

# PAGU PHONOLOGY

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The phonological system of Pagu, a language in the North Halmaheran Family of the West Papuan Phylum, is described. The data and analysis presented represent the main dialect of Pagu, as spoken in the villages of Sosol and Gayok. A description and interpretation of the Pagu inventory of 18 consonant and 5 vowel phonemes is given, along with illustrative examples from the vernacular. Particular attention is given to the treatment of semivowels, the interpretation of which is aided by the predictive penultimate stress pattern. The basic syllable pattern in Pagu is (C)V(C). Processes of vowel paragoge, deletion, and raising are also discussed. Of particular interest is the more detailed presentation of Pagu reduplication, used to show pluralization, nominalization, and also to indicate progressive action.

## 1 INTRODUCTION

The Pagu language is spoken by approximately 4,000 persons living in North Halmahera, Maluku, Indonesia. Pagu is a member of the North Halmaheran Family of the West Papuan Phylum (Wurm 1982:204-5). Pagu is divided into five dialects, with sound changes being the main variant between the dialects.

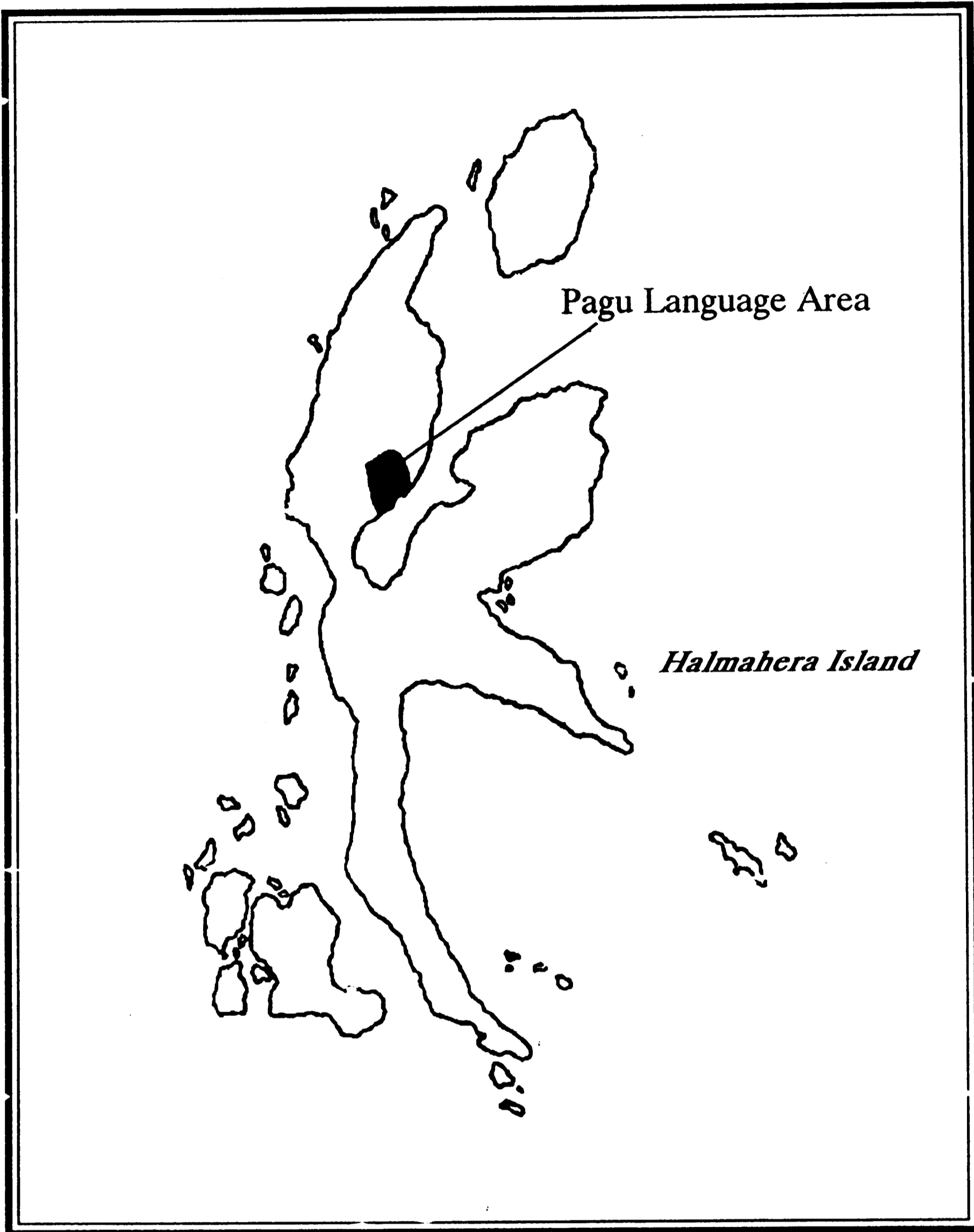
This report is based on data gathered while living in the inland village of Gayok (population 300), and the coastal village of Sosol (population 500) which is considered to be the main dialect, and comparisons with wordlists taken from other dialects.<sup>1</sup> This data was gathered in June and July of 1988, January-May of 1989.

## 2 OUTLINE OF PHONEMES

Pagu has an inventory of 18 consonant and 5 vowel phonemes, as shown in the following two charts:<sup>2</sup>

### Consonants:

	labial	alveolar	palatal	velar
vl. stop	p	t		k
vd. stop	b	d		g
vl. affr.			c	
vd. affr.			j	
fricative	f	s		
nasal	m	n	ny	ng
lateral		l		
flap		r		
semivowel	w		y	



Map 4: Pagu Language Area

Vowels:

	front	central	back
high	i		u
mid	e		o
low		a	

### 3 INTERPRETATION

High vocoids are interpreted as semivowels when they fill a slot normally filled by a consonant. When occurring in these positions, they seem to have a greater amount of stricture than when filling the nuclear portion of the syllable. Interpretation of high vowels is aided also by the facts of stress placement. Pagu has penultimate stress: if, in the following examples, the ambiguous high vocoids were interpreted as vowels, the stress rule would stress one syllable to the right of where it actually falls. The phonemic representation indicates the correct interpretation of high vocoids as consonants in these sequences.

[`iou]	/you/	'leg'
[`iiok]	/iyok/	'excrement'
[`uaŋe]	/wange/	'sun'
[`uik]	/wuk/	'to pell'

Pagu does not allow consonant clusters, so that a high vowel preceded or followed by a consonant must be interpreted as a vowel, not as a semivowel.

[`siuo]	/siwo/	'nine'
[`tuo]	/towo/	'to feed'
[`toiom]	/toyom/	'sharp'

### 4 DESCRIPTION OF PHONEMES

#### 4.1 Stops

There are bilabial, alveolar, and velar stops, in contrasting voiceless and voiced sets. Only /t/ and /k/ occur in initial, medial, and final position; all other stops are limited to initial and medial position. For discussion see Section 6.1.

/p/ is a voiceless bilabial unaspirated stop.

[`pidil]	'to turn loose'
[`pagal]	'to turn s.t. over'
[sa`sapat]	'to go to-and-fro'
[`dupal]	'to sprinkle'

/b/ is a voiced bilabial stop.

[`boun]	'odor'
[`bato]	'only'
[so`lobot]	'slippery'
[`tobikʔ]	'to chop'

/t/ is a voiceless alveolar unaspirated stop.

[`tulu]	'to drop by'
[`tagi]	'to go'
[`datom]	'to plant'
[`bato]	'only'
[sc`lobot]	'slippery'
[`diŋot]	'to send something'

The voiceless alveolar stop has a fronted allophone [t̟] which occurs in free variation with [t] contiguous to a high front vowel. This free variation is speaker specific.

[`iti]	~	[`iti]	'small'
[`t̟ikit]	~	[`tikit]	'to cough'

/d/ is a voiced alveolar stop.

[`dupal]	'to sprinkle'
[`datom]	'to plant'
[`tuduk]	'to spear'
[`ode]	'pig'

/k/ is a voiceless velar stop.

[ka`ŋelə]	'tired'
[`kipit]	'to pinch'
[`dakal]	'to deceive'
[`tikit]	'to cough'

In some dialects, the voiceless velar stop is unreleased in root-final position:

[`alokʔ]	'to call (to)'
[`nisukʔ]	'sleepy'

This phenomenon disappears when a copy vowel or suffixation is added (see Section 5 for a discussion of this paragoge).<sup>3</sup>

[`aloko]	'to call (to)'
[`nisuku]	'sleepy'

/g/ is a voiced velar stop.

[`gouŋ]	'true'
[go`somaŋ]	'crocodile'
[`ogol]	'calm'
[`pagal]	'to turn something over'

## 4.2 Affricates

These phonemes occur in words of possible borrowed ancestry;<sup>4</sup> if so, they have been internalized as a part of the Pagu sound system. They occur only initially and medially.

/c/ is a voiceless palatal affricate, written phonetically as [tʃ].

[`tʃarakiə]	/`carakiə/	'how'
[tʃetʃe`memer]	/cece`memer/	'to squint'
[tʃo`falə]	/co`falə/	'industrious'

/j/ is a voiced palatal affricate, written phonetically as [dʒ].

[`dʒai]	/`jai/	'momentarily'
[`dʒobo]	/`jobo/	'leave'
[dʒu`dʒeke]	/ju`jeke/	'blowfish'

### 4.3 Fricatives

/f/ is a voiceless labio-dental fricative.

[`faŋu]	'to pay'
[fa`duli]	'to heed'
[`tofə]	'friend'
[`lefo]	'to write'

/s/ is a voiceless alveolar fricative.

[`selo]	'to dance'
[sa`sapat]	'to go to-and-fro'
[ra`sai]	'beautiful'
[`ese]	'to rub'
[mo`soles]	'young woman'
[`loes]	'body'

### 4.4 Nasals

Nasals occur initially, medially, and finally.

/m/ is a voiced bilabial nasal stop.

[`mede]	'month/moon'
[mo`soles]	'young woman'
[`namo]	'bird'
[`ŋomi]	'we (exclusive)'
[mo`nalam]	'to work'
[`musum]	'season'

/n/ is a voiced alveolar nasal stop.

[`nisukʷ]	'sleepy'
[`nako]	'to know'
[`genə]	'that'
[me`neos]	'soft'
[`palen]	'to load'
[`boun]	'odor'

/ny/ is a voiced palatal nasal stop, written phonetically as [ɲ]. This phoneme occurs very infrequently, apparently only in borrowed words, but like the affricates, it has been internalized into the sound system.

[`ɲawə]	'person' cf. Indonesian [ɲawa] 'soul'
[`uɲiŋ]	'to view/watch'

/ng/ is a voiced velar nasal stop, written phonetically as [ŋ].

[`ŋomi]	'we (exclusive)'
[ŋa`ŋamə]	'firefly'
[`faŋu]	'to pay'
[tu`aŋe]	'eight'
[`usaŋ]	'bunch (of bananas)'
[`gouŋ]	'true'

#### 4.5 Liquids

The liquid /l/ occurs initially, medially, and finally; /r/ never occurs finally.

/l/ is a voiced alveolar lateral.

[`lefo]	'to write'
[`liwaŋ]	'sky'
[`iliŋ]	'voice'
[`tulu]	'to drop by'
[ŋa`watol]	'rainbow'
[`pagal]	'to turn something over'

/r/ is a voiced alveolar flap.

[ra`sai]	'beautiful'
[ru`ae]	'to move'
[ma`rai]	'probably'
[`were]	'noisy'

#### 4.6 Semivowels

The semivowels occur only initially and medially.

/w/ is a voiced labio-velar semivowel.

[`were]	'noisy'
[`wedel]	'to crush'
[`sowokʷ]	'fruit'
[`ŋawil]	'minnow'

The voiced labio-velar semivowel /w/ has a bilabial fricative allophone [β]. This allophone occurs in various environments, and sometimes is in free variation with its semivowel counterpart. It seems that some speakers have lost an historical contrast (or allophone),

now using only the labiovelar semivowel, but some still recognize it, and use it erratically.

[`aβi]	~	[`awi]	'3 sing. poss. masc.'
[`iβi]	~	[`iwi]	'rattan'
[ka`laβe]	~	[ka`lawe]	'mouse'

/y/ is a voiced palatal semivowel.

[`yowo]	'smoke'
[`you]	'leg'
[`iyok]	'excrement'
[`tayok]	'to blow'

## 4.7 Vowels

### 4.7.1 Description

/i/ is a high tense front unrounded vowel.

[`iak>]	'to marry'
[`iliŋ]	'voice'
[`kibit]	'saliva'
[`uŋiŋ]	'to view/watch'
[ra`sai]	'beautiful'
[`ŋomi]	'we (exclusive)'

/e/ is a mid tense front unrounded vowel.

[`eko]	'or'
[`enaŋ]	'front'
[`tuel]	'to break'
[`lefo]	'to write'
[san`ie]	'yard'
[`were]	'noisy'

The phoneme /e/ has a tendency to manifest a high off-glide in final open syllables of words with ultimate stress. The timing of the off-glide /i/ is not that of a full syllable, therefore it is not considered as a full vowel (which would result in penultimate stress).<sup>5</sup>

[`de]	~	[`de <sup>i</sup> ]	'and'
*[`dei]			
[na`ge]	~	[na`ge <sup>i</sup> ]	'that (unspec.)'
*[na`gei]			

Native speakers perceive these words as having the following shape:

/de/	'and'
/nage/	'that (unspec.)'

The front vowels /i,e/ are found in clear contrast:

[`akil]	'tongue'
[`akel]	'water'

[`siə]	'to draw water'
[`seə]	'to do traditional dance'

/a/ is a low, tense, central, unrounded vowel.

[`akel]	'water'
[`aik]	'to remove'
[mo`ane]	'three'
[`pagal]	'to turn something over'

The low vowel /a/ has a central mid allophone [ə] which occurs in open syllables following stress.

[`ogə]	/oga/	'crazy'
[de`welə]	/dewela/	'morning'
[ka`nelə]	/kangela/	'tired'

This can be summarized by the following rule:

$$\left[ \begin{array}{l} +\text{syl} \\ -\text{round} \\ +\text{back} \end{array} \right] \rightarrow [-\text{low}] / \begin{array}{l} \text{V C} \\ [+stress] \end{array} \#$$

/u/ is a high, tense, back, rounded vowel.

[`uku]	'fire'
[`uñiŋ]	'to view/watch'
[`boun]	'odor'
[`tuduk]	'to spear'
[`you]	'leg'
[`tulu]	'to drop by'

/o/ is a mid, tense, back, rounded vowel.

[`ogə]	'crazy'
[`obil]	'to salivate'
[`toyom]	'sharp'
[`tayokʔ]	'to blow'
[`ŋamo]	'mad'
[`yowo]	'smoke'

The back rounded vowels /u,o/ are found to be in clear contrast:

[`ŋulot]	'vein'
[`ŋolot]	'sea'
[`igu]	'burnt'
[`igo]	'like'

#### 4.7.2 Vowel Combinations

Vowel combinations are limited (see Section 6.2 for discussion of simple peak restrictions). The following chart outlines evidenced combinations, with gaps in the matrix indicating combinations which do not occur. Appendix B contains words exemplifying these vowel combinations.



		V2				
		a	e	i	o	u
V1	a		+	+	+	+
	e	+		6	+	
	i	+			+	
	o	+	+	+		+
	u	+	+	+		7

### 4.7.3 Geminate Vowels

Pagu has a limited number of words containing geminate vowels. These vowels are generally separated by a slight glottal stop in slow speech. There is, however, great variation in pronunciation in normal and fast speech, from glottal presence (always slight), or length, to indistinction (sounding like only one vowel is present).

[tu <sup>ʔ</sup> ulu]	~	[ <sup>ʔ</sup> tu:lu]	~	[ <sup>ʔ</sup> tlu]	'to follow'
[ti <sup>ʔ</sup> il]	~	[ <sup>ʔ</sup> ti:lə]	~	[ <sup>ʔ</sup> tilə]	'inferior quality'

Geminates never occur word-initially (they must always be preceded by consonants) and only rarely occur word-finally. When geminates occur, stress falls on the second vowel, but in fast speech it is difficult to identify them as sequences of two vowels (as mentioned above). In other words, only in careful speech is a distinction heard in the pronunciation of the following examples. The following examples clearly show contrast with single vowels.

/ <sup>ʔ</sup> tulu/	'to drop by'
/tu <sup>ʔ</sup> ulu/	'to follow'
/ <sup>ʔ</sup> tila/	'to push'
/ti <sup>ʔ</sup> ila/	'inferior quality'

Native speakers feel the need to write geminates in these words, as well as other words with geminates which are not minimally contrasted.

/fa <sup>ʔ</sup> aro/	'feverish'
/pe <sup>ʔ</sup> eto/	'narrow'

## 5 STRESS

### 5.1 Word Stress

Stress in Pagu occurs on the penultimate syllable of the stem.<sup>8</sup> Affixes and clitics are not stressed, and their presence does not affect stress placement.<sup>9</sup>

[ <sup>ʔ</sup> osam]	/osam/	'to enter'
/to +si +osam +oka		+ou/ <sup>10</sup>
		I-CAUS-enter-NONFUTURE-COMPL <sup>11</sup>
[tosi osamokau]		
'I put it inside'		
[ <sup>ʔ</sup> wolə]	/wola/	'house'
/ai	+wola+ika/	
		1sg.poss.-house-at
[ai <sup>ʔ</sup> woləka]		
'at my house'		

[ `lepe]        /lepe/        'many'  
 /lepe+uwa/  
 many-NEG  
 [ `lepewa]  
 'not many'

## 5.2 Vowel Paragoge and Stress

There is a tendency in some dialects to add a copy vowel (a duplication of the vowel preceding the final consonant of the root) to many consonant-final roots. This may be resultant from influence of related languages which do not allow consonant-final roots. (Pagu and West Makian are the only Papuan languages of North Halmahera which allow consonant final roots.)<sup>12</sup> Although speakers frequently drop the added vowel when asked for the root word, in natural speech it is usually present. The addition of this vowel results in examples with stress which is not penultimate.

[ `oyomo]        'to eat'  
 [ `punusu]        'satisfied (full stomach)'  
 [sa `sauku]        'hot'

The following rules can summarize stress and paragoge processes (Rule 1 precedes Rule 2):

Rule 1. Stress Placement  
 [+syl] --> [+stress]/\_\_\_[-syl] [+syl] ([-syl])#

Rule 2. Vowel Paragoge

$$\emptyset \rightarrow \left[ \begin{array}{c} +syl \\ aF \end{array} \right] / \left[ \begin{array}{c} +syl \\ aF \end{array} \right] [-syl] \_ \#$$

Rule 1 states that a vowel become stressed in the penultimate position.

Rule 2 states that a vowel is inserted finally on a consonant-final stem, specifically a vowel of like features with the previous vowel.

Because stress is assigned before the paragoge occurs, words are found with other than penultimate stress. Consider the example ['oyomo]:

	/oyom/	'to eat'
Stress Placement	'oyom	
Vowel Paragoge	'oyomɔ	

## 6 DISTRIBUTION

### 6.1 Consonant Distribution

All consonants occur word initially and medially. But, those which occur in word final position are limited to seven phonemes: /t,k,m,n,ng,s,l/.<sup>13</sup> This set is identical with that reconstructed for Proto-North Halmaheran.

This same set, with the addition of /p/, is allowed word-finally in Sahu, and in other North Halmaheran languages, with recent borrowings (Visser and Voorhoeve 1987:31,42, Shelden 1989).

/t/	/kulut/ /alit/	'tall' 'to exchange'
/k/	/pelelak/ /saek/	'skinny' 'head'
/m/	/datom/ /oyom/	'to plant' 'to eat'
/n/	/betekon/ /amen/	'upper arm' 'brain'
/ng/	/kobong/ /unying/	'bone' 'to view/watch'
/s/	/mosoles/ /punus/	'young woman' 'satisfied (full stomach)'
/l/	/gagal/ /akil/	'wind' 'tongue'

## 6.2 Syllable Patterns

The basic syllable pattern in Pagu is (C)V(C). All of the possible combinations from this basic pattern are evidenced:  $V_4$  VC, CV, CVC. Pagu does not allow any complex syllable borders or peaks.

The V pattern:

/akun/	'to be able'	V.CVC
/uge/	'vegetable'	V.CV

The number of V syllables in succession is generally limited to two (without an intervening C)<sup>15</sup> Further discussion is found in Section 3.

/diai/	[di`ai]	'to make'	CV.V.V
/rasai/	[ra`sai]	'beautiful'	CV.CV.V
/tingikai/	[tiŋi`kai]	'ornery'	CV.CV.CV.V

CV is the most common syllable formation:

/golona/	'middle'	CV.CV.CV
/tomal/	'neck'	CV.CVC
/beleti/	'hair'	CV.CV.CV

The VC pattern occurs only as the final syllable of a phonological word:

/loang/	'happy'	CV.CV
/mogiok/	'ten'	CV.CV.VC
/giam/	'arm'	CV.VC

Like the VC pattern, the CVC combination occurs only as the final syllable of a phonological word:

/ngomas/	'throat'	CV.CVC
/kulut/	'tall'	CV.CVC
/golak/	'cooked'	CV.CVC

### 6.3 Syllable Combinations

Pagu allows stems of up to four syllables.

One-syllable stems are infrequent, and present data shows only conjunction/connector words which fall into this category.

/de/	'and'	CV
/o/	'(article)'	V
/ma/	'(possessor)-its'	CV

Two-syllable stems are the most common (as is clearly seen by the data throughout this paper), and combinations of all syllable types can be found.

/uge/	'vegetable'	V.CV
/soka/	'leaf'	CV.CV
/naok/	'fish'	CV.VC
/akil/	'tongue'	V.CVC
/potit/	'belly button'	CV.CVC

Three-syllable stems occur less frequently.

/kangela/	'tired'	CV.CV.CV
/gotoak/	'cheek'	CV.CV.VC
/pepesak/	'wet'	CV.CV.CVC

A few four-syllable stems are found.

/tingikai/	'onery'	CV.CV.CV.V
/goloingot/	'to sweat'	CV.CV.V.CVC

## 7 RELATED TOPICS

### 7.1 Complex Vowel Combinations

Only when two morphemes come together is there an occurrence of three vowels without an intervening consonant or semivowel.<sup>16</sup> Evidenced occurrence is found only when personal prefixes are attached to vowel-initial stems, such as the following directional constructions:<sup>17</sup>

mia + oko	/miaoko/	'we (EXCL) go east (oceanwards)'
nia + isa	/niaisa/	'you (pl.) go west (landwards)'
nia + ino	/niaino/	'you (pl.) come here (towards speaker)'
nia + ika	/niaika/	'you (pl.) go out (away from speaker)'

### 7.2 Borrowings

When Pagu internalizes a word from another language, it restructures that word to fit the Pagu phonological system. This is evidenced frequently in the simplification of consonant clusters. The following examples are borrowings from Indonesian, given in parentheses.

[`gapaŋ]	/gapang/	(`gampang)	'easy'
[`tibaŋ]	/timbang/	(`timbang)	'weigh'

Another method which is infrequently employed to regularize borrowings is stress change. Note also the change in the initial vowel from the Indonesian schwa to the Pagu low vowel.

[`sanaŋ]     /sanang/     (se`nang)     'happy'

### 7.3 Semivowel Insertion

When vowel-initial stems (with the exception of /i/-initial) are preceded by a prefix ending in /i/, a phonetic transitional palatal semivowel is inserted.

ai + ela	[ai`yelə]	'my mother' <sup>18</sup>
ami + owa	[ami`yowə]	'her aunt'
ai + oti	[ai`yoti]	'my outrigger'
i + omuk	[i`yomuk]	'it is ripe'

## 8 MORPHOPHONEMICS

### 8.1 Unreleased Velar Stop

As discussed in Section 4.1, the voiceless velar stop is unreleased word-finally in some dialects. But when paragoge or suffixation occurs, the stop is released.

However, when a stem and its close prefixes (including reflexive, reciprocal, causative, and instrumental, but excluding person agreement and transitivity prefixes) total three or more syllables, a glottal stop replaces the stem-final /k/, even when suffixes are added.

/so+ngodak+oka/	[soŋodaʔoka]	'filled it'
/mogiok+ika/	[mogioʔika]	'ten'
/ma+olikh+oka+si/	[maoliʔokasi]	'bathe now'

### 8.2 Copy Vowel Deletion

When a consonant-final verb stem which usually retains the copy vowel as the result of paragoge (see Section 5.2) is followed by aspect suffixes, the extra vowel does not occur.

/salik/	[`saliki]
/to+ni+saliki+oka+ou/	[toni`salikokau]
	'I searched for you'
/nisuk/	[`nisuku]
/mo+nisuk+osi/	[mo`nisukosi]
	'she is sleeping now'

### 8.3 Suffix Vowel Deletion

When a suffix (each of which is vowel-initial in its underlying form)

is added to a vowel-final stem (or another vowel-final suffix), the initial vowel of the suffix does not appear on the surface form.

/to+tagi+oka+osi/	[to`tagikasi]	'I'm going now'
/wo+supu+uwa+osi/	[wo`supuwasi]	'He hasn't gone out yet'

#### 8.4 Vowel Raising

When intransitive verbs are affixed with the discontinuous ka--oli, 'too---', the /o/ agrees in height with the final vowel of the stem. Thus, stems with /i,u/ as final vowel (even when followed by a consonant) raise the suffix vowel to high, presenting the surface form of the affix as ka--uli. With all non-high final vowels, it remains as ka--oli.

ka+mo+lamok+oli	[kamo`lamokoli]	'she is too large'
ka+i+pereek+oli	[kaipe`reekoli]	'too dirty'
ka+i+ina+oli	[kai`inaoli]	'too thin'
ka+i+mutit+oli	[kai`mutituli]	'too sweet'
ka+i+kakul+oli	[kai`kakululi]	'too far'

### 9 REDUPLICATION

The Pagu lexicon makes great use of reduplication processes available to the language. Reduplication is used to change singular to plural forms of nouns and stative verbs, to derive nouns from their corresponding verbs, and to change the verbs to progressive action. And with each of these processes there is more than one formula, each of which is utilized at various times.

#### 9.1 Derivation Of Nouns From Verbs

There are two main formulas used for deriving nouns from verbs in Pagu. Each of these formulas, in turn, has an alternative, or rather sub-formula which is used for some words. The first formula generally derives a locational noun or an instrumental noun from its related transitive verb root.<sup>19</sup> This is done by reduplication of the first CV.

/sakai/	'to cook'	/sasakai/	'kitchen'
/gogel/	'to sit'	/gogogel/	'chair'
/liko/	'to snare'	/liliko/	'rope'
/bait/ <sup>20</sup>	'to bury'	/babait/	'shovel'

A variation of this formula for deriving instrumental or locative nouns from verbs is seen when the nominal form is removed one step further from the verb root because the root has an initial voiceless stop, which becomes voiced before it is reduplicated into the nominal form.

/babalis/	'broom'	/palis/	'to sweep'
palis	--> balis	--> babalis	
/dudutuk/	'pestle'	/tutuk/	'to pound'
tutuk	--> dutuk	--> dudutuk	

There is no corresponding verb form /balis/, although with some words, there is both a voiceless- and a voiced-initial verb form.

/babalen/ 'harbor' /balen/ 'to load'<sup>21</sup>

A further alternation from this initial formula is incorporated when deriving a nominal form from a vowel-initial verb. Because the required reduplication pattern is CV, an initial C must be produced. This results in the addition of /g/, which occurs both in the root form and in the reduplication itself.<sup>22</sup>

/gegese/ 'brush' /ese/ 'to scrub'  
/gogolik/ 'bathtub' /olik/ 'to bathe'

The second main formula that Pagu uses to derive nominal forms from verbs is a /Co/ pattern.<sup>23</sup> Many of these nominals are descriptive of the corresponding verb.

/dodagi/ 'journey' /dagi/ 'to go'<sup>24</sup>  
/wowango/ 'life' /wango/ 'to live'  
/dodotok/ 'studies' /dotok/ 'to study'

There are a few /Co/ forms which are instrumental nouns.

/loliko/ 'noose' /liko/ 'to snare'

Again, a vowel-initial root shows the addition of /g/, thus giving the reduplication morpheme the surface form /go-/.

/gogalok/ 'invitation' /alok/ 'to call'

## 9.2 Reduplication In Stative Verbs

Pagu does not have a separate class of adjectives, but a specific subclass of stative verbs are used as descriptives. Some of these descriptives incorporate a reduplication pattern of CV when describing more than one object (plurality), or an increase in abundance (as in the second example).

/suyul/ 'small' /susuyul/ 'small' (PL)  
Ami naok moange isusuyul.  
ami naok moange i -su -suyul  
3sgfPOSS fish three 3nh DUP small  
'Her three fish are small.'

/lepe/ 'many' /lelepe/ 'very many'  
Ai eya awi igon ma loes ilelepe.  
ai eya awi igon ma loes i -le -lepe  
1sg father 3sgmPOSS coconut GEN body 3nh DUP many  
'My father has very many coconut trees.'

/sumujur/ 'tiny' /susumujur/ 'tiny' (PL)  
/pako/ 'large' /papako/ 'large' (PL)

Some descriptives seem to require reduplication, which does not in such cases necessarily carry a plural meaning. Although the unreduplicated form is not used, native speakers insist that it is the root form.

\*lagom /lalagom/ 'large'  
\*talom /tatalom/ 'black'  
\*kulung /kukulung/ 'red'

For other descriptives, the CV reduplication gives a change in meaning by degree.

/kipiling/	'thick'	/kikipiling/	'very thick'
/polulu/	'round'	/popolulu/	'very round'

A second pattern of reduplication which gives this same change in meaning of degree is reduplication of the first two syllables, excluding the final consonant of the second syllable. This appears to be a variant of a process of full reduplication used in other contexts (see following section).

/mutit/	'sweet'	/mutimutit/	'very sweet'
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### 9.3 Reduplication For Plural Nouns

Although Pagu generally uses grammatical means of indicating plurality of nominals, such as verbal agreement markers and modifiers (numbers), many nouns can be reduplicated in their full form to show plurality.

<u>Base form</u>	<u>Gloss</u>	<u>Reduplicated form</u>	<u>Gloss</u>
/sude/	'dish'	sude-sude <sup>25</sup>	'dishes'
/you/	'leg'	you-you	'legs'
/kaso/	'dog'	kaso-kaso	'dogs'
/silo/	'light'	silo-silo	'lights'

Many words, however, follow the two-syllable reduplication pattern mentioned above in Section 9.2. Because these are all consonant-final, this may, of course, be the same process with a second rule of cluster simplification.

<u>Base form</u>	<u>Gloss</u>	<u>Reduplicated form</u>	<u>Gloss</u>
/naul/	'man'	/naunaul/	'men'
/ngoak/	'child'	/ngoangoak/	'children'
/sowok/	'fruit'	/sowosowok/	'fruits'
/giam/	'arm'	/giagiam/	'arms'

### 9.4 Reduplication In Verbs

Pagu does not have a system of overt tense markers, rather verbs may be marked with one or more aspectual markers to distinguish the state of an action with regard to time. However, the progressive nature of an action is sometimes portrayed through reduplication of the root. There are several reduplication patterns which are evidenced. A similar meaning seems to be derived from these different patterns:<sup>26</sup>

The first pattern is the already much used CV.

Temo, 'Uwa nomaruruae idadioli.'  
 'He said, "Don't be moving, it's already working."'

/ruae/ 'to move'

Oras maena ma mia nage kaano yadadadanu manga ngiowo isupuko de  
 isea.

'At that time the monkey who had been guarding their grill went  
 out to the beach and danced.'

/dadanu/ 'to guard'



Another pattern that is evidenced in verb reduplication with progressive meaning is reduplication of the first two syllables of the root, excluding the final consonant of the second syllable. (See discussions of similar patterns above.)

Sonengoka de ma mia ma dia yaeyeno de yatetololi. Yawedewedeloka.  
'He was dead then the monkey took the machete and copped him. He was crushing him.'

/wedel/ 'crush'

De miosibelelong a inik moi maileka nako o belela ma yekuno o kaino lau o nyawa yomapoapoak ani uluwa napelenga.  
'And we demand one thing of you, later when we fly over a town, if someone is yelling, don't open your mouth.'

/poak/ 'yell'

This type of reduplication can also be used to portray a verbal meaning when it precedes another verb.

Genakadau oras moi awi manaki yojarijaring yoomau.  
'Then at that time his friends who were fishing came home.'

/jaring/ 'to net-fish'

O Yesus awi saek wapudaliye de wokigelelo ma nyawa ma gilepe ka yotuotoun ka yaino-inoka, ala de wotemo o Filipusika...  
'Jesus looked up and saw many people thronging coming to him, then he said to Philip...'

/tuon/ 'to throng'

Reduplication of the whole verb complex (including close affixes) is found in many texts, but this carries the meaning of an action continuing over a long span of time. This notion might be expressed by the progressive plus the idea of 'keep on' in English.

Yaisa-isa imasiolu-masiolu siadon youti.  
'They were going landwards, they kept paddling until they got out.'

/olu/ 'to paddle'

Waika wagiwi-giwi ma kadu.  
'Then he kept jiggling the sack.'

/giwi/ 'to jiggle'

#### APPENDIX A: Distinctive Feature Charts

##### Vowels

	/i/	/e/	/a/	/o/	/u/
high	+	-	-	-	+
low	-	-	+	-	-
round	-	-	-	+	+

Consonants:

	/p/	/t/	/k/	/b/	/d/	/g/	/c/	/j/		
consonant	+	+	+	+	+	+	+	+		
sonorant	-	-	-	-	-	-	-	-		
anterior	+	+	-	+	+	-	-	-		
coronal	-	+	-	-	+	-	+	+		
voice	-	-	-	+	+	+	-	+		
continuant	-	-	-	-	-	-	-	-		
nasal	-	-	-	-	-	-	-	-		
high	-	-	-	-	-	-	+	+		
lateral	-	-	-	-	-	-	-	-		

	/f/	/s/	/m/	/n/	/ny/	/ng/	/l/	/r/	/w/	/y/
consonant	+	+	+	+	+	+	+	+	-	-
sonorant	-	-	+	+	+	+	+	+	+	+
anterior	+	+	+	+	-	-	+	+	-	-
coronal	-	+	-	+	+	-	+	+	-	-
voice	-	-	+	+	+	+	+	+	+	+
continuant	+	+	-	-	-	-	+	+	+	+
nasal	-	-	+	+	+	+	-	-	-	-
high	-	-	-	-	+	+	-	-	+	+
lateral	-	-	-	-	-	-	+	-	-	-
round	-	-	-	-	-	-	-	-	+	-

APPENDIX B: Vowel Clusters Within One Morpheme

/faaro/	'feverish'
/daen/	'experience something'
/pait/	'to dig'
/naok/	'fish'
/kaugon/	'yesterday'
/peaɪ/	'forehead'
/peeto/	'narrow'
/semeneos/	'slow'
/dia/	'machete'
/tiila/	'inferior quality'
/bion/	'face'
/soan/	'village'
/woel/	'to sun dry'
/goloingot/	'to sweat'
/boosuk/	'grave'
/boun/	'odor'
/kualeng/	'lightweight'
/tuel/	'to break'
/batui/	'to gamble'
/buusal/	'to dream'

## APPENDIX C: Abbreviations

The following is a list of the abbreviations used in this paper.

CAUS-causative  
COMPL-completive aspect  
EXCL-exclusive  
INCL-inclusive  
INCOMP-incompletive aspect  
NEG-negative  
PL (pl)-plural  
POSS-possessive  
DUP-reduplication  
RFLX-reflexive  
SYL-syllable  
unspec-unspecified  
1sg-first person singular prefix  
2sg-second person singular prefix  
3sgm-third person singular, masculine prefix  
3sgf-third person singular, feminine prefix  
3nh-third person non-human

### NOTES

1. Further references include Ellen (1916a, 1916b).
2. For distinctive feature charts, refer to Appendix A.
3. For exceptions to this rule, see Section 8.1.
4. Although \*c and \*j have been reconstructed for Proto-North-Halmaheran, there is some disagreement as to whether or not their occurrence is limited to borrowed words (Wada 1980:503-504).
5. These words can be contrasted with those having a final phoneme /i/; such words have the timing of two syllables and thus manifest penultimate stress: [dai] /dai/ 'seawards', [gu'lui] /gului/ 'buttocks', [ne'nei] /nenei/ 'late'.
6. See description of /e/ in Section 4.7.1 for a discussion of the [i] offglide.
7. Refer to discussion of geminate vowels in Section 4.7.3.
8. Several words have been observed which do not take stress on the penultimate syllable. Some of these appear to have lost a final lengthened vowel (possibly Pagu disallows such a phenomenon, as mentioned above), such as [da'ma] 'to wait'; when compared with the corresponding word in the closely related language of Galela, [da'maha], a possible historical explanation for the stress placement is clearly seen. Note that because of stress placement, the second vowel does not go to its schwa allophone. Other words, such as the archaic [kaka'nap] 'table' seem to require some other explanation, since it is not a vowel-final stem. It is possible that such words are borrowed, and retain the original stress placement.
9. Also in Galela the stress placement is not affected by affixes and clitics (Shelden 1989). However in Tabaru (Kotynski 1988), as well as in Tobelo and Loloda, stress does shift with the addition of these

morphemes in order to retain the penultimate stress pattern of those languages.

10. See Section 8.3 for a discussion of vowel deletion in this context.
11. For a complete listing of abbreviations used in this paper, see Appendix C.
12. Pagu is very closely related to a chain of languages in Northeast Halmahera: Tabaru, Loloda, Galela, Tobelo, and Modole. Also of the same language family and phylum are Ternate, Tidore, Sahu, and West Makian, although not as closely related (Voorhoeve 1981, Wurm 1982: 204-5).
13. Proto-North Halmaheran reconstruction gives evidence of word-final consonants as follows: /t, k, m, n, ng, s, l/ (Wada 1980:508, Voorhoeve 1984:6). However, only Pagu and West Makian have retained this characteristic (Voorhoeve 1981:9). And as seen in this paper, Pagu is being influenced by the other languages to add a vowel word-finally. Tabaru, Tobelo, Sahu, and Modole have a paragoge vowel (identical to that preceding the final consonant), while Ternate, Tidore, and Galela have dropped final consonants.
14. None of the North-Halmaheran Papuan languages allow consonant clusters (Wada 1980:503).
15. There have been found two exceptions to this rule: [di`ai] 'to make'; [ru`æ] 'to move'. The final phoneme in these words is best interpreted as a vowel rather than a semivowel because of the stress placement (see Section 3).
16. This is true with the exceptions stated in Section 6.2.
17. The reconstruction of Proto-North Halmaheran posits an \*h as the initial phoneme of the directional morphemes in these examples, thus eliminating such three-vowel sequences. However, there is no /h/ in the Pagu phonological system, a fact which is also true in Tobelo, Tabaru, Modole, and Sahu (Voorhoeve 1981:47, Wada 1980:503-4). Since present-day Pagu retains this vowel complex, it is discussed here as a synchronic issue.
18. The possessive pronoun prefixes are phonologically attached to the noun, but orthographically they are written as separate words.
19. Instrumentals have been glossed specifically, but in actuality, the meaning is general: /gogogel/ means a chair or other place of sitting; /liliko/ means a rope or other instrument used to snare; /babait/ means a shovel or other instrument used to dig, such as a sharp stick.
20. /bait/ is itself a derived form from /pait/ 'to dig'. The derivation of one type of verb form from another is not the topic of the present discussion. Therefore, I mention only briefly that it is a very prolific process in Pagu. The change from voiceless-initial to voiced-initial consonant accompanies a change from lower to higher valency.
21. Traditionally the only form of transportation was a raft or a boat, therefore the naturally assumed place of loading was at a harbor. /balen/ is itself derived from /palen/ 'to load'. The voiced form implies loading with intent to go somewhere, while the voiceless form does not necessarily carry that intent (see Note 20).
22. The actual function and meaning of /g/ is not totally understood in Pagu and the other North Halmaheran languages, where it is found in great abundance. Van der Veen (1915:103ff) says that in Galela the

/g/ is a part of the same process which voices /p,t,k/ (word-initially) and is more than a morphophonemic process, but also adds meaning. More research is needed on this topic.

23. I realize that the form /gogolik/ might be seen as ambiguous, whether the reduplication should be interpreted as CV or /Co/. But, because of the patterns of meaning that the various reduplication templates have, I interpret it as CV. There are many unambiguous examples of CV reduplication deriving locational nominals, but there are no unambiguous examples of /Co/ reduplication with locational meaning. Therefore I intuitively group /gogolik/ with those of like meaning
24. /dagi/ is derived from the intransitive verb /tagi/ (see Footnotes 20 and 21).
25. The hyphen is only an orthographic tool; it has no phonetic or phonemic meaning.
26. All examples in this section are taken from recorded texts or translated materials.

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