

# The Phonology and Orthography of Awad Bing

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2 November 2000

*This paper has been written to provide an organised report of the work done so far in the analysis of the phonology of the Awad Bing language and of the recommendations and problems with regard to developing a feasible orthography. It is intended to satisfy the SIL requirements for field workers to provide an organised selection of phonology data, review the initial phonology analysis done by a team, and make any necessary recommendations regarding changes to the initial orthography.*

## 1. INTRODUCTION

The Awad Bing language is an Austronesian language, the largest in the proto East Bel group (Ross 1988) and is spoken by about 1450 people<sup>1</sup>, most of whom live in 6 main villages and a few scattered hamlets on the Rai Coast of Madang Province, approximately 130 km south-east of Madang by road and from 8km to 20km west of Saidor, the government district headquarters.

The language which is the most closely related to "Awad Bing" is "Wab", a language spoken by 3 villages around Saidor. Often when people from Yamai and Wab villages meet, they will converse with each in their own language. Mindiri forms the third language in the East Bel group.

The name for the language has been somewhat problematical, and most names used refer to a particular village or dialect and do not identify the whole language. One of the more common names used has been Biliau (Bennett 1986, Ross 1988, and others) which is the name of a coastal village and is also the name of the Lutheran church mission station and the local Lutheran church circuit. The language has also been referred to by several of the other village names of the group and as sengam by Z'ggraggen. This name was taken from the word meaning "what" in Galeg village. The Suit villagers refer to the language as semang and in the other villages it is called samang or bing (word/language). The words for "what" indicate the division of three main dialects, i.e. Galeg, Suit and the other villages; although in effect there is a fourth used by Yamai villagers and younger members of the community at Malangai, in the samang dialect. The most noticeable distinguishing feature is a phonological change from "z" (at Biliau, Teterai and traditionally at Malangai) to "d". Because of this, throughout this paper these 3 villages are referred to as the 'samang-z' villages. The name that the language committee has approved is Awad Bing, which means "talk of our (incl.) mouths" and is common to all the dialects.

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<sup>1</sup> The population figure was calculated from a list made by Yann Kubai and some Awad Bing committee members in 1992, based on those living in the area and those who have moved to other places throughout the country, and including the children of women who have married out of the language group and are living outside the language group. For a more detailed breakdown see McHenry and Bennett (1997).

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Each village has its own dialectal variations, with Biliau and Teterai (whose communities interact more closely) being totally cognate. The largest dialectal differences are between the semang (Suit) or sengam (Galeg) villages and those that speak the 'samang-z' dialects.

The Awad Bing language is the main one spoken in the language group, although Melanesian pidgin is known by all but very young children, and spoken not infrequently by younger members of the community, by families where one parent has married into the language group, by children playing at school, in government meetings, and whenever speaking to someone from outside the vernacular area. In Galeg village the influence of the community school has introduced some children who don't speak Awad Bing, and amongst other children there is some confusion between English, Melanesian Pidgin and the vernacular. Even so, there is still strong pressure for the language to be spoken by the majority of the people most of the time. This must weaken as more non-speakers marry into the group. However, at present it is expected that women who marry into the group and reside in the local area will attempt to learn the language. This may mean it will continue to be a viable language for many years to come.

The other language in use is Gedaged, ('tok Bel') from the Krangket island and Siar areas around the city of Madang. This used to be taught in the mission schools, but this practice stopped many years ago and few except for the very old members of the community know it enough to use it conversationally. Young people sometimes use it for singing popular songs from Madang. It is still used sometimes as a church language, mainly by older folk for liturgy and hymns.

Since 1976 (Simons 1976) there have been some significant language changes with less of the younger people at each end of the language group being able to readily understand communication in the dialect spoken by those at the opposite end. Over the years, no one dialect has been clearly seen as more prestigious, since each values and speaks their own in conversation. Certainly the people at Biliau believe that the dialect chosen should be theirs because it was the original dialect and probably also because the church and government have tended to focus activities on the villages around Biliau; there is a primary school, an aid post, and it is a port of call for the Luship boats. This was also the dialect studied to analyse development from Proto Oceanic (Simons 1977). Even though it is a privileged village with more amenities than any others nearby, there is little indication that it is now accepted as the prestigious dialect of the language, if indeed it ever was.

Douglas and Jeanette Bennett commenced work in 1983, firstly at Teterai village (in the 'samang-z' dialect) where the language is believed to have begun with the first settlers settling there. However because of the need for a more central dialect which could be more easily understood by all (the expressed need of younger men at Galeg), and the greater willingness of a number of people at Yamai to be involved in a significant way with the project, in comparison to those at Teterai, they moved in 1990 to Yamai village which was the dialect chosen for their work.

## 2. SUMMARY PRESENTATION OF CONCLUSIONS

### 2.1 CONTRASTIVE PHONEME CHART OF CONSONANTS

		labial	alveolar	posterior	glottal
<b>Plosive</b>	<i>Voiceless</i>	/p/	/t/	/k/	/ʔ/
	<i>Voiced</i>	/b/	/d/	/g/	
<b>Nasal</b>		/m/	/n/	/ŋ/	
<b>Fricative</b>	<i>Voiceless</i>	/f/	/s/		
	<i>Voiced</i>		(/z/)		
<b>Liquids</b>	<i>Lateral</i>		/l/		
	<i>Central</i>		/r/		
<b>Semivowel</b>		/w/		/j/	

Note that the /z/ phoneme only occurs in the ‘samang-z’ dialect.

### 2.2 CONTRASTIVE PHONEME CHART OF VOWELS

		front	back
<b>close</b>	<i>flat tone</i>	/i/	/ū/
	<i>falling tone</i>	/i/	/u/
<b>mid</b>	<i>flat tone</i>	/ē/	/ō/
	<i>falling tone</i>	/e/	/o/
<b>open</b>	<i>flat tone</i>	/ā/	
	<i>falling tone</i>	/a/	

### 2.3 STRESS, PITCH, LENGTH

Stress generally falls on the second syllable in two syllable words, although there are enough counterexamples to this to warrant further investigation. In words of three or more syllables the stress is not predictable, but nor is it contrastive.

Pitch is phonemically contrastive, with different pitch contours particularly differentiating between the first person inclusive plural and third person plural forms of inalienably possessed nouns. Here the pitch contrast is on the final stressed syllable if the word has more than one syllable, and consists of a difference between a relatively flat contour and a falling contour. Pitch contour contrasts also differentiate between many other pairs of words, but these can generally be understood by context when reading.

No evidence has been found of lengthened consonants. For vowels, the phonemes that acoustically correspond to the flatter, higher pitch contour have previously been interpreted as lengthened vowels (Bennett, 1986 and 1992). As a result of this and the feeling among some speakers that ‘pulling’ the voice makes these contrasts, it is suggested that vowels with this contour be consistently written with a double vowel.

### 3. WORKCHARTS – SEGMENTAL LEVEL

#### 3.1 PHONETIC WORKCHART – VOCOIDS

	Front	Central	Back
Close	i		u
	ɪ		ʊ
Close-mid	e		o
Open-mid	ɛ		ɔ
Open	a		

#### 3.2 PHONETIC WORKCHART – CONTOIDS

	Bilabial	Labiodental	Alveolar	Alv-pal	Palatal	Velar	Glottal
Plosive	p <sup>h</sup> p p <sup>ʔ</sup> b		t <sup>h</sup> t t <sup>ʔ</sup> d			k <sup>h</sup> k k <sup>ʔ</sup> g	(ʔ)
Fricative		f	s (z)				
Nasal	m		n			ŋ	
Lateral			l				
Trill			r				
Approximant	w				j		

Note:

1) The glottal stop [ʔ] phone only occurs in a limited distribution in the language. In the Samang dialects west of the Yawi River, in the villages of Biliau, Teterai, Malangai and Yamai, it only occurs between two low central vowels, [aʔa]. In the Galeg dialect it also sometimes occurs between open-mid vowels, for example [gɔʔɔn] ‘dog’ and [pɛʔɛn] ‘woman’ (McHenry and Bennett, 1997), but is still very infrequent.

2) The [z] phone is restricted to the Samang dialects west of the Yawi River, with the exception of Yamai village, which is where most of the linguistic research for this paper was carried out. In the Yamai dialect this phone is consistently expressed as [d], however the converse is not true, in that not all Yamai dialect [d] phones are expressed as [z] in the ‘samang-z’ villages. Since the orthography is based upon the Yamai dialect, [z] does not appear as a grapheme.

### 3.3 CONTRASTIVE OPPOSITION CHARTS – CONSONANTS

For the voiceless stops, syllable initial occurrences are generally unaspirated, whereas syllable finally the aspirated and unreleased variants are in free variation with the unaspirated phone. As a result only the unaspirated variants are shown in the following tables.

#### 3.3.1 Labials

PHONEME	/p/	/b/	/m/	/f/	/w/
WORD INITIAL	[paʔar] /pahar/ 'stingray'	[baʔar] /bahar/ 'magic'	[maʔas] /mahas/ 'sea'	[fār] /faar/ 'frog'	[waʔag] /wahag/ 'kundu drum'
WORD FINAL	[wap] /wap/ 'tree sp.'	[wab] /wab/ 'you take it'	[dām] /daam/ 'file'	[waʔaf] /wahaf/ 'white ants'	[gaʔaw] /gahaw/ 'crayfish sp.'
INTER-VOCALIC	[sɪpi] /sɪpi/ 'thorn'	[sɪbi] /sɪbi/ 'very'	[bɪmi] /bɪmi/ 'ripe'	[tɪfɪri] /tɪfɪri/ 'turn around'	[pɪwiw] /pɪwiw/ 'tie up'
BEFORE A CONSONANT	[dɪpsul] /dɪpsul/ 'they return'	[jabsul] /jabsul/ 'I return'	[mamsiɛŋ] /mamsiɛŋ/ 'dry'		
AFTER A CONSONANT	[sɪrpi] /sɪrpi/ 'watermelon'	[wārbatu] /waarbatuw/ 'rope fruits'	[ɪrɪmɪŋ] /ɪrɪmɪŋ/ 'bow and arrow'	[farfar] /farfar/ 'water current over stones'	[arwaʔaw] /arwahaw/ 'afternoon'

#### 3.3.2 Coronals

PHONEME	/t/	/d/	/n/	/s/	/l/	/r/
WORD INITIAL	[tɪm] /tɪm/ 'bird sp.'	[dɪm] /dɪm/ 'bamboo flute'	[nɪnɪm] /nɪnɪm/ 'yam disease'	[sɪl] /sɪl/ 'lamp'	[lɪŋ] /lɪŋ/ 'drink'	[ru] /ru/ 'two'
WORD FINAL	[fut] /fut/ 'tree sp.'	[wūd] /wuud/ 'swim'	[wūn] /wuun/ 'breadfruit'	[fus] /fus/ 'arrive'	[sul] /sul/ 'lamp'	[sur] /sur/ 'bulldoze'
INTER-VOCALIC	[butɪm] /butɪm/ 'firefly'	[mɪdɪdɪm] /mɪdɪdɪm/ 'their necks'	[nɪnɪm] /nɪnɪm/ 'yam disease'	[gɪsɪnɪm] /gɪsɪnɪm/ 'bamboo joints'	[mɪlɪŋɪm] /mɪlɪŋɪm/ 'initiation'	[tɪrɪdɪm] /tɪrɪdɪm/ 'their knees'
BEFORE A CONSONANT	[atɪmɪm] /atɪmɪm/ 'your chests'	[dɪdɪmɪm] /dɪdɪmɪm/ 'your beards'	[mɪnɪmɪmɪnɪm] /mɪnɪmɪmɪnɪm/ 'sore'	[bɪsɪmɪmɪm] /bɪsɪmɪmɪm/ 'your navels'	[alɪmɪmɪm] /alɪmɪmɪm/ 'your cheeks'	[fɪrɪmɪmɪm] /fɪrɪmɪmɪm/ 'your lips'
AFTER A CONSONANT	[kamtɛɪ] /kamtɛɪ/ 'white'	[dɪmɪdɪmɪm] /dɪmɪdɪmɪm/ 'fish sp.'	[gamɪniɪm] /gamɪniɪm/ 'my stomach'	[mamsiɛŋɪm] /mamsiɛŋɪm/ 'dry'	[kamɪlɪwɪaʔai] /kamɪlɪwɪaʔai/ 'wander'	[tɪrɪmɪrɪmɪmɪm] /tɪrɪmɪrɪmɪmɪm/ 'make a mistake'

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### 3.3.3 Velar area

PHONEME	/k/	/g/	/ŋ/	/j/	/ʔ/
WORD INITIAL	[kas] /kas/ 'speak'	[gās] /gaas/ 'bite'	[ŋaŋuŋ]	[jam] /yam/ 'door'	
WORD FINAL	[suk] /suk/ 'push'	[sūg] /suug/ 'wash'	[luŋ] /lung/ 'drink'	[sui] /suiy/ 'reverse'	
INTER-VOCALIC	[bakan] /bakan/ 'wild sago tree'	[gagag] /gagag/ 'stretch neck'	[daŋaŋ] /dangang/ 'they eat'	[ajaŋ] /ayang/ 'tapioc'	[baʔat] /bahat/ 'sweet potato'
BEFORE A CONSONANT	[rakraʔak] /rakrahak/ 'raft'	[rogrog] /rogrog/ 'twigs'			
AFTER A CONSONANT	[kumkum] /kumkum/ 'bird sp.'	[gumgum] /gumgum/ 'bird sp.'	[ŋunŋun] /ngunngun/ 'fruit fly'		

### 3.3.4 Nasals

PHONEME	/m/	/n/	/ŋ/
WORD INITIAL	[mŋau] /mingaw/ 'knowledge'	[nŋ] /ning/ 'this'	[ŋŋ] /nging/ 'pinch'
WORD FINAL	[wum] /wum/ 'yam garden'	[wun] /wun/ 'you'	[wuŋ] /wung/ 'wash st.'
INTERVOCALIC	[bimi] /bimi/ 'ripe'	[tmi] /tini/ 'his mother'	[nŋi] /ningi/ 'good'
BEFORE A CONSONANT	[dumdum] /dumdum/ 'fish sp.'	[sindariaʔai] /sindariyahay/ 'grate'	[adandani] /adandangi/ 'cold'
AFTER A CONSONANT	[farmim] /farmim/ 'your lips'		[magarŋaʔai] /magarngahay/ 'finish'

### 3.4 CONTRASTIVE OPPOSITION CHART – VOWELS

PHONEME	/a/	/ā/	/i/		/ī/
PHONE	[â]	[ā]	[ɪ]	[î]	[ī]
MONO-SYLLABIC	[sâr] /sar/ ‘dig with hand’	[sār] /saar/ ‘white animal skin’		[sîr] /sir/ ‘fill up’	[sir] /siir/ ‘bird of paradise spring’
	[târ] /tar/ ‘boil’	[tār] /taar/ ‘leave’			
		[dām] /daam/ ‘file / lick’			
STRESSED SYLLABLE	[dimâd] /dimad/ ‘arm (3p)’	[dimād] /dimaad/ ‘arm (1p)’		[tmî] /tini/ ‘his mother’	[tmī] /tini/ ‘his skin’
UNSTRESSED SYLLABLE	[nalū] /naluu/ ‘his child’		[midmîm] /midmim/ ‘your necks’		

PHONEME	/u/		/ū/	/o/	/ō/
PHONE	[u]	[û]	[ū]	[ô]	[ō]
MONO-SYLLABIC		[sûr] /sur/ ‘shovel’	[sūr] /suur/ ‘soup’		
		[tûr] /tur/ ‘string fish on rope’	[tūr] /tuur/ ‘look down’	[tôr] /tor/ ‘conch shell’	[tōr] /toor/ ‘conch shell’
		[dûm] /dum/ ‘flute’	[tūm] /tuum/ ‘tree sp.’	[dôm] /dom/ ‘hold’	[dōm] /doom/ ‘outrigger pins’
STRESSED SYLLABLE		[turûd] /turud/ ‘knees (3p)’	[turūd] /turuud/ ‘knees (1p)’	[alôm] /alom/ ‘voice (3p)’	[alōm] /aloom/ ‘voice (1p)’
UNSTRESSED SYLLABLE	[dudūd] /duduud/ ‘they are swimming’				

PHONEME	/e/	/ē/
PHONE	[ê]	[ē]
MONO-SYLLABIC	[kêw] /kew/ ‘catch fish in net’	[kēw] /keew/ ‘muddy water’
	[têd] /ted/ ‘buttocks (3p)’	[tēd] /teed/ ‘buttocks (1p)’
	[dêm] /dem/ ‘bamboo’	[dēm] /deem/ ‘leak’
STRESSED SYLLABLE	[atêd] /ated/ ‘chest (3p)’	[atēd] /ateed/ ‘chest (1p)’
UNSTRESSED		

SYLLABLE		
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### 3.5 INTERPRETATION

#### 3.5.1 Univalent syllable patterns

The syllable patterns that occur as words by themselves, and hence are non-suspicious syllables, are V, VC, CV, CVC and CVVC. However, it is important to note that the CV and V patterns have a very limited distribution, and in fact there are very few words that end in a univalent vowel. The list below shows that these words are all either loanwords into the language or grammatical particles.

[o]	<o>	vocative speech marker
[be]	<be>	conjunction (exact meaning unclear)
[bi]	<bi>	conjunction (exact meaning unclear)
[de]	<de>	‘and / but’
[di]	<di>	conjunction for smooth speech
[ne]	<ne>	question particle if a person is distant
[ni]	<ni>	question particle if a person is close
[ta]	<ta>	‘or not’ question particle
[wi]	<wi>	‘with’ instrumental
[kane]	<kane>	speech quotation marks
[awo]	<awo>	‘yes’ uncommon, from neighbouring New Guinea languages
[arija]	<ariya>	‘alright’, also speech flow particle. A coastal Madang word
[kuta]	<kuta>	‘banana sp.’ named after missionary John Kuder

Univalent examples of the other syllable patterns are given in the following table.

Pattern	Example	Gloss
VC	[ɔs]	‘smoke’
	[ab]	‘get’
CVC	[nam]	‘I’
	[kud]	‘carry on head’
CVVC	[luɔŋ]	‘he hears’
	[muat]	‘snake’

### 3.5.2 Consonant / vowel interpretation

As a result of the above observation that almost all univalent words end in a consonant, the following two interpretation decisions have been made:

- 1) Word final  $V_1V_2$  sequences ending in [u] or [i] end in a consonant.

The only examples of  $V_1V_2$  sequences in word final position (that is, where  $V_1$  and  $V_2$  are distinct vowels) occurs when  $V_2$  is a semi-vowel, so in all such cases the final phone has been interpreted as a consonant. That is, word final [vowel - u] patterns have been interpreted as [vowel - w], and word final [vowel - i] is interpreted as [vowel - j]. For example,

[badɛi]/[badɛj]	<badey>	‘was’
[niu]/[niw]	<niw>	‘coconut’
[ŋjɛu]/[ŋjɛw]	<ngiew>	‘bandicoot’

- 2) Word final [i] or [u] are followed by a consonant.

Apart from loanwords such as those listed earlier, the only vowel phones to occur in word final position are [i] and [u]. To avoid ending words with open CV patterns, word final [consonant - i] is denoted <C-iy> in the orthography, and word final [consonant - u] is denoted <C-uw> in the orthography. The only exceptions to this are the grammatical examples listed earlier. Similarly, to avoid word final CVV patterns, word final [consonant - ii] is denoted <C-iiy>, and word final [consonant - uu] is denoted <C-uuw> in the orthography. For example, [si], ‘come’, is written <siy>, [wɪju], ‘my leg’, is written <wiyuw> and [sɪ] is written [siiy]. Another piece of evidence to support this interpretation comes from reversing games played by the translator with older members of the community in the early 1980’s, before an orthography was established. Here, the speakers were asked to say how a word would sound if reversed. Words such as [badi], ‘wake up’, were consistently reversed to give [jɪdab] rather than [ɪdab], strongly suggesting the existence of a semi-vowel at the end of the word.

### 3.5.3 Unit / sequence interpretation

There are no examples of univalent consonant clusters within syllables, so as a result segments which could be interpreted as palatalised or labialised consonants and written as a sequence of two consonants have instead been interpreted as CV sequences. Some examples are shown below:

<i>Ambivalent segment</i>	<i>Example</i>	<i>Possible spelling</i>	<i>Chosen spelling</i>	<i>Gloss</i>
[n <sup>j</sup> ]	[n <sup>j</sup> ɛk]	<nyek>	<niek>	‘child’
[ŋ <sup>j</sup> ]	[ŋ <sup>j</sup> ɛu]	<ngyew>	<ngiew>	‘bandicoot’
[b <sup>w</sup> ]	[b <sup>w</sup> au]	<bwaw>	<buaw>	‘remove’

### 3.6 DISTINCTIVE FEATURE MATRICES

Feature matrix of phonemes

	p	b	t	d	k	g	f	s	m	n	ŋ	r	l	ʔ	j	w	i	e	a	o	u
syl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
cons	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-
son	-	-	-	-	-	-	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+
cor	-	-	+	+	-	-	-	+	-	+	-	+	+	-	+	-	-	-	-	-	-
ant	+	+	+	+	-	-	+	+	+	+	-	+	+	-	+	-	-	-	-	-	-
high	-	-	-	-	+	+	-	-	-	-	+	-	-	-	+	+	+	-	-	-	+
low	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-
back	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	+	-	-	+	+	+
atr/tense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
round	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+
labl	+	+	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	+	+
distr	+	+	+	+	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-
latrl	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
nasal	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-
cont	-	-	-	-	-	-	+	+	-	-	-	+	+	-	-	-					
delrel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
voice	-	+	-	+	-	+	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+
spr gl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
con gl	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
strid	-	-	-	-	-	-	+	+	-	-	-				-	-					

Note- Classification of /j/ as +ant, +cor from Durand, 1990:45  
 Classification of /j/ /w/ as -cont from Durand, 1990:52

The above table is a representation of the features in the language. There are a total of 22 contrasting phonemically separate sounds in the two ‘samang-z’ villages west of the Mod river, Biliau and Teterai. The phone [d] replaces [z] in the other villages, with word changes – generally tonal – in places where [z] and [d] contrast in the ‘samang-z’ dialects. There are five vowels and 16 or 17 consonants, depending upon the dialect.

## 4. FORMATIONAL STATEMENTS

For the voiceless plosives [p], [t] and [k], the amount of aspiration and whether they are released or not in word final position varies from speaker to speaker and from time to time, so it is not seen as important phonologically – the different forms recorded in the workchart are in free variation.

### 4.1 LABIALS

/p/ voiceless bilabial plosive phoneme with variants

[p] voiceless bilabial plosive with egressive lung air, occurring word initially, word finally and word medially before a consonant, after a consonant and intervocalically.

[paɣâr]	/paɣar/	<paɣar>	‘female animal’
[kapkapiŋ]	/kapkapiŋ/	<kapkapiŋ>	‘peg, handcuff’
[pɪdpi:d]	/pidpiid/	<pidpiid>	‘spiny grass’
[jakapopʔ]	/yakapop/	<yakapop>	‘I cut’

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[jakapop<sup>h</sup>] /yakapop/ <yakapop> ‘I cut’

/b/ voiced bilabial plosive phoneme

[b] voiced bilabial plosive with egressive lung air, occurring word initially, word finally, intervocalically, before and after voiced consonants.

[bubuk]	/bubuk/	<bubuk>	‘bamboo water carrier’
[gabub]	/gabub/	<gabub>	‘banana sp.’
[bambâm]	/bambam/	<bambam>	‘undersea stone outcrop’
[abdeɪ]	/abdeɪ/	<abdeɪ>	‘you (pl.) stay’

/m/ bilabial nasal phoneme

[m] voiced bilabial nasal with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants.

[mudûd]	/mudud/	<mudud>	‘their necks’
[bambâm]	/bambam/	<bambam>	‘undersea stone outcrop’
[munmûn]	/munmun/	<munmun>	‘sore’
[kamteɪ]	/kamteɪ/	<kamteɪ>	‘white’
[mumuŋ]	/mumung/	<mumung>	‘lizard sp.’

/f/ labiodental fricative phoneme

[f] voiceless labiodental fricative with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants.

[fuf]	/fuf/	<fuf>	‘my grandfather’
[jafafuof]	/yafafuof/	<yafafuof>	‘I’m breaking’
[farfar]	/farfar/	<farfar>	‘water current over stones’
[tuftî]	/tufti/	<tuftiy>	‘broken’

/w/ labiovelar approximant phoneme

[w] voiced labiovelar approximant with egressive lung air occurring word initially, word finally, intervocalically, before and after consonants

[wî]	/wi/	<wiy>	‘leg (3s)’
[ŋiew]	/ngiew/	<ngiew>	‘bandicoot’
[tawam]	/tawaham/	<tawaham>	‘brother (2s)’
[tawmam]	/tawmaham/	<tawmaham>	‘brother (1 ex. pl)’
[malwei]	/malwey/	<malwey>	‘long’

## 4.2 CORONALS

/t/ voiceless alveolar plosive phoneme, with variants

[t] voiceless dental alveolar plosive with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[muat <sup>ʔ</sup> ]	/muat/	<muat>	‘snake’
[muat <sup>h</sup> ]	/muat/	<muat>	‘snake’
[ <sup>h</sup> tamûŋ]	/tamung/	<tamung>	‘poisonous plant’
[kamtɛi]	/kamtey/	<kamtey>	‘white’
[atmim]	/atmim/	<atmim>	‘your (pl) chests’
[butûm]	/butum/	<butum>	‘firefly’

/d/ voiced alveolar plosive phoneme

[d] voiced alveolar plosive with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[damuŋ]	/damung/	<damung>	‘bad’
[mād]	/maad/	<maad>	‘breadfruit seed’
[badɛi]	/badey/	<badey>	‘remain (2s)’
[dɪbɛi]	/dibdey/	<dibdey>	‘remain (3pl)’
[midmim]	/midmim/	<midmim>	‘your (pl) necks’

/n/ alveolar nasal phoneme

[n] voiced alveolar nasal with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[nunum]	/nunum/	<nunum>	‘yam disease’
[raʔan]	/rahan/	<rahan>	‘river’
[gamanmim]	/gamanmim/	<gamanmim>	‘your (pl) stomachs’
[gamniu]	/gamniw/	<gamniw>	‘my stomach’
[labnî]	/labni/	<labniy>	‘leaf’

/s/ alveolar fricative phoneme

[s] voiceless alveolar fricative with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[sarir]	/sarir/	<sarir>	‘go down’
[ŋus]	/ngus/	<ngus>	‘spit’

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[lasin]	/lasing/	<lasing>	‘kina shell’
[mamsien]	/mamsieng/	<mamsieng>	‘dry’
[brsmim]	/bismim/	<bismim>	‘your navels’

/l/ alveolar lateral phoneme

[l] voiced alveolar lateral approximant with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[lasin]	/lasing/	<lasing>	‘kina shell’
[japalul]	/yapalul/	<yapalul>	‘I ran’
[kalman]	/kalmang/	<kalmang>	‘tanget leaf’
[driblen]	/dibleng/	<dibleng>	‘they throw (pl. objects)’

/r/ alveolar trill phoneme

[r] voiced alveolar trill with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[rû]	/ru/	<ruw>	‘two’
[târ]	/tar/	<tar>	‘leave’
[kaka'riek]	/kakariek/	<kakariek>	‘chicken’
['irmin]	/irmin/	<irmin>	‘bow and arrow’
[rogrog]	/rogrog/	<rogrog>	‘twigs’

### 4.3 VELAR AREA

/k/ voiceless velar plosive phoneme with variants

[k] voiceless velar plosive with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[kaka'riek <sup>ɿ</sup> ]	/kakariek/	<kakariek>	‘chicken’
[kaka'riek <sup>h</sup> ]	/kakariek/	<kakariek>	‘chicken’
[kakan]	/kakang/	<kakang>	‘fish net’
[kumkûm]	/kumkum/	<kumkum>	‘bird sp.’
[pasakbad]	/pasakbad/	<pasakbad>	‘quickly’

/g/ voiced velar plosive phoneme

[g] voiced velar plosive with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[gâr]	/gar/	<gar>	‘eat (meat)’
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[daseɣ]	/daseɣ/	<daseɣ>	‘one’
[dagdagou]	/dagdagow/	<dagdagow>	‘my shoulders’
[murgam]	/murgam/	<murgam>	‘later’

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/ng/ velar nasal phoneme

[ŋ] voiced velar nasal with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[ŋus]	/ngus/	<ngus>	‘spit’
[lûŋ]	/lung/	<lung>	‘drink’
[sɪŋor]	/singor/	<Singor>	‘October’
[ŋan'ŋân]	/nganngan/	<nganngan>	‘flies’
[talanmim]	/talangmim/	<talangmim>	‘ears (2pl)’

The grapheme <ng> was chosen, rather than <ŋ>, in order to be consistent with orthographies in Morobe province. At the time Madang province did not have a stance as to which grapheme should be used. As there are no repeated consonants in the orthography, the four consonant cluster <ngng> never occurs.

/y/ alveopalatal approximant phoneme

[j] voiced alveopalatal approximant with egressive lung air, occurring word initially, word finally, intervocalically, before and after consonants

[japalul]	/yapalul/	<yapalul>	‘I ran’
[kamtej]	/kamtey/	<kamtey>	‘white’
[pa'jataŋ]	/payatang/	<payatang>	‘young animal’
[dr'tirjom]	/ditiryom/	<ditiryom>	‘leave you (3pl)’
[pajpaj]	/paypay/	<paypay>	‘papaya’

/h/ glottal stop phoneme

[ʔ] lenis glottal plosive with egressive lung air, occurring between open vowels and always in the final syllable.

[maʔas]	/mahas/	<mahas>	‘sea’
[almaʔam]	/almaham/	<almaham>	‘voices (1 ex. pl)’
[arwaʔaw]	/arwahaw/	<arwahaw>	‘afternoon’
[dimaʔaw]	/dimahaw/	<dimahaw>	‘my arm’

### 4.4 BASIC VOWELS (Falling tone)

/i/ close front unrounded vowel phoneme, with variants

[i] voiced front close unrounded vowel with egressive lung air, generally occurring in the nucleus of stressed syllables, with an associated falling tone

[taw'mim]	/tawmim/	<tawmim>	‘brother (2pl)’
['silan]	/silang/	<silang>	‘anchorage, harbour’

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[ɪ] voiced near-close front unrounded vowel with egressive lung air, generally occurring as the nucleus in unstressed syllables

[dɪmâd]	/dɪmad/	<dimad>	‘their arms’
[jɪli]	/yɪli/	<yiliy>	‘his insides’
[kɪmiŋ]	/kɪming/	<kiming>	‘mumu bread’

/a/ open unrounded vowel phoneme

[â] voiced open central unrounded vowel with egressive lung air and an associated falling tone in stressed syllables

[asur]	/asur/	<asur>	‘blood’
[gɪrâm]	/gɪram/	<giram>	‘garamut’
[nâm]	/nam/	<nam>	‘I’

/u/ close back rounded vowel phoneme, with variants

[û] voiced close back rounded vowel with egressive lung air, generally occurring as the nucleus in stressed syllables with an associated falling tone

[mɔ <sup>1</sup> dûd]	/mudud/	<mudud>	‘necks (3p)’
[wɔ <sup>1</sup> dûd]	/wudud/	<wudud>	‘help (3s)’
[wɪjû]	/wiyu/	<wiyuw>	‘his nose’

[ɔ] voiced near-close back rounded vowel with egressive lung air, generally occurring as the nucleus in unstressed syllables

[mɔ <sup>1</sup> dûd]	/mudud/	<mudud>	‘necks (3p)’
[wɔ <sup>1</sup> dûd]	/wudud/	<wudud>	‘help (3s)’
[dɔfusûs]	/dufusus/	<dufusus>	‘come out (3pl)’

/e/ mid front vowel phoneme, with variants

[ê] voiced open-mid front unrounded vowel with egressive lung air occurring as the nucleus of stressed syllables with an associated falling tone

[balêḿ]	/balem/	<balem>	‘your tongue’
[atêd]	/ated/	<ated>	‘their chests’
[têd]	/ted/	<ted>	‘their buttocks’

/o/ close-mid back vowel phoneme with variants

[ô] close-mid back rounded vowel with egressive lung air, with an associated falling tone.

[damôd]	/damod/	<damod>	‘their foreheads’
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[dôm]	/dom/	<dom>	‘hold’
[alôm]	/alom/	<alom>	‘your voice’

[ɔ] open-mid back rounded vowel with egressive lung air, occurring at the start of monosyllabic VC words, and in diphthongs

[ɔs]	/os/	<os>	‘smoke’
[luɔŋ]	/luong/	<luong>	‘hear’

### 4.5 DOUBLE VOWELS (Flat tone)

/ii/ close front vowel phoneme with high flat tone

[i] close front unrounded vowel with egressive lung air, occurring in stressed syllables with an associated high flat tone

[alid]	/aliid/	<aliid>	‘cheeks (lip)’
[bir]	/biir/	<biir>	‘ladder’
[ti]	/tii/	<tiy>	‘goatfish’

/aa/ open vowel phoneme with high flat tone

[ā] open unrounded vowel with egressive lung air, occurring in stressed syllables with an associated high flat tone

[wār]	/waar/	<waar>	‘rope > root’
[dimād]	/dimaad/	<dimaad>	‘arms (lip)’
[mām]	/maam/	<maam>	‘my father’

/uu/ close back vowel phoneme with high flat tone

[ū] close back rounded vowel with egressive lung air, occurring in stressed syllables with an associated high flat tone

[sūr]	/suur/	<suur>	‘soup’
[rū]	/ruu/	<ruuw>	‘dig (3s)’
[wijū]	/wiyuu/	<wiyuuw>	‘my nose’

/oo/ close-mid back vowel phoneme with high flat tone

[ō] close-mid back rounded vowel with egressive lung air, occurring in stressed syllables with an associated high flat tone

[dôm]	/doom/	<doom>	‘outrigger pins for canoe’
[fôn]	/foon/	<foon>	‘turtle’
[bisōd]	/bisood/	<bisood>	‘navel (lip)’

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/e/ mid front vowel phoneme with high flat tone, with variants

[ē] open-mid front unrounded vowel with egressive lung air, occurring in stressed syllables with an associated high flat tone

[atēd]	/ateed/	<ateed>	‘ chests (1ip)’
[balēd]	/baleed/	<baleed>	‘ tongues (1ip)’
[pēn]	/peen/	<peen>	‘ woman’
[tēt]	/teet/	<teet>	‘ village’
[tēd]	/teed/	<teed>	‘ buttocks (1ip)’

### 4.6 OTHER VOCOID SEGMENTS

As explained above, syllable initial [uV] and [iV] are interpreted as <wV> and <yV> respectively, and similarly syllable final [Vu] and [Vi] are interpreted as <Vw> and <Vy>. However, where these and other vowel clusters occur elsewhere they are written as vowel diphthongs. In some cases these diphthongs are so close together the sound is phonetically a raised or lowered basic vowel, but speakers prefer the representation in terms of diphthongs to adding extra vowels. In addition, it seems to be the more likely underlying form given the rarity of these diphthongs in words of more than one syllable. For example, [e̞] is written as <ei>. The following table gives some examples of vowel clusters.

<ei>	[badɛi] [tɛi] [nein]	<badeiy> <teiy> <nein>	‘ remain’ ‘ put’ ‘ maybe’
<ie>	[ɲieu] [niek] [kies]	<ngiew> <niek> <kies>	‘ bandicoot’ ‘ child’ ‘ peel in mouth’
<ou>	[gɔən] [dɔəm]	<goun> <doum>	‘ dog’ ‘ bad’
<ua>	[muat] [buab] [buaw]	<muat> <buab> <buaw>	‘ snake’ ‘ animal noise’ ‘ bamboo’
<au>	[raunaʔai] [daunaʔai]	<raunahay> <daunahay>	‘ lay out cloth’ ‘ lean against’
<uo>	[suɔi] [luɔŋ] [ruɔi] [tamuɔl]	<suoy> <luong> <ruoy> <tamuol>	‘ shoot something’ ‘ know’ ‘ judge’ ‘ man’

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<uoi>	[suəi] [ruəi] [buəi]	<suoiy> <ruoiy> <buoiy>	'shoot (imp.)' 'fly' 'cross river'
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## 5. PHONEME FREQUENCIES

The following table shows the frequencies of the various phonemes, as exhibited by the presence of the graphemes, firstly taken from a lexicon of 2405 entries and secondly taken from about 100KB of text material. It is interesting to note that the ranking of the vowels is the same in both cases, with <a> by far the most common grapheme, and <i> and <u> both occurring more often than <e> and <o>. These rankings give a good basis for assigning strengths to the vowels as <a> > { <i>, <u> } > { <o>, <e> }. This provides a useful rule of thumb when looking at mophonemics or deciding which vowel persists when a diphthong is reduplicated - the stronger vowel exerts a greater influence. It is also interesting to note the rarity of the labial and velar voiceless phones, and that the most common consonants are voiced. This reflects the fluidity and gentle sound of the language, and the importance of pitch. As a Lutheran missionary observed, it is a beautiful sounding language!

RANK	FROM LEXICON		FROM TEXT MATERIAL	
	GRAPHEME	PERCENTAGE	GRAPHEME	PERCENTAGE
1	<a>	18.2	<a>	19.0
2	<i>	9.3	<i>	11.0
3	<u>	7.2	<y>	8.3
4	<y>	6.5	<n>	8.0
5	<ng>	4.8	<d>	6.2
6	<m>	4.5	<u>	5.0
7	<l>	4.5	<e>	4.7
8	<w>	4.3	<ng>	4.6
9	<e>	4.1	<m>	4.4
10	<s>	4.0	<b>	3.9
11	<r>	4.0	<l>	3.3
12	<n>	3.9	<w>	3.2
13	<d>	3.9	<t>	3.2
14	<o>	3.7	<o>	3.0
15	<b>	3.6	<s>	2.7
16	<t>	3.4	<r>	2.5
17	<g>	3.1	<g>	2.2
18	<k>	2.4	<h>	1.7
19	<h>	2.2	<p>	1.2
20	<p>	1.4	<k>	0.9
21	<f>	0.9	<f>	0.8

## 6. THE SYLLABLE

Two points are worth noting regarding all syllables in Awad Bing. Firstly, all contain a vocoid segment, and secondly, they never contain a consonant cluster.

### 6.1 One syllable words

For monosyllabic words the syllable types are V, CV, VC, CVC, VVC and CVVC, but the first two types are very rare as explained in an earlier section. VVC syllables only occur by using double vowels for the flat tone. Orthographically, CVVVC is also sometimes used to provide enough differentiation between similar sounding words.

Examples:

<i>Syllable type</i>	<i>Example</i>	<i>Gloss</i>
V	<o>	vocative speech marker
CV	<di>	conjunction
VC	<os>	‘smoke’
CVC	<sul>	‘torch’
VVC	<aab>	‘house’
CVVC	<ruoy>	‘judge’
CVVVC	<ruoiy>	‘fly’

### 6.2 Two syllable words

For two syllable words the most common patterns are CVCCVC or CVCCVVC and CVCVC or CVCVVC. VCVC or VCVVC and VCCVC or VCCVVC also occur fairly regularly. CVCV occurs very infrequently. In the vast majority of cases the first syllable only contains one vowel, but there are some examples of CVVCVC. The frequency of these patterns reflects the fact that almost all words are closed with a consonant and most also start with a consonant. They also reflect the fact that the second syllable is generally the strongest syllable, carrying greater stress and length, pitch contrasts, and a more complex vocoid segment. Appendix A shows examples of the consonant co-occurrences that have been discovered across syllable breaks.

Examples:

<i>CV pattern</i>	<i>Example</i>	<i>Gloss</i>
CVCCVC	<malbong>	‘flying fox’
CVCCVVC	<mamsieng>	‘dry’
CVCVC	<kadam>	‘flying fish’
CVCVVC	<tamuol>	‘man’
VCCVC	<almim>	‘your (pl) cheeks’
VCCVVC	<alnguong>	‘you (pl) hear’
VCVC	<asur>	‘blood’
VCVVC	<iduom>	‘night’
CVCV	<kane>	speech quotation marks
CVVCVC	<nuoran>	‘yesterday’

### 6.3 Words with three or more syllables

For words of three or more syllables similar trends can be observed – the vast majority of words are closed with a consonant, mainly also starting in a consonant, and the first syllables in a word generally have simpler vocoid segments than later syllables.

Some examples:

<i>CV pattern</i>	<i>Example</i>	<i>Gloss</i>
CVCCVCVC	<ngilngiliy>	‘black’
VCVCVC	<aniyaw>	‘rain’
CVCVCCVVC	<pamalmuol>	‘fall down’
CVCVCVVC	<yasanguong>	‘I chew’
CVCVCVC	<wururor>	‘gravel’
CVCVCVCVC	<yalunganiy>	‘I want to drink’
VCVCVCVC	<angangangiy>	‘thing which eats’
CVCVCCVCVC	<sabangbongiy>	‘caretaker’

## 7. STRESS, PITCH, LENGTH

### 7.1 STATEMENT ON STRESS

Greater intensity, greater length and a tenser vocoid segment evidence stress. Using this basis, stress is not contrastive in the vast majority of cases. In two-syllable words it generally falls on the second syllable, leaving the first, unstressed syllable with a much shorter and quieter more neutral vowel. For example,

[bu'tu:m]	<butum>	‘firefly’
[ka'dà:m]	<kadam>	‘flying fish’

However, there are several two-syllable words where both syllables have similar intensity, quality and length, making it hard to place stress as more prominent on one particular syllable, for example,

[sàróm]	<sarum>	‘clam shell’
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There are a very few minimal pairs which appear to differ predominantly in stress rather than pitch or length, but these examples can all be differentiated by the context so there is no need to represent differences in the orthography. For example, in the subsequent sets of three, the first two contrast in stress, and both contrast with the third in pitch.

[wɔ'dūd]	<wuduud>	‘he is swimming’
[wudūd]	<wuduud>	‘dolphin’
[wɔ'dûd]	<wudud>	‘he is helping’
[wi'jû]	<wiyuw>	‘his nose / mountain’
[wi'jû]	<wiyuw>	‘rat’
[wi'jū]	<wiyuuw>	‘my nose’

In the vast majority of three-syllable words it is easier to place the stress, and it can occur on any of the three syllables.

## 7.2 STATEMENT ON PITCH AT SEGMENTAL LEVEL

### 7.2.1 Analysis

Pitch is seen as more important than stress, and carries both lexical and grammatical information. Various factors have led to this conclusion. Most importantly, there are many monosyllabic words with different lexical meanings, differing only at a prosodic level, of which there are examples below. The fact these differences occur on monosyllabic words means that it cannot be stress alone that is acting in the language. When trying to explain the difference between these words, some speakers will physically raise their heads and eyebrows to give one sense, and lower their heads for the other – suggesting a tonal contrast. Assistance from Mike Cahill of the Summer Institute of Linguistics and use of the Speech Analyser computer program has identified considerably different pitch contours between these pairs of words. These are, specifically, a flat tone, marked below by a straight line - e.g. [ē̄] , and a falling tone, marked by a circumflex - e.g. [ê̂]. Examples of the output from Speech Analyser are shown in Appendix B. The fact that no more than pairs have been found suggests that it is this difference in the contour alone which is contrastive, rather than the actual level of the tone.

Examples:

[dôm]	‘hold’
[dôm̄]	‘outrigger pins for canoe’
[gâr]	‘eat (meat)’
[gâr̄]	‘tree sp.’
[wûn]	‘you’
[wûn̄]	‘breadfruit’
[têd]	‘their buttocks’
[têd̄]	‘our (incl.) buttocks’
[sîr]	‘fill up’
[sîr̄]	‘tail feathers of bird of paradise’

There are also many contrasting minimal pairs of two syllable words, again differing only at the prosodic level. Almost all these contrasting examples are in words where the second syllable is the stressed syllable, with the characteristics explained above. The first unstressed syllable is in each case very short and quiet and so it seems that it does not carry any important pitch information, whereas the second syllable carries either a flat high tone or a falling tone. In cases where a pitch can be heard on the first syllable, it is generally influenced by the following contour – raised if it is followed by a falling tone, and low if it is followed by a flat tone. This suggests that the tone should be considered at the word level, rather than at the syllable level. This has similarities with the analysis of the Fasu language (May and Loeweke, 1965), which identifies a nuclear syllable in every word that carries the tonal information for the word.

Examples:

[mʊn¹mû:n]	‘sore’
[mʊn¹mū:n]	‘noise’
[dr¹mâ:d]	‘their arms’
[dr¹mā:d]	‘our (incl.) arms’
[tʊ¹bû:d]	‘their grandfather’

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[tu<sup>h</sup>bū:d] ‘our (incl.) grandfather’

For words of three syllables and above, semantic contrasts have only been observed in possessed nouns, such as the parts of the body. Again, there is a nuclear syllable carrying either a high flat tone or a falling tone, and correspondingly modifying the pitch of its marginal syllables. For example, syllables following a falling tone nucleus carry a lower pitch than those following the high tone variant do.

Examples:

[aga <sup>h</sup> râ:dgu]	‘their necks’
[aga <sup>h</sup> rā:dgu]	‘our (incl.) necks’
[a <sup>h</sup> tê:dbibi]	‘their chests’
[a <sup>h</sup> tē:dbibi]	‘our (incl.) chests’
[ta <sup>h</sup> banâ:d]	‘their heads’
[ta <sup>h</sup> banā:d]	‘our (incl.) heads’

It is worth noting here that although these tone differences do undoubtedly exist, it is not always clear even to native speakers which is meant when the word is spoken in isolation. This was discovered in tests where two speakers stood with their backs to each other, one spoke a word and the other had to give the correct meaning. The results showed significantly more than half were understood correctly – so it was not random – however, the success rate was also noticeably lower than 100%, suggesting that often it is facial expression or context which help to clarify the correct meaning.

### 7.2.2 Typology and tonogenesis

Austronesian languages with phonemic tone contrasts in Western Melanesia are quite rare, but some have been recorded. Two examples, Yabem and Bukawa’ are spoken in the Huon Peninsular area (Capell, 1949). In Yabem there are contrasting high and low tones only, whereas in Bukawa’ there is more variation in the pitch contours, including a mid tone and pitch glides. Capell demonstrates that the tone in Yabem is pre-Austronesian, and deduces the existence of pre-Austronesian tones in this part of New Guinea. Ross (1993) gives a more detailed account of the tonogenesis in these languages. There is a precedent, then, to say it is possible that the existence of pitch contrasts in Awad Bing may come from the existence of pre-Austronesian tone on this area of the Rai Coast.

It is interesting to note that in many cases pitch differences in the Yamai dialect correspond with differences between the phones [d] and [z] in the ‘samang-z’ dialects. For example, all the third person plural forms recorded above end in [z] in the ‘samang-z’ dialects.

<i>‘Samang-z’ dialects</i>	<i>Yamai dialect</i>	<i>Gloss</i>
[dr <sup>h</sup> ma:d]	[dr <sup>h</sup> mā:d]	‘arms (1p)’
[dr <sup>h</sup> ma:z]	[dr <sup>h</sup> mâ:d]	‘arms (3p)’
[ta <sup>h</sup> bana:d]	[ta <sup>h</sup> banā:d]	‘heads (1p)’
[ta <sup>h</sup> bana:z]	[ta <sup>h</sup> banâ:d]	‘heads (3p)’
[damo:d]	[damō:d]	‘foreheads (1p)’
[damo:z]	[damô:d]	‘foreheads (3p)’

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Since the ‘samang-z’ dialect spoken in Biliau is reputed to be the original dialect it seems that the [z] phone occurring word finally was modified to [d] and a corresponding pitch change when the language spread to Yamai.

However, this does not explain all the examples of pitch differences described in the preceding section, particularly the monosyllabic words that are not inalienably possessed nouns. Looking at the development from Proto Oceanic (POC) for the Austronesian words<sup>2</sup>, it can be seen that the difference in tone may in some cases result from the deletion of a different final vowel to make a closed syllable in Awad Bing. (Simons, 1977). For example,

POC	*qumu	[wū:m]	‘oven’
POC	*quma	[wû:m]	‘yam garden’
POC	*tini	[tinī]	‘(his) skin’
POC	*tina	[tinî]	‘(his) mother’

It is unclear where the pitch contrast in other pairs originates.

### 7.2.3 Orthography

For the words of two or more syllables, particularly the inalienably possessed nouns, various methods have been tried to mark the differences in minimal pairs as different interpretations have been given to explain them. An early attempt involved using single and double vowels, with a single vowel used for the third person plural (falling tone) and a double vowel used for the first person inclusive plural (flat tone). This method could be extended to other words that are not inalienably possessed nouns, and would fit with the current spelling for some other contrasting pairs, for example:

[waŋêi]	<wangey>	‘his name’
[waŋēi]	<wangeey>	‘big’
[tinî]	<tiniy>	‘his mother’
[tinī]	<tiniy>	‘his skin’

A subsequent method followed an interpretation that the suffixes for the plural forms of the inalienably possessed nouns involved lengthening to the consonants at the end of the stem. As a result, the first person inclusive plural was generally spelt with a single consonant and the third person plural with a double consonant. For example, <farid> ‘our (inc.) lips’ contrasted with <farrid> ‘their lips’. However, under this scheme there was some debate between speakers as to whether the double consonant should mark the first person or third person form, and if it were extended to one syllable roots, such as /ge/ ‘saliva’, consonant clusters would be introduced within syllables. A move away from this system is recommended.

Following the analysis reported in this paper, the possibility of using diacritic marks was brought to a meeting of members of the translation committee and other speakers. Grave accents, acute accents, circumflexes and other markers were shown, but there was disagreement as to which sign should go with each word, and the whole idea was met with little enthusiasm. In fact, there is strong opposition to the use of any symbols outside of the Bel and English alphabets. In Bukawa’, diacritics are used to show the different tones, but only where the context is insufficient to give the correct meaning (Eckermann, personal communication). Bukawa’ speakers are also more used to diacritics since their orthography uses circumflexes to mark the difference between close-mid and open-mid vowels.

A final possibility for the inalienably possessed body parts would be to revert to the ‘samang-z’ dialects for the spelling of the third person plural and use a [z] word finally.

<sup>2</sup> The Proto Oceanic examples are taken from Grace (1969) as recorded in Wurm and Wilson (1975)

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For one-syllable words, the use of single and double vowels will again suffice to distinguish between the two contours. At first it was thought that this would conflict with the length differences recorded in earlier documentation (Bennett, 1986). However, on further investigation, drawing up lists of words which rhymed on the nuclear syllable, it was found that all of the words previously recorded with a lengthened vowel rhymed with those diagnosed here as having a flat tone. Similarly, those with a short vowel corresponded to those with a falling tone. For example, the current orthography distinguishes [sī], <siy>, ‘come’ and [si], <siiy>, ‘sharp stick used as a fork’, where the difference appears to be more a function of pitch difference than length difference (see Appendix B). As a result it is recommended to use double vowels in the orthography to represent the flat tone and single vowels for the falling tone.

### 7.3 STATEMENT ON LENGTH

No evidence has been found of lengthened consonants.

As has already been stated, vowel length is generally associated with stress, with the vowel in a stressed syllable within a word carrying a greater length. From measurements in Speech Analyser, no examples of contrastive length have been found within vocoid segments. However, earlier work in the language describes lengthened vowels contrasting with standard vowels (Bennett, 1986, 1992), but it was deemed difficult to hear. This analysis reflected a feeling by speakers that some vowel segments were ‘pulled’ more, and their choice was to use double and single vowels to represent this. More recent analysis shows that the lengthened vowels described before coincide with the flat tone described above, hence the recommendation to use double vowels for the flat tone.

## 8. PHONOLOGICAL PHRASE

### 8.1 TYPICAL INTONATION CONTOURS

There is a general downdrift in pitch throughout the phonological phrase, but still with noticeable rises and falls in the pitch within this framework. Speech is stress-timed rather than syllable timed, and each phrase has a tonic syllable marked by greater intensity and, sometimes, higher pitch. The tonic syllable is often at the start of the phrase, but not always. Questions have a markedly higher pitch on the first word of the phrase and then descend in pitch. Polar questions ending in one of the question markers <i>, <ni> or <ne> have a rise in pitch again on this final word.

### 8.2 OTHER PHONOLOGICAL DEVICES FOR COMMUNICATING EMOTION AND ATTITUDE

No response to a statement is an indicator of disagreement.

A ‘tutting’ sound repeatedly placing the tongue behind the upper teeth is used to indicate sympathy or astonishment.

Storytellers will sometimes modify word lengths and intonation of phrases to accompany the actions or emotions being described. For example, the verb <yiel>, ‘he goes’, is often dramatically lengthened or repeated to indicate the manner in which somebody travelled.

## 9. SHORT TEXT

### 9.1 TRANSCRIPTION OF A RECORDED PASSAGE

#### 9.1.1 Phonetic

[fra<sup>1</sup>de arwahawən aniaw waŋe<sup>1</sup> daseg sibi ba:d fə kɪlək aban nɑg jiel wudar sarəre .. o .. fra<sup>1</sup>d e yidoumən .. fra<sup>1</sup>de yidoumən aniaw waŋe<sup>1</sup> daseg sibi ten kɪlək aban nɑ:g di tɛŋk naŋ te<sup>1</sup>an de<sup>1</sup> w atala<sup>1</sup> balbad muəl balbad muəl

di mam makas kane aʔa<sup>1</sup> man mulul (unclear) di wudi sag masarir madaŋ gam tam tɛŋk man sisi di ra:n wudi sarir sarir naŋ balbad si a:b tinian tafalal di mur sararir balbad muəl nɑg basadi d

tɛŋk balbad niŋ jm te<sup>1</sup> dɔm sibi balbad naŋ makes bad niŋi madaŋ di buŋbɔŋsag sar:e buŋbɔŋsag naŋ ma:man sarir duŋduŋuɔŋ tame<sup>1</sup> buəl di tam alɪsɔn tame<sup>1</sup> minian riŋ dɪte<sup>1</sup> di mɔn dupsul dɪpsi

tɛŋk naŋ jm dɔm sibi balbad naŋ bad niŋi sibi tijaʔam balbad naŋ yin makes bad niŋi raʔan sarir naŋ tɔ<sup>1</sup>let bal tɔ<sup>1</sup>let lib naŋ te<sup>1</sup> dɔm di mɔn fow murgam urataŋ ditejan de<sup>1</sup> naŋ sag tɔ<sup>1</sup>let bid tɛŋk bid mini barnun]

#### 9.1.2 Orthographic

<Fraide arwahaw aniyaw wangeey daseg sibiy bad fo kilok abang naag yiel wudar Sarare.

Fraide yidouman ... Fraide yidouman aniyaw wangeey daseg sibiy ten kilok abang naag di tenk nang teyan dey watalay balbad muol balbad muol.

Di mam makas kane ahay man muluol (unclear) di wudiy sag masarir madang gam tam tenk man sisiy di rahan wudiy sarir sarir nang balbad siy aab tiniyan tafalal di mur sararir balbad muol noog basadid.

Tenk balbad ning yin tey dom sibiy balbad nang makiesiy bad ningiy madang di bungbongsag Sarare bungbongsag nang maaman sarir Dingdinguong tamey buol di tam Alison tamey miniy ring ditey di mun dupsul dipsiy.

Tenk nang yin dom sibiy balbad nang bad ningiy sibiy tiyaham balbad nang yin makiesiy bad ningiy rahan sarir nang toilet bal toilet lib nang tey dom di mun fow murgam wuratang diteyan. Dey nang sag toilet bid tenk bid miniy barnun.>

#### 9.1.3 Free Translation

‘On Friday afternoon an extremely heavy rain fell from about four o’clock and it carried on until early morning Saturday.

On Friday night, Friday night the rain was extremely heavy and about ten o’clock the base of the tank split upwards, half fell one way, half the other.

And we thought a tree had fallen and all of us went down to see the tank had broken itself and all the water had gone down. It descended and half came and broke against the body of the house and the back one fell straight over there.

This half of the tank was very ruined. That half was a little bit good. We saw it and in the morning, Saturday morning, Dad went down and told Dungdungguong’s father and they rang Alison’s father and returned again.

The tank is extremely broken, half is not very good, the other half is a little bit alright. The water poured into the toilet, it ruined the toilet hole. And they will have to make a new one again. That is all, the story about the toilet and the tank.’

## 10. MORPHOPHONEMICS

### 10.1 POSSESSED NOUNS

Many nouns are inalienably possessed, with suffixes marking the possessor. These nouns include many body parts and kinship terms, but also other attributes such as ‘smell’ and ‘honour’.

The following table shows the basic suffixes and an example using the stem /alo/ ‘voice’.

POSSESSOR	SUFFIX	EXAMPLE	GLOSS
1 <sup>st</sup> person singular	-w	alow	‘my voice’
2 <sup>nd</sup> person singular	-m	alom	‘your voice’
3 <sup>rd</sup> person singular	*-ey	aley	‘his/her/its voice’
1 <sup>st</sup> person incl. plural	-d	alod	‘our (incl.) voices’
1 <sup>st</sup> person ex. plural	*-maham	almaham	‘our (exc.) voices’
2 <sup>nd</sup> person plural	*-mim	almim	‘your voices’
3 <sup>rd</sup> person plural	** -d	alôd	‘their voices’

\* indicates that there is deletion of the final vowel in the stem.

\*\* indicates that there is a falling tone placed on the final vowel in the stem<sup>3</sup>.

Other examples:

	<i>‘mouth’</i>	<i>‘smell’</i>	<i>‘cheeks’</i>	<i>‘forehead’</i>	<i>‘spirit’</i>	<i>‘saliva’</i>
<i>1s</i>	awahaw	girew	aliw	damow	ananuw	gew
<i>2s</i>	awaham	girem	alim	damom	ananum	gem
<i>3s</i>	away	giry	aliy	damey	ananûw	gey
<i>1(incl.)pl</i>	awad	gired	alid	damod	ananud	ged
<i>1(exc.)pl</i>	awmaham	girmaham	almaham	damanmaham	ananmaham	gaymaham
<i>2pl</i>	awmim	girmim	almim	damamim	ananmim	gaymim
<i>3pl</i>	awâd	girêd	alfd	damôd	ananûd	gêd

<sup>3</sup> In the ‘samang z’ dialect, the third person plural form simply has the suffix /-z/.

## The Phonology and Orthography of Awad Bing

There are several phonological rules governing the precise surface form.

### 1 Glottal Insertion Rule

When the final vowel in the stem is [a] then it is reduplicated and a glottal is inserted before either [w] or [m].

$$\begin{array}{ccccccc}
 V & + & C & \# & \rightarrow & V & [ʔ] & V + C \\
 [- \text{high}] & & [+ \text{labial}] & & & & & \\
 [+ \text{back}] & & & & & & & 
 \end{array}$$

Examples:

/awa+w/	/damo+w/	/sagara+m/	/talnga+m/	UR
awahaw		sagaram	talngaham	Glottal insertion
<awahaw>	<damow>	<sagaram>	<talngaham>	SR
‘my mouth’	‘my forehead’	‘your back’	‘your ears’	gloss

### 2 Vowel Raising Rule

When the penultimate vowel of the stem is [+ high], a vowel commencing a suffix is raised to [+ high]. The deletion of the final vowel in the stem is also shown in this rule

$$\begin{array}{ccccccc}
 V & C_0 & V & + & V & \rightarrow & V & C_0 & \emptyset & + & V \\
 [+ \text{high}] & & & & [+ \text{high}] & & & & & & [+ \text{high}]
 \end{array}$$

### 3 Vowel Harmony Rule

When the final vowel in the stem is [+ high], a vocoid suffix harmonises with the deleted final vowel.

$$\begin{array}{ccccccc}
 V & + & V & \rightarrow & \emptyset & V \\
 [+ \text{high}] & & & & [+ \text{high}] & \\
 [\alpha \text{ back}] & & & & [\alpha \text{ back}] & 
 \end{array}$$

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Examples:

/awa+*ey/	/gire+*ey/	/siyu+*ey/	/ge+*ey/	/ali+*ey/	/alo+*ey/	/tuwa+*ey/	UR
	giri	siyuw		aliy		tuwi	Vowel Harmony Vowel Raising
<awey>	<giri>	<siyuw>	<gey>	<aliy>	<aley>	<tuwi>	SR
'her mouth'	'her smell'	'her breast'	'her saliva'	'her cheeks'	'her voice'	'her bones'	gloss

### 4 Vowel Epenthesis Rule #1

When the last consonant in the stem is the same as the initial consonant of the suffix, a vowel is inserted, harmonising with the initial consonant in the stem.

$$\begin{array}{ccccccc}
 V & C_1 & + & C_1 & \rightarrow & VC_1 & V^* C_1 \\
 [\alpha \text{ high}] & & & & & & [\alpha \text{ high}] \\
 [\alpha \text{ back}] & & & & & & [\alpha \text{ back}]
 \end{array}$$

\* when the epenthesized vowel is [a], an extra [n] is sometimes added too.

Examples:

/dima+*maham/	/damo+*maham/	/dima+*mim/	/damo+*mim/	UR
dimmaham	dammaham	dimmim	dammim	vowel deletion
dimimaham	damanmaham	dimimim	damamim	vowel epenthesis
<dimimaham>	<damanmaham>	<dimimim>	<damamim>	SR
'our (ex) hands'	'our (ex) foreheads'	'your hands'	'your foreheads'	gloss

### Vowel Epenthesis Rule #2

When the addition of a suffix creates a cluster of three consonants, a vowel is inserted which harmonises with the first vowel in the stem.

$$\begin{array}{ccccccc}
 V & C_1C_2 & + & C & \rightarrow & VC_1 & \{VC_2C / C_2VC\} \\
 [\alpha \text{ high}] & & & & & & [\alpha \text{ high}] \\
 [\alpha \text{ back}] & & & & & & [\alpha \text{ back}]
 \end{array}$$

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Examples:

/birge+*mim/	/talnga+*mim/	/birge+*maham/	/gamni+*mim/	UR
birgmim	talngmim	birgmaham	gammim	vowel deletion
birgimim	talangmim	birgimaham	gamanmim	vowel epenthesis
<birgimim>	<talangmim>	<birgimaham>	<gamanmim>	SR
'your (pl) odour'	'your (pl) ears'	'our (ex) odours'	'your stomachs'	gloss

There are other processes which govern the surface forms of possessed nouns with one syllable roots, for example /ge/ 'saliva' and /no/ 'face', but more work would be needed to find if there are underlying rules.

Looking at all these rules from an optimality point of view (Cahill, 1999), at least two important active constraints in the language can be observed.

Firstly, there is a constraint against consonant clusters, with both repeated consonants and clusters of three consonants being avoided in the two 'vowel epenthesis' rules. This fits with the syllable patterns noted earlier, in that no syllable contains a consonant cluster. It is also reflected in the pronunciation of loanwords, for example, the Melanesian Pidgin word 'trausis' (trousers) becomes [tɔrɔsis].

Secondly, it is clear that vowel harmony has an important role. The rules above show that the vowels in the stem are exerting a conforming influence on the vowels in the suffix.

## 10.2 VERBS

### 10.2.1 Forming the continuous aspect

For the majority of verbs, the continuous aspect is formed from the completive aspect by reduplication and then application of morphophonemic processes.

For these verbs the imperative form is taken as the root because it is the simplest form and all other inflected manifestations of the verb can be derived from it. In the majority of cases the imperative is CVC or CVVC although there are examples of VC and some of 2 syllables. None have been found with more than 2 syllables.

To form the continuous aspect of one-syllable roots, the root is reduplicated, and the first reduplicated consonant deleted. Following this, the vowel nucleus of the first syllable is harmonised and shortened to [a], [u] or [ɪ] to harmonise with the reduplicated vocoid segment in roundness and height, and give the characteristic stress pattern.

Examples:

လၢ့	wud	teij	daŋ	dɛŋ	root
လၢ့လၢ့	wudwud	teijteij	daŋdaŋ	dɛŋdɛŋ	reduplication
လၢ့ၣ်လၢ့	wudud	teijeij	daŋaŋ	dɛŋɛŋ	deletion
လၢ့ၣ်ၣ်	wɔdud	tjeij		dɪŋɛŋ	harmony
<lunguonŋ>	<wudud>	<tiyeiy>	<dangang>	<dingeng>	orthography
'hear'	'help'	'put'	'look'	'nail'	gloss

## The Phonology and Orthography of Awad Bing

Similarly for two syllable roots, the last syllable is reduplicated, and the first repeated consonant deleted, but the subsequent morphophonemic processes are more complicated and need further investigation.

Examples:

badej	basul	badɨj	root
badejdej	basulsul		reduplication
badejej	basulul		deletion
badeij	basalul		morphophonemics
<badeiy>	<basalul>		orthographic
'remain'	'return'	'throw down'	gloss

### 10.2.2 Subject prefixes

All verbs are inflected for subject by means of adding prefixes and subsequent morphophonemic processes.

The prefixes are as follows ( $\emptyset$  denotes a null morpheme):

	Root starts with consonant	Root starts with vowel
<i>1s</i>	ya-	y-
<i>2s</i>	$\emptyset$	w-
<i>3s</i>	$\emptyset$	$\emptyset$
<i>1pl incl.</i>	ma-	m-
<i>1pl excl.</i>	ta-	t-
<i>2pl</i>	a-	$\emptyset$
<i>3pl</i>	di-/du-*	d-

\*form determined by vowel harmony as explained below

#### 10.2.2.1 Morphophonemics for 1s, 1pl and 2pl

The prefixes ya-, ma-, ta- and a- all have the same morphophonemics, so the first person singular forms will be taken as examples for all.

In the completive aspect, roots generally have one syllable, in which case the prefixes attach straightforwardly. In the few examples of two syllable roots, the form is modified by deleting the first vowel in the root to leave a two syllable surface representation. If this results in a voiced plosive next to a voiceless plosive, the first is devoiced.

Examples:

/ya-+badej/	/ya-+basul/	/ya-+batuk/	UR
yabdey	yabsul	yabtuk	vowel deletion
		yaptuk	devoicing

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<yabdey>	<yabsul>	<yaptuk>	SR
'I remain'	'I return'	'I capsize'	gloss

In the continuous aspect, considering the third singular form as the stem, these stems generally have two syllables and start with a consonant, taking the form  $C_1VC_2V(V)C$ . Here  $C_1$  and  $C_2$  are generally different vowels, and the morphophonemics depends on whether this pair is of type (a) or type (b). Some pairs in each category are shown below.

TYPE (a) PAIRS	DEPENDS ON IDIOLECT	TYPE (b) PAIRS
t_y	l_ng	r_b
f_y		l_w
s_y		w_d
p_n		b_s
d_ng		b_d
s_k		w_ng
p_r		y_t
f_f		w_g
g_b		y_s
k_p		w_t
p_l		w_l
s_g		

For the type (a) pairs, the subject prefix is added and then the [a] spreads to the vowel between  $C_1$  and  $C_2$ , another example of vowel harmony.

a)  $C_1VC_2V(V)C \rightarrow ya-C_1[a]C_2V(V)C$

Examples:

<i>stem (3s cts form)</i>	<i>add prefix</i>	<i>vowel harmony</i>	<i>gloss</i>
panan	yapanan		'I am shooting'
dingeng	yadingeng	yadangeng	'I am nailing'
tiyeiy	yatiyeiy	yatayey	'I am putting'
sukuok	yasukuok	yasakuok	'I am erasing'
suguug	yasuguug	yasaguug	'I am washing'
fufuof	yafufuof	yafafuof	'I am breaking'

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For the type (b) pairs, the subject prefix is added and then the vowel between C<sub>1</sub> and C<sub>2</sub> is deleted.

b) C<sub>1</sub>VC<sub>2</sub>V(V)C → ya- C<sub>1</sub>C<sub>2</sub>V(V)C

Examples:

<i>stem (3s cts form)</i>	<i>add prefix</i>	<i>vowel deletion</i>	<i>gloss</i>
rubub	yarubub	yarbub	'I am running away'
wungung	yawungung	yawngung	'I am washing'
luwuw	yaluwuw	yalwuw	'I am vomiting'
wudud	yawudud	yawdud	'I am helping'
lunguung	yalunguung	yalnguung	'I am hearing'
bisalul	yabisalul	yabsalul	'I am returning'

### 10.2.2.2 Morphophonemics for 3pl

For the third person plural prefixes, the form of the prefix itself is determined by vowel harmony with the stem to which it is attaching. In natural speech the vowel in the prefix is very short and not stressed so it is hard in many cases to distinguish its quality. Some speakers will therefore consistently write <di-> believing this to be the underlying form. It seems to be more accurate and to have more general approval, however, if the vowel is written as <i> or <u> in order to harmonise in roundness with the vocoid segment of the stressed syllable of the root.

The morphophonemics then act in a similar way to the other prefixes, the main difference being that for type (a) pairs the vowel between C<sub>1</sub> and C<sub>2</sub> harmonises in roundness and height to the vowel in the prefix.

a) C<sub>1</sub>VC<sub>2</sub>V(V)C → du- C<sub>1</sub> [u] C<sub>2</sub>V(V)C

C<sub>1</sub>VC<sub>2</sub>V(V)C → di- C<sub>1</sub> [i] C<sub>2</sub>V(V)C

Examples of third person plural forms:

i) Completive aspect

tei	par	wud	basul	root
ditei	dipar	duwud	dubasul	add harmonising prefix
			dubsul	vowel deletion
			dupsul	devoicing
<diteiy>	<dipar>	<duwud>	<dupsul>	orthographic
'they put'	'they walked'	'they helped'	'they returned'	gloss

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### ii) Continuous aspect type (a)

<i>stem (3s cts form)</i>	<i>add prefix</i>	<i>vowel harmony</i>	<i>gloss</i>
parar	diparar	dipirar	‘they are walking’
gabaab	digabaab	digibaab	‘they are gathering’
sukuok	dusukuok		‘they are erasing’
dingeng	didingeng		‘they are nailing’
panan	dipanan	dipinan	‘they are shooting’

### iii) Continuous aspect type (b)

<i>stem (3s cts form)</i>	<i>add prefix</i>	<i>vowel deletion</i>	<i>gloss</i>
rubub	durubub	durbub	‘they are running away’
wuluol	duwuluol	duwluol	‘they are repaying’
lungung	dulungung	dulngung	‘they are drinking’
wudud	duwudud	duwdud	‘they are helping’
badeiy	dibadeiy	dibdeiy	‘they are’

## 10.3 -an SUFFIX

The locative suffix /-an/ is very common and attaches to nouns and adverbs. However, since almost all words are closed, the addition of this suffix is straightforward and there are no morphophonemic processes involved.

## 10.4 OBSTRUENT VOICING

There appears to be a morpheme structure tendency (not constraint) regarding voicing of obstruents within words. Of the 350 word roots containing two or more obstruents (from a 1500 word dictionary), it was significant to notice that in very few instances do voiceless obstruents follow voiced obstruents. Out of 195 words that had two or more obstruents and a voiced obstruent in the prior position, only 25 had a voiceless obstruent later in the word.

For words where the first obstruent is voiceless, there is a greater than even chance that a succeeding obstruent will also be voiceless. Out of 157 words with a voiceless obstruent in the prior position, 89 were followed by a voiceless obstruent and 68 by a voiced one. These restrictions do not apply to other non-obstruent consonants.

The significance of this arises when trying to spell words. The translator, aware of this tendency spelt a lady’s name Kadub rather than Kadup when unclear, and was proved correct. A nuance in the language proved a helpful hint to correct spelling.

		Second Obstruent	
		Voiceless	Voiced
First Obstruent	Voiceless	89	68
	Voiced	25	170

## 11. LOANWORDS

There is a concern by speakers of the language to avoid too many loanwords entering the language for new items or concepts that don't have a traditional word in the language. As a result traditional words or compounds of traditional words are used for some new objects such as money, aeroplanes and radios. Some examples are shown below:

New Concept	Awad Bing	Literal Translation
aeroplane	<mahan wag>	bird canoe
car	<wiy wahalbad>	four legs
helicopter	<ranwaywayiy>	dragonfly
money	<guam maley>	eye of the guam shell
radio	<giram>	garamut drum

Where loanwords are incorporated into the language, primarily from Tok Pisin (TP) or English (E), speakers transform them to fit their own phonological system. For example, vowels are inserted to avoid consonant clusters within syllables, foreign sounds, such as [v], are interpreted by similar phones, and word final open syllables are avoided. Some examples are shown below:

Original Word	Original Pronunciation	Awad Bing Pronunciation	Processes involved
'flying saucer' (E)	[flaɪɪŋ sɔsə]	[falajɪŋ suɔs]	Vowel insertion to remove consonant cluster Remove final open syllable
'trausis' (TP) [trousers]	[tra <sup>u</sup> sis]	[tɔrɔsis]	Vowel insertion to remove consonant cluster Vowel modification
'savol' (TP) [shovel]	[savɔl]	[sabɔl]	Reinterpretation of foreign consonant
'Japan' (E)	[dʒapan]	[japan]	Reinterpretation of foreign consonant
'gavman' (TP) [government]	[gavman]	[gabman]	Reinterpretation of foreign consonant

Despite these pronunciation changes, spelling generally follows the original language to maintain consistency when other languages are read.

## 12. DISCUSSION

There are certain areas of the phonology and orthography that could be investigated further.

- The glottal stop. Speakers of the language find it hard to decide where they should write the glottal stop, partly because it is becoming less prominent in the language as time goes by. Some speakers would like to remove it altogether, but the existence of many minimal pairs would make this unwise. There is inconsistency between speakers as to where it occurs, across and within dialects.
- The velar nasal. There is still a substantial section of the community who would like to use the <ŋ> symbol in the orthography to fit with Bel, but younger members of the community and those thinking about vernacular pre-schools would prefer <ng>.
- The vocoid segments containing close-mid and open-mid back vowels. The exact nature of the different contrasting segments here could be clarified. This might help in assigning suitable polygraphs to the sounds, although the desire to use a limited alphabet and the existence of various conflicting previous spelling systems means it will probably be impossible to ever have a totally consistent '1 symbol / 1 sound' orthography.

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