UNIVERSITY OF CALIFORNIA

Los Angeles

Conditions on Multiple Copy Spell-Out and the Syntax-Phonology Interface

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Linguistics

by

Jason Todd Kandybowicz

2006

The dissertation of Jason Todd Kandybowicz is approved.

Mark C. Baker

Edward L. Keenan

Timothy Stowell

Hilda Koopman, Committee Chair

University of California, Los Angeles

2006

For Tia

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

√	Root morpheme	**L**	Low tone
1ST	First person	**LOC**	Locative
2ND	Second person	**N**	Noun
3RD	Third person	**NEG**	Negative
ACC	Accusative	**NOM**	Nominative
ADJ	Adjective	**NOML**	Nominal
ADV	Adverb	**OBJ**	Object
AGRO	Object agreement	**P**	Preposition
C	Complementizer	**PL**	Plural
CL	Classifier	**POSS**	Possessive
COMP	Complementizer	**PREV**	Preverbal particle
COND	Conditional	**PRF**	Perfect
D	Determiner	**PRS**	Present
DECL	Declarative	**PRT**	Particle
DEF	Definite	**PST**	Past
DET	Determiner	**PURP**	Purposive
FACT	Factive	**RED**	Reduplicant
FEM	Feminine	**SG**	Singular
FOC	Focus	**SUBJ**	Subject
FT	Floating tone	**T**	Tense
FUT	Future	**TOP**	Topic
H	High tone	**V**	Verb
INF	Infinitive		

VITA

July 11, 1978	Born, Morristown, New Jersey
2000	B.A., Linguistics, Philosophy Rutgers University New Brunswick, New Jersey
2002	M.A., Linguistics University of California, Los Angeles
2001-2003	Teaching Assistant Department of Linguistics University of California, Los Angeles
2004 (June-August)	Honorary Research Assistant and Visiting Scholar Department of Linguistics University College, London
2004 (August-October)	Field Work, Nigeria

PUBLICATIONS

Kandybowicz, Jason. In press. *Comp-trace* Effects Explained Away. *Proceedings of the 25th West Coast Conference on Formal Linguistics.* Somerville, MA: Cascadilla Press.

Kandybowicz, Jason. In press. *Comp-trace* Effects and the Syntax-Phonology Interface. *Proceedings of CLS 42* (Volume 1: The Main Session). Chicago: CLS.

Kandybowicz, Jason. In press. Fusion and PF Architecture. *Proceedings of the 30th Annual Penn Linguistics Colloquium.* Penn Working Papers in Linguistics 13.1. Philadelphia: PLC.

Kandybowicz, Jason. 2006. On Fusion and Multiple Copy Spell-Out: the Case of Verbal Repetition. In Jairo Nunes and Norbert Corver (eds.), *The Copy Theory of Movement on the PF Side.* Oxford: Blackwell Publishers.

Kandybowicz, Jason. 2005. Nupe Coordinate Structures: A Syntactically Heterogeneous Class. In Rebecca Cover and Yuni Kim (eds.), *Proceedings of the 31st Annual Meeting of the Berkeley Linguistics Society* (Volume 31S: Languages of West Africa). Berkeley: BLS.

Kandybowicz, Jason. 2004. Predicate Clefts, Derivations, and Universal Grammar. In Akin Akinlabi and Oluseye Adesola (eds.), *Proceedings of the 4th World Congress of African Linguistics*, 211-223. Köln: Rüdiger Köppe Verlag.

Kandybowicz, Jason. 2004. Nupe Tonology and the Categorical Identity of Verb Copy Tones: A Pilot Experimental Study. In Ad Neeleman (ed.), *University College London Working Papers in Linguistics 16*, 17-53.

Kandybowicz, Jason and Mark C. Baker. 2003. On Directionality and the Structure of the Verb Phrase: Evidence from Nupe. *Syntax* 6:2, 115-155.

Baker, Mark C. and Jason Kandybowicz. 2003. Verb Phrase Structure and Directionality in Nupe. In John M. Mugane (ed.), *Linguistic Typology and Representation of African Languages*, 1-22. Trenton, New Jersey: Africa World Press.

Kandybowicz, Jason (editor). 2003. *UCLA Working Papers in Linguistics 9: Papers in African Linguistics Volume 3.* University of California, Los Angeles.

Kandybowicz, Jason. 2002. The Homogeneity of Nupe Verb Doubling Constructions. In Harold Torrence (ed.), *UCLA Working Papers in Linguistics 8: Papers in African Linguistics 2*, 60-85.

Kandybowicz, Jason. 2000. The Reiterated Numeral Construction. In Cilene Rodrigues, Maximilano Guimaraes, Luisa Meroni, Itziar San Martin (eds.), *University of Maryland Working Papers in Linguistics* 9, 116-135.

ABSTRACT OF THE DISSERTATION

Conditions on Multiple Copy Spell-Out and the Syntax-Phonology Interface

by

Jason Todd Kandybowicz

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2006

Professor Hilda Koopman, Chair

This thesis examines a relatively atypical outcome of movement operations in which multiple links (copies) of non-trivial chains are phonetically realized. MULTIPLE COPY SPELL-OUT, as we will refer to it, is fairly robust in Nupe, a Benue-Congo language spoken in central Nigeria. By exploring the conditions that drive and constrain multiple copy spell-out at the syntax-phonology interface, the thesis resolves the tension that multiple copy spell-out is both predicted by the Copy theory of movement and is highly marked cross-linguistically. We catalog the operations, conditions, and principles of UG that drive and constrain the phenomenon. In general, multiple copies generated by movement operations in the narrow syntax can be phonetically realized just in case a) failure to do so

results in the violation of identifiable PF interface conditions, b) the resulting derivation obeys general principles of economy, and c) the resulting output can be properly linearized. In this way, no additional machinery regulating the distribution of copies need be introduced into the theory.

Nupe exhibits three instances of multiple copy spell-out. Verbal repetition, a phenomenon resulting in the phonetic realization of two segmentally identical clause-mate copies of the verb, is driven by FUSION, a post-syntactic operation that renders a chain link inert for purposes of chain linearization. Predicate cleft constructions, in which a nominalized left-peripheral copy of the verb Root and a lower bare Root copy are both pronounced, are shown to derive from the STRAY AFFIX FILTER. Lastly, mitigation of *Comp-trace* effects via lower copy resumption is viewed as a derivationally late repair strategy aimed at satisfying the INTONATIONAL PHRASE EDGE CONDITION, a general constraint regulating prosodic well-formedness.

The dissertation brings to light a number of undocumented aspects of the Nupe language and makes several broad theoretical contributions. Among these contributions are a more fine-tuned understanding of the mechanics of chain linearization and multiple copy spell-out; new insights into the nature of the syntax-phonology interface; a novel conception of the architecture of PF; a new characterization of the *Comp-trace* effect; and further conceptual and empirical support for the Copy theory of movement.

CHAPTER 1

INTRODUCTION

This dissertation deals with a relatively atypical outcome of movement operations in which multiple links of non-trivial chains are phonetically realized. We will refer to this phenomenon as MULTIPLE COPY SPELL-OUT and engage in the enterprise of determining the conditions that drive and constrain it. The significance of this project is that it is the first to systematically explore this aspect of the syntax-phonology interface. Although a handful of researchers (most notably Jairo Nunes) have investigated the phenomenon and offered analyses, none have approached the topic as the central object of inquiry. Consequently, the few existing analyses provide us with only a limited understanding of the circumstances under which multiple copy spell-out arises and the implications it has for the theory of grammar. We feel that given the topic's relatively under-researched character, the best way to situate our discussion within the current theoretical arena and at the same time introduce the focus, aims, and conclusions of the present research is to begin with a brief historical overview.

1.1. MOVEMENT OPERATIONS IN GENERATIVE GRAMMAR

An undeniable and non-trivial fact about natural language is that there is a disassociation between the syntactic position in which a constituent is pronounced and the position in which it is interpreted. Passive sentences illustrate this point quite nicely. In these constructions, the constituent that is phonetically realized in the subject position is actually interpreted as the logical object (i.e. as the patient/theme) of the verb and not as its subject (agent).

(1) The waffle was burned (by Harriet).

Within the framework of Generative Grammar, this property is accounted for by means of displacement transformations that alter the output of initial phrase markers by moving or repositioning syntactic constituents. Abstracting over the 50-year history of Generative Grammar, we can identify three basic traditions regarding the formalization of the movement operation: substitution transformations, the trace theory of movement, and the Copy theory of movement, the subject of the present study.

1.1.1. Substitution

The ancestor of the movement operation in generative theory is the SUBSTITUTION transformation, as introduced by Zellig Harris and formalized by

Noam Chomsky (Chomsky 1955, 1956, 1957). A fairly simple operation, it allowed one syntactic position to be freely substituted for another in a derivation. Substitutions were often informally understood as relations between copies of syntactic constituents and positions. As such, substitutions involved copying and relocatation of syntactic material. For example, on this approach, passivization was seen as an instance of substitution involving the wholesale interchanging of subject and object positions.

(2) Harriet burned the waffle. ⇒ The waffle was burned (by Harriet).

1 2 **3** **3** be + 2 by + **1**

1.1.2. Trace Theory

The trace theory of movement departs from substitution theory in that it claims that moved elements are first-generation syntactic occurrences rather than *copies* of constituents. Movement operations displace constituents, leaving behind phonetically null elements known as traces in the extraction site. The referential properties of traces are essentially those of the moved constituent. This was represented by means of a coindexation relation holding between the displaced constituent and the trace.

(3) The waffle$_i$ was burned t_i.

The introduction of traces into the theory of movement was an innovation of the "Extended Standard Theory" of the 1970s (Chomsky 1971, 1973, Jackendoff 1972, among others), which acknowledged that certain aspects of semantic interpretation (i.e. quantifier scope, anaphoric construal relations, etc.) are determined not by deep or underlying structures as in the *Aspects* framework of Chomsky 1965, but rather by surface structures (i.e. by the output of the transformational component). Given that thematic relations were held to be established/assigned at deep structure, trace theory provided a way of connecting the semantic properties of both levels. If surface structures were enriched with traces, then all semantic interpretation could take place at this level, given that deep grammatical relations could be recovered by means of traces. Trace theory became a hallmark of the Government-Binding framework (Chomsky 1981) and persisted well into the early 1990s, ultimately meeting its demise with the onset of the Minimalist Program.

1.1.3. Copy Theory

One of Chomsky's first moves in the development of the Minimalist Program was to repudiate the trace theory of movement and revive the conception of displacement as substitution/copying. This was achieved by way of the Copy theory of movement (Chomsky 1993). Under this conception, traces are analyzed as copies of displaced constituents that are deleted in the phonological component

(i.e. at PF), but are available for interpretation at the LF interface level. The original motivation for the revival of the Copy theory was largely conceptual. Under the Copy theory of movement, binding theory can be stated exclusively in LF terms and the reconstruction operation can be entirely dispensed with, given the fact that all copies are potentially interpretable at LF, as illustrated below.

(4) RECONSTRUCTION UNDER THE COPY THEORY OF MOVEMENT

a. John$_j$ wondered which picture of himself$_{j/k}$ Bill$_k$ bought.

b. John$_j$ wondered [$_{CP}$[which picture of himself$_j$]^1[$_{TP}$ Bill$_k$ bought [~~which picture of himself~~]^1]]

c. John$_j$ wondered [$_{CP}$[~~which picture of himself~~]^1[$_{TP}$ Bill$_k$ bought [which picture of himself$_k$]^1]]

In this way, the Copy theory facilitates the elimination of non-interface levels of representation such as S-structure, thereby streamlining the architecture of grammar. Additional conceptual support for this view of movement comes from Chomsky's proposal that syntax is limited solely to arranging and re-arranging lexical items/features of lexical items from the array that feeds a derivation (cf. THE INCLUSIVENESS CONDITION – Chomsky 1995a). In other words, syntax has the power to build/reshuffle, but not to create. Traces and their indices blatantly violate the Inclusiveness Condition, given that they are absent from the lexical array (NUMERATION), yet are present at the end of the derivation. Traces,

therefore, have a unique theoretical status and are thus conceptually suspect: they are the sole grammatical constructs that are introduced in the course of the derivation to LF. By eliminating traces, a reduction in the number of theoretical primitives is achieved, something that is clearly conceptually appealing given the modus operandi of the Minimalist Program.

The Copy theory of movement receives strong empirical support from instances of displacement that leave behind phonetically detectable copies. In recent years, a number of authors have argued for the conclusion that "traces" (i.e. lower copies) may be phonetically realized and that their realization is conditioned by properties of the morphological and phonological components, rather than by purely syntactic factors (Nunes 1995, 1999, 2004, Bobaljik 1995, 2002, Brody 1995, Wilder 1995, Groat and O'Neil 1996, Pesetsky 1997, 1998, Richards 1997, Franks 1998, Runner 1998, Lidz and Idsardi 1998, Abels 2001, Boskovic 2001, Hornstein 2001, Grohmann 2003, Stjepanovic 2003, Landau 2004, Hiraiwa 2005, Kandybowicz 2006a, among others).

1.1.3.1. Multiple Copy Spell-Out

Perhaps the strongest empirical support for the Copy theory of movement comes from the existence of movement chains in which multiple copies (chain links) are spelled-out. Although cross-linguistically marked, instances of multiple copy spell-out have been fairly well documented in the recent literature (Nunes 1999,

2003, 2004, Fanselow and Mahajan 2000, Abels 2001, Grohmann 2003, Grohmann and Nevins 2004, Grohmann and Panagiotidis 2004, Landau 2004, Nunes and Quadros 2004, Martins 2004, Hiraiwa 2005, Boskovic and Nunes 2005, and Kandybowicz 2005a, to name a few). However, with the exception of work by Nunes and Grohmann, little attention has been paid to the phenomenon as an avenue of theoretical inquiry. Below, we provide some examples of multiple copy spell-out.

(5) a. MULTIPLE COPY SPELL-OUT OF WH- EXPRESSIONS

German (Fanselow and Mahajan 1995)

Wovon glaubst Du **wovon** sie träumt?

What-of believe you what-of she dreams

'What do you believe that she dreams of?'

b. MULTIPLE COPY SPELL-OUT OF VERBS

Vata (Koopman 1984)

Li à **li**-da zué saká.

eat 1ST.PL eat-PST yesterday rice

'We ATE rice yesterday.'

c. MULTIPLE COPY SPELL-OUT OF CLITICS

Argentinean Spanish (Nunes 2004)

Yo **lo** iba a hacer-**lo**.

1ST.SG it went to do-it

'I was going to do it.'

The existence of chains with multiple phonetically realized links is expected under the Copy theory of movement, if not predicted. The bad news, however, is that under the Copy theory, multiple copy spell-out raises a tension of the familiar descriptive/explanatory sort. Although it allows for principled explanations of phenomena such as those presented in (5), on a descriptive level it fails to account for the fact that multiple copy spell-out is relatively rare cross-linguistically. In order to achieve descriptive and explanatory adequacy, the Copy theory must be supplemented with an account of the conditions that drive and constrain multiple copy spell-out, a heretofore under-explored avenue of the theory. This dissertation takes up precisely this task. Given that the decision to pronounce or fail to pronounce a copy is a PF-oriented task, it follows that the conditions that drive and constrain multiple copy spell-out will have to be stated in terms of the PF interface level, taking into account the interaction of the output of the syntactic computation with the morphological and phonological systems of a language. This task, therefore, requires a certain degree of language-specific expertise. Our research strategy will thus be to restrict our attention to one particular language

that manifests multiple copy spell-out and experiment on the circumstances that give rise to multiple copy pronunciation. In this way, we can control the experiment by exacting a certain degree of precision in our analysis of the data, something that would not be possible in a broad survey of multiple languages. Furthermore, by focusing our attention on a single language, we can control for interfering factors and allow our analysis to be shaped by carefully selected details culled from all corners of the grammar. Because major proposals such as the Copy theory of movement must adhere to rigid standards of descriptive adequacy, it is important that they be evaluated on a language-by-language basis. It is in this context, that we restrict our attention to one language.

1.1.3.2. Focus and Contribution of the Present Study

The language investigated in this thesis is Nupe, a Benue-Congo language of the Niger-Congo family spoken in central Nigeria. Nupe exhibits three instances of multiple copy spell-out, each of which has important theoretical ramifications and sheds light on the analysis of similar phenomena in other languages. The data below illustrate the three attestations of multiple copy spell-out in the language; verbal repetition, predicate clefting, and lower copy pronominal resumption.

(6) a. VERBAL REPETITION

Musa à **gi** bise **gi**.

Musa FUT eat hen eat

'Musa WILL eat the hen.'

b. PREDICATE CLEFTING

Gi-**gi** Musa à **gi** bise o.

RED-eat Musa FUT eat hen o

'It is EATING that Musa will do to the hen (as opposed to say, *cooking*).'

c. LOWER COPY PRONOMINAL RESUMPTION

Gana$_i$ Musa kpe gànán **uu**$_i$ gi bise o.

Gana Musa know COMP 3rd.SG eat hen o

'Musa knows that GANÀ ate the hen.'

In this dissertation, we argue that multiple copy spell-out in Nupe is driven by a variety of factors on the PF side of the grammar. In general, multiple copies generated by movement operations in the narrow syntax can be phonetically realized just in case a) failure to do so results in the violation of identifiable PF well-formedness conditions, b) the resulting derivation obeys general principles of

economy, and c) the resulting output can be properly linearized. In this way, no additional machinery regulating the distribution of syntactic copies need be introduced into the theory and cross-linguistic variation regarding the availability of multiple copy spell-out can be anchored to microvariations in the identified PF well-formedness conditions and morphophonological operations that facilitate multiple copy realization. The dissertation brings to light a number of undocumented aspects of the Nupe language based entirely on fieldwork with a number of consultants in Nigeria and the United States and makes several broad theoretical contributions along the way. We will flesh out some of these particulars momentarily.

1.2. THEORETICAL BACKGROUND AND ASSUMPTIONS

This dissertation assumes the general framework of the Minimalist Program, supplemented with aspects of Distributed Morphology. We do not intend to provide the reader with a comprehensive overview of either framework in this work. Readers are referred to the references cited below for a proper introduction. Our goal here is to outline the salient characteristics of the two programs that bear considerably on the work that follows and to highlight those areas in which we depart slightly from certain trends in the literature. An additional goal of this section is to provide an overview of the various theories of chain resolution/linearization necessitated by the assumption of the Copy theory

of movement and to acquaint the reader with Nunes' (1995, 1999, 2004) account, which forms the crux of the argumentation in this thesis.

1.2.1. The Minimalist Program

This study is guided by the issues and inquiries raised by the latest version of the Minimalist Program (Chomsky 2000, 2001, 2004, 2005). A crucial assumption in the work that follows is the Minimalist hypothesis that the structures generated by syntactic computations do not contain information about linear order (Chomsky 1995a). Linearization of syntactic structure is thus one of the labors of the PF component, necessitated by the external requirement (BARE OUTPUT CONDITION) that grammar be instantiated in real time. In this thesis, we assume that linearization is achieved by means of Kayne's (1994) LINEAR CORRESPONDENCE AXIOM (LCA). The linearization algorithm considers the set of pairs of asymmetrically c-commanding nodes drawn from the structure generated by the syntax and from this set, generates a list of instructions for linearization. Under the LCA, if a node α asymmetrically c-commands a node β, then α linearly precedes β and the image of α (i.e. the set of terminal nodes dominated by α) precedes the image of β (i.e. the set of terminals dominated by β). On this model, linearization is one of the consequences of Spell-Out or Transfer, an operation that exports the output of the narrow syntactic computation to the interface levels

(PF and LF) for further interpretation before the Articulatory-Perceptual and Conceptual-Intentional cognitive systems are engaged.

In line with recent proposals in the Minimalist Program, we will also assume that the Spell-Out operation can occur several times in the course of a derivation (Uriagereka 1999, Chomsky 2000, 2001). Following Chomsky 2001, we adopt the hypothesis that Spell-Out of syntactic structure coincides with the completed construction of CP and transitive/agentive vP structures, the so-called "STRONG PHASES". The issue of whether DP counts as a strong phase/Spell-Out domain will not be crucial for our purposes in this study. We will assume without argument that it is not. Upon Spell-Out, phases are linearized and placed in working memory, which is to say that apart from material in the phase's edge (i.e. material in the highest specifier(s) and head positions of the phase), phase-internal content is inaccessible to further syntactic operations following Spell-Out. This notion of syntactic freezing is known as the PHASE IMPENETRABILITY CONDITION (Chomsky 2001) and can be derived if the linear relations established for a given phase are seen as relations that must remain invariant over the entire course of the cyclic derivation (cf. Fox and Pesetsky 2005).

This discussion by no means exhausts the set of Minimalist assumptions that underlie the present work. In the chapters that follow, some of these assumptions are highlighted and situated within the context of the discussion, while others are left implicit. The analytical component of the thesis thus presupposes a basic

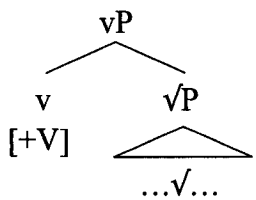
grasp of Minimalist theory. The descriptive component, on the other hand, remains largely theory-neutral.

1.2.2. Distributed Morphology

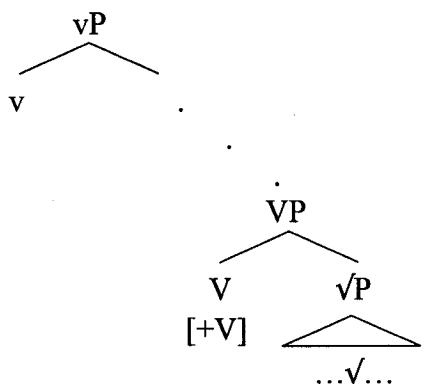
This thesis adopts several positions championed by the anti-lexicalist framework of Distributed Morphology (DM hereafter - Halle and Marantz 1993, 1994, Marantz 1997, Noyer 1997), without necessarily endorsing all such aspects of the theory. In particular, we adopt the LATE INSERTION hypothesis that syntactic terminals (morphemes) are purely abstract feature bundles that lack phonological content. The phonological expression of a given syntactic node (a VOCABULARY ITEM) is provided in the mapping from syntax to PF by an operation known as VOCABULARY INSERTION, a derivationally late process in which Vocabulary Items compete for insertion into a particular node. We assume that there are essentially two types of morphemes, ABSTRACT MORPHEMES such as [PAST] or [FOCUS] for example, and ROOT MORPHEMES such as √COOK, *both of which* are subject to Vocabulary Insertion late in the derivation (cf. Halle and Marantz 1993, 1994, Marantz 1994, 1996, but contra recent proposals by Harley and Noyer (1998), Embick (2000) and Embick and Noyer (to appear)). Root morphemes are taken to be category neutral, their categorical properties being a function of the syntactic environment in which they are merged (Marantz 1997). For example, when under the scope of the verbalizing morpheme (v^0), the Root √DESTROY is realized as the

verb *destroy*, but when under the scope of the nominalizing morpheme (n^0), the result is the nominalization *destruction*. Because we adopt an articulated vP shell structure (see chapter two), we depart slightly from the standard DM convention that v^0, i.e. the head that introduces the external argument, is the verbalizing morpheme. In place, we assume that the verbalizing morpheme and the external argument-introducing morpheme are distinct; v^0 introduces the agent, while V^0 provides the Root with verbal features. This difference is illustrated below.

(7) a. BASIC VERB PHRASE STRUCTURE IN DM



b. BASIC VERB PHRASE STRUCTURE ASSUMED IN THIS THESIS



Although nothing crucial hinges on this assumption (indeed, it would be entirely possible though less syntactically plausible given the particulars of Nupe syntax (cf. chapter two) to redo our structures so as to conform to the standard in (7a)), we call attention to this move as a point of departure between our approach and that of textbook Distributed Morphology.

Under the DM perspective, the PF interface level has a fairly articulated architecture. Of central importance to this thesis is the linearization function, which is carried out along the PF branch of a derivation. For reasons that will be evident (cf. chapter three), we reject the DM hypothesis that linearization is imposed by and concurrent with Vocabulary Insertion. In addition to linearization, Vocabulary Insertion, prosodic mapping, and phonological readjustment, a number of additional and uniquely morphological (i.e post-syntactic) operations are postulated to operate on Transferred syntactic structures at the PF interface. These operations are responsible for altering the morphosyntactic shape and linear relations of the Transferred structures. They include FUSION (Halle and Marantz 1993, 1994, Halle 1997), MORPHOLOGICAL MERGER/LOWERING/LOCAL DISLOCATION (Marantz 1984, 1988, Bobaljik 1995, Embick and Noyer 2001), FISSION (Noyer 1997, Halle 1997), and IMPOVERISHMENT (Bonet 1991, Halle and Marantz 1993, 1994). In this dissertation, we assume the existence of the Fusion operation in particular (which we define and concretize in chapter three), while remaining agnostic about the existence of other operations such as Fission, for example.

Many of these assumptions about the DM framework will be recapitulated during the course of the thesis. Therefore, a high level of familiarization with the theory is not essential.

1.2.3. Theories of Chain Resolution/Linearization

As previously mentioned, a conceptual selling point for the Copy theory of movement was that reconstruction phenomena could be greatly simplified if in addition to chain heads, traces were available for LF interpretation in virtue of being copies of the chain head. It was generally assumed that the interpretive component has a genuine choice regarding which copy of a non-trivial chain to favor at LF (cf. (4)), with certain preferences favoring certain patterns of deletion and interpretation. For example, it was assumed that there is a preference for deleting the head of an operator-variable chain at LF (Chomsky 1995a). By contrast, it was assumed that no such choice is available as regards chain resolution at PF (Chomsky 1995a). Quite simply, it was stipulated that lower copies could not be phonetically realized, a return to the sort of proposal commonly advanced in the GB era (cf. Chomsky 1981, Sportiche 1983, etc.). The drawback of this proposal was clear: if, unlike heads of chains, lower copies are doomed to PF deletion, then it is not the case that all copies are treated equally at the interface levels, despite their purported equality at LF. In essence, the distinction between traces and copies becomes blurred once the impossibility of

lower copy pronunciation is stipulated. This ontology provoked a certain degree of skepticism. Brody (1995), Bobaljik (1995), Groat and O'Neil (1996), and Pesetsky (1998), among others, suggested that just as the interpretive component could privilege either higher or lower copies, so too could the phonological component. The advantage of assuming that in principle all copies of a chain are pronounceable is that the difference between overt and covert movement reduces to a simple difference between favoring either the head or a lower copy of a chain at PF. In this way, movement operations could be restricted to the level of narrow syntax, with language-specific differences arising from variation in the linearization and interpretation of copies at the interfaces. In addition, the status of copies at the interface levels becomes uniform as positional distinctions among copies disappear.

Regardless of this insight, the fact remained that in an overwhelming majority of languages and instances of chain formation, the head of a chain is pronounced at PF and lower copies are deleted. A variety of proposals of an ad-hoc nature were put forth in an attempt to derive this tendency. Although descriptively successful, all such theories of chain resolution lacked conceptual/explanatory rigor. We present a few such proposals below.

(8) a. SPEAK UP (Bobaljik 1995)

Pronounce the topmost/leftmost copy of each chain.

b. TRANSPARENCY (Brody 1995: 106)

If all chain links c-commanded by the contentive element are copies of the contentive, then only the highest member of the set of copies is visible for spell-out.

c. FORM CHAIN (Groat and O'Neil 1996: 135)

Chain formation results in the copying of all syntactic features of the moved element, but does not copy the moved element's phonological matrix.

d. SILENT TRACE (Pesetsky 1998: 361)

Do not pronounce the traces of a moved constituent.

e. PF-SENSITIVE CHAIN RESOLUTION (Franks 1998)

The head of a chain is pronounced, unless pronunciation of the head position leads to a PF violation. Lower copy spell-out is possible only when issues of PF well formedness are at stake.

Nunes' (1995, 1999, 2004) theory of chain linearization, in contrast, provides rigorous and conceptually satisfying answers to two deep questions raised by the Copy theory of movement: 1) Why are copies deleted at PF? (i.e. Why are traces

phonetically null?) and 2) Why is it that the head of a chain is the link that typically resists deletion?

Nunes argues that without CHAIN REDUCTION, that is, the erasure/deletion of copies/chain links at PF, chains would be unlinearizeable syntactic outputs. Consequently, chain formation would lead to a failure of PF convergence and subsequently cause the derivation to crash. Consider the derivation of an unaccusative sentence at the point of PF Transfer.

(9) [An onion]^{i} fell [an onion]^{i} in the ointment.

The derivation of (9) involves an instance of chain formation resulting from the Case/EPP-driven copy movement of the DP [*an onion*]. Both occurrences of [*an onion*] in (9) are copies (graphically notated by coindexed superscripts), which is just to say that both are derivationally related to a single element of the lexical array/numeration that feeds the derivation (Chomsky 1995a). As a result, they are computationally non-distinct. Consider the consequences of pronouncing multiple non-distinct constituents at PF. In (9), the occurrence of [*an onion*] in subject position asymmetrically c-commands the verb *fell*. At the same time, however, *fell* asymmetrically c-commands the lower copy of the raised DP. The LCA yields the following precedence relations.

(10) a. <*an onion*^{i}, *fell*>

b. <*fell, an onion*^{i}>

This is problematic given the non-distinctness of both occurrences of [*an onion*]. Consequently, a symmetric (i.e. non-linear) ordering is derived: [*an onion*] must both precede and be preceded by *fell*. Additionally, because the DP in subject position asymmetrically c-commands its non-distinct copy in object position, the LCA derives another non-linear (in this case, reflexive) ordering in which [*an onion*] precedes itself. Because neither ordering is a possible linear ordering, the chain with both copies phonetically realized will fail to be linearized at PF and the derivation will crash. In this way, Nunes derives the fact that some copies must be unpronounced at PF. The null status of traces (i.e. lower copies) is therefore not a grammatical primitive as in Chomsky 1981, but rather follows from the need for chains to be properly linearized at PF, i.e. from a Bare Output condition. This explains the descriptive observation that in typical cases of chain formation all but one chain link survives Chain Reduction. What it doesn't explain, however, is why the chain head is privileged at PF. That is, if PF convergence depends on the deletion of all but one chain link, why is the derivation in (11b) below ruled out?

(11) a. [An onion] fell [~~an onion~~] in the ointment.

b. *[~~An onion~~] fell [an onion] in the ointment.

Nunes derives the preference for spelling-out chain heads from considerations of economy. Given that the highest copy of a chain will have checked more uninterpretable features than all other copies, it would be uneconomical to pronounce anything but the head of the chain. The reason is because doing so would require additional operations (i.e. FORMAL FEATURE ELIMINATION) to erase the unchecked uninterpretable features of the lower copies necessary for the output to satisfy the principle of FULL INTERPRETATION (Chomsky 1993) and converge. Take the derivation in (11b) for example. The lower copy of the DP reaches the PF interface with a visible uninterpretable Case feature (uCase). If the head of the chain is deleted, the structure can be linearized, but the derivation will fail to meet Full Interpretation unless an additional deletion operation removes the uninterpretable Case feature of the lower copy (cf. (12b) below). The derivation represented in (11a) is therefore more economical because only one instance of erasure/deletion takes place, namely the removal of the lower copy for reasons of linearization.

(12) ☞ a. [An onion$_{[\cancel{uCASE}]}$]^{i} fell [~~an onion~~$_{[\cancel{uCASE}]}$]^{i} in the ointment.

b. [~~An onion~~$_{[\cancel{uCASE}]}$]^{i} fell [an onion$_{[uCASE]}$]^{i} in the ointment.

Thus, because heads of chains enter into more checking relations than any other chain link, they are the least costly copies to pronounce at PF. In this way, Nunes derives the privileged status of chain heads under the Copy Theory of movement.

1.3. ORGANIZATION OF THE DISSERTATION

The following serves as a basic road map of the thesis. Each chapter, apart from the two initial preliminary chapters and the conclusion, explores a different aspect of multiple copy spell-out in the Nupe language. The substantive chapters (chapters three, four, and five) provide both extensive theory-neutral descriptive coverage and formal analysis. In what follows, we provide the reader with a sense of the issues discussed and the conclusions reached in each of the remaining chapters.

1.3.1. Chapter 2: Introductory Remarks on Nupe Grammar

Chapter two is designed to provide the reader with the backdrop against which the dissertation's syntactic analyses are situated. After a brief background of the language is presented, we acquaint the reader with various aspects of Nupe grammar central to future discussion. Among the topics surveyed are: word order and directionality, verb phrase structure and the middle field of the clause, the Nupe left periphery, CP syntax, and a variety of additional ancillary properties and observations that will become relevant over the course of the dissertation. A fair amount of the discussion in this chapter is lifted from Kandybowicz and Baker 2003, however, many new observations and insights are presented.

1.3.2. Chapter 3: Verbal Repetition

Chapter three discusses the first of three instances of multiple copy spell-out in Nupe, namely, verbal repetition (cf. (6a)). We argue that the phonetic realization of multiple chain links in this instance is conditioned by head movement of the verb through a low focus projection unique to the construction and the morphological reanalysis (Fusion) of the verb with this head. The spell-out of the lower verb copy owes to two states of affairs. One, the linearization operation applies chain-internally to *non-distinct* elements (as per Nunes 1995, 1999, 2004 and the previous discussion). Two, reanalyzed chain links are morphosyntactically *distinct* from all remaining links in its chain. Hence, reanalyzed copies are inert for purposes of chain linearization. The higher copy of the verb is pronounced in order to support the affixal features of the hosting head (v^0) at PF, in line with Lasnik's (1981, 1995) STRAY AFFIX FILTER. The syntactic object resulting from the phonetic realization of both verbal copies is shown to be both economical and linearizeable.

The theoretical contribution of the Nupe verbal repetition construction is that it confirms Nunes' (1995, 1999, 2004) hypothesis that a condition on multiple copy spell-out is that at least one chain link be removed from the linearization computation. Of further theoretical interest is the fact that Nupe verbal repetition constructions shed new light on the mechanics of chain linearization,

morphological reanalysis (Fusion), and the architecture of the PF component, all of which are discussed at length over the course of the chapter.

1.3.3. Chapter 4: Predicate Cleft

Predicate cleft, the second instance of multiple copy spell-out in the Nupe verbal domain (cf. (6b)), is the subject of inquiry in chapter four. We argue that multiple copy spell-out in this case arises primarily as a consequence of the Stray Affix Filter. The pronunciation of the left peripheral Root copy (i.e. the chain head) follows from basic considerations of economy (cf. the discussion in section 1.2.3), while the phonetic realization of the lower copy owes to the fact that the head that hosts the lower copy (v^0) is affixal (as before) and therefore must not be stranded at PF. Support for the latter claim comes from the fact that when this head is realized by an independent exponent, multiple copy spell-out (in particular, lower copy pronunciation) is no longer possible. This is shown to derive from a general PF economy principle banning the spell-out of unnecessary material/copies. Spelling-out a lower verbal copy in this environment is no longer necessary, as the affixal features of v^0 are independently supported. Although the derived structure with two overt copies can be successfully linearized in this case (for reasons we discuss in the chapter), the derivation fails to converge at PF.

The theoretical punch line in this case is that linearization *alone* cannot be a sufficient condition for multiple copy spell-out, as originally proposed by Nunes

(1995, 1999, 2004). Rather, multiple copy spell-out is possible only when linearizeable structures adhere to rigid standards of derivational economy.

1.3.4. Chapter 5: Comp-trace *Effects*

In chapter five, we discuss *Comp-trace* effects and their relation to lower copy resumption, the final and only non-verbal instance of multiple copy spell-out in the language (cf. (6c)). Pronominal resumption in Nupe is limited entirely to subject positions and occurs exclusively when subjects of embedded clauses are long-extracted across overt complementizers, i.e. that canonical *Comp-trace* configuration. We argue that this fact reflects the influence of a general prosodic well-formedness condition that the edge of an obligatorily parsed prosodic phrase be phonetically realized. Resumption or lower copy spell-out of a default pronominal term is one way of meeting the requirement imposed by this constraint in Nupe. In this way, we argue that the *Comp-trace* effect in Nupe is purely prosodic and therefore represents a genuine syntax-phonology interaction. The view that *Comp-trace* effects are purely syntactic, as they have been standardly diagnosed in the literature, can thus not be maintained. Therefore, our analysis, if on the right track, provides a new window with which to view subject-object asymmetries like the *Comp-trace* effect.

1.3.5. Chapter 6: Finale

Chapter six closes the dissertation with a summarization of our findings and briefly speculates on some questions unaddressed by the present work.

CHAPTER 2

INTRODUCTORY REMARKS ON NUPE AND ITS GRAMMAR

This chapter lays the foundation for future analysis by bringing various salient aspects of Nupe grammar to the fore. Its main objective is to provide the reader with a background suitable for following the discussion in the upcoming chapters, rather than sketching a comprehensive descriptive outline of the language. A number of works that have gone before have successfully undertaken this latter task, in particular, Banfield and Macintyre 1915 and Smith 1967 (see also George 1975). We thus restrict our attention to those aspects of the grammar that will be most relevant to the discussion that follows in the upcoming chapters. Consequently, a number of interesting facets of the language will not be discussed at this time so that the transition from overview to analysis can be made more direct. Over the course of the dissertation, however, a number of important but less crucial grammatical points not discussed in this chapter will be introduced where relevant. We begin the chapter with a brief general introduction to the Nupe language.

2.1. LANGUAGE BACKGROUND AND PRELIMINARIES

Nupe is a regionally important language spoken by approximately one million speakers (Gordon 2005) on both sides of the Niger River in the Middle-Belt region of Nigeria. It is the principal Nupoid language of the Benue-Congo branch of the Niger-Congo language family (Blench 1989). Closely related Nupoid languages include Ebira, Gade, and Gwari. Nupe is also related to Yoruba, both areally and genetically. However, the two languages differ in a number of notable ways. With respect to multiple copy spell-out, for instance, although predicate clefting and pronominal resumption are attested in both languages (with subtle, yet important differences), verbal repetition is uniquely Nupe[1].

In this dissertation, we will be concerned with the variety of Nupe spoken in and around the town of Lafiagi (Edu local government area, Kwara state). Although a regional variant of the Central or literary dialect spoken in Bida, current Lafiagi Nupe is grammatically indistinguishable from standard Nupe, though some subtle phonological differences exist. The Nupe data presented in this study are drawn exclusively from fieldwork with seven native speaker consultants in Nigeria and the United States elicited over a period of several years. With one exception, all speakers consulted over the course of this study speak the Lafiagi dialect.

The orthographic representation of Nupe employed in this thesis conforms to the modern spelling system and thus differs slightly from the classic

orthographies of Banfield (1914) and Banfield and Macintyre (1915). In what follows, high tone is marked with an acute accent over the vowel and low tone is similarly marked with a grave accent. Mid tones are unmarked. Nasalized vowels are represented by the sequence V + *n* (e.g. *an* is the notation for the nasalized vowel [ã]). The labiovelar phonemes are also transcribed as sequences of graphemes (e.g. *kp* and *gb*). Vowel length is indicated by means of a colon following the vowel (e.g. *a*: represents the lengthened vowel [a]) and contour tones are transcribed as sequences of level tones realized on adjacent identical vowels (e.g. a rising tone on the short vowel *a* is transcribed *àá*).

2.2. DIRECTIONALITY AND THE MIDDLE FIELD OF THE CLAUSE

2.2.1. Head-Initial, Head-Final, or Both?

On a superficial level, Nupe appears to be a mixed word order language. This is most evident when verb phrase structures are considered. Similar to languages like Vata and Gbadi (Koopman 1984), both verb-object and object-verb orders are attested. As in these languages, the surface order of the verb phrase seems to correlate with the tense/aspect of the clause and whether certain elements that have modal or aspectual meanings are present. As shown in the data below, simple transitive sentences in a variety of tenses manifest the SVO word order (1a-c), however, when the perfect marker *á* is present (1d) or when modal-

auxiliary verbs surface (1e), one finds OV orders instead. (Note that the simple past tense is not marked by any overt morpheme in the language.)

(1) a. Musa **si** **dùkùn**. (VO)

Musa buy pot

'Musa bought a pot.'

b. Musa è **si** **dùkùn**. (VO)

Musa PRS buy pot

'Musa is buying a pot.'

c. Musa à **si** **dùkùn**. (VO)

Musa FUT buy pot

'Musa will buy a pot.'

d. Musa á **dùkùn** **si**. (OV)

Musa PRF pot buy

'Musa has bought a pot.'

e. Musa yá **dùkùn** yin **si**. (OV)

Musa begin pot PRT buy

'Musa began to buy a pot.'

Both head-initial and head-final orders obtain elsewhere in the grammar. For instance, DPs and locative phrases headed by the locative particle *o* seem to be head-final, whereas TPs and CPs seem to be head-initial.

(2) a. Egi **nana zì** (Head-final DP?)
child this PL
'These children'

b. Lítafi è ta èsákó-**o**. (Head-final LocativeP?)
book PRS be.on table-LOC
'The book is on the table.'

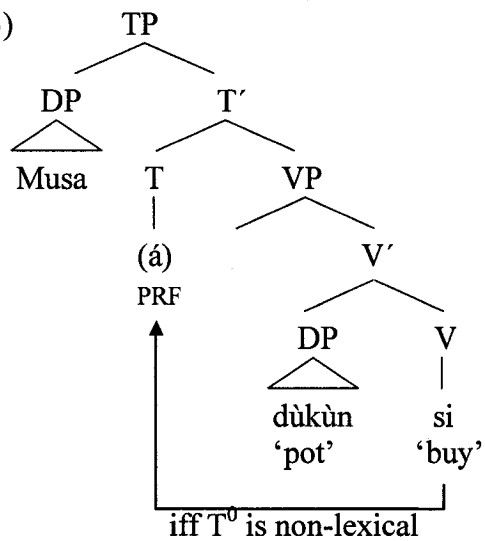
c. Musa gàn **gànán** etsu **à** bé. (Head-initial CP/TP?)
Musa say COMP chief FUT come
'Musa said that the chief will come.'

2.2.2. Against a Head-Final Approach to Nupe Directionality

Inspired by Koopman's (1984) analysis of Vata and Gbadi, Cormack and Smith (1994) argue that apart from a head-initial TP projection, Nupe is ultimately a head-final language. They assume that perfect *á* is a lexical item residing in T^0

and that verbs move to this position if and only if T^0 does not contain an independent lexical item. This analysis is summarized in (3) below.

(3)



Some rather straightforward considerations show that the simple analysis of Nupe sketched in (3) cannot be the whole story. The first involves the nature of the tense markers. Cormack and Smith assume that Nupe tense markers are prefixes on the verb. As such, they would be compatible with V-to-T movement; indeed, they could be considered the triggers for such an operation. Basic adverb placement facts, however, suggest that this is incorrect. Low VP-initial adverbs come between the tense marker and the verb in Nupe (as in English), not after the tense + verb combination (as in French), nor before the tense marker. (4) shows this for the future marker *à*; the same pattern holds for the present tense marker *è* as well as for different choices of low VP-initial adverbs.

(4) Musa (*dàdà) à **dàdà** si (*dàdà) dùkùn.

Musa quickly FUT quickly buy quickly pot

'Musa will quickly buy the pot.'

Adverb placement facts such as those illustrated in (4) suggest that tense markers like *à* are not prefixes on the verb, but rather independent particles. If so, then, the verb clearly does not move to T^0, even though it comes before the object. The same adverb necessarily comes before the perfect particle *á*, as shown below.

(5) Musa **dàdà** á (*dàdà) dùkùn si.

Musa quickly PRF quickly pot buy

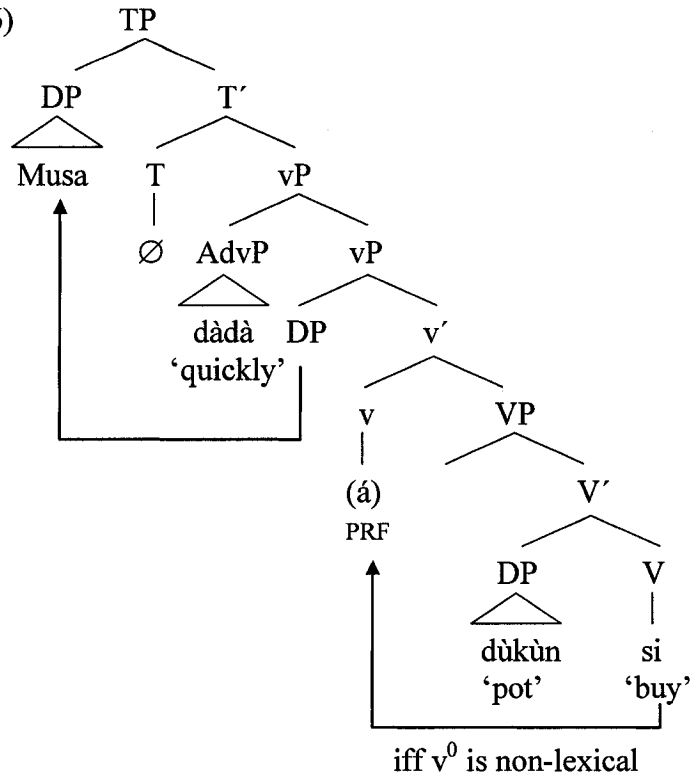
'Musa has quickly bought the pot.'

The contrast between (4) and (5) shows that the perfect marker does not occupy the same T^0 position that tense markers in the language do; rather, it must occupy some lower head. Thus, the structure of the Nupe middle field must be more elaborate than (3).

What position does perfect *á* occupy in sentences like (5)? We claim that it is generated in the v head position proposed by Larson (1988), Hale and Keyser (1993), and Chomsky (1995a), among others. This head is present in all transitive and unergative clauses, where it plays a role in assigning the external theta-role to the underlying subject, forming structures like [T [DP_{agent} v [$_{VP}$ … V …]]].

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, following Bowers (1993), Chomsky (2001, 2005), and Baker (2003), among others. In addition to putting *á* in the right hierarchical position, this view fits well with the fact that *á* seems to be a reduced form of the verb *lá* 'take'. Verbs meaning 'take' are among the most common "light verbs" (cf. *Lydia took a bath* vs. *Lydia bathed*), and the natural home for light verbs is the v node. It is a good guess that Nupe's perfect tense evolved from a serial verb construction source[2], such as "Musa take meat cook", as in a number of West African languages (Stahlke 1970). On this view, Nupe verbs raise to v^0 (if v^0 is empty), but no higher (cf. (4)). We can understand this in one of two ways. Either verbs raise in order to check an uninterpretable V feature against v^0 or they are attracted by an uninterpretable feature on v^0. Both analyses account for the basic fact that verbs raise in the language and provide an explanation for the observation that verbs are restricted from head moving into positions higher than v^0. On this approach, an example like (5) has a structure roughly like (6), which is an expansion of (3).[3]

(6)



This revision is, of course, still compatible with the essence of the Koopman-Cormack-Smith idea that VP is head-final apart from head movement. The crucial question to clarify this, then, is what is the internal structure of the node labeled VP in (6)? To get evidence that bears on this, we must consider a wider range of verb phrase structures. When we do this, we quickly see that the VP does not appear very head-final at all.

2.2.3. Head-Initial Verb Phrases and their Structure

While it is true that the direct object of a monotransitive verb comes before the verb in perfect clauses (1d), virtually every other constituent comes after the verb in perfect sentences, just as in simple sentences. This is illustrated in (7). (7a) shows that with ditransitive verbs like *yá* 'give', the indirect object precedes the verb, but the direct object follows it. (7b) shows that oblique locative complements directly follow the verb in the perfect as well. (7c) and (7d) illustrate that unselected locative adjuncts and adverbs respectively, come after the verb. (7e) highlights the fact that the second verb of a resultative serial verb construction (i.e. the resultative complement of V1) also immediately follows the first verb. Finally, (7f) shows that in perfect constructions, complement PPs and c-selected embedded clauses come after the verb and are ordered in precisely the manner expected of a head-initial language.

(7) a. Musa á etsu yà **èwò**. (V » Direct Object)

Musa PRF chief give garment

'Musa has given the chief a shirt.'

b. Musa á ci **kata-o**. (V » Locative Object)

Musa PRF lie house-LOC

'Musa has lied down in the house.'

c. Musa á nakàn du **efo cigban-o.** (V » PP Adjunct)

Musa PRF meat cook hole tree-LOC

'Musa has cooked meat under the tree.'

d. Musa á nakàn ba **sanyin.** (V » Adv Adjunct)

Musa PRF meat cut quietly

'Musa has cut the meat quietly.'

e. Musa á èwò fo **li.** (V » Resultative V2)

Musa PRF garment wash be.clean

'Musa has washed the garment clean.'

f. Musa á gàn **yà Gana gànán wu:n si dukùn.**

Musa PRF say to Gana COMP 3rd.SG buy pot

'Musa said to Gana that he bought a pot.' (V » PP » CP)

Overall, a greater variety of phrase types come after the main verb than before it, even in perfect sentences. This gives the impression that the Nupe VP is head-initial, not head-final. Furthermore, no more than a single DP ever precedes the main verb in the perfect construction and this DP must bear accusative/dative Case. Locative objects of posture and motion verbs follow the verb (7b), as do adjuncts (7c,d), other VPs (7e), and CPs (7f), all of which either resist Case or

else fail to be assigned accusative/dative (Stowell 1981). These facts are nicely accounted for if we say that the phrase that contains the verb at Spell-Out is head-initial, and that the pre-verbal constituent in perfect constructions is in the specifier of a functional projection within the vP shell structure. Following Koizumi (1995), we call this verb phrase-internal functional category AgroP[4] and claim that objects raise to this projection in Nupe to have their uninterpretable Case features checked, though no overt Case marking results at PF. We maintain that AgroP in Nupe is generated in all transitive structures and must be located below v^0 (the position of the verb in simple/non-perfect sentences) and above VP (the projection in which the internal argument originates). In this respect, we depart from recent Minimalist assumptions that accusative Case is checked at the edge of vP (Chomsky 2001). In simple/non-perfect sentences, the verb raises past the Case-checked object in Spec, Agro into v^0, yielding VO word orders. When *á* is generated in v^0, however, verb raising to v^0 is blocked, forcing the verb to surface lower than the raised object, that is, in $Agro^0$. We can also capture the fact that even in perfect constructions locative objects follow the verb by assuming that locative DPs check their locative Case features in Spec, LocP, another vP-internal functional projection that is immediately dominated by AgroP. (Further evidence for this projection comes from word order facts in locative object-taking verbal repetition constructions, as discussed in chapter three and illustrated in example (31c) from that chapter). That is, c-selected locative

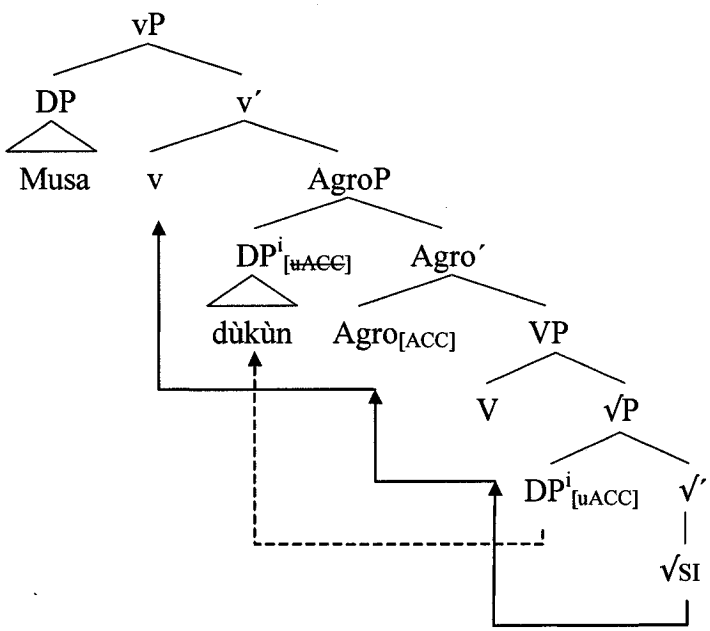
expressions in Nupe must reside below AgroP. The structure and derivation of the Nupe verb phrase that we will assume in this dissertation is provided below.

(8) a. VO_{ACC} → CASE MOVEMENT + RAISING TO V^0

Musa si dùkùn.

Musa buy pot

'Musa bought a pot.'

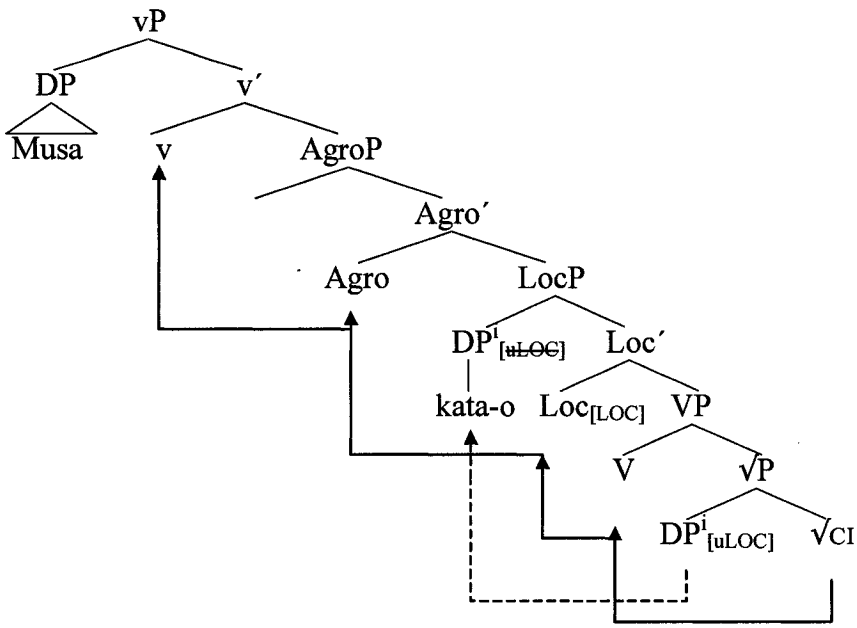


b. VO_{LOC} → CASE MOVEMENT + RAISING TO V^0

Musa ci kata-o.

Musa lie house-LOC

'Musa has lied down in the house.'

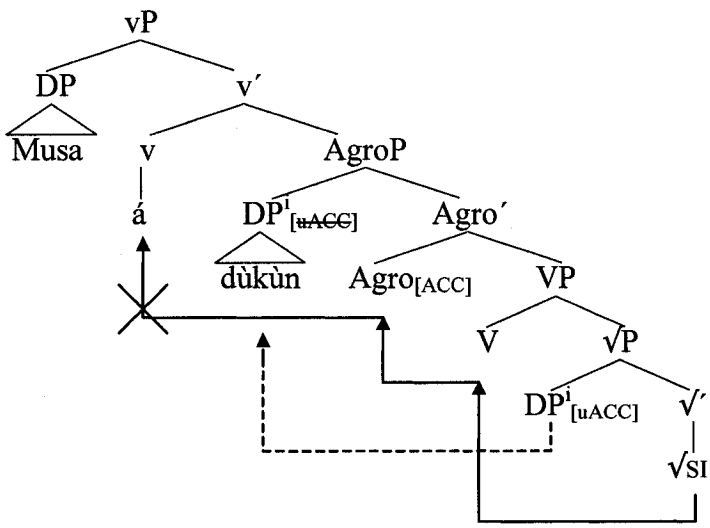


c. OV_{ACC} → CASE MOVEMENT + RAISING TO $AGRO^0$ (RAISING TO V^0 BLOCKED BY PRF)

Musa á dùkùn si.

Musa PRF pot buy

'Musa has bought a pot.'

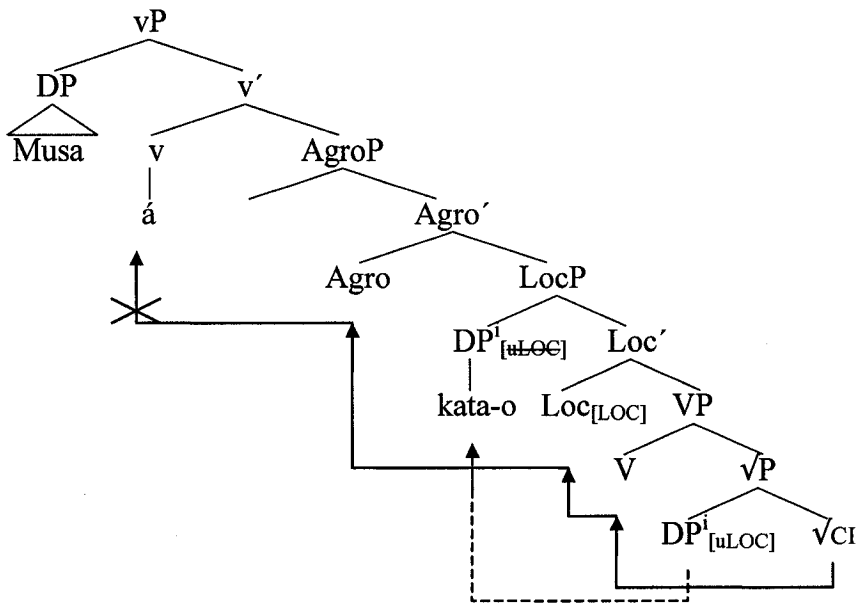


d. Perfect VO_{LOC} → CASE MOVEMENT + RAISING TO $AGRO^0$

Musa á ci kata-o.

Musa PRF lie house-LOC

'Musa has lied down in the house.'



We thus adopt the following Nupe-specific syntactic assumptions.

(9) a. The Nupe verb raises to the highest head position within vP that is not lexically filled, but raises no higher.

b. Nupe verb phrase structures are head-initial syntactic objects, however, a variety of movements obscure this head-initial base order.

See Kandybowicz and Baker 2003 for further evidence in support of (9b) as well as additional instances of verb phrase-internal movement in the language (i.e. as manifest in modal-auxiliary constructions like (1e)).

2.2.4. From Verb Phrase Directionality to Nupe Word Order

If true, (9b) is significant because it means that there is no need to single out VP as having a special word order different from that of the head-initial functional projections that dominate it (e.g. TP, CP). Our conclusion is thus that Nupe is a head-initial language. A number of functional projections in the language still look head-final, however (cf. (2a-b)). Our analysis of these structures is essentially the treatment given in Kandybowicz 2002, which we recast below.

(10) With remarkably few exceptions, the heads of functional categories in Nupe bear features with the EPP or "occurrence" (OCC) property (cf. Chomsky 2000).

As such, the specifier positions of these heads typically come to be filled as a result of movement operations, giving the illusion that the head is final in the phrase. Although it is beyond the scope of this chapter to enumerate a complete list of examples and motivate this analysis, the interested reader is referred to

Kandybowicz 2002, Kandybowicz and Baker 2003, and Kandybowicz 2005, where extensive evidence is provided.

2.3. THE CP LAYER

Our introductory foray into the Nupe CP layer will be limited to three topics: a) hierarchical relations of certain key left peripheral elements, b) peripheral adverbs, and c) select issues in the syntax of embedded CPs. This section is not meant to provide a comprehensive treatment of the Nupe left periphery, but rather to introduce aspects of the CP layer that will factor into the discussion and analysis in the upcoming chapters.

2.3.1. Rudiments of the Nupe Left Periphery

Many instances of A-bar extraction in the language involve movement to a clause-peripheral position. The following data show that both *wh-* expressions and focused constituents occupy positions to the left of the subject in both matrix and embedded clauses.

(11) a. **Ke** Musa à pa __ o?
what Musa FUT pound o
'What will Musa pound?'

b. **Eci** Musa à pa __ o.

yam Musa FUT pound o

'Musa will pound THE YAM.'

c. Gana gàn gànán **eci** Musa à pa __ o.

Gana say COMP yam Musa FUT pound o

'Gana said that Musa will pound THE YAM.'

In line with recent analyses of the left periphery (cf. Rizzi 1997, 2000), we assume that both *wh*- DPs and focused constituents move to the specifier of a peripheral Focus Phrase. Note that the focus constructions in (11) both involve the clause-final particle *o*, which is homophonous with the locative particle (cf. (2b)). In fact, all peripheral focus constructions in the language are accompanied by *o*. The *o* particle clearly occupies a structurally high position, as is evident from the fact that it follows particles that inhabit the higher regions of the clause (e.g. modals, negation, and sentence-final *à*).

(12) Eci Musa (′) pa __ wòó à o.

yam Musa NEG FT pound can à o

'Musa can't pound THE YAM.'

Despite the fact that it appears at the clause's right edge, many researchers have linked the *o* particle with the head of the left peripheral Focus Phrase (Madugu 1981, 1982, 1985, 1986, Tswanya 1989, Kawu 1990, 1999, Cormack and Smith 1994, Kandybowicz 2002, 2004b, and Kandybowicz and Baker 2003). Certain considerations, however, render this hypothesis unlikely.

For one, the particle is not exclusive to focus constructions. As shown below in (13), *o* surfaces in topicalization constructions as well. (Evidence that sentences like (13) are cases of topicalization rather than instances of focus comes from the fact that they can not be used to felicitously answer questions like "What will Musa pound?".)

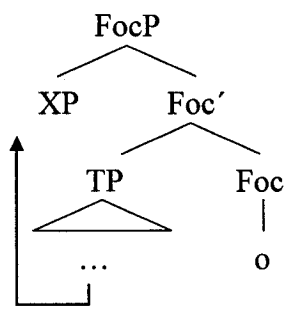
(13) Eci, Musa à pa wu:n o.
yam Musa FUT pound 3RD.SG o
'The yam, Musa will pound it.'

Given Rizzi's (1997) proposal that topics are located in the specifier of a left peripheral Topic Phrase, it would seem implausible that the *o* particle in such constructions is merged in Foc^0 rather than Top^0.

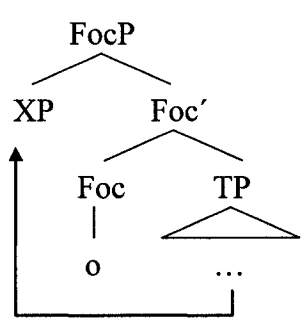
A second motive for rejecting the claim that *o* is the exponent of the left peripheral Focus head comes from word order facts. Given that the focused constituent does not immediately precede *o*, one would have to abandon the claim that Focus Phrase is a head-initial projection, in favor of a head-final analysis.

This, however, would fly in the face of the evidence presented earlier that Nupe is head-initial in the base. Consider the following analyses.

(14) a. HEAD-FINAL FOCP DERIVES THE CORRECT SURFACE DISTRIBUTION OF *O*



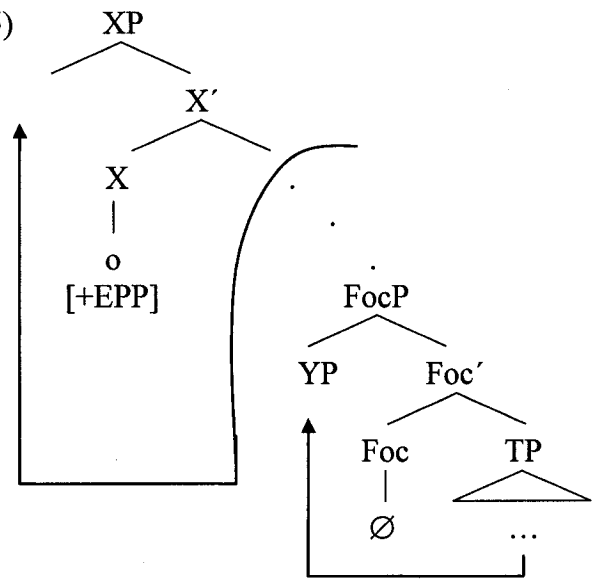
b. HEAD-INITIAL FOCP YIELDS INCORRECT PLACEMENT OF *O*



Our proposal, which we expand upon in chapter four, is that the *o* particle does not head Focus Phrase. Rather, the focus projection is headed by a phonetically null morpheme, which is itself dominated by a functional category headed by *o*. The *o* particle, we claim, bears the EPP property, which triggers the movement of

its entire complement to its specifier position and thereby yields its clause-final status. This proposal is sketched below.

(15)



As a segue into our upcoming discussion on Nupe CPs and as a way of elaborating on the hierarchy of select left peripheral material, consider the order of constituents in the case of focus within an embedded clause.

(16) Musa kpe [(*nakàn) gànán **nakàn** Gana ba __ o].

Musa know meat COMP meat Gana cut o

'Musa knew that Gana cut THE MEAT.'

Note that the focused constituent *nakàn* must follow the complementizer *gànán*, indicating that C^0 is located higher than FocP (e.g. CP » FocP). Once again, the

o particle is final in its clause, suggesting that the projection headed by *o* is higher than CP (e.g. *o* » CP). In fact, it would seem that this *o* projection is among the highest projections in the Nupe left periphery.

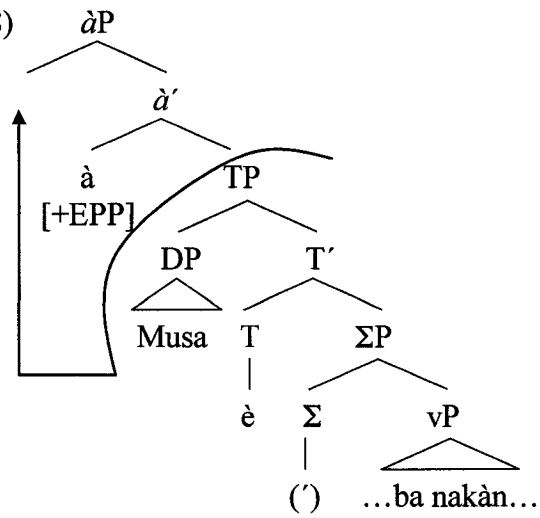
One final issue that deserves attention in this discussion of the Nupe CP layer is negation. The phenomenon has been described as involving two distinct morphemes: a preverbal floating high tone and the sentence-final particle *à* (Banfield and Macintyre 1915, Madugu 1983:33), as shown below.

(17) Musa è (´) ba nakàn à.
Musa PRS FT cut meat à
'Musa isn't cutting the meat.'

Although many researchers analyze the particle *à* as the negative morpheme (Madugu 1983, Cormack and Smith 1994, among others), we will assume that the preverbal floating high tone is in fact the negative head, and as such is located just above vP in Σ^0 (Laka 1990). We base this decision on the fact that the floating tone appears in a linear position cross-linguistically typical of negative morphemes (e.g. following tense, but preceding the verb, as in English for example). The *à* particle, on the other hand, appears to occupy a much higher position in the clausal anatomy. We will assume that *à* heads a left peripheral projection (neutrally referred to as *à*P) that like most functional heads in the language, attracts its complement to its specifier in virtue of being endowed with

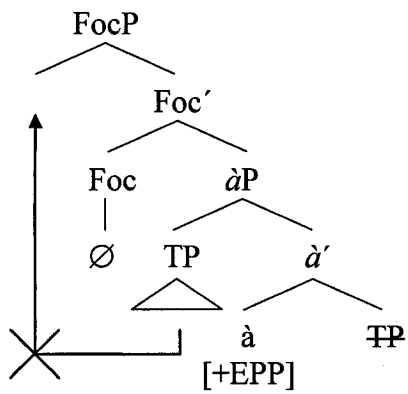
an EPP feature. The structure and derivation of a sentence like (17) that will be assumed in this thesis is provided below.

(18)



How does *à* interact with other left peripheral elements? Consider first the relationship of *à*P to Focus Phrase. It is difficult to establish an empirical argument for the relative hierarchy of the two projections because as we claimed earlier, Focus Phrase is headed by a phonetically null morpheme. Conceptual arguments, however, can be given suggesting that *à*P must dominate Focus Phrase. If the reverse relation obtained (e.g. FocP » *à*P), TP-internal constituents would be blocked from raising to Spec, Foc in virtue of the fact that the TP containing them would occupy a left branch/derived subject position in Spec, *à*. This is shown below.

(19) FOCUS MOVEMENT BLOCKED BY SUBJECT CONDITION IF FOCP » *àP*



Nonetheless, focus movement is possible in the presence of *à*, suggesting that the TP from which the focused constituents originate is not located in a left branch specifier.

(20) Nakàn Musa è (′) ba __ à o.

meat Musa PRS FT cut à o

'It's MEAT that Musa isn't cutting.'

In this way, we reason that FocP must reside lower than *à*P. A similar type of consideration suggests that *à*P must dominate CP. As shown below, *à* follows overtly headed complement clauses.

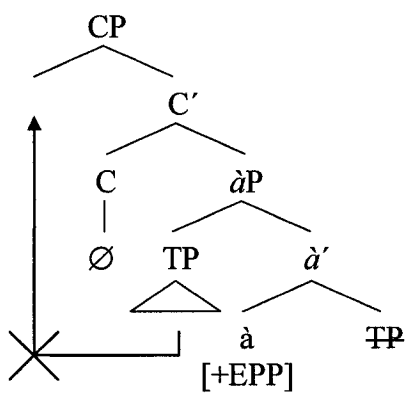
(21) Musa gàn gànán Gana (′) ba nakàn à.

Musa say COMP Gana FT cut meat à

'Musa said that Gana didn't cut the meat.'

This is compatible with either locating *àP* above CP and moving CP into *à*'s specifier or having CP dominate *àP*. Either way, the complementizer will come to precede *à* in the linear order. However, if CP dominates *àP*, then movement into Spec, C from inside the TP should again be blocked by the Subject Condition.

(22) MOVEMENT TO SPEC, C BLOCKED BY SUBJECT CONDITION IF CP » *àP*



The fact that successive cyclic *wh-* movement from an embedded clause is possible under clause-mate negation (cf. (23)), suggests at least that movement to

Spec, C (i.e. to the edge of an embedded phase) in the presence of *à* is not blocked. Therefore, *à*P must dominate CP.

(23) Ke Musa gàn gànán etsu (′) ba __ à o?
what Musa say COMP chief FT cut à o
'What did Musa say that the chief didn't cut?'

Lastly, notice that *à*P must be located lower than the projection hosting *o*. (20) and (23) show that *à* must precede *o*. The reverse order is ungrammatical.

(24) a. *Nakàn, Musa è (′) ba __ o à. (compare with (20))
meat Musa PRS FT cut o à

b. *Ke Musa gàn gànán etsu (′) ba __ o à? (compare with (23))
what Musa say COMP chief FT cut o à

As such, we locate the *à* particle below *o*, but above the CP in the Nupe left periphery (e.g. *o* » *à* » C^0).

Although this survey only begins to scratch the surface of the structure of Nupe's left edge, it will suffice for the purposes of this dissertation. In what follows, we assume the following basic map of the Nupe left periphery. (*o*P and *à*P are the theory-neutral labels given to the phrases headed by *o* and *à*.)

(25) *o*P » *à*P » CP » FocP/TopP » TP

2.3.2. Adverbs of the Left Periphery

Comparatively speaking, Nupe has a rather small adverb inventory. The majority of adverbs in the language operate at the level of the verb phrase and are generally free to attach either to the left or right edge of the phrase they modify. We do not discuss these low adverbials to any great length in this dissertation simply because their placement does not play a crucial role in any of our forthcoming structural analyses. In addition to these lower adverbials, a limited number of structurally high adverbs are attested. Evidence that these modifiers attach to peripheral projections comes from fact that they obligatorily precede focused constituents, as shown in the following data.

(26) a. **Ebogáo** ke (*ebogáo) Musa pa o?
therefore what therefore Musa pound o
'Therefore, what did Musa pound?'

b. Musa kpe gànán **gbání** eci (*gbání) Gana è pa o.
Musa know COMP now yam now Gana PRS pound o
'Musa knows that right now Gana is pounding THE YAM.'

c. Musa gbín-gàn kó: **tòsí** nakàn (*tòsí) etsu du o.
Musa lose-say COMP recently meat recently chief cook o
'Musa asked whether the chief cooked THE MEAT recently.'

This class of adverbs, whose relative internal ordering we set aside, can be shown to inhabit the region of the left periphery between CP and FocP/TopP (cf. (25)). As the following data demonstrate, these adverbs are restricted from preceding complementizers.

(27) a. *Musa gàn **ebogáo** gànán Gana pa eci.
Musa say therefore COMP Gana pound yam

b. *Musa kpe **gbání** gànán Gana è pa eci.
Musa know now COMP Gana PRS pound yam

c. *Musa gbín-gàn **tòsí** kó: etsu du nakàn.
Musa lose-say recently COMP chief cook meat

The utility of this class of adverbs lies in its ability to differentiate among left peripheral positions between CP and FocP/TopP, an important, but ultimately limited function. Given that on an analytical level it is sometimes hard to determine where the middle field of the clause ends and the left periphery begins,

a more useful class of adverbs to have in one's toolkit is the class that demarcates the right edge of the left periphery. One such adverbial expression can be found in Nupe. As the following data show, this adverbial is able to follow focused constituents (unlike the adverbs in (26)) and precede subjects, indicating that it straddles the border of the TP/CP layer. We take it that this adverb adjoins to TP.

(28) a. **Pányí lèé** Musa (*pányí lèé) dzò eyì.
before PST Musa before PST plant corn
'A long time ago, Musa planted corn.'

b. (*Pányí lèé) ke **pányí lèé** Musa dzò o?
before PST what before PST Musa plant o
'What did Musa plant a long time ago?'

c. (*Pányí lèé) zèé **pányí lèé** dzò eyì o?
before PST who before PST plant corn o
'Who planted corn a long time ago?'

d. Gana gàn (*pányí lèé) gànán eyì **pányí lèé** Musa dzò o.
Gana say before PST COMP corn before PST Musa plant o
'Gana said that a long time ago Musa planted CORN.'

A more detailed map of the Nupe left periphery can now be presented.

(29) *o*P » *à*P » CP » {*ebogáo,gbání,tòsí*} » FocP/TopP » *pányí lèé* » TP

2.3.3. Embedded CPs

A number of different complementizers introduce a number of different embedded clauses in the language. While determining the exact position occupied by each head in the left periphery and accounting for their word order properties are ultimately important tasks, they will not play a crucial role in the discussion that follows in later chapters. For this reason, we do not discuss these aspects of Nupe CP syntax here.

Informally speaking, four exponents of C^0 comprise the Nupe complementizer system, each of which introduces a semantically distinct clause type. With few exceptions (cf. Kawu 1990), complementizer-less embedded clauses are not tolerated in the language. Sentential complements whose propositional content is asserted/presupposed are headed by *gànán*, a morpheme historically related to the verb *gàn* 'say', as in many west African languages and translated as 'that' in English (cf. (30a)). (Synchronically, we may analyze *gànán* as an indivisible unit composed of the verb *gàn* and the complementizer *án*.) Clauses whose propositional content is not asserted/presupposed in this way involve the two-part particle *ke…na* (also glossed as 'that'). *Ke* precedes the embedded clause and *na*

follows it (cf. (30b)). Relative clauses also employ a two-part particle – *na* follows the head of the relative clause and precedes the clause, while a second homophonous particle follows it (cf. (30c)). The fourth Nupe complementizer *kó:* (translated as 'whether') introduces indirect questions. See Kawu 1990, 1999 for further discussion of the Nupe complementizer system.

(30) a. Musa kpe **gànán** etsu nì enyà.
Musa know COMP chief beat drum
'Musa knows that the chief beat the drum.'

b. U: bè **ke** etsu má du nakàn **na**.
3RD.SG seem COMP chief know cook meat na
'It seems that the chief knows how to cook meat.'

c. Nakàn **na** etsu du **na**
meat na chief cook na
'The meat that the chief cooked'

d. Musa gbín-gàn **kó:** etsu du nakàn.
Musa lose-say COMP chief cook meat
'Musa asked whether the chief cooked the meat.'

Evidence that each complementizer in (30) (including *kó*: 'whether') occupies an X^0 position rather than a CP-level specifier position comes from the fact that A-bar extraction out of all embedded clauses is possible, as shown below. (Nb. We adopt a promotion analysis of relative clauses (Vergnaud 1974, Kayne 1994), in which the head of the relative clause undergoes extraction. Hence, the data in (30c) is itself evidence for our claim under this analysis.)

(31) a. Ke Musa kpe gànán etsu nì __ o?
what Musa know COMP chief beat o
'What does Musa know that the chief beat?'

b. Ke u: bè ke etsu má du __ na o?
what 3RD.SG seem COMP chief know cook na o
'What does it seem that the chief knows how to cook?'

c. Ke Musa gbín-gàn kó: etsu du __ o?
what Musa lose-say COMP chief cook o
'What did Musa ask whether the chief cooked?'

The data in (31) illustrate that objects in a variety of embedded clauses can be freely extracted, as is the case in many languages. It turns out that in Nupe there is a subject/non-subject asymmetry concerning extraction from embedded clauses.

The following data illustrate that although adjuncts may also be extracted from a variety of embedded clauses, subjects may not.

(32) a. Dàdà, Musa gàn gànán etsu __ nì enyà o. (√Adjunct)
quickly Musa say COMP chief beat drum o
'Musa said that the chief QUICKLY beat the drum.'

b. *Zèé Musa gàn gànán __ nì enyà o? (*Subject)
who Musa say COMP beat drum o
*'Who did Musa say that beat the drum?'

c. Sanyin, u: bè ke etsu du nakàn __ na o. (√Adjunct)
quietly 3RD.SG seem COMP chief cook meat na o
'It seems that the chief cooked the meat QUIETLY.'

d. *Zèé u: bè ke __ du nakàn na o? (*Subject)
who 3RD.SG seem COMP cook meat na o
*'Who does it seem that cooked the meat?'

e. Dàdà Musa gbín-gàn kó: etsu __ du nakàn o. (√Adjunct)
quickly Musa lose-say COMP chief cook meat o
'Musa asked whether the chief QUICKLY cooked the meat.'

f. *Zèé Musa gbín-gàn kó: __ du nakàn o? (*Subject)

who Musa lose-say COMP cook meat o

*'Who did Musa ask whether cooked the meat?'

In this way, Nupe exhibits the familiar *Comp-trace* effect (Perlmutter 1971), which is the topic of chapter five. The specific focus of that chapter concerns the fact that instances of illicit subject extraction out of CPs can be salvaged if a resumptive pronoun is spelled-out in the extraction site, as shown below.

(33) a. Zèé Musa gàn gànán **u:** nì enyà o?

who Musa say COMP 3RD.SG beat drum o

'Who did Musa say beat the drum?' (compare with (32b))

b. Zèé u: bè ke **u:** du nakàn na o?

who 3RD.SG seem COMP 3RD.SG cook meat na o

'Who does it seem cooked the meat?' (compare with (32d))

c. Zèé Musa gbín-gàn kó: **u:** du nakàn o?

who Musa lose-say COMP 3RD.SG cook meat o

'Who did Musa ask whether (they) cooked the meat?'

(compare with (32f))

A relevant fact that will play an important role in chapter five is that resumptive elements in Nupe have a highly limited distribution. The following data show that resumptive pronouns in the language only surface in subject positions. Although in many languages resumptive expressions may occur in a number of environments, such as in object (goal) position, as the objects of otherwise stranded prepositions, and in genitive constructions, they are limited exclusively to subject position in Nupe.

(34) a. Ke Musa kpe gànán etsu nì (*u:) o?
what Musa know COMP chief beat 3RD.SG o
'What does Musa know that the chief beat?'

b. Nna na mi nya-ènya bè (*u:) yin na
woman na 1ST.SG dance with 3RD.SG PRT na
'The woman I danced with'

c. Wo: na mi le doko wo:/*u:[5] ye lati o na
2ND.SG na 1ST.SG see- horse 2ND.SG/3RD.SG -see farm LOC na
bé tsuwo.
come yesterday
'You, whose horse I saw on the farm, came yesterday.'

This concludes our selective introductory discussion of Nupe syntax. Although a host of issues remain for further discussion, they can easily be integrated into the analysis when needed, now that certain key rudimentary bases have been covered.

NOTES TO CHAPTER 2

[1] Yoruba does, however, have a construction (whose analog is ungrammatical in Nupe) in which the entire VP is repeated.

(i) Yoruba

a. Bola se eran.

Bola cut meat

'Bola cut the meat.'

b. Bola se eran se eran.

Bola cut meat cut meat

'Bola kept on cutting the meat.'

In addition to the difference in the size of the repeated constituent, there is a difference in the semantic effect of doubling in both languages. While verbal repetition in Nupe conveys emphasis/polarity focus, the effect of VP repetition in Yoruba is aspectual, raising the question of whether this instance of VP doubling is simply a metalinguistic/literary device. Given the lack of discussion on this construction in the Yoruba literature, it is not clear whether the phenomenon in (ib) is metalinguistic, a case of verb serialization, or multiple copy spell-out of the entire verb phrase. In any case, it is clear that on a number of levels Nupe verbal repetition is grammatically distinct from VP doubling in Yoruba.

[2] See Kandybowicz and Baker 2003 for evidence that perfect constructions are not synchronically serial verb constructions in Nupe.

[3] An alternative to this analysis would be to locate *á* in the head of an Aspect projection. We do not develop this option, however, partly because *á* seems to express the *perfect* in Nupe, not the

clearly aspectual category of *perfective* (see Comrie 1976 on the distinction). Also, we know of no independent evidence that an Aspect node is syntactically present in Nupe. Our view is thus slightly more economical, given that v is needed anyway within our framework (e.g. to introduce the external argument).

[4] Nothing crucial hinges on the label of this category. Similar heads have been called "inner aspect" by Travis (1991), "linker" by Baker and Collins (2006), etc. This Agro projection is far from novel. Other researchers have been led to posit such a head for reasons that have nothing to do with alternations in verb-object order. See Baker and Collins 2006, for example.

[5] Evidence that *wo:* is a possessive pronoun and not a resumptive occurrence comes from the fact that resumptive elements in Nupe are restricted to third person default forms (cf. (31), (32) in chapter five). The fact that *u*:, the third person default form, is impossible in this context suggests that the form of the pronoun that surfaces in the genitive expression is non-resumptive.

CHAPTER 3

VERBAL REPETITION: LICENSING AND LINEARIZING MULTIPLE COPIES

3.1. INTRODUCTION

In this chapter, we examine the first of several instances of multiple copy spell-out in Nupe. Our first move will be to restrict our attention to the verbal domain, where the most clear-cut cases of multiple copy phonetic realization can be detected. The empirical focus of this chapter is a phenomenon we will refer to as VERBAL REPETITION (as embodied in the VERBAL REPETITION CONSTRUCTION – VRC hereafter), one of two instances of multiple copy spell-out in the verbal domain of the language first discussed by Neil Smith (1970). A VRC is a string in which multiple discrete and segmentally non-distinct verb Roots surface within a single finite clause. Such occurrences are realized without the multiplication of the verb's overt arguments or the mediation of coordination or subordination. Verbal repetition constructions are attested in a number of languages and encode a variety of meanings typically associated with functional projections above the vP layer (e.g. polarity, emphasis, topic, and focus). Nonetheless, they are often overlooked in both 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 2004

O João **comprou** o carro, **comprou**.

the John bought the car bought

'John DID buy the car.'

c. Mandarin Chinese – Huang 1991

Ta **xihuan** bu **xihuan** zhe ben shu?

he like NEG 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 – Ghomeshi, Jackendoff, Rosen, and Russell 2004[1]

I don't just like her. I **LIKE like** her.

cf. 'I REALLY like her.'

III. CONTRASTIVE TOPIC/FOCUS VRCs

f. Russian – Lee 2002

Maria **pri**-dti-to **pri**-shl-a…

Maria approach-dti-TOP approach-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. Korean – Choi 2003

Cheolswu-ka Younghui-lul **manna**-ki-nun **manna**-ss-ta.

Cheolswu-NOM Younghui-ACC meet-ki-TOP meet-PST-DECL

'Cheolswu MET Youngui. (But…)'

i. 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 Nupe, 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 derived by means of reduplicative copying (i.e. PF Readjustment of a single vocabulary item). Rather, we will argue that VRCs involve chain formation and the phonetic realization of multiple chain links at PF (i.e. multiple copy spell-out).

The conceptual tools made available by both the Copy theory of movement and Distributed Morphology (DM), pave the way for a rigorous analysis of Nupe verbal repetition. In this chapter, we will argue that unlike typical cases of movement/non-trivial chain formation, the derivation of a Nupe VRC includes a special post-syntactic operation that enables the phonetic realization of multiple copies of a Root morpheme. We follow Nunes (1999, 2004) in assuming that post-syntactic Morphological Reanalysis (interpreted as FUSION in the DM framework) allows for the linearization and subsequent spell-out of multiple spelled-out chain links. Nonetheless, we present two motives for refining Nunes' analysis of chain linearization. One, the analysis crucially rests on the stipulation that fused chain links are invisible to the linearization algorithm (understood as the LCA). 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 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' analysis 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. This analysis of Fusion is shown to have ramifications for the architecture of the PF component in the DM framework. 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.

This chapter 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 syntax-PF interface, and the architecture of PF. In addition, the chapter offers further evidence in support of the existence of TP-internal functional projections encoding information structure (Belletti 2001, 2003), and provides conceptual and empirical arguments against the proposal that head movement is relegated solely to operation at PF (Grodzinsky and Finkel 1998, Boeckx and Stjepanovic 2001, Chomsky 2001, Erteschik-Shir and Strahov (2004)).

The remainder of the chapter unfolds as follows. In section 3.2, we provide a brief descriptive overview of the Nupe VRC and adduce evidence that it is a derived mono-clausal construction owing to non-reduplicative (syntactic) copying. Section 3.3 advances an analysis of the phenomenon, proposes the modifications to Nunes' framework alluded to above, considers the implications of the account for our conception of PF architecture, and contrasts the present approach with an existing non Copy-theoretic analysis. The chapter concludes in section 3.4 with a brief summary and some final remarks.

3.2. 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 3.3.

3.2.1. 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 of the key semantic characteristics of verbal

repetition. As the chapter progresses, a variety of syntactic and phonological properties will be considered as well.

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.) Thus, uttered out of context, VRCs are glaringly infelicitous. Because the truth-value of a contextually salient utterance is promoted in the discourse, we characterize Nupe VRCs as POLARITY FOCUS constructions, in the terminology of Hyman and Watters 1984. As such, VRCs in the language are focus constructions that operate at the level of the proposition, rather than at the level of the predicate as in predicate cleft constructions (cf. chapter four). The following discourses highlight these semantic properties. Note that unlike European Portuguese (Martins 2004, cf. (1b)), Nupe VRCs are not limited to negative contexts. (See chapter two for a brief overview of negation in Nupe.)

(2) a. A: Musa (´) pa eci à.
Musa FT 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 relevant parts of the second clause. For one thing, subject/topic drop is unavailable in Nupe (as in many West African languages), 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. an intonation phrase) that is distinct from that of V1 (see Kandybowicz 2004 for details).[2] Additionally, neither tense markers nor the perfect morpheme may precede V2 (3a). And lastly, although verbal repetition constructions can be negated as a whole (2b), the verbs themselves cannot be individually negated (3b).

(3) 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 the verb and its double stand in a fairly local relationship, that is, V1 and V2 are clause bound.

3.2.2. Derivational Status

We can ask whether the verbal occurrences in VRCs are derivationally 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.

(4) CONSEQUENTIAL SVCs (CSVCs)

a. Musa à **wan** bise **zun** **gi**.

Musa FUT catch hen slaughter eat

'Musa will catch the hen, slaughter it, and (then) eat it.'

b. Musa à **du** eci **kun**.

Musa FUT cook yam sell

'Musa will cook the yam and (then) sell it.'

RESULTATIVE SVCs (RSVCs)

c. Musa è **fo** èwò **li**.

Musa PRS wash garment be clean

'Musa is washing the garment clean.'

d. Elúgi **nikin** **tsu**.

bird fall die

'The bird fell to its death.'

PURPOSIVE SVCs (PSVCs)

e. Musa à **ba** nakàn **lo** dzukó.

Musa FUT cut meat go market

'Musa will cut the meat in order to go to the market.'

f. Musa à **lá** ebi **ba** nakàn.

Musa FUT take knife cut meat

'Musa will take the knife in order to cut the meat.'

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. CSVCs (4a,b)), those with causal interpretations (cf. RSVCs (4c,d)), and those with purposive meanings (cf. PSVCs (4e,f)) (see Stewart 2001 for detailed discussion of these types). 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 RSVCs is that V2 cannot be unergative in the construction (Stewart 2001), as shown below (cf. (5a)). However, in a VRC, V2 *can* in fact be unergative (cf. (5b)).

(5) a. V2 CANNOT BE UNERGATIVE IN A NUPE RSVC

*Elúgi nikìn fu.

bird fall fly

*'The bird fell, thereby causing it to fly.'

b. V2 MAY BE UNERGATIVE IN A NUPE VRC

Elúgi fu fu.

bird fly fly

'The bird DID fly.'

Our second syntactic argument concerns the fact that in all Nupe SVCs, only the initial verbal occurrence may be repeated (contra Smith's 1970:330 findings). Consider the following.

(6) V1 ALONE MAY REPEAT IN A NUPE CSVC

a. Musa **du** eci **du** kun.

Musa cook yam cook sell

'Musa DID cook the yam and (then) sell it.'

b. *Musa du eci **kun kun**.

Musa cook yam sell sell

V1 ALONE MAY REPEAT IN A NUPE RSVC

c. Musa è **fo** èwò **fo** li.

Musa PRS wash garment wash be clean

'Musa IS washing the garment clean.'

d. *Musa è fo èwò **li** **li**.

Musa PRS wash garment be clean be clean

V1 ALONE MAY REPEAT IN A NUPE PSVC

e. Musa à **ba** nakàn **ba** lo dzukó.

Musa FUT cut meat cut go market

'Musa WILL cut the meat in order to go to the market.'

f. *Musa à ba nakàn **lo** dzukó **lo**.

Musa FUT cut meat go market go

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 (6a).)

(7) NEITHER VERB IN A VRC MAY UNDERGO (FURTHER) REPETITION

a. *Musa è gi bise gi **gi**. (Compare with (1a))

Musa PRS eat hen eat eat

b. *Elúgi fu fu **fu**. (Compare with (5b))

bird fly fly fly

The data in (7) illustrates another interesting point, namely, that 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 surface[3], 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. (4a), repeated below as (8), shows that it is possible for more than two verbs to surface in an SVC, unlike in VRCs.

(8) Musa à **wan** bise **zun** **gi**.

Musa FUT catch hen slaughter eat

'Musa will catch the hen, slaughter it, and (then) eat it.'

An additional syntactic difference between the two constructions worth noting concerns object extraction. VRCs, unlike SVCs, seem to be islands. Object extraction from SVCs, for example, is permissible, as shown in (9a-c). However,

object extraction from VRCs is blocked (9d). This is an important property that we will derive in section 3.3.1.2.

(9) OBJECTS MAY BE EXTRACTED FROM SVCs

a. Eci, Musa du __ kun o. (CSVC)

yam Musa cook sell o

'It's the YAM that Musa cooked and (then) sold.'

b. Èwò, Musa è fo __ li o. (RSVC)

garment Musa PRS wash be clean o

'It's the GARMENT that Musa washed clean.'

c. Nakàn, Musa à ba __ lo dzukó o. (PSVC)

meat Musa FUT cut go market o

'Its MEAT that Musa will cut in order to go the market.'

OBJECTS MAY NOT BE EXTRACTED FROM VRCs

d. *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.

(10) a. Musa á eci du kun.
Musa PRF yam cook sell
'Musa has cooked and sold the yam.'

b. *Musa à 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 perceptible differences in the fundamental frequencies of the verb and its copy (see section 3.3.2.2), 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 (11) illustrate that the reduplicant prefix always bears a mid tone (the unmarked tone in the language) regardless of the tonal specification of the base.

(11)	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 repetition.

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.

(12) 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 eat

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 was derived rather than base-merged.

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

3.3. 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 accord 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 (e.g. AVOID PHONETICS (Koopman 1984:175, Landau 2004, among others)), 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' (1995, 1999, 2004) theory of chain linearization along the way. One of these refinements in particular, has implications for the architecture of the PF component, which we subsequently explore. We go on to show that the resulting framework systematically accounts for the cases of multiple copy spell-out originally analyzed in Nunes 1999, 2004 without the analytical drawbacks we bring to light. The section then wraps up by comparing the present Copy-theoretic approach to other possible analyses that do not employ Copy movement with multiple copy spell-out, concluding that of the analytical choices available, the Copy-based analysis is the most tenable.

3.3.1. Narrow Syntactic Derivation of VRCs

3.3.1.1. 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.

(13) 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 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 (doubled verbs precede serialized verbs (cf. (6)) as well as low adverbs and adjuncts (cf. (28))), it is unlikely that VRCs involve movement to a left peripheral Focus Phrase. 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 split vP structure. In this respect, we follow Belletti (2001, 2003), who motivates the existence of a low (TP-internal) Focus Phrase, in addition to its peripheral counterpart. Furthermore, we propose that the phonetically null low Focus head bears an interpretable Focus feature that the verb Root picks up as it raises to v^0. Supporting evidence for this claim comes from the fact that perfect morphemes, which are base-generated in v^0 and are analyzed as light verbs historically related to *lá* 'take' (cf. chapter two), cannot undergo repetition, as shown below in (14). The reason for this restriction is that the perfect morpheme and the low Focus head will never directly interact, unlike verb Roots generated below the low Focus phrase projection, which will raise through low Foc^0 in the course of the derivation.

(14) *Musa á á nakàn ba.

Musa PRF PRF meat cut

*'Musa HAS cut the meat.'

(Also bad: *Musa á nakàn á ba.)

In this way, the head of the propositional vP (i.e. the raised verb Root) is endowed with an LF-legible Focus feature. As our discussion unfolds, further evidence for positing this interpretable Focus feature will come to light.

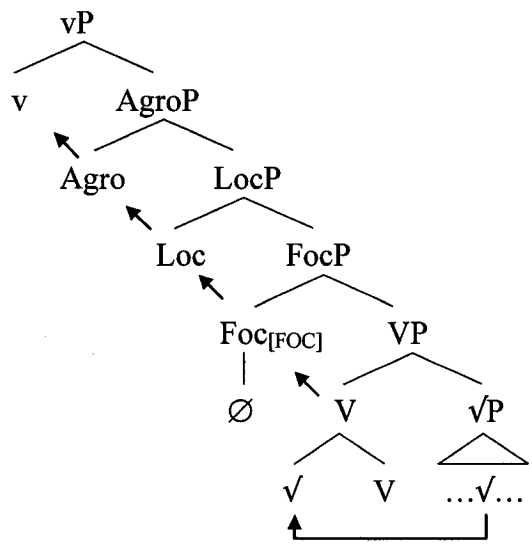
Before moving forward with this proposal, we need to decide where in the vP shell structure the low Focus head is merged. Given the vP architecture motivated in chapter two, there are basically three live options. Either the focus projection is generated between v^0 and $Agro^0$ (15a), or it sits between $Agro^0$ and Loc^0 (15b), or it is situated slightly lower, in a position intermediate between Loc^0 and V^0 (15c).

(15)	a.	v	>>	**Foc**	>>	Agro	>>	Loc	>>	V
	b.	v	>>	Agro	>>	**Foc**	>>	Loc	>>	V
	c.	v	>>	Agro	>>	Loc	>>	**Foc**	>>	V

We opt for the placement of the low Focus head below $Agro^0$ and Loc^0 (option (15c)). 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, namely, the infinitival particle *yin* in modal-auxiliary constructions (cf. (18c)). The vP structure we assume to underlie

the VRC is presented below. The arrows indicate the verb Root's path of head adjunction to v^0.

(16)



3.3.1.2. 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*:.

(17) 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 3.2.1, the exception being that factives are used

exclusively in situations in which the truth of a previous assertion is in doubt and confirmation in 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 $\varnothing^4$. ΣP is thus the locus of polarity in Nupe 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 even be natural to assume that it occupies a left-peripheral position such as Force Phrase (Rizzi 1997), there are good reasons for thinking that polarity-related 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 v^0 in a VRC. As the following data show, VRCs are ungrammatical whenever movement to v^0 is blocked. In (18a), verb movement to v^0 is blocked by the perfect marker, which was argued in chapter two to reside in v^0. In (18b-c), V2 is once again prevented from moving into v^0 given the presence of structurally higher verbs (e.g. serializing verbs and modal-auxiliary verbs) that presumably come to occupy this position.

(18) a. VRCs ARE ILLICIT IN THE PERFECT

*Musa á nakàn ba ba.

Musa PRF meat cut cut

Also BAD: *Musa á ba nakàn ba.

b. NON-INITIAL VERBS IN SVCs MAY NOT REPEAT

*Musa du eci kun kun.

Musa cook yam sell sell

c. VERBS EMBEDDED UNDER MODAL-AUXILIARIES MAY NOT REPEAT

*Musa yá eci yin si si.

Musa begin yam PRT buy buy

The generalization seems to be that movement of the lead doubled verb into v^0 is a precondition for VRC formation in Nupe. Assuming V1 to bear an interpretable Focus feature (cf. section 3.3.1.1), one way of formalizing this intuition is to maintain that null Σ^0 is merged with an unvalued Focus feature (uFOC) and thus probes to find an occurrence (i.e. the raised verb Root) with a valued matching feature (i.e. Agree($\Sigma_{[uFOC]}$, $v^0_{[FOC]}$)). By the Phase Impenetrability Condition (Chomsky 2001), Σ^0 can only probe into the edge of the vP phase. Thus, if the verb Root fails to move into v^0, an Agree relation cannot obtain between zero Σ^0 and the Focus-bearing verb Root and as a consequence, the unvalued features of

null Σ^0 will fail to be eliminated, causing the derivation to crash. Evidence that the Σ^0 headed by factive *ni:* is not a probe comes from the fact that movement to v^0 is not a precondition for factive-formation.

(19) Musa á nakàn ba ni:.

Musa PRF meat cut FACT

'Musa has in fact cut the meat.'

To return to the issue of justifying the placement of ΣP above TP, we can show that raising to v^0 is only one of two instances of movement that must obtain in the narrow syntactic derivation of a VRC. Given our assessment of Nupe as a head-initial language (cf. chapter two), it must be the case that Σ^0 itself triggers movement. In the case of factive *ni*: constructions, we can derive the sentence-final position of the particle by moving TP into Spec, Σ. Presumably, this movement is triggered by the semantics. We can say that *ni:* bears a generalized EPP/Occurrence feature (Chomsky 2000), as do a variety of functional heads in the language (cf. chapter two). This feature triggers movement of the material under the scope of *ni:* (i.e. the proposition denoted by TP) into its specifier.

(20) Musa à ba nakàn ni:.

Musa FUT cut meat FACT

'Musa will in fact cut the meat.'

$[_{\Sigma P}\ [_{TP}\ \textit{Musa à ba nakàn}]^{i}\ [_{\Sigma'}\ [_{\Sigma[EPP]}\ \textit{ni:}\ [\cancel{_{TP}\ \textit{Musa à ba nakàn}}]^{i}\ ]]]$

In addition to deriving correct word orders, this analysis provides an account of the fact that all extraction from factive clauses is blocked. This is shown below.

(21) 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, Mùsa 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 Subject Condition/CED (Huang 1982)/Freezing Principle (Koopman and Szabolcsi 2000). In this way, we derive the island status of factive constructions in the language from the placement of ΣP above TP. If polarity ΣP 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. (20)), it is clear that ΣP 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 also raises to Spec, Σ in VRCs. Consider the following data.

(22) a. *Zèé __ du eci du o?
who cook yam cook o
*'Who DID cook the yam?'

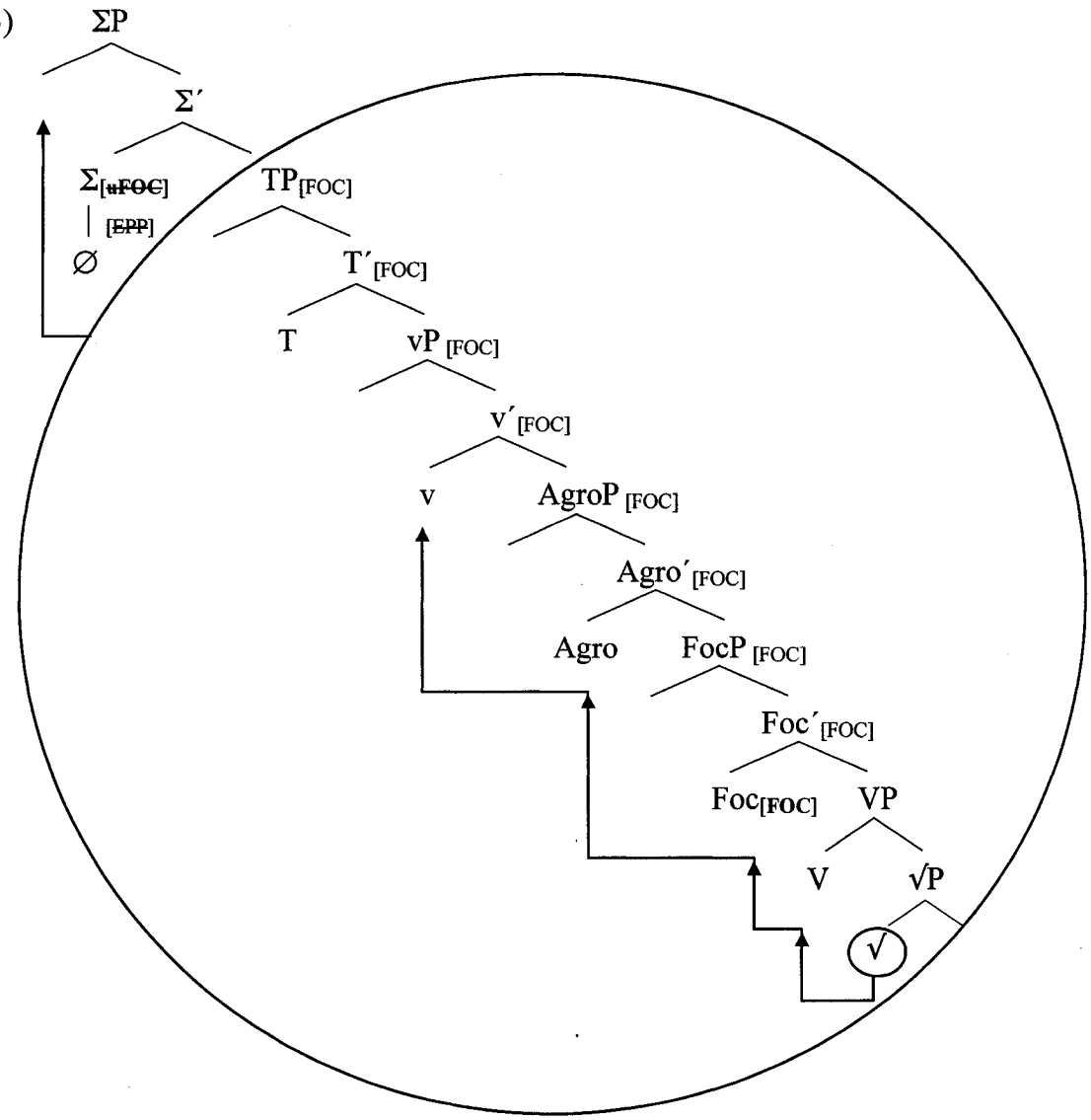
b. *Ke Musa du __ du o?
what Musa cook cook o
*'What DID Musa cook?'

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. chapter two), the EPP property of the probe cannot be satisfied by head adjunction of the goal (i.e. the complex Focus feature-bearing 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 (i.e. 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.

(23)



We conclude this sub-section by providing further justification for the separation of ΣP from vP (i.e. for a) locating polarity ΣP above TP rather than below it, as in chapter two with respect to negation constructions in the language, and b) 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.

(24) a. Musa **gàn gàn** gànán Nànàá ba nakàn.
Musa say say COMP Nana cut meat
'Musa DID say that Nana cut the meat.'

b. *Musa **gàn** gànán Nànàá ba nakàn **gàn**.
Musa say COMP Nana cut meat say

Setting aside the technical details of multiple copy spell-out 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, Σ as before, unattested orders like the one in (24b), in which a copy of the verb (i.e. the head of the chain) comes to *follow* the CP complement, would be derived. This dovetails nicely with our claim that verbal head raising past v^0 is not tolerated in the language (cf. chapter two). Evidence that the embedded CP in (24a) occupies its base-merged position and not say, an extraposed position above ΣP, comes from the fact that the factive particle *ni*: cannot follow the matrix verb and precede the embedded clause, as shown in (25a) below. Had the CP extraposed, the TP preceding *ni*: in Spec, Σ would be a remnant containing the

verb Root and a copy of the CP that would ultimately get deleted at PF. Unattested orders like the one in (25a) would thus be generated if CP extraposition were to have taken place. (25b) below illustrates the point; (25c) illustrates the correct word order.

(25) a. *Musa [gàn __] ni: [gànán Nànàá ba nakàn].
Musa say FACT COMP Nana cut meat

b. *[Musa[$_{\Sigma P}$[$_{TP}$ gàn [$_{\cancel{CP}}$ ~~ganan Nànàá ba nakàn~~]] [$_{\Sigma'}$ ni: [$_{\cancel{TP}}$ ~~gàn~~[$_{\cancel{CP}}$ ~~gànán Nànàá ba nakàn~~]]]][$_{CP}$ gànán Nànàá ba nakàn]

c. Musa [gàn gànán Nànàá ba nakàn] ni:.
Musa say COMP Nana cut meat FACT
'Musa DID say that Nana cut the meat.'

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 **hàràfíya** (*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 Nupe VRCs, as in (23).

3.3.2. 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 some of the conditions that drive multiple copy spell-out.

3.3.2.1. Fusion and Multiple Copy Linearization

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

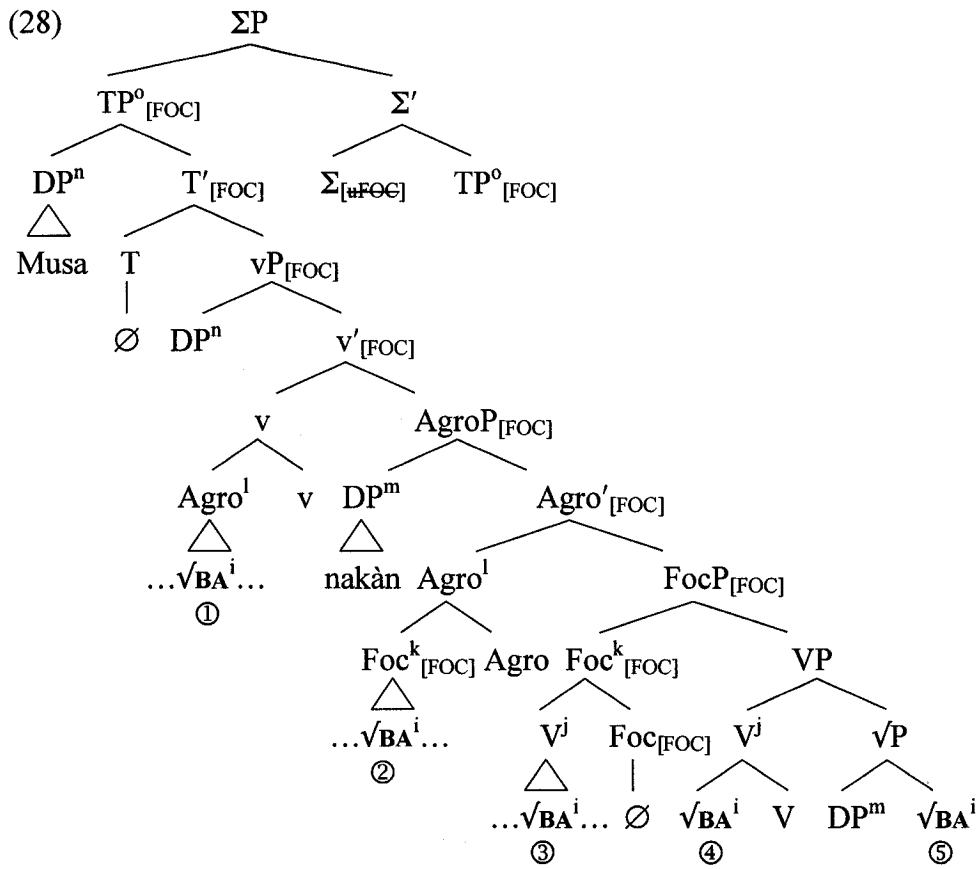
(27) Musa ba nakàn ba.

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 Case/EPP-raising, the object Case-raising, 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.

(28)



The verb Root raising chain inherited by the PF component consists of five morphosyntactically non-distinct links that must be linearized in accordance with the LCA in order for the output to satisfy the 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 five chain links escape the operation of Chain Reduction (cf. chapter one) and come to be successfully mapped onto a linear order. In most instances of Copy movement, however, failure to delete all but a single link (typically the chain head) results in an unlinearizable syntactic object, causing the derivation to crash at PF (Nunes

1995, 2004 cf. the discussion in chapter one). Consider, for instance, 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, $AgroP^5$ 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 $Agro^0$ in link position 2, the very same object must linearly precede the lower copy of the Root. Now, because the Root morpheme in link position 1 is a *copy* of the Root morpheme in link position 2, both occurrences must have been selected from a single element of the numeration and would thus be considered *non-distinct* by the computational system (Chomsky 1995a, Nunes 1995, 1999, 2004). If both links were to survive at PF, the resulting structure would be unlinearizable because of a contradictory requirement imposed by the LCA: the Root morpheme would have to both precede and follow the same object in Spec, Agro. Symmetric orderings such as these are characteristically non-linear. Furthermore, because the Root morpheme in position 1 asymmetrically c-commands its non-distinct lower copy in position 2, it would therefore come to precede itself, violating the irreflexivity condition on linear orderings. Nunes (1999, 2004) offers a provision under which multiple chain links may be phonetically realized. His idea is that multiple copies that stand in an asymmetric c-command relation can be phonetically realized if at least one copy/intermediate chain link is rendered invisible to the linearization algorithm, once again,

understood as the application of the LCA at PF. That is, successful linearization is a *sufficient* condition for multiple copy spell-out under Nunes' theory.

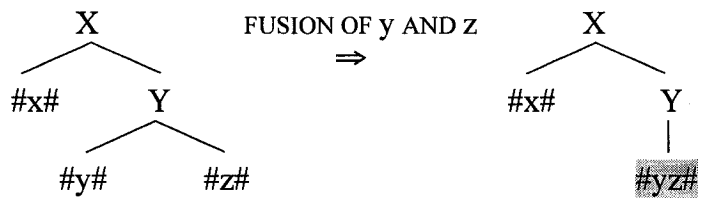
(29) MULTIPLE COPY SPELL-OUT IN NUNES' (1999, 2004) FRAMEWORK

For a syntactic chain σ, the phonetic realization of multiple σ-internal copies is possible just in case σ can be successfully linearized.

Building on Chomsky's (1995a:337) contention that the LCA applies after Syntax/Morphology, but does not apply word-internally to morphologically reanalyzed pieces, Nunes claims that heads (copies) which undergo the operation of Morphological Reanalysis as a result of head movement/adjunction, understood as FUSION in the framework of DM (Halle and Marantz 1993:116, Halle and Marantz 1994, Halle 1997), are technically word-internal and thus morphologically hidden from the LCA. The operation of morphological Fusion is a highly local post-syntactic operation of the PF component that takes as input discrete terminals that are sisters under a single category node and outputs a single terminal node in which the number of morphemes (i.e. syntactic terminals) in the structure is reduced by one. Hence, Fusion is a structure-destroying operation because it blurs the original structure of the participating morphemes at PF. That is to say, following Fusion, the morpheme boundaries of the fused pieces are no longer recoverable. In this way, the output of Fusion is morphologically distinct from all other occurrences in the derivation. This is

schematized below for a hypothetical case involving the Fusion of independent terminals *y* and *z*. In what follows, # denotes a morpheme boundary and fused morphemes are highlighted in grey for visual ease.

(30)



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. At present, this type of analysis has little to contribute to these issues other than speculation. We believe that Nunes' take on Fusion and chain linearization is ultimately correct, but that it currently lacks explanatory rigor. 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 five copy-hosting heads in (28) triggers Morphological Reanalysis? Given that the lower copy of the verb follows all case-checked objects, including locative Case-marked DPs (cf. (31) below), the head that triggers Fusion in a VRC must be lower than the AgroP/LocP layer (cf. chapter two).

(31) a. Musa **pa** (***pa**) eci **pa**.
Musa pound pound yam pound
'Musa DID pound the yam.'

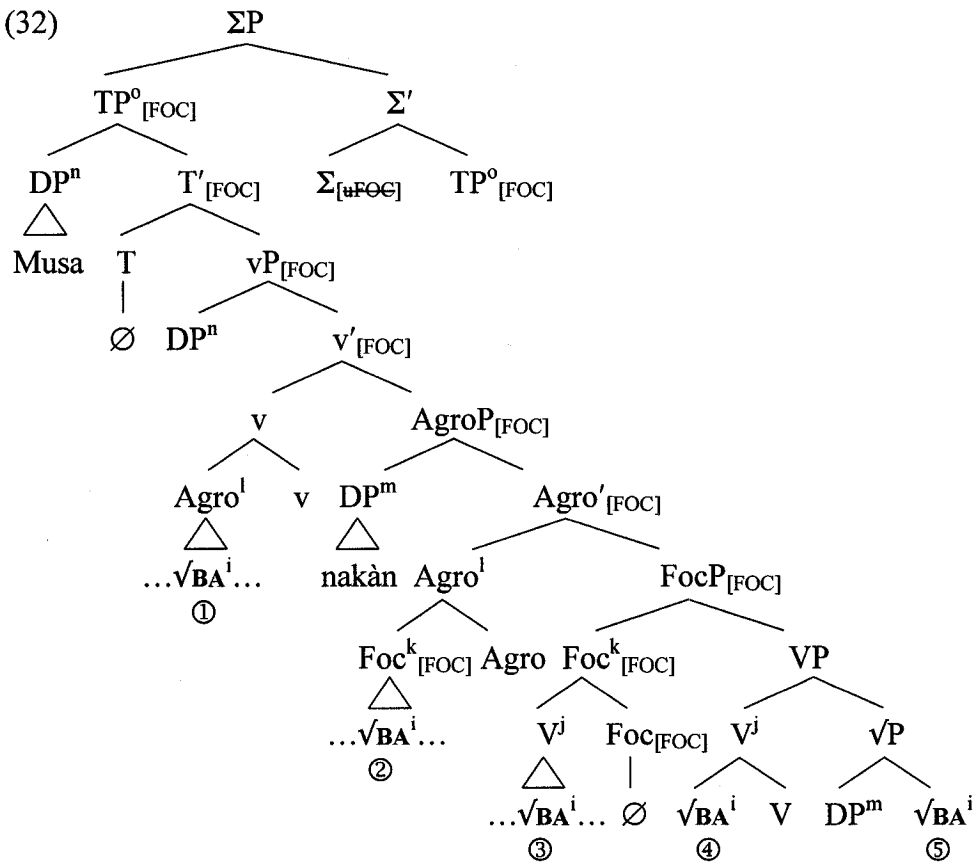
b. Musa à **yà** (***yà**) etsu (***yà**) èwò **yà**.
Musa FUT give give chief give garment give
'Musa WILL give the chief a garment.'

c. Musa **leci** (*leci) èmì o **leci**.
Musa lie lie house LOC lie
'Musa DID lie down in the house.'

Furthermore, it is not plausible that Agro^0 itself (i.e. the head hosting link 2) is the triggering head because it is not the case that all transitive constructions in the

language (i.e. constructions that also make use of AgroP) admit of verb doubling. Nor is it feasible to claim that in the presence of null Σ^0, a special Fusion-triggering $Agro^0$ is licensed. The reason for rejecting this proposal is that it invokes transderivational merger and non-local selection. At the point when $Agro^0$ is merged, Σ^0 has not yet entered the derivation. Merging a special Fusion-triggering $Agro^0$ in this case would require look-ahead to ensure the existence of the special null Σ^0 later in the derivation, as well as a non-local selectional relationship between the two heads (they are separated minimally by v^0 and T^0, cf. (28), repeated below as (32)).

(32)



Similar arguments can be made for rejecting the proposal that V^0 (the head hosting link 4 is the Fusion-triggering head. Lastly, we can throw out the possibility that link 5 is the locus of Morphological Reanalysis because the Root morpheme in that position has no structural sister and thus the structural description for Fusion is not met in that case (cf. (30)). 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. 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.

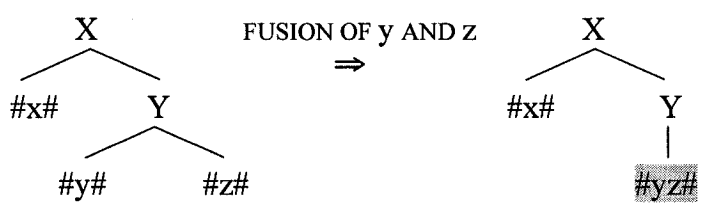
As it stands, our analysis provides a first approximation of how it is that VRCs come to be linearized. Owing to Morphological Reanalysis, the link adjoined to the low Focus head is invisible to the LCA. Consequently, the only chain links visible to the linearization algorithm are the unfused links: the head, tail, and intermediate links adjoined to $Agro^0$ and V^0 (cf. (32)). 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. (See chapter four for further discussion motivating the PF survival of the chain link in v^0, i.e. the head of the Root raising chain.) 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 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 (relating to Bare Phrase Structure) rather than on an empirical basis. Nunes' 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 (32), it is instructive to ask how many of the five links formed by head raising are *non-distinct* from one another. The answer in this case is four, 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. These resultant properties of fused structures are schematized in (30), repeated below as (33). Again, the # symbol denotes a morpheme boundary.

(33)



In this way, the fused link in low Foc^0 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 1995, 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.

(34) 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.

3.3.2.2. 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 the case of Nupe VRCs. This will pave the way for future discussion concerning the nature of Fusion as a general PF operation and consideration of its place within the PF architecture, two lines of thought we will pursue in the upcoming subsection.

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

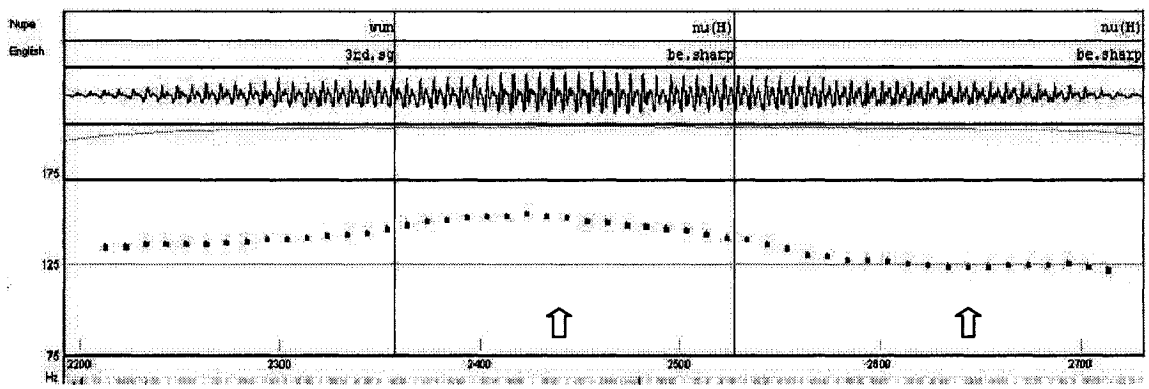
efforts to better understand VRCs in the context of Fusion is that the surviving (i.e. pronounced) verbal occurrences are not perfectly identical, contrary to initial impressions. Although there are no segmental or discernable morphosyntactic differences between V1 and V2 to directly support a Fusion analysis, prosodic effects of the process can be detected, suggesting that purely phonological considerations may be responsible for driving Fusion. The fundamental frequencies (f0) 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.[6] (35a-b) illustrate that repeated verbs lexically specified to bear High tones surface with f0 values characteristic of Mid tones. (35c), when combined with the data in (35a-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. (35d-e) show that f0 depression on V2 is much less pronounced when the repeated verb is underlyingly specified to bear either a Mid or Low tone.

(35) a. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Wun **nú** **nú**.

3rd.SG be sharp be sharp

'It IS sharp.'

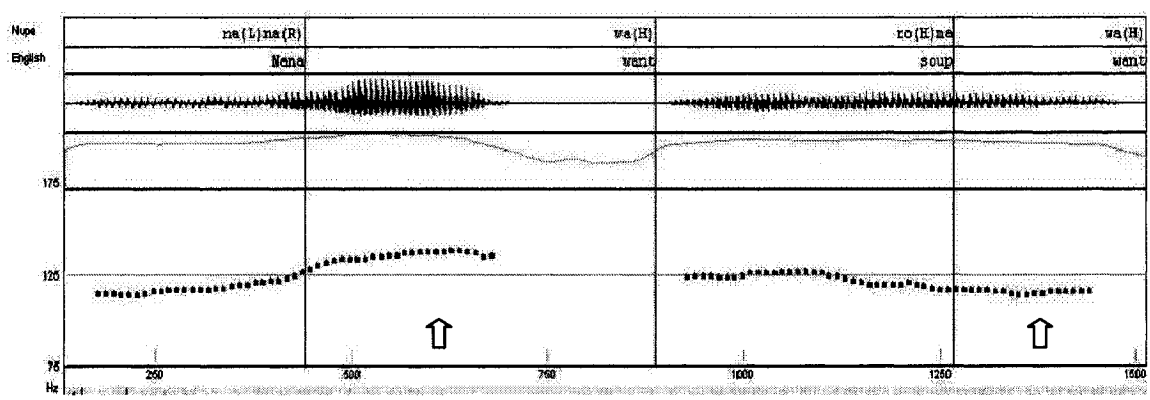


b. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànàá **wá** róma **wá**.

Nana want soup want

'Nana DOES want soup.'

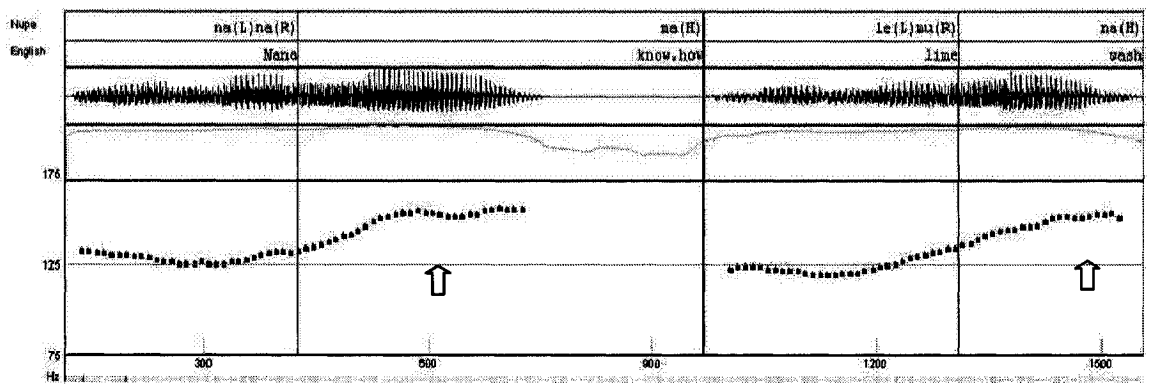


c. PITCH-TRACK FOR THE FOLLOWING NUPE SVC:

Nànàá **má** lèmùú **ná**.

Nana know lime wash

'Nana knows how to wash the lime.'

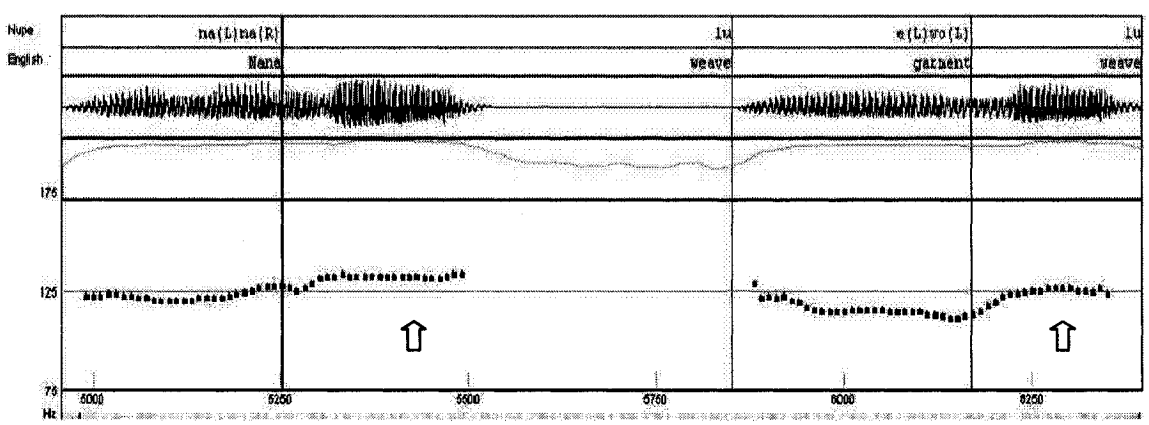


d. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànàá **lu** èwò **lu**.

Nana weave garment weave

'Nana DID weave the garment.'

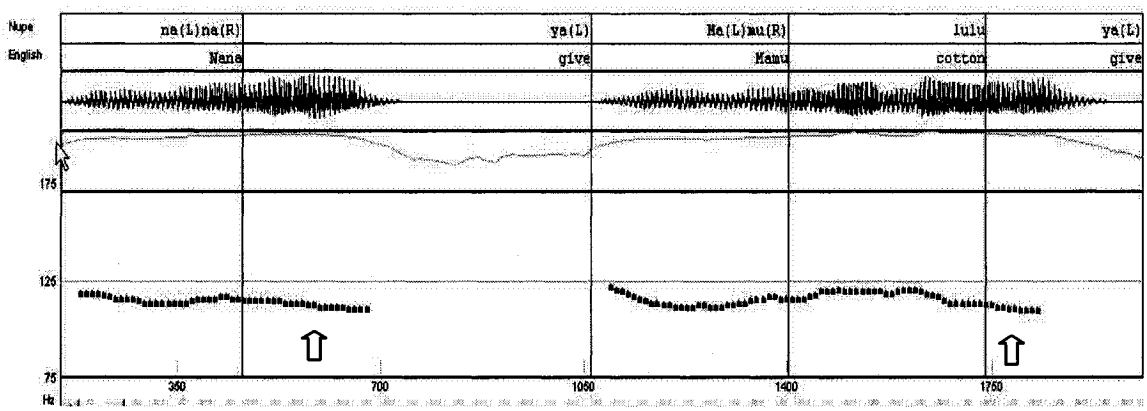


e. PITCH-TRACK FOR THE FOLLOWING NUPE VRC:

Nànàá **yà** Màmùú lulu **yà**.

Nana give Mamu cotton give

'Nana DID give Mamu cotton.'



To the extent that f0 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. (16)). In this way, the phonetic realization of the low Focus morpheme can treated as parallel to that of the peripheral Focus marker found in *wh*- questions and focus constructions, which, as argued in chapter two, is also realized as ∅. In other words, the claim is that all vocabulary items inserted into Foc^0 in the language, whether peripheral or low, are devoid of phonetic/prosodic content.

(36) [Foc^0] ↔ ∅

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" (`), that is, an exponent that has exclusively *suprasegmental* content. We postulate the following Vocabulary Insertion rules to encode this difference. Note that the low Focus morpheme is contextually differentiated from 'elsewhere' occurrences of Foc^0 (i.e. head-adjoined copies and left peripheral instances) in that only low Foc^0 is syntactically left adjacent to VP.

(37) a. [Foc^0] ↔ (`)/ ___ VP

b. [Foc^0] ↔ ∅ (elsewhere)

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 (cf. chapter two) has been standardly analyzed as involving two pieces: a sentence-final particle and a pre-verbal floating High tone (i.e. the negative morpheme) that affects the tonal realization of following verbs (Banfield and Macintyre 1915, Madugu 1982:33). An example is provided below.

(38) Musa è (´) ba nakàn à.

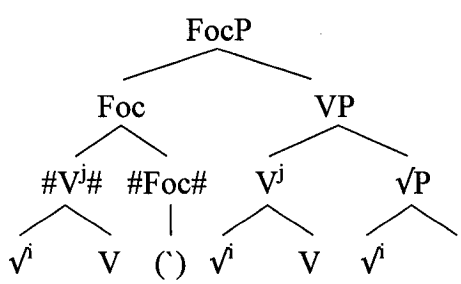
Musa PRS FT cut meat à

'Musa isn't cutting the meat.'

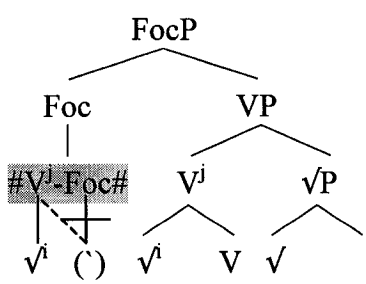
The presence of the floating High tone in cases of negation is easily detectable. In the case of (38), for example, the present tense morpheme, which is otherwise pronounced on a Low tone, surfaces with a distinct Mid tone (i.e. a raised Low tone). Likewise, the presence of a floating Low tone on low 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 take it to be a reasonable assumption that the association of a hierarchically structured floating tone morpheme with a tone-bearing unit is a local operation, all things being equal. Thus, derivations in which occurrences standing in a sisterhood relation (the most local of all relations) come to (phonologically) associate will block derivations in which elements entering into a command relation associate. 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 complex V head raised and adjoined to the left of low Foc^0 (cf. (32)). 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 f0 values of the two tone-bearing units are *averaged* together rather than *interpolated* to form a contour tone, as might be expected given that the two morphemes are fused rather than compounded (cf. (35a,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 in (39) below.

(39) a. PRE-FUSION

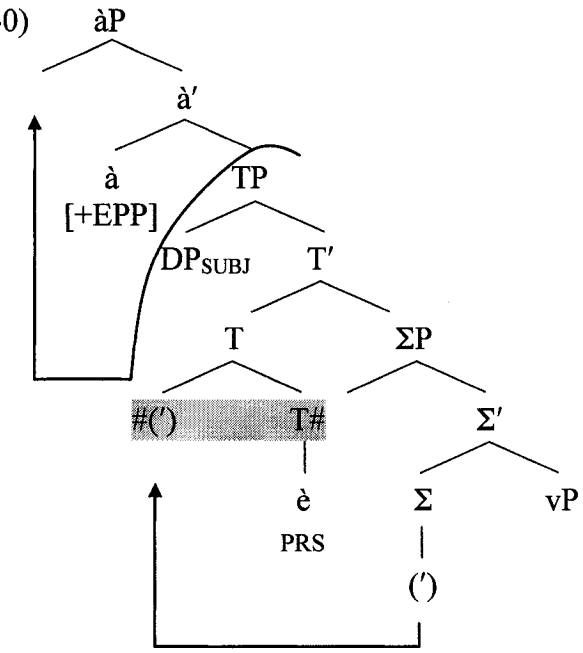


b. POST-FUSION



We can offer a similar type of analysis as regards the pre-verbal floating High tone in Nupe negation constructions (cf. (38)). At PF, the Σ terminal harboring the floating High tone undergoes Morphological Merger (Marantz 1984, 1988, Bobaljik 1995) with T^0, more precisely "Local Dislocation" (Embick and Noyer 2001), given that Vocabulary Insertion has already taken place (cf. the discussion in section 3.3.2.3). This results in adjunction to T^0. In this newly local sisterhood configuration with T^0, the two morphemes fuse and the floating High tone is configured for phonetic realization. As a result, the tense marker is realized with a higher fundamental frequency than usual (e.g. it surfaces as a Mid tone, rather than a Low tone). In the event that T^0 is phonetically null, that is, in the simple past, the Σ terminal hosting the floating tone cyclically lowers onto the head of its complement until it adjoins to and fuses with a phonetically realized terminal node, typically the verb or the perfect marker in v^0. Unlike the case of VRCs, Fusion in this instance does not result in the phonetic realization of multiple exponents of a single vocabulary item. The reason for this is simple. Because the movement (lowering) takes place post-syntactically, no chain is created and thus no additional copies surface. Our analysis of Fusion in Nupe negation constructions is presented below.

(40)



POST-SYNTACTIC MORPHOLOGICAL MERGER OF (′) WITH T^0 + FUSION

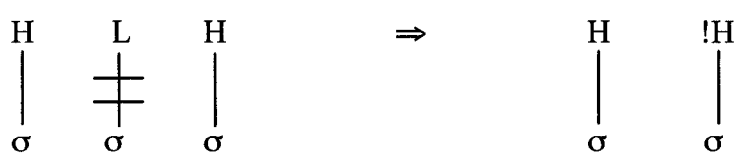
On this approach, Fusion is taken to be a highly constrained operation. It doesn't apply expressly to ensure the phonetic realization of an additional chain link (contra Martins 2004), although this is certainly a consequence of its application. Moreover, it does not apply freely. Rather, it applies as a repair strategy, mending ill-formed PF objects 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. We assume furthermore, that Fusion is constrained structurally as well. Only those terminals entering into the most local of relations, namely sisterhood, can be

fused. This explains why tense morphemes and verbs, although structurally adjacent, do not fuse in the language – verbs do not raise to T^0 in Nupe (cf. chapter two). For this reason, Morphological Reanalysis is contingent on head movement in the narrow syntax and/or on Morphological Merger at PF. Thus, the set of adjacent terminals eligible to participate in the operation is also highly constrained.

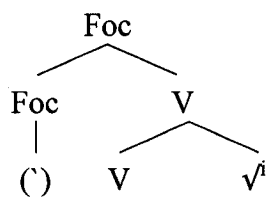
Before concluding this section, we must admit that there is an alternative way of accounting for the tonal depression on V2 without invoking Fusion. If this alternative were to pan out, it would single-handedly compromise the analysis presented thus far. It is thus important to pay careful attention 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.

(41) 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 complex V head containing the Root morpheme to the low Focus head is to the right, a non-standard assumption about head movement. The necessary structure to get this proposal off the ground is shown below.

(42) 

(compare with (16), (32))

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.[7]

3.3.2.3. Fusion, Late Morphology, and the Architecture of PF

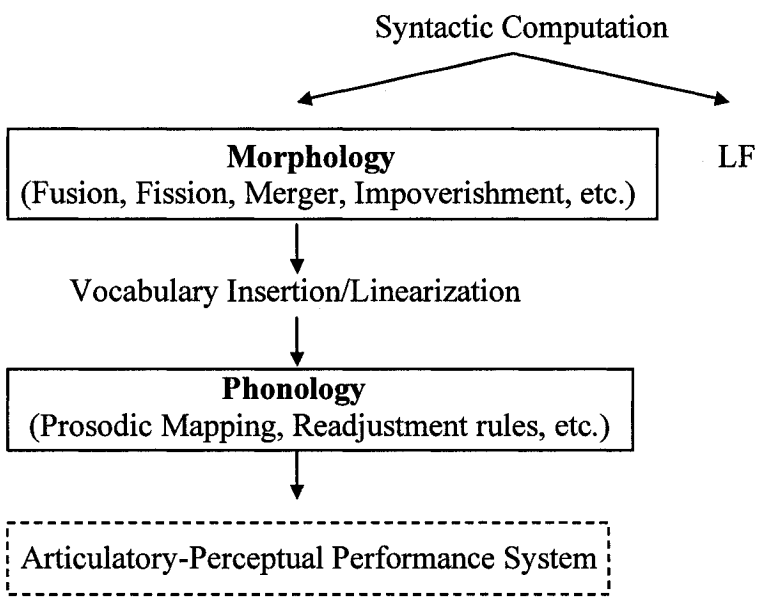
It is important to call attention to the fact that our treatment of Fusion differs somewhat from the standard DM conception of the operation. In our analysis, Fusion is a morphological operation that applies after Vocabulary Insertion and prior to linearization. Recall from chapter one that we reject the DM hypothesis that linearization is imposed by and concurrent with Vocabulary Insertion. The crucial assumption here is that Fusion *follows* insertion. On the analysis previously defended, Vocabulary Insertion feeds Fusion because it introduces prosodically disassociated exponents (namely, floating tones) into the derivation, which in turn poses a problem for PF legibility. As a result, Fusion applies to repair the output, providing a way for disassociated suprasegmental material to associate. In this respect, Fusion is a prosodically-minded operation triggered by PF convergence. The standard conception of Fusion in the DM framework, however, is that it applies *prior to* both Vocabulary Insertion and linearization (Halle and Marantz 1993:136, Halle and Marantz 1994:277, Halle 1997:148). It might be helpful to review the DM perspective on Fusion at this point.

Fusion was designed primarily to account for a particular syntax-morphology mismatch involving the phonetic realization of fewer vocabulary items at PF than there are terminal nodes in the narrow syntactic output, a state of affairs at odds with the DM tenet that morphological structure essentially recapitulates syntactic structure. For example, morphemes such as Number and Case, whose exponents are separately realized in some languages (cf. Turkish), are realized in the form of a single exponent in languages such as Latin, Latvian, and Russian. Assuming the existence of independent Number and Case nodes in the narrow syntax, Halle and Marantz (1993, 1994) analyze the mismatch in Latin, Latvian, and Russian as stemming from the post-syntactic Fusion of the two nodes into a single terminal, followed by insertion of a discrete conglomerate exponent into the collapsed position. Similarly, Tense and Agreement nodes in German and Russian have discrete exponents, but in English the two are analyzed as having fused into a single node that is instantiated at PF by a single vocabulary item.

In earlier conceptions of PF architecture within the DM framework (Halle and Marantz 1993, 1994, Harley and Noyer 1999, for instance), post-syntactic operations applying prior to Vocabulary Insertion were considered operations of the Morphological component. That is, Morphology was taken to be the set of structure modifying operations applying before Vocabulary Insertion. Thus, Fusion, along with a number of other operations such as Morphological Merger (lowering), Fission (Noyer 1997, Halle 1997), and Impoverishment (Bonet 1991, Halle and Marantz 1993, 1994), was taken to be a purely Morphological

operation. All operations transpiring after Vocabulary Insertion, on the other hand, were taken to characterize the Phonological dimension of the PF component. The following diagram illustrates the DM conception of the PF architecture.

(43) THE DM CONCEPTION OF GRAMMAR AND PF ARCHITECTURE



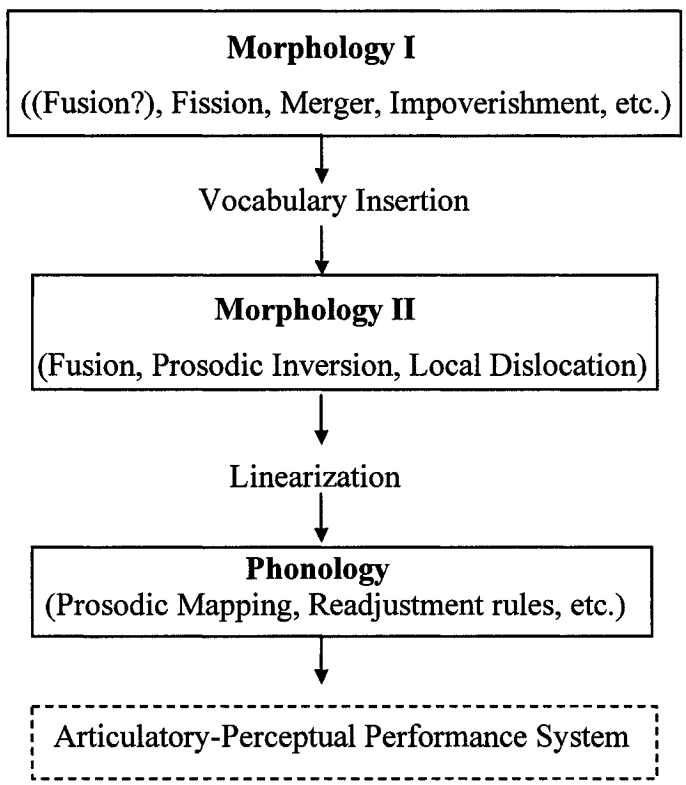
On this conception of grammar, operations such as Fusion are restricted from applying once the terminal nodes of a structure have been phonetically realized by Vocabulary Insertion. This picture is thus clearly at odds with our analysis of Fusion in Nupe VRCs. Prior to Vocabulary Insertion, the content of the low Focus terminal consists solely of the abstract interpretable Focus feature. It is hard to see why Fusion would be forced at this stage in the PF derivation. Why,

for instance, do the presence of Focus features elsewhere in PF-transferred syntactic structures (i.e. in questions, peripheral focus constructions, etc.) fail to trigger Fusion? Maintaining a pre-Vocabulary Insertion analysis of Fusion in VRCs thus forces one to stipulate the application of Fusion, given that no plausible morphosyntactic or morphophonological motivation is readily available. Alternatively, invoking Fusion *following* Vocabulary Insertion allows one to motivate the application of the operation in a principled way, as in the existing analysis.

A consequence of this way of looking at things then, is that Morphology is hyper-distributed. That is, operations of the morphological component span a wider range of the PF architecture than previously envisioned. The PF derivation is therefore not evenly divided into an initial phase of Morphology and a later stage of Phonology as in (43). Rather, morphological operations occur throughout the entirety of the PF derivation, with the possible exception of the final stages, which are reserved for purely phonological Readjustments. Some older and more recent work within DM converges on this result. Schütze (1994) argues that following Vocabulary Insertion certain clitics in Serbo-Croatian undergo "Prosodic Inversion" (Halpern 1992), a type of Morphological Merger/dislocation operation affecting prosodic constituents. Likewise, Embick and Noyer (2001), (to appear) motivate a variant of Morphological Merger they refer to as "Local Dislocation" that applies after Vocabulary Insertion and linearization in a variety of languages like Huave and Lithuanian. Thus, LATE

MORPHOLOGY, that is, the existence of morphological processes triggered after Vocabulary Insertion, seems reasonably motivated in addition to pre-insertion morphology. The architecture of the PF component motivated by our analysis of the Nupe VRC is presented below.

(44) LATE MORPHOLOGY AND PF ARCHITECTURE



At this stage of research, a number of open questions remain. Can other post-Vocabulary Insertion morphological operations can be discovered? Does Fusion apply prior to Vocabulary Insertion in some languages (cf. English, Latin, Latvian, Russian) and after it in others (cf. Nupe)? That is, should the locus of

Fusion within the PF derivation be parameterized? Or is Fusion a strictly post-insertion/prosodically-oriented operation? We leave these issues for future research. Nonetheless, the conclusion that emerges from our investigation of Nupe VRCs is evident: Morphology appears to apply both before and after Vocabulary Insertion.

3.3.3. Excursus: Head Movement is a Narrow Syntactic Operation

Our analysis of Nupe VRCs crucially assumes the availability of the head movement operation in narrow syntax. This assumption, however, has been called into question in recent years. Grodzinsky and Finkel (1998), Boeckx and Stjepanovic (2001), Chomsky (2001), and Erteschik-Shir and Strahov (2004) in particular have argued that the existence of head movement is relegated to the PF component. We believe that the syntax of the Nupe VRC, as outlined in this chapter, gives credence to the availability of head movement in the narrow syntax in at least three respects.

One, head movement of the verb Root into the edge of the v phase via the interpretable Focus feature-bearing head of the low Focus projection makes it possible for the unvalued/uninterpretable features of Σ^0 to be valued by Agree. Furthermore, it triggers an overt syntactic operation later in the derivation, namely, the pied piping of TP to Spec, Σ. Presumably, the Phase Impenetrability Condition would rule out an Agree relation holding between Σ^0 and low Foc^0,

unless the interpretable features borne by low Foc^0 could somehow come to occupy an accessible position at the edge of the v phase (i.e. by head movement). Subsequently, without having established an Agree relation between these two occurrences, the EPP-driven movement of TP to Spec, Σ would fail to occur and the EPP property of Σ^0 would go unsatisfied. Two, the Root head movement chain in VRCs yields (creates) multiple copies that are detectable in the syntax (minimally, via word-order) and which survive at PF. Without out head movement in the narrow syntax and the attendant creation of multiple verbal copies, the very existence of additional non-projecting and segmentally identical verbal elements at PF would be entirely surprising. And lastly, head movement to low Foc^0 (and subsequent TP pied-piping) yields clear semantic effects in Nupe (e.g. polarity focus), suggesting that the operation took place prior to Transfer. We thus claim that Nupe VRCs support the view that there is still a place for head movement in the narrow syntactic computation.

3.3.4. Revisiting Nunes' Analysis of Multiple Wh- Copy Constructions

Here we briefly show how our revision of Nunes' theory of linearization in overt multiple-copy chains accounts for some of the data it was originally designed to account for, without the previously mentioned stipulations and theoretical shortcomings regarding LCA invisibility. We focus on the phenomenon of

multiple *wh-* spell-out, for which an explicit analysis was provided in Nunes 1999, 2004.

In certain dialects of some languages, intermediate traces of minimal *wh-* phrases can be phonetically realized.

(45) a. Frisian (Hiemstra 1986)

Wêr tinke jo **wêr't** Jan wennet?

where think you where-that Jan resides

'Where do you think that John lives?'

b. German (Fanselow and Mahajan 1995)

Wovon glaubst Du **wovon** sie träumt?

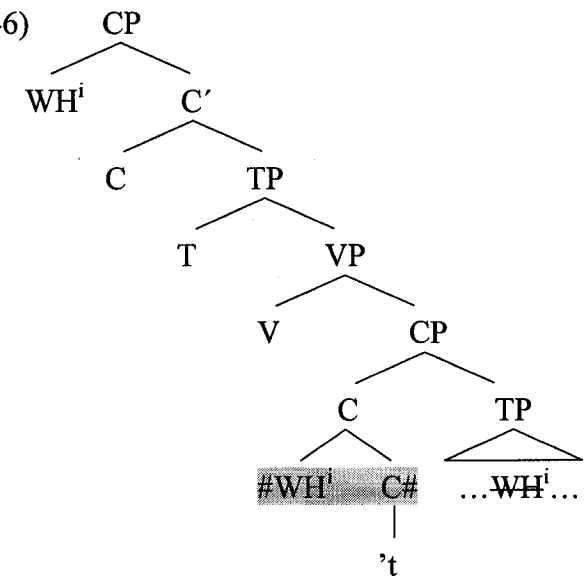
what-of believe you what-of she dreams

'What do you believe that she dreams of?'

Nunes analyzes instances of multiple *wh-* spell-out such as in (45a) above in the following way. The *wh-* element adjoins to the embedded complementizer node and subsequently raises to Spec, matrix C in the narrow syntax. At PF, the adjoined *wh-* copy fuses with the embedded complementizer *'t*. Given a) that following Fusion, the intermediate *wh-* copy is word-internal and b) that by assumption the LCA does not apply word-internally, the fused link is disregarded for the purposes of the linearization computation. Because deleting the chain tail

is more economical than deleting its head (cf. chapter one), the lower TP-internal copy is erased, leaving the head of the chain and the intermediate link in tact at PF. Thus, under this analysis, multiple copy spell-out is conditioned by the Morphological Reanalysis of *wh-* and C^0, which in turn renders linearization of the chain possible at PF. This is schematized below.

(46)



We can derive the same result without appealing to the stipulation that morphologically fused structures fail to enter into the linearization computation. Owing to its Fusion with the embedded complementizer, the intermediate *wh-* copy is rendered morphosyntactically *distinct* from the other two non-reanalyzed copies; the right edge of the *wh-* element *wêr* no longer corresponds to the right edge of any morpheme (i.e. it is no longer a morpheme boundary). Therefore, although it c-commands and is c-commanded by other *wh-* copies, it can be

phonetically realized and linearized with respect to the other copies given that the computational system can differentiate it from the other *wh-* elements on structural grounds. That is, the intermediate link in (46) is derivationally distinct from all other chain links and as such is outside the jurisdiction of Chain Reduction. On the other hand, because the *wh-* copies at the head and tail of the chain count as non-distinct given that neither copy has been morphologically reanalyzed, one of them must be eliminated in order for linearization to proceed. For the usual reasons, it is the tail of the chain that is reduced.

In order to provide a substantive generalization regarding the driving forces behind multiple *wh-* spell-out, however, we need to know what PF requirement motivates the adjunction and Fusion of the *wh-* element to the embedded complementizer in a given language, instead of simple transition through Spec, C as in typical cases of *wh-* movement. Resolving this issue is beyond the scope of this chapter and is left for future research.

3.3.5. Comparison to a Non Copy-Based Approach

In this final sub-section, we explore an existing alternative conception of VRC formation that is not rooted in a Copy-theoretic framework. In addition to generating attested word orders, the most principled theory will account for related distributional phenomena, make correct predictions, and entertain the fewest number of stipulations/assumptions. We will find that the alternative

considered here does not fare better than the Copy-theoretic analysis previously sketched in these respects. Thus, Nupe VRCs provide not only empirical support for the Copy theory of movement, but conceptual justification as well.

Harbour (to appear) presents a non Copy movement derivational analysis of verbal repetition in Haitian (cf. (1d), repeated below as (47)), involving what he calls LOW SYNTACTIC REDUPLICATION.

(47) Haitian – Harbour (to appear)

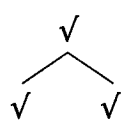
Lame a **kraze** **kraze** vil la.

army the destroy destroy town the

'The army REALLY destroyed the town.'

He claims that the syntactic component can freely copy ("reduplicate") and merge Root morphemes, yielding structures like the following:

(48)



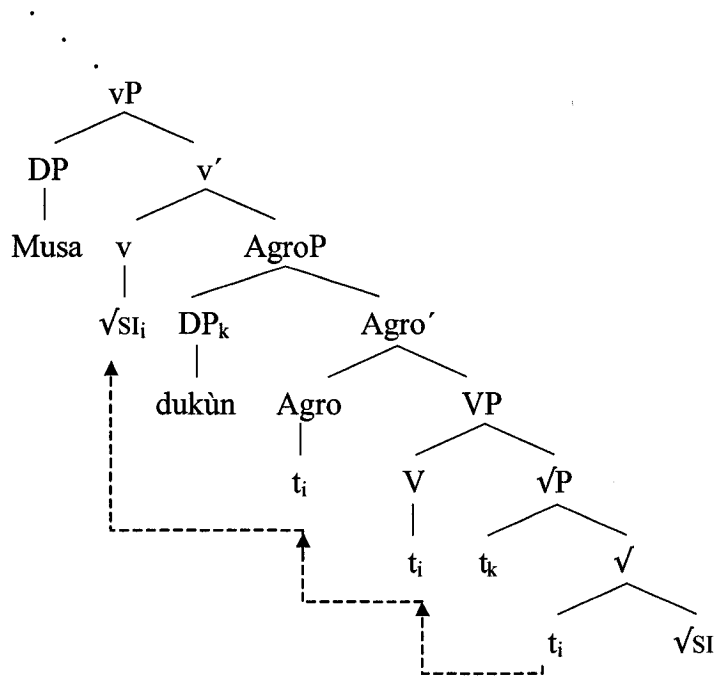
On this analysis, the need for phonetically null functional projections (such as ΣP and low FocP) is eliminated, as the semantics of the construction are determined by whichever subset of possible meanings of reduplication the language has chosen to instantiate (cf. Moravcsik 1978). Setting aside the objection that this analysis is at odds with standard conceptions of the syntax-semantics interface, let

us consider how this proposal can be applied to the case of the Nupe VRC. Under this approach, low reduplication targets a verb Root, generates a copy, and merges the two elements to form a structure where the two Roots stand in a sisterhood relation. Head movement then applies to one of the Root copies (it is not clear how to determine which), leaving behind phonetically null traces as well as the original in-situ verb Root. Thus, on this approach, the overt realization of the repeated verbal element is not an epiphenomenon of independently motivated operations such as movement and morphological Fusion, as previously discussed, but is rather a consequence of "Low Syntactic Reduplication", an otherwise conceptually unmotivated operation.[8] A Harbour-style derivation of a Nupe VRC is illustrated below. The structural representation following Vocabulary Insertion is presented for ease of exposition.

(49) Musa si dukùn si.

Musa buy pot buy

'Musa DID buy a pot.'



The analysis faces a number of empirical difficulties, however. Specifically, it makes the following three incorrect predictions. First, it incorrectly predicts that verbal repetition is possible in the perfect construction (contra (18a)) since the licit application of Low Reduplication is not tied to the requirement that the Root must raise to v^0 (i.e. that it must occupy a position at the edge of its local phase). Second, it wrongly predicts that both V2 in SVCs and verbs embedded under modal-auxiliary verbs are capable of being repeated (contra (18b,c)) since any verb Root in principle is subject to Low Syntactic Reduplication on Harbour's

account. And third, it incorrectly predicts that extraction from VRCs is possible (contra (22)), given that no constituent under this analysis is contained in a specifier. To put it another way, Harbour's analysis offers no explanation as to why these three possibilities are excluded by the grammar. In order to overcome these inadequacies, the present approach would have to adopt the assumption of the previous (Copy-theoretic) analysis that VRCs involve the existence of a functional head above TP that a) probes into the edge of vP, and b) whose specifier position is filled by a constituent containing both copies of the verb Root. However, given the proposed semantic function of Low Verbal Reduplication, the existence of this head seems puzzling. Even if the semantic relationship between Low Reduplication and this head were divorced, it is still puzzling that the presence of this functional head higher in the structure would somehow non-locally (and transderivationally) trigger syntactic reduplication in the lower reaches of the structure. Thus, the non-Copy theoretic Low Reduplication analysis of verbal repetition is conceptually weak when applied to the case of Nupe.

3.4. SUMMARY AND CONCLUDING REMARKS

In line with Minimalist considerations, we have argued that the Nupe verbal repetition construction does not represent a genuine construction type per say, but rather arises as a general consequence of independent grammatical properties,

most of them PF-centric. Verbs raise in the language, leaving behind copies which may or may not be pronounced at PF. The highest copy of the verb Root (i.e. the chain head) is spelled-out in v^0, as in typical instances of chain formation. The pronunciation of the lower copy of the verb Root in VRCs is a consequence of the Fusion of the verb Root to the low Focus morpheme, an operation that follows Vocabulary Insertion and is triggered by a phonological well formedness condition. Crucially, Fusion alters the morphosyntactic structure of the verb Root in a lower intermediate 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, both copies can be phonetically realized and successfully linearized in line with the LCA. On this analysis, morphologically Fused structures are treated as being inherently *visible* to the linearization algorithm (contra Nunes 2004) and PF well-formedness criteria, which trigger morphological Fusion, are taken to be the driving forces behind 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 (e.g. Cheng 2004, Cho and Kim 2002, Choi 2003, Hutchison 1989, Kang 1988, Kim 2002, Lefebvre and Ritter 1993, Lidz 2001, Martins 2004, Nishiyama and Cho 1998, No 1988, Nunes 1999, 2003, Piou 1982[9], Smith 1970, Yim 2004) little analytically/theoretically rigorous work has been done examining the distributional properties of the verbal copies in these constructions. We hope to have shown that verbal repetition sheds

light on a number of important grammatical issues, namely, empirical motivation for the Copy theory of movement, the mechanics of chain linearization and multiple copy spell-out, the syntax-PF interface, the architecture of the PF component, and positive evidence for the operation of head movement in the narrow syntax, among others.

NOTES TO CHAPTER 3

[1] In English, it is possible to generate multiple copies of the verb along with the verb's arguments (see Ghomeshi 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 is reduced and the two auxiliary copies are not string adjacent. The data below illustrates (data from David Adger, personal communication to Jairo Nunes (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 occurrence of the phenomenon close to home (and cross-linguistically), although it may turn out that verbal repetition in English does not involve the variety of syntactic copying proposed in this chapter (cf. Travis 2001).

[2] See the pitchtracks in (35) 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. (35b,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.

[3] Smith (1970:330) reports that up to three copies of the verb may surface in the Nupe VRC.

(iii) a. U: ba cigba. (Smith 1970:332)

3RD.SG cut wood

'S/He cut wood.'

b. U: ba cigba ba ba. (Smith 1970:332)

3RD.SG cut wood cut cut

'All s/he did was cut wood.'

While this might have been a grammatical possibility in older stages of Nupe, it is clearly inadmissible in the present grammar in both the local dialect studied by Smith (Bida Nupe) as well as the dialect investigated in this thesis (Lafiagi Nupe).

[4] 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 3.3.2.1.).

(iv) Musa ba nakàn ba ni:.

Musa cut meat cut FACT

'Musa DID in fact cut the meat.'

Note that nothing in the analysis presented in section 3.3.1.2. 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 in the main body of the text), the lead repeated verb need not surface in v^0, i.e. in the vP phase edge. Therefore, given the acceptability of (iv) above and the analysis presented in section 3.3.1, nothing should block factive VRCs in the perfect, despite the fact that *ni:*-less VRCs are ungrammatical in the perfect (cf. (10), (18a)). As it turns out, perfect

factive VRCs *are* fully grammatical in the language, as shown in (v) below. This lends further support to the syntactic analysis of VRCs presented in this section.

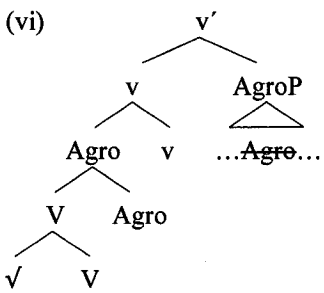
(v) Musa á nakàn ba ba ni:.

Musa PRF meat cut cut FACT

'Musa HAS in fact cut the meat.'

[5] Assuming a *first-branching category* definition of C-command (Kayne 1994), the first branching category dominating the adjoined complex verbal category V is v′, which also dominates AgroP. Although Agro and v also dominate the complex V head (cf. (vi) below), they are *segments* rather than *categories* (May 1985), and thus do not count for purposes of C-command calculation on the above definition.

(vi)



[6] The dots on the lower half of the pitch track represent detected fundamental frequency values measured in hertz (increasing along the y-axis) over time (increasing along the x-axis). The vertical lines indicate boundaries between the production of adjacent words. Thus, to observe the phonological effects of morphological reanalysis in VRCs, visually compare the fundamental frequency values in the columns corresponding to the two verbal occurrences.

[7] 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.

[8] Travis 2001 argues that the configuration in (48) is the canonical configuration for *phonological* reduplication and that syntactic reduplication involves feature checking, specifier filling, and asymmetric c-command, as in the analysis presented in section 3.3.1. In this thesis, we take a purely structural/derivational view of reduplication in the spirit of the Distributed Morphology framework. In this way, reduplication is a derivational byproduct of three systems: syntax, morphology, and phonology. Thus, we do not make a distinction between syntactic and phonological reduplication as in Travis 2001.

[9] Piou 1982 and Lefebvre and Ritter 1993 discuss two additional classes of VRCs in Haitian that are distinct from the cases of low emphatic verbal reduplication discussed by Harbour (to appear). Despite superficial similarities such as the left peripheral occurrence of the verbal copy, predicate cleft constructions and these so-called factive and temporal/causal clausal adverbial doubling VRCs are syntactically and semantically differentiated. Examples of these constructions, taken from Lefebvre and Ritter 1993, are provided below.

(vii) a. Vini Jan vini an fè li kontan.
come John come the make 3RD.SG happy
'The fact that John came made him happy.'

b. Rive m rive, li te ale.
arrive 1ST.SG arrive 3RD.SG PST go
'As soon as I arrived, he went.'

c. Achte Jan achte flè yo, Mari kontan.

buy John buy flower DET Mary happy

'Since John bought flowers, Mary is happy.'

CHAPTER 4

PREDICATE CLEFT: ECONOMY OF MULTIPLE COPY SPELL-OUT

4.1. INTRODUCTION

We present the second case of multiple copy spell-out in the Nupe verbal domain in this chapter. Our locus of inquiry is the predicate cleft construction (PCC hereafter, a typologically robust phenomenon in which a predicate is promoted in discourse prominence and realized in a peripheral syntactic position. Similar to certain varieties of left dislocation, but unlike *typical* cases of topic/focus, PCCs in Nupe and many other languages exhibit chain-like dependencies in which multiple links are visible at PF. However, much like the Nupe VRC discussed in chapter three, the phonetic realization of the predicate is obligatorily bi-locational in that triple realization is unattested (1a) (see also (31) below). Some instances of PCCs drawn from typologically unrelated languages are provided below.

(1) a. Nupe

Bi-ba Musa à **ba** nakàn (***ba/*bi-ba**) o.

RED-cut Musa FUT cut meat cut/RED-cut o

'It is CUTTING that Musa will do to the meat (as opposed to say, *cooking*).'

b. Russian – Abels 2001

Citat′ Ivan eë **citaet**, no nicego ne ponimaet.

$read_{INF}$ Ivan 3rd.FEM.ACC reads but nothing not understands

'Ivan DOES read it, but he doesn't understand a thing.'

c. Korean – Lee 1995

Ket-ki-nin Cheolswu-ka **kel**-ess-ta.

walk-ki-TOP Cheolswu-NOM walk-PST-DECL

'It is WALK that Cheolswu walked.'

Unlike the phenomenon of verbal repetition, the predicate cleft construction has received a great deal of attention in both the descriptive and theoretical literature, in particular, with respect to the Niger-Congo languages of West Africa: Akan (Boadi 1974, Ameka 1992); Buli (Hiraiwa 2005); Edo (Stewart 2001); Ewe (Ameka 1992, Collins 1994); Fongbe (Ndayiragije 1992, 1993, Lefebvre 1992a,b, 2002); Gungbe (Aboh 1998, 2004); Hausa (Tuller 1986, Lumsden and Lefebvre 1990a); Igbo (Manfredi 1993); Nupe (George 1975, Tswanya 1989, Kawu 1990, 1999, Kandybowicz 2002, 2004); Nweh (Nkemnji 1995, Koopman 1999); Vata (Koopman 1984, 1999); Twi (Alleyne 1980, Seuren 1993); and Yoruba (Awóbùluyi 1971, Bamgbose 1972, Oyèláran 1982, Awoyale 1985, Manfredi and Laniran 1988, Baker 1989, Dekydtspotter 1992, Manfredi 1993, Gruber and Collins 1996, Cho and Nishiyama 2000). Outside the Niger-

Congo family, PCCs have been documented and analyzed in a number of unrelated languages: Brazilian Portuguese (Bastos 2001, 2002, Cable 2003, Nunes 2003, 2004); Brazilian Sign Langauge (Nunes and Quadros 2004); Capeverdean (Mufwene 1987); Caribbean English Creole (Winford 1993); Chinese (Lee 2002); Guadeloupe (Bernabé 1983); Gullah (Mufwene 1987); Haitian Creole (Piou 1982, Hutchinson 1989, 2000, Lumsden 1990, Lefebvre 1990, 1994, Lumsden and Lefebvre 1990a,b, Larson and Lefebvre 1991, Lefebvre and Ritter 1993, Manfredi 1993, DeGraff 1995, Harbour to appear); Hebrew (Ziv 1997, Doron 1999, Harbour 1999, Landau 2004); Hungarian (Lee 2002); Isla de France Creole – Mauritian Creole, Seselwa, and Rodriguez Island Creole (Baker and Corne 1982, Seuren 1993); Jamaican (Mufwene 1987); Japanese (Nishiyama and Cho 1998); Korean (Lee 1995, Nishiyama and Cho 1998, Cho 1997, Choi 2000, 2003, Kim 2002, Jo 2003); Krio (Williams 1977, Alleyne 1980, Nylander 1985); Martinique (Bernabé 1983); Negerhollands (Boretzsky 1983); Papiamentu (Boretzsky 1983); Russian (Abels 2001, Lee 2002); Saramaccan (Byrne 1987); Spanish (Vicente 2005); Sranan (Jansen, Koopman, and Muysken 1978, Boretzsky 1983, Sebba 1987, Seuren 1993); Swedish (Kallgren and Prince 1989); Trinidad Dialectal English (Cozier 2002); Turkish (Lee 2002); and Yiddish (Davis and Prince 1986, Kallgren and Prince 1989, Hoge 1998, Cable 2003), among others. Despite this empirical coverage, at least two core properties of PCCs have resisted principled explanation by and large. First, how and why is a second (nearly) morphosyntactically identical occurrence of the predicate (and not for instance, a

bleached/dummy/auxiliary verb[1] instead) pronounced lower in the clause? Second, if the peripheral and lower predicates are morphosyntactically related, as they clearly appear to be crosslinguistically, how and why do they come to differ morphologically? Additionally, there is a sharp division in the field as to the proper analysis of the construction. PCCs have been analyzed as base-generated bi-clausal structures (Lumsden and Lefebvre 1990a,b, Lumsden 1990, Larson and Lefebvre 1991, Dekydspotter 1992), as structures involving independent generation of both predicates with subsequent movement of one occurrence to a peripheral position (Bamgbose 1972, Nylander 1985, Manfredi and Laniran 1988, Hutchison 1989, 2000, Massam 1990, Manfredi 1993, Lefebvre 1994, Hoge 1998, Stewart 2001, Cable 2003, Kandybowicz 2004b, Harbour to appear), and as structures that arise as a result of either head movement (Piou 1982, Bernabé 1983, Koopman 1984, Ndayiragije 1992, 1993, Aboh 1998, Harbour 1999, Nunes 2004) or phrasal movement (Nishiyama and Cho 1998, Koopman 1999, Cho and Nishiyama 2000, Abels 2001, Nunes 2003, 2004, Landau 2004, Hiraiwa 2005) plus failure to delete the trace/lower verbal copy. This rich theoretical tradition has its origins in Koopman's (1984) pioneering work on Vata PCCs. Many of the issues taken up in this chapter were either previously addressed in her research or inspired from issues discussed therein.

In this chapter, we present evidence that the fourth analytical option (namely, movement of a (remnant) phrasal category containing a copy of the predicate, plus failure to delete a lower copy of that predicate at PF) allows for both a

descriptively and explanatorily adequate characterization of Nupe PCCs. We show that the two thorns in the side of PCC research previously mentioned can be elegantly addressed under an analysis that makes use of Copy movement and the Late Insertion hypothesis of Distributed Morphology. Our solution is that the displaced left-peripheral constituent contains the category-neutral predicate Root morpheme, which, when under the scope of the clausal determiner *o*, is spelled out as a nominalization. The lower copy of the predicate Root, having head raised to v^0 (as is typically the case in the language), is also phonetically realized, this time to support v^0's affixal features at PF given the unavailability of *do*-support in the language.

Under this analysis, another instance of multiple copy spell-out in the language is shown to be an epiphenomenon of PF convergence criteria, in this case, formal feature checking/elimination in concert with the STRAY AFFIX FILTER (Lasnik 1985, 1995). Furthermore, the Nupe PCC investigated in this chapter motivates the existence of an equalizing force constraining the phonetic realization of multiple copies, namely, ECONOMY OF PRONUNCIATION. We show that Nupe PCCs provide evidence that pronunciation of multiple copies is a costly operation that transpires only as a last resort. Lower copy spell-out of the predicate in perfect PCCs is shown to be uneconomical, given that v^0 is independently supported by the perfect marker (cf. chapter two). Although the resulting output can be successfully linearized, it is deemed ill-formed at PF due to economy considerations and the derivation is blocked as a result. This is of

considerable importance because it provides evidence that linearization alone is not a sufficient condition for multiple copy spell-out, as originally proposed by Nunes (1999, 2004) and discussed in chapter three. The picture of multiple copy spell-out that emerges as a result is as follows. Multiple copies of a chain can be phonetically realized at PF in a language provided that the resulting output a) violates no independently motivated PF constraints of the language, b) can be successfully mapped onto a linear order, and c) was constructed in an economical fashion.

The remainder of this chapter is organized as follows. Section 4.2 discusses the core syntactic, morphological, and semantic properties of the Nupe PCC. In section 4.3, we consider the derivational status of the construction, arguing against base/independent generation analyses that for the most part do not invoke Copy movement. We also argue against approaches that employ head movement in this section. Adopting a phrasal Copy movement approach in response, we then provide a detailed analysis of the construction that addresses the basic properties introduced in section 4.2 as well as those aspects of the phenomenon that have resisted a principled explanation up to the present. In section 4.4, we take up the issue of economy of pronunciation and use it to enrich our account of the forces at play in driving and constraining multiple copy spell-out. Section 4.5 concludes the chapter with a brief summary.

4.2. CORE PROPERTIES OF NUPE PREDICATE CLEFT CONSTRUCTIONS

We begin by outlining the basic syntactic, morphological, and semantic facts that any account will have to contend with. These considerations are meant to both situate our discussion in the rich theoretical context PCCs have given rise to, as well as establish a standard by which to evaluate competing theories of Nupe predicate cleft constructions.

4.2.1. Nupe Focus

It will be instructive to first consider how the syntactic workings of PCC in Nupe differ from other instances of focus in the language. In addition to predicates, both DPs and modifiers may be focused in Nupe (2b-d). In all such cases, the focused element appears in a left-peripheral position, but unlike predicate focus (2e), it clearly leaves a gap in its extraction site. Furthermore, just as PCCs are obligatorily accompanied by the sentence-final particle *o* (cf. chapter two), which is often taken to be a focus marker (Kawu 1990, 1999, Cormack and Smith 1994, Kandybowicz and Baker 2003, among others), DP/modifier focus also requires the realization of the *o* particle in order for the string to be well formed. These facts are presented below.

(2) a. NEUTRAL SENTENCE

Musa à ba nakàn sasi èsun làzì.

Musa FUT cut meat some tomorrow morning

'Musa will cut some meat tomorrow morning.'

b. SUBJECT FOCUS

Musa (*Musa) à ba nakàn sasi èsun làzì *(o).

Musa Musa FUT cut meat some tomorrow morning o

'MUSA will cut some meat tomorrow morning.'

c. OBJECT FOCUS

Nakàn sasi Musa à ba (*nakàn sasi) èsun làzì *(o).

meat some Musa FUT cut meat some tomorrow morning o

'Musa will cut SOME MEAT tomorrow morning.'

d. MODIFIER FOCUS

Èsun làzì Musa à ba nakàn sasi (*èsun làzì) *(o).

tomorrow morning Musa FUT cut meat some tomorrow morning o

'Musa will cut some meat TOMORROW MORNING.'

e. PREDICATE FOCUS

Bi-ba Musa à *(ba) nakàn sasi èsun làzì *(o).

RED-cut Musa FUT cut meat some tomorrow morning o

'It is CUTTING that Musa will do to some meat tomorrow morning (as opposed to say, *cooking*).'

As a further point of departure, note that unlike predicate focus (2e), the morphophonological form of the focused DP/modifier is identical to its lower clause counterpart. Compare the left-peripheral focused occurrences in (2b-d) with their corresponding forms in (2a). Ignoring for the moment the placement of the sentence-final particle *o*, non-predicate focus thus appears to involve A-bar chain formation, formed by extraction of the focused XP and the PF deletion of its tail, as in typical instances of chain formation. This analysis, however, does not appear to straightforwardly extend to PCC formation in the language.

4.2.2. Basic Syntactic Observations – Duality of Movement

The theoretical allure of PCCs is that they appear to involve movement operations, whose properties are otherwise unobserved elsewhere in natural language. Piou (1982) and Koopman (1984) first observed that PCCs in unrelated languages (Haitian and Vata, respectively) are *wh*-like in that the distances they may traverse are constrained, yet they are unlike *wh*- constructions in that they

appear not to leave a gap or target a maximal projection. Thus, PCCs seem to necessitate the admission of a third displacement type into the movement typology, i.e., one that is intermediate between head movement and phrasal movement. Assuming this to be an undesirable course of action, the challenge posed by PCCs for generative syntax then is to explain why they behave like *wh*-(A-bar) movement in some respects, but not in others.

Nupe PCCs seem to warrant the same conclusions that Piou and Koopman drew. We can show that although the dependency between the focused left-peripheral predicate and the lower occurrence is unbounded, crossing finite clause boundaries in the presence of bridge verbs (3a-d), it is also island sensitive (3e-k), both hallmarks of A-bar dependencies.

(3) a. SENTENTIAL EMBEDDING UNDER BRIDGE VERBS

Musa gàn gànán Nànàá kpe gànán Gana si eci.
Musa say COMP Nana know COMP Gana buy yam
'Musa said that Nana knows that Gana bought the yam.'

b. √ EXTRACTION ACROSS THE CLAUSAL COMPLEMENT OF BRIDGE VERBS

Si-si Musa gàn gànán Nànàá kpe gànán Gana **si** eci o.
RED-buy Musa say COMP Nana know COMP Gana buy yam o
'It was BUYING that Musa said that Nana knows that Gana did to the yam.'

c. SENTENTIAL EMBEDDING UNDER A NON-BRIDGE VERB

U: tán Musa gànán mi: si doko.

3RD.SG pain Musa COMP 1ST.SG buy horse

'It pained Musa that I bought a horse.'

d. * EXTRACTION ACROSS CLAUSAL COMPLEMENT OF A NON-BRIDGE VERB

***Si-si** u: tán Musa gànán mi: **si** doko o.

RED-buy 3RD.SG pain Musa COMP 1ST.SG buy horse o

*'It was BUYING that it pained Musa that I did to a horse.'

e. *WH*-ISLAND

***Si-si** Musa gbíngàn [ke Gana **si** o] o.

RED-buy Musa ask what Gana buy o o

*'It was BUYING that Musa asked what Gana did.'

f. COMPLEX NP ISLAND

***Gi-gi** Musa si [bise na **gi** eyì na] o.

RED-eat Musa buy hen na eat corn na o

*'It was EATING that Musa bought the hen that ate the corn.'

g. SUBJECT ISLAND

***Si-si** [gànán etsu **si** doko] tán Musa o.

RED-buy COMP chief buy horse pain Musa o

*'That the chief BOUGHT a horse pained Musa.'

h. ADJUNCT ISLAND[2]

***Bi-ba** [Musa gá è **ba** nakàn] o, Gana à pa eci.

RED-cut Musa COND PRS cut meat o Gana FUT pound yam

*'It is CUTTING that if Musa is doing that to the meat, then Gana will pound the yam.'

i. Musa gá è ba nakàn, **pi-pa** Gana à **pa** eci o.

Musa COND PRS cut meat, RED-pound Gana FUT pound yam o

'If Musa is cutting the meat, then it is POUNDING that Gana will do to the yam.'

j. COORDINATE ISLAND[3]

***Bi-ba** [Musa$_i$ à **ba** nakàn] u:$_i$ ma à du cènkafa o.

RED-cut Musa FUT cut meat 3RD.SG and FUT cook rice o

*'It is CUTTING that Musa$_i$ will do to the meat and he$_i$ will cook the rice.'

k. ***Du-du** Musa$_i$ à ba nakàn [u:$_i$ ma à **du** cènkafa] o.

RED-cook Musa FUT cut meat 3RD.SG and FUT cook rice o

*'Musa$_i$ will cut the meat and it is COOKING that he$_i$ will do to the rice.'

In addition, PCCs and *wh-* questions are in complementary distribution, as shown below. This also suggests the A-bar status of both constructions.

(4) a. *Ke bi-ba Musa ba o?
what RED-cut Musa cut o
*'What did Musa CUT?'

b. *Bi-ba ke Musa ba o?
RED-cut what Musa cut o
*'What did Musa CUT?'

Yet despite their affinity to *wh-* constructions, Nupe PCCs exhibit properties that distinguish themselves from derivations built from *wh-*/phrasal movement. Let's first concentrate on how PCCs differ from *wh-* constructions.

As previously mentioned, if PCCs involve predicate extraction, then they are unlike typical cases of *wh-* movement (with the exception of partial *wh-* movement in Germanic, for instance) in that multiple links of their chains are phonetically realized. That is, whereas standard *wh-* movement leaves a gap, predicate focus extraction does not. In addition, although *wh-* elements can be focused *in situ* in many languages, predicate focus in Nupe can only be achieved when the predicate appears at the left edge of the clause.

(5) THE FOCUSED PREDICATE IS OBLIGATORILY REALIZED IN A LEFT PERIPHERAL POSITION

a. *Musa **bi-ba** ba nakàn o.

Musa RED-cut cut meat o

b. *Musa ba **bi-ba** nakàn o.

Musa cut RED-cut meat o

c. *Musa ba nakàn **bi-ba** o.

Musa cut meat RED-cut o

d. *Musa ba nakàn o **bi-ba**.

Musa cut meat o RED-cut

The most striking difference between Nupe PCCs and *wh-* questions, however, is the fact that the latter clearly involve a left-peripheral *phrasal* constituent, while in the former, the peripheral element appears to be an X^0 term. Similar to languages such as Vata and Haitian, but unlike Yoruba, Buli, Russian, and Hebrew (i.e. unlike the majority of languages that manifest predicate cleft, in fact) the arguments of a verb cannot appear in the left periphery with the focused element (6a,b). In fact, Nupe is more conservative than Vata and Haitian in that tense markers, aspectual elements, and low adverbs, which can appear in the left periphery with the cleft element in these languages, are restricted from

accompanying the focused predicate (6c-e). And unlike genetically-related Edo, the focused predicate cannot appear with nominal modifiers (6f-g). Thus, unlike *wh*- movement, predicate cleft in Nupe is seemingly unable to pied-pipe syntactic material.[4]

(6) THE FOCUSED PREDICATE ALONE IS REALIZED IN THE LEFT PERIPHERY

a. *[Du-du cènkafa] Musa à du (cènkafa) o.
RED-cook rice Musa FUT cook rice o
*'It is COOKING RICE that Musa will do.'

b. *[Cènkafa du-du] Musa à du (cènkafa) o.
rice RED-cook Musa FUT cook rice o
*'It is COOKING RICE that Musa will do.'

c. *[(à) du-du (à)] Musa à du cènkafa o.
FUT RED-cook FUT Musa FUT cook rice o
*'It is COOKING that Musa will do to the rice.'

d. *[(á) du-du (á)] Musa á cènkafa du o.[5]
PRF RED-cook PRF Musa PRF rice cook o
*'It is COOKING that Musa has done to the rice.'

e. *[(Dàdà) du-du (sanyin)] Musa à du cènkafa o.

quickly RED-cook quietly Musa FUT cook rice o

*'It is QUICK/QUIET COOKING that Musa will do to the rice.'

f. *[Wu-wu gútá] Gana wu Musa o.

RED-hit three Gana hit Musa o

*'It was GIVING THREE HITS that Gana did to Musa.'

g. *[Wu-wu wangi] Gana wu Musa o.

RED-hit good Gana hit Musa o

*'It was GIVING A GOOD HIT that Gana did to Musa.'

It is tempting, therefore, to analyze Nupe PCCs as instances of head movement (e.g. focus of a morphologically cognate head-like deverbal element). Therein lies the duality of Nupe predicate focus movement. With respect to the distances it may traverse and its complementarity with *wh-* questions, it patterns with (phrasal) A-bar movement. Yet at the same time, the resulting chain appears neither to be reduced (i.e. there seems to be no gap) nor obviously headed by an XP element. Furthermore, if the dependency between the focused predicate and the matrix verb arises as a consequence of chain formation, it is not immediately apparent why there is a morphological difference between the two elements. The adequacy of an analysis of Nupe PCCs can thus be judged by how well it resolves these descriptive and theoretical tensions.

4.2.3. Morphological Properties of the Cleft – Nominalization and Category Conversion

As previously observed (cf. (1a), (2e)), the verbal elements in Nupe PCCs differ morphologically. However, this difference is principled. The peripheral copy of the verb must appear reduplicated and the lower occurrence must be in bare root form, as illustrated below.

(7) a. Yi-yà Musa yà etsu èwò o.
RED-give Musa give chief garment o
'It was GIVING that Musa gave the chief a garment.'

b. ***Yà** Musa yà etsu èwò o.
give Musa give chief garment o

c. *Yi-yà Musa **yi-yà** etsu èwò o.
RED-give Musa RED-give chief garment o

d. ***Yà** Musa **yi-yà** etsu èwò o.
give Musa RED-give chief garment o

Recall from chapter three that one way Nupe verbs may be nominalized is via reduplication. The reduplicant is a CV prefix consisting of a copy of the base consonant and a high vowel with a default mid tone[5] that assimilates with the base vowel in terms of roundness, backness, and nasality (see Kawu 2000). The data below illustrate the morphophonological (8a) and morphosyntactic (8b-c) properties of verb reduplication in the language.

(8) a. MORPHOPHONOLOGICAL PROPERTIES OF NUPE VERB REDUPLICATION

yí	'be very small'	yi-yí	'shrinking'
yé	'respond'	yi-yé	'responding'
yà	'give'	yi-yà	'giving'
wo	'be dry'	wu-wo	'drying'
wú	'teach'	wu-wú	'teaching'
wún	'to own'	wu-wún	'owning'

REDUPLICATED VERBS OCCUR IN NOMINAL SYNTACTIC ENVIRONMENTS[6]

b. Musa sundàn [bi-bé nya Gana].

Musa fear RED-come POSS Gana

'Musa feared Gana's coming.'

c. [Bi-ba na u: ba nakàn na] tan Musa.

RED-cut na 3RD.SG cut meat na pain Musa

'His cutting the meat pained Musa.'

A second way nominalization is achieved in the language is by object-verb inversion. This strategy is reserved exclusively for VP-level nominalization (e.g. for object-taking predicates only).

(9) NOMINALIZATION VIA INVERSION

a. Musa kpe gànán Gana **tú** **kèké** tsúwó.

Musa know COMP Gana ride bike yesterday

'Musa knows that Gana rode a bike yesterday.'

b. Musa kpe gànán [**kèké** **tú**] ge.

Musa know COMP bike ride be good

'Musa knows that bike-riding is good.'

c. *Musa kpe gànán [**tú** **kèké**] ge.

Musa know COMP ride bike be good

Given that dependents of the verb may not accompany the focused predicate (cf. (6a,b)), it is not surprising that this second nominalization strategy is not employed in Nupe PCCs.

(10) a. *[Nakàn ba] Musa (nakàn) ba (nakàn) o.

meat cut Musa meat cut meat o

*'It is MEAT-CUTTING that Musa did to the meat.'

b. *[Kèké tú] Musa kpe gànán kèké tú ge o.

bike ride Musa know COMP bike ride be good o

*'It is BIKE-RIDING that Musa knows that bike-riding is good.'

A third instance of nominalization in the language occurs via prefixation of the morpheme *è-* to the verb Root, as shown in (11) below. This species of nominalization is largely irregular/unproductive in the language, applying only to a restricted subset of Roots, examples of which are provided below. As is evident, *è-* nominalization applies primarily to stative predicates.

(11) NOMINAL AFFIXATION (FROM KAWU 2002)

bo	'be tired'	è-bo	'tiredness, fatigue'
má	'be sweet'	è-má	'sweetness, pleasure'
sà	'be pretty'	è-sà	'beauty'
fá	'to rest'	è-fá	'rest, holiday'
ge	'be good/pretty'	è-ge	'goodness, prettiness'
tán	'to hurt/feel pain'	è-tán	'pain'

Again, focused predicates in Nupe do not surface in *è-* nominalized forms, but rather obligatorily take the shape of a reduplicated verb.

(12) a. *È-bo Musa bo o.

NOML-be tired Musa be tired o

b. Bu-bo Musa bo o.

RED-be tired Musa be tired o

'Musa was TIRED (as opposed to say, *energetic*).'

The focused predicate surfaces morphologically as a nominalization in many other (but not all) West African languages, for example, Yoruba, Buli, Edo, Hausa, and Fongbe, to name a few. This, however, is not a necessary or universal morphological property of cleft predicates. In Russian, Yiddish, Brazilian Portuguese, Spanish, Hungarian, Hebrew, and Turkish for instance, the focused predicate surfaces uninflected (in many cases, in default infinitival form) while the lower occurrence surfaces fully inflected. Illustrative examples are provided below in (13). In these cases, the grammatical information encoded by the cleft predicate must be a proper subset of the information encapsulated in the lower verbal occurrence. Nupe PCCs thus clearly differ from PCCs in these languages, at least with respect to morphology.

(13) a. Russian – Abels 2001

Citat′/*citaet Ivan eë citaet, no nicego ne ponimaet.

$read_{INF}$/reads Ivan 3rd.FEM.ACC reads but nothing not understands

'Ivan DOES read it, but he doesn't understand a thing.'

b. Yiddish – Prince and Davis 1986

Leyenen/*leynt leynt er dos bukh.

to-read/reads reads he the book

'As for reading, he is reading the book.'

c. Brazilian Portuguese – Bastos 2002

Temperar/*temperou o cozinheiro temperou o peixe.

to-season/seasoned the cook seasoned the fish

'As for seasoning, the cook seasoned the fish.'

d. Spanish – Vicente 2005

Comprar/*comprado Juan ha comprado un libro.

to-buy/bought Juan has bought a book

'As for buying, Juan has bought a book.'

e. Hungarian – Lee 2002

Meg-erkez-ni/*-ett meg-erkez-ett...

PREV-arrive-INF/-PST PREV-arrive-PST

'(S/he) ARRIVED. (But…)'

f. Hebrew – Landau 2004

Lirkod/*yirkod, Gil lo yirkod ba-xayim.

to-dance/will-dance Gil not will-dance in-the-life

'As for dancing, Gil will never dance.'

g. Turkish – Lee 2002

Gel-mesine/*gel-di-mesine gel-di...

come-TOP/come-PST-TOP come-PST

'(S/he) CAME. (But…)'

Thus, although the category conversion of the cleft predicate from verbal to nominal is specific to Nupe and many West African languages, the morphological disparity between the peripheral focused element and the lower predicate remains a typological fixed point with which to describe and analyze the construction.

4.2.4. Semantic Properties

The glosses provided thus far indicate that the semantic effect of predicate cleft in Nupe is one of focus. In this section, we informally consider the semantic interpretation of predicate focus in the light of work by Dik et al (1981) and Kiss (1998), among others. Consider the following pair of sentences.

(14) a. Musa à pa eci.
Musa FUT pound yam
'Musa will pound the yam.'

b. Pi-pa Musa à pa eci o.
RED-pound Musa FUT pound yam o
'It is POUNDING that Musa will do to the yam (as opposed to say, *boiling*).'

Truth conditionally, these sentences are identical. Both are true of a situation posterior to the utterance time, in which Musa is the agent of a yam-pounding event. Moreover, both can be uttered as an answer to the question 'What will Musa do?'. However, the predicate cleft sentence (14b) conveys additional information. This sentence makes the contrastive assertion that the event of yam-pounding, rather than some other contextually salient event, will come to pass. In

addition, the sentence carries the presupposition that Musa will in some way act upon the yam. Thus, Nupe PCCs semantically contribute contrastive or information focus (in the terminology of Kiss 1998) as well as the presupposition that the thematic object will be affected by the subject. In contrast to what is reported in other languages (Awóbùluyi 1978, Lefebvre 1990, Dekydspotter 1992, Ndayiragije 1992, 1993), Nupe PCCs do not admit additional clausal focus readings (i.e. Nupe PCCs cannot be used as answers to questions such as 'What happened?').

Comparing the interpretive properties of predicate cleft constructions in Nupe with those of the other languages mentioned thus far (cf. (13)), we see that PCCs receive one of two basic semantic interpretations: focus and topic, each of which admit of further finer semantic distinction (e.g. identificational focus (cf. *wh*-questions) vs. contrastive/information focus (14b) and emphatic topicalization (13a) vs. contrastive/concessive topicalization (13f) etc.).[7] Cleft predicates in non-African/Caribbean languages (for example, Hebrew and Yiddish) are typically construed as topics (cf. (13), although this is not completely uniform within a given language (see note 7)), whereas focus seems to largely unify the semantics of West African PCCs.

Lefebvre (1990) and Larson and Lefebvre (1991) propose a semantic analysis of predicate focus involving quantification over events, an analysis that divides the truth-conditions of PCCs into presuppositions of events and mechanisms restricting the scope of events presupposed. Thus, a prediction of the analysis,

which they claim is borne out in Haitian Creole, is that the predicate cleft interacts with Carlson (1977) and Kratzer's (1995) stage-level/individual-level distinction, namely, that roughly only event-denoting (i.e. stage-level) predicates may participate in PCCs. Like many predicate clefting languages (i.e. Vata, Trinidad Dialectal English, Yiddish, Russian, Hebrew, and even certain dialects of Haitian (Lefebvre 1994:9), the class of cleftable predicates in Nupe is not lexically restricted in this way. The data below show that individual-level predicates are subject to predicate focus in the language.

(15) a. Bi-bè Musa è bè Gana o.
RED-resemble Musa PRS resemble Gana o
'Musa RESEMBLES Gana.'

b. Kpi-kpe Musa kpe làbárì o.
RED-know Musa know story o
'Musa KNOWS/IS AWARE OF the story.'

The proper descriptive characterization of Nupe PCCs, then, is that they involve contrastive focus on a nominalized event or state-denoting Root morpheme.

4.2.5. Interim Summary

To summarize, the core properties of Nupe PCCs as discussed in this section are as follows. The dependency involved exhibits chain-like properties that pattern in certain respects like A-bar/*wh*- movement (i.e. with respect to island sensitivity) and head movement in other respects (i.e. absence of dependents, modifiers, and functional material accompanying the focused predicate). By other standards, however, PCC chains do not behave in expected ways. For instance, they fail to create a gap in the lower clause. Additionally, the peripheral predicate and the lower verb differ morphologically, with the former taking the shape of a nominalization exclusively via reduplication. One final property of the Nupe PCC construction is that the semantic effect of PCC is one of contrastive focus and there is no lexical/semantic restriction governing a predicate's participation in the construction. With these considerations in place, we are now equipped to entertain a more rigorous syntactic analysis of the Nupe PCC.

4.3. ANALYSIS AND DERIVATION

Our first task is to determine whether the Nupe data can be happily married to any of the existing analyses of PCCs in the literature. We will collapse the first two of the four basic analyses briefly outlined in section 4.1 (reprised below) and thus consider three principal approaches that have met with varying degrees of success

and have each attracted a healthy number of proponents. Settling on a phrasal movement analysis, we then provide a DM-based account of the PCC derivation in Nupe that explains both the fact that multiple copies of the verb are phonetically realized and the fact that the focused predicate, but not the lower copy, appears as a nominal. This analysis sets the stage for the discussion of linearization and economy of pronunciation in Nupe predicate cleft constructions, the subject of section 4.4.

4.3.1. Against an Independent-Generation Analysis of Nupe PCCs

Analyses that assume the independent generation of each predicate come in two varieties; those that assume a base-generated bi-clausal structure independent of overt movement (Chomsky 1977 (for English clefts), Lumsden and Lefebvre 1990a,b, Lumsden 1990, Larson and Lefebvre 1991, Dekydspotter 1992), and those that assume a combination of base-generation plus overt movement of one of the predicates (Manfredi and Laniran 1988, Massam 1990, Manfredi 1993, Hoge 1998, Stewart 2001, Cable 2003). Analyses of the first variety naturally apply to languages in which the cleft predicate is accompanied by a copular or reduced verbal element (boldfaced in the examples below), for example English, Haitian, and possibly Yoruba.

(16) a. It **is** trimming that Bradley is doing to the hedge.

b. Haitian – Larson and Lefebvre 1991

Se kouri Jan kouri.

it-is run John run

'It is RUN that John did (not, for example, *walk*).'

c. Yoruba – Dekydtspotter 1992

Fífún **ni** Tolú fún mi ní ìgbá.

giving ni Tolu give me CASE calabash

'Tolu GAVE me the calabash.'

Given that focused predicates in Nupe do not involve such peripheral verbal elements, the bi-clausal approach does not appear to lend itself well in this case. Furthermore, given the fact that the dependencies between the predicates exhibited in Nupe PCCs are island-sensitive (cf. (3e-k)), we have principled grounds for rejecting proposals that deny the existence of movement in PCCs.[8] Let us concentrate, then, on the remaining possibility that Nupe PCCs derive from the focus movement of one of the two base-generated verbal occurrences.

4.3.1.1. Against PCCs as Left Dislocation Constructions

Certain varieties of left dislocation have recently been analyzed as instances of multiple copy spell-out (Grohmann 2003). It is therefore reasonable to consider

whether Nupe PCCs and Left Dislocation constructions are amenable to comparable analyses.

Similar to focused predicates in Nupe, left dislocated DPs are known to paradoxically exhibit properties characteristic of both moved and base-generated constituents (Cinque 1990). On the one hand, peripheral DPs in left dislocation constructions do not seem to license parasitic gaps or be subject to weak crossover effects, two pieces of evidence that argue against a movement-based analysis. On the other hand, the dependency between the left-peripheral DP and the lower co-indexed pronominal is island-sensitive, suggesting a movement relation between the two elements.

Several of the tensions previously mentioned in section 4.2.2. can be resolved if we adopt an analysis of Nupe PCCs as left dislocation structures in which the peripheral predicate is base-generated in the left periphery of the minimal clause containing the lower predicate occurrence and then moves up to the highest CP projection when embedded (cf. Iatridou 1995, Cable 2003).

(17) a. CLEFTING A MATRIX PREDICATE INVOLVES NO MOVEMENT TO THE LEFT PERIPHERY

$[_{FocP}\ [_{XP}\ \alpha']\,[_{TP}\ \ldots\alpha\ldots]]$

b. CLEFTING AN EMBEDDED PREDICATE INVOLVES MOVEMENT FROM A BASE-GENERATED PERIPHERAL POSITION TO A MAIN CLAUSE PERIPHERAL POSITION

$[_{FocP}\ [_{TP}\ \ldots[_{FocP}\ [_{XP}\ \alpha']\ [_{TP}\ \ldots\alpha\ldots]]]]$

For one, the dilemmas of the missing gap (which suggests base-generation) and *wh*- head movement (which suggests chain formation) are circumvented, given that the grammar base-generates two independent verbal expressions. Second, the issue of the morphological mismatch between the peripheral predicate and the lower verb is sidestepped. Since each occurrence would have been independently selected from the numeration, one could locate the source of morphological variation in the lexical array itself. Third, and most importantly, the analysis explains why all of the evidence supporting a movement dependency between the predicates comes solely from data involving embedding.[9] Unlike matrix predicate clefting, which does not involve movement under this analysis, clefting an embedded predicate involves chain formation, an island-sensitive operation.

Despite these initial gains however, it does not seem feasible to analyze Nupe PCCs as left dislocation constructions. We have two arguments to offer in this respect. The first argument concerns the fact that semantically, left dislocation is associated with topicalization (left dislocation constructions cannot be used as answers to questions, for instance), whereas predicate cleft expresses contrastive focus in Nupe (cf. section 4.2.4). In this respect, we might locate left dislocated occurrences in the specifier of Topic Phrase and the peripheral constituent in PCCs in the specifier of Focus Phrase. The second argument against treating PCCs as instances of predicate left dislocation is syntactic. While left dislocation structures exist independently in the language, they are strictly a matrix

phenomenon. As in Russian (Abels 2001), left dislocation is inadmissible in and across embedded complement contexts, as the following data show.

(18) LEFT DISLOCATION

a. **Kèké**$_i$, mi: tu **wu:n**$_i$ o.

bike 1ST.SG ride 3RD.SG o

'(As for) the bike, I rode it.'

b. **[Kèké tu]**$_i$, mi: woma **wu:n**$_i$ o.

bike ride 1ST.SG enjoy 3RD.SG o

'(As for) bike riding, I enjoy it.'

EMBEDDED OCCURRENCES MAY NOT BE LEFT DISLOCATED

c. *Musa gàn gànán **kèké**$_i$, mi: tu **wu:n**$_i$ o.

Musa say COMP bike 1ST.SG ride 3RD.SG o

*'Musa said that the bike, I rode it.'

d. *Musa gàn **kèké**$_i$ gànán mi: tu **wu:n**$_i$ o.

Musa say bike COMP 1ST.SG ride 3RD.SG o

*'Musa said that the bike, I rode it.'

e. ***Kèké**, Musa gàn gànán mi: tu **wu:n**$_i$ o.

bike Musa say COMP 1ST.SG ride 3RD.SG o

*'The bike, Musa said that I rode it.'

Nonetheless, predicate cleft *is* possible in embedded complement contexts in the language[10], thus further disrupting the analogy between the predicate cleft construction and the left dislocation construction.

(19) EMBEDDED OCCURRENCES MAY UNDERGO PREDICATE CLEFT

Musa gàn gànán **tu-tu** mi: **tu** kèké o.

Musa say COMP RED-ride 1ST.SG ride bike o

'Musa said that it was RIDING that I did to the bike (as opposed to say, *washing*).'

Thus, we conclude that Nupe PCCs are not derivationally linked to left dislocation structures.

4.3.1.2. Against Independently Generated VP Structures as Inputs

Here we wish to once again dismiss the possibility that Nupe PCCs are built independently of syntactic copying (i.e. Copy movement). This time, however, our concern is to lay to rest the view that PCCs derive from some independently assembled verb phrase construction. Such an approach would eliminate the problem of the missing gap and the dilemma of the morphological disparity between the overt verbal occurrences, as in the previously discussed analytical option. At face value, this approach seems reasonable. At least with respect to

West African languages and Atlantic creoles, PCCs are one of several multiple-verb constructions generated by the grammar. Take Nupe, for example. In addition to PCCs, verbal repetition constructions (VRCs), serial verb constructions (SVCs), and modal-auxiliary constructions are attested (cf. chapter three). Given that such rich verb phrase structures independently manifest themselves in these types of languages, it would not seem outside the bounds of reason or plausibility for PCCs to derive from one of them. In fact, this way of treating PCCs was one of the leading analyses prior to the revitalization of the Copy theory of movement (cf. Bamgbose 1972, Nylander 1985, Manfredi and Laniran 1988, Hutchison 1989, Massam 1990, Manfredi 1993, and Lefebvre 1994). What's more, analyses in this spirit have persisted well in the wake of the resurgence of the Copy theory of movement (cf. Hoge 1998, Hutchison 2000, Stewart 2001, Kandybowicz 2004b, and Harbour to appear). In this section, we'll consider two general PCC source structures commonly suggested in the literature and discuss why each fails to offer a plausible account of Nupe PCCs.

4.3.1.2.1. Movement of a Cognate Object

One of the most immediate observations we can make about the focused predicate in Nupe is that it is morphologically/semantically cognate to the lower verbal occurrence. In many West African languages in which the cleft predicate takes on nominal morphology, there is a related construction in which the same deverbal

nominal that would appear in the left periphery in a PCC occurs as the nominal argument of a verb in the lower clause (Massam 1990). This construction is referred to as the Cognate Object Construction. Examples are provided below.

(20) Edo – Stewart 2001

a. **Òkhián** òré Òzó khián.

walk FOC Ozo walk

'It is walking that Ozo walked (not, say, got a ride).'

b. Òzó khián **òkhián**.

Ozo walk walking

'Ozo walked.' (e.g. 'Ozo walked a walk.')

c. **Òtué** òré Òzó tué Úyì.

greeting FOC Ozo greet Uyi

'It is greeting that Ozo greeted Uyi.'

d. Òzó tué Úyì **òtué**.

Ozo greet Uyi greeting

'Ozo greeted Uyi.' (e.g. 'Ozo greeted Uyi (with) a greeting.')

Suppose that PCCs in these languages are derived simply by focusing the cognate object, as proposed by Bamgbose 1972, Manfredi and Laniran 1988, Hutchison 1989, 2000, Massam 1990, Manfredi 1993, Lefebvre 1994, and Stewart 2001, among others. A number of otherwise mysterious properties begin to fall into place as a result. For one, there would be no missing movement gap. The moved element, a complement of the verb, is a maximal category and thus the problem of *wh*- head movement would not arise – the displaced constituent would behave like a normal object with respect to islands. Lastly, because the two verbal occurrences do not enter into a dependency relation, the morphological discrepancy between the focused element and the lower predicate is expected. What's more, the analysis correctly predicts the complementary distribution of PCCs and matrix cognate object constructions, as shown below.

(21) Edo – Stewart 2001

a. *Òtué òré Òzó tué Úyì òtué.

greeting FOC Ozo greet Uyi greeting

*'It is greeting that Ozo greeted Uyi a greeting.'

b. *Ù-tué-mwen[11] òré Òzó tué Úyì òtué.

NOML-greet-NOML FOC Ozo greet Uyi greeting

How well does this approach fare with respect to Nupe? Promisingly, a class of cognate object verbs is attested in the language. These verbs are unergative and combine with *è-* prefixed nominals (cf. (11)), as shown below.

(22) a. Musa à nyà **è-nyà**.

Musa FUT dance NOML-dance

'Musa will dance.'

b. Musa á le **è-le**.

Musa PRF sleep NOML-sleep

'Musa has slept.'

However, this class of verbs is extremely limited in the language and the process of cognate object formation (either via the nominal prefix *è-* (23a), via reduplication (23b), or via position-switching (23c)) is notably unproductive.

(23) a. *Musa ba nakàn **è**-ba.

Musa cut meat NOML-cut

b. *Musa ba nakàn **bi**-ba.

Musa cut meat RED-cut

c. *Musa ba nakàn **nakàn ba**.

Musa cut meat meat cut

This sharply contrasts with PCC-formation, which is a productive process in the language. This state of affairs sets Nupe apart from the languages in which cognate object constructions are said to feed PCCs. The discrepancy between the productivity of cognate object constructions and predicate cleft formation is thus one argument against deriving Nupe PCCs from cognate object constructions.

The second argument against this approach is semantic. Although it is possible to front the cognate object in sentences like those in (22), the resulting interpretation will not be one of contrastive focus, but rather something closer to topicalization. As shown below, the peripheral occurrence must retain its *è*-nominal shape (i.e. it can't take on a reduplicated form).

(24) a. **È-nyà** Musa à nyà (*è-nyà) o.

NOML-dance Musa FUT dance NOML-dance o

'It's a dance that Musa will do.'

NOT: 'It's DANCING that Musa will do (as opposed to say, *performing a ritual*).'

b. ***Nyi-nyà** Musa à nyà (è-nyà) o.

RED-dance Musa PRS dance NOML-dance o

We thus take it that structures like the one in (24a) are not true PCCs, given the semantic and morphological properties typical of predicate focus enumerated in sections 4.2.3 and 4.2.4. Thus, it does not seem promising to derive Nupe PCCs from cognate object constructions, although this may well be the proper analysis in other languages.

4.3.1.2.2. Movement of a Low Verbal Copy

In chapter three, we presented Harbour's (to appear) analysis of low verbal reduplication in Haitian, which we repeat here in more detail. In an echo of Nylander 1985, Harbour claims that the syntactic component can freely copy and merge Root morphemes, yielding two low morphosyntactically identical occurrences of the Root that stand in a sisterhood relation. This operation is purportedly responsible for deriving the Haitian intensive emphatic VRC shown below.

(25) Haitian – Harbour (to appear)

Lame a **kraze kraze** vil la.

army the destroy destroy town the

'The army really destroyed the town.'

Harbour claims that Haitian PCCs, are derived by focusing the copied Root morpheme.

(26) Se kraze$_i$ lame a t$_i$ kraze vil la.
se destroy army the destroy town the
'The army DESTROYED the town.'

Because only one of the verbal terms in (25) was selected from the initial numeration, only one verbal element projects its argument structure; the copied occurrence is thus treated as a dummy verb thematically. This is why there is no doubling in the number of overt surface arguments in Haitian emphatics. Because the dummy occurrence does not project, it is considered maximal under the Bare Phrase Structure framework (Chomsky 1995b). In this way, focus movement of the verbal copy can target maximal projections despite the fact that the moved element is syntactically an X^0 element. Harbour's analysis thus overcomes some of the major theoretical puzzles raised by PCCs, namely, the problem of the missing gap and the problem of *wh*- head movement.

Kandybowicz (2004b) independently argues that Nupe PCCs are also derived by focusing a low copy of the verb, in this case, V2 in the independently attested verbal repetition construction (VRC - cf. chapter three).

(27) a. [$_{FOCP}$ [$_{TP}$ Musa ba nakàn [ba]]].

Musa cut meat cut

'Musa DID cut the meat.'

b. Bi-ba Musa ba nakàn __ o.

RED-cut Musa cut meat o

'It was CUTTING that Musa did to the meat (as opposed to say, *cooking*.'

Although the syntactic means responsible for generating the VRC input structures in Nupe and Haitian are analyzed differently, a common thread runs through both approaches: PCCs are themselves derived from independently-derived outputs. The argument that PCCs are derived from VRCs in Nupe came primarily from their parallel distribution and secondarily from the fact that derivation of VRCs from PCCs (the opposite derivation) would involve rightward/downward movement in the narrow syntax. Distribution-wise, PCCs and VRCs are grammatical and ungrammatical in virtually the same syntactic environments. For instance, unlike other verb serializing languages such as Edo, the first verb of any serial verb construction can be repeated, but the remaining verbs cannot. Similarly, only the initial verb of a serial verb construction can undergo predicate cleft, as the following data illustrate.

(28) V1 MAY BOTH REPEAT AND CLEFT

a. Musa **du** eci **du** kun.

Musa cook yam cook sell

'Musa DID cook the yam and then sold it.'

b. **Du-du** Musa **du** eci kun o.

RED-cook Musa cook yam sell o

'It was COOKING that Musa did to the yam and then sold it.'

V2 MAY NEITHER REPEAT NOR CLEFT

c. *Musa du eci **kun kun**.

Musa cook yam sell sell

*'Musa cooked the yam and then DID sell it.'

d. ***Ku-kun** Musa du eci **kun** o.

RED-sell Musa cook yam sell o

*'It was SELLING that Musa cooked the yam and then did to it.'

Additionally, verbal repetition and predicate cleft are both impossible in object *wh*- questions.

(29) a. Ke Musa du o?

what Musa cook o

'What did Musa cook?'

b. *Ke Musa du du o?

what Musa cook cook o

*'What DID Musa cook?'

c. *Ke du-du Musa du o?

what RED-cook Musa cook o

*'What did Musa COOK (as opposed to say, *eat*)?'

(Also ungrammatical: *Du-du ke Musa du o?)

Both verbal repetition and predicate focus are possible within embedded complement clauses, as shown below.

(30) a. Musa gàn gànán u: **si** bise **si**.

Musa say COMP 3rd.SG buy hen buy

'Musa said that he DID buy the hen.'

b. Musa gàn gànán **si-si** u: **si** bise o.

Musa say COMP RED-buy 3rd.SG buy hen o

'Musa said that it was BUYING that he did to the hen.'

And lastly, it turns out that Nupe VRCs and PCCs are in complementary distribution.

(31) ***Du-du** Musa **du** cènkafa **du** o.

RED-cook Musa cook rice cook o

*'It was COOKING that Musa DID to the rice.'

Despite these distributional parallels, there are two convincing reasons why we cannot maintain the derivation of Nupe PCCs from VRCs as previously claimed. The first consideration is conceptual. Recall from the analysis of VRCs presented in chapter three that the TP projection containing the two verbal occurrences occupies a specifier position, namely, Spec, Σ (cf. (23) from chapter three). Regardless of the size of the moved constituent, focusing V2 will result in a violation of the Subject Condition, an otherwise inviolable constraint on movement in the language (cf. (3g)). Although languages with rich agreement[12] tend to tolerate CED violations such as these (Corver 1990), the Nupe agreement system is extremely impoverished and thus given the usefulness of the constraint in accounting for the fact that VRCs are islands (cf. chapter three), we assume that the Subject Condition is an active force constraining movement in the language. Therefore, PCCs cannot be derived simply by extracting a verbal copy from a VRC. The second reason for rejecting the proposal that Nupe PCCs are derived by moving low verbal copies in VRCs is empirical. The correspondence between

the well-formedness of a VRC and the grammaticality of a PCC is not as tight as originally thought. For example, modal-auxiliary verbs may systematically undergo verbal repetition, but can never predicate cleft (cf. (32a-b) – contra the description reported in Kandybowicz 2004b). Moreover, as mentioned in note 10, verbal repetition within a relative clause is permitted, but predicate focus is not (32c-d).

(32) a. REPETITION OF A MODAL-AUXILIARY VERB IS POSSIBLE

Musa **má** cènkafa **má** du.

Musa know rice know cook

'Musa DOES know how to cook rice.'

b. CLEFTING A MODAL-AUXILIARY IS IMPOSSIBLE

***Mi-má** Musa **má** cènkafa du o.

RED-know Musa know rice cook o

*'It is KNOWING that Musa knows how to cook the rice.'

c. RELATIVE CLAUSE-INTERNAL PREDICATES MAY BE REPEATED

Musa si bise na **gi** eyì **gi** na.

Musa buy hen na eat corn eat na

'Musa bought the hen that DID eat the corn.'

d. RELATIVE CLAUSE-INTERNAL PREDICATES MAY NOT BE CLEFT

*Musa si bise na **gi-gi** **gi** eyì o na.

Musa buy hen na RED-eat eat corn o na

*'Musa bought the hen that it was EATING that it did to the corn.'

We thus draw the conclusion that Nupe PCCs are not derived via movement of an independently generated low verbal copy (such as in VRCs, for example).

4.3.2. Against Derivation of Nupe PCCs by Head Movement

Thus far, we have mounted evidence that Nupe PCCs are neither base-generated constructions nor are they built from independently derived verb phrase structures. That is, we have argued against non Copy-theoretic analyses of predicate clefting. Beginning with this section, we will consider analyses that employ syntactic copying. Our goal in this particular subsection is to show that Nupe PCCs are not amenable to a head movement analysis (cf. Piou 1982, Bernabé 1983, Koopman 1984, Ndayiragije 1992, 1993, Aboh 1998, Harbour 1999, Nunes 2004). We present two pieces of evidence for this claim.

The first piece of evidence that the focused predicate cannot be an X^0 category comes from the fact that under the traditional conception of head movement, the focused head would have to either transit through or skip several lexically filled heads on the way to Foc^0, in violation of the HEAD MOVEMENT CONSTRAINT

(Travis 1984). As shown below in (33a), predicate focus involves the extraction of an element across several higher heads such as Σ^0 (the head that hosts the negative morpheme/floating high tone (cf. chapter two)) and T^0, heads that are not pied piped along with the focused predicate (33b).

(33) a. Pi-pa Musa è (´) pa eci à o.

RED-pound Musa PRS FT pound yam a o

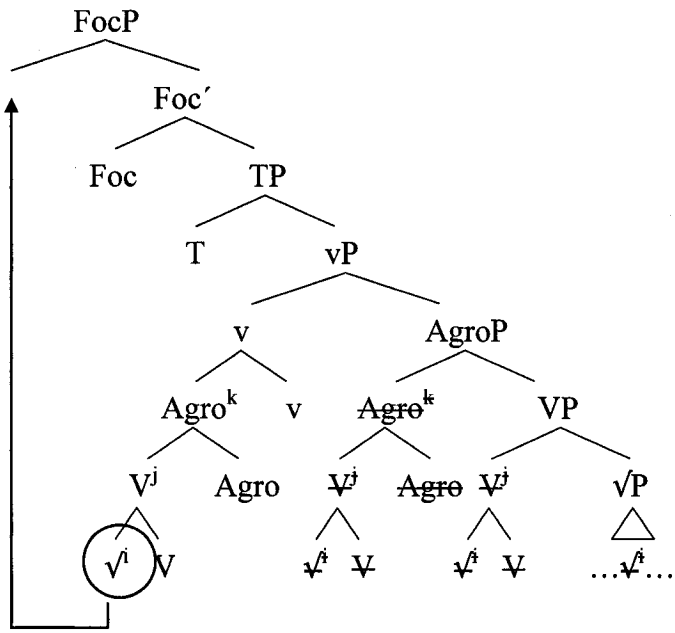
'It is POUNDING that Musa is not doing to the yam. (…In fact, he is *boiling* it).'

b. *Pi-pa-(´)-è Musa pa eci o.

RED-pound-FT-PRS Musa pound yam o

Assuming a Bare Phrase Structure analysis, it is possible to get around these problems by treating the focused predicate as a maximal category (cf. Chomsky 1995b, Harbour (to appear)). Given that verb Roots independently raise in the language (cf. chapter two) and that *targets* of movement rather than moved constituents project (Chomsky 1995b), a head-adjoined verb Root will fail to project once it has head-raised and will thus be treated as a maximal category by the computational system (cf. the problem of the Chain Uniformity Condition applied to head movement). As such, it will be free to move like an XP, skipping higher head positions and ultimately landing in Spec, Foc.

(34) MOVEMENT OF A NON-PROJECTING X^0 TO AN XP PROJECTION



We thus need more convincing evidence against the head-movement based analysis, given that the technology available in the Minimalist Program renders the data in (33) potentially unproblematic.

A stronger argument against a head movement analysis of PCCs comes from predicate clefting in serial verb constructions. As previously mentioned, the initial predicate may be focused in an SVC (35b), but the second may not (35c).

(35) RESULTATIVE SVC

a. Musa fo èwò li.

Musa wash garment be clean

'Musa washed the garment clean.'

b. Fu-fo Musa fo èwò li o.

RED-wash Musa wash garment be clean o

'It was WASHING that Musa washed the garment clean.'

c. *Li-li Musa fo èwò li o.

RED-be clean Musa wash garment be clean o

*'It was BEING CLEAN that Musa washed the garment clean.'

Although the second verbal occurrence cannot undergo predicate cleft alone, it may optionally be pied-piped when the first verb is focused in an RSVC (36a).[13] The resulting expression is syntactically well formed, but less preferable than an output in which only V1 has been cleft. When pied-piped, however, V2 may not take on nominal morphology like V1 or be pronounced in its lower position, as shown below.

(36) V2 MAY OPTIONALLY PIED-PIPE IN AN RSVC PCC

a. Fu-fo **li** Musa fo èwò (*li) o.

RED-wash be clean Musa wash garment be clean o

'It was WASHING CLEAN that Musa did to the garment.'

b. *Fu-fo **li-li** Musa fo èwò (*li) o.

RED-wash RED-be clean Musa wash garment be clean o

Similar facts do not obtain in other serial verb constructions in the language (37a,b), something we will provide a explanation for in the next section. Consider the following data.

(37) V2 MAY NOT PIED-PIPE IN A CSVC PCC

a. *Pi-pa **gi** Musa pa eci (gi) o.

RED-pound eat Musa pound yam eat o

*'It was POUNDING and then EATING that Musa did to the yam.'

b. V2 MAY NOT PIED-PIPE IN A PSVC PCC

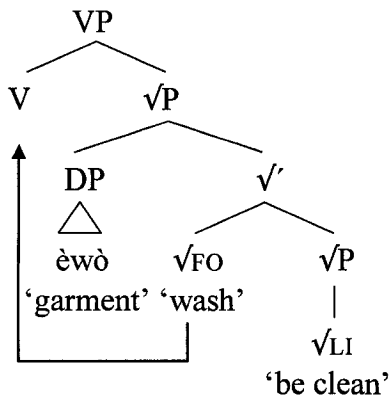
*Li-lá **ba** Musa lá ebi (ba) nakàn o.

RED-take cut Musa take knife cut meat o

*'It was TAKING to CUT that Musa did with the knife for the meat.'

According to Stewart (2001), the second predicate of an RSVC projects a category that is merged as a complement of V1. Crucially, both predicates form a tight unit that lies under the scope of a single event operator (introduced by a head above V^0). See the modified DM version of Stewart's structure in (38) below. (Serialized verbs are standardly analyzed as being morphosyntactically independent. That is, they are not treated as forming a morphological compound.)

(38) STEWART'S (2001) RSVC STRUCTURE



The data in (36) are neither predicted nor explainable under an analysis in which the focused predicate in Nupe is an X^0 category (whether minimal or maximal in the Bare Phrase Structure sense). We thus conclude that Nupe PCCs are derived by fronting a *phrasal* constituent containing the focused predicate occurrence (cf. Nishiyama and Cho 1998, Koopman 1999, Cho and Nishiyama 2000, Abels 2001, Nunes 2003, 2004, Landau 2004, and Hiraiwa 2005, among others). But how big is this constituent?

4.3.3. Derivation of Nupe PCCs by Phrasal Movement

The XP-based accounts of PCCs cited in the previous paragraph assume that the moved category is either VP or some slightly larger projection. This explains why arguments, complements, and adjuncts can accompany the cleft occurrence in some languages (cf. Buli (Hiraiwa 2005), Hebrew (Landau 2004), and Yoruba

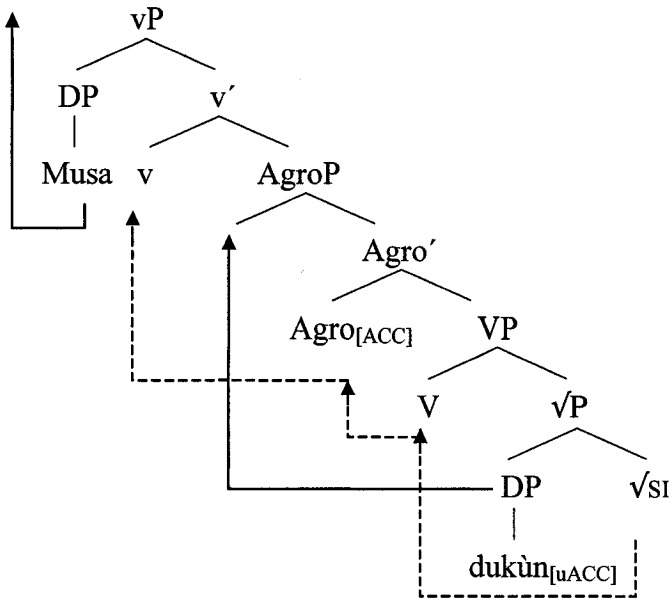
(Cho and Nishiyama 2000)). In clefting languages that do not tolerate pied-piping of verbal dependents or modifiers (for instance, Fongbe (Ndayiragije 1992, 1993), Haitian (Piou 1982), and Vata (Koopman 1984)), the focused constituent is analyzed as a smaller remnant category (Koopman 1999, Abels 2001, Nunes 2003). Nupe falls into this second class, as we will now show.

4.3.3.1. The Size of the Moved Category

In chapter two, we analyzed the extended projection of the Nupe verb to include an intermediate Case-licensing domain (AgroP) that occupies the syntactic space between the category where internal arguments are projected (√P) and the projection where external arguments are introduced (vP). We motivated an analysis where verb Roots raise to the highest lexically unfilled head position within vP and internal arguments vacate √P in order to check their Case features against $Agro^0$.

(39) a. Musa si dukùn.
Musa buy pot
'Musa bought a pot'

b. PARTIAL STRUCTURE OF (39a) – VOCABULARY ITEMS ADDED FOR EASE OF PRESENTATION



Given this analysis, the size of the moved category in a Nupe PCC must be smaller than both vP and the Case-checking agreement projection(s) [both of which would have been spelled-out by this stage in the derivation], otherwise Case-checked internal arguments should accompany the focused predicate in the left periphery, contrary to fact (cf. (6a,b) and the data below).

(40) ARGUMENTS OF THE CLEFT ROOT MAY NOT BE PRONOUNCED IN THE LEFT PERIPHERY

a. Yi-yà Musa yà etsu èwò o.

RED-give Musa give chief garment o

'Musa GAVE the chief a garment.'

b. *[Yi-yà **èwò**] Musa yà etsu (èwò) o.

RED-give garment Musa give chief garment o

c. *[Yi-yà **etsu**] Musa yà (etsu) èwò o.

RED-give chief Musa give chief garment o

d. *[Yi-yà **etsu èwò**] Musa yà (etsu) (èwò) o.

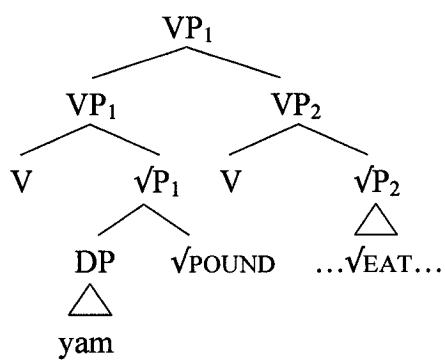
RED-give chief garment Musa give chief garment o

Additional considerations suggest that the focused category is even smaller than VP. Given that the focused predicate surfaces with nominal features (instantiated by its nominal (reduplicative) morphology), it follows that the cleft constituent excludes the verbalizing morpheme (V^0). If this is correct, there are two immediate conclusions regarding the nature of the focused peripheral copy, both of which will be discussed in more detail in the upcoming subsection. One, the cleft constituent is √P, a remnant phrasal category containing copies of the raised Root morpheme and the Root's raised unchecked Case feature-bearing thematic argument(s). Two, the spelled-out Root morpheme adjoined to v^0 (see the structure in (34)) cannot be a link in the predicate focus chain because it is not a phrasal category. That is to say, Nupe PCC derivation involves the formation of two separate predicate-containing chains; one chain formed by head raising to v^0 and a separate chain displacing the remnant Root phrase to a peripheral position.

In addition to capturing the restriction on the appearance of objects (discussed in section 4.3.3.2.4), adjuncts, and additional functional morphemes in a Root-adjacent peripheral position (cf. (6)), a √P movement analysis affords an explanation of the serial verb clefting facts presented in (36) and (37), to which we briefly turn.

Recall that V2 is prohibited from both clefting (28d) and accompanying the cleft predicate in the Consequential serial verb construction (37a). The basic structure Stewart (2001) assumes for this variety of SVC is one in which the VP projection containing the serialized verbal occurrence is adjoined to the VP housing V1.[14] The DM version of Stewart's CSVC structure is provided below (again, vocabulary items have been added for ease of presentation).

(41) STEWART'S (2001) CSVC STRUCTURE

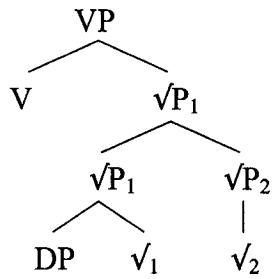


If PCCs involve the movement of √P (and crucially not VP) as we are assuming, the facts previously cited fall out. Because $\sqrt{}_1$ and $\sqrt{}_2$ do not form a constituent under a single √P on this analysis, they cannot cleft together in a CSVC (cf.

(37a)). And because VP_2 is adjoined to VP_1, the sub-constituent $\sqrt{P_2}$ containing the serialized predicate (V2) is island-internal and is thus prevented from undergoing predicate cleft by principles like the CED (Adjunct Island Constraint) (cf. (28d)). In contrast, the serialized Roots *do* form a constituent under $\sqrt{P}$ in RSVCs under Stewart's structure (38). Thus, if PCCs involve $\sqrt{P}$ movement, we straightforwardly derive surface strings in which the resultative predicate complement is pied-piped along with the initial predicate (36a). However, there are several shortcomings to contend with. For one thing, the analysis incorrectly predicts that the second predicate alone should be able to cleft in an RSVC (cf. (35c)), given that it is generated in a non-adjoined $\sqrt{P}$ (cf. (38)). Second, in our modified Stewart RSVC structure (38), there is no $\sqrt{P}$ constituent that includes $\sqrt{_1}$ to the exclusion of $\sqrt{_2}$, thus preventing V1 from being focused independently of V2 (the preferred pattern) under our analysis.

As a consequence of these issues, we propose a modification of Stewart's RSVC structure[15], under which the serialized Root phrase is *adjoined* below a single V^0 to $\sqrt{P_1}$, rather than being a complement of the serializing predicate Root as before (cf. (38)).

(42) REVISED RSVC STRUCTURE FOR NUPE



In this way, all serial verb construction types can be structurally unified under adjunction. The structural difference between CSVCs and RSVCs is minimal; in the former, $\sqrt{P_2}$ is sister V^0 (cf. (41)), whereas in the latter it is sister to $\sqrt{P_1}$. Because both predicates of an RSVC are still c-commanded by a single V^0 on this re-analysis, we do not loose Stewart's original characterization of RSVCs as single event-denoting structures (granted that event variables are introduced by heads higher than V^0, as typically assumed). Under this structural analysis, the difference between PCCs in which V1 alone is focused and PCCs in which V2 is pied-piped along with V1 reduces to a derivational difference regarding which √P projection is cleft. In the latter case, the √P category immediately dominated by VP (i.e. the highest √P) is targeted, whereas the former is derived by moving the $\sqrt{P_1}$ projection (i.e. the constituent that is left adjacent to $\sqrt{P_2}$ – cf. (42)). The inability of the serialized (i.e. second) predicate to exclusively cleft in this construction (cf. (35c)) can now be made to follow from minimality considerations such as Relativized Minimality or the Minimal Link Condition.

4.3.3.2. Mechanics of the PCC Derivation

Adopting the DM framework, we assume that the morphological construction of words is constrained by the hierarchical structures assembled in the narrow syntax and thus that words do not enter a derivation pre-formed. Under this approach, the abstract morphemes (terminals) manipulated in the syntax are underspecified for a number of grammatical properties. Root morphemes, in particular, are underspecified for syntactic category. That is, Roots are category-neutral morphemes that achieve categorial instantiation in virtue of occupying a position in the domain/under the scope of a category-assigning functional morpheme (e.g. V^0, n^0, a^0) at the point of Vocabulary Insertion (Marantz 1997), a late operation that occurs after the syntactic computation. Under this framework, a Root morpheme under the scope of a head bearing verbal features (e.g. V^0) will surface with the category feature [+V] and will thus be spelled out as a verb. Under the scope of a head with nominal features, on the other hand, the same Root will inherit the feature [+N] and will surface with nominal morphology (i.e. as a nominalization). This particular conception of the syntax-morphology interface allows for an elegant and theoretically principled analysis of the morphological mismatch between the peripheral (focused) predicate and the lower verbal occurrence in PCCs. In the remainder of this section, we examine this and other technical aspects of the PCC derivation.

4.3.3.2.1. The Bi-locational Realization of √

Let us first consider the bi-locational PF realization of the verb Root in Nupe PCCs. The peripheral realization of the predicate is driven by the need to check/eliminate uninterpretable features borne by the Root against a left peripheral head. For reasons discussed in chapter one, the peripheral copy containing the Root is pronounced at PF because it is more economical than privileging the lower copy. The lower copy of the predicate is favored for different reasons. In chapter two, we provided evidence that Nupe verb Roots raise to the highest unfilled head position within vP in the narrow syntax. Regardless of whether the Root reaches v^0 or the perfect marker is spelled out in that position, v^0 is always associated with phonetic content at PF, an observation providing further support for the claim that Root raising past v^0 is not tolerated in the language. We can derive this fact by drawing on the somewhat standard assumption that the v head is affixal and thus must be supported by phonetic material at PF. Given this state of affairs, it is fair to assume that unless v^0 is filled by the perfect morpheme, the lower copy of the Root occupies a v^0-adjoined position at the end of any Nupe narrow syntactic derivation (see (39b)). Because the language lacks *do*-support[16] (as shown below), the phonetic realization of the lower Root copy in v^0 is forced by the STRAY AFFIX FILTER (Lasnik 1981, 1995), a PF convergence constraint banning structures with unsupported affixal material.

(43) a. Bi-ba Musa ba nakàn o.

RED-cut Musa cut meat o

'It was CUTTING that Musa did to the meat.'

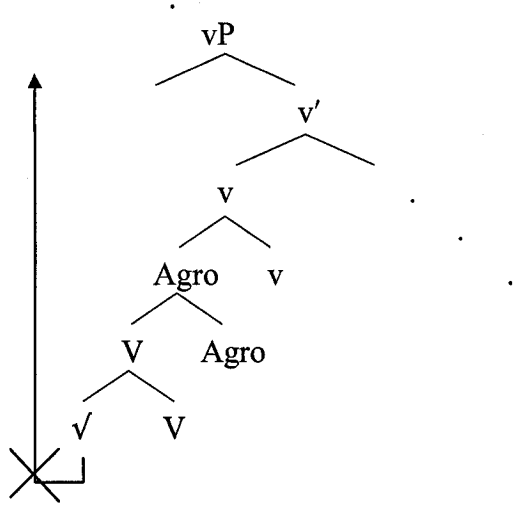
b. *Bi-ba Musa **dzin** nakàn o.

RED-cut Musa do meat o

By hypothesis, v^0 is the only Nupe head in the extended projection of the verb with affixal features. For this reason, the number of pronounced predicates in a Nupe PCC is no greater than two (cf. (1a), (31)). The bi-locational realization of the Root morpheme thus follows.

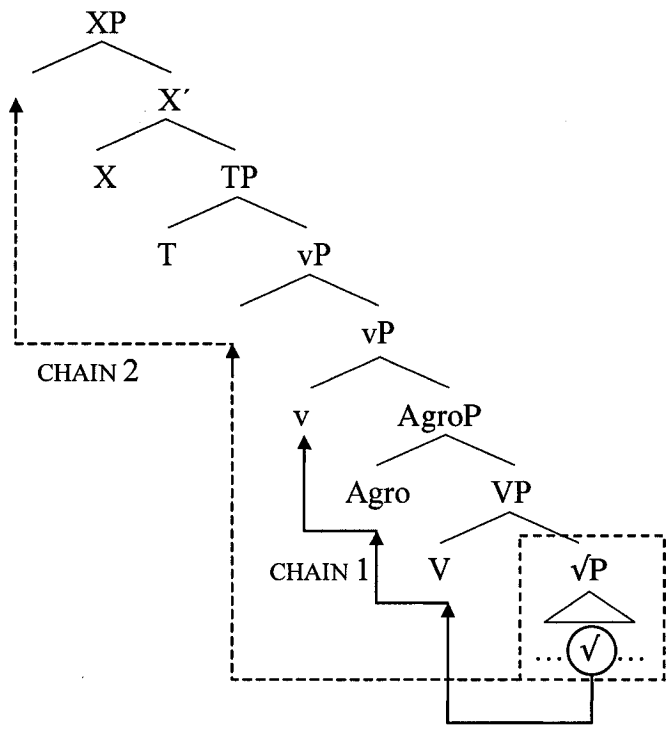
In section 4.3.3.1,we argued that the size of the cleft constituent is phrasal and thus that √P is the displaced peripheral constituent. Consequently, the phonetically realized copies of the verb Root in Nupe PCCs do not stand in a chain relation to one another. An additional consideration motivating this conclusion is that movement of the v^0-adjoined √ copy into a peripheral position would involve sub-extraction out of a complex head, a clear violation of the CED (Adjunct Island Constraint).

(44)



Therefore, PCCs must be derived by two distinct instances of chain formation; movement of the Root to v^0 and movement of the (remnant) Root phrase to a left-peripheral specifier position. Crucially, √P must cyclically raise through the edge of vP, otherwise it will be inaccessible to further movement operations once the vP phase is spelled out, given the Phase Impenetrability Condition. We adopt the Minimalist assumption that this intermediate movement is driven by so-called "edge features" (Chomsky 2005).

(45) THE DISTRIBUTION OF √ IN A NUPE PCC IS A CONSEQUENCE OF THE FORMATION OF MULTIPLE √ CHAINS

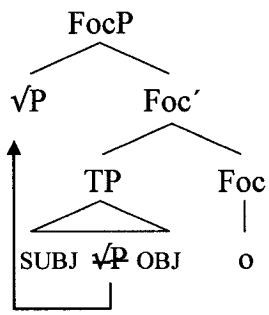


4.3.3.2.2. The Target of √P Movement

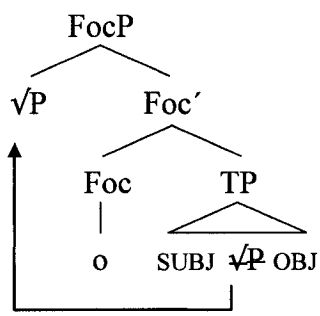
Where exactly does the √P constituent move to? Given that the semantic effect of PCC formation is one of focus, it is reasonable to suppose that the √P movement targets the specifier of Focus Phrase. We can say that the Root morpheme checks an uninterpretable Focus feature against the interpretable Focus feature of the left peripheral Foc^0 morpheme in this case. However, this raises the question of whether the sentence-final particle *o* that surfaces in the construction constitutes

the head of FocP, as is typically assumed in the Nupe literature (Madugu 1981, 1982, 1985, 1986, Tswanya 1989, Kawu 1990, 1999, Cormack and Smith 1994, Kandybowicz 2002, 2004, Kandybowicz and Baker 2003). As discussed in chapter two, there are two immediate problems with this analysis. First, this leads to the conclusion that Focus Phrase is a head-final projection in the language.

(46) a. HEAD-FINAL FOCP DERIVES CORRECT SURFACE DISTRIBUTION OF *O*



b. HEAD-INITIAL FOCP YIELDS INCORRECT PLACEMENT OF *O*



This conclusion flies in the face of all the evidence that Nupe is head-initial in the base, but that a variety of movements obscure this fact on the surface (cf. chapter

two, Kandybowicz 2002, Kandybowicz and Baker 2003). Second, even if we maintain both the hypothesis that Nupe is head-initial underlyingly and the analysis of the particle *o* as the focus marker, we fail to derive attested word orders. Instead, we incorrectly derive orders where the *o* particle occupies the second position in any focus construction (e.g. in PCCs, non-predicate focus constructions, *wh*- questions, etc., cf. (46b)). With a little gymnastics, we can undoubtedly derive the sentence-final position of *o*, however, the result will potentially involve otherwise unmotivated movement assumptions/operations.

Our solution to this problem is that predicate focus targets the specifier of the Focus Phrase projection, but that this projection is not headed by the particle *o*, as was argued in chapter two. Rather, peripheral FocP is headed by a phonetically null head (much like the exponent of low Foc^0 in the case of VRCs – cf. (16), (37) from chapter three)[17] and *o* heads a projection higher than FocP, which triggers the movement of its entire complement to its specifier. This movement is presumably triggered by the EPP property of a feature borne by the *o* head, as is typically the case with functional heads in the language (cf. chapter two).

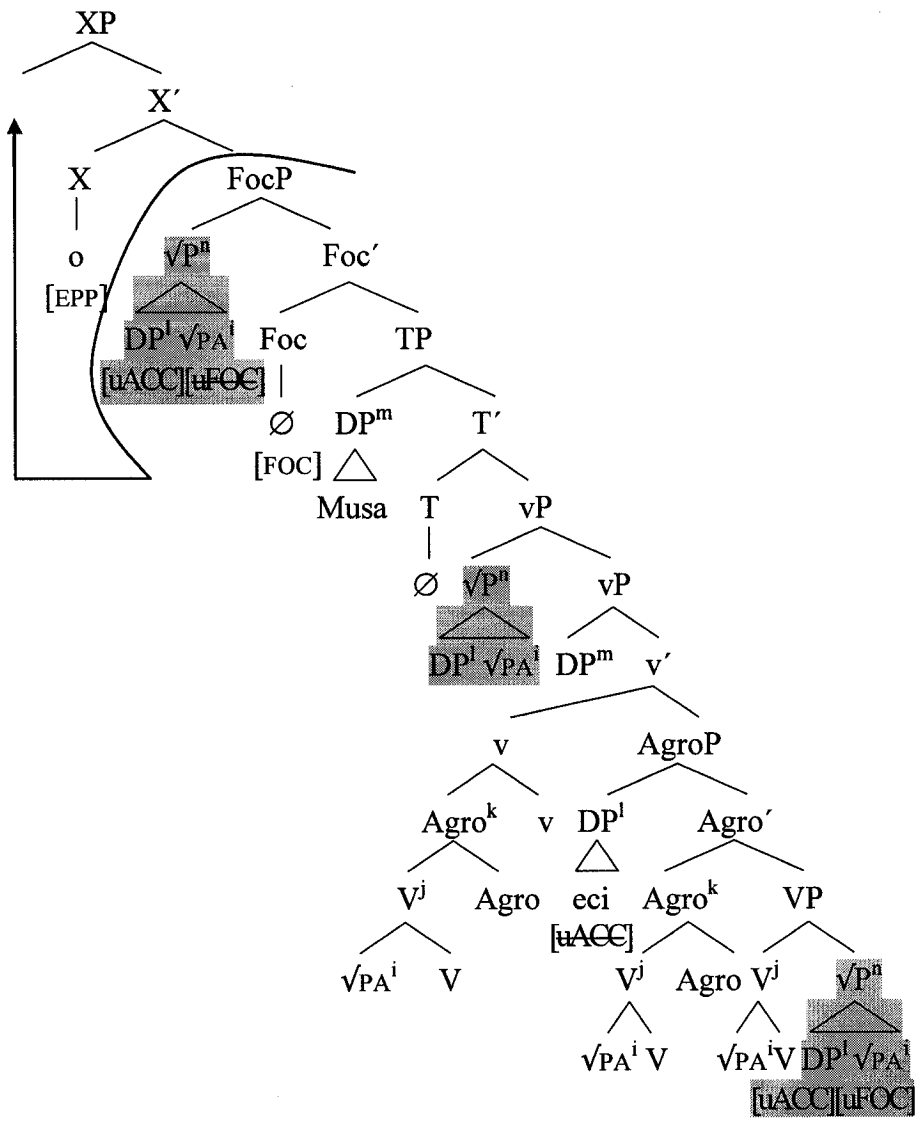
The proposed derivation up to the point where *o* is merged with FocP (prior to linearization and Chain Reduction) is schematized below for a simple PCC. Once again, we have added vocabulary items and shading to the tree for the sake of visual convenience.

(47) a. Pi-pa Musa pa eci o.

RED-pound Musa pound yam o

'It was POUNDING that Musa did to the yam.'

b.



4.3.3.2.3. The Source of the Peripheral Root's Nominal Features

Given that V^0 is not pied-piped with √P, as argued earlier, the displaced left-peripheral Root morpheme in the PCC is not one whose category status is established. Rather, what has moved is an element that awaits categorial determination. We claim that the *o* particle is ultimately responsible for the nominal features borne by the focused Root. In other words, in virtue of its movement to the local domain of *o*, the predicate Root is assigned nominal features and comes to be spelled out in a reduplicated (nominalized) form following Vocabulary Insertion. In this respect, our proposal shares a common thread with Hiraiwa's (2005) analysis of predicate cleft in Buli. We will flesh this out in greater detail shortly. Thus, we analyze the peripheral particle *o* as a nominal/determiner-like element functioning at the clausal (CP) level. That is, we take peripheral *o* to be a clausal determiner selected by a zero complementizer. In this light, it is worth pointing out that *o* surfaces elsewhere in the grammar in a determiner-like capacity. The data in (48) illustrate that non-peripheral *o* (which was glossed as the locative marker in chapter two) also appears final in its phrase, following nominal locative material in the same way that other determiners in the language appear phrase-finally and follow nominal expressions. In this way, we might analyze non-peripheral *o* and other determiners in the language as heads associated with nominal (attracting) features.

(48) NON-PERIPHERAL *O* IS A DETERMINER-LIKE ELEMENT

a. Musa ci kata-o.

Musa lie house-o

'Musa lied down in the house.'

b. Musa si kata ndondo.

Musa buy house every

'Musa bought every house.'

c. Musa dan kata-o.

Musa be in house-o

'Musa is in the house.'

d. Musa kun kata nana zì.

Musa sell house this PL

'Musa sold these houses.'

Interestingly, the availability of a clausal determiner has been correlated with the existence of predicate cleft in a variety of languages (Lefebvre 1992).[18] We can refer to this correlation as Lefebvre's Generalization.

(49) LEFEBVRE'S GENERALIZATION (LEFEBVRE 1992)

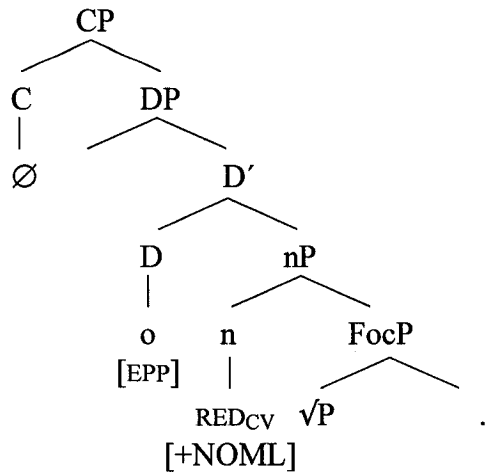
The availability of predicate cleft within a particular grammar correlates with the existence of a syntactic position for clausal determiners.

It is not clear that Lefebvre's Generalization alone accounts for the distribution of PCCs cross-linguistically. Afterall, several Indo-European and Semitic languages, which otherwise have not been documented as having clausal determiners, manifest PCCs (i.e. Hebrew, Yiddish, Russian, and Brazilian Portuguese - see Landau 2004 for discussion). Whether or not Lefevbre's Generalization is tapping into a real implicational language universal, it does capture a striking connection between languages like Nupe, Fongbe, Gungbe, Haitian, Vata, and Buli, languages that have clausal determiners and obligatorily nominalized focused predicates, and languages like Hebrew, Yiddish, Russian, and Brazilian Portuguese, which neither have clausal determiners nor obligatory nominalization of the focused √ morpheme.

Assuming we are correct about *o* being a clausal determiner in Nupe, we must determine how precisely the focused √ morpheme is assigned nominal features and comes to be realized in a reduplicated form. Given the DM hypothesis that words do not enter a derivation pre-formed, there are two analytical options for deriving the reduplicated form of a morpheme from a simple underspecified Root in the framework. The first strategy is the approach to reduplication developed by Raimy (2000), Halle (2005), Harris and Halle (2005), and Frampton (in press), in

which reduplication is analyzed as the phonological Readjustment of a Root (via segmental copying) triggered by the merger of a particular morpheme. In the case at hand, we could say that the nominal features of √ are inherited from the clausal determiner *o*, whose merger triggers a post-insertion Readjustment rule of reduplication on the Root. A second way of analyzing the reduplication of the focused predicate would be to claim that the reduplicant prefix is actually the exponent of an independently generated node merged in the course of the narrow syntactic computation. This is ultimately Marantz' (1982) conception. Accordingly, reduplication would reduce to an instance of affixation, in which a hierarchically present reduplicant morpheme gets phonologically mapped to a base form (i.e. the Root morpheme) at PF. This analysis would require additional structure between the XP (analyzed below as DP) headed by *o* and FocP in (47b) in order to house the reduplicant prefix and derive correct the correct linear ordering of the morphological pieces. Furthermore, this intermediate projection would have to be directly responsible for introducing the nominal features borne by the focused √, given that it would be more local to √ than *o*. The structure of the left periphery of a PCC on this type of analysis would thus look like (50).

(50)



If *o* selects nP, as in the analysis sketched in (50), we must assume that nP is present in all instances of peripheral focus. Because DPs, for example, do not appear reduplicated when focused (cf. (51) below), n^0 must be phonetically null (i.e. devoid of the reduplicant morpheme) in all instances of focus besides predicate cleft.

(51) FOCUSED DPS ARE NOT PRONOUNCED IN REDUPLICATED FORM

a. Zèé ba nakàn o.

who cut meat o

'Who cut the meat?'

b. *Zi-zèé ba nakàn o.

RED-who cut meat o

c. Nakàn Musa ba o.

meat Musa cut o

'It was MEAT that Musa cut.'

d. *Ni-nakàn Musa ba o.

RED-meat Musa cut o

Combining this observation with the fact that n^0 in all cases of focus would be semantically vacuous, we find little empirical support for the nP projection in (50). For this reason, we adopt the initial approach to reduplication in DM previously laid out. On this analysis, the focused Root morpheme is nominalized in virtue of being c-commanded by *o*, Nupe's nominal feature-bearing clausal determiner, and the predicate Root allomorphy is triggered by the following post-Vocabulary Insertion Readjustment rule:

(52) #CV# → #RED-CV#/ *o* __

(52) accounts for the fact that only *verb* Roots reduplicate when moved into a position right-adjacent to the *o* particle (cf. (51)). Because categories and category status are not theoretical primitives in DM, but are rather epiphenomena of hierarchical syntactic relations among terminals, our allomorphy/Readjustment rule cannot make reference to categorial notions like "verb". However, the rule as it is stated in (52) uniquely applies to those configurations in which *o* is left-

adjacent to a verb form. The reason for this is that verbs are the only referential category in the language whose exponents bear the structure #CV#. That is, there are no verb forms that do not have the shape #CV# (excluding compound verbs that are composed of either multiple verbal pieces or verbal + nominal morphemes) and the exponents of all other referential expressions that could appear right adjacent to *o* in Spec, Foc (e.g. DPs, AdvPs, PPs, etc.) fail to be phonetically realized with the structure #CV# in all cases.[19]

We might understand the application of the reduplication Readjustment rule to stem from a minimal word prosodic constraint requiring nominal expressions in the language to be larger than a single mora. Similar constraints seem to underlie the prosodic structure of nominals in other West African languages.

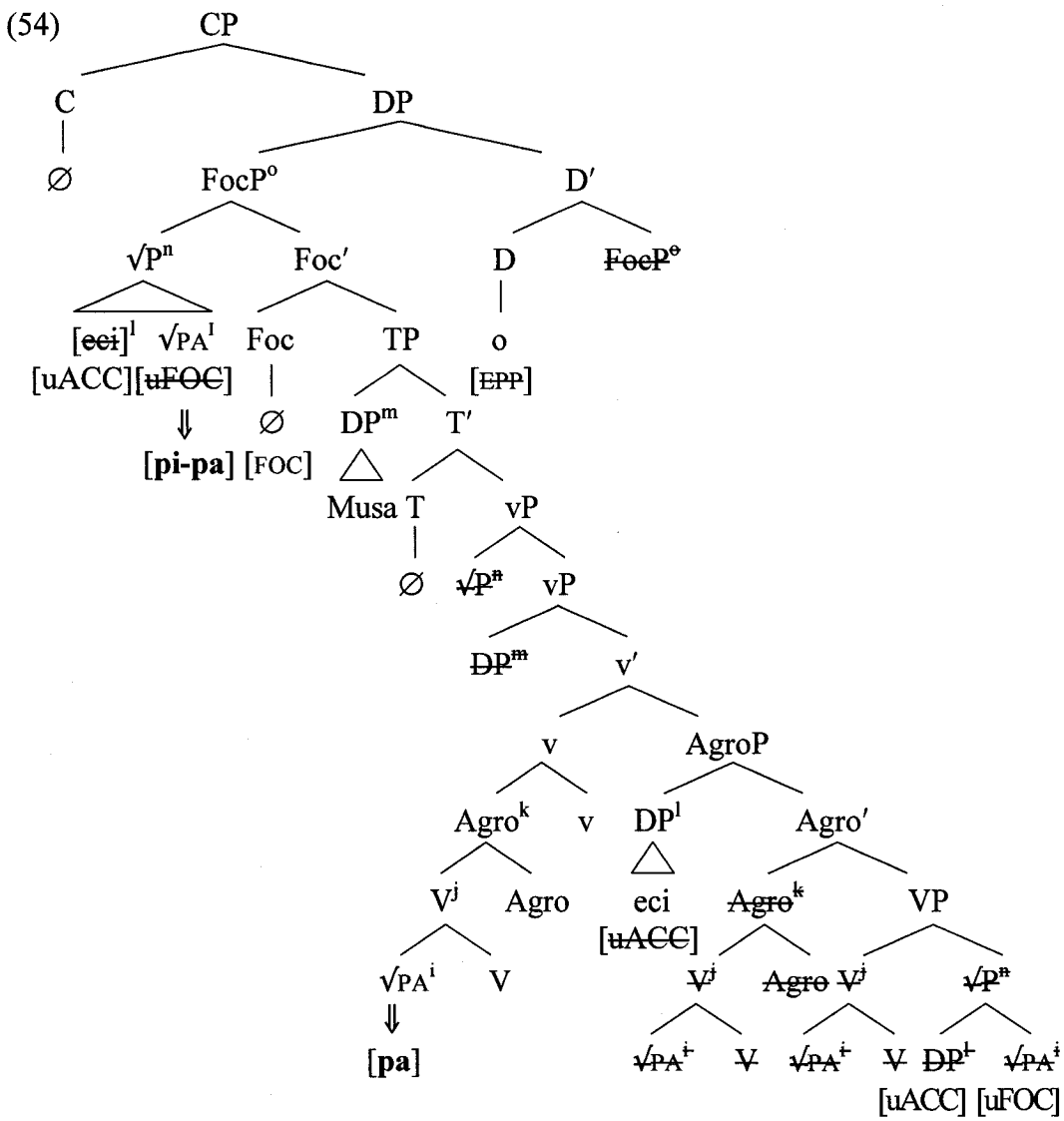
(53) Nominal expressions in Nupe are minimally bi-moraic.

Because monomoraic #CV# Roots under the scope of *o* come to bear nominal features (i.e. are realized as nominal expressions), this minimal word requirement would be violated if no phonological Readjustment were to take place. Although prefixation of *è-* (a nominalizing affix in the language that we take to be the exponent of n^0 cf. (11)), would allow the focused Root to satisfy (53) without compromising its nominal status, the lack of an nP projection in the left periphery rules out this possibility and accounts for the ungrammaticality of forms such as (12a). This dovetails nicely with our earlier decision to reject analyses of reduplication based on structures like (50). Reduplication, however, affords the

prosodically deficient nominal Root with the extra metrical material needed to satisfy the Nupe minimal word requirement.

By way of concluding this subsection, we present our revised analysis of (47b) below. The final snapshot of the PCC derivation following Vocabulary Insertion, phonological Readjustment, and chain linearization (which we discuss in the next subsection) is shown.

(54)



4.3.3.2.4. The Linearization of Multiple √Copies

The linearization of the FocP structure containing multiple realized copies of √ in (54), is straightforward under the analysis of chain linearization presented in chapter three. As a starting point, we will assume that linearization precedes phonological Readjustment, as is standard in DM (cf. (43) in chapter three). The consequence of this is that at the point of linearization, the surviving Root copies in a PCC are syntactically and phonologically isomorphic/non-distinct. This owes to the fact that reduplication (Readjustment) of the peripheral Root copy has not yet occurred at the linearization stage of the PF derivation. Recall, however, that the surviving Root copies do not inhabit the same chain in a PCC (cf. (45)). Within their respective chains, the surviving Root copies are found in the links at the head of the chain. Once again, this follows from the standard sort of economy considerations discussed in chapter one and in Nunes' work. However, given Nunes' observation that the phonetic realization of multiple non-distinct copies poses a problem for linearization, we need to understand how the resulting PF object can be mapped onto a linear order without engendering the sort of linearization contradictions one typically encounters in cases of multiple (non-distinct) copy linearization (cf. chapter one).

Under the system proposed in chapter three, this follows from the fact that the surviving phonetically realized Root morphemes are not chain-internal (i.e. not related by chain formation) and thus do not count as non-distinct elements for

purposes of the linearization calculation. That is to say, because both Roots are the sole links that are spelled-out in their respective chains, no linearization complications arise. This follows from the conclusion reached in chapter three that distinctness of links (which ultimately drives chain linearization/reduction) is related to chain formation/chain membership, rather than reference to the initial numeration. We repeat our claim from chapter three below.

(55) 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

As such, the surviving Root copies in Nupe PCCs are treated as *distinct* by the linearization algorithm, given the fact that they are members of distinct chains. Although at the point of linearization the copies are syntactically and phonologically non-distinct, the output of the derivation converges at PF with a proper linear order imposed. What's more, the surviving Root copies in PCCs are morphologically distinct as well. Given that the peripheral Root inhabits the domain of the clausal determiner, it qualifies as an element of category N. On the other hand, the lower Root copy adjoined to v^0 is locally situated within the domain of V^0 and as such is a verbal element. In this respect, both occurrences count as morphologically distinct and hence their tandem spell-out poses no difficulties for the linearization algorithm.

Consider next the case of the copy of the object that is cleft along with the Root in the remnant focused Root Phrase (cf. (54)). Why isn't this copy realized in a peripheral position? Why aren't both copies of the object realized as is the case with the √ copies? Afterall, although morphosyntactically non-distinct, the copies of the object in Spec, Foc and Spec, Agro are not chain-internal (see (54)). The answer to this question turns on economy. Because Nupe objects check their Case features in Spec, Agro in the normal course of a derivation (cf. chapter two), the √P-internal DP copies will bear unchecked Case features (cf. (54)). Thus, if pronounced in the left periphery, an additional operation (e.g. Formal Feature Elimination (Nunes 2004)) would have to apply to eliminate the unchecked uninterpretable Case features of the DP copy in order for the PF derivation to converge. Formal Feature Elimination (plus PF realization of a copy) is standardly taken to be more derivationally taxing than mere PF deletion of a copy. The idea is that the former process involves two PF operations, whereas the latter only involves one. Thus, economy principles disfavor derivations involving the phonetic realization of √P-internal DP objects in the left periphery. Put another way, derivations in which the √P-internal DP copy is deleted at PF block derivations in which it is phonetically realized. In this way, we derive the surface distribution of predicates and their objects in Nupe PCCs.

4.4. MULTIPLE COPY SPELL-OUT AND ECONOMY OF PRONUNCIATION

Under the proposed analysis, the peripheral realization of the predicate in a predicate cleft construction is driven by the need to check and eliminate the features of Root morphemes merged with uninterpretable Focus features. The lower copy of the predicate, on the other hand, is realized in order to support affixal v^0 at PF, in keeping with the Stray Affix Filter. Given that PCCs are focus constructions, the left peripheral realization of the predicate is largely unsurprising. What makes PCCs theoretically interesting is thus the fact that they involve lower copy spell-out as well. Even more interesting for the purposes of this thesis are those cases in which lower copy pronunciation is blocked, despite the fact that the resulting syntactic object can be properly linearized. In this section, we will examine two such instances.

4.4.1. Economy of Pronunciation in Russian PCCs

In Russian PCCs (Abels 2001), lower copy pronunciation of the verb serves to support the affixal inflectional features of Infl. The lower predicate is realized whenever there is no independent exponent of tense/agreement hosted by this position (56a). In this case, the matrix predicate raises into the Infl position to support its inflectional features. Failure to pronounce the lower copy in this case results in a Stray Affix Filter violation, causing the derivation to crash at PF. This

is a consequence of the fact that *do*-support is unavailable in the language, just as in Nupe (43) and many other predicate clefting languages. When Infl is overtly spelled-out with independent tense/agreement morphology, however, lower copy pronunciation is no longer possible (56b). Doing so yields sharp judgments of ungrammaticality.

(56) Russian – Abels 2001

a. Citat′ (-to) Ivan eë *(citaet), no nicego ne ponimaet.
$read_{INF}$ to Ivan $it_{FEM.ACC}$ reads but nothing not understands
'Ivan does read it, but he doesn't understand a thing.'

b. Citat′ (-to) Ivan eë **budet** (*citat′)...
$read_{INF}$ to Ivan $it_{FEM.ACC}$ will $read_{INF}$
'Ivan will read it…'

Pronouncing the lower copy in (56b) is unnecessary because Infl is independently supported by the future marker. Thus, violation of the Stray Affix Filter is averted regardless of lower copy spell-out. Now, in the spirit of recent work on economy of pronunciation (i.e. Merchant 2001, Landau 2004, Nunes 2004), we may assume that spell-out of syntactic material is derivationally costly and that only those occurrences whose pronunciation is absolutely necessary for derivational convergence will be realized. All things being equal (i.e. interface

well-formedness considerations factored out), derivations with fewer instances of PRONOUNCE Σ, (Σ, a terminal node) will be favored over derivations in which more terminals are phonetically realized. Thus, ECONOMY OF PRONUNCIATION is the force at play blocking the derivation of the Russian PCC in (56b), in which $Infl^0$, the lower copy of the predicate below $Infl^0$, and the peripheral focused occurrence are all phonetically realized. Consequently, derivations in which either $Infl^0$ alone or the lower copy of the predicate in $Infl^0$ are pronounced in addition to the peripheral copy are favored in Russian.

4.4.2. Economy of Pronunciation in Nupe PCCs

A similar situation arises in Nupe PCCs. In this case, we can verify that although the resulting syntactic objects may be successfully linearized, multiple copy spell-out is not possible, contrary to Nunes' (1999, 2004) assessment of multiple copy realization (cf. (29) from chapter three, section 3.3.2.1). In order to properly appreciate the data to be presented, however, it will be necessary to take a brief detour at this point and consider the relationship between the syntax and semantics of perfect and focus constructions in the language.

4.4.2.1. Semantics of Nupe Perfect and Focus Constructions

It is standardly assumed in the literature that perfect utterances assert that the consequent state of an eventuality having culminated holds at the time of

utterance and indefinitely thereafter (Moens 1987, Parsons 1990, Steedman 1994, Giorgi and Pianesi 1997, among others). In contrast, focus constructions do not necessarily encode completion/culmination in this way. For instance, the following focus sentences in English do not presuppose the completion of the eventuality denoted by the predicate.

(57) a. Farnsworth EXPERIMENTED on the prototype for years.

b. Who experimented on the prototype for years?

However, in Nupe, both perfect and focus constructions encode completion. Evidence for this comes from the distribution of the completive verb *zo* 'to finish'. This verb cannot appear serialized with atelic/activity predicates in the simple past or present tense[20], as shown below.

(58) a. #Musa nì enyà zo.

Musa beat drum finish

#'Musa beat the drum to completion.'

(i.e. 'Musa finished beating the drum.')

b. #Musa è pa eci zo.

Musa PRS pound yam finish

#'Musa is finishing pounding the yam.'

However, the grammaticality of the sentences in (58) improves if *zo* is under the scope of either the perfect marker (59a) or focus (59b).

(59) a. Musa á enyà nì zo.
Musa PRF drum beat finish
'Musa has completed beating the drum.'

b. Eci Musa è pa zo o.
yam Musa PRS pound finish o
'Musa is finishing pounding THE YAM.'

Additionally, *zo* can occur serialized when V1 is a telic/accomplishment verb, regardless of the tense/aspect of the clause (60).

(60) a. Musa è ba nakàn zo.
Musa PRS cut meat finish
'Musa is finishing cutting the meat.'

b. Musa à ba nakàn zo.
Musa FUT cut meat finish
'Musa will finish cutting the meat.'

c. Musa á nakàn ba zo.

Musa PRF meat cut finish

'Musa has finished cutting the meat.'

The generalization here is that *zo* is licensed in contexts that semantically encode culmination/completion. Thus, there is good evidence that both perfect and focus constructions encode event culmination/completion in the language. This makes the prediction that perfect and focus morphemes might be semantically incompatible or that their concurrent realization will be pragmatically redundant to say the least.

Given this semantic insight, we can provide an answer for the somewhat long-standing puzzle in the Nupe literature (cf. Smith 1967, Kandybowicz and Baker 2003) as to why all extraction is banned in the perfect. This fact is shown below. Note that the glosses are perfectly well formed in English, further highlighting the subtle semantic difference between focus in English and Nupe.

(61) EXTRACTION FROM A PERFECT CLAUSE IS A MARKED OPERATION

a. #Musa á yàbà gi o.

Musa PRF banana eat o

#'MUSA has eaten the banana.'

b. #Yàbà Musa á gi o.

banana Musa PRF eat o

#'Musa has eaten THE BANANA.'

c. #Zèé á yàbà gi o?

who PRF banana eat o

#'Who has eaten the banana?'

d. #Ke Musa á gi o?

what Musa PRF eat o

#'What has Musa eaten?'

We will take the position that extraction/focus across an existing perfect marker is pragmatically odd because one of the semantic outcomes of the movement (i.e. event culmination/completion) is already encoded in the structure prior to the movement operation. That is, focus movement is semantically redundant in the perfect and thus, is ruled out by pragmatic considerations.

4.4.2.2. Lower Copy Spell-Out in Nupe PCCs and Economy of Pronunciation

There is a detectably sharp contrast in grammaticality between instances of non-verbal focus across a perfect marker (61) and predicate focus with lower copy

spell-out across a perfect marker (62). Whereas the former are syntactically well formed, but pragmatically odd, the latter are out right ungrammatical.

(62) PREDICATE FOCUS PLUS LOWER √SPELL-OUT IN THE PERFECT IS UNGRAMMATICAL

a. *Bi-ba Musa á nakàn ba o.

RED-cut Musa PRF meat cut o.

*'It is CUTTING that Musa has done to the meat.'

b. *Ni-nì Musa á enyà nì o.

RED-beat Musa PRF drum beat o.

*'It is BEATING that Musa has done to the drum.'

This is reflected in the considerable amount of speaker variation one encounters with regard to DP focus in the perfect as compared to the judgments elicited for perfect PCCs. The data in (61) were presented to eight native speakers of the same dialect. Five consultants judged the utterances to be pragmatically odd, two speakers deemed them to be somewhere between marginal and improper Nupe, while one speaker flat-out rejected them. However, PCCs in the perfect (cf. (61)) were unanimously judged to be illicit.

This difference between the semantic/pragmatic ill-formedness of DP focus in the perfect and the PF impropriety of predicate cleft plus lower copy spell-out in the perfect owes to the fact that spelling out the lower copy of the verb Root in

Nupe PCCs is uneconomical. Because the perfect marker occupies affixal v^0, as argued in chapter two, the motivation for spelling out the lower verbal copy (i.e. satisfaction of the Stray Affix Filter) does not arise. Thus, spelling out the lower copy in this case is uneconomical, in that its phonetic realization is not necessary for PF convergence. Unlike Russian, however, where failure to spell-out a lower verbal occurrence in the presence of overt Infl rescues the derivation in cases of predicate focus (56b), failure to pronounce a lower Root copy in Nupe perfect PCCs (cf. (63)) does not entirely save the resulting output. This is due to the fact that the resulting expression will still be pragmatically odd for the reasons discussed above.

(63) a. #Bi-ba Musa á nakàn ~~ba~~ o. (compare with (62a))

RED-cut Musa PRF meat cut o.

#'It is CUTTING that Musa has done to the meat.'

b. #Ni-nì Musa á enyà ~~nì~~ o. (compare with (62b))

RED-beat Musa PRF drum beat o.

#'It is BEATING that Musa has done to the drum.'

Now comes the punch line. The structures underlying the outputs in (62) are perfectly linearizable, yet multiple copy spell-out is not possible, something entirely unpredicted under Nunes' (1999, 2004) framework.

(64) MULTIPLE COPY SPELL-OUT IN NUNES' (1999, 2004) FRAMEWORK

For a syntactic chain σ, the phonetic realization of multiple σ-internal copies is possible just in case σ can be successfully linearized.

The only structural difference between the examples in (62) and other instances of well-formed PCCs in the language is that the position occupied by the lower √ copy in (62) is $Agro^0$, whereas it fills v^0 in grammatical PCC structures (see (54)). This is an otherwise minor positional difference that shouldn't affect the linearization computation. The √ copies still occupy distinct chains and are morphologically distinct, afterall. Thus, it stands to reason that the derivations involved in (62) fail on grounds other than linearization. We propose that the force determining this derivational result is Economy of Pronunciation. On this view, multiple copy spell-out is not *purely* determined by linearization considerations, as Nunes proposed. Rather, multiple copy spell-out arises in circumstances in which the phonetic realization of additional copies is necessitated by PF well-formedness criteria (e.g. the Stray Affix Filter), but is constrained by economy considerations (i.e. Economy of Pronunciation) that ensure that the resulting derivation was efficiently constructed. Of course, for a multiple copy construction to converge at PF it must ultimately be linearizeable as well.

4.5. SUMMARY

In this chapter, we provided a thorough investigation of the predicate cleft construction in Nupe, another case of multiple copy spell-out in the language's verbal system. We argued for a Copy-theoretic analysis of PCCs involving movement of a remnant √P category to a position where it falls under the scope of a clausal determiner and is consequently realized in nominalized form. On this analysis, the lower √ copy adjoined to v^0 is phonetically realized in order to support the head's affixal features at PF in keeping with the Stray Affix Filter. In the event that v^0 is lexically filled and thus otherwise supported at PF, pronouncing a lower √ copy yields an uneconomical state of affairs. This in turn results in the crash of the derivation, despite the fact that the resulting structure could have been successfully linearized. Similar patterns are attested in Russian PCCs, suggesting that principles of economy set an upper bound on the number of copies that can be successfully realized in the course of a derivation. The theoretical payoff, then, is that sucessfull linearization alone does not condition multiple copy spell-out as in Nunes 1999, 2004. Rather, multiple copy spell-out is a consequence of a number of interrelated factors, some of which drive and others which constrain it. First, multiple copy realization functions to rescue a derivation that would otherwise fail to converge at PF. Second, pronunciation of multiple copies is only possible when absolutely necessary (i.e. when

economical). And lastly, it is only when the resulting syntactic object can be successfully mapped onto a linear order that multiple copy spell-out is attested.

NOTES TO CHAPTER 4

[1] As in Hausa, for example (cf. Lumsden and Lefebvre 1990a).

[2] As in English, the CP containing the conditional marker *gá* is an adjunct, while the following CP is the host. This is confirmed by the PCC extraction asymmetry in (3h-i).

[3] ATB movement of both predicates is ungrammatical in coordinate structures as well.

(i) *Bi-ba du-du Musa$_i$ à ba nakàn u:$_i$ ma à du cènkafa o.
RED-cut RED-cook Musa FUT cut meat 3RD.SG and FUT cook rice o
*'Musa$_i$ will CUT the meat and he$_i$ will COOK the rice.'

(ii) *Du-du bi-ba Musa$_i$ à ba nakàn u:$_i$ ma à du cènkafa o.
RED-cook RED-cut Musa FUT cut meat 3RD.SG and FUT cook rice o

[4] With one exception that we discuss later, the generalization holds. To our knowledge, the only occurrence that may accompany a Nupe cleft predicate is V2 of a resultative serial verb construction. Other serialized occurrences may not be pied-piped. See section 4.3.2 for more information.

[5] That is to say, reduplication does not copy the tonal specification of the base (Root).

[6] Although reduplicated verb forms appear in gerunds (cf. (8b-c)), they do not appear in simple DP constructions in the language.

(iii) a. *Bi-ba zì
RED-cut PL
*'cuttings'

b. *Bi-ba nana

RED-cut this

*'this (instance of) cutting'

c. *Bi-ba ndondo

RED-cut every

*'every (instance of) cutting'

An additional argument for the nominal status of reduplicated verb forms comes from the fact that reduplicated cleft predicates are obligatorily attracted by coordinating morphemes that are independently known to attract nominal expressions to their specifiers (i.e. sentential coordinators in Nupe bear uninterpretable nominal features with the EPP property - Kandybowicz 2005).

(iv) a. Musa ba nakàn **Gana** ma pa eci.

Musa cut meat Gana and pound yam

'Musa cut the meat and Gana pounded the yam.'

b. *Musa ba nakàn ma **Gana** pa eci.

Musa cut meat and Gana pound yam

'Musa cut the meat and Gana pounded the yam.'

c. Pi-pa Musa pa eci o **bi-ba** ma Gana ba nakàn o.

RED-pound Musa pound yam o RED-CUT and Gana cut meat o

'It was POUNDING the Musa did to the yam and it was CUTTING that Gana did to the meat.'

d. *Pi-pa Musa pa eci o ma **bi-ba** Gana ba nakàn o.

RED-pound Musa pound yam o and RED-CUT Gana cut meat o

e. *Pi-pa Musa pa eci o Gana ma **bi-ba** ba nakàn o.

RED-pound Musa pound yam o Gana and RED-CUT cut meat o

[7] PCCs have also been described as emphatic/factive constructions in the literature (Collins 1994, Lefebvre 1994). In certain languages, the division between topic and focus in not always neatly drawn. See for example Landau 2004 on Hebrew and Cable 2003 on Yiddish.

[8] The data in (3e-k), while incompatible with a movement-free analysis, can still be squared with an approach that invokes covert movement (e.g. null operator movement (cf. Dekydspotter 1992)). An approach of this sort would have to appeal to the availability of movement operations in which the formal features of a lexical item are internally merged independent of the item's phonological features (e.g. FEATURE MOVEMENT as in Chomsky 1995a). We reject this proposal on theoretical grounds, but for reasons of space conservation do not discuss the matter further.

[9] Parasitic gaps are unattested in the language and thus cannot be used as a diagnostic for movement in this case. Furthermore, even if parasitic gaps were admissible their usefulness would be undermined by the fact that objects cannot be pied-piped by the focused predicate in Nupe PCCs (cf. (6a,b)).

[10] Although possible in embedded complement clauses, predicate cleft is impossible in both subject and object relative clauses.

(v) a. Bagi na ba nakàn na (Subject relative clause)

man na cut meat na

'The man that cut the meat'

b. *Bagi na bi-ba ba nakàn o na

man na RED-cut cut meat o na

c. Nakàn na bagi ba na (Object relative clause)

meat na man cut na

'The meat that the man cut'

d. *Nakàn na bi-ba bagi ba o na

meat na RED-cut man cut o na

This contrasts with the fact that VRCs are possible in relative clauses.

(vi) a. Bagi na ba nakàn ba na

man na cut meat cut na

'The man that DID cut the meat'

b. Nakàn na bagi ba ba na

meat na man cut cut na

'The meat that the man DID cut'

[11] The circumfix *ùmwèn* is a nominalizing affix that typically appears on focused predicates in Edo (Stewart 2001).

[12] For example, the Slavic languages and Greek, to name a few.

[13] Similar fronting facts involving serialized verbs that undergo predicate cleft are found in Yoruba (Baker 1989, Gruber and Collins 1996, Manfredi 1993, Cho and Nishiyama 2000), Dagaare (Bodomo 2004), and Buli (Hiraiwa 2005), among others.

[14] We are abstracting away from Event Phrases, which also comprise the structures under discussion in Stewart 2001.

[15] This structure was in fact Stewart's original proposed RSVC structure (Mark Baker, personal communication). The data that inspired the V2 complement analysis involved the fact that in Edo there can be at most one resultative expression following V1 in an RSVC. We provide the English-equivalents of the relevant Edo sentences below.

(vii) a. √Ozo throw pot **break**.

b. √Ozo throw pot **into trash**.

c. *Ozo throw pot **into trash break**.

d. *Ozo throw pot **break into trash**.

Given that adjoined expressions can typically be freely stacked, the impossibility of arrays such as (viic,d) above was viewed as syntactic evidence against an adjunction analysis of the resultative constituent in RSVCs. Furthermore, outputs such as (viic,d) are predictably ruled out under the assumption that V2 is generated as the sole complement of V1 in an RSVC.

We do not consider the data in (vii) to constitute evidence against an adjunction analysis of V2 in RSVCs, however, because an equally plausible semantic explanation of the facts exists. It is well known that event-denoting expressions like activity predicates require delimiters. On the assumption that there can only be one delimiter per event, the ill-formedness of (viic,d) follows from the fact that both constituents [*into trash*] and [*break*] delimit the event of throwing. In this

way, we see no empirical or theoretical barrier to analyzing V2 as adjoining to the projection housing V1 as in (42).

[16] It is fair to ask why Nupe doesn't allow *do* support even though a) the 'do' form *dzin* independently exists in the language and b) insertion of other seemingly last resort/default lexical items (e.g. the weak third person pronoun in cases of *Comp-trace* violation avoidance (cf. chapters two and five)) occurs as well. We speculate that *dzin* is the default (underspecified) verbal vocabulary item in Nupe – e.g. √DZIN ↔ [+V]. Furthermore, we claim that *dzin* fails to be inserted in environments typically associated with *do* support because there is always a more specific form available for insertion in those cases, namely, a specific verb Root drawn from the lexical array.

[17] Recall that in addition to low Foc°, Σ^0, a Focus-like propositional operator motivated for VRCs (cf. chapter three), is also phonetically null. Nupe thus employs a range of phonetically null focus morphemes.

[18] As originally formulated in Lefebvre 1992, the availability of predicate cleft correlates with the availability of a position for clausal determiners *within the TP projection.* We take it that clausal determiners in Nupe are licensed higher than TP (cf. chapter two) and thus that no position within the TP space is available for such determiners in the language. Whether Lefebvre's examples of clausal determiners can be reanalyzed as elements operating at the CP-level remains to be seen. However, this is entirely expected, given that these clausal determiners are thought to nominalize focused predicate Roots (cf. Hiraiwa 2005 on this point) - constituents that arguably occupy a position within the exploded CP layer in languages that encode focus by means of word order (cf. West African languages).

[19] There is only one exception to this generalization that we know of, namely, the object *wh-* DP *ke* 'what', which is of the form #CV#. However, given that all other *wh-* forms in the language

are bimoraic, the synchronic form of 'what' may in fact either be a recent innovation or more plausibly may actually turn out to be a fieldwork mistranscription/misperception that is actually pronounced [*ke*:] synchronically.

[20] We take cooccurrence with *zo* to be a diagnostic of telicity in Nupe. Thus, verbs that can appear serialized with *zo* are telic and those that cannot coocccur with the verb are atelic. The traditional diagnostic for telicity in English (*in* vs. *for* temporal PP modification) is not applicable in Nupe as the following data show.

(viii) a. Musa nì enya ya: hawa nini. (Expected)
Musa beat drum for hour one
'Musa beat the drum for an hour.'

b. #Musa nì enya da: hawa nini. (Expected)
Musa beat drum in hour one
#'Musa beat the drum in one hour.'

c. Musa á enya nì ya: hawa nini. (Unexpected)
Musa PRF drum beat for hour one
'Musa has beaten the drum for an hour.'

d. #Musa á enya nì da: hawa nini. (Unexpected)
Musa PRF drum beat in hour one
#'Musa has beaten the drum in an hour.'

The grammaticality patterns are unexpected, given the standard assumption that perfect utterances assert the completion/culmination of the eventuality under the scope of the perfect morpheme.

Rather, what appears to be the case is that *for* phrases, but not *in* phrases, may modify VPs. This might account for the pattern observed in (viii).

CHAPTER 5

COMP-TRACE EFFECTS: LOWER COPY RESUMPTION AND PROSODIC MAPPING

5.1. INTRODUCTION

This chapter explores the final instance of multiple copy spell-out in Nupe. Unlike the previous chapters that dealt with the realization of multiple copies in the verbal domain, this chapter focuses on multiple spell-out of nominal copies. We observe the concurrent phonetic realization of nominal copies in a highly restricted range of constructions in the language. Most instances of subject extraction that cross overtly headed clause boundaries are ungrammatical if a lower copy of the chain is deleted/unpronounced as in typical instances of movement (1b). If the lower copy of the subject is spelled-out as a resumptive pronoun in these cases, however, the output becomes well formed (1c). At the same time, embedded object and adjunct extraction is unconstrained in this way (1d,g). As such, extraction in Nupe appears sensitive to the so-called *Comp-trace* effect: sequences involving overt complementizers and adjacent subject gaps are prohibited by the grammar.

(1) a. Musa gàn [gànán etsu gi eci].

Musa say COMP chief eat yam

'Musa said that the chief ate the yam.'

b. *Etsu Musa gàn [gànán __ gi eci] o.

chief Musa say COMP eat yam o

*'It was THE CHIEF that Musa said ate the yam.'

c. Etsu$_i$ Musa gàn [gànán **u:**$_i$ gi eci] o.

chief Musa say COMP 3RD.SG eat yam o

'It was THE CHIEF that Musa said ate the yam.'

d. Eci, Musa gàn [gànán etsu gi __] o.

yam Musa say COMP chief eat o

'It was THE YAM that Musa said that the chief ate.'

e. *Eci$_i$ Musa gàn [gànán etsu gi **u:**$_i$] o.

yam Musa say COMP chief eat 3RD.SG o

*'It was THE YAM that Musa said that the chief ate.'

f. Sanyin Musa gàn [gànán etsu nì enyà __] o.

quietly Musa say COMP chief beat drum o

'Musa said that the chief beat the drum QUIETLY.'

g. *Sanyin Musa gàn [gànán etsu nì enyà **u:**] o.

quietly Musa say COMP chief beat drum 3RD.SG o

*'Musa said that the chief beat the drum QUIETLY.'

For over thirty years, the *Comp-trace* effect has been the poster child for subject-non-subject asymmetry. Although the effect spans a variety of constructions (cf. (2)), there is a common denominator: unlike object and adjunct movement, subject extraction cannot proceed across overt embedded complementizers. This is illustrated below for English. For reasons of compactness, we will restrict ourselves to comparison of subject and object extraction in this chapter. As far as the instances/contexts of extraction examined in this chapter are concerned, adjunct extraction in Nupe patterns with object extraction. (The reader is reminded of the facts presented in (1d-g) and (32) from chapter two that illustrate this point.)

(2) *WH*- QUESTION

a. Who do you think [(*that) __ wrote the book]?

b. What do you think [(that) Bill wrote __]?

EMBEDDED RELATIVE CLAUSE

c. The author [that the publisher predicts [(*that) __ will be adored]]

d. The book [that the publisher predicts [(that) the public will adore __]]

CLEFT CONSTRUCTION

e. It was John [that the author told us [(*that) __ had plagiarized her book]].

f. It was her book [that the author told us [(that) John had plagiarized __]].

COMPARATIVE CONSTRUCTION

g. I wrote more books than I estimated [(*that) __ would be written].

h. I wrote more books than I estimated [(that) the entire department would write __]].

The *Comp-trace* effect has spawned a vast literature in generative syntax. The earliest generative approaches (Perlmutter 1971, Chomsky and Lasnik 1977) accounted for the effect in representational terms, culminating in the ECP-driven analysis of the GB program (notably, Chomsky 1981, 1986, Kayne 1981, Lasnik and Saito 1984, Rizzi 1990, Browning 1996, among others). The gist of the proposal was by and large simple, although the technical apparatus it wielded was cumbersome: subject extraction across C^0 is illicit because the trace in subject position cannot be properly governed (C^0 blocks antecedent government of the trace and is not a lexical governor). Culicover (1993b), on the other hand, argued that the mitigation of *Comp-trace* effects by intervening sentential adverbs positioned between C^0 and the trace (discovered by Bresnan (1977:194) and first discussed by Barss and Deprez (1986), cf. (3) below) weakens the case for an

ECP-based solution and motivates instead the filter-based approach of Chomsky & Lasnik (1977) (e.g. *[COMP *t*]).

(3) Who do you think [that **for all intents and purposes** __ wrote the book]?

Although a number of attempts were made to account for the phenomenon without appealing to the ECP (e.g. by appealing instead to avenues such as Binding Theory, S-structure filters, and economy principles, among others) (cf. Perlmutter 1971, Chomsky and Lasnik 1977, Pesetsky 1982, Jaeggli 1984, Deprez 1991, 1994, Culicover 1993b, among others), the consensus during the GB era was that the ECP was a good first step in achieving a unified theory of *Comp-trace* phenomena and its attendant subject-object extraction asymmetry. However, as GB theory grew in sophistication, it became evident that the ECP had grown far too complex and stipulative to warrant inclusion in UG. In response to similar considerations spanning a number of other modules of the GB framework, the Minimalist Program was born.

The central theme underlying the Minimalist Program was reducing the theory to those and only those entities drawn from the domain of virtual conceptual necessity and thus whose inclusion should be deemed indispensable for any theory of language. As a result, the ECP was one of the first relics of the GB framework to be jettisoned. This move was motivated by the fact that the government relation, phonetically null traces, and syntactically introduced indices

were all needless complications of the theory, given that their effects could be derived from more primitive and independently essential concepts and relations. Moreover, their existence could not be motivated by appealing exclusively to considerations of virtual conceptual necessity. The characterization of the *Comp-trace* effect would have to be reformulated and in this case, Chomsky was first to lead the way. He proposed that *Comp-trace* violations were instances of illicit movement operations, that is, movements that violated the economy principle of Shortest Move (i.e. Relativized Minimality/the Minimal Link Condition – Chomsky 1995a:181). Chomsky's account was rather skeletal, the intention being to provide the rough outline within which an analysis could be fleshed out. However, unlike the case of the development of the GB program, relatively little work thereafter attempted to characterize the *Comp-trace* effect in terms of the concepts and tools made available by the Minimalist paradigm shift.[1] In response to the data presented in (1), this chapter develops a PF-based analysis of the Nupe *Comp-trace* effect. Our account explains why subject extraction across overt complementizers (unlike object/adjunct extraction) is generally prohibited in the language and why in addition to the chain head, a lower copy of the extracted subject is sometimes spelled-out.

We argue that Nupe *Comp-trace* effects are purely prosodic phenomena that arise late in the derivation when the syntactic output is mapped onto a prosodic structure. In this way, our proposal can be described as a PF reductionist account of the *Comp-trace* effect and as such can be grouped together with similar

existing proposals in the literature (e.g. de Chene 1995, 2000, 2001, Culicover 1993a, Merchant 2001, to appear, and Richards 1999). The account provides a new window through which to understand the *Comp-trace* phenomenon: *Comp-trace* effects have nothing to do with the narrow syntax, but rather with the way in which the syntax and phonology interface. We will show that multiple copy spell-out in Nupe *Comp-trace* structures is a last resort repair strategy aimed at satisfying a stringent Prosodic Mapping constraint. Viewed as such, the multiple spell-out of nominal copies in Nupe is once again an epiphenomenon of the syntax-phonology interface.

The empirical and analytical focus of this chapter is Nupe and thus *Comp-trace* effects in English and other languages will not be considered to any great extent.[2] We believe this is as it should be, given that the objective of the chapter is not to advance a comprehensive theory of *Comp-trace* effects, but rather to examine the phenomenon of multiple copy spell-out of nominals in Nupe. For an extension of the current proposal to English and a more comprehensive account of the *Comp-trace* effect, the interested reader is referred to Kandybowicz 2006b.

The organization of the chapter is as follows. In section 5.2, we provide a descriptive overview and analysis of the *Comp-trace* effect in Nupe. Section 5.3 deals with the issue of multiple copy spell-out, or more specifically, lower copy resumption in *Comp-trace* structures. In particular, we investigate the formal/analytical and architectural issues raised by the previous descriptive

overview and analysis. Finally, we conclude in section 5.4 with a summary and some brief closing remarks.

5.2. THE NUPE *COMP-TRACE* EFFECT

What is the proper characterization of the Nupe *Comp-trace* effect? Are *Comp-trace* effects a reflection of syntactic ill-formedness or are they rather cases of ill-formedness at the interface levels? In this section, we argue for the latter characterization. More precisely, we argue that *Comp-trace* effects are conditioned by illicit outputs on the PF side of grammar, rather than at LF or in the narrow syntax. Toward this end, we begin by presenting a description of the facts, followed by an analysis.

5.2.1. Descriptive Overview

Extraction out of embedded clauses in Nupe exhibits a subject-object asymmetry similar to that found in English, however, some of the details vary. In Nupe as in English, objects can be freely extracted across complementizers in a number of different construction types, unlike subjects. This asymmetry is shown below for *wh*- movement, DP focus, and relativization. (See also chapter two, examples (31) and (32), for evidence that this extraction asymmetry obtains regardless of the choice of complementizer.)

(4) a. √ EXTRACTION OF AN EMBEDDED OBJECT *WH-*

Ke u: bè [ke Musa má[3] du __] na o?

what 3RD.SG seem COMP Musa know cook na o

'What does it seem that Musa knows how to cook?'

b. √ FOCUS OF AN EMBEDDED OBJECT

Enyà Musa gàn [gànán etsu nì __] o.

drum Musa say COMP chief beat o

'It was THE DRUM that Musa said that the chief beat.'

c. √ RELATIVIZATION OF AN EMBEDDED OBJECT[4]

Nakàn [na Musa kpe [gànán bagi-zì ba __]] na

meat na Musa know COMP man-PL cut na

'The meat that Musa knew that the men cut'

d. * EXTRACTION OF AN EMBEDDED SUBJECT *WH-*

*Zèé u: bè [ke __ má du] na o?

who 3RD.SG seem COMP know cook na o

*'Who does it seem knows how to cook?'

e. * FOCUS OF AN EMBEDDED SUBJECT

*Etsu Musa gàn [gànán __ nì enyà] o.

chief Musa say COMP beat drum o

*'It was THE CHIEF that Musa said beat the drum.'

f. * RELATIVIZATION OF AN EMBEDDED SUBJECT

*Bagi [na Musa kpe [gànán __ ba nakàn]] na

man na Musa know COMP cut meat na

*'The man Musa knew that cut the meat'

Omitting the complementizer does not salvage a *Comp-trace* violation in Nupe as it does in English. For the most part, complementizer drop is disallowed in the language as in French (Deprez 1991, 1994), Dutch, and Icelandic (Pesetsky 1982).[5]

(5) a. *Zèé u: bè [__ má du] na o?

who 3RD.SG seem know cook na o

*'Who does it seem knows how to cook?'

b. *Etsu Musa gàn [__ nì enyà] o.

chief Musa say beat drum o

*'It was THE CHIEF that Musa said beat the drum.'

c. *Bagi [na Musa kpe [__ ba nakàn]] na

man na Musa know cut meat na

*'The man Musa knew that cut the meat'

However, a range of options exist in the language for salvaging derivations involving long subject extraction across embedded complementizers. For one, extraction of an embedded subject across the complementizer *gànán* is possible when the complementizer surfaces in its reduced form *'án.* As previously mentioned, *gànán* is historically related to the verb *gàn* 'say', as in many West African languages. The form *gànán*, then, can be analyzed as a composite morpheme comprised of the verb 'say' together with a C element (e.g. $gàn_V$ + $án_C$). When reduced, then, only the C element surfaces.

(6) REDUCTION OF A MULTISYLLABIC C^0 MITIGATES *COMP-TRACE* EFFECTS

a. *Zèé Musa gàn [gànán __ nì enyà] o?

who Musa say COMP beat drum o

*'Who did Musa say beat the drum?'

b. √Zèé Musa gàn [**'án** __ nì enyà] o?

who Musa say COMP beat drum o

'Who did Musa say beat the drum?'

This repair strategy does not improve *Comp-trace* violations involving complementizers other than *gànán* in the language because all other complementizers in Nupe are monosyllabic and phonologically irreducible (e.g. *ke, kó:*, and *na*). The effect is similar to cases of *Comp-trace* repair in English involving reduced or unstressed complementizers (cf. Kandybowicz 2006b).

(7) a. *Who do you think that __ wrote Barriers?

b. √/?Who do you think th't __ wrote Barriers?

c. *Who do you hope for __ to win?

d. √/?Who do you hope fer __ to win?

A second way *Comp-trace* effects can be mitigated in Nupe is by insertion of TP-adjoined adverbials. Similar to the English adverb effect (cf. (3)), embedded subject extraction becomes possible when an adverbial expression intervenes between the complementizer and the trace (i.e. when it attaches to TP (8b)), but not when the adverb follows both the complementizer and the gap (i.e. when it does not attach to TP (8c)). The situation is contrasted below for the adverbial *pányi lèé*, which was argued to be a TP adjunct in chapter two, and *dàdà*, which was shown in the same chapter to attach below TP to the vP projection.

(8) INSERTION OF TP-ADJOINED ADVERBIALS MITIGATES *COMP-TRACE* EFFECTS

a. *Zèé Musa gàn [gànán __ nì enyà] o?

who Musa say COMP beat drum o

*'Who did Musa say beat the drum?'

b. √Zèé Musa gàn [gànán **pányi lèé** __ nì enyà] o?

who Musa say COMP before PST beat drum o

'Who did Musa say that a long time ago beat the drum?'

c. *Zèé Musa gàn [gànán __ **dàdà** nì enyà] o?

who Musa say COMP quickly beat drum o

*'Who did Musa say beat the drum quickly?'

As previously mentioned, subject extraction across a complementizer becomes possible if the moved element (i.e. the lower copy of the subject) is spelled-out as a resumptive pronoun, provided that it agrees in number with the head of the chain. If it is spelled out as a perfect copy of the leftmost moved element, however, the derivation cannot be salvaged (9a-c). In contrast, spelling-out the lower copy of the embedded object in this way results in ungrammaticality (9d-f).

(9) LOWER COPY RESUMPTION OF THE SUBJECT MITIGATES *COMP-TRACE* EFFECTS

a. Zèé$_i$ u: bè [ke **u:**$_i$/*a:$_i$/*zèé$_i$ má du] na o?

who 3RD.SG seem COMP 3RD.SG/3RD.PL/who know cook na o

'Who does it seem knows how to cook?'

b. Etsu$_i$ Musa gàn [gànán **u:**$_i$/*a:$_i$/*etsu$_i$ nì enyà] o.

chief Musa say COMP 3RD.SG/3RD.PL/chief beat drum o

'It was THE CHIEF that Musa said beat the drum.'

c. Bagi-zì$_i$ [na Musa kpe [gànán **a:**$_i$/*u:$_i$/ *bagi-zì$_i$ ba nakàn]] na

man-PL na Musa know COMP 3RD.PL/3RD.SG/man-PL cut meat na

'The men Musa knew that cut the meat'

RESUMPTION OF THE EMBEDDED OBJECT IS UNGRAMMATICAL

d. *Ke$_i$ u: bè [ke Musa má du **u:**$_i$] na o?

what 3RD.SG seem COMP Musa know cook 3RD.SG na o

*'What does it seem Musa knows how to cook?'

e. *Enyà$_i$ Musa gàn [gànán etsu nì **u:**$_i$] o.

drum Musa say COMP chief beat 3rd.SG o

*'It was THE DRUM that Musa said the chief beat.'

f. *Nakàn$_i$ [na Musa kpe [ganan bagi ba **u:$_i$**]] na

meat na Musa knew COMP man cut 3RD.SG na

*'The meat that Musa knew that the man cut'

The opposite spell-out relation, in which the leftmost copy is realized as a pro-form and the lower occurrence as a full DP copy, is ungrammatical. Compare the data in (10a-c) below with the data in (9a-c) respectively.

(10) a. ***U:$_i$** u: bè [ke **zèé$_i$** má du] na o?

3RD.SG 3RD.SG seem COMP who know cook na o

*'Who does it seem knows how to cook?'

b. ***U:$_i$** Musa gàn [gànán **etsu$_i$** nì enyà] o.

3RD.SG Musa say COMP chief beat drum o

*'It was THE CHIEF that Musa said beat the drum.'

c. ***A:$_i$** [na Musa kpe [gànán **bagi-zì$_i$** ba nakàn]] na

3RD.PL na Musa know COMP man-PL cut meat na

*'The men that Musa knew cut the meat'

Subject extraction in matrix clauses and unembedded relative clauses neither requires nor allows pronominal resumption in this way. In other words, subject

extractions that do not cross clause boundaries do not trigger lower copy resumption in the language. Consider the following data.

(11) a. MATRIX SUBJECT *WH*- QUESTION – RESUMPTION IMPOSSIBLE

Zèé$_i$ [(*u:$_i$) gi eci] o?

who 3RD.SG eat yam o

'Who ate the yam?'

b. MATRIX SUBJECT FOCUS CONSTRUCTION – RESUMPTION IMPOSSIBLE

Musa$_i$ [(*u:$_i$) gi eci] o.

Musa 3RD.SG eat yam o

'MUSA ate the yam.'

c. UNEMBEDDED SUBJECT RELATIVIZATION – RESUMPTION IMPOSSIBLE

Bagi$_i$ [na (*u:$_i$) gi eci] na

man na 3RD.SG eat yam na

'The man that ate the yam'

What's more, the phenomenon of pronominal resumption in Nupe is limited entirely to subject positions[6] as we've seen in chapter two (cf. (34) from that chapter) and in this chapter (cf. (1e), (9d-f) and (ii) in note 6), so the locus of the grammatical impropriety addressed by lower copy spell-out in this case is the left

edge/region of the embedded clause. Similar cases abound in Swedish, Dutch, and Danish. In Swedish, embedded subject extraction is possible only when the lower copy is phonetically realized as a resumptive pronoun (Engdahl 1985). In Danish (Jacobsen and Jensen 1982) and certain dialects of Dutch (Maling and Zaenen 1978), structures involving embedded subject extraction that would otherwise be degraded are ameliorated when expletives are realized below C^0, instead of the trace/null copy. See Boeckx 2003 for other cases and discussion.

(12) Swedish (Engdahl 1985:8)

a. *Villet ord visste ingen [hur __ staves]?
which word knew no one COMP is-spelled
*'Which word did no one know how it is spelled?'

b. Villet ord_i visste ingen [hur **det_i** staves]?
which word knew no one COMP 3RD.SG is-spelled
'Which $word_i$ did no one know how it_i is spelled?'

Danish (Jacobsen and Jensen 1982)

c. *Vennen [(som) han pastod [at __ havde lant
friend-DEF COMP he claimed COMP had borrowed
bogen]] var forsvundet.
book-DEF was disappeared
*'The friend that he claimed had borrowed the book had disappeared.'

d. Vennen [(som) han pastod [at **der** havde lant
friend-DEF COMP he claimed COMP there had borrowed
bogen]] var forsvundet.
book-DEF was disappeared
'The friend that he claimed had borrowed the book had disappeared.'

Dutch[7] (Bennis 1986:243)

e. ??Wie denk je [dat __ komt]?
who think 2ND.SG COMP come
??'Who do you think came?'

f. Wie denk je [dat **er** komt]?
who think 2ND.SG COMP there come
'Who do you think came?'

Lastly, *Comp-trace* effects in Nupe fail to arise whenever embedded clause T^0 is phonetically realized. In all the examples examined thus far in this chapter, embedded T^0 was phonetically null. That is, the exponent of embedded T^0 was the past tense morpheme (cf. chapter two). As illustrated below, long extraction of an embedded subject across overt C^0 becomes acceptable when T^0 is spelled-out (even without lower subject resumption or TP-adverbial adjunction).

(13) SPELLING OUT EMBEDDED CLAUSE T^0 MITIGATES *COMP-TRACE* EFFECTS

a. *Zèé Musa gàn [gànán __ nì enyà] o?

who Musa say COMP beat drum o

*'Who did Musa say beat the drum?'

b. √Zèé Musa gàn [gànán __ **è/à** nì enyà] o?

who Musa say COMP PRS/FUT beat drum o

'Who did Musa say is beating/will beat the drum?'

c. Etsu Musa gàn [gànán __ *Ø/√**è/à** ni enyà] o.

chief Musa say COMP PST/PRS/FUT beat drum o

'It was THE CHIEF that Musa said is beating/will beat the drum.'

d. Bagi [na Musa kpe [gànán __ *Ø/√**è/à** ni enyà] o.

man COMP Musa know COMP PST/PRS/FUT beat drum o

'The man Musa knows that is beating/will beat the drum.'

5.2.2. Analysis

Looking back over the data in the previous section, a generalization emerges. Long extraction of embedded subjects is possible whenever the output of the derivation is one in which the "edge" of the embedded TP projection (i.e. either a

daughter of TP or T^0) is realized at PF. Mitigating adverbial expressions like *pányi lèé* occupy a TP edge (adjoined) position, as do resumptive lower copies in Spec, T and tense markers in T^0. Whenever the embedded TP edge is phonetically empty (i.e. whenever the tail of a non-trivial chain is deleted at PF and neither a TP adverbial nor tense marker is pronounced), the output of long subject extraction is illicit. What underlies this generalization? In the discussion that follows, we provide an answer to this question.

The key fact around which everything will turn is a prosodic one. In Nupe, embedded unreduced/non-relative complementizers (e.g. *gànán*, *ke*, *kó*:) mark the right boundaries of Intermediate Phrases (intPs). As such, the complement of embedded C^0 in the language is itself an independent prosodic domain. That is, fully propositional embedded TPs are obligatorily parsed as separate Intermediate Phrases in Nupe. In contrast, embedded TPs followed by reduced complementizers (e.g. *'án*) are not parsed as separate intPs in the language. The evidence that full non-relative embedded complementizers mark the juncture of two prosodic domains in Nupe comes from a number of observations. For one thing, a small pause separates C^0 from material in the embedded TP. Second, pre-pausal lengthening can be detected. That is, the complementizer is slightly lengthened when it occurs in an embedded position. A third line of evidence comes from the fact that following the phonetic realization of C^0, pitch is reset. The fourth and most compelling piece of evidence comes from the fact that otherwise regular phonological processes are blocked when C^0 introduces a

complement clause. (14) below illustrates that regressive assimilation is blocked in this environment, while (15) highlights the fact that hiatus resolution is likewise blocked.

(14) a. INTRA-PHRASAL REGRESSIVE ASSIMILATION:

/[gànán + u:]/ → [**gùnún** u:]

b. ASSIMILATION BLOCKED WHEN C^0 INTRODUCES A COMPLEMENT CLAUSE:

[$_{INTP}$ Zèé Musa gàn gànán/***gùnún**] [$_{INTP}$ u: má du na o]?

who Musa say COMP 3RD.SG know cook na o

'Who did Musa say knows how to cook?'

(15) a. INTRA-PHRASAL HIATUS RESOLUTION VIA GLIDE FORMATION:

/[ke + u:]/ → [k**j**u:]

b. GLIDE FORMATION BLOCKED WHEN C^0 INTRODUCES A COMPLEMENT CLAUSE:

[$_{INTP}$ Zèé u: bè ke/***kj**] [$_{INTP}$ u: má du na o]?

who 3RD.SG seem COMP 3RD.SG know cook na o

'Who does it seem knows how to cook?'

Let us build on this observation. According to Nespor and Vogel (1986:190), Intonation Phrases (iPs) are isomorphic with syntactic phrases that are obligatorily

parsed as iPs. Suppose the same were true for obligatory Intermediate Phrases. Then, the left edge of a fully propositional embedded TP (an obligatorily parsed intP in the language) must be aligned with the left edge of intP in Nupe. This is illustrated graphically below.

(16) Syntactic structure: … V $[_{CP}$ C $[_{TP}$ …

Prosodic structure: ……] $[_{INTP}$ …

Given that iP/intP phrasing must occur at the juncture between two prosodic words (Nespor and Vogel 1986, Schütze 1994), intP will fail to align with TP if the edge of TP is phonetically unrealized because in that case the edge would lack a prosodic word and thus fail to be a potential boundary site. We understand "edge" in the Minimalist sense of the word (Chomsky 2001, 2005): given a projection ZP, the edge positions of ZP include ZP's daughters (adjunct(s) and specifier(s)) and Z^0 (the projecting head). Given this, we can understand *Comp-trace* effects in Nupe as cases where an intP and embedded T projection fail to align as a consequence of the fact that the TP edge is phonetically unrealized when the subject occurrence is displaced and its copy is deleted at PF. When the TP edge is phonetically unrealized, the first prosodic word encountered in the parse of the embedded TP will be a verbal element in v^0. In this case, intP will align with the v projection, a syntactic phrase that is *not* obligatorily parsed as an intP. This is schematized in (17) below.

(17) a. PROSODICALLY WELL-FORMED (Mitigation by TP modification)

Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ pányi lèé [$_{TP}$ ~~zèé~~ [$_{T}$ …

√ Prosodic structure: ……] [$_{INTP}$ …

b. PROSODICALLY WELL-FORMED (Mitigation by subject resumption)

Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ u: [$_{T}$…

√ Prosodic structure: ……] [$_{INTP}$ …

c. PROSODICALLY WELL-FORMED (Mitigation by spelling-out T^0)

Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ ~~zèé~~ [$_{T}$ è …

√ Prosodic structure: ……] [$_{INTP}$ …

d. PROSODICALLY ILL-FORMED (∅ TP modifier, ∅ PF subject, ∅ T^0)

Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ ~~zèé~~ [$_{T}$ ∅ [$_{vP}$ ~~zèé~~ [$_{v}$ nì …

* Prosodic structure: ……] [$_{INTP}$ …

Stepping back, a broader generalization can be surmised. Namely, the edge of an obligatorily parsed prosodic phrase must be phonetically realized. This observation was first made by Duk-Ho An (2006), who gave it the name "Intonational Phrase Edge Generalization" (IPEG).

(18) INTONATIONAL PHRASE EDGE GENERALIZATION (An 2006)

The edge of an intonational phrase cannot be phonetically empty.

Nupe *Comp-trace* effects thus reduce to a violation of the IPEG. Because embedded reduced complementizers (cf. (6b)) do not mark the right boundaries of Intermediate Phrases in Nupe (as mentioned at the outset of this section), extraction of embedded subjects across such complementizers will never trigger an IPEG violation. Hence, we derive the amelioration of *Comp-trace* effects by C^0 reduction (cf. (6)). Furthermore, relative clause complementizers in the language (e.g. *na*) mark the *left* edge of intP in Nupe, unlike the other complementizers in the language. For this reason, subject extraction across a relative C^0 will never incur a violation of the IPEG: regardless of the PF realization of the relative TP following the complementizer, the edge of the relative clause will always be phonetically realized by the relative complementizer (whose omission is always illicit). For this reason, relativization of a non-embedded constituent (e.g. (19) below) does not constitute a *Comp-trace* effect in the language.

(19) Bagi na __ ba nakàn na.
man COMP cut meat na
'The man that cut the meat'

5.3. SOME TECHNICAL ASPECTS OF LOWER COPY RESUMPTION

Under the previously sketched analysis, *Comp-trace* effects in Nupe are manifestations of illicit prosodic structures at PF. Given the mechanics of chain linearization, once the lower subject is extracted an IPEG violation becomes inevitable, that is, unless either the chain's PF realization is modified in some way (i.e. the lower subject copy is additionally spelled-out) or else a TP adverbial or tense marker is independently realized. Viewed in this way, multiple copy spell-out in cases of long subject extraction across overt unreduced complementizers is entirely expected. In an effort to bolster the analysis of *Comp-trace* effects previously presented and at the same time gain a better handle on the conditions that drive and constrain multiple copy spell-out in the language, we examine several analytical, technical, and architectural issues raised by lower copy resumption in Nupe in this section. We begin by investigating the nature of the resumptive occurrence itself.

5.3.1. On the Resumptive Occurrence in Comp-trace *Structures*

Thus far, we have simply assumed that the embedded pronominal subject in mitigated *Comp-trace* structures is the phonetically realized lowest link in the chain formed by embedded subject extraction. In other words, we have taken it for granted that the pronominal occurrence is a *copy* of the extracted constituent.

There is firm evidence that these pronominal elements are in fact resumptive occurrences, that is, realizations of DP copies/traces (cf. Lees and Klima 1963, Perlmutter 1972, Aoun 1982, etc.) and not, for instance, realizations of distinct base-generated elements of the numeration, as in hanging topic left-dislocation constructions, for example. (Clitic left dislocation is unattested in Nupe.) Our evidence comes from two observations. For one thing, left-dislocation in Nupe is impossible in embedded contexts (cf. (18c-e) in chapter four). Furthermore, concurrent realization of DP subjects and lower pro-forms is island-sensitive, suggesting that the two occurrences are related by movement, as the following data show.

(20) a. Etsu kpe [gànán Musa gàn [gànán Gana ba nakàn]].
chief know COMP Musa say COMP Gana cut meat
'The chief knows that Musa said that Gana cut the meat.'

√ RESUMPTION BELOW CLAUSAL COMPLEMENTS OF BRIDGE VERBS

b. **Gana**$_i$ etsu kpe [gànán Musa gàn [ganan **u:**$_i$ ba nakàn]] o.
Gana chief know COMP Musa say COMP 3RD.SG cut meat o
'It is GANA that the chief knows that Musa said cut the meat.'

c. U: tán Musa [gànán bagi-zì si doko].
3rd.SG pain Musa COMP man-PL buy horse
'It pained Musa that the men bought a horse.'

d. * RESUMPTION BELOW THE CLAUSAL COMPLEMENT OF A NON-BRIDGE VERB

***Bagi-zì**$_i$ u: tán Musa [gànán **a:**$_i$ si doko] o.

man-PL 3rd.SG pain Musa COMP 3rd.PL buy horse o

*'It was THE MEN that it pained Musa that bought a horse.'

e. * RESUMPTION WITHIN A *WH*- ISLAND

***Zèé**$_i$ Musa kpe [ke **u:**$_i$ si] o.

who Musa know what 3RD.SG buy o

f. * RESUMPTION WITHIN A SUBJECT ISLAND

***Etsu**$_i$ [gànán **u:**$_i$ si doko] tán Musa o.

chief COMP 3RD.SG buy horse pain Musa o

*'That the CHIEF bought a horse pained Musa.'

g. * RESUMPTION WITHIN A COORDINATE STRUCTURE

***Gana**$_i$ etsu kpe [gànán [Musa tò **u:**$_i$] lo dzuko] o.

Gana chief know COMP Musa and 3RD.SG go market o

*'The chief knows that Musa and GANA went to the market.'

We thus take it that there is good evidence that the pronominal subjects that surface in grammatical *Comp-trace* structures are spelled-out copies of the heads of extraction chains, despite the fact that the two links bear no morphological or

phonological resemblance. Ultimately, the reason that the lower copy is morphophonologically distinct from the realized chain head is due to the fact that the resumptive element that is inserted in grammatical *Comp-trace* structures is a default nominal expression. Third person pronouns in Nupe exhibit a strong/weak alternation.[8] Although the strong and weak forms are for the most part in free variation (cf. (21a)), only the weak form may surface as the resumptive occurrence in *Comp-trace* configurations (21b).

(21) a. U:/wu:n bé.

3rd.SG come

'S/he came.'

b. Etsu$_i$ Musa gàn [gànán u:$_i$/*wu:n$_i$ nì enyà] o.

chief Musa say COMP 3rd.SG beat drum o

'Musa said that THE CHIEF beat the drum.'

Evidence that weak pronouns in Nupe are default nominals comes from the fact that when embedded subject pronominal expressions are long extracted, the displaced (peripheral) occurrence and the lower resumptive copy agree in number features (as before), but fail to agree with respect to person features. As the following data show, the resumptive occurrence is a third person form across the board, lending credence to the idea that the phonetically realized lower copy is

spelled-out as a default nominal expression, that is, as a vocabulary item specified solely for grammatical category and number (e.g. [+NOM, +/-SG]). As such, the surviving copies of the embedded subject extraction chain count as morphologically distinct from one another – the head of the chain is a non-default nominal expression, while the tail of the chain is a morphologically underspecified (impoverished) default form.

(22) a. Mi: Musa gàn [gànán u:/*mi:/*a:/*yi: pa eci] o.
1ST.SG Musa say COMP 3RD.SG/1ST.SG/3RD.PL/1ST.PL pound yam o
'It was I that Musa said pounded the yam.'

b. Wo: Musa gàn [gànán u:/*wo:/*a:/*ye: pa eci] o.
2ND.SG Musa say COMP 3RD.SG/2ND.SG/3RD.PL/2ND.PL pound yam o
'It was YOU (singular) that Musa said pounded the yam.'

c. Wu:n Musa gàn [gànán u:/*a: pa eci] o.
3RD.SG Musa say COMP 3RD.SG/3RD.PL pound yam o
'It was S/HE that Musa said pounded the yam.'

d. Yi: Musa gàn [gànán a:/*yi:/*u:/*mi: pa eci] o.
1ST.PL Musa say COMP 3RD.PL/1ST.PL/3RD.SG/1ST.SG pound yam o
'It was WE that Musa said pounded the yam.'

e. Ye: Musa gàn [gànán a:/*ye:/*u:/*wo: pa eci] o.

2ND.PL Musa say COMP 3RD.PL/2ND.PL/3RD.SG/2ND.SG pound yam o

'It was YOU (plural) that Musa said pounded the yam.'

f. A: Musa gàn [gànán a:/*u: pa eci] o.

3RD.PL Musa say COMP 3RD.PL/3RD.SG pound yam o

'It was THEY that Musa said pounded the yam.'

In the following subsection, we discuss the grammatical mechanisms responsible for the insertion of the default resumptive occurrence.

5.3.2. Linearization, Impoverishment, and Economy

Viewed from the perspective of chain linearization, lower copy spell-out of a morphologically default vocabulary item makes perfect sense. Had the lower copy of the subject been spelled-out as a perfect copy of the head of the chain (cf. (9a-c)), the surviving copies would count as morphosyntactically non-distinct at PF and the familiar linearization dilemmas/contradictions explored in chapters one and three would arise. Owing to the insertion of a morphologically default form, however, the surviving links of the embedded subject extraction chain are morphologically distinct and can thus be properly linearized. The resulting

derivation satisfies the IPEG, while violating no PF interface conditions. Hence, the derivation converges.

Now consider this issue from another angle. Linearization cannot be the ultimate reason why the lower copy of the subject is spelled-out as a default resumptive expression. Afterall, at the point of Vocabulary Insertion, where a decision is made regarding which phonological form the lower copy of the subject will take, it has not yet been determined that the lower copy of the subject will in fact survive at PF. The reason for this is two-fold. For one, Chain Reduction occurs later in the PF derivation, that is, following Vocabulary Insertion. So at the point of Vocabulary Insertion, all visible copies are fair game for insertion and pronunciation. Second, lower copy spell-out in *Comp-trace* configurations is driven by prosodic considerations, namely, the IPEG. Given that Prosodic Mapping occurs much later in the PF derivation (cf. (44) in chapter three), there is no way to determine that the lower copy of the subject will survive at the point of Vocabulary Insertion. For these reasons, the insertion of a default nominal vocabulary item proceeds independently of Linearization. We propose instead that the realization of the resumptive pronoun owes to the fact that the copy of the embedded subject is Impoverished for person features (Bonet 1991). In the case of embedded subject extraction, as in (23) below, the copy of the extracted lower subject *etsu* 'chief' consists of a relatively simple morphosyntactic feature bundle, namely, [+NOM, +3rd, +SG] (abstracting away from Focus features), which remains in tact before the output is transferred to PF.

(23) Etsu$_i$ Musa gàn [gànán **u:**$_i$ gi eci] o.

chief Musa say COMP 3RD.SG eat yam o

'It was THE CHIEF that Musa said ate the yam.'

Suppose that for whatever reason, this feature matrix is compromised prior to Vocabulary Insertion. That is, suppose the person features of the lower subject copy were deleted by an operation of Morphological Impoverishment. In this case, following deletion of its person features, the resulting feature matrix of the lower subject copy would be identical to the feature specification of the singular form of the default weak pronoun: [+NOM, +3rd, +SG] – [+3rd] = [+NOM, +SG]. As such, Impoverishment of the embedded subject would thus feed default resumption.

Now that we have an account of why it is that the lower copy of the subject is phonetically realized and why it is spelled out as a default pronominal in cases of long embedded subject extraction, we can inquire into the productivity of lower copy resumption as a prosodic repair strategy. We can show that multiple copy spell-out in this case is quite limited and as such, applies only as a last resort repair when none of the other devices for satisfying the IPEG (i.e. C^0 reduction, insertion of TP adverbials, and spelling-out tense markers) hold. Evidence for this view comes from the fact that with the exception of resumption, all IPEG-satisfying scenarios may concurrently coexist in a given *Comp-trace* configuration, as illustrated below.

(24) a. C^0 REDUCTION AND TP ADVERBIAL INSERTION ARE COMPATIBLE

Zèé Musa gàn ['**án** **pányi** **lèé** __ nì enyà] o?

who Musa say COMP before PST beat drum o

'Who did Musa say that a long time ago beat the drum?'

b. C^0 REDUCTION AND SPELLING-OUT T^0 ARE COMPATIBLE

Zèé Musa gàn ['**án** __ **è/à** nì enyà] o?

who Musa say COMP PRS/FUT beat drum o

'Who did Musa say is beating/will beat the drum?'

c. C^0 REDUCTION AND RESUMPTION ARE INCOMPATIBLE

*Zèé$_i$ Musa gàn ['**án** **u:**$_i$ nì enyà] o?

who Musa say COMP 3RD.SG beat drum o

*'Who did Musa say that a long time ago beat the drum?'

d. TP ADVERBIAL INSERTION AND RESUMPTION ARE INCOMPATIBLE

*Zèé$_i$ Musa gàn [gànán **pányi** **lèé** **u:**$_i$ nì enyà] o?

who Musa say COMP before PST 3RD.SG beat drum o

*'Who did Musa say that a long time ago beat the drum?'

e. SPELLING-OUT T^0 AND RESUMPTION ARE INCOMPATIBLE

*Zèé$_i$ Musa gàn [gànán **u:$_i$** **è/à** nì enyà] o?

who Musa say COMP 3RD.SG PRS/FUT beat drum o

*'Who did Musa say is beating/will beat the drum?'

This constellation of facts is consistent with resumption being a derivationally late extra-step in the PF computation. If the IPEG is independently satisfied in the course of a derivation (as in (24c-e)), lower copy spell-out is superfluous and hence uneconomical. The reason it is tolerated in cases like (9a-c) is because it is forced. If a lower copy of the subject hadn't been phonetically realized in these cases, the IPEG would have been violated and the derivation would have failed to converge. Thus, multiple copy spell-out in the Nupe nominal domain is driven by the IPEG, but just as in the verbal domain (cf. chapter four), it is constrained by principles of derivational economy.

5.3.3. Architectural Issues

Some of the architectural implications of our proposal were briefly discussed at the outset of the previous subsection. The most salient implication is that the decision to phonetically realize the chain tail (in addition to the head of the chain) is made late in the derivation, that is, later than Vocabulary Insertion and Linearization. The reason for this is simple. Lower copy spell-out in cases of

long embedded subject extraction is driven by a purely prosodic factor, namely, the IPEG. At the point of Vocabulary Insertion and Linearization, prosodic structure has not been imposed. Hence, unless we grant look-ahead at PF, the IPEG should play no role in determining which link(s) of the subject extraction chain are to be phonetically realized. Thus, immediately following Linearization of the embedded CP phase, the lower impoverished (resumptive) copy of the subject that was previously introduced by Vocabulary Insertion is marked for non-pronunciation (i.e. deletion), despite the fact that it will ultimately be phonetically realized. Suppose this marking is accomplished by adding a $\varnothing_{PF}$ diacritic to a copy that has been eliminated by Chain Reduction in the Linearization component. That is, the $\varnothing_{PF}$ diacritic is an instruction alerting the A-P performance system to refrain from pronouncing the occurrence it is associated with. In this way, "deleted" material is still visible for future PF operations, something independently necessary given the fact that in the case of *Comp-trace* configurations in Nupe, a copy doomed to PF extinction achieves salvation late in the derivation and as a result is phonetically realized. Following Linearization of the embedded CP phase, the syntax-prosody mapping occurs. It is at this point in the PF derivation that the IPEG is violated. In the event that C^0 is unreduced, no TP adverbial was merged in the narrow syntax, or T^0 is phonetically null, the IPEG will demand that the copy of the impoverished lower clause subject that is marked for deletion be unmarked for deletion. Therefore, in order to satisfy the IPEG, the $\varnothing_{PF}$ diacritic is erased by the Phonological/Prosodic

system and the A-P system receives instructions to pronounce the lower copy of the subject. In this way, lower copy spell-out is achieved.

Note that the phonetic realization of an additional (lower) copy in cases driven by prosody is independent of Linearization considerations. That is, given that a) Linearization applies once per cycle and b) that the linear order of the phase is established before the additional (lower) copy is rescued from PF elimination, the resulting output will not be re-evaluated by the Linearization component. This raises the conceptual possibility that multiple copy spell-out structures that might not otherwise be linearizeable can be convergent PF outputs if prosodic or other late (i.e. post-Linearization) requirements demand the phonetic realization of an additional chain link. In other words, under the present analysis the possibility arises that linearization is not even a necessary condition for multiple copy spell-out. Note that in the case of embedded subject extraction derivations in Nupe, the output of multiple copy spell-out *is* in fact linearizeable, a state of affairs that owes to the Morphological Impoverishment of the lower clause subject, as previously discussed. Given this fact, we remain guarded about the potential existence of prosodically induced non-linearizeable multiple copy PF outputs, despite the fact that they are predicted under the analysis developed in this chapter. Thus, whether or not the prediction is borne out that late/post-Linearization PF constraints enable the convergence of otherwise unlinearizeable PF objects is left for future research.

An additional noteworthy consequence of our analysis is that in addition to Phonological requirements (cf. chapter three) and Morphological conditions (cf. chapter four), multiple copy spell-out is driven by Prosodic forces as well. In this way, multiple copy spell-out is influenced by all interacting subsystems of the PF component. That is to say, multiple copy spell-out is a fully general PF-driven phenomenon. We leave it for future research to determine whether the prosodic facts attributed to Nupe can be replicated in other languages and whether other purely prosodic factors can be shown to drive multiple copy spell-out in these languages.

5.4. SUMMARY AND CONCLUDING REMARKS

In this chapter, we have presented a third instance of multiple copy spell-out in Nupe, this time in the nominal domain. We have argued that instances of embedded subject extraction in the language are effectively cases in which the head and tail of the chain are both phonetically realized. In these constructions, the lower copy is spelled-out as a morphologically default resumptive pro form, an outcome we attributed to Morphological Impoverishment. The net result of this operation is that it enables the linearization of outputs involving multiply spelled-out copies of the embedded subject. Furthermore, the driving force behind the spell-out of the lower copy and the grammatical basis for the *Comp-trace* effect in the language, we argued, is a prosodic constraint that requires the

edge of the embedded T projection to be phonetically realized. Following An (2006), we referred to this condition as the Intonational Phrase Edge Generalization (IPEG). The IPEG is formulated in (18). We showed that lower copy pronominal resumption applies late in the PF derivation as a last resort prosodic repair strategy and that its application is limited by conditions of derivational economy.

Our investigation into lower copy resumption in Nupe has two immediate payoffs. The first is a radically new understanding of the *Comp-trace* effect that is less rooted in narrow syntactic behavior than on the properties of interfacing sub-systems of grammar, namely syntax and phonology. For a full PF-reductionist account of the *Comp-trace* effect, the interested reader is referred to Kandybowicz 2006b, where it is argued that *Comp-trace* violations are purely prosodic and do not represent a homogeneous phenomenon cross-linguistically. Second, our analysis of lower copy resumption contributes in our efforts to catalog the conditions that drive and constrain multiple copy spell-out at PF. In addition to Phonological requirements that bar unassociated suprasegmental material at PF and subsequently trigger Fusion (cf. chapter three) and Morphological requirements such as the Stray Affix Filter (cf. chapter four), we may add Prosodic requirements such as the Intonational Phrase Edge Generalization (IPEG) to the list of PF-oriented forces and conditions that drive multiple copy spell-out. As before, we also find that economy is an equally

opposing force constraining the very operations that give rise to the phonetic realization of multiple copies at PF.

NOTES TO CHAPTER 5

[1] Notable exceptions include Bayer nd, Deprez 1994, Hoge 2001, Ishii 2004, Kim 1999, Pesetsky and Torrego 2001, Rizzi 2004, Rizzi and Shlonsky 2004, Roussou 2002, 2006, and Szczegielniak 1999, among others.

[2] This chapter will not deal with cases of so-called "anti-*Comp-trace* effects" in which subject extraction is licit *only* in the presence of an overt complementizer. As shown below, these effects can be found in Nupe, English (Pesetsky 1982), and Norwegian (Taraldsen 1986, Keer 1999), among other languages.

(i) Nupe

a. Bagi **na** __ ba nakàn na
man COMP cut meat na
'The man that cut the meat'

b. *Bagi __ ba nakàn na
man cut meat na

English

c. [The professor **that** __ wrote *Barriers*] retired.

d. *[The professor __ wrote *Barriers*] retired.

Norwegian (Taraldsen 1986)

e. Jeg vet hvem **som** __ vant.
1ST.SG know who COMP won
'I know who won.'

f. *Jeg vet hvem __ vant.

1ST.SG know who won

g. Hvem **som** __ vant

whoever COMP won

'Whoever won'

h. *Hvem __ vant

whoever won

Although they appear to be the inverse of *Comp-trace* effects, we suspect that anti-*Comp-trace* effects are rooted in entirely orthogonal grammatical processes and that the proper analysis of one will shed little to no light on the other. See Kandybowicz 2006b for an analysis of some of these facts in English and Nupe.

[3] Kandybowicz and Baker (2003) argue that modal-auxiliary verbs like *má* are restructuring verbs and as such do not take clausal complements. In this way, extraction across domains inhabited by such verbs does not constitute an island violation. We cannot even begin to summarize the evidence for this conclusion in this note. The reader is referred to the previously cited article for this information.

[4] As in the previous chapter, we adopt a promotion analysis of relative clauses (Vergnaud 1974, Kayne 1994). As such, relative clause constructions involve the extraction/promotion of the relative clause head from a TP-internal position to a clause-peripheral landing site where it is phonetically realized.

[5] See Kawu 1990 for a discussion of the few exceptions to this rule in Nupe.

[6] In Edo and other areally related languages, resumption is limited to two positions: the subject position and the first object (i.e. the goal) of a double object construction (Stewart 2001). Extraction from embedded double object constructions in Nupe does not trigger resumption in this way, as shown in the following examples.

(ii) a. Etsu$_i$ Musa gàn [gànán Gana yá (*u:$_i$) èwò] o.
chief Musa say COMP Gana give 3RD.SG garment o
'It was the CHIEF that Musa said that Gana gave a garment to.'

b. Èwò$_i$ Musa gàn [gànán Gana yá etsu (*u:$_i$)] o.
garment Musa say COMP Gana give chief 3RD.SG o
'It was the GARMENT that Musa said that Gana gave to the chief.'

[7] The situation in Dutch is complex and requires further examination. For one thing, 'there' insertion does not seem to mitigate *Comp-trace* effects if the embedded verb is transitive (Bennis 1986:244) or if the extracted subject is relativized, topicalized, or cleft (Bennis 1986:245-246). Second, Dutch seems to divide into dialects that tolerate *Comp-trace* violations and others that do not. See Maling and Zaenen 1978, Bennis 1980, Reuland 1983, and Koopman 1983 for description and analysis of this variation.

[8] The strong/weak dichotomy is evident as far as third person singular pronominal forms are concerned, as shown in (21). However, the same cannot be said for the third person plural forms, which always take the form *a:*. That is, regardless of whether they appear in the syntactic positions that trigger default resumption or not, the morphophonological form of the third person plural pronoun is always the same. This does not mean that third personal plural forms in the language lack a morphological strong/weak alternation. After all, it could very well be the case

that both forms exist morphologically, but that their phonological realization is identical. That is, room is left for the possibility that both forms are homophonous.

CHAPTER 6

CONCLUDING REMARKS

We close with light summarization, followed by reflection on a few open questions.

Once the Copy theory of movement is assumed and the existence of derivationally-introduced phonetically null traces is denied, the perennial tension between descriptive and explanatory adequacy once again arises. If movement operations are decomposable into the sub-operations Copy and Merge, as conceived in the Minimalist Program, the output of a narrow syntactic computation involving movement will include at least two non-distinct copies of the displaced occurrence. Formally speaking then, the existence of multiple-copy chains is predicted by the Copy theory of movement. Unfortunately, instances of multiple copy spell-out are rare. Nunes (1995, 1999, 2004) offers a way of resolving this tension by shifting the burden of the problem to PF convergence. If multiple non-distinct links of a non-trivial chain are phonetically realized at PF, the LCA will fail to yield a proper linear ordering of the chain and the resulting derivation will crash at PF. The deletion of all but one of the chain's links (Chain Reduction), thus follows as a consequence of the need to satisfy a PF Bare Output condition, namely, linearization of syntactic structure. This doesn't preclude the existence of multiple copy spell-out, however. It merely accounts for the relatively low frequency of the phenomenon. According to Nunes, multiple copy

spell-out is possible whenever at least one non-trivial chain link becomes invisible to the LCA and is thereby removed from the calculus of Linearization. Nunes identifies Morphological Reanalysis, formulated as Fusion in the Distributed Morphology framework, as the vehicle by which a chain link eludes the LCA. On his analysis, then, the possibility of linearization (brought upon by the application of Fusion) is a necessary and sufficient condition for multiple copy pronunciation. Our investigation into multiple copy spell-out in Nupe suggests that this assessment is far too simplistic. In fact, in at least two instances of multiple copy spell-out in the language (perfect predicate cleft constructions and lower copy resumption), linearizeability was shown to play no role whatsoever in the determination of whether a second link could be phonetically realized. In reality, a number of identifiable extra-morphological factors conspire to drive multiple copy pronunciation. We identified Phonological and Prosodic constraints, in addition to Morphological forces, that actively drive multiple copy spell-out in the language. By cataloging and studying the forces that drive and constrain multiple copy spell-out at the Syntax-Phonology interface, the previously mentioned descriptive/explanatory tension wrought by the Copy theory of movement can be properly resolved, thus lending both empirical and conceptual support to the Copy theory of movement. This is the primary contribution of the dissertation.

Nupe is an ideal language to study in this respect because as previously mentioned, a variety of instances of multiple copy spell-out are attested. To be more precise, Nupe exhibits three cases of multiple copy spell-out, each of which

has important theoretical ramifications and sheds light on the analysis of similar phenomena in other languages. Verbal repetition and predicate cleft constructions are two such cases observed in the verbal domain. In the nominal domain, the mitigation of *Comp-trace* effects by means of lower copy resumption is another.

In chapter three, we undertook an analysis of Nupe verbal repetition, a phenomenon in which two segmentally identical copies of the verb surface in the same matrix clause. We argued that in this construction the phonetic realization of multiple chain links is conditioned by head movement of the verb Root through a low Focus projection unique to the construction coupled with the post-syntactic Reanalysis (Fusion) of a copy of the verb Root with this head. The phonetic realization of the lower verbal copy owes to two states of affairs. One, the linearization operation applies chain-internally to **non-distinct** occurrences (Nunes 1995, 2004). Two, Reanalyzed (Fused) chain links are morphosyntactically **distinct** from all other links in its chain. Hence, Reanalyzed copies do not enter into the chain's Linearization computation and their pronunciation comes for free, so to speak. The higher copy of the verb Root is pronounced in order to support the affixal features of the host (v^0) at PF, in line with Lasnik's (1981, 1995) Stray Affix Filter. The derivational construct resulting from the phonetic realization of both copies is shown to be both economical and linearizeable. It is thus an admissible output of the narrow syntax and may serve as an input to the sensorimotor system. In this case, our investigation into multiple copy spell-out corroborates Nunes' (1995, 1999, 2004)

hypothesis that Fusion is a driving force behind the phonetic realization of multiple chain links. However, it is not enough to simply cite the application of Fusion as a factor enabling multiple copy spell-out. In order to properly understand the roots of multiple copy spell-out, we must understand what causes Fusion. On the force of tonological phenomena in Nupe verbal repetition constructions, we identified a phonological trigger for Fusion in the language. Given the impropriety of unassociated suprasegmental phonological material, Nupe verbal repetition constructions would violate conditions of phonological well-formedness following Vocabulary Insertion, had Fusion not applied. In addition, our inquiry in Nupe verb doubling resulted in a number of other significant theoretical contributions. Nupe verbal repetition constructions shed light on the mechanics of chain linearization and Fusion; they motivate a more highly articulated conception of PF architecture and the division of labor between the Morphological and Phonological subsystems; they provide compelling evidence against the relegation of head movement operations to the PF component (Grodzinsky and Finkel 1998, Boeckx and Stjepanovic 2001, Chomsky 2001); and they provide independent supporting evidence for the existence of a low clause-internal Focus projection (Belletti 2001, 2003).

In chapter four, we investigated the Nupe predicate cleft construction. We argued that these constructions involve dependencies between phonetically realized left-peripheral nominalized copies of verb Roots and lower bare Root copies. We furnished evidence that although the spelled-out verb Roots are

copies of one another, they are not directly related by chain formation. This state of affairs was shown to be a consequence of the fact that the verb Root head raises to v^0, while the remnant Root Phrase that contains a copy of the raised Root moves to a left-peripheral Focus position. As a result of the fact that a) the peripheral and lower copies are non chain-internal and b) the copies are morphologically distinct from one another, multiple copies of the predicate can be sucessfully linearized. We showed that the Stray Affix Filter plays a prominent role in the distribution of these phonetically realized copies. The pronunciation of the displaced left peripheral Root copy eliminates its checked Focus features, while the phonetic realization of the lower copy in v^0 once again owes to the fact that the head is affixal and therefore can not be stranded/unsupported at PF. When this head is realized by an independent exponent (for example, the perfect marker), multiple copy spell-out is no longer possible. This was shown to derive from a general PF economy principle banning the spell-out of superfluous material (i.e. Economy of Pronunciation). In this instance, spelling-out the lower verbal copy (i.e. in a head lower than v^0) is no longer necessary, as the affixal features of v^0 are independently supported. Despite the fact that the resulting output is perfectly linearizable, the derivation fails to converge at PF. The theoretical punch line in this case is that linearization alone cannot be a sufficient condition for multiple copy spell-out, as originally proposed by Nunes. Rather, multiple copy spell-out is possible only when linearizeable structures adhere to rigid standards of derivational economy.

Lower copy resumption and the Nupe *Comp-trace* effect were discussed in chapter five. We argued that both phenomena are fundamentally prosodic in nature. *Comp-trace* effects are violations of the Intonational Phrase Edge Generalization (IPEG - An 2006), a prosodic constraint that is violated when the edge of an obligatorily parsed prosodic phrase (the embedded TP complement of C^0 in Nupe) fails to be phonetically realized. Lower copy resumption of a morphologically Impoverished copy of the displaced subject is a derivationally late repair strategy aimed at satisfying the IPEG. Furthermore, it is a last resort PF operation, meaning that just as in the case of multiple copy spell-out in perfect predicate cleft constructions, it is constrained by principles of economy. Because in this case the decision to pronounce an additional link of a non-trivial chain is made late in the PF derivation at the point of Prosodic Mapping, considerations of linearizeability play no role in this instance of multiple copy spell-out. Once again, this detracts from Nunes' claim that considerations of linearization alone drive multiple copy spell-out.

At the end of the day, we arrived at the following catalog of the conditions and driving forces regulating multiple copy spell-out. We identified three driving forces, namely, Morphological Reanalysis/Fusion (driven by phonological well-formedness criteria relating to the association of suprasegmental material); the Stray Affix Filter, a Morphological condition; and the IPEG, a prosodic constraint. On the opposite end of the spectrum, we observed that constraints on multiple copy realization are rooted in principles of linearization and economy.

Multiple copy constructions, although they might satisfy a number of independent language-specific requirements, will fail to be output by the PF component if either they cannot be mapped onto a linear order or else were not built in an economical fashion. Our claims are summarized in (1) below.

(1) a. CONDITIONS/CONSTRAINTS ON MULTIPLE COPY SPELL-OUT

A syntactic object Σ containing multiple copies of a given occurrence is a legitimate PF output iff:

i. Σ can be mapped onto a linear order AND

ii. Σ was constructed in accordance with principles of economy

b. FORCES THAT DRIVE MULTIPLE COPY SPELL-OUT

i. Morphological Reanalysis (Fusion)

ii. The Stray Affix Filter

iii. The Intonational Phrase Edge Generalization

At this stage of the research, several open questions remain. This thesis explored instances of multiple copy spell-out in which exactly two copies of an occurrence are phonetically realized. This raises the question of whether cases in

which more than two copies are spelled-out are attested. Given the catalog in (1), it would seem that this state of affairs should not be ruled out on theoretical/conceptual grounds. Nonetheless, it remains to be seen whether this possibility is in fact instantiated in the grammar of any particular language.

We can also ask whether our catalog of conditions, constraints, and forces that underlies multiple copy spell-out is purely an artifact of the study of one language? At first blush, a negative answer seems likely. After all, the operation of Fusion has been independently motivated to exist in a variety of languages (see Halle and Marantz 1993 and Nunes 2004, for specific cases). Likewise, the Stray Affix Filter is often considered a principle of Universal Grammar, given its apparent inviolability cross-linguistically. And although new, the IPEG has been shown to be an active prosodic constraint in languages like English and Serbo-Croatian (An 2006). A better question to ask, therefore, might be whether there are any major conditions on multiple copy spell-out that have eluded us. That is, in addition to those forces identified in (1), do other forces/conditions exist, but await discovery? The answer to this question must surely be positive, although it raises a somewhat bothersome point. Not every language manifests multiple copy spell-out. And even in those languages that do, it is not always obvious where to look or how to find them. Consequently, our typology of multiple copy constructions and our understanding of the forces/conditions that underlie them is at present somewhat underdeveloped and in need of further investigation.

It is our hope that the initial steps taken in this dissertation serve as foot holes for these and related lines of research.

REFERENCES

Abels, Klaus. 2001. The Predicate Cleft Construction in Russian. In Steven Franks, Tracy Holloway King, and Michael Yadroff (eds.), *Formal Approaches to Slavic Linguistics 9*, 1-18. Ann Arbor: Michigan Slavic Publications.

Aboh, Enoch. 1998. Focus Constructions and the Focus Criterion in Gungbe. *Linguistique Africaine* 20: 5-50.

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

Alleyne, Mervyn C. 1980. *Comparative Afro-American. A Historical-comparative Study of English-based Afro-American Dialects of the New World.* Ann Arbor: Karoma.

Ameka, Felix. 1992. Focus Constructions in Ewe and Akan: A Comparative Perspective. In Chris Collins and Victor Manfredi (eds.), *Proceedings of the Kwa Comparative Syntax Workshop*, 1-25. MIT Working Papers in Linguistics 17. Cambridge: MITWPL.

An, Duk-Ho. 2006. Clauses in Noncanonical Positions in PF. To appear in *Syntax*.

Aoun, Josef. 1982. On the Logical Nature of the Binding Principles: Quantifier Lowering, Double Raising of *there* and the Notion Empty Element. In James

Pustejovski and Peter Sells (eds.), *Proceedings of the Twelfth Annual Meeting of the North East Linguistic Society*, 16-35. Amherst, MA: GLSA.

Awóbùluyi, Oladele. 1971. Splitting Verbs in Yoruba. *Actes Du Hautieme De Linguistique Africanine* 1. Abidjan. 151-164.

Awóbùluyi, Oladele. 1978. *Essentials of Yoruba Grammar*. Oxford: Oxford University Press.

Awoyale, Yiwola. 1985. Focus as an Unbounded Movement Rule in Yoruba. *Jolan* 3: 75-85.

Baker, Mark C. 1989. Object Sharing and Projection in Serial Verb Constructions. *Linguistic Inquiry* 20: 513-553.

Baker, Mark C. 1996. On the Structural Positions of Themes and Goals. In Johan Rooryck and Laurie Zauring (eds.), *Phrase Structure and the Lexicon*, 7-34. Dordrecht: Kluwer.

Baker, Mark C. 1997. Thematic Roles and Syntactic Structure. In Liliane Haegeman (ed.), *Elements of Grammar*, 73-137. Dordrecht: Kluwer.

Baker, Mark C. 2003. *Lexical Categories: Verbs, Nouns, and Adjectives*. Cambridge: Cambridge University Press.

Baker, Mark C. and Chris Collins. 2006. Linkers and vP Structure. To appear in *Natural Language and Linguistic Theory* 24.

Baker, Philip and Chris Corne. 1982. *Isle de France Creole: Affinities and Origins*. Ann Arbor: Karoma.

Bamgbose, Ayo. (ed.) 1972. *The Yoruba Verb Phrase*. Ibadan: Ibadan University Press.

Banfield, Alexander W. 1914. *Dictionary of the Nupe Language*. Shonga: The Nigeria Press.

Banfield Alexander W. and J.L. Macintyre. 1915. *A Grammar of the Nupe Language*. Society for Promoting Christian Knowledge: London.

Barss, Andrew and Viviane Deprez. 1986. On Extractions and Affective Triggered Inversion. Ms. MIT.

Bastos, Ana Cláudia P. 2001. Fazer, Eu Faço! Topicalização de Constituentes Verbais em Português Brasileiro. Masters thesis, Universidade Estadual de Campinas.

Bastos, Ana Cláudia P. 2002. Three Types of V-Topicalization in Brazilian Portuguese. Ms. Universidade Federal do Pará.

Bayer, Josef. Nd. *That-trace* without Reference to the Subject. Ms. University of Konstanz.

Belletti, Adriana. 2001. Inversion as Focalization. In Aafke Hulk and Jean-Yves Pollock (eds.), *Subject Inversion in Romance and the Theory of Universal Grammar*, 60-90. New York: Oxford University Press.

Belletti, Adriana. 2003. Aspects of the Low IP Area. In Luigi Rizzi (ed.), *The Structure of IP and CP: The Cartography of Syntactic Structures (Volume 2)*, 16-51. Oxford: Oxford University Press.

Bennis, Hans. 1980. Coindexing and Complementizer Trace Phenomena. Paper presented at the 1980 GLOW conference, Nijmegen.

Bennis, Hans. 1986. *Gaps and Dummies*. Foris: Dordrecht.

Bernabé, Jean. 1983. *Fondal-natal, Grammaire Basilectale Approchée des Créoles Guadeloupéen et Martiniquais.* Paris: L'Harmattan.

Blench, Roger M. 1989. Nupoid. In John T. Bendor-Samuel and Rhonda L. Hartell (eds.), *The Niger-Congo Languages: A Classification and Description of Africa's Largest Language Family*, 305-22. Lanham, MD: University Press of America.

Boadi, L.A. 1974. Focus-marking in Akan. *Linguistics* 140: 5-57.

Bobaljik, Jonathan. 1995. *Morphosyntax: The Syntax of Verbal Inflection.* Ph.D. dissertation, MIT.

Bobaljik, Jonathan. 2002. A-Chains at the PF-Interface: Copies and 'Covert' Movement. *Natural Language and Linguistic Theory* 20: 197-267.

Bodomo, Adams. B. 2004. The Syntax of Nominalized Complex Verbal Predicates in Dagaare. *Studia Linguistica* 58.1: 1-22.

Boeckx, Cedric. 2003. *Islands and Chains: Resumption as Stranding.* Amsterdam: John Benjamins.

Boeckx, Cedric and Sandra Stjepanovic. 2001. Head-ing Toward PF. *Linguistic Inquiry* 32: 345-355.

Bonet, Eulàlia. 1991. *Morphology after Syntax: Pronominal Clitics in Romance.* Ph.D. dissertation, MIT.

Boretzsky, Norbert. 1983. *Kreolsprachen Substrate und Sprachwandel.* Wiesbaden: Harrassowitz.

Boskovic, Zeljko. 2001. *On the Nature of the Syntax-Phonology Interface: Cliticization and Related Phenomena.* Amsterdam: Elsevier Science BV.

Boskovic, Zeljko and Jairo Nunes. 2006. The Copy Theory of Movement: A View from PF. To appear in Jairo Nunes and Norbert Corver (eds.), *The Copy Theory of Movement on the PF Side.* Oxford: Blackwell Publishers.

Bowers, John. 1993. The Syntax of Predication. *Linguistic Inquiry* 24: 591-656.

Brody, Michael. 1995. *Lexico-Logical Form: A Radically Minimalist Theory.* Cambridge, MA: MIT Press.

Browning, Marguerite A. 1996. CP Recursion and *That-t* Effects. *Linguistic Inquiry* 27: 237-255.

Byrne, Francis. 1987. *Grammatical Relations in a Radical Creole.* Creole Language Library 3. Amsterdam: John Benjamins.

Cable, Seth. 2003. The Yiddish Predicate Cleft: A Base-Generation Analysis. Ms. MIT.

Carlson, Greg. 1977. A Unified Analysis of the English Bare Plural. *Linguistics and Philosophy* 1, 413-457.

Cinque, Guglielmo. 1990. *Types of A-Bar Dependencies.* Cambridge, MA: MIT Press.

Cheng, Lisa. 2004. Verb Copying in Mandarin Chinese. Paper presented at the Copy Theory of Movement on the PF Side workshop. Utrecht University.

Cho, Eun. 1997. VP-fronting and Verbal Morphology. In Matthew L. Juge and Jeri L. Moxley, (eds.), *Proceedings of the Twenty-Third Annual Meeting of the Berkeley Linguistics Society*, 38-49. University of California, Berkeley.

Cho, Eun and Kunio Nishiyama. 2000. Yoruba Predicate Clefts from a Comparative Perpective. In Vicki Carstens and Frederick Parkinson (eds.), *Advances in African Linguistics (Trends in African Linguistics 4)*, 37-49. Trenton: Africa World Press.

Cho, Sae-Youn and Jong-Bok Kim. 2002. Echoed Verb Constructions in Korean: A Construction-based HPSG Analysis. *Korean Journal of Linguistics* 27: 661-681.

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

Choi, Kiyong. 2003. The Echoed Verb Construction in Korean: Evidence for V-Raising. In Patricia M. Clancy (ed.), *Japanese/Korean Linguistics 11*, 457-470. Stanford: CSLI.

Chomsky, Noam. 1955. *Transformational Analysis*. Ph.D. dissertation, University of Pennsylvania.

Chomsky, Noam. 1956. *The Logical Structure of Linguistic Theory*. Ms. Harvard University. Published in 1975 by Plenum, New York.

Chomsky, Noam. 1957. *Syntactic Structures*. The Hague: Mouton.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

Chomsky, Noam. 1971. Deep Structure, Surface Structure, and Semantic Interpretation. In Danny D. Steinberg and Leon A. Jakobovits (eds.), *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics, and Psychology*, 183-216. Cambridge: Cambridge University Press.

Chomsky, Noam. 1973. Conditions on Transformations. In Stephen Anderson and Paul Kiparsky (eds.), *A Festschrift for Morris Halle*, 232-286. New York: Holt, Rinehart and Winston.

Chomsky, Noam. 1977. On *Wh-* Movement. In Peter Cullicover, Thomas Wasow, and Adrian Akmajian (eds.), *Formal Syntax*, 71-132. New York: Academic Press.

Chomsky, Noam. 1981. *Lectures on Government and Binding.* Dordrecht: Foris.

Chomsky, Noam. 1986. *Barriers.* Cambridge, MA: MIT Press.

Chomsky, Noam. 1993. A Minimalist Program for Linguistic Theory. In Kenneth Hale and Samuel Jay Keyser (eds.), *The View from Building 20; Essays in Honor of Sylvain Bromberger*, 1-52. Cambridge, MA: MIT Press.

Chomsky, Noam. 1995a. Categories and Transformations. In Chomsky 1995c, 219-394.

Chomsky, Noam. 1995b. Bare Phrase Structure. In Gert Webelhuth (ed.), *Government and Binding Theory and the Minimalist Program*, 383-439. Cambridge, MA: Basil Blackwell.

Chomsky, Noam. 1995c. *The Minimalist Program.* Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist Inquiries. In Roger Martin, David Michaels, and Juan Uriagereka (eds.), *Step by Step: Essays on Minimalism in Honor of Howard Lasnik*, 89-155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by Phase. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 1-52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2004. Beyond Explanatory Adequacy. In Adriana Beletti (ed.), *Structures and Beyond: The Cartography of Syntactic Structures*, 104-131. New York: Oxford University Press.

Chomsky, Noam. 2005. On Phases. Ms. MIT.

Chomsky, Noam & Howard Lasnik. 1977. Filters and Control. *Linguistic Inquiry* 8: 425-504.

Clements, George N. 1979. The Description of Terraced-level Tone Languages. *Language* 55: 536-558.

Collins, Chris. 1994. The Factive Construction in Kwa. In Claire Lefebvre (ed.), *Travaux de Recherche sur le Creole Haitien*, No. 23, 31-65. Department de Linguistique, Universite du Quebec a Montreal.

Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.

Cormack, Annabel and Neil V. Smith. 1994. Serial Verbs. *University of College London Working Papers in Linguistics 6*: 63-88.

Corver, Norbert. 1990. *The Syntax of Left-Branch Extractions*. Ph.D. dissertation, University of Tilburg.

Cozier, Franz. 2002. *Wh-* Subject/Object Asymmetries in Trinidad Dialectal English Predicate Clefting. In Harold Torrence (ed.), *UCLA Working Papers in Linguistics* 8: *Papers on African Linguistics 2,* 60-85. To appear in *Natural Language and Linguistic Theory.*

Culicover, Peter. 1993a. Focus and Grammar. In Peter Ackema and Maaiki Schoorlemmer (eds.), *Proceedings of the Workshop on the Semantic and Syntactic Analysis of Focus*, 1-19. OTS Working Papers, Research Institute for Language and Speech, Utrecht University.

Culicover, Peter. 1993b. Evidence Against ECP Accounts of *That-t* Effect. *Linguistic Inquiry* 24: 557-561.

Davis, Lori J. and Ellen F. Prince. 1986. Yiddish Verb-Topicalization and the Notion 'Lexical Integrity'. In Anne M. Farley, Peter T. Farley, and Karl-Eric McCullough (eds.), *Proceedings of CLS 22*, 90-97. University of Chicago.

de Chene, Brent. 1995. *Complementizer-trace* Effects and the ECP. *Geneva Generative Papers* 3.1:1-4. Département de Linguistique Générale, Université de Genève.

de Chene, Brent. 2000. Prosody and Subject Traces. Ms. Waseda University.

de Chene, Brent. 2001. Prosody and Trace-Licensing: *Complementizer-trace* Effects and Beyond. Poster presented at the Workshop on Prosody in Processing. Utrecht University, OTS. July 6.

Degraff, Michel. 1995. Predicate-cleft, Quantification, Events and Properties. *Niger Congo Syntax and Semantics* 69-82.

Dekydtspotter, Laurent. 1992. The Syntax of Predicate Clefts. In Kimberely Broderick (ed.), *Proceedings of the Twenty-Second Annual Meeting of the North East Linguistic Society*, 119-133. Amherst, MA: GLSA.

Deprez, Viviane. 1991. Economy and the *That-t* Effect. In Katharine Hunt, Thomas A. Perry, and Vida Samiian (eds.), *Proceedings of the Western Conference on Linguistics Volume 4*, 74-87. Fresno: California State University.

Deprez, Viviane. 1994. A Minimal Account of the *That-t* Effect. In Guglielmo Cinque, Jan Koster, Jean-Yves Pollock, Luigi Rizzi, and Raffaella Zanuttini (eds.), *Paths Towards Universal Grammar. Studies in Honor of Richard S. Kayne*, 121-135. Washington, D.C: Georgetown University Press.

Dik, Simon C., Maria E. Hoffmann, Jan R. de Jong, Sie Ing Djiang, Harry Stroomer, and Lourens de Vries. 1981. On the Typology of Focus Phenomena. In Teun Hoekstra, Harry van der Hulst, and Michael Moortgat (eds.), *Perspectives on Functional Grammar*, 41-74. Dordrecht: Foris.

Doron, Edit. 1999. V-movement and VP-ellipsis. In Elabbas Benmamoun and Shalom Lappin (eds.), *Fragments: Studies in Ellipsis and Gapping*, 124-140. Oxford: Oxford University Press.

Embick, David. 2000. Features, Syntax, and Categories in the Latin Perfect. *Linguistic Inquiry* 31: 185-230.

Embick, David and Rolf Noyer. 2001. Movement Operations after Syntax. *Linguistic Inquiry* 32: 555-595.

Embick, David and Rolf Noyer. To appear. Distributed Morphology and the Syntax/Morphology Interface. In Gillian Ramschand and Charles Reiss (eds.), *The Oxford Handbook of Linguistic Interfaces*. Oxford: Oxford University Press.

Engdahl, Elisabet. 1985. Parasitic Gaps, Resumptive Pronouns, and Subject Extractions. *Linguistics* 23: 3-44.

Erteschik-Shir, Nomi and Natalia Strahov. 2004. Focus Structure Architecture and P-Syntax. *Lingua* 114: 301-323.

Fanselow, Gisbert and Anoop Mahajan. 1995. Partial Movement and Successive Cyclicity. In Uli Lutz and Gereon Müller (eds.), *Papers on Wh- Scope Marking*, 131-161. Arbeitspapiere des Sonderforschungsbereichs 340, Sprachtheoretische Grundlagen für die Computer Linguistik, Bericht Nr. 76.

Fox, Danny and David Pesetsky. 2005. Cyclic Linearization of Syntactic Structure. *Theoretical Linguistics* 31: 1-46.

Frampton, John. In press. *Distributed Reduplication*. Cambridge, MA: MIT Press.

Franks, Steven. 1998. Clitics in Slavic. Position paper presented at the Comparative Slavic Morphosyntax Workshop. Bloomington, Indiana. (Available at: http://www.indiana.edu/~slavconf/linguistics/index.html)

George, Isaac. 1975. *A Grammar of Kwa-type Verb Serialization*. Ph.D. dissertation. University of California, Los Angeles.

George, Leland Maurice. 1980. *Analogical Generalization in Natural Language Syntax*. Ph.D. dissertation, MIT.

Ghomeshi, Jila, Ray Jackendoff, Nicole Rosen, and Kevin Russell. 2004. Contrastive Focus Reduplication in English (The Salad-Salad paper). *Natural Language and Linguistic Theory* 22: 307-357.

Giorgi, Alessandra and Fabio Pianesi. 1997. *Tense and Aspect: From Semantics to Morphosyntax*. Oxford: Oxford University Press.

Gordon, Raymond G., Jr. (Editor). 2005. *Ethnologue: Languages of the World, Fifteenth Edition.* Dallas: SIL International.

Groat, Erich, and John O'Neil. 1996. Spell-Out at the LF Interface. In Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson and C. Jan-Wouter Zwart (eds.), *Minimal Ideas: Syntactic Studies in the Minimalist Framework*, 113-139. Amsterdam: John Benjamins.

Grodzinsky, Yosef and Lisa Finkel. 1998. The Neurology of Empty Categories: Aphasics' Failure to Detect Ungrammaticality. *Journal of Cognitive Neuroscience* 10: 281-292.

Grohmann, Kleanthes K. 2003. *Prolific Domains: On the Anti-Locality of Movement*. Amsterdam: John Benjamins.

Grohmann, Kleanthes K. and Andrew Ira Nevins. 2004. Echo Reduplication: When Too-Local Movement Requires PF-Distinctness. In *University of Maryland Working Papers in Linguistics, Volume 13*, 85-109.

Grohmann, Kleanthes K. and Phoevos Panagiotidis. 2004. Demonstrative Doubling in Greek. In *University of Maryland Working Papers in Linguistics, Volume 13*, 110-132.

Gruber, Jeffrey and Chris Collins. 1996. Argument Projection, Thematic Configurationality and Case Theory. In Anne-Marie Di Sciullo (ed.), *Projections and Interface Conditions: Essays on Modularity*, 130-154. Oxford: Oxford University Press.

Hale, Kenneth and Samuel Jay Keyser. 1993. On Argument Structure and the Lexical Expression of Syntactic Relations. In Kenneth Hale and Samuel Jay Keyser (eds.), *The View from Building 20*, 53-110. Cambridge, MA: MIT Press.

Halle, Morris. 1997. Distributed Morphology: Impoverishment and Fission. In Benjamin Bruening, Yoonjung Kang, and Martha McGinnis (eds.), *Papers at the Interface*, 425-449. MIT Working Papers in Linguistics 30. Cambridge, MA: MITWPL.

Halle, Morris. 2005. Reduplication. Ms. MIT.

Halle, Morris and Alec Marantz. 1993. Distributed Morphology and the Pieces of Inflection. In Kenneth Hale and Samuel Jay Keyser (eds.), *The View from Building 20; Essays in Honor of Sylvain Bromberger*, 111-176. Cambridge, MA: MIT Press.

Halle, Morris and Alec Marantz. 1994. Some Key Features of Distributed Morphology. In Andrew Carnie, Heidi Harley, and Tony Bures (eds.), *Papers in Phonology and Morphology*, 275-288. MIT Working Papers in Linguistics 21. Cambridge, MA: MITWPL.

Halpern, Aaron. 1992. *Topics in the Placement and Morphology of Clitics*. Ph.D. dissertation, Stanford University.

Harbour, Daniel. 1999. The Two Types of Predicate Clefts: Classical Hebrew and Beyond. In Vivian Lin, Cornelia Krause, Benjamin Bruening, and Karlos Arregi (eds.), *Papers in Morphology and Syntax, Cycle Two*, 159-176. MIT Working Papers in Linguistics 34. Cambridge, MA: MITWPL.

Harbour, Daniel. To appear. Klivaj Predika or Predicate Clefts in Haitian. *Journal of Pidgin and Creole Linguistics*.

Harris, James and Morris Halle. 2005. Unexpected Plural Inflections in Spanish: Reduplication and Metathesis. *Linguistic Inquiry* 36: 195-222.

Harley, Heidi and Rolf Noyer. 1998. Licensing in the Non-lexicalist Lexicon: Nominalizations, Vocabulary Items and the Encyclopedia. In Heidi Harley (ed.), *MITWPL 32: Papers from the MIT/Upenn Roundtable on Argument Structure and Aspect*, 119-137. Cambridge, MA: MITWPL.

Harley, Heidi and Rolf Noyer. 1999. Distributed Morphology. *Glot International* 4.4: 3-9.

Heimstra, Inge. 1986. Some Aspects of *Wh-* Questions in Frisian. NOWELE 8: 97-110.

Hiraiwa, Ken. 2005. Predicate Cleft in Buli: The CP/DP Symmetry. In Rose Letsholo and Nancy Kula (eds.), *African Linguistics in the New Millennium.* (Special issue of *Linguistic Analysis.*)

Hoge, Kerstin. 1998. The Yiddish Double Verb Construction. In David Wills (ed.), *Oxford University Working Papers in Linguistics, Philology and Phonetics: Volume 2*, 85-97.

Hoge, Kerstin. 2001. *That-t* Effects in English and Yiddish. In Galina M. Alexandrova and Olga Arnaudova (eds.), *The Minimalist Parameter*, 233-248.

Hornstein, Norbert. 2001. *Move! A Minimalist Theory of Construal.* Oxford: Blackwell Publishing.

Huang, Cheng-Teh James. 1982. *Logical Relations in Chinese and the Theory of Grammar.* Ph.D. dissertation, MIT.

Huang, Cheng-Teh James. 1985. The Autosegmental and Metrical Nature of Tone Terracing. In Didier L. Goyvaerts (ed.), *African Linguistics: Essays in Memory of M.W.K. Semikenke*, 209-238. Amsterdam: John Benjamins.

Huang, Cheng-Teh James. 1991. Modularity and Chinese A-not-A Questions. In Carol Georgopolous and Roberta Ishihara (eds.), *Interdisciplinary Approaches to Language, Essays in Honor of S.-Y. Kuroda*, 305-332. Dordrecht: Kluwer.

Hutchison, John. 1989. Predicate Emphasis and Copying in Haitian. Paper presented at the MIT Niger-Congo workshop on Serial Constructions and Transitivity Alternations, January 23-24.

Hutchison, John. 2000. Predicate Focusing Constructions in African and Diaspora Languages. In H. Ekkehard Wolff and Orin D. Gensler (eds.), *Proceedings of the Second World Congress of African Linguistics, Leipzig 1997*, 577-591. Köln: Rüdiger Köppe Verlag.

Hyman, Larry and John R. Watters. 1984. Auxiliary Focus. *Studies in African Linguistics* 15(3): 233-273.

Iatridou, Sabine. 1995. Clitics and Island Effects. In Roumyana Izvorski and Victoria Tredinnick (eds.), *University of Pennsylvania Working Papers in Linguistics, Volume 2, Number 1*, 11-31.

Ishii, Toru. 2004. The Phase Impenetrability Condition, the Vacuous Movement Hypothesis, and *That-t* Effect. *Lingua* 114: 183-215.

Jackendoff, Ray. 1972. *Semantics in Generative Grammar*. Cambridge, MA: MIT Press.

Jacobsen, B. and Per Anker Jensen. 1982. Some Remarks on the Use of Danish (*at*) *der* in Embedded Interrogatives and Relative Clauses. Paper presented at the First Workshop on Scandinavian Syntax, Trondheim.

Jaeggli, Osvaldo A. 1982. *Topics in Romance Syntax*. Dordrecht: Foris.

Jaeggli, Osvaldo A. 1984. Subject Extraction and the Null Subject Parameter. In Charles Jones and Peter Sells (eds.), *Proceedings of the Fourteenth Annual Meeting of the North East Linguistic Society*, 132-153. Amherst, MA: GLSA.

Jansen, Bert, Hilda Koopman, and Pieter Muysken. 1978. Serial Verbs in the Creole Languages. In *Amsterdam Creole Studies* 2: 125-159. Amsterdam: Universiteit van Amsterdam, Instituut voor Algemene Taalwetenschap.

Jo, Jung-Min. 2003. Variations in Predicate Cleft Constructions in Korean: Epiphenomena at the Syntax-PF Interface. Paper presented at the Tenth Harvard International Symposium on Korean Linguistics. Harvard University.

Kallgren, Gunnel and Ellen F. Prince. 1989. Swedish VP-Topicalization and Yiddish Verb-Topicalization. *Nordic Journal of Linguistics* 12: 47-58.

Kandybowicz, Jason. 2002. Word Order and the Extended Projection of the Nupe Verb. Masters thesis, University of California, Los Angeles.

Kandybowicz, Jason. 2004a. Nupe Tonology and the Categorical Identity of Verb Copy Tones: A Pilot Experimental Study. In Ad Neeleman (ed.), *University College London Working Papers in Linguistics 16*, 17-53.

Kandybowicz, Jason. 2004b. Predicate Clefts, Derivations, and Universal Grammar. In Akin Akinlabi and Oluseye Adesola (eds.), *Proceedings of the Fourth World Congress of African Linguistics, New Brunswick 2003*, 211-223. Köln: Rüdiger Köppe Verlag.

Kandybowicz, Jason. 2005. Nupe Coordinate Structures: A Syntactically Heterogeneous Class. In Rebecca Cover and Yuni Kim (eds.), *Proceedings of the Thirty-First Annual Meeting of the Berkeley Linguistics Society.* Berkeley, CA: BLS.

Kandybowicz, Jason. 2006a. On Fusion and Multiple Copy Spell-Out: The Case of Verbal Repetition. To appear in Jairo Nunes and Norbert Corver (eds.), *The Copy Theory of Movement on the PF Side*. Oxford: Blackwell Publishing.

Kandybowicz, Jason. 2006b. *Comp-trace* Effects Explained Away. To appear in *Proceedings of the 25th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press.

Kandybowicz, Jason and Mark C. Baker. 2003. On Directionality and the Structure of the Verb Phrase: Evidence from Nupe. *Syntax* 6:2, 115-155.

Kang, Myung-Yoon. 1988. *Topics in Korean Syntax: Phrase Structure, Variable Binding, and Movement*. Ph.D. dissertation, MIT.

Kawu, Ahmadu Ndanusa. 1990. Some Instances of Sentential Complementation in Nupe. Masters thesis, University of Ibadan.

Kawu, Ahmadu Ndanusa. 1999. *Wh-* Questions and Focus Constructions in Nupe. Ms. Rutgers University.

Kawu, Ahmadu Ndanusa. 2000. Patterns of Unmarkedness in Niger-Congo Verb Reduplication. Ms. Rutgers University.

Kawu, Ahmadu Ndanusa. 2002. *Variation in Nupe Phonology and Morphology*. Ph.D. dissertation, Rutgers University.

Kayne, Richard. 1981. ECP Extensions. *Linguistic Inquiry* 12: 93-133.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Keer, Edward W. 1999. Anti-**That-trace* Effects in Norwegian and Optimality Theory. *Nordic Journal of Linguistics* 22: 183-203.

Kim, Jong-Bok. 2002. Echoed Verb Constructions: A Complex-Predicate Formation. In *Korean Linguistics Today and Tomorrow: Proceedings of the 2002 Association for Korean Linguistics, International Conference on Korean Linguistics*, 568-574. Seoul: Association for Korean Linguistics.

Kim, Sung-Hun. 1999. On the Generalized EPP. *Studies in Generative Grammar* 9: 89-114. Hankook Publishing Company.

Kim, Youngsun. 2002. The Syntax of Korean Verbal Focus Constructions. In *Proceedings of the 2002 Linguistic Society of Korea Summer Conference*, 333-344. The Linguistic Society of Korea.

Kiss, Katalin E. 1998. Identification Focus Versus Information Focus. *Language* 74: 245-273.

Koizumi, Masatoshi. 1995. *Phrase Structure in Minimalist Syntax*. Ph.D. dissertation, MIT.

Koopman, Hilda. 1983. ECP Effects in Main Clauses. *Linguistic Inquiry* 14: 346-350.

Koopman, Hilda. 1984. *The Syntax of Verbs*. Dordrecht: Foris.

Koopman, Hilda. 1996. The Spec-Head Configuration. In Ed Garrett and Felicia Lee (eds.), *Syntax at Sunset*, 37-64. (UCLA Working Papers in Syntax and Semantics 1)

Koopman, Hilda. 1999. Unifying Predicate Cleft Constructions. In Koopman 2000, 366-382. London and New York: Routledge.

Koopman, Hilda. 2000. *The Syntax of Specifiers and Heads*. London and New York: Routledge.

Koopman, Hilda and Anna Szabolcsi. 2000. *Verbal Complexes*. Cambridge, MA: MIT Press.

Kratzer, Angelika. 1995. Stage and Individual Level Predicates. In Greg N. Carlson and Francois J. Pelletier (eds.), *The Generic Book*, 125-175. Chicago: Chicago University Press.

Laka, Itziar. 1990. *Negation in Syntax: On the Nature of Functional Categories and Projections*. Ph.D. dissertation, MIT.

Landau, Idan. 2004. Chain Resolution in Hebrew V(P)-fronting. Ms. Ben Gurion University.

Larson, Richard. 1988. On the Double Object Construction. *Linguistic Inquiry* 19: 335-392.

Larson, Richard and Claire Lefebvre. 1991. Predicate Clefting in Haitian Creole. In Timothy Sherer (ed.), *Proceedings of the Twenty-first Annual Meeting of the North East Linguistic Society*, 247-262. GLSA.

Lasnik, Howard. 1981. Restricting the Theory of Transformations: A Case Study, 152-173. In Norbert Hornstein and David Lightfoot (eds.), *Explanation in Linguistics*. London: Longman.

Lasnik, Howard. 1995. Verbal Morphology: Syntactic Structure Meets the Minimalist Program. In Hector Campos and Paula Kempchinsky (eds.), *Evolution and Revolution in Linguistic Theory: Essays in Honor of Carlos Otero*, 251-275. Washington D.C.: Georgetown University Press.

Lasnik, Howard and Mamoru Saito. 1984. On the Nature of Proper Government. *Linguistic Inquiry* 15: 235-289.

Lee, Chungmin. 2002. Contrastive Topic and Proposition Structure. In Anne-Marie Di Sciullo (ed.), *Asymmetry in Grammar*, 345-371. Amsterdam, John Benjamins.

Lee, Jeong-Shik. 1995. A Study on Predicate Clefting. *Studies in Generative Grammar* 5: 531-584.

Lees, Robert and Edward S. Klima. 1963. Rules for English Pronominalization. *Language* 39: 17-28.

Lefebvre, Claire. 1990. On the Interpretation of Predicate Cleft. *The Linguistic Review* 6: 169-194.

Lefebvre, Claire. 1992a. Toward a Typology of Predicate Cleft Languages. *The Journal of West African Languages* 22: 53-61.

Lefebvre, Claire. 1992b. On the Availability of Predicate Cleft in Natural Languages: A Case Study from Fongbe. Université du Québec à Montréal, Rapport de Recherche 1991-1992. Project de Recherche sur *La Genèse du Créole Haitien: Un Cas Particulier d'Investigation sue la Forme de la Grammaire Universelle*.

Lefebre, Claire. 1994. On Spelling Out E. In *Travaux de Recherche sur le Créole Haitien*, 1-33. Département de Linguistique, Université de Québec à Montréal.

Lefebvre, Claire. 2002. *A Grammar of Fongbe*. Berlin: Mouton de Gruyter.

Lefebvre, Claire and Elizabeth Ritter. 1993. Two Types of Predicate Doubling Adverbs in Haitian Creole. In Francis Byrne and Donald Winford (eds.), *Focus and Grammatical Relations in Creole Languages*, 65-91. Amsterdam: John Benjamins.

Lidz, Jeffrey. 2001. Echo Reduplication in Kannada and the Theory of Word Formation. *The Linguistic Review* 18: 375-394.

Lumsden, John. 1990. The Biclausal Structure of Haitian Clefts. *Linguistics* 28: 741-759.

Lumsden, John S., and Claire Lefebvre. 1990a. Predicate Cleft Constructions and Why They Aren't What You Might Think. *Linguistics* 28: 761-782.

Lumsden, John S., and Claire Lefebvre. 1990b. That is Clefted that we have Clefted this Predicate. In John Hutchison and Victor Manfredi (eds.), *Current Issues in African Linguistics* 7. Dordrecht: Foris.

Madugu, Isaac S. George. 1981. The Nupe Verb and Diachrony. *Ibadan Journal of Humanistic Studies* 1: 74-97.

Madugu, Isaac S. George. 1982. The Na...Na Construction in Nupe. *Jolan: Journal of the Linguistic Association of Nigeria* 1, 35-45.

Madugu, Isaac S. George. 1983. Quantifiers and Negation in Nupe. *Jolan: Journal of the Linguistic Association of Nigeria* 2, 31-36.

Madugu, Isaac S. George. 1985. Complex Verbs in Nupe and Yoruba. *Studies in African Linguistics* 16.3: 295-321.

Madugu, Isaac S. George. 1986. The Nupe *á-* Construction Revisited. *Journal of West African Languages* 16.1: 99-112.

Maling, Joan and Annie Zaenen. 1978. The Non-Universality of a Surface Filter. *Linguistic Inquiry* 9: 475-497.

Manfredi, Victor. 1993. Verb Focus in the Typology of Kwa/Kru and Haitian. In Francis Byrne and Donald Winford (eds.), *Focus and Grammatical Relations in Creole Languages*, 3-51. Amsterdam: John Benjamins.

Manfredi, Victor and Yetunde Laniran. 1988. Extraction from Yoruba Serializations. Paper presented at the Second Niger-Congo Syntax and Semantics Workshop, MIT Lexicon Project.

Marantz, Alec. 1982. Re Reduplication. *Linguistic Inquiry* 13: 435-482.

Marantz, Alec. 1984. *On the Nature of Grammatical Relations*. Cambridge, MA: MIT Press.

Marantz, Alec. 1988. Clitics, Morphological Merger, and the Mapping to Phonological Structure. In Michael Hammond and Michael Noonan (eds.), *Theoretical Morphology*, 253-270. Ithaca: CLC Publications.

Marantz, Alec. 1994. A Late Note on Late Insertion. In Young-Sun Kim, Byung-Choon Lee, Kyoung-Jae Lee, Hyun-Kwon Yang, and Jong-Yurl Yoon (eds.), *Explorations in Generative Grammar*, 396-413. Seoul: Hankuk Publishing Company.

Marantz, Alec. 1996. 'Cat' as a Phrasal Idiom: Consequences of Late Insertion in Distributed Morphology. Ms. MIT.

Marantz, Alec. 1997. No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon. In Alexis Dimitriadis, Laura Siegen, Clarissa Surek-Clark, and Alexander Williams (eds.), *Proceedings of the Twenty-first Annual Penn Linguistics Colloquium. University of Pennsylvania Working Papers in Linguistics 4.2*, 201-225.

Martins, Ana Maria. 2004. Double Realization of Verbal Copies in European Portuguese Emphatic Affirmation. Paper presented at the Copy Theory of Movement on the PF Side workshop, Utrecht University. To appear in Jairo Nunes and Norbert Corver (eds.), *The Copy Theory of Movement on the PF Side*. Oxford: Blackwell Publishing.

Massam, Diane. 1990. Cognate Objects as Thematic Objects. *Canadian Journal of Linguistics* 35.2: 161-190.

May, Robert. 1985. *Logical Form*. Cambridge, MA: MIT Press.

Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.

Merchant, Jason. To appear. Variable Island Repair Under Ellipsis. In Kyle Johnson (ed.), *Topics in Ellipsis*. Cambridge: Cambridge University Press.

Moens, Marc. 1987. *Tense, Aspect, and Temporal Reference*. Ph.D. dissertation, University of Edinburgh.

Moravcsik, Edith. 1978. Reduplicative Constructions. In Joseph Greenberg (ed.), *Universals of Human Language, Volume 3, Word Structure*, 297-334. Stanford: Stanford University Press.

Mufwene, Salikoko S. 1987. An Issue on Predicate Clefting: Evidence from Atlantic Creoles and African Languages. In Philippe Maurer and Thomas Stolz (eds.), *Varia Creolica: Kreolische Miszellen*, 71-89. Bochum: Brockmeyer.

Ndayiragije, Juvénal. 1992. Structure Syntaxique des Clivées en Fòn. *Journal of West African Languages* 22: 63-95.

Ndayiragije, Juvénal. 1993. *Syntaxe et Sémantique du Clivage du Prédicat en Fongbe*. Ph. D. dissertation, Université de Québec à Montréal.

Nespor, Marina and Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.

Nishiyama, Kunio and Eun Cho. 1998. Predicate Cleft Constructions in Japanese and Korean: The Role of Dummy Verbs in TP/VP Preposing. *Japanese/Korean Linguistics* 7: 463-479.

Nkemnji, Michael. 1995. *Heavy Pied-Piping in Nweh*. Ph.D. dissertation, University of California, Los Angles.

No, Yongkyoon. 1988. Negative Morphemes in Korean: Evidence for a Derivational Treatment. In Eung-Jin Baek (ed.), *Papers from the Sixth International Conference on Korean Linguistics*, 556-567. Seoul: Hanshin Publishing Company.

Noyer, Rolf. 1997. *Features, Positions, and Affixes in Autonomous Morphological Structure*. New York: Garland.

Nunes, Jairo. 1995. *The Copy Theory of Movement and Linearization of Chains in the Minimalist Program*. Ph.D. dissertation, University of Maryland, College Park.

Nunes, Jairo. 1999. Linearization of Chains and Phonetic Realization of Chain Links. In Samuel David Epstein and Norbert Hornstein (eds.), *Working Minimalism*, 217-250. Cambridge, MA: MIT Press.

Nunes, Jairo. 2003. Head Movement, Remnant Movement and Phonetic Realization of Chains. In Anoop Mahajan (ed.), *Syntax at Sunset 3: Head Movement and Syntactic Theory*, 161-177. (UCLA/Potsdam Working Papers in Linguistics 10)

Nunes, Jairo. 2004. *Linearization of Chains and Sideward Movement*. Cambridge, MA: MIT Press.

Nunes, Jairo and Ronice Quadros. 2004. Phonetic Realization of Multiple Copies in American and Brazilian Sign Languages. Paper presented at the Theoretical Issues in Sign Language Research 8, Barcelona.

Nylander, Dudley K. 1985. A New Analysis of the Krio Cleft Predicate. *Studies in African Linguistics*, Supplement 9: 251-253.

Oyèláran, Olásopé O. 1982. On the Scope of the Serial Verb Construction in Yorùbá. *Studies in African Linguistics* 13: 109-146.

Parsons, Terrence. 1990. *Events in the Semantics of English.* Cambridge, MA: MIT Press.

Perlmutter, David. 1971. *Deep and Surface Structure Constraints in Syntax.* New York: Holt, Rinehart, and Winston.

Perlmutter, David. 1972. Evidence for Shadow Pronouns in French Relativization. In Paul Peranteau, Judith Levi, and Gloria Phares (eds.), *The Chicago Witch Hunt: Papers from the Relative Clause Festival.* Chicago: Chicago Linguistics Society.

Pesetsky, David. 1982. *Complementizer-trace* Phenomena and the Nominative Island Condition. *The Linguistic Review* 1: 297-343.

Pesetsky, David. 1997. Optimality Theory and Syntax: Movement and Pronunciation. In Diana Archangeli and D. Terrence Langendoen (eds.), *Optimality Theory: An Overview*, 134-170. Oxford: Blackwell Publishing.

Pesetsky, David. 1998. Some Optimality Principles of Sentence Pronunciation. In Pilar Barbosa, Danny Fox, Paul Hagstrom, Martha McGinnis, and David Pesetsky (eds.), *Is the Best Good Enough?*, 337-383. Cambridge: MIT Press and MITWPL.

Pesetsky, David and Esther Torrego. 2001. T-to-C Movement: Causes and Consequences. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 355-426. Cambridge, MA: MIT Press.

Piou, Nanie. 1982. Le Clivage du Prédicat. In Claire Lefebvre, Hélèn Magloire-Holly, and Nanie Piou (eds.), *Syntax de L'Haitien*, 122-151. Ann Arbor: Karoma Press.

Raimy, Eric. 2000. *The Phonology and Morphology of Reduplication.* Berlin: Mouton de Gruyter.

Reuland, Eric. 1983. Movement Versus Merger: Relations between Inflection and Verb. Paper presented at the 13th meeting of the Northeast Linguistics Society, Université du Québec à Montréal.

Richards, Norvin. 1997. *What Moves Where When in Which Language*? Ph.D. dissertation, MIT.

Richards, Norvin. 1999. Pied-piping and Islands: the *That-trace* Effect. *GLOW 40 Newsletter*: 44-45.

Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.

Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In Liliane Haegeman (ed.), *Elements of Grammar*, 281-338. Dordrecht: Kluwer.

Rizzi, Luigi. 2004. On the Form of Chains: Criterial Positions and ECP Effects. Ms. University of Siena.

Rizzi, Luigi and Ur Shlonsky. 2004. Strategies of Subject Extraction. Ms. University of Siena and L'Université de Genève.

Roussou, Anna. 2002. C, T, and the Subject: *That-t* Phenomena Revisited. *Lingua* 112: 13-52.

Roussou, Anna. 2006. Subjects on the Edge. Ms. University of Patras. Paper presented at the Edges in Syntax conference. Cyprus College.

Runner, Jeffrey. 1998. *Noun Phrase Licensing and Interpretation.* New York: Garland.

Schütze, Carson. 1994. Serbo-Croatian Second Position Clitic Placement and the Phonology-Syntax Interface. In Andrew Carnie, Heidi Harley, and Tony Bures (eds.), *Papers in Phonology and Morphology*, 373-473. MIT Working Papers in Linguistics 21. Cambridge, MA: MITWPL.

Sebba, Mark. 1987. *The Syntax of Serial Verbs*. Amsterdam: John Benjamins.

Seuren, Pieter A.M. 1993. The Question of Predicate Clefting in the Indiana Ocean Creoles. In Francis Byrne and Donald Winford (eds.), *Focus and Grammatical Relations in Creole Languages*, 53-64. Amsterdam: John Benjamins.

Smith, Neil V. 1967. *An Outline Grammar of Nupe*. London: Luzac.

Smith, Neil V. 1970. Repetition of the Verb in Nupe. *African Language Studies* 11: 319-339.

Sportiche, Dominique. 1983. *Structural Invariance and Symmetry in Syntax.* Ph.D. dissertation, MIT.

Stahlke, Herbert. 1970. Serial Verbs. *Studies in African Linguistics* 1: 60-99.

Steedman, Mark. 1994. Temporality. In Johan van Benthem and Alice ter Meulen (eds.), *Handbook of Logic and Language*. Amsterdam: Elsevier Science BV.

Stewart, Osamuyimen Thompson. 2001. *The Serial Verb Construction Parameter*. New York: Garland.

Stjepanovic, Sandra. 2003. A Word-Order Paradox Resolved by Copy Deletion at PF. *Linguistic Variation Yearbook* 3:139-177.

Stowell, Timothy. 1981. Origins of Phrase Structure. Ph.D. dissertation, MIT.

Szczegielniak, Adam. 1999. '*That-t* Effects' Crosslinguistically and Successive Cyclic Movement. In Karlos Arregi, Benjamin Bruening, Cornelia Krause, and Vivian Lin (eds.), *Papers on Morphology and Syntax, Cycle One*, 369-393. Cambridge, MA: MITWPL.

Taraldsen, Knut Tarald. 1986. *Som* and the Binding Theory. In Lars Hellan and Kirsti Koch Christensen (eds.), *Topics in Scandinavian Syntax*, 149-184. Dordrecht: Foris.

Travis, Lisa de Mena. 1984. *Parameters and Effects of Word Order Variation.* Ph.D. dissertation, MIT.

Travis, Lisa de Mena. 1991. Derived Objects, Inner Aspect, and the Structure of VP. Paper presented at NELS 22, Newark, DE.

Travis, Lisa de Mena. 2001. The Syntax of Reduplication. In Minjoo Kim and Uri Strauss (eds.), *Proceedings of the North East Linguistics Society Annual Meeting* (*NELS 31*), 455-469. Amherst: GLSA.

Tswanya, Sam Kolo. 1989. Gerundial Nominalization in Nupe. Masters thesis, University of Port Harcourt.

Tuller, Laurice Ann. 1986. *Bijective Relations in Universal Grammar and the Syntax of Hausa*. Ph.D. dissertation, University of California, Los Angeles.

Uriagereka, Juan. 1999. Multiple Spell-Out. In Samuel David Epstein and Norbert Hornstein (eds.), *Working Minimalism*, 251-282. Cambridge, MA: MIT Press.

Vergnaud, Jean Roger. 1974. *French Relative Clauses*. Ph.D. dissertation, MIT.

Vicente, Luis. 2005. Towards a Unified Theory of Movement: an Argument from Spanish Predicate Clefts. In Martin Salzmann and Luis Vicente (eds.), *Leiden Papers in Linguistics* 23, 43-67.

Wilder, Chris. 1995. Rightward Movement as Leftward Deletion. In Uli Lutz and Jürgen Pafel (eds.), *On Extraction and Extraposition in German*, 273-309. Amsterdam: John Benjamins.

Williams, Wayne R. 1977. The So-called Relativized and Cleft Predicates in Krio: One Step Closer to an Understanding of Creolization. In Paul F.A. Kotey and Haig Der-Houssikian (eds.), *Language and Linguistic Problems in Africa*, 467-478. Columbia, SC: Hornbeam Press.

Winford, Donald. 1993. *Predication in Caribbean English Creoles*. Creole Language Library 10. Amsterdam: John Benjamins.

Yim, Changguk. 2004. Remnant Movement and Echoed Verb Constructions in Korean. Ms. Cornell University.

Ziv, Yael. 1997. Infinitives Initially: Theme/Topic/Focus. In John H. Connolly, Roel M. Vismans, Christopher S. Butler, and Richard A. Gatward (eds.), *Discourse and Pragmatics in Functional Grammar*, 163-175. Berlin: Mouton de Gruyter.