

A PHONOLOGY
OF
the N S O Language

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TABLE OF CONTENTS

	Page
1. Introduction	1
2. The Phonological Hierarchy	3
3. The Phonological Utterance	4
4. The Phonological Word	6
5. The Syllable	8
5.1 Syllable Types	8
5.2 Features of the Syllable	14
5.3 Distribution of Syllable Types in the Phonological Word	20
5.4 Distribution of Phonemes in the Phonological Word	23
6. The Phoneme	26
6.1 Phonetic Inventory	26
6.2 Interpretation of Suspected Phonetically Complex Items	27
6.3 Evidence for Phonemic Contrast and Complementary Distribution	30
6.4 Chart of Phonemes	37
6.5 Formational Statement	38
7. Sample Text	43
8. Word List	48
9. Appendix	52

Chapter I

INTRODUCTION

The Nso language is spoken by the Nso people who number about 100,000 speakers. They live in the north-eastern part of Bamenda Province in the United Republic of Cameroun: The present administrative division called Bui Division comprises approximately the same area as the traditional Kingdom (Fondom) of the Fon of Nso. This area includes two subfondoms, Oku and Noonni, which have languages distinct from the Nso language. English or Pidgin English serve as the trade language throughout this region which is a part of the former West Cameroun. In some of the larger towns most of the men and the younger generation are bilingual in their own and the trade language. The people, however, are very fond of their own language and use it almost exclusively in their area among themselves.

The Nso language (Nsaw, Bansa, Lamnso) is classified by Williams (1971) as a Benue-Congo language belonging to the Bantoid group: Within that group the Nso language is listed as one of the Grassland Bantu languages. Closely related languages in the area are the Oku language and the Kom language. These three language groups cover geographically a contiguous area stretching from West to East but separated by the barriers of mountains.

The Nso have borrowed words from several languages but only to the extent of naming some objects newly introduced to the Nso culture, while others received original Nso names. Most of the borrowed words come from English but have been remolded in keeping with Nso phonology. The Fulani language provided vocabulary for cattle keeping and some inner organs of the animals. The people of Fouban are related to the Nso by ancestry and not by language, but because of their long history of wars with the Nso some vocabulary concerning the military organization has been borrowed from the Fouban language.

This preliminary study is based on the fieldwork which Karl and Winifred Grebe of the Summer Institute of Linguistics (Société Internationale de Linguistique) conducted during the period of December 1971 to December 1972. The investigators resided in Kumbo, the main center of the Nso area. They would like to extend their thanks particularly to Mr Patrick Siiytan of Kumbo who proved a most helpful and capable teacher of the Nso language and to Miss Mona Perrin, a linguistic consultant of the Nigerian Branch of the Summer Institute of Linguistics, for her valuable help in consulting with the authors on various occasions.

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Chapter 2

THE PHONOLOGICAL HIERARCHY

For the purpose of this preliminary study, the phonological hierarchy of the Nso language may be thought of as comprising four levels: phonological utterance, phonological word, syllable, phoneme. Each level except the phoneme may conveniently be described in terms of the elements which are distributed at that level. The following chart summarizes this information:

LEVEL	ELEMENT
phonological utterance	phonological word
phonological word	syllable
syllable	phoneme
phoneme	-----

In the discussion which follows, the various levels will be discussed in separate chapters.

THE PHONOLOGICAL UTTERANCE

The phonological utterance in the Nso language is characterized by these features: fluctuation of certain phonemes utterance final, and down-drifting on the last word within the utterance.

Fluctuation of phonemes utterance final:

1. The phoneme /v/ fluctuates with [p] utterance final. [p] does not occur elsewhere in the language except in idiophones.

Examples

1. [wù tú mēndzēv] 'he carries water'
or [wù tú mēndzēp]
2. [sōv] 'the name of a village'
or [sōp]
3. [wù dū kōv] 'he is going to the forest'
or [wù dū kōp]

2. The phoneme /r/ fluctuates utterance final with the phoneme /s/, which otherwise never occurs in the final margin of the syllable.

Examples

1. [wù dzē wír] 'he is a person'
or [wù dzē wís]
2. [wù lé? tʃér tʃér] 'he runs fast'
or [wù lé? tʃér tʃés]

Down-drifting on the final word of the utterance:

Tones that are level tones or upglides receive short downglides utterance final.

Examples

[wu/kən bi^y]

'he likes cola nuts'

[wu/kən kibən]

'he likes fufu'

Tones that are downglides will end lower utterance final than elsewhere.

Example

[wu/kən wən]

'he likes the country'

When an utterance final downglide is preceded by a downglide, the second of the two starts at the point where the first downglide finishes.

Example

[wu/yən bən lən]

'he buys a cup now'

Chapter 4

THE PHONOLOGICAL WORD

A phonological word consists of an obligatory nucleus plus optional onset and final peripheries. (See 5.3.) The nucleus is filled by a syllable which has an inherent toneme; the tones of the syllables which fill the peripheries depend on the tone which is on the nucleus of the word (see 5. 1-3 for syllable types). (For rules determining the tone on peripheral syllables see 5.2.2 and 5.2.3.)

The boundaries of the phonological word are also defined by the limited distribution of phonemes in the onset and final peripheries (see 5.4).

Potential pause also characterizes the final periphery of the phonological word.

Some elisions occur between the boundaries of phonological words but they are restricted to boundaries between the following grammatical word classes:

1. noun followed by noun in complex-noun structure
2. noun followed by possessive pronoun
3. noun followed by relative introducer, wō

In 1. a final /ŋ/ of the first noun may optionally be deleted and in that case the vowel^{of} that noun is lengthened.

wōŋ nsō? → wō: nsō? 'the Nso country'

In 2. an initial /w/ of the possessive pronoun is always deleted if the final consonant of the preceding noun is one of these: /ŋ m n v /. An initial /v/ of the possessive pronoun is deleted if the final consonant of the noun is /r/.

lām wōr → lām ɔr 'our language'
fār wōr → fār ɔr 'our brother'

In 3. the /w/ of wō is always deleted following /r/ or a nasal and it may be optionally deleted when following any other

final consonant of the noun except /ʔ/.

wir w̄ k̄ʔún → wir ɔ̄ k̄ʔún 'the big man'

Chapter 5

THE SYLLABLE

In the Nso language the syllable is the unit of tone placement. Tone stretches over all voiced constituents of the syllable and is not confined to a nuclear unit.

Within the word structure three syllable classes are evident. Class 1 functions as nucleus in the word, Class 2 as onset periphery and Class 3 as final periphery.

The common factor of the syllable structure of all classes is that either the syllable is built around only one vowel which may be preceded and followed by consonants, or the syllable consists of a syllabic nasal. The vowels of the various syllables are always separated from each other by consonants and for the purpose of this study we will call the vowels or the syllabic nasal the nucleus of the syllable and other consonants marginal units.

Within the three syllable classes syllable types are established on the basis of different syllable margins.

5.1 SYLLABLE TYPES

5.1.1 Class 1 functions as the nucleus in the word and may be of any of the following types:

V	á	'you' (2nd prs:sing.; pers marker subj case)
	á̃	'they'
	á/á	question marker
N	ám	'I' (1st pers.,sing.pers.marker subj case)
CV	bá	'to plait'
	dú	'to go'
	sé	'fish'
	wó	'hands'
CVC	tán	'hat'
	tʃʔ	'to pierce'
	láʔ	'compound'

The V syllable type of this class occurs only as a monosyllabic word.

The η syllable type has neither onset or final syllable margin and is a monosyllabic word. Only one example of this type has been found: \grave{a} 'I'.

5.1.1

The CV syllable type may contain any consonantal phoneme functioning as the onset margin and any vowel phoneme functioning as the nucleus.

The CVC syllable type may contain any consonantal phoneme functioning as the onset margin and any vowel phoneme functioning as the nucleus. The final margin is filled by one of the following phonemes:

v

m	n	ŋ
	r	
	j	

5.1.2 Class 2 functions as the onset periphery in the word and may be any of the following types:

(syllables under consideration are underlined;
the dot indicates syllable break)

V	<u>á</u> .bár	'cups'		
	<u>á</u> .fón	'kings'		
	<u>á</u> .kán	'monkeys'		
VC	<u>án</u> .gám	'spiders'		
	<u>án</u> .tá?	'chairs'		
	<u>ám</u> .fír	'blind men'		
CV	<u>kí</u> .tú	'head'	<u>vi</u> .tú	'heads'
	<u>si</u> .sí	'cat'	<u>mè</u> .sí	'cats'
	<u>kí</u> .bám	'bag'	<u>vi</u> .bám	'bags'
CVC	<u>kím</u> .fër	'story'	<u>vim</u> .fër	'stories'
	<u>sin</u> .ká?	'firewood' sg.	<u>mèn</u> .ká?	'firewood' pl.
	<u>sin</u> .gër	'oil' sg.	<u>mèn</u> .gër	'oil' pl.

All the syllable types of Class 2 function grammatically in various noun classes as singular and plural markers within the

word. Other parts of speech will only take these onset peripheral syllables to mark concord with a noun or to function in the adverb structure.

The vowel of the V and VC syllable types is always the same morpheme, a, that is prefixed to the nouns of one class to mark plurality. The VC syllable is formed by separating the prenasalization from the initial consonant of the nuclear syllable to build the final margin of the peripheral syllable. The nucleus of both syllable types is thus restricted to the vowel a. (For prenasalization see 5.2.2).

The CV and CVC syllable types function as singular and plural markers of several noun classes. The morpheme is actually of the CV syllable type but may also be a CVC structure which is formed by separating the prenasalization from the initial consonant of the nuclear syllable to build the final margin of the peripheral syllable. The onset margin of these syllable structures is restricted to these four consonants: /m, v, ʃ, k/. The pre-alveolars mark plural, the post-alveolars mark singular.

The nucleus is restricted to these two vowels: /i, e/.

The final margin is restricted to the nasals: /m, n, ŋ/.

5.1.3 Class 3 functions as the final periphery in the word and may be of any of the following types:

CV	kʒ. <u>ʔʒ</u>	'climbing' (continuous aspect)
	tʒ. <u>ŋe</u>	'crying' (continuous aspect)
	fʃ. <u>ri</u>	'telling' (continuous aspect)
	sʒʔ. <u>ti</u>	'pulling' (repetitive aspect)
	tʃn. <u>ri</u>	'cutting' (repetitive aspect)
	bʌn. <u>ri</u>	'praying' - - - - -
CVC	tʒŋ. <u>nɪn</u>	'cry' (reciprocal aspect)
	ʃi. <u>ʔir</u>	'bitter' (process verb)
	ʃiʔ. <u>sɪn</u>	'bitter' (stative verb)
	bɪŋ. <u>kir</u>	'to turn around' (process verb)
	bɪ. <u>ner</u>	'to turn' (action-process verb)
	sʒʔ. <u>tɪn</u>	'to be pulled out' (stative verb)

The syllable types of class 3 are all verb orientated. They only occur in other parts of speech when these are derived from verbs. Underlying most of the syllables of class 3 are morphemes, but some of these syllables have no recognizable underlying grammatical function.

5.1.3.1 The onset margin of both syllable types CV and CVC can be one of the following consonantal phonemes:

	t	k	ʔ
v	s		
m	n	ŋ	
	r	y	

These same consonants are the ones which fill the final margin of the nuclear syllable except for the consonants /t, k, s/. This has the following morphological basis: (Symbols in brackets indicate the structure of underlying morphemes).

- (1) If the underlying morpheme of a class 3 syllable has the structure (V) or (VC) then that morpheme takes the final consonant of the nuclear syllable to form a CV or CVC class 3 syllable in the phonological word. This accounts for the consonants /v,m,n,ŋ,y,r,ʔ/ (see examples a. b. below).

If the nuclear syllable has no final consonant the morpheme of the structure (V) is dropped (see example c.). A (VC) morpheme following an open nuclear syllable may take a /ʔ/ to form a CVC class 3 syllable (see d.), or it may fuse with the nuclear syllable to form a monosyllabic word of the structure, CV:C (see e. below).

Examples:

- a. CVC + (VC) → CV.CVC
 wàn wō wù tɔŋ + (ɛn) → wàn wō wù tɔŋ.ɛn
 child which 3 prs. - sing cry relative
 'the child which cried'

- b. CVC + (V) → CV.CV
 wàn sí tɔŋ + (ɛ) → wàn sí tɔ.ŋɛ
 child inceptive cry
 'the child is crying'
- c. CV + (V) → CV
 wàn sí dũ + (ɛ) → wàn sí dũ
 child inceptive go
 'the child is going'
- d. CV + (VC) → CV.ʔVC
 wũ dɛt (ɛr) → wũ dɛ.ʔér
 he sit transitive
 'he places (something)'
- e. CV + (VC) → CV:C
 wàn w̄ wũ dũ + (ɛn) → wàn w̄ wũ dũ:n
 child which 3pers-sing go
 'the child which went'

(2) The additional phonemes /t, k, s/ originate from underlying morphemes of the {CV} or {CVC} structure which may have the following initial consonants:

	t	k
	s	
m	n	
	r	

When such a morpheme is suffixed to a nuclear syllable the syllable structure of the nuclear syllable does not change and the peripheral syllable retains the structure of the morpheme. Peripheral syllables of class 3 that do not have recognizable underlying morphemes do not deviate from these syllable types established on morphological basis.

5.1.3.2 Any one vowel may function as the nucleus in both the {CV} and {CVC} syllables of class 3. This has the following morphological basis:

If the underlying morpheme of a class 3 syllable is of the V or VC structure (see 5.1.3.1), then the nucleus of that syllable is determined as follows:

If the preceding consonant is a nasal, the nucleus is filled by /ɛ/.

If the preceding consonant is either /v/, /r/, or /y/, the nucleus is filled by /i/.

If the preceding consonant is /ʔ/, the nucleus is filled by the same vowel as the nucleus of the nuclear syllable.

(In the examples below underlining indicates morphemes).

lɛ. <u>nɛ</u>	'keeping' (continuous aspect)
bɪ. <u>nɛr</u>	'to turn'
tɕ. <u>nɛ</u>	'crying' (continuous aspect)
ʃɛ. <u>vɪ</u>	'sharing' (continuous aspect)
kɛ. <u>rɪ</u>	'owning' (continuous aspect)
ʃi. <u>ʔɪ</u>	'waiting' (continuous aspect)
kɛ. <u>ʔɛ</u>	'promise' (continuous aspect)
bɛ. <u>ʔɪ</u>	'to carry'
ʃi. <u>ʔɪr</u>	'bitter'
dɕ. <u>ʔɛn</u>	'to sit down'
kɕ. <u>ʔɪr</u>	'to lift up'

Morphemes that have an underlying {CV} or {OVC} syllable structure (see 5.1.3.1 (2)) always have the vowel /i/ functioning as the nucleus.

dɛ. <u>kɪr</u>	'going' (repetitive aspect)	tɪn. <u>rɪ</u>	'cutting' (repetitive aspect)
bɪn. <u>kɪr</u>	'turn around'	tɛ. <u>tɪ</u>	'to join'
tɛr. <u>nɪn</u>	'meet' (reciprocal aspect)	ʃɕ. <u>ʔɪ</u>	'pulling out' (repetitive aspect)
kɛɪ. <u>rɪ</u>	'to go in circles'	lɛm. <u>sɪ</u>	'to heat up'

5.1.3.3 The final margin of class 3 syllables may be filled by the following consonantal phonemes: m, n, r, ʃ.

Examples

ʃɕ. <u>ʔɛm</u>	'to be coming off'	kɕ. <u>ʔɪr</u>	'to put up'
ʃɕ. <u>ʔɛn</u>	'to be off'	bɛ. <u>ʔɪ</u>	'to carry'

5.2. FEATURES OF THE SYLLABLE

5.2.1 Tone

Tone functions in the language of Nso as a feature of the syllable. There are eight phonemic tones in the language which can occur on nuclear syllables. The tones of the peripheral syllables are predictable from the tones of the nuclear syllables.

5.2.1.1 Tone on nuclear syllables. The tone on nuclear syllables changes frequently to mark various grammatical structures on the word, phrase, and clause level. In many grammatical structures the tone contrasts are reduced to less than the eight phonemic tones, but on nouns in the object position the eightfold contrast remains.

The eight tonemes consist of:

- a) Three level tones: high, mid, low

[- -]

- b) Two rising glides: high rising, low-high

[/ /]

- c) Three falling glides: high-mid, high-low, low falling

[\ \ \]

(The symbols which have been adopted for writing the tonemes are given above following the tonemes within the brackets. The symbols stand for one toneme each and follow the same order.)

These eight tonemes are illustrated below on monosyllabic nouns filling the object slot with reference to preceding and following tones. The tone frames below are not utterance final.

- a. after high tone

(1) level tones:

wu yen tu?	[_ - -]	'He sees the potatoes'
wu yen lav	[_ - -]	'He sees the house'
wu yen kɔŋ	[_ - -]	'He sees the spear'

- (2) rising glides:
 wu yen tan [_ - /] 'He sees the hat'
 wu yen ya: [_ - /] 'He sees the mother'
- (3) falling glides:
 wu yen nyo: [_ - \] 'He sees the soup'
 wu yen gam [_ - \] 'He sees the mat'
 wu yen bar [_ - \] 'He sees the cup'
- b. after mid tone
 (1) level tones:
 wu yen ne tu? [_ _ - -] 'He saw the potatoes'
 wu yen ne lav [_ _ - -] 'He saw the house'
- c. after low tone
 (1) level tones:
 wu ki yen tu? [_ _ _ -] 'He saw the potatoes'
- d. after high-low tone
 (1) level tones:
 wu lem tu? [_ \ -] 'He keeps the potatoes'
- e. after low-falling tone
 (1) level tones:
 wu du lem tu? [_ \ \ -] 'He goes and keeps the potatoes'
- f. between high tones
 (1) level tones: 'He sees the potatoes
 wu yen tu? lan [_ - -] today'
- g. between mid tones
 (1) level tones: 'He saw good
 wu yen ne tu? ye jun [_ _ - -] potatoes'
- h. between low tones
 (1) level tones:
 wu ki lem tu? kijun [_ _ _ -] 'He stored potatoes'
- i. between high-low tones
 (1) level tones
 wu lem tu? fen [_ \ - \] 'He stores potatoes here'
- j. between low falling tones
 (1) level tones: 'He goes (and)
 wu du lem tu? len [_ - \ \] stores potatoes now'

5.2.1.2 Tone on syllables in the onset periphery of the word. Peripheral syllables that fill the onset periphery of the word carry a low-falling tone if the tone on the nuclear syllable is low-falling. In all other cases they carry a low tone. In the examples below the frame is kept constant and after the first example only the tones of the last word are given. Syllable break is marked by a period.

wu yen ki.ban	[_ - -]	'He sees the fufu'
kɪn.səm	[- -]	storm'
ki.ban	[- -]	hut'
ki.kun	[- ~]	bed'
ki.li:m	[- ~]	bat'
ki.bam	[- ~]	bag'
ki.tam	[~ ~]	elephant'

As of this date, no examples have been found of a word with a low-high tone on the nuclear syllable and a peripheral syllable in the onset periphery.

5.2.1.3 Tone on syllables in the final periphery of the word. Peripheral syllables that fill the final periphery of the word carry the following tones which are determined by the tones of the nuclear syllables, the voice of the verb, and the verb classes (I,II,III):

a) in active voice:

Verb Class	Nuclear Syllable	Final Peripheral Syllable
I	high	high
	low	high
II	high-low	low-falling
	low	low-falling
III	high	high-low
	low	high-rising

b) in stative voice:

Verb Class	Nuclear Syllable	Final Peripheral Syllable
I	high-rising	high-rising
II	high-low	low
III	high	high-rising

For a more detailed study of words with multiple nuclear syllables, series of peripheral syllables, word derivations and grammatical tone in verb and noun phrases, see "Verb Tone Patterns in Lamnso" ².

Now we may give the following as a full listing of syllable types.

a) nuclear syllables

\bar{V}		\bar{CV}	\bar{CVC}
\bar{V}		\bar{CV}	\bar{CVC}
\bar{V}	\bar{N}	\bar{CV}	\bar{CVC}
\bar{V}		\bar{CV}	\bar{CVC}
		\bar{CV}	\bar{CVC}
		\bar{CV}	\bar{CVC}
		\bar{CV}	\bar{CVC}
		\bar{CV}	\bar{CVC}

It should be noted that all V syllable types of this class are monosyllabic words and that the vowel is always /a/. Of the \bar{N} syllabic type only one has been found to date. This is the monosyllabic word \bar{m} 'I'.

b) onset peripheral syllables

v	VC	CV	CVC
---	----	----	-----

c) final peripheral syllables

	CV	CVC
--	----	-----

Peripheral syllables are not given with tone because their tones are dependent on the tones of the nuclear syllables (see tone paper).

5.2.2 Prenasalization occurs in the Nso language as a feature on the nuclear syllable only. The following consonant phonemes may be prenasalized when they fill the onset margin of a nuclear syllable:

b	[ṁbãṁ]	[- -]	'money'
f	[ṁfũy]	[- -]	'bracelet'
t	[ṁtãʔ]	[- -]	'chair'
d	[ṁdzẽṁ]	[- -]	'the back'
s	[ṁsãy]	[- -]	'dirt'
ʃ	[ṁʃãṁ]	[- -]	'axe'
ʒ	[ṁʒũṁ]	[- -]	'drum'
k	[ṁkãṁ]	[- -]	'cornbeer'
g	[ṁgã:]	[- -]	'owner'

From the above examples it can be seen that the nasal element does not follow the tone pattern of peripheral syllables (see 5.2.1.2). If the nuclear syllable has a level tone the tone on the nasal element will be the same; if the nuclear syllable has a gliding tone the nasal element will carry the tone at which the particular glide starts. Furthermore the nasal element always assimilates to approximately the point of articulation of the consonantal element with which it occurs, thus showing close identity of the nasal with the following consonant. We thus propose to interpret prenasalization of the above consonants word initially as a feature of the nuclear syllable rather than interpreting it as a new syllable type. Word medially the nasal element will become the final margin of a peripheral syllable as shown in 5.1.2.

5.2.3 Labialization occurs in the Nso language in the nuclear syllable only. It has a more restricted distribution than prenasalization and occurs only with velars and two alveopalatals. The following consonants may be labialized when they fill the onset margin of a nuclear syllable:

ʃ	[ʃ ^w ɪ]	'dog'	[ʃ ^w ɪm]	'hunt'
ʃ	[ʃ ^w ʌʔ]	'knife'	[ʃiʃ ^w ʌ:]	'a charm'
	[nʃ ^w ʌn]	'animal track'		
k	[k ^w ʌʔ]	'brush'	[k ^w ɪnk ^w ʌ:]	'grader'
		[nk ^w ʌr]		'a mark'
g	[g ^w ʌn]	'hill'	[ʃɪng ^w ʌn]	'salt'
		[ng ^w ʌʔ]		'society'
ŋ	[ŋ ^w ʌʔ]	'book'	[ŋ ^w ʌŋ ŋ ^w ʌŋ]	'sugarcane'

It will be noted that in three cases the initial consonant carries two features, prenasalization and labialization. Labialization does not occur in peripheral syllables and only on nuclear syllables with the vowels /i, e, a/ and is best interpreted as a feature of such nuclear syllables.

5.2.4 Any vowel filling the nucleus of nuclear syllables may be long or short. Vowels of peripheral syllables are never long. The following examples show the contrast between long and short vowels:

[bɪy]	'cola'	[bɪ:y]	'boundary'
[fɪr]	'blind'	[fɪ:r]	'smart'
[tɛ]	'to sting'	[tɛ:]	'to stir'
[nɛŋ]	'to lie'	[nɛ:m]	'to lie down'
[sɛm]	'magic'	[sɛ:m]	'to mark'
[kɪb ^v ɛ]	'ashes'	[kɪb ^v ɛ:]	'row in farm'
[bá]	'to weave'	[bá:]	'leopard'
[káy]	'fence'	[ká:y]	'to descend'
[dú]	'to go'	[dú:]	'to gossip'
[kúy]	'to grow'	[kú:y]	'to gather up'
[kɔ]	'to snore'	[kɔ:]	'to catch'
[ngɔy]	'laziness'	[ngɔ:y]	'a seed'

Since there are no non-homogeneous vowel sequences in the Nso language, length on the vowels of the nuclear syllable is interpreted as a feature of the nuclear syllable.

5.3 DISTRIBUTION OF SYLLABLE TYPES IN THE PHONOLOGICAL WORD

The nuclear syllable is the basic building stone of the phonological word. Peripheral syllables are very restricted as to their phonological structure while nuclear syllables have a wide distribution of phonemes within their structures. To illustrate the relationship that exists in the Nso language between the structure of a syllable and its function within the phonological word we show the distribution of syllable types in the formulae below with reference made to the function of the syllable within the word.

$$S_1 = N/v$$

These are Class 1 nuclear syllables that occur only as monosyllabic words.

$$S_2 = +C +V \underline{+}C$$

These are Class 1 nuclear syllables that fill the nucleus of monosyllabic and polysyllabic words.

$$S_3 = \underline{+}C +V \underline{+}C$$

These are Class 2 syllables that fill the onset peripheries of polysyllabic words.

$$S_4 = +C +V \underline{+}C$$

These are Class 3 syllables that fill the final peripheries of polysyllabic words.

$$\text{PHONOLOGICAL WORD}_1 = +S_1$$

Examples

m̂	'I'
ʌ	'they'

$$\text{PHONOLOGICAL WORD}_2 = \underline{+}S_3 +S_2 \underline{+}S_2 \underline{+}S_4$$

Examples

a) +S₂

C [́] V	sé	'fish'	C [́] V [́] C	láʔ	'compound'
C [́] V	ndē	'the world'	C [́] V [́] C	lāv	'house'
C [́] V	kə:	'rope'	C [́] V [́] C	kəŋ	'spear'
C [́] V	wū:	'rain'	C [́] V [́] C	tán	'hat'
C [́] V	yá:	'a mother'	C [́] V [́] C	mbi:r	'a bell'
C [́] V	də:	'road'	C [́] V [́] C		
C [́] V	dú	'to go'	C [́] V [́] C	wíy	'to come'
C [́] V	lí:	'character'	C [́] V [́] C	bār	'cup'

b) +S₃ +S₂

C [́] V.C [́] V	ki.yá	'year'	C [́] V.C [́] V [́] C	ʃi.páʔ	'garden egg'
C [́] V [́] C.C [́] V	kiŋ.ká	'an incantation'	C [́] V [́] C.C [́] V [́] C	ki.lēʔ	'a race'
C [́] V.C [́] V	ki.pè	'buttocks'	C [́] V.C [́] V [́] C	ʃi.sùy	'type of antelope'
C [́] V.C [́] V	ki.tʃí	'tree'	C [́] V.C [́] V [́] C	ki.gín	'calabash'
C [́] V.C [́] V	ʃi.yú:	'bee'	C [́] V.C [́] V [́] C	ki.lí:m	'a bat'
C [́] V.C [́] V	ki.ʃá	'steel'	C [́] V.C [́] V [́] C	ki.lám	'bellows'
C [́] V.C [́] V	ki.bə:	'row in a farm'	C [́] V.C [́] V [́] C	ki.tám	'elephant'

c) +S₂ +S₄

C [́] V [́] C.C [́] V [́] C	léʔ.kír	'run' (repetitive aspect)
C [́] V [́] C.C [́] V [́] C	ʃəʔ.tín	'pull out' (adjective derivation)
C [́] V [́] C.C [́] V [́] C	sún.nín	'to talk' (reciprocal aspect)

d) +S₂ +S₂

ŋ ^w á.sán	'corn'
mbúʔ.lám	'sweet potatoes'
tě:.tēŋ	'upside down'
tí:.tíy	'straight'
ká.váʔ	'a throne'
ŋ ^w án.ŋ ^w án	'sugar cane'

e) +s₃ +s₂ +s₂ +s₄

ki.pém.bū.rī

'a black bean'

ki.lāy.lāy

'the pallet'

mĕ.sūn.sūn

'a root'

ki.nē: .wūn

'an insect'

5.4 DISTRIBUTION OF PHONEMES IN THE PHONOLOGICAL WORD

The distribution of phonemes in the phonological word has to be studied with reference to the syllable. Poly-syllabic words have very restricted distribution of phonemes due to the restricted distribution of phonemes within the peripheral syllables as discussed in 5.1.2 and 5.1.3.

In disyllabic words of +S₃ +S₂ structure all vowels possible in S₃ may occur with all vowels possible in S₂. Consonant clusters across the boundaries of the two syllables are only nasals with phonemes that can be prenasalized as discussed in 5.1.2 and 5.2.2.

In the process ^{of deriving} nouns from verbs the stem is in some cases prenasalized before prefixing the noun class marker. This results in an onset peripheral syllable as described in 5.1.2. If in the above process the initial consonant of the verb stem is one that cannot be prenasalized then it will be substituted by one that allows prenasalization. Thus the following word medial consonant changes have been found:

	verb	→	noun	
y → j	yáʔ		kin.jáʔ	'fever'
ɣ → g	gáʔnín		kin.gáʔnín	'wonders, miracles'
w → g	wovri		kin.gövri	'improvisation'
w → g ^w	wiy		kin.g ^w iy	'a newcomer'
r → d	rəm		kin.dəm	'smell'

In the above examples the /w/ changes to /g/ and the nuclear syllable is also labialized when the vowel allows it.

In disyllabic words of +S₂ +S₄ structure all vowels possible in S₂ may occur with all vowels possible in S₄ and any vowel of S₂ may be reduplicated in S₄ if the intervening consonant is /ʔ/ (see 5.1.3.2). All the possible combinations of consonant clusters across the boundary of S₂ and S₄ occur.

The study of phoneme distribution in the S₂ syllable either in monosyllabic words or in polysyllabic words reveals these certain restrictions which are illustrated with charts:

Chart 1 below illustrates which consonants may be followed by which vowels in the S₂ syllable. The following restrictions have been found:

/kp/ and /gb/ are very restricted phonemes and are followed only by /u/. It is also noted that [k^w] and [g^w] fluctuate freely with [kp^w] and [gb^w] respectively.

Palatals /č, ʃ, ʒ, ɲ, ɰ/ are never followed by /ə/. /ŋ, w/ are never followed by /ə/.

The vowel /ɛ/ fluctuates with the vowel /i/ between nasals. Otherwise nasals are never followed by /i/. The nasals /n, ŋ/ are never followed by /u/.

CHART 1

	i	ɛ	ə	a	u	ɔ
b	+	+	+	+	+	+
t	+	+	+	+	+	+
d	+	+	+	+	+	+
č	+	+		+	+	+
ʃ	+	+		+	+	+
k	+	+	+	+	+	+
kp					+	
g	+	+	+	+	+	
gb					+	
f	+	+	+	+	+	+
v	+	+	+	+		+
s	+	+	+	+	+	+
ʒ	+	+	+	+	+	+
ɲ	+	+	+	+	+	+
n		+	+	+		+
ŋ		+	+	+		+
ɰ		+		+	+	+
l	+	+		+	+	+
r	+	+	+	+	+	+
y	+	+		+	+	+
w	+	+		+	+	+

Chart 2 below illustrates which vowels may be followed by which consonants in the S₂ syllables. The following restrictions are evident:

/ʔ/ never follows a long vowel.

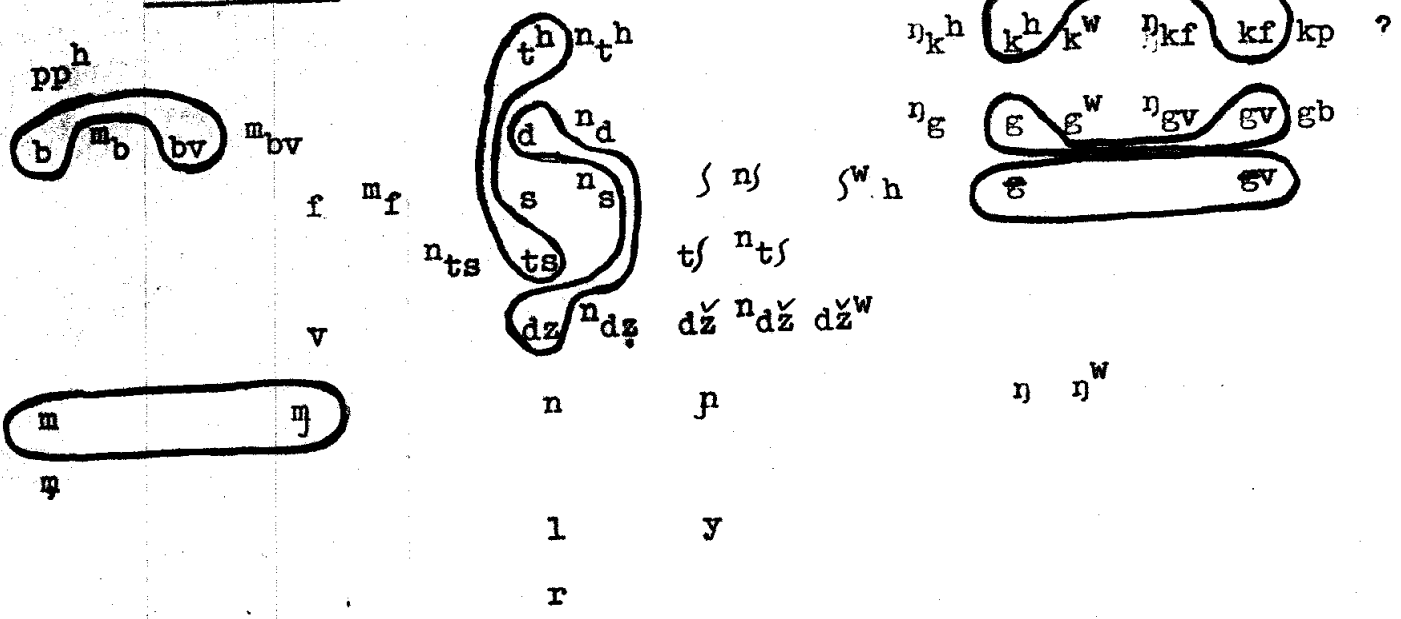
/n, ŋ, v/ never follow a long vowel with the exception of /ŋgā:ŋ/. There are other apparent exceptions where long vowels precede /n, ŋ, v/, but these are grammatically a fusion of S₂ + S₃ syllables.

CHART 2

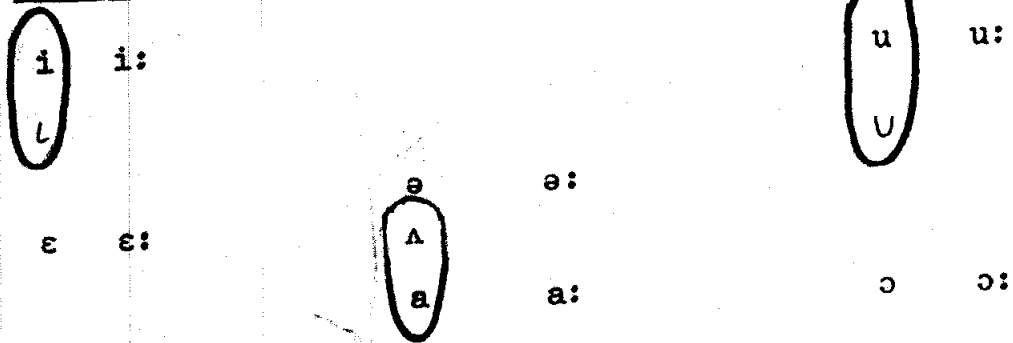
	m	n	ŋ	r	v	y	ʔ
i	+	+	+	+	+	+	+
i:	+			+		+	
e	+	+	+	+	+	+	+
e:	+			+		+	
ə	+	+	+	+	+	+	+
ə:	+			+		+	
a	+	+	+	+	+	+	+
a:	+		+	+		+	
u	+	+	+	+	+	+	+
u:	+			+		+	
o	+	+	+	+	+	+	+
o:	+			+		+	

6.1 PHONETIC INVENTORY

Consonants



Vowels



Notes:

1. Circles indicate allophones
2. [p] occurs only as a fluctuant of /v/ word finally.
 [p^h] and [h] occur only in idiophones. Idiophones also have vowel patterns and labialization patterns not found elsewhere in the language.

6.2 INTERPRETATION OF SUSPECTED PHONETICALLY COMPLEX ITEMS

6.2.1 Phonetic Segments Which May be Consonants or Vowels

[i/y] There are many instances of palatalization occurring in the onset margin of nuclear and final peripheral syllables of which the following are examples.

[yɪ]	'to hear'	[yɛr]	'to quit'
[yɪ]	'to eat'	[yɛr]	'to warm'
[yɛr]	'to sweep'	[kiyɔn]	'spear grass'
[kiyɛr]	'a broom'	[ɕiyú:]	'bee'
[yɔn]	'to buy'	[báyɪr]	'to entice'

The same palatalization occurs also very frequently in the final margin of nuclear syllables; however, here the phonetic quality is more that of a high vocoid gliding off into palatalization. The first two examples below are contrasted with non-palatalized open CV syllables.

[bi ^y]	'cola nut'	[bɪ]	'bad'
[si ^y]	'sand'	[sɪ]	'eye'
[lé:i ^y]	'to look'		
[mɛi ^y]	'to swallow'		
[sɛi ^y]	'to descend'		
[sɛ:i ^y]	'to knot'		
[má:si ^y]	'to finish'		
[lá:i ^y]	'to lose'		
[lá:i ^y]	'to hide'		
[ɕti ^y]	'sun'		
[tú:i ^y]	'to stick into ground'		
[kói ^y]	'to pick'		
[kiwó:i ^y]	'a valley'		

Since there are no non-suspect vowel sequences in the language of Nso, marginal palatalization of both nuclear and peripheral syllables is interpreted as a consonant /y/.

[u/w] There are many occurrences of [w] in the onset margin of nuclear syllables when not following a consonant (for interpretation of Cw see 5.2.2). The following are examples.

[wɔ]	'you'	[wɛʔ]	'to tie loosely'
[wɨn]	'body'	[wɔm]	'to bark'
[wɨiʔ]	'thatching grass'	[wɔnrɪ]	'to sprinkle'
[wɪ:ʔ]	'woman'	[kiwár]	'cowpeas'

Since there are no non-suspect vowel clusters in Nso [w] is interpreted as a consonant /w/.

6.2.2 Segments Interpretable as One or More Units

[tʃ, dʒ, kp, gb] occur each only in the onset margin of the nuclear syllable of which the following are examples.

[tʃɪ]	'to wind'	[dʒ(ɪ)]	'hunger'
[kɪtʃɪ]	'tree'	[kɪdʒɛʔ]	'cheek'
[tʃɛɪ]	'to dance'	[dʒɛɪ]	'to call'
[tʃʌʔ]	'only'	[dʒɔm]	'to chase'
[tʃɔ]	'sacrifice'	[dʒʃy]	'sick'
[tʃɔɪ]	'a women's dance'	[kpɪ]	'to die'
		[gbɔ]	'to fall'

Since [tʃ, dʒ, kp, gb] parallel only single consonants in the onset margin of the nuclear syllable they are interpreted as single consonants /ɔ, ɪ, kp, gb/.

The phonetic segments [bv, ɱ, ts, dz, kf, gv, gw] are allophones of the non-suspicious consonants /b, m, t, d, k, g, ɣ/ respectively (see 6.3).

For prenasalization, labialization, and long vowels, see 'Features of the Syllable' (5.2.2-5.2.4).

6.2.3 Interpretation of [ʔ]

[ʔ] occurs

a) in the final margin of the nuclear syllable:

[lʌʔ]	'compound'
[ʃʔtɪ]	'to pull out'

b) in the onset margin of the final peripheral syllable:

[kɔʔɔr]	'to elevate'
[bɔʔar]	'to move aside'
[kikɔʔay]	'elephant stock'

and could thus possibly be interpreted as an allophone of any consonant that occurs in neither of these two positions, such as /g/.

However, [ʔ] has the following features which are distinctive from all consonants:

- a) if [ʔ] is the only intervening consonant between two vowels the second vowel has to be the reduplication of the first (see 5.1.3.2).
- b) [ʔ] is used as a juncture between two vowels when a CV syllable receives a morpheme of VC syllable structure.

[dzɔ]	'to sit'
[dzɔ] + [-em]	becomes [dzɔ.ʔem] 'to sit down'

- c) [ʔ] never follows long vowels (see 5.4)

In light of these special features of [ʔ] we prefer to interpret [ʔ] as a consonant in its own right /ʔ/.

6.3 Evidence for Phonemic Contrast and Complementary Distribution.

6.3.1 Bilabial

(1) Bilabial Contrast

<u>b</u>		<u>m</u>	
[bʌʔ]	'to push down'	[mʌʔ]	'to throw'
[bɛ̃n]	'so'	[mɛ̃n]	'this (demonstrative)'
[bɛ̃r]	'to remain'	[mɛ̃:r]	'to move dancing stick'
[bvɛʔ]	'to break'	[mɛʔ]	'to open'
[kibvɛʔ]	'unburned land'	[kimɛʔ]	'ground food'
		[lɔ̃m]	'to work'
		[lɛ̃m]	'to keep'
		[bʌm]	'behind'
		[bvɛ̃m]	'stomach'
		[kɔ̃m]	'to peel'
		[tɔ̃m]	'to send'

(2) Bilabial Complementary Distribution

<u>b</u>		<u>bv</u>	
[bar]	'cup'		
[bɛ̃r]	'to remain'		
[bɪr]	'to bad'		
		[bvɛ̃n]	'to bend'
		[bvɛʔ]	'to break'
		[bvɛ̃m]	'stomach'
		[bvɛ̃y]	'goat'
[bɔ̃m]	'to build'		
[bɔ̃ŋ]	'to lack'		

(3) Bilabial and Labiodental Complementary Distribution

<u>m</u>		<u>ɱ</u>	
[mɛ̃y]	'to swallow'		
[mɛ̃y]	'to finish'		
		[ɱɛ̃y]	'chaff'
		[ɱɛ̃n]	'arrow'
		[ɱɛ̃m]	'inside'
		[ɱɛʔ]	'to open'
[mɔ̃m]	'to try'		

6.3.2 Labiodental Contrast

<u>f</u>		<u>v</u>	
a)	word initial		
[f(n)]	'to lock'	[v(n)]	'breast'
[fɛr]	'to make'	[vɛr]	'we'
[fɛi ^y]	'certain vegetable'	[vɛi ^y]	'fire'
[fɔv]	'to hold between'	[vɔv]	'wing'
b)	word final		
		[vɔv]	'wing'
		[fɔv]	'to hold between'
		[kɔv]	'possessions'
		[lɔv]	'house'

6.3.3 Alveolar and Alveopalatal

(1) Alveolar and Alveopalatal Contrast

<u>t</u>	<u>ʃ</u>	<u>d</u>	<u>ʒ</u>	<u>s</u>	
[tɛy]	[tʃɛr]	[dɛy]	[dʒɛy]	[sɛy]	[ʃɛy]
'stone'	'to worry'	'to lament'	'grass'	'sand'	'to wait'
[tɛr]	[tʃɛr]	[dɛ:r]	[dʒɛ:r]	[sɛr]	[ʃɛr]
'to redirect'	'fast'	'bend over'	'to drip'	'to dip'	'to act'
[tsɛn]		[dzɛn]		[sɛn]	
'down'		'to dance'		'black'	
[tɛr]	[tʃɛ:r]	[dɛr]	[dʒɛv]	[sɛr]	[ʃɛr]
'to entertain'	'light'	'long'	'divide'	'to tear'	'few'
[tɛ]	[tʃɛ]	[dɛ]	[dʒɛ:]	[sɛ]	[ʃɛ:]
'carry'	'sacrifice'	'to go'	'marriage gift'	'wash'	'month'
[tɛŋ]	[tʃɛŋ]	[dɛŋ]	[dʒɛŋ]	[sɛŋ]	[ʃɛŋ]
'to cry'	'a dance'	'brain'	'thorns'	'tooth'	'thief'

6.3.3

<u>l</u>	<u>r</u>	<u>y</u>	<u>n</u>	<u>n</u>
[lɔ̃m] 'to work'	[rɔ̃m] 'witchcraft'	[yĩr] 'name'		
[lɛʔ] 'to run'	[rɛʔ] 'yam'	[yɛʔ] 'to be sleeping'	[nɛŋ] 'to lie down'	[pɛŋ] 'to run'
	[rɔ̃m] 'to have an odor'		[nɛ:] 'enter'	
[lɑʔ] 'compound'	[rɑʔ] 'fishtrap'	[yɑʔ] 'to shake'	[nɑn] 'to lift up'	[pɑm] 'meat'
[lɔ̃m] 'husband'	[rɔ̃m] 'a society'	[yɔ̃m] 'to dry'		[pɔ̃y] 'God'
[lɔ̃ŋ] 'horn'	[rɔ̃ŋ] 'down'	[yɔ̃ŋ] 'call'	[nɔ̃:r] 'to give drink'	[pɔ̃:r] 'to breast feed'

(2) Alveolar Complementary Distribution

<u>t</u>	<u>ts</u>	<u>d</u>	<u>dz</u>	<u>dz</u>
[tɛn] 'to act'		[dɛn] 'to show'		
[tɛŋ] 'an insect'		[dɛŋ] 'horsetail'		
	[tsɛm] 'to knit'		[dzɛm] 'to groan'	[ndzɛm] 'the back'
	[tsɛn] 'down'		[dzɛn] 'to dance'	[ndzɛn] 'over'
	[tsɛr] 'to tie'		[dzɛr] 'to ask'	[ndzɛrɛn] 'ground nuts'
	[tsɛy] 'to hit'		[dzɛy] 'to blow fire'	[ndzɛy] 'cloth'
[tɔ̃ŋ] 'to cry'		[dɔ̃ŋ] 'brain'		
[tɔ̃n] 'to dig'		[dɔ̃n] 'to handle'		

6.3.4 Velar

(1) Velar Contrast

<u>k</u>	<u>g</u>	<u>ʔ</u>	<u>ŋ</u>	<u>kp</u>	<u>gb</u>
[kʰm]	[gʰm]	[ʔm]	[ŋʰm]		
'plant'	'surround'	'power'	'mosquito'		
[kʰʔ]	[gʰʔ]	[ʔʰʔ]	[ŋʰʔ]		
'to start'	'to look after'	'to envy'	'to pick up'		
[kʰʰm]	[gʰʰm]	[ʔʰʰm]			
'dust cloud'	'pussy'	'honor'			
[kʰr]	[gʰr]	[ʔʰr]	[ŋʰr]		
'a wheel'	'healthy'	'to hold'	'proud'		
[kʰʔ]	[gʰʔ]	[kʰʰʰ]		[kpʰ]*	[gbʰ]*
'big'	'to be in a place'	'peeling'		'to die'	'fall'
[kʰʔ]	[gʰʔ]	[gʰʰʰ]	[ŋʰʔ]		
'climb'	'to stay'	'rough'	'to pick up'		
	[kʰʔ]				
	'to resemble'				
	[bʰʔ]				
	'to break'				
	[bʰʔʰ]				
	'to be broken'				
	[bʰʔʰy]				
	'to carry'				
	[sʰʔ]				
	'to shake'				
	[sʰʔʰr]				
	'to take down'				
	[sʰʔ]				
	'to rule'				
	[ʃʰʰr]				
	'to remove'				
	[kʰʔ]				
	'big'				
	[kʰʔʰr]				
	'to enlarge'				
	[kʰʔ]				
	'to climb'				
	[kʰʔʰr]				
	'to elevate'				

(2) Velar Complementary Distribution

<u>k</u>	<u>kf</u>	<u>g</u>	<u>g^v</u>	<u>g</u>	<u>g^v</u>
[kfm]		[gim]		[gir]	
'plant'		'to surround'		'power'	
[kēʔ]		[gēʔ]		[gēʔ]	
'to start'		'to look after'		'to envy'	
	[kfem]		[g ^v em]		[g ^v em]
	'dust cloud'		'to swell up'		'honor'
	[kfɛn]		[ng ^v ɛn]		
	'to return'		'property'		
	[kfɛy]				[g ^v ɛ:y]
	'forkstick'				'to loiter'
	[kfɛr]				
	'to chew'				
	[kfɛvtɪ]		[ng ^v ɛv]		[g ^v ɛv]
	'to cover'		'fowl'		'to be watery'
	[kfɛʔrɪ]		[g ^v ɛʔtɪ]		[g ^v ɛʔtɪ]
	'to sprinkle'		'to bend down'		'to grind small'
[kɔʔ]		[gɔʔ]			
'big'		'to be in place'			
[kɔy]		[gɔy]			
'bachelor'		'to knock'			

6.3.5 Vowels

(1) Vocalic Contrasts (see 5.2.4 for length contrasts)

<u>i</u>	<u>ɛ</u>	<u>e</u>
[bɪn]	[bɛn]	[b ^v ɛn]
'to trade'	'so'	'to bend'
[kɪr]	[kɛr]	[kɛr]
'to make fufu'	'to have'	'to chew'
[sɪ]	[sɛ]	[sɛ]
'eye'	'which'	'to take'
[rɪm]	(particle)	[rɛm]
'witchcraft'	'to beat'	'to swell'
[sɪʔ]	[sɛʔ]	[sɛʔ]
'throat'	'gain'	'to shake'

<u>a</u>	<u>u</u>	<u>ɔ</u>
[bán]	[bôn]	[bóm]
'to shine'	'to miss'	'to build'
[kár]	[kúr]	[kór]
'wheel'	'to tie'	'back of head'
[sá]	[sú]	[sôv]
'also'	'to wash'	'to pierce'
[râm]	[rôm]	[rôm]
'to climb'	'a society'	'to point'
[sâ?]	[sô?]	[sô?]
'to rule'	'to contribute'	'to scrape out'

(2) Vocalic Complementary Distribution

<u>i</u>	<u>ɛ</u>
[bír]	[bîn]
'bad'	'to trade'
[bíy]	[bĩn]
'cola nut'	'rainy season'
[tír]	[tĩn]
'to advise'	'to cut'
[kíy]	[kĩ?]
'to break'	'to stay awake'
[kíy]	[kĩn]
'fireside'	'this'
	[kĩn]
	'a pot'
[lír]	[lĩm]
'to hide'	'to work'

<u>a</u>	<u>ʌ</u>
[nár]	[nʌʔ]
'pain'	'to despise'
[náv]	[nʌŋ]
'to frown'	'plenty'
[báv]	[bʌŋ]
'to roast'	'to shine'
[sáy]	[sʌm]
'grave'	'to borrow'
[fáv]	[fʌm]
'to hold between'	'a wedge'
<u>u</u>	<u>ʊ</u>
[kúr]	[kún]
'to tie'	'bean'
[lúr]	[lún]
'to heal'	'to survive'
[kúy]	[kóm]
'to grow'	'to touch'
[kúv]	[kóʔ]
'a trick'	'big'

* These are the only examples of /kp/ and /gb/ found in the language in non-labialized syllables. In labialized syllables /k/ and /g/ fluctuate with /kp/ and /gb/ respectively.

6.4 CHART OF PHONEMES

CONSONANTS

		LABIAL	ALVEOLAR	PALATAL	VELAR	LABIO- VELAR	GLOTTAL
STOPS	vl.		t		k	kp	ʔ
	vd.	b	d		g	gb	
FRICATIVES	vl.	f	s	ʃ			
	vd.	v			ʒ		
AFFRICATES	vl.			ʃ			
	vd.			ʒ			
NASALS	non-syllabic	m	n	ɲ	ŋ		
	syllabic	ɱ					
LIQUIDS			l	y		w	
FLAPS			r				

VOWELS

	FRONT	MID	BACK
HIGH	i	e	u
LOW	ɛ	a	ɔ

6.5 FORMATIONAL STATEMENT OF PHONEMES AND THEIR ALLOPHONES

All sounds are made with egressive lung air.

/b/	[bv]	voiced labiodental affricate; occurs only before high mid vowel.
	[bvóm]	/bóm/ 'stomach'
	[bvóy]	/bóy/ 'goat'
	[b]	voiced bilabial stop; occurs elsewhere
	[bóm]	/bóm/ 'to build'
	[bíy]	/bíy/ 'cola nut'
/f/	[f]	voiceless labiodental fricative;
	[fán]	/fán/ 'to fear'
	[féŋ]	/féŋ/ 'to fly'
/v/	[v]	voiced labiodental fricative.
	[váv]	/váv/ 'a wing'
	[vēr]	/vēr/ 'we'
/m/	[m]	voiced labiodental nasal; occurs only before high mid vowel.
	[món]	/món/ 'arrow'
	[móʔ]	/móʔ/ 'to open'
	[m]	voiced bilabial nasal; occurs elsewhere.
	[mén]	/mén/ 'to doubt'
	[móm]	/móm/ 'to try'
/t/	[ts]	voiceless alveolar grooved affricate; occurs only before high mid vowel.
	[tsóm]	/tsóm/ 'to knit'
	[tsóy]	/tsóy/ 'to hit'
	[t]	voiceless alveolar stop; occurs elsewhere.
	[tán]	/tán/ 'hat'
	[tóy]	/tóy/ 'to twist'
/d/	[dz]	voiced retroflexed alveolar grooved affricate; occurs only after nasals or prenasalization and preceding a high mid vowel.
	[mëndzév]	/mëndzév/ 'water'
	[ndzém]	/ndzém/ 'the back'

- [dz] voiced alveolar grooved affricate; occurs elsewhere before high mid vowel.
 [dzɛn] /dɛn/ 'to dance'
 [kidzɛr] /kidɛr/ 'coldness'
- [d] voiced alveolar stop; occurs elsewhere.
 [dʲɪŋ] /dʲɪŋ/ 'the chin'
 [dɔ̃] /dɔ̃/ 'to go'
- /s/ [s] voiceless alveolar grooved fricative.
 [sɔ̃ŋ] /sɔ̃ŋ/ 'book'
 [sɛm] /sɛm/ 'to carve'
- /n/ [n] voiced alveolar nasal.
 [nʌn] /nʌn/ 'to lift up'
 [nɛ:r] /nɛ:r/ 'to lay down'
- /l/ [l] voiced alveolar lateral.
 [lʲm] /lʲm/ 'to work/
 [lʲam] /lʲam/ 'language'
- /r/ [r] voiced alveolar flap.
 [rɔ̃m] /rɔ̃m/ 'to point'
 [rɔ̃] /rɔ̃/ 'true'
- /ʃ/ [ʃ] voiceless alveopalatal grooved fricative.
 [ʃɔ̃ʔ] /ʃɔ̃ʔ/ 'to pull out'
 [ʃɔ̃ŋ] /ʃɔ̃ŋ/ 'to steal'
- /tʃ/ [tʃ] voiceless alveopalatal grooved affricate.
 [tʃɛŋ] /tʃɛŋ/ 'to dance'
 [tʃɔ̃] /tʃɔ̃/ 'to spit'
- /ʒ/ [dʒ] voiced alveopalatal grooved affricate.
 [dʒʌŋ] /dʒʌŋ/ 'to call'
 [dʒɪy] /dʒɪy/ 'grass'
- /ɲ/ [ɲ] voiced alveopalatal nasal
 [ɲʌm] /ɲʌm/ 'meat'
 [ɲár] /ɲár/ 'pain'

6.5

- /ʎ/ [y] voiced palatal non-syllabic vocoid.
 [yéŋ] /yéŋ/ 'to see'
 [yúy] /yúy/ 'nose'
- /k/ [kf] voiceless labiovelar affricate; occurs only before high mid vowel.
 [kfén] /kén/ 'to return'
 [kfér] /kér/ 'to chew'
- [k] voiceless velar stop; occurs elsewhere.
 [káŋ] /káŋ/ 'monkey'
 [kú:] /kú:] 'to insult'
- /g/ [gv] voiced labiovelar affricate; occurs only before high mid vowel.
 [gvéʔtí] /géʔtí/ 'to bend down'
 [ŋgvēv] /ŋgēv/ 'a fowl'
- [g] voiced velar stop; occurs elsewhere.
 [k'ŋgá] /k'ŋgá/ 'weed'
 [ŋgám] /ŋgám/ 'a week'
- /g/ [gʷ] voiced labiovelar fricative; occurs only before high mid vowel.
 [gʷēm] /gēm/ 'ten'
 [kigʷér] /kigér/ 'bone'
- [g] voiced velar fricative; occurs elsewhere.
 [gár] /gár/ 'to hold'
 [gám] /gám/ 'a mat'
- /ŋ/ [ŋ] voiced velar nasal.
 [ŋáŋ] /ŋáŋ/ 'plenty'
 [ŋ^wáʔ] /ŋ^wáʔ/ 'a book'
- /kp/ [kp] voiceless labiovelar stop.
 [kpú] /kpú/ 'to die'
- /gb/ [gb] voiced labiovelar stop.
 [gbú] /gbú/ 'to fall'

6.5

/w/ [w] voiced labiovelar non-syllabic vocoid.
[w̃n] /w̃n/ 'child'
[w̄n] /w̄n/ 'him'

/ʔ/ [ʔ] voiceless glottal stop.
[kʔ] /kʔ/ 'to climb'
[k̂ʔ] /k̂ʔ/ 'to promise'

/i/ [i] voiced high open front unrounded vocoid; occurs only before nasals and glottal stop.

[b̄in] /b̄in/ 'to trade'
[k̄in] /k̄in/ 'a pot'
[s̄iʔ] /s̄iʔ/ 'the throat'

[i] voiced high close front unrounded vocoid; occurs elsewhere.

[kiv] /kiv/ 'to break'
[tiy] /tiy/ 'a stone'

/ɛ/ [ɛ] voiced mid open unrounded front vocoid.

[kér] /kér/ 'to have'
[yé̄n] /yé̄n/ 'to see'

[e] *voiced mid close unrounded front vocoid, occurs with long vowel*

/ə/ [ə] voiced mid close unrounded central vocoid. *Place of articulation*

[f̄ér] /f̄ér/ 'brother'
[tsám] /tsám/ 'to knit'

/a/ [ʌ] voiced mid open unrounded central vocoid; occurs only before nasals and glottal stop.

[b̂ân] /b̂ân/ 'to hate'
[k̂ân] /k̂ân/ 'to fry'
[l̂áʔ] /l̂áʔ/ 'compound'

[a] voiced low open unrounded central vowel; occurs elsewhere.

[b̄ār] /b̄ār/ 'a cup'
[s̄ây] /s̄ây/ 'a grave'

/u/ [u] voiced high open rounded back vocoid; occurs only before nasals and glottal stop.

[b̄ún] /b̄ún/ 'to lack'

6:5

/u/

[u]	[sūm]	/sūm/	'a farm'
	[tʊʔ]	/tʊʔ/	'potato'

[u] voiced high close rounded back vocoid; occurs elsewhere.

	[kūy]	/kūy/	'to grow'
	[lūr]	/lūr/	'to heal'

/ɔ/

[ɔ]	voiced low close rounded back vocoid.		
	[bɔm]	/bɔm/	'to build'
	[tɔy]	/tɔy/	'to twist'

[o] *voiced low open rounded back vocoid; occurs with /ɔ/.*
 [tʊʔ] 'to happen'

Chapter 7
SAMPLE TEXT

In this text the following conventions are used:

/ brief pause (part) particle
 / extended pause (neg) negative-particle
 : length (quest) question-marker

The first line is a phonetic and the second line a phonemic transcription.

Tone marks are the same as given in 5.2.1.1.

kĩmfər	kē	nʃəkũn	wĩn	kĩrēmər	kĩ
kimfer	ke	nʃekun	win	kircmer	ki
story of		house-mouse	with	field-mouse	(part)

wàn	nʃəkũnɛ:	gbù	yási/	wù	dù	ᵀgãm	fɔ	kĩrēmər
wan	nʃekunɛ:	gbu	yasi	wu	du	ngam	fɔ	kircmer
child	house-mouse	fall	disease	it	go	spider	to	field-mouse

kĩ/	kĩrēmər	kĩ	dũ	dzər	ʃɔ	dʒi:/	vɛ!	sà:
ki	kircmer	ki	du	dər	ʃɔ	ji:	ve:	sa:
(part)	field-mouse	(part)	go	ask	it	that	they	whether

lô	wai ^v	ndzɛi ^v	ndzāv	ɛ	kĩbãm/	ē	ntɔ ^ʔ /	tsərmɛ/
lo	way	ndcy	njav	ɛ	kibam	ɛ	ntɔ ^ʔ	tərme
(past)	put	clothe	net	in	bag	in	palace	sew-up

wù	g ^w ər	kfər	ā/	nʃəkũn	bí:mɛ	/	wù	kfãn	dzər
wu	gwar	kər	a	nʃekun	bi:me		wu	kən	dər
it	cut	chew	(part)	house-mouse	agree		it	again	ask

nʃəkũn	dʒi:/	wi: ^v i:	sà:	lɔ	tĩn	sā:r	/	lɛm
nʃekun	ji:	wi:yi:	sa:	lo	tin	sa:r		lem
house-mouse	that	woman	whether	(past)	cut	millet		keep

kitáv / džī kūr wòn / wù: g^war kigátí / yí sá:r
 kitav jí kur won wu: gwar kigati yí sa:r
 bin that food children it cut basket eat millet

fō fō džìn kš: wìnà wōnc̄ ǎ /
 fo fo jin ko: wina wonc a
 from there hunger catch it-with children (quest)

n(š)kùn bí:mé / wù kfēn dzēr n(š)kùn džī: /
 n(š)kun bi:me wu kēn dēr n(š)kun jí:
 house-mouse agree it again ask house-mouse that

věi sa: lš kǎ[?] mǎléri ntō[?] / wí:y nǎnsín
 ve: sa: lo ka[?] maleri nto[?] wi:y nansin
 they whether (past) promise dance palace woman fix

tě vā kāv / džī wīn wí^y dū ā mǎléri šš / wù
 te va kav jí win wiy du a maleri šo wu
 apron-hers fold that she (fut) go to dance with it

kš[?] g^war fō kitáv ǎ / n(š)kùn bí:mé / wù
 ko[?] gwar fo kitav a n(š)kun bi:me wu
 climb cut from storage (quest) house-mouse agree it

kfēn dzēr n(š)kùn džī: / věi sà: lš lēm
 kēn dēr n(š)kun jí: ve: sa: lo lēm
 again ask house-mouse that they whether (past) keep

sē sē t(š)ōn / džī ǎ wí^y tō:vi t(š)ōn šš /
 se se čōn jí a wiy to:vi čōn šo
 ask which dance that they (fut) celebrate dance with

wù	né:	kfər	fɔ̄	mbi [?]	á /	nʃɛkùn	bí:mé /
wu	ne:	kər	fɔ	mbi [?]	a	nʃɛkun	bi:me
it	enter	chew	from	pot (part)	house-mouse		agree

kirəmər	kí	nɛn	sù:i ^y	nʃɛkùn	dʒi: /
kiremer	ki	nen	su:y	nʃɛkun	ʒi:
field-mouse (part)		then	say	house-mouse	that

lɔ̄n	və:	k [?]	ā	ŋkɔ̄n	ŋkɔ̄n /	bɔ̄ [?]	dzə
lon	və:	ku [?]	a	ŋkɔ̄n	ŋkɔ̄n	bɔ̄ [?]	də
bad-luck-its		big (part)		plenty	plenty	(neg)	(copula)

á	w̄n	kí:i ^y	á	kɪpɔ̄	ké:	sú:i ^y	w̄n /	bɔ̄
a	win	ki:y	a	kipo	ke:	su:y	win	bo
(part)	it	know (part)	thing	which	say	it	(neg)	

w̄n	və	yɔ̄ [?]	à	yí:	lɔ̄n /	w̄n	yèn	á
wan	və	yo [?]	a	yi:	lun	win	yen	a
child-its (neg)	(part)		(fut)	survive	it	see	(part)	

dʒi	w̄n	kù	sí	á	ŋkɛ /	ā	wù	bən	yèn /
ʒi	wan	ku	si	a	ŋkə	a	wu	ben	yen
that	child	must	(part)	(part)	dead-man (part)	it	so	see	

ā	wù:	dū	sī:r	vifá	vìn /	wù	dù	ā	dù	sī:r /
a	wu:	du	si:r	vifa	vin	wu	du	a	du	si:r
(part)	it	go	refund	things	these	it	go	(part)	go	refund

ā	wù	sà	yɔ̄ [?]	sī:r	lɛn /	wù	li	w̄n	wí:y /
a	wu	sa	yo [?]	si:r	len	wu	li	wan	wi:y
if	it	whether	(neg)	refund	now	it	take	child	woman

wō	wù:	kpū:n	nē	džín	fō	gāf	/
wō	wu:	kpu:n	nc	ʃín	fō	ga	a
which	it	die	already	hunger	from	where	(quest)

nʃékùn	nèn	lō	fō	fō	/	wìnà	ʃwēmē	/	nèn
nʃekun	nen	lo	fō	fō		wina	ʃweme		nen
house-mouse	then	leave	from	there		with	sign		then

du	fí [?] ti	wi:y	dží:	/	wìn	wìn	bèn	kù	ràn	nēā
du	fi [?] ti	wi:y	ʃi:		win	win	ben	ku	ran	nc a
go	tell	wife	that		it	it	so	must	lose	already (part)

wān /	bì [?]	ā	vifá /	vē	wìn	wìnè:	rési
wan	bi [?]	a	vifa	ve	win	winc:	rəsi
child	because	(part)	things	which	it	it	always

bívirì /	ábci ^y /	wàn	nʃékùn	vēi ^y /	wù	džoi ^y	hēi ^y /
biviri	a bey	wan	nʃekun	vəy	wu	joy	bey
spoil	and so	child	house-mouse	this	it	sick	so

nèn	kpù	/	kí	mai ^y	nē	/
nen	kpu		ki	may	nc	
then	die		it	finish	already	

The child of the housemouse fell ill. The housemouse then went to the fieldmouse for divination. The fieldmouse asked him, "Didn't the people in the palace put the royal cloth in a bag and sew it up? And didn't you cut a hole into the bag and chew up the cloth?" The housemouse consented. The fieldmouse then asked the housemouse again, "Didn't a woman harvest her millet and store the grain in a bin so that she would have food for her children? And didn't you take the bin and eat the millet so that the woman and the children died of starvation?" The housemouse consented. He then asked the housemouse again, "Didn't a woman pleat a loincloth in preparation for the dance that was to be at the palace? And didn't you enter the storage and chew up the cloth?" The housemouse consented. He then asked the housemouse once again, "Didn't some people store fish in a clay pot to keep them fresh for the coming dance? And didn't you eat those fish?" The housemouse consented. The fieldmouse then said to the housemouse, "Your punishment must be very severe. Concerning the sick child I just can't give you any hope. As far as I am concerned the child is already dead."

The housemouse then left with great sorrow and told his wife that they would lose their child because of the many things they constantly destroy. The child continued to be sick and then soon died.

CHAPTER 8

SWADISH 200 WORD LIST

all	dzəm	day	kiʃiːy
and	wɔnà	die	kpú
animal	pám	dig	túng
ashes	kibvə	dirty	sén
at	fɔ	dog	ɟwɪ
back	bám	drink	nó
bad	bír	dry	yóm
bark	wám	dull	sér
because	bíʔ fɔ	dust	kibvər
belly	bvəm	ear	kitúʔúr
big	kúʔ	earth	nsáiʔ
bird	ʃinən	eat	ɟɪ
bite	lóm	egg	wóm
black	sén	eight	wā:mɪ
blood	mənsó	eye	sɪ
blow	fér (verb)	fall	gbú
bone	kigvər	far	kwáʔ dā
breast	vín	fat/grease	fóm
breathe	yoɪʔ	father	tár
brother	fər	fear	fán
burn	tón	feather	fó:
child	wán	few	ʃar
clothing	ndzəiʔ	fight	fónʔn
cloud	mbáʔ	fire	vəiʔ
claw	kigiy	fish	só
cold	kidzər	five	tán
dome	kikínkín	float	léŋ
cook	ná:	flow	léŋ
count	tán	flower	búiʔ
cut	tín/ sé:	fog	mbáʔ ŋkvé:mí
dance	dzén	foot	kiwú:

four	kwē:	laugh	ʃɛ?
freeze	távti/wúr	leaf	kibábár
fruit	mbáŋ	leftside	kʂ:vi
full	rún	leg	ʃw ⁿ
give	fó	lie	bó?ti / nɛŋ
good	bɔŋ	live	tín
grass	vikwí:y	liver	bat ^y
green	sán	long	dâr
guts	vitó	louse	ʃinsɛr
hair	nón	man/male	lómɛn
hand	kiwó	many	nín
he	wù	meat/flesh	nyám / jáv
head	kitú	moon	ŋwē:
hear	yú	mother	yiý
heart	ʃiliv / tím	mountain	g ^w án
heavy	dâr	mouth	ʃú:
here	fɛn	name	yír
hit	dzɛv	narrow	téri
hold/take	gár/sé	near	fó mɛnsɛm
horn	lón	neck	kilón
how	lɛ	new	fíy
hundred	wí:	night	vitó?
hunt	j ^w im	nose	yúiy
husband	lóm	not	yó?
I	m̄	old	dzɛn
ice	mɛntiy	one	mò?ón
if	ā	other	kímó? kí
in	ɛ	person	wír
kill	yúiy ^y ri	play	sé:ri
knee	kitú kɛ ndzɛ:	pull	sán
know	kí:y	push	dám
lake	kibáŋ		

rain	wú:	snake	yó
red	bán	snow	-
right/correct	rán rǎn/rú	some	mò ⁷
rightside	yíy	spear	kón
river	ndzəv	spit	tʃú
road	dó:	split	sán
root	gán	squeeze	kám
rope	kvə:	stab/pierce	səv
rotten	fəf ^y	stand	tíy
rub	yó ⁷	star	ʃijíy
salt	ʃing ^w án	stick	kitʃí
sand	síy	stone	tíy
say	suíy ^y	straight	tíitíy
scratch	kóm	suck	pón
sea	ndzəv	sun	ʃúiy
see	yén	swell	kó ⁷
seed	ngó:i ^y	swim	l ^ʔ
seven	sám ^{bá}	tail	kún
sew	tár	ten	gvəm
sharp	njám	that	kisə
shoot	té/tsəm	there	fəsə
short	tsəmér	they	áwóní
sing	yəv	thick	kisər (noun)
sister	fər	thin	kisər (plus neg.)
sit	dzə	think	kw ^ʔ tí
skin	júv	this	kín
sky	yúv	thou	à
sleep	bú:ní	three	tá:r
small	dór	throw	m ^ʔ
smell	rám	tie	kúr
smoke	kíd ^z ó ⁷	tongue	kilí:mí
smooth	fəmán	tooth	són

tree	kit <i>ʃ</i> i
turn	binkir
twenty	mbà:
two	bà:
vomit	mâ [?]
walk	gân
warm	lôm
wash	sû
water	mëndzəv
we	vēr
wet	rš
what?	kā
when?	gân kā
where?	fē:
white	fēr
who?	lā
wide	kô [?]
wife	wi:y
wind	Swēr
wing	vāv
wipe	sá [?] sí
with	wòná
woman	wi:y
woods	kòv
work	lîm
worm	kingō:nōn
ye	
year	kiyá
yellow	bân

APPENDIX

A. Bibliography

Williams, Kay. 1971. The Benue-Congo Languages and Ijo. Current Trends in Linguistics, Vol. 7. Mouton, The Hague.

B. Footnotes

- 1 The phonetic realization of Nso is [nsɔ̃]
2. Linguistics, No. 149, April 1975, pp. 5-23, Mouton.