

## **INFORMATION TO USERS**

**This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.**

**The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.**

**In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.**

**Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.**

**Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.**

# **U·M·I**

University Microfilms International  
A Bell & Howell Information Company  
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA  
313/761-4700 800/521-0600



**Order Number 8721790**

**The tonal grammar of Bari**

**Yokwe, Eluzai Moga, Ph.D.**

**University of Illinois at Urbana-Champaign, 1987**

**U·M·I**  
300 N. Zeeb Rd.  
Ann Arbor, MI 48106



**THE TONAL GRAMMAR OF BARI**

**BY**

**ELUZAI MOGA YOKWE**

**B.A., University of Khartoum, 1976**

**M.A., University of Khartoum, 1979**

**THESIS**

**Submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy in Linguistics  
in the Graduate College of the  
University of Illinois at Urbana-Champaign, 1987**

**Urbana, Illinois**

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

THE GRADUATE COLLEGE

MAY 1987

WE HEREBY RECOMMEND THAT THE THESIS BY

ELUZAI MOGA YOKWE

ENTITLED THE TONAL GRAMMAR OF BARI

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF DOCTOR OF PHILOSOPHY

Charles W. Kuseberth

Director of Thesis Research

Thomas C. ...

Head of Department

Committee on Final Examination†

Charles W. Kuseberth

Chairperson

Alan Chan Cheng

Michael G. ...

† Required for doctor's degree but not for master's.

**Dedication**

I dedicate this thesis to my late mother, Elisabeth Biniya Kundu, who passed away at the age of about 72 in Juba, my home town, on August 25, 1985 at a time when I was deeply involved in the writing of this thesis. She is the only person in my life who never saw any fault in me. To her I was always an angel. Oh! How she trusted me, even when I knew I was not the angel she thought! Deep inside me, I know that she inspired me always to do my best.

### Acknowledgements

Without any doubt in my mind, I am deeply indebted to the Department of Linguistics of the University of Illinois and all the faculty who patiently guided me and taught me linguistics. I want to take this opportunity to thank Professor Chin-Woo Kim for his encouraging words to me at a time when I seemed to be doubting my ability to continue studying linguistics. I also thank Professor Michael Kenstowicz, who at a certain point in time kindly organized an extra class hour for three of us who were lagging behind in his course on the theory of generative phonology. I thank Professor Eyamba Bokamba, who greatly boosted my moral by patiently encouraging me to improve a term paper that was later published in Studies in the Linguistic Sciences in 1984. I thank Jo Wilcock, the administrative assistant in the Department, who out of her own kindness found me a small study room when I badly needed it. In connection with the same matter (space to work in), I must thank Mr. Mwamba Kapanga, who gave me his table in the African Studies Center when I felt like spending longer hours and also needed wider space. To all my colleagues, I am deeply indebted to you for the excellent social and academic atmosphere you have helped maintain throughout my stay in Urbana-Champaign.

I reserve a special space to thank Professor Charles W. Kisseberth, my academic advisor, without whom this thesis would not have been produced in this final shape. From him I have learned how to figure out what constitutes a linguistic problem and how to analyze linguistic data in the most appropriate manner. He not only guided me throughout the thesis, but also spent his valuable time in reading, critiquing, and rearranging whatever I produced so



that the result would be a clearly organized and clearly expressed work. I am deeply indebted to him. Of course, I am responsible for all errors in this thesis.

My special thanks also go to the staff of the African Graduate Fellowship Program in New York who have provided me with financial support and visa sponsorship for the past five years of my stay at the University of Illinois. I also thank the government of the Democratic Republic of the Sudan for providing financial support for my family for the period that I was completing my Ph.D. studies.

I thank all who have contributed to the success of this thesis in one way or another. But above all, my special thanks go to my wife, Angela K. Moga, and our family, for their moral support.

## TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION.....	1
CHAPTER 2. THE TONAL STRUCTURE OF THE BARI VERB....	11
CHAPTER 3. NON-VERBAL TONOLOGY.....	122
CHAPTER 4. BARI NOUN PHRASE TONOLOGY.....	205
CHAPTER 5. VERB PHRASE TONOLOGY.....	380
REFERENCES.....	509
VITA.....	510

## CHAPTER 1

## INTRODUCTION

1.1. Goal of the thesis.

In this thesis we propose to provide a detailed and systematic description of the tonal system of Bari, examining not only the tonal shapes of lexical roots (nominal, verbal, adjectival, adverbial) and many of the grammatical morphemes (demonstratives, prepositions, verbal particles), but also examining the interaction between tone and word formation (particularly with reference to the complex verbal morphology and the rather rich set of number-marking affixes in the nominal system). In addition to detailing the tonal pronunciation of Bari words as they are pronounced in isolation, we will also study the tonal changes that most words in the language undergo in the process of forming phrases and sentences. Such phrasal changes are extremely pervasive in Bari and the greater part of the thesis is concerned with their description.

The following study is a very detailed one, examining as it does the tonal patterning of a wide range of morphological constructions as well as many syntactic sequences. The body of data amassed and discussed is extensive, given that we have aimed for both breadth and depth in our coverage of the tonal facts of the Bari language. Nevertheless, this study is certainly not exhaustive. There is doubtless much that has escaped our notice. We can only plead that there is no previous description of tone in Bari and little in the way of modern linguistic description of Bari grammatical structure, thus our understanding of Bari has had to evolve step by step. There was no previous collection of tonal data against

which we could check our results, or which could serve to direct our research in particular directions. Thus we may have erred in various ways -- e.g. we may have failed to recognize the existence of alternative pronunciations in certain cases or, in the cases where we have observed variation, what the precise role of such variations is in the language; we may have failed to notice corners of the grammar where there are interesting tonal phenomena that are not covered by our account; we may have been, in some cases, unable to see the pattern underlying the facts that we have uncovered. But such shortcomings are the inevitable burden of the linguist who attempts to work in a previously uncultivated field. We feel, however, that we have laid a foundation that will make the work of subsequent researchers much easier. A large body of data has been assembled, preliminary generalizations about these data have been made, and the initial steps in an analysis have been taken. Future researchers will not have as many excuses for their shortcomings as we have been able to invoke!

### 1.2. Previous linguistic research.

Bari is an Eastern Nilotic language spoken in the southern Sudan. Previous studies on the Bari language date back as early as the 1850's. Much of the published material on Bari is the work of Verona missionaries -- particularly Father Spagnolo, who published an extensive Bari Grammar (1933) and a substantial Bari-English-Italian Dictionary (1960). This missionary work was conducted along traditional lines, and the linguistic focus was largely on the morphological structure of the language. It was work that was largely uninfluenced by modern methods of linguistic description. The essential sounds of Bari were described, but there was little in the way of an attempt to state the principles governing the alternation of these

sounds in the course of word-formation. The tonal contrasts in the languages, the tonal changes that occur in connection with the complex morphology of the language, and the tonal sandhi that operates at the sentence level, all of these are largely ignored. In the entire 452 pages of Spagnolo's Bari Grammar, for example, the discussion of "intonation" is largely limited to a single paragraph:

Bari is a tone language, and in a phonetic transcription, every syllable should be tone-marked. In this work, however, only the diacritic for high tone ( ) is used, and that only for such cases as would otherwise lead to ambiguity.

e.g.

Tí po?! (Do come!) and Nye tí po. (He does not come)  
Nye a ko po. (He did not come) and Nye a kó po. (He does come).  
 (Spagnolo, 1933:9)

We have made constant use of Spagnolo's research in our own study of Bari tonology, not because he mentions tone but because he provides a good (if traditional) coverage of Bari morphological structures as well as a rich body of lexical data.

The first work on Bari based on modern linguistic principles was part of a survey of the non-Bantu languages of North-eastern Africa carried out by Tucker and Bryan (1966). Given the broad scope of their study, it is not surprising that the authors were unable to provide an in depth description or analysis of Bari. Tucker and Bryan recognize, of course, that Bari is a tone language, but are forced to acknowledge that the "rules for tonal change [in Bari] are not yet understood" and that "it has not been possible to tone-mark all the [Bari] examples." Tucker and Bryan recognize, for example, that although Bari verbs do not fall into two morphological classes (the way, for example, verbs in other Eastern Nilotic languages such as

Masaai do), there are two tonal "classes". They exemplify these two tonal classes by comparing the verb tók 'cut with an axe' with ying' 'listen' in the following examples:

T[one] C[lass]1. nân lo totók I cut (it) toké cut (it)!

T[one] C[lass]2. nân lo yíying' I hear (it) ying'ê listen  
(to it)!

(Tucker and Bryan, p. 449)

The tonal transcriptions provided above by Tucker and Bryan are quite accurate and the verbs cited do in fact represent two distinct tonal patterns. There is, however, no effort on Tucker and Bryan's part to analyze the precise nature of these tonal "classes" or to provide a theoretically-based analysis of the classes (the goals of Tucker and Bryan were obviously quite different). In Chapter 2 we will establish in detail what the tonal facts about these two tonal classes are and we will provide an analysis in terms of two distinct tonal "melodies" that operate in the Bari verbal system.

In not every case does the tonal-marking of Bari examples provided by Tucker and Bryan match our own, nor do we agree with Tucker and Bryan's recognition of a system of shifting "stress" in addition to tone. Given the preliminary nature of Tucker and Bryan's work on Bari in their 1966 publication, it is not necessary to provide a point by point commentary on the data they cite or the statements they make. We have not made any direct use of their work in the course of our examination of the Bari tonal system.

The next substantive modern work on the Bari language was the present writer's master's thesis (Yokwe, 1978). While this work provided a somewhat detailed examination of Bari phonology and morphology, only five pages (pp. 48-53) were allotted to the discussion of Bari tone. In

retrospect, it is clear that this discussion provides nothing more than a handful of examples to demonstrate that

Tone in Bari serves ... to distinguish lexical items from one another, to mark morphological categories, and to signal grammatical function.

(Yokwe, 1978)

As a matter of fact, much of the tone marking throughout the thesis is incorrect. While the author was preparing his M.A. thesis on Bari in Khartoum, he neither had any training in tonal analysis nor anyone with such training to assist him in his work. The result was a failure to provide a satisfactory tonal recording of Bari words, let alone an analysis. The present thesis not only serves to correct the mistaken transcriptions of that earlier work, but also seeks to go beyond a listing of the tonal shapes of a few individual lexical items to explore the functioning of tone throughout the Bari grammatical system.

### 1.3. Motivations for thesis research.

The reasons for devoting a thesis of considerable length to Bari tonology are several. First of all, Bari is one of the major Nilotic languages of the Sudan. These languages are currently receiving a good deal of attention as result of the educational policy of the Southern Sudan Regional Government which has laid emphasis on the re-introduction of the vernacular languages as the media of instruction in the early years of primary schooling. The successful implementation of this policy requires that the "vernacular" languages of the Sudan be identified, that preliminary research on these languages be conducted leading to the development of orthographies, teaching materials, etc. While Bari is one of the best studied languages of the Sudan, nothing substantial is known about its tonal system, and thus it has not been possible to even

address the issue of whether tone should be incorporated into a practical orthography. Our research in Bari tonology will provide a firm basis for discussion of this issue -- an issue that will be a persistent one, since the languages of the southern Sudan are tonal languages.

Secondly, the international academic community has become increasingly interested in the Nilotic languages in the past few years, and for the first time the tonal structure of these languages is coming under systematic exploration. As more and more languages are investigated tonally (not only in terms of their surface tonal shapes but in terms of their deeper tonal representations and their system of rules), we will be in a position to undertake comparative and diachronic studies of tone in the Nilotic languages. As we sketched above, up until this point Bari has not received anything but a cursory examination from the tonal point of view. The present thesis offers a detailed account of Bari tone that can serve as the basis for future comparative and diachronic studies of tone in the Nilotic languages.

Thirdly, in recent years there has been an explosion of studies on tonal systems -- particularly, the tonal systems of Africa -- due to the development of the autosegmental theory of phonology (cf. Goldsmith (1976) and many subsequent works building on this seminal thesis). This theory formed the basis for many insightful explorations of (particularly Bantu) tonal systems, and the complexities of the tonal systems being looked at have raised many questions concerning the formulation of that theory. The tonal complexity of Bari is rather different from the complexities of the Bantu tonal systems that have played such a major role in the evolution of autosegmental phonology, nevertheless we believe that our analysis of Bari reflects the insightfulness of many of the concepts of autosegmental phonology. For example, we will show that



Bari makes extensive use of tonal "melodies" -- i.e. the assignment of a tonal sequence to a lexical item or morphological structure independently of the number of syllables that make up that lexical item or morphological structure. At the same time, we show that there are phenomena in Bari -- particularly, the way that High tones at the end of one word affect a "sequence" of High tones at the beginning of a following word -- that are not yet resolved in a fully satisfying manner.

#### 1.4. Theoretical framework.

This thesis is extremely rich in the area of description (a not unimportant goal given that there is no previous description of the tonal facts of Bari). Description cannot be made in the absence of analysis, and analysis cannot be made in the absence of theory. We attempt to provide an analysis for the tonal facts presented (though at times we have been forced to simply list the facts) utilizing the autosegmental theory of phonology.

The theory of autosegmental phonology hypothesizes that the tonal structure of a word (or larger unit) is represented as a sequence of tones that exist on a "tier" that is independent of the tier that consists of the "tone-bearing units" (in Bari, the syllable). These two tiers are connected via "association lines", and this association is a (potentially) many-one relationship -- that is, a single tone may be associated to one or more tone-bearing unit, and a single tone-bearing unit may be associated to one or more tones. For example, we claim that in Bari certain verbal roots have a High tone in their underlying structure which is associated (in phonetic representation) with all the syllables that make up the word in which that root appears: e.g. 'búyút-á-kín 'sharpens for' represents a case where there is one High tone multiply-linked. We also

claim, that the Falling tone on the last syllable of the verb sápúk represents a case where two tones, a High and a Low, are both associated with the same syllable.

The tonal tier and the tier consisting of the tone-bearing units are independent not only in the sense that there association is one-many, many-one relationship, but also in the sense that the two tiers may be affected independently of one another. For example, we claim that in Bari resyllabification may occur without affecting the tonal shape of a word. Thus when a noun such as kídí 'well' (which has a H tone associated to its final syllable) combines with the plural suffix -â (which is Low-toned), the result is kídy-â. Notice that the final syllable of kídyâ has a Falling tone associated with it. We claim that even though the High-toned syllable dí and the Low-toned syllable â form a single syllable in kídy-â, the underlying tones are unaffected by this syllable merger (the H of dí and the L of -â now both being associated with the same syllable dyâ as a HL sequence; in other words, a Falling tone). Another example of the independence of the two tiers is provided by our claim that in certain word formation processes in Bari, the underlying tonal melody of the lexical root is replaced by a different tonal melody. This replacement of the lexical tonal melody by a different tonal melody involves no change whatsoever in the syllabic structure of the item.

It is the one-many, many-one relationship between the two tiers, and the ability of one tier to be altered without changing the other tier, that provides the basic hypotheses that we draw upon in this work. Other aspects of the autosegmental framework will be discussed at the point where we have occasion to make reference to them.

In certain areas, we have been able to provide analyses of the Bari tonal grammar that seem to us reasonably well-motivated and insightful. In other areas,

the success of the analysis is only partial -- that is, we believe that we have achieved a certain amount of insight, but there are aspects of the solution that we are not fully satisfied with. In yet other areas, no well-motivated solution has been arrived at, and we have been content to simply spell out in detail the nature of the tonal patterning observed and the nature of the intractability of the data. Nothing will be swept under the rug; we will simply lay out on the table the facts as we know them.

#### 1.5. Data sources.

The data described in this thesis are drawn (a) from our native speaker's knowledge of the Bari languages (in particular, all of the tonal facts reflect our speech) and (b) Father Spagnolo's Bari Grammar and Bari-English-Italian Dictionary mentioned above. The dialect described is that spoken around Juba town on both banks of the river Nile. Although the writer comes originally from the southern part of the Bari-speaking area, he has lived most of his life in Juba; as a consequence, his dialect is closer to the Juba dialect as recorded by Spagnolo than to the dialect of the southern Bari. There may, however, be some dialectal inconsistencies that have crept into our account of Bari tone.

At the present time we cannot speak in an authoritative way with respect to the extent or nature of any dialectal variation that may exist in Bari with respect to tone. We will have occasion in the chapter on nominal tonology to cite the existence of variation in the tonal shapes of certain (affixed) nominals, but we do not know whether these variations are dialectal in origin or not. The whole matter of tone and Bari dialectology will have to await future research.

### 1.6. Outline of thesis.

In Chapter 2, we provide an in-depth examination of the tonal facts pertaining to the complex verbal morphology of Bari. In particular, we look at the tonal shapes of verbal roots and then examine the behavior of these roots as they participate in the productive patterns of verbal derivation (e.g. the formation of "benefactive", "direction toward", "direction away", "instrumental", "causative/reciprocal", and reduplicated stems in both a "definite" and an "indefinite" form) as well as the formation of passive and imperative verbs.

Chapter 3 sketches the morphology of the noun, adjective, and adverb. It demonstrates the tonal shapes that nominal, adjectival, and adverbial roots have in isolation, and examines the tonal modifications that result (especially in the nominal number-marking system) from word-formation processes. The material in this chapter is -- of all the material in the thesis -- the least susceptible to analysis in terms of a system of rules.

In Chapter 4, we begin our examination of the phrasal tonology of Bari. This chapter deals with the noun phrase in great detail, both in terms of the changes that occur within the noun phrase and also in terms of the changes that the noun phrase undergoes in the sentence. In particular, we examine such noun phrase elements as demonstratives, possessives, adjectives, the so-called "associative" particles, prepositions, and relative markers.

Finally, in Chapter 5 we continue our examination of Bari phrasal tonology by examining the verbal word, both in terms of the changes it undergoes and the changes that it triggers. The phrasal tonology of the verb is considered particularly in terms of the interaction of the verb word with a variety of particles that precede it. This chapter also provides a survey of the tonal behavior of adverbs.

## CHAPTER 2

## THE TONAL STRUCTURE OF THE BARI VERB

2.0. The tonal shape of verb roots.

In a thorough examination of the Bari verbal roots contained in Spagnolo's dictionary, we found that monosyllabic roots are by far the most common type, that bisyllabic roots are fairly well represented, that trisyllabic roots occur only marginally, and that quadrisyllabic and longer roots do not seem to exist at all. While Spagnolo's dictionary doubtless does not provide an exhaustive account of the Bari lexicon, but it is substantial and the above observations do appear to be reflective of the facts. As we will see below, Bari does have a rich system of derivational morphology which makes it possible to productively derive trisyllabic and longer verb stems.

In the discussion that follows, our tonal observations concerning unreduplicated verbs will be based on what we refer to as the "isolation form" of the verb (though this term is perhaps somewhat misleading). It is this form that occurs, for example, after the past tense particle à. This isolation form is replaced (in some cases) by a tonally different form in certain contexts. We will refer to these forms as "context forms" (though admittedly this is a misleading term), and they are discussed in detail in Chapters 4 and 5.

Every monosyllabic verb root in the language is pronounced in its isolation form with a High tone (we are setting aside a handful of "defective" verbs which do not participate fully in the general morphological pattern of the language and have some special tonal properties). We will demonstrate below that these surface forms mask a

basic dichotomy in the tonal patterning of monosyllabic roots. For that reason we exemplify monosyllabic roots in (1) by organizing them into two types, even though the evidence for these two types is not apparent from the surface forms. These two types are labelled H and LHL for reasons that will become clearer later.

(1) (a.) H type

kí 'climb'  
 nín 'twist'  
 dér 'cook'  
 rém 'spear'  
 tók 'cut with an axe'  
 'dép 'to hold'  
 kúr 'to borrow'  
 kám 'to paddle'

(b.) LHL type

ng'í 'raise'  
 bó 'ignore, belittle'  
 mók 'catch'  
 dók 'to fetch'  
 kúr 'to dig'  
 'bók 'to unearth'  
 tór 'to tie'

Bisyllabic verb roots, on the other hand, exhibit two (and only two) tonal shapes. These shapes are shown in (2) and (3). We will again use the labels H and LHL to identify the two types.

(2) H type

'bóró 'smear'  
 'búyút 'whittle, sharpen'  
 nyá'dót 'stick to'  
 búdyén 'turn inside out'  
 lúsák 'melt'  
 wúlák 'till with a hoe'

(3) LHL type

kàbûr 'agitate'  
 sàpûk 'overturn'  
 dòdông' 'shake'  
 kàpôk 'slap'  
 nyâbûr 'grind flour'  
 yâki 'send s.b. to do s.t.'

Both syllables in the bisyllabic verbs in (2) are pronounced with a High tone. The bisyllabic verbs in (3), on the other hand, have a Low tone on the first syllable and a Falling tone on the second syllable.

As we noted above, monosyllabic and bisyllabic verb roots represent the norm in Bari. Non-derived trisyllabic roots do occur in Bari, but they are relatively infrequent. Those that do occur all exhibit the same tonal shape -- that which we are labelling LHL. (4) lists the examples known to us.

(4) LHL type

'dâlîlî 'float'  
 kùkù'dî 'tickle'  
 dilîlî 'winnow grain'

In the trisyllabic verb roots in (4) we find that the first syllable is Low-toned, the second is High-toned, and the last is Low-toned.

The data in (1)-(4) are representative of the tonal shapes of all regular, non-derived verbal roots in Bari. In a separate section we will examine the few items that do not fit clearly into the above account.

On the basis of (2)-(4), we propose that all Bari verbal roots can be considered to exhibit one of two tone shapes, independently of the number of tone-bearing units (syllables) in the root. One of these shapes consists of a High tone. The other shape consists of a sequence of tones: Low-High-Low. The verbs in (2) exhibit the H shape

(or "melody") while the verbs in (3) and (4) exhibit the LHL melody. One cannot predict which melody a verbal root will exhibit; this is a matter of the lexical representation of the root.

We propose to account for the data in (2)-(4) in terms of the theory of autosegmental phonology where morphemes may be specified on the tonal tier independently of the number of tone-bearing units in the morpheme. In this theory, the tones on the tonal tier are associated with the tone-bearing units by a combination of universal and language-specific association principles. Adopting the autosegmental framework, we would say that verbs like 'búyút have a single High tone on the tonal tier and that their segments are organized into two syllables. The High tone and the syllables are unassociated in underlying structure. Verbs like dòdông' and dílíli, on the other hand, have a Low-High-Low sequence on the tonal tier. Their segments are also organized into two syllables and three syllables respectively.

Following Pulleyblank (1983), we will make the following assumptions:

(a) The only Universal Tone Association Principle is one whereby free (i.e. unassociated) tones and free tone-bearing units are associated one-to-one, left-to-right.

(b) There is a universal well-formedness condition on phonological representations that bars the crossing of association lines.

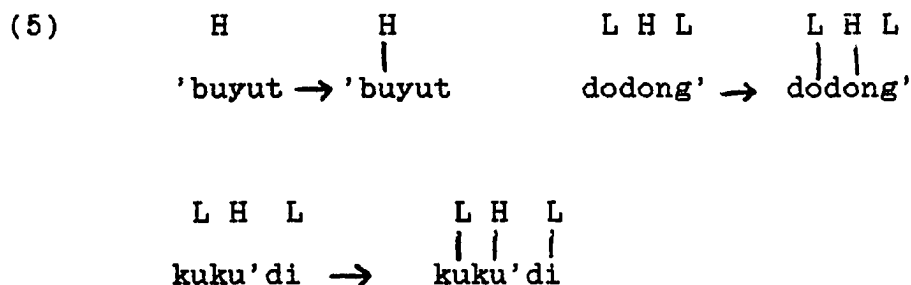
(c) There is no well-formedness condition requiring every tone to be associated to a tone-bearing unit.

(d) There is no well-formedness condition requiring every tone-bearing unit to associate to a tone.

The Universal Tone Association Principle will constitute the first step in the association of the tonal



melodies to the syllables that make up a Bari root (as shown in (5)):



This Universal Tone Association Principle will achieve the correct phonetic shapes for the items in (4), since it will correctly associate the three tones of the LHL melody with the appropriate syllables in the trisyllabic root (cf. kùkù'dì in (5)).

In order to achieve the correct phonetic output for the examples in (2) and (3), we will need two additional language-particular rules for Bari. The first rule is:

(6) Free Syllable Association

A free syllable must associate to a tone.

Free Syllable Association follows the Universal Tone Association Principle and will correctly complete the association process in the case of 'búyút:



It should be noted that in Goldsmith's original presentation of the autosegmental framework, he proposed certain universal well-formedness conditions on phonological representations. These universal conditions had the effect of forcing the addition of association lines

in order to bring a representation into compliance with the conditions. One of his proposed conditions was that every tone-bearing unit must be associated with a tone. This condition would have the same effect as (6) above, forcing the free syllable of 'búvút to associate with the High tone. We have followed Pulleyblank (1983) in rejecting the proposal that there is a universal principle that requires a free tone-bearing unit to associate. We do not claim, however, that Bari provides crucial evidence against Goldsmith's original proposal.

On the basis of the data so far considered there is no reason to include in (6) a statement as to which tone the free syllable associates. In (7), there is only one possible tone for the free syllable to associate to. As the data examined expands, we will have to consider whether (6) must be modified so as to pick out a tone for the free syllable to associate to.

The second language-specific association rule that we will need is:

(8) Free Tone Association

A free tone must associate to a tone-bearing unit.

Free Tone Association also follows the Universal Tone Association Principle and will correctly complete the association process in the case of dòdông':

(9)    L H L        L H L  
          | |        | |  
       dodông' → dodông'

(The free Low tone must associate to the second syllable of the verb root in (9); it cannot associate to the first syllable without crossing an association line, which is barred by a universal well-formedness condition.)

Again, in Goldsmith's original presentation of autosegmental phonology, he proposed that there is a universal well-formedness condition that requires that every tone must be associated to a tone-bearing unit. This universal well-formedness condition would achieve the same results as the language-particular rule we are proposing for Bari in (8). As we proceed in the analysis, we will show that (8) must be modified in such a way that is incompatible with the universal well-formedness condition suggested by Goldsmith. Consequently, Bari does provide some support for Pulleyblank's rejection of the universal well-formedness condition requiring that every tone associate to some vowel.

We have now shown how the data in (2)-(4) will be accounted for under the assumption that they involve cases where there are two different tonal melodies available for a given verb root. What is the evidence, however, that the verbal forms in (2)-(4) reflect two tonal melodies? One argument is simply that all bisyllabic verb roots fall into one or the other of these two types; they are the only types possible. If the tonal structure of Bari verbal roots were non-melodic, and if the language were regarded as having two possible tones (High and Low), we would expect that a bisyllabic root could have the tone patterns HH, HL, LH, LL. In fact, as we will see in Chapter 3, Bari noun roots do exhibit all of these tonal sequences (as well as two other sequences: High-Fall, Low-Fall). The fact that bisyllabic verbal roots have only two possible tonal shapes, rather than the six shapes that bisyllabic nominal roots can have, suggests that verbal roots may have melodic tone.

There is even stronger evidence, however. Consider the pronunciation of the benefactive form of the verbs in (2)-(4). The benefactive construction involves the addition of a linking vowel /A/ (after consonant-final roots) plus

the benefactive suffix /kIn/. (Capital letters in our representations represent a vowel that is either [+ATR] or [-ATR] in accordance with the vowel harmony principles of the language. We transcribe the set of [+ATR] vowels with the symbols /i, e, a, o, u/ in boldface, while the [-ATR] vowels are transcribed by the same letters unbolded.)

(10) H roots

'búyút-á-kin 'to sharpen for'  
 'bóró-kin 'to smear for'  
 nyá'dút-ú-kin 'to stick for'

LHL roots

kábúr-à-kin 'to agitate for'  
 sàpúk-à-kin 'to overturn for'  
 dòdóng'-à-kin 'to shake for'

dílílì-kin 'to winnow grain for'  
 'dàlílì-kin 'to float for'  
 kùkù'dì-kin 'to tickle for'

Notice that the linking vowel and the benefactive suffix are realized as High when they follow a High root such as 'búyút but as Low when they follow a LHL root such as dòdóng' or dílílì. (Notice also that dòdóng' ceases to have a Falling tone on its second syllable when the benefactive suffix is added.) It would be possible to postulate that the linking vowel and the benefactive suffix have an underlying tonal shape and that this shape changes (by some rule) depending on the tonal shape of the preceding verb root. But if we accept the view that verbal roots have one of two tonal melodies, then the benefactive forms in (10) can be predicted simply by assuming that (a) the linking vowel and the benefactive suffix have no tonal specification on the tonal tier and (b) the domain of the association principles is the word, not the root. (11) illustrates how the forms 'búyút-á-kin, dòdóng'-à-kin and kùkù'dì-kin will be derived.

(11)	H	L H L	
	'buyut-a-kin	dodong'-a-kin	
	H	L H L	
	'buyut-a-kin	dodong'-a-kin	Universal Tone Assoc. Principle
	H	L H L	
	'buyut-a-kin	dodong'-a-kin	Free Syllable Association
	inapplicable	inapplicable	Free Tone Association

	L H L	
	kuku'di-kin	underlying representation
	L H L	
	kuku'di-kin	Universal Tone Assoc. Principle
	L H L	
	kuku'di-kin	Free Syllable Association
	inapplicable	Free Tone Association

As we noted earlier, monosyllabic roots are by far the most frequent type of verbal root in Bari. If we can demonstrate that they too exhibit two tonal types, we will have lent considerable support to the preceding analysis of Bari. As we have pointed out, Bari monosyllabic verb roots are all realized with a High tone phonetically. Nevertheless, monosyllabic roots can still be shown to be specified for one of two tonal melodies: H or LHL. The behavior of monosyllabic roots in the benefactive construction clearly brings out the dual classification of Bari monosyllabic verbal roots.

The roots in (12) are High in their isolation form, and the benefactive form derived from them also manifests

the High melody.

(12)	'dép	'to hold'	'dép-á-kin
	tók	'to cut with an axe'	túk-ú-kin
	kūr	'to borrow'	kūr-á-kin
	rém	'to spear'	rím-í-kin
	kám	'to paddle'	kám-á-kin

The roots in (13), on the other hand, are High when pronounced in isolation, but the benefactive form derived from them displays the LHL melody.

(13)	mók	'to catch'	mòk-á-kin
	dók	'to fetch'	dòk-á-kin
	kúr	'to dig'	kūr-ú-kin
	'bók	'to unearth'	'bòk-á-kin
	tór	'to tie'	tòr-á-kin

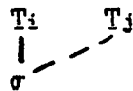
We propose that the monosyllabic roots in (12) are specified on the tonal tier with the H melody, whereas the monosyllabic roots in (13) are specified with the LHL melody. When these roots occur in the benefactive construction, these melodies are correctly associated with the derived verbs by the principles already formulated.

(14)	H	L H L	
	'dep-a-kin	mok-a-kin	
	H	L H L	
	'dep-a-kin	mok-a-kin	Univ. Tone Assoc. Prin.
	H		
	/ \		
	'dep-a-kin	inapplic.	Free Syllable Association
	inapplic.	inapplic.	Free Tone Association

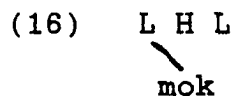
The tonological system of Bari must, however, be set up in such a way that when a LHL melody tries to associate to a monosyllabic form, only the H part of the melody is realized on that monosyllabic form. One possible way to achieve this result is sketched below.

The association principles that we have so far discussed predict that all three tones of the LHL melody will associate to the monosyllabic root, producing a Rising-Falling sequence. What we propose to do is to state the Free Tone Association rule so that it does not in fact make this incorrect prediction. We will reformulate Free Tone Association so that a free tone associates to the bound tone-bearing unit to its left, with the stipulation that this rule does not apply iteratively. (15) is our formulation of the rule:

(15) Free Tone Association (revised)



Given a representation such as that in (16),



where the initial L of the melody has associated with the first (and only) syllable of the word by the Universal Tone Association Principle, rule (15) will associate the High of the melody to the same syllable that the L is associated to. Because (15) is not iterative, the third tone of the melody will remain unassociated (since it does not satisfy the structural description of (15) until after (15) applies to the H of the melody).

The result of applying (15) to (16) is the representation shown in (17):

(17) L H L  
 √  
 mok

(17) predicts that mók will be pronounced with a Rising tone on the root. (The unassociated Low following the root will have no overt phonetic manifestation.) Since Bari has no surface Rising tones, it would be possible to invoke a rule of Rising Tone Simplification to disassociate the L part of a LH sequence associated with a single syllable. This rule is stated in (18):

(18) Rising Tone Simplification

L H      L H  
 √      √  
 σ      σ

This rule, if applied after Free Tone Association, will correctly complete the derivation of mók:

(19) LH L      LHL  
 √            |  
 mok        mok

We have now shown how our tone association principles, together with a rule of Rising Tone Simplification, could have the effect that a monosyllabic root with a LHL melody will manifest only the High part of this melody (when the monosyllabic root appears in isolation). There is one important point, however, that needs to be made, even though it is not possible for us to demonstrate its correctness here. There are phrasal tone rules in Bari whose operation depends upon whether a given tone (High or Low) is immediately next to a High tone. The monosyllabic verb roots in (15) behave, phrasally, just like the H monosyllabic verb roots in (14). In other words, these



roots do not behave as though they still have a Low tone before and after their High tone. This suggests that we must assume that, after the tone association principles and the rule of Rising Tone Association operate, any unassociated tones are deleted from the phonological representation. This point will be examined in detail later.

Up until this point, we have only given two arguments that the monosyllabic roots exhibit two distinct tonal melodies -- namely, the argument based on the fact that there are only two tonal patterns for bisyllabic verb roots (not six, as is the case with bisyllabic noun roots) and the argument based on the pronunciation of the benefactive forms in (12) and (13). As we examine the entire range of derived verb stems in Bari, we will see that other constructions also support this same conclusion that Bari verbs have two tonal melodies.

At this point, let us make some general comments on the analysis of Bari verbal tonology that has evolved so far. First, it seems uncontroversial to say that Bari verb belong to one of two classes. We have suggested that these two classes are to be represented in terms of two tonal melodies: H and LHL. The account of how the tones in these melodies are associated with the syllables that make up a verb root (or a benefactive verb stem) appears straightforward, with the exception of the monosyllabic LHL roots. The analysis we propose for these items is perhaps not entirely obvious, but it does not involve any particularly far-fetched moves.

There is, however, one fairly problematic aspect to the entire analysis. If a language were to employ two tonal melodies, why would one of them be a LHL melody and the other a H melody? Why so complex a structure as LHL?

We suggest, then, that another line of study would be to see whether the LHL pattern can be explained without

postulating three tones in the underlying representation of the verbs in (3) and (4). We hope to explore this line of study at a later time. We hope that the detailed and comprehensive study of Bari tonology presented in this thesis will permit many hypotheses to be formulated, tested, and then either accepted or rejected.

### 2.1. The benefactive suffix.

We noted in 2.0. that Bari has a number of derivational suffixes that can be productively appended to the verb root. One such suffix is the benefactive. In 2.0. we argued that the segmental form of the benefactive suffix is /kɪn/, where -kin/-kin (the choice of these two shapes being determined by the system of vowel harmony operative in the language). This suffix is appended directly to the root when the root ends in a vowel:

#### (20) H type verb root

'bóró-kin (from: bóró 'smear')  
 búú-kin (from: búú 'reach the peak of')  
 búú-kin (from: búú 'hasten')  
 kí-kin (from: kí 'climb')  
 ló-kin (from: ló 'spread in the sun to dry')  
 'bó-kin (from: 'bó 'weed')  
 'bí-kin (from 'bí 'suck')

#### LHL type verb root

tókú-kin (from: tókú 'preach')  
 yàkí-kin (from: yàkí 'send s.b. to do s.t.')  
 kùkú'dì-kin (from: kùkú'dì 'tickle')  
 dilíli-kin (from: dilíli 'winnow grain')  
 mò-kin (from: mó 'smell')  
 ng'ì-kin (from: ng'í 'raise')

but is joined to a consonant-final root by a vowel. This vowel is typically /A/, as shown in (21):

(21) H verb root type

dér-á-kin (from: dér 'cook')  
 dóm-á-kin (from: dóm 'stalk')  
 lák-á-kin (from: lák 'untie')  
 bérény-á-kin (from: bérény 'spoil')  
 bídíng'-á-kin (from: bídíng' 'twist')  
 dúyám-á-kin (from: dúyám 'cause to collapse')

LHL verb root type

bál-á-kin (from: bá? 'reprimand')  
 sùt-á-kin (from: sùt 'bet')  
 dwány-á-kin (from: dwán 'undo')  
 tèbók-à-kin (from: tèbók 'fold up')  
 lìlìng'-à-kin (from: lìlìng' 'smoothen')  
 kàdíř-à-kin (from: kàdíř 'look at carefully')

There are certain phonological rules that affect the low vowel that serves as a link between the root and the benefactive suffix /kIn/. There is, for example, a rule that raises low [+ATR] suffixal vowels in Bari to the mid [+ATR] vowel /o/ after mid [+ATR] root vowels. This rule can be seen in the following nominal data where /An/ is a pluralizing suffix.

(21a)	gògòk 'Grant's zebra'	gògòk-án (pl.)
	pírít 'place'	pírít-án (pl.)
	bíbì? 'kind of basket'	bíbìl-án (pl.)
	téng' 'herd'	téng-òn (pl.)
	kóng' 'eyebrow'	kóng'-òn (pl.)

A second rule raises mid [+ATR] vowels in roots (and suffixes) to high [+ATR] vowels before certain suffixes containing a high vowel. The operation of this rule can be seen in the data in (21b) involving the "direction toward" suffix /Un/ (see below for an analysis of the direction toward form of the verb):

(21b)	mók 'catch'	mòk-ún (dir. toward)
	dér 'cook'	dér-ún
	gá? 'look for'	gál-ún
	rém 'spear'	rím-ún
	dók 'wrap'	dúk-ún

A third rule seems to be at work which fronts a high [+ATR] vowel located between two front [+ATR] high vowels. Evidence for such a rule can be found in (21c):

(21c)	tèrò 'mat'	
	tírí-kí? 'mats'	
	kirw-â 'baboon' (from: /kirú-à/)	
	kírí-tí 'a single baboon'	
	vs.	
	wótórót 'beehive' wútú-rú-kí? (pl.)	
	kólórò 'soldier ants' kúlú-rù-tí (sg.)	

The low vowel that links the benefactive suffix to a verb root is subject to alternation as a result of the above principles. When the linking vowel is preceded by a [+ATR] mid vowel, we would expect it to be raised to /o/. But since this /o/ will stand before the suffix /kɪn/, which has a high vowel, the /o/ changes to /u/. Not only does the linking vowel change but also any preceding mid [+ATR] vowel in the root will change to a high vowel as well. If the /u/ form of the linking vowel now stands between two front vowels, it will change to a front vowel.

The results of the application of these processes are seen in (22), where the linking vowel sometimes has the form /u/ and sometimes the form /i/ in addition to its usual shapes /a/ and /ə/. We have organized the data in (22) into two sets: the first set shows the shape of the linking vowel after [+ATR] vowels and the second set shows the shape of the linking vowel after [-ATR] vowels. Within each set all the possible vowels are illustrated.

(22) [+ATR] verb roots

són 'send away'	súny-ú-kin
'dók 'carry'	'dúk-ú-kin
tók 'cut with an axe'	túk-ú-kin
rém 'spear'	rím-í-kin
dé? 'bend'	díl-í-kin
dók 'wrap'	dúk-ú-kin
kúr 'borrow'	kúr-á-kin
sút 'bet'	sút-á-kin
liling' 'smoothen'	liling'-à-kin
tòpir 'make fat'	tòpir-à-kin
lúsák 'melt'	lúsák-á-kin
tùlyáng' 'frighten'	tùlyáng'-à-kin

[-ATR] verb roots

mók 'catch'	mòk-á-kin
dér 'cook'	dér-á-kin
tún 'gather'	tún-á-kin
díp 'support'	díp-á-kin
gá? 'look for'	gál-á-kin

Examination of these data show that the low linking vowel remains low after verb roots that end in a high or a low vowel (regardless of the specification that these vowels bear with respect to the feature [ATR]). Thus we have kúr-á-kin as well as tún-á-kin, liling'-à-kin as well as díp-á-kin, and lúsák-á-kin as well as gál-á-kin. If, on the other hand, the root has an underlying mid [+ATR] vowel then the linking vowel will undergo a raising. This is due to the fact that a low suffixal vowel is raised to mid when preceded by a mid [-ATR] vowel. In other words, given an underlying form like /tók-á-kin/, the low vowel will be raised to mid, yielding /tók-ó-kin/. Now the rule that raises mid [+ATR] vowels to high in front of a high vowel will operate, raising both the root vowel (which is underlyingly mid) and the linking vowel (which is

underlyingly low, but has been raised to mid) to high. The result is túk-ú-kin. In the case of underlying /rém-á-kin/, the raising of the low vowel suffix will yield /rém-ó-kin/, and then the raising of mid vowels will produce /rím-ú-kin/. But then the fronting of /u/ to /i/ between two front vowels will derive the form rím-i-kin.

We have now accounted for all the phonologically predictable variations of the low linking vowel. There are a number of roots which idiosyncratically govern a high vowel /U/ as their linking vowel. Some examples are given in (23).

- (23) kùr-ú-kin (from: kúr 'dig')  
 'bárin-ú-kin (from: 'bárin 'shave')  
 gir-ú-kin (from: gir 'tattoo')  
 rúk-ú-kin (from: rúk 'dress')  
 pút-ú-kin (from: pút 'hand over')  
 'yút-ú-kin (from: 'yút 'plant')  
 yúk-ú-kin (from: yúk 'herd cattle')

All of the stems that have this property have a high [-ATR] vowel as their last vowel. (It is not the case, however, that high [-ATR] vowels regularly trigger the appearance of u as the linking vowel.) This group of lexically marked verb roots are of some importance in sorting out certain aspects of the morphological structure of Bari verbs.

Let us now turn to the tonal structure of these two morphological elements -- i.e. the linking vowel and the benefactive suffix? In the preceding section we suggested that they should be regarded as toneless. By "toneless" we mean simply that they have no inherent specification for tone. The motivation for this analysis is straightforward. First, these morphological elements do not reveal any invariant tonal shape that persists independently of the context in which they appear. Second, the variable tone shape that they manifest can in every case be regarded as an extension of the tonal melody of the root that

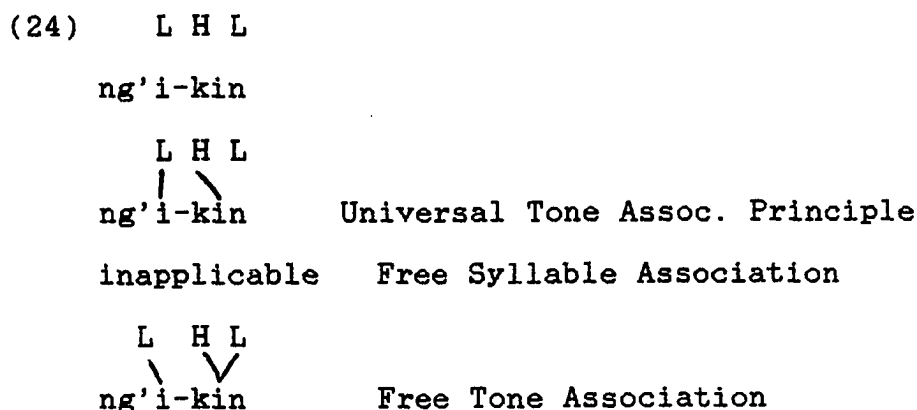
precedes. Consequently, the tonal patterning of these morphological elements is predictable and requires no underlying specification.

The linking vowel and the benefactive suffix vowel both appear High-toned when they are attached to verb roots with a H melody -- cf. búyút-á-kin and numerous other examples in the preceding data. The linking vowel appears High-toned while the benefactive suffix vowel appears Low-toned in benefactive forms based on monosyllabic, consonant-final LHL roots -- cf. mòk-á-kin and numerous other examples above. Both the linking vowel and the benefactive suffix vowel appear Low-toned when they are appended to a polysyllabic, consonant-final LHL root -- cf. sápúk-à-kin. The benefactive suffix vowel appears High-toned in cases where it is appended directly to a monosyllabic, vowel-final LHL root -- cf. ng'i-kin. Clearly, these variations in the pronunciation of the linking vowel and the benefactive suffix vowel establish that there is no obvious tonal shape invariantly attached to either of these suffixal vowels. Their tonal shape varies according to the context. If we can show that these various shapes can be derived directly from the tonal melody of the root, without assuming any tones associated with the suffixes, then we will have a convincing argument that these suffixes are toneless.

In section 2.0. we used the benefactive construction to support the analysis of verbal roots in terms of two tone melodies. In that discussion we showed how the various tonal shapes of the linking vowel and the benefactive suffix vowel can be accounted for in terms of the root tonal melody. There is no need to repeat this demonstration in detail here. Suffice it to say that (a) in búyút-á-kin the two suffixes get their High tones from the root H by means of the Free Syllable Association rule; (b) in mòk-á-kin, the linking vowel gets its High tone and the

benefactive suffix vowel gets its Low tone via the Universal Tone Association Principle; and (c) in sápúk-à-kin the linking vowel gets its Low via the Universal Tone Association Principle and the benefactive suffix vowel gets its Low through the Free Syllable Association rule.

There is, however, one class of benefactive items that is not properly accounted for by our analysis -- ng'i-kin. The pronunciation that we predict is \*ng'i-kîn. This is shown in (24):



We can summarize the problem as follows. Free Tone Association only associates a free tone to a syllable whose nucleus is in the root, not to a syllable whose nucleus is in a suffix. Thus we get sápúk but not \*ng'i-kîn. We will assume that this morphological restriction must be built into the Free Tone Association rule. Given that assumption, then in (24) the free Low tone will be blocked from associating to the word (and subsequently will be deleted -- we will show later that words like ng'i-kin behave in the phrasal tonology as though they end in a H with no unassociated L following them).

## 2.2. The indefinite verb.

In this section we will examine the tonology of the "indefinite" form of the verb. We will not attempt to deal



here with the syntax or semantics of this particular verb form, but rather to explore its segmental and tonal shape.

Examination of the indefinite verb form shows immediately that it typically involves the appearance of either a low vowel /A/ or a high vowel /U/ at the end. This final vowel alternates, of course, according to the vowel harmony principle, appearing as [-ATR] /a/ or /u/ after [-ATR] roots and as [+ATR] /a/ or /u/ after [+ATR] roots.

The low vowel form of the indefinite appears regularly after roots ending in a [-ATR] mid vowel, as shown in (25):

- (25) mòjà (from: mó 'smell')  
 dòdóngà (from: dòdông' 'shake')  
 'bò'yà (from: 'bó? 'caress')  
 sòjà (from: só 'boil')  
 dérjà (from: dér 'cook')  
 déngà (from: déng' 'cut open')  
 gèjà (from: gé 'cut into strips')  
 séddyà (from: sét 'winnow grain')

The vowel at the end of the indefinite, however, is regularly raised to a high vowel when it is preceded by a mid [+ATR] vowel.

- (26) 'dóggù (from: 'dók 'carry')  
 sòndù (from: sòn 'send away')  
 tóggù (from: tók 'cut with an axe')  
 'bó'yù (from: bó? 'touch')  
 rémbù (from: rém 'spear')  
 dé'yù (from: dé? 'bend')  
 mé'yù (from: mé? 'lick')  
 pé'yù (from: pé? 'roast')

Verb roots that end in a low vowel regularly trigger the high vowel form of the indefinite:

- (27) gá'yù (from: gá? 'look for')  
 'dàngù (from: 'dáng' 'lick')  
 lággù (from: lák 'untie')  
 jilàngù (from: jilâng' 'elongate')

'yá'yù (from: 'yá? 'visit')  
wúlággù (from: wúlák 'till with a hoe')  
búrággù (from: búrák 'cause confusion')  
tùnággù (from: túnák 'suckle')

If the root ends in a high [+ATR] vowel, the final vowel of the indefinite is regularly low:

- (28) kúrjâ (from: kúr 'borrow')  
nyábúrjâ (from: nyábûr 'grind flour')  
kúddyâ (from: kút 'dig up, out')  
júrjâ (from: júr 'wade')
- dirjâ (from: dir 'carry by two people')  
yâlingâ (from: yâling' 'perform carefully and slowly')
- miggâ (from: mik 'pull, stretch')  
kibbâ (from: kíp 'beat')

If the root ends in a high [-ATR] vowel, the final vowel of the indefinite generally appears as the low vowel.

- (29) díbbâ (from: díp 'support')  
dirjâ (from: dir 'watch')  
píggâ (from: pík 'conceive')  
nindyâ (from: nín 'twist')
- wúddyâ (from: wút 'transfer')  
sùrjâ (from: sùr 'pulverize')  
túndyâ (from: tún 'gather')  
'diyúggâ (from: 'diyûk 'make a click of disgust')

There are however a goodly number of roots (especially roots with the back vowel /u/) that must be lexically marked as governing the appearance of the high vowel in the indefinite form. Some examples are given in (30).

- (30) kùrjû (from: kúr 'dig')  
tòjùbbù (from: tòjûp 'dress')  
'yùddû (from: 'yút 'plant')  
wùrjû (from: wúr 'court, woo')

kindû (from: kin 'shut, close')  
 'báríndû (from: b́arín 'shave')  
 'bí'yù (from: 'bí? 'tilt, raise one end of')  
 girjû (from: gir 'tattoo')  
 tijû (from: tí 'look after')

Recall that the benefactive suffix is generally linked to a consonant-final root by a linking vowel /A/. At first glance one might think that the linking vowel of the benefactive construction and the final vowel of the indefinite are unrelated morphological entities. While the final vowel of the indefinite is often /A/ just like the benefactive, there are phonologically defined situations in which the indefinite vowel is /U/ -- e.g. after roots ending in low vowels and after roots ending in mid [+ATR] vowels. The linking vowel of the benefactive remains /A/ in these same environments. Nevertheless, there is evidence that the final vowel of the indefinite is morphologically related to the linking vowel of the benefactive construction. Recall that there are some roots ending in a [-ATR] high vowel that idiosyncratically govern the /U/ variant of the linking vowel. These same roots also take the /U/ variant of the final vowel in the indefinite form. Thus we have kúr 'dig', kúr-ú-kin (benefactive), kúr-j-û (indefinite); 'b́arín 'shave', b́arín-ú-kin (benefactive), b́arín-d-û (indefinite). If these vowels are in fact morphologically the same vowel, then we need only mark such roots once for taking the /U/ variant.

We have so far confined our attention to the vowel at the end of the indefinite form. But there are other aspects of the segmental shape of this construction that must be explored. In order to explore the remaining segmental aspects of Bari indefinite formation, we must begin by examining certain limitations on the consonants that may appear at the end of a Bari root (when that root is word-finally). The only consonants that are allowed to appear in

this position are listed below in (31):

- (31) voiceless stops: p, t, k  
 nasal stops: m, n, ng'  
 r  
 ? (glottal stop)

It should be pointed out that the consonant that appears at the end of a root in word-final position does not necessarily represent the underlying structure of the root. Below we list those consonants that may be the surface realization of some different underlying consonant.

A root-final (word-final) t may represent either an underlying t or an underlying s that changes to t in syllable-final position:

- (32) pét 'put in order' cf. pétâ (passive form)  
 git 'tear with the teeth' cf. gitâ  
 'bát 'skin off' cf. bâtâ  
 tút 'cause to protrude' cf. tús-â (passive form)  
 wít 'sling' cf. wisâ  
 lát 'lengthen' cf. làsâ

Similarly, a root-final (word-final) n may represent either an underlying n or an underlying ny that changes to n in syllable-final position.

- (33) mán 'hate' cf. mánâ (passive form)  
 tún 'gather' túnâ  
 yún 'heap up' yúnâ  
 mún 'catch by surprise' cf. múnyâ (passive form)  
 tán 'touch' tányâ  
 wén 'scatter' wènyâ

A root-final (word-final) m may represent either an underlying m or an underlying b that has changed to m in syllable-final position:

- (34) tùm 'surround' cf. tùmâ (passive form)  
 yám 'strike, beat' yàmâ  
 râm 'knock down' râmâ  
 gúm 'throw s.t. at' cf. gúbâ (passive form)

A root-final ʔ generally represents an underlying ɭ:

- (35) wéʔ 'rub with oil' cf. wèlâ (passive form)  
 wíʔ 'curse' wílâ  
 yóʔ 'sing' yólô

But ʔ can also derive from an underlying d:

- (36) rúʔ 'press down' cf. rúdâ (passive form)  
 lèlêʔ 'cause nausea' lèlédâ  
 róʔ 'scratch' ródâ  
 lóʔ 'cause vomiting' lódâ

Let us now examine how the various consonant-final verb roots are affected by the suffixation of the indefinite marker. If a stem ends in a voiceless stop in the definite form, it will reveal a voiced, geminate stop in the indefinite. This is shown in (37) below.

(37) labial stop: p

díbbâ (from: díp 'support')  
 tòjúbbù (from: tòjúp 'dress')  
 'débbâ (from: 'dép 'hold')  
 nábbù (from náp 'put aside')  
 yúbbâ (from yúp 'believe')

alveolar stop: t

sùddyâ (from: sút 'bet')  
 péddyâ (from: pét 'put in order')  
 géddyâ (from: gét 'scratch')  
 kàrúddyâ (from: kârût 'exchange')  
 lèúddyâ (from: lèût 'substitute')  
 bàúddyâ (from: bâu't 'detract')  
 wáddù (from: wát 'answer')  
 ráddù (from: rát 'spread, scatter')  
 'dóddù (from: 'dót 'extract')  
 ráddù (from: rát 'win a race, match')

velar stop: k

lóggà (from: lók 'entrap')

lággù (from: lák 'untie')

tóggù (from: tók 'cut with an axe')

téggà (from: ték 'strike mildly')

sápúggà (from: sàpùk 'turn upside down')

These data are interesting in two respects. The fact that the juxtaposition of the indefinite suffix and a verb root causes gemination (and voicing) of a final stop suggests strongly that the indefinite suffix must begin with a consonant. As we proceed through the verbal morphology, we will see that suffixes that start with a vowel do not induce gemination in front of them.

Let us for the moment represent the consonant at the beginning of the indefinite suffix with the symbol X. X plus a voiceless stop produces a voiced geminate stop in the phonetic output. This suggests that X is itself a voiced consonant that assimilates the point of articulation of a preceding stop (and if X is not itself a stop, then X must be presumed to also assimilate the [-continuant] nature of the root-final consonant).

The second observation to be made about the data in (37) is that when the root ends in the stop  $\underline{t}$ , we do get gemination but we also find a glide  $\underline{y}$  between the geminate and a final low vowel. We do not see this glide  $\underline{y}$  in front of a final high vowel. We suggest that this  $\underline{y}$  is reflective of an underlying high front vowel that is part of the indefinite suffix; that is, we suggest that the construction has the following shape: Root + XI + A/U (the capital letters indicate a vowel that alternates between [+ATR] and [-ATR] according to the vowel harmony principle of the language). The vowel of the suffix /XI/ becomes a glide in position before a low vowel (and presumably simply elides before a high vowel), and the resulting glide  $\underline{y}$  deletes after the non-coronal geminate stops. Later in our examination of Bari morphology we will see ample additional

evidence for the vowel /I/ in the indefinite suffix.

Consider next the indefinite form of roots that end in nasal consonant:

(38) bilabial: m

- dómbà (from: dóm 'stalk')  
 rémbù (from: rém 'spear')  
 tòtùmbà (from: tòtùm 'cause to burn')  
 dúyámbù (from: dúyám 'cause to collapse')  
 didimbà (from: didim 'notch')

alveolar: n

- kindû (from: kín 'shut, close')  
 dwándû (from: dwán 'undo')  
 sóndù (from: sôn 'send away')  
 'báringû (from: 'bárin 'shave')  
 búryédyâ (from: búryén 'open wide')  
 túndyâ (from: tún 'gather')  
 béréndyâ (from: bérénn 'spoil')

velar: ng'

- wùjìngà (from: wùjìng' 'float')  
 ringà (from: rìng' 'punish')  
 'dàngù (from: 'dáng' 'lick')  
 déngà (from: déng' 'cut open')  
 bàringà (from: bàring' 'get a glimpse of')

The data in (38) show that the X consonant at the beginning of the indefinite changes to a voiced stop that is homorganic with a preceding nasal consonant. Clearly, this process and the gemination that occurs in (37) can be seen as essentially the same process: X changes to a voiced stop that is homorganic with the preceding stop (oral or nasal). The stop, if voiceless, acquires the voicing of X. Thus /mX/ becomes /mb/ and /pX/ becomes /bb/.

The case of stems ending in /n/ confirm the previous observation that the high vowel of /XI/ glides to a *y* in pre-vocalic position and deletes. We must amend the rule deleting the *y* so that *y* deletes not just after non-coronal geminates but rather after non-coronal geminate and nasal plus stop sequences.

We have so far shown that the X consonant of the indefinite suffix /XI/ must be assumed to be voiced and that it assimilates to a stop that is homorganic to a preceding stop (oral or nasal). Let us now examine the form that X assumes after a root ending in a glottal stop:

(39) /ʔ/ from an underlying /l/

dó'yù (from: dóʔ 'bend s.t. over')  
wé'yù (from: wéʔ 'incite to fight')  
wí'yà (from: wíʔ 'swallow')  
'yú'yà (from: 'yúʔ 'dilute with water')

/ʔ/ from an underlying /d/

rú'yà (from: rúʔ 'press down')  
ló'yà (from: lóʔ 'cause to vomit')  
ró'yà (from: róʔ 'scratch')

From (39) we see that a glottal stop plus X produces a palatal implosive 'y. (Bari has a series of three implosive stops, 'b, 'd, and 'y, which may appear in syllable-initial possible but not syllable-finally.) Notice that it appears most plausible to say that it is a glottal stop that combines with X to form an implosive palatal stop. If the l or d (that underlies the glottal stop) were to combine with X, we would hardly expect a palatal implosive to result. Rather, in the case of the roots ending in d, we would expect X to assimilate to d. In the case of roots ending in l, it is not clear what l would produce when combining with X -- but a palatal implosive seems unlikely.

If we assume that the root-final consonant first changes to ʔ, then the combination of ʔ and X to produce a palatal implosive is not so surprising: there are other languages where a connection between glottal stops and implosives clearly exists.

Notice that in (39) there is no trace of the y that results from the gliding of the high vowel in /XI/ before



the final vowel. This raises the question of what the precise rule is for deleting the *y*. So far we have seen that the *y* that derives from /XI/ via gliding deletes (a) after a non-coronal "complex" stop (i.e. geminate or pre-nasalized stop), and, now, (b) after a palatal implosive.

Let us briefly consider to what extent the *y*-deletion can be considered a more general rule in Bari phonology. There is evidence in the noun morphology that non-low vowels glide when they stand in front of a low vowel suffix. In (40) we illustrate this process with noun stems that end in a front vowel, and in (41) we illustrate it with noun stems that end in a back vowel. Notice that in all of the examples in (40), the resulting glide *y* is retained.

(40) *bíkí* 'kind of leather girdle'  
*bíky-â* (pl.)

*dúpí* 'fight between rams'  
*dúpy-â* (pl.)

*gúlí* 'digging stick'  
*gúly-â* (pl.)

*kólé* 'hoe'  
*kóly-â* (pl.)

*túré* 'walking stick'  
*túry-â* (pl.)

*tómé* 'elephant'  
*tómy-â* (pl.)

*kídí* 'well'  
*kídy-â* (pl.)

*ng'ébí* 'cheek'  
*ng'éby-â* (pl.)

*lâtí* 'good behavior'  
*lâty-ât* (pl.)

*wàdí* 'rumor'  
*wàdy-ât* (pl.)

kùgi 'den, cave'  
kùgy-ât (pl.)

(41) gwútú 'with amputated limb'  
gwútw-â (pl.)

túlú 'axe'  
túlw-â (pl.)

múnú 'snake'  
múnw-â (pl.)

dárú 'grass'  
dárwâ (pl.)

gúgú 'granary'  
gúgwâ (pl.)

jújú 'a fetid rat'  
jújw-â (pl.)

bòdò 'expert'  
bòdw-ât (pl.)

dìpò 'dancing yard'  
dìpw-ât (pl.)

kòpèngò 'a kind of sack'  
kòpèngw-ât (pl.)

In the examples in (40), the front vowel at the end of a stem is preceded by non-palatal single consonants. We see that in each case the *y* is retained. After palatal consonants, however, no *y* is manifested. This is shown in (42).

(42) Kânyí (a masculine proper name)  
Kâny-ât (pl.)

Kâjí (a feminine proper name)  
Kâj-ât (pl.)

bìní 'maize tassel'  
bìny-ât (pl.)

The data in (40) and (42) suggest that it may be a general fact of Bari phonology that a *y* deletes when it stands after a palatal consonant (thus accounting for the absence of a *y* in the indefinite forms like rú'yà). The nominal data, on the other hand, suggests that it is not the case that it is a general rule that *y* deletes after geminates or sequences of nasal plus stop. The data in (43) illustrate that in nominals a *y* is retained in these environments (though the data for position after a geminate is decidedly sparse).

(43) *tùlùggi* 'small club of hard wood'  
*tùlùggy-ât* (pl.)

*lèkèmbé* 'harp'  
*lèkèmby-ât* (pl.)

*sàndi* 'poor'  
*sàndy-ât* (pl.)

*kùngi* 'central point, kernel of a question'  
*kùngy-ât* (pl.)

The deletion of the *y* in the indefinite verb form must therefore be regarded as not due to an entirely phonologically-conditioned process.

At this point, let us return to a consideration of (39). The fact that /?/ and X produces a palatal implosive suggests that perhaps X is a palatal sound. If X is not a palatal sound, then we need an explanation for why X plus /?/ yields a palatal. The data in (44), which illustrate the indefinite form of stems ending in /r/, lead in the same direction.

(44) *tùrjâ* (from: *túr* 'fill a bottle')  
       *'yùrjâ* (from: *'yúr* 'set on fire')  
       *kàrjû* (from: *kár* 'start thatching a roof')  
       *pèrjâ* (from: *pér* 'peel')  
       *kórejâ* (from: *kór* 'divide')

In (44) we see that X surfaces as the voiced palatal affricate *j* in position after a root-final *r*. (Interestingly, there is no voiceless palatal affricate in the language, and there are no roots that end in the voiced palatal affricate.) This gives some support to the idea that X may in fact be *j* underlyingly. If X is underlyingly /j/, then in (44) nothing happens to /j/ in position after /r/. That is, whereas /j/ assimilates to a stop or to a nasal, and whereas /j/ combines with /ʔ/ to form a palatal implosive, nothing happens to /j/ after a liquid. Of course, the glide *y* will delete after /j/ since /j/ is a palatal consonant.

There are roots that end in a vowel. The indefinite form of these roots is illustrated by (45):

- (45) gàjû (from: gá 'protect')  
 rèjâ (from: ré 'sweep')  
 'dâjû (from: 'dá 'pay no respect')  
 kijâ (from: kí 'climb')  
 sójû (from: só 'pierce')

We see that after a vowel, X surfaces as *j* and the *y* that we expect from the gliding of the high vowel of /XI/ in position before a low vowel does not manifest itself on the surface.

We have now argued that the indefinite form of the verb has the following segmental structure: Verb Root + *jI* + A/U. Let us now consider the tonal analysis of this verbal form. In (46) we show the indefinite form of a monosyllabic H verb and in (47) the indefinite form of a monosyllabic LHL verb.

(46) H verb roots

- pé-j-à 'shoot'  
 gín-dy-à 'snap, break'  
 jóg-g-à 'slap, clap'  
 dér-j-à 'cook'

lág-g-ù 'untie'  
 rém-b-ù 'spear'  
 'déb-b-à 'hold'

(47) LHL verb roots

rè-j-â 'sweep'  
 dwàn-d-ù 'undo'  
 'dàn-g-ù 'lick'  
 dòg-g-â 'fetch'  
 rin-g-â 'punish'  
 bò-j-ù 'insult'  
 ri'y-â 'pull, drag'

The data in (45) are clearly inconsistent with an analysis where both of the vowels of the suffixal combination -jI-A/U are toneless. If these vowels were both toneless, then we would expect the forms in (45) to be all High (as a result of the Free Syllable Association rule). They are not. In order to derive an example such as 'débbà', where there is a Low tone on the final vowel, we must assume that the suffixal combination somehow contributes a Low tone to the tonal tier and that this Low tone appears on the surface associated with the final vowel.

The data in (46), on the other hand, can be argued to be consistent with the claim that the suffixal combination in the indefinite form is toneless; after all, dwàndù, rè-j-â, dòg-g-â, etc., do appear to reflect just a LHL melody. There is a possible complication with assuming that these pronunciations reflect just the LHL melody of the verb root. Recall that we have shown in our discussion of examples such as ng'i-kin that the Free Tone Association rule is not permitted to associate the final tone of the LHL melody to a suffixal vowel. Thus the question arises as to whether we would in fact expect the final Low of the melody to be associated with the final vowel in examples like rè-j-â. After all, isn't the final vowel a suffixal vowel?

But in fact there is a way to explain why the final L of the LHL melody is associated with a suffixal vowel. Recall that in underlying structure rè-j-â has three tone-bearing units (/re-ji-a/). Assuming that the Universal Tone Association Principle applies to the underlying structure, the three tones of the LHL melody would be paired up one-to-one with the three tone-bearing units. Thus the final L of the melody would get associated to the final syllable not by the Free Tone Association rule but by the UTAP. (And we know that the UTAP associates tones and vowels regardless of whether the vowel is in a root or a suffix.) Eventually, as a result of glide formation, etc., the final two tone-bearing units in rè-j-â would be merged into a single tone-bearing unit associated with two tones, a H and a L.

We have shown that it is possible to regard the data in (46) as reflecting just the LHL melody of the root. We have seen, however, that when the root melody is High, there must be a Low associated with the final syllable of the indefinite. At this point we have a choice. One approach is: we can assume that there is also a Low associated with the last syllable of the indefinite when the root has a LHL melody. In other words, we assume the same representation for the final syllable regardless of the tonal structure of the root. The second approach is to assume that there is a kind of "rule of allomorphy" that says: the indefinite has a Low associated with the final syllable when the root is H, but no tone when the root is LHL.

Either solution will work for (46). We have already discussed how the correct results will be obtained if there is no Low tone associated with the final syllable (as a consequence of the rule of allomorphy). If the final syllable does have a Low associated with it, then we will have a representation such as (47) prior to the application

of the tone association rules.

(47) LHL L  
re-ji-a

The UTAP will associate the first L of the melody to the first vowel and the H to the second vowel. The final L of the melody will be left unassociated. (It will not associate to /ji/ by the Free Tone Association rule since that rule does not link a free tone to a suffixal vowel.) Eventually, /ji/ and /a/ will merge into a single syllable with both a H and a L tone associated to it.

Assuming that the indefinite form has a Low tone associated with the last syllable (at least when the verb root has a High melody) does not entirely explain the data in (45). Given a representation such as (48) prior to tone association,

(48) H L  
'dep-ji-a

we would expect that the H would associate the root syllable via the UTAP and that the Free Vowel Association rule would then link the H to /ji/. Ultimately, the merger of /ji/ and /a/ would yield a single syllable with both a H and a L. But the correct surface form is 'déb-b-â and not \*'déb-b-â.

Before considering this problem any further, let us present the indefinite forms of polysyllabic H and LHL verbs.

(49) H verb roots

'búyúd-dy-â 'sharpen'  
síríd-dy-â 'twist, wind'  
lúsúg-g-û 'melt'  
kú'dyé-dy-â 'pinch a little of'  
'bóró-j-â 'smear'  
bídíng-g-â 'twist'

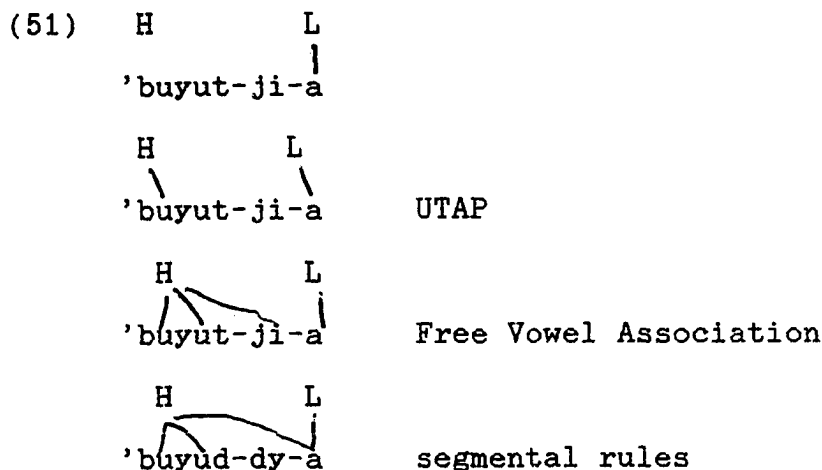
(50) LHL verb roots

tèbóg-g-à 'fold up'  
 kârúd-dy-à 'exchange'  
 'yàkó'y-ù 'miss the target'  
 kù'dí'y-à 'peep'  
 kâpóg-g-ù 'slap'  
 kâbûr-j-à 'agitate'

dilílì-j-à 'winnow grain'  
 kùkù'dì-j-à 'tickle'  
 'dàlílì-j-à 'float'

The data in (50) are again consistent with the assumption that there is a Low tone associated to the final syllable as well as with the assumption that the rule of allomorphy fails to assign a Low after a stem with a LHL melody. The data in (49) present an obvious problem. Our analysis must somehow predict that in the case of a monosyllabic H root, the final vowel of the indefinite is realized simply as Low, whereas in the case of polysyllabic H roots, there is a Falling tone on the final vowel; cf. 'débbà versus 'búyúddyâ.

If we assume that there is a Low associated with the final syllable in underlying structure, then we will correctly derive 'búyúddyâ, as shown in (51).





Notice that this derivation requires the formulation of Free Vowel Association which says that a free vowel associates to the bound tone to the left.

The problem with (51) is, as we noted above, that we also predict 'déb-b-â, which is incorrect. What would be required in order to derive 'déb-b-à is a rule that simplifies the contour tone in 'déb-b-à but not in 'búyúd-dy-â. This rule will have a form something like that given in (52):

$$(52) \quad \begin{array}{c} \text{H} \quad \quad \text{L} \\ \left[ \begin{array}{c} | \quad \quad | \\ \sigma \quad \quad \sigma \end{array} \right] \end{array}$$

We might plausibly ask why the H part of a HL contour tone on a syllable should disassociate only if it is linked with just one other syllable. In any case, this rule would have to be restricted in its scope of application, since words with the shape High-Fall are well-attested in Bari. It is only indefinite forms that do not have this particular shape. We do not feel that we presently have any real understanding of why 'déb-b-à occurs rather than \*'déb-b-â, and thus for the time being we will simply assume the existence of an ad hoc rule such as (52) applying only to indefinite verbs.

An indefinite form can be constructed on the basis of a benefactive verb stem. Some examples appear in (53) for both H and LHL verb roots.

(53) indefinite benefactive form of a H verb root

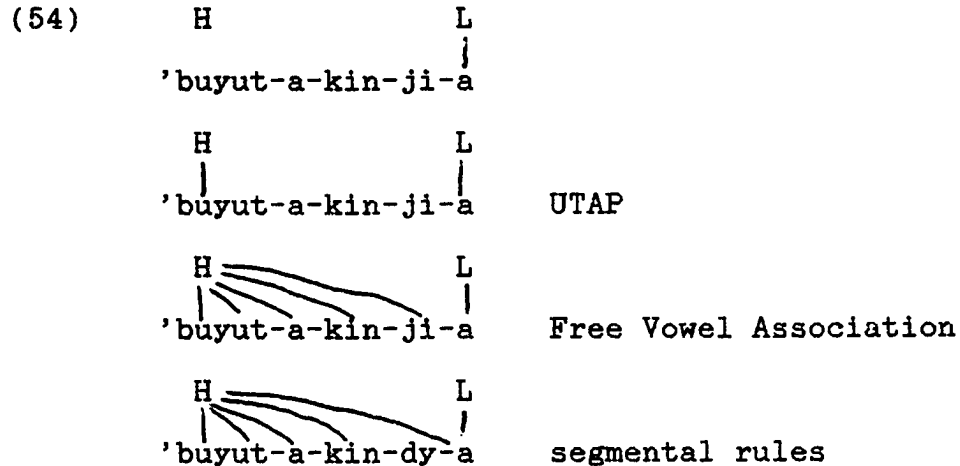
'dép-á-kín-dy-à ('dép 'hold')  
'búyút-á-kín-dy-à ('búyút 'sharpen')  
búryény-á-kín-dy-à (búryén 'open wide')

indefinite benefactive form of a LHL verb root

mòk-á-kín-dy-à (mók 'catch')  
sápúk-à-kín-dy-à (sápúk 'overturn')  
dòdông'-à-kín-dy-à (dòdông' 'shake')  
dílílì-kín-dy-à (dílílì 'winnow grain')

If we assume that there is a Low tone associated with the final vowel of indefinite forms (which may, by a rule of allomorphy, be deleted after a LHL root melody), then these data can be readily derived.

The LHL verb roots require no comment. The derivation of a High verb root is shown in (54):



Notice that in (54) it is crucial that the Free Vowel Association rule links a free vowel to the bound tone to the left.

### 2.3. The direction toward verbal form.

There is in Bari a verbal suffix that indicates, roughly, an action directed towards the speaker. We will refer to this as the "direction toward" form of the verb. Segmentally, this suffix has the shape -un/-yn, and there are no particular phonological complications involved with this suffix.

The tonal shape of the direction toward form for H verb stems is illustrated in (55):

(55) 'dép-ún (from: 'dép 'hold')

díl-ún (from: dé? 'bend')  
 dóm-ún (from: dóm 'stalk')  
 'búyút-ún (from: 'búyút 'sharpen')  
 bíding'-ún (from: bíding' 'twist')  
 wúlák-ún (from: wúlák 'till with a hoe')

On the basis of (55), it is possible to regard the direction toward suffix as toneless. If so, then in (55) it would simply acquire its (High) tone from the H root tone.

Such an analysis of the direction toward suffix is clearly supported by the bisyllabic and trisyllabic LHL stems shown in (56).

(56) sàpúk-ùn (from: sàpúk 'overturn')  
 'yákúl-ùn (from: 'yákò? 'miss the mark')  
 tèbók-ùn (from: tèbòk 'fold up')  
 didím-ùn (from: didím 'notch')  
 'dàlìlì-yùn (from: 'dàlìlì 'float')  
 dilìlì-yùn (from: dilìlì 'winnow grain')

If we assume that the direction toward suffix is toneless, then a LHL root melody will (in direction toward forms with three or more syllables) necessarily associate the last syllable of the word with the last L of the melody. Thus we predict the data in (56).

The direction toward form of monosyllabic LHL roots is shown in (57):

(57) mòk-ún (from: mók 'catch')  
 kùr-ún (from: kúr 'dig')  
 ríng'-ún (from: ríng' 'punish')  
 'dàng'-ún (from: 'dàng' 'lick')  
 dòk-ún (from: dók 'fetch')

These bisyllabic words have the tonal shape LH rather than the LHL pattern that we might expect if the suffix is toneless. Actually, we have already encountered a parallel case in the discussion of the benefactive form of the verb. Recall that when a vowel-final LHL monosyllabic root combines with the suffix

-kin, the result is a LH word: rè-kin (benefactive form of ré 'sweep'). When we discussed these forms, we suggested that they might be accounted for by restricting Free Tone Association so that it cannot associate a free tone to a non-root syllable. Given such a constraint, the final L of the LHL melody of the root will fail to associate to the syllable containing the suffix -un/-un. The derivation of mòk-ún is shown in (58) below:

(58)	L H L	
		mok-un (underlying structure)
	L H L	
	mòk-un	UTAP
	inapplicable	Free Vowel Association
	inapplicable	Free Tone Association (free tone is barred from associating to a suffixal syllable)

The indefinite suffix(es) can be appended to the direction toward form of the verb. We illustrate this construction in (59):

(59)	<u>H verbs</u>
	'dép-ún-dy-â
	'búyút-ún-dy-â
	<u>LHL verbs</u>
	mòk-ún-dy-â
	sâpúk-ún-dy-â
	dilíli-yùn-dy-â

Clearly, the tonal pattern exhibited by the direction toward stem in (59) is precisely parallel to the benefactive stem in the indefinite. This parallelism

between the benefactive stem and the direction toward stem suggests that they are both toneless.

#### 2.4. The direction away verbal form.

A Bari verbal root may be marked to indicate that the action of the verb is performed in a direction leading away from the speaker. The direction away suffix appears to have the shape -ara?/-ara? in examples like those in (60).

- (60) déng'-árâ? (from: déng' 'cut open')  
 lák-árâ? (from: lák 'untie')  
 dír-árâ? (from: dír 'carry (by two people)')  
 dòdông'-àrà? (from: dòdông' 'shake')  
 lìlìng'-àrà (from: lìlìng' 'smoothen')

Although the vowel that appears immediately after the root in the direction away form appears to be similar to what we have termed the linking vowel in the benefactive construction, it behaves differently after vowel-final roots. The linking vowel is not present after a vowel-final verb root. The vowel after the root in the direction away form remains after a vowel-final root:

- (61) ló 'spread in the sun'  
 ló-kín (benefactive)  
 ló-árâ? (direction away)
- mó 'smell'  
 mò-kín (benefactive)  
 mò-árâ? (direction away)
- yàkí? 'send s.o. to do s.t.'  
 yàkí-kín (benefactive)  
 yàkí-àrà? (direction away)
- tòkú 'preach'  
 tòkú-kín (benefactive)  
 tòkú-àrà? (direction away)

While the data in (61) suggest that the direction away suffix should be regarded simply as *-ara?/-ara?*, with the first vowel having no direct connection to the linking vowel in the benefactive construction or the final vowel in the indefinite construction, verbs such as those in (62) are suggestive of a somewhat different analysis:

- (62) ng'i 'raise'  
 ng'i-j-û (indefinite)  
 ng'i-kîn (benefactive)  
 ng'i-yûrû? (direction away)
- tòjûp 'dress'  
 tòjûb-b-û (indefinite)  
 tòjûp-û-kîn (benefactive)  
 tòjûp-ûrû? (direction away)
- yúk 'herd cattle'  
 yùg-g-û (indefinite)  
 yùk-ú-kîn (benefactive)  
 yùk-úrû? (direction away)
- 'yút 'plant'  
 'yùd-d-û (indefinite)  
 'yút-ú-kîn (benefactive)  
 'yút-úrû? (direction away)
- rúk 'dress'  
 rùg-g-û (indefinite)  
 rùk-ú-kîn (benefactive)  
 rùk-úrû? (direction away)
- pút 'hand over'  
 pùd-d-û (indefinite)  
 pùt-ú-kîn (benefactive)  
 pùt-úrû? (direction away)
- kîn 'shut, close'  
 kîn-d-û (indefinite)  
 kîn-í-kîn (benefactive)  
 kîn-úrû? (direction away)
- 'bárin 'share'  
 'bárin-d-û (indefinite)  
 'bárin-ú-kîn (benefactive)  
 'bárin-úrû? (direction away)

The data in (62) involve verb roots which have a high [-ATR] final vowel and which are idiosyncratically marked to take a high vowel variant /U/ for the linking vowel and for the final vowel of the indefinite construction. Recall that we concluded that there must be some morphological unity to the linking vowel and the final vowel of the indefinite since an item that is marked lexically for a high vowel variant uses that variant in both cases. Now in (62) we see that these same lexically marked items use a high vowel variant for the direction away construction--that is, the post root element(s) show up as /UrU?/ after lexically marked verbs, and not as /ArA?/, the shape after regular roots. What this means is that both of the vowels in /ArA?/ and /UrU?/ must be the same morphological unit as appears in the benefactive and indefinite constructions.

The repetition of the same morphological element twice in the sequence /ArA?/ (or /UrU?/) suggests that this sequence might properly be regarded as morphologically complex. There will be further evidence for this below. Thus we will return to an examination of the internal structure of this sequence later.

Let us turn now to an examination of the tonal structure of the direction away verbal form. Examine the cases below where a High verb root appears in the direction away construction:

- (63) 'dép-á-râ? (from: 'dép 'hold')  
 sóny-ó-rô? (from: són 'send away')  
 kúr-á-râ? (from: kúr 'borrow')  
 tók-ó-rô? (from: tók 'cut with an axe')  
 'búyút-á-râ? (from: 'búyút 'sharpen')  
 'bárin-ú-rû? (from: bárin 'shave')  
 bíding'-á-râ? (from: bíding' 'twist')

Tonally, it is clear that these forms are entirely parallel to the indefinite forms based on High verb roots -- i.e. the H of the verb root melody spreads all the way to the

final syllable, and that final syllable bears a Falling tone. It seems then that one would give essentially the same analysis here as for the indefinite form -- i.e. that there is a Low tone associated with the final syllable of the direction away verb form.

The LHL roots shown in (64) do not contradict such an analysis.

- (64) mòk-á-rà? (from: mók 'catch')  
 sàpúk-à-rà? (from: sàpúk 'overturn')  
 dilíli-yà-rà? (from: dilíli 'winnow grain')

Just as was the case with the benefactive construction, the tonal shapes of LHL verbs in the direction away form could be accounted for either by assuming that there is a Low associated with the final syllable or by assuming that a rule of allomorphy has eliminated this Low after a LHL root melody.

The indefinite form of direction away verbs is illustrated in (65) below.

- (65) 'dép-ád-d-û (cf. 'dép-árâ?)  
 mòk-ád-d-û (cf. mòk-árâ?)  
 'búyút-ád-d-û (from: 'búyút-árâ?)  
 sàpúk-ád-d-ù (from: sàpúk-árâ?)  
 dilíli-yád-d-u (from: dilíli-yàrà?)

Let us consider first the segmental aspect of the forms in (65).

Notice, first, that the final vowel of the indefinite form is always /U/. In the case of the indefinite form of a simple root, the choice of the final vowel of the indefinite form is a function of the last vowel of the verb root. In (65) we see that the choice of the final vowel is independent of the root. In other words, it is the low vowel of the direction away suffix that appears to govern the choice of /U/ as the last vowel of the indefinite verb.



The second point to observe is that formation of the indefinite direction away verb does not simply involve affixation of /jI/+U/ to the direction away stem. If it did, we would expect /'dép-ará?-jí-ù/ to yield something like \*'dépárá'yù (recall that in all the examples available, a ?-final verb root, combines with /jI/ to yield the palatal implosive /'y/). Rather it appears that only a part of the sequence /ArA?/ is manifested in the direction away indefinite form. This fact suggests that it is perhaps best to regard /ArA?/ as morphologically complex.

What, then, are the two parts of /ArA?/ and which part is manifested in the indefinite form? Examining an example such as 'dép-ád-d-ù, it seems clear that the portion of this word that indicates direction away is -ad-. This suggests that /Ara?/ might be broken down into /Ar/ and /A?/. (Further divisions are possible -- e.g. on formal grounds /Ar/ might be viewed as consisting of /A/ as one morphological element and /r/ another. This matter is beyond the scope of the present thesis.) If so, which of these is the unit that appears in the indefinite form?

Suppose it were the second part, /A?/. Then we would have a direction away stem /'dep-ar/. But we would expect that /'dep-ar/ should form its indefinite like other r-final stems (cf. kùr-j-ù, indefinite of kúr). But \*'dépárjù is incorrect. Thus it seems that it must be the first part, /A?/. The direction away stem then would be /'dep-a?/. However, now we predict that this stem should, in indefinite formation, behave like other ?-final stems (cf. rú'yà, indefinite form of rú? 'press down'). But \*'dépá'yù is incorrect.

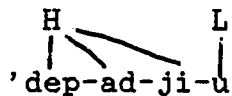
We know that the glottal stop sometimes has its source in an underlying /d/ --cf. rú? versus rúd-â and the like in (35) above. The indefinite direction away forms like 'dép-ád-d-ù suggest that the glottal stop in /A?/ might in fact be /d/. Our problem then is to explain why underlying

/'dep-ad-ji-u/ ends up 'dépáddû whereas /rud-ji-a/ ends up rú'yâ. We must leave this problem of segmental phonology to another occasion and, instead, concentrate on the tonological aspects of the verbal morphology.

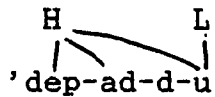
Turning to the tonal structure of the indefinite direction away forms, it is clear that we do not want a Low tone associated with the /Ad/ extension (cf. 'dép-ád-d-û, where the H of the verb root is able to extend all the way to the last syllable). But this then tells us something about the tonal analysis of the definite direction away forms. In examples like 'dép-ár-â?, we argued that there must be a Low tone associated with the final syllable. If this Low tone were somehow an inherent part of the suffix /Ad/, we would expect it to be manifested in 'dép-ád-d-û. But it is not. It appears that what is going on is as follows: in a direction away form, and in an indefinite form as well, there is a Low tone that is assigned to the last syllable of the construction. In a form that is both direction away and indefinite, there is still just a Low tone assigned to the final syllable. This Low tone, then, is not actually part of the representation of the suffixes as such. (Furthermore, remember that under one approach, this Low tone is not assigned at all when the verb root has a LHL melody.)

Given that in 'dép-ád-d-û there is a H root melody and a Low tone assigned to the last syllable, the derivation of this form is perfectly analagous to the derivation of examples such as 'dép-ár-â?. The derivation is given in (66).

(66)        H                    L  
    |  
               'dep-ad-ji-u  
  
               H                    L  
               |                    |  
               'dép-ad-ji-u        UTAP



Free Vowel Association



segmental rules

(The only point that requires note is our assumption that when the vowel i of /jI/ elides in front of a non-low vowel, its High tone associates to the following syllable. In a fully worked out segmental phonology of Bari, we expect that this retention of the tone of i on the "following" syllable will in fact be automatically predicted.)

The derivation for LHL roots -- cf. dilili-vad-d-ù-- requires no discussion. The root LHL melody alone will account for the tonal shape of such words. If there is a Low tone assigned to the final syllable (i.e. if we do not adopt the allomorphy approach that says that a Low is not assigned when the root melody ends in L), it will not in any way interfere with the generation of the correct surface shapes. In order to simplify our discussion from here on, we will assume -- both for the indefinite and the direction away forms -- that a Low tone is assigned to the last syllable only when the root melody is H. But nothing will ultimately depend on this assumption.

### 2.5. Instrumental verbal form.

That an action is performed using some instrument is expressed in Bari by the "instrumental" verb. In the active voice, there is just an indefinite form of the instrumental. The "definite" instrumental form is expressed by a passive construction which we cite here for convenience (other passive forms are dealt with separately later in this chapter).

In (67) we provide an example of both the passive instrumental and the active (indefinite) instrumental verb.

(67) High verb roots

<u>passive</u>	<u>active</u>	
lák-á-rí	lág-gí-rí	'untie'
'dép-á-rí	'déb-bí-rí	'hold'
'búyút-á-rí	'búyúd-dí-rí	'sharpen'
nyá'dót-ó-rí	nyá'dód-dí-rí	'stick to'

LHL verb roots

<u>passive</u>	<u>active</u>	
mòk-á-rí	mòg-gí-rí	'hold'
kwè-yá-rí	kwè-jí-rí	'show'
sápúk-à-rí	sápúg-gí-rí	'overturn'
dilìlì-yà-rí	dilìlì-ji-rí	'winnow'

It seems clear that the instrumental suffix is /rI/. In the passive, /rI/ is separated from the verb root by the morphological element /A/. (We will see below that this element is sometimes the marker of a passive construction, in addition to all the other duties that we have so far seen it perform.) In the active form, it appears that the instrumental suffix is appended to the indefinite suffix /jI/. Notice that in non-instrumental forms, the indefinite suffix /jI/ is always followed by the final vowel /A/ or /U/. We only saw its /I/ vowel in the form of /y/ after /t/ and /d/. But in the instrumental form, the indefinite suffix is followed immediately by the instrumental suffix and we actually see the /I/ directly on the phonetic surface. This, then, is an extremely strong argument that the indefinite suffix /jI/ has a high vowel in it.

Tonally the data in (67) is entirely parallel to the case of the indefinite forms and the direction away forms, and thus no detailed discussion is required. We assume that

these forms are to be analyzed as containing (a) the lexical melody of the root and (b) a Low tone associated to the final syllable. The details of the derivation will be as discussed above.

The instrumental active forms cited above have a variant shape -- namely, one lacking the suffix /rI/. Thus we find forms such as the following:

(68) High verb roots

tóg-gí  
'déb-bî  
lág-gí  
'búyúd-dî

LHL verb roots

mòg-gí  
kùr-jî  
sápúg-gí

Let us call these forms "truncated instrumentals". The truncated instrumentals do require a little discussion from the tonal point of view. If we analyze the instrumental form in the same fashion as the indefinite (and direction away), then it is necessary to observe that the indefinite form of 'dép and other monosyllabic roots ends in a Low (cf. 'débbà) rather than a Fall (as is the case with bisyllabic stems -- cf. 'búyúddyâ). Thus one might have expected that the truncated instrumental form 'débbî would also end in a Low rather than a Fall. The explanation for this presumably involves in some way the fact that 'débbî is a contracted form of 'débbirî whereas 'débbà is not a similarly contracted form.

It should be noted that there is also a variant form of the passive instrumental which adds the suffix /kIn/ (cf. the benefactive suffix /kIn/) after the instrumental suffix /rI/:

(69) High verb roots

dér-á-ri-kin  
'búyút-á-rí-kin

LHL verb roots

mòk-á-ri-kin  
sápúk-à-ri-kin

The instrumental suffix can be appended to an indefinite stem incorporating the direction toward suffix.

(70) High verb roots

lák-ún-dí-rí  
'dép-ún-dí-rí  
'búyút-ún-dí-rí  
nyá'dút-ún-dí-rí

LHL verb roots

mòk-ún-dì-rì  
kwè-yún-dì-rì  
sápúk-ùn-dì-rì  
dílíliy-ùn-dì-rì

These items display the expected tone patterns.

There is also an instrumental form of the indefinite direction away stem.

(71) High verb roots

lák-ád-dì-rì  
'dép-ád-dì-rì  
'búyút-ád-dì-rì  
nyà'dút-ùd-dì-rì

LHL verb roots

mòk-ád-dì-rì  
sápúk-ád-dì-rì  
dílíli-yád-dì-rì

induces the assignment of a LHL melody in place of the root melody, and (b) it is added after constituents that are ordinarily word final (particularly, the indefinite suffix /jI/), and (c) it can combine with the direction toward and direction away suffixes.

### 2.6. Passive verbs.

The passive form of the verb in Bari is formed (segmentally) by appending the vowel /A/ to the verb stem. This /A/ is clearly morphologically linked to the /A/ that appears as linking vowel in the benefactive structure and to the /A/ that appears in the direction away verbal form, etc. In particular, those verb stems ending in a high [-ATR] vowel which must be marked as taking the /U/ variant of the linking vowel, etc., also use the /U/ variant in forming the passive. This correlation between the linking vowel of the benefactive and the passive vowel is shown in (72) below.

#### (72) verbs governing regular linking vowel

<u>root</u>	<u>passive</u>	<u>benefactive</u>	
'dép	'dép-â	'dép-á-kin	'hold'
gá?	gál-â	gál-á-kin	'look for'
túr	tùr-â	tùr-á-kin	'fill a bottle'

#### verbs marked to govern /U/ linking vowel

<u>root</u>	<u>passive</u>	<u>benefactive</u>	
'yút	'yút-û	'yút-ú-kin	'plant'
túr	tùr-û	tùr-ú-kin	'cut stone'
wúr	wùr-û	wùr-ú-kin	'court, woo'
kín	kin-û	kin-ú-kin	'shut, close'
'bí?	'bil-û	'bil-ú-kin	'raise'

The vowel of the passive, whether the regular /A/ or the irregular /U/, is subject to the usual vowel harmony

rule. When it is /A/, it is also subject to the rule that will raise it to a mid vowel after a mid [+ATR] vowel. This is shown in (73).

(73)	'yórót 'squeeze dry'	'yórót-ò (pass.)
	wór 'scrape'	wór-ò (pass.)
	tók 'cut with an axe'	tók-ò (pass.)
	mé? 'lick'	mél-ò (pass.)
	pé? 'roast'	pél-ò (pass.)
	téng' 'restrain'	téng'-ò (pass.)

Let us turn now to the tonal shape of the passive verb. In (74) we illustrate H verb stems:

(74) monosyllabic H roots

lók 'entrap'	lók-â (pass.)
kúk 'respect'	kúk-â (pass.)
kúr 'borrow'	kúr-â (pass.)
dér 'cook'	dér-â (pass.)
tók 'cut'	tók-ò (pass.)
lú 'mount'	lú-wâ (pass.)
gwú 'enlarge'	gwú-â (pass.)

bisyllabic H roots

'búyút 'sharpen'	'búyút-á (pass.)
sírít 'twist, wind'	sírít-á (pass.)
lúsák 'melt'	lúsák-á (pass.)
nyá'dót 'stick to'	nyá'dót-ó (pass.)
búdyén 'turn inside out'	búdyény-á (pass.)

The data in (74) are somewhat contradictory. For monosyllabic H roots, we must somehow obtain a Falling tone on the passive vowel. This suggests that perhaps a Low tone is assigned to the final syllable. But if so, we must guarantee that the High of the root melody is also associated with that same syllable. For a polysyllabic High verb root, the passive vowel is realized as High. This could be a reflection of the root melody, or it could reflect that a High tone is associated with the final syllable.



Before considering the data in (74) any further, let us consider the passive form of a LHL verb root.

(75) LHL monosyllabic roots

mók 'catch'	mòk-â (pass.)
kín 'shut'	kìn-û (pass.)
kúr 'dig'	kùr-û (pass.)
dwán 'undo'	dwány-â (pass.)
rá? 'scorch'	râl-â (pass.)

LHL bisyllabic roots

sàpúk 'turn s.t. over'	sàpúk-á (pass.)
tèbók 'fold up'	tèbók-á (pass.)
kápók 'slap'	kápók-ó (pass.)

LHL trisyllabic roots

dilíli 'winnow'	dilíli-yá (pass.)
kùkú'di 'tickle'	kùkú'di-yá (pass.)
'dálíli 'float'	'dálíli-yá (pass.)

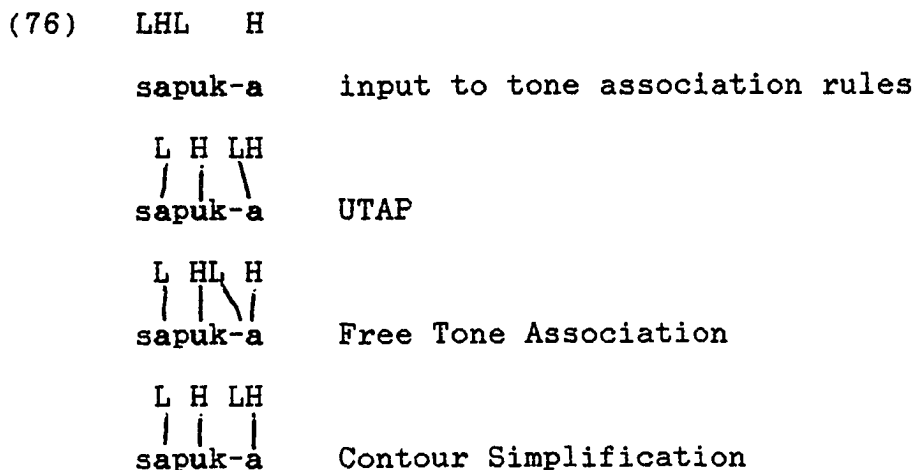
The data in (75) are again somewhat contradictory. The passives based on a monosyllabic LHL root suggest that the final vowel is either toneless or has a Low associated with it. The passives based on bisyllabic or longer LHL verbs suggest that there is a High tone associated with the final vowel.

Taking the data both from (74) and (75) into account, let us try to deal with polysyllabic stems first. It seems that for such stems there is a High tone assigned to the final syllable (the morphological element /A/ or /U/). This H is clearly manifested in the case of a LHL stem -- cf. dilíli-yá.

In the case of a root with a High melody -- cf. 'búyút-á, there is a High tone associated with the final syllable, but it is not clear whether this is the H assigned as part of passive stem formation or whether it is the H of the root melody. In other words, we could assume

that 'búyút-á has two High tones in its structure, the root H and the H assigned to the last vowel of the passive. Alternatively, we could assume that the rule that assigns a High to the final syllable of polysyllabic passive stems does so only after a LHL root melody, not after a H melody. (Compare our discussion of the final Low tone of indefinite and direction away verb forms, where we suggested that this Low may appear just after H verb roots and not after LHL verb roots.) There is one possible reason for assuming that the final H of the passive is not assigned after a H verb root. We will see much evidence throughout this thesis for a rule that would lower a H in one morpheme when it stands immediately after a H in another morpheme. If 'búyút-á has both a H contributed by the verb root and a H assigned to the last syllable, one might reasonably expect the H of the last syllable to lower. Since there is no such lowering, there is some reason to think that perhaps there is just a single H in the representation of 'búyút-á that has associated with all the syllables of this word.

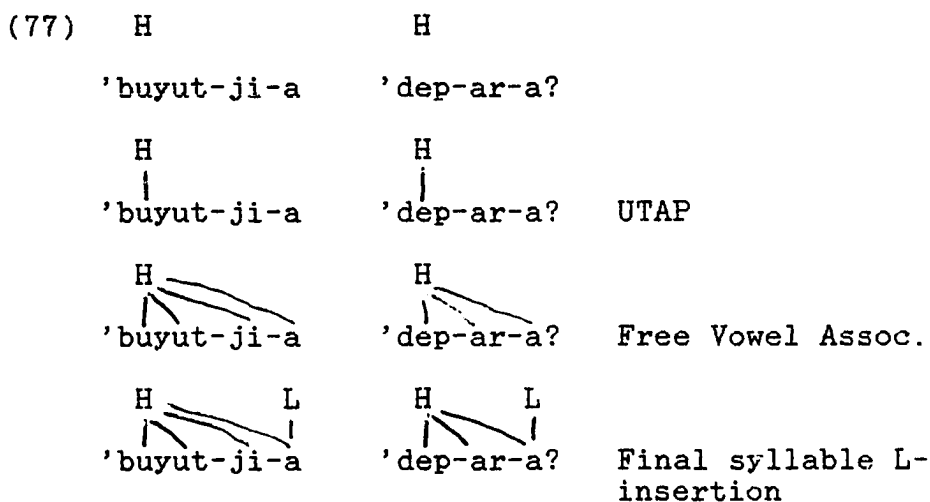
We will illustrate the derivation of sápúk-á under our analysis in (76):



The passive stems of polysyllabic roots can thus be treated in a rather straightforward fashion. The passives

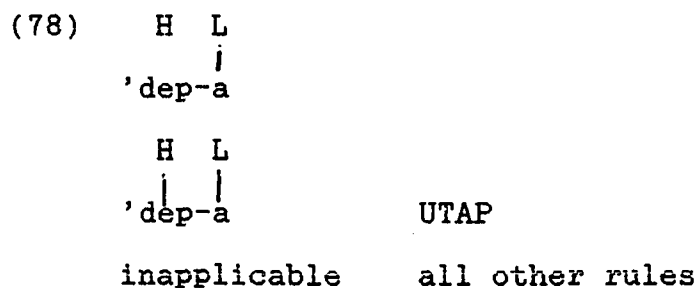
based on monosyllabic roots are more problematic. Let us take the case of a High monosyllabic root first -- cf. 'dép-â. Forms such as this clearly show that we are dealing with something more than just the root melody (the root melody alone would predict the passive form \*'dép-á). There must be some tonal change associated with the passive stem formation. It is also clear that it can not be the same tonal change that we motivated for polysyllabic roots in the passive -- namely, the assignment of a High tone to the final syllable. Rather, it seems that we must assign a Low tone to the last syllable.

Let us now consider the question of when this assignment of a final Low takes place. In our earlier discussion of the assignment of a final Low tone to indefinite and to direction away forms, we simply assumed that this Low tone was associated with the final syllable prior to the application of tone association principles (UTAP, Free Tone Association, Free Vowel Association). But actually this assignment of a Low tone could have been carried out after the tone association principles had operated. For example, 'búyúd-dy-â and 'dép-ár-â? could be derived as follows:



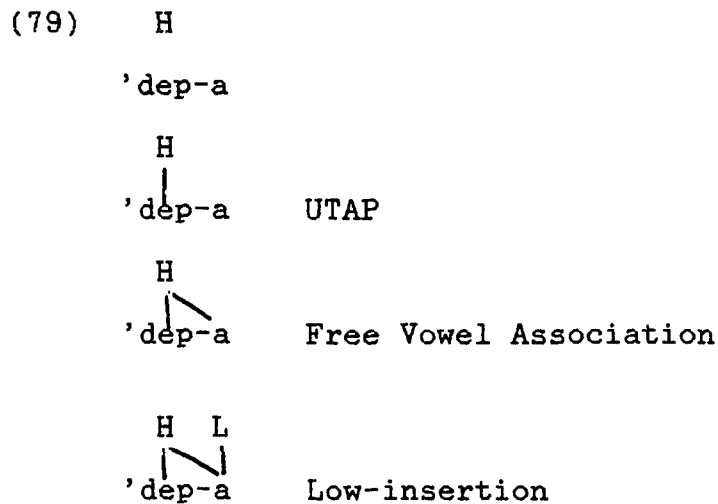
(In the case of LHL verb roots in the indefinite (mòg-g-â) or in the direction away form (mòk-âr-â?), the stem always has three syllables underlyingly and thus the last syllable will always be associated with a Low tone. As a consequence, the assignment of a L tone to such forms could not have any effect. As noted earlier, we might just as well assume that no Low is assigned in such cases.)

In the present case there is a problem if we assume that the final Low tone is assigned prior to the tone association principles. (78) shows the incorrect derivation that would result.



But 'dép-à is incorrect -- we require 'dép-â.

The correct surface forms can be obtained if we allow the insertion of a final Low tone to follow the tone association processes. (79) illustrates.



On the basis of the passive data, then, we assume that the insertion of a final Low tone is to be accomplished -- not just for the passives of monosyllabic roots, but also for the indefinite and the direction away -- after the tone association rules have applied.

Consider next the passive of a monosyllabic LHL root -- cf. mòk-â. If we adopt the assumption that a Low tone is not assigned to the final syllable when a LHL melody is located on the root, then we would have to derive mòk-â as in (80).

(80) LHL

mok-a

$$\begin{array}{c} L \quad HL \\ | \quad \backslash \\ \text{mòk-a} \end{array} \quad \text{UTAP}$$

$$\begin{array}{c} L \quad HL \\ | \quad \vee \\ \text{mòk-a} \end{array} \quad \text{Free Tone Association}$$

Notice that this derivation assumes that Free Tone Association can link a free tone to the morphological element /A/. Earlier we argued that Free Tone Association associates a free tone only to the root (since it must not link a free tone to /kIn/ or /Un/). If we are to maintain (80), it would be necessary to revise the claim that only root vowels can be linked by Free Tone Association. Since /A/ is an entirely "formal" morpheme, without any unitary "meaning" (in contrast to /kIn/ and /Un/), it would perhaps not be unmotivated to consider it somehow formally more closely linked to the root than /kIn/ or /Un/ and thus accessible to Free Tone Association.

If we allow the insertion of a Low on final syllables to apply after LHL roots, that rule will correctly assign a L tone to the final syllable of mòk-â (and thus we will not

have to appeal to the Free Tone Association rule to get a Low on the vowel /A/). This is shown in (81).

(81) LHL

mok-a

L	HL	
m	ok	UTAP
-	a	

inapplicable Free Tone Association

L	HLL	
	/	
m	ok	Final syllable L-insertion
-	a	

At the present time we do not have a way to choose between the derivations in (80) and (81) and we thus must leave the matter unresolved.

We have now given an analysis where monosyllabic verb roots are assigned a Low tone to the final syllable of the passive stem. This assignment of a Low tone takes place after the tone association rules and is in effect the same as the rule that assigns a final Low to indefinite and direction away verbal forms (regardless of the number of syllables in the root). Let us at this point return to the polysyllabic roots. We have suggested that for these roots a High tone is assigned to the last syllable. In our earlier discussion, we assumed that this High is linked to the last syllable before tone association occurs. Suppose that instead the High is assigned after tone association. We would have derivations then like that in (82).

(82) L H L

sapuk-a

L	H	L	
s	a	puk	UTAP
-	a		

$$\begin{array}{c} L \ H \ LH \\ | \ | \ \vee \\ \text{sapuk-a} \end{array}$$
 Final-syllable H-insertion

$$\begin{array}{c} L \ H \ LH \\ | \ | \ | \\ \text{sapuk-a} \end{array}$$
 Rising Tone Simplification

(82) shows that it is possible to consider the H to be assigned after the tone association rules. But we do not have any really crucial evidence in this connection, and assigning the H before tone association means that we do not have to appeal to Rising Tone Simplification to explain why there is a level High tone on the last syllable of sâpúk-á.

The preceding account of the tonology of the passive construction is by no means well-established. But given the nature of the data, there is not much more we can do with it at the present time. We turn now to an examination of the passive form of derived verb stems.

The passive benefactive is shown in (83):

(83) High verb roots

'dép-á-ki-?  
'búyút-á-ki-?

LHL verb roots

mòk-á-ki-?  
sâpúk-à-ki-?

Morphologically, these forms consist of the root followed by the linking vowel /A/ followed by /kI/, a truncated form of the benefactive suffix /kIn/, followed by a glottal stop. Tonally, these data suggest that there is a Low tone associated with the final syllable of all forms. But notice that this Low must be associated with the final syllable before tone association takes place -- otherwise we would

have a Falling tone on the last syllable of 'dép-â-ki-?. (84) shows the incorrect derivation, while (85) shows the correct derivation.

- (84) H  
 'dep-a-ki-?  
 H  
 |  
 'dep-a-ki-? UTAP  
 H  
 / \  
 | \  
 'dep-a-ki-? Free Vowel Association  
 H L  
 / \ / \  
 | \ / \  
 'dep-a-ki-? Final-syllable L-insertion
- (85) H  
 'dep-a-ki-?  
 H L  
 | |  
 'dep-a-ki-? Final-syllable L-insertion  
 H L  
 | |  
 'dep-a-ki-? UTAP  
 H L  
 / \ | |  
 | \ / \  
 'dep-a-ki-? Free Vowel Association

The fact that the data in (83) require a final Low tone to be inserted before tone association naturally casts some doubt on our analysis of 'dép-â, which required a final Low tone to be inserted after tone association. We are not certain as to what the proper interpretation of these data is.

The passive form of the direction toward stem is presented in (86):



(86) High verb roots

'dép-w-è-?  
'búyút-w-è-?

LHL verb roots

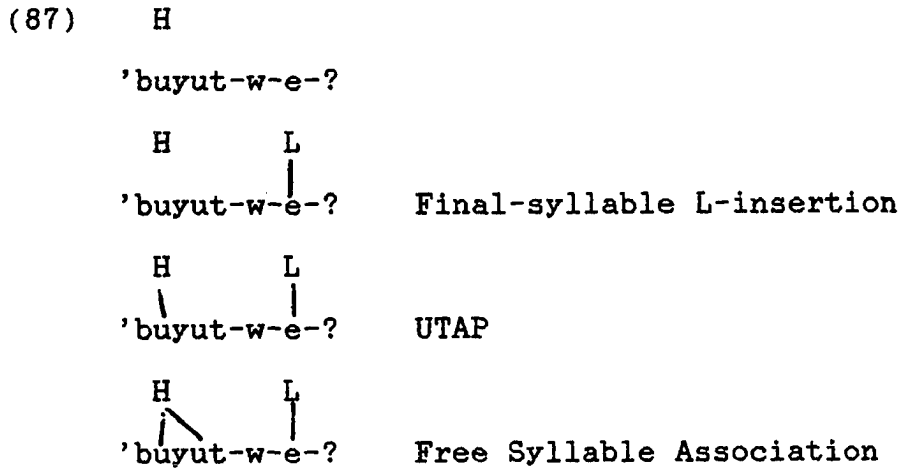
mòk-w-ê-?  
sápúk-w-ê?  
dilíli-w-è-?

Morphologically, these forms consist of the verb root followed by /w/, apparently derived from /U/ via pre-vocalic gliding, where /U/ is itself a truncated form of the direction toward suffix /Un/, followed by the vowel /E/ and a glottal stop. We have separated the glottal stop as a possible "passive" suffix, since the glottal stop also shows up in the passive benefactive, as we have seen. The morphological status of the vowel /E/ is unclear.

Looking at the data in (86) from a tonal point of view, we see that each of the forms ends in either a Low tone or a Falling tone. This clearly suggests that again we are dealing with a situation where there is a Low tone associated with the final syllable. The fact that there is no Falling tone in an example such as 'búyút-w-è-? suggests that this Low is associated before the tone association rules operate.

But matters are not really quite so straightforward. Consider first the example 'búyút-w-è-?. If /w/ is really derived from /U/, a truncated form of /Un/, then we might assume that it would be associated by the Free Vowel Association rule with the root H tone. But then when it glides and forms a syllable with the Low-toned /E/, we would expect a Falling tone to appear. (The evidence that the tone of a glided vowel is retained on the "following" syllable -- i.e. the syllable that the glide becomes a part of -- is not very obvious at present; however, when we examine the nominal tonology this point becomes very

clear.) This problem could be avoided if we do not derive *w* from /U/ by a phonological rule, but rather simply regard /w/ as being an allomorph of the direction toward suffix. If phonologically *w* is never a vowel, it will never be able to form the nucleus of a syllable that can be associated with a tone. Consequently, we will be able to derive 'búyút-w-ê-? as follows:



The passive direction toward verb based on a LHL root is problematic to some degree. If we assume that there is no L assigned to the last syllable (after a LHL melody), then we would have to derive an example such as mòk-w-ê-? from just the LHL root melody. But that means that to derive the Falling tone on the last syllable, we would have to allow the Free Tone Association rule to associate the final L of the melody to the syllable that has /E/ as its nucleus. But /E/ is clearly a suffixal vowel, and we have seen from examples such as mòk-ún and ng'i-kin that a free tone does not associate to suffixes such as /Un/ and /kIn/. Perhaps this is the direction in which to go. Maybe /Un/ and /kIn/ are odd in not accepting association to a free tone.

On the other hand, if we allow the final syllable L-insertion process to add a Low to the final syllable even

after a LHL root melody, then we predict a derivation such as the following:

- (88) LHL  
 mok-w-e-?  
 LHL L  
 |  
 mok-w-e-? Final-syllable L-insertion  
 L HL L  
 | |  
 mok-w-e-? UTAP  
 L H L  
 | |  
 mok-w-e-? Free Tone Association  
 LH L  
 | |  
 mok-w-e-? Rising Tone Simplification

But \*mók-w-è-? is incorrect. To get mòk-w-ê-?, it would be necessary to let the UTAP associate the H of the root melody with the syllable that has /E/ as its nucleus. But in order to do that it would be necessary that /E/ not have a Low tone assigned to it. But in order for /E/ not to have a Low tone assigned to it, it would be necessary that a final L not be assigned until after UTAP. The evidence from 'búyút-w-è-?, however, is that the L is assigned before tone association takes place.

It seems then simplest to assume that mòk-w-ê-? has no Low tone assigned to its last syllable, and that therefore Free Tone Association is able to associate a free tone with some suffixal vowels. We would readily admit, however, that the data from the passive construction are highly problematic.

The direction away stem forms the passive as in (89):

(89) High verb roots

'dép-á-ji-?  
'búyút-á-ji-?

LHL verb roots

mòk-á-ji-?  
sápúk-à-ji-?  
dilíli-yà-ji-?

These data are morphologically rather bizarre. They consist of the verb root followed by the morphological element /A/ followed by /jI/ plus a glottal stop. We have seen the glottal stop marking a passive in the preceding examples of the benefactive and the direction away forms. But the appearance of an element /jI/ here is inexplicable. /jI/ is, of course, the form that we have posited as the indefinite suffix, but passive forms do not permit a contrast between definite and indefinite forms. (In effect, all passive verbs can perhaps be regarded as "definite".) Thus the occurrence of /jI/ here does not seem to have anything to do with indefiniteness. Notice also that the direction away elements that we identified in the active direction away verb -- namely, /Ar/ and /Ad/ -- do not appear at all in the passive.

Tonally, the data in (89) do not present any new problems. They are parallel to the benefactive passive in that they require a Low tone to be assigned (at least after H verb roots) to the last syllable before tone association rules apply. Sample derivations should not be necessary.

We have already discussed the passive of instrumental verbs in the section on the instrumental stem. Recall that the structure of the instrumental passive is: verb root plus /A/ plus /rI/. The tonal pattern for the instrumental passive is presented again in (90) for the sake of convenience:

(90) H verb roots

'dép-á-rî  
'búyút-á-rî

LHL verb roots

mòk-á-ri  
sápúk-à-ri

We should note that it is possible to form a passive of an instrumental direction toward form and a passive of an instrumental direction away form. These constructions are illustrated in (91) and (92).

(91) High verb roots

kúr-w-é-?-î (use for borrowing this way)  
'búyút-w-é-?-î (use for sharpening this way)

LHL verb roots

kúr-w-é-?-î (use for digging this way)  
sápúk-w-è-?-î (use for overturning this way)

(92) High verb roots

'dép-á-jî-?-î  
'búyút-á-jî-?-î

LHL verb roots

mòk-á-jî-?-î  
sápúk-à-jî-?-î

The tonal patterning of these extended forms is parallel to the tonal pattern of the simple passive instrumental and no discussion is required.

2.7. The causative/reciprocal stem.

Up until this point we have, in our examination of verbal extensions in Bari, encountered only suffixes. The causative/ reciprocal form of the verb is expressed through

the prefixation of /t0/. The addition of /t0/ can be used to indicate that an action was performed reciprocally, or it can be used to derive a transitive (causative) verb from a corresponding intransitive verbal root. Causative/reciprocal stems may be extended by means of the various affixes discussed above.

The prefix /t0/ alternates according to the usual principle of vowel harmony. In addition, however, it shows another phonological alternation: namely, if the first vowel of the stem is low, then /O/ changes to /U/. This alternation is illustrated in (93).

(93) before non-low vowel roots

tò-'dòk (from: 'dók 'carry')  
 tò-dòk (from: dók 'wrap')  
 tò-kûr (from: kûr 'borrow')  
 tò-kûr (from: kûr 'dig')  
 tò-rêm (from: rêm 'spear')  
 tò-'dêp (from: 'dêp 'hold')  
 tò-dîr (from: dîr 'carry by two people')  
 tò-rîng' (from: rîng' 'punish')

before low vowel roots

tù-kâbûr (from: kâbûr 'agitate')  
 tù-sâpûk (from: sâpûk 'overturn')  
 tù-yâkî (from: yâkî 'send s.o.')  
 tù-gâ? (from: gâ? 'look for')  
 tù-lâk (from: lâk 'untie')  
 tù-bâ? (from: bâ? 'reprimand')

In this section we will examine the tonal properties of the causative/reciprocal formation. We consider first the prefixation of /t0/ to simple roots. Examine the data in (94):

(94) High verb roots

tò-'dêp 'sit on each other'  
 tò-'bûyût 'hold each other'

LHL verb roots

tò-mòk 'hold each other'  
 tû-sápùk 'cause to turn upside down'  
 tò-dilili 'cause to winnow'

We see that both underlying High roots and underlying LHL roots exhibit a LHL melody in the causative/reciprocal formation. If the root is monosyllabic, then the prefix will be realized with a Low tone and there will be a Falling tone on the second syllable. If the root is bisyllabic, then the prefix will be realized with a Low tone, there will be a High on the first syllable of the root, and the second syllable of the root will be Low. If the root is trisyllabic, then the prefix will be Low, the first root syllable will be High, and all the remaining stem syllables will be Low. Clearly, these patterns reflect the association of a LHL melody to the causative/reciprocal stem according to the tone association principles that we have already motivated in this chapter. The derivation of tò-dilili is provided just as a reminder:

(95) L H L

to-dilili

$$\begin{array}{c} L \quad H \quad L \\ | \quad | \quad | \\ \text{to-dilili} \end{array} \quad \text{UTAP}$$

inapplicable      Free Tone Association

$$\begin{array}{c} L \quad H \quad L \\ | \quad | \quad | \quad \backslash \\ \text{to-dilili} \end{array} \quad \text{Free Syllable Association}$$

We assume, therefore, that -- as part of the word-formation component of Bari -- the lexical root melody is replaced by a LHL melody when /t0/ is prefixed to a root.

The indefinite form of a causative/reciprocal verb stem is illustrated in (96).

(96) High verb roots

tò-'déb-b-à  
tò-'búyùd-dy-à

LHL verb roots

tò-móg-g-à  
tù-sápùg-g-à  
tò-dílìlì-j-à

Clearly, these verbal forms continue to reflect a LHL melody supplied by the causative/reciprocal formation, and the tonal shape of the whole word is exactly that of any LHL verb stem in the indefinite.

The benefactive form of a causative/reciprocal verb stem is shown in (97), both in the definite and the indefinite.

(97) High verb roots

tò-'dép-à-kin	tò-'dép-à-kin-dy-à
tò-'búyùt-à-kin	tò-'búyùt-à-kin-dy-à

LHL verb roots

tò-mók-à-kin	tò-mók-à-kin-dy-à
tù-sápùk-à-kin	tù-sápùk-à-kin-dy-à
tò-dílìlì-kin	tò-dílìlì-kin-dy-à

These data are tonally entirely straightforward. The tone shape is exactly that of any LHL stem in the benefactive definite or indefinite. No discussion is required.

The causative/reciprocal stem may also function as the base to which a direction toward suffix may be appended:



(98) High verb roots

tò-'dép-ùn	tò-'dép-ùn-dy-à
tò-'búyüt-ùn	tò-'búyüt-ùn-dy-à

LHL verb roots

tò-mók-ùn	tò-mók-ùn-dy-à
tù-sápük-ùn	tù-sápük-ùn-dy-à
tò-dílìlì-yùn	tò-dílìlì-yùn-dy-à

Again, these items are tonally entirely straightforward. The causative/reciprocal formation assigns a LHL melody in place of the root melody, and from there on out these verbs behave just like any other LHL verb stem in the direction toward (definite and indefinite).

The causative/reciprocal stem can also serve as the basis for constructing a direction away verbal form. (99) illustrates.

(99) High verb roots

tò-'dép-à-rà?	tò-'dép-àd-dì
tò-'búyüt-à-rà?	tò-'búyüt-àd-dì

LHL verb roots

tò-mók-à-rà?	tò-mók-àd-dì
tù-sápük-à-rà?	tù-sápük-àd-dì
tò-dílìlì-yà-rà?	tò-dílìlì-yàd-dì

Again, tonally these forms are indistinguishable from the direction away forms based on an underlying LHL verb root. In other words, the LHL tone melody supplied by the word-formation process that constructs the causative/reciprocal stem behaves exactly like a LHL root melody in the direction away forms.

The causative form of an (active indefinite) instrumental verb is shown in (100):

(100) High verb roots

tò-'déb-bì-rì (variant: tò-'déb-bì)  
 tò-'búyùd-dì-rì

LHL verb roots

tò-móg-gì-rì  
 tò-sápùg-gì-rì

These items reflect a LHL melody. The instrumental suffix /rì/ induces the assignment of this melody, as does the causative/ reciprocal word-formation process. The result of applying both of these word-formation processes is just one LHL melody. This represents the general pattern in Bari. The assignment of a tone melody supplants an existing melody.

We can now turn to a consideration of the causative verb in the passive.

(101) High verb roots

tò-'dép-á  
 tò-'búyùt-á

LHL verb roots

tò-mók-á  
 tò-sápùk-á  
 tò-dílìlì-yá

The tonal pattern here is just that of the passive of any LHL verb root (e.g. sápùk-á).

In (102) we illustrate the causative/reciprocal form of the passive benefactive, the passive direction toward, the passive direction away, and the passive instrumental:

(102) passive benefactive

tò-'dép-à-ki-?  
 tò-mók-à-ki-?  
 tò-'búyùt-à-ki-?

passive direction toward

tò-'dép-w-è-?  
 tò-kúr-w-è-?  
 tù-sápùk-w-è-?  
 tò-dílìlì-y-è-?

passive direction away

tù-gál-àr-à?  
 tò-'búyùt-àr-à?  
 tò-'dép-àr-à?  
 tù-sápùk-àr-à?

passive instrumental

tò-'dép-à-rì  
 tò-mók-à-rì  
 tò-'búyùt-à-rì  
 tò-dílìlì-yà-rì

The reader will be able to readily verify that all of these forms reflect the tone pattern that any LHL verb stem would have in the passive of derived stems (benefactive, direction toward, etc.). In other words, at every point, a LHL melody supplied by the causative/reciprocal formation behaves identically to an underlying LHL root melody.

2.8.. The imperative.

The imperative form based on simple (i.e. non-derived) monosyllabic verb roots is shown in (103) below.

(103) H verb roots

'dèp-é (from: 'dép 'hold')  
 'dòk-é (from: 'dók 'carry'  
 sòny-é (from: sòn 'send away')  
 'bò-né (from: 'bó 'weed')  
 'bì-né (from: 'bí 'suck')

LHL verb roots

mók-ê (from: mók 'catch')  
 kúr-ê (from: kúr 'dig')  
 sùt-ê (from: sùt 'bet')  
 bò-nê (from: bó 'belittle')

From these data, we see that the imperative is marked by a suffix /E/ (which alternates, as expected, by the vowel harmony principle) after consonant-final roots and by /nE/ after vowel-final roots. We assume that the suffix is basically /nE/ and that a phonological rule elides the n after a consonant.

The tonal facts in (103) have no very obvious explanation. We will postpone discussing the contrast between 'dèp-é and mòk-ê until more data has been presented. In (104) we show the imperative shapes for bisyllabic and longer simple roots.

(104) High verb roots

biding'-ê (from: bíding' 'twist')  
 bèrèny-ê (from: bérén 'spoil')  
 lùsàk-ê (from: lúsák 'melt')  
 'bòrò-nê (from: 'bóró 'smear')  
 bùdyèny-ê (from: búdyén 'turn inside out')

LHL verb roots

dòdông'-ê (from: dòdông' 'shake')  
 sàpùk-ê (from: sàpùk 'overturn')  
 kàdir-ê (from: kàdir 'look at carefully')  
 'diyùk-ê (from: 'diyùk 'make a click of disgust')  
 dilìlì-nê (from: dilìlì 'winnow')

The data in (104) demonstrate that when we are dealing with a polysyllabic verb root, the imperative tonal pattern is the same for both H and LHL roots: namely, all the vowels of the root are Low in tone whereas the imperative suffix has a Falling tone. Notice that the tonal pattern for a LHL monosyllabic verb is consistent with this pattern. The one form that diverges is the imperative form of a monosyllabic H verb root: 'dèp-é.

The imperative form of indefinite verb stems is shown in (105):

(105) High verb roots

- 'dèb-bí-? (from: 'déb-b-à, indef. form of 'dép)  
 tún-dí-? (from: tún-dy-à, indef. form of tún  
 'gather')  
 rêm-bí-? (from: rêm-b-ù, indef. form of rêm  
 'spear')  
 'bùyùd-dí-? (from: 'búyúd-dy-â, indef. form of  
 'búyút 'sharpen')  
 siríd-dí-? (from: siríd-dy-â, indef. form of  
 sirít 'twist, wind')  
 nyá'dòd-dí-? (from: nyá'dód-d-ù, indef. form of  
 nyá'dót 'stick to')

LHL verb roots

- mòg-gí-? (from: mòg-g-â, indef. form of mók)  
 sùd-dí-? (from: sùd-dy-â, indef. form of sùt  
 'bet')  
 rìn-gí-? (from: rìn-g-â, indef. form of ríng'  
 'punish')  
 tèbòg-gí-? (from: tèbóg-g-â, indef. form of tèbòk  
 'fold up')  
 tò mèr-jí-? (from: tò mèr-j-â, indef. form of tò mèr  
 'make drunk')  
 wùjìn-gí-? (from: wùjìn-g-â, indef. form of  
 wùjìng' 'float')  
 dililì-jí-? (from: dililì-j-â, indef. form of  
 dililì 'winnow')

The imperative forms in (105) are interesting. Recall from our analysis of the indefinite verb that we have postulated that a morpheme /jI/ occurs between the verb root and the final vowel /A/. The only direct evidence for the vowel /I/ in the suffix /jI/ so far is (a) the appearance of a y glide after d in examples such as tún-dy-â and (b) the appearance of the /I/ vowel when the indefinite suffix is followed by the instrumental suffix /rI/. Notice that the imperative built on an indefinite stem does not employ the vowel /A/, and when /A/ is not present, we actually do see the vowel of the suffix /jI/ manifest itself on the phonetic surface. The only special segmental fact to note about the forms in (105) is that the imperative suffix /nE/ is not used in conjunction with the

indefinite stem -- we find just a glottal stop at the end of the verb form.

Turning to the tonal aspect of (105), we see that the derived indefinite stem always manifests a tonal shape similar to the monosyllabic H verb roots in the imperative -- L on the stem and H on the final vowel.

The imperative form based on the benefactive stem is illustrated in (106), both in the definite and the indefinite:

(106) High verb roots

dèr-à-kî	dèr-à-kin-dí-?
'bùyùt-à-kî	'bùyùt-à-kin-dí-?

LHL verb roots

mòk-à-kî	mòk-à-kin-dí-?
sàpùk-à-kî	sàpùk-à-kin-dí-?

The morphological structure of these forms is simple. The definite form consists of the verb root followed by the morphological element /A/ followed by /kI/, a truncated form of the benefactive suffix /kIn/. The indefinite form consists of the verb root followed by /A/ followed by /kIn/ followed by the indefinite suffix /jI/ followed by a glottal stop. From a tonal point of view, notice that the definite forms exhibit the same tonal shape as we find for polysyllabic simple verb roots (cf. (104)) and for monosyllabic LHL verb roots (cf. (103)) -- namely, all Low tones until a final Falling tone. The indefinite forms in (106) exhibit the same tonal shape as monosyllabic High verbs (cf. (103)) and all indefinites of simple verb roots (cf. (105)) -- namely, all Low tones until a final H tone.

The imperative form based on the direction toward stem, both in the definite and the indefinite, is shown in (107):

(107) High verb roots

'dèp-û	'dèp-ùn-dí-?
'bùyùt-û	'bùyùt-ùn-dí-?

LHL verb roots

mòk-û	mòk-ùn-dí-?
sápùk-û	sápùk-ùn-dí-?
dilìlì-yù	dilìlì-yùn-dí-?

Morphologically, the definite form consists of the verb root plus /U/, a truncated form of the direction toward suffix /Un/. The indefinite form consists of the verb root plus /Un/ plus the indefinite suffix /jI/ plus a glottal stop. These forms show a tone pattern exactly analagous to those seen in the benefactive forms cited above.

The imperative form of the direction away stem shows the pattern where the non-final syllables are Low and the final syllable is High. We cite examples both in the definite and the indefinite.

(108) High verb roots

'dèp-àr-á?	'dèp-àd-dí-?
'bùyùt-àr-á?	'bùyùt-àd-dí-?

LHL verb roots

mòk-àr-á?	mòk-àd-dí-?
sápùk-àr-á?	sápùk-àd-dí-?
dilìlì-yàr-á?	dilìlì-yàd-dí-?

Morphologically, the definite forms in (108) consist of the verb root plus the direction away elements /Ar/ and /Ad/. The indefinite form consists of the verb root plus /Ad/ plus the indefinite suffix /jI/ plus a glottal stop. Tonally, these forms are interesting because the definite form shows the tone pattern with a final High, whereas the

other derived definite forms (the benefactive, the direction toward) show the pattern with a final Falling tone.

The imperative form of the (active) instrumental is illustrated below. (Recall that there is no definite/indefinite contrast for the instrumental verb in the active voice.)

(109) High verb roots

'dèb-bì 'déb-bí  
'bùyùd-dì 'búyúd-dí

LHL verb roots

mòg-gì móg-gí  
sápùg-gì sápúg-gí

From a morphological point of view, these forms just consist of the verb root plus the indefinite suffix (the instrumental suffix /rɪ/ being optionally elided -- see our earlier discussion of the possible variants of the instrumental verb). Tonally, the first occurrence of the word is on an all Low tone, while the second occurrence is all High except for the last syllable, which is Falling.

We have now surveyed the imperative forms of the major active verb types (both simple and derived). Next let us look at the imperative forms based on passive verbal structures.

The imperative of a passive based on a simple root is illustrated in (110) below.

(110) High verb roots

'dèp-à-ní-?  
'bùyùt-à-ní-?

LHL verb roots

mòk-à-ní-?  
sápùk-à-ní-?  
dìlìlì-yà-ní-?



The morphological structure of these forms appears to be: a verb root followed by the morphological element /A/ followed by /nI/ (which is possibly a variant of the imperative suffix /nE/) followed by a glottal stop. Tonally, these forms exhibit the pattern where all the syllables are Low until the final syllable, which is High.

We turn in (111) to a consideration of the imperative form of a passive verb based on the benefactive stem.

(111) High verb roots

'dèp-à-kì-ní-? (variant: 'dèp-à-kì-né-?)  
'bùyùt-à-kì-ní-?

LHL verb roots

mòk-à-kì-ní-? (variant: mòk-à-kì-né-?)  
sápùk-à-kì-ní-?  
dìlìlì-yà-kì-ní-?

Recall that the simple passive benefactive consists of a verb root plus /A/ plus /kI/ plus a glottal stop (cf. 'dèp-à-kì-?'). The forms in (111) appear to simply insert the imperative suffix /nI/ (alternatively, /nE/) between the benefactive suffix and the glottal stop. Tonally, these forms display the pattern where all the syllables are Low, except the last, which is High.

The imperative based on the passive of a direction toward stem is displayed in (112).

(112) High verb roots

'dèp-w-è-ní-? (variant: 'dèp-w-è-né-?)  
'bùyùt-w-è-ní-?

LHL verb roots

mòk-w-è-ní-? (variant: mòk-w-è-né-?)  
sápùk-w-è-ní-?  
dìlìlì-yè-ní-?

Recall that the passive form of a direction toward stem consists of a verb root plus /w/ plus /E/ plus a glottal stop (cf. 'dép-w-à-?). The items in (112) simply have the imperative element /nI/ (alternatively, /nE/) inserted between the /E/ and the glottal stop. Tonally, we see that again we have the tone pattern where all the syllables are Low, except the last one, which is High.

The imperative of a passive form of the direction away stem is presented in (113).

(113) High verb stems

'dèp-à-jì-ní-? (variant: 'dèp-à-jì-né?)  
'bùyùt-à-jì-ní-?

LHL verb stems

mòk-à-jì-ní-? (variant: mòk-à-jì-né?)  
sápùk-à-jì-ní-?  
dililì-yà-jì-ní-?

Recall that the passive form of a direction away verb consists of the verb root plus /A/ plus /jI/ plus a glottal stop. The imperative forms in (113) simply insert the imperative suffix /nI/ (alternatively, /nE/) between /jI/ and the glottal stop. Tonally, these forms display the same pattern as all the other imperatives of passive verbs: all Low until a final High tone.

The imperative of a passive form of the instrumental stem requires that the passive instrumental verb be doubled:

(114) High verb roots

dèr-à-rì dèr-á-rî/ dèr-à-rì-kìn dèr-á-rì-kìn  
'bùyùt-à-rì 'bùyùt-á-rî/ etc.

LHL verb roots

mòk-à-rì mók-á-rî/ mòk-à-rì-kìn mók-á-rì-kìn  
sápùk-à-rì sápùk-á-rî/ etc.

There is no imperative suffix such as /nI/ or /nE/ in these forms. Segmentally, these expressions just consist of the passive instrumental verb repeated twice. Tonally, the first occurrence of the verb is all Low-toned; the second occurrence is all High-toned until the last syllable, which is Falling in the case of dèr-à-rì dèr-á-rì, but Low in the case of dèr-à-rì-kin dèr-á-rì-kin. We have already seen that the imperative formation of an active instrumental verb involves a similar repetition of the verb form, without imperative suffix but with a special tone pattern. Since this pattern is unique to the instrumental verb in the imperative, there is not much that can be said about it.

The imperative form of a causative verb is illustrated in (115) below:

(115) High verb roots

tò-'dèp-ê  
tò-'bùyùt-ê

LHL verb roots

tò-mòk-ê  
tù-sàpùk-ê  
tò-dìlìlì-nê

These tonal shapes are, of course, just the tonal shapes that any simple LHL verb root would display in the imperative.

The imperative form of an indefinite causative verb is shown in (116).

(116) High verb roots

tò-'dèb-bí-?  
tò-'bùyùd-dí-?

LHL verb roots

tò-mòg-gí-?  
 tù-sàpùg-gí-?  
 tò-dìlìlì-jí-?

Recall that for the indefinite form of a LHL verb root, the imperative form has a High on the final syllable and all Low-toned syllables in front of it. The tone pattern in (116) is, of course, just that pattern.

In fact, in imperative formation, causative/reciprocal verbs behave just like underlying LHL verb roots. For the sake of completeness, we will document this fact in (117), but without discussion of the examples:

(117) imperative caus./rec. benefactive

tò-'dèp-à-kí  
 tù-nyà'dùt-ù-kí  
 tò-'bùyùt-à-kí

imperative caus./rec. direction toward

tò-'dèp-û  
 tò-'mòk-û  
 tò-dìlìlì-yû  
 tù-sàpùk-û

imperative caus./rec. direction away

tò-'dèp-àr-á?  
 tò-mòk-àr-á?  
 tò-dìlìlì-yàr-á?

imperative caus./rec. instrumental

tò-'dèb-bì tò-'dèb-bì  
 tò-kùr-jì tò-kùr-jì  
 tò-'bùyùd-dì tò-'bùyùd-dì  
 tò-dìlìlì-jì tò-dìlìlì-jì

imperative passive caus./rec.

tò-'dèp-à-ní-?  
 tò-mòk-à-ní-?  
 tò-'bùyùt-à-ní-?  
 tù-sàpùk-à-ní-?

imperative pass. caus./rec. benefactive

tò-'dèp-à-kì-né-? (var. tò-'dèp-à-kì-ní-?)  
 tù-nyà'dùt-ù-kì-né-?  
 tò-'bùyùt-à-kì-né-?

imperative pass. caus./rec. direction toward

tò-'dèp-w-è-ní-? (var. tò-'dèp-w-è-né-?)  
 tò-kùr-w-è-ní-?  
 tù-sàpùk-w-è-ní-?  
 tò-dililì-y-è-ní-?

imperative pass. caus./rec. direction away

tù-gál-à-jì-ní-?  
 tò-'bùyùt-à-jì-ní-?  
 tù-sàpùk-à-jì-ní-?

imperative pass. caus./rec. instrumental

tò-'dèp-à-rì tò-'dèp-à-rì  
 tò-dililì-yà-rì tò-dililì-yà-rì

The only point that needs to be made about (117) is that in the case of the instrumental verbs, a LHL pattern occurs on the second occurrence of the passive instrumental verb rather than the pattern encountered earlier: 'dèp-à-rì 'dèp-à-rì.

We have now presented a survey of the imperative construction in Bari. There are essentially two tonal patterns employed (setting aside the case of the instrumental verb, which is clearly a separate case). Both patterns have all the syllables except the last Low. One of the patterns has a final Fall, the other a final High. The forms that have the final High include: all passives, monosyllabic High roots (cf. 'dèp-é), all indefinite forms,

the direction away form (cf. 'dèp-àr-á?). The forms that have a final Fall are: monosyllabic Low roots (cf. mòk-ê), all polysyllabic roots (cf. bìdìng'-ê, dòdòng'-ê), benefactives (cf. dèr-à-kí), and direction toward forms (cf. 'dèp-ù) We have no explanation for this particular array of facts. We simply conclude that imperative formation (a) overrides the lexical tone of the root, (b) assigns a Low tone melody in its place and (c) there is either a H or a Falling tone associated with the final syllable of the construction.

### 2.9. Reduplication in Bari.

In this section we will examine in detail a somewhat complicated aspect of the tonal structure of Bari--namely, the verbal forms that involve the reduplication of the initial syllable of the verb root. We shall distinguish two (tonally distinct) stems involving reduplication--what we will refer to as the reduplicative stem and the repetitive stem. The repetitive stem, however, is somewhat complex, since it sometimes exhibits two versions, which we have labelled the continuative stem and the frequentative stem. If all of this is not confusing enough, there are also a number of verb roots that are lexically reduplicated and display some special properties.

#### 2.9.1. The reduplicative stem.

In Bari the present and future tenses of a verb are formed by using a verbal particle (lò for the present tense, mó, kó, dê, and tù for the future tense) plus reduplication of the initial syllable of the verb root. We will refer to this form of the verb as the reduplicative stem. The reduplicative stem is ordinarily used with one of the verb particles cited above; but it can be used without a particle, as shown below:

- (118) (a.) Jàdà 'dè-'dép 'Jada holds it' (H root)  
 (b.) Pòní là-lák 'Poni unties it' (H root)  
 (c.) Pòní 'bú-'búyùt 'Poni sharpens it' (H root)  
 (d.) Jàdà kú-kúrùp 'Jada roasts it' (H root)  
 (e.) Jàdà mé-mét 'Jada sees it' (LHL root)  
 (f.) Pòní nyé-nyér 'Poni cuts it' (LHL root)  
 (g.) Jàdà sá-sápúk 'Jada overturns it' (LHL  
 root)  
 (h.) Pòní nyá-nyà'bûr 'Jada grinds it' (LHL  
 root)  
 (i.) Pòní dí-dílíli 'Poni winnows it' (LHL root)

The data in (118) show that the reduplicative stem has the shape LH (for a monosyllabic H root), HHL (for a bisyllabic H root), HH (for a monosyllabic LHL root), HLF (for a bisyllabic LHL root), and HLHL (for a trisyllabic LHL root). In Chapter 5, we will show that in conjunction with some verb phrase particles, a monosyllabic H verb root will surface with a HL pattern rather than the LH pattern illustrated above. This point will be ignored for the present.

These same stem shapes appear in the data in (119) below where the verb stem is preceded by a particle.

(119) H roots

- (a.) Jàdà lò tà-tán 'Jada is touching it'  
 (b.) Wàní tù kú-kúrùp 'Wani will roast them'

LHL roots

- (c.) Jàdà lò rú-rúng' 'Jada is rolling it'  
 (d.) Jàdà tù tó-tòjúp 'Jada will dress him'  
 (e.) Pòní mó dí-dílíli 'Poni will winnow it'

We will not at this point explore the tonal shape of the reduplicative stem since its proper understanding depends upon the analysis of the phrasal tonology of Bari, which we undertake in Chapters 4 and Chapter 5. We will therefore postpone an examination of the tonology of the

reduplicative stem in detail until Chapter 5. For our present purposes, just notice that in the reduplicative stem, the reduplicative prefix is ordinarily High-toned. This is in obvious contrast to the repetitive stem dealt with in the next section.

### 2.9.2. The repetitive stem.

The reduplicative form of the stem is used to mark the action of the verb as taking place in the non-past (i.e. the present or the future). There is another morphological structure that also involves reduplication but indicates that the action of the verb is one that is repeated. Let us label this the repetitive stem. The repetitive stem is tonologically distinct from what we have labelled the reduplicative stem, though in many cases there is no segmental contrast. Recall that we have postponed discussion of the tone of the reduplicative stem until Chapter 5, since the tonal characteristics of this stem require understanding of Bari phrasal tonology.

Actually, our use of the term "repetitive stem" represents an oversimplification. Semantically, there is a difference between whether the repetition of the action is concentrated in a certain restricted time frame or whether the repetition is one that occurs, now and then, over some less restricted time frame. The difference can be compared to the difference between an English sentence such as "John kept raising his hand (trying to attract the teacher's attention)" and one such as "John is always raising his hand (to answer the teacher's questions)". This semantic contrast is sometimes linked to a morphological contrast as well. We will use the term "continuative stem" to refer to the reduplication that conveys the sense of an action repeated over a restricted time frame, and the term "frequentative stem" to refer to an action that is repeated over some less restricted time frame. The term "repetitive



stem" will then refer to both the continuative and the frequentative stems indifferently.

Let us begin our study of the repetitive stem by considering consonant-final monosyllabic verb roots.

(120) High verb roots

'dè-'dêp 'hold'  
 dè-dêr 'cook'  
 rê-rêm 'spear'  
 tò-tôk 'cut'  
 kù-kûr 'borrow'

LHL verb roots

mò-môk 'hold, catch'  
 kù-kûr 'dig'  
 mè-mêt 'see'  
 'bò-'bôk 'dig'  
 tò-tôr 'tie'

Examination of the items in (120) reveals that both in the case of H verb roots and in the case of LHL verb roots, the reduplicative prefix is pronounced on a Low tone and the verb root itself is pronounced on a Falling tone. The underlying contrast between H and LHL roots is neutralized on the surface in these data.

It is immediately clear that the items in (120) cannot be regarded tonally as simply the combination of a toneless reduplicative prefix plus the root melody. If this were what is going on, then we would expect \*'dè'dêp rather than the correct 'dè'dêp. While it is true that the reduplicative prefix is Low-toned, it would likewise yield incorrect results if we viewed the items in (120) as simply the combination of a L (from the reduplicative prefix) plus the root melody. If this were what is going on, we would expect \*'dè'dêp.

The most obvious generalization to be made about the data in (120) is that both underlyingly H and underlyingly LHL roots exhibit a LHL melody in the frequentative. That

this is not accidentally so will become clear as we proceed.

The situation with respect to monosyllabic verb roots is not without some complications. Consider the examples in (121).

(121) High verb roots

- (a.) Jàdà à 'bù-'búk-ù píòng' i kátúràn  
'Jada poured water frequently on the flowers'  
(cf. 'búk 'pour')
- (b.) lígòtót à 'dè-'dép-è kípíyá  
'the hunter held the gun frequently'  
(cf. 'dép 'hold')
- (c.) Pòní à 'yù-'yúr-ù bòng'ó?  
'Poni burned the cloth frequently'  
(cf. 'yúr 'burn')

also: dè-dér-è (cook), rè-rém-è (spear), tò-tók-ò  
(cut), kù-kúr-ù (borrow)

LHL verb roots

- (d.) pòlìsì à mò-mók-ò kòlâk  
'the policemen caught thieves frequently'  
(cf. mók 'catch')
- (e.) Jàdà à tì-típ-i 'Jada freq. threshed it'  
(cf. típ 'thresh')
- (f.) Jàdà à mè-mét-è kísùk  
'Jada frequently looked after the cattle'  
(cf. mét 'see, look after')

also: kù-kúr-ù (dig), 'bò-'bók-ò (dig), tò-tórò  
(tie)

The segmental structure of these verbal forms is fairly obvious. They consist of a prefixal reduplication of the initial CV of the verb root plus the suffixation of a vowel that is identical to the root vowel. We will refer to this suffixal vowel as the "echo" vowel. The tonal shape of

the verbs in (121) likewise appears to be straightforward. Notice that there is no difference between the H and the LHL roots. The verb word in every case exhibits a LHL pattern, and the LHL pattern is associated with the three vowels of the frequentative stem in a one-to-one left-to-right fashion (i.e. in accord with the Universal Tone Association Principle). This tonal shape is, of course, perfectly analagous to that found in (120). The only difference is that the items in (120) -- e.g. 'dè-'dêp-- lack the echo vowel, thus the last L of the LHL melody has no (free) vowel to associate to and therefore associates to the last stem vowel by virtue of the Free Tone Association rule.

What is the difference in usage between the forms with the echo vowel, as in (121), and the forms without the echo vowel, as in (120)? It seems that the verb forms in (120) represent what we have labelled the continuative stem, while the forms in (121) represent what we have labelled the frequentative stem. In other word, for consonant-final monosyllabic verb roots, the semantic contrast between the continuative and the frequentative stem is correlated with a morphological difference between the absence of the echo vowel and its presence.

For consonant-final, monosyllabic verbs, then, both a form with and a form without the echo vowel is available. The tonal shape is the same in either case -- there is a LHL melody associated with the entire construction. In (120) and (121) we illustrated just consonant-final monosyllabic roots. Vowel-final monosyllabic roots, shown in (122) below, do not occur with an echo vowel.

(122) High verb roots

pè-pê 'shoot'  
 kî-kî 'climb'  
 'dî-'dî 'stop, plug'  
 wò-wô 'soak in water'

LHL verb roots

rè-rê 'sweep'  
 ng'i-ng'i 'raise up'  
 bò-bô 'neglect'  
 kwè-kwê 'show'

In other words, the continuative and the frequentative stems are not differentiated morphologically for vowel-final monosyllabic stems, and forms such as those in (122) are ambiguous between a continuative and a frequentative interpretation.

Let us turn our attention now to polysyllabic, consonant-final verb roots in the repetitive stem. Examples appear in (123).

(123) High verb roots

'bù-'búyùt 'sharpen'  
 nyà-nyá'dòt 'stick to'  
 bì-bídìng' 'twist'  
 bù-búdyèn 'turn inside out'

LHL verb roots

sà-sápùk 'overturn'  
 kà-kápòk 'slap'  
 tè-tébòk 'fold up'  
 nyà-nyá'bùr 'grind flour'

Once again we see that both underlyingly H and underlyingly LHL verb roots exhibit the same tonal shape in the repetitive stem, and this tonal shape is one that is characterizable in terms of the LHL melody. We can safely conclude, therefore, that the attachment of the reduplicative prefix to a verb stem triggers the supplanting of the underlying root melody by the LHL melody in the formation of the repetitive stem. This LHL melody is then associated to the stem (which includes the reduplicative prefix as well as the verbal root) according to the general principles of tone association in Bari that

we have already reviewed in detail.

Let us now turn to the question of whether there is a distinction between the continuative and the frequentative stem in the case of polysyllabic consonant-final verb stems. It appears that the norm is for there to be no distinction when the verb root is used without any derivational suffix being appended. In other words, 'bù-'búyùt and sà-sápùk are normally used ambiguously to convey both the continuative and the frequentative meanings. It seems to be much less common for an echo vowel to be appended to mark the frequentative stem. In (124) we illustrate the possibility of an echo vowel with bisyllabic verb roots by placing the echo vowel in parentheses.

(124) High verb roots

- (a.) Pòní à kù-kúrùp-(ù) kùmùrà  
'Poni frequently roasted the oil seeds'
- (b.) Jàdà à 'bù-'búyùt-(ù) bìdí  
'Jada frequently sharpened the iron rod'
- (c.) nân à sà-sápùk-(ù) kí'bó  
'I frequently turned the canoe upside down'
- (d.) Jàdà à tù-túgwâr-(à) kúsúk  
'Jada frequently sold the cows'

We will see below that in some of the derived forms of the verb, polysyllabic consonant-final verb roots do display a regular contrast between the continuative stem (without echo vowel) and the frequentative stem (with echo vowel).

Polysyllabic verb roots that end in a vowel are like monosyllabic vowel-final verb roots in that there is just a single form of the repetitive stem which conveys both the continuative and the frequentative meanings. These forms are illustrated in (125) below.

(125) High verb roots

'bò-'bórò 'smear'  
 bù-búdù 'reach the peak of'  
 bù-búdù 'hasten'

LHL verb roots

yà-yáki 'send s.o. to do s.t. for one'  
 tò-tókù 'preach'  
 tò-tó'dù 'make tired'

We have now surveyed the shapes of the repetitive stem based on unsuffixed verb roots. We can now turn to the various derived verbal forms. The repetitive stem can be formed on the basis of an indefinite verb stem. For example, we have repetitive stems of the following type:

(126) High verb roots

'dè-'déb-b-à 'hold'  
 dè-dér-j-à 'cook'  
 rè-rém-b-ù 'spear'  
 'bù-'búyùd-dy-à 'sharpen'  
 nyà-nyá'dòd-d-ù 'stick to'

LHL verb roots

mò-móg-g-à 'hold, catch'  
 kì-kín-d-ù 'shut'  
 sà-sápùg-g-à 'overturn'  
 tè-tébòg-g-à 'fold up'  
 dì-dílìlì-j-à 'winnow'

Tonally these stems are unproblematic -- they have the same tonal shape as any LHL polysyllabic verb (cf. sápùg-g-à).

The forms shown in (126) actually represent the continuative stem. The frequentative stem based on an indefinite verb stem is shown in (127). It is of interest to note that the echo vowel appears after all consonant-final stems, whether monosyllabic or polysyllabic.

(127) High verb roots

(a.) Jàdà à 'bù-'búk-ù-j-â piông' i kátúràn  
'Jada poured water on the flowers freq.'

(b.) Pòní à kù-kúrùp-ù-j-â kùmùrà  
'Poni frequently roasted oil seeds'

other examples:

wì-wíl-i-j-â (from: wí? 'curse')  
kù-kúr-ù-j-â (from: kúr 'borrow')  
bè-bérèny-è-j-â (from: bérén 'spoil')  
kù-kú'dyèt-è-j-â (from: kú'dyét 'pinch a  
little of')

LHL verb roots

(c.) pòlìsi à mò-mók-ò-j-â kòlâk  
'the police caught thieves frequently'

(d.) Jàdà à tù-túgwâr-à-j-ù àmbàtà  
'Jada frequently sold bread'

other examples:

kì-kín-i-j-ù (from: kìn 'shut')  
rà-ráp-à-j-ù (from: ráp 'cover')  
tè-tébòk-ò-j-à (from: tè-bòk 'fold up')  
nyà-nyà'bùr-ù-j-à (from: nyà'bùr 'grind flour')

It should be noted that the forms based on polysyllabic roots permit two tone patterns: either tè-tébòk-ò-j-à, as cited above, or tè-tébòk-ò-j-â. Forms based on monosyllabic roots permit just the tone pattern given in (127): mò-mók-ò-j-â. The tonal shape tè-tébòk-ò-j-à is, of course, the tonal pattern that we expect given that the repetitive stem assigns a LHL tone melody and the indefinite form does not interfere with this melody in any way (since it is interpreted as contributing a final Low tone, which has no effect in the presence of a LHL melody). The forms with a Falling tone -- mò-mók-à-j-â, tè-tébòk-ò-j-â -- are idiosyncratic to the present construction and will require a special statement.

It is only vowel-final verb roots that allow the contrast between the continuative and the frequentative stem based on an indefinite verbal form. Vowel-final stems do not allow the echo vowel, thus there is just a single form available that is ambiguous between a continuative and a frequentative interpretation. Examples:

(128) High verb roots

sì-sì-j-à (from: sì 'sweep off')  
 rù-rù-j-ù (from: rù 'sprinkle water')  
 'bò-'bòrò-j-à (from: 'bòró 'smear')

LHL verb roots

rì-rì-j-ù (from: rì 'set straight')  
 pì-pì-j-à (from: pì 'ask')  
 wì-wì-j-à (from: wì 'cool food by stirring')  
 yà-yàkì-j-à (from: yàkì 'send s.o. for s.t.)  
 dì-dìlìlì-j-à (from: dìlìlì 'winnow')

It should be noted that the forms in (128) based on monosyllabic vowel-final roots permit only the tone pattern cited -- namely, rì-rì-j-ù (LHL), while forms based on polysyllabic vowel-final roots permit either the pattern cited, dì-dìlìlì-j-à, or an alternative pattern with a final Falling tone: dì-dìlìlì-j-â.

In (129) below we exemplify the benefactive form of the repetitive stem (in both the definite and indefinite). There is no contrast available between the continuative and the frequentative stem for consonant-final verb roots. The reason for this may be that in the benefactive there is a linking vowel between the verb root and the benefactive suffix /kIn/. It appears that the echo vowel only appears when the verb root ends in a consonant and the next suffix begins with a consonant.



(129) High verb roots

'dè-'dép-à-kin	'dè-'dép-à-kin-dy-à
'bù-'búyùt-à-kin	'bù-'búyùt-à-kin-dy-à
tù-túk-ù-kin	tù-túk-ù-kin-dy-à

LHL verb roots

mò-mók-à-kin	mò-mók-à-kin-dy-à
sà-sápùk-à-kin	sà-sápùk-à-kin-dy-à
dì-dílìlì-kin	dì-dílìlì-kin-dy-à
kwè-kwé-kin	kwè-kwé-kin-dy-à

Tonally these data are unproblematic. They have exactly the tone shape that any polysyllabic LHL verb would have in the benefactive (cf. sápùk-à-kin, sápùk-à-kin-dy-à).

In (130) we illustrate the direction toward form of a repetitive stem (in both the definite and the indefinite). Again, there is no distinction between the continuative and the frequentative stem here. The addition of an echo vowel does not seem to be possible in front of a vowel-initial suffix like /Un/ -- just as no linking vowel appears in front of this suffix. Given that there is no morphological contrast available, we would expect the repetitive stem of a direction towards verb to be ambiguous between the continuative and the frequentative meanings. But in fact it seems that only the continuative meaning is allowed for these forms.

(130) High verb roots

'dè-'dép-ùn	'dè-'dép-ùn-dy-à
'bù-'búyùt-ùn	'bù-'búyùt-ùn-dy-à
tù-túk-ùn	tù-túk-ùn-dy-à
pè-pé-yùn	pè-pé-yùn-dy-à

LHL verb roots

mò-mók-ùn	mò-mók-ùn-dy-à
sà-sápùk-ùn	sà-sápùk-ùb-dy-à
dì-dílìlì-yùn	dì-dílìlì-yùn-dy-à
kwè-kwé-yùn	kwè-kwé-yùn-dy-à
kù-kúr-ùn	kù-kúr-ùn-dy-à

Again, these items present no tonal difficulties-- they have exactly the tone shape that a polysyllabic LHL verb would have in the direction toward form (cf. sápúk-ùn, sápúk-ùn-dy-à).

In (131) we illustrate the direction away form of the repetitive stem in both the definite and indefinite. Again, there is no contrast possible between a continuative and a frequentative stem, since the echo vowel is not allowed to appear between the verb root and the direction away elements /Ar-A?/. The repetitive stem of the direction away form does not seem to be ambiguous between the continuative and the frequentative meanings -- only the continuative interpretation of these forms seems to be possible.

(131) H verb roots

'dè-'dép-àr-à?	'dè-'dép-àd-d-ù
'bù-'búyùt-àr-à?	'bù-'búyùt-àd-d-ù
tò-tók-òr-ò?	tò-tók-òd-dù

LHL verb roots

mò-mók-àr-à?	mò-mók-àd-d-ù
sà-sápùk-àr-à?	sà-sápùk-àd-dù
dì-dílìlì-yàr-à?	dì-dílìlì-yàd-d-ù
'bò-'bók-àr-à?	'bò-'bók-àd-dù
tò-tór-àr-à?	tò-tór-àd-dù
kwè-kwé-yàr-à?	kwè-kwé-yàd-dù
ng'ì-ng'í-yùr-ù?	ng'ì-ng'í-yùd-dù

As in the previous cases, the repetitive stem LHL behaves tonally just like an underlying LHL (cf. sápúk-àr-à?).

The instrumental passive form of the repetitive stem is shown in (132). There is no morphological contrast between a continuative and a frequentative stem available for this construction, and the forms in (132) are ambiguous between the two senses.

(132) High verb roots

'dè-'dép-à-rì (from: 'dép 'hold')  
 tò-tók-ò-rì (from: tók 'cut with an axe')  
 là-lák-à-rì (from: lák 'untie')  
 dè-dér-à-rì (from: dér 'cook')  
 'bù-'búyút-à-rì (from: 'búyút 'sharpen')

LHL verb roots

mò-mók-à-rì (from: mók 'hold, catch')  
 tí-típ-à-rì (from: típ 'thresh')  
 kwè-kwé-yà-rì (from: kwé 'show')  
 sà-sápùk-à-rì (from: sápùk 'overturn')  
 dì-dílìlì-yà-rì (from: dílìlì 'winnow')

Tonally, of course, there is no problem -- these items show the same pattern as an underlyingly LHL polysyllabic root in the instrumental (cf. sápùk-à-rì).

The repetitive stem of an instrumental active form (which is always used in the indefinite) is illustrated in (133).

(133) High verb roots

'dè-'déb-bì-rì (from: 'dép 'hold')  
 là-lág-gì-rì (from: lák 'untie')  
 'bù-'búyùd-dì-rì (from: 'búyút 'sharpen')

LHL verb roots

mò-móg-gì-rì (from: mók 'hold, catch')  
 kwè-kwé-jì-rì (from: kwé 'show')  
 sà-sápùg-gì-rì (from: sápùk 'overturn')  
 dì-dílìlì-jì-rì (from: dílìlì 'winnow')

Actually, there is a commonly used variant of this construction where the -rì suffix is omitted: tò-tóg-gì 'use s.t. to chop', 'bò-'bórò-jì 'use s.t. to smear'. In effect, this structure seems to involve just the verb root plus the indefinite suffix /jì/, without any overt suffix marking the instrument. That it is an instrumental form rather than a simple indefinite verb is shown by the absence of the final vowel -- i.e. the repetitive form of the simple indefinite verb is tò-tóg-g-ù.

The tone pattern of the data in (133) is as usual unproblematic, reflecting just the usual shape for a polysyllabic LHL stem in the indefinite instrumental (cf. mòg-gí-rì or mòg-gí).

In the case of the consonant-final verb roots in (133), these forms actually represent just the continuative stem. There is a distinct frequentative stem available, which is shown in (134). (This contrast is not available for vowel-final roots, thus an example like kwè-kwé-ji-rì is ambiguous between a continuative and a frequentative sense.)

(134) High verb roots

tò-tók-ò-ji-rì  
dè-dér-è-ji-rì  
'bù-'búyùt-ù-ji-rì

LHL verb roots

mò-mók-ò-ji-rì  
tì-típ-i-ji-rì  
sà-sápùk-ù-ji-rì

but there is actually another more common variant of this construction where the suffix -rì is omitted: dè-dér-è-ji 'use s.t. to cook', rè-rém-è-ji 'use s.t. to spear'. kù-kúr-ù-ji 'use s.t. to dig', 'bù-'búyùt-ù-ji 'use s.t. to sharpen', etc.

It should perhaps be explicitly noted that the indefinite forms in (133) and (134) do not permit a variant pronunciation where there is a final Falling tone. That is, only pronunciations with a final Low tone are available for tò-tóg-gí, tò-tóg-gí-rì, tò-tók-ò-ji-rì, and tò-tók-ò-ji. The variation shown in examples like tè-tébòk-ò-j-à/ tè-tébòk-ò-j-â does not occur.

The repetitive stem can, of course, co-occur with passive morphology. In this section we will illustrate this combination. Consider, first, the repetitive form of a

passive based on a simple root. There are in fact two constructions available. Consider (135), which represents a continuative stem.

(135) High verb roots

'dè-'dép-á  
'bù-'búyùt-á

LHL verb roots

mò-mók-á  
mè-mét-á  
sà-sápùk-á  
dì-dílilí-yà  
ng'í-ng'í-yú  
pì-pí-yá

It is clear in (135) that tonally these forms behave just the same as any passive based on a LHL root melody (cf. sápùk-á). In this case, it just happens that the LHL melody is one that is assigned as part of the formation of the repetitive stem rather than being a lexical specification of individual roots.

There is, however, a second passive formation, this one representing the frequentative stem. It is illustrated in (136):

(136) High verb roots

(a.) piông' à 'bù-'búk-à-tù ì kátúràn  
'water has been poured freq. on the flowers'

(b.) kùmùrâ à kù-kúrùp-à-tù  
'oil seeds were roasted frequently'

other examples:

tò-tók-ò-tù  
'dè-'dép-à-tù  
dè-dér-à-tù  
'bù-'búyùt-à-tù

LHL verb roots

(c.) 'bāng' à rè-ré-yà-tû  
'the courtyard has been swept frequently'

(d.) kí'bó à sà-sápùk-à-tû  
'the canoe was overturned frequently'

other examples:

kù-kúr-ù-tû  
kwè-kwé-yà-tû  
ng'i-ng'í-(y)ù-tû  
tì-típ-à-tû  
mò-mók-à-tû  
'bò-'bók-à-tû  
tò-tór-à-tû  
tù-túgwàr-à-tû  
dì-dìlìlì-yà-tû

There appears to be a dialectal variant of this construction: dè-dér-à-(y)í, mò-mók-à-(y)í.

Notice that the passive frequentative stem displays the usual LHL melody up until the final syllable; the suffix /tU/ is always pronounced with a Falling tone.

The repetitive stem of a benefactive passive is ambiguous between a continuative and a frequentative interpretation.

(137) High verb roots

tù-túk-ù-kì-?  
'dè-'dép-à-kì-?  
'bù-'búyùt-à-kì-?

LHL verb roots

kù-kúr-ù-kì-?  
kwè-kwé-kì-?  
ng'i-ng'í-kì-?  
bò-bó-kì-?  
mò-mók-à-kì-?  
'bò-'bók-à-kì-?  
tò-tór-à-kì-?

The tonal facts of (137) are simple -- the repetitive stem shows the same tonal shape in the passive benefactive

as a LHL polysyllabic stem (cf. sápúk-à-ki-?).

The repetitive stem of a direction toward passive form does not show a morphological contrast between the continuative and the frequentative stems. Only the form without the echo vowel is used, and it conveys the continuative sense.

(138) High verb roots

tù-túk-w-è-?  
'dè-'dép-w-è-?

LHL verb roots

kù-kúr-w-è-?  
mò-mók-w-è-?  
'bò-'bók-w-è-?  
tò-tór-w-è-?  
kwè-kwé-y-è-?  
ng'ì-ng'í-y-è-?  
bò-bó-w-è-?

The tonal facts here are again exactly parallel to the passive of an underlyingly LHL polysyllabic verb root (cf. sápúk-w-è-?).

The repetitive stem form of a direction away passive verb is shown in (139).

(139) High verb stems

tù-túk-ù-jì-?  
'dè-'dép-à-jì-?

LHL verb roots

kù-kúr-ù-jì-?  
mò-mók-à-jì-?  
'bò-'bók-à-jì-?  
tò-tór-à-jì-?  
kwè-kwé-yà-jì-?  
ng'ì-ng'í-yù-jì-?  
bò-bó-(w)à-jì-?

Tonally these items are parallel to the passive direction away forms of a LHL polysyllabic verb stem (cf. sâpùk-à-ji-?). There is no contrast here between the continuative and frequentative stems. Only the form without the echo vowel is used in (139), and the sense conveyed is a continuative one.

What we have seen so far, is that the LHL tonal melody assigned in conjunction with the repetitive stem is indistinguishable from a LHL melody associated with a polysyllabic verb root. This is true in both simple and derived verb forms both in the active and in the passive.

Let us now move onto the repetitive stem in the imperative construction. In (140) we show the imperative of a simple repetitive stem.

(140) High verb roots

'dè-'dèp-ê  
'bù-'bùyùt-ê

LHL verb roots

mò-mòk-ê  
sà-sâpùk-ê  
dì-dililì-nê

These forms can be glossed roughly as "keep on Verbing (over some restricted time period)" and as such are semantically to be identified with the continuative stem. Tonally (140) is indistinguishable from the imperative of a simple LHL polysyllabic root (cf. sâpùk-ê).

There is also an imperative form based on the frequentative stem:

(141) High verb roots

dè-dèr-è-nê dè-dér-è  
'bù-'bùyùt-ù-nê 'bù-'bùyùt

LHL verb roots

mò-mòk-ò-nê mò-mók-ò  
sà-sâpùk-ù-nê sà-sâpùk



The imperative form of the frequentative stem (e.g. dè-dèr-è-nê) is used only in the construction cited above-- i.e. a construction where the imperative form of the verb is immediately followed by the non-imperative form of the verb. This construction is a common one in the language. For example, dèr-é dèr is used to mean 'cook it, don't x it!' It should be noted, however, that the forms in (141) are not given a similar interpretation. dè-dèr-è-nê dè-dér-è means 'go on cooking it from time to time' not 'cook it from time to time, don't x it!' The tonal pattern of dè-dèr-è-nê is, of course, just the tonal pattern of all polysyllabic LHL verb stems in the imperative (cf. dililì-nê).

The indefinite form of an imperative based on the repetitive stem is shown in (142).

(142) High verb roots

'dè-'dèb-bí-?  
'bù-'bùyùd-dí-?

LHL verb roots

mò-mòg-gí-?  
sà-sàpùg-gí-?  
dì-dililì-jí-?

These forms show that the imperative forms of the repetitive stem follow the same tonal generalization that we have seen for the non-imperative repetitive stem-- namely, the repetitive stem assigns a LHL that then functions tonally like any underlying LHL melody. Thus mò-mòg-gí-? is tonally exactly parallel to sàpùg-gí--?.

We list below -- for the sake of completeness -- the imperative forms of repetitive stems based on the various derived verb stems (benefactive, direction toward, etc.).

(143) benefactive definite

- (a.) dè-dèr-à-kí  
 (b.) 'bù-'bùyùt-à-kí

benefactive indefinite

- (c.) dè-dér-à-kin-dí-?  
 (d.) 'bù-'bùyùt-à-kin-dí-?

direction toward definite

- (e.) mò-mòk-û  
 (f.) sà-sàpùk-û

direction toward indefinite

- (g.) mò-mòk-ùn-dí-?  
 (h.) sà-sàpùk-ùn-dí-?

direction away definite

- (i.) kù-kùr-àrá?  
 (j.) nyà-nyà'dòt-òró?

direction away indefinite

- (k.) kù-kùr-àd-dí-?  
 (l.) nyà-nyà'dòt-òd-dí-?

There is no contrast between the continuative and the frequentative stems for any of the above forms. Tonally, these constructions are straightforward: they have the same pattern that any polysyllabic LHL verb stem would have.

It is also possible to form an imperative of the repetitive stem based on an (active indefinite) instrumental verbal form. For this construction there is a contrast between the continuative stem (given in (144)) and the frequentative stem (given in (145)).

- (144) dè-dèr-jì dè-dér-jì (from: dér 'cook', a H root)  
 dò-dòg-gì dò-dóg-gì (from: dók 'fetch', a LHL  
 root)  
 'bù-'bùyùd-dì 'bù-'bùyùd-dì (from: 'bùyùt  
 'sharpen')
- (145) dè-dèr-è-jì dè-dér-è-jì (or: ...dè-dér-è-jì)  
 dò-dòk-ò-jì dò-dók-ò-jì (or: ...dò-dók-ò-jì)  
 'bù-'bùyùt-ù-jì 'bù-'bùyùt-ù-jì

The constructions in (144) and (145), from a segmental perspective, simply involves repeating the continuative or frequentative stem of an instrumental (active indefinite) verb form. Tonally, the first occurrence of the form is entirely Low-toned, while the second occurrence is more complicated. In the case of the continuative stem, the second occurrence of the word just exhibits the LHL pattern. In the case of the frequentative stem, the second occurrence exhibits a LHLF (alternating with a LHL) shape for a monosyllabic root but just a LHL pattern for a polysyllabic root. It should be noted that this tone pattern is not one that simply follows from the repetitive stem formation assigning a LHL melody to the stem. An underlyingly LHL root forms an imperative instrumental as follows: mòg-gì móg-gí and sápùg-gì sápùg-gí.

Next let us turn to imperative forms of repetitive stems based on passive verbs. We begin with the simple passive.

(146) High verb roots

'dè-'dèp-à-ní-?  
'bò-'bòk-à-ní-?  
'bù-'bùyùt-à-ní-?

LHL verb roots

mò-mòk-à-ní-?  
sà-sápùk-à-ní-?  
dì-dilìli-yà-ní?

Recall that in the imperative of (non-reduplicated) passive verbs, the tone pattern is for all the syllables to be Low except for the last, which is High. We see in (146) and below that the repetitive stem follows this pattern.

In (147) below we illustrate the imperative form of a repetitive stem based on passive derived verbs:

(147) passive benefactive

- (a.) kù-kùr-à-kin-i-?  
 (b.) sà-sápùk-à-kin-i-?

passive direction toward

- (c.) 'bò-'bòk-w-è-ní-?  
 (d.) nyà-nyà'dòt-w-è-ní-?

passive direction away

- (e.) gà-gàl-à-jì-ní-?  
 (f.) 'bò-'bòrò-wà-jì-ní-?

passive instrumental

- (g.) dè-dèr-à-rì dè-dér-à-rì  
 (h.) 'bù-'bùyùt-à-rì 'bù-'bùyùt-à-rì

passive instrumental (another version)

- (i.) dè-dèr-à-rì-kin dè-dér-à-rì-kin  
 (j.) sà-sápùk-à-rì-kin sà-sápùk-à-rì-kin

These data require no discussion, since they follow tonally the generalization that the repetitive stem is indistinguishable from a LHL polysyllabic verb stem in the way that it behaves tonally in the verbal morphology.

Recall that the causative/reciprocal word-formation process assigns the stem a LHL tonal melody, just as the repetitive word-formation process does. It should be noted that these two word-formation processes can be combined. The repetitive stem based on a causative/reciprocal of a simple verb root is illustrated in (148).

(148) High verb roots

- tò-tó-'dèp  
 tò-tó-'bùyùt

LHL verb roots

- tò-tó-mòk  
 tù-tù-sápùk  
 tò-tó-dilili

(Throughout this discussion, we will illustrate just the continuative form of the repetitive stem.)

Examination of (148) shows clearly that there is just a single occurrence of a LHL melody in these forms, not two occurrences. If there were two occurrences of the melody, then in an example like tò-tó-dilili we would expect the tone shape \*tò-tó-dililí. Thus we must assume that the LHL melody supplied by the repetitive word-formation process supplants the LHL melody supplied by the causative/reciprocal word-formation process, which previously had supplanted the underlying melody of the root.

The indefinite forms are unremarkable:

(149) High verb roots

tò-tó-'dèb-b-à  
tò-tó-'bùyùd-dy-à

LHL verb roots

tò-tó-mòg-g-à  
tù-tú-sápùg-g-à  
tò-tó-dililì-j-à

In (150) we show the repetitive form of a causative/reciprocal benefactive stem (in both the definite and indefinite forms).

(150) High verb roots

tò-tó-'dèp-à-kin      tò-tó-'dèp-à-kin-dy-à  
tò-tó-'bùyùt-à-kin      tò-tó-'bùyùt-à-kin-dy-à

LHL verb roots

tò-tó-mòk-à-kin      tò-tó-mòk-à-kin-dy-à  
tù-tú-sápùk-à-kin      tù-tú-sápùk-à-kin-dy-à  
tò-tó-dililì-yà-kin      tò-tó-dililì-yà-kin-dy-à

That there is a single LHL melody associated with these verbal forms is very obvious, and no further comment is called for.

The repetitive stem of a causative/reciprocal form of a direction toward verb (both in the definite and the indefinite) is shown in (151).

(151) High verb roots

tò-tó-'dèp-ùn	tò-tó-'dèp-ùn-dy-à
tò-tó-'bùyùt-ùn	tò-tó-'bùyùt-ùn-dy-à

LHL verb roots

tò-tó-mòk-ùn	tò-tó-mòk-ùn-dy-à
tù-tú-sápùk-ùn	tù-tú-sápùk-ùn-dy-à
tò-tó-dililì-yùn	tò-tó-dililì-yùn-dy-à

These data show clearly that the tonal pattern of this morphologically complex form is exactly the same as that of a morphologically simple polysyllabic verb stem (cf. sápùk-ùn and dililì-yùn).

The repetitive stem of a causative direction away verb (both in the definite and the indefinite) is presented in (152).

(152) High verb roots

tò-tó-'dèp-àrà?	tò-tó-'dèp-àd-d-ù
tò-tó-'bùyùt-àrà?	tò-tó-'bùyùt-àd-d-ù

LHL verb roots

tò-tó-mòk-àrà?	tò-tó-mòk-àd-d-ù
tù-tú-sápùk-àrà?	tù-tú-sápùk-àd-d-ù
tò-tó-dililì-yàrà?	tò-tó-dililì-yàd-d-ù

Tonally, of course, these items parallel a simple LHL verb in the direction away (cf. sápùk-àr-à?).

The repetitive stem based on the causative/reciprocal of an instrumental (active indefinite) verb is illustrated in (153).

(153) High verb roots

tò-tó-'dèb-bì(-rì)  
tò-tó-'bùyùd-dì(-rì)

LHL verb roots

tò-tó-mòg-gì(-rì)  
tù-tú-sápùg-gì(-rì)

By now no comment should be necessary with respect to the tonology of these forms.

We can, of course, have passive forms of repetitive stems based on causative/reciprocal stems. We will not go through all of the forms. It will be sufficient to illustrate with the repetitive causative/reciprocal of a simple verb root:

(154) High verb roots

tò-tó-'dèp-á  
tò-tó-'bùyùt-á

LHL verb roots

tò-tó-mòk-á  
tù-tú-sápùk-á  
tò-tó-dilìlì-yá

It seems clear from these data that (a) there is a High tone associated with the last vowel of the passive and that the LHL melody assigned by the repetitive stem formation process associates with all of the preceding syllables in accordance with the usual tone association principles. This is, of course, just the analysis that we provided for the passive of morphologically simple polysyllabic LHL verb stems (cf. dilìlì-yá).

We will forego illustrating the derived passive stems (i.e. the passive benefactive, passive direction toward, etc.) in the repetitive causative/reciprocal form. They can be readily deduced from the unreduplicated forms given in (102) above.

A repetitive stem based on a casuative/reciprocal stem can of course be used in the imperative. We illustrate this just briefly, citing the definite and indefinite forms of a repetitive stem based on a simple causative/reciprocal stem.

(155) High verb roots

tò-tò-'dèp-ê	tò-tò-'dèb-bí-?
tò-tò-'bùyùt-ê	tò-tò-'bùyùd-dí-?

LHL verb roots

tò-tò-mòk-ê	tò-tò-mòg-gí-?
tù-tù-sàpùk-ê	tù-tù-sàpùg-gí-?
tò-tò-dilili-nê	tò-tò-dilili-jí-?

It is clear from these examples that the imperative tonal pattern overrides the LHL melody supplied by the repetitive stem formation process (just as it overrides a lexical tone melody).

We will not show the imperative forms of reduplicated causative/reciprocal forms based on the various derived verb stems (benefactive, direction toward, passive, passive benefactive, etc.). They can be derived readily from the unreduplicated forms cited in (117) above. In each case (except for the instrumental forms, which are distinct), the tonal shape of the imperative construction overrides the LHL pattern assigned by the repetitive stem formation.

2.10. Lexically reduplicated verb stems.

There are a number of Bari verbs which appear to be lexically reduplicated -- i.e. the verb is always used with reduplication, the root that forms the basis of the reduplication never being used alone. For example, the verb bò-bôt 'soil' seems to be a reduplication of a hypothetical root \*bót, but \*bót in fact never occurs while bò-bôt is used in environments where reduplication is not the norm.



For example, the past tense particle à normally takes a non-reduplicated verb stem, as seen in (156) below.

- (156) (a.) Jàdà à 'bók 'Jada dug it'  
 (b.) Pòní à 'dép 'Poni held it'

The lexically reduplicated verb stems manifest reduplication in this environment:

- (157) (a.) Jàdà à bò-bôt 'Jada soiled it'  
 (b.) Pòní à tè-tên 'Poni fixed it'

and there is no corresponding unreduplicated stem that can be used in this context. Notice that in this context the verb does not convey the notion that the action was performed repeatedly (either in the continuative or the frequentative sense), but rather that the action was carried out (in the past) on one occasion.

Some of the lexically reduplicated verb stems are listed in (158) below:

- (158) lì-lîng' 'smoothen'  
 'dì-'dík 'test'  
 sè-sêm 'fence'  
 lù-lùm 'choose the best from different places'  
 'dì-'dík 'test'  
 lè-lêng' 'notch'  
 lì-lîm 'drizzle'  
 rì-rík 'mend'  
 dò-dông' 'shake'  
 ng'ò-ng'ò 'winnow'  
 pè-pên 'gather'  
 mà-mâ 'fry in a pan'  
 kù-kú'dì 'tickle'  
 mà-màràng' 'threaten'

Notice that in every case a lexically reduplicated verb stem has the tonal shape LHL. Recall that the repetitive stem also involves the assignment of a LHL melody in place of the lexical root melody.

The lexically reduplicated forms listed above form their indefinite form like all LHL roots.

(159) (a.) Jàdà à bò-bód-dy-à bòngó?  
'Jada soiled a dress'

(b.) Pòní à sè-sém-b-à kàdī  
'Poni put a fence around a house'

(c.) Jàdà à lì-lín-g-à kàdī  
'Jada smoothed (the floor of) the house'

(d.) nân à 'dī-'díg-g-à ng'útú?  
'I tested somebody'

The lexically reduplicated verbs derive the benefactive, direction toward, direction away, and instrumental forms just like any LHL root. We illustrate just the benefactive.

(160) benefactive definite

(a.) ...à tè-tén-à-kin '...fixed for him'

(b.) ...à sè-sém-à-kin '...fenced for him'

(c.) ...à lì-líng'-à-kin '...smoothened for him'

benefactive indefinite

(d.) ...à bò-bót-à-kin-dy-à  
'...soiled s.t. for him'

(e.) ...à sè-sém-à-kin-dy-à  
'...fenced s.t. for him'

(f.) ...à lì-líng'-à-kin-dy-à  
'...smoothened s.t. for him'

The lexically reduplicated verbs form the passive in a fashion that is identical to that of any LHL verb root.

(161) simple passive

(a.) ...à 'dī-'dík-á '...was tested'

(b.) ...à sè-sém-á '...was fenced'

(c.) ...à bò-bót-á '...was soiled'

passive benefactive

- (d.) ...à 'dì-'dík-à-ki-? '...was tested for  
him'  
 (e.) ...à sè-sém-à-ki-? '...was fenced for him'  
 (f.) ...à bò-bót-à-ki-? '...was soiled for him'

Up until this point, the lexically reduplicated verbs were structurally indistinguishable from non-reduplicated LHL verb roots. It is not the case that these items are always indistinguishable however.

Recall that in the present and future tenses, the reduplicative stem is used rather than the simple verb root. The first thing that is striking about the lexically reduplicated verbs under discussion is that they do not undergo further reduplication in the present and future tenses. Thus from bò-bôt one cannot form a reduplicative stem \*bó-bò-bôt. The reduplicative stem of lexically reduplicated verbs is segmentally the same as the simple stem -- the only difference is a tonal one.

We illustrate the reduplicated stem of lexically reduplicated verbs in (162) below.

(162) definite form

- (a.) ...mó lí-líng' '...will smoothen it'  
 (b.) ...kó bó-bôt '...will soil it'

indefinite form

- (c.) ...lò té-tén-dy-à '...is fixing s.t.'  
 (d.) ...mó 'dì-'díg-g-à '...will test s.t.'

Recall that we will be examining the tonal pattern of the reduplicative stem in Chapter 5. Until then, it is sufficient to note that tonally lí-líng' and té-tén-dy-à are not identical to the reduplicative stems of non-reduplicated LHL roots -- cf. mé-mét, not \*mé-mét. We will examine this difference in Chapter 5 both for simple lexically reduplicated roots as well as for derived forms of such roots.

## CHAPTER 3

## NON-VERBAL TONOLOGY

3.1.0. An introduction to the Bari noun.

A Bari noun may consist minimally of a root. Noun roots (like verb roots) are, in their simplest form, CV(C) in structure. Monosyllabic noun roots may be either High-toned, Low-toned, or Falling-toned. Examples are given in (1):

(1) High-toned monosyllabic noun roots

kí	'heaven'
lút	'dirt'
kin	'human faeces'
lé	'milk'
túr	'village, clan'
dó	'you'
tá	'you pl.'
sé	'they'
nyé	'he'
kwé	'head'
gór	'spear'
gór	'collarbone'
bár	'flood'
kúk	'charcoal'
'bét	'carefree person'
géng'	'group of people'
jók	'groin'
kér	'place marked for new cultivation'
rút	'penis'
kák	'earth, ground, world'
tár	'marsh, swamp'
bór	'foot (of a mountain); hernia'
mér	'crown of the head'
rét	'tear, wound, hurting part of the body'
báp	'abdomen'
kóng'	'eyebrow ridge'
bún	'coffee'
dáng'	'bow'
nán	'which?'
tóm	'native guitar'

dúng' 'clan'  
 bér 'age-group'  
 ng'ár 'hip-bone'  
 bâm 'careless person'  
 lúm 'thatching grass'

Low-toned monosyllabic noun roots

kâk 'earth'  
 dàk 'pipe'  
 mòk 'antbear'  
 gòp 'skin back cloth'  
 gwàng' 'wild cat'  
 têr 'long pole for paddling canoe'

Falling-toned monosyllabic noun roots

têng' 'group, herd'  
 ng'ûn 'God'  
 tîr 'cultivation area'  
 swât 'ear'  
 bûk 'book'  
 nân 'I'  
 yí? 'we'  
 'bâng' 'home'  
 'bêt 'small hoe used for weeding'

The picture that we have presented above of the monosyllabic noun roots is misleadingly simple. Although there are indeed just three tonal shapes for monosyllabic roots, there are actually five patterns of tonological behavior when we consider the phrasal phonology of Bari.

As we indicated in Chapter 1, and as we will develop in detail in Chapter 4, Bari words are affected by a preceding word that ends in a High tone. The nouns that we have listed in (1) as being High-toned actually display two distinct types of behavior in the event that they are preceded by a word ending in a High tone. One type of H noun (which we label H<sub>1</sub>) alternates with Low in the post-High environment:

- (2) ...â ryák tûr '...robbed the village'  
 (cf. tûr 'village')

The second type of H monosyllabic noun (which we label H<sub>2</sub>) alternates with a Falling tone in the post-High environment:

- (3) ...à mát lê '...drank the milk'  
(cf. lé 'milk')

The nouns that we listed in (1) as Low also fall into two different types in terms of their behavior in the post-High context. One type (which we label L<sub>1</sub>) remains Low when preceded by a word that ends in a High tone.

- (4) ...à lók mòk '...entrapped the antbear'  
(cf. mòk 'antbear')

The second type of Low monosyllable (which we label L<sub>2</sub>) changes to a Falling tone in the post-High environment:

- (5) ...à mét dâk '...saw the pipe'  
(cf. dâk 'pipe')

The nouns that we listed in (1) as having a Falling tone all alternate with Low in the post-High environment:

- (6) ...à mó? ng'ùn '...beseeched God'  
(cf. ng'ùn 'God')

We will consider the problems posed by the above data in some detail in Chapter 4. It turns out that the fact that High monosyllabic nouns show two distinct patterns of behavior and that Low monosyllabic nouns also show two distinct patterns of behavior does not necessarily lead to the conclusion that there are four distinct tonal shapes underlying these four classes of nouns.

Although monosyllabic noun roots pose some problems (since they exhibit, at the phrasal level, more tonal patterns than the expected three), bisyllabic and longer

roots are rather more straightforward. In each case, we find that non-final syllables can be either H or L (with no constraints on the sequencing of these tones) and the last syllable can be either H, L, or Falling. Again, there are no constraints on the sequencing of the final tone vis à vis the preceding tones. In other words, Bari nominal roots display non-melodic tone -- i.e. the tonal shape of a Bari nominal root is dependent on how many syllables there are. This contrasts with the melodic tone exhibited by Bari verb roots, where there are just two tonal shapes no matter how many syllables there may be in the root.

For disyllabic noun roots there are six possible tonal shapes: HH, HL, HF, LH, LL, LF. These six shapes are illustrated in (7) below:

(7) HH noun roots

wúrí	'wild pig'
káré	'river'
kídí	'well'
kí'bó	'canoe'
pápá	'trench'
kimáng'	'fire'
kinyó	'food'
kóká	'leopard'
kúpá	'basket'
kútúk	'mouth'
kíyúk	'turn'
kúdúk	'club for threshing'
kákít, yákít	'grass head-pad'
régóng'	'sp. fish'
kóló?	'hatchet'
'búkú	'shield'
dúdú	'fish harpoon'
?ápú	'crime, misdemeanor'
'díkó?	'cloud'
'dílong'	'meat, meat sauce'
góbér	'hide, leather'
kídí	'shoulder'
sú'bí	'tree gum'
gwóró?	'voice'
gwúlú?	'knob of a tree'
kí'dém	'evil eye'
gó'bór	'shell of the Nile turtle'
kinyóng'	'crocodile'

másá? 'slap'  
 méjé? 'red ochre'  
 súrí 'sp. fish'  
 pátá? 'string, rope'  
 ng'édép 'tongue'  
 méré 'mountain'  
 kólé 'hoe'

HL noun roots

dúlùr 'castor oil plant'  
 kópò 'cup'  
 tábà 'tobacco'  
 méjà 'table'  
 léme? 'new grass'  
 bíbì? 'small basket'  
 jújúk 'chest'  
 kílèng' 'rock rabbit'  
 gú'dù? 'hump'  
 bérèt 'sp. fish'  
 báò? 'board, plank'  
 béggò? 'crops just sprouting'  
 bángì? 'marijuana'  
 bíbì 'buzzing fly'  
 wúri 'cork'  
 nyúti 'thigh'  
 dími 'sp. tree with hard white wood'  
 kiti 'chair'  
 tíryè 'a tree whose bark is used for making rope'

HF noun roots:

kótèt 'tail'  
 jógì 'necklace of ostrich egg shell'  
 yáwà 'beer'  
 kíng'â 'year'  
 ráng'è 'honey badger'  
 mú'dâ 'pot'  
 lúbâ 'long handle of a hoe'  
 já'bè 'rainy season'  
 kíkò? 'way, road'  
 maring' 'fence'  
 méling' 'dry season'  
 mú'ding' 'forest'  
 nyúrit 'reed rat'  
 lípò? 'earth, mud'  
 yápà? 'moon'  
 gúlâm 'grave'  
 péle? 'belly'  
 mókên 'mother-in-law'  
 mékôr 'buffalo'



kípyá 'gun, thunderbolt'  
 tígí 'spotted wild cat'  
 dúng'í 'thorny shrub used in making fences'

LH noun roots:

ng'ù mí 'needle'  
 bòngó? 'cloth'  
 mànyá 'stepchild'  
 kùmé 'nose'  
 bilá? 'small whistle'  
 gùwé 'jackal'  
 kàyú 'first-born'  
 bìsó? 'target game'  
 bùdú? 'wedding dance'  
 kòng'é 'eye'  
 kitún 'python'

LL noun roots:

dùpà? 'cradle'  
 tètò 'mat'  
 bòjò 'September'  
 gwàkà 'forked pole'  
 kòsò 'tiny basket for tobacco'  
 ràbà 'platform, bottom'  
 kà'hà 'large spear blade'  
 kòyit 'riddle'  
 sùrdèng' 'spotted field mouse'  
 lòwè 'arrow'  
 bùtí 'sp. tree'  
 gwèrì 'an oath to fight until the end'  
 bìní 'maize tassel'  
 bòdò 'expert, craftsman'  
 dípò 'dancing yard'  
 kòrè 'dance'  
 tímí 'a brass cylindrical bead worn by girls'  
 wídí 'noose for trapping mice'

LF noun roots:

wíní 'medicine'  
 kitá 'job'  
 làkà 'wild grain'  
 kisé 'first rain'  
 kàtá 'the inside, internal'  
 pìrít 'place'  
 kòrèk 'spear'  
 'bùnit 'woman's wear'  
 gògòk 'Grant's zebra'

ng'ùrú? 'stunted, undersized'  
 kijò? 'grind-stone'  
 kàmé? 'spoon'  
 bábùr 'steamer'  
 bènjin 'petrol, gas'  
 ki'bf 'wild fig tree'  
 kàlf 'whip, song'  
 kùmfi 'sp. fruit tree'

Trisyllabic noun roots would be expected to have any of the following tonal shapes: HHH, HHL, HHF, HLH, HLL, HLF, LLH, LLL, LLF, LHL, LHH, LHF. We have found examples of most of these patterns:

(8) HHH noun roots:

pílílí 'small knife'  
 kábúdú 'reaped and discarded heads of grain'  
 lókíling' 'elbow'  
 gwákísík 'playing shells'  
 gwálíling' 'cheek'  
 kúlúlúng' 'skull'  
 kásúlúk 'umbilical hernia'  
 kwórókó? 'ankle'  
 kípítá? 'string, rope'  
 gwórókó? 'haughty person'

HHL noun roots:

líkitò 'rabbit'  
 nyángílò 'sp. tree whose wood is used for hoes'  
 kánàrè 'glass beads'  
 kiríbù 'civet cat'  
 gwúlúkùk 'ground hornbill'  
 kiríkòk 'chameleon'  
 kísáàk 'duck'  
 kító'bòk 'land tortoise'  
 'yúlúkùt 'small gourd ladle'  
 mú'dákàt 'placenta'  
 kápáyàk 'a kind of stork'  
 kúndúrèk 'handle of a small hatchet'  
 térèrè 'arid place'  
 nyá lí'bè 'sp. tree'  
 táping'i 'guinea-fowl'  
 kúmbíri 'Uganda kob'  
 díríri 'cricket'  
 túkúyù 'piece of charred wood'  
 kírí'di 'passage between mountains'  
 táwíli 'heart, soul, conscience'

HHE noun roots:

márátê 'kinsman'  
 téménēng' 'side of head'  
 nékénēt 'rope, cord'  
 mélésēn 'garden'

HLH noun roots:

tíríbí 'pipe stem'  
 gwárgwálá? 'pennant-winged Nightjar'  
 kúkùlí? 'black and white wagtail'  
 tíngílí? 'smallest drum'  
 kágòré 'crab'

HLL noun roots:

bírísí 'mat'  
 básàlà 'onion'  
 ng'únùmi 'whiskers'

HLF noun roots:

(no examples in our data for unanalyzable roots)

LLH noun roots:

jègwèrí 'comb'  
 kàbído 'pumpkin leaves'  
 sílì'bá 'flute'  
 gùlù'bá 'depression'  
 nyàlàamá 'gap'  
 kàlàbá 'bowl'  
 kí'dírá 'ash, rubbish heap'  
 kápùlét 'navel'  
 kádù'bá? 'dropsy'  
 sùkù'bé? 'upper part of the breast bone'  
 kàtùkú 'crown of the skull'  
 kà'bùlú 'large pool in a river'  
 lèkèmbé 'Zande harp'  
 mārùrú 'hard clod'  
 māsù'dú 'big abcess'  
 kòndòré 'a high shelter overlooking a garden'

LLL noun roots:

àmbàtà 'bread'  
 sùlùkwàk 'hoof'  
 kàlàngwàng' 'trap for big game'

gàòrò 'trap for big game'  
 kèlèwè 'a skipping game'  
 kilikwòk 'red-fronted Barbet'  
 wùjùgù 'baboon'  
 nyàkwàri 'grandchild'  
 rùngùli 'a kind of shield'  
 rùngùli 'large owl'  
 àmbàlù 'edible white pumpkin'  
 gwònkèrè 'puff adder'  
 lùbàgù 'hyena'  
 tìgìgì 'rhinoceros'  
 tòngùrìli 'spur of cock or fish fin'  
 tàgìli 'spur of cock or fish fin'  
 tùlùggi 'small club of hard wood'  
 kírì'bit 'sp. grass'  
 kòpèngò 'sack, usu. made of goatskin or bark'

LLF noun roots:

kàkùrì 'wild vegetable'  
 kàtirùt 'cold'  
 bàràmit 'barrel'  
 kàbùng'át 'air, wind'  
 kàtùmit 'door'  
 kà'bèlè 'gourd potshard'  
 ng'èlè'bè 'broken gourd-dish'  
 lùpùdf 'child'  
 kàmìrù 'lion'

LHL noun roots:

birìgò? 'blood-tapping horn'  
 kòrómbò 'large new hoe'  
 yàkányè? 'grandmother'  
 sùrkáli 'local police'  
 mèrényè 'grandfather'  
 gàmbyà 'stomach'  
 gàmùri 'shell of Nile turtle used for washing'  
 kàlìndì 'sp. tree good for making canoes'  
 swàlíki 'black-billed lesser hornbill'  
 kàmítì 'mud fish'  
 mèngélè? 'scaly anteater'  
 màkùngù 'subchief'  
 kòrnìni 'sp. poisonous snake'

LHH noun roots:

(no examples in our data for unanalyzable roots)

LHF noun roots:

(no examples in our data)

The above data for trisyllabic noun roots confirm our observation that tone in Bari noun roots is non-melodic. There is not a small, fixed number of tonal shapes assigned to a root independently of the number of syllables in the root. Rather, each syllable of a noun root selects a tone independently of the tone selected by other root syllables (the only limitation being that a Falling tone can be selected only by the last syllable).

There are some quadrisyllabic (or longer) noun roots in Bari, and they likewise suggest that tone in Bari nouns is non-melodic. The following examples can be cited. While we have not found instances of all the logically possible tone patterns for a quadrisyllabic noun roots, the reason for this seems clearly to be the paucity of quadrisyllabic noun roots. Those that do occur clearly suggest that any tone sequence is possible.

(9) HHHH noun roots:

téménééné? 'yellow ants'

HHHL noun roots:

sárámándi 'groundnut'  
 kúlúngúyù 'small winged white ants'  
 kélékémùt 'a kind of shrub'  
 kílingiyò? 'see-saw'  
 kíligiryè? 'black-beaked weaver sparrow'  
 kábókóyò 'small passerine bird'

HLHL noun roots:

gwóng'kòrókòk 'puff adder'  
 sísilíwà 'mushrooms'

LLHL noun roots:

bàtányà 'blanket'  
 àràbíyà 'car, lorry'  
 kà'bùrélèng' 'dirt in the eyes'

LHLL noun roots:

jàmbúlùkùk 'large vulture'  
 dômínìkà 'Sunday'  
 kàlíkìsùk 'yellow wagtail'  
 àmùlèrè 'whistle-pipe'  
 bàtìsìmò 'baptism'  
 kàlìlìkwòk 'wall window'

LHLH noun roots:

sùbésùbék 'red-collared white stork'  
 kòròkòròk 'blackboard'  
 gùrùkgùrùk 'sp. fish'  
 kápúpùrú 'tiny flowery grass'  
 kàlákàlák 'tiny winged ants'

LHLF noun roots:

líkìkírì? 'folklore fable'  
 kàbábàlàng' 'the lower part of the ear lobe'  
 kà'bì'bìnyâ? 'foreskin'  
 kàjé'bòlyòk 'gecko'

LLLH noun roots:

pèdèdèét 'tiny bird'  
 kèrèkètò 'rag'

LLLF noun roots:

kèrèkètò 'rags'

LLLL noun roots:

mùtìng'mùtìng' 'rhinoceros'  
 kàdyàdyàrì 'an evergreen shrub good for fences'  
 kèlèngwèrè 'the trigger of a mousetrap'  
 kírìmìjì 'a procumbent herb'

HHHHL noun roots

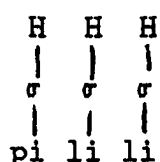
kùlùngùgùyù 'small winged white ants'

LLLLH noun roots:

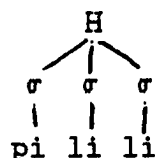
tèbèdèdèét 'sp. bird'

The data listed above suggest that in the underlying structure of Bari nouns we must specify for each syllable in the noun what its tonal shape is. The possible tonal shapes in a Bari noun cannot be reduced to a small set of "tonal melodies", such that the tonal realization of any given syllable of a noun can be derived by rule from the overall melody of the noun. Rather, the tonal realization of any given syllable in a noun seems to be determined by that syllable and that syllable alone.

It is not obvious, however, in an autosegmental treatment, whether a sequence of syllables in a Bari noun that have the same tonal realization should be regarded as a series of tones, e.g.

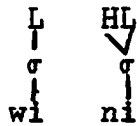


or as a single tone multiply-linked, as in:



In verbs, of course, there was evidence in favor of the multiple-linking analysis. Evidence with respect to nouns will be examined later in Chapter 4. We will simply assume, for the present, the sort of representation where there is a single, multiply-linked tone.

It should be noted that we are assuming that Falling tones are represented as a sequence of a High and a Low tone associated with the same syllable:



The evidence for this representation in Bari is strong in Bari verbal tonology, as we have seen. The nominal tonology supports the analysis as well, as will be seen in Chapter 4.

### 3.1.1. Bari noun morphology.

Although a Bari noun may consist of just a root and no other morphological element, there are several nominal affixes that may co-occur with a root. These include a few prefixes, but mostly suffixes. The most significant morphological feature of the Bari noun is the number marking. Bari nouns may be marked either for singularity or for plurality.

For the purposes of this discussion, we will classify Bari noun roots into two types: (A) and (B), according to their behavior with respect to number marking. Type (A) noun roots are inherently singular, and they are marked for plurality by the addition of a suffix. Some examples of such noun roots:

- |     |                 |                    |
|-----|-----------------|--------------------|
| (7) | kópò 'cup'      | kópò-jín 'cups'    |
|     | wúrí 'wild pig' | wúry-â 'wild pigs' |
|     | tár 'lake'      | tár-ân 'lakes'     |

Type (B) noun roots are inherently plural (generally, collective nouns) and they are marked for singularity by the addition of a suffix. Examples:

- |     |                       |                                 |
|-----|-----------------------|---------------------------------|
| (8) | kwén 'birds'          | kwén-tí 'a bird'                |
|     | sómót 'fish'          | súmú-tí 'a fish'                |
|     | dúmát 'copper, brass' | dúmát-tí 'a piece of<br>copper' |
|     | sísilíwà 'mushrooms'  | sísilíwà-tí 'a mushroom'        |





There is also an agentive formation illustrated in (11).

- (11) kà-kúr-ù-nít 'a farmer' kà-kúr-ù-k (pl.)  
 cf. kúr 'dig'
- kà-dér-à-nít 'a cook' kà-dér-à-k (pl.)  
 cf. dér 'cook'
- kà-nyá-à-nít 'a glutton' kà-nyá-à-k (pl.)  
 cf. nyá 'eat'
- kà-tók-ò-nít 'a wood cutter' kà-tók-ò-k (pl.)  
 cf. tók 'cut with an axe'

This construction involves the attachment of a prefix, the insertion of a 'linking' vowel (see the discussion of the verbal morphology in Chapter 2), and either a suffix /nít/ (indicating singular) or -k (indicating plural).

#### 3.1.2.0. Tonal aspects of number marking in Bari.

In this section we will examine the tonal alternations associated with the number marking system in Bari. We will examine first the suffixation of plural-marking suffixes to type (A) verb roots. We should perhaps note that a number of lexical items may co-occur with more than one pluralizing suffix (e.g. a suffixed form with /jIn/ is often an available option for nouns that take other suffixes).

#### 3.1.2.1. The pluralizing suffix /A/.

The pluralizing suffix /A/ undergoes two major segmental alternations: vowel harmony and the rule that raises a low vowel to mid after a [+ATR] mid vowel. As a result of these rules, this suffix appears in the three shapes: à, â, and ò. Examples:

(12)	rét	rét-ò	'a tear, wound'
	gór	gór-ò	'spear'
	bór	bór-à	'foot (of a mountain)'
	gwúlú?	gwúlúl-à	'snail'
	kéré	kéry-â	'gourd'
	lélé	lély-â	'flat rock'
	kídí	kidy-â	'well'
	gúlám	gúlám-â	'grave'
	yápá	yápál-à	'moon, month'
	gwórókò?	gwórókól-ò	'haughty person'
	kípiyá?	kípiyál-à	'gun'
	mélésén	mélésén-ò	'garden'

If a noun root ends in a vowel (always, a non-low vowel), that non-low vowel will be manifested as the corresponding glide in position before the suffix /A/ -- in other words, the final syllable of the noun root and the /A/ will merge into a single syllable. Many examples of this phenomenon will be seen in the course of our presentation of the tonal facts about /A/ and thus we do not need to give examples at this point.

The suffix /A/ is generally manifested on a Low tone. This is the only possible shape for this suffix in the environment after a H-final noun root:

(13)	mér	mér-à	'crown of the head'
	rí?	rín-à	'large tree for nice shade'
	kóng'	kóng'-ò	'eyebrow ridge'
	kíyé?	kíyél-ò	'small red tumor in the vulva'
	kóló?	kólól-ò	'hatchet'
	kópór	kópór-ò	'gunwale, edge of a wound'
	nyékém	nyékém-à	'chin'
	ng'édép	ng'édép-à	'tongue'
	módóng'	módóng'-à	'old'
	pátá?	pátál-à	'string, rope'
	péték	péték-ò	'long spear for fish'
	tíkán	tíkány-â	'large island in the Nile'
	róró?	róról-ò	'voice, larynx'
	tá'dók	tá'dók-à	'earthenware pot'
	múrút	múrút-à	'neck'
	múkák	múkák-à	'bottom, base, root'
	múgún	múgúny-à	'body'
	kísúm	kísúm-à	'poison'
	gwórókó?	gwórókól-ò	'haughty'
	kípítá?	kípítál-à	'string, rope'

If, however, the noun root is vowel-final and ends in a H tone, there will be a Falling tone on the suffix /A/. The explanation for this is, of course, fairly obvious. The H tone of the last syllable of the noun stem is retained when that syllable merges with the /A/ suffix into a single syllable.

(14)	bíkí	bíky-â	'leather girdle of the <u>kapira</u> '
	dúpí	dúpy-â	'fight between rams'
	gúlí	gúly-â	'digging stick'
	kídí	kídy-â	'well'
	lórí	lóry-â	'iron bar'
	ng'ébí	ng'éby-â	'cheek'
	wúrí	wúry-â	'wild pig'
	túlí	túly-â	'small pot'
	lárí	láry-â	'drum'
	kábí	káby-â	'flat basket'
	pílílí	pílily-â	'small knife'
	gwútú	gwútw-â	'with amputated limb'
	'búkú	'búkw-â	'shield'
	dúdú	dúdw-â	'fish harpoon'
	?ápú	?ápw-â	'crime, misdemeanor'
	túlú	túlw-â	'axe'
	múnú	múnw-â	'snake'
	dárú	dárw-â	'grass'
	gúgú	gúgw-â	'granary'
	kólé	kóly-â	'hoe'
	túré	túry-â	'walking stick'
	tómé	tómy-â	'elephant'
	méré	méry-â	'mountain'
	káré	káry-â	'river'
	sápé	sápy-â	'large pot'
	kéré	kéry-â	'gourd'
	lélé	lély-â	'flat rock'
	gwágwé	gwágwy-â	'wild cat'

For some reason the suffix /A/ appears to be assigned predominantly to nouns that are all High, as above. There are a few examples, however, of this suffix attached to noun roots of other tonological shapes.



(regardless of whether Contour Simplification is ordered before this merger of syllables or afterwards). We will not bother to demonstrate that the correct results can be obtained under any ordering of the rules.

### 3.1.2.2. The pluralizing suffix /At/.

Phonologically, the pluralizing suffix /At/ is exactly parallel to /A/, except that it has a consonant after the vowel /A/. /At/ is Low-toned. The vowel of /At/ is subject to vowel harmony. In addition, it is raised to the mid vowel *ɔ* after a [+ATR] mid vowel. A vowel-final root in front of /At/ will convert its final vowel into a glide, so that the final syllable of the noun root and the /At/ suffix will form a single syllable. Both the tone of the final syllable of the root and the tone of the suffix /At/, if different, remain associated with the resulting single syllable.

#### (16) HH noun roots

ʔápú	ʔápw-át	'unintentional crime'
bíkí	bíky-át	'leather girdle of the <u>kapira</u> '
'búkú	'búkw-át	'shield'
dúdú	dúdw-át	'fish harpoon'

#### HL noun roots

wúrí	wúry-át	'cork'
dímí	dímy-át	'sp. tree with hard white wood'
nyúti	nyúty-át	'thigh'
ké'dí	ké'dy-át	'twig used in roof- making'
kítí	kítý-át	'chair'
máli	mály-át	'insane, mad'
tíryè	téry-át	'slender tree whose bark is used for making rope'

HF noun roots

tígí	tigy-ât	'spotted wild cat'
tákwé	tákw-ât*	'a tree with wood good for making beds, chairs'
dúng'í	dóng'-ât**	'thorny shrub used for fences'

[\*apparently from \*tákwy-ât]

[\*\*apparently from \*dóng'y-ât]

LH noun roots

wadí	wády-ât	'rumor'
ng'úmí	ng'úmy-ât	'needle'
kábú	kábw-ât	'best man'
rúdú	rúdw-ât	'thick shrub'
kúdú	kúdw-ât	'rain'
kúlú	kúlw-ât	'oath'
kútú	kútw-ât	'beer strainer'
tòré	tòry-ât	'flute'
lèmbé?	lèmbý-ôt	'jaw'
Kányí	Kány-ât	(proper male name)
kápú	kápw-ât	'hoe'
màrí	màry-ât	'debt'
làtí	làty-ât	'good behavior'
kà'dí	kà'dy-ât	'pumpkin'
jámé	jámy-ât	'speech, word'
pàrí	pàry-ât	'wall framework'
gwòké	gwòky-ôt	'animal path in jungle'
gwèlé	gwèly-ôt	'ebony club'
kùgí	kùgy-ât	'den, cave'
bídí	bídy-ât	'spear butt'
kùng'ú	kùng'w-ât	'knee'
gòró	gòrw-ât	'sheepfold'

LF noun roots

kàlí	kàly-ât	'song, whip'
ki'bí	ki'by-ât	'fig tree'
kùmí	kùmý-ât	'fruit tree'

LL noun roots

wídí	wídy-ât	'mouse trap'
bùtí	bùty-ât	'cloth tree'
kè'dí	kè'dy-ât	'twig used in roof -making'

sàndi	sàndy-àt	'poor, miserable, sad'
bìni	bìny-àt	'maize tassel'
bòdò	bòdw-àt	'expert'
dìpò	dìpw-àt	'dancing yard'
kàndi	kàndy-àt	'wealthy person'
kòrè	kòry-òt	'dance'

HHL noun roots

térére	téréry-àt	'arid place'
tápíng'ì	tápéng'-òt	'guinea fowl'
kúmbìrì	kúmbìry-àt	'Uganda kob'
títirè	títiry-àt	'long flat iron tool'
nyá lí'bè	nyá lí'by-àt	'sp. tree'
támpá rì	támpá ry-àt	'potshard'
táwìlì	táwìly-àt	'heart, soul, mind'
kírì'dì	kírì'dy-àt	'passage between mountains'
páyítì	páyity-àt	'ebony tree'
lúsú rì	lúsú ry-àt	'climbing shrub'
túkúyù	túkúy-àt*	'piece of charred wood'

(\*from \*túkúyw-àt by phonological rule)

HLH noun roots

tírìbì	tírìby-àt	'pipe stem'
--------	-----------	-------------

HLL noun roots

ng'únù mì	ng'únù my-àt	'whiskers'
bírìsì	bírìsy-àt	'mat of palm fibre'

LHL noun roots

mákúngù	mákúngw-àt	'assistant chief'
mèngé lé?	mèngé ly-àt	'scaly ant-eater'
swàlìkì	swàlìky-àt	'black-billed lesser hornbill'
kòrnì nì	kòrnì ny-àt	'sp. poisonous snake'
kàmìtì	kàmìty-àt	'mud fish'
ng'ù rù' bì	ng'ù rù' by-àt	'dry mucous'
kàlìndì	kàlìndy-àt	'sp. tree used for canoe-making'
gàmbú rì	gàmbú ry-àt	'shell of Nile turtle used in washing'



LLH noun roots

kātùkú	kātùkw-át	'crown of skull'
kà'bùlú	kà'bùw-át	'pool of water'
lèkèmbé	lèkèmbý-át	'Zande harp'
kòndòré	kòndòry-òt	'high shelter overlooking a garden'
màsù'dú	màsù'dw-át	'big abcess'
màrùrú	màrùrw-át	'hard clod'

LLF noun roots

kàmírú	kàmírw-át	'lion'
lùpùdí	lùpùdy-át	'child'

LLL noun roots

kálili	kálily-át	'remote, emptiness'
wùjùgù	wùjùgw-át	'baboon'
nyàkwàri	nyàkwàry-át	'grandchild'
rùngùli	rùngùly-át	'a kind of shield'
rùngùli	rùngùly-át	'large owl'
àmبالù	àmبالw-át	'edible white pumpkin'
gwònkèrè	gwònkèry-át	'puff adder'
lùbàgù	lùbàgw-át	'hyena'
tìgìgi	tìgìgy-át	'rhinoceros'
tùlùggi	tùlùggy-át	'small club of hard wood'
kòpèngò	kòpèngw-át	'sack, usu. made of . goatskin or bark'

From these data it seems clear that (a) the suffix /At/ is associated to a Low tone. The final vowel of the noun stem is incorporated into the same syllable as /At/ and forms the onset of that syllable (i.e. the vowels /I/ and /E/ surface as the glide y and the vowels /U/ and /O/ surface as the glide w). There are no examples in our data where the stem ends in /A/, so we do not know what would happen if a stem-final /A/ were juxtaposed to /At/. We assume that the tone of the final vowel remains in the tonal tier, only now associated to the syllable that contains /At/ -- in other words, we have two tones associated with the same syllable. In the case where the final vowel of the stem bears a Low tone, the result of the

syllabification processes is that there are two Low tones associated with the last syllable of the noun. These two Low tones of course just surface as a Low-toned syllable. In the case where the final vowel of the stem is associated with a High tone, the result of the syllabification processes is that there is a H and then a L tone associated with the last syllable of the noun. This yields, of course, a Falling tone. In the event the last vowel of the stem has a Falling tone, i.e. has both a H and a L associated with it, the combination of that Falling-toned syllable with the Low-toned /At/ will be a Falling-toned syllable. This result can be obtained regardless of whether we order Contour Simplification before the syllable merger or afterwards.

There appears to be a variant of /At/ that is not entirely phonologically predictable. A suffix /et/ occurs only after [+ATR] high vowels and also appears to be Low-toned like /At/. It seems that /et/ is a variant of /At/, but since /At/ can occur after [+ATR] high vowels (in the form /at/) as well, one cannot treat /et/ as simply a phonetic variant of /At/. Examples of the /et/ allomorph:

(17)	kíti	kítý-èt	'chair'
	nyúti	nyúty-èt	'hind leg of animal'
	màri	màry-èt	'loan'
	kùgi	kùgy-èt	'cave'
	kàli	kàly-èt	'twig, song'
	kùmí	kùmý-èt	'fruit tree'
	lúsúri	lúsúry-èt	'sp. tree'
	títirè	títiry-èt	'sp. tree'
	túkúyù	túkúy-èt*	'burned wood'
	páyiti	páyity-èt	'ebony'
	kàlindi	kàlindy-èt	'fruit tree'
	kàmíti	kàmíty-èt	'mudfish'
	lùpùdí	lùpùdy-èt	'child'

[\*apparently from: \*túkúyw-èt]

3.1.2.3. The pluralizing suffix /An/.

The pluralizing suffix /An/ appears with a Low tone when it follows a High-tone final stem. When the root consists just of High tones, this Low tone variant of /An/ is the only pronunciation possible:

(18) H noun root

bár	bár-àn	'flood'
jók	jók-àn	'groin'
géng'	géng'-òn	'group of people'
kér	kér-òn	'placed marked for new cultivation'
mé?	mél-àn	'hanging net basket'
túr	túr-àn	'small village'
tár	tár-àn	'marsh, swamp'
kák	kák-àn	'earth, ground'

HH noun root

kíkó?	kíkól-àn	'road, path'
régóng'	régóng'-àn	'tilapia fish'
yákít	yákít-àn	'grass head-pad'
kíyúk	kíyúk-àn	'turn'
kúdúk	kúduk-àn	'club for threshing'

HHH noun root

gwákisík	gwákisík-àn	'playsHELLS'
lókíling'	lókíling'-àn	'elbow'
gwálíling'	gwálíling'-àn	'cheek'
kúlúlúng'	kúlúlúng'-àn	'skull'
kásúlúk	kásúlúk-àn	'umbilical hernia'
kwórókó?	kwórókól-òn	'ankle'

HHHH noun root

téménéne?	téménénel-àn	'a hymenopterous parasite of the 'kumuri' tree'
-----------	--------------	---

Given the data to be discussed immediately below, it is somewhat surprising that HLH noun roots as well seem to allow only the Low tone variant of the /An/ suffix:

(19) HLH noun root

kúkùlí?	kúkùlíl-àn	'wagtail bird'
kágòré?	kágòréìl-òn	'crab'
tíngìlí?	tíngìlíl-àn	'smallest drum'
gwárgwálá?	gwárgwálál-àn	'pennant-winged Nightjar'

Noun roots that have a L before a final H generally permit some tonal variation. We begin with the LH noun roots since they represent a large class of items. A LH noun has three possible tonal shapes in the /An/ plural: LHL, LLE, and LHH. Some nouns seem to occur more readily with one of these pronunciations than the others, but at present we can only note that all these variants exist. We will not attempt to decide which variant is the norm for a given lexical item. In (20) we give examples of LH nouns as we recorded them:

(20) LH noun root

kitún	kitúny-àn, kitúny-án	'python'
kákát	kákát-àn, kákát-àn	'door'
bòngó?	bòngòl-àn, bòngól-án, -àn	'cloth'
lùngwá?	lùngwál-àn, lùngwál-àn	'snail'
bisó?	bisól-àn	'target game'
bùdú?	bùdúl-àn	'wedding dance'
kwàrú?	kwàrúl-àn, kwàrúl-àn	'wild cat'
kù'yí?	kù'yíl-àn	'fish trap'
kùmát	kùmát-àn, kùmát-àn	'Nile perch'
ringwát	ringwát-àn	'sp. bird'
nyàngé?	nyàngèl-àn	'spleen'
mùsák	mùsák-àn	'tooth brush'
kùwák	kùwák-àn	'jackal'
kiyír	kiyír-àn	'African mahogany'
gùrák	gùrák-àn, gùrák-án	'Sudan crowned crane'
'dàrú?	'dàrúl-àn	'colobus monkey'
'bùlât	'bùlât-àn	'spotted hyena'
biryá?	biryál-àn	'net'

The following noun roots with a L before the final H also permit tonal variation in the plural. We cite them just in the form where they have a Low on the suffix /An/.

(21) LLH noun root

kâyimát	kâyimát-àn	'peanut butter'
gùrù'bá?	gùrù'bál-àn	'old ditch'
sùkù'bé?	sùkù'bél-àn	'upper part of breast bone'
kàdù'bá?	kàdù'bál-àn	'dropsy'
kàpùlét	kàpùlét-àn	'navel'

LHLH noun root

gùrúkgùrúk	gùrúkgùrúk-àn	'sp. fish'
sùbésùbék	sùbésùbék-àn	'red-collared white stork'
kòrókòrók	kòrókòrók-òn	'blackboard'

The LLH nouns above seem to allow two variants in the plural: either LLLF or LLHH. Thus we find either gùrù'bál-àn or gùrù'bál-àn in the plural as well as gùrù'bál-àn. A LHLH noun also appears to allow both of these same sorts of variation: either LLLF or LHLHH. Thus we find gùrúkgùrúk-àn and gùrúkgùrúk-àn in the plural as well as gùrúkgùrúk-àn. It is clear that these variations are exactly parallel to those observed above for LH nouns.

It is apparent that variation in the plural is possible just in case the antepenult vowel is Low. What is not apparent is why HLH noun roots fail to exhibit this variation whereas LHLH noun roots do. There is also one isolated noun that does not appear to have the expected alternative forms: tèbèdèdèét, (pl.) tèbèdèdèét-àn 'sp. bird'.

We have seen so far that /An/ appears with a Low tone after H-final stems, but (if this stem-final H is preceded by a Low) there are alternative pronunciations available. The suffix /An/ also appears with a Low tone when the final vowel of the stem has a Falling tone. Of course, this stem-final Falling tone undergoes Contour Simplification when a suffix is appended and only the High remains associated with the final stem vowel. As a consequence, Fall-final stems and High-final stems represent the class of stems

whose final syllable is associated with a High (when suffixed):

(22)	ng'ún	ng'ún-àn	'God'
	tír	tír-àn	'cultivation area'
	búk	búk-àn	'book'
	téng'	téng'-òn	'herd, gang'
	swát	swát-àn	'ear'
	kílyôr	kílyôr-àn	'shrub, good for use in making doors'
	kíkô?	kíkól-àn	'way, road'
	kí'dô?	kí'dól-àn	'large squirrel'
	kúrit	kúrit-àn	'giraffe'
	lé'bông'	lé'bông'-àn	'phlegm'
	lípô?	lípól-òn	'earth, mud'
	máník	máník-àn	'male animal'
	máring'	máring'-àn	'fence'
	méling'	méling'-àn	'dry season'
	mú'ding'	mú'ding'-àn	'forest'
	nyúrit	nyúrit-àn	'reed rat'
	téménêng'	téménéng'-àn	'side of head'
	nekénêt	nekénét-àn	'rope, cord'

We have omitted LF, LLF, LHLE nouns from (22) above. We would -- on the basis of (22) -- expect such nouns to cause the plural suffix /An/ to be Low-toned. And, indeed, such a pronunciation is a possible variant. But the more usual pronunciation seems to be one where the /An/ is High-toned, as shown in (23).

(23)	pirit	pirit-án	'place'
	bòntôn	bòntóny-ón	'ferry boat'
	kàmê?	kàmél-án	'spoon'
	Kàkû?	Kàkúl-án	(female proper name)
	kàpêt	kàpét-án	'round flint pebble'
	kòrúk	kòrúk-án	'black and white crow'
	ring'it	ring'it-án	'power'
	Ládô?	Ládól-án	(name of second-born son)
	lùrit	lùrit-án	'channel'
	kijit	kijit-án	'river bank'
	gwùkû?	gwùkúl-án	'sp. lizard'
	kòrêk	kòrêk-ón	'spade'

'bùnit	'bùnit-án	'woman's loin garment'
gògòk	gògòk-án	'Grant's zebra'
bàràmit	bàràmit-án	'barrel'
kàpùrât	kàpùrât-án	'smoke'
kâtùmít	kâtùmít-án	'door'
kù'dùng'ít	kù'dùng'ít-án	'pounding stcik'
kábùng'át	kábùng'át-án	'wind'
kàkùrí?	kàkùríl-án	'wild vegetable'
likikirí?	likikiríl-án	'folktale fable'
kàbábàláng'	kàbábàláng'-án	'the lower part of the ear lobe'
kà'bí'binyâ?	kà'bí'binyál-án	'foreskin'
kàjé'bòlyòk	kàjé'bòlyók-án	'gecko'

We have now examined the behavior of /An/ after H-final and Fall-final noun stems. /An/ surfaces with a High tone or a Falling tone when the stem ends in a Low tone. When the stem is monosyllabic, only the High-tone variant seems to be possible:

(24)	dàk	dàk-án	'pipe'
	gwàng'	gwaàng'-án	'fox'

In the case of bisyllabic and longer stems, both pronunciations of the /An/ are usually possible -- with a High tone or with a Falling tone. We have not been able to determine whether there is any pattern underlying the use of these alternative forms, and for the present time will just have to regard this variation as "free" (i.e. ungoverned by phonological or grammatical context).

While it seems that in many cases the two variants are not of "equal" standing (i.e. one appears to be the norm), there is no consistency as to which pattern is the apparently preferred one. Thus we have just listed both variants, with no indication of a preference for one form over the other.

(25) HL noun roots

kéwàt	kéwàt-ân, -án	'foreleg of animal'
yábà?	yábàl-ân, -án	'old man'
dùrà?	dùràl-ân, -án	'grain'
mémè?	mémèl-ân, -án	'wax, tree gum'
bángì?	bángìl-ân, -án	'marijuana'
béggò?	béggòl-ân, -án	'crops just sprouting'
báò?	báòl-ân, -án	'plank, board'
bíbì?	bívìl-ân, -án	'basket'
kíryèng'	kíryèng'-ân/-án	'sp. fish'
kílèng'	kílèng'-ân/-án	'rock rabbit'
gwóngwòng'	gwóngwàng'-ân/-án	'kudu'
gálàm	gálàm-ân/-án	'pen, pencil'
gáwà?	gáwàl-ân/-án	'coffee'
pángà?	pángàl-ân/-án	'thick porridge'
túmì?	túmìl-ân/-án	'overcooked food'

LL noun roots

dùpà?	dùpàl-ân, -án	'cradle'
sùrdèng'	sùrdèng'-ân/-án	'spotted field mouse'
kòyít	kòyít-ân/-án	'riddle'

LHL noun roots

birígò?	birígòl-ân, -án	'blood-tapping horn'
kàpútà	kàpútàl-ân, -án	'foam'
mèkéjè?	mèkéjèl-ân/-án	'umbilical cord'
kádúdwà?	kádúdwàl-ân/-án	'human shadow'
kànágà?	kànágàl-ân/-án	'necklace of small beads'
kàrérek	kàrérek-ân/-án	'remains of food'
kàritò?	kàritòl-ân/-án	'small grinding stone'

HHL noun roots

gwúlúkùk	gwúlúkùk-ân, -án	'ground hornbill'
kitó'bòk	kitó'bòk-ôn/-ón	'land tortoise'
kúndùrèk	kúndùrèk-ân/-án	'handle of a small hatchet'
kírikòk	kírikòk-ân/-án	'chameleon'
kísáàk	kísáàk-ân/-án	'duck'
líkitò?	líkitòl-ôn/-ón	'wild rabbit'
'yúlúkùt	'yúlúkùt-ân/-án	'small gourd ladle'
kágírù?	kágírùl-ân/-án	'agnail'



kágéròn	kágéròny-ân/-án	'agnail'
mù'dákàt	mù'dákàt-ân/-án	'placenta'
kápáyàk	kápáyàk-ân/-án	'a kind of stork'

LLL noun roots

gwòlòkòk	gwòlòkòk-ân, -án	'bird's crop'
sùlùkwàk	sùlùkwàk-ân/ -án	'hoof'
kàlàngwàng'	kàlàngwàng'-ân/ -án	'big game trap'
kilijwàk	kilijwàk-ân/ -án	'smaller euphorbia'
kilikwòk	kilikwòk-ôn/ -ón	red-fronted Barbet'

HHHL noun roots

kélékémùt	kélékémùt-ân/ -án	'kind of shrub'
kílingiyò?	kílingiyòl-ôn/ -ón	'see-saw'
kílingiryè?	kílingiryèl-ân/ -án	'sp. bird'

HLHL noun roots

gwónkòròkòk	gwónkòròkòk-ân, -án	'puff adder'
-------------	---------------------	--------------

LLLL noun roots

mùting'mùting'	mùting'mùting'-ân/-án	'rhinoceros'
kàdyàdyàri	kàdyàdyàril-ân/-án	'an evergreen shrub good for fences'

LHLL noun roots

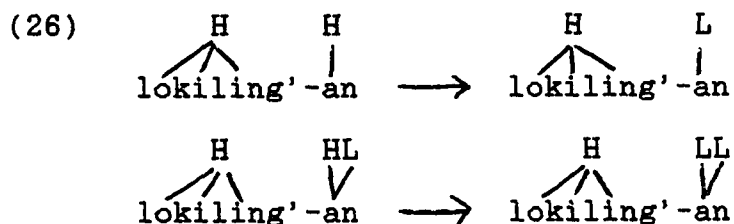
jàmbúlùkùk	jàmbúlùkùk-ân/-án	'a kind of large bird'
dòmínikà?	dòmínikàl-ân/-án	'Sunday'
kàlíkisùk	kàlíkisùk-ân/-án	'yellow wagtail'

The data in (25) show that a variety of nominal tonal shapes -- all of them having a L in stem final position-- govern either a H or a Fall on the suffix /An/: a HL noun such as kéwàt, a LL noun such as dùpà?, a LHL noun such as birígò?, a HHL noun such as gwúlùkùk, a LLL noun such as gwòlòkòk, a HLHL noun such as gwónkòròkòk. There can be no doubt that it is the Low of the final syllable in the stem that is crucial.

At this point let us consider possible analyses for the data so far presented. First of all, it seems most

unlikely that the suffix /An/ is not basically Low-toned. We have already examined the behavior of a number of suffixes that do appear to be Low-toned, and /An/ is not tonologically parallel to them. Since after L-final noun stems, /An/ surfaces with either a H or a Falling tone, it seems reasonable to assume that one of these shapes represents its underlying representation. We would thus require a rule to change this underlying H or F tone to L when the preceding stem ends in a H.

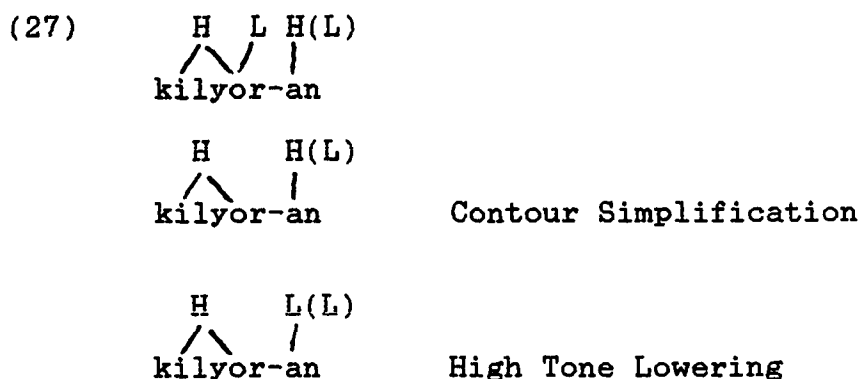
In Chapter 4 we suggest that there is in fact a phrase-level rule in Bari that would have this effect. This rule, which we refer to as High Tone Lowering, is discussed in detail in Chapter 4 and 5. It has the effect of changing a H tone to a L tone when a H tone precedes. If we assume that such a rule is operative inside words as well as across word boundaries, then we could derive the Low-toned form of /An/ from either an underlying representation where there is a H associated with /An/ or a representation where there is a F associated with /An/. This is shown in (26) below.



There is also a phrase-level rule in Bari that spreads a High onto a following syllable. We would not want this rule to spread the H of the noun stem onto the suffix /An/, for that would produce a Falling tone on the suffix. We could possibly claim that High Tone Spread does not operate within the word, and that this is the reason for its failure to apply to lókiling'-àn. But it is also the case that there are many monosyllabic elements that do not

accept spreading onto them (from a preceding word), so we could simply categorize /An/ as an element that does not accept spreading.

In order to maintain this analysis for the case of noun stems such as kilyôr, which end in a Falling tone but also trigger the Lowering of the suffix /An/, we must assume that the word-level application of Contour Simplification must actually delete the Low part of a non-final Falling tone. That is, we need the following derivation:



We have been able to give a reasonably simple account of how the suffix /An/ surfaces with a Low tone. But what is its underlying representation -- High or Fall? Since in the environment after a Low, either a High or a Fall can surface on /An/, we have no phonologically conditioned rule to account for this variation. We can thus assume any of the following: (a) the suffix has two possible underlying shapes, H and F, and speakers can use either of these shapes; (b) the suffix is underlyingly High, but if this H escapes High Tone Lowering, a L tone can optionally be associated as the last tone of the last syllable of the word; (c) the suffix is underlyingly F, but for some reason this contour tone (if it escapes the effects of High Tone Lowering) can be simplified to H optionally. We suspect that either (a) or (b) is the most likely analysis, but we

do not have any strong arguments.

The situation that we have described above for /An/ is not as straightforward as we have so far suggested. There are two groups of H-final noun stems that do not trigger the appearance of a Low tone on /An/: namely, LH noun stems and LF noun stems.

The LH stems allow for the variation between a H and a F shape to /An/. But when the Fall variant appears, the noun stem has the shape LL rather than LH.

(28)	biryá?	biryál-án, biryâl-ân	'net for catching animals'
	bisó?	bisól-án, bisòl-ân	'target'
	bùdú?	bùdúl-án, bùdùl-ân	'wedding banquet'
	'bùlát	'bùlát-án, 'bùlât-ân	'spotted hyena'
	gùrák	gùrák-án, gùràk-ân	'Sudan crowned crane'

Given the analysis that we have suggested, it appears that the pronunciations like biryál-án could be regarded as cases where High Tone Lowering has failed to affect the suffix /An/. The only problematic feature is: why should all LH noun stems (to our knowledge) fail to trigger High Tone Lowering on /An/? We will see in the next section that there is another suffix that is tonally quite parallel to /An/, and for that suffix LH nouns do not fail to trigger High Tone Lowering. Pronunciations such as biryâl-ân reflect the choice of the Fall option for the final syllable, which means that the final syllable here likewise has failed to undergo High Tone Lowering. But what needs explanation here is why the final H of the stem has been changed to L. We would like to suggest that while most tonal sequences are permitted in Bari nominals, the sequence ...LHF is not, and that there is simply a rule that changes such a shape to ...LLF.

Consider next the behavior of LF nouns with the suffix /An/:

(29) pírít	pírít-án, pírít-àn	'place'
kòrèk	kòrèk-ón, kòrèk-òn	'spade'
kijít	kijít-án, kijít-àn	'river bank'
gwùkù?	gwùkùl-án, gwùkùl-àn	'alligator'
gògòk	gògòk-án, gògòk-àn	'Grant's zebra'

The LF noun stems fall into two groups. One group shows a variation between a H on /An/ and a Low. The other group shows a variation between a H on /An/ and a Fall (when the Fall variant is used, the stem appears as LL rather than LH).

The examples like gwùkùl-án/gwùkùl-àn can, of course, be treated in a fashion entirely parallel to the preceding items based on LH stems. That is, we can say that these stems exceptionally fail to trigger High Tone Lowering on the suffix /An/, and that -- if the Fall variant of /An/ is employed, the rule that changes ...LHF to ...LLF comes into play.

The examples like pírít-án/pírít-àn seem to reflect variability as to whether High Tone Lowering applies or not. Thus in the pronunciation pírít-án, the suffix has not undergone High Tone Lowering, while in the pronunciation pírít-àn it has. But what is not explained is why there is not, apparently, a pronunciation \*pírít-án, where (a) High Tone Lowering has failed, exceptionally, to apply and (b) the Fall option has been chosen for /An/ (this Fall option then triggering the change of the H of the stem to L).

These variations for LH and LF nouns do not occur in the suffix /jIn/, to be discussed below, which shows the same basic dichotomy as /An/ -- namely, L after a H- or F-final stem and either a H or a F after a Low-final stem. Thus it is difficult to find any independent evidence as to what is the best means of treating these items.

3.1.2.4. The pluralizing suffix /jIn/.

The suffix /jIn/ (which alternates with /In/ in position after a velar nasal) is like /An/ in that it appears Low-toned when a High-final stem precedes:

(30)	báp	báp-jìn	'abdomen'
	bár	bár-jìn	'flood'
	lé	lé-jìn	'milk'
	dáng'	dáng'-ìn	'bow, arch'
	pápá	pápá-jìn	'trench'
	'báláng'	'báláng'-ìn	'salt'
	kímáng'	kímáng'-jìn	'fire'
	kí'bó	kí'bó-jìn	'canoe'
	kínyó	kínyó-jìn	'food'
	kóká	kóká-jìn	'leopard'
	kúlá	kúlá-jìn	'urine'
	kúpá	kúpá-jìn	'basket'
	milyé	milyé-jìn	'oath'
	régó	régó-jìn	'corner'
	ryángá	ryángá-jìn	'ground squirrel'
	ká'bú	ká'bú-jìn	'banded bushbuck'
	yiká	yiká-jìn	'papyrus mat'
	gwóróng'	gwúrúng'-ìn*	'wild beast'

[\*This example exhibits the raising of mid [+ATR] vowels in front of a high vowel suffix -- but examination of the other data shows that /jIn/ does not ordinarily trigger this rule.]

súló	súló-jìn	'hernia'
mányáng'	mányáng'-ìn	'alligator'
gwòló?	gwùlù-jìn*	'quiver'

[\*This item again exhibits mid [+ATR] vowel raising. This item also is tonologically odd in that it exhibits the following two variant pronunciations, unlike the other items listed above: gwùlù-ín, gwùlù-jìn.]

kùmé	kùmé-jìn	'nose'
mànyá	mànyá-jìn	'stepchild'
bilá?	bilá-jìn	'small whistle'
gùwé	gùwé-jìn	'jackal'
tùká	tùká-jìn	'forge house'
giné	giné-jìn	'Sudanese pound'
kàng'á	kàng'á-jìn	'brave'
kàyú	kàyú-jìn	'first born'
bòló	bòló-jìn	'quiver'

jègwèrí	jègwèrí-jìn	'comb'
gùlù'bá	gùlùbá-jìn	'ditch'
sìlì'bá	sìlì'bá-jìn	'flute'
nyàlámá	nyàlámá-jìn	'gap'
ng'òrògwó	ng'òrògwó-jìn	'old wall'
kàlàbá	kàlàbá-jìn	'bowl'
kì'dirá	kì'dirá-jìn	'rubbish heap'
kàbidó	kàbidó-jìn	'pumpkin leaves'

There is, however, some tonal variation that exists and must be noted. LH nouns, for example, may assume the shape LLF rather than LHL: bìlà-jìn, bòlò-jìn, mànvà-jìn. And in some cases LH nouns may assume the shape LHH: bìlá-jìn, bòlò-jìn. LLH nouns may assume the shape LLHH rather than LLHL: gùlùbá-jìn, jègwèrí-jìn, etc. One might expect, on the basis of the LH nouns, another variant: LLLF, but such a pronunciation seems doubtful.

/jìn/ also surfaces on a Low tone when the preceding stem ends in a Falling tone underlyingly. The Fall on the final syllable of the stem will undergo Contour Simplification when a suffix is appended, thus the final syllable of the stem will in fact have only a High associated with it subsequent to the application of that rule.

(31)	būng'	būng'-jìn	'backyard'
	yáwá	yáwá-jìn	'beer'
	kíng'á	kíng'á-jìn	'year'
	mú'dá	mú'dá-jìn	'pot'
	gúlá	gúlá-jìn	'group of people'
	gúmá	gúmá-jìn	'harpoon; shrine for rain-making'
	gwéá	gwéá-jìn	'nature, kind'
	já'bê	já'bê-jìn	'rainy season'
	kitê	kitê-jìn	'tamarind tree'
	kú'bá	kú'bá-jìn	'wife's sister's husband'
	lúbá	lúbá-jìn	'long hoe handle'
	ráng'ê	ráng'ê-jìn	'honey badger'
	tígô	tígô-jìn	'granary store bottom'

mú'yí	mú'yí-jín	'rhinoceros'
kú'bâ	kú'bâ-jín	'in-law'
kisêr	kisêr-jín	'first rain'
lâkâ	lâkâ-jín	'wild grain'
kitâ	kitâ-jín	'job'
kâtâ	kâtâ-jín	'the inside, internal'
kitê	kitê-jín	'tamarind'
mâratê	mâratê-jín	'kinsman'
kâtirút	kâtirút-jín	'cold'
kèrèkètô	kèrèkètô-jín	'rag'

There is, again, some tonal variation here. The LF nouns can also be pronounced with the pattern LHH in the plural: kisêr-jín, kitê-jín, kitâ-jín, etc. In the case of lâkâ, even the pattern LLF seems to be possible: lâkâ-jín, but this pattern does not seem to be generally permitted. The LLF nouns may also be pronounced with a LLHH pattern in the plural: kâtirút-jín. (The LLLHH plural form for the noun kèrèkètô is of questionable authenticity, but may be possible.) This pattern where both the penult syllable and /jín/ appear on a High tone is available, apparently, just in the event that the antepenult syllable is L. Thus nouns such as yâwâ and mâratê do not exhibit any variation in the plural: yâwâ-jín and mâratê-jín are the only possible pronunciations.

/jín/ is also parallel to /An/ in that it surfaces with either a High or a Falling tone after a stem that ends in a Low tone.

(32)	gúlâ	gúlâ-jín, gúlâ-jín	'small pot'
	kópò	kópò-jín, kópò-jín	'cup'
	lémè?	lémè-jín, lémè-jín	'new grass'
	méjà	méjà-jín, méjà-jín	'table'
	tábâ	tábâ-jín, tábâ-jín	'tobacco'
	grámâ	grámâ-jín, grámâ-jín	'grammar'
	kingò	kingò-jín, kingò-jín	'fetters'
	gáwâ	gáwâ-jín, gáwâ-jín	'coffee'
	bòjò	bòjò-jín, bòjò-jín	'September'
	Lègè	Lègè-jín, Lègè-jín	(proper name)
	Bòjò?	Bòjò-jín, Bòjò-jín	(proper name)
	ràbâ	ràbâ-jín, ràbâ-jín	'platform'
	kâ'bâ	kâ'bâ-jín, kâ'bâ-jín	'large spear blade'



kèri	kèri-jín, kèri-jîn	'clan, blood- relation'
kòkò	kòkò-jín, kòkò-jîn	'hen coop'
gwàkà	gwàkà-jín, gwàkà-jîn	'forked sticks'
kòsò	kòsò-jín, kòsò-jîn	'tiny basket'
nyángìlò	nyángìlò-jín, nyángìlò-jîn	'sp. tree'
kánàrè	kánàrè-jín, kánàrè-jîn	'glass bead'
kírìbù	kírìbù-jín, kírìbù-jîn	'civet cat'
kòrómbò	kòrómbò-jín, etc.	'large new hoe'
birígò?	birígò-jín, etc.	'blood-tapping horn'
gàmbúyà	gàmbúyà-jín, etc.	'stomach'
yákányè	yákányè-jín, etc.	'grandmother'
sùrkáli	sùrkáli-jín, etc.	'local police'
mèrényè	mèrényè-jín, etc.	'grandfather'
àmbàtá	àmbàtá-jín, etc.	'bread'
bàlimè	bàlimè-jín, etc.	'arrow blade'
kò'bòrò	kò'bòrò-jín, etc.	'resinous plant'
rùbàngà	rùbàngà-jín, etc.	'sacrifice'
gàòrò	gàòrò-jín, etc.	'big game trap'
kèlèwè	kèlèwè-jín, etc.	'skipping game'
kìlèlè	kìlèlè-jín, etc.	'strained salty water'
kìlingwà	kìlingwà-jín, etc.	'type of basket'
kòlòpè	kòlòpè-jín, etc.	'sp. bird'
àmúlèrè	àmúlèrè-jín, etc.	'flute'
bàtìsimò	bàtìsimò-jín, etc.	'baptism'
kàlìlikwòk	kàlìlikwòk-jín, etc.	'wall window'
kèlèngwèrè	kèlèngwèrè-jín, etc.	'trigger of a mouse trap'
àràbíyà	àràbíyà-jín, etc.	'car, lorry'
bàtàníyà	bàtàníyà-jín, etc.	'blanket'

From (32) we see that a variety of tonal shapes -- HL, LL, HHL, LHL, LLL, LLLL, LLLL, LLHL -- all of which end in a Low tone will trigger the appearance of either a High or a Falling tone on /jIn/.

In summation, /jIn/ appears as Low-toned after a High- or a Fall-final stem, and as either H or F after a Low-final stem. Its analysis, therefore, will ultimately be parallel to the analysis of /An/, discussed above, which shows a similar patterning.

3.1.2.5. Other pluralizing affixes.

At this point we will turn our attention to various pluralizing suffixes which are rather more restricted than /A/, /At/, /An/, and /jIn/ in their distribution.

A pluralizing suffix /ki?/ is attested in a fairly substantial number of forms. /ki?/ is subject to the usual vowel harmony alternation -- appearing as [+ATR] after a [+ATR] vowel, and as [-ATR] after a [-ATR] vowel. In addition, /ki?/ induces the raising of a mid [+ATR] to high.

Turning to the tonal structure of /ki?/, it appears Low-toned in the following examples:

(33) after a HH noun

múdwé	múdwé-ki?	'darkness'
yáró	yáru-ki?	'hippopotamus'

after a HF noun

gúmá	gúmá-ki?	'shrine of a rainmaker'
múrí	múryé-ki?	'duiker'

after a LH noun

kèngé	kèngé-ki?	'dwarf'
-------	-----------	---------

after a LF noun

Gùnê	Gùnê-ki?	'girl's name for one born after twins'
mùrwá	mùrwá-ki?	'deserted village'
wíryêk	wíryé-ki?	'screw nut'

after a HLH noun

wàsónók	wàsónó-ki?	'father's sister'
---------	------------	-------------------

after a LLF noun

ki'dirá	ki'dirá-ki?	'ash, rubbish heap'
kàrijá	kàrijá-ki?	'lying-in woman'
kàdòng'ê	kàdòngé-ki?	'left-handed person'

after a HHF noun

wótóròt      wútúró-kí?      'beehive'

/kí?/ occurs with a Falling tone after a HL noun or a HHL noun:

- (34)      ng'úlè      ng'úlè-kí?      'wooden pillow'  
             gùrè      gùrè-kí?      'European turtle dove'  
             bérèt      bérè-kí?      'flat fish'  
             ng'árúnè      ng'árúnè-kí?      'rival'

There are other environments where /kí?/ appears with a High tone:

(35) after a LL noun

bìní      bíní-kí?      'tassel of maize'  
 dòrò      dùrù-kí?      'homestead of the mother-in-law'  
 tètò      tírì-kí?\*      'papyrus mat'  
 kòrò      kùrù-kí?      'general name for water weapons'

[\*Note that this example exhibits the raising of mid [+ATR] vowels to high in front of a high vowel, as well as the rule that fronts a high vowel between two high front vowels. Thus \*tètò-kí goes to \*tìrù-kí and then to tírì-kí.]

after a LLL noun

kàyinè      kàyinè-kí?      'wild ass, donkey'  
 kèngèrè      kèngèrè-kí?      'middle-sized drum'

There seems to be an alternative form of this suffix /kà/ that appears after roots ending a high [+ATR] vowel. Notice that the /kí?/ form does not appear after any stems that end (underlyingly) in a high [+ATR] vowel, although /kí?/ induces the raising of an underlying mid [+ATR] vowel to high.

- (36)      winí      winí-kà      'medicine'  
             wirí      wirí-kà      'poison'

kikijí	kikijí-kà	'orphan'
ng'árinyí	ng'árinyí-kà	'nephew'
kàmírú	kàmírú-kà	'lion'
káyíní	káyíní-kà	'co-wife, rival'
'bàkàrí	'bàkàrí-kà	'unmusical person'

The following examples contain instances of a pluralizing suffix /nI?/:

(37)	kité	kité-ní?	'tamarind tree'
	kùdwé	kùdwé-ní?	'brood hen with chick'
	'bitô	'bitô-ní?	'a tree with an incense-like smell'
	kidô	kidô-ní?	'chest'
	kitô?	kitô-ní?	'scorpion'

This suffix is Low-toned and exhibits the usual vowel harmony-induced alternation between a [+ATR] and a [-ATR] vowel. Notice that in all of the examples where /nI?/ occurs, the root ends in a mid vowel. This observation suggests that maybe the suffix in the forms below is related to /nI?/:

(38)	rí?	rí-nà	'a large tree good for shade'
	kàjí	kàjí-nà	(a female name)
	kàjí	kàjí-nà	'kraal'
	ki'díng'	ki'dírí-nà	'back'
	mó'dóké	mó'dóké-nò	'blind'

The suffix /na/ is, like /ní?/, invariably Low-toned. It seems to be used only after [+ATR] vowels, and generally after high [+ATR] vowels. The only example outside this pattern is mó'dóké-nò. The root here ends in a mid [+ATR] e vowel, and the suffix is basically /na/; of course, the vowel a is raised to o after the mid [+ATR] vowel by a well-attested rule of Bari phonology.

The following data illustrate a pluralizing suffix /jIk/ (after a vowel-final root) ~ /Ik/ (after a consonant-final root). It is possible that this morpheme is somehow related to /jIn/. Recall that /jIn/ surfaces as L after a

noun ending in a H or a Fall. All of the examples of /jik/ involve cases where it is pronounced on a Low tone and it follows a noun that in isolation ends in a H or a Fall.

(39)	médé	mídi-jik	'home'
	rúbé	rúbé-jik	'bogyman'
	kàdí	kàdí-jik	'house'
	kìng'àsêr	kìng'àsír-ik	'sister'
	lùng'àsêr	lùng'àsír-ik	'brother'

In the plural form, the Falling tone of the noun root simplifies to High by Contour Simplification.

There is another pluralizing suffix whose segmental analysis is somewhat problematic. We give examples in (40):

(40) H or F root

lút	lús-i?	'dirt'
'bêt	'bés-i?	'small hoe'

HF root

kótêt	kótés-i?	'tail'
pútêt	pútés-i?	'case'
múnyêt	múnyés-i?	'liver'
lyáng'ít	lyáng'ís-i?	'joy, happiness'
kórêt	kórés-i?	'small basket'
kálít	kálés-i?	'permit, leave'

LH or LF root

kânín	kânís-i?	'hand'
kàrét	kàrés-i?	'thatching grass'
kínít	kinís-i?	'shutter'
'dikâ	diká-si?	'open wound'
kinât	kinás-i?	'breast'

[There is one tonally problematic item:  
kâlî            kâlís-i?            'song']

HL root

mókòt	mókòs-i?	'leg, foot'
bérèt	bérès-i?	'flat fish'

LHL root

gù'dútèt	gù'dútès-i?	'core of'
kwilísèt	kwilísès-i?	'peep hole'
kitáèt	kitáès-i?	'instrument'

LLLL root

kòlàng'èrèt	kòlàng'èrès-i?	'small woodmouse'
-------------	----------------	-------------------

Notice that for the most part the roots in (40) end in /t/ and the plural suffix appears to be /I?/. In many cases this stem-final /t/ is preceded by the vowel /E/. There may be some connection here with the instrumental (deverbal) nouns discussed later in this chapter, where the suffix /Et/ is used to form an instrumental singular noun which is then pluralized by the suffix /I?/. However, most of the examples in (40) are clearly not deverbal in nature.

The /t/ at the end of these roots appears to change to /s/ in the corresponding plural forms. There are two possible explanations for this. There may simply be a rule that changes /t/ to /s/ before the suffix /I?/. Or it could be that these roots end underlyingly in /s/. Recall that /s/ cannot occur in syllable-final position, so this underlying /s/ would change to /t/ syllable-finally. We have no basis at the moment for choosing between these two possible analyses.

Although it appears that the plural suffix in (40) simply has the shape /I?/, the examples 'diká and kálf as well as kánin pose a problem. Their plural forms-- 'dikási?, kálfisi?, and kánisi? -- show a /s/ in front of the /I?/ even though the preceding stem is not /t/-final. It seems possible that speakers may have analyzed the suffix as being /sI?/ rather than /I?/. This is a problem, however, that is beyond our present concerns.

Turning to the tonal structure of plurals based on /I?/, we find that the /I?/ is Low-toned whenever the last

syllable of the stem has a High tone (either underlyingly, or a High that has resulted from Contour Simplification). When the last syllable of the stem is Low-toned, then the pluralizing morpheme has a Falling tone if the word is trisyllabic but a level High tone when the word is quadrisyllabic or longer. The examples are too few, however, to be certain what the exact generalization (if any) is concerning the choice of a H or a F pronunciation after a L-final stem.

There is just one prefix that pluralizes a noun root -- the prefix /kO/. Examples are cited in (41).

(41) <u>singular</u>	<u>plural</u>	<u>gloss</u>
ng'ótê	kó-ng'ótè	'his mother'
ng'úti	kó-ng'úti	'your mother'
mónyè	kó-mónyè	'his father'
múnyi	kó-múnyi	'your father'
yángò?	kó-yángò?	'my mother'
bábá	kó-bábá	'my father'
mámá	kó-mámá	'my mother'
ng'àdi	kó-ng'àdi	'someone, somebody'

Notice that /kO/ plus a HF noun, a HL noun, a LH noun, and a LL noun, all surface with the tonal shape HHL. The simplest description of these facts would be to claim that (a) /kO/ has a High tone associated with it and (b) it supplants the lexical tone of the noun and substitutes in its place a HL melody. Alternatively, we could say that the prefix /kO/ supplants the lexical tone of a noun and replaces it with a HHL melody. This HHL melody then would associate to the three syllables of the above items in a one-to-one, left-to-right fashion. One problem with the account that would postulate a HHL tonal melody is that it violates the obligatory contour principle. Recall that the obligatory contour principle does not allow adjacent identical tones on the tonal tier (within the same morpheme). Thus a "melody" such as HHL would not be

permitted -- although a H tone associated to the prefix /kO/ and a melody HL assigned to the following morpheme would be within the spirit of the OCP. The data involving this particular prefix are not sufficiently rich or varied to provide a basis for making a firm decision about the best analysis.

### 3.1.2.6. Singulativizing suffixes.

In this section we will examine the tonology of those singulativizing suffixes that are added to inherently plural roots, or to plural stems (i.e. stems consisting of a root plus plural suffix), or to a root that is normally not used without an additional number-marking suffix.

We wish to caution the reader that the data in this section do not fall into neat tonal patterns; we will simply note the patterns observed and offer whatever generalizations seem possible. For the rest the reader will have to be content with a listing of the facts until further research can determine whether there are general principles underlying these facts.

We will begin with those singulativizing suffixes that are most prominently used in the data. Consider the suffix /ti/ first. It occurs very frequently and in a variety of contexts with a Falling tone. We begin our illustration of this suffix with stems that are all High-toned. It should be noted that there appears to be a variant form of /ti/ that consists of just the vowel /i/. This form appears just after consonant-final nouns. One cannot simply regard the appearance of /i/ rather than /ti/ as a function of a general phonological rule deleting t after a consonant since the t is retained in some cases and absent in others even after the same consonant. We will cite examples of both the /ti/ form and the /i/ form of this suffix throughout, assuming that the /i/ form is derived by a rule of allomorphy.



(42) after H, HH, HHH noun roots

kwén	kwén-tí	'a bird'
dóng'-ât	dúng'-î	'a thorny shrub used for fences'
kóng'á	kóng'á-tí	'a white termite'
sómót	súmú-tí	'a fish'
wélót	wílít-tí	'a youth'
górót	gúrút-tí	'a shy but selfish eater'
tóng'ót	túng'út-tí	'a metal chain'
tórók	túrúk-tí	'a pebble, stone'
	(~túrúk-î)	
'dápút	'dápút-tí	'a piece of bark cloth'
tétón	títín-tí	'a young man'
dóng'ót	dúng'út-tí	's.t. that can be driven away'
géng'ót	ging'ít-tí	's.t. capable of being obstructed'
dáyát	dáyát-tí	'thing for bartering'
délót	dílít-tí	'that which can be bent'
gálát	gálát-tí	'that which is capable of being searched'
'bóryát	'bóryát-tí	's.t. capable of being smeared'
dókót	dúkút-tí	's.t. rolled up'
dákát	dákát-tí	'one to be redeemed'
górót	gúrút-tí	's.t. capable of pretending'
dáláng'	dáláng-î	'sp. vine used as rope'
gwólóng'	gwúlúng'-î	'pole, stake, e.g. used for closing a gate to keep cattle in'
kányúng'	kányúng'-î	'a seed of sesame'
pá'dóng'	pá'dúng'-î	'a stalk of reed'
pópóng'	púpúng'-î	'taller kind of euphorbia'
márúk	márúk-î	'a mushroom'
tórók	túrúk-î	'a stone, pebble'
wóngól-ôt	wúngúl-î	'kigelia tree'
'bókól-ôt	'búkúl-î	'a kind of acacia'

[There are some exceptional items:

pátá?	pátál-î	'a piece of string'
ng'érép-ò	ng'íríp-î	'an anthill'
wóngór-à	wúngúr-î	'a horn of an animal'
tápéng-òt	tápíng'-î	'a guinea fowl'
sókór-ò	súkúr-î	'a hen, cock ]

dédélót	dídíli-tí	'iron, brass ornament'
kókólát	kókólát-tí	'stolen property'
nyá'dótót	nyá'dútút-tí	'capable of being sealed'
'búyúkát	'búyúkát-tí	's.t. to be broken'

[There is one exceptional item:

kípítál-à kípítál-í 'a piece of string, rope'

It is perhaps worth noting that this and the preceding exceptional items all involve cases where /tí/ has the shape /i/. But other examples with the /i/ form follows the general pattern.]

There are a few segmental points that require noting. First of all, the suffix /tí/ is inherently [+ATR]. If the stem is a [-ATR] stem, then all of the vowels (starting at the right edge of the stem) will change to [+ATR] up to the first occurrence of the vowel /a/. This is not entirely clear from the above data since most of the examples involve stems that are inherently [+ATR]. However, in the case of kwén but kwén-tí we see that a [-ATR] vowel other than /a/ does change to [+ATR] in front of /tí/. In the case of kókólát-tí, we see that the vowel /a/ does not change to [+ATR], and that no vowel in front of /a/ changes.

If one or more mid vowels precede /tí/, these vowels become high. Thus the mid vowels in tórók are raised in túrúk-tí. Recall that this rule was discussed in Chapter 2. Another rule discussed in Chapter 2 is also manifested in the above data -- namely, the rule that converts a high back vowel to a front vowel if it stands between two front vowels. Thus délót becomes \*dílút-tí by the rule that raises a sequence of mid [+ATR] vowels, and then becomes dílit-tí by the vowel fronting rule. The alternations between wélót and wílit-tí, tétón and títín-tí, and gég'ót and gíng'ít-tí all involve application of the same two rules.

A number of the examples in (42) involve deverbal nominalization by means of a High-toned suffix /At/. This suffix undergoes the usual segmental changes that suffixes containing /A/ undergo: it appears as /at/ after a [-ATR] vowel, as /ot/ after a mid [+ATR] vowel, and as /at/ after other [+ATR] vowels.

Next let us illustrate /ti/ after various stems ending in a Low or Falling tone:

(43) after a HL noun root

lúnsàk	lúnsàk-tí	'young man'
	(~lúnsàn-tí)	
máyàt	máyàt-tí	'locust'
bámbám	bámbám-tí	'big red ground nut'
pútàn	pútàn-tí	'ear of maize'
'bíràn	'bíràn-tí	'kind of twig'
	(~'bíràn-í)	
'dápàn	'dápàn-tí	'palm of hand'
wínyàn	wínyàn-tí	'arrow shaft'
jómàn	jómàn-í	'yellow baboon'
kúkù?	kúkùl-í	'durra stalk without much juice'
gwándà?	gwándàl-í	'cassava'

after a LL noun root

jòkwè	jòkwè-tí	'a kind of red durra with tall stalks'
kùmùr-â*	kùmùr-í	'vegetable butter-tree'

[\*Comparison of the plural form with the singulative suggests that the final vowel of the plural form is a suffix, since it does not appear in the singular but it does not have the expected tone if it is regarded as an instance of the general plural suffix /A/. Recall that /A/ is invariably Low-toned after a L tone.]

after a HF noun

'bólòt	'búlút-í	'grain'
dúmát	dúmát-tí	'piece of copper, brass'
kádâp	kádâp-í	'small acacia tree'
kíyât	kíyât-í	'sp. palm'
júgw-ât	júgw-ât-tí	'Barbara beans'

after a HHL noun root

kólórò	kúlúrù-tí	'soldier termite'
ng'ájínà	ng'ájínà-tí	'picture of'
ng'ólítàn	ng'ólítàn-tí	'a drop of tears'
ng'árúrùm	ng'árúrùm-tí	'green beans'
kámóyòk	kámóyòk-tí	'a liana whose juice is a fish poison'
'bílíng'àn	'bílíng'àn-tí	'a small bell'
kápópòr	kápópòr-tí	'butterfly'
lúkákàt	lúkákàt-tí	'a twig'
kámúkà	kámúkà-tí	'saddle'
kúrílàng'	kúrílàng'-í	'oil-bearing tree'
lórósò?	lúrúsùl-í	'creeper whose fruit is edible'
sókómàn	sókómàn-í	'small sandpiper'

after a HLL noun root

gúrùmàn	gúrùmàn-tí	'grass splinter'
lúkòng'à	lúkòng'à-tí	'red mite'

after a LLL noun root

dyèdyèrò	dyèdyèrò-tí	'small pox'
sèngwèry-àt	sèngwèry-àt-tí	'syphilitic fungus'
	(~sèngwèrè-tí)	

after a LHL noun root

kòrópò?	kòrópò-tí	'a leaf'
kòródò?	kòródò-tí	'a speck of dirt'
kápúkàn	kápúkàn-tí	'a wing'
kàtúràn	kàtúràn-tí	'a flower'
kà'bóngò	kà'búngù-tí	'bark of a tree'
	(~kà'bóngò-tí)	
kàgwógwòk	kàgwógwòk-tí	'wood worm'
kàlógò	kàlúgù-tí	'African golden oriole'
kápópòr	kápópòr-tí	'butterfly'
kàróròk	kàróròk-tí	'nostril'
kàdípàn	kàdípàn-tí	'green grasshopper'
kàlí'bàng'	kàlí'bàng'-tí	'pink spot'
nyòròrò	nyòròrò-tí	'thin chain'
kànyónyòk	kànyúnyù-tí	'turbinate nasal bone'
(~kànyónyòk	kànyónyòk-tí)	

kàyátà?	kàyátàl-f	'sweet potato'
kàpirà?	kàpiryàl-f	'kilt of weaved cotton fringes worn by women'

after a HHLL noun root

kábókóyò	kábúkúyú-ti	'weaver bird'
kádídíng'ò	kádídíng'ò-ti	'shrubs'
lúkúlúmàn	lúkúlúmàn-ti	'sp. fish'

after a HLHL noun root

sisilíwà	sisilíwà-ti	'kind of mushroom'
----------	-------------	--------------------

after a LLHL noun root

kà'bùrélèng'	kà'bùrélèng'-ti	'dirt in the eyes'
--------------	-----------------	--------------------

after a LHLF noun root

kàlélèròt	kàlílírít-ti	'devil's thorns'
(~kàlélèrò)	(~kàlélèrò-ti)	
(~kàlélèròt)	(~kàlélèròt-ti)	

But there are environments where /ti/ surfaces with just a Low tone. These are shown in (44).

(44) after a LH noun

dírán	dírán-ti	'weaver bird'
ryàng'án	ryàng'án-ti	'a thorny shrub'
	(~ryàng'-ti)	

after a LF noun

kòròm	kòróm-ti	'water lily'
kàly-â	kály-â-ti	'torch of dry grass'
kikwâ?	kikwá-ti	'thorn'
kòkân	kòkán-ti	'cattle egret'
ligwât	ligwát-ti	'kind of small black ant'
kòlyê	kòlyé-ti	'green parakeet'
ng'òlân	ng'òlân-ti	'lump of flour in porridge'
kír-wâ?	kírí-ti*	'bamboo'
kímâ	kímál-i	'an ear of durra'

[\*apparently from \*kírú-ti via the vowel fronting rule discussed above]

after a LLF noun

kàmùlák	kàmùlákà-ti	'saliva'
kàtòlòk	kàtùlúkù-ti	'egg'
kàdòng'òn	kàdòng'òn-ti	'fly'
kiritwán	kiritwán-ti	'wrinkle'

after a HHF noun

kípísá	kípísá-ti	'scabies'
kájúwá	kájúwá-ti	'bud'

after a LHLH noun

kálákálák	kálákálák-ti
-----------	--------------

/ti/ shows up Low-toned in another isolated example: kàsér 'star', but kàsírákà-ti 'stars'. This example represents a very idiosyncratic construction morphologically and we mention it just for the sake of completeness.

Another very common singulative suffix is /tAt/. The vowel of this suffix alternates in the fashion of other suffixes with the vowel /A/ -- i.e. it undergoes vowel harmony and it raises to o when preceded by a [+ATR] mid vowel. Tonally, this suffix generally appears High-toned.

(45) after a HH noun

'biyó	'biyó-tát	'wild fig tree'
bóyí	bóyí-tát	'trap net'
kúró	kúró-tát	'worm'
gú'dé	gú'dé-tót	'papyrus plant'
nyórí	nyórí-tát	'Bari subclan'
dúng'i	dúng'i-tát	'thorny shrub'
jíby-â*	jíbí-tát	'a small cowry-like shell'

[\*from \*jíbí-à]

after a HL noun

dánè?	dánè-tát	'large and robust high grass'
púdi	púdi-tát	'chaff, husky ear of grain'

títò	títò-tót	'belonging, item'
yáyà	yáyà-tát	'porcupine'
rúbi	rúbi-tát	'molar tooth'
kújàng'	kújàng'-tát	'sand'
mángà	mángà-tát	'mango tree/fruit'
lílyù?	lílyù-tát	'kind of fibre'
rímà	rímà-tát	'blood'
síwà	síwà-tát	'honey bee'
bàngì	bàngì-tát	'marijuana'
púlù	púlù-tát	'grounnut'

after a HF noun

jógi	jógi-tát	'necklace of ostrich eggshells'
------	----------	---------------------------------

after a LH noun

[In the following examples, a LH root appears as LL in front of the /tAt/ suffix.]

lílí	lílí-tát (~lílí-tát)	'canine tooth'
kámú	kámú-tát	'guest'
kòlú	kòlú-tát	'edible tuber'
kùnyít	kùnyít-tát	'brain'
kòngò	kòngò-tót	'small pox'
gùrú	gùrú-tát	'lizard'
mùrw-át (~mùrú)	mùrú-tát	'rat'
lùrw-át	lùrú-tát (~lùrú)	'small hill'
lùrw-át	lùrú-tát	'male hermit animal'
kígò	kígò-tót	'a kind of durra'
kànyít	kànyí-tát	'dregs after beer has been filtered'

[We have recorded the following examples with the LH pattern maintained:]

kàpé	kàpé-tát	'molt of dura'
dilyé	dilyé-tát	'young shoot of a sp. palm'

after a LL noun

ràrà	ràrà-tát	'large ivory arm-ring'
nyòri	nyòri-tát	'Bari-made thin chain'
wàrò	wàrò-tát	'cotton plant'
yàng'ò	yàng'ò-tát	'yaws'
yàri	yàri-tát	'hunter by profession'

gilà	gilà-tát	'white man'
dòyà	dòyà-tát	'shrub with edible leaves'

after a HHH noun

kábúdú	kábúdú-tát	'grain husks'
--------	------------	---------------

after a HHL noun

kókórà	kókórà-tát	'sp. worm'
kókórò	kókórò-tót	'cowry-like shell'
kílírì	kílírì-tát	'spiny tree'
límíkù	límíkù-tát	'smaller worker white ant'

after a HLL noun

básàlà	básàlà-tát	'onion'
--------	------------	---------

after a LHL noun

kàpírà	kàpírà-tát	'woman's apron'
kàrúrù?	kàrúrù-tát	'a boil'
mèrésè	mèrésè-tát	'red durra'
kàdyéyè	kàdyéyè-tát	'measles'
kàpópòr	kàpópòr-tát	'butterfly'
kàyíyìn	kàyíyìn-tát	'mild kind of yaws'

after a LLL noun

ràbòlò	ràbòlò-tót	'banana'
màngògò	màngògò-tót	'a kind of large locust'
wùjùgw-àt	wùjùgù-tát	'baboon'

after a HHHL noun

sàrámándì	sàrámándì-tát	'groundnut'
kúlúngúyù	kúlúngúyù-tát	'small winged white ants'

after a HLHL noun

jà'bèléng'-àn	jà'bèléng'-àn-tát	'camel'
---------------	-------------------	---------

after a LHLH noun

kàlákàlák	kàlákàlák-tát	'tiny winged ants'
kàpúpùrú	kàpúpùrú-tát	'tiny flowery grass'



after a LLLL noun

kirimiji      kirimiji-tát      'sp. herb'

after a HHHHL noun

kúlúngúgúyù      kúlúngúgúyù-tát      'small winged  
white ants'

We have seen that /tAt/ is very uniform in appearing with a High-toned pronunciation. There are a very few cases where inexplicably it is pronounced on a Low tone:

- (46)      júlâ      júlâ-tát      'dog-grass'  
         túlû      túlû-tút\*      'testicle'  
         kijâkw-â      kijâkú-tát      'animal'

[\*This item has an unexpected allomorph /tUt/  
in place of /tAt/.]

The next singulative suffix that we will consider is /te/. This suffix surfaces on a Falling tone in the following cases:

(47) after a H noun root

kúk      kúk-tê      'charcoal'  
bún      bún-tê      'coffee beans'  
kín      kín-tê      'human droppings'  
wín      wín-tê      'ear plug of cane'

after a HH noun root

kúdíť      kúdíť-tê      'straw, grass'  
mónyét      mónyí-tê      'intestines'  
bámúk      bámú-tê      'maize'

after a HL noun root

dúlùr      dúlùr-tê      'castor oil seeds'  
pírù?      pírù-tê      'grass seeds'  
lújìn      lújìn-tê      'big black ant'  
sísím      sísím-tê      'big black ant'

after a HHL noun root

kúkú'dùk	kúkú'dùk-tê	'mosquito larva'
kúlújik	kúlújik-tê	'spiny shrub'
tútúrù	tútúrù-tê	'small red sweet fruit'

after a LHL noun root

'bì'bìlì	'bì'bìlì-tê	'dry twigs'
'bù'bùlù	'bù'bùlù-tê	'mushrooms'
nyùnyúmi?	nyùnyúmi-tê	'star'

after a LLL noun root

kàmùmù	kàmùmù-tê	'sp. plant'
--------	-----------	-------------

after a LLLL noun root

kòdùkòdùk	kòdùkòdùk-tê	'mumps'
-----------	--------------	---------

The diversity of the environments cited above would lead naturally to an analysis where the suffix /te/ is underlyingly associated with a HL tonal sequence and this sequence is immune from any phonological effect by its environment. There are, however, difficulties. /te/ does in fact alternate. It appears on a level Low tone in the following environments:

(48) after a HF noun

márâ	méré-tê	'rib'
wórô?	wúró-tê	'cow dung'

after a LH noun

kilí	kilí-tê	'durra worm'
kimúr	kimúr-tê	'mosquitoe'
kinú	kinú-tê	'tough tiny edible seed'
kirí	kirí-tê	'white and black glass bead'
wiyú	wiyú-tê	'ore, iron, metal'

[A variant pronunciation LHF seems to be available for these items in the plural.]

after a LLH noun

kòkòrí	kòkòrí-tè	'plant roots'
mùlùrí	mùlùrí-tè	'red sugar ants'

after a LLF noun root

kùpèrù?	kùpèrù-tè	'fish scales'
lògwù'dí	lògwù'dí-tè	'small green beans'

after a LHLH noun root

limúlimút	limúlimú-tè	'hispid herb'
-----------	-------------	---------------

The singulative suffix /tyo/ appears with a Falling tone in the following range of environments:

(49) after a H noun root

bér	bér-ty-ò	'agemate'
-----	----------	-----------

after a HH noun root

békát	békát-tyò	'Bekat clan'
kárú	kárú-tyò	'blood relative'
médé	médé-tyò	'kinsman'

after a L noun root

bàt-án	bàt-tyò	'eland'
--------	---------	---------

after a HL noun root

júràn	júràn-tyò	'stranger'
kábilù	kábyi-tyò	'ram, sheep'

after a HHL noun root

múlákà	múlákà-tyò	'spirit'
--------	------------	----------

after a LHL noun root

?àsékèr	?àsékèr-tyò	'policeman, soldier'
---------	-------------	----------------------

There is a paucity of data, but it is interesting to note that /tyo/ also appears Low-toned in two examples where it occurs in a context where /te/ has a Low tone:



kòlá-k	kòlá-nít	'a thief'
'dítân	'dítân-it	'brother's wife, husband's sister'

After a Low-final root (where the Low is preceded by a H), we find /nít/ surfacing with a Fall:

(54)	múrílà	múrílà-nít	'vein, tendon'
	'dápàn	'dápàn-it	'sole, foot'
	sókómàn	sókómàn-it	'small sandpiper'
	tápétàn	tápétàn-it	'thigh'
	lílípàn	lílípàn-it	'snake bird'
	kádípàn	kádípàn-nít	'green grasshopper'

The rest of the data concerning /nít/ is too skimpy to be certain as to whether they are representative or not:

(55)	kòmón	kòmòn-it	'son-in-law'
	Bàri	Bàri-nít	'a Bari native'

### 3.1.3. The tonology of deverbal nouns.

In this section we will examine the tonology of nouns that are derived from verbs. We begin with the agentive noun. The agentive noun consists of a prefix /ka/, a verb stem, the linking vowel /A/ (cf. Chapter 2) and either the singulative suffix /nít/ or the pluralizing suffix /k/.

The plural form is illustrated in (56).

#### (56) LHL verb root

kà-mét-à-k	'overseers'	(from: mét 'see')
kà-mók-à-k	'holders of s.t.'	(from: mók 'hold')
kà-dódòng'-à-k	'shakers'	(from: dódòng' 'shake')
kà-sápùk-à-k	'overturers'	(from: sápùk 'overturn')
kà-dílìlì-yà-k	'winnowers'	(from: dílìlì 'winnow')

High verb root

kà-dér-à-k (cf. dér 'cook')  
 kà-'dép-à-k (cf. 'dép 'hold')  
 kà-bérèny-à-k (cf. bérén 'spoil')  
 kà-'búyút-à-k (cf. 'búyút 'sharpen')

(One would not necessarily have to identify the vowel /A/ above as the linking vowel, one could regard /Ak/ as a pluralizing suffix. The singulative forms discussed below, however, also exhibit the vowel /A/ after the verb stem.)

The prefix /ka/ is always Low-toned in these data; the linking vowel is also Low-toned. The first vowel of a verb root, regardless of the underlying structure of the verb root, is always High-toned, whereas the remaining vowels of the verb root are all Low-toned. These facts suggest that the agentive noun construction involves supplanting the lexical melody of the verb root with a LHL melody; this LHL melody is then associated with the construction /ka-Verb Root-A-k/ in accordance with the usual principles of tone association in Bari. We provide just one illustrative derivation:

(57) L H L

ka-'buyut-a-k

$$\begin{array}{ccc} L & H & L \\ | & | & | \\ ka-'buyut-a-k & & UTAP \end{array}$$

$$\begin{array}{ccc} L & H & L \\ | & | & | \\ ka-'buyut-a-k & & \text{Free Syllable Association} \end{array}$$

The agentive noun may be based on a reduplicated stem.

(58) LHL verb root

kà-mé-mèt-à-k  
 kà-mó-mòk-à-k  
 kà-sá-sàpùk-à-k  
 kà-dí-dilili-yà-k

High verb root

kà-'dé-'dèp-à-k  
 kà-dé-dèr-à-k  
 kà-bé-bèrèny-à-k (H root)  
 kà-'bú-'bùyùt-à-k (H root)

Since there is a frequentative stem that has the LHL tone melody, we cannot be certain whether the LHL melody in the above forms is a function of the agentive construction or of the reduplication. In any case, it is apparent that the data in (58) involve a LHL melody that is linked according to the usual principles.

A singular agentive noun is formed by replacing the plural suffix /k/ with the singulativizing suffix /nIt/.

(59) High verb roots

kà-dér-à-nít (from: dér 'cook')  
 kà-'dép-à-nít (from: 'dép 'hold')  
 kà-bérèny-à-nít (from: bérén 'spoil')  
 kà-'bùyùt-à-nít (from: 'bùyùt 'sharpen')

LHL verb roots

kà-mét-à-nít (from: mét 'see')  
 kà-mók-à-nít (from: mók 'hold')  
 kà-dódòng'-à-nít (from: dò-dông' 'shake')  
 kà-sápùk-à-nít (from: sápùk 'overturn')  
 kà-dílìlì-yà-nít (from: dilìlì 'winnow')

We saw earlier that the agentive word-formation process assigns a LHL melody in place of the lexical melody of the verb root. This LHL melody is then associated over the sequence /ka/ + verb stem + linking vowel. The suffix /nIt/ on the other hand appears to have a High tone associated with it.

Notice that this particular example shows clearly why it is necessary to state the Free Syllable Association rule so that a free syllable associates to the bound tone to the left. In the derivation of kà-dódòng'-à-nít, for example,

we will have the following derivation (up to the point where the Free Syllable Association rule applies):

(60)     L   H L            H  
           ka-dodong'-a-nít  
           L   H L            H  
           |   |   |         |  
           ka-dodong'-a-nít     UTAP

At this point, it is necessary that the free syllable which has the linking vowel as its nucleus link to the L tone to the left rather than the H tone to the right.

The singular agentive formation based on a reduplicated stem offers no particular problems, but we illustrate it below for the sake of completeness:

(61)     LHL verb roots  
           kà-mé-mèt-à-nít  
           kà-mó-mòk-à-nít  
           kà-sá-sápùk-à-nít  
           kà-dí-dilili-yà-nít  
  
           High verb roots  
           kà-dé-dèr-à-nít  
           kà-'dé-'dèp-à-nít  
           kà-bé-bèrèny-à-nít  
           kà-'bú-'bùyùt-à-nít

There is another, optional form of the agentive singular that involves a singulativizing suffix /E/. Examples of this construction:

(62)     High verb root  
           ká-dér-é (cf. dér 'cook')  
           ká-'dép-é (cf. 'dép 'hold')  
           ká-'bùyùt-é (cf. 'bùyùt 'sharpen')  
           ká-bérény-é (cf. bérén 'spoil')



LHL verb root

ká-mét-é (cf. mét 'see')  
 ká-mók-é (cf. mók 'hold')  
 ká-dódóng'-é (cf. dòdông' 'shake')  
 ká-sápúk-é (cf. sápúk 'overturn')  
 ká-dílíli-yé (cf. dílíli 'winnow')

Examination of these data show that not only the verb root melody is absent, but also the LHL melody associated with agentive formation, and instead a H melody appears. Apparently the suffixation of /E/ to the agentive stem replaces the agentive melody (LHL) with a H melody, just as agentive formation supplanted the lexical melody with a LHL melody.

In addition to a productive agentive nominalization, Bari also has a productive instrumental noun word-formation process. The suffix /Et/ is appended to a verb stem to form a singular, instrumental noun. Examples:

(63)	<u>verb root</u>	<u>instrumental sg.</u>	<u>gloss</u>
	mét (LHL)	mèt-êt	see
	mók (LHL)	mòk-êt	hold
	dér (H)	dér-êt	cook
	'dép (H)	'dép-êt	hold
	dòdông'	'dòdông'-êt	shake
	sápúk	sápúk-êt	overturn
	bérén	bérény-êt	spoil
	'búyút	'búyút-êt	sharpen
	dílíli	dílíli-êt	winnow

The data in (63) suggest that at least in the case of the High roots, there is a Low associated with the suffix /Et/. The data for LHL roots are entirely compatible with just assuming that there is a LHL melody present. These data are, of course, quite parallel to data that we encountered in the verbal system in Chapter 2. Possible derivations are given in (64), based on the assumption that the final Low of these words is associated after the UTAP operates rather than being lexically linked.

(64)	LHL L	H L	
	mok-et	'dep-et	
	LHL L	H L	
	$\begin{array}{l} \diagdown \\ \diagup \end{array}$ mok-et	$\begin{array}{l}   \\   \end{array}$ 'dep-et	UTAP
	inapplicable		Free Syllable Association
	LHL L		
	$\begin{array}{l} \diagdown \\ \diagup \end{array}$ mok-et	inapplic.	Free Tone Association
	inapplic.	$\begin{array}{l} H L \\ \diagdown \quad   \\ \text{'dep-et} \end{array}$	High Tone Spread

In the case of the H roots, the L of the suffix might just as well be linked to the suffix vowel prior to UTAP. In the case of LHL roots, however, having the suffixal vowel linked would interfere with the UTAP associating the H part of the melody to the suffix. While this might not be an insurmountable problem, we take it as some evidence in favor of the derivations in (64).

A plural form of the deverbal instrumental noun is constructed by suffix /I?/ (which also induces a change of /Et/ to /Es/):

- (65) mèt-és-í?  
mòk-és-í?  
dér-és-í?  
'dép-és-í?  
dòdóng'-ès-í?  
sàpúk-ès-í?  
bérény-és-í?  
'búyút-és-í?  
dilíliy-ès-í?

These data are rather striking. First, notice that the suffix /I?/ is High after LHL roots, and L after H roots. It would be possible to claim, then, that in this

construction there is a High tone associated with /I?/ and the verb root retains its lexical melody, but a rule of High Tone Lowering changes a H suffix to Low after a H. Under this analysis, however, it would be necessary to bar the H of the root from spreading onto the following (derived) Low to produce a Falling tone.

Given such an analysis, we could derive examples such as 'dép-és-i? and mòk-és-i? as follows. (Note that we are assuming that /Et/ does not have a Low tone when it occurs word-medially in the plural. The tone of all verbal and deverbal words is determined on the basis of a root melody and (possibly) a tone associated with the final syllable.

(66)	LHL	H	H	H	
	mok-es-i?		'dep-es-i?		
	L H L H	H	H		
	\				
	mok-es-i?		'dep-es-i?	UTAP	
	inapplic.	H	H		
		\			
		'dep-es-i?		Free Syllable Assoc.	
	inapplicable			Free Tone Association	
	inapplic.	H	L		
		\			
		'dep-es-i?		High Tone Lowering	
	inapplicable			High Tone Spread	

As we will see in Chapters 4 and 5, there are a number of cases where High Tone Spread fails to apply to a syllable that has become Low through High Tone Lowering. It is not, however, the case that all such lowered Highs resist spreading. This variation in the susceptibility to spreading is a persistent aspect of Bari tonology.

There is another process whereby nouns are derived from verbs. This process involves the affixation of a

suffix /At/ to form a plural stem, to which the singulativizing suffix /ti/ can be appended to form a singular noun. Examples are given in (67):

(67) High roots

dóng'	'chase'		
dóng'ót	dúng'út-tí	's.t. that can be driven away'	
géng'	'obstruct'		
géng'ót	ging'ít-tí	's.t. capable of being obstructed'	
dé?	'bend'		
délót	dílít-tí	'that which can be bent'	
gá?	'look for'		
gálát	gálát-tí	'that which is capable of being searched'	
dók	'wind a string around'		
dókót	dúkút-tí	's.t. rolled up'	
dák	'redeem'		
dákát	dákát-tí	'one to be redeemed'	
gór	'be shy'		
górót	gúrút-tí	's.o. capable of being affected by shy behavior'	
'bóró	'smear'		
'bóryát	'bóryát-tí	's.t. capable of being smeared'	
búrák	'stir'		
búrák-át	búrák-át-tí	's.t. capable of being stirred'	

LHL roots

dá	'trade'		
dáyát	dáyát-tí	'thing for bartering'	
mók	'hold, catch'		
mók-át	mók-át-tí	's.t. capable of being held'	
mét	'see'		
mét-át	mét-át-tí	's.t. capable of being stared at'	

'bók 'unearth'  
 'bók-át 'bók-át-tí 's.t. capable of being  
 unearthed'

sápúk 'overturn'  
 sápúk-át sápúk-át-tí 's.t. capable of being  
 overturned'

dòdông' 'shake'  
 dòdông'-át dòdông'-át-tí 's.t. capable of  
 being shaken'

Suffixation of /At/ derives a plural noun that refers to something that is capable of undergoing the action specified by the verbal root. Segmentally, this suffix is exactly parallel to the pluralizing suffix /At/ discussed earlier in this chapter. The tonal behavior of /At/ in (67) is fairly straightforward. Whatever the lexical tone of the verb root, suffixation of /At/ triggers the replacement of the lexical melody with a H melody. This H melody then associates to the derived nominal by the usual tone association principles. The singulativizing morpheme /ti/ has been examined above and requires no further discussion.

There is also a word-formation process deriving abstract nouns by means of prefixing /tO/ ~ /tU/ and, in some cases, suffixing /An/. Examples:

- (68) lú-rwá 'black' tú-rw-ân 'blackness'  
 bér 'age-class' tó-bér-ôn 'initiation; peer  
 group'  
 'bús-án 'be good' tó-'bús-ân 'goodness'  
 médé 'home' tó-médy-ôn 'kinship'  
 kinyó 'food' tó-kinyô 'selfishness'  
 kútúk 'mouth' tó-kútúk, tó-kútúk-ân 'loud-  
 mouthedness'  
 kóng'-ôn 'be clever' tó-kóng'-ôn 'cleverness'  
 'báng'-án 'be stupid' tú-'báng-ân 'stupidity'  
 kél-án 'be clean' tó-kélân 'cleanliness'  
 kwélén 'be beautiful' tó-kwélên 'beauty'  
 múny-án 'weak' tó-múny-ân 'weakness'  
 mátát 'chief' tú-máty-ân 'chieftainship'  
 mónyé 'father' tó-móny-ân 'fatherhood'  
 'búnúk (pl. form of 'búnít 'witchdoctor'  
 tó-'-búnúk 'witchcraft'

gilà 'white man'	tó-gilâ-n 'white man's way/manner'
bòdò 'craftsman'	tó-bódw-ân 'craftmanship'
lò-'dít 'small'	tó-'dít-ân, tó-'dít 'smallness'
'dúpyêt 'slave'	tó-'dúpyên 'servitude'
gèlêng' 'alone'	tó-gélêng' 'loneliness'
kòng'é 'eye'	tó-kóng'yân 'naughtiness'
márátê 'relative'	tú-márét-ân 'brotherhood'
mó'dókê 'blind'	tó-mó'dókén-òn 'blindness'
mírikû? 'enemy'	tó-mírikúl-ân 'enemity'
lòmèrî 'poor'	tó-lóméry-ân 'poverty'
módóng' 'old'	tó-módóng'-ân 'old age'
dúmà 'big'	tó-dúmál-ân 'greatness'
pàjò? 'far'	tó-pájól-ân, tó-pájô?
líkísó 'widow'	tó-líkís-ân 'widowhood'

These data suggest that a tonal melody is associated with the word-formation process involving prefixation of /tO/ ~ /tU/ and suffixation of /An/. We see that in the derived abstract noun, all of the syllables of the word are High up until the last syllable. The last syllable generally has a Falling tone, but there is a group of items where a Low tone occurs instead. At present, we cannot determine why módóng' produces tó-módóng'-ân but kútúk produces tó-kútúk.

### 3.2. Adjectives.

Bari adjectives can be classified as "simple" or "derived". We will deal with the simple adjectives first. They consist of a single morpheme (which may be monosyllabic or polysyllabic). For example, the adjectives in (69) cannot be analyzed into smaller constituent elements:

- (69) lút 'dirty'  
 bám 'careless'  
 dúmà 'big'  
 yóké 'lazy'  
 mó'dókê 'blind'

Some (not all) of these simple adjectival roots have a plural form that consists of the root plus one of the

pluralizing suffixes that we have already encountered in our description of the Bari noun. Examples of the occurring pluralizing suffixes are given in (70):

(70) /Ak/:

dúmàl-âk (pl.) 'big'

/A/:

yóky-â '(pl.) lazy', from /yoke-a/  
 gwútw-â '(pl.) cut', from /gwutu-a/  
 módóng'-â '(pl.) old', from /modong'-a/

/no/:

mó'dóké-nò '(pl.) blind'

/At/:

lómóry-òt '(pl.) private', from /lomore-ot/

/An/:

wáwúk-ân '(pl.) hollow, empty', from /wawuk-an/  
 'bándál-ân '(pl.) timid', from /bandal-ân/

/jIn/:

kàng'á-jìn '(pl.) brave'

/kA/:

'bàkòrí-kâ '(pl.) unmusical', from /'bakari-kâ/

In effect, these simple adjectives are morphologically indistinguishable from nouns. It is for this reason that in our discussion of nominal morphology, we occasionally included examples of roots that have an adjectival function.

We have identified the following tonal shapes for simple adjective roots:

(71) H roots

lút 'dirty', bām 'careless'

F roots

'dôk 'late-walking'

HL roots

dúmà 'big', 'báng'in 'sterile', bétà 'naughty'

HH rootsyóké 'lazy', 'dírí 'true', módóng' 'old', wáwú  
'empty', gwútú 'cut'LH roots

kàng'á 'severe', bándá 'timid'

LL roots

sàndì 'poor', kàndì 'rich', 'bàndè 'thrifty'

HHF roots

mó'dóké 'blind'

HHH roots

síngríyú 'solid'

HHL roots

lómórè 'private, personal'

LLF roots

'bàkàrí 'unmusical'

While the above data involving monosyllabic, bisyllabic, and trisyllabic verbal roots do not contain instances of every possible tonal configuration, it nevertheless seems clear that the adjective roots are like the noun roots in that they are non-melodic (i.e. their possible tonal shapes is not a small set of tonal patterns



independent of the number of syllables in the root, but rather each syllable chooses one of the possible tones in general independence of all other syllables).

We will examine the tonal behavior of these simple adjectives in phrasal environments in Chapter 4. Let us now turn to the derived adjectives. By "derived" adjective, we refer to those adjectives that are morphologically complex and/or productively derived by morphological processes.

The most important derived adjective formation involves the procliticization of the relative markers /lo/ and /na/ to a verbal root (cf. Chapter 4 for a discussion of relative clauses in Bari). We will refer to these adjectives as relative adjectives. In some cases, this verbal root that forms the basis of a relative adjective may itself be used (without modification) as a simple definite verb. For example, from the verb lávák 'speak openly, straightforwardly' an adjective lú-lávák/ná-lávák '(of s.o. who) talks too freely'. In other cases, the relative adjective is formed on the basis of a verbal root that cannot be used as a simple definite verb. For example, ló-'bút/ ná-'bút 'good' is derived from the verbal root /'but/. To form a simple definite verb, this root must be combined with the suffix /An/: 'bús-án 'be good, healthy'.

The relative adjective formed on the basis of verbal roots like the one in 'bús-án may show variation as to whether the /An/ is retained or not. For instance, in the following examples we find both a form ló-tór-àn and a form ló-tór in use.

- (72) (a.) jákí púlù ló-tór-àn  
'bring me the groundnuts which are ripe'
- (b.) mángàtí ló-tór 'a ripe mango'

We have not been able to study this sort of variation and therefore cannot say to what extent it is rule-governed. In some cases, the /An/ suffix must be retained. Thus from the verb gwór-án 'coagulate', the relative adjective is ló-gwór-án and no form \*ló-gwór is available.

Although many relative adjectives are clearly based on verbal roots, there are others which are not deverbal in nature. For example, we have relative adjectives such as ló-kóká 'leopard-like' which is derived from a noun, kóká 'leopard'; we also have relative adjectives such as ló-nyétê 'white spots on a green background' whose root is not otherwise used in the language.

Let us now turn to the tonal structure of the relative adjective. When the verb root is monosyllabic, one finds the relative adjective exhibiting the tonal shape HH. Some examples:

- (73) (a.) ng'útú? ló-'bút 'a good man'  
ng'úrò ná-'bút 'a good girl'
- (b.) kéré ló-dón 'an unripe gourd'  
kitê ná-dón 'unripe tamarind'
- (c.) wúrí lú-'báng' 'a stupid pig'  
ng'úrò ná-'báng' 'a stupid child'

Other HH relative adjectives include: ná-ké? 'beautiful', ló-jó? 'long' ló-sók/ ná-sók 'thin', ná-wín 'wet'.

There are also relative adjectives that exhibit a HF tonal shape.

- (74) (a.) wáté ná-'bút 'good women'  
ng'útú ló-'bút 'good people'
- (b.) kádén ló-dôn 'unripe trees'  
kirwâ ló-dôn 'unripe bamboos'
- (c.) wáté ná-sók 'thin women'  
ng'útú? ló-sók 'thin people'
- (d) ng'útú? ló-rôn 'a bad person'  
ng'úrò ná-rôn 'a bad child'

Other relative HF adjectives include: ló-kông' /ná-kông' 'clever', ló-gô/ ná-gô 'hard, serious', ló-yûr/ná-yûr 'sad', and lu-rwâk 'black'. It should be noted that almost all the HF relative adjectives represent the plural form of a simple (singular) root with the tone pattern HH. Only one adjective, ló-rôn 'bad', has the HF pattern but is not a plural form of a HH singular. The adjectives ló-rôn forms a plural by replacing the final n with k: ló-rôk. This same k element appears in the plural of lú-rwá, which is lú-rwâ-k, and seems to be related to the plural suffix /Ak/ discussed below.

There is one adjective that appears to be a relative adjective of the sort just described but which must be regarded as essentially a simple adjective: ló-'dît/ná-'dît 'small'. The first thing about this item which does not fit into the general pattern is the tonal shape. This would be the only example of a relative adjective which would have the tone shape HL. Second, as the data in (74) establish, the initial H tone of a derived adjective does not change after a word that ends in a High tone. In Chapters Four and Five we will document the fact that there is a rule -- call it High Tone Lowering -- that lowers a H at the beginning of a word to L when another High precedes. This rule is inapplicable to the relative adjectives (just as it is inapplicable to the relative markers ló and ná in general). But the rule does affect the adjective ló-'dît and ná-'dît:

- (75) kiné ná'dît 'a small goat'  
 (cf. ng'úrò ná'dît 'a small boy')

For these reasons, we consider ló'dît and ná'dît to have been reanalyzed by Bari speakers as simple rather than relative adjectives. (We will see in Chapter 4 that simple adjectives are subject to High Tone Lowering, unlike derived adjectives.)

When ló and ná are procliticized to a bisyllabic root, we find that the usual tonal pattern is HHH (i.e. H on relative marker, HH stem). Relative adjectives of this type regularly form their plural by suffixing /Ak/. The tonal shape of the plural is HHLF.

(76) HHH

lú-gáláng' 'wide' (lú-gálàng'-âk)  
ná-gáláng'

ló-ng'útút 'short' (ló-ng'útùt-âk)  
ná-ng'útút

ló-túlúr 'round' (ló-túlùr-âk)  
ná-túlúr

lú-páyáng' 'pink' (lú-páyàng'-âk)  
ná-páyáng'

ló-'búlúng' 'entire, whole' (ló-'búlùng'-âk)  
ló-'bírit 'straight' (ló-'bíris-âk)  
ló-'bólót 'slippery' (ló-'bólòt-âk)  
ló-'bónyór 'ugly' (ló-'bónyòr-âk)  
ló-'búlé 'spotted like a hyena' (ló-'búlèl-òk)  
ló-'dépér 'flat and thin' (ló-'dépèr-âk)  
ló-'déréng' 'bloated' (ló-'dérèng'-âk)  
ló-gótók 'skinny' (ló-gótòk-òk)  
ló-gúsú? 'narrow' (ló-gúsùl-âk)  
lú-pályén 'shirker' (lú-pályèn-âk)  
lú-kúlyém 'chatter-box' (ló-kúlyèm-âk)  
ló-nyélék 'shallow' (ló-nyélèk-âk)  
ló-sóróm 'tender' (ló-sóròm-âk)  
ló-ké'dúm 'with a big belly' (ló-ké'dùm-âk)  
ló-júryéng' 'inquisitive' (ló-júryèng'-âk)  
ló-bóyóng' 'very fat, big' (ló-bóyòng'-âk)  
ló-télék 'naked' (ló-télèk-òk)  
ló-tólók 'clever' (ló-tólòk-òk)  
ló-jíláng' 'very tall' (ló-jílàng'-âk)  
ló-górón 'almost bald' (ló-góròny-òk)  
ló-mélén 'bald' (ló-mélèny-âk)  
lú-já'díng' 'reluctant' (lú-já'díng'-âk)  
lú-jámúk 'hairy' (lú-jámùk-âk)  
ló-rúgú? 'wrinkled' (ló-rúgùl-âk)

There are a few relative adjectives -- derived either from nouns or whose source is not determinable -- which exhibit a HHH pattern in the singular (H on the relative

marker, HF on the stem). These items form their plural with /Ak/ and exhibit the same HHLF tonal pattern in the plural as do the items discussed immediately above.

- (77) ló-nyétê 'white spots on a green background'  
 ná-nyétê  
 ló-nyétêl-âk (pl. masc.)
- ló-kókâ 'leopard-like'  
 ná-kókâ  
 ló-kókâl-âk (pl. masc.)
- ló-'búrê 'brown-headed'  
 ná-'búrê  
 ló-'búrêl-âk (pl. mascu.)
- ló-múryê 'gray'  
 ná-múryê  
 ló-múryêl-ôk (pl. masc.)
- ló-mútâ 'brown'  
 ná-mútâ  
 ló-mútâl-âk (pl. masc.)
- ló-tókê 'white-red'  
 ná-tókê  
 ló-tókêl-ôk (pl. masc.)

In those cases where the source of the stems above can be identified, the tonal shape of the stem does not necessarily match the HF pattern displayed in the relative adjective. However, since the number of items involved is small, it is difficult to determine whether there is some specific rule that is involved in transforming the stem into the HF pattern of the relative adjective. (Notice, incidentally, that in a number of examples above, a l is inserted between the vowel-final stem and the plural suffix /Ak/.)

Finally, there are a number of relative adjectives that exhibit the tonal pattern HHL (i.e. H on the relative marker and HL on the stem). Examples:

- (78) ló-múny-àn 'weak, soft' (pl. ló-múny-àk)  
(there is no alternative form \*ló-mún)
- ló-téy-òn 'dry' (pl. ló-téy-òk)  
(there is no alternative form \*ló-téy)
- ló-tór-àn 'ripe'  
cf. ló-tór 'ripe', ló-tôr (pl.)
- ló-jól-àn 'long'  
cf. ló-jó? 'long', ló-jô? (pl.)
- ló-ng'ém-àn 'green'  
cf. ló-ng'ém, ló-ng'êm (pl.)
- ló-wór-àn 'angry' (no special pl. form)  
ló-jár-àn 'absent' (no special pl. form)  
ló-gwór-àn 'coagulated' (no special pl. form)
- ló-gúlù? 'deep' (pl. ló-gúlùl-àk)  
ló-mórè 'private' (pl. ló-móry-òt)  
ló-nyá'dè? 'shallow' (pl. ná-nyá'dèl-àk)  
ló-nwénwèt 'resilient' (pl. ló-nwénwèt-àk)  
ló-ng'óròk 'old, wornout' (pl. ló-ng'óròk-òk)  
ló-rérèk 'creeping' (pl. ló-rérèk-àk)  
ló-swéswèt 'quick, smart' (pl. ló-swéswèt-àk)  
lú-dúkà '(pl.) new' (sg. lú-dúkà-tyò)

The items in (78) are somewhat diverse. In some cases they are deverbal in nature, in other cases not.

The first group of items illustrate cases where the verbal suffix /An/ is retained in the formation of a relative adjective. In each case, we see that it is realized on a Low tone (/An/ is ordinarily High-toned in the verbal form: tór-án 'be ripe', múny-án 'be weak', etc.). Since there are many relative adjectives which are derived from verb roots that suffix /An/ to form a simple definite verb, this particular group of items could be substantially expanded.

For the most part, the relative adjectives that retain /An/ do not undergo any special plural formation. Recall, however, that many of these forms can omit the /An/, and if they omit the /An/ there is a special (tonally-marked) plural form available. Thus although ló-tór-àn does not

have a special form, the truncated form ló-tór does have a plural form ló-tór. In a few examples where /An/ cannot be omitted, there are special plural forms in use. For example, ló-múnv-ân forms a plural by replacing /An/ with a Low-toned form of /Ak/.

The remaining examples in (78) also display a HHL pattern but they have no unifying morphological structure to them. While some may be deverbal, others are not clearly so. For example, ló-nyá'dè? is related to a nominal form nyé'dé'y-â 'shallowness' but there is no related verb. On the other hand, ló-gúlù? is related to a verb gúlù'y-â 'deepen'. Most of the items under discussion form their plural by suffixing a Falling-toned form of /Ak/: thus ló-nwénwèt has the plural form ló-nwénwèt-âk. There are however a few items that involve other morphological elements. For example, ló-mórè 'private' forms its plural by suffixing the Low-toned plural suffix /At/ that we encountered in the analysis of number-marking in nouns. The item lú-dúkà seems to be inherently plural and forms a singular by suffixing a Falling-toned variant of the singulativizing suffix /tyO/: lú-dúkà-tyâ.

The above data illustrate the great preponderance of relative adjectives. To summarize: one and two syllable stems generally exhibit the tonal shapes H and HH in the relative adjective. The H shape is replaced by Fall to yield a plural form (no suffix is appended). The HH shapes are converted to HL in the plural and a Falling-toned /Ak/ is suffixed. There are however two other groups of bisyllabic stems. One group exhibits the the tonal shape HF in the singular. This HF pattern changes to HL in plural formation and a Falling-toned /Ak/ is suffixed. Another group exhibits the tonal shape HL in the singular. If this group does not change its tonal shape when a Falling-toned /Ak/ is appended.

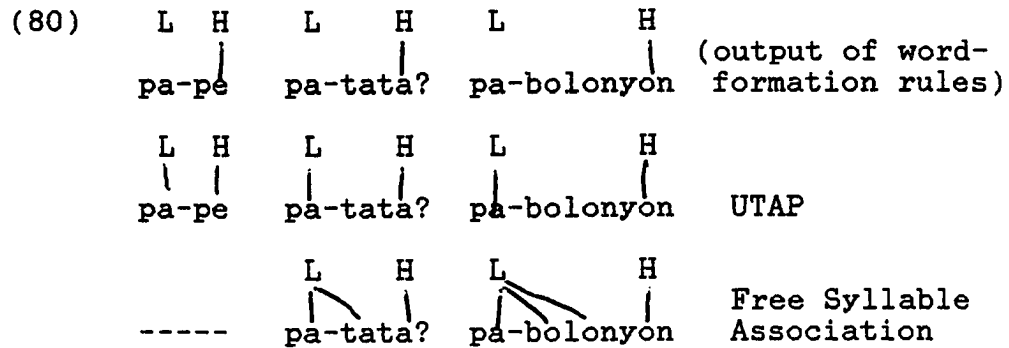
A second derivational process forming adjectives procliticizes the element /pa/ to a root. For example, we find pà-'dè'dé? 'light (in weight)', pà-lèlèng' 'sweet', and pà-màní? 'heavy'. These items also exhibit a High tone on their last syllable with all preceding syllables Low. More examples:

- (79) pà-pé 'hot'  
 pà-tá? 'insipid, lukewarm'  
 pà-twár 'bitter'
- pà-pípí? 'hard and painful'  
 pà-mòmót 'insipid, without salt'  
 pà-làlá? 'watery and tasteless'  
 pà-gògót 'sour'  
 pà-'dò'dón 'bittersweet'  
 pà-didír 'sweet'  
 pà-'bì'bín 'sweet'  
 pà-yiyík 'cool, luke-warm'  
 pà-lilíng' 'smooth'  
 pà-rèré? 'transparent'  
 pà-lilyá 'easy to do'  
 pà-yòyó? 'light'  
 pà-ròróng' 'sour'  
 pà-sòsóng 'sour'  
 pà-tàtá? 'bitter, oversalted'  
 pà-sùswák 'sour'  
 pà-'bù'bá 'brittle'  
 pà-títít 'slightly sour'  
 pà-yiyík 'slightly warm'
- pà-bòlònyón 'slimy, slippery'  
 pà-sùlùkwí? 'slightly sweet'

In some cases these derived adjectives may be related to verbs (for example, pà-lilíng' is connected to lilíng 'smoothen'), but in most cases they appear to be based on roots that do not occur alone. Examination of the above data shows clearly that this construction involves an imposition of a tonal melody. Two syllable items (/pA/ plus monosyllabic root) have the tone shape LH, three syllable items the tone shape LLH, and four syllable items the tone shape LLLH. We assume that the melody is LH, with the H



associated to the last syllable of the expression. The derivation of these items is illustrated in (80) below.



### 3.3. Adverbs in Bari.

#### 3.3.1. Simple adverbs.

Simple adverbs are those that consist of a single root morpheme, either monosyllabic or polysyllabic in length. Examples appear in (1).

#### (81) monosyllabic adverbs

##### High

dé 'afterwards, then'  
 dá 'a little'  
 nyó 'why?'  
 nyín 'inside, in'

##### Low

yèng' 'remains'  
 'dù 'still, yet'  
 gè 'since'  
 kwàng' 'never, by no means'  
 lîng' 'almost'

##### Fall

nyô 'what?'  
 nyîn 'here'

bisyllabic adverbsHH

'bérón 'in the past'  
 kátá 'present'  
 'díri 'truly, really'

HL

nánù 'when'  
 kájè 'yesterday'  
 kánà 'nothing'  
 lóbòt 'north'  
 iyè 'yes, alright'  
 kókè? 'openly, without secrecy'  
 sònù 'like that'

HF

dikâ 'sometime today'  
 ng'inù 'there'

LH

bùrá? 'well'  
 bâng'á 'please'  
 àdá 'how, pardon me'  
 àgú 'indeed'  
 nyù'bák 'not yet'  
 'dè'dé 'quick, soon'  
 gòbbá 'not full'  
 kì'dóng' 'besides'  
 kirút 'actually, then'  
 nyóná 'nearby'  
 mòlú 'afterwards'

LL

lòlòng' 'today'  
 pètè 'recently, just now'  
 àsùt 'entirely'  
 rìgwò 'straight'  
 àbùr 'indiscriminately'  
 àkà 'purposely'

LF

lèrù 'first of all'

trisyllabic adverbsLLH

gèlèré 'once'  
 kàlùmbá 'on the contrary'  
 ìnkòyí 'of course, surely'  
 kò'bùré 'tomorrow'

LLL

àràbàt 'badly'  
 kòbùbùt 'very early morning'

LLF

gwòsòsê 'all the same'

Simple adverbs, like all the other non-verbal roots, show all possible sequences of Highs and Lows on non-final syllables, and can have a H, L, or Fall on the last syllable.

3.3.2. Complex adverbs.

There are a number of adverbs that appear to be morphologically complex. Examples are given below:

- (82) tú-kwájè líng' 'the whole night'  
 tú-pàrán líng' 'the whole day'  
 tú-kwájè ták 'all night long'  
 tú-pàrán ták 'all day long'  
 pàrán tàk 'daily'

kàjé-lú 'the day before';  
 sù-ná-nà 'now'  
 sò-nú-nù 'at that time';  
 mòlú-lù 'the day after tomorrow'

sò-ng'í-nà 'like that'  
 sò-ng'í-nà-ná 'now, just now'  
 gwòsò-sê 'all the same'

That the items in (82) are morphologically complex can be seen from the fact that the constituent elements in these

expressions can function independently of the given expression. Some of the constituent elements are independent roots. For example, kwàjè 'night' appears in tú-kwàjè 'night-time'; pàrán 'day' appears in tú-pàrán 'daytime', pàrán-ták 'daily', and tú-pàrán-ták 'all day long'; kàtâ 'inside' appears in lú-kàtâ 'inside'; ng'í-nà 'this (fem.)' appears in sò-ng'í-nà 'like that' and sò-ng'í-nà-ná 'now, just now'; gwòsò 'like' appears in gwòsò-sê 'all the same'; and so on. While the elements in these complex constructions sometimes exhibit tonal alternations, the formations are not productive enough (or our understanding is not deep enough) to permit any significant exploration of the tonal shapes involved.

3.3.3. Compound adverbs. There are a number of particles that occur more freely with various roots to form compound adverbial expressions. The particles involved are à, í, ì, kò.

(83) particle(s) plus monosyllabic root

ló lòr 'today'

à líng' 'almost'  
 à yá 'at random'  
 à wók 'crookedly'  
 à 'dyân 'continuously'  
 à lôr 'only once'

í lò lór 'today'

particle(s) plus bisyllabic root

ló kíng'â 'this year'  
 à kíng'â 'for a year'  
 à wúyá 'undisciplinedly'  
 à mánswà 'foolishly'  
 à gélá? 'in a roundabout manner'  
 à múkák 'last'  
 à kòkwè 'before'  
 à pérók 'occasionally'

í kòmòng' 'in front'  
 í mùkàk 'in the final place'  
 í nà dǐng'ít 'now, at this moment'  
 í lò kǐng'á 'this very year'  
 í nà pèlé? 'on this side'

ì mùkàk 'in the back of'  
 ì kòmòng' 'in front'

kò nákwè 'because of'  
 kò kókwè 'first of all'

bisyllabic root plus particle

pérók líng' 'everyday'  
 màdàng' dá 'better than'  
 'bàin kwàng' 'never'  
 ng'ùpí yèng' 'continuously'

particle(s) plus trisyllabic root/stem

à lóríjó? 'straight'  
 à méréké 'at the side'  
 à lò méréké 'by the side style'  
 à kò mòng'síkàn 'by sheer luck'  
 à lóki'dír 'by the back'  
 à kàdòng'ê 'by the left hand side'

compounded roots and other extended forms

pérók mùdá 'how many times/days?'  
 pérók mùrék 'twice, two times'  
 pérók kù'dík 'a few times'  
 nyónà nyónà 'near each other'  
 díká kwàjè 'last night'  
 díká kò'bùré 'this morning'  
 dǐng'ít nájó? 'a long time'  
 dǐng'ít ná'dit 'a little while, a moment'  
 ng'ùpí ng'ùpí 'always, forever'  
 kòjú 'bèròn 'long time ago'

kájè í lù lór 'the day before yesterday'  
 í nyilò yápá? 'this very month'  
 í dàng' tò mùrék 'for the second time'  
 í kilò pèrók 'sometime within these coming days'

The constituent parts of these compound adverbs may undergo tonal changes due to the application of rules that are dealt with in detail in Chapter 4. For example, we will see in Chapter 4 that a word ending in a High tone will induce certain changes on a following word. These changes are seen in some of the examples above:

- (84) lôr            but: ló lòr 'today'  
king'á            ló king'á 'this year'

The preposition *í* will be shown in Chapter 4 to induce two different patterns of change depending on whether the preposition is followed immediately by a noun or if a demonstrative separates the preposition from the noun. (85) illustrates the changes that take place when the noun immediately follows the preposition:

- (85) múkák            but: í mùkák 'in the final place'

Examples of the changes that take place when a demonstrative separates the preposition from the noun:

- (86) ló lòr            but: í lò lór  
ná dǐng'ít            í nà dǐng'ít  
ló king'á            í lò king'á  
ná pèlè?            í nà pèlé?  
nyíló yápà?            í nyìlò yápà?

Since these various changes are discussed in great detail in Chapter 4 and an analysis presented there, no further discussion will be undertaken at this point.

## CHAPTER 4

## BARI NOUN PHRASE TONOLOGY

4.0 Introduction.

Most major category words in Bari (specifically, nouns, adjectives, and verbs) undergo tonological alternations at the phrasal level. In this chapter we will examine (a) the nature of the changes that occur and the conditions under which they occur, (b) the principles that seem to underlie these changes and their possible formalization, and (c) the mode of application of the rule (iterative? cyclic?).

4.1.0. Nouns in context.

We will begin our examination of the Bari phrasal tonology by considering nouns. The first point to be observed is that all nouns change their pronunciation in Bari depending on the context in which they occur. We will demonstrate that the relevant aspect of the environment is basically very simple: the noun is essentially unaltered if it stands in initial position or if it stands after a word ending in a Low tone; however, if the noun follows a word that ends in a High tone, then the noun will change its tonal configuration. In this section we will examine what changes a noun undergoes and we will demonstrate that the above environmental contrast is indeed the relevant one.

4.1.1. Post-verbal nouns.

One situation where nouns regularly alternate their pronunciation is when they are preceded by a verb that ends in a high tone. To demonstrate this phenomenon, we will begin with nouns that have two syllables.

We showed in Chapter 3 that the following tonal shapes are possible in disyllabic nouns: HH, HL, HF, LL, LH, LF. We will consider each of these tonal types in succession, illustrating them in both post-Low (i.e. in initial position or after a word ending in L or a Fall, which we regard as a sequence of H followed by L) and post-High (i.e. after a word that ends in a H) environments.

The phrasal behavior of a HH noun is illustrated in (1), where we see that HH changes to HL:

(1) HH nouns:

(cf. kídí 'well', 'dópút 'bark cloth, kéré 'gourd', wálé 'knife', kí'bó 'canoe')

- (a.) Jàdà à 'dép kéré 'Jada held the gourd'
- (b.) ng'útû à kúr kídí 'the people dug the well'
- (c.) Wàní à 'búyút wálè 'Wani sharpened the knife'
- (d.) Pòní à pót 'dópút 'Poni rubbed the bark cloth'
- (e.) mâtât à tìn kí'bò júr 'the chief gave the canoe to the villagers'

cf. in the post-Low environment:

- (f.) kí'bó à kámâ 'the canoe was paddled'
- (g.) nân à sâpûk kí'bó 'I overturned the canoe'

In (1a-e) we see that a HH noun changes to HL after a verb that ends in a H. In the case of monosyllabic H verbs it does not matter whether the verb root is of the underlying H type (such as 'dép) or the underlying LHL type (such as kúr). This supports the point made in Chapter Two that monosyllabic LHL verbs behave, at the phrasal level, like they end in a H tone, and therefore we must assume that the final L of the LHL melody actually deletes when it fails to associate. The remaining examples in (1) illustrate that a HH noun is unaffected in initial position or after a L.

The behavior of HL nouns is illustrated in (2), where we see that a HL noun changes to LL:



(2) HL nouns:

(cf. kópò 'cup', mángà 'mango', gùrè 'dove', 'bùnit  
'witch', lúnsàk 'young men')

- (a.) Pòní à 'dép kópò 'Poni held the cup'
- (b.) Wàní à dók kópò 'Wani fetched the cup'
- (c.) Jàdà à nyású mángà 'Jada ate mangoes'
- (d.) Jàdà à gwó gùrè 'Jada kicked the dove'
- (e.) Wàní à lúng' 'bùnit 'Wani called the witch'

cf. in the post-Low environment:

- (f.) mátàt à yàkí lúnsàk 'the chief sent the young  
men to do s.t.'

The data in (2) show that a HL noun changes to LL in the post-H environment. Again, monosyllabic roots (whether underlyingly H or LHL) behave the same in always triggering the change on a following HL noun.

A HF noun changes to HL in the post-H context:

(3) HF nouns:

(cf. kótèt 'tail', kúrit 'giraffe', múrì 'duiker',  
'bólòt 'durra', kádí 'house')

- (a.) Jàdà à rém múrì 'Jada speared the duiker'
- (b.) nân à dók wáwòk 'I fetched the palm fruits'
- (c.) Pòní à 'bóró kádí 'Poni smeared the house'
- (d.) Jàdà à rém kúrit 'Jada speared the giraffe'
- (e.) kúlàng' à 'dúng' kótèt ná wùrì 'Kulang cut the  
tail of the pig'

cf. the post-L environment:

- (f.) bòjò à nyàbùr 'bólòt 'Bojo ground the durra'
- (g.) wálé à 'dúng' árí kótèt 'the knife was used for  
cutting the tail'
- (h.) kótèt à ryòká kò ng'útú 'the tail was stepped  
on by a person'

A LL noun changes to HL in the post-H context:

(4) LL nouns:

(cf. tèrò 'mat', dùpà 'cradle', ràbà 'platform', gwàkà 'forked stick', kòsò 'small basket')

- (a.) Jàdà à nín gwàkà 'Jada twisted the forked stick'
- (b.) nân à ng'í térò 'I raised up the mat'
- (c.) Pòní à búdyén kòsò 'Poni cut open the small basket'
- (d.) bòdò à ríp dùpà 'the craftsman sawed the cradle'
- (e.) Jàdà à 'bék ràbà 'Jada fixed the platform'

cf. the post-L environment:

- (f.) Wàní à sàpùk ràbà 'Wani overturned the granary bottom'

A LH noun changes to HH in the post-H environment:

(5) LH nouns:

(cf. bòngó? 'cloth', dàkán 'pipes', dirán 'weaver birds', ng'úmí 'needle', kùmé 'nose', kànín 'hand')

- (a.) nân à kúr ng'úmí 'I borrowed the needle'
- (b.) Pòní à tór bòngó? 'Poni tied the dress'
- (c.) Jàdà à nyá'dót kùmé 'Jada stuck up the nose'
- (d.) nân à 'béléng' dàkán 'I broke the pipes'
- (e.) Wàní à pák dirán '...scared off the weaver birds'
- (f.) nân à tín bòngó? Jàdà 'I gave the cloth to Jada'

cf. the post-L environment:

- (g.) Pòní à tín 'dièt bòngó? 'Poni gave the girl the cloth'
- (h.) Wàní à dòdông' kànín 'Wani shook the hand'
- (i.) bòngó? à jùpù 'the cloth was worn'

A LF noun changes to HF in the post-H environment:

(6) LF nouns:

(cf. wíńí 'medicine', pírít 'place', lákâ 'wild durra', kòrêk 'spade', 'dikâ 'open wound', kinât 'breast', kâlí 'whip')

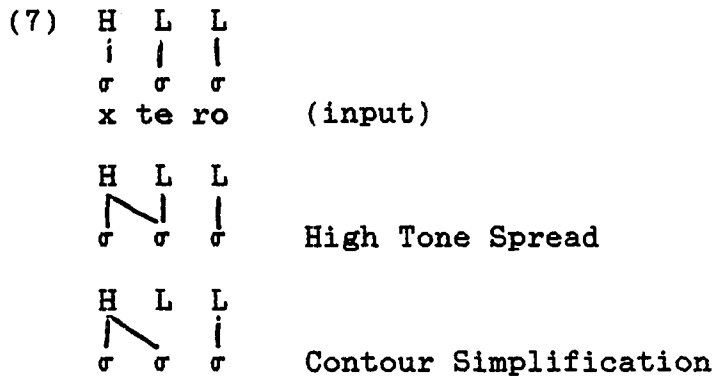
- (a.) Pòní à dér lákâ 'Poni cooked wild durra'
- (b.) Jàdà à tór 'dikâ 'Jada tied the open wound'

- (c.) Bòjò à 'bóró kínt 'Bojo smeared the breast'  
 (d.) Wàní à mât wíní 'Wani drank the medicine'  
 (e.) nân à 'béléng' kórêk 'I broke the spade'

cf. the post-L environment:

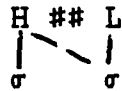
- (f.) nân à dòdông' kâlí 'I shook the whip'

Let us now turn to a discussion of the analysis of the data in (1)-(6) above. The data in (4)-(6) illustrating the Low-tone initial noun are very uniform. The initial Low syllable is always replaced by a High, and the tonal structure of the second syllable is unaffected. Clearly, we are dealing here with a kind of assimilation whereby the initial Low of a noun is raised to High by virtue of being preceded by a High. Within the autosegmental framework, assimilation of tone is most naturally expressed as the spreading of a tone (located in the tonal tier and associated with the syllable tier) onto an adjoining syllable, so that the tone in question is multiply-linked. Let us assume that Low-tone initial nouns have a Low tone associated with their first syllable and that Bari spreads a H from a word-final syllable onto a following syllable. Call this spreading (assimilation) operation High Tone Spread. Given these assumptions, High Tone Spread will operate on a sequence of a word ending in a H and a noun beginning with a L to associate the final H of the preceding word with the initial syllable of the noun. This produces a HL sequence on the first syllable -- i.e. a Falling tone. The correct output, however, is a H tone. However, since there is a constraint in Bari that bars Falling tones from non-final syllables, we can assume that there is a rule of Contour Simplification that disassociates the L part of a HL contour on a non-final syllable. An example derivation is given in (7):

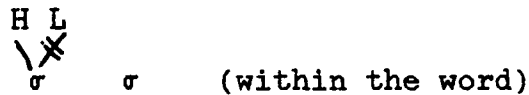


The rules of High Tone Spread and Contour Simplification can be formulated as in (8) and (9) respectively:

(8) High Tone Spread



(9) Contour Simplification



The major alternative to an approach using High Tone Spread would be one where a L at the beginning of a word changes to H after a word beginning in a H. Call this hypothetical rule Low Raising. Low Raising would be a "feature-changing" rule as opposed to a "spreading" rule. Such a feature-changing approach would require that we represent successive Low-toned syllables as each having its own Low tone. With such an assumption, a LL noun such as tèrò would change its initial Low to High after a word that ends in a H. If, on the other hand, a LL noun such as tèrò were analyzed as having a single L multiply linked, we would expect that L to change to H by Low Raising, producing the incorrect form téró.

The analysis using High Tone Spread produces the same results regardless of whether a LL noun has a separate L tone for each syllable or one Low linked to both syllables. In both analyses, the initial syllable of the word will be linked to a L. The H of a preceding word will spread onto that syllable, producing a HL sequence on that syllable. Contour Simplification will delink that same (initial) syllable from the L, leaving the L in the tonal tier. The second syllable of the noun will remain Low-toned (either because it originally bore its own L tone or because it continues to remain associated with the L tone that was, originally, associated with both it and the first syllable.

We will assume for the time being the validity of the High Tone Spread analysis. It is, within the autosegmental framework, the typical sort of phonological rule. There will be crucial evidence in favor of the High Tone Spread analysis when we come to examine monosyllabic nouns.

The changes that a H-initial noun undergoes in the post-H environment (cf. (1)-(3)) are not nearly as straightforward as the changes that a L-initial noun undergoes. The change of HH to HL and of HF to HL can be grouped together: if a noun has a sequence of two H tones on the tonal tier, the second H changes to L. However, if a noun has a single H followed by a L, the first (and only) H changes to L. Clearly, there appears to be a rule whereby a H changes to L after a word that ends in a H. Call this process High Tone Lowering. The problem is: why does a HH noun such as kéré change the second High-toned syllable to Low whereas a HL noun such as kópò changes the first High-toned syllable to Low. This difference in behavior of the two nouns looks quite mysterious.

A full understanding of the changes that occur in the post-H environment when a noun has an initial H cannot be gained without looking at the behavior of trisyllabic and longer nouns.

Trisyllabic nouns show the following alternation patterns in the post-High context:

- (10) (a.) HHH ~ HLH  
 Wàní à 'dé? pílilí  
 'Wani hid the knife' (cf. pílilí 'knife')
- (b.) HHL ~ HLL  
 nân à mók líkitò  
 'I caught the rabbit' (cf. líkitò 'rabbit')
- (c.) HHF ~ HLF  
 Pòní à dér sùmùtti  
 'Poni cooked the fish' (cf. sùmùtti 'fish')
- (d.) HLH ~ LLH  
 Jàdà à 'dép titòtót  
 'Jada kept the property' (cf. titòtót  
 'property')
- (e.) HLL ~ LLL  
 Pòní à nyá bàsàlà  
 'Poni ate the onion' (cf. bàsàlà 'onion')
- (f.) HLF ~ LLF  
 Jàdà à gá? tíribyât  
 'Jada looked for the pipes' (cf. tíribyât  
 'pipes')
- (g.) LLL ~ HLL  
 Pòní à dér àmbàtà  
 'Poni cooked the bread' (cf. àmbàtà 'bread')
- (h.) LLH ~ HLH  
 nân à dé? jégwèrí  
 'I hid the hair comb' (cf. jégwèrí 'comb')
- (i.) LLHL ~ HLHL  
 Pòní à dér kákùrí  
 'Poni cooked the wild vegetable. cf. kákùrí  
 'wild vegetable')
- (j.) LHL ~ HHL  
 nân nyànyár kátúràn  
 'I like flowers' (cf. kátúràn 'flowers')

(k.) LHH ~ HHH  
 Wàní à tìn píritán  
 'Wani gave (him) the places' (cf. píritán  
 'places')

(l.) LHF ~ HHF  
 nân à léng' kimúrtê  
 'I killed the mosquito' (cf. kimúrtê  
 'mosquito')

Similarly, quadrisyllabic nouns also alternate their pronunciation in the post - High environment, as shown in (11):

(11) (a.) HHHH ~ HLLH

Jàdà à 'yúr témèné?  
 'Jada burned the ants' (cf. téménéné? 'ants')

(b.) HHHF ~ HLLF

Pòní à júp didílití  
 'Poni wore the ornament' (cf. didílití 'ornament')

(c.) HHHL ~ HLHL

nân à tók kípítàlá  
 'I cut the strings' (cf. kípítàlá 'strings')

nân à mét gwóròkólò  
 'I saw the haughty person' (cf. gwóròkólò  
 'haughty person')

(d.) HHLH ~ HLLH

Wàní à ryá kánàrèjín  
 'Wani found the necklaces' (cf. kánàrèjín  
 'necklaces')

(e.) HLLL ~ HLLL

Jàdà á mó? múlákàtyò  
 'Jada beseeched the spirit' (cf. múlákàtyò 'the  
 spirit')

(f.) HHLF ~ HLLF

nân à mét kúrilàng'í  
 'I saw the tree' (cf. kúrilàng'í 'oil tree')

(g.) HLHH ~ LLHH

'Pòní màmán gwàrgwàlálán  
'Poni hates the sp. birds' (cf. gwàrgwàlálán  
'sp. birds')

(h.) HLHL ~ LLHL

nân à kí jà'bèléng'àn  
'I mounted the camel' (cf. já'bèléng'àn 'camel')

(i.) HLLH ~ LLLH

Pòní à ké? bàsàlàtát  
'Poni roasted the onion' (cf. bàsàlàtát 'onion')

(j.) HLLF ~ LLLF

Jàdà à yúk kàbilùkân  
'Jada looked after the sheep; cf. kàbilùkân  
'sheep')

(k.) LLHH ~ HLHH

nân à 'bèléng' kàtùmitán  
'I broke the doors' (cf. kàtùmitán 'doors')

(l.) LLHL ~ HLHL

Wàní à pé kíjàkútàt  
'Wani shot the animal' (cf. kíjàkútàt 'animal')

(m.) LLLH ~ HLLH

nân à nyá àmbàtàjín  
'I ate the bread' (cf. àmbàtàjín 'bread')

(n.) LLLL ~ HLLL

Jàdà à bán kèlèngwèrè  
'Jada touched the trap' (cf. kèlèngwèrè 'trap')

(o.) LLLF ~ HLLF

nân à 'yúr kèrèkètô  
'I burned the rag; cf. kèrèkètô 'rag')



(p.) LHLH ~ HHLH

nân à 'yá? yákányèjín  
 'I visited grandmothers' (cf. yákányèjín  
 'grandmothers')

(q.) LHLHL ~ HHLHL

Pòní àpé? káyátàlì  
 'Poni roasted the sweet potato'  
 (cf. káyátàlì 'sweet potato')

We have now illustrated the changes in the post-High environment that disyllabic, trisyllabic, and quadrisyllabic nouns undergo. We have provided examples for every possible tonal configuration of words of these lengths. It is important, however, to emphasize that all polysyllabic nouns change in the post-High environment. Nouns longer than four syllables are obviously less common, and a detailed presentation of every possible tonal configuration of such nouns would be mostly redundant. We will therefore merely provide exemplification for a few of the possibilities.

(12) quinsyllabic nouns

(a.) HHHLH ~ HLHLH

Wàní à 'yút sárámándítát  
 'Wani sawed the peanut' (cf. sárámándítát  
 'peanut')

(b.) HLHLF ~ LLHLF

Jàdà à rém gwònkòrókòkân  
 'Jada speared the puff adder' (cf. gwònkòrókòkân  
 'puff adder')

(c.) LHLH ~ HLLH

nân à wú bátísimùjín  
 'I received baptisms' (cf. bátísimùjín 'baptisms')

(d.) LLLF ~ HLLF

Jàdà à mók sùbésùbèkân  
'Jada caught the bird; cf. sùbésùbèkân 'bird')

(e.) LLHLH ~ HLHLH

nân à ryá àràbíyàjín  
'I found the cars' (cf. àràbíyàjín 'cars')

(f.) LLLLH ~ HLLLH

Jàdà à mók pèdèdèdèét  
'Jada caught the purple bird' (cf. pèdèdèdèét  
'purple bird')

(g.) LLLHL ~ HLLHL

Pòní à ríp kèrèkètójin  
'Poni mended the rags' (cf. kèrèkètójin 'rags')

(As will become clear later, it would be particularly relevant to show what happens to quinsyllabic or longer nouns with all High-toned syllables. Unfortunately, we have not found any such nouns in Bari.)

We have so far shown how bisyllabic, trisyllabic, and quadrisyllabic (as well as a few quinsyllabic) nouns change in the post-High environment. Let us now return to the analysis of these changes.

Examination of the Low-tone initial trisyllabic and longer nouns shows that they all behave just like the bisyllabic L-initial nouns: their initial L changes to H. The analysis that we proposed earlier -- namely, the application of High Tone Spread and Contour Simplification -- will account for these new data without any modification (as would the alternative, feature-changing rule Low Raising).

The behavior of High-initial nouns in the post-H context can be summarized as follows:

- (a) if the initial High of the noun is followed by a Low tone on the second syllable, then the initial High changes to Low in the post-High environment and no other change in the noun occurs;
- (b) if the initial High is followed by two or more High-toned syllables, then the initial High and the last High in the sequence remain High while the intervening Highs all change to Low;
- (c) if the initial High is followed by one High-toned syllable, then the first High remains but the second changes to Low.

The pattern of behavior summarized in (a)-(c) suggests a process that has the effect of converting High(s) to Low(s) in a post-High environment. But the precise details of this tone lowering process are less than obvious from the summary given above.

Let us begin our analysis of the above patterning by considering words that begin with two successive High tones. Recall that these words change the second High-toned syllable to a Low, but retain a High on their first syllable. At first glance this seems quite baffling. Why should the second syllable change its tone while the first syllable remains the same?

We suggest that a quite plausible account of this situation is available if we assume that (a) successive High-toned syllables are represented as a single High multiply linked to the various syllables, (b) there is a rule of High Tone Lowering that changes a H to L when immediately preceded by a H, and (c) High Tone Spread applies after the High Tone Lowering rule just mentioned. Given these three assumptions, the change of a word such as kidi to kidi in the post-High environment will be accounted for as follows:

- (13)
- |   |      |                        |
|---|------|------------------------|
| H | H    |                        |
|   | ^    |                        |
| x | kidi |                        |
|   |      |                        |
| H | L    |                        |
|   | ^    |                        |
| x | kidi | High Tone Lowering     |
|   |      |                        |
| H | L    |                        |
|   | ^    |                        |
| x | kidi | High Tone Spread       |
|   |      |                        |
| H | L    |                        |
|   | ^    |                        |
| x | kidi | Contour Simplification |

The preceding analysis accounts nicely for words that begin with just two High-toned syllables. There is a problem, however, when the word begins with just one High tone. A word such as kópò changes to kòpò in the post-High environment. The analysis we have evolved would predict the incorrect derivation shown in (14):

- (14)
- |   |      |                        |
|---|------|------------------------|
| H | H L  |                        |
|   |      |                        |
| x | kopo |                        |
|   |      |                        |
| H | L L  |                        |
|   |      |                        |
| x | kopo | High Tone Lowering     |
|   |      |                        |
| H | L L  |                        |
|   |      |                        |
| x | kopo | High Tone Spread       |
|   |      |                        |
| H | L L  |                        |
|   |      |                        |
| x | kopo | Contour Simplification |

(14) predicts that kópò would surface as \*kópò in the post-High environment instead of kòpò. One might take this as evidence against the analysis that we have so far developed (i.e. the analysis that claims that a word such as kidi changes to kidi in the post-High environment by the

combined effects of a rule of High Tone Lowering followed by High Tone Spread and Contour Simplification), since to achieve kòpò in the post-High environment we will have to prevent High Tone Spread from applying.

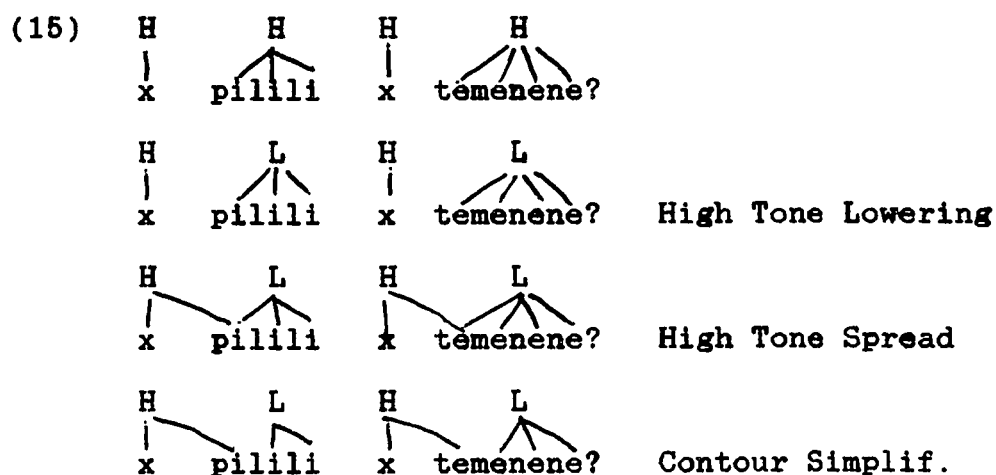
However, we are extremely hesitant to discard our analysis since there is strong evidence (to be developed later) in support of the proposition that High Tone Lowering results in the first syllable of a word such as kidí becoming Low as well as the second syllable. If this is correct, then the fact that the first syllable of kidí surfaces with a High in the cases we have discussed so far must be accounted for as being the consequence of other rules. Since the behavior of Low-initial words motivates the postulation of High Tone Spread and Contour Simplification, it seems entirely reasonable to assume that it must be these rules that account for the appearance of a High on the first syllable of kidí in the post-High environment. We assume then that the behavior of words such as kópò where the first syllable manifests a Low rather than a High must be treated as (somehow) escaping High Tone Spread.

Is there any motivation for High Tone Spread failing to affect a HL noun after it undergoes High Tone Lowering? One possible answer would seem to have roughly the following form: if High Tone Spread could apply to kòpò (derived from underlying kópò via High Tone Lowering), it would (in conjunction with Contour Simplification) have the effect of changing kòpò back to kópò. In other words, the fact that such words have undergone High Tone Lowering would be completely obscured if they were also allowed to undergo High Tone Spread. While this explanation for the fact that kópò alternates with kòpò in the post-High environment is not entirely convincing in our judgement, we will continue to assume that somehow such words must be barred from undergoing High Tone Spread. (Later we will in

fact see more direct evidence in favor of our analysis -- namely, we will see that there are limited environments where, in the post-H context, words such as kópò do in fact appear as kópò whereas other words behavior in the fashion we are presently describing.)

We have now given an account of polysyllabic nouns that begin with either a High associated either with just the first syllable or with the first two syllables. Words that begin with a High associated with the first three (or more) syllables raise some very perplexing questions. Their behavior can be summarized as follows: in the post-High environment, the first syllable appears High-toned (we have already given an explanation for this), following syllables appear Low-toned (we have given an explanation for this) except the last syllable in the sequence remains High-toned (we have not given an explanation for this!).

Given the assumptions that we have made and our analysis so far, we predict derivations such as those in (15):



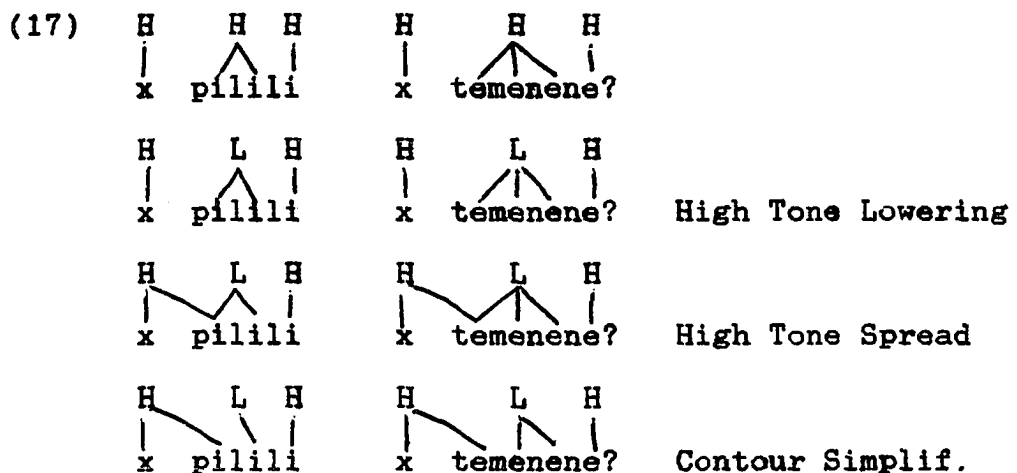
These derivations produce the wrong result in that the post-High pronunciation of píllí should be píllí and not \*píllí, and the post-High pronunciation of téménéné? should be téménéné? and not \*téménéné?. The problem that

confronts us can be stated very simply: how can we guarantee that when a sequence of three or more High-toned syllables begins a word all but the last one change to Low? For somehow the last High-toned syllable in the sequence remains High even though the preceding syllables change to Low (allowing for the fact that the first syllable in the sequence reacquires a High tone due to the operation of High Tone Spread and Contour Simplification).

The data suggest that in a sequence of three or more High-toned syllables, all but the last behave as a single unit. In autosegmental terms this means that all but the last syllable should be associated with a single High tone, while the last syllable is associated with its own (separate) High tone:



If we had representations such as those in (16), then the rules we have postulated would achieve the correct results, as (17) demonstrates.



(Notice that this analysis assumes that High Tone Lowering affects just the first High of a word when it is preceded by a word that ends in a High. High Tone Lowering would not affect a word-internal sequence of Highs.)

While representations such as (16) seem to be necessary inputs to the rule of High-Lowering (if the last High-toned syllable in a sequence of three or more High-toned syllables is to escape High-Lowering), it seems unlikely that they would represent the underlying state of affairs. The clearest evidence that underlyingly a sequence of High tones cannot be organized as in (16) comes from the verbal system. Recall from Chapter 2 that Bari verbal roots display one of two tonal "melodies": H or LHL. If a root has the High melody, all of its syllables will be High-toned. There are also verbal derivational suffixes that may be appended to a verb root. Some of these suffixes are toneless -- i.e. they acquire their tonal specification from the tonal melody of the root. It seems clear that verbal roots with the High melody have just a single H in their underlying representation and that this High associates to all of the vowels of the root as well as to the vowels of any toneless suffixes that follow the root. For example, the verb root 'búyút 'to sharpen' is one that displays the High melody; 'búyútákin is the benefactive form of this verb. We assume that there is just one High tone in the tonal tier of 'búyútákin -- that supplied by the underlying representation of the root 'búyút. Since a verb such as 'búyútákin changes in the post-High environment to 'búvátákin just as témèné? changes to témèné? (this will be confirmed later in this chapter when we examine the phrasal tonology of the verb), it is clear that even though búyútákin has just one High tone in underlying structure, it must acquire a representation where the first three syllables are associated with one High tone and the last syllable with a



## (18) High Tone Fission



While (18) is not the sort of rule that we feel comfortable postulating, since we are familiar with no other language with a comparable rule, the complex behavior of words such as pilili and téménéne? necessitates something along these lines. We will leave it as a matter for future research to see whether the brute-force rule of High Tone Fission can be replaced by a more natural process.

Given the rule of High Tone Fission, then the rule of High Tone Lowering can be formulated very simply, as in (19):

## (19) High Tone Lowering

$$H \rightarrow L / H \# \_$$

The analysis that we have so developed now accounts for all the polysyllabic data involving nouns that begin with one or more High tones as well as for polysyllabic nouns that begin with a Low tone. Let us at this point turn to an examination of monosyllabic nouns.

On the surface, monosyllabic nouns fall under three tonal shapes: High, Low, and Fall. However, the High monosyllables and the Low monosyllables each display two distinct patterns of tonal behavior, suggesting that there may be altogether five different underlying tonal shapes for monosyllables. We will refer to these five types of monosyllables as H<sub>1</sub>, H<sub>2</sub>, L<sub>1</sub>, L<sub>2</sub>, and HL. Examples of these five types of monosyllables in the post-High environment as opposed to the post-Low environment are given in (20)-(24):

(20) H<sub>1</sub> monosyllabic noun alternates with L:

- (a.) ng'útû à ryák tûr 'the people robbed the village' (cf. tûr 'village', clan')
- (b.) nân tí dén nyè 'I don't know him' (cf. nyé 'him')
- (c.) kâ'disí nyànyár tà 'the girls like you (pl.)' (cf. tá 'you (pl.)')
- (d.) bòdò à gwé mè? 'the craftsman weaved the sling basket' (cf. mé? 'sling basket')
- (e.) ng'úrò à gín kêt 'the child cut the thread' (cf. kêt 'thread')

cf. in the post-Low environment:

- (f.) tûr à ryákâ kò kòlák 'the clan was robbed by thieves'
- (g.) Wàní à tòlìkin kêt 'Wani lost the thread'
- (h.) nyé à gá? bër 'he looked for the age-group'

(21) H<sub>2</sub> monosyllabic noun alternates with F:

- (a.) ng'úrò à mát lê 'the child drank the milk' (cf. lé 'milk')
- (b.) nân à ró? kwê 'I scratched my head' (cf. kwé 'head')
- (c.) tá à mét bâr 'did you see the flood?' (cf. bár 'flood')
- (d.) lòpéng' à rík gèng' 'he chased the group away' (cf. gèng' 'group')
- (e.) dó à tán mēr 'you (sg.) touched the crown of the head' (cf. mér 'crown of head')

cf. in the post-Low environment:

- (f.) lé à mátâ kò ngúrò 'the milk was drunk by the child'

(22) L<sub>1</sub> monosyllabic noun alternates with L:

- (a.) Wàní à lók mòk 'Wani trapped the antbear'  
(cf. mòk 'antbear')
- (b.) Wàní à kén bùk 'Wani read the book'  
(cf. bùk 'book')
- (c.) Pòní à rúm swât 'Poni pierced the ear'  
(cf. swât 'ear')

cf. in the post-Low environment:

- (d.) mòk à nyá kóng'á 'the antbear ate termites'
- (e.) lígòtót à lèngâ mòk 'the hunter killed an  
antbear'

(23) L<sub>2</sub> monosyllabic noun alternates with F:

- (a.) ...à mét dâk '...saw the pipe'  
(cf. dâk 'pipe')
- (b.) Jàdà à ng'ór gwàng' 'Jada shot the fox with  
a bow and arrow' (cf. gwàng' 'fox')
- (c.) tùmúnit à 'déng' tēr 'the blacksmith broke  
the canoe paddle' (cf. tēr 'canoe paddle')
- (d.) Yòwánà à júp gòp 'John wore the back cloth'

cf. in the post-Low environment:

- (e.) dâk à gwáláká kò ng'úró 'the pipe was broken  
by the child'
- (f.) Yòwánà à jùpû gòp 'John wore a back cloth'

(24) F monosyllabic noun alternates with L:

- (a.) yī à mó? ng'ùn 'we beseeched God'  
(cf. ng'ùn 'God')
- (b.) ng'útû à 'bék tīr 'the people opened up a  
new place for cultivation' (cf. tīr 'new  
area for cultivation')

- (c.) lígòtót à rík têng' 'the hunter chased the herd of animals' (cf. têng' 'herd')
- (d.) nân à jér búng' 'I cleaved the backyard with a hoe' (cf. búng' 'backyard')
- (e.) ng'wájik à ryá nân 'the children found me' (cf. nân 'I, me')
- cf. in the post-Low environment:
- (f.) ng'ûn à gwé kí kò kák 'God created heaven and earth'
- (g.) ng'útû à mòmó'yù ng'ûn 'the people beseeched God'
- (h.) nân à gáláddû tír 'I went looking for a cultivation area'

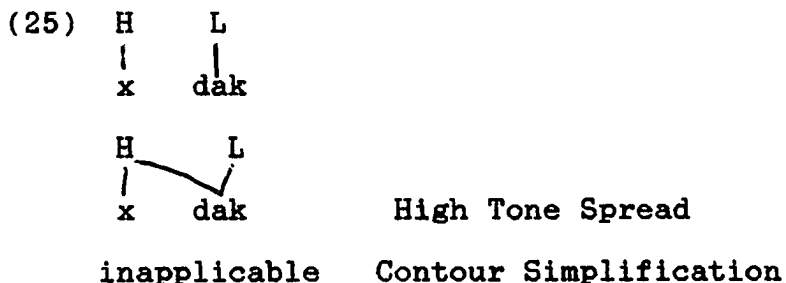
Let us now consider the behavior of these five types of monosyllabic nouns in the post-High environment in relationship to the pattern of behavior exhibited by polysyllabic nouns in the same environment.

We will begin our discussion with the L2 monosyllabic nouns, which become Falling-toned in the post-High environment. The fact that a L2 noun is realized with a HL melody in the post-High environment appears to be connected with the fact that a Low-initial polysyllabic noun raises its initial Low to High. In both cases, we would be dealing with a Low-initial word assimilating the High of a preceding word. It thus appears likely that L2 nouns are just what they appear: they have a Low tone in their underlying structure.

The post-High pronunciation of L2 nouns provides strong evidence relative to the analysis of how Low-initial nouns change in the post-High environment. Recall that we have proposed one analysis where a rule of High Tone Spread extends the H at the end of one word onto the initial Low-toned syllable of the next word; a rule of Contour Simplification then applies to disassociate the L from a HL

sequence on a non-final syllable. An alternative analysis would simply posit a rule of Low Raising that would change a word-initial L to H after a word ending in a H. In subsequent discussion we assumed the correctness of High Tone Spread as opposed to Low Raising, but we lacked crucial evidence in support of this position. Assuming that L2 nouns have an underlying Low tone, their behavior in the post-High environment provides the crucial evidence against Low Raising and thus in favor of High Tone Spread.

Suppose that Low Raising and not High Tone Spread is incorporated in the grammar of Bari. If a Low-toned monosyllabic noun such as dāk appears in the post-H environment, Low Raising predicts that such a noun will change its Low tone to High. The result would be that dāk would surface as dāk in the post-H environment, rather than (the correct) dāk. The analysis involving High Tone Spread and Contour Simplification predicts correctly the change of a Low to a Falling tone. (25) shows the correct derivation that results from applying High Tone Spread.



Contour Simplification will not affect the HL sequence associated with dāk in the post-High environment since that rule affects only non-final Falling tones.

L2 monosyllables thus provide considerable support for the analysis of Bari phrasal tonology that we have developed so far. The behavior of L1 monosyllabic nouns is problematic. They simply remain Low in the post-High environment. One way to account for this would be simply to

mark L1 nouns as being exceptional in not undergoing High Tone Spread. Or perhaps they have a more complex underlying tonal structure that prevents their appearing to undergo High Tone Spread. We have no evidence at the present time as how best to explain the difference between L1 monosyllables and L2 monosyllables. Further research is required.

Let us turn now to the behavior of the three types of monosyllables that appear to begin with a H tone. The behavior of the Falling-toned monosyllables is essentially the same as the behavior of polysyllabic nouns that begin with a HL sequence (cf. kópò, which becomes kópò in the post-H environment, with ng'ûn, which becomes ng'ûn). If we assume that the Falling-toned monosyllables are underlyingly HL and that the rule of High Tone Lowering changes their H to L, we will correctly derive the correct surface form (e.g. ng'ûn will become ng'ûn) if we can somehow prevent High Tone Spread from applying to the output of High Tone Lowering in these cases. Just as with the case of a noun such as kópò, one might propose that the reason that a Falling-toned noun such as ng'ûn does not undergo High Tone Spread after it becomes ng'ûn via High Tone Lowering is that application of the latter rule would cause ng'ûn to revert back to ng'ûn -- in other words, we would lose all trace of the fact that the word has indeed undergone High Tone Lowering. While we are not convinced that this actually constitutes an explanation for the failure of High Tone Spread to operate on ng'ûn, the fact remains that ng'ûn is quite analagous to kópò in its behavior and we propose to deal with both in the same manner: i.e. we assume that they are somehow barred from undergoing High Tone Spread.

The behavior of the H2 monosyllables such as lé (which becomes lê in the post-High environment) is accounted for correctly by our analysis. (26) shows the derivation:

- (26)    H   H  
          |   \  
          σ   le
- inapplicable    High Fission
- H   L  
          |   |  
          σ   le            High Tone Lowering
- H   L  
          |   \  
          σ   le            High Tone Spread
- inapplicable    Contour Simplification

It is the H<sub>1</sub> monosyllabic nouns that are a problem. The fact that H<sub>1</sub> nouns change to Low in the post-High environment is quite consistent with the claim that a rule of High Tone Lowering exists in Bari and that this rule changes a word initial H to L. The only complication is that we must bar High Tone Spread from extending the High of the preceding word onto the (now) Low-toned monosyllabic noun. If we allowed High Tone Spread to apply, we would predict that a noun such as tûr would change to tûr rather than to tûr in the post-High environment. We do not have any clear evidence at the present time as to why these items resist being affected by High Tone Spread. Perhaps the H<sub>1</sub> nouns have some underlying tonal structure (different from a simple H tone) in terms of which the apparent failure of High Tone Spread to apply could be explained. But we lack any clues at present as to what this structure might be.

There are some monosyllabic elements in Bari which are realized differently in the post-High environment depending on whether they are in phrase-final position or phrase-medial position. It is of some importance therefore to demonstrate that monosyllabic nouns change in the post-H context in the same manner whether they are final or

medial.

In (27) we illustrate that monosyllabic nouns alternate in medial position in the phrase:

(27) H<sub>1</sub> nouns

(a.) ng'útû à ryák tùr ló bèkát  
'people robbed the clan of Bekat'

(b.) nân à tín dò bôngó? 'I gave you a dress'

H<sub>2</sub> nouns

(c.) ng'úrò à mát lê jòré 'the child drank much  
milk'

(d.) nân à ró? kwê niò 'I scratched my head'

L<sub>1</sub> nouns

(e.) Wàní à kén bùk jùjúmit 'Wani read the book  
of learning'

(f.) Jàdà à lók mòk lótór 'Jada trapped the red  
antbear'

L<sub>2</sub> nouns

(g.) nân à tín dák kúlàng' 'I gave the pipe to  
Kulang'

(h.) Jàdà à ng'ór gwâng' kájè 'Jada shot the fox  
with a bow and arrow'

F nouns

(i) yí à mó? ng'ùn ló ki 'we prayed to the God of  
Heaven'

(j) ligòtát à rík têng' ná kijàkwâ 'the hunters  
chased the herd of animals'

Examination of the data in (27) shows that for each of the five types of monosyllabic noun, the alternation pattern in the post-H position is the same in medial position (as shown in (27)) as in final position (as shown in (20)-(24)).



We have now concluded our discussion of nominal forms as they appear post-verbally. In 4.1.2 we begin to look at the tonology of the phrases in which nouns occur.

#### 4.1.2. Noun plus demonstrative pronoun.

The demonstrative pronouns in Bari are listed in (28) below:

(28)	<u>singular</u>		<u>plural</u>	
	<u>masculine</u>	<u>feminine</u>	<u>masculine</u>	<u>feminine</u>
	ló	ná	kúlò	kúnè
	ng'ílò	ng'inà	kílò	kinè
	lú	nú	kúlù	kúnù
	ng'ílù	ng'inù	kílù	kinù

(Dialectally, ng' in the above forms may be replaced by ny.) The first row of demonstratives in (28) can be glossed by 'this/these', the second row by 'this/these nearby', the third row by 'that/those', and the fourth row by that 'that/those over there'. For convenience, we will label these as position 1, position 2, position 3, and position 4 forms respectively.

The morphology of the Bari demonstratives can be analyzed as follows. The basic demonstrative elements are /lo/ (masculine) and /na/ (feminine). In the position 1 singular forms, this demonstrative element appears alone:

- (29) ló ng'ùrò 'this boy' (cf. ng'ùrò 'boy')  
 ló kí'bò 'this canoe' (cf. kí'bó 'canoe')  
 ná kinè 'this goat' (cf. kiné 'goat')  
 ná kórèk 'this spade' (cf. kòrèk 'spade')

In the position 2 singular forms, the element /ng'i/ is combined with the basic demonstrative elements:

- (30) ng'iló kí'bò 'this nearby canoe' (cf. kí'bó  
'canoe')  
 ng'iló likitò? 'this nearby rabbit'  
 (cf. líkitò)  
 ngíná tètò 'this nearby mat' (cf. tètò 'mat')  
 ng'íná táping'i 'this nearby guinea-fowl'  
 (cf. táping'i 'guinea-fowl')

In the position 3 singular forms, the basic demonstrative elements appear to combine with an element /u/, the vowel of /lo/ and /na/ deleting in front of this vowel.

- (31) lú wúri 'that pig' (cf. wúri 'pig')  
 nú kítèng' 'that cow' (cf. kíténg' 'cow')

In the position 4 singular forms, the /ng'i/ element appears before the basic demonstrative elements and the /u/ element appears after: /ng'i-lo-u/ and /ng'i-na-u/:

- (32) ng'ilú kéré 'that gourd over there' (cf. kéré  
'gourd')  
 ng'ilú ng'úmi 'that needle over there'  
 (cf. ng'úmi 'needle')  
 ng'inú tètò 'that mat over there' (cf. tètò  
'mat')  
 ngínú gùrè 'that dove over there' (cf. gùrè  
'dove')

Turning to the plural forms, we see that instead of the expected /lo/ and /na/ in the position 1 and 2 forms, we find /lo/ and /ne/. We will regard the /ne/ as being an allomorph of /na/, rather than representing the combination of /na/ plus another element /e/. Our reasoning here is simply that a hypothetical morphological element /e/ does not appear in conjunction with the masculine forms of the position 1 and 2 plural demonstratives.

In the position 1 plural forms the element /ku/ is added before the basic demonstrative elements /lo/ and /ne/.

- (33) kúló mányàjìn 'these rivals' (cf. mányàjìn  
'rivals')  
 kúló 'dárúlán 'these sp. monkeys'  
 (cf. 'dárúlán 'monkeys')  
 kúné kátúràn 'these flowers' (cf. kátúràn  
'flowers')  
 kúné kímàng'jìn 'these fires' (cf. kímàng'jìn  
'fires')

In the position 2 plural forms, /ki/ is added before the /lo/ and /ne/:

- (34) kiló dùlùr 'these nearby castor oil seeds'  
 (cf. dùlùr 'castor oil seeds')  
 kiló ng'úrùpà 'these nearby stones'  
 (cf. ng'úrùpà 'stones')  
 kíné gùrèkí 'these nearby doves' (cf. gùrèkí  
'doves')  
 kíné kòrèkón 'these nearby spades'  
 (cf. kòrèkón 'spades')

In the position 3 plural forms the /ku/ element is added before the basic demonstrative elements and the /u/ vowel is added after those elements:

- (35) kúlú mányàjìn 'those rivals'  
 kúnú kátúràn 'those flowers'

In the position 4 plural forms the /ki/ element is added before the basic demonstrative elements and the /u/ is added after those elements.

- (36) kilú mányàjìn 'those rivals'  
 kilú 'dárúlán 'those sp. monkeys'  
 kínú kábilùk 'those sheep' (cf. kábilùk  
'sheep')  
 kínú gùrèkí 'those doves' (cf. gùrèkí 'doves')

Notice, incidentally, that when /u/ is appended, the other vowels harmonize to its [+ATR] value. This is the reason that /ng'i/, /ku/, and /ki/ alternate with /ng'i/, /ku/, and /ki/ in position 3 and 4 forms.

Turning to the tonal structure of the demonstratives, let us begin by considering the isolation forms of the demonstratives shown in (28). It appears that on the basis of the position one singular forms, we can determine that the demonstrative elements /ló/ and /ná/ are High-toned. The combination of these elements plus /u/ also appears to yield a High-toned syllable. The elements /ng'í/, /kí/, and /kú/ are apparently High-toned as well.

The /ló/ and /ná/ elements, while apparently underlyingly High-toned, show up Low-toned when they are both preceded by the High-toned elements /ng'í/, /kú/, and /kí/. We suggest that this alternation is the consequence of High Tone Lowering. That is, the High associated with /ng'í/, /kú/, and /kí/ causes the H of the /ló/ and /ná/ to become L. The H of /ng'í/, /kú/, and /kí/ is not able to spread onto the /ló/ and /ná/. In this respect, then, /ló/ and /ná/ behave just like the monosyllabic H nouns we have labelled H<sub>1</sub>.

The assumption that the demonstrative elements /ló/ and /ná/ undergo High Tone Lowering after /ng'í/, /kú/, and /kí/ requires that we allow High Tone Lowering to apply inside a word, provided that the two Highs are in separate morphological elements.

There is one important limitation, however, on the application of High Tone Lowering to the demonstratives /ló/ and /ná/ after /ng'í/, /kú/, and /kí/. If the demonstrative is followed by the noun that it modifies, as in the examples in (29)-(36) above, then the /ló/ and /ná/ surface with a High tone. (Furthermore, as we will see below, this High tone behaves tonologically exactly as a H tone should. In other words, it does not behave as though it is anything other than what it seems to be -- a High tone.)

It is important to note that the /ló/ and /ná/ will lower after the H in /ng'i/ etc. provided they are not followed by the noun that they modify. In other words, if they are phrase-final or if they are followed by an element other than the noun they modify, then High Tone Lowering will operate. Thus High Tone Lowering applies in the isolation forms of the demonstratives, as shown in (28)-- e.g. ng'ílò, kúlò, ng'inà. High Tone Lowering also applies in examples such as the following, where the demonstrative is followed by a word other than the noun that it modifies.

- (37) (a.) nân à mòkàkin ng'ílò dùmà ng'ílò  
'I held this nearby one for (him), the big one'
- (b.) Jàdà mèddyâ kúlò 'bùrá?  
'Jada saw these nearby ones properly'

We must now explore the question of the tonal behavior of demonstratives in the noun phrase. Notice that a demonstrative pronoun always ends in a High tone when it is followed by the noun that it modifies (the bisyllabic demonstratives can end in a Low tone just in the event they are in final position or followed by an element that is not part of the noun phrase that the demonstrative appears in). This means that the demonstrative could conceivably (a) trigger High Tone Lowering on the following noun and (b) spread its final H onto the noun.

The data in (38) show that the demonstratives affect a bisyllabic noun in exactly the same way that a verb ending in a High affects a noun:

(38) HH noun becomes HL after a demonstrative:

ló wúri 'this pig' (cf. wúri)  
ng'iná 'dópùt 'this nearby cloth' (cf. 'dópùt)  
ng'ílú kí'bò 'that canoe near there' (cf. kí'bó)  
ló kídì 'this well' (cf. kídì)



supported by the alternations exhibited by trisyllabic nouns in this context. Just a few examples are cited in (39); there is no attempt to systematically illustrate all trisyllabic nouns.

(39) HHH noun becomes HLH:

ná pílilí 'this small knife' (cf. pílilí)  
ng'íná bóyítát 'this nearby net' (cf. bóyítát)

HHL noun becomes HLL:

ng'ílú líkitò? 'that rabbit near there'  
(cf. líkitò?)  
ná táping'í 'this guinea fowl' (cf. táping'í)

LLL noun becomes HLL:

ng'íná ámbàtà 'this nearby bread' (cf. ámbàtà)  
ná bálimè 'this arrow' (cf. bálimè)

LLH noun becomes HLH:

ng'ínú jégwèrí 'that comb near there' (jégwèrí)  
kúné rábàjín 'these bottoms' (cf. rábàjín)

Clearly, these trisyllabic nouns in position after a demonstrative alternate in precisely the same way as they do when they follow a verb ending in a High tone.

Notice in (38) and (39) that the demonstratives /ló/ and /ná/ trigger High Tone Lowering and High Tone Spread on a following noun, just as one would expect a H word to do. The /ló/ and the /ná/ continue to induce High Tone Lowering and High Tone Spread on a following noun even when they are preceded by the High-toned elements /ng'í/, /kú/, and /kí/. The basic demonstrative pronouns are changed to Low in this context in cases where they are not followed by the noun they modify; they are not changed to Low when followed by their head noun. (38) and (39) clearly support the view that the demonstratives end in a true High tone when they are medial in their noun phrase.

Let us now consider the issue of whether the demonstratives undergo High Tone Lowering when they are preceded by a word that ends in a High. If the demonstrative is used alone (i.e. does not modify an overt noun), then we find that it does indeed undergo High Tone Lowering. (40) illustrates:

- (40) nân à rém ngilò 'I speared this one'  
 Jàdà à tók lò 'Jada cut this one (with an axe)'  
 Jàdà à tók lò kájè 'Jada cut this one (with an  
 axe) yesterday'  
 Jàdà à tók ng'ilò kájè 'Jada cut this nearby one  
 (with an axe) yesterday'  
 nân à mók kilù 'I caught those ones near there'  
 Wàní à lúng' kilù pàrik 'Wani called those very  
 much'  
 nân nyànyár ng'ilù dùmà lú 'I like that one, the  
 big one'

cf. the post-Low environment:

- Wàní yàng'á ló 'dè'dé? 'Wani wants this quickly'  
 Pòní ryájù ná kájè 'Poni found this yesterday'

The data in (40) raise an interesting point. We have seen that High Tone Lowering operates within a word between the elements /ng'í/, /kú/, and /kí/ and a following /ló/ or /ná/. High Tone Lowering also operates between a verb and a following demonstrative element. Notice that after a H verb, we get forms like ng'ilò, kilù, etc. That is, the elements /ló/ and /ná/ lower even though the High that precedes them has itself undergone High Tone Lowering. This requires that High Tone Lowering operates first on /ng'í+ló/, /kí-l-ú/, etc., changing them to /ng'í-lò/, /kí-lù/, etc., before it operates on a phrase consisting of a H-final verb and demonstrative.

This particular pattern of application could be accounted for in various ways. For example, one hypothesis would be that High Tone Lowering always operates inside the word before it operates between words. A second hypothesis



would be that High Tone Lowering applies simultaneously-- i.e. it applies wherever its structural description is met. Thus given an underlying representation such as

$$\begin{array}{ccccccc} \text{H} & & \text{H} & \text{H} & & \text{L} & \text{H} \\ | & & | & | & & | & | \\ \text{lun} & \text{g}' & \text{kil} & \text{u} & \text{p} & \text{ar} & \text{ik} \end{array}$$

both the H associated with /ki/ and the H associated with /l-ú/ are in the environment for High Tone Lowering. If the rule applies simultaneously wherever its conditions are satisfied, then both Highs will change to Low. A third hypothesis is that High Tone Lowering operates in a right-to-left, iterative fashion. That is, one scans the representation of the sentence, starting at the right edge and moving leftward. As soon as an element is encountered which satisfies the conditions for the rule, then the rule is applied. After the rule is applied, the scanning continues leftward until another element is met that satisfies the structural description of the rule. The rule is applied again. Then the leftward scanning is continued. Given this mode of application, and the same representation cited above, High Tone Lowering will apply first to the /l-ú/ part of the demonstrative since it is the leftmost element that satisfies the structural description of the rule. After /l-ú/ has been lowered, the leftwards scanning will continue. /ki/ will be the next item that is in the environment to Lower. When it is after a H word, it will indeed lower.

We have given three possible analyses of why High Tone Lowering operates first within the demonstrative word and only then between the demonstrative and a preceding word. We shall be unfolding much additional evidence that will help us sort out the proper mode of application for High Tone Lowering.

The demonstratives do not undergo High Tone Lowering, however, when they are in the post-High environment and followed by the noun that they modify. This is documented



These data show that the demonstratives may undergo High Tone Lowering when they are preceded by the noun that they modify, if that noun is a H-final noun. Thus in (43a-b) the High-final nouns ki'bó and kéré cause the lowering of the following H in the demonstrative. In (43c-d), on the other hand, the Low-final nouns gilà and tèrò (which change to gilà and tèrò due to the fact that they are preceded by a H-final verb) do not trigger High Tone Lowering on the following demonstratives.

Notice that in these constructions where the head noun precedes the demonstrative, bisyllabic demonstratives lower both their syllables when the preceding noun is H-final and just their second syllable when the preceding noun is L-final. Thus in (43a) we have ki'bó ng'ilò whereas in (43b) we have gilà kúlù. These data show once again that High Tone Lowering must affect the second syllable of the bisyllabic demonstrative even if the first syllable of the demonstrative happens to itself be lowered by the same rule. Again, this result could be achieved in any of the three ways sketched earlier (i.e. having High Tone Lowering apply at the word level before applying at the phrase level, applying High Tone Lowering simultaneously to all places in the representation of the sentence where its structural description is met, or applying High Tone Lowering right-to-left iteratively).

From the preceding discussion we can conclude that the only time that a demonstrative fails to undergo High Tone Lowering is if it is immediately followed by the noun that it modifies -- i.e. when it is in medial position inside the noun phrase.

The demonstratives listed in (28) can be made more complex by the attachment of another H-toned element: /má/.

(44)	<u>singular</u>		<u>plural</u>	
	<u>masc.</u>	<u>fem.</u>	<u>masc.</u>	<u>fem.</u>
	málò	mánà	mákùlù	mákùnè
	máng'ilò	máng'inà	mákilò	mákinè
	máng'ilù	máng'inù	mákilù	mákinù

The prefix /má/ expresses the idea that 'something is here', 'something is nearby here', 'something is over there'. Thus málò means 'it is here', máng'ilò means 'it is nearby here', and máng'ilù means 'it is that one over there'.

From examples such as málò and mánà it is clear that /má/ triggers High Tone Lowering on the following demonstratives /ló/ and /ná/. But now consider forms such as máng'ilò, máng'inà, mákùlù, etc. Here it is clear that /ng'í/, /kú/, etc., trigger High Tone Lowering on the demonstratives /ló/ and /ná/ even though /ng'í/, /kú/, etc., themselves undergo High Tone Lowering after /má/.

Let us consider briefly the various modes of applying High Tone Lowering which will successfully account for the above facts. One solution would be to say that within the word, High Tone Lowering operates in a cyclic fashion. Assuming that the structure of máng'ilò, for example, is [má [ng'í [ló]]] and that High Tone Lowering operates cyclically (applying first to the constituent [ng'í ló] before applying to the constituent that includes /má/, we will obtain the result that /ló/ will lower on the earlier cycle and /ng'í/ will lower on the later cycle.

A second possible mode of application is a simultaneous one. That is, if High Tone Lowering applies at every point in the representation where its conditions are satisfied, then given a representation such as /má-ng'í-ló/, both /ng'í/ and /ló/ will be in the correct environment for the rule and will both be changed to Low.

A third mode of application that would give the correct results is a right-to-left iterative application. Given that approach and given the representation /má-ng'í-ló/, High Tone Lowering will first apply to the rightmost point where its structural description is satisfied: /ló/. After /ló/ lowers, the rule will apply to the next rightmost point where its structural description is satisfied: /ng'í/. After /ng'í/ lowers, there will be no other point (in the word) where High Tone Lowering could apply.

The above demonstratives are somewhat restricted in the sorts of phrasal contexts in which they can appear. They can appear in a medial position in structures such as the following:

(45) Jàdà àdí máng'ílò kí'bó lò  
'Jada said that the canoe is there'

Pòní àdí málò kéré  
'Poni said that the goard is here'

Although in these particular examples the initial syllable of the complex demonstrative fails to undergo High Tone Lowering, we are not certain whether this is a feature of the particular construction involved or a characteristic of the /má/. We leave this point open for further research.

#### 4.1.3. Noun plus possessive pronoun.

A Bari noun may be modified by a possessive pronoun. The possessive pronouns in Bari can be first, second, or third person, singular or plural, masculine or feminine.

(46) below provides a chart:

(46)	<u>singular</u>		<u>plural</u>		
	<u>masculine</u>	<u>feminine</u>	<u>masculine</u>	<u>feminine</u>	
	liò	niò	kwê?	kwê?	1 sg.
	ilòt	inòt	kúlàk	kúnàk	2 sg.
	lónyit	nányit	kányit	kányit	3 sg.
	likàng'	nikàng'	kàng'	kàng'	1 pl.
	lósù	násù	kàsù	kàsù	2 pl.
	lósè	násè	kàsè	kàsè	3 pl.

The gender of the possessive pronoun is in agreement with the noun that it modifies. The possessive pronoun is usually located after the noun that it modifies. Some examples:

- (47) kéré liò 'my gourd'  
kópò ilòt 'your (sg.) cup'  
lòwè lónyit 'his arrow'  
kí'bó likàng' 'our canoe'  
bôngó? násù 'your (pl.) cloth'  
wíní lósè 'their medicine'

It is possible for the possessive pronoun to precede the noun that it agrees with. Some examples:

- (48) (a.) tiki nân kwê púlù 'give me my groundnuts  
(i.e. the groundnuts that  
are for me)'  
(b.) mètákí lòpéng' kányit púlù 'find the ground-  
nuts for him'  
(c.) gá'yí ilòt kéré 'find a gourd for yourself'  
(d.) kòràkí Jàdà lónyit kópò 'set aside a cup  
for Jada'

Such constructions are principally used for emphatic purposes and are not commonly employed. The usual construction is one cited in (47).

The possessive pronouns in (46) involve certain recurring morphological units. The gender morphemes /lo/ and /na/ (masculine singular and feminine singular

respectively) appear without segmental alteration in combination with the first person plural possessive root /kang'/, the second person plural possessive root /su/, the third person singular possessive root /nyit/, the third person plural possessive root /se/. Likewise the genderless plural marker /ka/ appears unaltered with these same possessive roots.

The first person singular possessive root appears to be /io/ when modifying a singular noun and both /lo/ and /na/ lose their vowel in front of this root. The form /kwe?/ is not readily analyzable into constituent parts (of course, it does start with a k, which is reminiscent of the usual /ka/ marker for plurality). The second person singular forms /ilot/ and /inot/ seem to have the structure /i-lo-ot/ and /i-na-ot/, with the /lo/ and /na/ again losing their vowel in pre-vocalic position. The forms /kulak/ and kunak/ seem to involve the structure /ka-u-lo-ak/ and /ka-u-na-ak/.

Turning to the tonal structure of the possessive pronouns, we see that they all evidence a HL tonal shape. For the bisyllabic forms, the H appears on the first syllable and the L on the second. For the monosyllabic forms, they appear with a Falling tone. Clearly, this suggests an essentially melodic approach to their tonal patterning. If we simply assume that these pronouns are assigned a HL melody and that this melody is unassociated to the segmental content, then the Universal Tone Association Principle and the Free Tone Association rule will correctly associate the tones.

(49)	H	L	H	L	
		kang'		lonyit	
	H	L	H	L	
	\				
		kang'		lonyit	UTAP

H L  
 √  
 kang' inapplic. FTA

The possessive pronouns appear in the tonal shapes listed in (46) when they are used in isolation. They also appear in these same shapes when preceded by a noun that ends in a Low or a Falling tone. This is documented in (50).

- (50) kópò ílòt 'your cup'  
 lòwè lónyít 'his arrow'  
 wíní lósè 'their medicine'  
 bòngwát kwê? 'our clothes'  
 púlù kàng' 'our groundnuts'

The possessive pronouns change their tonal shape when preceded by a word that ends in a High tone.

- (51) kéré líò 'my gourd'  
 kí'bó líkàng' 'our canoe'  
 bòngó? nàsè 'their cloth'  
 kùpír kwê? 'my hair'  
 kálá kàng' 'our teeth'

We see from (51) that a HL possessive pronoun like líò becomes LL and Falling-toned one like kàng' becomes L. The changes that occur in (51), as well as the lack of any changes in the post-Low environment in (50), clearly indicate that High Tone Lowering applies between a noun and a modifying possessive pronoun. The HL possessive pronouns like líkàng' behave the same as a HL noun such as kópò in the post-High environment, changing to LL (i.e. they undergo High Tone Lowering and are immune to High Tone Spread). The Falling-toned monosyllabic possessive pronouns kwê? and kàng' behave the same as a Falling-toned monosyllabic noun like ng'ûn 'God', changing to L (i.e. they undergo High Tone Lowering and are immune to High Tone Spread).



In (51) the possessive pronoun being affected by a preceding H was located in final position in the expression. The data in (52) show that a HL possessive pronoun will become LL in medial position in the sentence as well.

- (52) kéré liò à dúma 'my gourd is big'  
 kópò flòt málò 'your cup is this'  
 lòwè lónyit málû 'his arrow is over there'  
 kí'bó likàng lójó? 'our long canoe'  
 bòngó? nàsè lút 'our dirty cloth'  
 kúsúk kwè? 'báng'in 'my sterile cows'  
 wínfí lósè 'dírfí 'their true medicine'  
 bòngwát kwè lút 'my dirty dresses'

In the first three examples, the possessive pronoun is in final position in the noun phrase but medial position in the sentence. We see that High Tone Lowering applies. In the remaining examples, the possessive pronoun is in medial position in the phrase, being preceded by the noun that it modifies and being followed by an adjectival modifier. Again, we see that High Tone Lowering applies. Clearly, the susceptibility of the initial H of the possessive pronoun to High Tone Lowering is independent of the location of the possessive pronoun in the sentence.

We have shown in (51) and (52) that the possessive pronoun undergoes High Tone Lowering when it is preceded by a H-final noun. In the examples in (51) and (52) this noun is in fact the noun that the possessive pronoun modifies. But the rule of High Tone Lowering does not require that the possessive pronoun be in such a grammatical relationship to the preceding word in order for the rule to apply. (53) shows that a H-final verb will affect a following possessive pronoun (these examples involve the situation where the possessive pronoun precedes the noun that it modifies).

- (53) (a.) gá'yí kùnàk kisúk 'look for your own cows!'  
 (b.) nân gwàrá liò kí'bó 'I (will buy) my own canoe'  
 (c.) Jàdà gáládù kányit gùrút 'Jada goes to look for his own money'  
 (d.) Pòní dililijà kàsè 'bólòt 'Poni winnows their grain'  
 (e.) tìkí kányit púlù 'give him his own peanuts!'  
 (f.) jàkí kàsè yáwā 'bring them their own beer!'

In (a)-(b), the H at the end of the verb causes the HL possessive to change to LL. In (c)-(d) and (e)-(f), the L-final and Fall-final verbs do not affect the possessive pronoun.

Since the possessive pronouns are HL, they are not H-final and therefore they cannot affect a following word's tone. This is shown in (54) where we illustrate a phrase consisting of a noun plus possessive pronoun plus adjective. In each case, the adjective escapes being affected by the possessive pronoun. (See below, section 4.1.5 for a discussion of adjectives.)

- (54) (a.) kí'bó liò dùmà 'my big canoe'  
 (cf. dùmà 'big')  
 (b.) kópò ílòt ló'dit 'your small cup'  
 (cf. ló'dit 'small')  
 (c.) wátíà kâng' mó'dókénò 'our blind wives'  
 (cf. mó'dókénò 'blind')  
 (d.) púlù kâng' lómórè 'our private peanuts'  
 (cf. lómórè 'private')

Since the possessive pronoun does not have the potential to affect a following word, we cannot raise the question of whether application of High Tone Lowering to the possessive will have the effect of preventing application of that same

rule to a following word. The next section, however, introduces a construction where the mode of application of High Tone Lowering is a crucial concern.

#### 4.1.4. The associative construction.

In this section we will examine the tonological structure of a nominal construction that is of some considerable importance to the analysis of Bari phrasal tonology. In the literature on African languages this construction is traditionally referred to as the associative. The construction involves two noun phrases linked together by an associative particle ( $NP_i$  - particle -  $NP_j$ ). The associative particle in Bari has three forms: ló (masculine sg.), ná (feminine sg.), and tí (plural), the choice of which is determined by the head noun of  $NP_i$ . This construction is illustrated in (55).

(55) (a.) ng'úrò ló Jàdà 'the child of Jada'  
cf. Jàdà (proper name)

(b.) bòngó? ná Kùlàng' 'the dress of Kulang'  
cf. Kùlàng'

(c.) píng' tí kídí 'the water of the well'  
cf. kídí 'well'

We will not deal here with the semantics of the associative construction in any detail. Suffice it to say that the associative construction establishes a relationship between  $NP_i$  and  $NP_j$ . One prominent use of the construction is to indicate that  $NP_i$  is, loosely speaking, possessed by  $NP_j$ . Thus we will regularly use 'of' as a gloss for the particle.

The three particles used in the associative construction all demonstrate the same tonological behavior -- that is, they exhibit the same tonal shape under the same circumstances and they trigger the same tonal changes

in other words. We will show that the associative particles are basically High-toned and that they are subject to High Tone Lowering after nouns that end in a High tone. We will also show that the associative particles, being High-toned, are able to trigger High Tone Lowering on the NP<sub>j</sub> constituent. The left-to-right iterative application of High Tone Lowering motivated earlier does not, however, turn out to yield the correct surface tone shapes in the associative phrase. In order to explain the failure of the left-to-right mode of application, we will suggest that the associative particle forms a (phonological) word with NP<sub>j</sub> and that High Tone Lowering applies at the word level before applying at the sentence level. The final point that we will make in this section is that High Tone Spread does not extend the High of the associative particle onto NP<sub>j</sub>.

Let us consider first the tonal shape of the associative particle. If NP<sub>i</sub> ends in either a Low tone or a Falling tone, the associative particle surfaces with a High tone. This is shown in (56) and (57).

(56) After a Low tone.

- (a.) kópò ló Jàdà 'the cup of Jada'
- (b.) ng'úrò ló 'bùnit 'the son of a medicine man'  
cf. 'bùnit 'medicine man'
- (c.) àmúlèrè ló Jàdà 'the flute of Jada'
- (d.) 'dièt ná kèrè 'the plug of the gourd'  
cf. kéré 'gourd'
- (e.) ng'úrò ná dùpà? 'an infant -- lit. the child  
of a cradle' cf. dùpà? 'cradle'
- (f.) sójù ná gùrùmàn 'the piercing of splinters'  
cf. gùrùmàn 'splinters'
- (g.) kòròpò tí kùkùlì 'the leaves of the stalks'  
cf. kùkùlì 'stalks'

(h.) rágájin tí ng'ùlèkí 'the pillows of soft  
wood' cf. ng'ùlèkí

(i.) kâtúràn tí ràbòlò 'the flowers of the  
bananas'

(57) After a Falling tone.

(a.) wíní ló lè'bòng' 'cough medicine'  
cf. lé'bòng' 'cough'

(b.) mú'dâ ló kinyò 'the pot of food'  
cf. kinyó 'food'

(c.) kú'bâ ló Kùlàng' 'the in-law of Kulang'

(d.) tákít ná ràbà 'the support of the bottom of  
of the granary' cf. ràbà 'granary'

(e.) pírit ná bisó? 'the place for a game/sport'  
cf. bisó? 'game, sport'

(f.) mòkèt ná kòpò 'the handle of a cup'  
cf. kópò 'cup'

(g.) yáwâ tí gilà 'the beer of the white man'  
cf. gilà 'white man'

(h.) méryâ tí píritán 'the mountains of the  
places' cf. píritán 'places'

(i.) kimâ tí Pòní 'the boiled durra of Poni'  
cf. Pòní (a proper name)

The data in (56) and (57) clearly establish (a) that the three particles behave in parallel fashion tonally in the environment illustrated and (b) that these particles are High-toned if they are preceded by a Low or a Falling tone. Of course, if Falling tones are regarded as a sequence of H and L, then we can simply say that the associative particles are High-toned after a Low. We should perhaps emphasize a point made earlier -- namely, a syllable that has a Falling tone will be simplified to High when it appears phrase-medially. Thus the nouns that occupy the NP<sub>i</sub> position in (57) would typically be pronounced with their final syllable having a High tone. The L part of the

Falling tone does not appear on the surface. Nevertheless, the associative particle will continue to be pronounced on a High tone.

If the associative particle is located after a word that ends in a High tone, then the associative particle is pronounced with a Low tone. This is illustrated in (58).

- (58) (a.) kòng'é lò wùrì 'the eye of the pig'  
cf. wùrí 'pig'
- (b.) kùdú lò kùsêr 'the first rain of the season'  
cf. kùsêr 'season'
- (c.) kéré lò Pòní 'the gourd of Poni'
- (d.) pátá? nà kì'bò 'the rope of the canoe'  
cf. kì'bó 'canoe'
- (e.) 'binyá nà kòtèt 'the tip of the tail'  
cf. kòtèt 'tail'
- (f.) món nà bàsàlà 'the smell of onions'  
cf. bàsàlà 'onions'
- (g.) gwákisík tì yàbà 'the shells of the elder'  
cf. yàbà 'elder'
- (h.) kùpír tì gùrèkí? 'the feathers of doves'  
cf. gùrèkí? 'doves'
- (i.) mòkésí? tì kòrèkón 'the handles of the  
spades' cf. kòrèkón 'spades'

If we consider the associative particles to be underlyingly High-toned, then the fact that they appear Low in (58) has a very simple explanation: they undergo High Tone Lowering when they are preceded by a word ending in a High. If they are preceded by a word ending in a Low tone, they will retain their underlying shape (High). If we considered the associative particles to be underlyingly Low-toned, we would expect that they would (a) remain Low-toned when preceded by a word ending in Low, and they would (b) become Falling-toned as a result of High Tone Spread

when they follow a word ending in a High tone. Neither of these predictions is correct.

Let us assume, therefore, that the associative particles are High-toned and subject to High Tone Lowering -- that is, these monosyllabic particles have a High that lowers after a word ending in High. Notice that these monosyllabic words, once they lower, do not permit the preceding High to spread onto them. If they did accept spreading from a preceding High, a Falling tone would arise on the particle -- a Falling tone that would doubtless simplify to High by Contour Simplification. The particles in (58), however, are neither Falling nor High -- they are Low. Thus it must be concluded that a preceding H may induce High Tone Lowering on the associative particle, but that H may not spread onto the particle. In this respect the particles are parallel to such High-toned monosyllabic nouns as túr 'clan' which surface with a Low tone in the post-High environment (túr) as opposed to such monosyllabic nouns as lé which surface with a Falling tone in the post-High environment (lé).

Let us now turn our attention to the effect that the associative particles have on NP<sub>j</sub>. We begin with the case where a bisyllabic noun occurs in the NP<sub>j</sub> position in the associative phrase. There are six possible tonal shapes that a bisyllabic noun may have: HH, HL, HF, LL, LH, and LF. We will deal with these six types in succession. (59) illustrates a HH noun, (60) a HL noun, and (61) a HF noun.

(59) HH Noun: wùrí, kàré

- (a.) mókòt ló wùrí 'the leg of a pig'
- (b.) kótét ná wùrí 'the tail of a pig'
- (c.) kijàkwá tí kàrè 'the animals of the river'

(60) HL Noun: Kùlàng', kòpò

- (a.) kù'bâ ló Kùlàng' 'the in-law of Kulang'  
 (b.) mòkêt ná kòpò 'the handle of the cup'  
 (c.) sókórò tí Kùlàng' 'the chickens of Kulang'

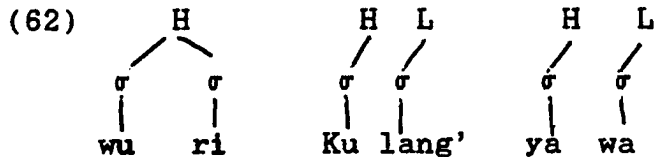
(61) HF Noun: yàwâ, mù'dâ, mervâ

- (a.) kápùtâ ló yàwâ 'the foam of the beer'  
 (b.) gwéâ ná mù'dâ 'the making of the pot'  
 (c.) múnwâ tí mervâ 'the snakes of the mountains'

The data in (59)-(61) show that if the word after the associative particle begins with a High tone, that word undergoes the following changes:

HH becomes LL  
 HL becomes LL  
 HF becomes LL

Assuming that these three types of bisyllabic words have a tonal structure as in (62),



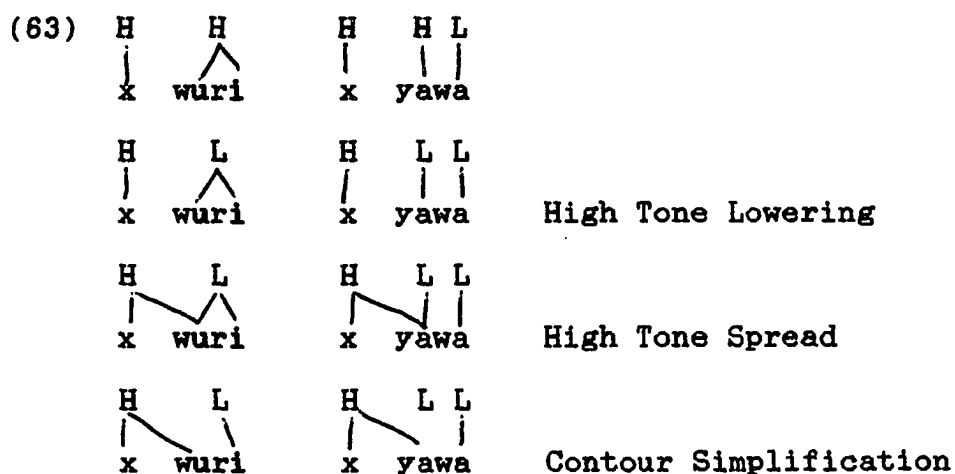
then the data in (59)-(61) can be accounted for if (a) we assume that they are subject to High Tone Lowering but (b) are not susceptible to High Tone Spread. High Tone Lowering would change the initial (and only) High of the words in (62) to Low when they are preceded by the High-toned associative particle. If High Tone Spread is (somehow) prevented from applying, then these words will remain all Low-toned on the surface.

We will show below that there is independent evidence that High Tone Spread does not apply to the sequence



consisting of the associative particle plus following noun phrase. This independent evidence gives some substance to the claim that the data in (59)-(61) are to be accounted for by assuming the application of High Tone Lowering (without the subsequent application of High Tone Spread).

It is of some importance if we can demonstrate that the data in (59)-(61) involve the application of the rule of High Tone Lowering. Recall that in other post-High contexts, a noun such as wúri changes to wúri and a noun such as yáwà changes to yáwà. The derivations that we have proposed are shown in (63):



In our analysis, the initial (and only) H of these words changes to L via the rule of High Tone Lowering; then the preceding word's final H spreads onto the first (Low-toned) syllable of these nouns. The resulting HL sequence on the initial syllable of the noun is then subject to Contour Simplification. This analysis is, of course, not obviously correct. The proposed analysis creates an intermediate representation that is not directly manifested on the surface -- i.e. a representation where there is a Low associated with both syllables of the noun. If we can successfully argue that the changes in (59)-(61) are the

consequence of High Tone Lowering, we will have given greater support to the derivations shown in (63) since the data in (59)-(61) in fact yield on the phonetic surface the hypothetical intermediate step in (62) where the nouns wúrí and yáwá become wùrí and yàwà respectively as a result of High Tone Lowering.

In (59)-(61) we used examples where the associative particle remains High-toned due to the fact that it is preceded by a NP<sub>i</sub> constituent that ends in a Low (or Falling) tone. In (64)-(66) we show that a NP<sub>j</sub> constituent that begins with a High tone undergoes High Tone Lowering even when the associative particle itself undergoes High Tone Lowering.

(64) HH noun: wúrí, kí'bó, kídí

- (a.) kùmé lò wùrí 'the nose of the pig'
- (b.) láí nà kí'bò 'the paddle of a canoe'
- (c.) kálá tí wùrí 'the teeth of a pig'

(65) HL noun: Kùlàng', dùlùr

- (a.) gùgú lò dùrà? 'the granary of durra'
- (b.) bòngó? nà Kùlàng' 'the dress of Kulang'
- (c.) kònyén tí dùlùr 'the seeds of castor'

(66) HF noun: mékòr, yáwá, kótèt

- (a.) kòng'é lò mékòr 'the eye of the buffalo'
- (b.) món nà yàwà 'the smell of beer'
- (c.) kùpír tí kótèt 'the hair of the tail'

The data in (64)-(66) demonstrate that the associative particle has the power to induce High Tone Lowering on NP<sub>j</sub> even if the particle is Low-toned on the surface due to the

application of High Tone Lowering to it. Consider what this tells us about the mode of application of High Tone Lowering in this case.

We have seen in earlier sections of this chapter cases where High Tone Lowering must be applied in a left-to-right, iterative fashion. Neither a simultaneous application of High Tone Lowering nor a cyclic application of High Tone Lowering could produce the correct results. But what about the associative construction? Here we see that a left-to-right, iterative application will produce the wrong results. This is shown in (67):

- (67)      L H H H L  
           | | | |  
           bongó? na Kulang'
- L H L H L      first (leftmost) application  
           | | | |      of High Tone Lowering  
           bongó? na Kulang'
- inapplicable      second application of HTL

If we apply the rule starting at the leftmost point where the rule is applicable, the associative particle will lower by virtue of standing after a H tone. When the NP<sub>j</sub> constituent is examined for the rule, it will not be in the right environment and will thus fail to change. The result is the incorrect \*bongó? na Kulang'.

To achieve the correct forms for (64)-(66), it is necessary that High Tone Lowering apply to the unit consisting of the associative particle and NP<sub>j</sub> before applying across the juncture of NP<sub>i</sub> and the associative particle. This is shown in (68).

- (68)      H H L  
           | | |  
           na Kulang'      first input
- H L L  
           | | |  
           na Kulang'      High Tone Lowering

L	H	H	L	L	
		)			
bongo?	na	Kulang'			second input
L	H	L	L	L	
)					
bongo?	na	Kulang'			High Tone Lowering

A derivation such as (68) might be interpreted as suggesting a cyclic application of High Tone Lowering on the assumption that the associative particle and NP<sub>j</sub> constitute a syntactic unit and that the entire construction NP<sub>i</sub> - associative particle- NP<sub>j</sub> constitutes another syntactic unit. But we have seen that a cyclic mode of applying High Tone Lowering does not in fact produce the correct results elsewhere. We suggest instead that the associative particle is encliticized to the following noun to form a phonological word and that High Tone Lowering applies inside a word before applying (left-to-right iteratively) across words. In this approach, /ná Kùlàng'/ becomes /ná Kùlàng'/ by a word-level application of High Tone Lowering, and then /bòngó? ná Kùlàng'/ becomes bòngó? ná Kùlàng' by a phrase-level application of High Tone Lowering.

So far we have considered just High tone-initial bisyllabic nouns in the NP<sub>j</sub> position in the associative construction. In (69)-(71) we illustrate Low tone-initial nouns.

(69) LL Noun: dùpà, Jàdà, ràbà, Bòjò?, gilà, tètò

- (a.) kìnât ló dùpà 'the handle of the cradle'
- (b.) kópò ló Jàdà 'the cup of Jada'
- (c.) kòng'é lò Jàdà 'the eye of Jada'
- (d.) tákít ná ràbà 'the support for the bottom of  
the granary'
- (e.) tètò ná Bòjò? 'the mat of Bojo'
- (f.) 'báláng' ná gilà 'the salt of the white men'
- (g.) yáwá tí gilà 'the beer of the white men'

- (h.) rúkési tí tèrò 'the needles of the mat'  
 (i.) bàlimèjín tí Jádà 'the arrow blades of Jada'

(70) LH Noun: Wàní, màmá, ng'ùmí, bisó?, Pòní, bòngó?

- (a.) lúbá ló Wàní 'the hoe-handle of Wani'  
 (b.) kópò ló màmá 'the cup of (my) uncle'  
 (c.) kòng'é lò ng'ùmí 'the eye of the needle'  
 (d.) pirit ná bisó? 'the place for sport/games'  
 (e.) tábà ná Pòní 'the tobacco of Poni'  
 (f.) rét ná bòngó? 'the tear of the cloth'  
 (g.) kimá tí Pòní 'the boiled durra of Poni'  
 (h.) ng'ájínà tí Pòní 'the pictures of Poni'  
 (i.) àmúlèrèjín tí Wàní 'the flutes of Wani'

(71) LF Noun: winí, kòrèk, kirwá, kitè, kwèntí, lāká

- (a.) kópò ló winí 'the cup for medicine'  
 (b.) málàgà ló winí 'the spoon of medicine'  
 (c.) kànin lò kòrèk 'the handle of the spade'  
 (d.) kàdì ná winí 'the house of medicine'  
 (e.) mājù ná winí 'the drinking of medicine'  
 (f.) kwé ná kirwá 'the bundle of bamboos'  
 (g.) sú'byá tí kitè 'the wax of the tamarind'  
 (h.) kápúkàn tí kwèntí 'the wings of a bird'  
 (i.) kònyén tí lāká 'the grains of the wild durra'

The data in (70)-(71) establish clearly that a Low-initial noun remains unaltered in the associative phrase, regardless of the surface tonal realization of the associative particle. That is, even if the associative particle remains High -- as in the (a)-(b), (d)-(e), and (g)-(h) examples -- the initial Low of the noun in the NP<sub>i</sub> position does not undergo any change. And if the associative particle changes to L -- as in the (c), (f), and (i) examples -- the noun that follows still undergoes no change. We conclude from (69)-(71), then, that the associative particle cannot spread its H onto the following word. If we accept the analysis that the associative particle and a following noun form a phonological word, then perhaps the failure of the associative particle's H to spread can be viewed as the consequence of a general

prohibition of High Tone Spreading in word-internal environments.

Let us turn our attention now to the case where a trisyllabic noun occurs in the NP<sub>i</sub> position. There are twelve possible tonal shapes for trisyllabic nouns: HHH, HHL, HHF, HLH, HLL, HLF (H-initial nouns); LLL, LLH, LLF, LHL, LHF, LHH (L-initial nouns). In illustrating their behavior in the associative construction, we will no longer take pains to give relevant examples for all three associative particles (since we believe the preceding data has clearly established that tonally lò, ná, and tí are completely parallel).

In (72)-(77) we show the behavior of H-initial trisyllabic nouns in the associative construction, illustrating both the cases where the associative particle remains H and the cases where it changes to L by virtue of High Tone Lowering.

(72) HHH nouns: pílíí. lókíling', báyítát.  
gwákísík. gwálíling'

- (a.) súèt ná pílíí 'the shaft of the used knife'
- (b.) 'diká ná lòkíling' 'the wound of the elbow'
- (c.) mónyè ló pílíí 'the owner of the knife'
- (d.) pátá? ná báyítát 'the string of the net'
- (e.) kòng'é lò gwákísík 'the seed of the play  
shell'
- (f.) mién ná gwálíling' 'the pain of the jaws'

(73) HHL nouns: líkító. tàping'í. kimáng'jin

- (a.) swá tí líkító 'the ears of the rabbit'
- (b.) gú'dù? ná tàping'í 'the hump of the guinea  
fowl'
- (c.) lèng'èt ná kimáng'jin 'the extinguisher of  
fires'
- (d.) kòng'é lò líkító 'the eye of a rabbit'
- (e.) kùpír tí tàping'í 'the feathers of the  
guinea fowl'
- (f.) gáláká tí kimáng'jin 'the grass torch of  
fire'

(74) HHF nouns: 'dòpùt̄t̄i, mèlèsèn, m̀aràt̄è, bùlùt̄i

- (a.) k̀atùràn t̄i mèlèsèn 'the flowers of the  
garden'
- (b.) k̀ópò ló m̀aràt̄è 'the cup of our relative'
- (c.) gwéàrì ná 'dòpùt̄t̄i 'the color of the dress'
- (d.) rét nà 'dòpùt̄t̄i 'the tear of a dress'
- (e.) k̀ong'è lò 'bùlùt̄i 'the eye (grain) of  
sp. grain'
- (f.) b̀ongó? nà m̀aràt̄è 'the cloth of the relative'

(75) HLH nouns: t̄itòtòt, m̀angàt̄át, r̀ùbit̄át, k̀ùjàng'tát

- (a.) tórèt ná t̄itòtòt 'the bend of a possession'
- (b.) k̀orópò? t̄i m̀angàt̄át 'the leaves of the mango  
tree'
- (c.) m̀onyè ló t̄itòtòt 'the owner of the property'
- (d.) k̀onyén t̄i m̀angàt̄át 'the seeds of the mango  
tree'
- (e.) mién nà r̀ùbit̄át 'the pain of the molar  
tooth'
- (f.) k̀ong'è lò k̀ùjàng'tát 'a grain of sand'

(76) HLL nouns: b̀alàsà, bìrìsì, g̀urùmàn, b̀asàlà,  
g̀urùmàn

- (a.) tórôn ná b̀alàsà 'the badness of a bribe'
- (b.) gwéà ná bìrìsì 'the making of a mat'
- (c.) sójù ná g̀urùmàn 'the piercing of splinters'
- (d.) món nà b̀asàlà 'the smell of onions'
- (e.) k̀upá lò b̀asàlà 'the basket of onions'
- (f.) ng'ùmí lò bìrìsì 'the needle of the mat'

(77) HLE nouns: t̄irìbyát, g̀awàjìn, dùlùrt̄è, tàbàjìn

- (a.) gwárà ná t̄irìbyát 'the selling of pipes'
- (b.) k̀ópò ló g̀awàjìn 'the cup of the coffee'
- (c.) gwéàrì ló k̀òpòjìn 'the color of the cups'
- (d.) k̀onyén t̄i dùlùrt̄è 'the seeds of the castor  
oil plant'
- (e.) k̀upá lò tàbàjìn 'the basket of the tobacco'
- (f.) k̀adén t̄i dùlùrt̄è 'the twigs of the castor  
oil plant'

HHH changes to LLH  
 HHL changes to LHL  
 HHF changes to LLF  
 HLH changes to LLH  
 HLL changes to LLL  
 HLF changes to LLF

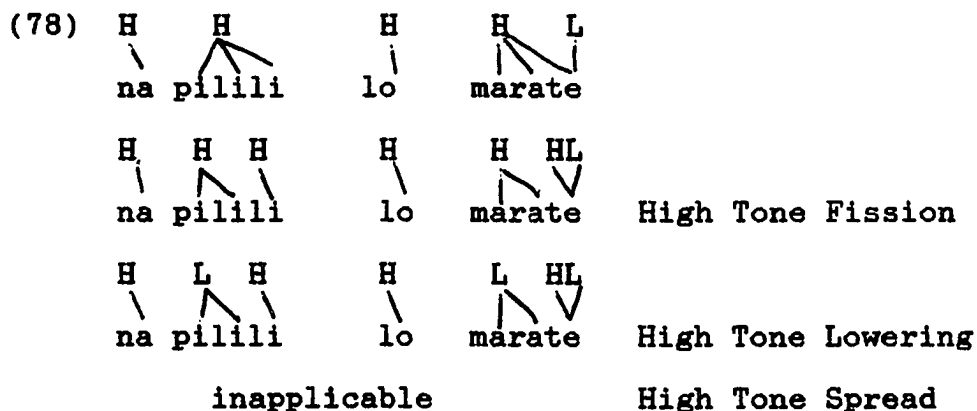
These changes are in part strongly supportive of the analysis developed above for the associative construction -- i.e. the analysis that says (a) the initial H tone of the noun in NP<sub>j</sub> position is subject to High Tone Lowering and (b) the associative particle does not spread its H onto the noun. The change of HLH, HLL, and HLF nouns to LLH, LLL, and LLF respectively follows directly from the fact that their initial H (which is associated with just the first syllable of the noun) changes to L by High Tone Lowering (and there is not subsequent spreading of a preceding High). But what about the other three patterns of change?

The change of HHH to LLH and of HHF to LLF has, of course, a ready explanation. Recall that we demonstrated that in a word with an initial sequence of three or more High-toned syllables, the last H-toned syllable fails to lower in the post-High environment. We suggested an account of this in terms of a rule of High Tone Fission: this rule assumes (a) that prior to its operation all successive High-toned syllables are represented as a single H on the tonal tier multiply-linked, and (b) that after the application of this rule the last syllable in the sequence has broken away from this structure and been linked to its own High tone. This rule was assumed to affect only sequences of three or more High-toned syllables. The result of High Tone Fission is that words where it is applicable have two High tones, the original H (linked to the initial syllables in the sequence) and the H created by High Tone Fission (linked to the last syllable in the sequence). The rule of High Tone Lowering affects only word-initial High



tones, and thus the second H remains unaffected.

It is this principle of High Tone Fission that explains why HHH nouns and HHF nouns change to LLH and LLF in position after the associative particle. Representative derivations are given in (78) below.



The apparently ad hoc nature of High Tone Fission still remains (as discussed at length earlier), but it is clear that these changes in the associative construction are indeed the same changes as in other phrasal contexts (despite the superficial dissimilarity arising from the failure of High Tone Spread to apply in the associative phrase) and that the same rules should be invoked to account for the alternations.

An interesting problem remains. Recall that in other phrasal situations, a HHL noun would change to HLL in the post-High environment. We explained this phenomenon by equating this change to the one whereby a HH noun becomes HL in the same post-High contexts. Our analysis was as follows: a sequence of two High-toned syllables is represented as a single H linked to two syllables. This structure escapes High Tone Fission (which affects only sequences of three or more High-toned syllables). The result is that the single, multiply-linked H of a HH word or a HHL word will change to L after a H. This leaves the

initial two syllables of such words both linked to a L tone. High Tone Spread and Contour Simplification then have the affect of raising the first syllable of these words to H.

The fate of a HHL noun in the associative phrase is not what we would predict on the basis of the other phrasal environments. We would expect the following derivation:

- (79)    H    H    L  
           \    ^    \  
           na taping'i  
           inapplicable    High Tone Fission
- H    L    L  
           \    ^    \  
           na taping'i    High Tone Lowering  
           inapplicable    High Tone Spreading

But \*...ná taping'i is incorrect. We must derive ...ná taping'i.

The behavior of HHL nouns can however be understood if we allow High Tone Fission to apply to them. That is, if we assume that High Tone Fission affects any sequence of syllables associated with a H on the tonal tier and takes the last syllable and assigns it a separate H. Given such an extended form of High Tone Fission, we would derive ...ná taping'i as follows:

- (80)    H    H    L  
           \    ^    \  
           na taping'i
- H H H    L  
           | | | |  
           na taping'i    High Tone Fission
- H    L H    L  
           | | | |  
           na taping'i    High Tone Lowering  
           inapplicable    High Tone Spread



LHF nouns: kinútê, kimúrtê

- (i.) mókòt ló kimúrtê 'the leg of the mosquito'  
 (j.) kàyimát nà kinútê 'the paste of the seeds'

LHH nouns: kòrékón, piritán

- (k.) súési tí kòrékón 'the handles of the spades'  
 (l.) méryât tí piritán 'the mountains of the  
   places'

The data in (81) provide further confirmation that the associative particle cannot spread onto a following L-toned noun. Given our analysis, there would, of course, be no way that a H associated with the associative prefix could actually appear associated with a following noun the associative marker is itself lowered. Thus it is to be expected that a L-initial noun would not manifest a spread High on it when the associative H is lowered. But a L-initial noun does not manifest a spread H even when the associative remains H. Thus there is no way to explain these data without assuming that there is in fact no spreading in this construction.

Quadrisyllabic nouns in the associative construction pattern in a fashion that is completely in accord with the behavior of trisyllabic nouns. (82) provides some representative examples of H-initial quadrisyllabic nouns in the associative construction.

(82) HHHH noun

- (a.) kòrópò? tí tèmènèné? 'the leaves of the  
   yellow ants' (cf. tèmènèné? 'yellows ants')

HHHL noun

- (b.) ng'úrò ná gwòròkólò 'the daughter of haughty  
   people' (cf. gwòròkólò 'haughty people')  
 (c.) gwárit ná kipítálà 'the price of ropes'  
   (cf. kipítálà 'ropes')

HHHF noun

- (d.) kánàrè ná didiliti 'the necklace of ornament' (cf. didiliti 'ornament')

HHLH noun

- (e.) jùpít ná kánàrèjín 'the dresser of necklace' (cf. kánàrèjín 'necklace')

HLLL noun

- (f.) yúpèt ná mùlákàtyò 'the belief of the Holy Ghost' (cf. mùlákàtyò 'spirit')

HHLF noun

- (g.) kònyén tí kùrìlàng'í 'the seeds of the oil tree' (cf. kùrìlàng'í 'oil tree')

HLHH noun

- (h.) kápúkàn tí gwàrgwàlálán 'the wings of the pennant-wing Nightjar' (gwàrgwàlálán 'Nightjar')

HLHL noun

- (i.) kàrén tí jà'bèlég'àn 'the names of the camels' (cf. jà'bèlég'àn 'camels')

HLLH noun

- (j.) món ná bàsàlātát 'the smell of an onion' (cf. bàsàlātát 'onion')

HLLF noun

- (k.) kótési tí kàbilùkàn 'the tails of the sheep' (cf. kàbilùkàn 'sheep')

From (82) we see that all quadrisyllabic nouns that begin with just one H-toned syllable change that syllable to Low -- this is shown by (h), (i), (j), and (k). If the quadrisyllabic noun starts with two High-toned syllables, only the first syllable is affected by High Tone Lowering - cf. (e), (f), and (g). If the noun starts with three H-toned syllables, then the first two syllables lose their

High tone via High Tone Lowering -- cf. (b). If the noun starts with four High-toned syllables, then the first three syllables lose their High tone via High Tone Lowering-- cf. (a) and (d). These facts are exactly parallel to the trisyllabic nouns and require no additional discussion.

L-intial quadrisyllabic nouns are exemplified in (83):

(83) LLLL noun

- (a.) pátá nà kèlèngwèrè 'the string of a trap'  
(cf. kèlèngwèrè 'trap')

LLLH noun

- (b.) mú'dâ ló àmbàtâjín 'the pot of bread'  
(cf. àmbàtâjín 'bread')

LLLF noun

- (c.) rét nà kèrèkètô 'the tear of the rags'  
(cf. kèrèkètô 'rags')

LLHH noun

- (d.) kádén tí kâtùmitán 'the planks of the door'  
(cf. kâtùmitán 'doors')

LLHL noun

- (e.) kwé nà kijákútàt 'the head of the beast'  
(cf. kijákútàt 'beast')

LLHF noun (no examples in our data)

LHLH noun

- (f.) bòngwát tí yákányèjín 'the clothes of our grandmothers' (cf. yákányèjín 'grandmothers')

LHLL noun

- (g.) kútúk nà àmúlèrè 'the mouth of the flute'  
(cf. àmúlèrè 'flute')

LHLF noun

- (h.) pèlô ná káyátàlì 'the roasting of a potato'  
(cf. káyátàlì 'potato')

The data in (83) demonstrate that a L-initial quadri-syllabic noun is not susceptible to High Tone Spread after the associative particle. Such nouns remain with a Low tone on their initial syllable.

We have now surveyed the behavior of polysyllabic nouns in the environment after the associative particle. Let us now turn to the monosyllabic nouns. Recall that we have identified five different patterns of tonal behavior: H<sub>1</sub>, H<sub>2</sub>, L<sub>1</sub>, L<sub>2</sub>, and F.

H<sub>1</sub> nouns change to L after a H at the end of a preceding word whereas H<sub>2</sub> change to a Falling tone. Recall that we suggested that H<sub>1</sub> nouns for some reason undergo High Tone Lowering but not High Tone Spread, whereas H<sub>2</sub> nouns undergo both rules. L<sub>1</sub> nouns remain L in the post-H environment, whereas L<sub>2</sub> nouns change to F. Finally, F nouns change to L in the post-H environment.

In (84) we examine the behavior of these five types of nouns in the associative construction.

(84) H<sub>1</sub> noun

- (a.) ng'útú? lò tùr 'the person of the village'  
(cf. tùr 'village')

H<sub>2</sub> noun

- (b.) kéré lò lè 'the gourd of milk'  
(cf. lé 'milk')
- (c.) bidí lò gòr 'the shaft of a spear'  
(cf. gór 'spear')

L<sub>1</sub> noun

- (d.) kirítì ló tèt 'the bamboo of the paddle'  
(cf. tèt 'paddle')
- (e.) kùpír tì mòk 'the hair of an antbear'  
(cf. mòk 'antbear')

L<sub>2</sub> noun

(f.) súèt ná dāk lónyít 'the shaft of his pipe'  
(cf. dāk 'pipe')

(g.) kòtèt ná gwàng' lókwé 'the tail of a white  
fox' (cf. gwàng' 'fox')

F noun

(h.) ng'úrò ló ng'ùn 'the son of God'  
(cf. ng'ùn 'God')

(i.) kíkò ló tír 'the way of the cultivation  
land' (cf. tír 'cultivation land')

The data in (84) are of some interest. Notice that a H<sub>2</sub> noun appears as Low after the associative particle, not with a Falling tone (as such a noun does in other post-H environments). This fact very clearly argues that the H<sub>2</sub> nouns appear as Falling elsewhere due to the fact that (after undergoing High Tone Lowering) they are affected by High Tone Spread. Since the associative particle cannot spread its H on a following noun, a noun such as lé will surface as lè, not \*lê. Thus (84) clearly supports the view that H<sub>2</sub> nouns are Falling because of the application of High Tone Spread. The associative construction does not, of course, add any clues as to why H<sub>1</sub> nouns do not undergo High Tone Spread in any post-H environment.

Notice also that in (84) the L<sub>2</sub> nouns like dāk do not become Falling-toned. This fact also supports the claim that dāk becomes Falling-toned in other post-H environments due to the application of High Tone Spread. Since the associative particle cannot trigger High Tone Spread, dāk will simply remain Low in the associative construction. Again, the associative construction does not shed any particular light on why L<sub>1</sub> nouns resist High Tone Spread in all post-H environments.

Finally, we should note that the Falling-toned nouns in the associative construction surface as Low (due to the



application of High Tone Lowering) just as they do in all other post-H environments.

We have now given a detailed account of the tonal patterning of the minimal elements in an associative construction (Noun - associative particle - Noun). In the remainder of this section, we will examine the tonal properties of expanded forms of the associative construction, as well as the tonal properties of the associative construction when it stands in juxtaposition to other items in the sentence.

The associative construction may itself function as NP<sub>j</sub> in an associative construction. For example, the expression ng'úrò ló Mògá ló Yòkwé ló Kàrí ló Lùgàr has the interpretation: the child of Mògá, who is the son of Yòkwé, who is the son of Kàrí, who is the son of Lùgàr. This kind of expression can, in principle, be extended indefinitely. As a matter of fact, this pattern was used in the oral history of the Bari as a means for memorizing family pedigrees.

Less formulaic uses of embedded associative constructions are illustrated in (85).

- (85) (a.) kálá tí tòmé ló méré  
'the tusks of the elephant of the mountain'  
(cf. tóme 'elephant', méré 'mountain')
- (b.) kúpá lò pùlù tí Kùlàng'  
'the basket of groundnuts of Kulang'  
(cf. pùlù 'groundnuts', Kùlàng (name))
- (c.) mókòt ló wùrì ló kàré  
'the leg of the pig of the river'  
(cf. wùrì 'pig', kàré 'river')
- (d.) kópò ló mātāt ló Jùbà  
'the cup of the chief of Juba'  
(cf. mātāt 'chief', Jùbà (name of a town))
- (e.) ng'úrò ló Pòní nà Jàdà 'the child of Poni of Jada'  
(cf. Pòní (name), Jàdà (name))

- (f.) pátá? ná gwákisik tì Kùlàng' 'the string of shells of Kulang' (cf. gwákisik 'shells', Kùlàng' (name))
- (g.) súèt ná pílílí ná wàlè 'the shaft of the small blade of the knife' (cf. pílílí 'small blade', wálé 'knife')

The data in (85) above shows that, given a structure  $N_i$  assoc.  $i$   $N_j$  assoc.  $j$   $N_k$ , whether the second associative particle in the construction undergoes High Tone Lowering depends on whether the immediately preceding noun ( $N_j$ ) is H-final. Thus in (85e-f), where  $NP_j$  is H-final, the second associative particle is Low-toned; on the other hand, in (85a-d), where  $NP_j$  is L-final (on the surface), the second associative particle is High-toned. But whether  $N_j$  is H-final on the surface is not just a matter of its underlying structure: notice that  $NP_j$  is underlyingly H-final in (85a) and (85c) as well as in (85e-g). It also depends on whether that noun has still remained H-final subsequent to the application of High Tone Lowering between the associative particle  $i$  and  $N_j$ .

The above point can be illustrated by comparing (a) and (b). In (a),  $N_j$  (tómé) is underlyingly HH, while in (b)  $N_j$  (púlù) is underlyingly HL. Examination of (b) shows that  $N_j$  cannot affect the following associative particle since púlù is L-final. It happens, of course, that púlù itself is changed to LL by the preceding High-toned associative particle  $i$ .  $N_j$  is affected by the associative particle  $i$ , we have claimed, at the word level. At the sentence level, associative particle  $i$  in (b) will itself be lowered as the result of following a H-final noun (kúpá). The important point is that the word-level application of High Tone Lowering to púlù, changing it to pùlù in no way has any bearing on whether the following associative prefix will be susceptible to High Tone Lowering.

In (a), on the other hand, the situation is different. In (a) the associative particle; (ló) likewise fails to undergo High Tone Lowering due to the fact that the immediately preceding noun (tómé) is not H-final. But tómé was H-final until it was converted to LL under the influence of the associative particle; (tì). Of course, tì itself becomes Low when it stands after a H-final noun such as kúpá. The fact that the tómé must undergo High Tone Lowering (under the influence of associative particle;) before having a chance to induce the lowering of the associative particle; follows automatically from the assumption that application of High Tone Lowering between the associative particle and a following noun is done at the word level. /ló tómé/ will become /ló tòmè/ via High Tone Lowering at the word level and thus at the phrase level the noun tómé will no longer end in a High tone and will not be able to affect a following associative particle.

We have now given an account of the tonal shape of the associative construction in its most minimal form (N<sub>i</sub> - associative - N<sub>j</sub>). In the remainder of this section we will examine the tonal characteristics of this construction when (a) the nouns in this structure are modified by other elements and (b) when the associative construction appears in sentences.

Consider the examples in (86).

- (86) (a.) kálá tì tòmè dùmà 'the tusks of the big  
elephant'
- (b.) dùpà ná ng'ùrò ná'dit 'the cradle of the  
small child'
- (c.) mùkèt ló kúpà lónyit 'the cover of his  
basket'
- (d.) 'díèt ná kòpò lósè 'the plug of their cup'

- (e.) gwèàrì ló bòngó? nányit 'the color of her  
dress'  
(cf. bòngó? 'dress', nányit 'her')
- (f.) lór ló bùdú dùmà 'the day of the big  
celebration'  
(cf. bùdú 'feast', dùmà 'big')
- (g.) tórêst ná lòkíling' lónyit 'the bandage of  
his elbow' (cf. lòkíling' 'elbow', lónyit  
'his')

In these examples,  $N_j$  of the associative construction is modified by an adjective or possessive pronoun. We see from these data that whether a H-initial adjective or possession pronoun (cf. dùmà 'big', ná'dit 'small', lónyit 'his', lósè 'their', nányit 'her') undergoes High Tone Lowering depends on whether the noun  $N_j$  is H-final or not. In (86e-g),  $N_j$  is High-final underlyingly and remains H-final on the surface. We see that in this situation the adjective/possessive pronoun is subject to High Tone Lowering as a result of standing after a High tone. In (86a-d) we see that when  $N_j$  is L-final (on the surface), the adjective/possessive pronoun is not subject to High Tone Lowering. But  $N_j$  may be Low-final for two different reasons: it may be L-final because it underlyingly has a Low tone associated with its last vowel, or it may be L-final because of the operation of High Tone Lowering. (86b) and (86d) show that underlying L-final nouns (ng'úrò and kópò) fail to trigger High Tone Lowering on a following adjective. (86a) and (86c) show that underlyingly H-final nouns (tómé and kúpá) that have become Low-toned via the operation of High Tone Lowering (as a result of a preceding associative particle) will fail to affect a following adjective/possessive pronoun.

This interaction can be explained under the assumption that High Tone Lowering operates in a left-to-right iterative fashion across the unit [associative - NP]. However, we have independently argued that the associative and the following noun form a kind of word to which High

Tone Lowering applies before it applies at the phrasal level. If this is correct, then in ló kùpà lónvít, the noun kùpà will have undergone High Tone Lowering at the word level; consequently, at the phrase level it will end in a Low tone and thus not affect the following possessive pronoun.

Let us consider now the case where we have a demonstrative element in front of N<sub>j</sub> in the associative construction.

- (87) (a.) mókòt ló ng'íló wúrl 'the leg of this nearby  
pig'
- (b.) kòng'é lò ló ng'úmí 'the eye of this needle'
- (c.) yáwâ tí kíló gilà 'the beer of these white  
men'
- (d.) mòkêt ná ng'íló kòpò 'the handle of this  
nearby cup'
- (e.) pèròk tì ng'ílú kíng'à 'the days of that  
year'
- (f.) múrút nà ná gógòk 'the neck of this Grant's  
zebra'

These data illustrate that the demonstrative in front of N<sub>j</sub> is unaffected by the associative particle (just as we have seen in the section on the demonstratives that the demonstratives are subject to High Tone Lowering just in the event that they stand without their governing noun following them).

Next suppose that N<sub>i</sub> in the associative construction is preceded by a demonstrative element, then the application of High Tone lowering to N<sub>i</sub> (due to the presence of the demonstrative) may block application of High Tone Lowering to the associative:

- (88) (a.) ...à tók ng'ílú kí'bò ló màtát  
'...chopped that canoe of the chief'  
(cf. kí'bó 'canoe')
- (b.) ...à júp ngínú 'dópút ná Póní  
'...wore that cloth of Poni'  
(cf. 'dópút 'cloth')
- (c.) ...à báng'ára ng'íló lókíling' lò Jàdà  
'...hurt this elbow of Jada'
- (d.) ...à tú? ng'inú ràbà ná gùgù  
'...made a hole in the bottom of that  
granary' (cf. ràbà 'bottom')

Examples like this motivate the left-to-right iterative application of High Tone Lowering across the sequence consisting of Demonstrative - Noun - Associative Particle. For example, (88a-b) show that since the demonstrative causes a HH noun such as kí'bó and 'dópút to undergo High Tone Lowering (eventually surfacing as HL), that noun cannot affect the associative particle following it. But in (88c) the H of the demonstrative does not affect the final H of the nouns lókíling' thus that noun can induce High Tone Lowering on the associative particle. In (88d), the noun ràbà has its first syllable raised by the demonstrative, but it remains Low-final and thus cannot affect the associative particle that follows.

Suppose that an adjective modifies Ni in the associative construction.

- (89) (a.) ng'úrò yóké ná kitâ 'the lazy child of work'  
(cf. yóké 'lazy')
- (b.) 'bùlát módòng' ná mètè 'the old hyena of the  
mountain' (cf. módóng' 'old')

(89a) shows that if an adjective after Ni is H-final (cf. yóké 'lazy') it will trigger High Tone Lowering on the associative particle following. In (89a), yóké remains H-final because it is itself preceded by a L-final noun

ng'úrò 'child'. (89b) demonstrates that should a HH adjective (cf. módóng') be preceded by a H-final noun (cf. 'bùlát 'hyena'), then the adjective will become L-final. Now that the adjective following N<sub>i</sub> is L-final, it will not trigger High Tone Lowering on the associative particle.

The data in (89) show that High Tone Lowering must be applied between the N<sub>i</sub> and a following adjective before being applied between the adjective and the following associative particle. This pattern of application, of course, is consistent with the right-to-left application of High Tone Lowering.

In the remainder of this section we we will examine the tonal behavior of the associative construction as it appears in different syntactic constructions. First of all, consider the associative construction when it follows a verb.

Examine the data in (90) and (91) below.

- (90) (a.) Jàdà à wíwíjà pátá nà kèrè  
'Jada weaved a string of the gourd'  
(cf. pátá 'string', kéré 'gourd')
- (b.) bòdò à tèténdyà pèték lò sòmòt  
'the blacksmith made harpoon for fish'  
(cf. pèték 'harpoon', sòmòt 'fish')
- (c.) nân à mèddyà pátá nà gwàkisík  
'I saw a string of play shells'
- (d.) Jàdà gáláddù kí'bó lò mònyè  
'Jada went looking for the canoe of his  
father'
- (e.) Pòní à tòlikìn kópò ló Kùlàng'  
'Poni lost the cup of Kulang'
- (91) (a.) Jàdà à ryá pètèk ló sòmòt  
'Jada found the harpoon for fish'
- (b.) nân à mét pátà ná gwàkisík  
'I saw the string of play shells'

- (c.) Jàdà dèdén kútùk ná gwòròkó?  
 'Jada knows the long-tonguedness of the  
 haughty man' (cf. kútùk 'long-tonguedness',  
 gwòròkó? 's.o. haughty')
- (d.) nân à ryá ng'ùrò ló Kùlàng'  
 'I found the son of Kulang'
- (e.) nân à 'bó? kálà tí tò mè  
 'I touched the elephant tusks'

In (90) we see that when a Low-final verb precedes the associative construction  $NP_i$  - assoc.part.<sub>i</sub> -  $NP_j$ , a HH noun in the  $NP_i$  position remains HH and induces a lowering of the associative particle. (The associative particle, as we have seen, still induces a lowering of  $NP_j$ , due to the application of High Tone Lowering on the unit consisting of the associative particle +  $NP_j$  prior to application of High Tone Lowering between  $NP_i$  and the associative particle.) In (91), on the other hand, the verb preceding  $NP_i$  is H-final, and we see that a HH noun in  $NP_i$  position changes to HL. But since  $NP_i$  is now L-final, the associative particle escapes undergoing High Tone Lowering and remains pronounced on a High tone. These facts show that we must not allow High Tone Lowering to apply between  $NP_i$  and the associative particle before we apply High Tone Lowering between the verb and  $NP_i$ . Thus we have conclusive evidence against a syntactically-oriented cyclic application of High Tone Lowering (since such a mode of application would incorrectly predict that High Tone Lowering applies within the noun phrase consisting of  $NP_i$ +assoc.part.+ $NP_j$  before applying between the verb and  $NP_i$  (which belong to the same syntactic unit only after the verb and the entire associative noun phrase are combined)).

Next let us look at the case where a  $NP_i$  precedes the associative construction consisting of  $NP_j$  - associative -  $NP_k$ . Actually, this sequence will occur just in post-verbal



position after a verb that can take a double object. If the verb is Low-final, it will not have any bearing on the matter (since it could not affect NP<sub>i</sub>). Thus L-final verbs will give us a context in which we can examine how a NP that precedes an associative construction will affect that construction. The examples in (92) show that if NP<sub>i</sub> is L-final (e.g. 'búnit, kópò, or wèlèt), then the associative construction appears in the same shape as it would if used in isolation. However, the examples in (93) show that if NP<sub>i</sub> is H-final (e.g. nàrákwán, Wàní, múgún, or Pòní), it will affect the tonal shape of NP<sub>j</sub> (the initial element of the associative construction), and this change in NP<sub>j</sub> may affect whether NP<sub>j</sub> can induce the lowering of the associative particle.

- (92) (a.) nân jákindyà 'búnit góbér nà kitèng'  
'I bring to the medicine man a cow-hide'
- (b.) Wàní tindyà Kùlàng' kópò ló dùrà?  
'Wani gave Kulang a cup of grain'
- (c.) Kùlàng' gáláddù Bòjò wèlèt nà dùlùr  
'Kulang went looking for castor oil seed for Bojo'
- (93) (a.) Jàdà à kùrúkin nàrákwán mélèsèn nà pùlù  
'Jada dug for his wife a plot for groundnuts'
- (b.) Kùlàng' tindyà Wàní gwákisík tì nàrákwán  
'Kulang gives Wani the play shells of his wife'
- (c.) lígòtót gáláddù múgún kéré ló piòng'  
'the hunter went searching for himself a gourd for water' (cf. kéré)
- (d.) Jàdà tindyà Pòní bóngó? nà Kirisimàsi  
'Jada gives Poni the dress for Christmas'

In (93a), mélèsèn is changed to a HLF pattern as a result of standing after a H-final noun, but this alteration in tone shape in no way has any bearing on the

ability of mélésèn to affect the associative particle due to the fact that the noun both underlyingly and on the surface ends in a Fall (and Fall-final words do not affect the associative particle). In (93b), gwákásík changes to HLH; the associative particle following gwákásík is altered to Low. Again, since gwákásík ends in a H both underlyingly and also when it is changed due to a preceding H-final word, we cannot learn anything from this example about whether NP<sub>j</sub> or the associative particle must undergo High Tone Lowering first. In (93c), kéré changes to HL because it undergoes High Tone Lowering following a H-final noun. Notice that as a result of the change from HH to HL, kéré ceases to be H-final and thus ceases to have the power to induce High Tone Lowering on the associative particle. In (93d), bòngó? changes to HH as a result of the application of High Tone Spread from the preceding H-final noun, but this change in no way affects the ability of bòngó? to trigger High Tone Lowering on the associative particle. bòngó? is H-final and will lower the associative particle's High.

The data in (93) show that the H of NP<sub>i</sub> must affect NP<sub>j</sub> before NP<sub>j</sub> can affect the associative particle. In other words, High Tone Lowering must operate across a two syntactic constituents -- NP<sub>i</sub> and the associative construction -- before it operates within the associative construction, a single syntactic constituent. This mode of application is inconsistent with a cyclic application of High Tone Lowering, but fully consistent with the left-to-right iterative application of that rule.

In (94) we provide examples where the verb is H-final and thus can potentially affect the shape of a NP<sub>i</sub>. We limit our attention here to the cases where NP<sub>i</sub> is itself H-final in underlying structure.

- (94) (a.) nân à tìn wátè kálá tì yàwà  
'I gave thw women the beer yeast'  
(cf. wáté 'women')
- (b.) nân à tìn Wání kí'bò ló mâtàt  
'I gave Wani the canoe of the chief'
- (c.) nân à tìn Póní bǒngó? nà gèlà  
'I gave Poni a cotton cloth'
- (d.) nân à tìn Póní dúpà ná ng'ùrò  
'I gave Poni the cradle for a child'

In (94a) we see that when the verb is H-final, it changes a HH noun such as wáté to HL; now wáté cannot affect the HH noun kálá; since kálá remains H-final, it does cause the associative particle following to undergo High Tone Lowering. In (94b), the H-final verb raises Wání to HH, but this in no way affects the fact that Wání can trigger High Tone Lowering on kí'bó, changing it to HL; now since kí'bó ends in a L. it cannot lower the associative particle that follows. In (94c), the H-final verb raises Póní to HH, but this is no way changes the fact that Póní can also raise bǒngó? to HH, which likewise in no way affects the fact that H-final bǒngó? can induce High Tone Lowering on the associative particle that follows. In (94d), the H-final verb raises Póní to HH, but this in no way changes the fact that Póní can raise dúpà to HL, and this in no way changes the fact that dúpà (being L-final) cannot trigger High Tone Lowering on a following associative particle.

(94) shows that in a structure Verb - NP<sub>i</sub> - NP<sub>j</sub> - associative - NP<sub>k</sub>, the surface shape of the associative particle depends in part on whether the verb is L-final or H-final. Furthermore, (94) shows that High Tone Lowering must operate between the verb and NP<sub>i</sub> before it operates between NP<sub>i</sub> and NP<sub>j</sub>. This is of course quite consistent with the left-to-right application of High Tone Lowering.

To further illustrate the left-to-right application of High Tone Spread across the sentence, consider examples

such as the following:

- (95) (a.) Jàdà yèmúndyà ng'útú? yókè ná Jùbà  
 'Jada married and brought home a lazy person  
 from Juba' (cf. ng'útú? 'person', yóké 'lazy')
- (b.) nân à tín ng'útù? módóng' lò jùr  
 'I gave (it) to the old man of the village'  
 (cf. ng'útú? 'man', módóng' 'old')

The portion of the sentences in (95) that concern us is the stretch that begins with the verb followed by a noun plus its modifying adjective followed by the associative particle. Notice that in (a) the associative particle is High-toned whereas in (b) the associative particle appears with a Low tone. This difference in the pronunciation of the associative particle (ultimately) has its source in the fact that the verb in (a) is L-final while the verb in (b) is H-final. Consider (a) first. Since the verb is L-final, the HH noun ng'útú? is not affected by High Tone Lowering. The adjective yóké is consequently able to undergo High Tone Lowering and changes to LL (appearing eventually as HL due to the operation of High Tone Spread and Contour Simplification). Now that yóké is L-final, it cannot affect the associative particle that follows, allowing the associative to be pronounced with a High tone. In (b), however, the verb is H-final and thus causes the ng'útú? to become LL (eventually HL) through the operation of High Tone Lowering. But now that ng'útú? is L-final, it cannot affect the following HH adjective módóng'. Now that the adjective is able to remain H-final, it will be able to trigger High Tone Lowering on the following associative. We see then that in a sequence Verb - [[Noun Adjective] [assoc. Noun]], the rule of High Tone Lowering must apply across the sequence Verb-Noun-Adjective-Associative in a right-to-left iterative fashion.

A somewhat more elaborate sort of example making the same point appears in (96).

- (96) (a.) Jàdà tindyà Wàní kinè módóng' nà jùr  
'Jada gave Wani an old goat from the village'
- (b.) nân à tín Póní kinè módóng' nà jùr  
'I gave Poni an old goat (from) the village'
- (c.) Jàdà tindyà ng'útú? kinè módóng' nà jùr  
'Jada gave a man an old goat from the village'
- (d.) nân à tín ng'útú? kiné módòng' ná jùr  
'I gave the man an old goat from the village'

In (96a) we see that a LH noun such as Wàní induces High Tone Lowering on the following noun kiné; since kiné is now L-final, it does not affect the HH adjective módóng'. Consequently, the H-final módóng' induces High Tone Lowering on the following associative particle. (95b) is the same except that a H-final verb causes the LH noun Póní to surface as HH. In (95c) the noun immediately following the verb is HH; since the verb is L-final, the noun remains HH and can thus cause the following HH noun kiné to become LL (eventually HL after High Tone Spread and Contour Simplification). Now that kiné is L-final, it cannot affect módóng', but the H-final módóng' will be able to trigger the lowering of the following associative particle. In (95d), the verb is H-final and can thus cause the immediately following HH noun ng'útú? to become LL (eventually HL), thus keeping ng'útú? from affecting kiné. Now that kiné is able to retain its final H, it will trigger High Tone Lowering on the adjective módóng'. This means that now módóng' will be L-final, with the result that the following associative particle will escape High Tone Lowering.

We conclude, then, that the associative construction provides evidence that (a) High Tone Lowering must apply to the associative particle and following noun as a unit before the sentence-level application of this same rule, and (b) the sentence-level application of High Tone Lowering must be left-to-right iterative across the sentence.

#### 4.1.5. Noun plus adjective.

In this section we will examine the tonal behavior of adjectives when they modify a noun. We will begin our discussion with the simple (i.e. non-derived) adjectives (see Chapter Three for a description of adjective morphology in Bari).

Consider bisyllabic adjectives first. Some examples are in (97).

(97) HH: 'dírí 'true', módóng' 'old', yóké 'lazy',  
wáwú 'empty', gwútú 'cut'

HF: gwútwá '(pl.) cut'

HL: dúmà? 'big', 'báng'in 'sterile', bétà  
'naughty'

LH: kàng'á 'severe', 'bándá 'timid'

LL: sàndì 'poor', kàndì 'rich', 'bàndè 'thrifty'

LF: no examples in our data

These adjectives will be pronounced with the tonal shapes indicated in (97) when they are in isolation, or when they follow a word that ends in a Low or a Falling tone. Some examples of such adjectives in the post-Low environment:

- (98) (a.) nân à kúrjá lópijòt módóng'  
'I borrowed an old he-goat'  
(cf. módóng' 'old')
- (b.) nân à mét kótèsì? à gwútwâ  
'I saw that the tails are cut'  
(cf. gwútwâ '(pl.) cut')
- (c.) júr lò màtát à dùmâ  
'the village of the chief is large'  
(cf. dùmâ 'big')
- (d.) nân à rúm kò 'díòng' kàng'á  
'I met (with) a very fierce dog'  
(cf. kàng'á 'severe, fierce')
- (e.) ng'ílú ng'útú? à sàndì  
'that man is a poor person'  
(cf. sàndì 'poor')

In the post-High environment, these adjectives will alter their pronunciation as follows: HH becomes HL (cf. (99)), HF becomes HL (cf. (100)), HL becomes LL (cf. (101)), LH becomes HH (cf. (102)), and LL becomes HL (cf. (103)).

- (99) ng'útú? módòng' 'an old man'  
ng'útú? yókè 'a lazy person'  
gúgú wáwù 'an empty granary'  
kànín gwútù 'a cut hand'
- (100) kàdén gwútwâ 'pruned trees'
- (101) wúrí dùmâ 'a big pig'  
kísúk 'bàng'in 'sterile cows'  
kínú 'bètâ 'those naughty ones'
- (102) ng'útú? kàng'á 'a severe person'  
kíténg' 'bándá 'a timid cow'
- (103) ng'útú? sàndì 'a poor man'  
ng'útú? kándì 'a rich man'  
nárákván 'bándè 'a thrifty wife'

These alternations are clearly the same ones as we observed in bisyllabic nouns and will follow from the same rules that we postulated on the basis of the nouns. All that is necessary is that we allow the rules of High Tone Lowering and High Tone Spread to operate across the syntactic juncture between a noun and a following adjective.

Trisyllabic adjective stems are quite scarce, but those that do occur undergo the expected tonal changes in the post-High environment. The following examples occur in our data.

- (104) HHH: sɪngwíyú 'solid'  
 HHF: mó'dókè 'blind'  
 HHL: mó'dóng'à '(pl.) old', wáwúkàn '(pl.) empty',  
 lómórè 'personal, private'  
 HLF: dúmálák '(pl.) old'  
 LHL: kàng'ájin '(pl.) brave', 'bándálàn  
 '(pl.) timid'  
 LLF: 'bákàrí 'unmusical'

After a noun ending in a L tone, these trisyllabic adjectives are unchanged from their isolation form:

- (105) (a.) gá'yí kúyútyò sɪngwíyú  
 'look for a solid bone'  
 (cf. sɪngwíyú 'solid')
- (b.) mónyé Jádà à mó'dókè  
 'Jada's father is blind'  
 (cf. mó'dókè 'blind')
- (c.) kíló pùlù lómórè  
 'these nearby private peanuts'  
 (cf. lómórè 'private')
- (d.) nân à ng'árákin ng'útú dúmálák  
 'I helped old people'  
 (cf. dúmálák '(pl.) old')
- (e.) ng'iná ng'ùrò 'bákàrí ng'iná  
 'that nearby unmusical girl, that one'  
 (cf. 'bákàrí 'unmusical')



In the post-H environment we find the expected changes: HHH becomes HLH, HHF becomes HLF, HHL becomes HLL, HLF becomes LLF, LHL becomes HHL, and LLF becomes HLF. These changes are illustrated in (106).

- (106) HHH adjective: túré singwiyú 'a solid stick'  
 HHF adjective: ng'útú? mó'dòkè 'a blind person'  
 HHL adjective: wáté módòngà 'old women'  
                   kádén wáwùkàn 'hollow trees'  
                   kí'bó lómòrè 'a personal canoe'  
 HLF adjective: wáté dùmàlâk 'big old men'  
 LHL adjective: wáté káng'ájin 'brave women'  
 LLF adjective: ng'útú? 'bákàrì 'unmusical man'

It is unnecessary to review the derivation of these forms since they follow the patterns that we have amply demonstrated in this chapter.

There are only two quadrisyllabic simple adjectives in our data: the LLHL adjective 'bàkàrikà '(pl.) unmusical person' and the HHHL adjective mó'dékénò '(pl.) blind'. Both of these involve a plurally-marked simple adjective stem. As usual, these adjectives do not change in the post-Low context (cf. (107) but do in the post-H environment (cf. (108)). The changes in the post-H environment are the expected ones: LLHL: becomes HLHL and HHHL becomes HLHL as well.

- (107) (a.) ng'wájik 'bàkàrikà jòré  
           'there are many unmusical children'  
           (cf. 'bàkàrikà '(pl.) unmusical')  
 (b.) Pòní à dérákin ng'útù? mó'dékénò  
       'Poni cooked for the blind people'  
       (cf. mó'dékénò '(pl.) blind')

- (108) LLHL adjective: wáté 'bákàrikà 'unmusical women'  
 HHHL adjective: wáté mó'dòkénò 'blind women'

We have now surveyed all of the polysyllabic tonal types in our data. Finally, we must look at the monosyllabic adjectives. There are just two tonal shapes displayed by monosyllabic adjectives -- High and Fall. Most of the examples are in the H category. There is just a single example of a Falling-toned monosyllabic adjective in our data. Examples are given in (109).

(109) High adjectives

lút 'dirty'  
 bám 'careless'  
 'báng' 'sterile'  
 wók 'sloppy'  
 'bét 'naughty'  
 'bón 'stupid'

Fall adjectives

'dòk 'late-walker'

In the post-Low context these adjectives are, of course, unchanged; a few examples appear in (110).

- (110) H adjectives: bòngwát lút 'dirty clothes'  
 lópíjòt 'báng' 'sterile goat'  
 kúpájin wók 'sloppy baskets'  
 ng'úrò 'bét 'naughty child'  
 F adjective: ng'úrò 'dòk 'a late-walking child'

But in the post-H environment, High adjective changes to Fall and a Fall adjective changes to Low.

- (111) H adjective: bòngó? lút 'dirty dress'  
 kiné 'báng' 'sterile goat'  
 kúpá wók 'sloppy basket'  
 ng'útú? 'bét 'naughty person'  
 F adjective: ng'útú? 'dòk 'late-walking person'

The H adjectives are parallel in behavior to the H<sub>2</sub> monosyllabic nouns which also change to Fall in the post-H environment (cf. lé 'milk' but ng'úrò à māt lé 'the child drank milk'). The Fall adjectives are like the Fall monosyllabic nouns (cf. ng'ún) which also change to Low in the post-H environment. The change of lút to lût can be explained in terms of the combined operation of High Tone Lowering and High Tone Spread (with no simplification of the Falling tone since it resides on a word-final syllable). The change of 'dòk to 'dòk can be explained as the consequence of High Tone Lowering plus the absence of High Tone Spread (for the same reason that High Tone Spread fails to affect HL words that have changed to LL via High Tone Lowering -- whatever that may be).

We have shown that simple (non-derived) adjectives are subject to High Lowering when they follow a noun. It is possible to have more than one adjective modify a noun. In this section we examine such constructions in order to see how High Lowering must be applied in order to derive the correct results.

Consider the adjective yóké 'lazy'. When it follows a noun ending in a High, it undergoes High Lowering -- cf. ng'útú? yókè 'a lazy person' versus ng'úrò yóké 'a lazy child'. Similarly, the adjective dùmà 'big' undergoes High Lowering when it follows a noun that ends in a High -- cf. ng'útú dùmà 'a big person' versus ng'úrò dùmà 'a big child'. Suppose that we use both yóké and dùmà to modify a noun. Consider the phrases below:

- (112) (a.) ng'útú yókè dùmà 'a lazy big person'  
 (b.) ng'úrò yóké dùmà 'a lazy big child'

In the (a) example we see that yóké has undergone High Lowering, being changed to yókè, but dùmà has not undergone the rule. The reason that dùmà has escaped High Lowering in (a) is clear: once yóké is changed to yókè by High

Lowering, it no longer ends in a High tone and thus is incapable of triggering High Lowering on the following noun. In the (b) example, yóké remains unchanged after a Low-final noun such as ng'úrò; dùmá, on the other hand, does change to dùmá since it is preceded by a High-final noun yóké.

Clearly, the application of High Lowering in (112) is easily accounted for by assuming that High Lowering operates in a left-to-right iterative fashion across the noun phrase that consists of a noun plus adjective plus adjective. Such a mode of application means that whether the first adjective affects the second adjective depends on whether the first adjective still ends in a High tone after it undergoes High Lowering. This mode of application says that in a sequence of words, all of which are in the environment to undergo High Lowering, their linear order will determine which ones in fact undergo the rule. The rule will try first to the leftmost item and make any changes required by the rule; the item immediately to the right will then be tested for the rule, and if the rule's conditions are satisfied, the appropriate changes will be carried out; the next item to the right will then be tested, etc.

Cyclic application of High Lowering would also account for these data, provided the structure of the above phrases is considered to be as follows:

[[N Adj]<sub>1</sub> Adj]<sub>2</sub>

Given this structure, the first cycle will consist of the noun plus the first adjective in the sequence. High Lowering will try to apply to the adjective, and if the structural description of High Lowering is met, the adjective will be appropriately modified. The second cycle will include all the material from the first cycle plus the



Simultaneous application, of course, fails to give the right results, since it would in (a) modify the first two adjectives and in (b) it would modify all three of the adjectives.

We have already seen that the possessive pronouns follow the noun that they modify. A possessive pronoun may co-occur with an adjectival modifier. Examples of such constructions follow:

- (114) (a.) kéré liò dùmà 'my big gourd'  
 (b.) kópò lónyit ló'dit 'his small cup'

Since the possessive pronouns are HL, and since they immediately follow the noun they modify and precede the adjective, there is no opportunity for the possessive to any way affect the tone of the adjective or for the adjective to affect the tone of the possessive. All that can happen is that a H-final noun such as kéré can trigger High Tone Lowering on the following possessive, converting the possessive to LL.

A noun may be preceded by a demonstrative element and followed by one or more adjectives. In (115) we show the case where we have Demonstrative - Noun - Adjective.

- (115) (a.) ng'iló kí'bò dùmà 'this nearby big canoe'  
 (b.) ng'iná píllí ná'dit 'this nearby small  
 knife'  
 (c.) ná bǒngó? dùmà 'this big dress'  
 (d.) ng'inú tǎrò dùmà 'that big mat'

A demonstrative will in every case affect the noun that follows it. When the demonstrative changes a H-final noun such as kí'bó in (115a) into a L-final noun, the adjective dùmà following will then not be affected by High Tone Lowering. In (115b) the HHH noun píllí is changed by the demonstrative into a HLH noun, and since it remains H-final, it triggers High Tone Lowering on the adjective

ná'dít. In (115c) the LH noun bòngó? becomes HH after the demonstrative, and since it ends in a High it causes dúmà to undergo High Tone Lowering. In (115d) the noun tèrò becomes HL after the demonstrative, but since it is still L-final it cannot affect the adjective dúmà. These data show, then, that High Tone Lowering must operate first between the demonstrative and the noun before applying between the noun and the adjective.

(116) below illustrates when more than one adjective occurs after a Demonstrative i Noun sequence:

- (116)(a.) ng'íló ng'útù? yóké módóng' dùmà 'this lazy  
old big person'
- (b.) ó gwóròkó yókè módóng' dùmà 'this big lazy  
old haughty person'
- (c.) ng'íná Póní yókè módóng' dùmà 'this nearby big  
old lazy Póní'

In (116a) the demonstrative ng'íló triggers High Lowering on ng'útù?, changing it to ng'útù?; yóké, on the other hand, escapes High Lowering since it is now preceded by a L-final noun (although underlyingly it is preceded by a H-final noun), but does trigger the application of the rule to módóng', changing it to módòng'. The last item in the phrase, dùmà, escapes High Lowering since it stands after a L-final adjective (even though in underlying structure it stands after a H-final adjective). In (116a) there are four items in the phrase which stand (underlyingly) in the environment to undergo High Lowering; but only two of these items in fact undergo the rule.

In (116b), the HHH noun gwórókó remains H-final even after it undergoes High Tone Lowering and thus is able to trigger High Tone Lowering on yóké, changing it to yókè. Now that yókè has become L-final, it cannot affect módóng'. But since módóng' is H-final, it induces High Tone Lowering on dùmà, causing it to become dùmà.

In (116c), the LH noun Pòní becomes HH after the demonstrative. This noun is H-final (and is not subject to High Tone Lowering, though it does undergo High Tone Spread and Contour Simplification) and thus triggers High Tone Lowering on the adjective yóké. Now that yóké has changed to yókè, it cannot affect módóng', though módóng' will be able to affect dúmá.

Obviously simultaneous application of High Tone Lowering will not guarantee the correct results for the above data. Since it invariably fails to derive the correct facts, we will henceforth ignore it as a possible mode of application. Left-to-right iterative application of High Tone Lowering will yield the correct forms. Whether a noun will be able to affect the first adjective in the sequence depends on the shape of the noun after it has undergone High Tone Lowering. If we allow High Tone Lowering to work its way across the phrase in a left-to-right fashion, then in (a) the demonstrative will trigger High Tone Lowering on a noun such as ng'útú?, changing it to ng'útù?. Once this change has been carried out, the rule will then consider whether the adjective yóké is in the right environment. It is not and therefore remains unchanged. Next High Tone Lowering will examine módóng', which does meet the structural description for the rule, and will change to módòng'. Finally, dúmá will be examined. It will not be preceded by a High and will thus escape High Tone Lowering.

But what about the cyclic application of High Tone Lowering? Can it duplicate these results? Notice that in (116a) above High Tone Lowering must operate first on the sequence of demonstrative plus noun. In the cyclic framework, this means that the demonstrative and the noun must constitute the first cycle of the phrase:

[[[[ Demon N ]<sub>1</sub> Adj ]<sub>2</sub> Adj ]<sub>3</sub> Adj ]<sub>4</sub>

While we have not been able to attempt any analysis of Bari syntax, such a constituent structure does not seem very



attractive. Since the phenomenon we have dealt with above can be accounted for simply in terms of linear order, and since a cyclic approach would involve a highly questionable assumption about the constituent structure of noun phrases, we assume that the directional iterative approach is to be preferred so far.

Up until this point we have restricted our attention to the tonal changes that occur within the adjectival phrase. Let us now examine the tonal changes that occur in connection with the adjectival phrase being located at various positions in the sentence.

Consider first what happens when the adjective phrase itself occurs in the post-High environment versus the post-Low environment. Examine the data in (117) below where the adjective phrase follows a H-final verb.

- (117) (a.) Jàdà à tìn ng'útù? dùmà  
'Jada gave (it) to a big person'
- (b.) kòlák à ryák tùr dùmà  
'the thieves robbed the big village'
- (c.) lígòtót à nít gòr dùmà  
'the hunter forged a big spear'

Notice that the H-final verbs in (117) cause the following HH noun ng'útù? to become HL and the following H<sub>1</sub> noun tùr and H<sub>2</sub> noun gòr to become L. In other words, as a result of the application of High Tone Lowering between the verb and the immediately following noun, the noun comes to be L-final. Now notice that the adjective dùmà remains HL in (117a-c): in other words, it escapes High Tone Lowering. The reason that it escapes High Tone Lowering is, apparently, that it is no longer preceded by a H-final noun once High Tone Lowering affects that noun.

Compare the data in (118).

- (118) (a.) Póní 'dùkúndyà kéré dùmà  
'Poni is carrying towards us a big gourd'
- (b.) ng'útù tèténdyà júr dùmà  
'the people are making up the big village'
- (c.) tómé 'bèlégù gór dùmà  
'the elephant broke a big spear'

The verbs in (118) end in a Low and as a result they do not affect the following HH noun kéré or the following H<sub>1</sub> noun júr or the following H<sub>2</sub> noun gór. Since these nouns continue to end in a H tone, they cause the following HL adjective dùmà to become LL.

Of course, a verb that ends in a H may induce High Tone Lowering on a following noun without necessarily changing that noun into a L-final noun. If the noun remains H-final after a H-final verb, then the adjective will continue to be affected. This is documented in (119).

- (119) (a.) nân à ryá píllí ná'dít  
'I found the small knife'
- (b.) nân à ryájù píllí ná'dít  
'I found a small knife'

In (119a) we see that the HHH noun píllí surfaces as HLH when it is in the post-H environment. Since it ends in a H still, it can cause the HL adjective ná'dít to become LL. In (119b) we see that píllí remains HHH after a L-final verb and that it continues to induce High Tone Lowering on the adjective.

At this point let us turn to a consideration of the case where an Adjective Phrase (consisting of a noun plus one or more adjectives) follows another noun in the sentence.

- (120) (a.) Jádà à jákín Póní ng'útù? yóké 'Jada  
brought for Poni a lazy person'

- (b.) Jàdà à jákín Kùlàng' ng'útú? yókè 'Jada brought for Kulang' a lazy person'
- (c.) Jàdà à tìn Póní kéré dùmà 'Jada gave Poni a big gourd'
- (d.) Pòní à tìn Jádà kéré dùmà 'Poni gave Jada a big gourd'

In the examples in (120a-d), the verb word affects the noun that immediately follows it, changing Pòní to Póní (through the application of High Tone Spread and Contour Simplification) and changing Kùlàng' to Kùlàng' (through the application of High Lowering). But in none of these cases is the last tone of the noun affected. Thus we can, for the present, ignore the issue of how High Lowering is applied to a sequence of words that includes the verb (we will return to this later) and instead concentrate just on the question of how the rule is applied to a sequence of noun plus following adjective phrase.

In (a) and (c) we see that when the noun that precedes the adjective phrase ends in a High tone, the following noun is subject to High Lowering. Thus in (a) ng'útú? changes to ng'útù? and in (c) kéré changes to kéré. Notice that the adjective that follows the noun escapes High Lowering, yóké and dùmà remaining unaltered, presumably due to the fact that they are not in the context for High Lowering once the noun that precedes them has undergone High Lowering. In (b) and (d), on the other hand, the noun that precedes the adjective phrase ends in a Low tone and thus cannot affect the noun at the beginning of the adjective phrase. As a result, ng'útú? in (b) and kéré in (d) trigger the application of High Lowering to the following adjective, changing yóké to yókè in (b) and changing dùmà to dùmà in (d).

Let us now consider the issue of the mode of application of High Lowering in these examples. Clearly, a

left-to-right iterative application of the rule will produce the correct results. Such a mode of application means that in a sequence Noun - Noun - Adjective, as in (120) above, High Lowering will apply first to the second noun. Only after that noun undergoes High Lowering will that rule be able to apply to the adjective. Thus if the second noun changes its final tone to Low as a consequence of High Lowering, then the adjective will be prevented from being affected by that rule. If the second noun continues to end in a High after the application of High Lowering, then the adjective will be susceptible to the rule as well.

But what about a cyclic application of a rule. Clearly, such a mode of application runs into a problem here. In (120), the noun that follows the verb is surely one syntactic unit (a Noun Phrase, presumably) and the adjective phrase is another syntactic unit. It is doubtful that these two units themselves form a larger unit; rather they would both appear to be members of the verb phrase. In any case, it is certainly not the case that the two successive nouns in (120) form a syntactic unit of any kind. Thus there is no way that a cyclic application of High Lowering can affect the second noun before affecting the adjective. This would be possible just in the event that the second noun was part of a cycle that excluded the adjective and included just the two nouns. The cyclic mode of application predicts that High Lowering should apply inside the adjective phrase first before applying to the sequence that includes both the first noun and the adjective phrase. But if the adjective phrase is affected first, we will derive such incorrect forms as \*...Póní ng'útù yókè, where the adjective has changed at the cycle of the adjective phrase and where the noun that precedes the adjective has changed on the cycle of the verb phrase.

Now let us take into account the possible affect that a verb might have when it precedes a [NP] [Adj Phrase]

sequence. Consider the data below:

- (121) (a.) *mátàt à tìn kinè ng'útú dùmà*  
'the chief gave the goat to a big person'
- (b.) *bòdò à tèténàkindyà kí'bó pátà dùmà*  
'the craftsman made for the canoe a big  
rope'

We see that in (a) the H-final verb changes a HH noun such as *kiné* to *kinè*; as a result, the head noun of the adjective phrase, *ng'útú*, will escape High Tone Lowering. Since the head noun has escaped High Tone Lowering, it will end in a H tone, and this H tone triggers the lowering of the initial H of *dùmà*. Clearly, this pattern of application fits precisely with the left-to-right, iterative application of High Tone Lowering. On the other hand, in (b), since the verb is L-final, the HH noun *kí'bó* that follows remains H-final. Since *kí'bó* remains H final, the head noun of the adjective phrase *pátà* undergoes High Tone Lowering, changing to HL. Now that *pátà* has become L-final, it cannot affect the adjective *dùmà*. Again, this pattern of application fits precisely the left-to-right iterative mode.

We have looked in detail at cases where a noun precedes an adjective phrase. It is of course possible for the adjective phrase to precede a noun (phrase). Examples appear in (122).

- (122) (a.) *nân à tìn ng'ùrò yóké kéré*  
'I gave the lazy child a gourd'  
(cf. *ng'ùrò, yóké, kéré*)
- (b.) *nân à tìn gwóròkó módòng' kiné*  
'I gave the old haughty man a goat'  
(cf. *gwóròkó, módòng', kiné*)
- (c.) *nân à tìn ng'ùrò dùmà wálé*  
'I gave the big child a knife'  
(cf. *ng'ùrò, dùmà, wálé*)

- (d.) Jàdà à tìn màmá lò'dit kí'bò  
'Jada gave his small uncle a canoe'  
(cf. màmá, lò'dit, kí'bò)
- (e.) Pòní à tìn ng'ùrò yóké tètò  
'I gave the lazy child a mat'  
(cf. ng'ùrò, yóké, tètò)
- (f.) Wàní à tìn ng'útù? módóng' kí'bò  
'Wani gave the old man a canoe'  
(cf. ng'útù?, módóng', kí'bò)

These data show, of course, that the pronunciation of the adjective depends on the pronunciation of the noun that precedes it, which in turn depends on the verb that precedes the noun. Thus in (122f), módóng' remains HH because the noun that precedes it (ng'útù?) has become L-final by virtue of standing after a H-final verb. In (122b), on the other hand, módóng' changes to HL because it stands after a noun (gwórókó) which remains H-final even after it is affected by High Tone Lowering. But these facts we have already seen. What (122) shows is that the pronunciation of a noun following the adjective depends on what shape the adjective exhibits (by virtue of the adjective's position in the sentence). Thus in (122b), where the adjective módóng' has undergone High Tone Lowering, a following noun (kiné) will be in the post-L environment and will remain unaffected. In (122f), however, where the adjective módóng' has not undergone High Tone Lowering (since application of High Tone Lowering to the preceding noun has removed the environment), then a following noun such as kí'bò will undergo High Tone Lowering.

These data show, then, that in a sequence Verb - Noun - Adjective - Noun, the pronunciation of the last noun depends on whether the adjective remains H-final after application of High Tone Lowering, which in turn depends on whether the preceding noun remains H-final after the

application of High Tone Lowering, which depends on whether the verb is H-final. This pattern is, of course, quite consistent with a Left-to-Right iterative application of High Tone Lowering.

Up to this point in this section we have confined our attention to simple (non-derived) adjectives. Turning our attention to derived adjectives, we find that these adjectives are not affected by the post-H environment provided by a preceding noun. The examples in (123) show that the derived adjective using /lo/ and /na/ is pronounced the same whether in post-L or post-H position:

(123) HF derived adjectives

ng'útú? lórôn 'a bad person'  
ng'úrò lórôn 'a bad child'

wáté ná'bút 'good women'  
ng'útú ló'bút 'good people'

wáté násôk 'thin women'  
ng'útú? lósôk 'thin people'

HH derived adjectives

ng'útú? ló'bút 'a good man'  
ng'úrò ná'bút 'a good girl'

kéré lódón 'an unripe gourd'  
kitê nádón 'an unripe tamarind'

wúrí lú'báng' 'a stupid pig'  
ng'úrò ná'báng' 'a stupid child'

bòngó? náké? 'a beautiful dress'  
ng'úrò náké? 'a beautiful child'

kàníń lójó? 'a long hand'  
kiritì lójó? 'a long bamboo'

bòngó? náwín 'a wet cloth'  
àmbàtâ náwín 'wet bread'

HHH derived adjectives

kí'bó lúgáláng' 'a wide canoe'  
 mú'dâ lúgáláng' 'a wide pot'

ng'útú? lóng'útút 'a short man'  
 ng'úrò náng'útút 'a short girl'

lókóré nátúlúr 'round meat'  
 ng'úrúpít lótúlúr 'a round stone'

HHF derived adjectives

bòngó? nányétê 'green-spotted dress'  
 kópò lónyétê 'green-spotted cup'

kíné nákókâ 'leopard-like goat'  
 lópíjòt lókókâ 'leopard-like goat'

kíné námúryê 'gray goat'  
 kópò lómúryê 'gray cup'

HHL derived adjectives

lókóré námúnyàn 'soft meat'  
 ng'úrò lómúnyàn 'weak boy'

kàdìní lóténg'òn 'dry tree'  
 pírit náténg'òn 'dry place'

kídí lógúlù 'deep well'  
 pírit nágúlù 'deep place'

Exemplification with longer adjectives is omitted since the data in (123) above clearly demonstrate that these adjectival forms are exempt from High Tone Lowering in position after a H-final noun.

This behavior on the part of the lò and na derived adjectives is perhaps not too surprising. Recall that these same elements, when they function as demonstratives, do not undergo High Tone Lowering unless they are final in their phrase. If they are followed by another constituent in the same phrase, they remain High even after a High.

In (124) we show the derived adjective modifying a simple adjective. Notice that even when the derived



adjective is preceded by a H-final simple adjective, the derived adjective is unaffected. (The derived adjective is underlined in these examples.)

- (124) (a.) nân tî nyár ng'útù? yóké lú'báng'  
'I do not like a stupid lazy man'
- (b.) nân à tîn Jádà kiténg' módòng' nárwá  
'I gave Jada an old black cow'
- (c.) ng'úrò à tòlìkìn kópò dùmà lóng'ém  
'the child lost a big green cup'
- (d.) nân à tîn Jádà bòngó? dùmà nárwá  
'I gave Jada a big black cloth'

In (a) the derived adjective is preceded by a HH adjective that remains HH (since the noun that precedes it, ng'útù?, has become L-final as a consequence of High Tone Lowering), nevertheless lú'báng' remains unchanged. In (b) the derived adjective is preceded by a HH adjective, módòng', that has become HL through the operation of High Tone Lowering and other rules. nárwá is unaffected by its environment. In (c) lóng'ém is preceded by the HL adjective dùmà, which has maintained its HL shape by virtue of standing after a L-final noun kópò; lóng'ém remains HH. In (d) the derived adjective is preceded again by dùmà, which now has become LL by virtue of standing after the H-final noun bòngó?. nárwá is of course unchanged.

There is, however, another tonal peculiarity to these derived adjectives. Those derived adjectives that end in a High tone do not trigger High Tone Lowering on a following word. For example, a simple adjective following a derived adjective does not undergo any change. We underline the words that fail to be affected by a H-final derived adjective:

- (125) (a.) nân à mét ng'úrò lójó? yóké  
'I saw the tall lazy boy'  
(cf. yóké 'lazy')

- (b.) Jàdà à gwárá kí'bó lótór wáwú  
'Jada bought an empty red canoe'  
(cf. wáwú 'empty')
- (c.) Jàdà yèmbá 'dièt náké? 'bàndè  
'Jada married a beautiful thrifty girl'  
(cf. 'bàndè 'thrifty')
- (d.) Pòní ryájù ng'útú? ló'bút kàndì  
'Poni found a good rich man'  
(cf. kàndì 'rich')
- (e.) Jàdà kò wálé lójó? dùmà  
'Jada has a big long knife'

In (125a,b) we see that a HH (simple) adjective remains HH even though preceded by the H-final derived adjectives lójó? and lótór. In (125c,d) we see that a LL (simple) adjective is not raised to HL by a preceding H-final derived adjective (náké?, ló'bút). In (125e) we see that a HL (simple) adjective remains HL after the H-final lójó?.

A possessive pronoun likewise remains unchanged after a H-final derived adjective:

- (126) (a.) dwát lópír liò 'my fat bull'  
(b.) kí'bó lúgáláng' lónyit 'his wide canoe'  
(c.) dùpà nájó? nányit 'his long cradle'

We see that the HL possessive pronouns liò, lónyit, and nányit remain HL even though preceded by a H-final derived adjective.

The second major type of derived adjective involves the procliticized element pa-. Once again, we find that adjectives of this type are not affected by a preceding H-final word.

(127) LL adjective

- káré pàjò? 'the river is far'  
Júbà pàjò? 'Juba is far'
- kínyó pàtwàr 'the food is bitter'  
wíní pàtwàr 'the medicine is bitter'

LH adjective

kólóng' pàpé 'the sun is hot'  
 pìòng' pàpé 'the water is hot'

kínyó pàtá 'the food is cold'  
 pìòng' pàtá 'the water is cold'

LLH adjective

kúpá pà'dè'dé 'the basket is light'  
 kópò pà'dè'dé 'the cup is light'

kínyó pàlèlèng' 'the food is sweet'  
 mángà pàlèlèng' 'the mangos are sweet'

The data in (127) demonstrate that the pa- adjectives have the same tonal shape regardless of the tone of the preceding noun. The explanation for this behavior is probably syntactic in nature. The pa- adjectives are used predicatively -- they do not form a noun phrase with the preceding noun. Thus the relationship of the noun to the adjective is parallel to the relationship between a subject and its verb. Since the tone of a subject noun phrase does not affect the tone of any verbal elements, it seems that the failure of the noun in (127) to affect a pa- adjective is just the expected case.

The pà- adjectives do not appear in a wide variety of phrasal configurations, thus it is not easy to determine whether they would affect a following word tonally. We can find, for example, adverbs occurring regularly after pà- adjectives. We shall see in Chapter 5 that adverbs do not regularly participate in the phrasal tonal changes that we have been exploring in this chapter. Thus it is not a very telling fact that the derived pà- adjectives do not affect adverbs tonally. Examples follow:

- (128) (a.) pìòng' pàpé àdí tát  
           'the water is very hot'  
           (cf. àdí tát 'very')

- (b.) Júbà pàjò pàrik  
'Juba is very far'  
(cf. pàrik 'very')
- (c.) wúri pà'dè'dé àdí yó  
'the cork is very light'  
(cf. àdí yó 'very')
- (d.) síwátát pàlèléng' àdí lyók  
'the honey is very sweet'  
(cf. àdí lyók 'very')
- (e.) sá pé pàmàní àdí tí  
'the pot is very heavy'  
(cf. àdí tí 'very')
- (f.) tíryè pàbòlònyón àdí bòlònbòlòn  
'the string (from tíryè) is very slimy'  
(cf. àdí bòlònbòlòn 'very')

It seems likely, however, that the pà- adjectives, like the ló- and ná- derived adjectives, neither undergo or trigger the phrasal tonal rules that we have examined in this chapter.

#### 4.1.6. Relative clauses in Bari.

In this section, we will examine the structure of noun phrases that consist of a noun plus modifying relative clause.

In one relative clause construction in Bari, the head noun is linked to a modifying relative clause by the relative markers ló and ná (masculine and feminine, respectively). This same relative marker also appears at the end of the relative construction. (The reader will have noted, of course, that ló and ná also function as demonstrative pronouns, associative particles, etc.)

Examples:

- (129) búk ná tín nà Jàdà ná...  
book-rel-gave-I-Jada-rel  
'the book which I gave Jada...'

wálé ló 'dép Póní lò...  
'the knife which Poni held...'

ng'útú? ló 'débbá wálè ló...  
person-rel-held-knife-rel  
'the person who held the knife...'

bòdò ló 'búyúddyâ wálé lò...  
craftsman-rel-sharpened-knife-rel  
'the craftsman who sharpened the knife...'

Notice in (129) that the head noun (NP<sub>i</sub>) can be functioning either as the object of the relative verb (in which case the subject of relative verb is postposed after the verb) or as the subject of the relative verb (in which case there is no subject noun phrase between the relative marker and the verb and the object noun phrase is located post-verbally). Notice that the definite form of the verb is used when the head refers to the object of the relative clause, while the indefinite form of the verb is used when the head refers to the subject of the relative clause.

There is a second relative construction where the relative marker gwôn is used after ló or ná. This construction is illustrated in (130):

- (130) (a.) búk ná gwôn nân à tìn Jádà ná...  
'the book which I gave Jada...'
- (b.) wálé ló gwôn Kúlàng' à 'búyút lò...  
'the knife which Kulang sharpened...'
- (c.) ng'útú? ná gwôn à 'débbá wálè ná...  
'the woman who held the knife...'
- (d.) ng'úrò ná gwôn sàpúggà kiti ná,,,  
'the girl who overturned the chair...'

Notice that in this construction, when the head refers to the object of the relative verb, the subject of the relative verb is not postposed after the verb. Again, we see that when the head is identical to the subject of the

relative verb, the indefinite form of the verb is used, whereas when the head is identical to the object of the relative verb, the definite form of the verb is used.

To simplify subsequent discussion, we will represent these two constructions schematically as follows: NP<sub>i</sub> rel<sub>i</sub> V ... rel<sub>j</sub> and NP<sub>i</sub> rel<sub>i</sub> gwôn NP<sub>j</sub> VP....rel<sub>j</sub>.

In this section we will examine (a) whether the relative markers at the beginning and the end of the relative clause are subject to High Tone Lowering; (b) whether the relative marker between the head noun and the relative clause is able to trigger High Tone Lowering or High Tone Spread; (c) whether the relative marker at the end of the relative clause is able to trigger High Tone Lowering or High Tone Spread on a following word; (d) whether there are any requirements on how High Tone Lowering is applied vis à vis the relative construction.

The first point to notice is that the rel<sub>i</sub> remains H no matter what the final tone of NP<sub>i</sub> may be, even if it is a H. This is documented in (131) below:

- (131) wálé ló 'dép Pòní lò...  
'the knife that Poni held...'  
  
ng'útú? ló 'dèbbá wálè ló...  
'the person who held the knife...'  
  
bòdò ló 'búyùddyâ wálé lò...  
'the craftsman who sharpened the knife...'  
  
ng'útú? ná gwôn 'dèbbá wálè ná...  
'the person who (fem.) held the knife...'  
  
kééré ló gwôn Pòní à dók lò...  
'the gourd which Poni fetched...'

In (131) we see that the relative marker between the head noun and the relative clause is uniformly High-toned, regardless of whether the head noun ends in a H tone or a L tone.

The retention of a H on the ló and ná in this environment is perhaps not unexpected. Recall that the demonstrative pronouns ló and ná also remained High when they were after a H but followed by the noun that they modified. The rel<sub>j</sub> constituent in (131) is clearly in a post-H environment but followed by the element to which it is grammatically linked; thus if the relative markers and the demonstrative pronouns ló and ná are tonologically identical, we predict that they will not undergo High Tone Lowering in (131). Of course, it must be admitted that the associative ló and ná do undergo High Tone Lowering when the head of the associative construction is H-final.

The rel<sub>j</sub> constituent on the other hand is subject to High Tone Lowering. This fact is demonstrated amply in (132), where we see that rel<sub>j</sub> is H after a word that ends in a L and L after a word that ends in a H. Clearly, the fate of ló and ná in final position in the relative clause is governed by High Tone Lowering.

(132) rel<sub>j</sub> after a Low-final word

- (a.) ng'útú? ló tindyâ Jàdà bùk ló à 'dórò kâk  
'the person who gave Jada a book fell down'
- (b.) bùk ná tíki Jàdà ná à 'dórò kâk  
'the book which was given to Jada fell'
- (c.) ng'útú? ló 'dóggú tэрò ló...  
'the person who carried the papyrus mat...'
- (d.) ng'útú? ná gwôn à 'débbá wálè ná...  
'the woman who held the knife...'
- (e.) kítì ná gwôn Jàdà à sàpùk ná...  
'the chair which Jada overturned...'

rel<sub>i</sub> after a High-final word

- (f.) ng'útú? ló 'dóggú Póní lò...  
'the person who carried Poni...'
- (g.) ng'útú? ló tìn Jàdà pílílí lò...  
'the person who gave Jada the small  
knife...'
- (h.) ng'úrò ná dóggâ kéré nà à líkín  
'the girl who fetched the gourd got lost'
- (i.) ng'úrò ná gwôn dòggâ kéré nà...  
'the girl who fetched the gourd...'
- (j.) bòdò ló gwôn à 'búyúddyâ wálé lò...  
'the craftsman who sharpened the knife...'
- (k.) wálé ló gwôn Póní à 'dép lò...  
'the knife which Poni held...'
- (l.) wálé ló gwôn Kúlàng' à 'búyút lò...  
'the knife which Kulang sharpened...'

We turn now to the question of whether the rel<sub>i</sub> marker is able to trigger either High Tone Lowering or High Tone Spread on a following relative verb. (We are concerned here, of course, just with the construction lacking the relative marker gwôn, i.e. with the construction where the relative verb immediately follows rel<sub>i</sub>.)

There is evidence that rel<sub>i</sub> triggers High Tone Spread, as the following data attest:

(133) LF verb changes to HF

- (a.) ng'úrò ná dóggâ kéré nà...  
'the girl who fetched the gourd...'  
(cf. dòggâ, indefinite form of dók  
'fetch')
- (b.) kitì ná sàpûk jàdà ná...  
'the chair that Jada overturned...'  
(cf. sàpûk 'overturn')



LH verb changes to HH

- (c.) kítì ná dókún Wání nà...  
 'the chair which Wani fetched from  
 here...'  
 (cf. dókún, dir. toward form of dók)

LHL verb changes to HHL

- (d.) kópò ló dókákin Pòní Jádà ló...  
 'the cup which Poni fetched for Jada...'  
 (cf. dókákin, benef. form of dók)
- (e.) ng'útú? ló dókúndyà kítì ló à ló'dit  
 'the person who came to take the chair  
 is small' (cf. dókúndyà, indef. direction  
 toward form of dók)
- (f.) kítì ná mókàrà Pòní nà...  
 'the chair that Poni held that way...'  
 (cf. mókàrà?, dir. away form of mók, a LHL  
 verb root)
- (g.) ng'útú? ló mókáddù kítì ló...  
 'the person who held the chair away...'  
 (cf. mókáddù, indef. dir. away form of  
 mók)

LHLL verb changes to HLLL

- (h.) ng'útú? ná dókákindyà Jádà kópò ná...  
 'the woman who fetched the cup for  
 Jada.. (cf. dók-á-kin-dy-à, indef.  
 benefactive form of dók 'fetch')
- (i.) kítì ná sápúkàkin Kùlàng' kák nà...  
 'the chair which Kulang overturned on the  
 ground...'
- (j.) ng'útú? ló sápúkúndyà kítì ló...  
 'the man who overturned the chair this  
 way...' (cf. sápúkúndyà, indef. form of  
 direction toward form of sápúk)
- (k.) kítì ná sápúkàrà? Wání nà...  
 'the chair that Wani overturned that  
 way...' (cf. sápúkàrà?, dir. away. form of  
 sápúk)

- (l.) ng'útú? ló sápúkàddù kiti ló...  
'the person who overturned the chair  
away...' (cf. sápúkàddù, indef. dir. away  
form of sápúk)

LHLLL verb changes to HLLLL

- (m.) ng'útú? ná sápúkàkindyà kiti kák nà...  
'the woman who knocked the chair to the  
ground' (cf. sápúk-à-kin-dy-à, indef.  
benefactive form of sápúk 'overturn')

In each of these examples, the initial Low of a verb form is replaced by a High. We attribute this change to the effects of High Tone Spread and Contour Simplification.

There is also evidence that rel<sub>i</sub> triggers High Tone Lowering, as the following data suggest:

(134) HHF verb changes to HLF

- (a.) bòdò ló 'búyùddyâ wálé lò...  
'the craftsman who sharpened the knife...'  
(cf. 'búyúd-dy-â, indef. of 'búyút)
- (b.) ng'útú? ná 'dúkúndyâ kéré nà...  
'the woman who carried the gourd this  
way...' (cf. 'dúkúndyâ, indef. direction  
toward form of 'dók)
- (c.) kiti ná 'dókòrò? Jàdà ná...  
'the chair which Jada carried away...'  
(cf. 'dókòrò?, dir. away. form of 'dók)
- (d.) ng'útú? ló 'dókòddù kiti ló...  
'the man who carried the chair away...'  
(cf. 'dókòddù, indef. dir. away form of  
'dók)

HHH verb changes to HLH

- (e.) kéré ló 'dépàkín Póní Jàdà ló...  
'the gourd which Poni held for Jada...'  
(cf. 'dép-à-kin, benefactive form of 'dép  
'hold')

- (f.) wálé ló 'búyútún Jádà ló...  
'the knife which Jada sharpened this way...'  
(cf. 'búyútún, dir. toward form of 'búyút)

HHHH verb changes to HLLH

- (g.) ng'útú? ná 'búyütákin Kùlàng' wálé nà ...  
'the woman for whom Kulang sharpened the knife...'  
(cf. 'búyüt-á-kin, benefactive form of 'búyüt 'sharpen')

HHHF verb changes to HLLF

- (h.) ng'útú? ló 'búyütúndyâ wálé lò...  
'the person who sharpened the knife this way...'  
(cf. 'búyüt-ún-dy-â, indef. dir. away form of 'búyüt)
- (i.) ng'útú? ná 'dépàkindyâ Jádà kéré nà...  
'the person who (fem.) held the gourd for Jada...'  
(cf. 'dépàkindyâ, indef. ben. of 'dép)
- (j.) wálé ló 'búyütàrà Jádà ló...  
'the knife which Jada sharpened that way...'  
(cf. 'búyütàrà?, dir. away form of 'búyüt)
- (k.) ng'útú? ló 'búyütáddû wálé lò...  
'the person who sharpened the knife that way...'  
(cf. 'búyütáddû, indef. dir. away form of 'búyüt)

HHHFF verb changes to HLLLF

- (l.) ng'útú? ló 'búyütákindyâ Pòní wálè ló...  
'the person who sharpened the knife for Poni...'

In these data we see that verbs of the shape HHF, HHH, HHHH, HHHF, and HHHHF change to HLF, HLH, HLLH, and HLLLF respectively. These are, of course, just the expected changes if the verbs in question are subject to the usual rules triggered by a preceding High tone. (We take up in Chapter 5 the matter of the application of High Tone Lowering etc. to verbs.)

We have seen above that verbs with the shape HHH... do show the effects of High Tone Lowering. Verbs with the shape HH regularly appear as HH after the relative marker, though a HL pronunciation may be used as well under circumstances that we do not understand at present.

We cite examples in (135) showing the retention of a HH pattern after the relative marker. It should be noted that there are two separate cases illustrated here: (a) verbs that are HH in their isolation form (e.g. 'búyút, 'dépún) and (b) verbs that are HL in their isolation form, but regularly become HH in sentence-medial position (indefinites only: 'dóggù, 'débbà).

- (135) (a.) ng'útú? ló 'dóggù kí'bò ló...  
'the man who carried the boat...'
- (b.) ng'útú? ló 'débbá wálè ló...  
'the man who held the knife...'
- (c.) kéré ló 'dépún Jádà ló...  
'the gourd that Jada carried this way...'
- (d.) kéré ló 'dúkún Póní ló...  
'the gourd which Poni carried this way...'
- (e.) wálé ló 'búyút Jádà ló...  
'the knife which Jada sharpened...'

Notice that these verbs clearly end in a High tone since they induce High Tone Lowering on a following noun (cf. (135a) and (135b) where the nouns kí'bò and wálé are both changed to HL) and also spread their High tone onto a following Low-toned syllable (cf. (135c-e) where Jádà is raised to HL and Póní is raised to HH).

Monosyllabic verbs, whether underlyingly High or underlyingly LHL, remain H in position after the relative marker. We illustrate the underlyingly High verbs in (136).

- (136) (a.) ng'úrò ló ryá Jádà ló...  
'the child who Jada found...'  
(cf. ryá, a H verb)

- (b.) sùkùrì ló dér Póní lò...  
'the chicken which Poni cooked...'  
(cf. dér, a H verb)
- (c.) 'bólót ló nyá kìnè kúlò...  
'the grain which the goat ate...'  
(cf. nyá, a H verb)
- (d.) búk ná tín nà Jàdà ná...  
'the book which I gave Jada...'  
(cf. tín, a H verb)

(Notice that in (136c) the head of the relative clause is plural; the relative marker that follows the head reflects just the gender of the head, not the number; on the other hand, the relative marker at the end of the relative clause reflects both the gender and the number: kúlò in (136c) is both masculine and plural. It is what we called the position 1 demonstratives that appear as the relative markers.)

In (136) we see that the underlyingly High monosyllabic verb roots remain High after the relative marker. They not only are pronounced High, they also behave as though they end in a High tone. This is reflected in the fact that (a) they trigger High Tone Spread and (b) they trigger High Tone Lowering. That they trigger High Tone Spread is reflected in (136a-b) where the nouns Jàdà and Póní are changed to Jàdà and Póní through the application of High Tone Spread (followed by Contour Simplification). The fact that the monosyllabic verbs in (136) trigger High Tone Lowering is shown in (136c) by the fact that kíné changes to kìnè and in (137d) by the fact that nàn changes to nàn.

We illustrate underlying LHL monosyllabic verb roots in (137).

- (137) (a.) kìné ná mōk Jàdà ná...  
'the goat which Jada caught...'
- (b.) ng'úrò ná mêt Jàdà ná...  
'the child (fem.) who Jada saw...'

- (c.) kitì ná dôk Wàní nà...  
'the chair which Wani fetched...'
- (d.) ng'úrò ló bâ? Kúlàng' ló...  
'the child who Kulang reprimanded...'
- (e.) pírít ná kûr Póní nà...  
'the place which Poni dug...'

These examples show that a monosyllabic LHL verb, which surfaces in isolation as H, adopts a Falling tone after *rel*<sub>i</sub>. The interpretation of these data is not entirely clear. It would appear that, somehow, this shift of a LHL monosyllable to Fall is the effect either of High Tone Spread or of High Tone Lowering (since these are the rules that *rel*<sub>i</sub> triggers on the verb elsewhere). If it is the rule of High Tone Lowering that is at work, we would have to assume that the surface H of an underlying LHL verb root is able to change to L after *rel*<sub>i</sub> and that *rel*<sub>i</sub> is then able to spread its H onto the verb root, forming a HL sequence. In order for this approach to work, we would have to assume that the initial L of the LHL root melody does not remain in the tonal tier after Rising Tone Simplification (otherwise that L would prevent the H associated with the root from undergoing High Tone Lowering).

At this point, let us turn to the question of whether *rel*<sub>j</sub> is able to trigger changes on a following word. A relative clause may function as the subject of the sentence. When it does so, it may occur before different types of elements. For example, it may occur before various verbal particles that occur in position before the main verb. These verbal particles are discussed in detail in Chapter 5. We will show there that they are noteworthy in that they do not change their tonal shape; thus it is not surprising that they do not change after *rel*<sub>j</sub>. Some examples are given in (138). We have underlined the

invariant item that follows rel<sub>j</sub>.

- (138) (a.) ng'útú? ló dóggi kéré yáwà ló à pó  
'the person who used the gourd to fetch  
beer has come' (cf. dóggi, yáwà -- both of  
which have been affected by preceding High  
tones)
- (b.) kéré ló dókári yáwà ló à lút  
'the gourd that is used for fetching beer  
is dirty' (cf. dókári)
- (c.) ng'útú? ló gá'yú kitá ló mó yíyítwè?  
'the person who was looking for a job will  
return'
- (d.) ng'úrò ló bíryé pàrik lò kó 'dó'dòrò  
témési 'the child who plays too much will  
fail exams'
- (e.) ng'útú? ló tù Jùbà ló tì kó yitwè?  
'the person who goes to Juba will not  
return'

The subject relative clause may also occur in front of one of the pa- adjectives described in the section above. Since the pa- adjectives do not vary their tonal shape, it is not surprising that rel<sub>j</sub> does not affect them, as shown in (139):

- (139) (a.) kítì ná 'dúkún Jádà ná pámàní?  
'the chair that Jada carried this way is  
heavy'
- (b.) bòngó? ná gwárún Jádà ná pàrèrè?  
'the cloth that Jada bought is transparent'

When the relative clause is functioning as the subject of the sentence, it may also appear immediately in front of a verb in the past tense (without the usual past tense particle à intervening). When it does so, we have tonal complications. Consider the data in (140) for monosyllabic verb roots. (It should be remarked that this is not a sort of construction that is freely employed; the fully productive pattern is for the verb to be preceded by the

particle à in the past tense.)

- (140) (a.) ng'útú? ná twân kájè ná tò? mógún kò pátá  
'the woman who died yesterday strangled  
herself with a rope' (tò?, a H verb)
- (b.) kòlánit ló mókâ kájè ló rém bólisitát kò  
wálé 'the thief who was caught yesterday  
stabbed the policeman with a knife'  
(rém, a H verb)
- (c.) ng'útú? ló báng'ájí kánín lò rém mógún kò  
wálé 'the person who hurt his hand  
pierced it with a knife'
- (d.) lígòtót ló jónyâ gùrè ló mók kò kányirèt  
'the hunter who brought the dove caught it  
with a trap made of the tail of a giraffe'  
(mók, a LHL verb)
- (e.) ng'útú? ló pò kájè ló mét tórè? à dárà  
'the man who came yesterday saw his son in  
bad shape'
- (f.) ng'útú? ló pò ní lò mét tórè? à dárà  
'the person who came here saw his son in  
bad shape'

The data in (140) show that H monosyllabic verb roots change to L when they stand after rel<sub>j</sub>, but it does not matter whether rel<sub>j</sub> is itself H or L. Thus in (140a-b), rel<sub>j</sub> is H, but in (140c) rel<sub>j</sub> is L. Thus we do not appear to be dealing with a change that is directly linked to the tone of the relative marker. Notice that since the H verb has become L, it does not affect the tone of the following word (thus in (140a) for example mógún remains HH). The LHL verbs, on the other hand, remain H in (140), regardless of whether rel<sub>j</sub> is H or L. And since they are H, they affect a following word -- for example, tórè? changes to tórè?.

In (141) we provide examples of verbs of various tonal structures in position immediately after rel<sub>j</sub>.



(140) HL verb shape changes to LH (recall that these HL verbs are indefinite and change to HH in sentence-medial position):

- (a.) ng'útú? ná twân kájè ná tò'yú mágùn kò pátá  
'the woman who died yesterday strangled herself with a rope' (cf. tó'yú, indef. form of tó?, a H verb root)
- (b.) ng'útú? ná gwôn gà'yú Wání ná 'dòggù kéré  
'the woman who was looking for Wani was carrying a gourd' (cf. 'dòggù, indef. form of 'dók, a H verb root)
- (c.) ng'útú? ná mèt Jàdà ná dèrjá sùkùrì  
'the person who Jada saw was cooking chicken' (cf. dèrjá, indef. form of dér, a H verb)

HH verb shape: changes to LH

- (d.) bòdò ló tétédyà ló 'bùyút gùlì kò wálé  
'the craftsman who made it sharpened the whistle with a knife' (cf. 'bùyút 'sharpen'; also note: tétédyà, gùlì)

HHH verb shape changes to LHL

- (e.) ng'útú? ló dèrjá sùkùrì ló dèràkin mágùn  
'the person who cooked the chicken cooked it for himself'

HHHH verb shape: changes to LLLL

- (f.) bòdò ló 'bùyùddyà gùlì lò 'bùyútàkin mágùn  
'the craftsman who sharpened the whistle sharpened it for himself' (cf. 'bùyútàkin, benefactive form of 'bùyút)

LF verb shape remains the same

- (g.) ng'ùrò ná pò ná sàpùk kítì kájè  
'the child who came overturned the chair yesterday'

LH verb shape remains the same

- (h.) ng'útú? ná líkin ná mòkún ng'ùrò kò kànin  
'the woman who got lost held the child this way by her hand'

LHH verb shape remains the same

- (i.) kítì ná ryê ná sápúká kò kòlánit  
'the chair that was found was overturned by  
a thief'

LHLL verb shape remains the same

- (j.) kí'bó ló ryê ló kámárikín ng'útú  
'the canoe that was found was used for  
taking people across the river'

LHLH verb shape remains the same

- (k.) 'bólòt ló gwàrè kúlò dilíliyá kájè  
'the grain that was bought was winnowed  
yesterday'

Examination of this set of changes makes it clear that the rel<sub>j</sub> element is not triggering the usual changes of High Tone Spread and High Tone Lowering. Something else, much more radical is going on. In fact, what appears to be happening is that the main verb (of which the relative clause is the subject) is undergoing a shift to a LHL root melody.

Notice, first, in (140) none of the verbal forms based on a LHL root melody undergoes any tonal change after rel<sub>j</sub>. On the other hand, HHH and HHHH roots clearly shift to a LHL melody. It is only the HH and HL (which actually change to HH in sentence-medial position and thus should be regarded in the present context as HH) that do not clearly reflect a LHL melody. But even they are not really far off. Recall that a LHL melody will surface as LH in cases such as ng'i-kin and mòk-un, where the final L is prevented from undergoing Free Tone Association. The data in (140a-d) thus just appear to be cases where the L at the end of the LHL melody is prevented from undergoing Free Tone Association.

It is only the monosyllabic verb roots displayed in (140) which cannot be seen as a shift to a LHL

melody. Recall that the H roots change to L, whereas the LHL roots remain H. At the moment, we have no particular insight into this behavior pattern.

It appears that this shift of a H melody to a LHL melody (noted in (141)) may have something to do with the absence of the à past tense particle after the subject relative clause. A clearly related change also occurs inside the relative clause when gwôn is employed.

When the head of the relative clause is identical to the subject of the relative verb, gwôn appears immediately in front of the relative verb. In (142) below we show what happens to verbs of various tonal shapes in this context. (Recall that when the head of the relative is identical to the subject of the relative verb, that verb appears in the indefinite form. This limits the possible tonal shapes that we can illustrate.)

(142) HL verb changes to LH

- (a.) ng'útú? ná gwôn 'dèbbá wálè ná...  
'the person who (fem.) held the knife'  
(cf. 'dèbbà, indef. form of 'dép, a H  
monosyllabic verb root)

HHF verb changes to LHL

- (b.) bòdò ló gwôn 'bùyúddyà wálé lò...  
'the craftsman who sharpened the knife...'  
(cf. 'bùyúddyâ, indef. form of 'bùyút)

LHL verbs do not change

- (c.) ng'úrò ná gwôn dòggâ kéré ná...  
'the girl who fetched the gourd...'  
(d.) ng'úrò ná gwôn sàpúggâ kiti ná...  
'the girl who overturned the chair...'

The changes, as well as the lack of change, in (142) are clearly identical to the changes noted in (141) and thus do not require comment.

It should be emphasized that these changes in the relative verb do not take place when the head of the relative clause is not identical to the subject of the relative verb (and therefore the relative verb is not immediately preceded by gwôn, but instead appears in its usual environment). These changes also do not occur in cases where the head of the relative clause is identical to the subject of the relative verb, but the past tense particle is employed between gwôn and the relative verb.

(143) High verb does not change

- (a.) wálé ló gwôn Pòní à 'dép lò...  
'the knife which Poni held...'
- (b.) kéré ló gwôn Pòní à dók lò...  
'the gourd which Poni fetched...'
- (c.) ng'úrò ná gwôn à dók kéré ná...  
'the girl who fetched the gourd...'

HH verbs do not change

- (b.) wálé ló gwôn Kùlàng' à 'búyút lò...  
'the knife which Kulang sharpened...'

HL verbs do not change (other than the usual change of HL indefinites to HH in sentence-medial position)

- (c.) ng'útú? ná gwôn à 'débbá wálè ná...  
'the woman who held the knife...'

HHF verbs do not change

- (d.) bòdò ló gwôn à 'búyúddyâ wálé lò...  
'the craftsman who sharpened the knife...'

LF verbs do not change

- (e.) kítì ná gwôn Jàdà à sàpùk ná...  
'the chair which Jada overturned...'
- (f.) ng'úrò ná gwôn à sàpùk kítì ná...  
'the girl who overturned the chair...'
- (g.) ng'úrò ná gwôn à dòggâ kéré nà...  
'the girl who fetched the gourd...'

LHL verbs do not change

- (h.) ng'útù? ló gwôn à sàpúggà kiti ló...  
'the person who overturned the chair...'

At this point let us return to the issue of whether *relj* can trigger the rules of High Tone Lowering and High Tone Spread on a following word. So far we have shown that when the relative clause is in subject position, *relj* has no effect on a following verbal particle or a following *pa*-adjective. This is to be expected, however, since these elements are generally tonally invariant. We have also seen when *relj* stands immediately in front of the main verb, that verb may be tonally affected; but the changes that the verb undergoes are not connected to the rules of High Tone Lowering and High Tone Spread -- rather we seem to have a shift in the root melody of the main verb.

A relative clause may also function as the object of the verb. When it does so, it may occur at the end of a sentence. In that situation, of course, there is no word following *relj* for it to affect. But the relative clause may also precede another noun phrase. Thus we can examine such situations to see whether *relj* affects a following noun phrase. Examples appear in (144).

- (144) (a.) mātāt à tìn ng'útù? ló pō ló kí'bò  
'the chief gave the man who came a canoe'
- (b.) Jàdà à tìn ng'útù? ló gilà ló bóngó?  
'Jada gave the person who is sick a cloth'
- (c.) Pòní à tìn ng'útù? ló gá? Jàdà ló pílilí  
'Poni gave the person who Jada is looking for a knife'
- (d.) nân à tìn kámùtát ló dárà ló téré  
'I gave the exhausted visitor a mat'

(e.) Jàdà à tìn ng'útù? ló 'dèngú pílílí lò kéré  
'Jada gave the person who broke the small  
knife a gourd'

(f.) nân à tìn Jádà ló kúrjû pàrik lò dúlùr  
'I gave Jada, who dug a great deal, castor  
oil seeds'

These data show very clearly that (a) rel<sub>j</sub> affects a following noun and (b) it is the form of rel<sub>j</sub> after it has been affected by a preceding word that determines whether the noun is changed. Thus in (144a) and (144c) we see that a High rel<sub>j</sub> is able to trigger High Tone Lowering on the following noun; in (144b) and (144d) we see that a H rel<sub>j</sub> is able to spread its High onto a following noun. In (144e) and (144f) we see that a Low rel<sub>j</sub> is not able to affect either a following HH noun or a HL noun. In other words, whether High Tone Lowering affects the noun after rel<sub>j</sub> depends on the shape of rel<sub>j</sub>, which in turn depends on the shape of the word preceding it, which in turn... We see then not only that rel<sub>j</sub> is able to trigger High Tone Lowering and High Tone Spread, but also that High Tone Lowering must apply in a right-to-left iterative fashion across the sentence.

At this point let us move away from the isolated behavior of the relative particles and consider more generally the operation of the phrasal tonal rules across the relative clause.

We have seen that the shape of rel<sub>j</sub> appears to depend on the tonal shape of the word that precedes the rel<sub>j</sub> constituent (and that the shape of rel<sub>j</sub> will in turn determine the shape of a following noun). Let us now examine whether the word preceding rel<sub>j</sub> will continue to lower rel<sub>j</sub> even if itself should undergo lowering. Consider the examples in (145):

(145) (a.) bòdò ló 'búyùddyâ wálé lò...  
'the craftsman who sharpened the knife...'

- (b.) ng'útú? ló 'débbá wálè ló...  
'the person who held the knife...'
- (c.) ng'útú ló 'dóggú kí'bò ló...  
'the person who carried the canoe...'

In (145a), the noun wálé remains HH after a L-final verb. Since wálé ends in a H, it triggers High Tone Lowering on the rel; constituent. In (145b), however, the noun wálé changes to wálè after a H-final verb; having changed to wálè, the noun no longer affects the H-toned rel; constituent. What (145a-b) shows is that the relative verb must first impose High Tone Lowering on a following noun before that noun can impose High Tone Lowering on the rel; constituent. This mode of application is quite consistent with the view that High Tone Lowering is a left-to-right directionally iterative rule that starts at the leftmost edge of the sentence, working its way across the sentence, applying whenever the conditions for the rule are met.

This mode of application is further substantiated when we consider examples such as (145c) where we see that the H-final verb causes the HH noun kí'bó to become HL, and as a result the relative marker following kí'bó does not undergo High Tone Lowering.

In the preceding examples, the tone of the noun that immediately precedes rel; is determined by a preceding verb. In the following example it is a preceding noun:

- (146) ng'útú? ló 'dépàkin Póní kéré ló...  
'the person who held a gourd for Poni...'

In (146) we see that the H-final noun Póní (which changes to Póní due to the preceding H-final verb) causes kéré to become HL. Since kéré has become HL, it does not affect ló. This example shows that High Tone Lowering must operate between Póní and kéré before operating between kéré and ló.

If in (146) above we place an underlyingly HH noun in place of Pòní, we will be able to show that High Tone Lowering must operate between the relative verb and a following noun phrase before operating between the two noun phrases. For example, in

- (147) ng'útú? ló 'dépàkin kinè kéré lò...  
'the person who held a gourd for the goat...'

we see that the H-final verb form 'dépàkin causes kinè to change to HL, which means that kinè no longer has the appropriate shape for changing kéré, and since kéré thus remains HH, it will cause lò to lower.

That the shape of rel<sub>j</sub> depends ultimately on the relative verb can be seen clearly in (148):

- (148) (a.) kiné ná 'dúkún ng'útù? ná...  
'the goat which the person carried...'  
(b.) kiné ná 'dúkùn ng'útú? nà...  
'the goat which the person carried...'

Recall that a HH verb such as 'dúkún may appear in one of two forms after rel<sub>j</sub>, either HH or HL. In (148a), the HH form is used. Since the verb is H-final, the following noun ng'útú? changes to HL. And since ng'útú? is now HL, it cannot affect rel<sub>j</sub>. In (148b), on the other hand, the HL form of the verb is used. Since the verb is L-final, it cannot affect ng'útú?. And since ng'útú? is H-final, it will trigger High Tone Lowering on rel<sub>j</sub>.

The discussion of relative clauses in the present section is doubtless incomplete. But the data that we have presented here provides strong confirmation for the claim that the rule of High Tone Lowering operates in a left-to-right iterative fashion across the sentence.



#### 4.2.0. Prepositional phrases.

We will examine in this section each of the simple prepositions in Bari, studying (a) the tonal structure of the prepositional phrase and (b) the tonal patterning of that phrase in the sentential context.

Most of the prepositions are tonologically inert-- i.e. they have no tonal affect on the elements that they combine with, and they themselves are unaffected by their tonological environment. We will survey these prepositions in section 4.2.1.

##### 4.2.1.. Tonologically inert prepositions.

###### 4.2.1.1. The preposition /kò/.

Bari makes use of a prepositional element kò that can be glossed in a variety of ways: 'with', 'together', 'for', 'by', 'on behalf of', 'by means of'. kò displays some phonological variation and may appear also as kò, kù, and kù. The details of this variation will not be pursued here.

Some examples of the use of kò:

- (149) (a.) kàdīnī à tókò kò túlú 'the tree was cut  
with an axe'  
(b.) Kúlàng' à tók kò túlú 'Kulang cut it with  
an axe'  
(c.) Jàdà gwòn kù yàng' à 'Jada suffers from  
longing'  
(d.) lòpéng' jámú kò nân 'he is talking with  
me'  
(e.) Póní kò Jàdà à lyáng' án 'Poni and Jada are  
happy'  
(f.) Jàdà à dók plòng' kò kéré 'Jada fetched the  
water by (making use of) a gourd'  
(g.) kéré à gwáláká kò ng'úrò 'the gourd was  
broken by the child'  
(h.) dó kò ng'èrót nân kò bót  
'you in the front and I in the back'  
(i.) Jàdà kò múkák  
'Jada is in the back'

Notice that kò is invariably Low-toned. It remains Low-toned no matter what the tone of the preceding word may

be. In particular, a preceding H-final verb -- as in (149b,d,g), and a preceding H-final noun -- as in (149e), have no affect on kò. kò does not appear to accept the spreading of a H onto it. Since kò is basically Low-toned, it naturally has no affect on a following word.

There are some compound prepositions formed with kò: tèng'kò 'until', tòjò kò 'up to', tèmbà kò 'up to, until'. Some examples:

- (150) (a.) yî? à 'dúkún tèng' kò júr 'we carried the  
man up to the village'  
(b.) Jàdà à tók tèng' kò ng'èrót 'Jada cut it  
until the front'  
(c.) nân à júp bóngó? tèng' kò múkák 'I dressed  
the cloth up to my waist'  
(d.) yî? à tû tèng' kò kidèn násè 'we went up to  
their middle'  
(e.) yî? à gá? tèng' kò bót 'we looked for it as  
far as the back'  
(f.) ng'útû à tû tèng' kò méré 'the people went  
up to the mountain'  
(g.) nân à gálún tòjò kò médé 'I looked for it  
this way up to the house'  
(h.) Póní à rúm tòjò kò ng'èrót 'Poni hurried up  
to the front'  
(i.) Jàdà à dótò tòjò kò kidèn ná lór 'Jada  
slept until the middle of the day'  
(j.) yî? dè gágá? tèmbà kò ryé? nányit 'we will  
look for it until it is found'  
(k.) yî? dè wáwát kárè tèmbà kò kidèn 'we will  
wade in the river up until the middle'  
(l.) ng'útû à kúr mélèsèn tèmbà kò kidèn 'the  
people dug the garden up until the middle'

kò also participates in the set expressions kò kwé nà 'because of' and kò kùlyá tì 'because of'. These expressions seem to involve the preposition kò followed by the noun kwé 'head' followed by an associative particle.

- (151) (a.) ng'útù à jàrán kò kwé nà kùdú 'the people  
did not come because of the rain'
- (b.) ng'útù à jàrán kò kwé nà kàré 'the people  
did not come because of the river' (cf.  
kàré 'river')
- (c.) júr kàtà kò mágòr dùmà kò kùlyá tí kòlóng'  
'the country is hungry because of the  
drought' (cf. kòlóng' 'sun, drought')

It is clear that the /na/ and the /ti/ in these examples is the associative particle: even though these elements appear Low-toned in kò kwé nà and kò kùlyá tí, the following word still manifests the usual changes caused by the associative particle.

kò may be combined with an associative particle (lò, ná, and tí) in the expressions lò kò, ná kò, and tí kò. The use of these expressions is limited to examples such as those in (152) below:

- (152) (a.) ng'útù tí kò Gádúm  
'Gadum's people'
- (b.) ng'útú? nà kò Yòkwé  
'Yokwe's woman'
- (c.) ng'útú? lò kò mátàt Jàdà  
'Chief Jada's man'

These examples illustrate that the noun that precedes the associative particle may trigger High Tone Lowering on it -- cf. (152a) where the associative is High versus (152b and c) where it is Low due to the preceding H-final noun. It is also apparent that the associative particle has no tonal influence on the preposition kò, and that kò has no influence on a following word.

It is also possible for kò to precede the associative particles lò and ná, but this is a highly idiomatic construction. We illustrate in (153).

(153) (a.) *yí kùlò gwógwòjà kò ná Bàrì*  
 'we are dancing according to the Bari  
 tradition'

(b.) *yí kùlò jámbú kò ná gwèà ná Bàrì*  
 'we are talking in the manner of the Bari'

In none of the uses sketched above does *kò* either undergo tonal alteration or trigger tonal alteration on a following word.

#### 4.2.1.2. The prepositions /sò/, /gwà/, and /gwòsò/.

The prepositions *sò*, *gwà*, and *gwòsò* can all be used to mean 'as', 'like'. Examples appear in (154):

(154) (a.) *nyé à dùmà sò dó* 'he is as big as you are'

(b.) *Kúlàng' à lómín gwòsò kírítì* 'Kulang is as  
 thin as bamboo'

(c.) *Pòní gwà Kàjí* 'Poni is as big as Kaji'

(d.) *ng'ílù à lópír sò wúrí* 'that one is as fat  
 as a pig'

(e.) *ng'íló kòpò gwòsò ló Jàdà* 'this cup is like  
 that of Jada'

(f) *nyàsí sò ná ng'ùtù ná* 'eat like a man (not  
 like an animal'

We see from the examples in (154) that these prepositional elements -- *sò*, *gwà*, and *gwòsò* (the latter apparently being a combination of *gwà* and *sò*) -- are invariably Low-toned. They are not affected when preceded by a High tone -- cf. (154c) where the noun *Pòní* does not affect *gwà* and (154f) where the verb *nyàsí* does not affect *sò*. Since these elements are Low-toned, they naturally do not affect the tone of a following word.

#### 4.8.1.3. The preposition /ng'òr/.

The preposition *ng'òr* can be glossed as 'till',

'until', 'to the extent of', 'as far as', 'to the height (width, depth) of', and so on. Examples are given in (155):

- (155.) (a.) Wàní ng'òr tòdíńá á tì pássi  
'taught as he was, Wani (still) did not pass'
- (b.) nân à sí'dà àméricà ng'òr kíng'ájìn ì ng'wân 'I lived in America for as many as four years'
- (c.) Pòní à kèndyâ bùk ng'òr túpàràń líng'  
'Poni has been reading a book for the whole day time'
- (d.) nân à tém kárè ng'òr kídèn 'I measured the river up to the middle'
- (e.) Jàdà à tû ng'òr kò Jùbà 'Jada went up to Juba'

The data in (155) establish that ng'òr is invariably Low-toned, regardless of the tone that precedes it -- a H tone in (a), a L tone in (b) and (d), and a Falling tone in (c) and (e). And since ng'òr is Low-toned, it does not in any way affect the tonal shape of the following word. The example in (e) shows that ng'òr can be combined with the preposition kò. No further comment is required, from a tonal point of view, on this preposition.

#### 4.2.1.4. The prepositions /àkê/ and /lú kàtâ/.

The preposition àkê 'except' is illustrated in (4).

- (156.) (a.) ng'útû líng' à mэрán àkê Kúlàng'  
'all the people were drunk except for Kulang'
- (b.) ng'wájìk líng' à mэрán àkê Jàdà  
'all the youths were drunk except for Jada'
- (c.) ng'útû líng' lyáng'án àkê Pòní  
'all the people are happy except for Poni'

- (d.) *títò jòré à líkín àkê kéré*  
'many things got lost except the gourd'

The data in (156) demonstrate that *àkê* is unaffected by a preceding word that ends in a High tone (as *mérán*, *lyáng'án*, and *líkín* do. Also, since *àkê* ends in a Falling tone, it can have no affect on the word that follows.

The expression *lú kàtá* (perhaps related to *kátá* 'be present) followed by the associative *ná* is used to convey the notion 'inside':

- (157) (a.) *Jàdà à mét míjì lú kàtá ná kèrè* 'Jada saw  
the rat inside the gourd'  
(b.) *Jàdà à mét míjì lú kàtá ná tètò* 'Jada saw  
the rat inside the mat'

It is similar to *àkê* in that (ending in a Falling tone) it cannot affect a following word.

#### 4.2.2.0. Tonologically active simple prepositions.

##### 4.2.2.1. The preposition: /i/.

The preposition *í* can be glossed as 'in', 'into'.  
Examples of its usage appear in (158).

- (158) (a.) *nân à mét míjì í kèrè* 'I saw the rat in the  
gourd' (cf. *kéré* 'gourd')  
(b.) *ripé rét í bòngó?* 'sew the tear in the  
dress' (cf. *bòngó?* 'cloth')  
(c.) *Jàdà à 'dàná í kí'bò* 'Jada hid in the  
canoe' (cf. *kí'bó*)  
(d.) *ítí í ng'èrót niò* 'go in front of me'  
(cf. *ng'èrót* 'front')  
(e.) *Jàdà gwòn í bòt ná kàdì* 'Jada was behind  
the house -- lit. Jada was at the rear of  
the house' (cf. *bót* 'the behind')

- (f.) *dáru kàtà í kidèn ná mèlèsèn* 'there is grass in the middle of the garden' (cf. *kidèn* 'the middle')
- (g.) *nân à mét í kî'díng' nà sùkúlù* 'I saw it behind the school -- lit. in the behind of the school' (cf. *kî'díng'* 'the behind')
- (h.) *Jàdà pó í swát ló lòkì* 'Jada came from the southern direction' (cf. *swát, lóki* 'the south')

Examination of (158) suggests that the preposition *í* is invariably High-toned. It does not alternate when it is preceded by a H-final word. The second point to be made about (158) is that it gives evidence that somehow the preposition *í* affects a following noun. For example, we see in (158a) that *kéré* has changed to *kèrè* by virtue of being located after *í*. We will look in detail at this pattern of change shortly.

The preposition *í* appears in construction with certain elements that follow the noun phrase governed by *í*. Some examples follow.

- (159) (a.) *kájí kátá í méré múkák* 'the village is at the foot of the mountain' (cf. *méré* 'mountain', *múkák* 'rear, after')
- (b.) *Jàdà à mét pìòng' í kídì kátá* 'Jada saw the water in the well' (cf. *kídì* 'well')
- (c.) *lòpéng' à mét míjì í kèrè kátá* 'he saw the rat inside the gourd' (*kéré* 'gourd')
- (d.) *nân à mét míjì í tèrò kátá* 'he saw the rat inside the mat' (cf. *tèrò* 'mat')
- (e.) *ng'úrò lú í kádí lú kátá* 'the child is inside the house' (cf. *kádí* 'house', *lú kátá* 'inside')
- (f.) *nân à mét míjì í tèrò lú kátá* 'I saw the rat inside the mat'

Let us now examine the tonal changes that the noun immediately following *i* undergoes. We will examine first bisyllabic nouns. Examples appear in (160).

- (160) (a.) Pòní à ryá piòng' i kèrè  
'Poni found water in the gourd'  
(cf. kéré 'gourd')
- (b.) nân à ryá i kì'bò  
'I found it in the canoe'  
(cf. kí'bó 'canoe')
- (c.) kíné à gálâ i kidì dùmà  
'the goat was looked for in the big well'  
(cf. kidí 'well', dùmà 'big')
- (d.) Wàní à mét i kòpò lónyit  
'Wani saw it in his cup'  
(cf. kòpò 'cup', lónyit 'his')
- (e.) Pòní à ryá wélêt i dùlùr  
'Poni found oil in the oil seeds'  
(cf. dùlùr 'oil seeds')
- (f.) nân à ríp rét i bòngó?  
'I sewed the tear in the dress'  
(cf. bòngó? 'dress')
- (g.) Wàní à 'dútún kèt i ng'ùmí  
'Wani pulled out the thread from the  
needle' (cf. ng'ùmí 'needle')
- (h.) Kùlàng' à gá? i dùpà kátá  
'Kulang looked for it inside the cradle'
- (i.) ng'útú lú i tèrò lú kátá  
'there is a person inside the mat'

The data in (160) show that a HH noun (e.g. kéré, kí'bó, and kidí) is converted to LL after the preposition *i*. HL nouns (e.g. kòpò, dùlùr) also become LL. LH nouns (e.g. bòngó?, ng'ùmí) and LL nouns (e.g. dùpà, tèrò) are not affected tonally.

The behavior pattern that we have just described for bisyllabic nouns is, of course, reminiscent of what we observed between the associative particle and a following



bisyllabic noun. In particular, the H of *í* is able to Lower a following H, but there is no application of High Tone Spread subsequent to High Tone Lowering. Consequently, a HH noun will change to LL (and not be raised back up to HL); similarly, an underlying L-initial noun will not have its initial L raised.

The data in (160) clearly demonstrate also that the preposition *í* is not affected by the tonal shape of the word that precedes. This point will be amply attested throughout this section, and we will not comment on it further.

The behavior of bisyllabic nouns after *í* are consistent with the following analysis: *í* triggers High Tone Lowering, *í* cannot spread its H. Let us now turn to trisyllabic and longer nouns. (161) shows, again, that only H-initial nouns are affected by *í*. Furthermore, if the noun starts with a sequence of Highs, all but the last High-toned vowel will be lowered.

- (161) (a.) *nân à mét rét í pílíí*  
'I saw the damage on the knife'  
(cf. *pílíí* 'knife')
- (b.) *lòpéng' lú í mèlèsèn nányít*  
'he is in his garden'  
(cf. *mèlèsèn* 'garden')
- (c.) *dó à mét rét í líkítò*  
'you saw the wound in the rabbit'  
(cf. *líkítò* 'rabbit')
- (d.) *nân à ryá kúpír í tàpíng'í*  
'I found feathers in the guinea fowl'  
(cf. *tápíng'í* 'guinea fowl')
- (e.) *nân 'dùmûn í titòtót*  
'I took it from the possession'  
(cf. *titòtót* 'possession')
- (f.) *nân à ryá í bàsàlà*  
'I found it in the onions'  
(cf. *bàsàlà* 'onions')

- (g.) Pòní à gá? í kádípàn  
'Poni looked for it in the grasshoppers'  
(cf. kádípàn 'grasshoppers')
- (h.) mètê í gègwèrí kidèn  
'look for it in the middle of the comb'  
(cf. gègwèrí 'comb')
- (i.) nân à ryá sètà í àmbàtà kátá  
'I ate chillies in the bread'  
(cf. àmbàtà 'bread')

The data in (161) exhibit the following changes:

- (162) HHH changes to LLH  
 HHF changes to LLF  
 HHL changes to LHL  
 HLL changes to LLL  
 LHL no change  
 LLH no change  
 LLL no change

While we have not bothered to exhibit every possible tonal shape for a trisyllabic noun after the prefix *í*, the data in (161) are sufficient to demonstrate that the noun changes after *í* in exact accord with the changes that occur after the associative particles. This parallelism even goes so far as to include the problematic fact that a HHL word will change to LHL (thus likítò will become likítò) even though in other post-H environments we would expect a HHL word to become HLL.

We can assume, then, that the preposition *í* will be analyzed along lines that are exactly parallel to the analysis of the associative particles: (a) *í* triggers High Tone Lowering and does not trigger High Tone Spread, and (b) High Tone Fission affects a HH sequence when it is followed by a Low (but just when the word is in construction with an associative particle or *í*).

The parallelism with the associative particles is further evidenced by quadrisyllabic nouns after *í*. Some examples:

- (163) (a.) kò 'yúr kórópò? í tèmènèné?  
'do not burn the leaves in the yellow ants'  
(cf. tèmènèné? 'yellow ants')
- (b.) Pòní à rúk máyàkà í didilittí  
'Poni threaded the beads in the necklace'  
(cf. didilittí 'necklace')
- (c.) nân à gá? í gwòròkólò  
'I looked for it in the haughty people'  
gwóròkólò 'haughty people')
- (d.) nân à mét í kánàrèjín  
'I saw it in the necklace'  
(cf. kánàrèjín 'necklace')
- (e.) Jàdà à mó'yù í mùlákàtyò lókè  
'Jada prayed in the holy spirit'  
(cf. mùlákàtyò 'holy spirit')
- (f.) Jàdà à ryá í kùrílàng'í  
'Jada found it in the oil tree'  
(cf. kùrílàng'í 'oil tree')
- (g.) yí à mét í gwàrgwàlálán  
'we saw it in the nightjar'  
(cf. gwàrgwàlálán 'nightjar')
- (h.) yí à gá? í jà'bèléng'àn  
'we looked for it in the camels'  
(cf. jà'bèléng'àn 'camels')
- (i.) yí à ryá í bàsàlàtát  
'we found it in the onion'  
(cf. bàsàlàtát 'onion')
- (j.) Kùlàng' à mét í kàtùmítán  
'Kulang saw it in the doors'  
(cf. kàtùmítán 'doors')
- (k.) nân à 'dútún gôr í kijàkútàt  
'I pulled the spear from the beast'  
(cf. kijàkútàt 'beast')

While (163) does not illustrate every possible tonal shape for a quadrisyllabic noun, it provides sufficient material to demonstrate that these nouns alteranate according to the principles outlined above (i.e. according to the same

principles as govern the associative construction). The alternation pattern is summarized in (164).

- (164) HHHH changes to LLLH  
 HHHF changes to LLLF  
 HHHL changes to LLHL  
 HHLH changes to LHLH  
 HLLL changes to LLLL  
 HHLF changes to LHLF  
 HLHH changes to LLHH  
 HLHL changes to LLHL  
 HLLH changes to LLLH  
 LLHH does not change  
 LLHL does not change

Clearly, the alternations in (163) demonstrate that (a) High Tone Lowering operates between *i* and a following noun, (b) High Tone Spread does not operate, and (c) an initial HHL sequence undergoes High Tone Fission before the application of High Tone Lowering.

We have so far looked only at polysyllabic nouns after *i*. We next take up the monosyllabic nouns. All monosyllabic nouns become Low-toned after *i*. This is shown in (165).

- (165) (a.) Jàdà lú *i* tùr  
 'Jada is in the village'  
 (cf. tùr 'village', a H1 monosyllabic noun)
- (b.) lélé ng'ò *i* lè  
 'something is in the milk'  
 (cf. lé 'milk', a H2 monosyllabic noun)
- (c.) Kùlàng' à ryá *i* mòk dùmà  
 'Kulang found s.t. in the big antbear'  
 (cf. mòk 'antbear', a L1 monosyllabic noun)
- (d.) Pòní à gá? *i* dàk  
 'Poni looked for it in the pipe'  
 (cf. dàk 'pipe', a L2 monosyllabic noun)
- (e.) ng'útû à mó? *i* ng'ùn pàrik  
 'the people prayed to God very much'  
 (cf. ng'ùn 'God')

These changes are exactly the same changes that occur in conjunction with the associative particles and follow from

the assumption that H<sub>1</sub>, H<sub>2</sub>, and Falling monosyllables all begin with a single H tone (followed by a L in the case of the Falling type of monosyllable) and that this H is changed to L by High Tone Lowering. In other contexts, the difference between H<sub>1</sub> and H<sub>2</sub> monosyllables is that the former does not accept spreading whereas the latter does. But since the preposition *i* never spreads its High, both H<sub>1</sub> and H<sub>2</sub> necessarily end up pronounced on the same Low tone. The Falling type also ends up L, since its HL sequence will have changed to LL as a result of High Tone Lowering, and two identical tones on a single syllable are indistinguishable from a single tone on that syllable.

We have so far found a close parallelism between *i* and the associative particles. There turns out to be a very interesting point of divergence, however. This divergence concerns the case where the preposition *i* is followed by a demonstrative and then a noun. Examine the data in (166).

(166) HH noun

- (a.) nân à mét *i* lò kî'bó  
'I saw it in this canoe'  
(cf. kî'bó 'canoe')
- (b.) nân à gín pátà ná lò kî'bò  
'I broke the rope of this canoe'
- (c.) Pòní à ryá plòng' *i* ng'illù kéré  
'Poni found water in that gourd'  
(cf. kéré 'gourd')
- (d.) Pòní à ryá 'dièt ná ng'ílú kéré  
'Poni found the plug of that gourd'

HHF noun

- (a.) lòpéng' lú *i* ng'inà mèlèsén dùmà  
'he is in this nearby big garden'  
(cf. mèlèsén 'garden')
- (b.) lòpéng' à ná ng'iná mèlèsén dùmà  
'it is of this nearby big garden'

HHH noun

- (a.) nân à gá? tóròk í kùnè gwákísík  
'I looked for the stones in these play shells' (cf. gwákísík 'play shells')
- (b.) nân à gá? tóròk tí kúné gwákísík  
'I looked for the stones of these play shells'

HHHH noun

- (a.) kò 'yúr kórópò? í kùlò tèmèné?  
'do not burn the leaves in these yellow ants' (cf. tèmèné? 'yellow ants')
- (b.) kò 'yúr kórópò? tí kúló tèmèné?  
'do not burn the leaves of these yellow ants'

The data in (166) illustrate a few nouns that have a series of two or more High tones in initial position when they are preceded by a demonstrative. In our discussion of the associative construction earlier, we noted that a demonstrative pronoun does not change when it stands after an associative particle (when the demonstrative is in turn followed by the noun that it modifies). Thus after the associative particles in (166), we see that the demonstratives remain H or HH. What does happen is that the associative particles trigger High Tone Lowering and High Tone Spread on the following noun. Thus we find ná ló kí'bò 'of this canoe', where ló remains unaltered and triggers the change of kí'bò (HH) to kí'bò (HL).

The preposition í in (166) behaves in a completely different way. First of all, the demonstratives now appear in an all Low shape. But it is not the case that the noun following the demonstrative remains unaffected by its environment -- it does change, but it doesn't change in any way that is immediately recognizable. If we take the HHH and HHHH nouns first, we see that they change to LLH and LLLH respectively. These changes look familiar. This is

what would happen to a HHH or HHHH noun located after either an associative particle or the preposition *í*. Consider a HH noun next. It changes to LH (cf. *í ló kǐ'bó*). This is not what would happen to a HH noun in any context that we have so far met. But it looks somewhat similar to the fact that a HHL noun would change to LHL after *í* (recall that *likítò* becomes *likítò* after *í*). The case of the HHF noun is the most bizarre. It changes to LLH. We have nothing at all similar to this change.

Examination of the data in (166) for the sequence *í* plus demonstrative plus noun reveals that in every case we have the same tonal configuration: *í* is of course High-toned, all the following syllables are Low-toned except for the last one, which is High-toned. We would like to demonstrate now that this tonal pattern is persistent and independent of the structure of the noun that occurs in final position in these phrases.

For example, consider (167), where we have placed monosyllabic nouns in the context: *í* + demonstrative + noun.

- (167) (a.) *Jàdà lú í lù túr*  
 'Jada is in that village'  
 (cf. *túr* 'village', a H<sub>1</sub> noun)
- (b.) *lélé ng'ò í kinè lé*  
 'something is in this milk'  
 (cf. *lé* 'milk', a H<sub>2</sub> noun)
- (c.) *Kúlàng' à ryá í ng'ilò mók*  
 'Kulang found it in this nearby antbear'  
 (cf. *mók* 'antbear', a L<sub>1</sub> noun)
- (d.) *Pòní à gá? í ng'ilù dák*  
 'Poni looked for it in that pipe'  
 (cf. *dák* 'pipe', a L<sub>2</sub> noun)
- (e.) *yí à mó? í ng'ilù ng'ún*  
 'we prayed in that God'  
 (cf. *ng'ún* 'God')

Every monosyllabic noun -- regardless of its underlying structure -- surfaces with a High tone in the context *í* + demonstrative + Noun. This fact suggests that the appearance of a H tone in this position has nothing to do with the inherent tonological structure of the noun, but rather has to do with the construction as a whole.

That the construction in question imposes a tonal pattern consisting of a series of Low-tones followed by a High on the very last syllable is demonstrated by considering the data in (168).

- (168) (a.) gálé í ng'inà tèró  
'look for it in that mat'  
(cf. tèró 'mat')
- (b.) gálé í ng'inà àmbàtá  
'look for it in that bread'  
(cf. àmbàtá 'bread')
- (c.) ng'inà í ng'ilò kòpó  
'it is in that cup'  
(cf. kòpò 'cup')
- (d.) nú í ng'inù gùré  
'it is in that dove'  
(cf. gùré 'dove')

These data reveal that a LL and a LLL noun change to LH and LLH respectively when they appear in the context *í* + demonstrative + Noun. The appearance of a H tone at the end of these nouns cannot possibly be attributed to any of the phrasal tonal principles that we have studied in this chapter. (168) also shows that a HL noun will become LH in the context under discussion. While the change of an initial H to L could be accounted for in terms of High Tone Lowering, the raising of the final L to H cannot be explained in terms of the phrasal tone rules.

We have now presented a detailed account of the tonal characteristics of the *í*-based prepositional phrases.



4.2.2.2. The preposition /i/.

There is another preposition that is confusingly similar to the *i* examined in the previous section. After the verbs *tín* 'give, put' and *tû* 'go', we find the preposition *i* used with the meaning 'into'. This Low-toned preposition *i* is, however, tonologically distinct from the High-toned *i* in ways that go beyond the fact that one is Low-toned and the other is High-toned.

Let us look at examples of bisyllabic nouns in position after *i*.

- (169) (a.) *nân à tín i kéré*  
'I put it into the gourd'  
(cf. *kéré* 'gourd')
- (b.) *Póní à tín i kí'bò dùmà*  
'Poni put it in the big canoe'  
(cf. *kí'bó* 'canoe')
- (c.) *Wàní à tín i kópò lónyit*  
'Poni put it into his cup'  
(cf. *kópò* 'cup')
- (d.) *Póní à tín i dúlùr*  
'Poni put it in the oil seeds'  
(cf. *dúlùr* 'oil seeds')
- (e.) *nân à tín i ng'úmi*  
'I put it in the needle'  
(cf. *ng'ùmi* 'needle')
- (f.) *nân à tín i bóngó? níkàng'*  
'I put it in our dress'  
(cf. *bóngó?* 'dress')
- (g.) *Kúlàng' à tín i dúpà*  
'Kulang put it into the cradle'  
(cf. *dúpà* 'cradle')
- (h.) *Wàní à tín i téré*  
'Wani put it into the mat'  
(cf. *téré* 'mat')
- (i.) *nân à tín i yáwà*  
'I put it into the beer'  
(cf. *yáwà* 'beer')

(j.) Pòní à tû i wíni  
'Poni went to the medicine'

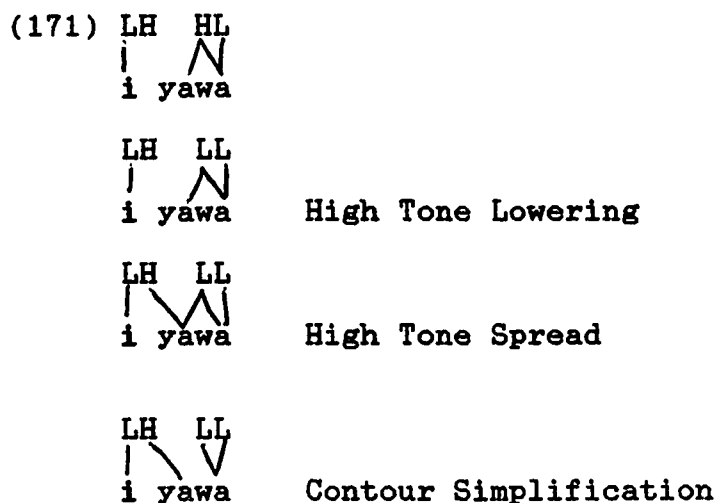
The data in (169) are interesting in several respects. First of all, even though i is Low-toned, it is clear that it is triggering the same phonological changes that High-toned elements trigger: High Tone Lowering and High Tone Spread. The following changes: HH to HL (kéré to kérè), HF to HL (yáwá to yáwà), LL to HL (térò to térò), and LF to HF (wíni to wíni) are all just the changes that we expect a noun to undergo after a High tone as a result of the interplay of High Tone Lowering, High Tone Spread, and Contour Simplification. Notice that i is behaving differently from i. Recall that i does not trigger High Tone Spread, whereas the shift of térò to térò after i requires (in effect) the application of High Tone Spread.

The fact that i appears to trigger High Tone Lowering and High Tone Spread presents an obvious problem. If i is to trigger these rules, then i must have a High tone. But i is always pronounced on a Low tone. In order to characterize this odd behavior of i, we propose to represent this morpheme tonologically as in (170):

(170) L H  
      |  
      σ  
      |  
      i

that is to say, this preposition is associated to a L tone but has a floating H tone after it. This H tone can trigger High Tone Lowering on a following H, and it can also spread onto the following syllable.

The derivation of i yáwá will proceed as in (171):



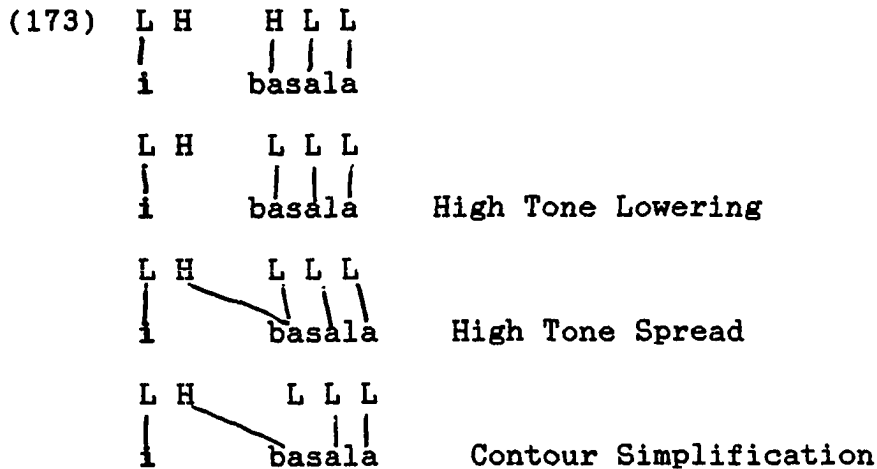
There is only problem for this account of the behavior of nouns after *i* in (169). We do not explain why kópò and dúlùr remain unchanged. Recall that in other post-H environments, a HL noun surfaces as LL. We should point out, however, that the fact that kópò surfaces as kópò in other Post-H environments was not in fact a straightforward matter. To obtain this shape required us to stipulate that High Tone Spread must be prevented from extending a H onto kópò (even though High Tone Spread does extend a H onto an underlying LL word such as tèrò). Without such a stipulation, our rules predict that kópò would first become kópò by High Tone Lowering and then kópò by High Tone Spread and then kópò by Contour Simplification. In other words, the shapes that we observe in (169) for kópò and dúlùr are in fact what our rules predict given that High Tone Spread is not blocked from applying.

Let us look at trisyllabic nouns after *i* to see whether they continue to manifest the shapes that would be expected on the assumption that *i* has a floating H located after it.

- (172) (a.) nân à tîn sùèt ì pílílí  
'I put the shaft into the knife'  
(cf. pílílí 'knife')
- (b.) Pòní à tû ì méléssèn  
'Poni went to the garden'  
(cf. méléssèn 'garden')
- (c.) Jàdà à tîn ì líkítò  
'Jada put it into the rabbit'  
(cf. líkítò 'rabbit')
- (d.) nân à tîn ì táping'ì ná mù'díng'  
'I put it into the guinea fowl of the  
forest' (cf. táping'ì 'guinea fowl')
- (e.) Pòní à tîn ì títòtót lònýt  
'Poni put it into her possession'  
(cf. títòtót 'possession')
- (f.) nân à tîn ì básàlà  
'I put it into the onion'  
(cf. básàlà 'onion')
- (g.) Pòní à tîn ì kádípàn  
'Poni put it into the grasshoppers'  
(cf. kádípàn 'grasshoppers')
- (h.) nân à tîn ì jégwèrí  
'I put it into the comb'  
(cf. jégwèrí 'comb')
- (i.) Jàdà à tîn ì ámbàtà  
'Jada put it into the bread'

From the data in (172), we can see immediately that by and large the usual patterns for nouns in a post-H environment are encountered: HHH changes to HLH, HHF changes to HLF, HHL changes to HLL (not LHL as in the associative and after í). These represent the effects of High Tone Lowering (operating, of course, on the representations that result from High Tone Fission), High Tone Spread, and Contour Simplification. Also LHL changes to HHL, LLH changes to HLH, and LLL changes to HLL. These changes represent the effect of High Tone Spread and Contour Simplification.

The one point of difference between the data in (172) and the usual changes in a post-High environment have to do with those nouns that start with a HL sequence (recall the example of *kópò* in the case of bisyllabic nouns). In the ordinary post-High environment, we had to bar the application of High Tone Spread to these words (i.e. we allowed the initial H in a HL sequence to lower but barred that lowered syllable from being affected by High Tone Spread). In (172), on the other hand, we must allow High Tone Spread to operate. We will thus obtain the correct surface forms, as shown in (173).



Quadrisyllabic nouns behave in quite analogous fashion, as we see in (174).

- (174) (a.) Pòní à tìn kórópò ì témènéné?  
 'Poni put leaves into the ants'  
 (cf. téménéné? 'yellow ants')
- (b.) Pòní à tìn máyàkà ì didilittí  
 'Poni put the beads into the necklace'  
 (cf. didilittí 'necklace')
- (c.) Jàdà à tû ì gwóròkólò  
 'Jada went to the haughty people'  
 (cf. gwóròkólò 'haughty people')

- (d.) nân à tîn ì kánàrèjín  
'I put it into the necklaces'  
(cf. kánàrèjín 'necklaces')
- (e.) Jàdà à tîn ì múlákàtyò  
'Jada put it into the spirit'  
(cf. múlákàtyò 'spirit')
- (f.) yí à tîn ì gwárgwàlálán  
'we put it into the nightjar'  
(cf. gwárgwàlálán 'nightjar')
- (g.) yí à tû ì já'bèlég'àn pàjò  
'we went to the camels far away'  
(cf. já'bèlég'àn 'camels')
- (h.) Pòní à tîn ì básàlâtát  
'Poni put it into the onion'  
(cf. básàlâtát 'onion')
- (i.) Kúlàng' à tîn ì kátùmitán  
'Kulang put it into the doors'  
(cf. kátùmitán 'doors')

The data in (174) show that the following kinds of changes occur in the case of quadrisyllabic nouns:

- (175) HHHH changes to HLLH  
 HHHF changes to HLLF  
 HHHL changes to HLHL  
 HHLH changes to HLLH  
 HHLF changes to HLLF  
 HLHH does not change  
 HLHL does not change  
 HLLH does not change  
 LLHH changes to HLHH

These patterns are clearly aligned to those that generally occur in a post-High environment and not to the patterns that occur after the associative and after í. (This is shown, recall, by the fact that High Tone Spread is operative in (174) but not after the associative or í, and by the fact that a HHL initial sequence is realized as HLL, whereas after the associative or í such a sequence is realized as LHL.) But the data in (174) continue to depart from the ordinary post-High environments in that an initial

HL sequence undergoes not just High Tone Lowering but also High Tone Spread (and subsequently Contour Simplification). As a result an initial HL sequence surfaces as HL after *ɪ*.

At this point, let us turn our attention to the monosyllabic nouns when they appear after *ɪ*.

- (176) (a.) Jàdà à tū *ɪ* jūr  
 'Jada went to the village'  
 (cf. jūr 'village', a H<sub>1</sub> noun)
- (b.) Pòní à tìn sùkàr *ɪ* lê  
 'Poni put sugar into the milk'  
 (cf. lê 'milk', a H<sub>2</sub> noun)
- (c.) tikí *ɪ* mòk  
 'put it into the antbear'  
 (cf. mòk 'antbear', a L<sub>1</sub> noun)
- (d.) Pòní à tìn tàbà *ɪ* dâk lónyit  
 'Poni put tobacco into her pipe'  
 (cf. dâk 'pipe', a L<sub>2</sub> noun)
- (e.) Wàní à tìn *ɪ* ng'ûn ló kî  
 'Wani put it into the God of heaven'  
 (cf. ng'ûn 'God', a Fall noun)

These data are extremely illuminating. Recall that a H<sub>1</sub> noun is characterized by the fact that it changes to L in the post-H environment whereas a H<sub>2</sub> noun changes to F. We suggested earlier that perhaps the H<sub>1</sub> nouns are simply resistant to High Tone Spread, whereas H<sub>2</sub> nouns undergo this rule. The data in (176) are supportive of this view. We have proposed that the preposition *ɪ* is characterized by having a floating High tone after it, and that this High tone spreads even in those contexts where spreading is disallowed (which explains why HL... nouns appear as HL... after *ɪ*). Given this analysis, we expect that even though H<sub>1</sub> nouns are generally resistant to High Tone Spread, they will not be after *ɪ*; and this would mean that they would appear with a Falling tone after *ɪ* (through the combined effects of High Tone Lowering and High Tone Spread). (176)

shows that this is in fact the case -- a H<sub>1</sub> noun appears with a Falling tone just like a H<sub>2</sub> noun.

Recall also that the difference between a L<sub>1</sub> noun such as mòk 'antbear' and a L<sub>2</sub> noun such as dàk 'pipe' is that the former appears simply as Low in the post-High environment whereas the latter appears with a Falling tone. Again, we suggested earlier that this difference might be treated simply as reflecting the fact that nouns like mòk resist High Tone Spread whereas nouns like dàk do not. If this is the correct analysis, then we would expect that after i the L<sub>1</sub> nouns might be susceptible to High Tone Spread and therefore surface with a Falling tone. (176) shows that this is indeed the case.

Finally, recall that a Falling-toned monosyllabic noun regularly appears with a Low tone in the post-H context. We explained this by saying that (a) a Falling-toned monosyllabic noun is subject to High Tone Lowering but (b) fails to undergo High Tone Spread (analogous to HL bisyllabic nouns). If this analysis is correct, then we would expect that a noun such as ng'ŋn would -- in construction with i -- not only undergo High Tone Lowering but also High Tone Spread (since the floating H after this preposition regularly spreads even onto nouns that are otherwise resistant to spread), and thus surface with a Falling tone. (176) shows that this is indeed correct.

The behavior of monosyllabic nouns after i thus provides some reason to think that H<sub>1</sub> monosyllabic nouns, L<sub>1</sub> monosyllabic nouns, and Falling monosyllabic nouns should all be treated as failing to undergo High Tone Spread (in most post-H contexts).

If the preposition i is followed by a demonstrative which is in turn followed by the noun that it modifies, then the demonstrative will remain H(H) -- i.e. i will not be able to trigger High Tone Lowering (and High Tone Spread) on the demonstrative. Examples in (177):



- (177) (a.) nân à tín ì ló kéré  
'I put it into this gourd'
- (b.) Wàní à tín ì ng'ílú kí'bò dùmà  
'Wani put it into that big canoe'
- (c.) Pòní à tín ì ng'íló kòpò  
'Poni put it into this nearby cup'
- (d.) nân à tín ì ng'íná bóngó? nátór  
'I put it into this nearby red dress'
- (e.) Wàní à tín ì ng'íná tэрò  
'Wani put it into this nearby mat'
- (f.) nân à tín súèt ì ng'íná pílílí  
'I put the shaft into this nearby knife'
- (g.) Jàdà à tín ì ná ámbàtà  
'Jada put it into this bread'
- (h.) Pòní à tín kórópò ì kiló témèné?  
'Poni put leaves into these nearby yellow ants'
- (i.) Jàdà à tû ì ng'ílú tûr  
'Jada went to that village'  
(cf. tûr, a H<sub>1</sub> noun)
- (j.) Pòní à tín sùkàr ì kiné lê  
'Poni put sugar into this milk'  
(cf. lê, a H<sub>2</sub> noun)
- (k.) Pòní à tín tàbà ì ng'ílú dâk lónyit  
'Poni put tobacco into that pipe of hers'  
(cf. dâk 'pipe', a L<sub>2</sub> noun)
- (l.) Wàní à tín ì ng'ílú ng'ùn  
'Wani put it into that God'  
(cf. ng'ùn 'God', a Fall noun)

We see from (177) that the demonstrative is unaffected by *ì*. Notice, also, that the noun that follows the demonstrative undergoes High Tone Lowering and High Tone Spread in just the fashion that nouns ordinarily do when they stand after a demonstrative. Thus a HL noun changes to LL -- cf. the change of *kópò* to *kòpò* in (177c); a H<sub>1</sub> noun changes to L -- cf. the change of *tûr* to *tùr* in (177i); and

a Fall noun changes to L -- cf. the change of ng'ùn to ng'ùn in (1771). These are not, of course, the changes that the preposition i triggers on a following word (since i always triggers High Tone Spread onto HL nouns, Hi nouns, Fall nouns, etc.).

If the preposition i is followed by a demonstrative that is final (i.e. not followed by the noun that it modifies), then we get the following results:

- (178) i lò  
i nâ  
i ng'ilò  
i ng'ilù  
i kúlò  
i kilù

The analysis of the demonstratives in this context is straightforward. The demonstratives lò and nâ are High-toned. They undergo High Tone Lowering after the floating H of i. This floating High is always able to spread onto a following word, thus a Falling tone is produced: lò, nâ. In the case of the bisyllabic demonstratives, recall that in underlying structure each syllable has its own High tone (e.g. /ng'i-lò/). In the word-level phonology, the High of the first syllable is able to trigger High Tone Lowering onto the second syllable. The H of the first syllable is not, however, able to spread onto the second syllable. When this bisyllabic form is then placed after i, the floating H located after i is able to trigger High Tone Lowering (and High Tone Spread) on the following initial H of the demonstrative. The result is that the first syllable of the demonstrative becomes Low by High Tone Lowering, and then becomes Falling as a result of High Tone Spread, and finally returns to High as a result of Contour Simplification.

In Chapter 5, we will demonstrate that verbal forms may occur after the preposition i and that they too are susceptible to High Tone Spread and High Tone Lowering

under the influence of the floating High that follows *i*.

#### 4.3. Interrogative pronouns.

In this section we will examine the tonal behavior of a group of interrogative pronouns as well as certain additional ramifications of their use. The simple interrogative pronouns in Bari have the following tonal shapes:

##### (179) H

lón 'which (masc.)'  
nán 'which (fem.)'

##### F

ng'â 'who?'  
nyô 'what?'

##### HF

kóng'â ~ kúng'â 'who (pl.)?'  
kúlòn 'which (masc.pl.)?'  
kúnèn 'which (fem.pl.)?'

These interrogative pronouns are obviously related to the demonstratives discussed earlier in this chapter (cf. ló, ná, kúlò, kúnè).

Let us consider the H interrogative pronouns first. We provide a rather full exemplification of the behavior of nán in (180).

(180) (a.) dó gwàrá nán 'which did you buy?'

(b.) dó gwàrá nán bǒngó? 'which cloth did you buy?' (cf. bǒngó? 'cloth')

(c.) dó gwàrá nán kájè 'which did you buy yesterday?'

(d.) nán ng'ùrò nà kwèní? 'which child laughed?' (cf. ng'ùrò 'child')

- (e.) *nán tērò nà likín* 'which mat got lost?'  
(cf. *tērò* 'mat')
- (f.) *Jàdà 'dòggá kò nán bóngó?* 'with which dress  
did Jada present him?' (cf. *bòngó?* 'dress')
- (g.) *nán bóngó? ná júp Jádà* 'which cloth did  
Jada wear?'
- (h.) *nán sùkùrì nà dèr Pòní* 'which chicken did  
Poni cook?' (cf. *sùkùrì* 'chicken')
- (i.) *dó tín Jádà nán Wání* 'which did you give to  
Jada, Wani?' (cf. *Wání*, a proper name)
- (j.) *dó tín Póní nàn Wání* 'which did you give  
Poni, Wani?'

In (180a) we see that *nán* change to *nàn* after a word ending in a High (cf. the behavior of H<sub>i</sub> nouns such as *túr*). However, this occurs just in the event *nán* is not followed by a noun that it modifies. In (180a) *nán* lowers after a H since it is sentence-final; in (180b) *nán* remains H since it is followed by the noun that it modifies; and in (180c) *nán* lowers after a H since it is followed by an adverb, not by the noun that it modifies. This patterning is, of course, just the patterning that we observed earlier with demonstrative pronouns.

*nán* triggers High Tone Lowering (at least on the noun that it modifies). This fact is demonstrated by (180d,h). *nán* also triggers High Tone Spread. This is demonstrated by the effect that *nán* has on the noun that it modifies in (180b,e,f,g) as well as by the effect that it has on a following vocative noun in (180i). The example in (180j) shows that if *nán* undergoes High Tone Lowering and surfaces on a Low tone, then it will not be able to affect a following word. (Recall that *nán* cannot lower when it is followed by the noun that it modifies, thus one can demonstrate the preceding point only by the sort of example contained in (180j) where *nán* is followed by an element

that it does not modify.)

One observation needs to be made concerning the structure of some of the sentences in (180). If the interrogative pronoun nán appears in pre-verbal position modifying a noun, then not only does nán precede the noun, but a corresponding demonstrative /na/ also follows the noun. This demonstrative element is High if the preceding noun ends in a H, and Low if the noun ends in a L. Whether the noun will end in a H or a L, of course, is a function of how its underlying structure is affected by virtue of standing in the post-High position provided by nán. When the interrogative pronoun modifies a noun in post-verbal position, no corresponding demonstrative appears after the noun.

The data in (181) illustrate that lón parallels nán in its behavior.

- (181) (a.) dó gà'yú lón 'which one are you looking  
for?'
- (b.) dó 'dèk lón kí'bò 'which canoe do you  
want?' (cf. kí'bó 'canoe')
- (c.) dó gà'yú lón kéré 'which gourd are you  
looking for?' (cf. kéré 'gourd')
- (d.) Pòní dók kò lón kéré 'with which gourd did  
Poni fetch it?'
- (e.) lón kijàkù lò mét dò 'which animal did you  
see?' (cf. kijàkù 'animal')

No additional discussion is required.

Next consider the interrogative pronouns that have a Falling tone. The behavior of ng'â is illustrated in (182).

- (182) (a.) dó à ng'â 'what is your name -- lit. who  
are you?'
- (b.) ng'â gà'yú Jádà 'who looked for Jada?'
- (c.) Pòní à tín ng'â 'to whom did Poni give it?'

- (d.) Pòní mèddyâ ng'â 'who did Poni see?'  
 (e.) Pòní gà'yú ng'à 'who is Poni looking for?'  
 (f.) Pòní gà'yú ng'à kájè 'who did Poni look for yesterday?'

From (182c,e,f) it is apparent that ng'â will change to Low in the post-H environment (just like ng'ûn, for example)-- in other words, it undergoes High Tone Lowering (but not High Tone Spread). Since ng'â is Falling-toned, the question of whether it would trigger High Tone Lowering or High Tone Spread does not come up.

In (183) we see that the interrogative pronoun nyô is resistant to any change in the post-High environment.

- (183) (a.) ná à nyô 'this is what?'  
 (b.) dó à 'búyút pílílí kò nyô 'with what did you sharpen the knife?'  
 (c.) Pòní à tìn nyô 'what did Poni give?'  
 (d.) Pòní tìn Jádà nyô 'what did Poni give to Jada?'  
 (e.) Jádà tìn Póní nyô 'what did Jada give to Poni?'  
 (f.) Pòní gà'yú nyô 'what is Poni looking for?'  
 (g.) Pòní sòn wáràgà kò nyô  
 'Poni sent the letter with what?'  
 (h.) kò nyô Jádà nyànyár mâtàt  
 'why does Jada like the chief?'

At this point we have no explanation for why nyô seems to resist High Tone Lowering whereas ng'â does not.

Let us turn now to the HF interrogative pronoun kúng'â/kóng'â. Before examining the usage of this item, we should note that the High-toned element kú-/kó- fails to trigger any change on ng'â. It will be seen below that kú-

does trigger High Tone Lowering on lón and nán. It is not clear to us why ng'â resists being affected. We illustrate the behavior of kúng'â/kóng'â in (184):

- (184) (a.) tá à kúng'â 'who are you (pl.)?'  
 (b.) kúng'â jàmbú sònà 'who (pl.) talked like that?'  
 (c.) dó à tín kúng'â bòngwát 'to whom (pl.) did you give the dresses?'  
 (d.) dó gà'yú kúng'â 'whom (pl.) are you looking for?'  
 (e.) dó à tín 'bóngó? kóng'â 'you gave the dress to whom?'  
 (f.) dó à tín kóng'â kópò 'you gave the cup to whom?'  
 (g.) dó à tín kóng'â kiténg' 'you gave the cow to whom?'

These data show that kúng'â resists High Tone Lowering--cf. (184c-g). Again, we have no explanation for this. Since it is F-final, it naturally does not trigger High Tone Lowering or High Tone Spread on a following word: (184f,g) show that it does not trigger lowering, and (184c) shows that it does not trigger the spread of a High tone.

In (185) we exemplify the HL interrogative pronouns kúlòn and kúnèn.

- (185) (a.) Pòní gà'yú kúlòn 'Poni is looking for which ones?'  
 (b.) Jàdà kùrjú kúlón nyómôt 'which seeds is Jada planting?' (cf. nyómôt 'seeds')  
 (c.) kúlón sárámándi lò yòng'ê 'which groundnuts are ripe?' (cf. sárámándi 'groundnuts')  
 (d.) Pòní dèr kò kúlón bàsàlà 'with which onions did Poni cook?' (cf. bàsàlà 'onions')

- (e.) Jàdà gà'yú kùnèn 'Jada is looking for which ones?'
- (f.) kúnén ng'wàjik nà tù 'which girls went?'  
(cf. ng'wàjik 'girls')
- (g.) kúnén ng'wàjik nà jàmbú 'which girls were talking?'
- (h.) dó gwàrá kò kúnén gùrût 'with which money did you buy it?' (cf. gùrût 'money')
- (i.) kò kúnén kòrékón kàsù 'with which spades of yours?' (cf. kòrékón 'spades')

In (185) we see that kúlón and kúnèn also undergo High Tone Lowering when they are after a High and in final position. In medial position, they appear as HH. This is exactly the behavior of the corresponding bisyllabic demonstrative pronouns. When kúlón and kúnèn are H-final, they are able to trigger High Tone Lowering (cf. (185c, d, f, and g)) and High Tone Spread (cf. (185b, h, and i)).

The simple interrogative pronouns discussed above enter into some more complex constructions. For example, they are combined with one another in the following expressions:

- (186) ng'á lón 'which one (masc.)?'  
ng'á nán 'which one (fem.)?'  
kóng'á lón 'which ones (masc.)?'  
kóng'á nán 'which ones (fem.)?'  
  
nyó lón 'what thing (masc.)?'  
nyó nán 'what thing (fem.)?'  
nyó kúlón 'what things (masc.)?'  
nyó kúnén 'what things (fem.)?'

In the expressions ng'á lón and ng'á nán, the Falling tone on ng'á undergoes Contour Simplification (these expressions are perhaps to be regarded as single words, thus a Falling tone would be disallowed in non-final position in the word). When kóng'á is combined with lón and nán, the Fall on ng'á again undergoes Contour Simplification. In the



expressions nyó lón, nyó nán, etc., the Fall on nyó likewise is subject to Contour Simplification.

The element ngâ in ngá lón and ng'á nán is subject to High Tone Lowering when it follows a High tone. This fact is exemplified in the data below:

- (187) (a.) ng'á lón ló jàmbú  
'who is the one talking?'
- (b.) Wàní à tín ng'á lón kí'bò  
'to whom did Wani give the canoe?'
- (c.) Wàní à tín kí'bò ng'á lón  
'to whom did Wani give the canoe?'

Since the lón and nán elements remain High in conjunction with ng'â, they naturally continue to trigger the expected changes on a following word.

Let us now look at the behavior of the forms consisting of a combination of kóng'â and lón/nán.

- (188) (a.) kóng'á nán ná gà'yú nân 'who are the ones  
looking for me?'
- (b.) kiné ng'wàjik à kóng'á nán 'these girls are  
which ones?'
- (c.) Wàní à tín kóng'á lón tэрò 'Wani gave which  
ones the mat?'

Recall that kóng'â resists High Tone Lowering. It continues to do so when it is used in combination with lón and nán.

Examples of the combination of nyó with lón, nán, kúlón, and kúnén:

- (189) (a.) nyó lón likín  
'what thing got lost?'
- (b.) nyó lón tùmân í kimàng'  
'what thing is burning in the fire?'

- (c.) dó à ryájú nyó lón  
'you found what thing?'
- (d.) Wàní à tín nyó lón Póní  
'what did Wani give to Poni?'
- (e.) Wàní à tín nyó nán Jádà  
'what did Wani give to Jada?'
- (f.) dó à tín nyó kúlón Kùlàng'  
'you gave what (pl.) to Kulang?'
- (g.) dó à gálákin Jádà nyó kúlón  
'you found what (pl.) for Jada?'

Recall that nyó, when used alone, does not undergo High Tone Lowering after a H-final word. It also does not undergo that rule when it is used in construction with lón, nán, kúlón, and kúnén -- cf. (189 c,d,e,f). The elements lón, nán, kúlón, and kúnén all trigger High Tone Lowering and High Tone Spread on a following word -- cf. (189f) for High Tone Lowering and (189d,e) for High Tone Spread. It should be remarked that the above data provide cases where a verb is not affected by lón, nán, etc. We will discuss the shape of the verb in interrogative sentences later in this section.

The interrogative pronoun ng'â is combined with an associative element in the following expressions.

- (190) líng'â 'whose (masc.)?'  
níng'â 'whose (fem.)?'  
tíng'â 'whose (pl.)?'

Recall that ló, ná, and tí are the three associative particles. In líng'â, níng'â, and tíng'â, the vowel of these particles appears to elide in front of a vowel /i/ which links the associative element to the pronoun ng'â.

The associative elements l-i-, n-i-, and t-i- are High-toned. They seem to trigger High Tone Lowering on ng'â, causing it to appear in a Low form. The behavior of these items is illustrated below:

- (191) (a.) ng'iló kí'bò à líng'à  
'this canoe is whose?'
- (b.) Póní gwòjá kò bòngó? ñíng'à  
'Poni is dancing in whose dress?'
- (c.) kúlò à púlù tíng'à  
'these are whose peanuts?'
- (d.) kíné ñíng'à nà tiki Wàní  
'whose goat is to be given to Wani?'
- (e.) gúgú líng'à lò tèténá  
'whose granary is being made?'
- (f.) kàdén tíng'à lò tòkó  
'whose trees are being cut?'

These examples show clearly that if líng'à, ñíng'à, and tíng'à are preceded by a H-final word, they will undergo High Tone Lowering (but not High Tone Spread). In each of these examples, the preceding word is in fact the noun modified by líng'à, etc.

The associative elements also are used in conjunction with the plural interrogative pronoun kóng'à:

- (192) ló kóng'à 'of whom (masc.)?'  
ná kóng'à 'of whom (fem.)?'  
tí kóng'à 'of whom (pl.)?'

The H of the associative particle (ló, ná, or tí) seems to have converted kóng'à to kòng'à. At first glance, it might appear that this is not the expected affect -- that is, one might think that the associative particle should cause a HF word to change to HL. This is indeed usually true -- a noun such as yáwâ, e.g., would change to yáwâ in the post-H context. But this change is dependent on both of the syllables of yáwâ being associated with the same High tone. The word kóng'à is different. It has one High tone on kó and a separate H (and L) on ng'à. Thus the first H of kóng'à undergoes High Tone Lowering after the associative

particle, resulting in kòng'â.

The use of the above items is illustrated in (193).

- (193) (a.) dó dòggâ kò kéré lò kòng'â  
'you fetched it with whose gourd?'
- (b.) kíténg' nà kòng'â tiki Jàdà  
'whose cow is to be given to Jada?'
- (c.) kópò ló kòng'â lò likin  
'whose cup is lost?'
- (d.) Jàdà yèmbá kò kúsúk tì kòng'â  
'Jada married with whose cows? -- i.e.  
whose cows did Jada use as the dowry for  
his marriage?'
- (e.) 'bólòt tí kòng'â lò 'yùrá  
'whose grain was burned?'

The associative particle is of course subject to High Tone Lowering when the preceding word is H-final. The lowering of the associative particle does not, however, impinge upon the ability of the associative particle to itself lower the kó element in kòng'â. This phenomenon has, of course, been discussed at length in the section on the associative construction.

In order to express the question 'from whom?' or 'from which one/ones?', Bari uses the following expressions:

- (194) kó ngà 'from whom?'  
kàsè ng'à 'from whom (pl.)?'
- kó ng'à lón 'from which one (masc.)?'  
kó ng'à nán 'from which one (fem.)?'  
kó kùlòn 'from which ones (masc.)?'  
kó kùnèn 'from which ones (fem.)?'

We will consider the combination of kó with ng'â first. The change of ng'â to ng'à after kó could be attributed to High Tone Lowering. The change of ng'â to ng'à after kàsè is not accounted for by any general principle that we have been able to identify.

The data in (195) illustrate the fact that kó will undergo High Tone Lowering when it stands after a H-final word.

- (195) (a.) Pòní à jón bóngó? kò ng'á  
'Poni brought the cloth from whom?'
- (b.) dó à jón kò ng'á  
'from whom did you bring it?'

Next let us consider the forms where kó is combined with the demonstrative-based interrogatives lón, nán, kùlòn, and kùnèn: kó ng'álón, kó ng'ànán, kó kùlòn, and kó kùnèn. Notice that kó lowers ng'á to ng'à, but since ng'à is unable to affect lón and nán, these elements remain High. In the case of kó kùlòn and kó kùnèn, the kó lowers the kú, but the kú must already have lowered the elements lón and nán.

The following examples show that kó continues to be subject to High Tone Lowering when in conjunction with ng'á lón, etc.

- (196) (a.) dó ryá kò ng'álón  
'you found it from which one?'
- (b.) Wàní à jón bóngó? kò ng'álón  
'Wani brought the dress from whom?'
- (c.) Pòní à jón tэрò kó ng'álón  
'Poni brought the mat from whom?'
- (d.) tэрò jwé kó kùlòn ng'ùtú  
'the mat was brought from which people?'  
(cf. ng'ùtú 'people')
- (e.) yáwā mātā kó kùnèn midjìk  
'beer was drunk from which families?'  
(cf. midjìk 'families')
- (f.) 'bólòt à dòkà kó kùnèn mèlèsèné  
'the grain was brought from which  
gardens?' (cf. mèlèsèné 'gardens')

- (g.) ló wúrí ryé kó kùlòn kijàkwá  
 'this pig was found from which animals?'  
 (cf. kijàkwá 'animals')

The data in (196) are somewhat startling in the case of kó kùlòn and kó kùnèn. Notice that when these expressions are followed by the noun that they modify, the tonal shape of the noun is radically altered. For example, ng'útú shifts to LH, mídiik shifts to LLH, mélésénò shifts to LLLH, kijàkwá shifts to LLH. It seems clear that in fact the construction kó kùlòn Noun and the construction kó kùnèn Noun actually involve the assignment of a tonal melody whereby the expression after kó is all Low up until the final syllable which is High. The reader may recall that this was the pattern imposed by the preposition i when it was followed by a demonstrative and then the noun that the demonstrative modified.

In our presentation of the simple interrogative pronouns, we provided examples which included instances where these pronouns were preceded by a Low-toned kò 'with'. For the most part this combination provides no very noteworthy material. The Low-toned kò in the expressions kò ng'â 'with whom?', kò nyô 'with what? why?', kò lón/ kò nán 'with which one?', kò kùlòn/ kò kùnèn 'with which ones?' undergoes no change in the post-H environment.

- (197) (a.) Jàdà jàmbú kò ng'â  
 'with whom is Jada talking?'  
 (b.) Pòní à dók kó ng'â kájè  
 'whom did Poni fetch yesterday?'

The one peculiarity of this construction is that kò is not combined with kóng'â 'who (pl.)?' Rather, kàsé 'with' is used in its place:

- (198) (a.) Jàdà jàmbú kàsé kóng'â  
'Jada is talking with whom?'
- (b.) Pòní à dók kàsé kóng'â  
'Poni fetched it with whom?'
- (c.) dó à mǎrâ kàsé kóng'â  
'you fought with whom?'

We have now explored in some detail the susceptibility of the interrogative pronouns to (a) undergoing High Tone Lowering and High Tone Spread as well as their ability to (b) trigger these processes. In the examples cited as illustrations of these various interrogative pronouns, one finds many cases where the main verb is used without a preceding particle. The tonal shape of the verb in these cases sometimes differs from the form that we cited in Chapter 2. These changes are parallel to those that we observed earlier in connection with relative clause constructions.

The changes that occur are illustrated in (199).

(199) H monosyllabic root changes to L

- (a.) nán súkùrì nà dèr Pòní  
'which chicken did Poni cook?'  
(cf. dér, a H root)
- (b.) Pòní sòn wáràgà kò nyô  
'Poni sent the letter with what?'  
(cf. sòn, a H root)

HL (indefinite verbs) change to LH

- (c.) Jàdà 'dèbbá nyô 'what is Jada holding'  
(cf. 'dèbbà, indef. form of 'dép (H))
- (d.) ng'â gà'yú Jádà  
'who looked for Jada'  
(cf. gá'yù, indef. form of gá? (H))
- (e.) nán ng'útù? nà 'dèbbá  
'which person held it?'

HL (passive benefactive verb) changes to LF

- (f.) lón ló 'dùkwè?  
 'which one was carried this way?'  
 (cf. 'dùkwè?', passive benefactive form of  
 'dók)

HF (passive) changes to LH

- (g.) lón dwát lò gílá  
 'which bull is sick?'  
 (cf. gílá 'sick', an inherently passive  
 verb)
- (h.) lón kéré lò 'dókó  
 'which gourd was the one carried?'  
 (cf. 'dókó, passive of 'dók)

HHH verb changes to LHL

- (i.) Póní 'dépákin ng'á  
 'for whom is Poni holding it?'  
 (cf. 'dépákin, benefactive form of 'dép)

HHH (passive) changes to LHH (or LHL)

- (j.) nán gúli nà 'bùyútá ('bùyútà)  
 'which whistle is the one to be sharpened?'  
 (cf. 'bùyútá, passive form of 'bùyút)
- (k.) nán ná 'bùyútá ('bùyútà)  
 'which one is to be sharpened?'

HHF verb changes to LHL

- (l.) Jàdà 'bùyúddyà nyô  
 'what is Jada sharpening'  
 (cf. 'bùyúddyâ, indef. form of 'bùyút)
- (m.) lón ló 'bùyúddyà wálé  
 'which one sharpened the knife?'  
 (cf. 'bùyúddyâ)
- (n.) lón ng'útù? lò 'dépúndyà kítí  
 'which person held the chair this way?'  
 (cf. 'dépúndyâ, dir. toward indef. form of  
 'dép)
- (o.) lón ng'útù? lò 'dépáddù kéré  
 'which person held the gourd that way?'  
 (cf. 'dépáddû, dir. away indef. form of  
 'dép)



- (p.) lón ló 'dòkòrì?  
'which one was used for carrying?'  
(cf. 'dòkòrì, instr. of 'dók)

HHL verbs change to LHL

- (q.) lón kéré lò 'dùkúki?  
'which gourd was carried for s.o.?'  
(cf. 'dùkúki?, passive benefactive of 'dók)
- (r.) lón ló 'dùkúki?  
'which one was carried for s.o.?'
- (s.) nán ná 'bùyútwè?  
'which one was sharpened this way?'  
(cf. 'bùyútwè?, passive dir. toward of 'bùyút)
- (t.) lón ló 'dòkójì?  
'which one was carried away from us?'  
(cf. 'dòkójì?, pass. dir. away of 'dók)

HHHH verb changes to LHLL

- (u.) Pòní 'bùyútàkin ng'â  
'for whom is Poni sharpening it?'  
(cf. 'bùyútàkin, benefactive form of 'bùyút)

HHHL verb changes to LHLL

- (v.) nán gúlì nà 'bùyútàki?  
'which whistle was sharpened for s.o.?'  
(cf. 'bùyútàki?, passive benefactive of 'bùyút)
- (w.) nán ná 'bùyútàki?  
'which one was sharpened for s.o.?'
- (x.) nán ná 'bùyútàji?  
'which one was sharpened away from here?'  
(cf. 'bùyútàji?, passive dir. away of 'bùyút)

HHHF verb changes to LHLL

- (y.) nán ná 'bùyútùndyà  
'which one sharpened it this way?'  
(cf. 'bùyútùndyà, dir. toward indef. of 'bùyút)

(z.) lón ng'útù? lò 'bùyútàddù wálé  
 'which person sharpened the knife?'  
 (cf. 'bùyútáddù, dir. away. indef. form of  
 'bùyút)

(aa.) lón ló 'bùyútàri  
 'which one was used for sharpening?'  
 (cf. 'bùyútári, passive instr. form of  
 'bùyút)

HHHFF verb changes to LHLLL

(bb.) Jàdà lón ló 'bùyútàkindyà wálé  
 'which Jada is the one who sharpened the  
 knife for somebody' (cf. 'bùyútákindyâ)

The changes that occur in (199) apparently have nothing to do with the tone of the noun that precedes. We have cited examples both of Low-final nouns and High-final nouns, and in each case the underlyingly High verb appears in the same pattern.

Let us briefly review what the pattern displayed by the verb in (199) is. If the verb is underlyingly H and has just one syllable, then that syllable is L; if the verb is underlyingly H and has two syllable, then the verb shows a LH pattern; and, finally, if the verb is underlyingly High and has three (or more) syllables, then the verb shows a LHL pattern. Let us refer to this as the L(H)(L) pattern. One deviation from this pattern may be only apparent. The HL verbal form 'dùkwé? appears as 'dùkwé? (i.e. with a LHL pattern) rather as \*'dùkwé?. This may be only a superficial deviation in that one might argue that 'dùkwé? derives at a deeper level from three syllables: /'duk-u-e-?/ and that the assignment of a LHL pattern is based on this underlying syllable structure.

The other deviation from the L(H)(L) pattern is in the case of a passive verb, where we see that 'bùyútá can be realized either with a LHL pattern (as expected perhaps) or

with a LHH pattern. The LHH pattern, of course, is just the form that an underlying LHL bisyllabic verb root would display in the passive (cf. sápúká).

All of the examples above involve underlyingly High verb roots that change their tonal pattern to L(H)(L). Underlying LHL verb roots are generally unaffected in these same constructions -- they associate to their LHL melody just as usual.

(200) LHL monosyllabic root remains H on the surface

- (a.) nán bǒngó? ná júp Jádà  
'which cloth did Jada wear?'  
(cf. júp, a LHL root)
- (b.) Póní dók kò lón kéré  
'with which gourd did Poni fetch it?'  
(cf. dók, a LHL root)
- (c.) lón kǐjàkù lò mét dò  
'which animals did you see?'  
(cf. mét, a LHL root)

LF verbs remain unchanged (or variably changes to LL)

- (d.) Jádà dòggá nyô 'what is Jada fetching?'  
(dòggá, indef. form of dók)
- (e.) Póní mèddyâ ng'â 'who did Poni see?'  
(mèddyâ, indef. form of mét)
- (f.) ng'â lò dòggá Jádà  
'who fetched Jada?'
- (g.) lón kéré lò dòkà  
'which gourd is the one fetched?'  
(cf. dòkà, passive of dók)
- (h.) lón ló dòkà  
'which one is to be fetched?'
- (i.) lón ló dòkwé?  
'which one was fetched from here?'  
(cf. dòkwé?, pass. dir. toward form of dók)

LHL verbs remain unchanged

- (j.) Pòní dòkàkin ng'á  
'for whom is Poni fetching it?'
- (k.) Jàdà sàpúggà nyò  
'what is Jada overturning'
- (l.) kúng'á nà sàpúggà kí'bó  
'who (pl.) overturned the canoe?'
- (m.) nán ná dòkúndyà kéré  
'which one fetched the gourd from here?'  
(cf. dòkúndyà, dir. toward indef. form of dók)
- (n.) nán ng'útù? nà dòkáddù Pòní  
'which person fetched Poni from somewhere?'  
(cf. dòkáddù, dir. away indef. form of dók)
- (o.) nán tэрò nà 'dèpàri ng'úrò  
'which mat is used for holding the child?'  
(cf. 'dèpàri, instr. form of 'dép)
- (p.) lón kéré lò dòkàri yáwá  
'which gourd is used for fetching beer?'  
(cf. dòkàri, instr. form of dók)
- (q.) lón kéré lò dòkàki?  
'which gourd was the one fetched for s.o.?'  
(cf. dòkàki?, pass. benef. form of dók)
- (r.) lón ló dòkàki?  
'which one was fetched for s.o.?'
- (s.) nán ná sàpúkwè?  
'which one was overturned this way?'  
(cf. sàpúkwè?, pass. dir. toward of sàpùk)
- (t.) lón ló dòkàjì?  
'which one was fetched from here?'  
(cf. dòkàjì?, pass. dir. away form of dók)

LHH (passive) remains LHH or changes to LHL

- (u.) nán kiti nà sàpúkà (sàpúkà)  
'which chair was overturned?'  
(cf. sàpúkà, pass. of sàpùk)
- (v.) nán ná sàpúkà (sàpúkà)  
'which one was overturned?'

- (w.) lón ló 'dò'dókó  
'which one was being carried?'  
(cf. 'dò'dókó, pass. form of reduplicated  
form of 'dók)
- (x.) lón ló dòdóká  
'which one was being fetched?'  
(cf. dòdóká, pass. form of reduplicated form  
of dók)

LHLL verbs remain unchanged

- (y.) Póni sàpúkàkin ng'â  
'what is Poni overturning?'  
(cf. sàpúkàkin, benef. of sàpúk)
- (z.) lón ló sàpúkùndyà kí'bó  
'which one overturned the canoe this way?'  
(cf. sàpúkùndyà, dir. toward indef. form of  
sàpúk)
- (aa.) lón ng'útù? lò sàpúkàddù kí'bó  
'which person overturned the canoe that  
way?' (cf. sàpúkàddù, dir. away indef. form  
of sàpúk)
- (bb.) nyô lò sàpúkàri kí'bó  
'what is used for overturning the canoe?'  
(cf. sàpúkàri, instr. form of sàpúk)
- (cc.) nán kití nà sàpúkàkí?  
'which chair was overturned for s.o.?'
- (dd.) nán ná sàpúkàkí?  
'which one was overturned for s.o.?'

LHLH (passive) verbs remain unchanged

- (ee.) nán ná 'bù'búyùtá  
'which one was being sharpened?'  
(cf. 'bù'búyùtá, pass. form of reduplicated  
form of 'búyút)
- (ff.) nán ná sàsápùkà  
'which one was being overturned?'  
(cf. sàsápùkà, pass. form of reduplicated  
form of sàpúk)

LHLLL verbs remain unchanged

- (gg.) Pòní dilílikindyà ng'â  
'for whom is Poni winnowing it?'

LHLLL verbs remain unchanged

- (hh.) lón ló sàpúkàkindyà kí'bó  
'which one overturned the canoe for somebody?'
- (ii.) nán ná dilílikindyà Pòní  
'which one winnowed for Poni?'
- (jj.) ng'â lò dilíliyùndyà 'bólòt  
'who winnowed the grain this way?'  
(cf. dilíli-yùn-dy-à, dir. toward indef. form of dilíli)
- (kk.) nán ng'útù? nà dilíliyàddù  
'which person (fem.) winnowed that way?'  
(cf. dilíliyàddù, dir. away. indef. form of dilíli)
- (ll.) nán kábi nà dilíliyàri 'bólòt  
'which basket was used for winnowing the grain?'

In the above examples, we see clearly that (a) the underlyingly LHL verb roots appear in these constructions without any change from the shape that they would have if a particle such as à preceded and (b) the tone of the preceding noun has no influence on the tone pattern of the verb. The only deviations from this pattern are (a) a LF word seems to show some variation between the normal LF realization and a LL realization, and (b) a LHL passive verb shows either the expected LHH pattern or a LHL pattern.

If the verbal particle à precedes the verb, then no tonal change takes place in the verb in structures that are otherwise parallel to the ones exemplified in (199)-(200).

- (201) (a.) Jàdà à 'débbà nyô  
'what did Jada hold?'
- (b.) Pòní à 'dépákin ng'â  
'for whom did Poni hold it?'
- (c.) Jàdà à 'búyúddyâ nyô  
'what did Jada sharpen?'
- (d.) Jàdà à dòggâ nyô  
'what did Jada fetch?'
- (e.) Pòní à dòkákin ng'â  
'for whom did Poni fetch it?'
- (f.) Jàdà à sàpúggâ nyô  
'what did Jada overturn?'

We have now given a fairly exhaustive account of the verbal forms that occur in conjunction with the interrogative pronouns. In the next chapter we will look in detail at the tonology of the verb in context.

#### 4.4. The noun phrase in context.

We have so far examined the tonal behavior of the noun and various other elements that can co-occur with the noun in a noun phrase. We have so far established that the rule of High Tone Lowering must be assumed to apply in a left-to-right iterative fashion across the noun phrase. One problem with this approach is that the unit consisting of the associative particle plus following noun must undergo the rule of High Tone Lowering prior to this left-to-right iteration across the phrase. We suggested that this problem might be solved by considering the associative plus noun to be a word-level unit and applying the rule of High Tone Lowering to the word before applying it across the phrase.

We have shown that the left-to-right iterative application of High Tone Lowering is not restricted to position inside the noun phrase, but rather that this mode of application works across syntactic constituents in the

sentence. In this, the concluding section of this chapter, we will provide further exemplification of this point.

The following data show that a noun (phrase) ending in a High affects the immediately following noun (phrase). The examples used here involve cases where a verb can govern a double object construction. In (202) we show that nouns beginning with High tones are subject to High-Lowering when preceded by a noun ending in a High.

- (202) (a.) lòpéng' jàkindyà kiné dūrà 'he took grain for the goat' (cf. kiné 'goat', dūrà 'grain')
- (b.) jàkí Wàní pátà 'bring the string to Wani' (cf. Wàní (a proper name), pátà 'string')
- (c.) Pòní jàkindyà Wàní yáwà 'Poni brought beer for Wani' (cf. Wàní (a personal name), yáwà 'beer')
- (d.) Wàní lòkàkindyà bàbá táping'i 'Wani caught a guinea fowl for father' (cf. bàbá 'father', táping'i 'guinea fowl')
- (e.) Pòní à jàkindyà módóng' pílilí 'Poni took a small knife to the old man' (cf. módóng' 'old man', pílilí 'small knife')
- (f.) Jàdà à tindyà kiténg' gwóròkó? 'Jada gave a cow to the haughty man' (cf. kiténg' 'cow', gwóròkó? 'haughty man')
- (g.) tíkí búk gwóròkólò 'give the book to the haughty people' (cf. búk 'book', gwóròkólò 'haughty people')
- (h.) nân à tín Wàní didilittí 'I gave Wani an ornament' (cf. Wàní (a name), didilittí 'ornament')
- (i.) tíkí Pòní témèné? 'give Poni yellow ants' (cf. témèné? 'yellow ants')

The data in (202) show that nouns that begin with a High or a sequence of Highs -- H as in (202a), HH as in (202b-d),



HHH as in (202e-g), and HHHH as in (h) and (i) -- change when located after a noun ending in a High: H changes to Low, HH changes to HL, HHH to HLH, and HHHH to HLLH. These changes are, of course, exactly the same changes as nouns undergo after a verb ending in a High.

The data in (203) show that nouns that begin with a Low raise that Low to High when preceded by a noun ending in a High:

- (203) (a.) Jàdà gwàrákindyà Pòní ng'ú mí 'Jada bought a needle for Poni' (cf. Pòní (a personal name), ng'ú mí 'needle')
- (b.) nân gwèkindyà Wàní tэрò 'I made a papyrus mat for Wani' (cf. Wàní (a personal name), tэрò 'papyrus mat')
- (c.) ...à tín ng'ú mí Jádà '...gave a needle to Jada' (cf. ng'ú mí 'needle', Jádà (a personal name))

If the first noun in a sequence of two nouns does not end in a High tone, then the second noun is of course not affected. A few examples illustrating this point are given in (204).

- (204) (a.) Tòmbèk à tín gùrè módóng' 'Tombek gave the dove to the old man' (cf. gùrè 'dove', módóng' 'old man')
- (b.) Kúlàng' à tín sisilíwà Bòjò 'Kulang gave the mushroom to Bojo' (cf. sisilíwà 'mushroom', Bòjò (personal name))
- (c.) bòdò à tín tórè? tэрò 'the craftsman gave his son a mat' (cf. tórè? 'craftsman', tэрò 'mat')
- (d.) bòdò à tín tэрò tórè? 'the craftsman gave a mat to his son' (cf. preceding example)

We have seen so far that in a sequence of two noun phrases, the rules of High Tone Lowering and High Tone

Spread can affect the second noun phrase if the first noun phrase ends in a High tone. Let us now consider the fact that this sequence of two noun phrases is itself located after a verb, and this verb may end in a High tone. In particular, let us consider the case where we have a verb that ends in a High tone followed by a noun that ends in a High tone in its underlying structure but would end in a Low tone subsequent to the application of High Tone Lowering. Suppose that this noun in turn is followed by another noun that starts with a High tone. Does the first noun still induce High-Lowering on the second noun even though the first noun ultimately changes its final High to Low?

Examine the data in (205):

- (205) (a.) ...à tìn módòng' pátá?  
'...gave the old man a string'
- (b.) ... à tìn pátà? módóng'  
'... gave a string to the old man'
- (c.) ...à tìn pílílí gwóròkó?  
'...gave a small knife to the haughty man'
- (d.) ...à tìn gwóròkó? pílílí  
'...gave the haughty man a small knife'

Each of the nouns in (205) has all High-toned syllables: módóng', pátá?, pílílí, and gwórókó?. It is clear from (205) that in every case the first of the nouns undergoes High-Lowering by virtue of standing after a word that ends in a High. In (205a) módóng' changes to módòng', in (205b) pátá? changes to pátà? (the first syllable of the noun is realized on a High tone due to the application of High Tone Spread and Contour Simplification to the output of High-Lowering); in (205c) pílílí changes to pílílí and in (205d) gwórókó? changes to gwóròkó? (where the first syllable of the noun appears as High-toned again due to the affect of High Tone Spread and Contour Simplification, and

where the last syllable appears as High-toned due to the fact that in a series of three or more High-toned syllables at the beginning of a word the last syllable escapes High-Lowering).

While the first noun in (205a) always undergoes High-Lowering, the second noun sometimes undergoes High-Lowering as well (cf. (205c) and (205d)) and sometimes does not (cf. (205a) and (205b)). What is the explanation for the fact that in (205d) pílíli changes to pílíli whereas in (205b) módóng' does not change to módóng'?

The answer seems to be clear: in (205d), the first noun continues to end in a High tone after it has undergone High-Lowering, and thus this noun is still able to trigger High-Lowering on the following noun; in (205b), on the other hand, once the first noun has undergone High-Lowering, that noun ends in a Low tone and is thus not able to trigger High-Lowering on the second noun. Thus the correct results in (205) will be obtained as long as we say that High-Lowering applies to the first noun before it applies to the second noun. How can we achieve this mode of application of High-Lowering? Clearly, if we say that High-Lowering operates in a Left-to-Right fashion across the sentence we can generate the correct data.

We have shown in (205) that the application of High-Lowering to the first noun in the Verb-Noun-Noun construction may prevent the application of High-Lowering to the second noun. When High-Lowering causes the last syllable of the first noun to become Low-toned, it not only prevents that noun from causing High-Lowering (as shown above), but it also prevents that noun from triggering High Tone Spread (since the noun no longer has a final High that can spread). On the other hand, if the first noun continues to end in a High tone subsequent to undergoing High-Lowering, that High will be able to spread onto a following word. These facts are shown in (206):

- (206) (a.) ...à tìn tètòn bùdú?  
'...gave the young men a feast'  
(cf. tètòn 'young men', bùdú? 'feast')
- (b.) ...à tìn tà kàrin '...gave you a name'  
(cf. tá 'you', a Hí monosyllabic noun;  
kàrin 'name')
- (c.) ...à tìn bóyítát jádà '...gave the net to  
Jada' (cf. bóyítát 'net', Jàdà (personal  
name)')

We have shown so far that in a Verb-Noun-Noun sequence, the High at the end of the verb will trigger High-Lowering on the immediately following noun; once the tonal shape of the first noun has thus been determined, that tonal shape will determine the tonal shape of the second noun. In (207) we show that application of High Tone Spread from the verb to the first noun will in no way impair the ability of the first noun to affect the second noun. The reason for this is obvious: the effect of High Tone Spread is never to delete a High-toned final mora or to create a High-toned final mora, thus it cannot impinge in any way on whether a word can trigger High-Lowering or High Tone Spread on a following word.

- (207) (a.) ...à jákín póní kéré '...took to Poni a  
gourd' (cf. póní (personal name), kéré  
'gourd')
- (b.) dó à jákín wání kí'bò 'you brought to Wani  
a canoe' (cf. wání (personal name), kí'bó  
'canoe')
- (c.) ...à tìn kórêk yábà '...gave the spade to  
the old man' (cf. kórêk 'spade', yábà 'old  
man')

In (207a) and (207b), a LH noun becomes HH after a verb ending in a High as a consequence of High Tone Spread and Contour Simplification. The noun of course continues to be able to trigger High-Lowering and High Tone Spread on the

immediately following noun. In (207c) a LHL noun becomes HHL after a verb ending in a High, again as a consequence of High Tone Spread and Contour Simplification. But since this noun continues to end in a Low tone it cannot cause any change on an immediately following noun.

We have shown that (a) High-Lowering must apply in a Left-to-Right fashion, at least to the major constituents in the Verb-Noun-Noun sequences examined; (b) the application of High Tone Spread to the first noun will in no way affect the application of High-Lowering to the second noun (due to the fact that High Tone Spread can neither feed nor bleed application of High-Lowering).

In Chapter 5, we turn our attention to the tonal behavior of the verb, verbal particles, and the adverb.

## CHAPTER 5

## VERB PHRASE TONOLOGY

5.0. Verbs in context.

In Chapter 4 we examined the tonal behavior of nouns (and other elements in the noun phrase) in terms of the phrase-level tonological rules that we discovered in Bari -- particularly, High Tone Lowering and High Tone Spread. In this chapter we turn our attention to the verbal word, other elements in the verbal phrase, and elements operating at the clause level (rather than inside the noun phrase) and examine their behavior in terms of these same phrase-level tonal rules.

The first topic that we will be concerned with is whether the verbal word is tonally affected by a preceding word. But before we examine this issue, there is one aspect of the tonal structure of Bari verbs that we must clarify. The verbal forms discussed in Chapter 2 were, for the most part, cited in the shape that they have in the context after the past tense particle  $\dot{a}$ . (We referred to this as their isolation form.) Only in the case of the reduplicative and repetitive stems did we cite examples in other contexts.

We mentioned that there is another form of the verb, a form that we labelled the context form. The context form of the verb appears, for example, in certain situations where no verbal particle is employed. In general, a verbal word (when functioning as the main verb of a sentence) is preceded by one or more verbal particles (for a discussion of these particles, see below). There is, however, a habitual construction that is used without any particle. In

this context we find that, in some cases, the verb appears in a shape that differs from the isolation form. Examples follow:

- (1) (a.) Jàdà 'dèp pèròk lîng'  
'Jada holds it every day'  
( 'dèp, a H root)
- (b.) Pòní 'dèp pèròk lîng'  
'Poni holds it every day'
- (c.) Jàdà mók pèròk lîng'  
'Jada holds it every day'  
(mók, a LHL root)
- (d.) Pòní mók pèròk lîng'  
'Poni holds it every day'
- (e.) Pòní 'bùyút pèròk lîng'  
'Poni sharpens it every day'  
( 'bùyút, a H root)
- (d.) Pòní sàpùk (or: sàpùk) pèròk lîng'  
'Poni overturns it every day'  
(sàpùk, a LHL root)

In (1) we see that LHL verbs appear in what we have termed their isolation forms (cf. mók, sàpùk). The only deviation from this is that sàpùk can also be pronounced with a LL pattern in (1) and this is not a possible isolation form.

We see in (1) that monosyllabic H verbs assume a Low pronunciation in this context while a H bisyllabic verb appears with the shape LH. These changes are independent of whether the preceding noun is L-final or H-final. We have no very good explanation for the particular patterning that is observed in (1) for the H roots. There is clear evidence below that trisyllabic and longer H verbal forms display a LHL pattern. Thus it seems that in this habitual construction, High verbs have the shape L if monosyllabic, LH if bisyllabic, and LHL if trisyllabic or longer.

The habitual form of an indefinite verb is shown in (2):

- (2) (a.) Jàdà 'dèbbá pèròk lìng'  
'Jada holds s.t. every day'
- (b.) Pòní mòggà pèròk lìng'  
'Poni holds s.t. every day'
- (c.) Jàdà 'bùyúddyà pèròk lìng'  
'Jada sharpens s.t. every day'
- (d.) Pòní sàpúggà pèròk lìng'  
'Poni overturns s.t. every day'

LHL indefinite verbs in (2) continue to display their isolation form. An indefinite H verb based on a monosyllabic root has the shape LH, which is of course parallel to the LH shape displayed in (1) by the bisyllabic verb root 'bùyút. An indefinite H verb based on a bisyllabic root displays a LHL pattern in the habitual. We see throughout the following discussion that whenever the verbal form is trisyllabic or longer, it displays a LHL melody even if underlyingly a High root.

The habitual form of a benefactive verb is shown in (3):

- (3) (a.) Pòní 'dèpákin pèròk lìng'  
'Poni holds it for him every day'
- (b.) Jàdà mòkàkin pèròk lìng'  
'Jada holds it for him every day'
- (c.) Jàdà 'bùyútàkin pèròk lìng'  
'Jada sharpens it for him every day'
- (d.) Pòní sàpúkàkin pèròk lìng'  
'Poni overturns it for him every day'

Notice that both underlying H and underlying LHL roots both display a LHL melody in these forms. This same melody is manifested in the corresponding indefinite forms:

- (4) (a.) Jàdà 'dèpákindyà pèròk lìng'  
'Jada holds s.t. for him every day'



- (b.) Jàdà mòkàkindyà pèrók líng'  
'Jada holds s.t. for him every day'
- (c.) Jàdà 'bùyútàkindyà pèrók líng'  
'Jada sharpens s.t. for him every day'
- (d.) Pòní sàpúkàkindyà pèrók líng'  
'Poni overturns s.t. for him every day'

The habitual form of the direction toward verb is illustrated in (5):

- (5) (a.) Jàdà 'dèp-ún pèrók líng'  
'Jada holds it this way every day'
- (b.) Pòní mòk-ún pèrók líng'  
'Poni holds it this way every day'
- (c.) Jàdà 'bùyút-ùn pèrók líng'  
'Jada sharpens it this way every day'
- (d.) Jàdà sàpúk-ùn pèrók líng'  
'Jada overturns it this way every day'

Examination of these data show that LHL verb roots have their citation form (LH in the case of mòk-ún and LHL in the case of sàpúk-ùn). A form base on a H monosyllabic root also has a LH shape -- cf. 'dèp-ún'. This is the shape that all bisyllabic High forms have in the habitual. A form based on a H bisyllabic root has the shape LHL -- again, like all trisyllabic or longer High forms in the habitual.

The corresponding indefinite forms are unremarkable: 'dèpúndvâ, mòkúndvâ, 'bùyútúndvâ, sàpúkúndvâ. They are all trisyllabic and thus show the LHL pattern.

Direction away verbal forms are all trisyllabic or longer and thus also all display a LHL melody in the habitual:

- (6) (a.) Pòní 'dèpàrà? pèrók líng'  
'Poni holds it that way every day'

- (b.) Pòní mòkàrà? pèrók líng'  
'Poni holds it that way every day'
- (c.) Pòní 'bùyútàrà? pèrók líng'  
'Poni sharpens it that way every day'
- (d.) Pòní sàpúkàrà? pèrók líng'  
'Poni overturns it that way every day'

Again, the indefinite forms are unremarkable: 'dèpáddù, mòkàddù, 'bùyútàddù, sàpúkàddù.

The simple passive verb in the habitual is rather interesting. Examples:

- (7) (a.) ng'úrò 'dèpá pèròk líng'  
'the child is held every day'
- (b.) kéré mòkà pèrók líng'  
'the gourd is held everyday'
- (c.) wálé 'bùyútá pèrók líng'  
'the knife is sharpened every day'
- (d.) kítì sàpúkà pèròk líng'  
'the chair is overturned every day'

LHL verb roots display their citation forms (LF in the case of mòkà and LHH in the case of 'sàpúkà). The passive based on a monosyllabic verb root shows the pattern LH, which is -- of course -- just the pattern that all bisyllabic High verbal forms show in the habitual. The example (7c) is noteworthy. If we assume that trisyllabic and longer verbal forms are assigned a LHL melody in the habitual construction, then the form 'bùyút-á shows clearly that the H tone associated with the passive suffix is not replaced by this LHL pattern. In other words, 'bùyút-á behaves like a word that has a LHL melody and a High tone associated with the passive suffix. It does not behave like a word with just a LHL melody.

Passive benefactive verbal forms (as they appear in the habitual construction) are illustrated in (8):

- (8) H roots  
 'dèpáki?  
 'bùyútàki?

LHL roots

- mòkàki?  
 sàpúkàki?

These verbal forms display a LHL pattern consistently, regardless of the lexical tone of the root.

(9) exemplifies direction toward passive forms in the habitual construction:

- (9) H roots  
 'dèpwé?  
 'bùyútwé?

LHL roots

- mòkwé?  
 sàpúkwé?

These examples consistently exhibit a LHL melody, regardless of the underlying tonal structure of the root. It is perhaps not obvious why 'dèpwé? should have this pattern, given that elsewhere in the data on the habitual construction we have seen that underlying High verbs exhibit a LH pattern when the verb form is bisyllabic. That is, we might have expected 'dèpwé? instead of 'dèpwé?. The only suggestion that we can make is that 'dèpwé? is only superficially bisyllabic -- it is presumably derived from /'dep-u-e-?/. Thus the shape 'dèpwé? may in fact simply represent the LHL melody expected of any trisyllabic verbal form based on a H verb root.

Other derived passives do not shed any additional light on this construction, so we will dispense with further exemplification. The reader will perhaps recognize that the tonal patterning exhibited in this particular

construction (where the verb word is not preceded by any particle) is the same patterning as was noted in Chapter 4 in connection with various other syntactic constructions where the verb was not preceded by a particle (cf. the discussion of relative clauses, interrogatives). This tonal pattern clearly has nothing to do with the tonal shape of the environment -- indeed, it should be noted that a H-final word has no affect at all on the verbal forms discussed above. The verbal forms are susceptible neither to High Tone Lowering nor to High Tone Spread. The underlyingly LHL verbs remain intact, while the underlyingly High verbs assume the shape L (if monosyllabic), LH (if bisyllabic), and LHL (if trisyllabic or longer).

Let us now consider various contexts in which a verbal word may appear in Bari and examine whether the verbal word is subject to High Tone Lowering and High Tone Spread. In order to see whether a verb is subject to these rules, we must find environments where the verb can be preceded by a word that ends in a High tone. There are several such environments.

#### 5.1. Post-H verbs: the "infinitive" construction.

One construction where a verb form may follow immediately a H-toned word is when the verb stem functions as a sort of 'infinitive' complement to an immediately preceding verb. Examples appear below. (It should be noted that in this construction, the indefinite form of the verb is used. Definite forms of the verb are generally excluded, although an irregular verb such as *tû* can occur in this infinitival construction.)

- (10) (a.) *nân nyànyár gwòjà* 'I like to dance'  
(cf. *gwó-j-à*, indef. form of *gwó* 'dance')
- (b.) *nân dèdén wùrjà* 'I know how to write'  
(cf. *wùr-j-à*, indef. form of *wùr* 'write')

- (c.) Pòní nyànyár dèrjà 'Poni likes to cook'  
(cf. dèr-j-à, indef. form of 'dèr 'cook')
- (d.) Jàdà nyànyár tù 'Jada likes to go'  
(cf. tù 'go')

Notice that the main verb in (10) is H-final and a HL verbal form such as gwójà, wúrià, dèrjà, and tù all lower their initial H to L when they function as a complement to a H-final verb. This change certainly suggests that verbs may be undergoing High Tone Lowering. If we assume that the complement verb has undergone High Tone Lowering, then we must assume that the H of the preceding word is not (after triggering High Tone Lowering) able to spread onto the verb. gwójà would be entirely parallel to the noun kópò in this respect, and tù would be entirely parallel to ng'ûn (cf. Chapter 4 for discussion of the failure of High Tone Spread to apply to the output of High Tone Lowering in the case of HL... words).

Consider next the indefinite form of a bisyllabic H verb in the post-H environment:

- (11) (a.) Pòní dè màmár 'bóròjà kàdî  
'Poni will try to smear the house'  
(cf. 'bóró-j-â, indef. form of 'bóró  
'smear')
- (b.) nân nyànyár 'búyùddyâ wálé  
'I like to sharpen the knife'  
(cf. 'búyúd-dy-â, indef. form of 'búyút  
'sharpen')
- (c.) màmá nyànyár kúrùbbâ kùmùrà  
'my mother likes to roast oil seeds'  
(cf. kúrúb-b-â, indef. form of kúrúp  
'roast')

The data in (11) show that a HHF verb (which is the form that a High bisyllabic verb root will have in the indefinite form) changes to HLF in the post-H environment.

This, again, is just the change that a HHF noun undergoes in the post-H environment (cf. súmúttí 'fish', which has the post-H shape súmùttí).

If the indefinite form of a LHL verb root appears after a H-final verb in the infinite construction, we get the following results:

- (12) (a.) Jàdà búbùlá kéndyâ 'Jada is able to read'  
(cf. kèn-dy-â, indef. form of kén 'read')
- (b.) Jàdà nyànyár móggâ kùrà?  
'Jada likes to hold the ball'  
(cf. mòg-g-â, indef. form of mók 'catch')
- (c.) Pòní dèdén méddyâ kitá  
'Poni knows how to look after her job'  
(cf. mèd-dy-â, indef. form of mét 'see')
- (d.) ng'ùró nyànyár kábùrjà píòng'  
'the child likes to splash water'  
(cf. kábùr-j-à, indef. form of kábùr  
'agitate')
- (e.) yáró nyànyár sàpúggâ kí'bó  
'the hippo likes to overturn a canoe'  
(cf. sàpúg-g-à, indef. form of sàpúk  
'overturn')
- (f.) Pòní búbùlá dílìlìjà 'bólót  
'Poni is able to winnow grain'  
(cf. dílìlì-j-à, indef. form of dílìlì  
'winnow')

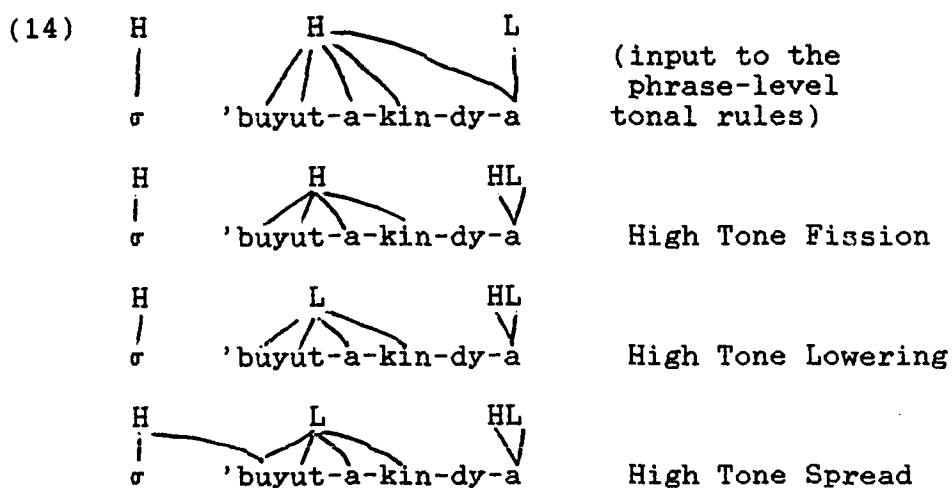
An examination of LHL indefinite verbs, which all begin with a Low tone on their initial syllable, reveals that their initial L is raised to H in the post-H environment. This is clearly to be analyzed in a fashion parallel to our analysis of nouns in the post-H environment: namely, the raising of an initially Low verb is simply the consequence of High Tone Spread followed by Contour Simplification.

It is possible to use indefinite forms of extended verbs in the infinitive construction. Some examples are

given in (13) of the benefactive indefinite form of the verb:

- (13) (a.) nân nyànyár dér-à-kin-dy-â...  
'I like to cook for...'  
(cf. dér-á-kin-dy-â 'cook for (indef.)')
- (b.) Jàdà nyànyár mét-á-kin-dy-â...  
'Jada likes to see s.t. for...'  
(cf. mèt-á-kin-dy-â 'see s.t. for (indef.)')
- (c.) nân nyànyár 'búyút-à-kin-dyâ...  
'I like to sharpen s.t. for...'  
(cf. 'búyút-á-kin-dy-â 'sharpen for (indef.)')
- (d.) nân nyànyár sápúk-à-kin-dy-â...  
'I like to overturn s.t. for...'  
(cf. sápúk-à-kin-dy-â 'overturn for (indef.)')

We see in (13) that a HHHF verb such as dér-á-kin-dy-â or a HHHHF verb such as 'búyút-á-kin-dy-â changes to HLLF and HLLLF respectively. These are, of course, precisely the expected changes given (a) the rule of High Tone Fission, (b) the rule of High Tone Lowering, (c) the rule of High Tone Spread, and (d) the rule of Contour Simplification. The derivation of the post-H pronunciation of 'búyút-á-kin-dy-â is shown in (14) below.





Consider next the case of indefinite benefactive verbs based on LHL roots: mèt-á-kin-dy-â and sápúk-â-kin-dy-â. In the post-H environment, they simply raise their initial L syllable to H. This raising is, of course, analyzed as the effect of High Tone Spread followed by Contour Simplification. It is not necessary to show the derivation of these items.

Besides the indefinite form of a simple verb root and a benefactive stem, it is also possible to use the indefinite form of the direction toward and direction away verb stems in the infinitive construction.

- (15) (a.) Póní nyànyár dér-ún-dy-â  
 'Poni likes to cook s.t. and bring it here'  
 (cf. dér-ún-dy-â 'cook and bring here  
 (indef.)')
- (b.) nân nyànyár mèt-ún-dy-â  
 'I like to see it this way'  
 (cf. mèt-ún-dy-â 'see this way (indef.)')
- (c.) nân nyànyár 'búyüt-à-d-d-û  
 'I like to sharpen it that way'  
 (cf. 'búyüt-à-d-d-û 'sharpen that way  
 (indef.)')
- (d.) nân nyànyár sápúk-à-d-d-ù  
 'I like to overturn in that way'  
 (cf. sápúk-à-d-d-ù 'overturn that way  
 (indef.)')

From these examples we see that a HHF verb such as dér-ún-dy-â or a HHHF verb such as 'búyüt-à-d-d-û becomes HLF and HLLF respectively. These changes are of course just the ones that we expect if High Tone Lowering applies to verbs in the post-H environment. (15) also shows that a LHL verb



such as mét-ún-dy-à and a LHL verb such as sápúk-à-d-d-ù changes its initial L to H, presumably through the combined effects of High Tone Spread and Contour Simplification.

The passive form of the verb can also be used in the infinitive construction (recall that a definite versus indefinite contrast does not exist in the passive). Examples of the passive of a simple verb root appear in (16).

(16) H verb roots in the passive

- (a.) ng'úrò nyànyár sónyò  
'the child likes to be sent away (to do s.t.)' (cf. sóny-ò 'be sent away')
- (b.) lùpùdí nyànyár 'dépà  
'a child likes to be held'  
(cf. 'dép-à 'be held')
- (c.) wálé búbùlá 'búyùtá  
'a knife can be sharpened'  
(cf. 'búyút-á 'be sharpened')
- (d.) kùmùrá búbùlá kúrùpá  
'oil seeds can be roasted'  
(cf. kúrúp-á 'be roasted')

LHL verb roots in the passive

- (e.) lòpéng' nyànyár piyá  
'she likes to be asked'  
(cf. piyá 'be asked')
- (f.) mátàt tí nyár dóká  
'the chief does not like to be sent for'  
(cf. dók-à 'be sent for')
- (g.) kítì búbùlá sápúk-á  
'a chair can be overturned'  
(cf. sápúk-á 'be overturned')
- (h.) píòng' búbùlá kábùrá  
'water can be splashed'  
(cf. kábùr-á 'be splashed')
- (i.) 'bólót búbùlá dilíli-yá  
'grain can be winnowed'  
(cf. dilíli-yá 'be winnowed')

The data in (16), illustrating the post-H shapes of simple passives, are for the most part straightforward. For example, consider the passive forms of H verb roots first. Monosyllabic H roots have the shape HF in the passive--cf. sónyá. In the post-H environment the HF shape is replaced by a HL shape. This change is just the usual one for a word that has the two H's initially followed by a L. The two H's escape High Tone Fission, and thus remain represented as a single H linked to two syllables. In post-H position, this H is replaced by L as a result of High Tone Lowering. Eventually, High Tone Spread extends a preceding H over onto the first syllable, thus creating a HL sequence on that syllable (a sequence that undergoes Contour Simplification).

A bisyllabic H verb stem has the shape HHH in the passive -- cf. 'búyút-á. Such HHH verbal forms change to HLH in the post-H context, which is just the expected change given the application of High Tone Fission and High Tone Lowering.

Turning to the LHL roots in the passive, we see that a LHL monosyllabic root has the shape LF in the passive--cf. métá the passive of mét. In the post-H environment, such verbs change their initial L to H. This change is obviously the result of High Tone Spread followed by Contour Simplification. Bisyllabic LHL verb roots have the shape LHH in the passive -- cf. sápúká, passive of sápúk. These items behave rather strangely in the post-H environment: they assume the shape HLH. This HLH is, of course, a natural one if the verb were a H verb root (since 'búyút-á does change to 'búyút-á after a H). But given a LHL verb, which shows up as LHH in the passive, we would rather have expected HHH (due to the operation of High Tone Spread and Contour Simplification). A quadrisyllabic LHL root has the shape LHLH in the passive -- cf. dililivá. In the post-H environment, this word simply raises its initial

The passive forms of extended verbs can also occur in the infinitive construction. (17) illustrates the passive of the direction away verbal form:

- (17) (a.) nân nyànyár sónyòji? pàjò  
 'I like to be sent far away  
 (cf. sónyóji? 'be sent away')
- (b.) gùrùt búbùlá gáláji?  
 'money can be looked for (away  
 (cf. gáláji? 'be looked for awa
- (c.) kìné nyànyár mókáji?  
 'the goat likes to be held away :  
 (cf. mòk-á-ji? 'be held away')
- (d.) mélésén búbùlá kùrúji?  
 'the farm can be dug that way'  
 (cf. kùrúji? 'be dug that way')
- (e.) wálé búbùlá 'búyùtáji?  
 'the knife can be sharpened that way'  
 (cf. 'búyùt-á-ji? 'be sharpened away')
- (f.) kí'bó búbùlá sápúkàji?  
 'the canoe can be overturned that way'  
 (cf. sápúkàji? 'be overturned that way')
- (g.) 'bólót búbùlá dílíliyàji?  
 'the grain can be winnowed that way'

A H monosyllabic root has the passive direction away shape HHL. On the basis of the behavior of nouns in the post-H environment, we would expect such verbs to have the shape HLL. But in fact we find HLF. A High bisyllabic verb has the passive direction away shape HHHL. In the post-H environment, these become HLLF. We have no explanation at the present time for these unexpected modifications of High (passive direction away) verbs.

A LHL monosyllabic verb forms a passive direction away form with the tonal configuration LHL. As would be expected (given the rules of High Tone Spread and Contour

Simplification), such verbs assume the form HHL in the post-H context. A LHL bisyllabic verb forms a passive direction away form with the tonal shape LHLL. As expected, this changes to HHLL in the post-H context. A LHL trisyllabic verb has the shape LHLLL in the passive direction away, and it appears as HHLLL in the post-H environment.

### 5.2. Post-H verbs: the imperative construction.

There is an imperative construction in Bari that involves using the imperative form of a verbal stem followed by that same stem in its non-imperative form. (We use the word 'stem' here and not root, since a derived verbal stem may be employed in this construction.) For convenience, let us refer to the first verb in this construction as the imperative verb and the second as the cognate verb. When the imperative verbal form ends in a H tone, this construction creates the context for High Tone Lowering and High Tone Spread to affect the cognate verb. The imperative form of a monosyllabic H root, both in the definite (unmarked) and indefinite, is H-final. Some examples:

- (18) (a.) tùl-é tù? 'bore a hole in it!'  
(cf. tú? 'bore', a H monosyllabic root)
- (b.) tù'y-í? tù'y-à 'just bore s.t. in it!'  
(cf. tú'y-à 'bore (indefinite)')
- (c.) kèp-é kèp 'follow him!'  
(cf. kèp 'follow', a H monosyllabic root)
- (d.) kèb-b-í? kèb-b-ù 'just follow!'  
(cf. kèb-b-ù 'follow (indefinite)')
- (e.) tòk-é tòk 'cut it with an axe!'  
(cf. tòk 'cut with an axe', a H root)
- (f.) 'dèp-é 'dèp 'hold it up!'  
(cf. 'dèp 'hold', a H root)

- (g.) dèr-é dèr 'cook it!'  
(cf. dér 'cook')
- (h.) kùr-é kùr 'borrow it!'  
(cf. kùr 'borrow', a H root)

Notice that the imperative verbal forms tùl-é, tù'v-i?, kèp-é, and kéb-b-i? all end in a H tone. When a monosyllabic H verb such as tú? or kép follows the imperative, its H changes to L. The H of the imperative verb does not spread onto the cognate verb. This behavior of the H monosyllabic roots is, of course, precisely parallel to the monosyllabic H nouns that we have labelled H<sub>1</sub>. Next consider the case when the cognate verb has a HL tonal shape. This occurs when an indefinite verb such as tú'v-à or kéb-b-ù functions as the cognate verb. From (18) above we see that these HL verbal forms convert to LL after a H-final imperative verb. This change again apparently reflects the application of High Tone Lowering to the initial H of the cognate verb, with no subsequent spreading of the imperative verb's H onto the cognate verb. Of course, this behavior on the part of the HL verb is exactly parallel to the behavior of HL nouns such as kópò.

In (18) we see that a H monosyllabic root changes to L in the post-H context provided by a H-final imperative verb. It should be noted, however, that this change of a monosyllabic H to L occurs only when the verb is in final position. In medial position, the H monosyllabic verb remains H. Examples illustrating this point:

- (19) (a.) tòk-é tók kádíní 'cut the tree!'  
(cf. incidentally kádíní 'tree')
- (b.) 'dèp-é 'dép ng'ùrò 'hold the child!'  
(cf. ng'ùrò 'child')
- (c.) dèr-é dér sùkùrì 'cook the chicken!'  
(cf. sùkùrì 'chicken')

This variation between phrase-final position and phrase-medial is reminiscent of the behavior of the monosyllabic demonstrative elements, which appear (in the post-H environment) with a Low tone in phrase-final position but with a High when they are followed by another constituent in the same phrase.

In (18) we also see that HL (indefinite) verb changes to LL in the post-High environment. This change does not take place in phrase-medial position. In phrase-medial position, a HL indefinite noun appears as HH (both in a post-Low and a post-High position). The appearance of a LL shape phrase-finally, but a HH shape in phrase-medial position after a H-final imperative is illustrated in (20) below.

- (20) (a.) *dèr-jí-?* *dèr-j-à* 'just cook!'  
 (b.) *dèr-jí-?* *dèr-j-á àmbàtà* 'just cook bread!'  
 (cf. *àmbàtà* 'bread')  
 (c.) *kàm-bí-?* *kàm-b-ù* 'just paddle!'  
 (d.) *kàm-bí-?* *kàm-b-ú kí'bò* 'just paddle a  
 canoe!'

The imperative form of a LHL monosyllabic root is H-final in the indefinite form. Consider the following examples:

- (21) (a.) *sùggi?* *súggâ* 'sweep!'  
 (cf. *sùg-g-â*, indefinite form of *súk* 'sweep')  
 (b.) *mòggi?* *móggâ* 'just hold s.t.!'  
 (cf. *mòg-g-â*, indefinite form of *mók* 'hold')  
 (c.) *kùrjì?* *kùrjú* 'just dig!'  
 (cf. *kùr-j-ù*, indefinite form of *kúr* 'dig')

We see from these data that a H-final imperative verb is able to spread onto the following L-initial cognate verb, triggering Contour Simplification (with the result that the

LF sùgǝí?, e.g., becomes HF). These data show clearly that the changes in the cognate verb do not in any way depend directly on the tonal melody of the imperative verb root, but rather on the final tone of the imperative verb form.

The imperative form of certain extended H verbal roots are also H-final. For example, the indefinite form of the direction toward and the indefinite form of the benefactive.

- (22) (a.) 'dúk-ùn-dí-? 'dúk-ùn-dy-ǎ 'just carry here!' (cf. 'dúk-ún-dy-ǎ 'carry (dir. towards, indef.)
- (b.) 'dúk-ù-kín-dí-? 'dúk-ù-kín-dy-ǎ 'just carry for!' (cf. 'dúk-ú-kín-dy-ǎ 'carry (benefactive, indef.)'

From these data we see that a HHF verb such as 'dúk-ún-dy-ǎ and a HHHF verb such as 'dúk-ú-kín-dy-ǎ change to HLF and HLLF in the post-H environment provided by the imperative verb. These changes are obviously reflective of the application of High Tone Lowering and do not require further elaboration.

So far we have just illustrated this imperative construction with imperative verbs that are H-final. When the imperative verb is L-final, no changes occur on the cognate verb. This occurs, for example, when the imperative is based on a LHL verb root of any length (monosyllabic, bisyllabic, trisyllabic).

- (23) (a.) sùk-ê súk 'sweep it (don't x it)!'  
(cf. súk 'sweep', a LHL monosyllabic root)
- (b.) mòk-ê mók 'hold it!'  
(cf. mók 'catch', a LHL root)
- (c.) pí-nê pí 'ask him!'  
(cf. pí 'ask', a LHL root)

- (d.) mèt-ê mét 'see it!'  
(cf. mét 'see', a LHL root)
- (e.) kùr-ê kúr 'dig it!'  
(cf. kúr 'dig', a LHL root)
- (f.) sàpùk-ê sàpùk 'overturn it (don't x it)!'  
(cf. sàpùk 'overturn')
- (g.) dilìli-nê dilìli 'winnow it (don't x it)!'

These data show that the (superficially) H root súk (derived from a LHL underlying tonal structure) and the LHL sàpùk and dilìli are unaffected when preceded by the L-final imperative verb. The fact that these cognate verbs undergo no tonal change in (23) when a L-final imperative verb precedes clearly establishes that the changes in the cognate verbs described above after H-final imperative verbs must be due to the effects of High Tone Lowering.

The imperative form of a bisyllabic H verb stem is also L-final and thus also (naturally) fails to affect the tone of the following cognate verb:

- (24) (a.) kùrùpê kúrúp 'roast in ashes!'  
(b.) 'bùyùtê 'bùyút wálê 'sharpen the knife!'

The H cognate verbs here are unaffected since the preceding imperative verb ends in a Falling tone (i.e. is L-final).

The imperative form of a H verb root in the direction toward construction is also L-final and likewise fails to trigger any change in a following cognate verb:

- (25) (a.) 'dùkù 'dúkún 'carry it here (don't x it)!'  
(b.) 'bùyùtù 'bùyútún 'sharpen it this way!'

We have shown in this section that the construction involving the imperative verb plus cognate verb provides another environment in which High Tone Lowering and High Tone Spread can apply to a verb word.



### 5.3. Post-H verbs: the preposition /i/ and a following verb.

Recall from Chapter 4 that the preposition i appears to have a floating H tone after it which (a) triggers High Tone Lowering and (b) High Tone Spread on a following noun. It is also possible for a verbal form to follow i. In this section we will examine the tonal consequences that this construction has for verbs.

A simple definite verb cannot appear after i. Rather, the indefinite form of a simple verb must be used.

#### (26) High verb roots

- (a.) Jàdà à tû i rémbù ná kijàkwâ  
'Jada went to spear animals'  
(cf. rémbù, indef. form of rém)
- (b.) Jàdà tû i 'búyùddyâ ná kòlè  
'Jada goes to sharpen the hoe'  
(cf. 'búyùddyâ, indef. form of 'búyút)
- (c.) Wàní à tû tóggù ná kàdèn  
'Wani went to cut trees'  
(cf. tóggù, indef. form of tók)
- (d.) Pòní à tû i kúrùbbâ ná kùmùrà  
'Poni went to roast the oil seeds'  
(cf. kúrùbbâ, indef. form of kúrúp)

#### LHL verb roots

- (e.) nân tû i mèddyâ ná Jàdà  
'I go to see Jada'  
(cf. mèddyâ, indef. form of mét)
- (f.) Pòní tû i móggâ ná kinè  
'Poni goes to hold the goat'  
(cf. móggâ, indef. form of mók)

Examination of the above data shows that a HL verb such as rémbù remains HL in the environment after i whereas a HHF verb changes to HLF. The latter change suggests clearly that the verb undergoes High Tone Lowering. Although at first glance rémbù appears not to undergo High Tone



The High verbs in (27) above clearly show the effects of High Tone Lowering (operating, of course, on the output of High Tone Fission) followed by High Tone Spread and Contour Simplification. The LHL verbs likewise show the clear influence of High Tone Spread (followed by Contour Simplification).

The indefinite forms of direction toward and direction away verbs provide no surprises in the context following *i*. The following examples illustrate the expected application of High Tone Lowering and High Tone Spread.

(28) direction toward indefinite

High verb roots

...i rímùndyâ '...to spear s.t. this way'  
(cf. rímúndyâ)

...i 'búyùtùndyâ '...to sharpen s.t. this way'  
(cf. 'búyútúndyâ)

LHL verb roots

...i mókúndyà '...to catch s.t. this way'  
(cf. mòkúndyà)

...i sàpúkúndyà '...to overturn s.t. this way'  
(cf. sàpúkúndyà)

direction away indefinite

High verb roots

...i rémòddù '...to spear s.t. that way'  
(cf. rémóddù)

...i 'búyùtáddù '...to sharpen s.t. that way'  
(cf. 'búyútáddù)

LHL verb roots

...i mókáddù '...to catch s.t. that way'  
(cf. mòkáddù)

...i dílíliyáddù '...to winnow s.t. that way'  
(cf. dílíliyáddù)

We have seen that, in the active voice, only indefinite verbal forms are employed after *ì*. It is, however, to use passive verbs after *ì* as well.

(29) High verb roots

...ì rémò '...to be speared'  
(cf. rémò)

...ì dérà '...to be cooked'  
(cf. dérà)

...ì 'búyùtá '...to be sharpened'  
(cf. 'búyùtá)

...ì 'bóròwá '...to be smeared'  
(cf. 'bórówá)

LHL verb roots

...ì mókâ '...to be caught'  
(cf. mòkâ)

...ì métâ '...to be seen'  
(cf. mêtâ)

...ì sâpùkâ '...to be overturned'  
(cf. sâpúkâ)

...ì dilíliyá '...to be winnowed'  
(cf. dilíliyá)

An examination of these data shows that a HF passive verb changes to HL (clearly the consequence of High Tone Lowering followed by High Tone Spread and Contour Simplification), and a HHH passive verb changes to HLH (again, clearly the consequence of the same rules, but presupposing the application of High Tone Fission). The LF and LHLH passive verbs change to HF and HHLH after *ì*. This is clearly the consequence of High Tone Spread and Contour Simplification. A LHH passive verb changes to HLH. We have seen this same change in section 5.1 of this chapter, though it remains unexplained.

The passive of a benefactive verb in position after *i* is illustrated below:

(30) High verb roots

...*i* *rímíkí?* '...to be speared for'  
(cf. *rímíkí?*)

...*i* *dérákí?* '...to be cooked for'  
(cf. *dérákí?*)

...*i* 'búyútákí?' '...to be sharpened for'  
(cf. 'búyútákí?')

...*i* 'bórókí?' '...to be smeared for'  
(cf. 'bórókí?')

LHL verb roots

...*i* *mókákí?* '...to be caught for'  
(cf. *mókákí?*)

...*i* *métákí?* '...to be seen for'  
(cf. *métákí?*)

...*i* *sápúkákí?* '...to be overturned for'  
(cf. *sápúkákí?*)

The data in (30) parallel data seen earlier in this chapter. The passive based on a LHL root behaves in a straightforward fashion. Since these verbs have the shape LHL and LHLL normally, in position after *i* we would simply expect the initial syllable of the verb to be pronounced High, with everything else remaining the same. And this is indeed what happens. The passive based on a High root diverges somewhat from what might be expected. Given that these verbs have the shape HHL and HHHL, we would expect them to assume the form HLL and HLHL after *i*. But they instead appear in the shape HLF and HLLF. This suggests that perhaps the Low at the end of the post-L form (e.g. *rímíkí?*, 'búyútákí?) should be analyzed as actually being a Fall at some deeper level of structure. This Fall would

manifest itself when the verb is subject to High Tone Lowering, but otherwise it would (somehow) simplify to Low. But we do not presently have sufficient evidence to pursue such a line of analysis.

Passive direction toward forms are shown in (31).

(31) High verb roots

...i rímwè? '...to be speared this way'  
(cf. rímwè?)

...i dérwè? '...to be cooked this way'  
(cf. dérwè?)

...i 'búyùtwè? '...to be sharpened this way'  
(cf. 'búyútwè?)

...i 'bóròwè? '...to be smeared this way'  
(cf. 'bórówè?)

LHL verb roots

...i mókwè? '...to be held this way'  
(cf. mòkwè?)

...i métwè? '...to be looked at this way'  
(cf. mèt看è?)

...i sápúkwè? '...to be overturned this way'  
(cf. sápúkwè?)

...i dílíliyè? '...to be winnowed this way'

Again, the LHL passive direction towards forms are unproblematic. These verbs have the form LF, LHL, and LLLL normally. In the context after i, they all simply show their initial syllable raised to High (via High Tone Spread and Contour Simplification).

The High passive direction towards forms are again somewhat divergent. A HL form such as dérwè? appears to be unaffected by i. But we can explain this form by saying that the floating H after i triggers High Tone Lowering on dérwè?, changing it to dèrwè?; the floating H triggers High Tone Spread, which ultimately results in dérwè?. The HHL

form 'búyútwè? appears as HLF after ì -- this is, of course, just the change that we saw above for the passive benefactive. In other words, all of the HHL or HHLH passives based on High roots assume the form HLF and HLLF in position after a High tone.

The passive of a direction away verb confirms the preceding observation:

(32) High verb roots

...ì rémòjì? '...to be speared that way'  
(cf. rémójì?)

...ì déràjì? '...to be cooked that way'  
(cf. dérájì?)

...ì 'búyútàjì? '...to be sharpened that way'  
(cf. 'búyútájì?)

...ì 'bóròwàjì? '...to be smeared that way'  
(cf. 'bórówájì?)

LHL verb roots

...ì mókájì? '...to be held that way'  
(cf. mòkájì?)

...ì métájì? '...to be seen that way'  
(cf. mètájì?)

...ì sàpúkàjì? '...to be overturned that way'  
(cf. sàpúkàjì?)

...ì dilíliyàjì? '...to be winnowed that way'  
(cf. dilíliyàjì?)

These data exactly conform to the observations above and require no additional discussion.

5.4. Verbal particles.

Bari makes use of a number of particles which are used in conjunction with the verb. In this section we will examine these particles in terms of (a) whether they

themselves undergo the phrasal tone rules we have identified in Bari and (b) whether they may trigger application of these rules on following words (particularly the verb word).

#### 5.4.1. Past tense particle /a/.

The past tense form of a verb is formed by placing the particle à in front of the verb. This same (apparently) particle may be used in a predicate adjective construction. à is tonally invariant. It is not affected by a preceding H-toned word nor does it affect a following verb's tone. A few examples to document these observations:

- (33) (a.) Pòní à mét 'Poni saw it'  
 (b.) Jàdà à sàpùk 'Jada overturned it'  
 (c.) pírít à dùmà 'the place is big'  
 (d.) Jàdà à mèddyâ múnú 'Jada saw a snake'  
 (e.) Pòní à 'débbá ng'ùrò 'Poni babysat a child'  
 (f.) nân à dililijà 'bólót 'I winnowed grain'

From these data we see that à is unaffected by a preceding noun, whether that noun is H-final (like Pòní), L-final (like Jàdà), or Fall-final (like pírít). Furthermore, we see that H-initial verbs and adjectives do not undergo any change due to the presence of a preceding à, nor does a L-initial verb.

#### 5.4.2. The perfective particle /àjé/.

The perfective particle ajé (probably to be regarded as a sequence of à plus jé, though this is not particularly important for our present concerns) is LH and one might well expect that it would trigger High Tone Lowering and High Tone Spread on a following verb. But the evidence in (34) shows that this particle does not affect the following verb.



- (34) (a.) nân àjé kúr 'I have dug it' (kúr, LHL root)  
 (b.) nân àjé 'yúr 'I have burned it' ('yúr, H root)  
 (c.) nân àjé sàpùk 'I have overturned it'  
 (d.) nân àjé 'búyút 'I have sharpened it'  
 (e.) nân àjé dililì 'I have winnowed it'  
 (f.) nân àjé mèddyâ gwóróng' 'I have seen a beast' (mèddyâ, indef. form of mét, a LHL verb)  
 (g.) nân àjé 'dóggù 'I have carried it' ('dóggù, indef. form of 'dók)  
 (h.) wálé àjé 'búyútá 'the knife has been sharpened' ('búyútá, the passive of 'búyút, a H verb)  
 (i.) nân àjé sàsápùk 'I have overturned it frequently' (sàsápùk, repetitive stem of sàpùk, a LHL verb)  
 (j.) nân àjé kùrúkin 'I have dug it for him' (kùr-ú-kin, the benefactive of kúr)  
 (k.) nân àjé 'dúkúkin 'I have carried it for him' ('dúk-ú-kin, the benefactive form of 'dók)

That àjé is not affected by a preceding word is shown in (35):

- (35) (a.) Pòní àjé dér súkùrì  
 'Poni has already cooked the chicken'  
 (b.) Wàní àjé kúr  
 'Wani has already dug it'  
 (c.) Jàdà àjé 'búyút  
 'Jada has already sharpened it'

5.4.3. Present and future tense particles.

In this section we examine the verb particles which are used in the formation of the present and future tenses in Bari and the shape that the verbal word exhibits when combined with these particles. The demonstratives ló/ná, lú/nú, kúlò/kúnè, and kúlù/kúnù (masculine/feminine respectively) are used to mark the present tense while a variety of particles are used in marking the future--namely, mó, kó, dê, and tù.

As we will see below, the particles mó, kó, dê, and tù are invariant -- they are not affected by the final tone of a preceding word. The demonstratives are a little more complicated. Consider the examples below illustrating the demonstrative element /lo/.

- (36) Jàdà lò mémét kítèng'  
'Jada is looking after the cow'
- Wàní lô mémét kítèng'  
'Wani is looking after the cow'
- nân lò mémét kítèng'  
'I am looking after the cow'
- Jàdà lò nî  
'Jada is here'
- Wàní lô nî  
'Wani is here'
- kéré lô à líkín  
'the gourd is lost'
- ng'úrò lò à líkín  
'the child is lost'

In (36) we see that the masculine singular demonstrative (which has the shape ló in its ordinary, pre-nominal demonstrative usage) appears Low after a word ending in a Low or Fall, and Falling after a word ending in a High.

This same pattern is exhibited by the feminine singular demonstrative (which has the shape ná in its

ordinary demonstrative usage):

(37) Bòjò nà mémét kitèng'  
'Bojo is looking after the cow'

Pòní nà mémét kitèng'  
'Poni is looking after the cow'

mélésên nà kùkùrù  
'the garden is being dug'

Bòjò nà nǐ  
'Bojo is here'

Pòní nà nǐ  
'Poni is here'

kiné nà à líkín  
'the goat is lost'

tèrò nà à líkín  
'the mat is lost'

The bisyllabic plural demonstratives based on /kU/ plus /lo/ and /na/ exhibit the pattern LL when the preceding word is L- or F- final, and the pattern HL when the preceding word ends in a H:

(38) ng'wájìk kùlò mémét kitèng'  
'the (boy) children are looking after the cow'

ng'wájìk kùnè mémét kitèng'  
'the (girl) children are looking after the cow'

mérók à líkín  
'the enemies are lost'

kísúk kùnè nyàsú dárù  
'the cows are eating grass'

The distant demonstratives, which have the shapes lú and nú (masculine sg. and feminine sg. respectively) in their ordinary demonstrative usage, are invariably Falling-toned in the present tense construction regardless

of the tone of the preceding word.

- (39) Jàdà lû mémét kitèng'  
'Jada (there) is looking after the cow'
- Wàní lû mémét kitèng'  
'Wani (there) is looking after the cow'
- Jàdà lû yû  
'Jada is over there'
- Wàní lû yû  
'Wani is over there'
- kéré lû à líkín  
'the gourd is lost'
- ng'úrò lû à líkín  
'the child is lost'
- Bòjò nû mémét kitèng'  
'Bojo (there) is looking after the cow'
- Pòní nû mémét kitèng'  
'Poni (there) is looking after the cow'
- Bòjò nû yû  
'Bojo is over there'
- Pòní nû yû  
'Poni is over there'
- kiné nû à líkín  
'the goat is lost'
- tèrò nû à líkín  
'the mat is lost'

When /kU/ is placed in front of the distant demonstratives lû and nû, the resulting bisyllabic form has the shape LF after a L- or F-final word, but HH after a H-final word.

(40) ng'wájik kùlù mémét kitèng'  
'the (boy) children (there) are looking after the  
cow'

ng'wájik kùnù mémét kitèng'  
'the (girl) children (there) are looking after  
the cow'

mérók kùlù māmàrà  
'the enemies over there are fighting'

kisúk kúnú nyàsú dárù  
'the cows (there) are eating grass'

At this point, let us consider the analysis of the above data. The fact that the demonstratives lò and nà are Low-toned after a L, but Falling-toned after a H, suggests that in this context these demonstratives are basically Low-toned but are subject to High Tone Spread. In other words, a High at the end of a preceding word spreads onto the Low-toned nà and lò to form a HL sequence on these items. When the preceding word ends in a L, no such spreading of a High can occur and nà and lò surface with a Low tone. There does not seem to be any phonological explanation for why nà and lò are basically Low-toned in the above context, but High-toned when they function as ordinary demonstratives.

The data in (38) suggest likewise that kùlò and kùnè are basically Low-toned in the context in question, but are subject to High Tone Spread when the preceding word ends in a H. That preceding High spreads onto the first syllable of kùlò and kùnè, yielding the intermediate stages kùlò and kùnè. Contour Simplification then produces the correct output kùlò and kùnè.

The data in (39) shows that lù and nù do not vary depending on the tone of the preceding word. We must simply assume that they are basically Falling-toned (i.e. have a HL sequence associated with them) in this context and are not subject to High Tone Lowering. The data in (40) are

more problematic. In position after a L, we find the forms kùlù and kùnù. These suggest that a basically Low-toned /kU/ is combined with a Falling-toned lù and nù. In position after a L, nothing happens. Thus the basic representations surface. But in the post-High environment, we would expect these items to undergo High Tone Spread, followed by Contour Simplification. The expected result is \*kúlù and \*kúnù. But these are not correct. We must derive kúlù and kúnù. This would seem to be possible only if the correct underlying representation for these items is /kùlù/ and /kùnù/. We have no independently motivated analysis for this variation in the shape of the distant demonstratives.

Actually, the system is more complicated than described above. The forms illustrated and analyzed above are appropriate only under certain circumstances (e.g. when the subject noun has been previously discussed). Somewhat different forms are used, for example, in answer to a question such as: what happened to the children, the goats, etc. For example, in this context, /na/ and /lo/ are Low when after a H-final word and High otherwise:

- (41) kìnè nà à líkín 'the goat got lost'  
 tètò ná à líkín 'the mat got lost'  
 kéré lò à líkín 'the gourd got lost'  
 ng'úrò ló à líkín 'the young boy is lost'

The demonstratives /kune/ and /kulo/ in this context are LL after a H-final word, and HL otherwise.

- (42) ng'wájik kùnè à líkín 'the girl children got lost'  
 kísúk kùnè à líkín 'the cows got lost'  
 ng'wájik kúlò à líkín 'the boy children got lost'  
 mérók kúlò à líkín 'the enemies are lost'

The demonstratives /lu/ and /nu/ are Low after a H-final word, otherwise High:

- (43) kiné nù à líkín 'the goat is lost'  
 tètò nú à líkín 'the mat is lost'  
 kéré lù à líkín 'the gourd is lost'  
 ng'úrò lú à líkín 'the young boy is lost'

Finally, in the context under discussion, /kulu/ and /kunu/ are LL after a H-final word, but HL after a L-final word.

- (44) mэрóк kúlù à líkín 'the enemies are lost'  
 ng'wájik kúlù à líkín 'the boy children are lost'  
 wáté kùnù à líkín 'the women (there) are lost'  
 ng'wájik kúnù à líkín

Let us now consider the analysis of the preceding behavior of the demonstratives in the present tense construction. In these cases, it appears that the demonstratives in fact have as their basic form the same shape that they have in their ordinary demonstrative usage. For example, ló and ná are underlyingly High-toned. In position after a H-final word, this H undergoes High Tone Lowering (but not High Tone Spread), thus ending up Low-toned. This, of course, is just the behavior that ló and ná have as demonstratives (when they are post-High and not followed by the noun that they modify).

Similarly, if we assume that kúlò and kúnè are basically HL (due, recall from Chapter 4, to the word-internal application of High Tone Lowering), then their behavior in (42) is straightforward. They will appear HL after a L-final word, but after a H-final word they will be subject to High Tone Lowering (but not High Tone Spread) and thus will surface as LL. This, again, is just the behavior that the demonstratives kúlò and kúnè manifest when they are post-H but not followed by the noun that they modify.

The behavior of lú and nú in (43) also suggests that (in this context) they are basically H-toned. They act just like ná and ló in that they are subject to High Tone Lowering but not High Tone Spread. They thus appear Low-toned after a H, but retain their basic High tone after a Low. Finally, (44) supports the view that kúnù and kúlù are HL in this context, just as they are in their ordinary demonstrative usage. In post-L position, they surface unaltered, but in the post-H environment their first syllable undergoes High Tone Lowering (but not High Tone Spread), thus surfacing as LL.

We have seen that the demonstrative particles, when functioning in the present tense construction, display a fairly complicated pattern of behavior. The particles marking the future tense, fortunately, are invariable in their pronunciation. We illustrate this fact in (45):

- (45) (a.) Jàdà mó mómók  
'Jada will hold it'
- (b.) kéré mó gwágwálàkà  
'the gourd will break'
- (c.) Kùlàng' dē ryáryà  
'Kulang will find it'
- (d.) kí'bó dē kákámà  
'the canoe will be paddled'
- (e.) ng'úrò kó màmàt  
'the child will bring it'
- (f.) bòngó? kó 'yú'yúrà  
'the cloth will be burned'
- (g.) Jàdà tù nyányà  
'Jada will eat it'
- (h.) Pòní tù dèdèr  
'Poni will cook it'



5.4.4. The unreduplicated verb stem in the present and future tenses.

Generally speaking, the verbal particles under discussion in this section only occur with the reduplicative stem of the verb. It is possible, however, to use an unreduplicated form of the stem. We will now turn to an examination of the tonal structure of this form of the stem in conjunction with the various particles discussed in section 5.4.3. We begin with the demonstrative particles (we will limit our examples to ló and ná for the sake of convenience).

It is not possible to use the simple definite verb (in its unreduplicated form) after ló/ná, but the the indefinite form of the simple root can be used:

(46) H roots

(a.) Jàdà lò 'dèbbá ng'ùrò  
'Jada is holding a child'

(b.) Pòní ná 'bùyúddyà wálé  
'Poni is sharpening a knife'

LHL roots

(c.) Jàdà lò mòggá ng'ùrò  
'Jada is holding a child'

(d.) Pòní ná sàpúggà kítì  
'Jada is overturning a chair'

Examination of these data reveal that the verb in this construction appears in the same shape that we observed in connection with the habitual construction (discussed at the beginning of this chapter) and various other syntactic configurations where the verb is not preceded by a particle.

Derived verbal forms, both definite and indefinite, can be used in an unreduplicated form after ló/ná. We cite

examples of the definite forms only:

(47) benefactive definite

- (a.) Pòní ná 'dèpákin Jàdà  
'Poni is holding it for Jada'
- (b.) Pòní ná mòkákin Jàdà  
'Poni is holding it for Jada'
- (c.) Pòní ná 'bùyútákin Jàdà  
'Poni is sharpening it for Jada'
- (d.) Pòní ná sàpúkàkin Jàdà  
'Poni is overturning it for Jada'

direction toward definite

- (a.) Jàdà lò 'dèpún ní  
'Jada is holding it this way (here)'
- (b.) Jàdà lò mòkún ní  
'Jada is holding it this way (here)'
- (c.) Jàdà lò 'bùyútùn ní  
'Jada is sharpening it this way (here)'
- (d.) Jàdà lò sàpúkùn ní  
'Jada is overturning it this way (here)'

direction away definite

- (a.) Pòní ná 'dèpàrà? yú  
'Poni is holding it that way (there)'
- (b.) Pòní ná mòkàrà? yú  
'Poni is holding it that way (there)'
- (c.) Pòní ná 'bùyútàrà? yú  
'Poni is sharpening it that way (there)'
- (d.) Pòní ná sàpúkàrà? yú  
'Poni is overturning it that way (there)'

The data in (47) confirms the parallelism between the shape of the verb in this context (i.e. after lò and ná functioning in the present tense construction) and the shape of the verb in the habitual construction discussed in

section 5.0. An underlyingly LHL verb appears just in the same shape it has in its isolation form. An underlyingly H verb appears in the shape LH if the verb word is bisyllabic, LHL if the verb word is trisyllabic.

The data in (48) below confirms this parallelism even further:

(48) simple passive

- (a.) ng'úrò lò 'dèpá  
'the child is being held'
- (b.) ng'úrò lò mòkà  
'the child is being held'
- (c.) wálé lô 'bùyútá  
'the knife is being sharpened'
- (d.) kítì nà sàpúká  
'the chair is being overturned'

Examination of (48) shows that these data exhibit the same tonal pattern as we observed in the habitual: an underlyingly High verb monosyllabic root appears in the shape LH in the passive while an underlyingly H bisyllabic root appears in the shape LHH. On the other hand, an underlyingly LHL monosyllabic root appears in the shape LL in the passive, while a bisyllabic LHL root appears in its usual LHH form. Further discussion is not required at this point.

In place of lò and ná in the above constructions one can insert the future particles mó and dê and the tone pattern of the verb will be exactly the same. But the future tense particles kó and tù are not parallel. We examine kó first.

Again, we cannot use the simple definite verb in its unreduplicated form with kó. We can, however, use the indefinite form, as shown in (49).

- (49) (a.) Pòní kó 'débbá ng'ùrò  
'Poni will hold the child'
- (b.) Pòní kó móggâ ng'ùrò  
'Poni will hold the child'
- (c.) Jàdà kó 'búyùddyâ wálé  
'Jada will sharpen the knife'
- (d.) Jàdà kó sâpúggâ kítì  
'Jada will overturn the chair'

If we look at the examples in (49), it seems that the verb basically is appearing in its isolation form except that kó -- being a H-final particle -- is able to trigger High Tone Lowering and High Tone Spread on the verb. For example, 'búyùddyâ has a HHF shape in its isolation form. Its context form is 'bùyùddyâ. In (49c), we find the pronunciation 'búyùddyâ. This pronunciation clearly seems to derive from the isolation form, 'búyùddyâ, with the application of High Tone Lowering followed by High Tone Spread and Contour Simplification yielding 'búyùddyâ. Similarly, móggâ and sâpúggâ are derived from the isolation forms mòggâ and sâpúggâ through the application of High Tone Spread and Contour Simplification. The example 'débbá, of course, exhibits the usual behavior of High monosyllabic roots in the indefinite -- they remain HH phrase-medially regardless of the tone of the preceding word.

Further evidence that kó triggers High Tone Lowering and High Tone Spread on a following unreduplicated verb is shown by the varied data in (50):

(50) benefactive definite

...kó 'dépàkin Jàdà '...will hold for Jada'  
(cf. 'dépàkin)

...kó mókàkin Jàdà '...will hold for Jada'  
(cf. mòkàkin)

...kó 'búyùtâkin Jàdà '...will sharpen for Jada'  
(cf. 'búyùtâkin)

...kó sàpúkàkin Jàdà '...will overturn for Jada'  
(cf. sàpúkàkin)

benefactive indefinite

....kó 'búyùtákindyâ Jàdà  
(cf. 'búyùtákindyâ)

....kó sàpúkàkindyâ Jàdà  
(cf. sàpúkàkindyâ)

direction towards definite

...kó 'dépún ng'ùrò '...will hold the child this  
way' (cf. 'dépún)

...kó 'búyùtún wálè '...will sharpen the knife  
this way'  
(cf. 'búyùtún)

...kó mókún ng'ùrò '...will hold the child this  
way' (cf. mókún)

...kó sàpúkùn kítì '....will overturn the chair  
this way' (cf. sàpúkùn)

The data in (50) are mostly unremarkable given the hypothesis that kó triggers High Tone Lowering and High Tone Spread. We see that a L-initial word regularly raises its initial syllable to H through the combined effects of High Tone Spread and Contour Simplification. A sequence of Highs as in 'búyùtákindyâ, will undergo High Tone Fission and then High Tone Lowering to produce the intermediate form 'búyùtákindyâ; High Tone Spread and Contour Simplification then yield the correct surface form 'búyùtákindyâ. The only surprise in the data in (50) is that 'dépún remains HH rather than appearing as HL. This is a feature of phrase-medial position. A HH verb (e.g. a simple root such as 'búyùt, a direction toward verb such as 'dép-ún, an indefinite form such as 'débbá...) will remain HH phrase-medially regardless of the tone of the preceding word. We will see further examples of this later.

The final set of data illustrating the ability of kó to trigger High Tone Lowering and High Tone Spread is drawn from the passive construction of both simple and derived verbs:

(51) simple passive

- ...kó 'dépà '...will be held' (cf. 'dépâ)  
 ...kó mókâ '...will be held' (cf. mòkâ)  
 ...kó 'búyútá '...will be sharpened' (cf.  
   'búyútá)  
 ...kó sàpùkâ '...will be overturned' (cf. sàpùkâ)

passive benefactive

- ...kó 'dépàkî? (cf. 'dépákî?)  
 ...kó mókákî? (cf. mòkákî?)  
 ...kó 'búyútákî? (cf. 'búyútákî?)  
 ...kó sàpùkákî? (cf. sàpùkákî?)

passive direction toward

- ...kó 'dépwè? (cf. 'dépwè?)  
 ...kó mókèwè? (cf. mòkèwè?)  
 ...kó 'búyùtwè? (cf. 'búyùtwè?)  
 ...kó sàpùkwè? (cf. sàpùkwè?)

passive direction away

- ...kó 'dépàjî? (cf. 'dépájî?)  
 ...kó mókájî? (cf. mòkájî?)  
 ...kó 'búyùtájî? (cf. 'búyùtájî?)  
 ...kó sàpùkájî? (cf. sàpùkájî?)

passive instrumental

- ...kó 'dépàrî (cf. dépàrî)  
 ...kó mókàrî (cf. mòkàrî)  
 ...kó 'búyùtârî (cf. 'búyùtârî)  
 ...kó sàpùkârî (cf. sàpùkârî)

The data in (51) provide further evidence for the operation of High Tone Lowering and High Tone Spread on verbs in a post-High environment, but they also highlight the points where there are presently unexplained alternations. The straightforward cases need no discussion (e.g. the change of 'búyútâ to 'búyútá or the change of

mókâ to mókâ). The unexpected changes are that a LHH passive form such as sápúkâ surfaces as HLH after a High, and HH(H)L passive verbs surface as HL(L)F in the post-High environment (e.g. 'dépâki? becomes 'dépâkî?, 'búyútwe? becomes 'búyútwe? and 'búyútâji? becomes 'búyútâjî?). At present we have no clear understanding of these changes, although High Tone Lowering and High Tone Spread are obviously involved in them (but do not seem to account for the changes in their entirety).

The future particle tù is like kó in that it allows the isolation form of an unreduplicated verb to follow it; however, tù, being Low-toned, does not trigger either High Tone Lowering or High Tone Spread on the following verb. As a consequence, the verb simply remains in its isolation form.

(52) indefinite form of simple root

...tù 'débbá ng'ùrò  
 ...tù moggâ ng'ùrò  
 ...tù 'búyúddyâ wálé  
 ...tù sâpúggâ kítì

benefactive definite

...tù 'dépâkín ng'ùrò  
 ...tù mókâkín ng'ùrò  
 ...tù 'búyútâkín Jádâ  
 ...tù 'sâpúkâkín kítì

The retention of the all-H pattern in an example such as 'búyútâkín shows clearly that (a) the verb in (52) is in its isolation form, not its context form, and (b) the verb is not subject to High Tone Lowering.

5.4.5. The reduplicated verb stem.

Let us now examine the tonal shape of the reduplicative stem when it is used in conjunction with the present and future tense particles. In (53) we see that a H

monosyllabic root has the shape LH in the reduplicative stem whereas a L monosyllabic root has the shape HH when the particles lò/ná, mó, or dê precede.

(53) H verb roots

- (a.) ...mó kù-kúr '...will borrow it'
- (b.) ...mó rè-rém '...will thatch it'
- (c.) ...mó yè-yém '... will marry her'
- (d.) ...dê 'yù-'yùr '...will burn it'
- (e.) ...dê kù-kúr '...will borrow it'
- (f.) ...dê yé-yém '...will marry her'
- (g.) ...lò tà-tán '...is touching it'
- (h.) ...lò 'dè-'dép 'is holding it'
- (i.) ...lò dè-dér 'is cooking it'

LHL verb roots

- (j.) ...mó nyé-nyér '...will cut it to pieces'
- (k.) ...mó sú-súng' '...will massage it'
- (l.) ...mó jú-júm '...will attempt it'
- (m.) ...dê sú-súng' '...will massage it'
- (n.) ...dê jú-júm '...will attempt it'
- (o.) ...dê nyé-nyé '...will cut it'
- (p.) ...lò yú-yúk '...is tending animals'
- (q.) ...lò rú-rúng' '...is rolling it'
- (r.) ...lò kú-kúr '...is digging'

The verbal particles kó and tù, on the other hand, induces a HL tonal shape for the reduplicative form of a H monosyllabic root, while leaving the LHL roots in their HH form:

(54) H verb roots

- (a.) ...kó 'yù-'yùr '... will burn it'
- (b.) ...kó lá-làk '... will untie it'
- (c.) ...kó kù-kùr '...will borrow it'
- (d.) ...tù 'yù-'yùr '...will burn it'
- (e.) ...tù lá-làk '...will untie it'
- (f.) ...tù kù-kùr '...will borrow it'



LHL verb roots

- (d.) ...kó nyé-nyér '...will cut it to pieces'
- (e.) ...kó kú-kúr '...will dig it'
- (f.) ...kó mó-mók '...will hold it'
- (g.) ...tù nyé-nyér '...will cut it'
- (h.) ...tù kú-kúr '...will dig it'
- (i.) ...tù mó-mók '...will hold it'

Reduplicative stems based on bisyllabic verb roots have the same tonal shape for all of the particles under discussion. The underlyingly H verb roots have the tonal pattern HHL in the reduplicative stem, while the underlyingly LHL verb roots have a tonal shape HLF.

(55) High verb roots

- (a.) ...mó 'bú-'búyùt '...will sharpen it'
- (b.) ...tù kú-kúrùp '...will roast them'
- (c.) ...dê bí-bíding' '...will twist it'
- (d.) ...lò 'bá-'bárin '...is shaving'
- (e.) ...kó 'bó-'bórò '...will smear'

LHL verb roots

- (f.) ...lò sá-sápúk '...is overturning it'
- (g.) ...mó nyá-nyábûr '...will grind it'
- (h.) ...kó tó-tòtùm '...will burn it'
- (i.) ...dê tó-tòjûp '...will dress him'
- (j.) ...tù yá-yàkí '...will send s.o.'

When a trisyllabic LHL verb root is the basis for a reduplicative stem, we find the shape HLHL occurring after all the particles under discussion:

- (56) (a.) ...mó dí-dílílì '...will winnow it'
- (b.) ...ná dí-dílílì '...is (fem.) winnowing it'
- (c.) ...dê 'dá-'dàlílì '...will float'
- (d.) ...tù 'dá-'dàlílì '...will float'
- (e.) ...kó 'dá-'dàlílì '...will float'

Before discussing the tonal patterns that we have observed above in the reduplicative stem, it should be noted that these verbal particles may be used in

combination. We illustrate these combinations below:

(57) mó kó

- (a.) nân mó kó 'yú-'yùr 'I will burn it'  
 (b.) Jàdà mó kó mé-mét 'I will see it'  
 (c.) ...mó kó 'bú-'búyùt '...will sharpen it'

(58) dê kó

- (a.) nân dê kó 'yú-'yùr 'I will burn it later'  
 (b.) nân dê kó mé-mét 'I will see it later'

(59) kó tù

- (a.) nân kó tù 'yú-'yùr 'I am going to burn it'  
 (b.) nân kó tù mé-mét 'I am going to see it'

(60) dê tù

- (a.) nân dê tù 'yú-'yùr 'I'm going to burn it  
 just now'  
 (b.) nân dê tù mé-mét 'I am going to see it just  
 now'  
 (c.) ...dê tù kú-kúrùp '...will roast them'  
 (d.) ...dê tù tó-tòjùp '...will dress him'

(61) lò mó

- (a.) ...lò mó 'yù-'yùr '...will be burning it'  
 (b.) ...lò mó nyé-nyér '...will be cutting it to  
 pieces'

(62) lò kó

- (a.) ...lò kó 'yú-'yùr '...will be burning it for  
 sure'  
 (b.) ...lò kó nyé-nyér '...will be cutting it for  
 sure'

(63) lò dê

- (a.) ...lò dê 'yù-'yùr '...will be burning it  
 soon'  
 (b.) ...lò dê nyé-nyér '...will be cutting it  
 soon'

(64) lò tù

- (a.) ...lò tù 'yú-'yùr '...is going to burn it'  
 (b.) ...lò tù nyé-nyér '...is going to cut it'

(65) lò mó kó

- (a.) ...lò mó kó 'yú-'yùr '...will burn it one  
day'  
(b.) ...lò mó kó 'nyé-nyér '...will cut it to  
pieces one day'

(66) lò mó tù

- (a.) ...lò mó tù 'yú-'yùr 'it looks like x is  
going to burn it'  
(b.) ...lò mó tù nyé-nyér 'it looks like x is  
going to cut it to pieces'

(67) lò mó kó tù

- (a.) ...lò mó kó tù 'yú-'yùr '...is going to burn  
it one of these days'  
(b.) ...lò mó kó tù nyé-nyér '...is going to cut  
it one of these days'

There is another future particle that marks a distant future -- namely, mòlú. This looks as though it might be regarded as a combination of two particles, with the mò somehow related to the High-toned mó and lú perhaps somehow related to lò. But we will regard it simply as a bisyllabic particle for our present purposes. This particle behaves like lò, mó, and dê in triggering a LH shape on the reduplicative stem of a H monosyllabic root.

(68) High monosyllabic roots

- (a.) ...mòlú là-lák '...will untie it in the  
distant future'  
(b.) ...mòlú kù-kúr '...will borrow it (d.f.)'  
(c.) ...mòlú dè-dér '...will cook it (d.f.)'

LHL monosyllabic roots

- (a.) ...mòlú yú-yúk '...will tend animals (d.f.)'  
(b.) ...mòlú kú-kúr '...will dig (d.f.)'

H bisyllabic roots

- (a.) ...mòlú 'bú-'búyùt '...will sharpen it  
(d.f.)'  
(b.) ...mòlú nyá-nyá'dòt '...will stick it  
(d.f.)'

LHL bisyllabic roots

- (a.) ...mòlú nyá-nyà'bûr '...will grind it  
(d.f.)'  
 (b.) ...mòlú sá-sàpûk '...will overturn it  
(d.f.)'

The particle mòlú may also combine with other particles:

(69) mòlú kó

- (a.) ...mòlú kó lá-làk '...will untie it (d.f.)'  
 (b.) ...mòlú kó yú-yúk '...will tend animals  
(d.f.)'  
 (c.) ...mòlú kó kú-kúrûp '...will roast them  
(d.f.)'

(70) mòlú tù

- (a.) ...mòlú tù lá-làk '...will untie it (d.f.)'  
 (b.) ...mòlú tù kú-kúr '...is going to dig it  
(d.f.)'

(71) lò mòlú

- (a.) ...lò mòlú là-lák '...is going to untie it  
(d.f.)'  
 (b.) ...lò mòlú kú-kúr '...is going to dig it  
(d.f.)'

(72) lò mòlú tù

- (a.) ...lò mòlú tù lá-làk '...is going to untie  
it (d.f.)'  
 (b.) ...lò mòlú tù yú-yúk '...is going to tend  
(d.f.)'  
 (c.) ...lò mòlú tù nyá-nyà'bûr '...is going to  
grind it (d.f.)'

(73) lò mòlú kó

- (a.) ...lò mòlú kó kú-kûr '...is going to borrow  
(d.f.)'  
 (b.) ...lò mòlú kó kú-kúr '...is going to dig it  
(d.f.)'

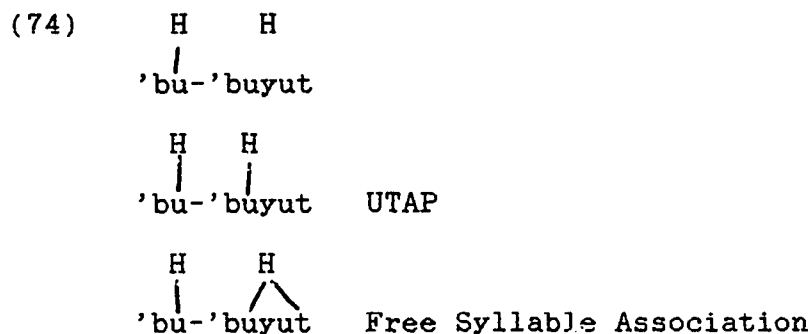
We have now given a fairly exhaustive survey of the facts pertaining to the tonal shapes of reduplicative stems

(based on simple roots) when used in conjunction with the various particles marking the present and future tenses. Let us attempt to draw some initial generalizations.

For polysyllabic verb roots, the reduplicative stem has the same tonal shape no matter what particle precedes. Bisyllabic H verb roots have the shape HHL in the reduplicative form, whereas bisyllabic LHL verb roots have the shape HLF. Trisyllabic LHL verb roots have the shape HLHL.

It seems clear that these patterns do not have any deep connection with the tonological shape of the preceding verbal particles, since Low-toned particles like lò and tù behave the same as High-toned particles like mó and kó. Thus the tonal shape of the reduplicative stem is not to be treated as a result of the tonological effect of the preceding particle. Still, these patterns have a quite appealing explanation in phonological terms. Suppose that we claim that the reduplicative prefix is assigned a H tone by the morphology and that the verbal roots maintain their underlying tonal melody.

Given these assumptions, if we allow the H of the reduplicative prefix to trigger High Tone Lowering on the following High verb root, we can predict that this HH root will have the shape HL. The following derivation illustrates.



$$\begin{array}{c} \text{H} \quad \text{L} \\ | \quad / \backslash \\ \text{'bu-}' \text{buyut} \end{array}$$
 High Tone Lowering

$$\begin{array}{c} \text{H} \quad \text{L} \\ | \quad / \backslash \\ \text{'bu-}' \text{buyut} \end{array}$$
 High Tone Spread

$$\begin{array}{c} \text{H} \quad \text{L} \\ | \quad / \backslash \\ \text{'bu-}' \text{buyut} \end{array}$$
 Contour Simplification

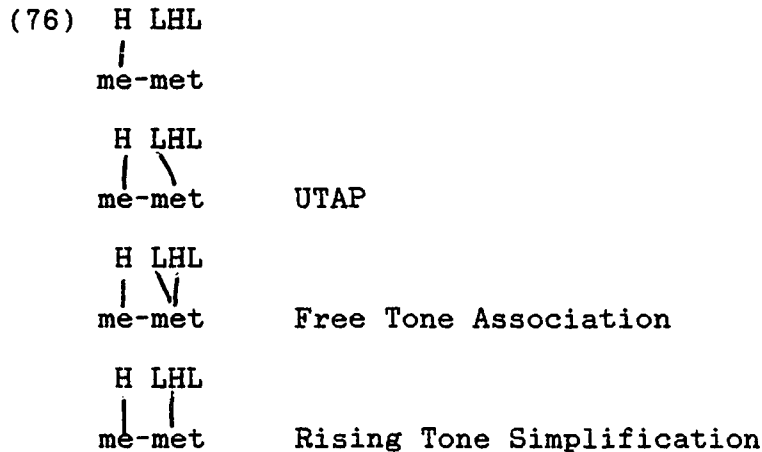
We will see later that there is striking confirmation for this analysis of the H verbs in the reduplicative form.

Consider now the LHL polysyllabic roots. If we assume that the reduplicative prefix has a H tone associated with it, then we again generate the correct pronunciations--but only if we exempt these roots from being affected by High Tone Spread. Example derivations are given in (75).

- (75)
- |           |                        |                       |   |
|-----------|------------------------|-----------------------|---|
| H         | LHL                    |                       |   |
|           |                        |                       |   |
| sa-       | sapuk                  |                       |   |
|           |                        |                       |   |
| H         | L                      | HL                    |   |
|           |                        |                       |   |
| sa-       | sapuk                  | UTAP                  |   |
|           |                        |                       |   |
| H         | L                      | HL                    |   |
|           |                        |                       |   |
| sa-       | sapuk                  | Free Tone Association |   |
| inapplic. | High Tone Lowering     |                       |   |
| inapplic. | High Tone Spread       |                       |   |
| inapplic. | Contour Simplification |                       |   |
|           |                        |                       |   |
| H         | L                      | H                     | L |
| \         |                        |                       |   |
| di-       | dilili                 |                       |   |
|           |                        |                       |   |
| H         | L                      | H                     | L |
|           |                        |                       |   |
| di-       | dilili                 | UTAP                  |   |
| inapplic. | other rules            |                       |   |

While we have no explanation for why High Tone Spread should fail to apply in such derivations, this is just one of many cases where we have seen that this rule is barred. It is, of course, not the case that we can bar it from applying between the reduplicative prefix and the verb root in general -- after all we need it to apply in the case of the High roots in order to explain why we get 'bú-'búyùt rather than \*'bú-'bùyùt (which is the output that High Tone Lowering gives).

Let us put aside for the time being the polysyllabic verb roots and turn to the monosyllabic roots in the reduplicative stem. The behavior of the monosyllabic LHL roots (which surface as HH after all the particles) is fairly straightforward in the light of the preceding discussion. The derivation of the HH pattern is shown by the derivation in (76) below.



In other words, a LHL root such as mét surfaces with a H in the reduplicative stems by the very same principles as when it occurs in isolation.

The High monosyllabic roots are something of a problem. They appear in two different forms: either HL or LH. Which form they assume depends on the choice of the particle that immediately precedes them. If they are

preceded by lò, mó, dê, or mòlú, H roots appear as LH in the reduplicative stem. If they are preceded by tù or kó, H roots appear as HL in the reduplicative stem. In cases where there are a combination of particles in front of the reduplicative stem, it is the last particle that determines the shape of the verb. Thus a sequence mó kó triggers a HL pattern (e.g. 'yù-'yùr) even though mó by itself would trigger the LH pattern (e.g. 'yù-'yúr). Notice, incidentally, that the choice of a LH versus a HL pattern does not have any apparent connection to the tonal shape of the particle: lò, mó, and dê all trigger a LH pattern, and yet they all have different tonal shapes. kó and tù both trigger the HL pattern, but they have different tonal shapes.

The HL realization is the one that we would expect from the tonological analysis that we have given the reduplicative stem. Why the LH pattern should occur after lò, mó, and dê (as well as in the absence of any particle at all -- cf. Chapter 2) remains mysterious. It is of course the pattern that we have observed for bisyllabic (unreduplicated forms) in various contexts (the habitual construction, relative constructions, interrogative constructions) -- i.e. in what we have termed the "context" form. But why the context form for a High verb should be used just for bisyllabic verbs after lò, mó, and dê is not at all clear.

At this point, let us turn to an examination of the reduplicative stems of derived verbal forms. (77) illustrates the indefinite form.

(77) H roots

- (a.) ...mó yé-yèm-b-à '...will marry'
- (b.) ...lò lá-làg-g-ù '...is untying s.t.'
- (c.) ...mó 'bú-'búyùd-dy-â '...will sharpen  
s.t.'
- (d.) ...nà kú-kúrùb-b-â '...is roasting s.t.'



LHL roots

- (e.) ...tù nyé-nyèr-j-â '...is going to cut  
s.t.'  
 (f.) ...kó mé-méd-dy-â '...will see s.t.'  
 (g.) ...mó nyá-nyà'búr-j-â '...will grind s.t.'  
 (h.) ...kó sá-sápúg-gâ '...will overturn s.t.'

Recall that H verb roots in the indefinite have the shape HL when the root is monosyllabic (e.g. 'déb-b-à) and HHF when the root is bisyllabic (e.g. 'búvúd-dy-â). If we assume that the reduplicative prefix assigns a H to the tonal tier, and that this H is able to trigger High Tone Lowering on the following verb, then the forms of the H verbs in (77) are unproblematic. The derivations will proceed as follows:

- (78) H H L  
 | | |  
 la-lag-g-u (after tone association)
- H L L  
 | | |  
 la-lag-g-u High Tone Lowering
- inapplicable High Tone Spread

[The failure of High Tone Spread here follows the pattern that we have consistently found for HL words. Recall, e.g., that the noun kópò becomes kòpò in the post-H environment.]

- H H L  
 | / \ |  
 'bu-'buyud-dy-a (after tone association etc.)
- H H HL  
 | / \ |  
 'bu-'buyud-dy-a High Tone Fission
- H L HL  
 | / \ |  
 'bu-'buyud-dy-a High Tone Lowering

$$\begin{array}{c}
 \text{H} \quad \quad \text{L} \quad \quad \text{HL} \\
 \diagdown \quad \diagup \quad \diagdown \\
 \text{'bu-'buyud-dy-a}
 \end{array}$$
 High Tone Spread

$$\begin{array}{c}
 \text{H} \quad \quad \text{L} \quad \quad \text{HL} \\
 \diagdown \quad \quad \quad \diagdown \\
 \text{'bu-'buyud-dy-a}
 \end{array}$$
 Contour Simplification

The derivation of the LHL verbs is straightforward (given the assumption that the H of the reduplicative prefix cannot spread onto a LHL stem). Recall that the indefinite forms of LHL roots have the shapes LF (cf. mèd-dy-â), LHL (cf. sâpûg-g-â), and LHLL (cf. dililî-j-â). The addition of a High-toned reduplicative prefix to these shapes yields the correct phonetic outputs.

The reduplicative stem of benefactive verbs in both the definite and indefinite forms is shown in (79).

(79) High verb roots

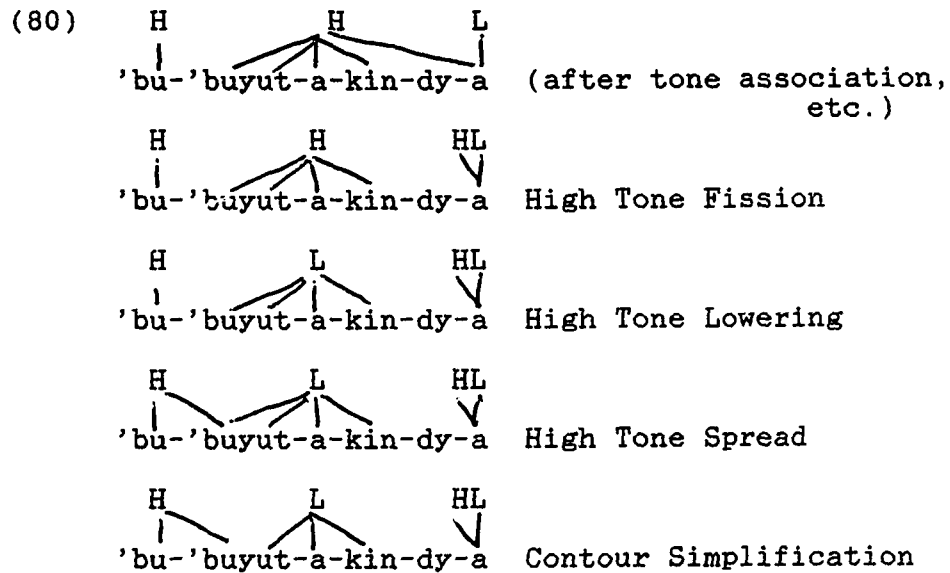
...mó 'dé-'dép-à-kin      ...mó 'dé-'dép-à-kin-dy-â  
 ...lò 'bú-'búyùt-à-kin      ...lò 'bú-'búyùt-à-kin-dy-â

LHL verb roots

...kó mó-mòk-á-kin      ...kó mó-mòk-á-kin-dy-à  
 ...mó sâ-sâpûk-à-kin      ...mó sâ-sâpûk-à-kin-dy-â  
 ...kó dí-dililî-kin      ...kó dí-dililî-kin-dy-à

The data in (79) provide striking support for our hypothesis that the H of the reduplicative prefix triggers High Tone Lowering on a following H-initial verb stem. Recall that H verb roots in the benefactive have a H on all their syllables, while in the indefinite they have a H on all their syllables as well but there is also a fall on the final syllable. Thus in the post-H environment we expect HHH to surface as HLH, HHHH to surface as HLLH, HHHF to surface as HLF, and HHHF to surface as HLLF. Examination of the data in (79) shows that these are indeed the shapes

that a H benefactive verb stem has when preceded by the High-toned reduplicative prefix. (80) provides a sample derivation:



The derivation of the LHL benefactive verbs in (46) is unproblematic, given that we have assumed that the H of the reduplicative prefix cannot spread onto the following (Low-toned) syllable. Recall that LHL verbs in the benefactive have the shapes LHL, LHLL, LHLLL, etc. Thus the addition of a High-toned reduplicative prefix to these stems (without accompanying spreading of that H) will yield the data given in (79).

In (81) we illustrate the reduplicative stem of the direction toward form in both the definite and the indefinite.

(81) High verb roots

$\begin{array}{l} \dots \text{mó 'dé-'dép-ùn} \\ \dots \text{lò 'bú-'búyùt-ùn} \end{array}$	$\begin{array}{l} \dots \text{mó 'dé-'dép-ùn-dy-â} \\ \dots \text{lò 'bú-'búyùt-ùn-dy-â} \end{array}$
---	---

LHL verb roots

...kó mó-mòk-ún	...kó mó-mòk-ún-dy-à
...mó sá-sápúk-ún	...mó sá-sápúk-ún-dy-à
...kó dí-dilíli-yùn	...kó dí-dilíli-yùn-dy-à

Given that in the direction towards form High verb roots have the tonal shapes HH, HHH (definite forms), HHF, HHHF (indefinite forms), the pronunciations in (81) follow automatically from the analysis we have proposed. Sample derivations should not be necessary.

Given that in the direction toward form LHL verbs have the shapes LH, LHL, LHLL (definite forms), LHL, LHLL, LHLLL (indefinite forms), the pronunciations of LHL roots in (81) is also straightforward. The reduplicative prefix adds an initial H tone, but this H tone does not spread onto the verb root.

The reduplicative form of the direction away verb is straightforward (in the light of the preceding discussion) and we simply list the forms:

(82) High verb roots

...mó 'dé-'dép-à-râ?	...mó 'dé-'dép-àd-dû
...lò 'bú-'búyùt-à-râ?	...lò 'bú-'búyùt-àd-dû

LHL verb roots

...kó mó-mòk-á-rà?	...kó mó-mòk-àd-dù
...mó sá-sápúk-á-rà?	...mó sá-sápúk-àd-dù
...kó dí-dilíli-yà-rà?	...kó dí-dilíli-yàd-dù

(Examination of the direction away forms of H and LHL verb roots will show that the effect of the High reduplicative prefix on these verb stems is exactly parallel to all of the preceding data.)

The last (active voice) derived form that we will consider is the instrumental. Recall that the active instrumental is always indefinite -- there is no contrast between a definite and an indefinite form. Examples of the



...mó sá-sápúk-ùn-dì-rì '...will use it for  
overturning s.t.'

...kó dí-dilíli-yùn-dì-rì '...will use s.t. for  
winnowing this way'

Again, these data simply reflect the fact that in the instrumental, a LHL tone melody is assigned in place of the lexical root melody, and that the reduplicative stem simply adds a H tone on the reduplicative prefix.

The instrumental suffix may also be combined with the direction away form; the reduplicative version of this construction can be seen in (85).

(85) High verb roots

...mó lá-lák-àd-dì '...will use s.t. for untying  
that way'

...lò 'bú-'búyùt-àd-dì '...is using s.t. for  
sharpening that way'

LHL verb roots

...kó nyé-nyèr-ád-dì '...will use s.t. for  
cutting that way'

...mó sá-sápúk-àd-dì '...will use s.t. for  
overturning that way'

...mó dí-dilíli-yàd-dì '...will use s.t. for  
winnowing that way'

Again, these data simply reflect the LHL melody associated with an instrumental formation plus the H assigned to the reduplicative prefix. No further discussion is necessary.

(We remind the reader that it may be possible that there is an alternative reduplicated verbal form based on the case where H and LHL verb roots are not neutralized in favor of the LHL pattern.)

We have now examined the reduplicative stems built on active verbal forms. Reduplicative stems built on passive verbal forms are dealt with below.

(86) illustrates the reduplicative of a simple passive verb:

(86) High verb roots

...mó 'dé-'dép-à (cf. 'dép-â)  
 ...lò 'bú-'búyút-á (cf. 'búyút-á)

LHL verb roots

...kó mó-mòk-â (cf. mòk-â)  
 ...mó sá-sápúk-á (cf. sápúk-á)  
 ...kó dí-dilíli-yá (cf. dilíli-yá)

Comparison of the pronunciations of the simple passive forms with the reduplicative forms establishes immediately that these data follow exactly the pattern we have observed. A High reduplicative prefix has no effect on the tonal pattern of passive verbs built on a LHL root (these forms are L-initial). A High reduplicative prefix does affect passive verbs based on H roots. In particular, the HF pattern changes to HL and the HHH pattern changes to HLH. These are, of course, just the expected changes if High Tone Lowering applies between the High reduplicative prefix and the verb stem (after, of course, the operation of High Tone Fission).

The reduplicative form of passive benefactive verbs is given in (87).

(87) High verb roots

...mó lá-lák-à-kí-? (cf. lák-á-kí-?)  
 ...lò 'bú-'búyút-à-kí-? (cf. 'búyút-á-kí-?)

LHL verb roots

...kó mé-mèt-á-kí-? (cf. mèt-á-kí-?)  
 ...mó sá-sápúk-à-kí-? (cf. sápúk-à-kí-?)  
 ...kó dí-dilíli-kí-? (cf. dilíli-kí-?)

The LHL roots in (87) present no difficulty. A High-toned reduplicative prefix is simply added to the verb stem. The verb stem appears just in the form that it would were the reduplicative prefix not there (in other words, the H of the prefix does not spread onto the following Low-toned syllable -- just as we have seen repeatedly above). The H roots are a problem, however. Given the forms lák-á-ki-? and 'búyút-á-ki-?, we would have expected that the operation of High Tone Fission, High Tone Lowering, etc., would have produced \*lák-à-ki-? and \*'búyút-á-ki-?. That is, we expect a HHL sequence to become HLL and a HHLH sequence to become HLHL. (Compare the discussion of nouns in the post-High environment in Chapter 4.) At the present time we have no good account of this unexpected pattern.

Reduplicative stems based on passive direction toward forms are illustrated in (88).

(88) High verb roots

...mó 'dé-'dèp-w-è-? (cf. 'dèp-w-è-?)  
 ...lò 'bú-'búyút-w-ê-? (cf. 'búyút-w-è-?)

LHL verb roots

...kó mó-mòk-w-ê-? (cf. mòk-w-ê-?)  
 ...mó sá-sápúk-w-è-? (cf. sápúk-w-è-?)  
 ...kó dí-dilìlì-y-è-? (cf. dilìlì-y-è-?)

The reduplicative forms based on LHL roots in the passive direction toward form are unremarkable. The reduplicative form of 'dèp-w-è-? is expected: a HL pattern should change to LL in the post-High environment. The reduplicative form of 'búyút-w-è-?, on the other hand, is surprising. We would expect 'búyút-w-è-?, but instead find 'búyút-w-ê-?. The phenomenon is clearly the same one that we observed above with the reduplicative stem of a passive benefactive verb.





HLF and HLLF respectively in the post-H environment provided by the High reduplicative prefix. Given that there is also a variant of the passive instrumental for High verbs that has a LHL melody, we predict that High verbs may also display a reduplicative stem analagous to those cited for LHL verb roots in (90). The tonal shape of the reduplicative stem of the LHL verbs in (90) requires no comment.

We will conclude this discussion of the reduplicative stem of passive verbs by citing some cases where more than one suffix has been utilized. The passive direction toward instrumental form is illustrated in (91).

(91) High verb roots

...mó kú-kúr-w-è-?-i '...will be used for  
borrowing this way'

...lò 'bú-'búyùt-w-è-?-i '...will be used for  
sharpening this way'

LHL verb roots

...kó kú-kùr-w-é-?-i '...will be used for  
digging this way'

...mó sá-sà-púk-w-è-?-i '...will be used for  
overturning this way'

...kó dí-dilìlì-y-è-?-i '...will be used for  
winnowing this way'

The form of the High verb roots in (91) reflect (as their basis) a form of the passive instrumental direction toward form with the tonal pattern HHF and HHHF. The addition of a H reduplicative prefix then naturally triggers a conversion of these patterns to HLF and HLLF. The LHL verb roots in (91) reflect a LHL melody which is unaffected by the addition of a H reduplicative prefix.

The reduplicative stem of the passive direction away instrumental verbal form is shown below:

(92) High verb roots

...mó 'dé-'dép-à-ji-?-i  
 ...lô 'bú-'búyùt-à-ji-?-i

LHL verb roots

...kó mó-mòk-á-ji-?-i  
 ...mó sá-sápúk-à-ji-?-i  
 ...kó dí-dilíli-yà-ji-?-i

These data are exactly parallel to those above and do not require discussion.

Recall from Chapter 2 that the lexically reduplicated verb stems pose some special problems in that they do not reduplicate further to form the reduplicative stem, but they do change their tonal structure. We turn to this problem now.

Consider the examples in (93).

- (93) (a.) ...mó lí-líng' 'will smoothen it'  
 (b.) ...kó bó-bôt 'will soil it'

Recall that a LHL monosyllabic root would appear HH in the reduplicative stem -- cf. mó-mók, while a bisyllabic LHL verb root would have the shape HLF in the reduplicative stem -- cf. sá-sápúk. Thus the shape lí-líng' represents an analytical problem since it conforms to neither of these tonal shapes.

We suggest the following analysis. Suppose that we say that in the case of the lexically reduplicated verb stems what happens is the following: the LHL melody association with the lexical reduplication is mapped onto the stem first. Then a High tone is associated with the first syllable of this form (recall that in the case of ordinary roots, this High tone is associated with the reduplicative prefix). The following derivation is thus predicted:

(94) L H L

$$\begin{array}{c} \sigma \quad \sigma \\ | \quad | \\ li \quad ling' \end{array}$$

$$\begin{array}{c} L \quad H \quad L \\ | \quad | \quad / \\ \sigma \quad \sigma \\ | \quad | \\ li \quad ling' \end{array} \quad \text{UTAP and Free Tone Association}$$

$$\begin{array}{c} HL \quad HL \\ \vee \quad \vee \\ \sigma \quad \sigma \\ | \quad | \\ li \quad ling' \end{array} \quad \text{H-attachment aspect of reduplicative stem formation}$$

$$\begin{array}{c} HL \quad HL \\ | \quad \vee \\ \sigma \quad \sigma \\ | \quad / \\ li \quad ling' \end{array} \quad \text{Contour Simplification}$$

The reduplicative stem of an indefinite form of a lexically reduplicated verb stem is shown in (95).

- (95) (a.) ...lò té-tén-dy-à '...is fixing s.t.'  
 (b.) ...mó 'dí-'dí-g-à '...will test s.t.'

It should be obvious that the analysis that we provided above will correctly derive these forms. Given that the LHL tonal melody of the lexically reduplicated verb stem will result in the shape té-tén-dy-à, the attachment of a H tone to the first syllable as part of the reduplicative stem formation (followed by Contour Simplification) will correctly produce a H tone on the first syllable.

The reduplicative stem of lexically reduplicated verbs in some derived constructions is illustrated in (96) below.

(96) benefactive definite

- (a.) ...mó lí-ling'-à-kin '...will smoothen it  
for him'  
(b.) ...kó bó-bót-à-kin '...will soil it for  
him'

benefactive indefinite

- (c.) ...lò té-tén-à-kin-dy-à '...is fixing s.t.  
for him'  
(d.) ...mó 'dí-'dik-à-kin-dy-à '...will test  
s.t. for him'

direction toward definite

- (e.) ...mó lí-ling'-ùn '...will smoothen it this  
way'  
(f.) ...kó bó-bót-ùn '...will soil it this way'

direction toward indefinite

- (g.) ...lò té-tén-ùn-dy-à '...is fixing s.t.  
this way'  
(h.) ...mó 'dí-'dik-ùn-dy-à '...will test s.t.  
this way'

direction away definite

- (i.) ...mó lí-ling'-àrà? '...will smoothen it  
that way'  
(j.) ...kó bó-bót-àrà? '...will soil it that  
way'

direction away indefinite

- (k.) ...lò té-tén-àrà? '...is fixing s.t. that  
way'  
(l.) ...mó 'dí-'dik-àrà? '...will test s.t. that  
way'

The derivation of these items is straightforward and we will not provide a sample derivation.

The reduplicative stem of a lexically reduplicated verb in the passive is illustrated in (97).



- (99) (a.) Jàdà à líng' tók 'Jada almost cut it with  
an axe'  
(cf. tók 'cut with an axe', a H root)
- (b.) Pòní à líng' 'dèp 'Poni almost held it'  
(cf. 'dép 'hold', a H root)
- (c.) nân à líng' dèr 'I almost cooked it'  
(cf. dér 'cook', a H root)
- (d.) Jàdà à líng' kùr 'Jada almost borrowed it'  
(cf. kúr 'borrow', a H root)
- (e.) Jàdà à líng' jòng' 'Jada almost took it  
away'  
(cf. jóng' 'take away', a H root)

The behavior of a H monosyllabic verb in the post-High position is parallel to the behavior of the monosyllabic nouns we have labelled H<sub>i</sub> -- that is, the verb H changes to L and High Tone Spread is unable to extend the preceding word's H onto the verb.

However, this change of a monosyllabic H verb root to Low in the post-H environment occurs just in the event the verb is phrase-final. This is demonstrated by the following data:

- (100) (a.) Pòní à líng' dér rábòlò  
'Poni almost cooked bananas'  
(cf. dér 'cook', a H root)
- (b.) nân à líng' kám kí'bò  
'I almost paddled the canoe'  
(cf. kám 'paddle', a H root)
- (c.) Jàdà à líng' kí méré  
'Jada almost climbed the mountain'  
(cf. kí 'climb', a H root)

Notice that these monosyllabic H roots that remain H in phrase-medial position trigger the changes that a H-final word is expected to trigger -- thus kí'bò and méré both undergo High Tone Lowering, and rábòlò undergoes High Tone Spread.

Polysyllabic H-initial verbs are illustrated in (101) below:

- (101) (a.) Jàdà à líng' 'bórò 'Jada almost smeared it'  
(cf. 'bóró 'smear')
- (b.) Jàdà à líng' jòngà 'Jada almost took s.t.  
away'  
(cf. jóngà 'take s.t. away (indef.)')

In (101a), a HH verb becomes HL; in (101b) a HL verb becomes LL; The behavior of a HH verb and a HL verb is exactly parallel to the behavior of nouns of similar tonal shape. The main point of difference is merely the somewhat odd behavior of the HL verbs (which in fact are always indefinite forms of H monosyllabic verb roots). These verbs are HL in isolation, and -- in phrase-final position -- change to LL (as above) when in the post-H context. But in phrase-medial position, they are pronounced HH, and their final H is able to trigger the rules that a H-final word triggers. We provide exemplification of these points in (102) below.

- (102) (a.) Jàdà à líng' 'yúrjá tэрò  
'Jada almost burned a papyrus mat'  
(cf. 'yúr-j-à indef. form of 'yúr, and  
tэрò 'mat')
- (b.) Jàdà à líng' kúrjá kítèng'  
'Jada almost borrowed a cow'  
(cf. kúr-j-à indef. form of kúr, and  
kítèng' 'cow')

A L-initial polysyllabic verb undergoes High Tone Spread (plus subsequent Contour Simplification) after líng'. This is shown in (103).

- (103) (a.) Jàdà à líng' lùlùk 'Jada almost bribed him'  
(cf. lùlùk 'bribe')
- (b.) Jàdà à líng' gwóggà 'Jada almost gave up'  
(cf. gwók 'give up', a LHL verb; gwóggà,  
indefinite form)



There is one very interesting problem, however, that now requires discussion. The behavior of monosyllabic LHL verb roots after ling' is illustrated in (104) below.

- (104)(a.) Jàdà à líng' lúk 'Jada almost pulled it'  
(cf. lúk 'pull out', a LHL root)
- (b.) Pòní à líng' mók 'Poni almost caught it'  
(cf. mók 'catch', a LHL root)
- (c.) nân à líng' pí 'I almost asked him'  
(cf. pí 'ask', a LHL root)
- (d.) Wàní à líng' mét 'Wani almost saw him'  
(cf. mét 'see', a LHL root)
- (e.) Jàdà à líng' kúr 'Jada almost dug it'  
(cf. kúr 'dig', a LHL root)

Notice that the LHL monosyllabic root behaves differently from the H monosyllabic root. The former remains H in the post-H environment, whereas the latter changes to L. How can this difference in behavior be explained?

Recall that we have claimed that the LHL monosyllabic roots undergo the following derivation:

- (105) L H L  
luk
- L H L  
  \  
luk      UTAP
- L H L  
  \  
luk      Free Tone Association
- L H L  
  |  
luk      Rising Tone Simplification

Given a representation such as the above, High Tone Lowering could not affect the H of the verb root (it would be separated from the H of the preceding word by a Low).

High Tone Spread could extend the H of the preceding word onto the monosyllabic verb. This would create a situation where two tones would be associated with the monosyllabic verb root -- the H of the preceding word as well as the H that belongs to the LHL root melody. (There would be an unassociated L located between these two High tones.) We suggest that one of these two H tones disassociates (possibly as the consequence of a universal principle that prohibits two identical tones associated to the same vowel, if there is no other tone in between associated to that same vowel). There is no evidence as to which H disassociates.

We have seen that the behavior of both H and LHL verb roots after ling' supports the view that this particle triggers High Tone Lowering and High Tone Spread. In (106) we cite some examples of the simple (unextended) passive verb after ling'. These forms likewise support the contention that ling' triggers the rules mentioned above.

- (106)(a.) Jàdà à líng' 'dépà 'Jada was almost taken care of' (cf. 'dépà, passive form of 'dép)
- (b.) kàdìní à líng' tókò 'the tree was almost cut' (cf. tókò, passive form of tók)
- (c.) súkùrì à líng' dérà 'the chicken was almost cooked' (cf. dérà, passive form of dér 'cook')
- (d .) Jàdà à líng' mókâ 'Jada was almost caught' (cf. mòkâ, passive of mók)
- (e.) mâtàt à líng' piyâ 'the chief was almost asked' (cf. piyâ, passive form of pí)
- (f.) mélésên à líng' kùrû 'the garden was almost dug' (cf. kùrû, passive of kúr 'dig')
- (g.) wálé à líng' 'búyùtá 'the knife was almost sharpened' (cf. 'búyùtá, passive of 'búyùt)

- (h.) wáràgà à líng' nyá'dòtó 'the paper was almost stuck' (cf. nyá'dótó, passive of nyá'dót)
- (i.) kí'bó à líng' sàpùkà 'the canoe was almost turned upside down' (cf. sàpùkà, passive of sàpùk)
- (j.) kàdìní à líng' dódòng'á 'the tree was almost shaken' (cf. dódòng'á, passive of dódòng')
- (k.) 'bólòt à líng' d'ilìliyá 'grain was almost winnowed' (cf. d'ilìliyá, passive of d'ilìli)

(106a-c) show that a HF verb will become HL in the post-H environment (the consequence of the combined application of High Tone Lowering, High Tone Spread and Contour Simplification). (106d-f) show that a LF verb will become HF in the post-H context (through the application of High Tone Spread and Contour Simplification). (106g-h) show that a HHH verb becomes HLH in the post-H context (through the combined application of High Tone Fission, High Tone Lowering, High Tone Spread, and Contour Simplification). (106i-j) show the special behavior in the post-H environment that we noted earlier for passive verbs based on bisyllabic LHL verb roots: a LHH passive verb becomes HLH. Finally, in (106k) a LHLH verb becomes HHLH (through the application of High Tone Spread and Contour Simplification).

In order to further highlight the generality with which verbs will change in the post-H environment, we illustrate some passive verbs based on extended roots. In (107) we show the passive benefactive form.

- (107) (a.) kàdìní à líng' túkùkí? kák 'the tree was almost cut down' (cf. túkùkí?, pass. benef. of tók)
- (b.) wáràgà à líng' nyá'dùtùkí? kák 'the paper was almost stuck down for' (cf. nyá'dùtùkí?, pass. benef. of nyá'dót)

- (c.) kíténg' à líng' mókáki? kák 'the cow was almost held down for' (cf. mókáki?, pass. benef. of mók)
- (d.) kí'bó à líng' sápúkàki? 'the canoe was almost overturned' (cf. sápúkàki?, pass. benef. of sápúk)

In (a) and (b) we see that a HHL verb and a HHHL verb change to HLF and HLLF respectively. These changes would be entirely expected if the verbs had been HHF and HHHF rather than HHL and HHHL respectively. We suspect that it may well be the pronunciations HHL and HHL (i.e. the form in non-post-H position) that is "exceptional" in some sense. In other words, these verbal forms "should" be HHF and HHHF. But whatever may be the case, the alternations shown here for the passive benefactive will recur throughout the data.

In (c) and (d) we see that a LHL and LHLL verb change to HHL and HHLL respectively. Again, these are just the expected changes for a L-initial word (due to the application of High Tone Spread and Contour Simplification).

#### 5.4.7. Negative marking particles: /tì/ and /kò/.

The particles tì and kò serve to indicate negation. (108) shows that tì may be used by itself (i.e. as the only verbal particle) to mark negation.

#### (108) with a simple definite verb

- (a.) nân tì 'bók 'I do not want to dig it'  
 (b.) Pòní tì 'búyút 'Poni is not going to sharpen it'  
 (c.) nân tì sápúk 'I am not going to overturn it'

#### with a simple indefinite verb

- (d.) nân tì 'bóggà 'I won't dig'  
 (e.) Pòní tì 'búyúddyâ 'Poni won't sharpen'  
 (f.) nân tì sápúggà 'I will not overturn'

In this construction, tì is Low-toned. It is not affected by the final tone of the word that precedes (in particular, it remains L after Pòní in (b) above). Nor does it affect the tone of the word that follows (naturally, since we have no evidence of a L-final word affecting the following word).

The negative particle tì may be used in conjunction with the future tense particles dê or mó or kó.

(109) with simple verb roots in the definite

- (a.) nân dê tì mét 'I will not see it'
- (b.) Jàdà mó tì dilíli 'Jada will not winnow it'
- (c.) Pòní dê tì kárán 'Poni will not rake it'
- (d.) nân tì kó dèr 'I will not cook it'
- (e.) Jàdà tì kó sàpûk 'Jada will not overturn  
it'
- (f.) Pòní tì kó kárán 'Poni will not rake it'

with simple verb roots in the indefinite

- (g.) nân dê tì middyâ 'I will not see'
- (h.) Jàdà mó tì dilílijà 'Jada will not winnow'
- (i.) Pòní dê tì kárándû 'Poni will not rake'
- (j.) nân tì kó dèrjà 'I will not cook'
- (k.) Jàdà tì kó sàpúggà 'Jada will not overturn'
- (l.) Pòní tì kó kárándû 'Poni will not rake'

Notice that tì follows the future particles dê and mó but precedes the future particle kó.

We see from these examples that tì is unaffected by a preceding particle, whether the F-final dê and the H-final mó. And, of course, tì does not affect the following word, whether the verb or the future particle kó. The future kó does affect the following verb. We see that in (d) the H verb dèr is changed to Low, in (e) the LF verb sàpûk is changed to HF, in (f) the HH verb kárán is changed to HL, in (j) the HL indefinite verb dèrjà is changed to LL, in (k) the LHL verb sàpúggà is changed to HHL, and in (l) the HHF verb kárándû is changed to HLF. These are, of course, just the changes that we would expect if a verb is subject

to High Tone Lowering and High Tone Spread after tì kó.

In (110) below we show how the tì kó particle sequence affects monosyllabic High verbs and monosyllabic LHL verbs differently:

(110) monosyllabic H roots

nân tì kó tòk 'I will not cut it'  
 Jàdà tì kó 'dèp 'Jada will not hold it'  
 Pòní tì kó dèr 'Poni will not cook it'  
 Wàní tì kó kùr 'Wani will not borrow it'

monosyllabic LHL roots

nân tì kó mók 'I will not hold it'  
 Jàdà tì kó pí 'Jada will not ask him'  
 Pòní tì kó mét 'Poni will not see it'  
 Wàní tì kó kúr 'Wani will not dig it'

These two differential patterns of behavior for monosyllabic roots are just the ones that we encountered above in the post-High environment provided by à líng'. Recall from that discussion, however, that the underlyingly H monosyllabic roots do not change to Low in phrase-medial position. This is true as well for such roots in position after tì kó:

- (111) (a.) nân tì kó gá? bódò  
 'I will not look for the craftsman'  
 (cf. bódò 'craftsman')
- (b.) nân tì kó kùr kìnè  
 'I will not borrow the goat'  
 (cf. kìnè 'goat')
- (c.) Jàdà tì kó 'dép dùpà?  
 'Jada will not hold the cradle'  
 (cf. dùpà? 'cradle')

In (109j) we showed the indefinite form dérjà undergoing High Tone Lowering in position after tì kó. This change occurs just phrase-finally. In phrase-medial position, verbs like dérjà appear HH (e.g. dérjà) and are

resistant to any change after tì kó:

- (112) (a.) Pòní tì kó dérjá ámbàtà  
'Poni will not cook bread'  
(cf. dérjá, indef. form of dér)
- (b.) nân tì kó kámbú kí'bò  
'I will not paddle the canoe'  
(cf. kámbù, indef. form of kám)

In (113) we show how a variety of verbal tonal shapes will be affected by the High tone of kò:

(113) HF verb:

- (a.) kàdíní tì kó tókò 'the tree will not be cut'  
(cf. tókò, passive of tók)

HH verb:

- (b.) Wàní tì kó wúlák  
'Wani will not dig up with a hoe'  
(cf. wúlák 'dig with a hoe')
- (c.) Pòní tì kó 'dépùn  
'Poni will not hold it this way'  
(cf. 'dépùn, dir. toward form of 'dép)

HHH verb:

- (d.) wálé tì kó 'búyùtá 'the knife will not be sharpened' (cf. 'búyútá, passive of 'búyút)
- (e.) Jàdà tì kó 'dépàkín  
'Jada will not hold it for him'  
(cf. 'dépàkín, benefactive of 'dép)

HHHH verb:

- (f.) Pòní tì kó kárànyàkín  
'Poni will not rake it for him'  
(cf. kárànyàkín, benef. of kárán)

HHHF verb:

- (g.) Jàdà tì kó 'dépàkindyâ  
'Jada will not hold s.t. for him'  
(cf. 'dépàkindyâ, indef. benef. of 'dép)

HHHF verb:

- (h.) nân tì kó kàrànyàkindyâ  
 'I will not rake for him'  
 (cf. kàrànyàkindyâ, indef. benef. of kàrán)

LF verb:

- (i.) Wàní tì kó tókù  
 'Wani will not preach'  
 (cf. tókù 'preach')

LHL verb:

- (j.) Jàdà tì kó mókàkin  
 'Jada will not take care of it for him'  
 (cf. mókàkin, benefactive of mók)

LHH verb (passive of bisyllabic LHL verb root)

- (k.) kí'bó tì kó sàpùkà 'the canoe will not be  
 overturned' (cf. sàpùkà, pass. of sàpùk)

LHLL verb:

- (l.) nân tì kó sàpùkàkin  
 'I will not overturn it for him'  
 (cf. sàpùkàkin, benef. of sàpùk)
- (m.) Pòní tì kó mókàkindyâ  
 'Poni will not take care of s.t. for him'  
 (cf. mókàkindyâ, indef. benef. of mók)

LHLH verb

- (n.) 'bólòt tì kó dilíliyá 'the grain will not be  
 winnowed' (cf. dilíliyá, pass. of dilíli)

LHLLL verb:

- (o.) Pòní tì kó dilíliyàkin  
 'Poni will not winnow it for him'  
 (cf. dilíliyàkin, benef. of dilíli)
- (p.) Jàdà tì kó sàpùkàkindyâ  
 'Jada will not overturn s.t. for him'  
 (cf. sàpùkàkindyâ, indef. benef. of sàpùk)



LHLLLL verb:

- (q.) Pòní tì kó dílíliyàkindyà  
 'Poni will not winnow s.t. for him'  
 (cf. dílíliyàkindyà, indef. benef. of dílíli)

Examination of these data reveals all of the usual patterns -- an initial L word raises that L to H (through the combined effects of High Tone Spread and Contour Simplification), a HF word changing to HL (through the combined effects of High Tone Lowering, High Tone Spread, and Contour Simplification), a HHH sequence changing to HLH (through the combined effects of High Tone Fission, High Tone Lowering, High Tone Spread, and Contour Simplification), and so on. Notice also that the peculiarity we noted in our discussion of à líng' with respect to the passive of a bisyllabic LHL verb also obtains here: i.e., in the post-H environment, a LHH passive verb such as sàpùká appears as HLH. The explanation for this change remains unclear.

In (114) we see that the particle kò may be used after the past tense particle à to indicate negation:

(114) with a simple definite verb root

- (a.) Jàdà á kò 'dép 'Jada did not hold it'  
 (b.) nân á kò kúrúp 'I did not roast it'  
 (c.) Pòní á kò sàpùk 'Poni did not overturn it'

with a simple verb root in the indefinite

- (d.) Jàdà á kò 'débbà 'Jada did not hold s.t.'  
 (e.) nân á kò kúrúbbâ 'I did not roast s.t.'  
 (f.) Pòní á kò sàpúggâ 'Poni did not overturn s.t.'

This construction is somewhat odd in that we find that the past tense particle à, which is regularly Low-toned when it immediately precedes the verb, is pronounced on a High tone in front of the negative particle kò. This alternation does not appear to be in any way phonologically governed. Notice that the negative particle kò is itself Low-toned. It contrasts thus with

the High-toned prefix kó that is used to mark the future tense.

Examination of the above data reveals that the High-toned past tense particle á remains unaffected by a preceding word-- thus Póní in (c) has no effect on á. The Low-toned kò likewise has no effect on the following verb. H verbs such as kúrúp remain all H, LHL verbs such as sápúk retain a L on their first syllable.

#### 5.4.8. The particle /nyúng' / '(not) yet'.

The particle nyúng' combines with the negative particles such as á kò or tì to express the idea 'not yet'. E.g.,

(115) (a.) Póní á kò nyúng' dèr  
'Poni has not yet cooked it'

(b.) Póní tì nyúng' dèr  
'Poni is not cooking it yet'

In these examples, we see that nyúng' is pronounced on a High tone. We cannot tell whether nyúng' would be susceptible to High Tone Lowering or High Tone Spread in this environment since it is always preceded by a Low-toned negative particle.

nyúng' may not be used without the accompanying negative particle. It is possible, however, to vary the order of the verbal elements. Thus while in (115) nyúng' follows the negative element, it is also possible for nyúng' to precede:

(116) (a.) nân nyùng' á kò mét  
'I have not seen it yet'

(b.) Póní nyùng' tì dèr  
'Poni is not cooking it yet'

Notice that when nyúng' precedes the negative particles, nyúng' is realized on a Low tone. This Low tone shape for nyúng' does not appear to have a phonological basis to it. For instance, pre-negative nyùng' is Low toned regardless of the tone of the final syllable of the preceding word:

- (117) (a.) nân nyùng' á kò dér  
'I have not cooked it yet'
- (b.) Jàdà nyùng' tì mét  
'Jada has not seen it yet'
- (c.) Pòní nyùng' á kò tèbòk  
'Poni has not folded it yet'

Pre-negative nyùng' is also Low-toned regardless of the tone of the negative particle that follows -- whether the H-initial á kò or the L-initial tì.

We conclude, therefore, that when nyùng' is post-negative it is impossible to determine whether it would be susceptible to High Tone Lowering or High Tone Spread. When nyùng' is pre-negative, it does appear Low-toned, but the fact that it is Low-toned is not linked to any phonological characteristics of the preceding or following words.

Let us now consider whether nyùng' triggers High Tone Lowering and High Tone Spread. When nyùng' is pre-negative, it is Low-toned and it has no effect on the following negative particle. But when nyùng' is post-negative, it is High-toned and it precedes a verb. The possibility obviously exists that the tone of nyùng' may affect the tone of the verb.

Consider the examples in (118).

- (118) (a.) nân tì nyùng' mét  
'I am not seeing it yet'  
(cf. mét 'see', a LHL verb)
- (b.) Jàdà á kò nyùng' 'yùr  
'Jada has not burned it yet'  
(cf. 'yùr 'burn', a H verb)
- (c.) Pòní tì nyùng' kàrán  
'Poni is not raking it yet'  
(cf. kàrán 'rake')
- (d.) nân á kò nyùng' tébòk  
'I have not folded it yet'  
(cf. tèbòk 'fold')

These data show the same patterns of change that we have witnessed before when a verb root is subject to High Tone Lowering and High Tone Spread. A LHL monosyllabic root surfaces as H whereas a H root surfaces as L. We have already given an explanation for this difference in behavior between monosyllabic LHL roots and monosyllabic H roots (both of which are overtly realized as H in the post-Low environment). Similarly a HH verb surfaces as HL while a LF verb surfaces as HF. These changes are by now too familiar to require comment, though we should note that -- as usual -- a monosyllabic H root remains H in phrase-medial position, a HL (indefinite) verb changes to HH in phrase-medial position (both of these changes being independent of whether the preceding word is H-final or not). Examples:

- (119) (a.) Kùlàng' tì nyúng' kúr kítèng'  
'Kulang will not borrow the cow yet'
- (b.) Pòní tì nyúng' dér rábòlò  
'Poni will not cook the bananas yet'
- (c.) Jàdà tì nyúng' mát yáwà  
'Jada will not drink the beer yet'
- (d.) nân tì nyúng' kámbú kí'bò  
'I will not paddle a canoe yet'
- (e.) nân tì nyúng' dérjá ámbàtà  
'I will not cook bread yet'

To illustrate further the effect that nyúng' has on a verb, consider the benefactive verbal forms below:

- (120) (a.) nân tì nyúng' métákin  
'I am not seeing it for yet'  
(cf. mèt-á-kin 'see for')
- (b.) Jàdà á kò nyúng' 'yúràkin  
'Jada has not burned it for yet'  
(cf. 'yúr-á-kin 'burn for')
- (c.) Pòní tì nyúng' kárànyàkin  
'Poni is not raking it for yet'  
(cf. kárány-á-kin 'rake for')

- (d.) nân á kò nyúng' tébókàkin  
'I have not folded it for yet'  
(cf. tébók-à-kin 'fold for')
- (e.) Jàdà tì nyúng' dílíliyàkin  
'Jada is not winnowing it for yet'

The above data illustrate the lowering and spreading effects of nyúng' on longer verb stems. We see that LHL, LHLLL, or LHLLL verb stems all raise their initial L (via High Tone Spread and Contour Simplification). We also see that HHH and HHHH verb stems change to HLH and HLLH. These patterns of alternation reflect the High Tone Fission rule followed by High Tone Lowering followed by High Tone Spread plus Contour Simplification.

If the benefactive verb stem is made indefinite, we get the following results from the appearance of nyúng' in front of the verb:

- (121) (a.) nân tì nyúng' métákindyà  
'I am not seeing for s.t. yet'  
(cf. mèt-á-kin-dy-à 'see s.t. for')
- (b.) Jàdà á kò nyúng' 'yúràkindyâ  
'Jada has not burned s.t. for yet'  
(cf. 'yúr-á-kin-dy-â 'burn s.t. for')
- (c.) Pòní tì nyúng' kárànyàkindyâ  
'Poni is not raking s.t. for yet'  
(cf. kárány-á-kin-dy-â 'rake s.t. for')
- (d.) nân á kò nyúng' tébókàkindyà  
'I have not folded s.t. for yet'  
(cf. tébók-à-kin-dy-à 'fold s.t. for')
- (e.) Jàdà tì nyúng' dílíliyàkindyà  
'Jada is not winnowing s.t. for yet'  
(cf. dílíli-yà-kin-dy-à 'winnow s.t. for')

We see from (121) that a LHLL, LHLLL, or LHLLL verb all raise their initial L (via High Tone Spread and Contour Simplification). On the other hand, HHHF and HHHHF verbs all change to HLLF and HLLLF respectively (via High Tone Fission, High Tone Lowering, High Tone Spread, and Contour Simplification).

5.4.8. The particle /ùngá/ 'then'.

The particle ùngá can be used in constructions such as the following:

- (122) (a.) Jàdà à ryájú kijákù à lòpéng' úngá pèjà  
'Jada found a wild animal and then he shot it'
- (b.) kó Jàdà à jùjùmbù kèndyâ à lòpéng' mó úngá kèndyâ  
Bíbilià 'if Jada learns how to read, then he  
will read the Bible'
- (c.) Jàdà à wórán pàrik à ùngá kúrúpákindyâ lòpèngát  
kùmùrá 'Jada was very angry with them when he  
roasted the oil seeds for them'
- (d.) Pòní tú ì jûr à ùngá dilíliyùndyâ 'bólót  
'Poni went to the village and then she winnowed  
grain and brought it here'

It is clear from the above data that ùngá not only triggers High Tone Lowering and High Tone Spread but also undergoes High Tone Spread when preceded by a H tone. That it undergoes High Tone Spread is evidenced by the fact that it appears as úngá in position after a word-final H (cf. the cases in (122a,b) where it is preceded by lòpéng' and mó), but as ùngá when it appears in the post-Low context (cf. the examples where it follows à). That ùngá triggers High Tone Lowering is seen from the fact that a HL word such as péjà and a HHHHF word such as kúrúpákindyâ change to LL and HLLLF respectively. That ùngá triggers High Tone Spread is seen from the fact that a LF word such as kèndyâ and a LHLLL word such as dilíliyùndyâ change to HF and HLLLL respectively.

As expected, monosyllabic H roots and monosyllabic LHL roots behave differently after ùngá, as seen in (123):

(123) monosyllabic H roots

- ...Jàdà ùngá tók 'lest Jada cut it with an axe'  
...Pòní ùngá 'dèp 'lest Poni hold it'  
...Wàní ùngá dèr 'lest Wani cook it'  
...nân ùngá kùr 'lest I borrow it'

monosyllabic LHL roots

- ...Pòní ùngá mók 'lest Poni hold it'  
 ...nân ùngá pí 'lest I ask him'  
 ...dó ùngá mét 'lest you see it'  
 ...Jàdà ùngá kúr 'lest Jada dig it'

Once again we see that a monosyllabic H root undergoes High Tone Lowering and becomes L. A monosyllabic LHL root, on the other hand, cannot undergo High Tone Lowering; a preceding H may spread onto this root, but the result is still just a High-toned syllable.

The monosyllabic High roots, of course, remain High after ùngá when they are phrase-medial, and the HL (indefinite) verbs change to HH phrase-medially even if after ùngá:

- (124) (a.) Jàdà ùngá gá? kí'bò  
 'Jada then looked for a canoe'  
 (b.) nân ùngá 'yúr tэрò  
 'I then burned the mat'  
 (c.) Pòní ùngá kí mэрè  
 'Poni then climbed the mountain'  
 (d.) Kùlàng' ùngá gá'yú dúpà?  
 'Kulang then looked for a cradle'  
 (e.) Kùlàng' ùngá kíjá mэрè  
 'Kulang then climbed a mountain'

5.4.9. The particle /án...kó/ 'lest'

The discontinuous sequence of particles án...kó is used to express the idea that something has to be done lest something else happens. Some examples:

- (125) (a.) 'délé án Póní kó dэр  
 'hide it lest Poni cooks it'  
 (b.) mòggi? kí'bò Jàdà án Kùlàng' kó sápùk  
 'tie down the canoe, Jada, lest Kulang  
 overturn it'  
 (c.) ...án Jádà kó 'búyùtàkindyâ  
 'lest Jada sharpens for'

(d.) ...án Póní kó dílíliyùndyà  
'lest Poni winnows this way'

The examples above show that the sequence án...kó encloses the subject noun phrase. Notice that án is unaffected by the word that precedes it -- thus in (a) we see that án remains High-toned after the H-final imperative verb. The kó is also unaffected by the word that precedes it -- thus in (a,d) kó remains High after the H-final noun Póní.

Both án and kó affect the word that follows them. In (a) we see that án raises the LH noun Póní to HH (via High Tone Spread and Contour Simplification). In (c) án raises the LL noun Jàdà to HL. In (b) án lowers the HL noun Kúlàng' to LL. In (a) we find that kó lowers the H monosyllabic verb root dér to Low, while in (c) kó lowers the HHHHF verb 'búyùtákindyâ to HLLLF. These changes obviously reflect the fact that kó triggers High Tone Lowering. In (b) we find that kó raises the initial L of the LHL verb sápúk and in (d) that it raises the initial L of the LHLLL verb dílíliyùndyà to H.

#### 5.4.10. Negative imperative construction.

The negative form of the imperative verb in Bari is formed by placing a low-toned element kò in front of the verb. The verb, however, is not in its "imperative" shape, either segmentally or tonally. In (126) we illustrate simple verb roots in the negative imperative, where the verb root is in phrase-final position. For the sake of comparison, we also cite the affirmative imperative form

#### (126) H verb root

kò dèr 'don't cook it!' (cf. dèr-é 'cook it!')  
kò kí 'don't climb it!' (cf. kí-né 'climb it!')  
kò 'búyùt 'don't sharpen it!' (cf. 'búyùt-é  
'sharpen it!')



LHL verb root

- kò mòk 'don't touch it!' (cf. mòk-ê 'hold it!')
- kò ng'î 'don't raise it!' (cf. ng'î-nê 'raise  
it!')
- kò sàpùk 'don't overturn it!' (cf. sàpùk-ê  
'overturn it!')
- kò dílíli 'don't winnow it!' (cf. dílíli-nê  
'winnow it!')

In these data there is an apparent merger of H and LHL verb roots: we see that H and LHL monosyllabic verb roots are both realized with a Falling tone in the negative imperative, and bisyllabic H and LHL verb roots are both realized as HL in the negative imperative, while a trisyllabic LHL verb is realized as HHL in the negative imperative.

This merger of tonal shapes is somewhat superficial in the case of monosyllabic roots, but deeper in the case of bisyllabic and longer forms. To see why we say this, consider the data in (127).

- (127) (a.) kò kí méré 'don't climb the mountain!'  
(cf. méré 'mountain')
- (b.) kò 'dók téré 'don't carry the mat!'  
(cf. téré 'mat')
- (c.) kò dér súkùrì 'don't cook the chicken!'  
(cf. súkùrì 'chicken')
- (d.) kò 'dók kéré 'don't carry the gourd!'  
(cf. kéré 'gourd')
- (e.) kò dôk kéré 'don't fetch the gourd!'  
(cf. kéré 'gourd')
- (f.) kò mòk kí'bó 'don't touch the canoe!'  
(cf. kí'bó 'canoe')
- (g.) kò ng'î téré 'don't lift the mat!'  
(cf. téré 'mat')
- (h.) kò 'bùyùt wálé 'don't sharpen the knife!'  
(cf. 'bùyùt-é 'sharpen!', wálé 'knife')

- (i.) kò sápụk kí'bóló 'don't overturn the canoe!'  
 (cf. sápụk-é 'overturn!', kí'bóló 'canoe')
- (j.) kò dílíli 'bólót 'don't winnow the grain!'  
 (cf. dílíli-né 'winnow!'. 'bólót 'grain')

The data in (127a-d) show that a phrase-medial monosyllabic H verb in the negative imperative behaves as though it simply has a H tone -- it triggers High Tone Lowering and High Tone Spread on a following noun. The data in (127e-g), on the other hand, suggest that a monosyllabic LHL verb retains the Falling tone that it has in isolation and therefore ends in a Low tone and cannot induce changes on a following word. The data in (127h-i) show that both a H root such as 'búyút and a LHL root such as sápụk continue, in phrase-medial position, to show the same HL shape that they have in phrase-final position, and thus cause no change in a following word.

Given the complexity of the monosyllabic roots in the negative imperative, let us put these items aside for the moment and concentrate on the polysyllabic forms. The data in (126) and (127) suggest that this construction leads to a neutralization of the H vs. LHL root melody contrast for polysyllabic stems. In other words, it appears that we are dealing with another case where a certain construction assigns a tonal melody in place of the lexical melody of the root. The question then is: what is the melody assigned? And how do we account for the surface forms of the negative imperative.

The data in (126) and (127) show that a bisyllabic verb in the negative imperative has a HL tonal shape while a trisyllabic verb has a HHL tonal shape. A better understanding of the pattern involved can be gleaned from considering the following examples of negative imperatives based on the repetitive stem.

- (128)(a.) kò sâ-sâpùk 'don't keep on overturning it!'  
(cf. sâ-sâpùk-ê 'keep on overturning it!')
- (b.) kò 'bú-'búyùt 'don't keep on sharpening it!'  
(cf. 'bù-'bùyùt-ê 'keep on sharpening it!')
- (c.) kò dí-dílili 'don't keep on winnowing it'  
(cf. dì-dílili-nê 'keep on winnowing it!')

These items show again the HHL pattern for trisyllabic verbal forms, but the last example shows that a quadrisyllabic form evidences a HLLL shape.

We would like, at this point, to make a suggestion concerning the analysis of these data. Suppose that we assumed that the negative imperative construction involves assigning LHL melody to the verb word. But suppose that, in addition, we assumed that the negative imperative has an unassociated High tone following kò. If we hypothesize that this unassociated H tone is able to spread onto the verb word as part of the phrasal tonology, then we can account for the patterns HHL (trisyllabic forms) and HLLL (quadrisyllabic forms). Sample derivations are provided below:

- (129) LH L H L                    LH L H L after the assign-  
      |                            /                            ment of the LHL  
      ko dilili                  ko di-dilili melody to verb
- LH L H L                    LH L H L  
      | | | |                    | | | |  
      ko dilili                  ko di-dilili                  UTAP
- inapplicable                LH L H L  
                                  / | | \                    Free Syllable  
                                  ko di-dilili                  Association
- LH L H L                    LH L H L  
      | \ | | |                  | \ | | |                  High Tone Spread  
      ko dilili                  ko di-dilili
- LH L H L                    LH L H L  
      | \ | | |                  | \ | | |                  Contour Simplif.  
      ko dilili                  ko di-dilili

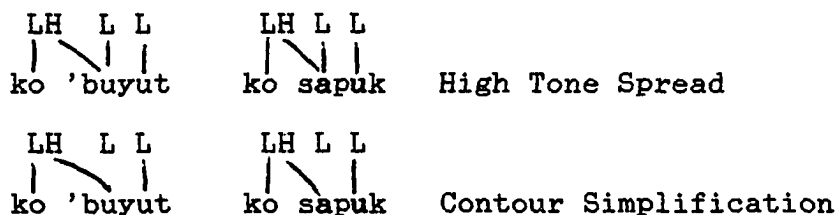
We will see below that even the monosyllabic verb stems (which do not appear to neutralize their lexical tone shape in the negative imperative) provide some support for this analysis. The HL pattern is, however, quite problematic for this analysis and we do not have a satisfactory account of their behavior. If we assume that bisyllabic verb stems likewise are assigned a LHL pattern and that a floating H follows kò then we predict the following incorrect derivation:

- (130) L H LHL  
 |    \ \  
 ko 'buyut  
 inapplicable High Tone Lowering
- L H L HL  
 |    \ \  
 ko 'buyut      High Tone Spread
- L H L HL  
 |    \ \  
 ko 'buyut      Contour Simplification

\*kò 'búyùt is, of course, incorrect. We need to generate a HL pattern.

We are by no means certain what approach to take for these forms. One solution would be to say that bisyllabic forms are assigned a HL melody whereas trisyllabic forms are assigned a LHL melody. If bisyllabic forms are assigned a HL melody, then we would have derivations such as those in (131) for kò 'búyùt and kò sápűk.

- (131) LH H L      LH H L      (after replacement of  
 \    \ \      \    \ \      lexical tone with  
 ko 'buyut      ko sapuk      the HL melody)
- LH L L      LH L L  
 \    \ \      \    \ \      High Tone Lowering  
 ko 'buyut      ko sapuk



Before attempting to justify this analysis (specifically, the analysis of trisyllabic forms) any further, let us examine the negative imperative forms of derived verb stems. We begin with the indefinite form of a monosyllabic verb root:

- (132) kò kí-j-à 'don't climb!' (H root)  
 kò kí-j-á méré 'don't climb a mountain.'  
 (cf. méré 'mountain')  
 kò móg-g-â 'don't take care of!' (LHL root)  
 kò móg-g-â kí'bó 'don't touch the canoe!'  
 kò tóg-g-ù 'don't cut (with an axe)! (H root)

These data show that indefinite forms based on monosyllabic verb roots are not merged in the negative imperative -- a H monosyllabic verb has a HL shape, while a LHL monosyllabic verb has a HF shape. This confirms our observation concerning the data in (126) that the merger there of monosyllabic verb roots (cf. kò dêr and kò môk) is only superficial (as (127) established).

Let us consider the High monosyllabic verbs in (132) first. The HL shape -- kí-j-à -- occurs just phrase-finally; in phrase-medial position, we find kí-j-á. This is, of course, just the usual behavior of an indefinite monosyllabic High verb. Thus in (132), the form kí-j-à/kí-j-á is in no way different from the behavior of such verbs in any post-Low context. The behavior of the indefinite form of a monosyllabic LHL verb root, on the other hand, is different from ordinary contexts. The usual form is LF -- cf. mòg-g-â -- not HF.

The appearance of a HF shape for móg-gâ can be explained in terms of the analysis that we suggested above. That is, all we need assume is that the floating H that we suggested occurs after kò spreads onto mòg-g-â. Subsequent application of Contour Simplification will then produce a level High tone on the first syllable of the verb word.

But what about the example kí-j-à/kí-j-á? Wouldn't we expect the floating H after kò to trigger High Tone Lowering on it? Earlier in this chapter we demonstrated that an indefinite form of a High monosyllabic verb will have the shape HH in phrase-medial position, regardless of the tone that precedes it. Thus we do not expect the floating H under discussion to affect the verb in an example like kò kí-j-á méré. However, the phrase-final form kí-j-à is converted to kí-j-à in post-H positions elsewhere. Therefore we would reasonably expect a floating H after kò to trigger High Tone Lowering on kí-j-à, producing kí-j-à. We suggest that indeed it does. But this floating H is then able to spread onto \*kí-j-à, eventually leading to the restoration of the shape HL. Recall from Chapter 4 that the floating H that we postulated after the preposition i has this same ability to spread onto a LL word derived from a HL word by High Tone Lowering (even though in most other situations, HL words do not accept a spread H once they have changed to LL).

We have now been able to give an analysis of the forms kí-j-à and móg-g-â which supports the idea that there is a floating H tone after kò. Of course, we must assume that the lexical tone shapes of monosyllabic verb roots is retained in the negative imperative (whereas longer verb roots undergo a shift to a LHL melody).

At this point, let us return to the behavior of the monosyllabic verb roots noted in (126) and (127). Consider the High verb roots first. Recall that they appear simply as H in phrase-medial position. This is, of course, just

the behavior of High monosyllabic verb roots in general, even when post-H. So this shape is consistent with assuming that there is a floating H after kò and that the verb stem simply has a High tonal melody.

In phrase-final position, the H roots appear with a Falling tone. Recall that in post-High contexts, a H root such as dér would appear as dèr -- i.e. the monosyllabic H root undergoes High Tone Lowering. So would we not also expect it to undergo High Tone Lowering after an unassociated High, and thus surface as dèr (as in other post-H contexts)? We suggest that dér does indeed undergo High Tone Lowering after the floating High tone that follows kò. However, we also assume that this floating H is able to spread onto \*dér to create a Falling tone. This assumption is of course perfectly in line with our proposed account of why kí-j-à surfaces as kí-j-à in the negative imperative rather than as \*kí-j-à.

Now let us turn to a LHL verb root in the negative imperative. It shows up with a Fall both phrase-medially and phrase-finally. If we assume that kò has a floating H after it, then we need to compare these pronunciations with those observed in other post-H contexts. Recall that LHL monosyllabic verb roots simply remain H in other post-H contexts. But here they appear as Fall. Let us consider how we might produce a Fall in this situation.

One possibility is that we allow High Tone Spread (from the floating H) to apply prior to Rising Tone Simplification. This would yield a representation where a HLH sequence is associated with the monosyllabic verb root. We could then invoke a special rule that would disassociate the last H, yielding a Falling-toned word. However, notice that these Falling-toned words do not behave as though they end in a H in terms of the phrasal phonology, so it would be necessary that this H be eliminated from the tonal tier. These items would then contrast with the LHL verbs in other





This neutralization even extends to the benefactive forms based on monosyllabic roots. We assume that as soon as a monosyllabic root is extended by the benefactive /kIn/, it falls into the category of a polysyllabic stem and thus has its lexical tone supplanted by the LHL melody. (Notice, however, from (132) that the indefinite suffix is not treated in the same fashion -- its addition does not lead to the assignment of a LHL melody.)

The bisyllabic pattern (HL), the trisyllabic pattern (HHL) and the quadrisyllabic pattern (HLLL) in (134) are just the same as the patterns observed in (127) and (128) for polysyllabic roots. No discussion of their derivation is required.

The negative imperative of benefactive verbs in the indefinite is exemplified in (135):

- (135) kò kí-kin-dy-à  
 kò mók-á-kin-dy-à  
 kò túk-ú-kin-dy-à  
 kò sápúk-à-kin-dy-à  
 kò 'búyút-à-kin-dy-à  
 kò dílíli-kin-dy-à

Again, these tonal shapes (HHL, HLLL, HLLL) are entirely expected and no discussion is required.

The data in (136) illustrate the negative imperative of a direction toward verb in the definite and indefinite:

- (136) kò 'dép-ùn kò 'dép-ún-dy-à (H root)  
 kò mók-ùn kò mók-ún-dy-à (LHL root)  
 kò 'búyút-ùn kò 'búyút-ùn-dy-à (H root)  
 kò sápúk-ùn kò sápúk-ùn-dy-à (LHL root)

We see that the suffixation of /Un/ to a monosyllabic root leads to a neutralization of H and LHL roots -- i.e. the assignment of a (L)HL melody in place of the lexical melody. The various tonal shapes in (136) -- HL (e.g. 'dép-ùn, mók-ùn), HHL (e.g. 'búyút-ùn, sápúk-ùn, 'dép-ún-dy-à),

HHL (e.g. 'búyút-ùn-dy-à, sápúk-ùn-dy-à) -- are just the ones that we expect (given the data from (126) and (127)).

The data from the direction away verb in (137) is parallel and require no comment:

- (137) kò 'dép-ár-à? kò 'dép-ád-dù (H root)  
 kò mók-ár-à? kò mók-ád-dù (LHL root)  
 kò 'búyút-ár-à? kò 'búyút-ád-dù (H root)  
 kò sápúk-ár-à? kò sápúk-ád-dù (LHL root)

We have given sufficient data from various derived (active) verbal forms to support the view that the tonal patterns observed first in (126) and (127) are indeed pervasive in the negative imperative. The negative imperative of a passive of a simple verb is rather illuminating and we turn to these data now. For the sake of comparison, we cite the corresponding simple passive form as well as the (affirmative) imperative passive form:

- (138) kò 'dép-à ('dép-â, 'dèp-é)  
 kò mét-à (mèt-â, mèt-é)  
 kò 'búyút-à ('búyút-â, 'bùyùt-é)  
 kò sápúk-à (sápúk-â, sâpùk-é)  
 kò dílíli-yà (dílíli-yâ, dílíli-né)

Examination of the data in (138) shows that the assignment of a (L)HL melody as part of the formation of negative imperatives over-rides not only the lexical melody of the root but the tone of the imperative suffix as well. That is, even though the simple passive form seems to have a H on the suffix (cf. 'búyút-â, sápúk-â, dílíli-yâ), the negative imperative gives no hint at all that such a High tone is still present in the tonal tier. Rather, a verb in the negative imperative behaves as though it has just the (L)HL melody that is assigned to it by that construction. Notice, incidentally, that the addition of the passive suffix, like the addition of the benefactive, the direction toward, and the direction away suffixes, leads to monosyllabic roots losing their lexical tone.

The negative imperative of derived passive forms is shown in (139) below.

(139) benefactive passive

kò 'dép-á-kì-?  
 kò mét-á-kì-?  
 kò 'búyút-à-kì-?  
 kò sápúk-à-kì-?  
 kò dílíli-kì-?

direction toward passive

kò 'dép-w-è-?  
 kò mók-w-è-?  
 kò 'búyút-w-è-?  
 kò sápúk-w-è-?

direction away passive

kò 'dép-á-ji-?  
 kò mók-á-ji-?  
 kò 'búyút-à-ji-?  
 kò sápúk-à-ji-?

The data in (139) are entirely consistent with the view that in the negative imperative, a (L)HL melody is assigned in place of the lexical melody of the root as well as any tonal shape assigned to the passive suffix. The data in (139) are not very crucial in supporting this proposition, however, since these passive forms ordinarily end in a L tone in any case; thus the fact that they end in a Low in (139) does not establish that this Low must come from the (L)HL melody of the negative imperative formation.

From the discussion in this section, we conclude that there is some evidence that (a) the negative imperative construction assigns a (L)HL melody in place of not only the lexical melody of the root but also of tonal specifications on suffixes, (b) this replacement does not operate when the lexical root is monosyllabic, (c) the attachment of any suffix other than the indefinite makes a

root polysyllabic and thus subject to the above tonal replacement, (d) there is a floating H located after kò, and (e) this floating High triggers High Tone Lowering and High Tone Spread.

5.5. The verb as a trigger of High Tone Lowering and High Tone Spread.

Up until this point we have been concerned only with the changes that a verb word undergoes. We have not been concerned with the matter of whether a verb word triggers such phrasal rules as High Tone Lowering and High Tone Spread. There are many examples in Chapter 4 which establish the fact that in general a verb word does trigger these changes. In the present section, however, we will review this matter by taking examples from many of the major verbal types discussed in Chapter 2 and examining their potential for affecting a following word.

Let us consider monosyllabic verb roots first. In (140) we illustrate underlyingly H verb roots:

- (140) (a.) nân à ríp 'dópùt  
'I sewed the cloth'
- (b.) Jàdà à 'dép kòpò  
'Jada held the cup'
- (c.) Pòní à gá? dúpà  
'Poni looked for the cradle'

We see that an underlying H verb root triggers High Tone Lowering (as can be seen from (141a) and (142b) where 'dópùt and kòpò change to 'dópùt and kòpò) as well as High Tone Spread (as can be seen from (1c) where dùpà changes to dùpà).

Further examples attesting this behavior are given in (141):

(141) (a.) Pòní à dér sùkùrì  
'Poni cooked the chicken'

(cf. sùkùrì 'chicken')

(b.) Pòní à 'dé? bírígòlán  
'Poni hid the horns'  
(cf. bírígòlán 'horns')

In (142) underlying LHL verbs are exemplified:

(142) (a.) Pòní à dók kéré  
'Poni fetched the gourd'

(b.) Jàdà à mét dùlùr  
'Jada saw the castor oil seeds'

(c.) nân à ng'í téré  
'I raised up the papyrus mat'

From (142) we see that the behavior of underlyingly LHL verb roots is exactly the same as underlying H roots. They trigger High Tone Lowering (as shown in (142a) by the change of kéré to kéré) and in (142b) by the change of dúlùr to dùlùr) as well as High Tone Spread (as shown in (142c) by the change of téré to téré).

Recall our analysis of LHL monosyllabic roots. We claimed that they have a LHL melody in underlying structure. The initial L of this melody is linked to the root syllable by the Universal Tone Association Principle and then the H is linked by the Free Tone Association rule. The last Low in the melody is left unlinked. Eventually, the initial L of the melody is delinked by Rising Simplification. This leaves the monosyllabic root associated just with the H part of the melody.

The data in (142) establish that the unassociated L at the end of the melody must be deleted from the representation prior to the phrasal tone rules, since the LHL monosyllabic verbs act as though they end in a H in their ability to trigger High Tone Lowering and High Tone

Spread.

Further examples appear in (143) showing that a LHL monosyllabic verb behaves as though it is H-final in terms of the phrasal tonal rules:

- (143) (a.) Wàní à mét pířít  
'Wani saw the place'  
(cf. pířít 'place')
- (b.) Jàdà à mét kířikòk  
'Jada saw a chameleon'  
(cf. kířikòk 'chameleon')

Bisyllabic H roots also trigger High Tone Lowering and High Tone Spread, as shown by (144):

- (144) (a.) Jàdà à 'búyút wálè  
'Jada sharpened the knife'
- (b.) Pòní à kúrúp dùlùr  
'Poni roasted the castor oil seeds'
- (c.) Pòní à 'bóró dúpà  
'Poni smeared the cradle'
- (d.) Pòní à 'bóró kí'bò  
'Poni smeared the canoe'

As expected, wálé changes to wálè, kí'bó changes to kí'bò, and dùlùr changes to dùlùr as a result of High Tone Lowering, and dúpà changes to dúpà as a result of High Tone Spread.

A bisyllabic LHL verb root, on the other hand, cannot trigger High Tone Lowering and High Tone Spread since the last syllable of such words end in a Falling tone (not a H tone):

- (145) (a.) bár à sàpùk kí'bó  
'the flood overturned the canoe'
- (b.) mátàt à yàkí Jàdà  
'the chief sent Jada to do s.t.'

In these two examples, we see that a bisyllabic LHL verb root does not trigger High Tone Lowering on a noun such as kí'bó, nor does it trigger High Tone Spread onto a L-initial noun such as Jàdà.

Let us now review the behavior of indefinite verbal forms (based on simple verb roots). Recall that a High monosyllabic verb has a HL shape in the indefinite (e.g. 'déb-b-à) while a High bisyllabic verb has a HHF shape (e.g. 'búyúd-dy-â). The HL shape, however, is replaced by a HH form in phrase-medial position. This HH form is able to trigger High Tone Lowering and High Tone Spread on a following word. The HHF indefinite form has no effect on the word that follows. These points are exemplified in the following data:

- (146) (a.) Pòní à 'dóggú tètò  
'Poni carried the mat'  
(cf. tètò 'mat')
- (b.) Jàdà à síríddyâ kányúng'  
'Jada squeezed the sesame seeds'  
(cf. kányúng' 'sesame seeds')

LHL verbs in the indefinite have the shape LF if the verb is monosyllabic, LHL if the verb is bisyllabic, LLLL if the verb is trisyllabic, etc. In every case the verb does not end in a High and therefore it has no effect on the following word:

- (147) (a.) Jàdà à mòggâ gùrè  
'Jada caught a dove'
- (b.) nân à dòggâ tètò  
'I fetched the mat'
- (c.) nân à sùrjâ dárú  
'I pulverized some grass'
- (d.) nân à tèbóggâ tètò  
'I folded a mat'

From these data, we see that indefinite forms of LHL verb roots do not affect a following H-initial noun (e.g. gùrè, dárú) or a following L-initial noun (e.g. tèrò).

Next consider the benefactive verb. If a monosyllabic verb root is vowel-final, then in the benefactive (definite) form the verb is H-final: ló-kín (H verb root) 'spread s.t. to dry in the sun' and ng'i-kín (LHL verb root) 'raise'. As discussed in Chapter 2, the last L of the LHL melody does not associate in a form like ng'i-kín. The following data show that both of these verb types behave (at the phrasal level) as H-final verbs:

- (148) (a.) Kùlàng' à ló-kín Jádà tèrò  
'Kulang spread the mat in the sun for Jada'  
(b.) Pòní à ng'i-kín tèrò  
'Poni raised the mat for (him)'

In (148a), ló-kín raises the first syllable of Jádà, while in (148b) ng'i-kín raises the initial syllable of tèrò.

All other (definite) benefactive verbs are H-final if the verb root has a H melody, or L-final if the verb root has a LHL melody. The former verbs trigger the appropriate changes in a following word, whereas the latter have no effect.

- (149) (a.) Pòní à dér-á-kín sùkùrì  
'Poni cooked chicken for him'  
(cf. sùkùrì 'chicken')  
(b.) nân à tèbók-à-kin kítì  
'I folded the chair for (him)'  
(cf. kítì 'chair')  
(c.) Pòní à wíwíjà pátá?  
'Poni weaved the rope'  
(d.) bòdò à tèténdyà kítì  
'the craftsman made a chair'  
(e.) nân à gágá'yù tèrò  
'I looked for a mat'



The indefinite form of a benefactive verb ends in a Low regardless of the underlying melody of the verb root, thus these forms can never affect the word that follows:

- (150) (a.) Pòní à ló-kin-dy-â tètò  
'Poni spreads for s.o. a mat in the sun to dry'
- (b.) Jàdà à ng'ì-kin-dy-à lárí  
'Jada raised the drum for him'
- (c.) Pòní à dér-á-kin-dy-â ng'útú? kinyò  
'Poni cooked food for someone'
- (d.) Jàdà tèbók-à-kin-dy-à tètò  
'Jada folded a mat for him'

In the above data, none of the post-verbal nouns -- tètò, lárí, or ng'útú? -- is affected by the verb.

Direction toward (definite) verbs are Low-final in the case of monosyllabic roots -- cf. 'dép-ún (H root) and mòk-ún (LHL root). The form mòk-ún recall is H-final because the last L of the LHL melody is prevented from associating. The data in (151) show that both H-roots like 'dép-ún and LHL roots like mòk-ún behave at the phrasal level in exactly the same way -- as though their last tone is a High.

- (151) (a.) Pòní à 'dép-ún kéré  
'Poni held the gourd this way'  
(cf. kéré 'gourd')
- (b.) Pòní à mòk-ún dúpà?  
'Poni held the cradle this way'  
(cf. dúpà? 'cradle')

Direction toward (definite) forms built on polysyllabic roots are High final in the case of H roots, but L-final in the case of L roots. They behave as expected in the phrasal context:

(152) (a.) Jàdà à 'búyút-ún wálè  
'Jada sharpened the knife this way'  
(cf. wálé 'knife')

(b.) Jàdà à sàpúk-ùn lárí  
'Jada overturned the drum this way'  
(cf. lárí 'drum')

We will not bother to provide examples of indefinite direction toward verbs since they are all L-final (and we showed above for the benefactive verb that the L at the end of an indefinite verb has no effect on the next word).

Direction away (definite) forms of High verbs all end in a Fall, while the forms for Low verbs all end in a Low. Thus they have no effect on a following word, as shown below:

(153) (a.) nân à tókórò? kí'bó  
'I cut the canoe that way'

(b.) Jàdà à sàpúkàrà? lárí  
'Jada overturned the drum that way'

Again, indefinite forms will be omitted.

Instrumental (active indefinite) verbs are always L-final or F-final and thus they never have any effect on a following word:

(154) (a.) nân à lággírì tètò  
'I used it for untying the mat'

(b.) nân à sàpúggírì kí'bó  
'Jada used it for overturning the canoe'

Instrumental passive verbs are also always L-final or F-final and thus never have any effect on a following word:

(155) (a.) mú'dâ à dérárí àmbàtâ  
'the pot was used for cooking bread'  
(cf. àmbàtâ 'bread')

- (b.) mú'dâ à dérárí sómót  
'the pot was used for cooking fish'  
(cf. sómót 'fish')
- (c.) kólé à kùrùrì dárú  
'the hoe was used for digging the grass  
up' (cf. dárú 'grass')
- (d.) kádíní à sàpúkàrì kí'bó  
'the piece of wood was used for overturning  
the canoe' (cf. kí'bó 'canoe')

We have briefly surveyed the following verb types (in their isolation form): simple verb roots (definite and indefinite), benefactive verb stems (definite and indefinite), definite direction towards and away verb stems, and indefinite active as well as passive instrumental stems. In each case we have established its ability to trigger High Tone Lowering and High Tone Spread. We have seen that in each case it is the surface tonal form (rather than the underlying melody) that is crucial to whether the form triggers these rules. That is, if a verb ends in a H (even if, on the basis of its underlying root melody, we might have expected a Low after that H), then that verb will trigger High Tone Lowering and High Tone Spread.

We will forgo any exemplification of causative/reciprocal verbs (recall they impose a LHL melody in place of the root melody, and thus just pattern like other LHL verbs of similar syllabic structure). We will likewise forego any discussion of the repetitive stem, since it also involves the assignment of a LHL melody in place of the root tone melody and thus repetitive stems behave like other LHL verbs of similar syllabic structure.

Some mention of the reduplicative stem is, however, in order. Recall that the reduplicative stem of a monosyllabic High root has the shape LH when no particle precedes it or when the particles lò, mó, or dê precede. When this stem

form is used, then the verb is able to trigger High Tone Lowering and High Tone Spread.

- (156) (a.) Pòní nyànyár kí'bò  
'Poni likes the canoe'  
  
(b.) Pòní nyànyár Jádà  
'Poni likes Jada'

Recall, however, that after kó and tù, a monosyllabic High verb in the reduplicative stem assumes the shape HL. However, this HL shape is used only in phrase-final position. Phrase-medially, it adopts the shape HH and is thus able to trigger High Tone Lowering and High Tone Spread. These facts are illustrated in (157).

- (157) (a.) Pòní kó dédèr  
'Poni will cook it'  
  
(b.) Pòní kó dédér sùkùrì  
'Poni will cook the chicken'  
(cf. sùkùrì 'chicken')  
  
(c.) Pòní kó dédér àmbàtà  
'Poni will cook the bread'  
(cf. àmbàtà 'bread')

A LHL monosyllabic root in the repetitive stem always has the shape HH (without regard to which particle precedes it). These verbal forms are able to trigger High Tone Lowering and High Tone Spread:

- (158) (a.) Pòní kó ng'íng'í tэрò  
'Poni will raise up the mat'  
(cf. tэрò 'mat')  
  
(b.) Jádà lò dódók kэрè  
'Jada is fetching the gourd'  
(cf. kэрè 'gourd')

The repetitive stem of a bisyllabic High verb has the shape HHL in isolation -- cf. 'bù-'búyùt, 'dé-'dép-ùn. When

a noun follows, however, the verb assumes the shape HHH (cf. 'bú-'búyút and 'dé-'dép-ún) and is able to trigger High Tone Lowering and High Tone Spread:

- (159)(a.) Jàdà lò 'bú'búyút  
'Jada is sharpening it'
- (b.) Jàdà lò 'bú'búyút gúli  
'Jada is sharpening the whittle'  
(cf. gúli 'whittle')
- (c.) Jàdà lò 'bó'bóró dúpà  
'Jada is smearing the cradle'  
(cf. dùpà 'cradle')

The remaining reduplicative stems do not show any tonal variation between their phrase-final and phrase-medial forms and their tonal affect on a following word can be inferred directly from the isolation forms listed in 5.4.5. We will provide just a couple illustrative examples in (160).

(160) reduplicative stem of a LHL bisyllabic root

- (a.) nân kó sásàpúk kí'bó  
'I will overturn the canoe'
- (b.) nân kó sásàpúkàkin tèrò  
'I will overturn the mat for him'

reduplicative stem of a H benefactive verb stem

- (c.) Jàdà lò 'bú-'búyút-à-kin  
'Jada is sharpening it for him'
- (d.) Jàdà lò 'bú-'búyút-à-kin gúli  
'Jada is sharpening the whittle for him'

We see that the L-final verbal form sá-sàpúk does not affect a following word, whereas the H-final 'bú-'búyút-à-kin does.

We have now given a representative survey of the various active verbal forms and their potentiality for affecting a following word. Let us consider passive forms

briefly. The simple passive is illustrated in (161). The passive form of a monosyllabic root is L-final, whereas the passive form of a bisyllabic root is H-final. Thus in the former case we do not have the verb affecting a following word, whereas in the latter case we do.

- (161)(a.) kǐ'bó à kámâ Jàdà  
'the canoe was paddled, Jada'
- (b.) ng'úrò à 'dépâ Póní  
'the child was held, Poni'
- (c.) kítì à dòkâ Jàdà  
'the chair was fetched, Jada'
- (d.) wálé à 'búyútá Jàdà  
'the knife was sharpened, Jada'
- (e.) kítì à sàpúkâ Póní  
'the chair was overturned, Poni'

Unfortunately, very few items (susceptible to the phrasal tone rules) can follow the passive verb. In (161) we have cited vocative nouns (which in Bari are affected by a High tone of a preceding word) to show that L-final passives have no affect on the next word, whereas H-final ones do.

Passive benefactive verbs are all L-final and have no affect on a following word:

- (162) (a.) súkúri à dérâki? Jàdà  
'the chicken was cooked for Jada'
- (b.) tètò à mòkâki? bòdò  
'the mat was held for the craftsman'  
(cf. bòdò 'craftsman')

Passive direction toward verbs are all L-final or F-final and thus have no effect on a following word:

- (163. (a.) ng'úrò à 'dépwè? Póní  
'the child was held this way, Poni'

- (b.) ng'úrò à mòkwé? Jàdà  
'the child was held this way, Jada'

Passive direction away verbs are all L-final and have no affect on the word following:

- (164) (a.) kúpá à 'dépáji? Jàdà  
'the basket was held that way, Jada'  
(b.) wálé à mòkájì? Pòní  
'the knife was held that way, Poni'

The passive instrumental is always L-final or Fall-final and thus has no bearing on the pronunciation of the next word.

- (165)(a.) wálè à lákárí tètò  
'the knife was used for untying the mat'  
(b.) túré à sàpúkàrí kí'bó  
'the stick was used for overturning the  
canoe'

At this point, let us consider the imperative form of the verb. These forms are either H-final or F-final (with no very simple pattern determining which constructions are H-final and which F-final). The H-final verbs all trigger the expected changes, whereas the F-final ones naturally do not:

(166) simple verb roots

- 'dèp-é kí'bò 'hold the canoe!'  
'dèp-é tètò 'hold the mat'  
mòk-é kiné 'catch the goat!'  
mòk-é bòdò 'catch the craftsman!'  
'bùyùt-é lòwè 'sharpen the arrow!' (cf. lòwè  
'arrow')  
'bùyùt-é wálé 'sharpen the knife!' (cf. wálé  
'knife')  
sàpùk-é tètò 'overturn the mat!'  
sàpùk-é kí'bó 'overturn the canoe!'

indefinite verb

'dèb-bí-? lówè 'hold the arrow!'  
 'dèb-bí-? wálè 'hold the knife!'

mòg-gí-? rábà 'hold the bottom of the granary!'  
 (cf. rábà 'bottom of the granary')

mòg-gí-? wúrí 'hold the pig!'  
 (cf. wúrí 'pig')

benefactive verb

dèr-à-kí Jàdà 'cook for Jada!'  
 mòk-à-kí Jàdà 'catch it for Jada!'

direction toward verb

'dèp-ù tèrò 'hold the mat this way!'  
 sàpùk-ù kí'bó 'overturn the canoe this way!'

direction away verb

'dèp-àr-á? tèrò 'hold the mat that way!'  
 'dèp-àr-á? kéré 'hold the gourd that way!'  
 (cf. kéré 'gourd')  
 mòk-àr-á? tèrò 'hold the mat that way!'  
 mòk-àr-á? wálè 'hold the knife that way!'

In this section we have examined a great many of the verbal forms in Bari and we have seen that in every case the tonal behavior of a verb (in terms of the phrasal tonology) matches the final tone of the verb's pronunciation. In particular, those verb form that fail to associate to the last L of the LHL melody (and end instead with their final syllable associated to a H) always behave tonologically as though they end in a H. The unassociated L is not present as far as the phrasal tonology is concerned. Those verbs that end in a L in phrase-final position, but end in a H in phrase-medial position, all behave as though they are H-final in terms of their ability to trigger High Tone Lowering and High Tone Spread.



5.6.. Phrasal tonology and adverbs.

In Chapter 3, we presented a description of the tonal shapes of Bari adverbs. It was clearly demonstrated there that Bari adverbs (like nouns and adjectives) exhibit non-melodic tone -- i.e. each syllable of the adverb selects a tone independently of any other syllable. The present section examines how adverbs behave in terms of the phrasal tonology that we have been examining in Chapters 4 and 5.

We should emphasize that this study of the adverb is preliminary. We have not examined in detail the tonal behavior of all the adverbs in all their various syntactic environments. Since there is no syntactic study of the adverb available to serve as the basis for our study, we are not in a position to draw upon any syntactic insights that such a study might have provided. The best that we can do, then, in this section is to provide data on a sampling of Bari adverbs and draw whatever tentative conclusions seem possible.

We begin by considering monosyllabic adverbs. Examine the data in (167) where the simple, monosyllabic adverb dá 'much' appears.

- (167) (a.) Pòní à 'yálákin dá  
'Poni increased it for him a great deal'
- (b.) Jàdà à 'yálákin Póní dá  
'Jada increased it for Poni a great deal'
- (c.) nân nyányàrà dá Jádà  
'I am liked much more, Jada'
- (d.) nân gwê biyá? dá Wání  
'I am much better now, Wani'
- (e.) Pòní yíyíng' dá Kúlàng'  
'Poni hears much better, Kulang'
- (f.) ng'úrò gwê dá màdàng'  
'the child is a little bit better'
- (g.) nân gwê bàng'á dá màdàng'  
'I am much better now'

The examples in (167) demonstrate that dá, an underlyingly H monosyllabic adverb, remains High no matter what tone precedes it. In particular, it does not undergo High Tone Lowering after a H-final word, whether a verb (as in (167a,e)) or a noun (as in (167b)) or an adjective (as in (167d)) or another adverb (as in (167g)). Its failure to change in the post-H environment is true for both phrase-final (cf. (167a,b)) and phrase-medial (cf. (167f,g)).

In general, dá does not precede a noun or a verb, thus it is not easy to determine whether it triggers High Tone Lowering and High Tone Spread. It is possible, however, for a proper noun to be used vocatively after dá. The examples in (167c,d) show that dá does trigger High Tone Spread on a following (vocative) proper noun -- Jádà and Wání change to Jádà and Wání respectively.

Whether dá would trigger High Tone Lowering on a following vocative proper name cannot be determined easily. The best test case would be if we could place a HH... proper noun after dá. If the noun changed to HL..., we could conclude that dá does trigger High Tone Lowering. Unfortunately, there are no proper nouns (to our knowledge) that have the tonal shape HH... We suspect, however, that dá would trigger High Tone Lowering. For example, if we were to use a HH... common noun vocatively (which is not a normal construction in Bari), High Tone Lowering would apply to it (in our judgement):

- (168) (a.) dó nyányàrà dá náràkwán  
           'you are much more liked, wife'  
           (cf. náràkwán 'wife')
- (b.) gá'yí gúrùt dá ng'útù?  
           'look for much more money, person'  
           (cf. ng'útú? 'person')

The example in (167e) might at first glance suggest that dá cannot trigger High Tone Lowering on a following vocative proper noun, since Kúlàng' remains HL. But recall

that a HL... noun remains unaltered after the Low-toned preposition i, even though that preposition ordinarily triggers High Tone Lowering. Our approach to that phenomenon was to claim that a HL... noun does undergo High Tone Lowering after i but that the preceding (floating, in the case of i) H is able to spread back onto the initial (now Low) syllable. Recall that in general a HL... noun does not accept the spreading of a preceding High once it has undergone High Tone Lowering. It would be possible to give a similar treatment to the facts of (167) -- i.e. to say that the adverbial H first lowers a noun such as Kùlàng' to \*Kùlàng' and then spreads its High onto \*Kùlàng', producing (after Contour Simplification) Kùlàng' (which just happens to be the shape that this noun starts off with).

Until further evidence can be brought to bear, we will assume that a final-H adverb like dá does trigger High Tone Lowering just as it triggers High Tone Spread. We have evidence, however, only that it triggers these changes on a following vocative proper noun. Notice incidentally that in (167f,g) dá does not affect the LL adverb màdàng'. We will see below that Low-initial adverbs regularly do not accept the spreading of a preceding High.

The High monosyllabic adverb nyó is illustrated in (169) below. (We have underlined the adverb for the sake of clarity.)

- (169) (a.) dó dèdér nyó  
'why are you cooking it?'  
(b.) nyó tá dèdér  
'why are you cooking it?'  
(c.) nyó dàk gwágwálàká  
'why was the pipe broken?'  
(d.) nyó ng'ûn nyànyár ng'útù?  
'why does God like people?'

- (e.) nyó lé mámátà  
'why was the milk drunk?'
- (f.) nyó kí'bó kákámà  
'why was the canoe paddled?'
- (g.) nyó kéré gwágwálàkà  
'why was the gourd broken?'
- (h.) nyó tètò tì ng'iyù  
'why was the mat not raised up?'
- (i.) nyó Jàdà pópò  
'why did Jada come?'
- (j.) nyó pílílí à nápí?  
'why is the small knife sharp?'
- (k.) nyó kópò gwágwálàkà  
'why is the cup broken?'
- (m.) Jàdà tètók nyó kí'bò  
'why did Jada cut the canoe?'
- (n.) Pòní ng'ing'í nyó tètò  
'why did Poni lift up the mat?'
- (o.) Jàdà 'bé'béléng' nyó pílílí  
'why did Jada break the small knife'
- (p.) Jàdà gwágwálák nyó kópò  
'why did Jada break the cup?'
- (q.) dó tì pípíjà nyó Kúlàng'  
'why did you not ask, Kulang?'
- (r.) Pòní tì yémâ nyó Jàdà  
'why has Poni not been married, Jada?'
- (s.) Jàdà 'bé'béléng' pílílí nyó  
'why did Jada break the small knife'

The first thing to note about (169) is that nyó does not undergo High Tone Lowering. A H-final verb does not affect nyó in (169a,m,n,o,p) and a H-final noun does not affect nyó in (169s). Furthermore, nyó does not trigger High Tone Lowering nor High Tone Spread on a following subject noun (cf. (169b-k)). On the other hand, nyó does

regularly trigger High Tone Lowering and High Tone Spread on a following object noun (cf. (169m-p)). Notice, in particular, that it causes a HL noun such as kópò to change to kòpò. The example in (169r) shows that nyó spreads its High onto a following vocative. (169q) shows that a vocative HL proper name remains HL (perhaps, as suggested above, because it is subject to High Tone Spread after undergoing High Tone Lowering). These data suggest the strong probability that the tonal behavior of the adverb is closely linked to syntactic structure.

A third High-toned monosyllabic adverb is nyín:

- (170) (a.) tíkí wíní nyín  
'put medicine into it'
- (b.) tíkí bòngó? nyín  
'put the cloth in it?'
- (c.) nân à tìn 'bálàng' nyín Wání  
'I put salt into it, Wani'
- (d.) Jàdà à témákin nyín Póní  
'Jada did the expected thing, Poni'
- (e.) nân à tèténàkin nyín 'bùrá  
'I made it to fit into it properly'

The data in (170a,d) show that a H-final word, whether a noun or a verb, does not trigger High Tone Lowering on nyín. It is not possible in general for nyín to precede a noun or verb, thus we cannot provide much in the way of evidence with respect to whether nyín triggers High Tone Lowering and High Tone Spread. (170c,d) show that nyín can trigger High Tone Spread on a following vocative proper noun. Notice in (170e) that nyín does not affect a following LH adverb. Again, this is the general pattern with Low-initial adverbs, as we will see below.

At this point, let us look at the Falling-toned monosyllabic adverbs. We will illustrate two such adverbs below. In (171) we exemplify the behavior of nyô 'what?'

Since nyô ends in a Low tone, we would not expect it to affect a following word. Thus our examples in (171) will concentrate on whether nyô is able to undergo High Tone Lowering.

- (171) (a.) dó gà'yú nyô  
'what are you looking for?'
- (b.) dó kèndyâ nyô  
'what are you reading?'
- (c.) dó à tín Jádà nyô  
'what did you give Jada?'
- (d.) dó à tín Póní nyô  
'what did you give Poni?'

These data show that nyô remains Falling-toned whether it is preceded by a H-final or a L-final word. It seems, then, that nyô is not subject to High Tone Lowering.

The second Falling-toned monosyllabic adverb to be discussed is nyîn 'here':

- (172) (a.) pó nyîn Jádà  
'come here, Jada'
- (b.) gâlû nyîn Jádà  
'look for it this way here, Jada'
- (c.) jòû kéré nyîn  
'bring the gourd here'
- (d.) jòû kópò nyîn  
'bring the cup here?'

Again, we see that nyîn remains Falling-toned regardless of the final tone of the preceding word. It seems then that nyîn is not subject to High Tone Lowering.

At this point let us consider the Low-toned monosyllabic adverbs. We would not, of course, expect them to trigger any change in the following word. Likewise, they would not be subject to High Tone Lowering. The question that faces us is whether they are subject to High Tone Spread. The data in (173) illustrate a few Low-toned

monosyllabic adverbs. We have underlined the adverb for the sake of clarity.

- (173) (a.) kísúk yèng' gágálà  
'cattle must be sought for'
- (b.) kópò yèng' gágálà  
'the cup must be looked for'
- (c.) kéré 'dù kátá  
'the gourd is still here'
- (d.) Kúlàng' 'dù wúwùrjá  
'Kulang is still writing'
- (e.) Jàdà tì nyár kwàng'  
'Jada never liked it'
- (f.) Póní tì kèndyâ kwàng'  
'Poni doesn't read at all'

In (173) we see that the Low monosyllabic adverbs remain unchanged in their pronunciation whether the tone that precedes them is High or Low/Falling. It seems then that these adverbs are not affected by High Tone Spread.

We turn our attention now to bisyllabic adverbs. There are three HH words that function as adverbs and behave differently from the adverbs cited above in that they are subject to High Tone Lowering. These three items are 'bérón' 'early, certainly' kátá 'present, be in', and 'díri' 'truly, really'. We will examine each of these words in turn.

In (174) we illustrate 'bérón':

- (174) (a.) nân à 'dúr 'bèròn  
'I arrived very early'
- (b.) nân à 'dúr 'bèròn díkâ  
'I arrived very early today'

- (c.) Pòní à dérjà 'bérón dikâ  
'Poni cooked very early today'
- (d.) Kùlàng' à rènyâ 'bérón  
'Kulang refused indeed'
- (e.) yí? tòdèn kòjú 'bèròn  
'we knew each other a long time ago'
- (f.) nân à kám kí'bò 'bérón dikâ  
'I paddled the canoe early today'
- (g.) nân à dòggâ kéré 'bèròn dikâ  
'I fetched the gourd early today'
- (h.) 'bérón Pòní ti 'búrànâ  
'certainly Poni does not lie'
- (i.) 'bérón kí'bó à líkín  
'indeed the canoe is lost'
- (j.) 'bérón pílílí à nápí?  
'indeed the small knife is sharp'
- (k.) Pòní 'bérón à nárôn  
'Poni is indeed bad'
- (l.) kí'bó 'bérón à líkín  
'the canoe is indeed lost'
- (m.) Pòní à dérjà 'bérón Jádâ  
'Poni cooked much earlier, Jada'
- (n.) nân à 'dúr 'bèròn Jádâ  
'I arrived much earlier, Jada'

The data in (174) show that 'bérón' undergoes High Tone Lowering when it stands after a H-final verb -- cf. (174a,b), or after a H-final (post-verbal) adverb -- cf. (174e), or after a H-final object noun -- cf. (174g). Incidentally, (174f) shows that if an underlyingly H-final object noun itself undergoes High Tone Lowering and ceases to be H-final, then 'bérón' will escape High Tone Lowering. The examples in (174k,l) show that a subject noun cannot trigger High Tone Lowering on 'bérón' (of course, the meaning of 'bérón' also differs somewhat in its pre-verbal



use from its post-verbal use).

Notice that even though the H in this adverb undergoes High Tone Lowering, the rule of High Tone Spread must be prevented from applying (we get 'bèròn, not \*'béròn). Recall a similar failure of High Tone Spread to operate between the associative particle and a following noun as well as between the preposition i and a following noun. We will see as we proceed that all adverbs regularly fail to undergo High Tone Spread, even though some undergo High Tone Lowering (as 'bérón does).

When 'bérón precedes a subject noun, it triggers neither High Tone Lowering nor High Tone Spread on that noun -- cf. (174h-j). Recall that nyó in (169) behaved in exactly the same fashion. We have been unable to construct sentences where 'bérón precedes an object noun, so we cannot determine whether it would trigger High Tone Lowering or High Tone Spread on such a noun. (174m,n) show that 'bérón does spread onto a following vocative proper noun.

The second bisyllabic HH adverb that undergoes High Tone Lowering is kátá, illustrated in (175) below:

- (175) (a.) nân kátá  
'I am present'
- (b.) Póní kàtà  
'Poni is present'
- (c.) Jàdà kátá Jùbà  
'Jada is present in Juba'  
(cf. Jùbà (name of a town))
- (d.) 'báláng' kàtà Jùbà  
'salt is available in Juba'
- (e.) ng'útù kátá kárè  
'there are people at the river'  
(cf. káré 'river')
- (f.) kí'bó kàtà kárê  
'there is a canoe in the river'  
(cf. káré 'river')

- (g.) Jàdà kátá Bári  
'Jada is in Bariland'  
(cf. Bári 'the Bari people, land, etc.')
- (h.) kòlóng' kàtà Bári  
'there is drought in Bariland'
- (i.) Jàdà kátá Káràk  
'Jada is at Karak'  
(cf. Káràk, the name of a mountain)
- (j.) Pòni kàtà Káràk  
'Poni is at Karak'

The data in (175) clearly establish that kátá undergoes High Tone Lowering when it follows a H-final word (always the subject of the sentence). While it undergoes High Tone Lowering, it will not be subject to High Tone Spread, thus it surfaces as LL. If kátá remains HH (by virtue of not standing after a H-final word), it will trigger the rules of High Tone Lowering and High Tone Spread on a following word. For example, in (175d,g) kátá raises a LL noun to HL (through the combined effects of High Tone Spread and Contour Simplification). In (175e,i) we see that kátá triggers High Tone Lowering on a following HH noun, changing it to HL (of course, High Tone Spread and Contour Simplification operate here on the output of High Tone Lowering).

There is one tonal alternation that we at present have no explanation for which is exhibited by the data in (175). The noun kàré 'river' is HH when it is pronounced in isolation. We have seen that it changes to HL after kátá. The explanation for this is straightforward. But notice that in the event kátá itself becomes LL as a result of High Tone Lowering, as in (175f), kátá will no longer end in a High tone. Given the left-to-right iterative application of High Tone Lowering, we do not expect kàré to undergo High Tone Lowering. And indeed it does not. But it should be noted that kàré does assume an unexpected

tonal shape: kárê. It is not clear what principle (if any) determines this tonal alternation.

The last HH adverb to be considered is 'díri. We illustrate 'díri in (176).

- (176) (a.) Jàdà gágá'yù 'díri  
'Jada is truly looking for it'
- (b.) nân à mét 'díri  
'I truly saw it'
- (c.) Póní 'díri à mét  
'Poni truly saw it'
- (d.) Jàdà 'díri à mét  
'Jada truly saw it'
- (e.) nân 'díri kàtà  
'I am truly present'
- (f.) 'díri Póní  
'truly, Poni'
- (g.) 'díri Póní à pò  
'truly Poni came'
- (h.) 'díri kí'bó à kámâ  
'truly the canoe was paddled'
- (i.) Póní à mét kí'bò 'díri  
'Poni truly saw the canoe'
- (j.) Póní à mèddyâ kí'bó 'díri  
'Poni truly saw a canoe'

Examination of (176) shows that 'díri undergoes High Tone Lowering in post-verbal position both after a verb and a noun -- cf. (176b,j), but not when it follows a subject noun -- cf. (176c). In this 'díri behaves like 'bérón. It differs, however, in that after undergoing High Tone Lowering, 'díri appears to be subject to High Tone Spread (i.e. it surfaces as 'díri in the post-H environment, not as \*díri).

When 'díri precedes a subject noun it does not trigger either High Tone Lowering or High Tone Spread (cf.

(176g,h). It does, however, trigger High Tone Lowering on the following adverb kátá in (10e). It also triggers High Tone Spread on a following vocative proper noun in (176f).

Consider next some HL bisyllabic adverbs. In (177) we illustrate kánà.

- (177) (a.) nân à tîn kánà  
'I gave it to him for nothing'
- (b.) Pòní rěnyà kánà àsùt  
'Poni is uselessly denying it'
- (c.) nân à tîn Jádà kánà  
'I gave it to Jada for nothing'
- (d.) nân à tîn Póní kánà  
'I gave it to Poni for nothing'

Since kánà is Low-final, the issue of whether it can trigger High Tone Lowering and High Tone Spread is not present. (177) demonstrates that kánà is subject to High Tone Lowering after a verb or after an object noun. kánà does not appear to occur in pre-verbal position, thus we cannot examine its behavior after a subject noun.

In (178) we give examples of kókè?.

- (178) (a.) Pòní à lák kókè?  
'Poni untied it openly'
- (b.) Pòní à dòggâ kókè?  
'Poni fetched s.t. openly'
- (c.) Pòní à dòggâ kéré kókè?  
'Poni fetched a gourd openly'
- (d.) Pòní à dók kéré kókè?  
'Poni fetched the gourd openly'

These data are entirely parallel to those in (177) and require no discussion.

It is not the case that every HL adverb alternates like those in (177) and (178). Consider, for example, kájè

'yesterday'. It appears to be invariant, as shown in (179):

- (179) (a.) *mátàt 'dúr kájè*  
           'the chief arrived yesterday'
- (b.) *ng'úrò à tòlìkì? kájè*  
           'the child was lost yesterday'

We are not at present certain as to why *kájè* behaves differently than *kánà* and *kókè?*. Perhaps it is an idiosyncratic fact, but it may have a deeper syntactic/semantic explanation.

The HL adverb *nánù?* 'when?' alternates its tonal shape depending on the tone that precedes it, but this alternation does not seem to be a simple reflection of High Tone Lowering. *nánù?* appears in the form HL when the preceding word is Low-final, but in the form LF when the preceding word is H-final.

- (180) (a.) *dó sòn nánù?*  
           'when did you send him?'
- (b.) *dó 'bàrìndù nánù?*  
           'when did you shave?'
- (c.) *dó m̀nyétàkin nánù?*  
           'when did you pulverize it for him?'
- (d.) *P̀nì mét Jádà nánù?*  
           'when did Poni see Jada?'
- (e.) *dó s̀ndù ǹnù*  
           'when did you send s.o. away?'
- (f.) *dó 'bàrìn ǹnù?*  
           'when did you shave it?'
- (g.) *Jádà d̀dér ǹnù?*  
           'when will Jada cook it?'
- (h.) *Jádà mét P̀nì ǹnù*  
           'when did Jada see Poni?'

We have no explanation for this alternation pattern.

Our data on HF adverbs is too sparse to be very conclusive. The time adverbial dikâ 'today' is invariant-- i.e. it does not appear to be subject to High Tone Lowering when it follows a word that ends in a H.

- (181) (a.) nân mét dikâ  
'I saw it today'
- (b.) nân kèndyâ dikâ  
'I read s.t. today'
- (c.) nân mét Póní dikâ  
'I saw Poni today'
- (d.) nân mét Jádà dikâ  
'I saw Jada today'
- (e.) Jádà dikâ gà'yú dò  
'Jada was looking for you today'
- (f.) Póní dikâ gà'yú dò  
'Poni was looking for you today'

Notice that the preceding H-final word may be a verb or an object noun or a subject noun, but in no case is dikâ affected.

The locative adverb ng'iní, on the other hand, seems to be subject to High Tone Lowering. We illustrate this in (182).

- (182) (a.) nân à ryá ng'iní kájè  
'I found it (near) there yesterday'
- (b.) nân à dérjà ng'iní  
'I cooked (near) there'
- (c.) nân à ryá Póní ng'iní  
'I found Poni (near) there'
- (d.) nân à ryá kinè ng'iní  
'I found the goat (near) there'

In these examples, ng'ini changes to ng'ini after a verb or an object noun that ends in a High. At first glance it might be thought surprising that a HF word would change to LF in the post-H environment -- the usual change is for a HF word to become HL. However, ng'ini actually consists of ng'i- (a demonstrative element which appears in such demonstrative forms as ng'ilò, ng'ilù, ng'inà, ng'inù) plus ni 'here'. Thus it appears that it is the monosyllabic H element ng'i- that is undergoing High Tone Lowering separately from the ni.

LL bisyllabic adverbs would not, of course, be expected to trigger any change on a following word. Neither, of course, could they undergo High Tone Lowering (since they are not H-initial). We will, therefore, focus just on their ability to undergo High Tone Spread. In (183) we provide some data for the LL adverbs àkà 'purposely', àsùt 'completely', and pètè 'just now':

- (183) (a.) Kàjí pò àkà  
'Kaji came purposely'
- (b.) Pòní ying'á àkà  
'Poni kept quiet purposely'
- (c.) Jàdà ryók Póni àkà  
'Jada stepped on Poni purposely'
- (d.) nân tì nyár àsùt  
'I don't like it at all'
- (e.) nân à rènyâ àsùt  
'I refused completely'
- (f.) Jàdà tì nyár méddyâ Póni àsùt  
'Jada does not want to see Poni at all'
- (g.) Jàdà à dér pètè  
'Jada cooked it just now'
- (h.) Jàdà à dérjà pètè  
'Jada cooked s.t. just now'
- (i.) Jàdà pètè dérjà  
'Jada has just cooked'

- (j.) Pòní pètè dérjà  
'Poni has just cooked'

The data in (183) show that the LL adverbs are not affected by a preceding H-final word. It does not seem to matter whether that word is a verb, or a subject noun, or an object noun.

LF adverbs again would not be expected to affect a following word nor to undergo High Tone Lowering. The following data bear on the question of whether such adverbs are subject to High Tone Spread.

- (184) (a.) yí? à kén à'dyân  
'we read it continuously'
- (b.) kò tótò à'dyân Jádà  
'don't sleep continuously, Jada'
- (c.) kò gwút Póní à 'dyân  
'don't beat Poni continuously'
- (d.) nân tì nyár kadyâ  
'I'd rather not like (to do s.t.)'
- (e.) nân tì bân kadyâ  
'I'd rather not do it'
- (f.) nân tì nyár 'yá'yú Póní kadyâ  
'I'd rather not visit Poni'
- (g.) Póní kadyâ nyànyár Jádà  
'Poni might like Jada'

The data in (184) show that these LF adverbs do not undergo any change after a H-final word whether that word is a verb, an object noun, or a subject noun. Clearly, LF adverbs -- like LL adverbs -- are not subject to High Tone Spread.

LH bisyllabic adverbs, on the basis of the data examined above, would not be expected to undergo High Tone Spread. We will see that this is correct. But the question



remains as to whether these adverbs, being H-final, are able to trigger High Tone Lowering and High Tone Spread.

We discussed in detail earlier some verbal particles that might be included among the "adverbs"; two of them--namely, ùng'á and nyù'bák -- were LH and were shown to trigger High Tone Lowering and High Tone Spread on a following verb. Below we examine some other LH adverbs.

Consider first the adverb 'bùrá? 'well':

- (185) (a.) Jàdà à tór 'bùrá?  
'Jada tied it well'
- (b.) Pòní à dótò 'bùrá? kájè  
'Poni slept well yesterday'
- (c.) Jàdà à tór kádén 'bùrá?  
'Jada tied the firewood well'
- (d.) nân à tór 'bùrá? Jádà  
'I tied it well, Jada'

This adverb remains LH after a H-final word regardless of whether that word is a verb or a noun. In other words, High Tone Spread is inapplicable. We have not been able to find sentences where 'bùrá? precedes any noun except for the case of a following vocative proper noun. (185d) shows that 'bùrá? does spread its High onto a vocative proper noun.

Consider the adverb kirút 'then' in (186):

- (186) (a.) á kirút Jàdà tóggí? kí'bó  
'and then Jada cut the canoe with an axe'
- (b.) á kirút kí'bó sàpùggí? sàpùggà  
'and then the canoe overturned'
- (c.) á Jàdà kirút gà'yí? gà'yù  
'and then Jada started looking for it'
- (d.) á Pòní kirút pòndí? pó  
'and then Poni came'
- (e.) á Jàdà pòndí? pó kirút  
'and then Jada came'

(f.) á Jàdà tóggí? kí'ból kirút  
'and then Jada cut the canoe'

(g.) á nân pòndí? pól kirút Jàdà  
'and then I came, Jada'

In (186) we see that the adverb kirút does not undergo High Tone Spread when preceded by a H-final word: that word may be a subject noun, or a verb, or an object noun. In no case is kirút affected. We also see that kirút does not trigger High Tone Lowering or High Tone Spread on a following subject noun. We have found no cases where kirút naturally precedes an object noun, so we cannot determine whether it would affect such a word. (186g) shows that kirút does spread its High onto a following vocative proper noun.

There are relatively few morphologically non-complex adverbs and all of them are Low-initial (e.g. gèlèré 'once', kàlumbá 'on the contrary', àràbàt 'badly'). Their behavior in phrases does not seem to add significantly to the preceding material.

We have now surveyed the tonal behavior of the simple adverbs in terms of the phrasal tonology. Bari has a few morphologically complex adverbs. Their phrasal behavior will be sketched below.

The adverb kàjélú 'day before yesterday' (apparently related to kájé 'yesterday') is illustrated in (187):

(187) (a.) Wàní à gá? kàjélú  
'Wani looked for it the day before  
yesterday'

(b.) Jàdà à rènyà kàjélú  
'Jada refused the day before yesterday'

(c.) Wàní à gá? Póní kàjélú  
'Wani looked for Poni the day before  
yesterday'



- (e.) Pòní sòng'inàná tì pó  
'Poni is not coming just now'
- (f.) nân 'dùrákin sòng'inàná Jádà  
'I arrived just now, Jada'

The data in (188) show that a preceding H-final word (whether a verb, or an object noun, or a subject noun, does not affect sòng'inàná -- i.e. this adverb is not subject to High Tone Spread. The data in (188) also show that sòng'inàná does not trigger High Tone Lowering or High Tone Spread on a following subject noun. We have not found natural constructions where this adverb precedes an object noun, so we cannot determine whether it would trigger High Tone Lowering/Spread on such a noun. It does spread its H onto a following vocative proper noun, as seen in (188f).

There are some H-initial complex adverbs. For example: tú kwájè lîng' 'the whole night' (cf. kwájè 'night'), tú pàrán lîng' 'the whole day' (cf. pàrán 'day'), tú kwájè ták 'all night long', tú pàrán ták 'all day long'. In (189) we illustrate the behavior of these items with tú kwájè lîng' (tú pàrán lîng' is precisely parallel) and tú pàrán ták (tú kwájè ták is entirely parallel):

- (189) (a.) Jádà à jámbù kò Pòní tú kwájè lîng'  
'Jada talked to Poni all night long'  
(tú kwájè lîng' may also be used here)
- (b.) Pòní à jámbù kò jádà tú kwájè lîng'  
'Poni talked to Jada all night long'
- (c.) Jádà dè dèdér tú kwájè lîng'  
'Jada will cook all night long'  
(tú kwájè lîng' is also possible)
- (d.) Jádà à wàrà tú kwájè lîng'  
'Jada walked the whole night'
- (e.) tú pàrànták tèrò nà gálá  
'all day long the mat was looked for'
- (f.) tú pàrànták kí'bó lú gálá  
'all day long the canoe was looked for'

- (g.) tètò nà gálá tú pàrà̀n ták  
 'the mat was looked for all day long'  
 (tú pàrà̀n ták is also possible)

The data in (189) show that these particular items involving the element tú exhibit a possibility (apparently) of undergoing High Tone Lowering. That is, tú pàrà̀n... and tú kwàjè... may be converted to tú pàrà̀n... and tú kwàjè... in a post-High environment. These changes would seem to be the consequence of High Tone Lowering changing tú pàrà̀n... to \*tú pàrà̀n... followed by High Tone Spread yielding \*tú pàrà̀n... followed by Contour Simplification producing tú pàrà̀n... The only problem with this analysis is that we have seen that High Tone Spread does not generally operate between a H and a following adverb.

We in this section provided a brief look at the phrasal tonal behavior of Bari adverbs. We have seen that there seems to be some dependency on grammatical factors in that the adverbs seem not to trigger High Tone Lowering or High Tone Spread on a following subject noun. Generally it is not possible to place an adverb in front of an object noun, therefore we cannot always determine whether the adverb could affect such a noun. In those cases where it was possible, the adverb did trigger High Tone Lowering/Spread.

We have also seen that adverbs seem not to be susceptible to High Tone Lowering after a subject noun although some of them seem to undergo this rule after verbs and object nouns. Low-initial adverbs seem to never be susceptible to High Tone Spread, regardless of the syntactic category of the preceding word. Doubtless, further research will shed more light on the interaction of syntax and the phrasal tone rules of Bari. The adverbs have merely served to suggest that there is such an interaction.

### 5.7. Conclusion.

At this point, let us review some aspects of the phrasal behavior of verbs that are especially pertinent to our overall analysis. First, in Chapter 2 we argued that verb roots could be characterized as having one of two tonal melodies -- H or LHL. We claimed that this is true of monosyllabic verbs, even though monosyllabic verbs of both types surface as H. Our analysis of the LHL monosyllabic verbs involved (a) allowing the first two tones to associate to the root but (b) preventing the third tone from associating. We then invoked a phonological rule of Rising Simplification to disassociate the L part of a LH sequence associated with the same tone-bearing unit.

The phrasal tonology offers some evidence relative to this analysis. First, there is evidence that LHL monosyllabic verb roots end in a H when it comes to the phrasal tone rules. These verbs trigger High Tone Lowering and High Tone Spread just like any other words that end in a H. Thus, the Low tone in the LHL melody that fails to associate must be deleted prior to the phrasal tonology. On the other hand, the initial L of the LHL melody, which in our analysis associates with the first tone-bearing unit of the verb and then disassociates by Rising Simplification, must still be in the tonal tier at the point where the phrasal tone rules apply. This Low tone prevents a LHL monosyllabic root from undergoing High Tone Lowering in the post-High environment.

Although the verbal particles that precede the verb do not undergo High Tone Lowering or High Tone Spread (thus effectively sealing off the verb phrase from any tonal influence originating with a preceding subject noun phrase), they do trigger these rules on a following verb. We have shown in Chapters 4 and 5, that the rule of High Tone Lowering must be applied iteratively, left-to-right across the sentence.

## References

- Goldsmith, John. 1976. Autosegmental Phonology. Ph.D. dissertation, MIT. Published 1979, New York: Garland.
- Pulleyblank, Doug. 1983. Tone in Lexical Phonology. Ph.D. dissertation, MIT.
- Spagnolo, Fr. Lorenzo M. 1933. Bari Grammar. Verona: Missioni Africane.
- Spagnolo, Fr. Lorenzo M. 1960. Bari-English-Italian Dictionary. (Museum Combonianum No. 9) Verona: Missioni Africane.
- Tucker, A.N. and M.A. Bryan. 1966. Linguistic Analysis: the Non-Bantu Languages of Northeast Africa. Handbook of African Languages, Part 5. Oxford: Oxford University Press.
- Yokwe, Eluzai Moga. 1978. Bari Phonology. M.A. thesis, University of Khartoum.

## Vita

Eluzai Moga Yokwe was born on May 15, 1947 in Kogi village, Juba district, Eastern Equatoria Province in the Democratic Republic of the Sudan. He attended Kagwada village grade school and the Church Missionary Society (CMS) elementary school in Juba (1954-59). He joined Loka intermediate school (1960-63), after which he attended Juba Commercial secondary school for a year (1964-65). He had to flee to Uganda as a refugee in July, 1965, where he continued with his studies. He received his school certificate in 1968 and his high school certificate in 1970 from Iganga secondary school and Tororo College, respectively.

He returned to the Sudan in September 1971 to attend the University of Khartoum, where he received his B.A. (Honours) in 1976 and his M.A. in 1979. He worked with the University of Juba (March 1979-August 1981), teaching linguistics and English in the College of Education. While at the University of Juba, he served as consultant on African languages to the Summer Institute of Linguistics at Maridi, Sudan (1980). He also co-edited the first issue of the Occasional Papers in Studies in the Sudanese Languages (Vol. 1, No. 1) for the University of Juba.

Eluzai Moga Yokwe was awarded an African Graduate Fellowship (AFGRAD) in September 1981 in order to undertake Ph.D. studies in linguistics at the University of Illinois in Urbana-Champaign. He received his M.A. degree from the University of Illinois in 1984 and, with the present thesis, will receive a Ph.D. degree in linguistics.

His academic work includes an unpublished M.A. thesis on Bari phonology (1978) done at the University of Khartoum as well as published papers on Bari vowel harmony (in



collaboration with B. Hall), Arabicization and language policy in the Sudan, Juba Arabic, and Bari tonology.

Eluzai Moga Yokwe will join the faculty of the University of Juba in the Sudan, where he will teach linguistics and pursue further linguistic research on the Nilotic languages of the Sudan.