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A TENTATIVE PHONEMIC STATEMENT

of

MANOGA - BUANG

in

MOROBE DISTRICT

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1965

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2. Introduction

This paper is a tentative statement of the phonemes of Mangga-Buang, a Melanesian type language.

The Buang language is spoken by approximately 7,000 people, some of whom are living in the valley of the Snake River and in the mountains which flank it on the S.E. side. The Snake River is in the Morobe District of the Territory of New Guinea, and is accessible by road from Mumeng or by air.

The Buang language comprises three main dialects, so called, but the one which is spoken at the Mumeng (i.e. S.W.) end of the valley seems sufficiently different from the other two, to be regarded as a separate language and is here referred to as Mangga-Buang. However, a thorough comparison of the dialects needs to be made.

Mangga-Buang has approximately 2,000 speakers, some of whom live in about seven mountain villages. This paper is based on a dictionary of approximately 1,750 words which was compiled at Mangga, the central village of the group, during a total of fourteen months spent there during 1963-1965. Two teenage girls provided some of the material, but most of it was gleaned from general conversation with the villagers and recently checked by a young man and his wife, Paka and Gasom.

For the purpose of this paper the following consonant phonemes are represented by these symbols:

/ ^m b/	/b/
/ ⁿ d/	/d/
/k/	/k/
/k ^w /	/k ^w /
/g/	/g/
/g ^w /	/g ^w /
/d ^w /	/j/
/s/	/s/
/v/	/v/
/q ^w /	/q ^w /
/r/	/r/

3. Outline of Phonemes.

3.1. Chart of Phonemes.

	Bilabial	Alveolar	Alveo-Palatal	Backed Velar
STOPS	v/s	p	t	k kʷ
	v/d	b	d	g gʷ
FRIC.	v/s		s	
	v/d	θ	j	χ
NASALS	m	n	n̪y	ŋ ŋʷ
FLAPPED VIBRANT		r		
SEMI-VOWELS	w		y	

	FRONT	CENTRAL	BACK
HIGH	i		u
MID	e		ɔ̄
LOW		a	ɔ̄'

3.2. Contrastive Features.

Vowels contrast as to high, mid and low positions, with three front and three back vowels as well as one low open central vowel.

There is contrast in manner of articulation between voiceless and pre-nasalized voiced stops, including labialized voiced and voiceless backed velar stops, voiced fricatives, voiceless fricative, nasals, including labialized backed velar nasal, palatalized nasal, flapped vibrant and semi-vowels. The voiceless and pre-nasalized voiced stops, voiced fricatives and nasals contrast in bilabial, alveolar and backed velar points of articulation.

4. Interpretation.

4.1. Items which may be either consonant or vowel.

There are no non-suspect consonant clusters² or vowel clusters (except a few examples of the latter in introduced words). Consequently [i] and [y] are interpreted as /i/ when either occurs in a syllabic position, and /y/ when either occurs in a non-syllabic position. [u] and [v] are interpreted as /u/ when either occurs in a syllabic position, and /w/ when either occurs in a non-syllabic position.

4.2. Items which may be either sequence or unit.

Pre-nasalized voiced stops are interpreted as single units because

- (i) all voiced stops are pre-nasalized,
- (ii) voiced stops in introduced words are similarly pre-nasalized,
- (iii) there are no non-suspect consonant clusters within words.

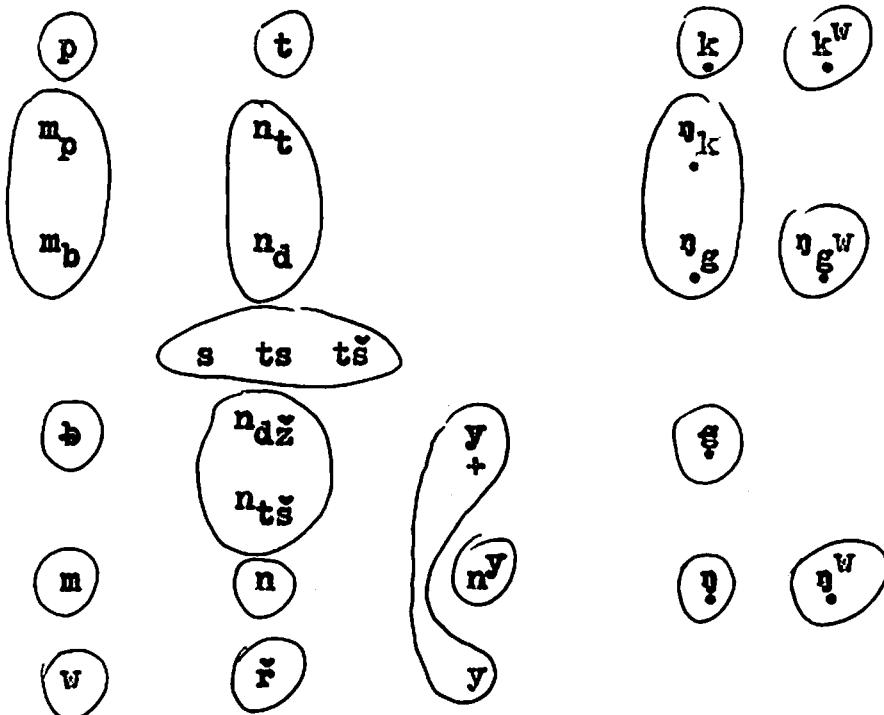
The labialized backed velar stops and nasal [k^w] [g^w] and [ŋ^w],³ the alveolar affricate [n̪dž] and the palatalized nasal [n̪y] are also interpreted as single units as there are no non-suspect consonant clusters within words.

Long vowels are interpreted as single units with the suprasegmental feature of length added rather than as vowel clusters as there are no non-suspect vowel clusters within words. However, as there are no non-suspect long vowels word final, [i:] is interpreted as /iy/ in this position.

5. Description of Phonemes.

5.1. Consonants.

5.1.1. Work Chart.



5.1.2. Description.

- /p/ [p] Voiceless, lightly aspirated bilabial stop, occurs word initially, medially and finally.
 [papi:] /pa:pɪy/ 'place name'
- /b/ [m^b] Voiced pre-nasalized bilabial stop, occurs word initially and medially.
 [nⁿda m^bi] /də:bɪ/ '4th daughter'
- [m^p] Voiceless pre-nasalized bilabial stop, occurs word finally.
 [m^bay, m^p] /bayib/ 'cloud'

/t/	[t]	Voiceless, lightly aspirated alveolar stop, occurs word initially, medially and finally. Tends to be fronted with some speakers, particularly after front vowels.
		[tətu:g] /tatu:g/ 'stone'
/d/	[n̪d]	Voiced pre-nasalized alveolar stop, occurs word initially and medially.
		[n̪de n̪dəs] /dədis/ 'wasp'
	[n̪t]	Voiceless pre-nasalized alveolar stop, occurs word finally.
		[mɔ:n̪t] /mɔ:d/ 'type tree'
/k/	[k̪]	Voiceless, lightly aspirated backed velar stop, occurs word initially, medially and finally.
		[kaku:k̪] /ka:kuk̪/ 'type yam'
/kʷ/	[kʷ]	Voiceless labialized backed velar stop ⁴ , occurs word initially and medially.
		[kʷe:k̪] /kʷe:k/ 'torn'
/g/	[ŋ̪g]	Voiced pre-nasalized backed velar stop, occurs word initially and medially.
		[ŋ̪gaŋ̪ga] /gaga/ 'you eat'
	[ŋ̪k̪]	Voiceless pre-nasalized backed velar stop, occurs word finally.
		[maŋ̪k̪] /mag/ 'my father'
/gʷ/	[ŋ̪gʷ]	Voiced pre-nasalized labialized backed velar stop, occurs word initially and medially.
		[ŋ̪gʷey] /gʷey/ '3rd son'
/b/	[b̪]	Voiced bilabial fricative, occurs word initially, medially and finally.
		[bab̪i] /bab̪i/ 'wind'

/s/	[s]	Voiceless alveolar grooved fricative, occurs word initially, medially and finally.
	[pəsɪb]	/pasɪb/ 'small'
	[ts]	Voiceless alveolar affricate, occurs word initially, medially and finally in free variation with [s].
	[bʌt̪s̪e:n]	/bæse:n/ 'yesterday'
	[t̪ʃ]	Voiceless alveo-palatal affricate, occurs rarely word initially, medially and finally in free variation with [s] and [ts].
	[t̪ʃən]	/so:t̪ʃən/ 'afternoon'
/ʒ/	[n̪d̪ʒ]	Pre-nasalized voiced alveolar grooved affricate, occurs word initially and medially.
	[n̪d̪ʒame n̪d̪ʒən]	/ja:məjɪn/ 'type wild cane'
	[n̪t̪ʃ]	Pre-nasalized voiceless alveolar grooved affricate, occurs word finally.
	[n̪d̪ʒʌba n̪t̪ʃ]	/jabə:j/ 'armband'
/g/	[g]	Voiced backed velar fricative, occurs word initially, medially and finally.
	[ga:g]	/ga:g/ 'wood'
/m/	[m]	Voiced bilabial nasal, occurs word initially, medially and finally.
	[matam]	/matam/ 'star'
/n/	[n]	Voiced alveolar nasal, occurs word initially, medially and finally.
	[nanak]	/na:nak/ 'pus'

/n ^y /	[n ^y]	Palatalized voiced alveolar nasal, occurs word initially and medially, but only rarely.
		[pʌn ^y es] /pan ^y es/ 'mud'
/w/	[ŋ]	Voiced backed velar nasal, occurs word initially, medially and finally.
		[ŋa:bʌŋ] /ŋa:bʌŋ/ 'wallaby'
/ŋ ^w /	[ŋ ^w]	Voiced backed velar nasal with labialized release, occurs word medially.
		[mʌŋ ^w ʌŋ] /mʌŋ ^w a/ 'brother of girl'
/r/	[ř]	Voiced alveolar flapped vibrant, occurs word initially, medially and finally.
		[řuři] /ruri/ 'ditch'
/w/	[w]	Voiced bilabial semi-vowel (non-syllabic) occurs word initially, medially and finally.
		[we ^m bum] /webum/ 'type tree'
/y/	[y]	Voiced alveo-palatal semi-vowel (non-syllabic), occurs word initially, medially and finally.
		[ya:ř] /ya:r/ 'three'
[y] +		Voiced alveo-palatal semi-vowel (non-syllabic) with friction, occurs word finally in free variation with [y].
		[pe:y] + /pe:y/ 'later today'

5.1.3. Contrasts of Consonant Phonemes.

<i>/p/ and /b/</i>	[pʌrʊfən]	/parurin/	'slide'
	[^m bʌrʊfən]	/barurin/	'strip'
	[pʌrʊp]	/parup/	'type fungus'
	[^m bʌrʊp]	/barup/	'come up'
	[puə]	/puə/	'extinguished'
	[^m buə]	/buə/	'fell (tree)'
	[nɪpʌyə]	/nipaya/	'bad'
	[nɪ ^m bʌyə]	/nibaya/	'dislike'
	[ⁿ džɪp]	/jip/	'forget it'
	[ⁿ džɪ ^m p]	/jib/	'he will die'
<i>/t/ and /d/</i>	[tɔ: ^m p]	/tɔ:b/	'cloth'
	[ⁿ dɔ: ^m p]	/dɔ:b/	'grass skirt'
	[tʌrɪ ⁿ t]	/tarid/	'open place'
	[ⁿ dʌrɪ ⁿ t]	/darid/	'woman's name'
	[tu: ⁿ g]	/tu:g/	'rumbled'
	[ⁿ dʊ: ⁿ g]	/du:g/	'sewed'
	[ⁿ gʌtag ⁿ]	/gata:g/	'dismiss'
	[ⁿ gʌ ⁿ da ⁿ g]	/gada:g/	'eat uncooked'
	[ⁿ gʌtař]	/gata:r/	'paddle'
	[ⁿ gʌ ⁿ dař]	/gada:r/	'you spin'
	[tʌřt]	/tarit/	'man's name'
	[tʌř ⁿ t]	/tarid/	'open space'

/k/ and /kʷ/	[kaŋε]	/ka:ŋε/	'exchange'
	[kʷa:ŋ]	/kʷa:ŋ/	'type grass'
	[kaθiřin]	/ka:θiřin/	'wind around'
	[kʷa:θ]	/kʷa:θ/	'moon'
	[kiŋasi]	/kiŋa:sı/	'ash dust'
	[kʷiŋı]	/kʷiŋı/	'type bird'
	[ke:n]	/ke:n/	'true'
	[kʷe:k]	/kʷe:k/	'torn'
	[ʷba:kə:b]	/ba:kə:b/	'peel'
	[ʷba:kʷa:b]	/bakʷa:b/	'type yam'
	[ʷba:kak]	/bakak/	'type fungus'
	[kakʷaŋ]	/kakʷaŋ/	'type bird'
/k/ and /g/	[katus]	/katus/	'windpipe'
	[gatus]	/gatus/	'dry up'
	[ka:gʌ]	/kaga/	'root'
	[gʌ:gʌ]	/gaga/	'you eat'
	[ta:ku]	/ta:ku/	'sun'
	[ta:gʌ]	/ta:gʌ/	'build up fire'
	[ku:k]	/ku:k/	'type bird'
	[gʌ:k]	/gu:k/	'type frog'
	[sake]	/sake/	'arm'
	[sa:gɛ]	/sa:gɛ/	'I will look'
	[tuk]	/tuk/	'first son'
	[tu:k]	/tug/	'offended'

/k/ and /g ^w /	[k ^u n]	/kin/	'fire'
	[^ø g ^w i:n]	/g ^w in/	'type fungus'
	[sʌkʌŋk]	/sakag/	'my neck'
	[sʌŋgʌŋk]	/sag ^w ag/	'type tree'
	[^m bʌkʌk]	/bakak/	'type fungus'
	[^ø gʌŋgʌŋk]	/gag ^w ak/	'type wild cane'
	[^m bʌka:b]	/baka:b/	'peel'
	[^m bʌŋgʌ:b]	/bag ^w a:b/	'type vine'

/k ^w / and /g/	[k ^w a:b]	/k ^w a:b/	'moon'
	[^ø ga:m]	/ga:m/	'insert into bamboo'
	[k ^w at]	/k ^w at/	'part of headdress'
	[^ø gato:]	/gato:/	'arrive'
	[kak ^w i:y]	/ka:k ^w i:y/	'type bird'
	[paŋgi:y]	/pa:gi:y/	'type fungus'

/k ^W / and /g ^W /	[k ^W ɪŋ]	/k ^W ɪŋ/	'type bird'
	[v ^g ɪn]	/g ^W ɪn/	'type fungus'
	[k ^W a:ŋ]	/k ^W a:ŋ/	'type grass'
	[v ^g a:v ^k]	/g ^W a:g/	'type animal'
	[k ^W a:k]	/kak ^W aŋ/	'type bird'
	[v ^g a:v ^g ak]	/gag ^W ak/	'type wild cane'
	[m ^b a:k ^W a:b]	/bak ^W a:b/	'type yam'
	[m ^b a:v ^g ab]	/bag ^W a:b/	'type vine'
	[rak ^W e:y]	/ra:k ^W e:y/	'place name'
	[v ^g a:v ^g e:y]	/gag ^W e:y/	'type sugar cane'

/g/ and /g ^W /	[v ^g a:v ^g o:m ^b ak]	/ga:go:m ^b ak/	'centipede'
	[v ^g Wa:v ^k]	/g ^W a:g/	'type animal'
	[v ^g inak]	/ginak/	'worm'
	[v ^g ɪn]	/g ^W ɪn/	'type fungus'
	[s ^A v ^g ap]	/sagap/	'type yam'
	[s ^A v ^g W ^A k]	/sag ^W ag/	'type tree'
	[p ^A v ^g ap]	/pagap/	'type wild cane'
	[w ^A v ^g W ^A ŋ]	/wa:g ^W an/	'type banana'
	[m ^b a:v ^g ak]	/baga:k/	'man's name'
	[m ^b a:v ^g W ^A k]	/bag ^W a:k/	'man's name'
	[s ^A v ^g en]	/sagen/	'saw'
	[v ^g a:v ^g W ^A y]	/gag ^W ey/	'type sugar cane'

/k/ and /p/	[^b l̥r̥ε ^a k]	/barek/	'3rd daughter'
	[^p l̥r̥ε ^a k]	/parek/	'type vegetable'
	[bu ^b]	/bu ^b /	'fell (tree)'
	[pu ^b]	/pu ^b /	'extinguished'
	[ni ^b bař ^a s]	/ni ^b baris/	'black'
	[ni ^p pař ^a s]	/nipa:ris/	'strong'
	[^b ga ^b baŋ]	/ga ^b baŋ/	'flatten bush down'
	[^p ga ^b baŋ]	/gapay/	'heat'
	[pu ^b]	/pu ^b /	'extinguished'
	[pu ^p]	/pup/	'full'
	[ⁿ dži: ^b]	/ji: ^b /	'heal'
	[ⁿ dži: ^p]	/ji: ^p /	'type tree'
/k/ and /b/	[ba ^b ku]	/ba ^b ku/	'carried'
	[^m ba ^b ku]	/ba ^b ku/	'will carry'
	[ba ^b ka ^b s]	/ba ^b ka:s/	'talked'
	[^m ba ^b ka ^b s]	/ba ^b ka:s/	'will talk'
	[^b ga ^b be]	/ga ^b be/	'blow'
	[^b ga ^b ^m be]	/gabe/	'place'
	[^b ga ^b buŋ]	/ga ^b buŋ/	'lose'
	[^b ga ^b ^m buŋ]	/gabuŋ/	'cup hands'
	[ⁿ dži: ^b]	/ji: ^b /	'put on' (grass
	[ⁿ dži: ^m p]	/ji:b/	'he will skirt) die'

/b/ and /w/	[ba ^m be]	/ba: be/	'picked'
	[wa ^m be]	/wa: be/	'we two think'
	[be]	/be/	'seed'
	[we ^m bum]	/webum/	'type weed'
	[ba ^m kas]	/baka:s/	'talked'
	[wak]	/wak/	'adze'
	[ta ^m be]	/tabe/	'knot'
	[ta ^m we]	/tawe/	'girl's name'
	[ga ^m bəŋ]	/gabəŋ/	'place name'
	[ba ^m wəŋ]	/ba:wəŋ/	'onion'
	[so ^m h]	/so:h/	'hole'
	[so ^m w]	/so:w/	'only me'
/s/ and /t/	[sap]	/sap/	'cut'
	[tap]	/tap/	'broke'
	[so ^m k]	/so:k/	'bird'
	[to ^m k]	/to:k/	'fell'
	[pasap]	/pasap/	'type fungus'
	[patap]	/patap/	'slap'
	[nasuŋ]	/nasuŋ/	'will ripen'
	[natuŋ]	/natuŋ/	'is rumbling'
	[tamusin]	/ta:musin/	'afterwards'
	[tamutin]	/tamutin/	'screwed up'
	[mo:s]	/mo:s/	'new'
	[ko:t]	/ko:t/	'type fungus'

/s/ and /d/	[su:g]	/su:g/	'ripe'
	[n <u>d</u> u:g]	/du:g/	'sewed'
	[sa <u>b</u> a:g]	/saba:g/	'rest'
	[n <u>d</u> a <u>b</u> a:g]	/daba:g/	'girl's name'
	[ba <u>n</u> disin]	/badisin/	'midday'
	[ba <u>s</u> isn]	/basisin/	'baked'
	[n <u>d</u> as <u>s</u> u]	/dasu/	'they cried'
	[n <u>d</u> a <u>n</u> du]	/dadu/	'pierce'
	[n <u>da</u> <u>r</u> s]	/dasřis/	'man's name'
	[n <u>da</u> <u>r</u> <u>n</u> t]	/darid/	'woman's name'
	[^ŋ gus]	/gus/	'dry pandanus leaf'
	[ku <u>n</u> t]	/kud/	'carry on shoulders'
/s/ and /j/	[sa]	/sa/	'I'
	[n <u>d</u> ža]	/ja/	'he will eat'
	[so:k]	/so:k/	'bird'
	[n <u>d</u> žo:k]	/jo:k/	'yam house'
	[na <u>s</u> ip]	/nasip/	'barred teeth'
	[na <u>n</u> džip]	/najip/	'forget it'
	[řasin]	/rasin/	'banana - generic term'
	[řa <u>n</u> džin]	/rajin/	'type bird'
	[řis]	/ris/	'leaf'
	[ř <u>n</u> ts]	/rij/	'matured'
	[su:p]	/su:p/	'rat's squeak'
	[n <u>d</u> žu:p]	/ju:p/	'owl'

/j/ and /t/	[ⁿ džuŋ]	/juŋ/	'enough'
	[tuŋ]	/tuŋ/	'owl'
	[ⁿ dži:b]	/ji:b/	'heal'
	[ti:b]	/ti:b/	'place name'
	[ⁿ džʌ]	/ja/	'he will eat'
	[tʌ]	/ta/	'where'
	[řa ⁿ dži]	/ra:ji/	'egg of lice'
	[řati]	/rati/	'who'
	[ⁿ gʌ ⁿ džus]	/ga:jus/	'you plane wood'
	[ⁿ gʌtus]	/gatus/	'dry up'
	[ⁿ džɔ:k]	/jo:k/	'yam house'
	[tɔ:k]	/tɔ:k/	'fell'

/ʃ/ and /d/	[ⁿ dža ^b u]	/ja:bū/	'he will rub'
	[ⁿ da ^b u]	/da:bū/	'they are rubbing'
	[ⁿ džape: ^ə g]	/japag/	'he will flick'
	[ⁿ dape: ^ə g]	/dapag/	'they are flicking'
	[^ŋ ga ⁿ džus]	/gajus/	'you plane wood'
	[^ŋ ga ⁿ dus]	/gadus/	'you get down'
	[řa ⁿ dži]	/ra:ji/	'egg of lice'
	[řA ⁿ diy]	/radiy/	'they flicked'
	[řama ⁿ tš]	/ramaj/	'place name'
	[na ⁿ ma ⁿ t]	/namad/	'their hands'
	[ⁿ dař ⁿ tš]	/darij/	'they are becoming mature'
	[ⁿ dař ⁿ t]	/darod/	'man's name'
/g/ and /k/	[go ^v ŋ]	/go:v/	'you (s.)'
	[ko ^v ŋ]	/ko:v/	'drum'
	[g ^v du]	/gadu/	'carry on head'
	[k ^v du]	/kadu/	'mountain'
	[tag ^u]	/ta:gu/	'mimic'
	[taku]	/ta:ku/	'sun'
	[sa ^g a ^b]	/saga:b/	'I built'
	[sa ^k a ^b]	/saka:b/	'hang clothes'
	[ko ^v g]	/ko:v:g/	'shade'
	[ko ^v k]	/ko:v:k/	'message'
	[řa:s ^g]	/ra:s:g/	'he went back'
	[řa:s ^k]	/ra:s:k/	'net'

/e/ and /k ^W /	[gə:b]	/ga:b/	'built'
	[k ^W a:b]	/k ^W a:b/	'moon'
	[gɪr]	/gir/	'people'
	[k ^W ɪŋ]	/k ^W in/	'type bird'
	[rʌgey]	/ragey/	'he went somewhere'
	[rak ^W ey]	/rask ^W ey/	'place name'
	[rʌgɪr]	/ragir/	'ball of string'
	[kak ^W iy]	/ka:k ^W iy/	'type bird'
	[dʌgə:b]	/daga:b/	'they are building'
	[bʌk ^W ab]	/bak ^W a:b/	'type yam'

/e/ and /g/	[gə:bε]	/gabε/	'blew'
	[gə:bε]	/gabε/	'will blow'
	[gə:pəŋ]	/gapəŋ/	'heated'
	[gə:pəŋ]	/gapəŋ/	'will heat'
	[ta:gu]	/ta:gu/	'mimic'
	[ta: ^W gu]	/ta:gu/	'build up fire'
	[ma:gʌ]	/maga/	'uncle'
	[ma: ^W gʌ]	/maga/	'you two eat'
	[tu:s:g]	/tu:s:g/	'rumbled'
	[tu: ^W gk]	/tu:s:g/	'type bird'
	[rə:g̩]	/ra:g̩/	'went back'
	[rə: ^W k]	/ra:g̩/	'type yam'

/g/ and /gʷ/	[gey]	/gey/	'we (pl) excl.'
	[⁹gʷey]	/gʷey/	'3rd son'
	[g̚ur̚]	/gir/	'people'
	[⁹gʷl̚n]	/gʷin/	'type fungus'
	[⁹ba⁹gak̚]	/bagak/	'butterfly - generic term'
	[⁹ga⁹gʷak̚]	/gagʷak/	'type wild cane'
	[yagag̚]	/yagag/	'man's name'
	[sa⁹gʷa⁹k̚]	/sagʷag/	'type tree'
	[ga:b̚]	/ga:b/	'built'
	[⁹gʷa:b̚]	/gʷa:g/	'type animal'

/m/ and /b/	[mun]	/mun/	'rat'
	[⁹bun]	/bun/	'bundle'
	[ma:r̚]	/ma:r/	'three'
	[⁹ba:r̚]	/ba:r/	'swell'
	[me]	/me/	'or'
	[⁹be]	/be/	'and'
	[ma⁹wak̚]	/mawak/	'heel of adze'
	[⁹ba⁹waj̚]	/ba:waj/	'onion'
	[ma⁹du⁹dak̚]	/ma:dudak/	'woman's name'
	[⁹ba⁹dun]	/badun/	'soft'
	[⁹gam]	/gam/	'thread'
	[⁹ga⁹p̚]	/gab/	'grasshopper'

/n/ and /d/	[natup]	/natup/	'he is running'
	[ⁿ d ^a tup]	/datup/	'they are running'
	[na ^r e]	/na:rε/	'he is standing'
	[ⁿ da ^r e]	/da:rε/	'they are standing'
	[k ^ə nu]	/kanu/	'shadow'
	[k ^ə ndu]	/kadu/	'mountain'
	[ⁿ go [~] nak]	/go [~] nak/	'yam grub'
	[ⁿ go [~] ndak]	/go [~] dak/	'steal'
	[^m ba:n]	/ba:n/	'his home'
	[^m ba: ⁿ t]	/ba:d/	'their homes'
	[muŋ]	/muŋ/	'rat'
	[ku ⁿ t]	/kud/	'carry on shoulders'
/n/ and /n ^y /	[manam]	/mana:m/	'you two come'
	[m ⁿ yan ^y am]	/man ^y a:m/	'type tree'
	[^m banug]	/banug/	'squash'
	[^m ban ^y us ^g]	/ban ^y us ^g /	'get warm'
	[san ^e ⁿ k]	/sane: ^ə g/	'mine'
	[san ^y e ⁿ k]	/san ^y e:g/	'my chin'
	[ne ^e ⁿ k]	/ne: ^ə g/	'idle'
	[n ^y e ^e ⁿ k]	/n ^y e: ^ə k/	'type plant'
	[b ^ə ne ^e]	/bane/	'wife'
	[nan ^y e ^e]	/nan ^y e:/	'ear'
	[^m banes ^g]	/ba:ne: ^ə g/	'will shoot'
	[pan ^y e: ^ə g]	/pan ^y e: ^ə g/	'crack firewood'

/n/ and /ŋ/	[natum] [ŋatum]	/na:tum/ /ŋa:tum/	'will light' 'generous'
	[nʌndə̚] [ŋʌndə̚ŋ]	/nado:/ /ŋa:də̚ŋ/	'he stayed' 'type tree'
	[xʌnʌ] [xʌŋʌ]	/rana/ /raŋa/	'they will go' 'he bit'
	[sanɔ̚m] [saŋɔ̚m]	/sa:nɔ̚m/ /sa:ŋɔ̚m/	'I will come back' 'type bamboo'
	[tʌtə̚n] [tʌtə̚ŋ]	/tato:n/ /tato:ŋ/	'frog -generic 'land' term'
	[ma:bɪn] [ma:bɪŋ]	/ma:bɪn/ /ma:bɪŋ/	'dream' 'type bird'
/n/ and /ŋʷ/	[məna] [məŋʷa]	/mana/ /məŋʷa/	'you two go' 'brother of girl'
	[ŋʷgʌnam] [kŋʷaŋʷak]	/gana:m/ /kaŋʷa:ŋ/	'you come' 'type bird'
	[ŋʷgʌnag] [mŋʷaŋʷak]	/gana:g/ /baŋʷa:ŋ/	'you go back' 'double banana'
/nʸ/ and /ŋʷ/	[manʸam] [məŋʷam]	/manʸa:m/ /məŋʷa:m/	'type tree' 'your brother (of girl)'

/n ^y / and /v/	[k ^{an^y} ɛ]	/ka:n ^y ɛ/	'mat'
	[k ^{aŋ} ɛ]	/ka:ŋɛ/	'exchange'
	[n ^{aŋ} ɛr̩ts]	/nan ^y ɛris/	'ear'
	[naŋɛr̩ts]	/na:ŋɛris/	'when'
	[^m baŋy ⁱ]	/ban ^y i/	'cover over'
	[^m baŋiy]	/ba:ŋiy/	'place name'
	[m ^{aŋ} am]	/man ^y a:m/	'type tree'
	[^θ aŋam]	/θaŋa:m/	'your brother (of girl)'

/g/ and /ɣ/	[g ^a bə:n]	/gaba:n/	'old plate'
	[^θ g ^a bə:n]	/gaba.n/	'clan name'
	[g ^o ɔ:n ^d ak]	/gɔ:ndak/	'snore'
	[^θ g ^o ɔ:n ^d ak]	/gɔ:ndak/	'steal'
	[θ ^a ŋ ^a]	/θaŋa/	'boy's sister'
	[w ^a ŋ ^a]	/waga/	'we two (incl.) eat'
	[r ^a ŋ ^a]	/raŋa/	'he bit'
	[m ^a ŋ ^a]	/maga/	'you two eat'
	[tuŋ [.]]	/tuŋ/	'owl'
	[tuŋ ^ŋ k]	/tug/	'offended'
	[m ^a ŋ [.]]	/man/	'woman's name'
	[m ^a ŋ ^ŋ k]	/mag/	'my father'

/ŋ/ and /gʷ/	[ŋε:y]	/ŋε:y/	'plenty'
	[ŋgʷε:y]	/gʷε:y/	'type yam'
	[ŋaŋgɪs]	/ŋaŋgis/	'ground'
	[ŋgʷa:ŋk]	/gʷa:g/	'type animal'
	[hŋa:θ]	/haŋa:θ/	'make poison'
	[m̥bʌŋgʷa:θ]	/bagʷa:θ/	'type vine'
	[wʌŋʌk]	/waŋak/	'his sister!'
	[ŋgʌŋgʷʌk]	/gagʷak/	'type wild cane'

/ŋ/ and /ɛ/	[ŋɛ:y]	/ŋɛ:y/	'plenty'
	[ɛɛ:y]	/ɛɛ:y/	'some'
	[ŋɔ:n̩dʌk]	/ŋɔ:n̩dak/	'snore'
	[ɛɔ:n̩dʌk]	/ɛɔ:n̩dak/	'stole'
	[tɛvɪv]	/tɛvɪv/	'sister of boy'
	[tɛvɛv]	/tɛvɛv/	'leg'
	[n̩džɪŋɪn]	/jɪŋɪn/	'ask'
	[n̩džɪŋɪn]	/jɪŋɪn/	'put in a stake'
	[tuŋ]	/tuŋ/	'owl'
	[tu:s̩g]	/tu:s̩g/	'rumbled'
	[řʌřaŋ]	/rara:ŋ/	'yam stake'
	[řʌřag̩]	/rara:g̩/	'they cut'

/ŋʷ/ and /gʷ/	[mʌŋʷʌ]	/məŋʷə/	'brother of girl'
	[mʌŋʷga]	/maga/	'you two eat'
	[mʌŋʷak]	/baŋʷa:k/	'double banana'
	[mʌŋʷgak]	/bagə:k/	'man's name'
	[kʌŋʷak]	/kaŋʷa:k/	'type bird'
	[nʌŋʷgay]	/daga:y/	'man's name'
/ŋʷ/ and /gʷ/	[mʌŋʷak]	/baŋʷa:k/	'double banana'
	[mʌŋʷgʷak]	/bagʷa:k/	'man's name'
	[kʌŋʷak]	/kaŋʷa:k/	'type bird'
	[mʌŋʷgʷab]	/bagʷa:b/	'type vine'
	[mʌŋʷʌ]	/məŋʷə/	'brother of girl'
	[ŋʷgʌŋʷak]	/gagʷak/	'type wild cane'
/ŋ/ and /ŋʷ/	[θʌŋ̩ʌ]	/θəŋ̩ə/	'sister of boy'
	[mʌŋ̩ʌ]	/məŋ̩ə/	'brother of girl'
	[nʌŋ̩ab]	/naŋ̩ə:b/	'make poison'
	[kʌŋ̩ak]	/kaŋ̩a:k/	'type bird'
	[rʌŋ̩ag]	/raŋ̩ə:g/	'dawn'
	[mʌŋ̩ak]	/baŋ̩a:k/	'double banana'

/r/ and /t/	[rɔ̄:m p]	/rɔ̄:b/	'bush fowl'
	[tɔ̄:m p]	/tɔ̄:b/	'cloth'
	[rɔ̄k]	/ruk/	'rain'
	[tuk]	/tuk/	'1st son'
	[pʌřas]	/para:s/	'poison'
	[pʌtas]	/pata:s/	'fat'
	[níbaře]	/ba:rε/	'stand'
	[níbate]	/ba:tε/	'throw'
	[tʌ̄mbōř]	/tabo:r/	'woman's name'
	[tʌ̄mbōt]	/tabo:t/	'type vegetable'
	[taboř]	/ta:bořr/	'table'
	[tabo:t]	/ta:bo:t/	'woman's name'
/r/ and /d/	[rɔ̄:m p]	/rɔ̄:b/	'bush fowl'
	[nídɔ̄:m p]	/dɔ̄:b/	'grass skirt'
	[rɔ̄:s]	/ru:s/	'went down'
	[nídu:s]	/du:s/	'will get down'
	[nígaru]	/garu/	'poke'
	[nígʌndu]	/gadu/	'carry on head'
	[níbiris]	/biris/	'how many'
	[níbidis]	/bidis/	'frightened'
	[kuř]	/kur/	'garden'
	[níku:t]	/kud/	'carry on shoulders'

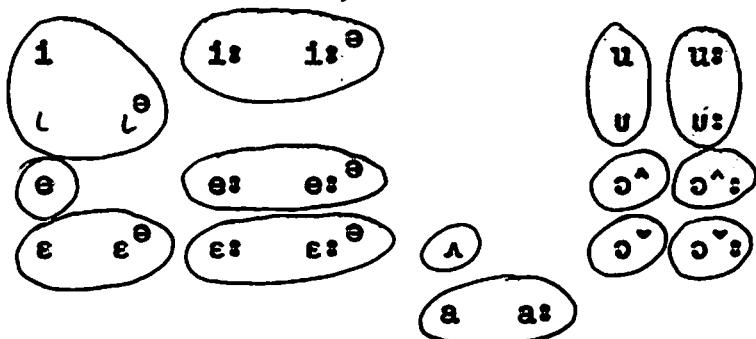
/r/ and /n/	[řa:m]	/ra:m/	'came'
	[na:m]	/na:m/	'come'
	[řuk]	/ruk/	'rain'
	[nuk]	/nuk/	'man's name'
	[ʷbaře:šg]	/ba:re:šg/	'pick (corn)'
	[ʷbane:šg]	/ba:ne:šg/	'shoot'
	[⁊go:řis]	/go:řis/	'accumulate'
	[⁊go:ňis]	/go:ňis/	'web'
	[ʷbeř]	/ber/	'water'
	[ʷben]	/ben/	'approval'
	[pir]	/pir/	'bean'
	[pin]	/pin/	'altogether'
/y/ and /s/	[yʌ]	/ya:/	'ate'
	[sʌ]	/sa:/	'I'
	[yu:šg]	/yu:šg/	'two'
	[su:šg]	/su:šg/	'ripe'
	[bʌyʌ]	/baya/	'something ate'
	[bʌsʌ]	/basa/	'right hand'
	[řayin]	/rayin/	'why did he go'
	[řasın]	/rasin/	'banana -generic term'
	[yiy]	/yiy/	'spear'
	[yis]	/yis/	'hit'
	[řey]	/rey/	'4th son'
	[řes]	/res/	'place name'

/y/ and /ɛ/	[ya:r̩]	/ya:r/	'three'
	[ɛ:a:r̩]	/ɛ:a:r/	'spun'
	[yo:w]	/yo:w/	'different'
	[ɛo:w]	/ɛo:w/	'we two (incl.)'
	[^m bʌyurak̩]	/bayurak/	'blister'
	[^m bʌgurak̩]	/bagurak/	'man's name'
	[rʌjəyak̩]	/raja:yak/	'they squealed'
	[rʌjəgak̩]	/raja:gak/	'dawn'
	[bʌrɔ:iy]	/ba:rɔ:iy/	'white'
	[bʌrɔ:iç]	/ba:rɔ:iç/	'planted'
	[ga:y]	/ga:y/	'we two (excl.)'
	[ga:g]	/ga:g/	'wood'

/y/ and /n ^y /	[yey]	/ye:y/	'shook'
	[n ^y ey]	/n ^y ey/	'snake - generic term'
	[yesin]	/yesin/	'again'
	[n ^y esaris]	/n ^y esaris/	'fringe'
	[payes]	/payes/	'sore'
	[pan ^y es]	/pan ^y es/	'mud'
	[^ŋ gaye: ^ŋ g]	/ga:yeg/	'boil'
	[^ŋ gan ^y e: ^ŋ g]	/ga:n ^y eg/	'cicada'
	[^m bʌyus:g]	/bayus:g/	'bend'
	[^m ban ^y us:g]	/ban ^y us:g/	'get warm by'
	[^m bʌyiy]	/bayiy/	'insect'
	[^m ban ^y i]	/ban ^y i/	'cover over'

5.2. Vowels.

5.2.1. Work Chart.



5.2.2. Description.

- | | |
|-------------------|--|
| /i/ [i] | A high close front unrounded vocoid which occurs word medially before /y/ and finally, and in all occurrences of /i:/ except before backed velar contoids. |
| | [niyin] /niyin/ 'thorn' |
| [i ^ə] | A high close front unrounded vocoid with shewa glide which occurs only in its lengthened form before backed velar contoids. |
| | [si: ^ə g] /si:g/ 'type grass' |
| [ɛ ^ə] | A high open front unrounded vocoid with shewa glide which occurs before backed velar contoids. |
| | [ɛbɛ ^ə k] /bik/ 'pig' |
| [ɛ] | A high open front unrounded vocoid which occurs word medially in all other environments. |
| | [pi:p] /pip/ 'squeezed' |

/e/ ⁷	[e]	A mid close front unrounded vocoid which occurs word medially except before backed velar contoids.
	[e ^θ]	[ŋ ^w -ey.] /ŋ ^w ey/ '3rd son'
/e/	[ɛ]	A mid close front unrounded vocoid which occurs word medially before backed velar contoids. It has only been found to occur in its lengthened form.
	[ɛ ^θ]	[n̩dʒapeθg] /japeθg/ 'flick with stick'
/e/	[ə]	A mid open front unrounded vocoid which occurs word medially and finally except before backed velar contoids.
	[ə ^θ]	[rute] /rute/ 'brain'
/a/	[ʌ]	A mid open front unrounded vocoid which occurs word medially before backed velar contoids.
	[ʌ ^θ]	[pan ^y ɛ ^θ k] /pan ^y ɛ ^θ k/ 'rotten'
/a/	[a]	A low close central unrounded vocoid, which occurs word initially medially and finally.
	[a ^θ]	[tapa] /tapa/ 'dry out'
	[a]	A low open central unrounded vocoid which occurs word initially and medially only in occurrences of /a:/, whereas its lengthened form occurs only in monosyllabic words. However [a] tends to sound longer in final stressed syllables.
	[a ^θ]	[kapay] /ka:pə:y/ 'crocodile'
/ɔ̄/	[ɔ̄ ^θ]	A low slightly open back rounded vocoid which occurs word medially and finally.
	[tato ^θ]	[ta:tɔ̄θy] /ta:tɔ̄θy/ 'show'

/ɔ^/ ⁷	[ɔ^]	A mid open back rounded vocoid occurs word medially.
	[n̩džʌbə^g]	/jabə^g/ 'join'
/u/	[u]	A high close back rounded vocoid tends to occur word medially and finally between or after alveolar and alveopalatal contoids.
	[tʌsuř]	/tasur/ 'knot'
	[v]	A high open back rounded vocoid which occurs word initially and medially except between alveolar and alveopalatal contoids.
	[řumʌŋ]	/ruməŋ/ 'spilt'

5.2.3. Contrasts of Vowel Phonemes.

/i/ and /i:/	[n̩dži:p]	/jip/ 'forget it'
	[n̩dži:p̩]	/ji:p/ 'type tree'
	[sařipin]	/saripin/ 'pattern'
	[saři:p̩in]	/sari:p̩in/ 'drag along'
	[n̩džib]	/jib/ 'put on (grass skirt)
	[n̩dži:b̩]	/ji:b̩/ 'heal'
	[ŋgʷin]	/gʷin/ 'type fungus'
	[ŋgʷi:n̩]	/gʷi:n̩/ 'claw'
	[bi:bis]	/bibis/ 'blanket'
	[ni:bis]	/nibis/ 'type yam'
	[kamir]	/ka:mir/ 'type yam'
	[n̩džami:r̩]	/ja:mir/ 'lick'

/i/ and /e/ No contrasts have been found.⁷

/i/ and /e:/	[^m bɪ ^e k]	/bik/	'pig'
	[^m bɛ ^e k]	/be:k/	'coconut'
	[nəbɪr]	/nəbir/	'winding (skein)'
	[nəbɛ:r]	/nəbɛ:r/	'falling over'
	[rəbɪs]	/ra:bis/	'pig's tusks'
	[rəbɛ:s]	/ra:bɛ:s/	'woman's name'
	[nɪpaya]	/nipaya/	'bad'
	[ne:paya]	/ne:paya/	'spoke badly'
	[yɪn]	/yin/	'why'
	[ye:n]	/ye:n/	'son-in-law'
	[sɪp]	/sip/	'barred teeth'
	[se:p]	/se:p/	'stretched'
/i:/ and /e/	[^m bɪ:y]	/bi:y/	'spear'
	[^m bey]	/bey/	'who can tell'
	[pa ^g i ^g y]	/pa:gi:y/	'type fungus'
	[^g Wey]	/g ^W ey/	'3rd son'

/i:/ and /e:/	[yi:b]	/yi:b/	'healed'
	[ye:b]	/ye:b/	'chief'
	[yi:r̩]	/yi:r/	'shed skin'
	[ye:r̩]	/ye:r/	'plucked'
	[yi:y]	/yi:y/	'spear'
	[ye:y]	/ye:y/	'shook'
	[rʌsi:g̩]	/lasi:g/	'he went to get grass'
	[rʌse:g̩]	/lase:g/	'swept'
	[yi:s]	/yi:s/	'hit'
	[ye:s]	/ye:s/	'went up a ridge'
	[si:y]	/si:y/	'ringbark'
	[se:y]	/se:y/	'weaving'
/e/ and /e:/	[m̩bey]	/bey/	'who can tell'
	[m̩ba:m̩be:y]	/ba:be:y/	'woman's name'
	[gey]	/gey/	'we (pl.) excl.'
	[se:y]	/se:y/	'wove'
/e/ and /ɛ/	No contrasts have been found.		

/e/ and /ɛ:/	[^m bey]	/bey/	'who can tell'
	[^m be ^y]	/be ^y /	'bow string'
	[ⁿ g ^W ey]	/g ^W ey/	'3rd son'
	[ⁿ g ^W ɛ:y]	/g ^W ɛ:y/	'type yam'
	[gey]	/gey/	'we (pl.) excl.'
	[gɛ:y]	/gɛ:y/	'some'

/e:/ and /ɛ/	[^m be ^r]	/be ^r /	'uproot'
	[^m ber]	/ber/	'water'
	[se:n]	/se:n/	'breath'
	[sen]	/sen/	'this'
	[kape: ^ə k]	/ka:pe:k/	'dried banana leaf'
	[kape ^ə k]	/kapək/	'type bird'
	[sa:pə:p]	/sa:pə:p/	'stretch'
	[sapəp]	/sapəp/	'easy'
	[be: ^ə g]	/be: ^ə g/	'woman'
	[be ^ə g]	/be ^ə g/	'woman's name'
	[^{r,ʌ} ge:n]	/lage:n/	'he went today'
	[na ^ŋ gen]	/na:gen/	'hibiscus'

/e:/ and /ɛ:/	[ke:ṛ]	/ke:r/	'scratched'
	[kɛ:ṛ]	/kɛ:r/	'stepped over'
	[mbe:ṛk]	/be:k/	'coconut'
	[mbɛ:ṛk]	/bɛ:k/	'fish'
	[mase:ṛŋ]	/ma:se:ŋ/	'type animal'
	[mase:ṛŋ]	/mase:ŋ/	'bachelor'
	[n̩dže:y]	/je:y/	'shake'
	[n̩džɛ:y]	/jɛ:y/	'tomorrow'

/ɛ/ and /e:/	[ken]	/ken/	'man's name'
	[kɛ:n]	/kɛ:n/	'true'
	[ṛape:b]	/ra:pəb/	'cut loose'
	[ṛape:b]	/rape:b/	'they carried piggyback'
	[m̩bes]	/bes/	'fall off'
	[m̩be:s]	/be:s/	'wings'
	[keṛin]	/kerin/	'scraped'
	[kɛ:ṛin]	/kɛ:rin/	'underneath'

/ɛ/ and /a/	[θɛ]	/θɛ/	'seeds'
	[θʌ]	/θə/	'what'
	[mɛ]	/mɛ/	'or'
	[mʌ]	/mə/	'no'
	[kɛ]	/kɛ/	'yes'
	[kʌ]	/kə/	'neck'
	[sʌke ^{əŋ} k]	/sakeg/	'our/my arm'
	[sʌkʌ ^ŋ k]	/sakag/	'my neck'
	[mʌře]	/mare/	'type banana'
	[mʌřʌ]	/mara/	'it's gone'

/ɛ:/ and /a/	[pɛ:b]	/pɛ:b/	'carried piggy-
	[pʌbʌ]	/paþa/	'dry ^{back} put'
	[sɛ:řin]	/sɛ:řin/	'dragged along'
	[sʌřʌ]	/sara/	'I went'
	[kɛ:ř]	/kɛ:ř/	'step across'
	[kʌřɔ:]	/karɔ:/	'shake up and down'
	[mɛ:p]	/mɛ:p/	'famine'
	[mʌp]	/map/	'type tree'
	[sʌpe:k]	/sape:k/	'type grasshopper'
	[sʌpʌk]	/sapak/	'I took fright'

/a/ and /a:/	[pak]	/pak/	'frightened'
	[pa:k]	/pa:k/	'thin'
	[nasu]	/nasu/	'crying'
	[nasu]	/na:su/	'weaving'
	[^ŋ gařo^:g]	/garo^:g/	'you held'
	[^ŋ gařo^:g]	/ga:ro^:g/	'type frog'
	[řasap]	/rasap/	'they cut'
	[řasap]	/ra:sap/	'steam'
	[^ŋ gʌn̩dař]	/gadar/	'type banana'
	[^ŋ gʌn̩dař]	/gada:r/	'you spin'
	[^ŋ gawak]	/gawak/	'type wild cane'
	[^ŋ gawak]	/gawa:k/	'woman's name'
/ə/ and /ɔ^/	[karaj]	/karay/	'thunder'
	[karo^y]	/karo^y/	'box'
	[pak]	/pak/	'frightened'
	[po^k]	/po^k/	'crack'
	[sařa]	/sara/	'I went'
	[sařɔ^]	/sarɔ/^/	'search for'
	[řa]	/ra/	'went'
	[řɔ^]	/řɔ^/	'inside'
	[map]	/map/	'type tree'
	[mo^p]	/mo^p/	'road'
	[řařk]	/rag/	'type yam'
	[řɔřk]	/řɔřg/	'our insides'

/a/ and /ə̄:/	[ə̄nə]	/ə̄nə/	'wife'
	[ə̄c̄:n]	/ə̄c̄:n/	'outside'
	[mʌ̄k]	/mag/	'my father'
	[nɔ̄:θ̄k]	/nɔ̄:g/	'my child'
	[bʌ̄wəb̄]	/bawab̄/	'ashes'
	[bɔ̄:w̄]	/bɔ̄:w/	'dog'
/a:/ and /ə̄̄:/	[na:m]	/na:m/	'come'
	[nɔ̄̄m]	/nɔ̄̄m/	'come back'
	[tʌ̄̄bat̄]	/taba:t̄/	'sole'
	[tʌ̄̄bo:t̄]	/tabo:t̄/	'type vegetable'
	[ŋ̄ga:p̄]	/ga:p̄/	'large boil'
	[ŋ̄go:p̄]	/go:p̄/	'girl's name'
	[kʷa:s̄ŋ̄]	/kʷa:s̄ŋ̄/	'type grass'
	[kɔ̄̄ŋ̄]	/kɔ̄̄ŋ̄/	'drum'
	[pa:k̄]	/pa:k̄/	'thin'
	[pɔ̄̄k̄]	/pɔ̄̄k̄/	'crack'
	[m̄ba:r̄]	/ba:r̄/	'flood'
	[m̄bo:r̄]	/bo:r̄/	'man's name'

/a:/ and /ɔ̄:/	[na:m] [nɔ̄:m]	/na:m/ /nɔ̄:m/	'come back' 'your child'
	[ba:b] [bɔ̄:b]	/ba:b/ /bɔ̄:b/	'lit fire' 'dog'
	[ga:b] [gɔ̄:b]	/ga:b/ /gɔ̄:b/	'built' 'we two (incl.)'

/ɔ̄/ and /ō:/	[nō:m] [nɔ̄:m]	/nɔ̄:m/ /nɔ̄:m/	'come back' 'your child'
	[gō:ŋ] [gɔ̄:ŋ]	/gō:ŋ/ /gɔ̄:ŋ/	'you (s.)' 'down'
	[nō:ŋk] [nɔ̄:ŋk]	/nɔ̄:ŋ/ /nɔ̄:ŋ/	'type vine' 'my child'
	[sō:ŋ] [sɔ̄:ŋ]	/sō:ŋ/ /sɔ̄:ŋ/	'hole' 'only me'
	[mekō:ŋk] [rukō:ŋk]	/mekō:ŋk/ /rukō:ŋk/	'man's name' 'head'

/ɔ̄/ and /ō/ No contrasts have been found.

/ɔ̄/ and /ɔ̄:/	[tʌ̄bə̄r̄]	/tabə̄r̄/	'woman's name'
	[tʌ̄bə̄:r̄]	/tabə̄:r̄/	'man's name'
	[rɔ̄s̄]	/rɔ̄s̄/	'went along'
	[rɔ̄:s̄]	/rɔ̄:s̄/	'held'
	[nagōb̄]	/na:gōb̄/	'man's name'
	[nagō:b̄]	/nagō:b̄/	'cutting loose'
	[katōŋ̄]	/ka:tɔ̄ŋ̄/	'woman's name'
	[katō:ŋ̄]	/ka:tɔ̄:ŋ̄/	'man's name'
	[tɔ̄ŋ̄]	/tɔ̄ŋ̄/	'bearers'
	[tɔ̄:ŋ̄]	/tɔ̄:ŋ̄/	'road block'
	[tatōn̄]	/tatōn̄/	'frog - generic'
	[patō:n̄]	/pa:tɔ̄:n̄/	'walking stick' <small>term'</small>

/ɔ̄:/ and /ɔ̄/ No contrasts have been found.

/ɔ̄:/ and /ɔ̄:/	[kɔ̄:k̄]	/kɔ̄:k̄/	'bone'
	[kɔ̄:k̄]	/kɔ̄:k̄/	'message'
	[gɔ̄:w̄]	/gɔ̄:w̄/	'we two inc.'
	[gɔ̄:b̄]	/gɔ̄:b̄/	'7th daughter'

/ɔ̄/ and /ɔ̄:/	[n̄džr̄b̄ēs̄]	/ja:b̄ō:ḡ/	'join'
	[m̄b̄v̄m̄b̄ē:s̄]	/bab̄ō:s̄/	'type yam'

/ɔ^/ and /u/	[ⁿ džʌbɔ^g] [mařug]	/jabɔ^g/ /ma:rug/	'join' 'type yam'
/ɔ^/ and /u:/	[ⁿ džʌbɔ^g] [ⁿ gʌbʊ:g]	/jabɔ^g/ /gabʊ:g/	'join' 'leave behind'
/o^:/ and /u/	[go^:b] [gu:b]	/go^:b/ /gu:b/	'7th daughter' 'type pandanus'
	[ⁿ dɔ^:m p] [ⁿ du:m p]	/dɔ^:b/ /dub/	'grass skirt' 'school'
	[ⁿ gɔ^:ř̥s] [ⁿ guř̥s]	/go^:ris/ /guris/	'accumulate' 'follow upstream'
	[^m bɔ^:m] [^m bum]	/bo^:m/ /bum/	'type bird' 'ridgepole'
	[kɔ^:m p] [ku:m p]	/ko^:b/ /kub/	'danced' 'type yam'

/ə:/ and /u:/	[kə:k]	/kə:k/	'message'
	[ku:k]	/ku:k/	'type bird'
	[kə:g]	/kə:g/	'shade'
	[ku:g]	/ku:g/	'cold'
	[pato:n]	/pa:tə:n/	'walking stick'
	[patu:n]	/patu:n/	'new shoot'
	[^m bə:m]	/bə:m/	'type bird'
	[^m bu:m]	/bu:m/	'type pandanus'
	[mo:g]	/mo:g/	'1st daughter'
	[mu:g]	/mu:g/	'you two'
	[ⁿ do:g]	/do:g/	'thatched'
	[ⁿ du:g]	/du:g/	'sewed'
/u/ and /u:/	[tu:k]	/tug/	'sulked'
	[tu: ⁿ k]	/tu:g/	'eagle'
	[sup]	/sup/	'gather'
	[su:p]	/su:p/	'rat's noise'
	[mu:n]	/mu:n/	'rat'
	[mu:n]	/mu:n/	'precede'
	[ⁿ guk]	/guk/	'snort'
	[ⁿ gu:k]	/gu:k/	'type frog'
	[^m bus]	/bus/	'dark'
	[^m bu:s]	/bu:s/	'cane shoot'
	[bu:n]	/bu:n/	'hid'
	[bu:n]	/bu:n/	'greens'

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5.3. Supra-segmental Items.

5.3.1. Length is phonemic on all vowels.

5.3.2. Intonation. The following intonation patterns have been observed:

(a) Question:

- | | | |
|------|--|------------------------------|
| (i) | [<u>ɔ̄gʌ̄d̄ɔ̄</u>] | 'Did you hear?' |
| | [<u>nʌ̄nd̄ō</u>] | 'Is he here?' |
| | [<u>nʌ̄yā řā^mbō^mŋ̄</u>] | 'Is he eating sweet potato?' |
| | [<u>mē</u>] | 'Really?' |
| (ii) | [<u>ɔ̄nʌ̄gʌ̄ b̄d̄</u>] | 'What are you eating?' |
| | [<u>nʌ̄r̄ā t̄n̄ā</u>] | 'Where is he going?' |

(b) Answer:

(i) Positive

- | | |
|--|------------------------------|
| [<u>sʌ̄gʌ̄d̄ā</u>] | 'I heard.' |
| [<u>nʌ̄nd̄ō</u>] | 'He is here.' |
| [<u>nʌ̄yā řā^mbō^mŋ̄</u>] | 'He is eating sweet potato.' |
| [<u>n̄d̄ē</u>] | 'Yes.' |

(ii) Negative

- | | |
|-------------------------------|------------------|
| [<u>sʌ̄mʌ̄gʌ̄d̄ō ſ̄ē</u>] | 'I didn't hear.' |
| [<u>mʌ̄n̄d̄ō ſ̄ē</u>] | 'He isn't here.' |
| [<u>m̄b̄ay / m̄b̄eyō</u>] | 'Who can tell?' |

(iii) Statement

- [sʌnʌgʌ ū̥əb̥eɪ̥n̥] 'I'm eating sweet potato.'
- [nʌrʌ gəgʌrə] 'He's going to the forest.'
- [fʌ bʌseɪ̥n̥] 'He went yesterday.'
- [fʌ mʌməŋ bʌseɪ̥n̥] 'He went to Mumeng yesterday.'
- [fʌ bʌseɪ̥n̥ ʌ̥y̥ə] 'He went the day before yesterday.'
- [fʌ ɡɔ̥k kʌbutoɔ̥b̥] 'He went on Friday.'

(c) Commands:

- [ɔ̥gʌkɔ̥ nəs̥m̥] 'You bring it!'
- [ɔ̥kʌn̥d̥l̥] 'You get up!'
- [ɔ̥gʌn̥d̥] 'You go!'

This is distinguished from a statement by context or intensity rather than by intonation.

6. Non-contrastive Features.

Stress.

No contrastive stress pairs have been found and stress is nowhere very forceful. There is a tendency to last and third to last stress in all words, with the following exceptions. In the following paragraphs, /V/ refers to any vowel except /a/, and /V:/ refers to any lengthened vowel except /a:/.⁸

- (a) Two syllable words have first stress when
- the first syllable contains /V/, /V:/ or /a:/ and the second syllable is open,
 - there is /V:/ in the first syllable but not in the final closed syllable.

Examples:

/nini/	[n̩iːni]	'wriggling'
/beːrə/	[b̩eːrə]	'first'
/taːya/	[t̩ayə]	'settle'
/goːdak/	[g̩oːd̩ak]	'steal'
/sapə/	[s̩apə]	'follow'
/rurak/	[ru'ruːk]	'needle'

- (b) Monosyllabic morphemes suffixed to two syllable words are always stressed and perturb second stress to first except where the second syllable contains /V:/.

Examples:

[ʌ'ge]	'stomach, insides'	[m̩baːn]	'home'
[ʌge'm̩baːn]	'scar'		
[n̩i'ruːk]	'sick'	[-.in]	'nominalizer'
[n̩i'ruːk'in]	'sickness'		
[ta'beːt]	'scrub'	[r̩oː]	'Inside'
[ta'beːtə'r̩oː]	'among the scrub'		

- (c) In three syllable words the second syllable is stressed when it contains /a:/ compared with /ə/ in another syllable, or /V:/ compared with /V/ or /a/ in another syllable. The final or first syllable also remains stressed if it contains /V:/ or /a:/.

Examples:

/dara:dis/	[ⁿ dʌ ^ə 'rɑ ⁿ dɪs]	'type tree'
/badi:sin/	[^b ʌ' ⁿ dɪ:sɪn]	'middle of the day'
/de:si:gis/	[ⁿ dɛ:sɪ: ^ə gɪs]	'earthenware pot'

- (d) In four syllable words, a first syllable containing (/V:/ or) /a:/ is stressed in preference to second syllable containing /V/ or /a/.

Examples:

/ga:do ^m bari:g/	[ⁱ g ^a nd ^m bʌ ^ə ri: ^ə g]	'type insect'
/kap ^m ka:gu/	[k ^ə p ^m k ^ə g ^u]	'turtle'

- (e) Exceptions to these rules include two words which are stressed on syllables commencing with /j/, and the following words for which there is no obvious explanation.

/na:bunabu/	[ⁿ æbʊ'na:bʊ]	'itchy'
/ma:rikani/	[^m ɑ: ^ə 'k ^m anɪ]	'place name'
/pasidaka/	[^p as ^m , ⁿ d ^m ak ^m a]	'ver small'
	([p ^ə 's ^m] [ⁿ d ^ə 'k ^m a])	'small' 'little'
/bagabaga/	[^b ʌg ^m ab ^m ag ^m a]	'different kinds'
	([b ^ə 'g ^m a])	'leg'

/agedaga/	['ʌgə 'n̩dʌŋgʌ]	'underneath'
	([ʌ'ge] 'stomach' [n̩dʌ'ŋgʌ] 'base')	
/takʷεyak/	[tʌ'kʷεyʌk]	'white stone'

7. Distribution.

7.1. General.

The basis for distribution is taken as the syllable, comprising a nucleus of one vowel, with optional onset or terminus, or both. The following four types of syllables may occur:

V	/a.taak/	'my mother'
CV	/na/	'he goes'
VC	/od/	'conjunction'
CVC	/tap/	'broken'

Based on these four patterns, words of up to five syllables may occur. However only one five syllable word has been recorded, and the few four syllable words are mainly compound words. The following are some examples:

V.CV	/a.ngɔ:/	'another'
V.CVC	/a.ta:k/	'my mother'
CV.CV	/ba:.rɛ/	'stand'
CV.CVC	/ba.gak/	'butterfly'

V.CV.CV	/a.gε.sa/	'shavings'
V.CV.CVC	/a.gε.ba:n/	'scar'
CV.CV.CV	/ni.ka.gi/	'sap'
CV.CV.CVC	/ba:.gε:.sak/	'shoulder'
CV.CVC.VC	/ni.rɔ:p.in/	'slippery'
CVC.V.CV	/bo:p.a:.ta/	'big'
CVC.V.CVC	/mo:p.a:.to:b/	'(big) road'
V.CV.CV.CVC	/a.gε.ka.rin/	'angry'
V.CVC.V.CVC	/a.gus.a:.bin/	'earwig'
CV.CV.CV.CVC	/g ^w ε.ka.ri.bak/	'type adze'
CV.CV.CVC.VC	/ga.ɸɔ:y.yaq.in/	'to chuck under chin'
CV.CVC.V.CV	/ka.po:k.a:.gu/	'turtle'
CV.CVC.V.CVC	/ta:.be:t.a:.ris/	'weed leaf'
CV.CV.CVC.V.CV	/ka:.ke:rak.a.ni/	'place name'

7.2. Specific.

Syllables do not combine to form consonant clusters or vowel clusters within words. Certain consonant vowel and vowel consonant sequences have not been observed, many probably through lack of data.

However, the consonant phonemes /n^y/, /k^w/, /g^w/ and /ɸ^w/ are not common, and are limited mainly to occurrences with front and mid vowels. The consonant phoneme /w/ and vowel phonemes /e/ and /ɔ:/ in their non-lengthened form are also fairly uncommon.

7.2.1. Vowels.

Only /a/ /a:/ /ə/ /ɔ̄/ and /u/ have been found to occur in V syllable types.

Examples:

/a.ta:k/	'my mother'
/a:.mag/	'my father'
/jɛ:y.ə/	'tomorrow first'
/ɔ̄.ma:.gō-/	'person'
/u.nɔ̄.pa.sib/	'boy'

Only /a/ /i/ and /ɔ̄/ have been observed in the V slot of VC types.

Examples:

/jey.ak/	'shake, wobble'
/bus.in/	'night'
/ɔ̄d/	'conjunction'

All vowels may occur in the V slot of CV (except /ɔ̄/) and CVC syllable types.

7.2.2. Consonants.

All consonants may occur at the onset of a syllable. However /n^y/ /k^w/ /g^w/ and /ŋ^w/ may not occur at the terminus of a syllable, although all other consonants may do so.

Examples:

/na.n ^y ɛ/	'ear'
/ka:.k ^w i:y/	'type bird'
/ga.g ^w ak/	'type wild cane'
/ni.ŋ ^w e:ŋ/	'green'

8. Orthography.

8.1. Proposed Orthography.

/p/	[p]	p
/b/	[^m p] [^m b]	b
/t/	[t]	t
/d/	[ⁿ t] [ⁿ d]	d
/k/	[k]	k
/kʷ/	[kʷ]	kw
/g/	[ⁿ k] [ⁿ g]	g
/gʷ/	[ⁿ gʷ]	gw
/b/	[b]	v
/s/	[ts] [tš] [s]	s
/ʃ/	[ⁿ tš] [ⁿ dž]	j
/ç/	[ç]	h
/m/	[m]	m
/n/	[n]	n
/nʸ/	[nʸ]	ny
/ɳ/	[ɳ]	ng
/ɳʷ/	[ɳʷ]	ngw
/r/	[ř]	r
/w/	[w]	w
/y/	[y] [y]	y
	+	

/i/	[i] [i ^ə] [ɪ] [ɪ ^ə]	i
/i:/	[i:] [i: ^ə] [ɪ:] [ɪ: ^ə]	ii
/e/	[e] [e ^ə]	ɛ
/e:/	[e:] [e: ^ə]	ɛɛ
/ɛ/	[ɛ] [ɛ ^ə]	e
/ɛ:/	[ɛ:] [ɛ: ^ə]	ee
/a/	[ʌ]	a
/a:/	[a] [a:]	aa
/u/	[u] [ʊ]	u
/u:/	[u:] [ʊ:]	uu
/ɔ^/	[ɔ^]	ə
/ɔ^:/	[ɔ^:]	əə
/ɔ~/	[ɔ~]	o
/ɔ~/:	[ɔ~:]	oo

8.2. English Words as Pronounced by the Vernacular Speakers

bridge	/baris/
shovel	/sabɔ^r/
coffee	/ko^pi/
raincoat	/ko^taren/
white woman	/masis/
blue	/nibu/
boat	/bo^t/
pan	/pa:nə/
four engine	/po^:jin/
motor bike	/mo^tapa/
hammer	/a:ma/
cabbage	/ka:pis/

8.3. Sample Text.

kⁿda(n) kⁿ m^mbe gatun. džuŋ ⁿ ^a to ^mde^ek ^a
 kadan kin be gatung. jung todek
 split firewood and put. enough then

rana kato^h (b) ga:s. r^mba(b) kⁿ
 rana katōv gaas. rabaav kin
 they go cut salt cane. they light firewood

dⁿukana to ^mde^ek ^a mo natum n^mde rana
 dukana todek monaatum de rana
 down inside then cont. lights so they go

kato^h (b) ga:s. m^mbe gatun dⁿakana kⁿ
 katōv gaas. be gatung jakana kin
 cut salt cane. and put up goes fire

ruk^o:k m^mbe yo mo na dža. yo mo na dža
 rukook be yomonaja. yomonaja
 top and itself cont. eats. itself cont. eats

m^mbe džuŋ na. to ^mde^ek ^a rana(g) m^mba^hup
 be jung na. todek ranaah barup
 and enough goes. then they go come up
 back

to ^mbe s^h(r) kake:r. m^mbe r^mdžu(r) n^mdi:yas
 tobe sir kaakēr. be rajur diiyaris
 then they gather. and they pull wild breadfruit
 down leaves

to ^mbe s^h(r) kake:r m^mbe basu dⁿukana
 tobe sir kaakēr be baasu dukana
 then they gather and put into down inside

bages. n̄džuŋ na to "n̄de ək si(r̄) ŋ̄gası.
 vaahes. jung na todeks sir gası.
 string bag. enough goes then they hang up.

to "n̄de si(r̄) ūbi:ŋ̄(n) na"be "bařo" to "m̄be
 tode sir rabiingin naabe baaro tobe
 then they want thus soak then

r̄ana ŋ̄gako" "ber. si(r̄) kava "ber
 rana gako ber. sir kava ber
 they go get water. they carry water

to "m̄be ūgo":(r̄) ŋ̄ga:s ŋ̄gatunq n̄dukana n̄de:əŋ̄k
 tobe ragôr gaas gatung dukana dêeg
 then take out salt put down inside saucepan

to "kin to". to "m̄(p) ūbu "ber
 tokin to. tob rabu ber
 holed you see. then they pour water

n̄dukana n̄de nato:k me n̄m̄be
 dukana de naatok me nabe
 down into so it falls appearance like this

sen ūip ti:y n̄dukana n̄de:əŋ̄k. to "n̄de
 sen rip tiiy dukana dêeg. tode
 this leaf tea down into saucepan. then

"bařo" to "n̄de mem natu "ber
 baaro tode mem naatu ber
 it soaks then so it becomes water

to'mem	sɪ(r̥)	ŋgʌyeʃ̥	ndukʌnʌ	nde:əŋk
tomem	sir	gayəh	dukana	dəəg
so all right	they	boil	down into	saucepan

mbe	mem	ndo:mbarə	ndži:bū	rō:t	to'mem
be	mem	dibaare	jivu	rō:t	tomem
and	so	inside stand	boils	very	so all right

natu	ŋga:s.
naatu	gaas.
it becomes	salt.

Free Translation:

She splits firewood and puts it down. When that is done they go and cut salt cane. They light a fire and it starts burning, so they go and cut salt cane. Then she puts (salt cane) up on top of the fire and the fire starts burning it up. It keeps on burning it up until it is done enough. Then they come back and gather (the salt ash). They pull down wild breadfruit tree leaves and then they gather up (the salt ash in the leaves) and put it inside a string bag. When that is done they hang it up. Then they want to soak it so they go and get water. They carry water then they take out the salt ash and put it into a saucepan with holes. Then they pour water into it so that it drips through and looks like tea in the saucepan (underneath). So then it soaks and it becomes fluid. They boil it in a saucepan and it keeps on boiling for a long time and eventually becomes salt.

FOOTNOTES

1. Many of the Buang people are now living either permanently or semi-permanently at various places of employment, especially the main coastal towns.
2. When [mu:g] 'you two' is the subject of a verb with more than one syllable it is abbreviated and forms a consonant sequence with syllabic [m]

Examples:

[na ⁿ do ^m]	'he stayed'
[mn ⁿ do ^m]	'you two stayed'
[ka ⁿ bu]	'he writes'
[mk ⁿ bu]	'you two write'

3. When [mu:g] is the subject of a monosyllabic verb it tends to be abbreviated to [m^V] with a transition vowel [ʌ] connecting it with the verb stem.

Examples:

[ŋuṛ]	'he ate (sugar cane)'
[m ^V ŋuṛ]	'you two ate (sugar cane)'
[sap]	'he cut'
[m ^V asap]	'you two cut'

4. The labialized backed velar stops and nasal appear to be phonemic with some speakers, but vary freely with their non-labialized counterparts with other speakers.

5. The word [n^yts] is a common abbreviated form of [n^yi:s] 'he will hit'
6. Lengthened vowels do not occur word finally.
7. The phonemes /e/ and /ɔ^/ are very rare in their non-lengthened form.
8. It is hoped that further investigation will lead to a simpler explanation for the occurrences of stress.