YESSAN - MAYO PHONEMES

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by
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1. INTRODUCTION

This paper is a statement of the phonemes of the Yessan-Mayo language.

This language is spoken by approximately 1000 speakers who live in the Ambunti sub-province of the East Sepik Province, Papua New Guinea.

There are two major dialects: one spoken by approximately 600 people living on or near the Sepik River, 20 to 30 miles upriver from Ambunti; the other dialect is spoken by 400 speakers who live north and west of the river dialect in the flat forest area. This paper is based on the river dialect.

Two previous papers were written; one in June 1963 and one in November 1975. This present paper presents a new analyses of the vowels and the labialized bilabial consonants. A new consonant phoneme /r/ is also described.

Research into the Yessan-Mayo language was first begun in May 1962.

Various language helpers have been used over the years, all of whom have contributed directly or indirectly to the analysis of the phonemic system of the language. Most of these helpers have been fluent speakers of Pidgin and a few have been English speakers. All have come from the river dialect.

We wish to express our thanks to Miss Eunice Pike, Miss Dorothy James, and Miss Ann Cochran, all of the Summer Institute of Linguistics, for the help they gave.

2. CHART OF PHONEMES

2.1 CHART OF PHONEMIC NORMS

CONSONANTS	Bilabial	Alveolar	<u>Velar</u>
Stops, Non-Labialized			
Voiceless		t	k
Voiced	m b	n d	ng
Stops, Labialized			
Voiceless			$\mathbf{k}_{\mathbf{M}}$
Voiced	wpn		$n_{\sf gW}$
Fricative	P	s	h
Fricative, Labialized	₽₩		
Nasals	m	n	
Nasal, Labialized	mW		
Lateral.		1	
Vibrant		ř	
Retroflexed Continuant		ŗ	
Semi-Vowel	W	ÿ	
VOWELS			Post-
	Front	<u>Central</u>	Back
High		Salah Marin Merupikan Kabupaten Marin Marin Ma Marin Marin M	u
Mid - Close	e ,		
- Open		A	
Low		а	0

2.2 DESCRIPTION OF CONTRASTIVE FEATURES

- 2.2.1 CONSONANTS. Consonants are divided into bilabial, alveolar, and velar on the basis of point of articulation. Consonants contrast in manner of articulation as to stops, fricatives, nasals, lateral, vibrant, continuant, and semi-vowels. Stops contrast as to labialized and non-labialized and voiceless and voiced. Bilabial fricative and nasal contrast as to labialized.
- 2.2.2 VOWELS. Vowels contrast in point of articulation as to high, mid, and low. High vowels contrast as to front and back. Mid front vowels contrast as to close and open and as to front and central. Low vowels contrast as to central and back.

3. INTERPRETATION

3.1 STATUS OF ITEMS WHICH MAY BE EITHER CONSONANT OR VOWEL

3.1.1 The vocoids (i), (u), (e), and (o) are interpreted as portmanteau realizations of the phoneme sequences /iy/,/uy/, /ey/, and /ow/, There are two basic reasons for this interpretation. First of all, there is morphological evidence that this is so. A number of morphemes have morphologically defined allomorphs; one allomorph occurring contiguous to vowels, and one occurring contiguous to consonants. In stems with a final vowel which have the phonetic quality of (i), (u), (e), and (o), the allomorphs used are those which occur contiguous to consonants.

The following examples illustrate the consonant final and vowel final stems with the far past tense morpheme (-m). The final set of examples are verb stems ending with vowels of the phonetic quality of (i), (u), (e), and (o) which occur not with (-m) which occurs contiguous to vowels, but with (-em) which occurs contiguous to consonant.

(a) 'eat' (a-m) /am/ 'ate' (th/) 'call' $+\langle -m \rangle = (t^h - m) / t_{\Lambda} m /$ 'called' $(m_b(\mathbf{r})$ 'close eyes' + <-m> = (mb, r-em)/mbirem/ closed eyes (than) 'tie to post' + <-m> = (than-em)/thanem/ 'tied to post' (mbi) 'tip & spill' + <-m> = (mbi-em /mbiyem/ 'tipped over & spilled' (e) 'cook' (e-em) +<-m> = /eyem/ 'cooked' (tho) 'cook water' + (-m) = (tho-em) /towem/ 'cooked water' (ndu) 'meet together'+(m) = (ndu-em) /nduwem/ 'met together'

Secondly, this interpretation fills out the pattern of the low front and central vowels occurring before /y/ and /w/ to form glides.

(theiy) /tey/ 'cut wood'
(thaytay) /taytay/ 'tall'
(khay/ /kay/ 'far'
(aw) /aw/ 'grub'
(awle) /awle/ 'take out of mouth'

3.1.2 The phonemes /i/ and /u/ are interpreted as vowel when they carry the peak of syllabicity and occur in the V position of the various CV patterns.

/i/ /kiy/ ('khiy) 'drum' /liyp/ ('liye) 1 moon 1 ('th(t(') /tite/ 'draw water' /u/ /muws/ ('myws) 'grasshopper' /uwt/ ('uwth) 'over there' /tuk/ ('thukh) 'set down'

3.1.3 The phonemes /y/ and /w/ are interpreted as consonants because they do not carry the peak of syllabicity and occur only in the C position of the various CV patterns.

/y/	/yan/	(¹y _A n)	'child'
	/ya/	('ya)	'come'
	/yuyu/	(¹y₀yo)	'immediately'
	/peyn/	('peya)	'hit'
/w/	/wan/	(¹wan)	'ear'
	/wař//	('wařa)	'tomorrow'
	/nawa/	('naw^)	'mother'
	/lawařa/	('lawara)	'eyebrow'

3.2 STATUS OF ITEMS WHICH MAY BE EITHER SEQUENCE OR UNIT

3.2.1 The following consonant sequences are suspect of being either a sequence or unit: (mb), (nd), (ng), (mbw), (kw), (ngw), (pw), (mw), (th), (kh), (mph), (nth), and (nkh). Since there are no non-suspect sequences of phones, all the pre-nasalized, labialized and aspirated sequences are interpreted as units.

Prenasalized Stops

	/mbiy/	(mbiy)	bark painting
*	/ngamba/	(ngamba)	'spirit'
	/ndala/	('ndal_A)	'luck'
	/ndindindaw/	('ndindidaw)	'newborn butterfly'
	/ka ⁿ g/	(دkhang)	'type of greens'
	/ngamb/	('ngamph)	'mud'
	/rang/	(¹rankh)	'termite'
	/wa ⁿ d/	('wanth)	'snake type'
Labialized	Consonants		
	/kW3 kW3/	('kwbkwb)	'chicken'
	/kWasi /	('kwas()	'bat type'
	/ngway/	('ngway)	'thigh'
	/mpw^AA/	('mbway)	'rub noses'
	/m _{bWinga} /	('mbw(nga)	'type of greens'
	/m ^W iy /	('mwiya)	'mature'
	/am ^W iy/	('amwiy)	'shrimp trap'
	/PWAY/	(¹pway)	give up
	/¥c₩ q /	(¹pwɔř)	'tree type'
Aspirated S	Stops		
	/tak/	(thakh)	'chin'
	/m_t/	('me>th)	hear, understand!
	/kas/	(¹khas)	'plant type'

4. DESCRIPTION OF PHONEMES

4.1 DESCRIPTION OF CONSONANTS

/t/ (t^h) voiceless aspirated alveolar stop occurs word initially and finally.

/tak/ ('thakh) 'chin'

/ta/ ('tha) 'woman'

/wat/ ('wath) 'house posts'

(t) /matya/ ('matya) 'heard, understood'

/wati/ ('wat() 'breadfruit'

/mate/ ('mate) 'string bag'

/k/ (k^{h}) voiceless aspirated velar stop occurs word initially and finally.

/kar/ ('khar) 'old person'

/wak/ ('wakh) 'neck'

/kapowsey/ ('khapowseiy) 'fish type'

(k) voiceless velar stop occurs word medially.

/to kma/ (thok'na) 'sleep'

/yakal/ (yakal) snake type!

/kanakam/ (khainakam) lotsi

(g) voiced velar stop occurs word medially in free fluctuation with (k).

/£ykuw/ ('eiyguw/'eiykuw) 'cane type'

/taka/ ('thaga/'thaka) 'hair'

/laka/ ('laga/'laka) 'kinship term'

(ķ) voiceless back velar stop occurs in free fluctuation with (k) particularly when contiguous to //. ('ak/'ak/) /akn/ 'house' /yawkam/ ('ywkam/'ywkam) 'enough' ('aka ¥a/'aka ¥a) /akařa/ 'bush rat' $/k^{W}/$ (k^W) voiceless labialized velar stop occurs word initially, medially, and finally. /kWar/ ('kWaf) 'tree type' /kWay/ ('kWay) 'rattan type' /kWows/ ('kWows) 'break sticks' /pakWul/ ('pakWul) 'stick' $/\text{tok}^{W}_{\Lambda}/$ ('th₂k $^{W}_{\Lambda}$) pay! /řewk^Wa/ (°řowk^Wa) 'drill holes' ('thakw) /takW/ 'opening' /hak^W/ ('hakW) sweep /m_b/ $(^{m}p^{h})$ voiceless prenasalized aspirated bilabial stop occurs only syllable finally. $(t^h_{ow^m o^h})$ /towmb/ 'cassowary' /se^mb/ ('semb) back of house! $(k^h m_p^h)$ /ki^mb/ 'bat type' $(m_{cm}^{m} p^{h} s_{i})$ /mombsi/ snake type! (mb) voiced prenasalized bilabial stop occurs word initially and medially. ('Mbiy) /mbiy/ 'husks'

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( barow)
                     /mbarow/
                                                                 'play'
                                      (1mbasa)
                     /mbas/
                                                                 'Five Corner fruit'
                                      ('mbiymbiy)
                    /mbiymbiy/
                                                                 'tighten'
                                      (1 mb(tmc)
                    /mbitmi/
                                                                 'face'
                    /pa<sup>m</sup>bila/
                                       ('pa<sup>m</sup>b<sub>(la)</sub>
                                                                 'scatter seed'
/<sup>n</sup>g/
          (nkh)
                    voiceless prenasalized aspirated velar stop occurs
                    only syllable finally.
                    /si<sup>n</sup>g/
                                   (s_{k}^{n})
                                                                 'name'
                    /la<sup>n</sup>g/
                                     ('la<sup>n</sup>k<sup>h</sup>)
                                                                 'thorn'
                    /ra<sup>n</sup>g/
                                      ('rankh)
                                                                 'termite'
          (ng)
                    voiced prenasalized velar stop occurs word initially and
                    medially.
                    /ngab<sub>A</sub>/
                                       (n_{ga}^{m}_{bA})
                                                                 'spirit'
                    /n_{g_A}b/ (in_{g_A}m_ph)
                                                                 'mud'
                    /ngela<sup>n</sup>g<sup>w</sup>u/
                                     (^{n}_{ge}, 1a^{n}_{g}, 0)
                                                                 'snake type'
                    /řa<sup>n</sup>giy/ ("Jřa<sup>n</sup>giy)
                                                                 'nose'
                    /si<sup>n</sup>ga<sup>m</sup>b/ ('si<sup>n</sup>ga<sup>m</sup>ph)
                                                                 'shrimp'
                    /sa^{n}gA/ (!sa^{n}gA)
                                                                 'corn'
/^{n}g^{W}/
          (^{n}g^{W})
                   voiced prenasalized labialized velar stop occurs word
                   initially, medially, and finally.
                   /ngWay/
                                      (IngWay)
                                                                'thigh'
                   /ngwan/
                                       (IngWan)
                                                                'fog'
                                      (1ngWomph)
                   /n_{gW_omb}/
                                                                'tree knots'
                   /langw/ (:langw/)
                                                                'lizard'
                   /mongwoř/ ('mongwoř)
                                                               !crocodile!
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/tangw/ (thangw) take away! /sagW/ ('sagW) husks /mag^W/ ('magW) 'brain' /n_d/ (nth) voiceless prenasalized aspirated alveolar stop occurs only word finally. /waⁿt/ (wa^nt^h) 'snake type' $\binom{n}{d}$ voiced prenasalized alveolar stop occurs word initially and medially. /nduw/ (Induw) 'meet together' /ndis) ('ndis) 'go about doing! /ndindindaw) $(^{n}d_{\iota}^{n}d_{\iota}^{n}d_{u})$ 'newborn butterfly' /p/ voiceless bilabial fricative occurs word initially, (q) medially, and finally. /peřiy/ ('periy) 'paddle' /peyp/ ('peiye) 'yam type' /pa/ ('pa) 'stone' /yapeř/ ('yapeř) 'bad' /ropa/ (12 Yopa) 'sago leaves' (thupa) /tupa/ 'buy' ('peiye) /egg/ 'yamtype' ('khep) /kep/ 'string' /ařep/ ('arep) 'machete'

/h/ (h) voiceless glottal fricative occurs word initially and medially. /ha/ (ha) 'father' /hanayan/ (han Ay An) 'older person' /hambo/ ('hambo) 'think' /ynhow/ ('yahow) 'no' /s/ (s) voiceless alveolar grooved fricative occurs word initially, medially, and finally. /sam/ ('sam) 'died' /si/ ('s() 'sit' /sel/ ('sel) ground! /kWasi/ ('kWast) 'bat type' /řaste/ (1ºraste) 'will put' /mas// ('masa) 'kinship term' /pus/ (1p()s) 'two! /las/ ('las) 'navel' /neses/ ('neses) 'we two' voiced bilabial nasal occurs word initially, medially, /m/ (m) and finally. /mate/ ('mativ') 'string bag' /me/ (1me)'tree' /ma/ ('ma) 'where' /tam/ ('tham,) 'man' /kamte/ ('khamty) 'will sew' /omown/ (AMOWA) 'mosquitoe'

/sam/ ('sam) 'died' /lim/ ('lum) 'heaviness' ('kherem) /kerem/ 'you all' /mW/ (m^W) voiced labialized bilabial nasal occurs word initially and medially. /mWiya/ ('mWiyA) grow up /m^Wo r/ (ImWor) 'tree type' /mWuyup/ ('mWoyup) 'ridge capping' (n) /n/ voiced alveolar nasal occurs word initially, medially, and finally. /nan/ ('nan) 'kinship term' /ni/ ('niy) 'louse' /neren/ ('neren) 'you' (!nent()) /nente/ 'will make' (themina) /temna/ 'shoulder' /monuw/ ('monuw) 'bird type' /wan/ ('wan) !ear! /ynn/ $(!y_{\Lambda}n)$ 'child' /wun/ ('wun) 'tree type' voiced alveolar lateral occurs word initially, medially, /1/ (1) and finally. /las/ ('las) 'navel' /ley/ ('leⁱy) 'plantable seed' /lowsi/ ('lows() 'tongs'

/poli/ ()lcq1) 'breeze! /waⁿg^w^l^/ ('waⁿg^w^l^) 'ankle' /ala/ ('al_^) 'catfish' ('sel) /sel/ ground! /akWul/ ('akWul) 'home' /yakal/ ('yak_{\lambda}l) 'snake type'

 $/\dot{r}/$ (r) voiced alveolar trill occurs word medially and finally (much more often finally) in free fluctuation with (\dot{r}) .

/wařa/ ('wařa/'wařa) 'tomorrow'
/poř/ ('pař/'pɔr) 'pig'
/keř/ ('kheř/'kher) 'fire'

- $(\underline{\tilde{r}})$ voiceless alveolar trill occurs in fluctuation with $(\underline{\tilde{r}})$ in the environments described above.
- (2) voiced alveloar flap with vowel onset occurs utterance initial only.

/ řas/ (³řas) 'put'

/ řu^mb/ (¹³řo^mp^h) 'scatter things'

/řep/ (¹³řep) 'those two'

(r) voiced alveloar flap occurs medially and finally.

/peřiy/ ('peřiy) 'paddle'

/mbařow/ ('mbařow) 'play'

/ngeřme/ ('ngeřme) 'break'

/kař/ ('kʰař) 'old person'
/neř/ ('neř) 'night'
/moʰgwoř/ ('moʰgwoř) 'crocodile'

/r/ (r) voiced alveolar retroflexed continuant occurs word initially, medially, and finally.

/r,1/ (r,1) 'type of orchid' /ra^mb/ ('ramph) 'chop firewood' /rag/ ('raⁿg) 'termite' /ngiri/ ('ng(rc) 'group of something' /morn/ ('morn) 'genuine' ('kherem) /kerem/ 'you all' ('nar) /nar/ 'cut underbrush' /khar/ ('khar) 'count' /pir/ ('pir) 'make string'

/y/ (y) voiced high close front unrounded non-syllabic vocoid occurs word initially, medially, and finally.

(1 y W) /yAW/ 'enough' /yey/ ('yey) 'kinship term' /yuri/ ('yurt) 'later' /owyi/ ('owy() 'kinship term' /tayx/ ('thay) 'voice' /siyx/ ('siyA) 'sat'

/tiy/	('t ^h iy)	'bed'
/ngay/	(ingay)	'to park'
/tay/	('thay)	'stretch out hand'

/w/ (w) voiced high close back rounded nonsyllabic vocoid occurs word initially, medially, and finally.

/wan /	('wan)	'ear'
/wiy/	('wiy)	grass skirt!
/wuramse/	(wu'řamse)	'tobacco'
/nawiy/	('nawiy)	'mother'
/muws/	('muws)	'grasshopper'
/nawa/	('nawa)	'female'
/naw/	('naw)	'a bow'
/tuw/	('thuw)	'torch'
/o ku/	(らku)	'sugar cane'

4.1.1 CONTRASTS OF CONSONANT PHONEMES

Bilabials /mb/, /mbw/,/p/,/pw/, /m/, /mw/, and /w/ contrast in identical and analogous environments.

/mbiy/	('Mbiy)	'bark painting'
/mbwiyambwiya/	(' ^m bwiya ^m bwiya)	'new skin'
/piy/	('piy)	'spear'
/p ^W iyař/	('pWiyar')	'shake something'
/miy/	('miy)	'type of drum beat'
/mWiy _A /	('mwiyA)	grow up
/wiy/	('wiy)	grass skirt

/a ^m b _A /	(¹a ^m b∧)	'eat'
/apomu/	('apomu)	upper arm
/amo/	(cms)	'type of bamboo'
/amWiy/	('amWiy)	'shrimp basket'
/awa/	(awa)	'victory plant'
/ka ^m b/	$(lk^ha^mp^h)$	type of tree!
/kap/	('k ^h ap)	'like'
/kam/	('k ^h am)	'to sew'
/kaw/	('khaw)	1 some 1

Alveolars /t/, /nd/, /s/, /n/, /l/, /r/, /r/, and /y/ contrast in identical and analogous environments.

/ti/	('t ^h ()	'draw water'
/ndi/	('ndi)	'soar'
/si/	(¹s()	'sit'
/ni/	(int)	'louse'
/lis/	(¹l(s)	'bake'
/řiwa/	('ř _{(WA})	'type of turtle'
/riri/	('r,r,)	'pull tight'
/yi/	(¹yL)	1 go 1
/mate/	('matc')	'string bag'
/manduwmb/	('manduwmph/	'type of eagle'
/mas N	('mas _A)	'kinship term'
/man _A /	('man^)	'leechie tree'
/nalak _/ /	('nalaka)	'kinship term'
/wař _^ /	('war'^)	'half coconut shell'

/nař^/ ('nař^) 'kinship term'
/may^may^/ ('may^may^) 'tadpole'

Velars /k/, / n g/, / k W/, / n gW/, and /h/ contrast in identical and analogous environments.

/kar/ ('kha¥) 'yell' /ngař/ ('ngar') 'scales' /kWar/ ('kWar) 'smoke meat' /ngwařn/ ('ngWar') 'shoulder blade' /hařhař/ ('harhar') 'everyone' ('thakn) /tak// 'hair' /sag/ ('sagn) 'to shell something' /tangW/ ('thangw,) 'take off' /makWos/ ('makWos) 'red sky' /maha/ ('maha) 1 soup 1 /sak/ ('sak) 'a laugh' /sang/ ('sankh) 'enduring' /sakW/ ('sakW) 'untie' /sagw/ ('sagW) 'husks'

4.2 DESCRIPTION OF VOWELS

/i/ (i) voiced high close front unrounded vocoid tends to occur preceeding /y/.

/tiy/ ('thiy) 'bed'
/kiy/ ('khiy) 'drum'
/wiyaka/ (wi'yaka) 'salt'
/kiyi/ ('khiy() 'before'

 (ι)

/e/

high open front unrounded vocoid occurs elsewhere. /wiyi/ ('wiya) 'type of hornet' /yim/ ('y_Lm) 'went' /wuri/ ('wort) 'one' (* mb(tm() /mbitmi/ 'face' (e^) voiced mid close higher front unrounded vocoid occurs preceeding /y/. /teyte/ ('the'yte') 'water will spill over' /teypwate/ ('the ypwate) 'pretend to hit' /keyare/ ('khe^yare) 'clearly' (e[>]) voiced mid close more central front unrounded vocoid occurs word finally or between bilabials. /mbe/ (Imbe>) 'what' /me/ ('me') 'tree' $((\checkmark))$ voiced high but slightly lowered front unrounded vocoid occurs in open syllables. /pete/ ('pt't(') 'will hit' /tete/ $(t_{t_{i'}}^{h_{i'}}$ 'stand' /re/ (1rv) the! (e) voiced mid close front unrounded vocoid occurs in closed syllables. /mbeř/ (mber) 'plant yams' /geg/ ('pep) 'announce' /nen/ (Inen) 'do/work' /men/ ('men) 'handle on bag'

/E/ (ei) voiced close mid front vocoid gliding to high close front vocoid occurs preceeding /y/.

/teyte/ ('theiyte) 'cut wood'
/seyte/ ('seiyte') 'throw'
/meym/ ('meiym) 'kinship term'
/ley/ ('leiy) 'seed'

(%) voiced close low front unrounded vocoid occurs contiguous to nasal.

/yen/ ('ya'h) 'type of tree'
/nin/ ('na'h) 'type of tree'
/nil/ ('na'l) 'image'

({) voiced mid open front unrounded vocoid occurs elsewhere.

/flmbu/ ('flmbu) 'flower of cane'

/fp/ ('fp) 'basket'

/mbfr/ ('mbfr) 'type of bamboo'

/tflmga/ ('thfloga) 'palm frond'

/sfli/ ('sfl() 'rope ring')

/^/ ($\{\xi^{>}$) mid open centralized front unrounded vocoid occurs preceding /p/. /t/, and /s/ in closed syllables.

/pAs/ ('pε>s) 'two'
/nAp/ ('nε>p) 'blood'
/nAt/ ('nε>th) 'type of house'
/mAt/ ('mε>th) 'hear/understand'

(A) voiced mid open central unrounded vocoid occurs in all other environments.

/mbwAng/ (imbwAnkh) itie togetheri /kAn/ (ikhAn) inoisei /Anga/ (iAnga) iresti /nenya/ (inenya) ididi

/o/ (b) low open back rounded vocoid tends to occur contiguous to labialization.

/kWokWo/ ('kWbkWb) 'chicken'
/ngWotopte/ ('ngWbtopte') 'today'

(3) low close front rounded vocoid tends to occur preceeding

/kWoy/ ('kWöy) 'yams'
/woy/ ('wöy) 'type of yam)

(o) mid close back rounded vocoid tends to occur preceeding

/w/. /ow/ (10 W)

'pot'

/towte/ ('thowter)

'boil a pot'

/towa/ (:thowa)

'foot/leg'

() low close back rounded vocoid occurs in all other environments.

/sok/ ('sɔkh) 'dry'
/sopa/ ('sɔkh) 'snake'
/mbo/ (tab) 'not have'

/u/ (u) voiced high close back rounded vocoid occurs preceeding /w/.

/uwt/ ('uwth) 'over there'

/tuw/ ('th'uw) 'torch'

/nduwte/ ('nduwto) 'will meet together'

/muws/ ('muws) 'grasshopper'

/tuws/ ('th'uws/) 'wife-second'

(U) voiced high open back vocoid occurs elsewhere.

/kut/ ('khuth) 'cough' /lus/ ('lus) 'top of hand/foot' /puri/ ('purt) 'inside of house' /mormbu/ ('marmbu) 'type of lizard' (fourages) /supsup/ 'suck' /teř^mbu/ $(t^h e r^m b u)$ 'type of shell'

/a/ (a) voiced low open front unrounded vocoid which tends to be longer in length than the other vowels.

/ak/ ('ak^) 'house'
/ap/ ('ap) 'bird'
/ang^tang^/ ('ang^tang^) 'hurry'
/sipa/ (si'pa) 'seed'
/ta/ ('tha) 'woman'

4.2.1 CONTRAST OF VOWEL PHONEMES

The vowel phonemes /i/, /e/, / ϵ /, / α /, /u/, and /o/ contrast in identical and analogous environments.

/tikili/	('thuktle)	'wriggle'
/tek/	$($ t $^{\mathrm{h}}\mathrm{ek}^{\mathrm{h}})$	cut down banana tree!
/t8k/	$(t^h_{\xi} k^h)$	'demonstrate'
/takte/	(th ktu)	'get dark'
/tak/	('thakh)	'chin'
/tok/	$(t_{ch^{\circ}k})$	'elephantitis'
/tuk/	$($ t $^{\mathrm{h}}$ o $^{\mathrm{kh}})$	'taboo sign'

/nit/	(incth)	'pound stick into ground'
/nen/	(!nen)	'do/work'
/ngn/	('n _{ n)	'type of tree'
/nat/	(ingth)	'type of house'
/an/	('nan)	'kinship term'
/nuk/	('nukh)	'type of netbag'
/nokole/	('nɔkɔl‹v)	type of earth!

Front vowels contrast in identical and analogous environments.

/tiy/	('t ^h iy)	'bed'
/tey/	('they)	'water spill over'
/tey/	('theiy)	'cut wood'
/sili/	('s ₍ 1()	'body dirt'
/sela/	(*sela)	"island"
/sgli/	('s _t l ₍)	'bark ring'

Central vowels contrast in identical environments.

/taytay/	(th _A yt _A y)	'tall'
/tay/	(!thay)	'stretch out hand'
/sa/	(¹s^)	'hold'
/sa/	(¹sa)	'die'

Back vowels contrast in identical and analogous environments.

/mbuwr/	('mbuwř)	'type	of	vine!
/mbowr/	('mbowr')	'pigeo	on i	

/tukwa/	('thokwa)	'young plants'
/tokwa/	(Ithokwa)	'price'
/mol/	(lcm')	'sharpness'
/mun/	('mun)	'cluster'

4.3 SUPRA-SEGMENTAL ITEMS

4.3.1 PHONEMIC STATUS OF TONE, STRESS, AND LENGTH

Tone and length are not phonemically pertinent.

Stress is predictable, and therefore, non-phonemic. The following rules apply to the placement of stress on the word level.

- 1. The first syllable of a word which contains /a/ is stressed.
- 2. When there is no syllable containing /a/ in a word, the first syllable of the word is stressed.

/amemba/	('ame ^m b _^)	'running'
/tokma ^m ba/	(thak namba)	'sleeping'
/sipa/	(si'pa)	'seed'
/wuramse/	(wo'řamse)	'tobacco'
/tetete/	('t ^h c'tctc')	'will stand'
/lowsi/	('lowst)	'tongs'

4.3.2 INTONATION

Two contrastive intonation patterns have been observed: tentative pause, and final pause. Tentative pause is rising and unrelaxed and may be symbolized by /,/. Final pause is fallihg and relaxed and may be symbolized by /./.

/an awas ate./
/an awas ate, an ak yite./

/an yara yim./
/an yara yim./
/an yara yim, ngwo pte sene yam./

/I will eat food.'

/When I eat then I will go.'

/I went yesterday.'

/I went yesterday and came back today.'

5 NON-CONTRASTIVE FEATURES

The following non-phonemic transition between consonant clusters occur across syllable boundaries.

5.1 No transition is found between consonant clusters as follows

a) between /w/ or /y/ plus anything

/mbiymbiy/ ('mbiymbiy) 'to tighten'
/Eys/ ('eiys) 'four'
/tawle/ ('thawle) 'tongue'

b) between anything plus /w/, /y/, /r/ and /r/.

/alwa/ ('alwa) 'murderer'

/nenya/ ('nenya) 'did'

/neremre/ ('neremre) 'ours - plural'

/maprika) ('maprika) 'how'

c) between nasal plus /s/, /p/, nasal, and stop

/kamte/ ('khamte') 'will sew'

/ywmnw/ ('ywmnw) 'tree type'

/mombsi/ ('momphse) 'type of snake'

/kwwnpete/ ('kwwnpete') 'portion out'

	d) between voic	eless stops plus nasal	
	/mbitmi/	('mb(tm()	'face'
	e) between /s/	or /1/ plus anything exc	cept pre-nasalized stops
	/kulke/	('kholkev)	'underneath'
	/wuswar/	('wuswar)	'Sepik River'
	/naswey/	('nasweiy)	'disagree'
5.2	There is an (3) tran	nsition between /r/ and	any stop
		$({}^{\dag}{}_{k}{}^{h}{}_{e}{}^{\star}{}^{\flat}{}_{t}{}^{\backprime}{}^{\backprime})$	
	/ ⁿ germey/	/ ('ngeromeya)	¹broken¹
5•3	There is an (m) tra	nsition between any sto	p, /l/, /ř/, or /s/ plus
	a prenasalized bila		
		('mbermba)	'planting yams'
	/mbasmba/	(1mbasmba)	'laying a floor'
	/kirowk ^m b	۸/ (۱khc۲owkmb۸)	cleaning up
5.4	There is an $(h/3)$	transition in the follow	ving environments.
		olus /1/ and voiceless s	
	/ngwopte/	(1ngwaph/2tev)	'today'
	/sopla/	(/soph/sla)	'hole'
	b) between voice	less stops plus voicele	ss stops, nasals and /l/,/r/
	/likte/	('l(kh/2te')	'bring up'
	/latrana/	('la th/orana)	'five'
	/tokna ^m b _A	$/ (t^h_{jk'na^m b_{\Lambda}})$	'sleeping'
	c) between prena	salized stops and /p/	
	/pingping	$/ (i_{\mathfrak{p}(n_{k}h/\mathfrak{p}_{\mathfrak{p}(n_{k}h)})}$	'type of bat'

6. DISTRIBUTION

6.1 GENERAL

The syllable is the unit chosen as the basis for the discussion of distribution. A syllable consists of only one vowel with optional onset or terminus.

The following six CV patterns occur in the syllables:

7	/A ga/	(1 A • gA)	'rest'
	/a/	(¹a)	'eat'
	181	(3')	¹cook¹
	/omuteke/	('o.mu.tv.ku)	'believingly'
CV.	/ma/	('ma)	'where'
	/ha/	(¹ha)	'father'
	/mate/	(1 ma. ty)	'net bag'
VC	/Ey/	('e ⁱ y)	'lime'
	/ow/	(' _{OW})	'pot'
	/w/	(r _{NW})	grub!
	/am/	(1 am)	'ate'
	/it/	('(t ^h)	'there'
CVC	/nan/	('nan)	'kinship term'
	/lam/	('lam)	'saw'
	/r̃aste/	(' ⁹ ras.to)	'will put'

CVCC	/liyp/	('liyp)	'moon'
	/tey/	('they)	'spill over'
	/tey/	(th_e^iy)	cut wood!
	/nov ^m b/	('now ^m ph)	'tightly'
	/muwk/	('muwkh)	'breast'
VCC	/£ys/	('eiys)	'four'
	/uwt/	('uwth)	over there
	/E V =/	('eiye)	'type of basket'
	/ow ^m b/	$(low^m p^h)$	'clothes'

6.2 SPECIFIC

6.2.1 DISTRIBUTION OF PHONEME INTO THE SYLLABLE

The following classes of phonemes have been set up on the basis of their occurrence within the syllable:

Class A - Vowels. Vowels occur filling the nucleus of the syllable. Vowels have been divided into sub-classes on the basis of distribution.

Subclass 1 - All vowels comprise this subclass and occur in the nucleus of CV and CVC syllables.

Subclass 2 - /i/, / ϵ /, / α /, /a/, and /o/ comprise this subclass and occur in the nucleus of V and VC syllables.

Subclass 3 - Front and back vowels /i/, /u/, /e/, / ϵ / /o/ comprise this subclass and occur in the nucleus of VCC and CVCC syllables.

Class B - Consonants. Consonants may occur filling either the onset or terminus of the syllable and are divided into subclasses on the basis of distribution.

Subclass 1 - All consonants comprise this subclass and occur in syllable initial C slot.

Subclass 2 - occurs filling the final C slot of the syllable terminus and consists of all consonants except /h/.

Subclass 3 - occurs filling the pre-final C slot of the syllable terminus and consists of /y/ and /w/. /w/ in this slot has been observed preceding /k, 1, s, n, r, r, m, r, and t/. /y/ has been observed preceding /l, t, s, m, r, r, p, and k/.

6.2.2 Consonant Clusters across syllable boundaries.

There seems to be no particular pattern as to the way consonants can cluster across syllable boundaries. The following chart shows which clusters of two have been observed thus far. The phoneme /h/ never occurs in a cluster, and /d/ never occurs as the first phoneme of a cluster.

/y/ and /w/ can occur as the first consonant of a cluster with almost every other consonant phoneme. When clusters of three consonants occur,

/y/ and /w/ are always one of the consonants. The following clusters of three have been observed: ykt, wlk, ysk, wtk, ysr, ykr, ypr.

6.2.3 Distribution of the syllable into the phonemic word, a word being a meaningful unit which may occur in isolation.

Class A - may occur only word initially and singly as a phonemic word. There are four members of this class: V, VC, CVCC, VCC.

Class B - may occur word initially, medially, finally and singly as a phonemic word. There are two members of this class: CV, and CVC.

CONSONANT CLUSTERS

											The same of	-		-							
_		t	k	m _b	nd	r	g g	р	s	h	m	n	ì	r		. V	1 2	rr	lgW	kW	
<u>†</u>	t	x	x	x		х	<u> </u>	<u> </u>	X.		x		X	X	X	: _x	. .			x	
k	ζ	х	x	x			х		x		x	x	X	x	X	: x	: .x				
n	¹b	x					:		x				x	×	x						
n	d.																				
n														X		.	······································				-
	gx	<u> </u>	2	Σ		*****	x		X	·			x	x		x	x		******	· ·	
<u> 19</u>	X	х	. 3	<u> </u>		·		2	Σ			2	c x	×	x	X	x			,	
s	x	Х	X	<u> </u>		x	x				x	x	x	x		x	x				:
h																			······································		
m	x	x	X			x	x	x				x	х	x	x	x	×	x			
n	ж	x	x			x	x	x			x		x				x				
ř	x	x	x	x		x	x	x	-		x	x								-	
ŗ	x	x	х			-		x					-	-X:	x	x	X			X .	
-	x			·								X			X	x	X		·	·	
		7	X		-	··········	X	X	-		X.	x	X	X	-	X	x		-	·····	
W	X	X	x	x		x	х	х		-	X	x	x	x	x		x	x			
<u>у</u>	X	x	X	x		X	х	x			ĸ.	x	х	x	х	x			-		
ng	x	x	x				~			-				x			x				
\mathbf{k}^{W}	x	x	x											x			x				
															-			-			

7. ORTHOGRAPHY

7.1 SUGGESTED ORTHOGRAPHY

/t/				
/t/	Phoneme	Allophones	Orthographical	Symbol
/mb/	/t/		t	
/mb/ /nd/ /nd/ (md), (nth) d /ng/ /ng/ /mbW/ /kW/ /kW/ /peW/ /p/ /p/ /s/ /s/ /nd/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /	/k/	(k), (k ^h) (k)	k	
/nd/ /ng/ /ng/ /ng/ /ngw/ /p/ /pw/ /pw/ /pw/ /s/ /ngw/ /s/ /ngw/ /s/ /ngw/ /s/ /ngw/ /s/ /ngw/ /ngw/ /s/ /ngw/ /ngw/ /ngw/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /	/mb/	(m _b , m _p h,)		
/"g/ (ng) (nkh) g /"bV/ by /kW/ gw /pW/ pp /s/ s /n/ h /m/ n an /m/ n /m/ n /m/ n /m/ n an /m/ n /m/ n /m/ n an /m/ n /m/ n /m/ n an /m/ n /m/ n an /m/ n /m/ n an /m/ n an /m/ n /m/ n /m/ n /m/ n an /m/ (u) (u) (u) an an /m/ (u) (u) (u)	$/^{n}d/$	(nd), (nth)		
/myw/ /kw/ /ngw/ /p/ /p/ /p/ /p/ /s/ /s/ /n/ /n/ /n/ /n/ /n/ /n/ /n/ /n	/ ⁿ g/	(ng) (nkh)		
/kW/ kW /ngW/ gW /p/ pW /s/ s /h/ h /m/ m /m/ n n n n n n n n n	\mp41/		bw	
/ngw/ /p/ /p/ /p/ /s/ /s/ /s/ /n/ /n/ /n/ /n/ /in/ /i/ /i/ /i/ /r/ /r/ /r/ /r/ /r/ /r/ /r	/k ^w /		kw	
/p\/ /p\/ /s/ /s/ /s/ /h/ h /m/ /n/ m /n/ n /\fr/ /\fr	/ngw/			
/p\//s/ /s/ /s/ /s/ /s/ s /h/ h /m/ /m/ /n/ n */m\// /l/ /r/ /r/ ** ** ** ** ** ** ** *	/ P /			
/s/ /h/ /h/ /m/ /m/ /n/ /n/ /n/ /n/ n /n/ /i/ /r/ /r/ /r/ /r/ /r/ /r/ /r/ /r/ /r	/ p [₩] /			
/h/ /m/ /n/ /n/ /n/ /n/ /n/ /n/ /i/ /i/ /r/ /r/ /r/ /r/ /r/ /r/ /r/ /r	/s/			
/m/ /n/ n ^/m// /n/ /n/ /i/ /i/ /r/ /r/ /r/ /r/ /r	/n/			
/n/ /i/ /i/ /i/ /i/ /i/ /i/ /i/ /i/ /i/	/m/			
\[\langle \la	/n/ · ·			
/i/ /r/ /r/ /r/ /r/ /r/ /r/ /r/ /r/ /r/	$\sqrt{m^{1/4}}$			
/r/ /r/ /r/ /v/ /v/ /i/ /i/ /e/ /e/ /ε/ /ε/ /ε/ /ε/ /ε/ /ε/ /ε/ /ε	/1/			
/r/ /w/ /y/ /i/ /e/ /e/ /e/ /e/ /e/ /e/ /e/ /e/ /e	/ř/			
/w/ /y/ /i/ /e/ /e/ /e/ /e/ /e/ /e/ /e/ /e/ /e	/rٍ/			
/y/ /i/ /e/ /e/ /\(\x\) (\(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
(i) (i) (i) (i) (i) (e/) (e/) (e/) (e/) (e/) (e/) (e/) (e/) y/,			
(e ¹) (κ') (ε) ee (e ²) (Λ) (a) (u) (u	/1/ /e/ (i) (t) e^) (e>) (y) (e)	i	
/a/ /u/ (u) (U) aa u	/ E/ / N/,	(e ⁱ) (ጵ) (ε΄) e>) (Λ)	ee	
JOI	/u/ /u/ (1	น) (ป)	aa	
(b) (5) (c) ₀	(°/	o) (ɔ) (o)		

7.2 SAMPLE TEXT

they there

water

there

and

$^{ m m}$ bakčne wamonkene

 k^h iy ι ngw, řombo řem řem thumapu mbukra na wamun r_{em} rrem kiyi g^Wurrobo rrem tumapi bukraa na wamun rrem they before kingfisher they beak big and hornbill they thumapo Eysow. thomenem, rem Sp ngwərəmbə na řem ap tumapi Eysow. rrem op temenem, gWurrobo na rrem ap beak small. thus were, they and kingfisher they bird Lysow. na mbukra. wamun řem ap ha^mblaweyem, na řem Eysow. na wamun rrem ap bukrag. na rrem habolaweyem, small. and they bird big. hornbill and they thought in vain, n_{gWoYo}m_{bo} na remnu wamun řem wem. řem na $_{\mathsf{J}k}$ h g^Wurobo na rremne wamun rrem wem. na rrem ok and kingfisher them hornbill they said. and they water war wiyem. rem wařen na WAn kWurntann Eml waarr wiyem. rrem waarren na wan k^Wuratanna eemi. down washed. and they go-down ironwood tree crossed place rem $\mathsf{tek}^\mathbf{h}$ khد na $\epsilon^{ ext{tek}^{ ext{h}}}$ waren k^{h} iy wiyem. na wamun na rrem eetek ok eetek waarren wiyem. na kiyi wamun

go-down washed. and before

hornbill

 n_{gW} orombo řem řemnov ngw, řombo уэрv tem. na rem mbarkc rrem gWurobo rremne yopu tem. gWurobo na rrem baar ke they kingfisher them trick were. and kingfisher they shore-at

temenem, na wamun k^hiy(1tnm warem. wamun Yem . temenem. na wamun atam kiyi waarrem. Wamun rrem were, and hornbill they before went-down. hornbill they

k^hiy(waren wiyen řem way∧n řemkůnů syn (v kiyi waarren wiyen rrem waayan rremkene sene before go-down-and wash-and they come-up-and with-them

wayambem. ngw, řombo řemkůny warmbem, na wamun řem waayabem. gwurobo rremkene waarrbem, na wamun rrem kingfisher with-them went-down, came-up and hornbill they

ngws rs mb > atamre themapikar waynn t^h ektem. tenدq waayan gwurobo atamrè tumapikarr poten tektem. come-up-and kingfisher their beak took-and fastened.

Free Translation.

The Kingfisher and the Hornbill

Once upon a time the kingfisher had a big beak and the hornbill had a small beak. They were like that and the kingfisher was a small bird. The hornbill was a big bird. They (the hornbills) thought this wasn't right and so they spoke to the kingfishers and they went down to wash. They went down to the place where the ironwood treatist across the water and they

went down and washed there. Before hand the hornbills tricked the kingfishers. The kingfishers stayed on the shore and the hornbills went down to wash first. The hornbills went down first and washed, and while they were coming up, the kingfishers went down to wash. While the kingfishers were down washing, the hornbills came up and took the kingfishers' beaks and put them on.