AN UPDATED PHONOLOGY OF SURSURUNGA

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1 INTRODUCTION

Sursurunga is spoken by approximately 2800 people living in the Namatanai Subprovince of the New Ireland Province of Papua New Guinea. The language area begins at Kudukudu village, about 41 km south of Namatanai along the east coast road, and extends south to include Pulpulu village, approximately 50 km further on. On the west coast, there is one Sursurunga village, Suralil, situated directly across the island from the southernmost east coast villages.

An Austronesian language, Sursurunga is a member of the Patpatar-Tolai Subgroup of the Patpatar family of languages (Beaumont 1972). It was originally thought that two very closely related dialects comprised the language, but, as the dialect survey indicated, the differences are primarily psychological rather than linguistic. Problems arising from these differences are discussed in this paper and in the dialect survey report.

Our field work commenced in April of 1974 and has continued intermittently. S.I.L. consultants Des Oatridge and Dorothy James helped in the analysis and preparation of "A Preliminary Phonology of Sursurunga", written in November, 1974, upon which this updated version is based.

2 OUTLINE of PHONEMES

2.1 Charts of Phonemic Norms

2.1.1 Consonants

		Bilabial	Pre-palatal	Post-palatal
Stops	Voicelesss	p	t	k
	Voiced	b	d	g
Fricatives			s	h
Nasals		m	n	ŋ
Laterals			l	
Vibrants			r	
Semivowels		w	y	

2.1.2 Vowels

	Front	Central	Back
Higher	i	ə	u
Lower	e	a	o

2.2. Contrastive Features

All Sursurunga phones are produced with egressive lung air.

2.2.1 Consonants

Consonants contrast in their manner of articulation as to stop, fricative, nasal, lateral, vibrant, and semivowel. The stops and nasals contrast as to bilabial, pre-palatal, and post-palatal points of articulation. Each point of articulation is represented by contrasting voiced and voiceless stops. The fricatives contrast as to pre-palatal and post-palatal points of articulation. Semivowels contrast as to bilabial and pre-palatal points of articulation.

2.2.2 Vowels

The vowels contrast as to front, central, and back horizontal tongue position. Each of these areas contrasts as to higher and lower vertical tongue position. Front and central vowels are unrounded; back vowels are rounded.

3 INTERPRETATION

3.1 Status of Items Either Consonant or Vowel

3.1.1 Semivowels

[i] and [u] have been interpreted as /y/ and /w/ when they are nonsyllabic and occur in syllable initial consonant position. When they take the peak of syllabicity and occur in vowel position in a syllable they are interpreted as /i/ and /u/.

/yau/	[iˇau]	'I, me'
/inan/	[iˇnan]	'sharp'
/wak/	[uëk]	'woman, wife'
/ubi/	[$u^{m}b^{m}{}_{i}{}^{\check{}}$]	'to hit'

3.1.2 Voiceless Vocoids

[I], [Ǝ], [A], [U], and [O] are interpreted as /h/. They occur only syllable finally following a voiced vocoid of the same quality, and always occur in positions which can be filled by consonants[1].

/kihkih/	[kiˇIkiˇI]	'wind'
/yoh/	[iˇɔːOː]	'to mumu'

3.2 Status of Items Either Sequence or Unit

3.2.1 Vocoid Clusters

Suspect vocoid clusters have been interpreted as sequences of vowels for the following reasons:

1. Literate vernacular speakers write syllable division between sequences.

/pu.ë.ri/	[p^{w}uëñiˇ]	'to split'
/ni.er/	[niˇeñ]	'black'

2. Reverse sequences do occur.

/taun/	[t̂aun]	'heavy'
/tuan/	[t̂uan]	'very'

3. The components of some glides can each be considered the nucleus of a separate syllable.

/tuaŋ/	[t̂u.aŋ]	'my same sex sibling'

4. Sursurunga writers write glides with two symbols.

KilKilai 'to call' (example taken from written text)

5. Writing phonetic glides as one unit phonemically would increase the phoneme count by nine.

3.2.2. Prenasalized Voiced Stops

Prenasalized voiced stops have been interpreted as single segments for the following reasons:

1. They occur in free variation with non-prenasalized voiced stops in all positions.

2. Writing them as sequences would not fit existing nonsuspect CV patterns. It would permit three contiguous consonants to occur; only two are allowed, and that only across syllable boundaries.

/bopbop/ [b^{w}ɔʔ$p^{ʔ}$$^{m}b^{w}$ɔʔ$p^{ʔ}$] 'to lie down'

4 DESCRIPTION OF PHONEMES

4.1 Consonants

4.1.1 Work Chart

		Bilabial	Dental	Alveolar	Velar
Stops	Voiceless	p^{w} $p^{ʔ}$	$\underset{\frown}{t}^{ʔ}$ $\underset{\frown}{t}$ $\underset{\frown}{t}^{ʔ}$		k $k^{ʔ}$ k^{h}
	Voiced	b^{w} $^{m}b^{w}$		d ^{n}d ɖ	g ^{ŋ}g
Fricatives				s	h
Nasals		m^{w} m		n	ŋ
Laterals				l^{i}	
Vibrants				r̃	
Semivowels		w		y	

4.1.2 Description

4.1.2.1 Voiceless Stops

/p/ [p^{w}] Voiceless bilabial unaspirated and slightly lip rounded stop. Occurs syllable initially.

[p˺] Voiceless bilabial unreleased stop. Occurs syllable finally. It is lip rounded following a rounded vowel.

/pap/ [p^{w}ap˺] 'dog'

/t/ [t̪] Voiceless dental unaspirated stop; the tongue tip touches the back bottom of the upper teeth. Occurs syllable initially.

[t̪˺,t̪͡˺] Voiceless dental or interdental unreleased stop. In free variation syllable finally.

/tait/ [t̪aiˇt̪˺] or 'cargo, thing'

[t̪aiˇt̪͡˺]

/k/ [k] Voiceless velar unaspirated stop. Occurs syllable initially and finally.

[k˺,k^{h}] Voiceless velar unreleased or aspirated stop. In free variation word finally with [k].

/kalik/ [kaliˇk˺] or 'child'
[kaliˇk^{h}] or
[kaliˇk]

4.1.2.2 Voiced Stops

/b/ [b^{w}] Voiced bilabial slightly lip rounded stop.

[$^{m}b^{w}$] Voiced bilabial prenasalized slightly lip rounded stop.

/d/ [d] Voiced alveolar stop.

[^{n}d] Voiced alveolar prenasalized stop.

[ɖ] Voiced alveolar slightly retroflexed stop.

/g/ [g] Voiced velar stop.

[^{ŋ}g] Voiced velar prenasalized stop.

Voiced stops occur only syllable initially, contrasting with voiceless stops in this position. Word initially, prenasalized voiced stops occur in free variation with non-prenasalized ones. Word medially, they are

prenasalized intervocalically and following non-nasal and non-liquid consonants[2]. On occasion, a non-prenasalized voiced stop has been heard in these environments, but this is a nonphonemic variation between speakers and utterances. [ɖ] is in free variation with [d] and [ⁿd] word medially.

/bobor/	[b^wɔːb^{w}ɔːr̃] or	`to wrap up'
	[^{m}b^{w}ɔː^{m}b^{w}ɔːr̃]	
/duldul/	[dʊldʊl] or	`type of plant'
	[^{n}dʊl^{n}dʊl] or	
	[dʊlɖʊl]	
/gim/	[gɪm] or	`we (plural,
	[^{ŋ}gɪm]	exclusive)'

4.1.2.3 Fricatives

/s/ [s] Voiceless slightly grooved alveolar fricative, articulated with the front of the tongue blade against the alveolar ridge. The tip of the tongue, in fronted position, does not enter into the articulation of the sound. It occurs both syllable initially and finally.

/sosopas/	[sɔːsɔːp^{w}as]	`body joint'

/h/ [h] Voiceless vocoid occuring syllable finally following a voiced vocoid of the same quality.

/tahtah/	[t̰ah̰ah]	`to sweep'

4.1.2.4 Nasals

/m/ [m^w] Voiced bilabial slightly lip rounded nasal. Occurs syllable initially.

[m] Voiced bilabial nasal. Occurs syllable finally. It is lip rounded following a rounded vowel.

/mam/	[m^wam]	`with'

/n/ [n] Voiced alveolar nasal. Occurs both syllable initially and finally. /n/ is occasionally articulated with the tongue blade against the alveolar ridge, particularly when it immediately precedes or follows an /s/. However, the distinction between this and the standard alveolar [n] is very slight.

/nɪsun/	[nɪsʊn]	`his nose'

/ŋ/ [ŋ] Voiced velar nasal. Occurs both syllable initially and finally.

/ŋisaŋ/ [ŋiˇsaŋ] 'my name'

4.1.2.5 Laterals

/l/ [l^{i}] Voiced light alveolar lateral occuring both initially and finally in the syllable. This is not written phonetically in examples other than the following one.

/lul/ [l^{i}el^{i}] 'his head'

4.1.2.6 Vibrants

/r/ [r̃] Voiced alveolar trilled vibrant. Occurs both syllable initially and finally. When occuring utterance finally, it trails off into voicelessness.

/rahrah/ [r̃ahr̃ah] 'afternoon'

/bor/ [b^{w}ɔːr̃] 'pig'

4.1.2.7 Semivowels

/w/ [w] Voiced bilabial semivowel occuring only syllable initially in a consonant position.

/wen/ [wën] 'seed, pod'

/y/ [y] Voiced palatal semivowel occuring only syllable initially in a consonant position.

/yau/ [yau] 'I, me'

4.1.3 Contrasts

4.1.3.1. Bilabial Consonants

/pakpak/	'shade'	/tapam/	'top, peak'
/bakrai/	'to serve (food)'	/tabun/	'tail'
/mak/	'to look at'	/taman/	'family'
/wak/	'woman, wife'	/tawan/	'type of tree'
		/tabar/	'gift, to feed'
		/mamam/	'your mother'

/kip/	'horizontal beam'
/kim/	'type of mat'

4.1.3.2 Pre-palatal consonants

/dai/	'to touch'	/matan/	'his eye'
/nai/	'transitivizer'	/manan/	'to know'
/tui/	'to cut'	/mudan/	'a little bit'
/sui/	'to collapse'	/mulan/	'first'
/lui/	'to swing around'	/maran/	'many'
/rui/	'to pull'		
/dur/	'dirty'	/rat/	'type of basket'
/nur/	'shrimp'	/tas/	'salt water'
		/tertar/	'to chop'
/yau/	'I, me'	/pen/	'to awake'
/sau/	'to cook'	/pal/	'bald'

4.1.3.3. Post-palatal Consonants

/kim/	'type of mat'	/pakat/	'spring water'
/gim/	'we (plural, exclusive)	/pagas/	'there'
/ŋin/	'to drink'	/paŋaŋ/	'gaping'

/suk/	'vine, rope'
/suŋ/	'to pray'
/suh/	'table'

4.1.3.4 /h/ and Other Syllable Final Consonants

/suh/	'table'	/kihkih/	'wind'
/sut/	'fat'	/kikim/	'your leg'
/suk/	'vine, rope'	/kipkip/	'to bring'
/sus/	'milk'	/keken/	'his leg'
/suŋ/	'to pray'		
/sal/	'road, path'		
/sur/	'to scratch'		

4.2 Vowels

4.2.1 Work Chart

		Front Unrounded	Central Unrounded	Central Rounded	Back Unrounded	Back Rounded
High	Close	i˅				u
	Open	ɪ		ʊ		ʊ
Mid	Close		ə		ë	o
		e˅				
	Open				ɔ꜒	ɔ^
Low	Close		ʌ˅			
	Open	a	ɑ<			

4.2.2 Description

4.2.2.1 Front Vowels

/i/ [ɪ] Voiced high open front unrounded vocoid. Occurs syllable intially and medially preceding nasals and liquids and in the following environment:

(n)
(m) ___ (s)

[iˇ] Voiced high slightly open front unrounded vocoid. Occurs in all positions elsewhere.

/biriŋ/	[bʷɪr̃ŋ]	'carrying sling'
/kipi/	[kiˇpʷiˇ]	'to bring'

/e/ [eˇ] Voiced mid slightly open front unrounded vocoid. Occurs in all positions and environments.

/keke/	[keˇkeˇ]	'to carry'

4.2.2.2 Central Vowels

/ə/ [ë] Voiced mid close back unrounded vocoid. Occurs syllable medially and finally following labial consonants and rounded vowels.

[ə] Voiced mid close central unrounded vocoid. Occurs in all positions elsewhere.

/məK/	[mʷëk]	'to look at'
/guəi/	[güëiˇ]	'to make wet'
/əir/	[əɪr̃]	'bamboo fence'

/a/ [a] or [ʌˇ] or [ɑ˂] Voiced low close to open front to central unrounded vocoid. All allophones occur in free variation in all positions and environments.

/bas/	[bʷas] or [bʷʌˇs] or [bʷɑ˂s]	'rat'

4.2.2.3 Back Vowels

/u/ [ʊ] Voiced high open central rounded vocoid. Occurs syllable medially and finally following /i/ and in the following environment:

(nonvibrant alveolar)_____(alveolar)
(i)

[o] Voiced mid close back rounded vocoid. Occurs syllable finally following /e/.

[u] Voiced high close back rounded vocoid. Occurs syllable medially and finally contiguous to another vocoid except in the environments specified for [ʊ] and [o].

[u] Voiced high open back rounded vocoid. Occurs in all positions elsewhere.

/liu/	[liˇʊ]	‘to be alive’
/sut/	[sʊt̪ˠ]	‘fat’
/leu/	[leˇo]	‘spilled, overflowed’
/bauri/	[bʷauɾ̃iˇ]	‘to break in two’
/kubau/	[kʊᵐbʷau]	‘tree, wood’

/o/ [ɔ^] Voiced mid open back rounded vocoid. Occurs syllable initially and medially preceding velar stops.

[ɔː] Voiced mid open slightly fronted back rounded vocoid. Occurs in all positions elsewhere.

/koktai/	[kɔ^kt̪aiˇ]	‘to break off’
/torain/	[t̪ɔːɾ̃aɪn]	‘old’

4.2.3 Contrasts

/i/ and /e/

/im/	‘to work’
/em/	‘butterfly’
/kip/	‘horizontal beam’
/kep/	‘type of shell’

/ə/ and /a/	/əi/	'him, her, it'
	/ai/	'attention getter'
	/səksək/	'extreme'
	/saksak/	'to sing'
	/kəlik/	'slowly, a little bit'
	/kalik/	'child'
/e/ and /ə/	/rep/	'bag'
	/rap/	'torn'
	/erei/	'there, that'
	/arai/	'to dry out'
	/pen/	'mud'
	/pən/	'to be awake'
/ə/ and /o/	/bəs/	'to pound'
	/bos/	'pluralizer'
	/wən/	'seed'
	/won/	'six'
	/məs/	'dry, shallow'
	/mos/	'to be angry'
/u/ and /o/	/ubi/	'to beat, to hit'
	/oboi/	'to put'
	/durdur/	'owl'
	/dordor/	'slippery'
	/mul/	'again, also'
	/mol/	'greasy feeling'

General Contrasts

/kim/	'type of mat'
/kən/	'to hiccup'
/kən/	'his, her, its'
/kam/	'your (singular)'
/kon/	'beach sand'
/mil/	'to dance'
/mel/	'rich (food)'
/man/	'bird'
/mul/	'again, more also'
/mol/	'greasy feeling'
/mək/	'to look at'
/muk/	'quiet'

5 THE SYLLABLE AND DISTRIBUTION

Sursurunga syllables may have a simple nucleus composed of a single vowel or a complex nucleus composed of a sequence of two vowels. A single consonant onset optionally precedes each nucleus type, but only the simple nucleus may take the single consonant coda[3]. The resultant six syllable types contrast as follows:

V	/i/	'exclamation of surprise'
VV	/ai/	'where?'
CV	/di/	'they (plural)'
CVV	/dai/	'to touch'
VC	/ik/	'type of drum'
CVC	/dik/	'type of basket'

5.1 General Distribution

Each syllable type occurs word initially and finally. Any type but CVV may occur word medially. Words of up to four syllables have been observed with up to four different syllable types in one word.

VV.CVC	/au.ŋes/	'to rest, to breathe'
CV.CV.VC	/tu.ka.ul/	'to nod with sleep'
V.CVC.CV.CVV	/a.lek.ta.dai/	'to turn upside down'

In analyzing the morphophonemic changes operating in Sursurunga, it has been discovered that non-reduplicated unprefixed transitive verbs prefer two syllables to three in surface form, and two morphophonemic rules exist to reduce the number of syllables in these verbs once other rules or the transitive suffix have increased the count. Furthermore, there are certain syllable patterns that predominate in these verbs.

Nonfinal:	Final with suffix:	Final w/o suffix:
CV	CV or V	CV
CVC	CVV or VV	CVC

Most transitive verbs, therefore, have the following shapes:

CV.CV or CVC.V	CVC.CV	CV.CVV or CVC.VV
Ki.pi or Kip.i [4]	Kar.si	be.sai or bes.ai
ba.li or bal.i	teŋ.ni	ma.tai
ma.ta	bus.wa	

CVC.CVV	CV.CVC	but not CVC.CVC
bus.wai	ka.rus	
sor.liu	ta.ŋan	
gem.nai		

No other preferences have been noted for other classes of words.

5.2 Phoneme Combinations Within the Syllable

Any consonant except /h/ may fill any initial consonant slot. Any consonant except a voiced stop or a semivowel may fill the final consonant slot in CVC or VC syllables.

Any vowel may fill any simple nucleus or be the first member of either complex nucleus. Only /i/ and /u/ may occur as the second member of the nucleus of the CVV syllable. /i/ has been observed following each other vowel; /u/ following /i/, /e/, /a/, and /ə/, but not /o/. The VV syllable type may be filled by /ei/, /əi/, /ai/, /oi/, or /au/.

The only pertinent distributional restrictions of vowels with particular preceding or following consonants which have been noted are the non-occurrence of /yi/, /ye/, and /we/. Other distributional gaps are random and we expect they will be filled on investigation of further data.

CVV:	/ei/	/e.rei/	'there'
	/əi/	/kəi.saŋ/	'my left'
	/ai/	/ot.ŋai/	'to distribute'
	/ui/	/sui.lik/	'Lord'
	/oi/	/do.koi/	'to pull down'
	/iu/	/siu/	'nine'
	/eu/	/beu/	'shark'
	/au/	/kau/	'type of bird'
	/əu/	/kə.ləu/	'male'
VV:	/ei/	/er.ei/[4]	'that'
	/əi/	/gu.əi/	'to make wet'
	/ai/	/ai/	'attention getter'
	/oi/	/os.oi/	'to burn'
	/au/	/au.ŋes/	'to rest, to breathe'

5.3 Distribution of Phonemes Across Syllable Boundaries

5.3.1 Consonants

Consonant clusters occur only across syllable boundaries. Since voiced stops and semivowels do not occur in the syllable coda slot, they never occur as the first member of a consonant cluster. Geminate clusters do not occur.[5] Other than these and the following restrictions, any consonant may occur preceding or following any other consonant.

Voiceless stops occur preceding their voiced conterparts only in reduplicated words. /p/ and /k/ never precede nasals. /l/ never precedes /n/ or /r/.

Voiced stops never follow their nasal counterparts. /r/ never follows /l/. /w/ never follows bilabials[6].

/bopbop/	'to lie down'
/gokgok/	'epilepsy'
/balbal/	'food'
/matŋan/	'different'
/kalkoton/	'stem'
/kamgu/	'girl initiate'
/inŋon/	'shell'
/pasbat/	'to open'
/pipdai/	'to fold'
/turli/	'to carry'
/apirbawai/	'to turn right side up'
/marŋan/	'old'
/taŋni/	'to help'
/ŋaŋrai/	'to cry for help'

5.3.2. Vowels

The following syllable types combine to form clusters of two or three vowels across syllable boundaries:

V.V	/i.a/	'attention getter to warn of danger'
CV.V	/so.a/	'table type'
CV.VV	/gu.ai/	'to make wet'
CV.VC	/ta.un/	'heavy'
V.VC	/a.ir/	'bamboo fence'

There are two possible approaches to explaining vowel distribution and syllable division in Sursurunga. One is the approach used in Section 5.3.2.1 and 5.3.2.2 of the preliminary phonology paper, where observed occurrences of combinations were simply noted. However, after further exposure to the language and a reanalysis, we are positing the following two ordered rules to explain the relationship of vowel distribution and syllable division in Sursurunga:

Rule 1. Any V1V2 where V2 = i or u in an open syllable signals 1 syllable[7]

Observed combinations:

	(C)ei	(C)ai	(C)ai	Cui	(C)oi
Ciu	Ceu	Cau	(C)au		

/kai/	'clam'
/soi/	'to spear'
/siu.siu/	'to swim, bathe'
/ŋeu/	'toothless'
/au.ŋes/	'to rest, breathe'

Rule 2. Any other combination of syllable type or of vowel quantity or quality signals 2 syllables, the syllable break falling between the first 2 vowels. This is manifested in the following 3 ways:

(a) combinations of 2 vowels in an open syllable

Observed combinations:

i.e	i.a	i.o	u.e	o.a

/i.e/	'attention getter to warn of danger'
/si.a.roh/	'peaceful'
/mi.o.ko/	'Duke of York Islands'
/pu.e.ri/	'to split'
/so.a/	'table type'

(b) any VV in a closed syllable

Potentially any combination can occur, but only the following have actually been observed:

i.e	i.a	i.u	i.o	e.i	e.i	e.u
a.i	a.e	a.u	u.i	u.e	u.a	

/ni.er/	'black'
/gi.ur/	'we two (exclusive)'
/min.me.ir/	'special occasion clothing'
/te.il/	'to precede'
/la.es/	'happy'
/a.ur/	'his face'
/ku.ir/	'piece, part'
/tu.aŋ/	'my same sex sibling'

(c) any VVV

Observed combinations:

u.ei	u.ai	o.ai

/gu.ei/	'to make wet'
/pu.ai/	'to deny, disagree'
/so.ai/	'to insert'

Examples of the contrast of open vs. closed syllables and of syllable breaks illustrated by the application of the above two rules are as follows:

/ai/	'attention getter'
/a.is/	'how many'
/au.nes/	'to rest, breathe'
/a.ur/	'his face'
/ai/	'him, her it'
/a.ir/	'bamboo fence'
/liu/	'to be alive'
/i.uk/	'to whistle'

6 SUPRASEGMENTAL ITEMS

6.1 Word Length

Word length depends on the CV patterns in the word as well as the number of syllables. Final CVV and CVr syllables tend to be longer than other types. The following shows relative length of words containing different syllable types.

Single Syllable (non-CVV or -CVr)	-------
Single Syllable (CVV or CVr)	----------
Two Syllables (with V.V)	----------
Two Syllables (XCV or XCVC*)	------------
Two Syllables (XCVV or XCVr)	----------------

X = any syllable type
*where the final consonant in a syllable is nonvibrant

6.2 Word Stress

Word stress in Sursurunga is predictable and operates according to the following rules:

1. When all syllables in the word are identical in both CV pattern and phoneme quality, stress tends to be equal on all syllables.
2. In all other cases, primary stress occurs on the penultimate syllable with secondary stress on the alternate regressive syllables when they are present.

Identical syllables:

/'dik'dik'dik/	'shaking'
/'dok'dok/	'fruit harvesting stick'
/'kang'kang/	'song type'

2-syllable words:

/'guai/	'to make wet'
/'aunges/	'to rest or breathe'
/'kalau/	'male'

3-syllable words:

/gur'guran/	`to wash clothes'
/i'lilim/	`to wash hands'
/kap'labin/	`because'

4-syllable words:

/'alek'tadai/	`to turn upside down'
/'kalas'tari/	`caught'
/'kawa'liklik/	`kinship group'

5-syllable words:

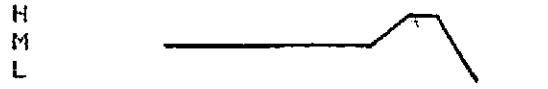
/u'tungti'mani/	`to explain'
/par'asak'saknai/	`to relate untruthfully but not necessarily intentionally'

6.3 Intonation

There can be a great deal of variation of contour and pitch due to speaker preference and/or perturbation by emotions such as anger, disgust, disdain, indignation, fear, shyness, etc. In a long sentence the general pattern is mid/low, mid, mid/high on each clause or phrase until the final one which is mid, high, and then mid/low. Some contours therefore that appear perturbed may just be a long sentence cut off in the middle.

6.3.1 Statement

There are two intonational contours for statements. The first begins and continues on mid pitch with no phrase stress until the final two syllables when the pitch rises to mid/high on the first syllable and then drops to low on the second. The second contour begins on low and continues on low until rising to mid on the final syllable.

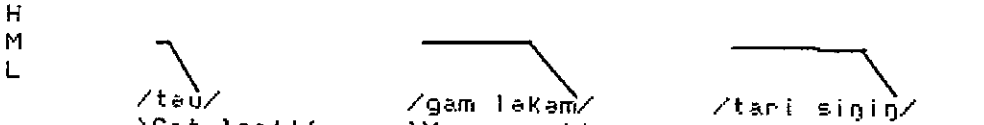


/ina an ura naŋ nokon/
`I will go downcoast to Nokon.'

/ina an ura naŋ i pokori/
`I will go downcoast to the kunai.'

6.3.2 Imperatives

Short frequently used commands start on mid pitch and go to low, while longer commands follow the statement pattern of mid, high, low. Names of more than one syllable are usually in a mid, high pattern.

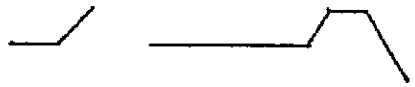


/teu/ `Get lost!'

/gam lakam/ `You come!'

/tari siŋiŋ/ `Give it to me.'

H
M
L



/Renson, an ura nan Nokon/
'Renson, go downcoast to Nokon.'

6.3.3 Interrogative

All pitches in these contours are higher than those in the preceding contours.

6.3.3.1 With Question Words

There are two types of interrogative contours containing question words. The first is stressed phrase medially. It begins on mid pitch, rises to mid/high on the stressed syllable, and returns to mid until the final stressed syllable, when it drops to low.

The second type has initial phrase stress. The pitch begins on mid/high, drops to mid on the second syllable and remains there until it drops to low on the final stressed syllable.

H
M
L

/deni u logoi/
'What are you doing?'

/deni minei/
'What's this?'

6.3.3.2 Without Question Words

This contour starts on low pitch, begins to rise on the first stressed syllable, and continues to rise to a high pitch until the final stressed syllable when it drops again to low.

H
M
L

/una an ur anan nokon/
'Are you going downcoast to Nokon?'

6.3.4 Statement Perturbation

All pitches in these perturbations are higher than in normal statement contours and may have slight variations from speaker to speaker.

6.3.4.1 Stupefaction

H
M
L

/ma ina an kip te wok ser/
'Well, I'm going to go and take my work too. (Implication:
you expect me to do that and my work here too?)'

6.3.4.2 Sympathy

H
M
L 

/wa, keskam bul singim, Renson/
'Oh, sorry for you, Renson.'

6.3.4.3 Joking/lying

H
M
L 

/pusi, kapte unuk makai bung latiu/
'Cat, you will not see the day tomorrow. (Context: Adine, 5 months old, is playing roughly with him, therefore he is in danger)'

6.3.4.4 Disdain

H
M
L 

/ma yau nur ser/
'Well, you are just a shrimp. (ie. you're nothing more than a shrimp)'

6.3.4.5 Placatory

H
M
L 

/ai yau/
'It's me. (Context: the speaker wants to make sure he didn't upset the spirit who asked him who he was, so he responds in a quiet soft voice using this contour)'

6.3.4.6 Indignation

H
M
L 

/kangim tu om a yau/
'We're just playing, you (can see that)!'

6.3.4.7 Response to an unasked but assumed question, or to a dumb question

H
M
L 

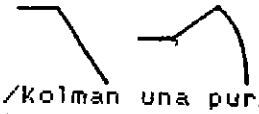
/di lu ani/
'They eat it. (speaking of the fruit of the tree in the story)'

H
M
L

/ur ma muda ser/
`Over there toward the bush is all (just like I do every day around this time).'

6.3.4.8 Excitement

H
M
L



/Kolman una pur/
`Kolman, you will fall!'

6.3.5 Interrogative Perturbation

The perturbing of question contours seems to occur in one basic way for the following emotions.

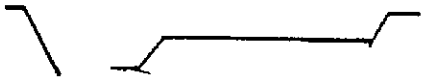
6.3.5.1 Mock Anger

H
M
L

/Kalilik, dəni gam longoi?/
`Hey kids, what are you doing?'

6.3.5.2 Irritation

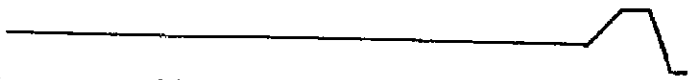
H
M
L



/Kauh, dəni kam tu longoi?/
`Boy, what in the world are you doing?'

6.3.5.3 Censure

H
M
L



/me yau gəlta nengen ngo gam uli tan bolok,

H
M
L

ngo dəni gama longoi mai?/
`I asked you earlier, if you buy those blocks of land, what are you going to do with them?'

6.3.6 Imperative Perturbation

Fear and excitement perturb the overall pitch of the sentence, but normal contour is maintained. Exasperation however (due to the object of the imperative not hearing or obeying) will change the contour.

H
M
L 

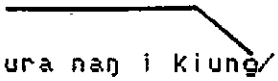
/arsok on, arsok on, arsok on/
'Let go of him, let go of him, let go of him!!!'

6.3.7 Lists and Verb Repetitions

A list or verb repetition will change sentence contour for the duration of the list or repetition. The contour then returns to normal.

H
M
L 

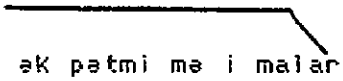
/ina kipi inbul, e long, e tuh, e roho, e kaukau

H
M
L 

ura nan i kiung/
'I'll take yam, taro, sugarcane, greens, and sweet potato to the meeting.'

H
M
L 

/dikte lu an, lu an an an an an an ngorer

H
M
L 

ak patmi me i malar.../
'They went, they went and went and went and went and went and went like that until they were close to the village...'

7 NONCONTRASTIVE FEATURES

7.1 Nasalization

A sequence of up to two vowels is nasalized when it immediately follows a nasal consonant. No instance of three vowels in sequence following a nasal has been observed.

In rapid speech, when an /i/ immediately follows a nasal or a nasalized vowel, it also is nasalized.

/ŋolŋol/	[ŋ̊ɔ̃ːl̥ŋ̊ɔ̃ːl̥]	`have a cold'
/marnel/	[m^{w}ə̃ə̃n̥e̞l̥]	`type of tree'
/kunlen/	[kunl̥en]	`whole'
/leŋwenlul/	[leˇŋweˇnl̥el]	`skull'

7.2 Palatalization

There is no real palatalization in Sursurunga, however, when /i/ occurs in the sequence /iu/ it is very short in length, thereby giving the preceding consonant a palatalized quality.

/siusiu/	`to bathe'
/giur/	`we two (exclusive)'

7.3 Labialization

In rapid speech, /u/ in the sequence Cu.VC, where V may be either /i/ or /a/, gives the initial consonant a labialized quality.

/kuir/	`short, part'
/tuan/	`very'

7.4 Word Final Release Following a Vowel

Word final vowels are released in a manner which varies phonetically between a light glottal stop, silence, and a trailing off to voicelessness. This release contrasts with /h/ (geminate voiceless vocoids) and other word final consonants, but does not contrast with its own absence; therefore, it is nonphonemic and does not need to be represented in the orthography.

The noncontrastive status of this phenomenon is further corroborated by the fact that it is omitted utterance medially in normal and fast speech.

8 ORTHOGRAPHY

8.1 Suggested Orthography

Phoneme	Allophones	Suggested Orthography
/p/	[p^w] [$p^\neg$]	p
/t/	[t̪] [t̪$^\neg$] [t̪^{h}]	t
/k/	[k] [k$^\neg$] [k^h]	k
/b/	[b^w] [$^m b^w$]	b
/d/	[d] [^{n}d] [ḍ]	d
/g/	[g] [^{ŋ}g]	g
/s/	[s]	s
/h/	[h]	h
/m/	[m^w] [m]	m
/n/	[n]	n
/ŋ/	[ŋ]	ng
/l/	[l^j]	l
/r/	[ɾ̃]	r
/w/	[w]	w
/y/	[y]	i
/i/	[ɪ] [i$^\vee$]	i
/e/	[e$^\vee$]	e
/ə/	[ë] [ə]	é
/a/	[a] [ʌ$^\vee$] [ɑ<]	a
/u/	[ʊ] [u] [o] [ʊ]	u
/o/	[ɔ^] [ɔ↑]	o

8.2 Influence of Other Languages

Sursurunga speakers have had considerable exposure to English, Tok Pisin, and Tolai (Kuanua), and many of the neighboring languages on New Ireland and offshore islands. Almost without exception they have adapted their pronunciations of loan words to the Sursurunga sound system. Many people use

Tok Pisin and Tolai words freely without realizing they are not "Sursurunga true"!

Graphically, Sursurunga writers have tried to adapt their language to the orthography used by Tok Pisin and Tolai. This has led to some confusion, especially in the use of a for both /a/ and /ə/, but for the most part has been quite successful. Fortunately, many Sursurungas are literate in one or both of these languages, and switching to their mother tongue has proved fairly easy for them.

8.3 Orthography Problems

8.3.1 Problems in Symbolizing /ə/

From a percentage point of view, as explained in the preliminary phonology paper, it seemed best to let the vowel with the lightest functional load /e/ be marked with a diacritic, while one with a heavier functional load /ə/ use an unmarked symbol. However, it was also noted that because of previous exposure to Tok Pisin and Tolai, there would probably be confusion over this as the unmarked symbol, e, was already associated with /e/, and would have to be relearned to represent /ə/.

After trying the symbol ä with several literate Sursurungas, rethinking the issue, and then discussing this problem at an orthography meeting in the area in July 1976, the symbol á was decided on to represent the phoneme /ə/.

This has been repeatedly used in manuscripts, letters, and in several published and silkscreened materials with no apparent problems. Psycholinguistic testing results indicate that 67% of the Sursurungas tested preferred this symbol to the other two possibilities offered (ä and â). Other discussions have uncovered the fact that the phoneme /ə/ (as well as /a/) is closely associated in Sursurunga minds with the symbol a, and so adding the diacritic to this symbol simply signals that it is the "second kind of a", that is /ə/ rather than /a/.

8.3.2 Problems in Symbolizing /y/

As expected, this has been our main and most controversial orthography problem. Our original preference was to symbolize this phoneme with y as that lined up more closely with Tok Pisin and English, which we felt would become more dominant in the future. However, because of the strong influence of Tolai in the area previouly and still somewhat today, most Sursurungas preferred to use i to symbolize /y/.

One of the strongest reactions we received to our first published book was a complaint about the y's throughout the book. This "sound" was said not to be present in Sursurunga, and therefore should not be used in written materials.

Psycholinguistic testing in June of 1981 revealed that 79% of the Sursurungas tested preferred to symbolize /y/ with i rather than with y. Surprisingly, one of the two primary schools tested favored i over y consistently, this coming from students currently studying in English.

Because of this, we have switched to using i for both /y/ and /i/, and have published a second book with only the i symbol in it. So far, no reactions have been made that this is incorrect and that y is preferred. In addition, after making this switch, we discovered that using i rather than y made for more consistency in explaining the changes occurring in the tense-aspect system affecting Sursurunga pronouns.

8.3.3. The h-Problem

8.3.3.1 Onset of Vowel Initial Words

In the preliminary phonology paper, it was stated that: "The onset of vowel initial words is always smooth, varying from a very light glottal stop to geminate light voicelessness to the absence of both in the coastal dialect, and occurring as /h/ in the mountain dialect. The audible onset is normally present in slow speech, varies as to presence or absence in normal speech, and is usually omitted in fast speech."

The problems caused by this phenomenon are discussed in the reports on the dialect survey and on psycholinguistic testing. To summarize, although dialect differences were based heavily on the presence or absence of h-initial words (in contrast to vowel-initial), it was discovered that both "dialects" use both kinds of words in actual fact, and that individual speaker difference is the more consistent criteria to use for whether or not h-initial words occur.

Psycholinguistic testing revealed that "nine of the 18 groups tested indicated a preference for some h-initial and some vowel-initial words". Only 53% of the people tested indicated a preference for h-initial words. As is noted in the report this is a fuzzy area, and needs further investigation and testing.

My personal preference, as indicated in the psycholinguistic testing report, is to continue with vowel-initial words but be open to changing if there is pressure from the people to do so.

8.3.3.2 Word Medial Breathiness and /h/

Again, in the preliminary paper it was stated that: "Word medially, slight breathiness acts as a transition between vowels with coastal speakers, and /h/ (geminate voiceless vocoids) acts as a transition with mountain speakers."

The original analysis did not include word-medial h, as it was based on the coastal "dialect". However, we have begun to include h's word medially between geminate vowels, in reduplicated words whose stems end in h, and in certain other contexts to make reading easier. This was precipitated by the results of the psycholinguistic testing which indicated preferences for h in these contexts, and because of my own observation, particularly regarding geminate vowels and reduplication, as the h on occasion determines readily which of a minimal pair is being written.

8.4 Sursurunga Pronunciation of Some English Words

[aᴰgiˇsiˇpˀ]	'handkerchief'
[siˇt̪ˀr̃eˇt̪ˀ]	'straight'
[daɪmᵂan]	'diamond'
[bᵂël̃u]	'blue'
[sɪneˇkˀ]	'snake'
[siˇpᵂun]	'spoon'
[pᵂeˇleˇt̪ˀ]	'plate'
[saɔʔl]	'shovel'
[pᵂël̃aiˇⁿdeˇ]	'Friday'
[geɾ̃as]	'grass'
[nɪl]	'nail'
[t̪iˇt̪ˀsa]	'teacher'
[mᵂël̃ɛsɪn]	'medicine'
[kaɾ̃]	'car'

8.5 Tape Text

The following is a text recorded by Tokialir Orim on 31 October 1974. The suggested orthography is used for the vernacular. / signifies the termination of a pause group, // signifies the termination of a breath group. Grammatical sentences are numbered.

1. soi ngisán ái tám nginim suir bor//
   story its.name relater one.who.habitually drinks broth pig

2. bos bos bung no a lu nginim suir bor/
   all all day all he habitually drinks broth pig

3. má i kesá bung/ a longrai ioh bor/
   then relater one day he hears mumu pig

   mák an suri nginim suir bor//
   and.he goes to drink broth pig

4. namur a monai pákánbung án kasioh/
   later he waits.for time for take.dirt.off

   má dik tatki bor uri map/
   and they carry pig for serving

5. a lu anan má a kis pátum má
   he habitually goes and he sits near and

   a nginim suir bor//
   he drinks broth pig

6. mák lu nginim suir bor/
   then.he habitually drinks broth pig

   mák lu nginim suir bor/
   then.he habitually drinks broth pig

   mák lu nginim suir bor/
   then.he habitually drinks broth pig

   mák lu nginim suir bor/
   then.he habitually drinks broth pig

   mák tuan pung i bál/
   then.it very full relater his.stomach

7. lala pakta taladeng i bál//
   big big very.much relater his.stomach

8. namur a lu anan suri kesi pokon kubau/
   later he habitually goes to one area trees

   di utngi ngo laklak/
   they call.it by laklak

9. mák nem ngo na sa/ má nák roh
   then.he likes to he.will climb and he.will.then jump

   til a muni suri nák
   from relater up for it.will.then

   kengen kaleng i bál//
   small return relater his.stomach

10. io ngo a sámtur ia muni pokon laklak erei/
    so when he stands relater up area laklak that

    mák roh/ ur a di bim/
    then.he jumps to relater down ground

11. a pos sarara i bál mák mat//
    it splits all.over relater his.stomach then.he dies

12. a ngorer sár//
    it like.that that's.all

Free Translation of Text:

1. The name of this story is "The One Who Drinks Pork Broth All the Time".
2. Every day he drinks pork broth. 3. Then one day he hears there is a pig

mumu and goes to drink pork broth. 4. Later he waits for the time when they will take the dirt off the mumu and carry the pig to another place for serving. 5. He goes and sits close by and drinks pork broth. 6. Then he drinks and drinks and drinks and drinks the pork broth until his stomach is very full. 7. Very very big is his stomach. 8. Later he goes to a wooded area called "LakIak". 9. He likes to climb a tree and jump down so that his stomach will return to being small again. 10. So like that he stands up in the tree at LakIak and then jumps down to the ground. 11. His stomach splits wide open and he dies. 12. That's the story.

8.6 Orthography Use

The following materials are available in Sursurunga using the above orthography:

Cultural and native-authored materials:

Story book	17 pages
Tumbuna stories	24
Fish stories	36
Bible stories	20
Story book II	19
Dr. Brown	16
Types of cooking	28
Customs from long ago	32
Stories about meat	24
	216 pages

Translated materials:

Genesis Abridgement (1979)	125 pages
How the Jews Lived (1982)	170
Passages on Marriage (1984)	16
Hymnbook (1985)	84
	395 pages

In addition, several letters have been written by me and others using this orthography; manuscript portions of Scripture, hymns, and native-authored stories have been read and distributed to several people; a local orthography committee meeting in July, 1976, discussed and approved it; and two Writers Workshops (January 1983 and November 1984) and two Hymnwriters Workshops (January & December 1984) used this orthography with no problems at all. Our own feeling is that people are happy with the orthography and we do not see any significant changes being made in the future.

FOOTNOTES

1. See Section 8.3.3 in this paper and discussions in the dialect survey report and the psycholinguistic survey report regarding this phoneme and the problems associated with its occurrence.

2. An interesting phenomenon occurs word medially when a voiced stop is preceded by a voiceless stop at a different point of articulation. When this occurs, the prenasalization on the voiced stop assimilates to the point of articulation of the preceding voiceless stop, not that of the voiced stop that it prenasalizes. Rules describing this and examples can be found in "Sursurunga Morphophonemics".

3. Although there are VVC and CVVC combinations, a syllable break always occurs between the vowels.

/a.ir/ `bamboo fence'
/ka.uh/ `boy, son'

4. We are following the syllable breaks here which Sursurungas indicate they prefer in testing. Generally, "unconventional" syllable breaks line up with morpheme breaks.

5. Where combinations of morphemes would produce a geminate cluster, a morphophonemic change takes place.

/kaK kalik/ becomes /kaŋ kalik/ `my child'
/git-tul/ becomes /gitul/ `we 3 (inclusive)'

6. In addition, the following combinations have not yet been observed, but they are random gaps and we expect further data to reveal them:

td tg tl md mŋ

7. There are three words that provide the exceptions to this rule: /ru.i/ `pull', /na.i/ `tree type', and /ta.u/ `wife's mother'. We are calling them exceptions because all the other data we have fits neatly into the 2 rules posited here, and because including these 3 words, we feel, camouflages the underlying general principles operating in Sursurunga. Furthermore, it is possible, although not preferred by Sursurungas, to signal the syllable break by writing an h in the first 2 examples and a w in the third, thus /ruhi/, /nahi/, and /tawu/.

ABBREVIATIONS

C	consonant/contoid
V	vowel/vocoid
^{m}C	any raised nasal preceding the contoid indicates prenasalization
C^{w}	a raised w following the contoid indicates slightly rounded but not full labialization
C̪	front of the norm--this makes [t] dental rather than alveolar
C̪̪	interdental
C^{h}	a raised h following the contoid indicates aspiration
C̠	slight retroflexion
C$^{\neg}$	unreleased
l^{j}	light [l]
Ṽ, C̃	nasalized
V$^{\vee}$	lower than the norm
V$^{\wedge}$	higher than the norm
V$^{<}$	front of the norm
.	syllable break
ˈ	stress

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