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Tabaru: Phonology and Morphology

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TABARU
PHONOLOGY AND MORPHOLOGY

by
Edward A. Kotynski

Bachelor of Arts, Trinity Christian College, 1980

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Arts

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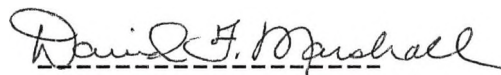
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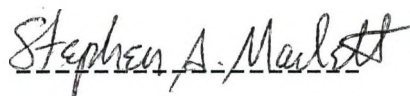
APPROVAL

This thesis submitted by Edward A. Kotynski in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota has been read by the Faculty Advisory Committee under whom the work has been done, and is hereby approved.

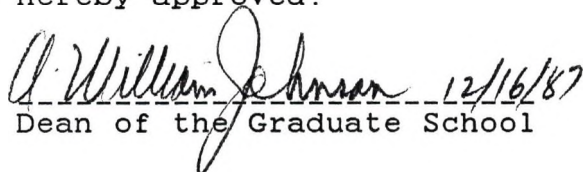


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This thesis meets the standards for appearance and conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.



Dean of the Graduate School

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Title Tabaru Phonology and Morphology

Department Linguistics

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ABSTRACT

This thesis presents an analysis of the phonology and an overview of the morphology of the Tabaru language. The phonology is analyzed in light of recent theory and the merits of metrical, CV and lexical phonology are discussed as they relate to some inadequacies of earlier generative theory.

CHAPTER 1
INTRODUCTION

0. Introduction

In this paper we examine the Tabaru language in light of recent phonological theory.¹

First, we review the history of stress within various theories and discuss both strengths and weaknesses. After concluding that previous theories are not sufficiently predictive or restrictive in terms of general theory, we discuss metrical phonology (Harris 1983, Mohanan 1986) and apply that theory to the Tabaru language.

Second, after reviewing the morphology of Tabaru, we discuss the notion of syllable and its structure within the theory of CV phonology (Clements and Keyser 1983). We then analyze the Tabaru syllable within this framework, and show that the Resyllabification Convention as stated in Clements and Keyser (1983) is crucial for an adequate analysis of Tabaru.

Third, we review briefly the theory of lexical phonology (Mohanon 1986) and present an analysis of Tabaru using lexical phonology.

The above theories used together provide a foundation for the analysis of phenomena difficult within the framework of generative phonology alone. Although generative theory is adequate to provide an analysis for stress in Tabaru, the theory is not restrictive enough. It makes no restrictions on the patterns of stress which can occur in human language. Metrical phonology provides a more restrictive theory. In analyzing Tabaru using generative phonology it appears that

there is a contrast between [u] and [w] and between [i] and [y]. The theory of CV phonology provides a criterion upon which to predict the occurrence of [w] and [y] from underlying [u] and [i]. Lexical phonology provides a coherent analysis of the phonology between the morphemes by allowing phonological processes to be interspersed between morphological processes, which is not normally allowed within generative phonology.

The Tabaru language is spoken on the island of Halmahera in the province of Maluku, Indonesia. It is a West Papuan Phylum language. Some of the languages of this group are spoken in the northern peninsula of Halmahera and nearby islands, the majority being spoken in the Bird's Head of Irian Jaya (Voorhoeve 1981). In the late 19th and the early 20th centuries, Dutch missionaries and linguists were interested in the North Halmaheran languages because of how much they differed from the languages in the rest of Halmahera and because of the regularity of the sound correspondences between them. Van der Veen (1915) wrote a dissertation demonstrating the differences between the North Halmaheran languages and the Austronesian languages of the area. He showed beyond reasonable doubt that the North Halmaheran languages are significantly different, and that they are not Austronesian languages. In more recent times, further evidence has come to light (Voorhoeve 1984) to demonstrate the relationships between the languages of North Halmahera and the Bird's Head languages of Irian Jaya.

There are approximately ten to fifteen thousand speakers of Tabaru, with two known major dialects, Tabaru-nyeku (the highland Tabaru) and the Tabaru-adu (the lowland Tabaru).

NOTES

¹ The Tabaru language has been referred to in the literature as both Tabaru and Tobaru. I follow Fortgens here in using Tabaru. He gives as his reason (Fortgens 1928:390) that the people call themselves Tabaru, although people from Ternate and the other related languages call them Tobaru.

This paper uses examples from my field notes and Fortgens' (1928) grammar notes and folk stories.

CHAPTER 2

STRESS

1. Concepts of stress

Stress has been dealt with in various ways in the past by both structuralist and standard generative linguists. An examination of these theoretical approaches to stress, with a discussion of their strengths and limitations along with an introduction to metrical phonology will be the basis used to argue for an analysis of Tabaru stress.

1.1 Structuralist Phonology (Phonemics)

The notion that stress can be phonemic comes from the structuralist approach to phonology. Stress is considered a phoneme if, for example, there are minimal pairs in a language which contrast only in stress. Bloomfield (1933) in his discussion on the phoneme goes a step further by making a distinction between primary and secondary phonemes. Another way to differentiate between them might be to equate phonemes with primary phonemes as in the following minimal pair:

bit

pit

and equate suprasegmentals with secondary phonemes, such as stress or pitch:

'contest noun

con'test verb

at four o'clock? question

at four o'clock. answer

(Bloomfield 1933:91). He further claims that the place of stress can be a primary phoneme if the stress on monomorphemic forms varies and the meaning is dependent upon that stress placement. He cites Russian (Bloomfield 1933:111);

'gorot	'city'
mo'ros	'frost'

Pike (1947:76-77) holds to a similar view although not making the distinction between primary and secondary phonemes. Using as an example the hypothetical language Kalaba he demonstrates phonemic stress as follows:

'tomas	'black'
ta'mof	'blue'

With this evidence he says that in Kalaba stressed and stressless syllables contrast in analogous environment. Stress is phonemic; that is, stress is a phoneme in this language. However he also points out that lack of stress is not a phoneme.

As late as 1961, Gleason (1961:40ff) suggested that minimal pairs be sought in a language for the purpose of determining if stress is phonemic. He uses English data in his arguments:

'pervert	noun
per'vert	verb

He then goes on to discuss three distinct stress phonemes in English.

All of the above approaches are essentially the same; they state that stress can be a phoneme in some languages. Only Bloomfield makes the distinction between primary and secondary phonemes, thus allowing for a qualitative difference between the stress placement in English noun and verb forms 'pervert, per'vert and the Russian examples where stress placement is crucial in determining the meaning of the word, not grammatical category. Although in this view it is possible to make language-specific generalizations about stress which are stated in prose form, those generalizations are not specific enough to help formulate formal rules and thus would not eliminate the need to mark stress in the phonemic representation. For example, in Tabaru there is contrastive evidence for stress in such words as:

'caana	'thousand'
ca'ana	'pants'

A structuralist might look at Tabaru and observe that stress in Tabaru usually falls on the penultimate syllable and yet fail to capture this generalization by positing a stress phoneme and indicating stress in the phonemic representation. We can see that although structuralists try to generalize as much as possible, the theory can predict stress only when it occurs without exception on the phonetic level.

1.2 Generative Phonology

In structuralist phonology, there are three levels of phonological representation: the phonetic, the morphophonemic, and the phonemic level. Generative phonology accepts only two levels: the surface form (phonetic) and the underlying form. Generative phonologists completely rejected the phonemic level of representation and in doing so eliminated the possibility of phonemic stress. This barred them from allowing stress to be represented in the lexicon (where phonemic stress is placed in structuralist theory) and tied stress instead to phonological rules designed to predict stress (Chomsky & Halle 1968:145ff). This view was a quantum leap from phonemics in which stress was largely unpredictable. In the generative view, stress is applied to segments by means of phonological rules which place the feature [+stress] on the particular feature matrix (segment) to which stress applies. The rule below is an example of such a rule which might be posited for Tabaru.

V --> [+stress] / __C.VC.##

However, the feature [+stress] is different than the other distinctive features in two ways. First, all the other features are binary. Stress is not necessarily binary. To handle stress in English, for example, it is necessary to posit various intensities of stress:

[2 stress] --> [3 stress] / _____C.[1 stress]

(Chomsky and Halle 1968:116), thus making it a non-binary

system. Second, because the theory disallows stress in the lexicon, stress never occurs in the underlying form as can other features.

While this theory claims that stress is generally not idiosyncratic, its formalisms are too powerful. The model rejects the idea of idiosyncratic stress in favor of generalizations but provides no constraint upon which the generalizations should be based. As a result, although it predicts that stress will follow certain patterns, it also predicts patterns that do not actually occur in human language. Thus, the rules that can be written can allow for stress to occur anywhere when in fact there are constraints as to where stress can occur in human language. A further development was needed to restrict the theory, giving it only the power to formalize (make predictions) about phenomena which actually occur in human language. For example, in standard generative phonology the following rule is possible:

V --> [+stress] / C_CVCVCVCV##

But this rule, which is allowed by the formalism, is not well motivated by the facts in any known language.

Another shortcoming in standard generative theory is that it allows for no notion of the syllable. This is because it views phonology as a linear string of segments and boundaries to which rules are applied in order to produce the surface form. The linear string posited includes neither the syllable nor anything else above the

segmental level. This leads to problems, because in proposing the structure of tone and stress, it is desirable to make reference to more than one segment at a time. Standard generative theory does not recognize the higher levels and as a result does not adequately handle tone and stress.

In the middle 1970s, studies began to focus on suprasegmentals such as stress (Liberman and Prince 1977) and tone (Goldsmith 1976). It soon became clear that it was necessary to posit a hierarchical structure of phonological representation so that notions such as tone and stress could be handled adequately. The theories of autosegmental phonology and metrical phonology have been developed as a result of these studies. An analogy of the hierarchy common to these theories is found in Halle and Vergnaud (182:65):

The major insight lying at the base of autosegmental phonology is that the phonological representation is composed not of a single sequence of entities roughly resembling a line of type, but rather that the phonological representation is made up of several parallel sequences of entities, resembling thus more a score for a musical ensemble than a single line of type... What has been novel in autosegmental phonology is that the tones of an utterance are not viewed as diacritics of vowels or syllables; rather the tones are viewed as constituting an

autonomous sequence of entities, separate from and equal to the sequence of consonants and vowels that make up what we shall call here the phonemic core of the utterance.

A parallel statement can be made about metrical phonology: syllables, feet and words are also viewed as "autonomous sequences of entities, separate but equal to the sequence of consonants and vowels."

1.3 Metrical Phonology

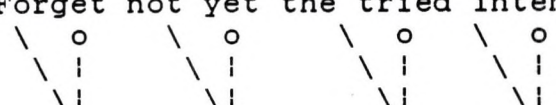
Metrical phonology has its roots in a study of stress which attempts to correct deficiencies in generative theory. On the background to metrical phonology, Hammond (1986:188) says:

Metrical theory uses some concepts of classical poetic meter to describe stress systems. The particular notion drawn from poetic meter is the metrical foot, a prosodic constituent taken as the building block of poetic verse.

Two concepts of meter exploited by metrical phonology are the iambic and trochaic feet, illustrated in the following (Allison 1975):

iambic feet

Forget not yet the tried intent.



trochaic feet

Had we never loved sae kindly.
 o / o / o / o /
 | / | / | / | /
 | / | / | / | /

Both of the above lines consist of four binary feet. In the iambic line, the right node of the foot is strong and is designated by a circle and a diagonal line. The weak node is represented by a diagonal line alone. In the trochaic line, the left node of the foot is strong and the right node weak. Stress patterns in metrical phonology use these types of feet; the iambic feet are right-headed and the trochaic feet are left-headed.

In this paper we will be following Hammond's (1986) view of metrical phonology. There are various competing views within metrical phonology; however, there are basic assumptions which are common to them all. Before discussing these basic assumptions, we discuss the major parameters of metrical phonology below.

1.3.1 Parameters.

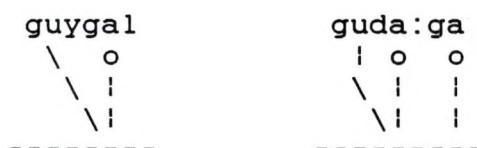
1.3.1.1 Foot Structure:

There are two parameters to consider in foot structure. The first, foot directionality, defines from which side of the word the trees are built. The structure of feet is represented by tree diagrams which are mapped on to the syllables of a word either from the right or left edge. If stress is counted from the left side of the word then trees

are built starting at the left edge of the word and the language has left-branching feet. If stress is counted from the right side of the word then trees are built from the right edge of the word and the language has right-branching feet. In Tabaru, for example, the feet are right-branching and left-headed:¹



But languages like Yidin^y (see Hayes 1982) are left-branching and right-headed as in the following examples:



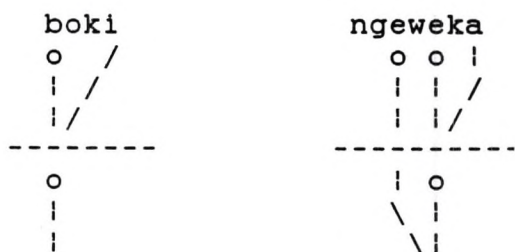
The second parameter, foot headedness, indicates the location of the strong node of the foot. Foot headedness is determined by the distance of stress from the edge of the word. The Tabaru words above are examples of left-headed feet and the examples in Yidin^y of right-headed feet.

1.3.1.2 Word Structure.

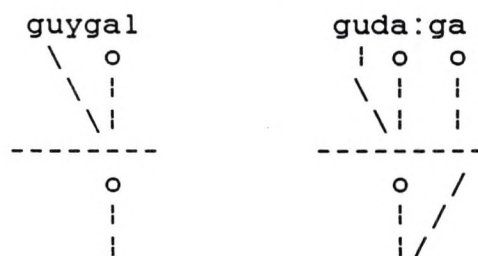
Word headedness indicates location of the strong node of the word. The strong node of the word can occur either on the right or left edge of the word. The word tree has no limit to its number of branches, it is n-ary branching. The

conjunction of the strong node of the word and the strong node of a syllable of a foot indicates the place of primary stress of a word. Again we use Tabaru and Yidin^y examples:

Tabaru:



Yidin^y :



The Tabaru data exemplifies right-headed words and the Yidin^y data left-headed words.

1.3.1.3 Extrametricality

There are phenomena in some languages like Nyungan (Hansen and Hansen 1969) in which the ultima is never stressed, or Spanish (Harris 1983) in which a syllable is invisible to poetic meter. The theory of metrical phonology has a formal way to account for these kinds of irregularities, the notion of extrametricality. This notion allows for a syllable at the edge of a word to be considered extrametrical for the purpose of building the foot structure of a word. It is a device which is used to mark syllables which are invisible

to rule application. In some languages like Spanish (Harris 1983), the syllable is marked as extrametrical in the lexicon. In other languages like English (Hammond 1986), there are rules which indicate where extrametrical syllables occur:

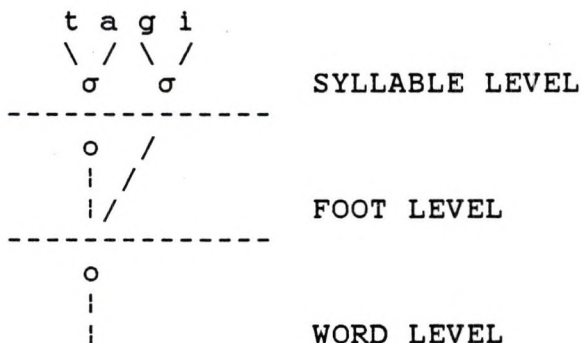
The final syllable is extrametrical in a polysyllabic word.

The two options allow for both regular (English) and idiosyncratic (Spanish) exceptions from the tree structure building rules.

1.3.2 Assumptions.

Having discussed the major parameters of metrical phonology, we can begin to understand the assumptions which are common to the various views of metrical phonology.

First, within the hierarchical representation, the segments are grouped into syllables, feet and words. The following diagram shows this hierarchy with its three levels.



Syllable structure is discussed in the phonology section and will not be discussed here.

Second, stress is represented by a hierarchical structure rather than as part of a feature matrix. For example, suppose we have the following rule in generative phonology:

V --> [+stress] / __C.VC.##

We then will apply the rule to the Tabaru form:

boki 'cat'

The derivation is:

boki --> 'boki

The equivalent rules in the metrical model are:

1. Build right-branching, left-headed feet.
2. Build right-headed words.

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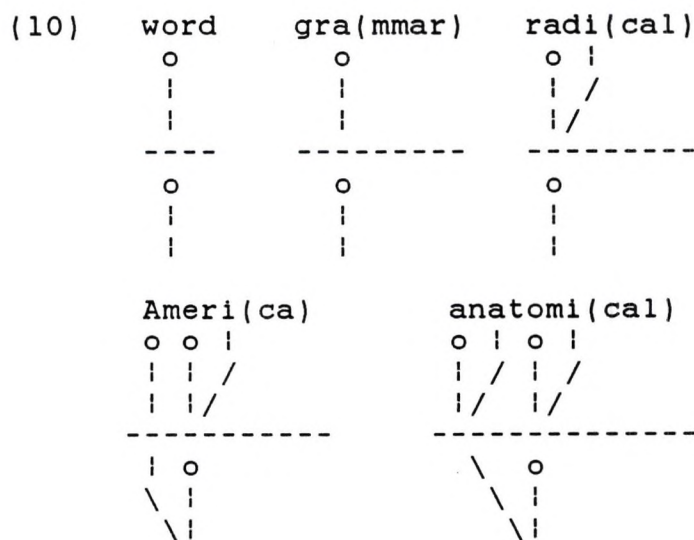
boki -->  boki --> boki
           o /      o /
           | /      | /
           | /      | /
           | /      | /
-----
                   o
                   |
                   |

```

The line with the circle represents a strong node and the line without the circle represents a weak node. The primary stress is determined by following the strong node up from the word (lower) level to the foot (higher) level. The conjunction of the strong word and strong foot nodes indicates primary stress. The result of this above example indicates primary stress on the penultimate syllable.

Third, there is a notion of extrametricality in which a syllable at the edge of a word may be considered extrametrical for the purpose of building the metrical structure. Harris (1983) effectively uses this notion of extrametricality to eliminate the need for lexical diacritics and exception-marking devices in the description of Spanish stress. He gives evidence from poetry and rhyming words as further evidence for the existence of extrametrical syllables. Hammond (1986:190) uses the following examples to demonstrate the notion of extrametricality as it applies to English:

- (9)a. The final syllable is extrametrical in a polysyllabic word.
- b. Left-headed feet are built right to left.
- c. Build a right-headed word tree.



2. Presentation of Facts

In order to describe stress in Tabaru, we will present data and propose a number of analyses. First, let us look at the facts about stress in Tabaru. Stems can be prefixed, suffixed and reduplicated. Only suffixation can vary the stress pattern, and regardless of the affixation, primary stress occurs only on the antepenultimate or penultimate syllable. Let us now turn our attention to Tabaru words and the phenomena occurring in them.

2.1 Monosyllabic words.

Tabaru has a constraint that noun and verb roots must be composed of polysyllabic morphemes. Monosyllabic words are a restricted set composed of conjunctions, particles and pro-forms (figure 1). They are irrelevant to this paper, and will not be discussed further.

Monosyllabic words:

i	'my'	la	'so that'
so	'so'	de	'and'
ngo	feminine article	o	article
wi	'his'	mi	'her'
ma	'its'	ge	'that'

FIGURE 1

2.2 Polysyllabic words.

In figures 2 and 3 we have lists of words, all of which are stressed on the penultimate syllable, the only difference between the lists being that the examples in figure 2 are two syllable words and those in figure 3 are three syllables.

Two syllable:

'goa	'buttocks'	'rio	'footprint'
'mao	'feel'	'rebe	'bet'
'awe	'thread'	'ari	'weep'
'uru	'mouth'	'bira	'rice'
'sira	'first'	'geri	'brother-in-law'

FIGURE 2

Three syllable penultimate stress:

pa'nyake	'illness'	sa'sawi	'coconut shell'
be'laka	'shoulder'	ma'nyanyi	'incense'
sa'maka	'watermelon'	ca'ana	'pants'
ka'kawo	'ash'	do'wongi	'sand'
mo'didi	'two'	mo'doka	'marry'

FIGURE 3

There are, however, also three syllable words having antepenultimate stress as in the following (figure 4):

Three syllable antepenultimate stress:

'odomo	'eat'	'sauku	'warm'
'sowoko	'fruit'	'naoko	'fish'
'akere	'water'	'obiri	'night'
'wekata	'wife'	'koana	'prince'
'gogere	'sit'	'osisi	'urinate'

FIGURE 4

There are monomorphemic words in Tabaru having more than three syllables (figure 5), but they are more difficult to find. Most of these words are stressed on the antepenultimate syllable.

Words having more than three syllables:

go'somanga	'crocodile'	tumu'diingi	'seven'
bo'osuku	'grave'	mogi'ooko	'ten'
me'leunu	'forest chicken'	ga'uwewe	'ancestors'
gu'mutuku	'rope'	kai'lupa	'kepok'
ngu'usumu	'kind of grass'	kasi'naa	'mirror'

FIGURE 5

Stress occurs on the penultimate syllable in words that have suffixes. This is true whether the suffixless word would have penultimate stress, as in figure 6, or antepenultimate stress, as in figure 7.

ROOT:		ROOT + SUFFIX:	
'kula	'give'	ku'lasɪ	'still give'
'make	'see'	ma'kewa	'not see'
'tike	'look for'	ti'kesi	'still look for'
so'fala	'diligent'	sofa'lawa	'not diligent'
bo'dito	'have	bodi'towa	'not have
	misfortune'		misfortune'

FIGURE 6

ROOT:		ROOT + SUFFIX:	
'okere	'drink'	oke'rosi	'still drink'
'pidili	'loosen'	pidi'luwa	'not loosen'
'odomo	'eat'	odo'muwa	'not eat'
pa'asana	'beat	paasa'nuwa	'not beat'
'punusu	'be full'	punu'suwa	'not be full'

FIGURE 7

2.3 Stress patterns

The following stress patterns appear:

'σσ σ'σσ σσ'σσ σσσ'σσ

'σσσ σ'σσσ σσ'σσσ

It is clear that only penultimate and antepenultimate stress occur in Tabaru regardless of the length of words. The argument against left-branching feet in Tabaru is that there would be more patterns to account for in positing feet that count from the left side of the word than counting from the right. The stress patterns to be accounted for counting

from the right edge of the word are only antepenultimate and penultimate, two patterns. Counting from the left edge of the word, we would have to account for four variations in stress pattern, because stress can occur on any syllable from the left edge of the word up to the fourth syllable from the left edge. We will discuss the simpler explanation.

3. Presentation of Accounts.

Let us first hypothesize and examine rules to account for the clear cases of Tabaru stress to provide a foundation for examining the less clear cases. Using the above examples, we can propose the following rules to account for penultimate stress:

Account I

Extrametricality Rule:

Mark the rightmost syllable extrametrical.

Foot building rule:

Construct right-branching right-headed feet.

Word building rule:

Construct right-headed words.

The derivation follows:

underlying form:

bira 'rice'

samaka 'watermelon'

extrametricality rule:

bi(ra)

sama(ka)

foot building rule:

bi(ra)

o
|
|

sama(ka)

\ o
 \ |
\|

word building rule:

bi(ra)

o
|
|

o
|
|

sama(ka)

\ o
 \ |
\|
o

As an alternative, let us examine the following account:

Account II

Foot building rule:

Construct right-branching, left-headed feet.

Word building rule:

Construct right-headed words.

The derivation of Account II is:

underlying form:

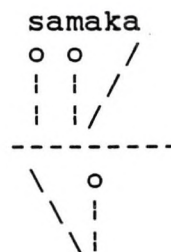
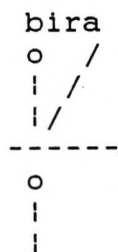
bira 'rice'

samaka 'watermelon'

foot building rule:



Word building rule:



Both of the above accounts correctly predict primary stress for the above data. Now let us examine data with antepenultimate stress and examine our accounts to determine which will yield the best analysis for these data.

ngowaka 'child' akere 'water'

Account I

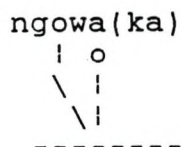
extrametricality rule:

Mark the rightmost syllable extrametrical.

ngowa(ka) ake(re)

foot building rule:

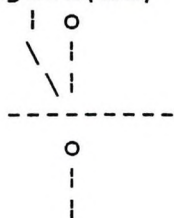
Construct right-branching right-headed feet.



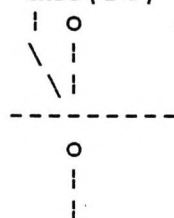
word building rule:

Construct right-headed words.

*ngowa(ka)



*ake(re)



In light of these new data, Account I produces incorrect stress placement. There is no simple way to salvage the rules because the new data cannot be accounted for without proposing that the final syllable of only some words is marked extrametrical in the lexicon. This unnecessarily complicates the structure by further requiring the marking of the next to the last syllable as extrametrical as follows:

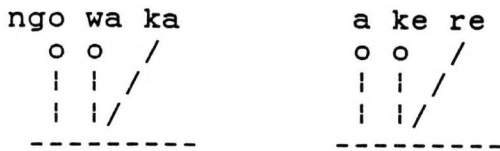
lexical	extrametricality	foot construction
form:	rule:	rule:
ngowa(ka)	-> ngo(wa)(ka)	-> ngo(uwa)(ka)
		o

It is not clear that metrical theory allows for two adjacent extrametrical syllables. We reject this account because it is questionable within the framework of metrical phonology and because the analysis is not well motivated.

Let us now examine Account II. It also does not give correct results as it is currently written. Let us examine the application of the rule to these forms.

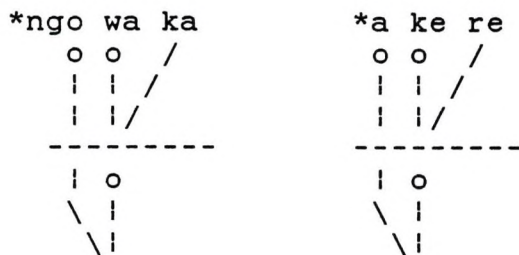
foot building rule:

Construct right-branching, left-headed feet.



word building rule:

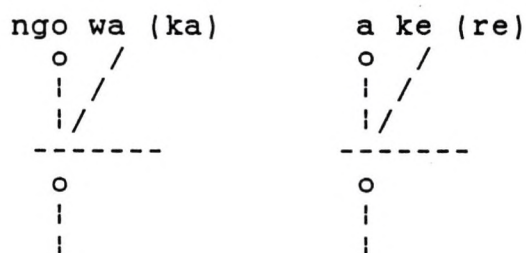
Construct right-headed words.



The second account cannot be used for these forms without incorrect results as seen above. The prediction here is that the stress is on the penultimate syllable. This account can be revised to produce the correct results, however. It is necessary only to assume that in the lexicon there are some words which are marked as having an extrametrical syllable. If we make this assumption, then we have words in the lexicon like the following (parenthesis indicating the extrametrical syllable):

ngowa(ka) 'child' ake(re) 'water'

Assuming a lexicon as above, it is necessary only to apply the rules from Account II and we have a correct prediction of stress. The following are the results of the rule application to these forms:



The output of the rules in Account II are now correct because, with the last syllable being invisible to the rules, the stress is placed on the antepenultimate syllable.

Let us now examine the data with suffixes and apply the rules of Account II. The examples in Figures 6 and 7 above show that whether the stress on unsuffixed words is penultimate or antepenultimate, the suffixed forms always take penultimate stress. It is also clear as illustrated in the following forms that the final vowel always appears to drop out when a suffix is added to a word which is stressed on the antepenultimate syllable, as seen in the following examples (figure 8).

'pagara	'lie on belly'	pagar'uwa	'not lie on belly'
'resene	'detour'	rese'nuwa	'not detour'
'pidili	'loosen'	pidi'luwa	'not loosen'
'odomo	'eat'	odo'muwa	'not eat'
'punusu	'be full'	punu'suwa	'not be full'

FIGURE 8

If we maintain that the final syllable in the above words are simply marked extrametrical in the lexicon, it will be

necessary to write a rule in order to delete the final root vowel in the event of suffixation. There is an alternative, however, if we again modify our view of these words within the Tabaru lexicon. If we assume that words such as [akere] are represented as /aker/ in the lexicon, this would eliminate our need to delete any vowels when adding suffixes to words which take antepenultimate stress. This also means that we do not need to mark some syllables as being extrametrical (because they don't exist in the lexicon). The underlying representation for [odomo] within this view is /odom/. The surface form is derived as follows:

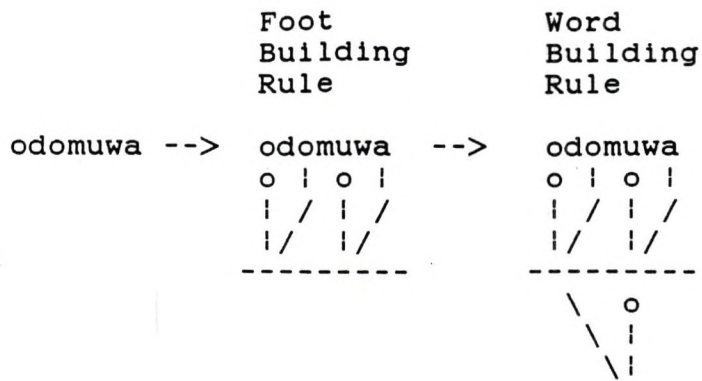
Foot Building Rule	Word Building Rule
odom	odom
o	o
/	/
/	/
-----	-----
	o

The above rule application places the stress on the first syllable of /odom/. A rule of vowel epenthesis then places the final vowel to produce ['odomo] with its proper stress.

Affixation then creates the following form:

odom+uwa --> odomuwa

The stress rule (Account II) correctly places stress on these forms:



In the case of Tabaru it is not necessary to use the principle of extrametricality in order to assign stress. Here we assume that this is the correct view of the above words in the lexicon. We will examine further motivation for the claim in Chapter 4 where we will also discuss the epenthesis of the final vowel in words stressed on the antepenultimate syllable. The two rules in Account II,

1. Construct right-branching, left-headed feet.
2. Construct right-headed words.

account for primary stress seen in the Tabaru language.

NOTES

¹ There are other logical possibilities for combinations of branching and headedness which are not exemplified here. There are languages with right-branching and right-headed as well as left-branching and left-headed. The importance of these differing metrical structures becomes apparent on long words which show which edge of the word the stress is counted from. Some languages will not assign metrical structure from the edge of the word as the languages in these examples do, but rather assign the structure from the edge of the root.

CHAPTER 3
MORPHOLOGY

0. Morphology

The purpose of this section is to examine briefly the kinds of affixation that occur on Tabaru words and to discuss their ordering both in relation to the stem on which they occur and in relation to other affixes. Tabaru has two major lexical classes, noun and verb. There is no adjective class in Tabaru; adjectival predicates belong to the verb class. Because the major word classes in Tabaru are noun and verb, we will examine only the verbal and nominal morphology.

1. Verbal Morphology

1.1 Prefixes

The following template indicates the relative order of the Tabaru verbal prefixes, and co-occurrence restrictions. The horizontal lines in the template separate affixes which cannot co-occur.

VERBAL PREFIX TEMPLATE

	PO-		taba-	si-	ka-	sa-	
					dV-		
PS-		RDP-					g-
	ma-			ri-			
				ta-			

FIGURE 9

A brief description of these Tabaru prefixes (in angle brackets) with examples illustrating their use follows.

1.1.1 Pronominal Subject Prefix (PS-):

These prefixes occur on some intransitive and all transitive verbs.

- (1) <no>- ijakasi asa <po>-tagi
 <you>-buy.first then <we>-go
 'You shop first, then we will go.'

- (2) o Tabadiku <wo>-ngose...
 ART Tabadiku <he>-say...
 'Tabadiku said...'

1.1.2 Pronominal Object Prefix (PO-):

These forms occur on transitive verbs and some intransitive verbs.

- (3) O Tabadiku ma wekata mo-<ki>-siduuru
 ART Tabadiku POS wife she-<them>-walk.behind
 'Tabadiku's wife followed behind them.'
- (4) Ma koana wo-<ni>-asoko
 ART king he-<you>-call
 'The king calls you.'

Tabaru verbs take pronominal prefixes in all contexts. Following (Figures 10 & 11) are charts of these prefixes in their underlying forms:

PRONOMINAL VERB PREFIXES

	Reflex	Unerg	Trans Subjct	Trans Objct	Temp State
1s	to-	to-	to-	i-	i-
2s	no-	no-	no-	ni-	ni-
3ms	uo-	uo-	uo-	ui-	ui-
3fs	mo-	mo-	mo-	mi-	mi-
lpe		mio-	mio-	mi-	mi-
lpi		po-	po-	na-	ina-
lpp	mi-				
lpa	mio-				
2p		nio-	nio-	ini-	ni-
2pp	ni-				
2pa	nio-				
3p		io-			ioki-
3pp	i-		o	oki	
3pa	io-		io-	aki-	
3n		i-			ia-

FIGURE 10

TRANSITIVE PRONOMINAL PREFIXES

	OBJECT								
	1s	2s	3m	3f	lpi	lpe	2p	3n(pa)	3pp
1s		toni	toui	tomi			tini	ta(ki)	toki
2s	noi		uoni	moni		mini		na(ki)	noki
3m	uoi	uoni	ui	uomi	uona	uomi	uini	ua(ki)	uoki
3f	moi	moni	uomi	mi	mona	moni	mini	ma(ki)	moki
lpi			poui	pomi				pa(ki)	poki
lpe		mini	miui	mimi			mini	mia(ki)	mioki
2p	nii		uini	mini		mini		nia(ki)	nioki
3pa	ioi	ioni	ioui	iomi	iona	iomi	ioni	ia(ki)	ioki
3pp	i	ni	ui	mi	ina	mi	ni		

SUBJECT

FIGURE 11

The use of pronominal prefixes with verbs not in the adjectival or temporary state class is quite straightforward. However, the use of the pronominal prefixes in other cases depends upon which kind of verb they occur with. The adjectival verbs are divided into two categories.¹ First, the adjectival verbs which take the subject prefixes (as do the non-adjectival intransitives, see (1) and (2) above) have an attributive meaning, exemplified in the list below.

Attribute:

solimongo	'stupid'	pululunu	'fat'
cawaro	'smart'	tingoono	'small'
pepeke	'dirty'	tero	'nice'
tipoko	'short'	todomo	'sharp'
bangoro	'beautiful'	pelelaka	'thin'

Second, adjectival verbs, which take the object prefixes, are usually words describing non-volitional actions or temporary states as seen in the following list.

Temporary State:

tuuduku	'depressed'	eto	'drunk'
tokokana	'scared'	tirine	'trembling'
sawini	'hungry'	pelosoko	'tired'
tuunisi	'constipated'	kiwounu	'bored'
surugogo	'choking'	maeke	'ashamed'

The distinction between temporary state and attribute is signaled morphologically by the two verb classes taking different pronominal prefixes. Temporary State verbs take what in the transitive paradigm are the object prefixes (see figure 10 above). This is shown in examples (5) and (6).

(5) Iduanga una ka <wi>-punusuali

then he only <him>-satisfied.PER.REP

'Then he was satisfied.'

- (6) una <wi>-gogama de <wi>-tirene
 he <him>-fever and <him>-tremble
 'He is feverish and he trembles.'

The verbs in the Attribute class, as exemplified in (7) and (8), take the pronominal subject prefixes, just like the nonadjectival intransitive verbs (see figure 10 above).

- (7) Ka <nio>-tingoonosi
 only <you.pl>-small.CON
 'You continue to be small.'

- (8) O Raja Moloko wi namoro <i>-cawaro
 ART king Moloko his chicken <it>-smart
 'The king of Moloko's chicken is smart.'

1.1.3 Reduplication

The reduplication prefix indicates repetitive action when it occurs on verbs of action and emphasis when it occurs on adjectival verbs. The two syllables of a two syllable root are reproduced. In all other cases, only one syllable is reproduced. See Chapter 4 for further explanation.

- (9) I- <aso>-asoko, Taoko
 it-<RDP>-calls, I.it.go.to.sea.
 'He repeatedly said, I'm going to the sea'

- (10) Wo-<rari>-rari
 he-<RDP>-cut.grass
 'He kept cutting grass.'

1.1.4 Applicative 1 (dV-)

The affix dV- indicates the presence of an additional argument to a verb. It can indicate the addition of a benefactive (11) or an indirect object (12).

- (11) O ngoi neena o inomo ma oa toma-<da>-make
 EXC I this ART food POS good I.REF-<AP1>-meet
 'Wow, I've found some good food for myself!'

- (12) Nako o balusu mini-<do>-ngose nioisene
 if ART elders they.you-<AP1>-say you.listen
 'When your elders talk to you, you listen!'

1.1.5 Applicative 2 (si-)

The addition of si- indicates an additional argument on the verbs as in (13, 14).

- (13) o dueku io-<si>-odomo
 ART plate they-<AP2>-eat
 'They will eat from plates.'

- (14) neena o esa de o dea mini-<si>-ngose...
 this ART mother and ART father they.you-<AP2>-say
 'This is what your mother and father say to you...'

1.1.6 Reciprocal (ka-)

The reciprocal morpheme ka- usually occurs with the reflexive prefix ma- (15, 16).

- (15) ona yaruangere ima-<ka>-manai
 they they.three they.REF-<REC>-friend
 'They three are friends with each another.'

- (16) O kaso de o titi geena ima-<ka>-sobati
 ART dog and ART pig that they.REF-<REC>-friend
 'The dog and the pig were friends with one another.'

1.1.7 Surrounding (sa-)

This affix meaning, 'surrounding', is rarely found in Tabaru text².

- (17) o bongana ma bounu wa-<sa>-ame
 ART forest POS air he.it-<SU>-smell
 'He smelled the air of the woods (surrounding him).'

- (18) O ubutu wa-<sa>-rari
 ART weeds he.it-<SU>-cut.grass
 'He cut down the surrounding weeds.'

1.1.8 Many subjects, few objects (ri-)

Although the pronominal prefixes indicate number, there is an additional prefix, ri-, which indicates that the number of agents in the clause is considerably greater than the number of patients (19, 20).

- (19) o kaso ma gudai ina-<ri>-goliokau
 ART dog POS many they.them-<FO>-bit
 'The pack of dogs bit the (few) people.'

- (20) Ma koana guuna woboana de wi-<ri>-wako
 ART king that he.came and they.him-<FO>-reject
 'The king came and they rejected him.'

1.1.9 Continuative (ta-)

This prefix occurs only in the reduplicated form in Tabaru. The ta- prefix appears to have come from a form tV- which is no longer productive (Fortgens 1928:385).

- (21) Mia-ta-<ta>-ngodomokasi una woboa
 we.it-RDP-<PRO>-meal.CON he he.came
 'While we were still eating, he came.'

- (22) Cedeke ka mo-ta-<ta>-iete de
 EXC but she-RDP-<pro>-laugh EXC
 'Hey!, she just keeps laughing.'

1.1.10 Habitual (taba-)

To indicate that someone is in the habit of performing a particular action, the prefix taba- is used (23, 24). This prefix is rarely used in Fortgens' folk stories (1928), search turning up only one example, although there are examples in his grammatical notes.

- (23) Ni riaka ni-<taba>-sosongene
 your older.sisters they.you-<HAB>-RDP.kill
 'Your older sisters repeatedly kill you.'

- (24) Ami kule mi-<taba>dongosama
 her evil.spirit her-<HAB>-AP1.possessed
 'She is continually possessed by an evil spirit.'

1.1.11 Applicative 3 (g-)

An example of the prefix g- on vowel initial verb root is:

ari 'cry'
 gari 'cry for'

In the examples below (25, 26), the g- prefix occurs before a voiceless consonant:

parene 'rise'
 taulu 'cook'

In these cases, the first consonant of the root becomes voiced and the g- is dropped. For further explanation of the voicing of initial consonants and the deletion of the g-, see Chapter 4 on phonology.

- (25) ...la uwa o mokumoku io-arene
 so NEG ART waves they-<AP3>rise
 '...so that the waves don't rise upon us.'

- (26) dua asa naino noi-<d>aulu
 moment then you.it.here you.p-<AP3>cook
 'Then you come here and cook for me.'

1.2 Suffixes

The suffixes in Tabaru are indicators of tense, aspect, polarity and spatial movement. The following is a template showing suffixation on the Tabaru verbs:

VERBAL SUFFIX TEMPLATE

-LOC	(-RDP) -uua	-oka	-ou	-oli	
				-osi	

FIGURE 12

The chart (above) shows not only the relative order of occurrence of the suffixes, but also the co-occurrence restrictions. For example, of all the suffixes, only the negative suffix -uua can be reduplicated. This is indicated by the occurrence of the -RDP morpheme inside the same box as -uua. The suffix -osi cannot co-occur with -ou or -oli and for that reason the former suffix is located below the latter suffixes in the diagram; the non-linear order indicates that they cannot co-occur.

1.2.1 Locational suffixes (-LOC):

The locational suffixes indicate location (27) or direction of movement (28). Figure 13 below is a list of these suffixes.

(27) wogoger-<ie> o mia ma dateoko
 he.sit-<LOC> ART monkey POS side
 'He sat above, beside the monkey.'

(28) tooluku tonisakar-<uku>
 I.don't.want I.you.push-<LOC>
 'I don't want to push you down.'

Spatial deixis is very complex in Tabaru. Yoshida (1980) says that in Galela (a language closely related to Tabaru) various location and direction of movement words and affixes can be combined to produce over one hundred different indications of location, movement and destination. Tabaru (as well as the other North Halmaheran languages) has a similar spatial diexis system. As complex as this system may be, when used as a suffix on the verbs in Tabaru, only one location suffix occurs on any given verb. The following is a list of the Tabaru directional suffixes and their meanings.

LOCATIVE VERBAL SUFFIXES

-ie	'up'	-uku	'down'
-isa	'landward'	-oko	'seaward'
-ino	'toward speaker'	-ika	'from speaker'

FIGURE 13

Tabaru also uses these forms as independent verbs to indicate direction of movement (29 & 30).

(29) ngona na-<ino>

you you.it<this.way>

'You come here!'

(30) o giajooungu o bonganoka ya-<isa>

ART couple ART forest.LOC they.it-<landward>

'A couple went (landwards) to the forest.'

1.2.2 Negation (-uwa)

The suffix -uwa indicates the negation of the verb to which it attaches.

(31) Alele ka noiakun-<uwa>

thanks but you.me.eat-<NEG>

'Thank you, you didn't eat me!'

(32) ngaro imakuata ma yaakun-<uwa>

although it.REF.strong but it.it.could-<NEG>

'Although he strengthened himself, he couldn't do it.'

1.2.3 Reduplication, emphatic negation (-RDP)

The negative suffix -uwa is the only suffix which is reduplicated. It indicates emphatic negation (33, 34).

(33) Ngoi neenaka tomagogere ma taakun-uwa-<wa>-u

I this I.REF.live but I.it.take-NEG-<RDP>-PER

'I live here but I just can't take it anymore!'

- (34) taakukun-uwa-<wa>-u tooara
 i.it.able-NEG-<RDP>-PER I.run
 'No way I can run.'

1.2.4 Past tense (-oka)

Tabaru has a two-tense system, past tense, which is marked by the suffix -oka (35, 36), and a non-past which is unmarked.

- (35) Yapidil-<oka> ka dai o Tarinateka
 they.it.release-<PST> only east ART Ternate.LOC
 'They let it go east of Ternate.'

- (36) wapait-<oka> womimake
 he.it.dig-<PST> he.her.meet
 'He dug there and he found her.'

1.2.5 Already (-ou)

The -ou suffix in Tabaru conveys the meaning of 'already' (37, 38).

- (37) Yoli-<ou> o woaka
 they.return-<ALR> ART house.LOC
 'They already returned home.'
- (38) o gaale ka wododorokut-<ou>
 ART snail only he.RDP.fill-<ALR>
 'He was already putting snails in.'

1.2.6 Repetitive (-oli)

The affixation of -oli on a verb indicates repeated action (39, 40).

- (39) tomasouru de taisa toli-<oli>
 I.REF.medicine and I.it.landwards I.return.-<REP>
 'I got medical help and then I returned again.'

- (40) asade yotagi-<oli>
 then they.go-<REP>
 'Then they left again.'

1.2.7 Continuative (-osi)

When -osi is affixed to verbs, they have a continuative meaning (41, 42).

- (41) Ai ngowaka geena wosikol-<osi>
 my child that he.schools.<CON>
 'My son is still in school.'

- (42) goona o naoko yoodom-<osi>
 they ART fish they.eat-<CON>
 'They are still eating fish.'

2. Nominal Morphology

Nominal morphology in Tabaru is relatively simple. There is no singular-plural distinction. Tabaru nouns can be both prefixed and suffixed, but unlike the verb

affixation, noun affixation is not obligatory. The following is a template of noun affixation:

NOUN AFFIXATION TEMPLATE

	RDP-		NOUN
			-LOC

FIGURE 14

2. Reduplication

Reduplication on Tabaru nouns can be divided into two categories: one which occurs on underived nouns and one which occurs on derived nouns.

On the underived nouns, the RDP- prefix has two possible meanings: that of a collective as in examples (49) and (50) or that of resemblance to the original noun as in examples (51) and (52). When RDP- prefix occurs on nouns derived from verbs, it takes on the meaning of instrument as in examples (53 and 54). The phonological process of the nominalizing (NML) prefix g- is the same as that of the homophonous -applicative (AP3). (See the phonology section under the consonant voicing rule and g- deletion.)

(49)	o	saeke		o	sae-saeke
		ART head, leader			ART (all) leaders

(50)	o	ngowaka		o	ngowa-ngowaka
		ART children			ART descendents

(51) o ngootiri o ngo-ngootiri
 ART boat ART miniature boat

(52) o nyawa o nyawa-nyawa
 ART man ART doll

(53) una wotike o <ba>-baasana
 he he.look.for ART <RDP>-NML.beat
 'He looked for a cudgel.'

(54) awi aako ma <da>-dawi ma itiwa ma
 his eyes POS <RDP>-NML.wink only they.close only
 'His eyelashes felt like closing.'

2.3 Locational suffixes

Tabaru nouns take the same location suffixes (figure 13) as the verbs. Examples (55) and (56) demonstrate the usage of two of these suffixes. Besides these locational suffixes, nouns can take an additional suffix -oka, which does not occur on verbs. (There is an -oka suffix on verbs, which as we have seen indicates past tense.) This suffix is exemplified in (57) and (58), and has the meaning 'in' or 'from'. (See the section on phonology for a further description of suffixation and stress). For example:

(55) o aker-<ika>
 ART river-<LOC>
 'in the river'

(56) o ngootir-<uku> woboano
 ART boat-<LOC> he.come.LOC
 'He came into the boat.'

(57) Ngomi o Tabaru-<oka> jou
 we ART Tabaru-<LOC> sir
 'We are from Tabaru, sir.'

(58) womasioru o ngootiri o ngoot-<oka>
 he.REF.paddle ART boat ART ocean-<LOC>
 'He paddles the boat in the ocean.'

3. Derivational Morphology

In the discussion of derivational morphology, we will examine here only that morphology which changes word classes. Other derivational affixes such as the applicative have been discussed above under verbal morphology.

3.1 Verb Derivations

Verbs are derived from nouns by the addition of a 0 morpheme in the following manner:

[[0]_v []_N]_v

Examples:

(59) wonitimaiu la wo-<mokuru>
 you.him.give so he-<betel-nut>
 'You give some to him so he can chew betel-nut.'

- (60) woki-<singina> ma esa de ma dea
 he.them-<heart> POS mother and POS father
 'He considered his mother and father.'

3.2 Noun Derivation

Nouns are derived from verbs by the addition of the g- prefix in the following way (61) and (62):

[[g-]_N []_V]_N

As was seen above in the discussion of the applicative (AP3) prefix on the verb (1.1.11 above), the nominalizing prefix (NML) g- on the verb does appear overtly only on vowel initial verb roots. For a further discussion of this issue, see Chapter 4.

- (61) una wosidemo to ena ma <d>-emo
 he he.AP2.AP3.say POS it POS <NML>.say
 'He spoke in his own words.'
- (62) ma <g>-akuru o mongoo butanga bolo
 POS <NML>-is.tall ART fathom six only
 'Its height is only six fathoms.'

NOTES

¹ Within the framework of Relational Grammar, Perlmutter (1978) discusses the notion of initial unergativity which he ties to the verbal concepts of activity and involuntary processes. The notion of unaccusative is tied to adjectival verbs or those with patient as an initial nuclear term. An explanation of the syntax of this phenomenon is beyond the scope of this paper. However it should be noted that the semantic distribution of Tabaru verbs does not adhere to Perlmutter's proposed pattern. In Tabaru, temporary state or involuntary action are unaccusative predicates as expected, but attributive predicates are unergative, if the choice of pronoun is a clear indication of verb class.

² It appears that for the sake of completeness, Fortgens (1928) included within his grammatical notes forms that rarely occur, as there are few if any examples of these within the folk tales he collected, and none in my field notes.

CHAPTER 4

PHONOLOGY

0. Introduction

The Tabaru language has been described by Fortgens (1928). However there is much left to be said about stress, syllable structure, and phonological rules.

We will describe the phonemic inventory, stress placement, syllable structure, lexical and postlexical rules, and propose a number of analyses. The purpose of this section is to describe Tabaru phonology and determine the description which proves to capture important generalizations about Tabaru, within a framework that is both predictive and restrictive in its generalizations about human language.

1. Inventory of Segments

We will be examining here the inventory of the underlying segments in Tabaru by the comparison of contrasts, and discuss the existence of phonetic semivowels. We use here the conventions of the Indonesian orthography. Except for the following symbols shown below, the symbols used have their regular IPA values.

Indonesian		International Phonetic Alphabet
ny	=	ɲ
ng	=	ŋ
j	=	dʒ
r	=	ɾ
c	=	tʃ

The segments f, h, ny, c, and j are rare in Tabaru and occur only in borrowed words. In the following chart they are enclosed in parentheses.

CONSONANT CHART

	LABIAL	ALVEOLAR	ALVEOPALATAL	VELAR	GLOTTAL
VOICELESS STOP	p	t	(c)	k	
VOICED STOP	b	d	(j)	g	
FRICATIVE	(f)	s			(h)
NASAL	m	n	(ny)	ng	
LATERAL		l			
VIBRANT		r			

VOWEL CHART

	FRONT	CENTRAL	BACK
HIGH	i		u
MID	e		o
LOW		a	

1.1 Consonants

Stops in Tabaru are bilabial, alveolar and velar. There are both voiced and voiceless stops at each point of articulation.

Contrasts:

[p] : [b]	'poa	'pour out'
	'boa	'come'
	ta'padu	'oppress'
	ta'bau	'I borrow it'
[t] : [d]	'towo	'give food'
	'dowo	'smoke'
	'uekata	'wife'
	kaka'daku	'above'
[k] : [g]	'kakuru	'tall'
	'gakuru	'corn'
	'otaka	'accompany'
	'tagi	'go'

The fricatives are labial, alveolar and glottal, all of them voiceless.

[f] : [s]	'fara	'type'
	'saara	'snake hole'
	'ngafi	'a fish'
	'asiri	'swallow'
[f] : [h]	'haga	'hold, embrace'
	'faja	'dirty'
	'lefo	'writing'

	'lahi	'request'
[s] : [h]	'sago	'branch'
	'faga	'hold, hug'
	'asiri	'swallow'
	'lahi	'request'

The only affricates in Tabaru are alveopalatal voiced and voiceless, which occur largely in borrowed words.

[d] : [j]	'dou	'foot'
	'jou	'mister'
	'bido	'betel nut'
	'ija	'buy'
[t] : [c]	ti'osaka	'wild'
	cio'tiono	'very small'
	'toto	'seed'
	co'coro	'funnel'
[c] : [j]	'cobo	'grab'
	'jobo	'depart'
	bi'cara	'say'
	'ija	'buy'

There are four voiced nasals: bilabial, alveolar, alveopalatal and velar.

[m] : [n]	a'mia	'ours'
	a'nia	'yours'
	'mao	'feel'
	'nao	'lining'

[n] : [ny]	'nauru	'husband'
	'nyawa	'person'
	ma'nai	'friend'
	ma'nyanyi	'incense'
[ny] : [ng]	'nyiara	'nut tree'
	'ngia	'snake'
	ma'nyanyi	'incense'
	'manga	'our (incl)'

There are two voiced liquids: an alveolar lateral and an alveolar flap.

[l] : [r]	'lio	'return'
	'rio	'footprint'
	'ali	'chest'
	'ari	'weep'

1.2 Vowels

Tabaru has five vowels: a, e, i, o, and u. Fortgens (1928:301-304) describes a variation in the [-high] vowels dependent upon environment. Other researchers in the North Halmaheran languages used diacritics on the vowels in their descriptions (see van Baarda 1895 and Hueting 1908) to show similar variations. It is quite unclear what his description actually refers to. It appears that Fortgens wanted to be as careful to describe the sound distinctions as his colleagues were, yet he was convinced that the significance of these differences was not great enough to

include them in an orthography. When Dr. Adriani (van der Veen 1915:11) visited Halmahera to review the situation for himself, he did not hear the distinctions. As can be seen below in the contrasts, there are only five vowels in the Tabaru language.

Contrasts:

[a] : [e]	'adana	'braid'
	'edete	'grandparents'
	'baili	'remainder'
	'beika	'try'
[a] : [o]	'alu	'breastbone'
	'olu	'flood'
	'souru	'medicine'
	'sauku	'warm'
[e] : [i]	'edete	'braid'
	'iete	'laugh'
	'dea	'father'
	'dia	'knife'
[o] : [u]	'ouku	'bamboo container'
	'uunu	'read'
	'alo	'cold'
	'alu	'breastbone'
[i] : [u]	'iete	'laugh'
	'uere	'plait'
	'wisa	'bark girdle'
	'wusi	'comb'

1.3 Semivowels

The status of the semivowel is unclear in Fortgens' analysis (1928:305-306, 315). A summary of his views follows:

1. There is only one semivowel, the y (1928:304).
2. The y is rarely used (1928:305).
3. The words in which the y occurs are borrowed (1928:305).
4. y occurs in pronominal verb prefixes (1928:305,337).
5. An epenthetic w appears between a labial vowel and another vowel (1928:305).
6. Where the Tabaru language has a w, the Ternate language has an f (1928:315).

It is unclear why Fortgens would make a statement like (1) above when he goes on to discuss the w in such statements as (6). Perhaps his reasoning is that because, in the Tabaru-adu dialect, the w is deleted (1928:305), it need not be considered. He correctly states that y is rarely used in Tabaru (2) and that it occurs in borrowed words (3); however he then states that y occurs in the verb pronominal prefixes (4). It is improbable that a borrowed segment should appear in borrowed words and also in the pronominal verb prefixes. His clearest remark about semivowels is (5) regarding an epenthetic w.

Up to this point we have been using the y and w in the examples in this paper. It should be noted that [y] and [w] are underlyingly /i/ and /u/ and that the transcription as y and w have been used for the sake of clarity. The symbols y

and w will not be used in the formal derivations because the semivowels can be determined by general convention, as seen below.

It is clear that the phonetic segments [y] and [w] appear in the Tabaru language. With the introduction of the notion that the syllable is a hierarchic structure, we are barred from using the feature [syllabic]. The feature [syllabic] was the feature which distinguished the semivowels from the [+high] vowels. The phonetic realization of the [-consonantal, +high] segments is determined by syllable structure, this contrasts to Fortgens' unclear analysis of these segments.

2. Syllable Structure

The notion of syllable has had a rather difficult history. Although embraced by structuralist theory (Bloomfield 1933, Gleason 1961, Pike 1967), it was rejected in early generative theory (Chomsky and Halle 1968). More recently, research (Kahn 1976, Clements and Keyser 1983, Harris 1983) has indicated the importance of the notion of the syllable. As seen above, an adequate theory of stress will use the notion of the syllable.

We assume here the notion of the syllable, and that CV is the core syllable in human language. All other syllable types can be derived from the core syllable by the application of one or both of the following rules¹ (Clements and Keyser 1983:28, 29):

- a. delete syllable initial C
- b. insert syllable final C

The Tabaru language makes use of only rule (a) with the result that there are only CV and V syllables. We will assume with Clements and Keyser (1983) a three tiered model of the syllable. The following examples illustrate this model.

σ	σ	σ		syllable tier
	/ \	/ \		
V	C	V	C	V
o	d	o	m	o
				segmental tier

Harris (1983:76) discusses syllable structure in terms of rules:

One characteristic of these rules that clearly sets them apart from garden-variety phonological rules is that syllable structure rules do not change features. Rather they belong to the class of rules that assign features and/or prosodic structure that is lexically unspecified.

Languages tend to have syllables of the CV type. If a language has only one syllable type, it will be CV. The onset rule states that languages will maximize onsets in their syllables, that is, they will produce onsets to syllables wherever possible. The Tabaru language is no exception to this rule. A link between a segment and a C-element produces a consonant, and a link between a segment

and a V-element produced a vowel. Thus if a [+high, -consonantal] segment is linked to a C-element, a consonant ([y] or [w]) is produced, but if it is linked to a V-element, the result is a vowel, ([i] or [u]). Clements and Keyser (1983:32) examine the notion of linking the segmental tier with elements on the skeletal tier:

Unless otherwise stipulated in the grammar or lexicon of a given language, V-elements of syllable structure are freely allowed to dominate [-consonantal] segments, and C-elements are freely allowed to dominate both [+consonantal] segments and [+high, -consonantal] segments. Other associations are possible only when admitted by language specific rules.

We assume that "freely allowed to dominate" means it produces a well-formed syllable. In other words, [+high, -consonantal] segments can dominate both C-elements and V-elements in the syllable structure. If it is linked to a V-element, it is realized phonetically as a vowel, but if it is linked to a C-element, it is realized phonetically as a semivowel.

It is then necessary to determine the criterion used to link the [+high, -consonantal] segments to the proper element on the skeletal tier. Given that languages maximize onsets, Clements and Keyser (1983:37) state the following:

- a. Syllable-initial consonants are maximized to the extent consistent with the syllable structure conditions of the language in question.
- b. Subsequently, syllable-final consonants are maximized to the extent consistent with the syllable structure conditions of the language in question.

Based upon this notion, we will assume that a language will attempt to link any [+high, -consonantal] segment to a C-element if at all possible, but if it is unable to link to a C-element, because of language specific restrictions, it will link to a V-element. Because there are no syllable final consonants in Tabaru, we can ignore (b) above.

Let us examine the process of maximizing the onsets, using the Tabaru words [ngununu], 'nose' and [wekata], 'wife' as examples.

1. Link C-elements to [+consonantal] segments.

c c c
 | | |
 n g u n u n u

u e k a t a

2. Link V-elements to [-consonantal, -high] segments.

$\begin{array}{ccccc} c & & c & & c \\ | & & | & & | \\ nq & u & n & u & n & u \end{array}$

u e k a t a

3. Wherver possible, link [-consonantal, +high] segments to C-elements.

C	C	C				C	V	C	V	C	V
ng	u	n	u	n	u	u	e	k	a	t	a

4. The remainder of the [-consonantal, +high] segments are linked to V-elements.

C	V	C	V	C	V	C	V	C	V	C	V
ng	u	n	u	n	u	u	e	k	a	t	a

It should be noted here that the above rule accounts for the phonetic [u] in [ngununu] and the phonetic [w] in [wekata]. The [+high, -consonantal] segments which are linked to C-elements are the semivowels, and those linked to V-elements are vowels.

The linking of the skeletal tier and the segmental tier is formed by the following steps (Clements and Keyser 1983:38):

- a. V-elements are prelinked to σ 's
- b. C-elements to the left are adjoined one by one as long as the configuration resulting at each step satisfies all relevant syllable structure conditions.
- c. Subsequently, C-elements to the right are adjoined in the manner described in (b) above.

Using the words from the examples above in linking the skeletal to the syllable tier we have the following:

1. V-elements are prelinked to σ 's.

	σ		σ		σ
	C	V	C	V	C
	n	g	u	n	u

	σ		σ		σ
	C	V	C	V	C
	u	e	k	a	t

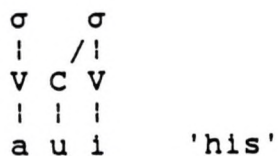
2. C-elements to the left are adjoined one by one as long as the configuration resulting at each step satisfies all relevant syllable structure conditions.

	σ		σ		σ
	/		/		/
	C	V	C	V	C
	n	g	u	n	u

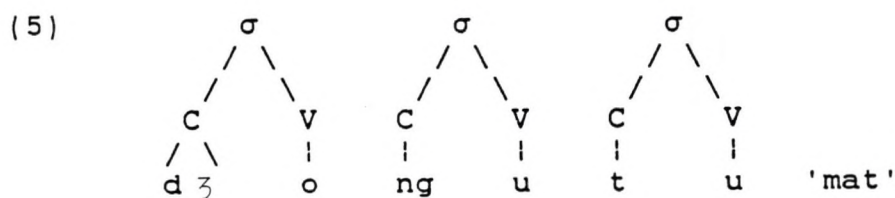
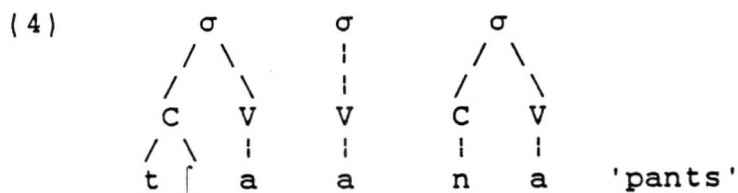
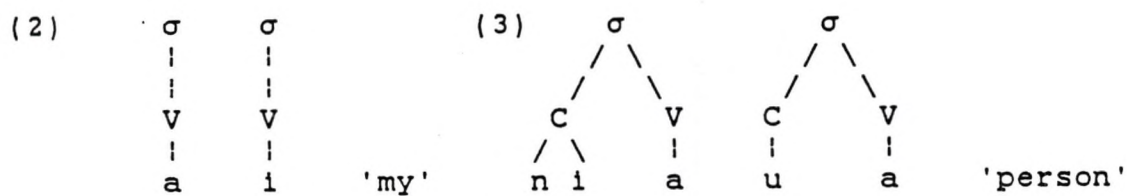
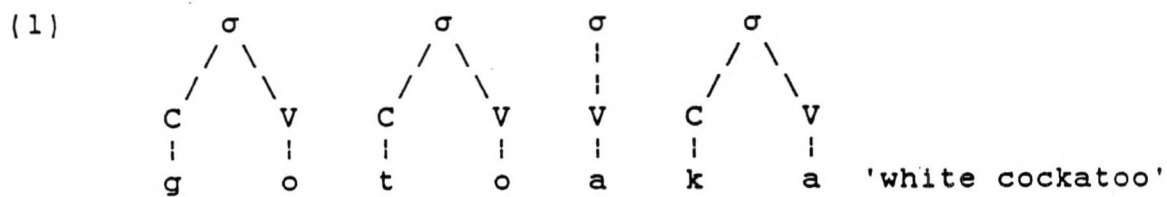
	σ		σ		σ
	/		/		/
	C	V	C	V	C
	u	e	k	a	t

Part (c) of the above algorithm does not apply because there are no closed syllables in the Tabaru language. The syllabification rules apply to the underlying form (before affixation) and after each new morpheme is added.

Tabaru has a simple syllable structure in which it is not necessary to write rules for the occurrence of segments in onset or nucleus positions. These fall out naturally from theoretical considerations: the theory predicts only [+high, -consonantal] segments and [+consonantal] segments can occur in an onset, and only [-consonantal] segments can occur in a nucleus. The syllable types in Tabaru are all either V or CV. The V syllable consists of a segment linked to a V-element, which as stated above is prelinked to a syllable on the syllable tier, as in the first syllable of the following word.



In Tabaru, an onset is a segment which is linked to a C-element on the skeletal tier. The onset is sometimes complex as in the case of the borrowed segments ny (ɲ), c, (tʃ) and ɟ (dʒ). See examples 1-5.



3 Affixation.

3.1 Rules associated with the g- prefix.

The g- prefix which is affixed to verbs as either an applicative or derivational morpheme as seen in Chapter 3. When it is added to vowel initial roots, it produces derived forms like those below:²

ari	'cry'	gari	'cry for'
asa	'bring'	gasa	'bring with'

When the g- is added to words with initial voiceless stops, the derivation is a bit more complex. There is a voicing rule which causes the voiceless stop to become voiced. The skeletal and syllable tiers are then added and any unattached segments are not realized phonetically, as seen in the example below:

tau	-->	gtau	g- prefixation
gtau	-->	gdau	voicing rule
$ \begin{array}{cccc} & \sigma & & \sigma \\ & / & \backslash & / & \backslash \\ C & C & V & C & V \\ & & & & \\ g & d & a & u & i \end{array} $			syllable structure
daw			surface form

There is some question as to whether stems with initial voiced and fricative consonants underlyingly are affixed with the g- prefix. If such is the case, then the g- never appears on the surface. The following is an example of how nouns are derived from verbs by addition of the g- prefix,

and how other nouns are further derived from these new nouns by reduplication.

pikiri	'to strain'	
bikiri	'sieve'	nominalizing rule
bibikiri	'strainer'	reduplication

If we assume, by analogy, that verbs with voiced initial consonants underlyingly also undergo the same nominalizing rule (without overt effect) before they reduplicate, then *g-* is affixed to them in the derivation of the related words.

3.2 Reduplication

The reduplication morpheme *RDP-*, occurs both on verb prefixes and suffixes, as was seen above in the section on morphology. Because reduplication on both prefixex and suffixes function in similar ways, we will discuss them together here. Reduplication is accomplished by the reproduction of the syllable. McCarthy and Prince (1986) argue against using a skeletal tier template in favor of using a syllable tier template. We follow them here in assuming reduplication occurs first of all on the segmental tier (melody), and then the syllable tier is reproduced. Finally, the syllable tier is mapped onto the segmental tier to the fullest possible extent within the rules of the language. For example:

	Reproduce Segments	Reproduce Syllable	Map Syllables to Segments
$\sigma \sigma$ /i/i tagi -->	$\sigma \sigma$ /i/i tagitagi -->	$\sigma \sigma \sigma \sigma$ /i/i tagitagi -->	$\sigma \sigma \sigma \sigma$ /i/i/i/i tagitagi

The segmentals are mapped (linked) from left to right for prefixes and from left to right for suffixes.

3.3 Vowel deletion.

There is a process in Tabaru that deletes suffix vowels when suffixes are added to roots or to existing suffixes; for example:

tagi + uua --> tagiua

lio + osi --> liosi

It appears that the following two rules are needed to account for deletion:

$V \rightarrow \emptyset / \begin{matrix} V & \text{-----} \\ [+high] & [+high] \end{matrix}$

$V \rightarrow \emptyset / \begin{matrix} V & \text{-----} \\ & [-high] \end{matrix}$

Clearly these two rules are in fact the same process. They are both deletion rules and they both affect suffixation. Only the height of the vowel is different between the rules. In David Tuggy's article (1979), he discusses various interpretations of angle brackets and their uses. He defines an interpretation of angle brackets which works both in terms of traditional interpretation and also in cases where angle brackets could not apply by traditional

interpretation. This would allow for the collapse of the above two rules. Tuggy (1979:114) says:

The notion is intuitively quite simple: The if-bracket states a condition and the then-bracket expresses a requirement that is dependent on that condition. If the condition in the if-bracket is fulfilled, then so must be the requirement in the then-bracket. However, if the condition in the if-bracket is not fulfilled, then it does not matter whether the requirement in the then-bracket is satisfied or not. Thus, on the first pass you check to see if the condition in the if-bracket and its corresponding requirement in the then-bracket are satisfied. If they are, you may apply the rule. Then on the second pass you check to make sure that the if-condition is not satisfied. If it is not, you may apply the rule, whether or not the then-requirement is satisfied.

Following Tuggy we will mark the if-bracket \Diamond_1 . Using this notation, the above rules collapse as follows:

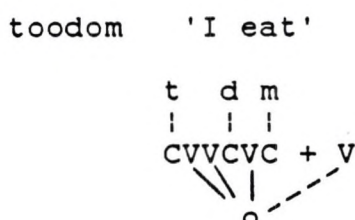
$$\begin{array}{ccc} V & \rightarrow & 0 / V \text{ ----} \\ [<+high>] & & [<+high>_1] \end{array}$$

The above rule reads: If an environment vowel X is [+high] and is followed by vowel Z which is also [+high], then vowel

Y is deleted; if environment vowel X is [-high] and is followed by any vowel Z, then vowel Z is deleted.

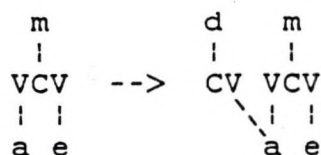
3.4 Vowel Epenthesis

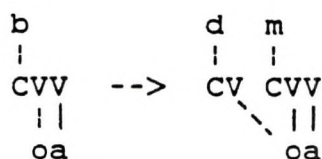
In the discussion of the metrical structure above, it was noted that there are Tabaru roots which in underlying form end in consonants. Tabaru however, does not allow closed syllables in the surface form, and rather than delete the final [+consonantal] segment, a vowel is epenthesized on the end of the word. This works by the addition of a V to the skeletal tier of the root which is then linked to the previous V on the segmental level. For example:



3.5 The dV- prefix.

The linking of the unspecified vowel in the dV- prefix as a matter of general convention, links the V to the nearest segment. This linking is illustrated in the following example:





In contrast to these examples are those in the above section which link to the right.

3.6 Stress

The rules for stress, as discussed in Chapter 2, are:

1. Construct right-branching, left-headed feet.
2. Construct right-headed words.

Derivations including stress are presented at the end of this chapter.

3.7 Pronominal Prefixes

There are irregularities within the pronominal transitive verb prefixes in the Tabaru language which are beyond the scope of this study, although they do warrant further investigation. It is clear that these forms are derived through word formation rules and phonological processes.³ It is not clear beyond doubt that these are prefixes. The verbs never occur without these, even within a relative clause. This is evidence for their status as prefixes. Argument against prefix status is the fact that there are no phonological processes between them and the verb as there are for clear cases of affixation. For the following derivations, we will assume that the underlying

forms of the transitive pronominal verb prefixes deviate from the surface forms only in the formation of semivowels.

4 Lexical Phonology

Lexical phonology as conceived by Mohanan (1986) and by Kiparsky (1982) has its appeal in its ability to solve problems relating to boundaries and in positing a level of representation which is similar to the phonemic level of structuralist theory.

Within lexical phonology, the lexicon contains both words and affixes. Phonological rules may apply in two domains: the lexical module and the postlexical module. The rules are ordered and specified as to which module(s) they apply in. There may also be a number of strata within the lexical module. The phonological rules must be specified as to which strata the rules apply. The figure below exemplifies this model:

The word formation rules apply affixes to words. Each word formation rule is located within a particular stratum. After the words are affixed, they move to the phonological module where the appropriate rules for that stratum apply. The words then return to the stratum from which they came. If there is no further affixation on that stratum, the words then move on to the next stratum or module. Whenever a word moves from one stratum or module to another, the brackets indicating morphological information are erased, as exemplified by the Tabaru derivations below.

5 Lexical Phonology of Tabaru

In the lexical module, Tabaru has two strata. Within the first stratum, suffixation occurs. The second stratum is reserved for prefixation. The necessity of two strata is clear from the fact that vowel deletion does not apply after prefixation, as it does after suffixation, even though the structural description may be met. (See 3.3 above on vowel deletion.)

The list below enumerates the phonological rules in Tabaru and indicates in which strata the rules apply. As has been noted above, syllabification applies wherever possible. This is also true of linking. In the derivations, these will be shown only where they crucially apply.

Tabaru Phonological Rules:

- | | | |
|---|-------------------|---|
| 1 | Syllabification | general convention |
| 2 | voicing | C --> C / C ---
[+voice] [+voice] |
| 3 | linking | linking |
| 4 | vowel deletion | V --> ø / V ---
[<+high>] [<+high>] |
| 5 | stress assignment | 1. build right-branching,
left-headed feet.

2. build right-headed words |
| 6 | V epenthesis | ø --> V / C ⁺ ---] |
| 7 | C epenthesis | ø --> C / V --- V |

Phonological Rules:

Domain of Application:

- | | | |
|---|-------------------|-------------------------|
| 1 | syllabification | level 1, 2, postlexical |
| 2 | voicing | level 2 |
| 3 | linking | level 1, 2, postlexical |
| 4 | vowel deletion | level 1 |
| 5 | stress assignment | postlexical |
| 6 | V epenthesis | postlexical |
| 7 | C epenthesis | postlexical |

6 Derivations

Let us examine some sample derivations which are representative of how rules apply to Tabaru data.

Consonant final stem without suffixation:

oker	pagar	underlying form
σ σ	σ σ	
/ /	/ / /	
VCVC	CVCVC	syllabification
oker	pagar	
----	-----	voicing
----	-----	vowel deletion
oker	pagar	stress assignment
\	\ \	
σ σ	σ σ	
----	-----	
o /	o /	
/ /	/ /	
----	-----	
o	o	
k r	p g r	
VCVCV	CVCVCV	V epenthesis
o e	a	
k r	p g r	
VCVCy	CVCVCV	linking
o e	a	
σ σ σ	σ σ σ	
/ / /	/ / / /	
VCVCV	CVCVCV	resyllabification
okere	pagara	
-----	-----	C epenthesis

Affixed consonant final stem.

resen

pagar

underlying form

σ σ
/i/i
CVCVC
iiii
resen

σ σ
i/i
VCVC
iiii
oker

syllabification

[[resen][uua]]

[[oker][osi]]

word formation

σ σ σ σ
/i/i i/i
CVCVC VCV
iiii iii
[[resen][uua]]

σ σ σ σ
i/i i/i
VCVC VCV
iiii iii
[[oker][osi]]

resyllabification

voicing

vowel deletion

resenuua
\\ \\ \\ \\ \\ \\ \\ \\
σ σ σ σ

okerosi
\\ \\ \\ \\ \\ \\ \\ \\
σ σ σ σ

stress assignment

o / o /
i / i /

o / o /
i / i /

 \ o
 \ i

 \ o
 \ i

V epenthesis

C epenthesis

Vowel final stem without affixation.

tagi	sofala	underlying form
σ σ	σ σ σ	
/i/i	/i/i/i	
CVCV	CVCVCV	syllabification
tagi	sofala	
----	-----	voicing
----	-----	vowel deletion
tagi	sofala	stress assignment
\i\i	\i\i\i	
σ σ	σ σ σ	
----	-----	
o /	o o /	
i /	i i /	
----	-----	
o	\ o	
i	\ i	
----	-----	V epenthesis
----	-----	C epenthesis

Vowel final stems affixed with [+high] initial vowel
suffixes.

tagi	sofala	underlying form
σ σ /i/i CVCV iiii tagi	σ σ σ /i/i/i CVCVCV iiiiii sofala	
[[tagi][uua]]	[[sofala][uua]]	word formation
-----	-----	voicing
[[tagi][ua]]	[[sofala][ua]]	vowel deletion
σ σ σ /i/i /i CVCV CV iiii ii [[tagi][ua]]	σ σ σ σ /i/i/i/i /i CVCVCV CV iiiiii ii [[sofala][ua]]	resyllabification
tagiua \\ \\ \\ \\ σ σ σ	sofalaua \\ \\ \\ \\ \\ \\ σ σ σ σ	stress assignment
----- o o / i i / ----- \ o \ i	----- o / o / i / i / ----- \ o \ i	
-----	-----	V epenthesis
-----	-----	C epenthesis

Vowel final stem affixed with [-high] initial vowel
 suffixes.

tagi	kula	underlying form
$\sigma \sigma$ /i/i CVCV iiii tagi	$\sigma \sigma$ /i/i CVCV iiii kula	
[[tagi][ou]]	[[kula][osi]]	word formation
-----	-----	voicing
-----	[[kula][si]]	vowel deletion
$\sigma \sigma \quad \sigma \sigma$ /i/i ii CVCV VV iiii ii [[tagi][ou]]	$\sigma \sigma \quad \sigma$ /i/i /i CVCV CV iiii ii [[kula][si]]	syllabification
tagiou \i\i\i $\sigma \sigma \sigma$ ----- o /o / i/ i/ ----- \ o \ i	kulasi \i\i\i $\sigma \sigma \sigma$ ----- o o / i i/ ----- \ o \ i	stress assignment
-----	-----	V epenthesis
-----	-----	C epenthesis

Multiple suffixation is exemplified in the following derivation. This derivation is important because it crucially depends upon the resyllabification convention for proper output. The resyllabification after the addition of the suffix -oli would link the [u] with a C-element if it were not for the prohibition that links with V-elements are not erased when forms are resyllabified. In other words, the output of the derivation is a vowel, not a semivowel as we would expect if resyllabification erased all links between the segmental and the syllable tiers.

goger	underlying form
$\sigma \sigma$ $/l/l$ CVCVC lllll goger	syllabification
[[goger][oka]]	word formation
-----	voicing
-----	vowel deletion
[[goger][oka][ou]]	word formation
-----	voicing
[[goger][oka][u]]	vowel deletion
$\sigma \sigma \quad \sigma \sigma \quad \sigma$ $/l/l \quad l/l \quad l$ CVCVC VCV V lllll lll l [[goger][oka][u]	resyllabification
[[goger][oka][u][oli]]	word formation
-----	voicing
-----	vowel deletion

Examples of the dV- and g- prefixation.

omas	ari	underlying form
σ σ / VCVC omas	σ σ / VCV ari	syllabification
[[dV][omas]]	[[g][ari]]	word formation
-----	-----	voicing
σ σ σ / / CV VCVC [[dV][omas]]	σ σ / C VCV [[g][ari]]	resyllabification
d m s CVVCVC o a	-----	linking
-----	-----	vowel deletion
doomas \\ \\ σ σ σ ----- oo / / ----- \\ o \\	gari \\ \\ σ σ ----- o / / ----- o 	stress assignment
d m s CVVCVCV \\ o a	----	V epenthesis
d m s CVVCVCy \\ o a	----	linking
-----	----	C epenthesis

σ σ σ σ
/ / / / /
CVVCVCV
| | | | |
doomasa

resyllabification

The following derivation is an example of multiple prefixation.

paasan

underlying form

σ σ σ
/ / / /
CVVCVC
| | | | |
paasan

syllabification

[[g][paasan]]

word formation

[[g][baasan]]

voicing

vowel deletion

[[dV][g][baasan]]

word formation

voicing

d gb s n
| | | |
CVCCVVCVC
| | |
a

linking

σ σ σ σ
/ / / /
CVCCVVCVC
| | | | |
dagbaasan

resyllabification

vowel deletion

[[sɪ][dagbaasan]]

word formation

voicing

vowel deletion

σ σ σ σ
/ / / /
CV CVCCVVCVC
| | | | |
[[sɪ][dagbaasan]]

resyllabification

The following examples demonstrate the C epenthesis rule, which attempts to form a CV syllable between vowels. Between two identical vowels it inserts a glottal stop in emphatic speech. Between different vowels it attempts to link the C to the first segment.

geena	uak	underlying form
σ σ σ	σ σ	
/ /		
CVVCV	VVC	syllabification
geena	uak	
-----	-----	voicing
-----	-----	vowel deletion
geena	uak	stress assignment
\ \		
σ σ σ	σ σ	
-----	-----	
oo /	o /	
/	/	
-----	-----	
\ o	o	
\		
-----	-----	
	k	
-----	VVCV	V epenthesis
	ua	
-----	-----	
	k	
-----	VVCV	linking
	/	
	ua	
-----	-----	
	k	
-----	VCVCV	C epenthesis
	/	
	u a	

k
|
VCVCV
|/|/
u a

linking

The following derivations show how the minimal pairs with respect to stress, ['caana] 'thousand' and [ca'ana] 'pants', are accounted for.

caana	caan	underlying form
$\sigma\sigma\sigma$ $/ / $ CVVCV caana	$\sigma\sigma$ $/ $ CVVC caan	syllabification
-----	----	voicing
-----	----	vowel deletion
caana $\backslash \backslash $ $\sigma\sigma\sigma$ ----- oo / / ----- \ o \	caan $\backslash $ $\sigma\sigma$ ----- o / / ----- o 	stress assignment
-----	c n CVVCV \ a	V epenthesis
-----	c n CVVCV \ / a	linking
-----	-----	C epenthesis

The apparent contrast between the [u] and [w] in 'uisi, 'flow' and 'wiwisi 'suck' is examined below. Note that within the syllabification of the underlying form that /uis/ is syllabified as two syllables. As was mentioned above, major lexical categories must have at least two syllables in Tabaru.

uis	uiuis	underlying form
σ σ	σ σ	
	/ /	
VVC	CVCVCV	syllabification
uis	uiuis	
---	-----	voicing
---	-----	vowel deletion
uis	uiuis	stress assignment
	\ \	
σ σ	σ σ	
---	-----	
o /	o /	
/	/	
---	-----	
o	o	
s	u u s	
VVCV	CVCVCV	V epenthesis
ui	i	
s	u u s	
VVCV	CVCVCV	linking
/		
ui	i	
---	-----	C epenthesis

7 Conclusion

It is clear that lexical phonology handles the facts of the Tabaru language. Indeed, it eliminates the problem of some rules applying in suffixation but not in prefixation, a problem not solved by generative phonology. The predictability of semivowels from the theory of syllable structure is quite a step forward as compared to the previously unclear status of these segments. The notion of closed syllables in the underlying form allows for simplicity in defining stress assignments and predicting reduplication patterns. In other words, we have made considerable progress in the understanding of the phonology of the Tabaru language.

NOTES

¹What is meant by C and V in this context is a variable number of Cs or Vs.

²There are exceptions to the above description of the prefix g-. There are vowel initial roots which appear with an ng- or an n- rather than a g- in their surface forms. The majority of the exceptions take the ng- prefix and there are one or two which take an n-. These cases will be lexically marked. Van der Veen (1915:106), who along with Kern posited an ng- prefix for the North Halmaheran languages, was at the same time suspicious that on vowel initial roots the ng- almost always appeared as a g-.

³There are (at least) three rules applying to these forms: metathesis, vowel deletion and deletion of a 3rd person subject prefix. The reflexive prefix ma- is not affected by these rules and is thus not in the same class as the pronominal prefixes.

First, the process of metathesis occurs within the paradigm of the pronominal verb prefixes. This process functions as the following rule defines:

1	2	3	4		
C	V	C	V	-->	3 2 1 4
[+nasal]		[+labial]			

For example:

[[wo][mi]] --> [[mo][wi]]

Second, the vowel deletion rule which applies to the pronominal prefix deletes vowels in the opposite direction as compared to the vowel deletion rule applying to suffixation, for example:

[[nio][a]] --> [[ni][a]]

Third, there is a deletion of the subject prefix when both subject and object are in the third person singular as seen in the following examples (Fortgens 1928:340):

Expected forms:	Actual forms:	Meaning:
wo-wi-paasana	wi-paasana	'he beats him'
mo-mi-paasana	mi-paasana	'she beats her'
mo-wi-paasana	mi-paasana	'she beats him'

The third example is more complex than the first two because the process of metathesis appears to have taken place before deletion.

'In Tabaru it is irrelevant whether stratum one or stratum two is first in the derivation.

Appendix A

LIST OF ABBREVIATIONS

1	first person
2	second person
3	third person
ALR	already
AP1	applicative 1
AP2	applicative 2
AP2	applicative 3
ART	article
CON	continuous
EXE	exclamation
f	feminine singular
HAB	habitual
LOC	locative
m	masculine singular
n	neuter singular or plural
NEG	negative
NML	nominalizer
p	plural
pa	plural all
pe	plural exclusive
pi	plural inclusive
POS	possessive
PO	pronominal object
PROG	progressive
PS	pronominal subject

PST	past
RDP	reduplication
REC	reciprocal
REF	reflexive
REP	repetitive
s	singular
SU	surrounding

Appendix B

INTERLINEAR TABARU TEXT

O haiwani moi ma ronga o sarigala.
 o haiwani moi ma ronga o sarigala
 ART animal one POS name ART fox

Ma moi geena itagitagi, itagitagi,
 ma moi geena i-RDP-tag1 i-RDP-tag1
 ART one that it-REP-go it-REP-go

de imakamake de o gosomanga.
 de i- ma- ka- make de o gosomang
 and they-RFL-REC-see and ART crocodile

De o babarenoka o gosomanga geena ingose
 de o babaren-oka o gosomang geena i -ngose
 and ART beach- LOC ART crocodile that it-say

"O ngoi neena o inomo maoa tomadamake!
 o ngoi neena o inom maoa to-ma- dV-make
 ART 1S this ART food good I- RFL-in-see

O akeme isakisaki!" De ma sarigala geena ingose
 o akem i-RDP-saki de ma sarigala geena i- ngose
 ART meat it-REP-fat and ART fox that it-say

"O neena ka o naokowa kaiaimodi.
 o neena ka o naoko-uua kaiaimodi
 ART this not ART fish- NEG is.not

Neena o gota ma ngogu dadi uwa nagoli!
 neena o gota ma ngogu dadi uua no- a- goli
 this ART wood POS piece so NEG you-it-bite

Neena ka o nyawa, ka o titi.
 neena ka o nyaua ka o titi
 this not ART person not ART pig

Ka o siodea, dadi uwa nagoli!
 ka o siodea dadi uua no- a- goli
 not ART pork so NEG you-it-bite

Napidili ka geena ka o gota ma ngogu!"
 no- a- pidil ka geena ka o gota ma ngogu
 you-it-release only that not ART wood POS piece

So ma gosomanga geena yapidilokau.
 so ma gosomang geena io-a- pidil- oka-ou
 so ART crocodile that it-it-release-PST-ALR

Dadi ma sarigala geena yoarokau.
 dadi ma sarigala geena io-aro-oka-ou
 so ART fox that it-run-PST-PER

Yoaro ka ahade, ma sarigala geena ingose,
 io-aro ka ahade ma sarigala geena i- ngose
 it-run only then ART fox that it-say

"E alele, alele, ka noiodomuwa,
 e alel alel ka no- i- odom-uua
 EXC thanks thanks only you-me-eat- NEG

ka noiodomuwa!"
 ka no- i- odom-uua
 only you-me-eat-NEG

Dadi ma gosomanga geena yatootasuku.
 dadi ma gosomang geena io-a- tootasuku
 so ART crocodile that it-it-angry

Yatootasuku ho, ma manai yaasoko
 io-a- tootasuku ho ma manai io-a- asok
 it-it-angry then but friend it-them-call

imakaasoko.
 i- ma- ka- asok
 they-RFL-REC-call

Dadi manga gudaioka yoboa yoboa geena
 dadi manga gudai-oka io- boa yoboa geena
 so they many- PST they-arrive they-arrive that

yomau o serigala geena yaodomo, yatagoko
 io- mau o serigala geena io- a- odom io-a-tagok
 they-want ART fox that they-it-eat they-it-catch

yatagoko duru.
 io-a-tagok duru
 they-it-catch first

O serigala geena ingose,
 o sarigala geena i- ngose
 ART fox that it-say

"Wasi tinidoimikasi
 uasi ti-ni- doimi- oka-osi
 wait I- you-count- PST-CON

ma dodogumoka ahade niodomo ngoi."
 ma dodogumoka ahade ni- i- odom ngoi
 but last then you-me-eat me

Iduanga de, o gosomanga geena imahatohato.
 iduanga de o gosomang geena i- ma- RDP-hato
 after and ART crocodile that they-RFL-REP-row

De ma sarigala geena idoimi,
 de ma sarigala geena i- doim
 and ART fox that it-count

"Moi, modidi, saange, soata, motoa."
 moi modidi saange soat motoa
 one two three four five

Momongo ka yoaroka. Dadi o gosomanga
 momong ka io-ara-oka dadi o gosomanga
 in.fact only it-run-PST so ART crocodile

geena yagoli o sarigala ka idadiou.
 geena i-a-goli o sarigala ka i- dadi-ou
 that it-it-bite ART fox not it-can- ALR

Ipade o sarigala ipade masala.
 i- pade o sarigala i- pade masala
 it-clever ART fox it-clever very

Free translation:

Once upon a time, there was a fox. As he was walking he met a crocodile at the beach. The crocodile said, "Hey! I've found some good food for myself! This is fat meat!" The fox said, "This is not fish, this is a piece of wood, so don't bite it! This is not a person, not a pig and it's not pork so don't bite it!"

So the crocodile let him go, and the fox ran away. But the fox said, "Thank you! thank you! you didn't eat me! you didn't eat me!" So the crocodile was angry at him. The crocodile was angry so he called his friends. So many of them arrived. They arrived and they wanted to eat the fox. First they caught it. The fox said, "Wait, I'll count you, then you eat me." Then the crocodiles put themselves in a

row and the fox counted, "One, two, three, four, five."
Then he ran so those crocodiles couldn't bite him. He is
clever, that fox, very clever.

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