc Case movement + raising to v^0 VO_{LOC} → Loc Case movement + raising to v^0

a. Musa si dukùn.
 Musa buy pot
 ‘Musa bought a pot.’

b. Musa ci kata-o.
 Musa lie house-LOC
 ‘Musa laid down in the house.’

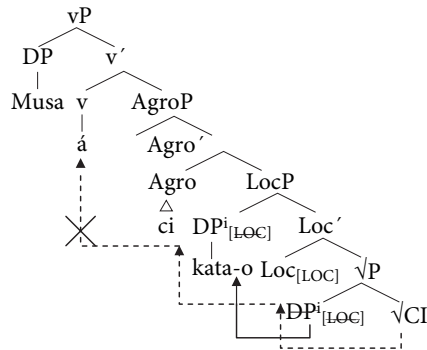
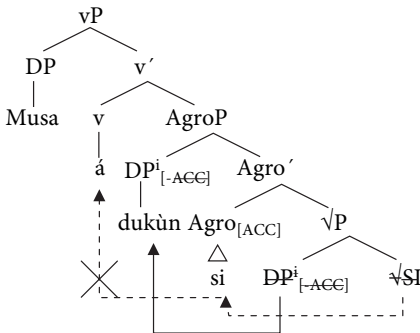


OV → Acc Case movement - raising to v^0

VO_{LOC} → Loc Case movement - raising to v^0

c. Musa á dukùn si.
 Musa PRF pot buy
 ‘Musa has bought a pot.’

d. Musa á ci kata-o.
 Musa PRF lie house-LOC
 ‘Musa has laid down in the house.’



3. Kandybowicz & Baker (2003) argue that goal arguments in Nupe are generated in complement positions and themes in Spec, \sqrt{P}/VP (cf. Larson 1988, Baker 1989, 1996, 1997, Stewart 2001). Thus, the \sqrt{P} s in (4) are not head-final projections.

3. The Nupe VRC

This section is divided in two. In the first part, we provide a brief semantic overview of the phenomenon and furnish evidence that V1 and its copy are clause mates. Following this, we consider the derivational status of the construction. These considerations will drive the forthcoming analysis in Section four.

3.1 Descriptive preliminaries

One potentially formidable challenge facing the VRC analyst is that in order to provide an adequate treatment of the construction, a number of syntactic, semantic, and phonological facts must be confronted, as we will see. For now, we begin by enumerating some key semantic properties of verbal repetition. As the article progresses, a variety of syntactic and phonological properties will be considered.

Nupe VRCs are emphatic declaratives that assert the truth-value of a proposition or presupposition that contrasts with the hypothesized truth-value of a discourse-salient assertion. (Although *hypothesized*, the truth-value of this contextually salient assertion is not in doubt to the speaker.) Because the truth-value of a contextually salient utterance is promoted in the discourse, we characterize Nupe VRCs as POLARITY FOCUS constructions, following the terminology of Hyman and Watters 1984. As such, VRCs in the language are focus constructions that operate at the level of the proposition. The following discourses highlight these semantic properties. Note that unlike European Portuguese (Martins (this volume), cf. (1b)), Nupe VRCs are not limited to negative contexts (5b).

- (5) a. A: Musa pa eci à.
 Musa FT⁴ pound yam à
 ‘Musa didn’t pound the yam.’
 B: Ebà, Musa pa eci pa.
 yes Musa pound yam pound
 ‘Yes, Musa DID pound the yam.’
- b. A: Musa pa eci.
 Musa pound yam
 ‘Musa pounded the yam.’
 B: Hahà, Musa pa eci pa à.
 no Musa FT pound yam pound à
 ‘No, Musa DID NOT pound the yam.’

A number of facts suggest that Nupe VRCs are mono-clausal syntactic objects – that is to say, VRCs do not involve bi-clausal structures that are derived by eliding the

4. FT abbreviates “floating tone” and in this environment represents the negative morpheme. See Kandybowicz 2006a for more on floating tones in the language.

relevant parts of the second clause. For one thing, subject/topic drop is unavailable in the language, rendering unlikely the hypothesis that V2 inhabits a (subject-less) clause distinct from that of V1 (e.g. Musa pound yam. ~~Musa~~/he pound.). Prosodically, there is no break separating V2 from the rest of the clause, nor is there evidence suggesting that V2 inhabits a major prosodic domain (i.e. intonation phrase) that is distinct from that of V1 (see Kandybowicz 2004 for details).⁵ Additionally, neither tense nor “aspect” markers may precede V2 (6a). And lastly, although verbal repetition constructions can be negated as a whole (5b), the verbs themselves cannot be individually negated (6b).

- (6) a. *Musa à yà etsu èwò à/á yà.
 Musa FUT give chief garment FUT/PRF give
 ‘*Musa WILL give the chief a garment.’
 b. Elúgi ' fu (*à) (*) fu à.
 bird FT fly à FT fly à
 ‘The bird DID NOT fly.’

These facts strongly suggest that V1 and V2 are clause bound.

3.2 Derivational status

We can ask whether the verbal occurrences in VRCs are syntactically related or independent terms. In the context of a Copy-theoretic framework, the burden of proof is to show that verbal repetition in a language with rich verb phrase structures like Nupe is a derived construction and not a variety of some existing verb phrase construction type in which the verbs were independently base-merged. One such construction that immediately comes to mind is the serial verb construction (SVC), examples of which are provided below.

- (7) a. Consequential SVC:
 Musa à wan bise zun gi.
 Musa FUT catch hen slaughter eat
 ‘Musa will catch the hen, slaughter it, and (then) eat it.’
 b. Resultative SVC:
 Musa è fo èwò li.
 Musa PRS wash garment be clean
 ‘Musa is washing the garment clean.’

5. See the pitchtracks in (32) for this prosodic evidence. Note the absence of a break separating SV_1O from V_2 , although a break does separate V_1 from OV_2 in some cases (cf. (32b,d,e)). Evidence that this interval does not constitute an intonation phrase break comes from the fact that pitch is not reset following the pause.

- c. Purposive SVC:
 Musa à ba nakàn lo dzukó.
 Musa FUT cut meat go market
 ‘Musa will cut the meat in order to go to the market.’

VRCs and SVCs have a number of syntactic properties in common. In both constructions, the verbal elements appear without marking of coordination or subordination, some of the arguments of the serialized/repeated verbs are overtly missing, and there is a single tense/aspect specification for all verbs in both constructions. There is evidence, however, that the constructions are distinct, that is, that VRCs are not merely SVCs that happen to have the same V1 and V2.

The first piece of evidence is semantic. Nupe SVCs come in three semantic varieties; those that have temporal sequencing interpretations (cf. Consequential SVCs (7a)), those with causal interpretations (cf. Resultative SVCs (7b)), and those with purposive meanings (cf. Purposive SVCs (7c)) (see Stewart 2001 for detailed discussion). VRCs, on the other hand, can only be construed as polarity focus constructions.

We can adduce a number of syntactic arguments illustrating the same point. First, a well-known fact about Resultative SVCs is that V2 cannot be unergative in the construction (Stewart 2001), as shown below (8a). However, in a VRC, V2 *can* in fact be unergative (8b).

- (8) a. *Elúgi à nìkìn fu.
 bird FUT fall fly
 *‘The bird will fall, thereby causing it to fly.’
 b. Elúgi à fu fu.
 bird FUT fly fly
 ‘The bird WILL fly.’

Our second syntactic argument concerns the fact that in Nupe SVCs, only the initial verbal occurrence may be repeated. Consider the following.

- (9) a. Musa **du** eci **du** kun.
 Musa cook yam cook sell
 ‘Musa DID cook and (then) sell the yam.’
 b. *Musa du eci **kun kun**.
 Musa cook yam sell sell

With respect to VRCs, however, *neither* verb can undergo (further) repetition, as shown below. (Note that in the following examples it is unclear whether it is V1 or V2 that is being repeated. This, however, is irrelevant for the purpose at hand because if VRCs were actually SVCs with identical verbal occurrences, at least one of the two serialized occurrences should be capable of repetition as in (9a).)

- (10) a. *Musa è gi bise gi gi.
 Musa PRS eat hen eat eat
 b. *Elúgi à fu fu fu.
 bird FUT fly fly fly

The data in (10) illustrate another interesting point, namely, that there is an upper bound on the number of overt verbal occurrences that may surface in a VRC. In particular, given that a maximum of two verbal copies may surface⁶, we can think of the derivational operation responsible for yielding VRCs as being bounded. The number of verbs that can occur serialized, however, is syntactically unbounded. (7a) shows that it is possible for more than two verbs to surface in an SVC, unlike in VRCs. An additional syntactic difference between the two constructions worth noting concerns extraction. VRCs, unlike SVCs, seem to be islands. Object extraction from SVCs (for example) is permissible, as shown in (11a). However, object extraction from VRCs is blocked (11b).

- (11) a. Eci, Musa du ___ kun o.
 yam Musa cook sell o
 ‘It’s the YAM that Musa cooked and (then) sold.’
 b. *Eci, Musa du ___ du o.
 yam Musa cook cook o
 *‘It was the YAM that Musa DID cook.’

One last asymmetry concerns the fact that unlike VRCs, SVCs are possible in the “perfect”.

- (12) a. Musa á eci du kun.
 Musa PRF yam cook sell
 ‘Musa has cooked and sold the yam.’
 b. Musa á eci du du.
 Musa PRF yam cook cook
 *‘Musa HAS cooked the yam.’

We are thus led to the conclusion that VRCs are not a sub-species of serial verb constructions. In that case, the participating verbal occurrences are not generated independently of each other, as in SVCs.

There are reasons to believe that the relationship between the verbal occurrences in VRCs is not the by-product of reduplication either. Native speaker judgments (Smith 1970) and experimental results (Kandybowicz 2004) confirm that despite

6. Smith 1970 reports that up to three copies of the verb may surface in the Nupe VRC. While this might have been a grammatical possibility in older varieties of Nupe, it is clearly inadmissible in the present-day grammar in both the local dialect studied by Smith (Bida Nupe) and the dialect investigated in this article (Lafiagi Nupe).

perceptible differences in the fundamental frequencies of the verb and its copy (see Section 4.2.2), the tones on V1 and V2 belong to the same phonological tone category (tonal class), such that the tonal specification of V2 is a function of the categorical tonal identity of V1. This is striking because tone is not perfectly copied in the case of verb reduplication (nominalization) in the language. The data in (13) illustrate that the reduplicant prefix always bears a mid tone (the unmarked tone in the language) regardless of the tonal specification of the base.

- (13) gé ‘be good’ gi-gé ‘being good’
 du ‘cook’ du-du ‘cooking’
 yà ‘give’ yi-yà ‘giving’

Notice also that in Nupe verb reduplication there is a base-reduplicant vowel height alternation in certain forms (e.g. ‘being good’, ‘giving’). As is evident upon inspection of the VRC data presented thus far, there are no such categorical tonal/vowel alternations between the verb and its double.

We thus conclude that Nupe verbal repetition is a phenomenon distinct from both verb serialization and verb reduplication. That is to say, VRCs are distinct *derived* constructions in the language. Additional justification for this conclusion comes from the fact that one of the verbal occurrences does not project – although there are twice as many segmentally non-distinct verbal elements in a VRC, it is not the case that there are twice as many surface thematic arguments. This is shown below.

- (14) a. *Musa à yà etsu èwò yà etsu èwò.
 Musa FUT give chief garment give chief garment
 b. *Musa è gi bise gi bise.
 Musa PRS eat hen eat hen

This is precisely what we would expect if one of the verbal occurrences were a phonetically realized copy of a single element selected from the initial numeration; in other words, if the repeated verbal occurrence were derived rather than base-merged.

With these preliminaries out of the way, we turn now to our derivational analysis of Nupe VRCs.

4. Derivation and analysis

The ultimate goal of this section is to determine how and why multiple copies of the verb Root are phonetically realized in VRCs. The *how* part of the question concerns the consequences of multiple copy spell-out for linearization. How is it that seemingly non-distinct elements entering into an asymmetric c-command

relation come to be linearized in line with the Linear Correspondence Axiom? The *why* question, however, is perhaps deeper. Given that economy principles disfavor pronouncing elements that are unnecessary at the PF interface level (Landau 2004), why is it the case that a second lower copy of the verb comes to be pronounced at all? That is to say, what grammatical principles license and ultimately force the spell-out of V2?

We begin by considering the narrow syntactic derivation of the VRC, concentrating on the structural and derivational qualities that distinguish VRCs from simple declaratives. We then follow the derivation from the output of narrow syntax to the PF component, where the issues of multiple copy spell-out and chain linearization arise. In this stretch, we propose answers to the *how*'s and *why*'s mentioned above, refining Nunes' (1999, 2004) theory of chain linearization along the way.

4.1 Narrow syntactic derivation of VRCs

4.1.1 *Low (clause-internal) focus phrase*

A good starting point for the syntactic analysis of any novel or under-investigated construction type is to identify the dimensions of variation that distinguish the construction from simpler and better understood constructions in the language. With the exception of an additional verbal occurrence, VRCs do not appear considerably different than simple declaratives on the surface. That is, VRCs do not invoke special overt functional particles or cause drastic shifts in word order with respect to V1 and its dependents.

- (15) a. Musa à ba nakàn.
 Musa FUT cut meat
 'Musa will cut the meat.'
- b. Musa à ba nakàn ba.
 Musa FUT cut meat cut
 'Musa WILL cut the meat.'

Along the semantic dimension, however, VRCs and simple declaratives show considerable variation. As previously discussed, the polarity of a proposition is focused in a VRC. In this respect, the basic semantic difference between VRCs and simple declaratives is one of focus: VRCs are focus constructions and simple declaratives are not. This semantic difference can be cashed out in syntactic terms.

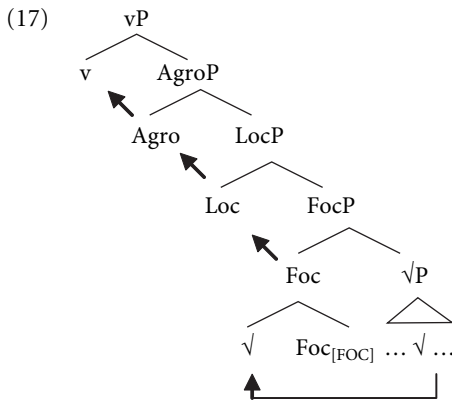
We propose that VRC derivations involve the merger of a phonetically null Focus head not found in basic declaratives. Because neither the focused verb phrase nor any of the two verbal occurrences appear to occupy a peripheral position in the linear order (cf. (6b), (9a)), it is unlikely that VRCs involve movement to a left peripheral Focus position. Rather, given the fact that the locus of polarity focus is verb phrase related, we propose that the source of VRC focus is syntactically low,

that is, somewhere within the Nupe vP shell structure (cf. (4)). In this respect, we follow Belletti (2001, 2003), who motivates the existence of a low Focus Phrase, in addition to its peripheral counterpart. Furthermore, we propose that the phonetically null low Focus⁰ bears an interpretable Focus feature that the verb Root picks up as it raises to v⁰. In this way, the head of the propositional vP is endowed with LF-legible Focus features. As our discussion unfolds, further evidence for positing this Focus feature will come to light.

Before moving forward with this proposal, we need to decide where in the vP shell structure the low Focus head is merged. Given the vP architecture motivated in (4), there are basically three live options:

- (16) a. v >> Foc >> Agro >> Loc >> √
 b. v >> Agro >> Foc >> Loc >> √
 c. v >> Agro >> Loc >> Foc >> √

We opt for the placement of the low Focus head below Agro⁰ and Loc⁰ (option (16c)). Although supporting empirical evidence will have to be briefly postponed, we can at least offer some independent conceptual justification for this placement. Kandybowicz and Baker (2003) furnish evidence that this intermediate space within the vP structure is independently motivated to host other functional material in the language, such as the infinitival particle in modal-auxiliary constructions. The vP structure we assume to underlie the VRC is presented below. The arrows indicate the verb Root's path of head adjunction to v⁰.



4.1.2 *Sigma phrase*

Verbal repetition is just one way to assert the truth of a proposition in Nupe. Another is by way of the sentence-final factive particle *ni*.

- (18) Musa à ba nakàn ni.
 Musa FUT cut meat FACT
 ‘Musa will in fact cut the meat.’

The semantic and pragmatic properties of Nupe factives closely parallel those of VRCs as described in Section 3.1, the exception being that factives are used exclusively in situations in which the truth of a previous assertion is in doubt and confirmation is being offered by the speaker. Given the semantic contribution of *ni*: as a polarity-related propositional operator, a natural place to assume its generation is in Sigma Phrase (ΣP – Laka 1990). It is reasonable to assume something along these lines as far as verbal repetition constructions are concerned as well. We can say that unlike *ni*:, which is the overt exponent of Σ^0 , the head of ΣP in VRCs is pronounced \emptyset^7 . ΣP is thus the locus of polarity in VRCs.

But where is ΣP merged in the Nupe clause structure? Laka (1990) claims that ΣP placement is crosslinguistically variable, being positioned above TP in Basque and below TP in English, for example. Although it might be natural to assume that it occupies a left-peripheral position such as Force Phrase (Rizzi 1997), there are good reasons for thinking that ΣP occupies the syntactic space just above TP, as in Basque. Our primary source of evidence for this claim comes from what appears to be an Agree relation (Chomsky 2001, 2004) that holds between Σ^0 and the v^0 in a VRC. As the following data show, VRCs are ungrammatical whenever movement to v^0 is blocked. In (19a), movement to v^0 is blocked by the “perfect” marker, which was argued in Section 2 to reside in v^0 . In (19b–c), V2 is once again prevented from moving into v^0 given the presence of structurally higher verbs that presumably come to occupy this position.

7. Incidentally, verbal repetition and factive *ni*: are not mutually exclusive within the same clause, as shown below. This is entirely expected under the assumption that the surface distribution of the verbal occurrences is unrelated to the ΣP projection (as proposed in Section 4.2.1.).

- (i) Musa ba nakàn ba ni:
 Musa cut meat cut FACT
 ‘Musa DID in fact cut the meat.’

An anonymous reviewer points out that nothing in the analysis presented in Section 4.1.2. excludes the possibility of having both verbal repetition and factive *ni*: within a “perfect” clause. Because *ni*: is not a probe in Nupe (see the discussion below this note), the lead repeated verb need not surface in v^0 , i.e. in the vP phase edge. Therefore, given the acceptability of (i) above and the analysis presented in Section 4.1, nothing should block factive VRCs in the “perfect”, despite the fact that *ni*:-less VRCs are ungrammatical in the “perfect” (cf. (12b)). As it turns out, “perfect” factive VRCs *are* fully grammatical in the language, as shown in (ii) below. This lends further support to the syntactic analysis of VRCs presented in this section.

- (ii) Musa á nakàn ba ba ni:
 Musa PRF meat cut cut FACT
 ‘Musa HAS in fact cut the meat.’

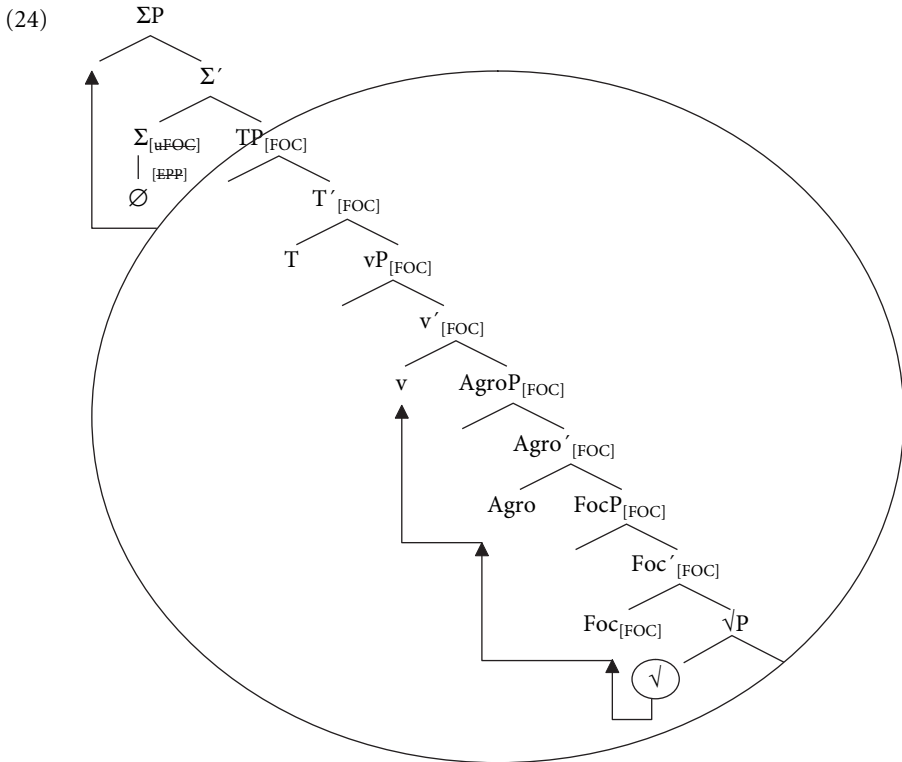
- (22) a. *Musa, ___ à ba nakàn ni: o.
 Musa FUT cut meat FACT o
 *‘MUSA will in fact cut the meat.’
- b. *Nakàn, Musa à ba ___ ni: o.
 meat Musa FUT cut FACT o
 *‘Musa will in fact cut the MEAT.’
- c. *Èsun, Musa à ba nakàn ___ ni: o.
 tomorrow Musa FUT cut meat FACT o
 *‘Musa will in fact cut the meat TOMORROW.’

Movement of a TP-internal constituent from Spec, Σ would violate the CED/Subject Condition (Huang 1982). In this way, we derive the island status of factive constructions in the language from the placement of Σ P above TP. If Σ P were located below TP, however, vP-internal subject movement to Spec,T would also violate the CED. Given that subjects clearly raise to Spec, T in factives (cf. (21)), it is clear that Σ P dominates TP.

We can extend this analysis to null Σ^0 in VRCs. Although we do not find independent confirmation in the form of word order facts as in the case of the *ni:* construction, we can derive the fact that VRCs are also strong islands if we assume that TP raises to Spec, Σ in a VRC. Consider the following data.

- (23) a. *Zèé ___ du eci du o?
 who cook yam cook o
 *‘Who DID cook the yam?’
- b. *Ke Musa du ___ du o?
 what Musa cook cook o
 *‘What DID Musa cook?’
- c. *Kàfi Musa du eci du ___ o?
 when Musa cook yam cook o
 *‘When DID Musa cook the yam?’

We propose that this movement is driven by the fact that the unvalued/uninterpretable Focus feature on probe Σ^0 bears the EPP property. Because head movement to positions higher than v^0 is prohibited in the language (cf. Section 2), the EPP property of the probe cannot be satisfied by head adjunction of the goal (i.e. the complex v^0 head) to Σ^0 . Rather, this EPP requirement must be fulfilled by alternate means. We propose that the goal (i.e. the interpretable Focus feature) percolates up the tree to TP and that following feature percolation, the TP is pied-piped into Spec, Σ . In this way, we derive the fact that Nupe VRCs involve polarity focus of a *proposition* rather than a predicate – the category that undergoes movement to Spec, Σ (TP) is a propositional category, rather than a bare predicate or minimal predicate phrase. A schematic of the narrow syntactic derivation of the Nupe VRC we are proposing is presented below.



We conclude this sub-section by providing further justification for the separation of ΣP from vP (i.e. for locating ΣP above TP and having the verb Root fail to head move into Σ^0). In the case of the repetition of CP complement-taking verbs like *gàn* ‘say’, both copies of the verb must precede the clausal complement. Orders in which the copies of *gàn* flank the CP complement are ungrammatical, as illustrated below.

- (25) a. Musa **gàn gàn** gánán Nàn`á ba nakàn.
 Musa say say that Nana cut meat
 ‘Musa DID say that Nana cut the meat.’
 b. *Musa **gàn** gánán Nàn`á ba nakàn **gàn**.
 Musa say that Nana cut meat say

Setting aside the technical details of multiple copy chain realization for the time being, suppose that in the spirit of work by Nunes (1999, 2004), the head of a chain is privileged at PF, that is to say, is typically realized phonetically (all things being equal). If *gàn* were to raise directly to Σ^0 and the remnant TP were to raise around it into $Spec, \Sigma$ as before, unattested orders like the one in (25b), in which a copy of the verb (i.e. the head of the chain) comes to *follow* the CP complement,

would be derived. This further dovetails with our claim that verbal head raising past v^0 is not tolerated in the language (cf. Section 2). Similar arguments can be made regarding the placement of low adverbials (i.e. adverbs of manner and location) relative to V2 in a VRC. As shown below, both occurrences of the verb must appear to the left of the adjunct series.

- (26) a. Musa yà etsu èwò yà sanyin (*yà) efo cigban o (*yà).
 Musa give chief garment give quietly give hole tree LOC give
 ‘Musa DID give the chief a garment quietly under the tree.’
- b. Musa du eci du hàràfiya (*du).
 Musa cook yam cook well cook
 ‘Musa DID cook the yam well.’

Assuming these low adverbials occupy positions internal to the moved TP, a fairly uncontroversial assumption, unattested orders in which V2 comes to follow the adjunct series are derived if the verb Root directly raises into Σ^0 . We thus take it that there is sufficient evidence for maintaining the position that the Σ head and V1 are minimally separated by T^0 in a VRC.

4.2 VRCs at the syntax-phonology interface

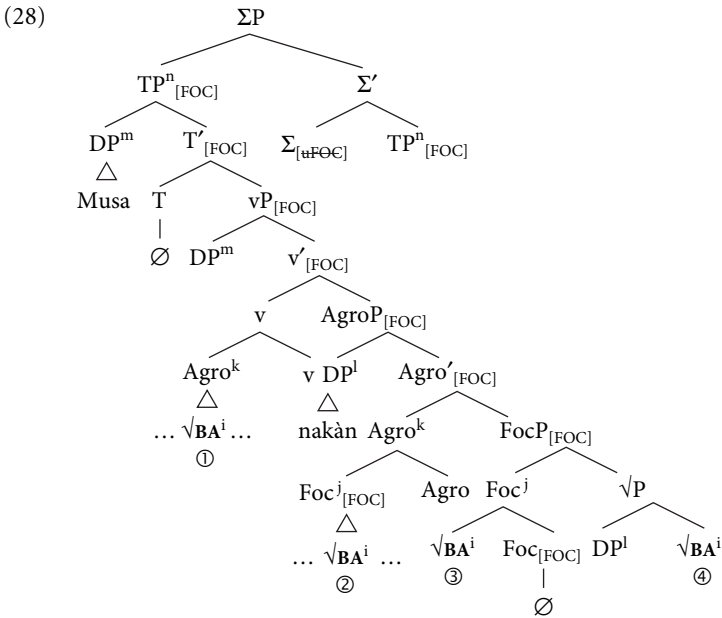
Now that we have explored the narrow syntactic side of the VRC derivation, we can approach the derivation from the PF side. It is at this point in the computation that many of the defining properties of VRCs take shape. At PF, a decision is made regarding which copies of the verb Root are to be realized phonetically, which are to be erased, and how the resulting output is to be linearized. Whatever mechanism allows for multiple copy spell-out and linearization is also to be found here. In this section, we focus on these aspects of the VRC derivation, our ultimate goal being to discover and understand the conditions that drive multiple copy spell-out in VRCs.

4.2.1 *Fusion and multiple copy linearization*

Before proceeding, let’s briefly recapitulate. Take a simple monotransitive VRC such as the one given below and consider its derivation thus far.

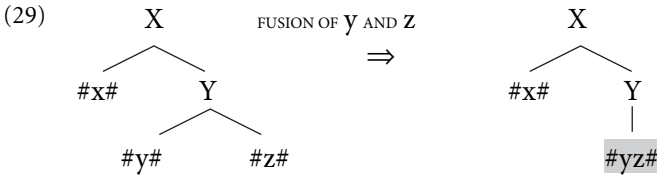
- (27) Musa ba nakàn ba.
 Musa cut meat cut
 ‘Musa DID cut the meat.’

The output of the narrow syntactic derivation contains several non-trivial chains, among them, the subject-raising, the object-Case, and the pied-piped TP chains. Setting these cases aside, the crucial chain for the purposes of VRC composition is the chain formed by raising the verb Root to v^0 . In the structure presented below, the links of this chain are boldfaced and numbered for visual convenience.



The verb Root raising chain transferred to PF consists of four morphosyntactically non-distinct links that must be linearized in accordance with the LCA in order for the output to satisfy the basic PF Bare Output criterion that language be instantiated in real time. Because two segmentally identical verb Roots are pronounced in a Nupe VRC, it must be the case that two of these four chain links escape the operation of CHAIN REDUCTION (Nunes 2004) and come to be successfully mapped onto a linear order. In most instances of Copy movement, however, failure to delete all but one link (typically the chain head) results in an unlinearizable syntactic object, causing the derivation to crash at PF (Nunes 1995, 2004). Consider the output given in (28). Assuming a first-branching *category* definition of c-command (Kayne 1994), if links 1 and 2 were spelled-out, then the Root copy adjoined to v^0 in link position 1 would asymmetrically c-command the object in Spec, AgroP⁸ and thus would have to be pronounced before the object in accordance with the LCA. On the other hand, because the object asymmetrically c-commands the Root copy adjoined to Agro⁰ in link position 2, the very same object must linearly precede

8. Assuming a *first-branching category* definition of C-command (Kayne 1994), the first branching category dominating the Root morpheme is v , which also dominates AgroP. Although Foc⁰, Agro⁰, and v^0 also dominate the Root morpheme (cf. (i) below), they are *segments* rather than *categories* (May 1985), and thus do not count for purposes of C-command calculation on the above definition.



If we adopt this line of thought – that one of the two surviving verbal copies has undergone Fusion/Morphological Reanalysis, we can surely account for the multiple verbal occurrences that surface in Nupe VRCs in Nunes’ terms. However, we must ask ourselves how principled an explanation this really is. How can we detect the presence of Fusion? Why does Fusion occur in some, but not all cases of chain formation? That is, what forces Fusion in the first place? And even if an analysis in terms of Fusion is motivated, how precisely do the mechanics of linearization interact with the operation to guarantee the successful phonetic realization of multiple copies? The drawback of directly applying a Nunes-style analysis to an investigation into the phonetic realization of multiple chain links is that it offers no rigorous or falsifiable answers to these questions. We believe that Nunes’ take on Fusion and chain linearization is ultimately correct, but that it currently lacks explanatory rigor and principal. By investigating Nupe VRCs in these terms, however, we can arrive at principled answers to these questions. The remainder of this section is devoted expressly to this purpose.

Suppose we buy into Nunes’ claim that Morphological Reanalysis via Fusion allows for the possibility of multiple copy spell-out. The question, then, is which link in the Root raising chain is subject to Fusion? That is, which of the four copy-hosting heads in (28) triggers the application of Fusion? Given that the lower copy of the verb follows all Case-checked objects, including locative Case-marked DPs (cf. (30) below), the head that triggers Fusion must be lower than the Agro layer (cf. (4)).

- (30) a. Musa pa (*pa) eci pa.
 Musa pound pound yam pound
 ‘Musa DID pound the yam.’
- b. Musa à yà (*yà) etsu (*yà) èwò yà.
 Musa FUT give give chief give garment give
 ‘Musa WILL give the chief a garment.’
- c. Musa leci (*leci) èmì o leci
 Musa lie lie house LOC lie
 ‘Musa DID lie down in the house.’

This eliminates all but link positions 3 and 4 as the possible Fusion sites in (28). We can throw out the possibility that link 4 is the locus of Morphological Reanalysis because the Root in that position has no structural sister and thus the structural

description for Fusion is not met in that case (cf. (29)). This leaves us with link position 3, i.e. the low Focus head, as the head that is responsible for triggering Morphological Reanalysis of the verb Root in VRCs. What makes this proposal appealing is the fact that the existence of the low Focus head is unique to the verbal repetition construction in Nupe, explaining why Fusion and subsequent multiple copy spell-out are attested in VRCs, but not in simple declaratives or other locutions.

As it stands, our analysis provides a first approximation of how it is that VRCs come to be linearized. Owing to Morphological Reanalysis, the link adjoined to the low Focus head is invisible to the LCA. Consequently, the only chain links visible to the linearization algorithm are the unfused links: the head, tail, and intermediate link adjoined to *Agro*⁰ (cf. (28)). As in typical applications of Chain Reduction, the chain head survives and the visible lower links are erased/marked for deletion at PF, leaving the head and the fused intermediate link in *Foc*⁰ for pronunciation. The success of this analysis, however, rides on Chomsky's (1995a: 337) stipulation that morphologically reanalyzed links are invisible to the LCA. But why should this be the case? If reanalyzed links are terminal nodes and the LCA functions to establish linear relations among terminals, why should fused links be exempt from or invisible to the workings of the LCA? Nunes (1999, 2004) simply adopts this stipulation without argument or conceptual motivation. However, without a principled account of how Fusion facilitates multiple copy spell-out, an analysis couched in these terms loses explanatory force. Moreover, although our approach confers tremendous explanatory power on the Fusion operation, it has nothing to say regarding the *motivation* for Fusion in the first place. Our analysis thus shifts the burden of explanation onto a poorly understood phenomenon. Without a theory characterizing and constraining the operation of Fusion, we cannot hope to achieve an explanatorily adequate analysis of Nupe verbal repetition.

In fact, we can reach this goal if we reject Chomsky's stipulation that Fusion renders a chain link invisible to the LCA and rely instead on the dichotomy between *distinct* and *non-distinct* occurrences, concepts that are independently necessary once the Copy theory of movement is assumed. After all, Chomsky's idea that the LCA fails to apply word-internally was primarily motivated on theory-internal/conceptual grounds (i.e. relating to Bare Phrase Structure) rather than on an empirical basis. Nunes' (1999, 2004) theory of chain linearization is already equipped to handle cases of multiple copy spell-out without this stipulation. On his account, spelling-out multiple non-distinct syntactic occurrences will lead to a linearization failure. Therefore, Chain Reduction applies to delete as many non-distinct occurrences as are needed to map the string onto a linear order. Assuming that Fusion has applied to the low Focus adjunction structure in the derivation mapped out in (28), it is instructive to ask how many of the four

links formed by head raising are *non-distinct* from one another. The answer in this case is three, namely, all chain members apart from the fused link. Let's elaborate. Because Morphological Reanalysis/Fusion destroys the pre-existing morphological structure of its input component parts and introduces into the PF derivation an entirely *new* morphological word with new morpheme boundaries (Chomsky 1995a, Nunes 1999, 2003, 2004), a morphologically fused chain link will be *morphologically* distinct from the unfused link(s) it is associated with. A fused chain link is also *syntactically* distinct from its associates. Prior to Fusion, the two participating syntactic objects (terminals) stand in a sisterhood relation. Following Fusion, they occupy a single terminal node (cf. (29)). In this way, the fused link in low Foc⁰ is *morphosyntactically* distinct from all remaining chain links and needn't be removed by Chain Reduction in order for linearization to proceed. We arrive at the same conclusion previously stipulated by Nunes: fused links are immune to elimination by the linearization computation. As terminal nodes, they are still visible and subject to the LCA. However, they are no longer part of the set of nodes evaluated for linearization purposes as the other links of the chains they comprise. Thus, in the case of Nupe VRCs, despite the fact that both surviving copies appear *segmentally* non-distinct, the morphosyntactic differences between the two links (owing to Morphological Reanalysis) guarantee that they will be differentiated by the linearization computation and hence be successfully linearized.

Under this interpretation of chain linearization, the distinctness of multiple syntactic occurrences need not be determined solely by appealing to the initial numeration as in Chomsky 1995a and Nunes 1999, 2004. Rather, the difference between distinct and non-distinct terms is a derivational by-product, computed on-line and chain-internally in both the narrow syntax and at PF (following operations of the Morphological component like Fusion). This assessment is referenced throughout the entire linearization computation.

- (31) For any pair of expressions σ, σ' , σ and σ' are *non-distinct* if and only if
- i. σ and σ' are related by chain formation AND
 - ii. σ and σ' are morphosyntactically isomorphic

Because Fusion disrupts the isomorphism between a chain link and its associates, fused links are rendered distinct from their chain-mates. Thus, following Fusion, the linearization computation has one less chain link to evaluate. This in turn gives the appearance that fused links are invisible to the LCA.

4.2.2 *What drives fusion?*

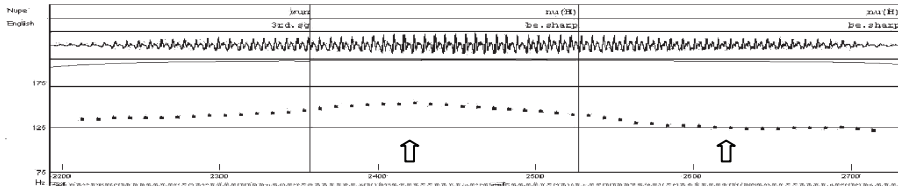
Thus far, we've provided an account of *how* multiple phonetically realized verbal copies in Nupe come to be successfully linearized, but we have not yet justified *why* this is the case. That is, we have provided no motivation for the operation of

Fusion at PF other than to account for the double realization of the verbal Root. We have simply assumed the existence of the operation. In this section, we aim to do better. Our goal is to determine the precise condition that triggers Morphological Reanalysis in Nupe VRCs.

So, what drives the Fusion operation that triggers the spell-out of the lower copy of the verb Root? Thus far in the literature, no substantive proposals have been advanced in this respect. Given that Fusion is purportedly a post-syntactic operation of the PF interface, it would seem reasonable to seek an explanation in either morphological or phonological terms. One clue we can exploit in our efforts to better understand VRCs in the context of Fusion is that the surviving (i.e. pronounced) verbal occurrences are not perfectly identical, contrary to initial impressions. Although there are no segmental or discernible morphosyntactic differences between V1 and V2 to directly support a Fusion analysis, prosodic effects of the process can be detected, suggesting that purely phonological considerations may be responsible for driving Fusion. The fundamental frequencies (f_0) of tones on V1 (in particular, High tones) are significantly greater than those of V2, even when confounding factors such as pitch declination, downdrift, and tonal coarticulation are factored away (Kandybowicz 2004:48). That is to say, tones on V2 appear to be somewhat depressed in the construction. Because this lowering is independent of other phonetic factors that tend to lower the fundamental frequencies of tones (e.g. declination, downdrift, and tonal coarticulation of neighboring tones), this effect is somewhat unexpected from a purely phonetic/phonological perspective. These facts are illustrated in the following data.⁹ (32a–b) illustrate that repeated verbs lexically specified to bear High tones surface with f_0 values characteristic of Mid tones. (32c), when combined with the data in (32a–b), provides a minimal pair showcasing the fact that the fundamental frequencies of High tone-bearing second verbs in serial verb constructions (SVCs) are not depressed as in VRCs. (32d–e) show that f_0 depression on V2 is much less pronounced when the repeated verb is underlyingly specified to bear either a Mid or Low tone.

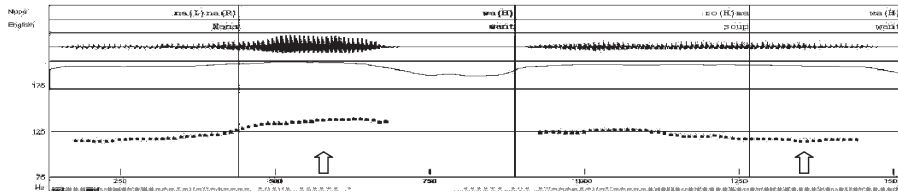
- (32) a. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:
 Wun nú nú.
 3rd.sg be sharp be sharp
 ‘It IS sharp.’

9. The dots on the lower half of the pitch track represent detected f_0 values (increasing along the y-axis) over time (increasing along the x-axis). The vertical lines demarcate word boundaries.



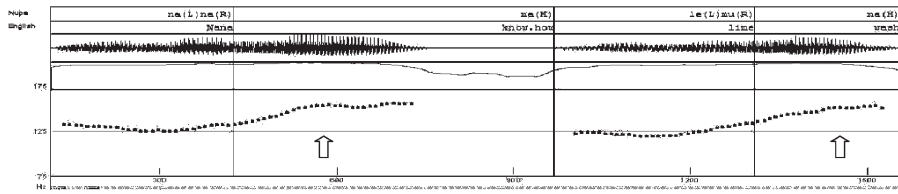
b. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànáá wá róma wá.
 Nana want soup want
 ‘Nana DOES want soup.’



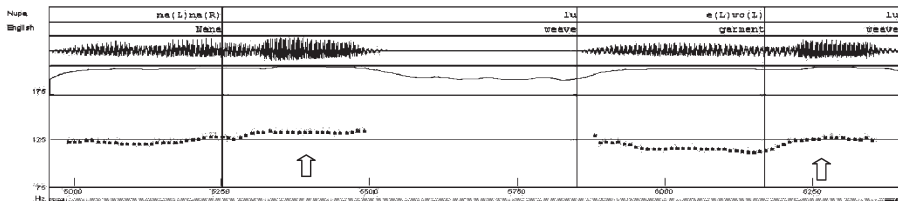
c. PITCH-TRACK FOR THE FOLLOWING NUPE SVC:

Nànáá má lèmuú ná.
 Nana know lime wash
 ‘Nana knows how to wash the lime.’



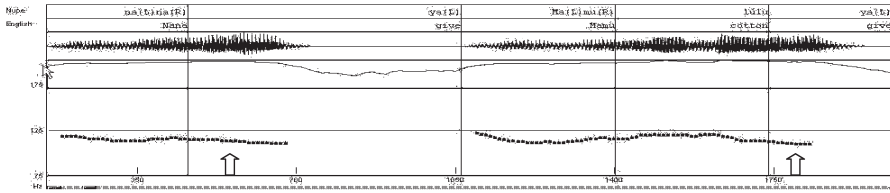
d. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànáá lu èwà lu.
 Nana weave garment weave
 ‘Nana DID weave the garment.’



e. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànáá yà Màmúú lulu yà.
 Nana give Mamu cotton give
 ‘Nana DID give Mamu cotton.’



To the extent that f_0 lowering on V2 is not a consequence of typical prosodic factors at play in tonal lowering, as previously mentioned, we have incentive to explore the Fusion operation from a morphophonological perspective.

Previously, we analyzed the low Focus head present in VRCs as a phonetically null morpheme (cf. (28)). In this way, the phonetic realization of the low Focus morpheme can be treated as parallel to that of the peripheral Focus marker found in *wh*-questions and focus constructions in the language (Kandybowicz 2006a). In other words, the claim is that all vocabulary items inserted into Foc^0 in Nupe, whether peripheral or low, are devoid of phonetic/prosodic content.

$$(33) \quad [\text{Foc}^0] \leftrightarrow \emptyset$$

Suppose instead that in contrast to peripheral Foc^0 , the exponent of the low Focus morpheme, while devoid of any *segmental* content, is a categorically low “floating tone” ('^0), that is, an exponent that has exclusively *suprasegmental* content. We postulate the following insertion rules to encode this difference. Note that low Foc^0 is contextually differentiated from ‘elsewhere’ occurrences of Foc^0 (i.e. head-adjointed copies and left peripheral instances) in that only low Foc^0 is syntactically left adjacent to \sqrt{P} .

$$(34) \quad \begin{array}{l} \text{a. } [\text{Foc}^0] \leftrightarrow (\text{'}) / ___ \sqrt{P} \\ \text{b. } [\text{Foc}^0] \leftrightarrow \emptyset \text{ (elsewhere)} \end{array}$$

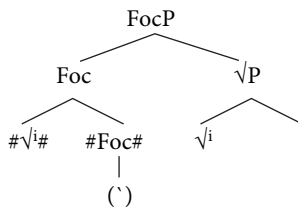
By “floating tone”, we simply mean a suprasegmental property/instruction regarding tone not lexically linked to an overt timing unit. Floating tones are independently attested in Nupe. For instance, negation in the language has been standardly analyzed as involving two pieces: a sentence-final particle and a pre-verbal floating High tone (FT) that affects the tonal realization of tense markers and occasionally verbs (Banfield and Macintyre 1915, Madugu 1982: 33). An example is provided below.

$$(35) \quad \begin{array}{l} \text{Musa } (\text{'}) \text{ è } \text{ ba } \text{ nakàn } \text{ à.} \\ \text{Musa }_{\text{FT}} \text{ PRS } \text{ cut } \text{ meat } \text{ à} \\ \text{'Musa isn't cutting the meat.'} \end{array}$$

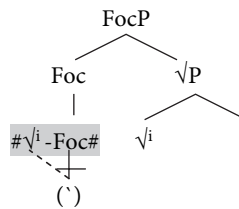
The presence of the floating High tone in cases of negation is easily detectable. In the case of (35), for example, the present tense morpheme, which is otherwise

pronounced on a Low tone, surfaces with a distinct Mid tone (i.e. a raised Low tone). Likewise, the presence of a floating Low tone on low Foc^0 would explain the lowered fundamental frequencies observed on V2 in VRCs if this floating tone were somehow associated with the tonal tier of V2. Given that suprasegmental entities such as tones must dock onto overt prosodic material if they are to be phonetically instantiated, we can begin to formulate an account of why it is that low Focus heads trigger Fusion in Nupe. In order for the floating Low tone exponent of low Foc^0 to be realized at PF it must associate with a prosodic unit, otherwise it will be phonologically illegible/uninterpretable, causing the resulting derivation to crash. We claim that the optimal scenario under which this association comes to pass involves the Fusion of low Foc^0 with the verbal Root morpheme, made possible by the step in the narrow syntactic derivation in which the verb Root raised and adjoined to the left of low Foc^0 (cf. (17)). In this way, the two occurrences (verb Root + low Foc^0) are forged into a single morpheme and the floating tone is provided with a local prosodic domain with which to dock. In this environment, the tonal coarticulation of the tone on the verb with the newly associated floating Low tone results in the lowering or depression of the verb's fundamental frequency. That is, the f_0 values of the two tone-bearing units are *averaged* together rather than *interpolated* to form a contour tone (cf. (32a,b,d,e)). Had the floating Low tone simply associated with the tone on the verb copy rather than Fusing with it, we would expect to see the identities of the two tone-bearing morphemes preserved. That is, we would expect to observe the creation of a tonal contour. This argues in favor of the conglomeration/Fusion of the participating tonemes over mere concatenation. Our proposal is graphically illustrated below.

(36) a. PRE-FUSION



b. POST-FUSION

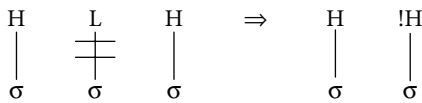


On this approach, Fusion is taken to be a highly constrained operation. It applies as a repair strategy, mending ill-formed PF objects (fed by Vocabulary Insertion) so that the output of the derivation may be legible to the Articulatory-Perceptual system and thus converge. In the case of Nupe, Fusion enables otherwise disassociated morphophonological pieces (namely, floating tones) to be phonetically realized. It is possible that in other languages Fusion resolves different morphophonological/prosodic tensions. This take on Fusion suggests non-trivial revisions to the Minimalist/Distributed Morphology conception of PF architecture.

The interested reader is referred to Kandybowicz 2006b for full discussion of this issue.

Before concluding this section, we must admit that there is an alternative way of accounting for the tonal depression on V2 without invoking Fusion. If this alternative were to pan out, it would single-handedly compromise the analysis presented thus far. It is thus important to pay careful attention to this possibility. Suppose that the exponent of the low Focus terminal was the floating Low tone morpheme, as before, but that rather than Fusing to and associating with local prosodic material, it simply remains unassociated with/unlinked to a timing tier. The analogy here would be to cases of tonal downstep in phonology, where a delinked (unassociated) low tone fails to (re-)associate, yet nonetheless affects the tonal realization of an adjacent neighboring tone to its right. The alternative is thus that V2 tonal lowering is the by-product of downstep rather than Fusion.

- (37) TONAL DOWNSTEP IN AUTOSEGMENTAL PHONOLOGY ('! represents a lowered tone-value)



There are two reasons why this analysis will not work. For one, the direction of downstep is standardly taken to be rightwards (Clements 1979, Huang 1985). That is, a floating unassociated low tone will lower the target value of adjacent tones to its right in the linear order, but never to its left. As before, assuming that the locus of lower copy spell-out in Nupe VRCs is low Foc^0 given the fact that the existence of the head is unique to the construction, we'd have to assume that head adjunction of the verb Root to low Foc^0 is to the right, a non-standard assumption about head movement. The necessary structure to get this proposal off the ground is shown below.

- (38) $\begin{array}{c} \text{Foc} \\ \diagdown \quad \diagup \\ \text{Foc} \quad \checkmark \\ | \\ (') \end{array}$ (compare with (17), (28))

To the extent that head adjunction is always to the left (Kayne 1994) and that V2 is pronounced in low Foc^0 , the existence of a floating Low tone influencing the tonal realization of material to its left (as in the previous analysis) suggests a reassociation/relinking approach to V2 tonal depression via Fusion over the downstep-based account previously laid out. The second reason for dismissing the downstep analysis of VRC lowering is that Nupe is not otherwise known to manifest downstep in the grammar (Ahmadu Ndanusa Kawu, personal communication).

Because the Fusion-based approach previously outlined gibes well with standard assumptions about directionality of head adjunction/downstep and offers an account of multiple copy pronunciation and linearization (unlike the downstep approach), we feel confident that the proposal advanced in this section is descriptively and explanatorily tenable.¹⁰

5. Concluding remarks

In line with Minimalist considerations, we have argued that the Nupe verbal repetition construction does not represent a genuine *construction type* per se, but rather arises as a general consequence of independent PF-centric grammatical properties. Verbs raise in the language, leaving behind copies which may or may not be pronounced at PF. The highest copy of the verb Root is spelled-out in v^0 in order to support the head's affixal features. The pronunciation of the lower copy of the verb Root in VRCs is directly linked to the Fusion of the verb Root to the low Focus morpheme following Vocabulary Insertion, an operation that alters the morphosyntactic structure of the chain link. Because the copy of the verb Root at the head of the chain and the fused intermediate Root copy count as morphosyntactically distinct to the computation system, both copies can be phonetically realized and successfully linearized in line with the LCA. On this analysis, morphologically fused structures are not treated as being inherently invisible to the linearization algorithm and general PF well-formedness criteria (which drive morphological Fusion) are taken to condition multiple copy spell-out.

As mentioned in the introduction, verbal repetition is a fairly abundant phenomenon cross-linguistically, yet with a relatively modest number of exceptions outside the predicate cleft/A-not-A literature (Cheng (this volume), Cho and Kim 2002, Choi 2003, Hutchison 1989, Kang 1988, Kim 2002, Lefebvre and Ritter 1993, Lidz 2001, Martins (this volume), Nishiyama and Cho 1998, No 1988, Nunes 2003, Piou 1982, Smith 1970, Yim 2004) little formal work has been done examining the distributional properties of the verbal copies in these constructions and the extent to which this distribution is a consequence of syntax-PF interactions. We hope to

10. Alec Marantz (personal communication) suggests an additional way to account for multiple copy spell-out in Nupe VRCs without invoking Fusion. If the exponent of the low Focus morpheme were treated as an affix by the Morphological component, the Stray Affix Filter (Lasnik 1981, 1995) would guarantee lower copy spell-out of the verb Root in addition to the chain head. While this approach allows one to derive the dual phonetic existence of the verb Root, it does not explain why the tonal realization of V2 is characterized by an overall lowered fundamental frequency, as opposed to tonal averaging as in the previous discussion.

have shown that verbal repetition sheds light on a number of important issues, namely, empirical motivation for the Copy theory of movement and the mechanics of chain linearization, Fusion, and multiple copy spell-out. The hope is that this work will stimulate further research and discussion on verbal repetition.

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