

# PHONETIC AND PHONEMIC SYSTEM OF THE KANAKANAVU LANGUAGE, FORMOSA

MARGARET M. Y. SUNG

## 0.0 INTRODUCTION

Kanakanavu is one of the smallest aboriginal groups of Formosa. According to the census which was taken by the writer from an informant in 1963, the population of the Kanakanavu people numbers only one hundred and thirty persons. They are scattered in Min-ch'uan Ts'un (民權村) and Min-sheng Ts'un (民生村) of San-min Shiang (三民鄉), Kaohsiung Hsien (高雄縣). The other peoples who have lived with the Kanakanavu in this area are: Bunun, Paiwan, Atayal, Tsou and Taiwanese Chinese. The Bunun population forms the dominate proportion of the villages, thus there is a tendency for the other peoples to be greatly influenced by the Bunun both in culture and language. Even in the daily life at home, the older generation of the Kanakanavu people speak the Bunun or Japanese languages instead of their own language for communicating with their families, while the younger generation speaks the Bunun language or Mandarin. The gradual decreasing of the population and the assimilation to the Bunun bring the Kanakanavu language near to extinction.

From an ethnological point of view, the Kanakanavu has an intimate relation both with the La<sup>2</sup>alua and the Tsou of Mt. Ali. According to some ethnologists' and linguists' classification of the aborigines of Formosa, the Kanakanavu and the La<sup>2</sup>alua were referred to as the "Southern Tsou", while the Tsou of Mt. Ali were the "Northern Tsou"<sup>(1)</sup>, i. e. they were ethnic groups descended from a common ancestor. For the purpose of seeking out the relationships between these groups, the late Professor T'ung-ho Tung had begun to investigate the Tsou language of Mt. Ali in 1957. The result of his investigation was described in detail in his book, "A Descriptive Study of Tsou Language, Formosa, 1964". Later on, in the winters of 1961-62 and

(1) For example: Asai, Erin. A Study of the Yami Language—An Indonesian Language Spoken on Botel Tobago Island, London, 1926.

T. Kano, Studies in the Ethnology and Prehistory of Southeast Asia, Tokyo, 1945.

1962-63, two field trips to La<sup>2</sup>alua and Kanakanavu respectively were taken, and were also led by Professor Tung. Shortly after returning from the field to the office, the writer had completed a preliminary study on the linguistic data of the La<sup>2</sup>alua and the Kanakanavu, and had found that there really was a striking resemblance between these two languages<sup>(1)</sup>. But no conclusion as to their relationships has been reached yet, for the advanced studies of these languages have not yet been completed.

The study presented here is an advanced study of the Kanakanavu language. The informants from whom we took the notes were: Navilaŋana Akauli (王清海), thirty years old, Cuapuana Pani (蔡能喜), thirty two years old, Ikanana Aŋai (陳金火), fifty years old, and Naviraŋana Aŋai (王清富), thirty seven years old, inhabitants of Min-ch'uan Ts'un (民權村); Upiaana Avia (施寶), sixty five years old, Aŋaiana Pa<sup>2</sup>û (翁俤), thirty six years old, Nauciŋana Pa<sup>2</sup>û (藍嘉坡), sixty seven years old, Chin Shih (金石), twenty four years old, Kapuāna Pa<sup>2</sup>û (謝清俊), twenty eight years old, and Aŋaiana Laŋ (翁郎), twenty five years old, inhabitants of Min-sheng Ts'un (民生村). Working together with the writer in the field on Kanakanavu were three classmates: Messrs. T. F. Cheng, C. C. Cheng and P. H. Ting. They helped in collecting the data and checking the records. In October 1963, our informant, Mr. Kung Fu-lien (孔福連), a graduate of the Ping-tung Teacher's High School, was kind enough to come to our office and help us in checking the phonetic notes and interpretation of the texts. I am grateful to all of them.

I would like to acknowledge a debt to Professor Fang-kuei Li, Miss Winabelle Gritter and Mr. Stan Starosta who gave the first draft an over-all careful reading, and gave me many valuable suggestions and criticisms.

For the contributions from the late Professor Tung, my dear master, who taught me in many cases when we took the phonetic transcription in the field, my indebtedness remains as great as ever.

## 1. CONSONANTS

### 1.1 Description of Consonants

There are thirteen consonant phonemes in the Kanakanavu language.

(1) Margaret M. Yan, Languages of the Kanakanavu and the La<sup>2</sup>alua: A Preliminary Comparison, the Bulletin of the Institute of History and Philology, Academia Sinica, Vol. XXXV, pp. 135-154, 1964.

In word-formation, the three nasals /m, n, ŋ/ are either syllabics or non-syllabics, while the other consonants are non-syllabics. The inventory of these sounds is as follows:

	bilabial labio-dental	Alveolar	velar	Glottal
voiceless stop	p	t	k	ʔ
nasal	m	n	ŋ	
lateral		l		
trill		r		
spirant	v	s		h
affricate		c <sup>(1)</sup>		

/p, t, k/ are voiceless stops, and may be either slightly aspirated or unaspirated. These differences are not significant in Kanakanavu. /p/ is a non-aspirated bilabial stop, as in Japanese /sampɔ/ “to take a stroll”, /tepɔ/ “gun”.

/t/ is an alveolar stop, e. g., /taavūa/ “oven, furnace”, /kasūpata/ “the fourth month”, /mataviūsi/ “sweat”.

/k/ is a velar stop, its position of articulation being about the same as that of the Japanese k-sound in /sioka/ “to sing”, /tanka/ “stretcher”.

/m, n, ŋ/ are voiced nasals. Their positions correspond to those of the stops. In word-formation, when the vowels following the nasals are dropped, then the preceding nasals become syllabic, e. g., /cāni/ + /panā/ — /canpanā/ “one bottle”, /papēni/ + /ci/ — /papēnci/ “how many person?”.

/m/ is a bilabial nasal, e. g., /mānu/ “child”, /amīsan/ “cold season”, /pusīam/ “rice in the husk”. In word-formation it alternates with /p/. (This feature will be discussed in Morphology, which will be written soon.)

/n/ is an alveolar nasal, e. g., /nakūvʌ/ “clothes”, /sapāniri/ “wooden shoe”, /tʃtan/ “ladder”.

/ŋ/ is a velar nasal, e. g., /ŋāi/ “spittle”, /maŋtūāi/ “short”, /masīnaŋ/ “red”.

/l/ is a voiced alveolar lateral, e. g. /līma/ “five”, /malicuvūlu/ “landslide”.

/r/ is voiced alveolar trill, it has three allophones, i. e., (1) in most word initial positions, when the tongue tip is vibrating, its position is higher than its usual position in the trills, thus it resembles the voiced (retroflex)

(1) See the descriptions below.

fricative [ʒ], e. g., /ramīsi/ /ʒamīsi/ “root, (2) a typical trill /r/, and (3) a single tap of the tongue [ɾ], but with the alveolar position higher than the flap in the British English sound in “very”, and is somewhat like a lateral /l/. Thus, sometimes in the field when we transcribed the language, we wrote either /r/ or /l/ in the same words inconsistently. This problem was resolved after we had rechecked the notes with the informant. These three allophones are nondistinctive, so we ascribed them to one phoneme /r/.

/v/ is a voiced labio-dental spirant. It is made by holding the upper teeth loosely on the lower lip, and letting the air escape around this obstruction with a soft voiced sound. Especially when it precedes the vowel /u/, the sound resembles the voiced bilabial spirant [β], e. g., /vuāini/ [βuāini] “eye”. When it precedes the other vowels, no [β] was heard but [v], thus they are in complementary distribution, and we ascribed them to one phoneme /v/.

/s/ is an unvoiced spirant. When it precedes the vowel /i/, it is palatalized, and forms [ʃ] or [ç], e. g., /sia/ [ʃia] “nine”, /siipi/ [çiipi] “hand and arm”.

/c/ is an unvoiced alveolar affricate. It is homorganic with the phoneme /s/ and includes three allophones [ts], [tʃ] and [tɕ]. The later two allophones occurred only preceding the vowel /i/, so they may be described as the palatalized allophones of /ts/, e. g., /cimīʔi/ [tʃimīʔi] “check”, /nimavīci/ [nimavītɕi] “brought”. Since no other homorganic stops and spirants exist in clusters in this language, and no more than two consonants forming a cluster have been found in our notes, as well as for the sake of orthographic convenience, we decided to write this sound as /c/ instead of /ts/.

The occurrence of /h/ is limited to loan-words, e. g., /hūnti/ “king” is a loan-word from South Min dialect of Chinese.

/ʔ/ is a glottal stop. When it occurs in the initial position of a morpheme and precedes a vowel, it is somewhat softer than a normal glottal stop, and resembles a voiced glottal spirant [ɦ], e. g., /ʔakia/ [ɦakia] “no”. When it occurs between two vowels, it is a normal glottal stop, e. g., /carāʔacu/ “fish-spear”.

The initial vowels of this language have two types of onset, lax and tense. When the former occurs, the air passes through the throat and the mouth smoothly. When the latter one is pronounced, the throat gets tight

and forms a slight glottal stop at first. When the closure of the throat opens, then the air come out through the mouth. We distinguish these two types of initial vowel onsets by writing the tense one as a phonemic glottal stop /ʔ/, and leaving the lax vowel onset unmarked, e.g. /ʔakía/ “no”, /anān/ “right hand”.

## 1.2 Distribution of simple consonants

With the exception of the nasals, the other consonants may occur only either in morpheme-initial and pre-vocalic, or in the intervocalic position of a morpheme. There is only one instance which shows the consonant /s/ occurring at the end of a morpheme, i.e., /māgas/ “mango”, but we suspect it is a loan-word from Chinese. In the following diagram, we use “Ø-V”, “V-V” and “V-Ø” to show the distribution of the simple consonants “initial and pre-vocalic”, “intervocalic” and “final and post-vocalic” in the morphemes:

	Ø-V	V-V	V-Ø
p	/pakisia/ “people of the plain”	/marāpici/ “to cut”	
m	/mānu/ “child”	/amisan/ “cold season”	/pusiam/ “rice in the husk”
v	/vātu/ “stone”	/navūŋu/ “head”	
t	/tāmu/ “grand parents”	/matakici/ “to print, to stamp”	
n	/nakūvu/ “clothes”	/canūmu/ “water”	/kumŋn/ “to eat, to take a meal”
l	/līma/ “five”	/marilalitān/ “to net fish”	
r	/ramīsi/ “root”	/tarikūka/ “chicken”	
s	/sarāi/ “pocket”	/masīnaŋ/ “red”	
c	/cakŋran/ “river”	/macīci/ “heat, hot”	

# Kanakanavu Language

k	/kaān/ “no, not”	/nakūsaiāna/ “Chinese people”	
ŋ	/ŋāu/ “cat”	/aŋīrisi/ “meat, pork”	/makūŋ/ “cold”
h	/hōkia/ “rich”	/maha/ “?”	
ʔ	/ʔanīvi/ “wall”	/mūʔu/ “a male personal name”	

## 1.3 Consonant clusters and their distribution

It was found that no more than two consonants form a cluster in this language. The combinations of the consonants and their distribution in the morphemes are shown in the following table. The consonants in the cluster-initial position are in vertical line, and those in the cluster-final position are in the horizontal line.

	p	m	v	t	n	l	r	s	c	k	h
m	x	x	x	x	x				x		
n	x	x		x	x	x	x	x	x		
s	x			x					x	x	
c					x						
k										x	
ŋ	x		x	x	x	x		x	x	x	

All consonant clusters in this language are the result of either (1) the dropping of post-nasal vowels in word-formation, or (2) the obligatory loss of the vowel /a/ after /s/, /c/, or /k/ in rapid speech.

	Ø-V	V-V	V-Ø
mp		/kōmpa/ “to wait for a moment”	

mm	/tāmmi/ “sweet potato”
mv	/tamvināu/ “ghost, the ancestor of millet”
mt	/tamtasāi/ “star”
mn	/tāmna/ “self”
mo	/mcūsua/ “then”
np	/kanpatānca/ “too lovely”
nm	/sinmatūlu/ “had caught three (animals)”
nt	/nāntu/ “gun”
nn	/pakōnnānu/ “how did it proceed?”
nr	/sinrarūa/ “typhoon”
ns	/tansavūrū/ “green snake”
nc	/pantānca/ “very lovely”
nk	/siukūnkan/ “looked into”
nt	/hūnti/ “king, leader”
nv	/kinvāla/ “sisters and brothers”

Kanakanavu Language

sp	/maspatūn/ “forty”
st	/mastān/ “more than”
sc	/scārɯ/ “bladder”
sk	/maskumanūn/ “half”
cn	/cnūɯ/ “the wax secretions of the ears”
kh	/taīpakhu/ “the President’s house in Taipei”
ŋp	/tapap̄p̄āŋ/ “bald”
ŋt	/tāŋtaŋ/ “pumpkin”
ŋn	/cūŋnan/ “old”
ŋl	/lāŋlaŋ/ “difficult, expensive”
ŋs	/taīŋsu/ “spoon”
ŋc	/kāŋca/ “heaven, sky”
ŋk	/ŋkou/ “monkey”
	/cūŋkucu/ “bridge, suspension bridge”

From the above diagram, we can observe: (1) /p/, /v/, /t/, /l/, /r/, /ʔ/ and /h/ don’t combine with other consonants in the morphemes; (2) nasals combine with most of the other consonants, except /ŋ/, /ʔ/, and /h/; (3) a stop and a spirant of the same position do not go together, except the morpheme /scārɯ/ “bladder”.



## 2. VOWELS

### 2.1 Description of vowels

In Kanakanavu there are seven vowels, which are all syllabic in word-formation. The height of the tongue may be divided into three distinctive grades as shown in the following chart:

	front	back
high	i	ɯ, u
mid	e	ɤ, o
low	a	

/i/ is an unrounded front-high vowel.

/u/ is a rounded back-high vowel. Its corresponding unrounded vowel is /ɯ/. Since the tongue position of /ɯ/ is nearer to /u/ than to /i/, we wrote /ɯ/ instead of /i/ as an unrounded back-high vowel in our notes.

During our investigation in the field, we found that the mid vowels /e/, /ɤ/, and /o/ of Kanakanavu are all unstable phonemes. Their variances in pronunciation attracted our special attention. When we took dictation from our informants, we found that /e/ sometimes might be pronounced /i/, but at other times /ia/ or /ai/ in the same morpheme, and the significance of the morpheme still remained unchanged. The occurrences of the unrounded back vowel /ɤ/ and the round back vowel /o/ are similar; the former sometimes may be pronounced with /ɯ/, /aɯ/ or /ɯa/, while the later might be pronounced with /u/, /au/ or /ua/. Thus at first, when we analyzed the phonetic system, we tried to re-phonemicize the unstable /e/ as /i/, /ia/ or /ai/, the unstable /ɤ/ as /ɯ/, /aɯ/ or /ɯa/, and the unstable /o/ as /u/, /au/ or /ua/, in order to reduce the number of mid vowels. But finally, we found that it was impossible to reach our goal, because there were a few mid vowels which our informant insisted must retain their original sound value, and rejected their alteration. At last we found a minimal contrast pair of /o/ and /u/, i. e., /ḡvḡ/ “knee”: /ḡvɯ/ “smoke”. Thus we decided to retain the unstable mid vowels in our phonemic system.

/a/ is a low-unrounded central vowel; it sounds low and lax, e. g., /arāka/ “bad”, /nānu/ “where”.

When a vowel bears a stress, or is at the paramount position of pitch in a morpheme, it is one and a half times longer than it is without the stress.

## 2.2. Distribution of simple vowels

In the following chart we see the distribution of the simple vowels and some examples of their occurrence. Their positions in the morphemes can be divided into four categories: (1) initial, followed by consonant ( $\emptyset$ -C), (2) interconsonantal (C-C), (3) final, preceded by consonant (C- $\emptyset$ ), and (4) isolated ( $\emptyset$ - $\emptyset$ ).

	$\emptyset$ -C	C-C	C- $\emptyset$	$\emptyset$ - $\emptyset$
i	/itūmuru/ "many, much"	/talīsi/ "rope"	/tāpi/ "back-basket"	
	/icīci/ "tail"	/sikāmu/ "mat"	/mucīri/ "to stand"	
e	/ecūun/ "to point"	/pēpe/ "cakes of glutinous rice eaten at the new year"	/urūne/ "swallow"	
	/encāunu/ "to visit"	/serōpaca/ "to use"	/kapēpe/ "only"	
a	/anīura/ "fly"	/cakūpʌ/ "to sting"	/mācina/ "to bathe"	
	/ararīra/ "tortoise"	/kāva/ "skin, leather"	/rorovāna/ "night"	
u	/ulīa/ "beam"	/tumāŋi/ "to cry"	/cipāku/ "place name"	
	/ukūnau/ "tiger, leopard"	/muŋutān/ "to hack"	/lūcu/ "fodder"	
ʌ	/ʌcūpʌ/ "dream"	/vʌrūŋa/ "eel"	/anicāŋʌ/ "shoulder"	/ʌ/ "exclamation"
	/ūvʌ/ "smoke"	/mʌrʌnʌpūŋ/ "jealous, envious"	/marisʌūlu/ "to pull"	
o	/otōli/ "to dance"	/lōcu/ "downward"	/surūmo/ "suddenly"	
ʃ	/ʃvʌ/ "knee"	/pʃnʌ/ "bait"		
	/ʃnʌ/ "pillow"	/kumʃn/ "to eat"		

### 2.3. Sequences of two vowels

In the Kanakanavu language, we do not consider the vowel sequences with two different vowels as diphthongs. The reason is that when two different vowels are heard one after another, they do not form a single syllable as the rising or falling diphthongs of Mandarin, English or German, but form two separate syllables instead.

From the processes in the word formation of this language, especially in the reduplication of words, we can find that the sequence of two different vowels is doubtless two separate syllables, for instance:

/apaʌnɿn/ “to change course”: /apaʌnɿʌnɿn/ “to change to course once more”

/capaivōini/ “face”: /capaivovōini/ “face”

/cáu/ “man, people”: /kacacáu/ “made-man”

/itūmuru/ “many, much”: /kaituitūmuru/ “to make many (things)”

/kiaraāŋ/ “to prepare”: /kiaaraarāŋ/ “to prepare”

/matūa/ “the same”: /matūtūa/ “the same”

/pitaūna/ “to beat once more”: /pitaʌnaūna/ “once more”

/sarāi/ “pocket”: /sarasarāi/ “pockets”

/tām̄mi/ “sweet potato”: /tamtāmmia/ “sweet potato field”

/cáu/ “people, man”: /tumancacáu/ “to feign to be a man”

/ʔʌnāi/ “earth, soil”: /ʔʌnaʌnāi/ “earth, soils”

In the suffixation of the words, when a word ends with a vowel and adds the suffix /-in(i)/ “he, it, she, his, its, her”, we can also find that the combination of two vowels constitutes two separate syllables. For example:

/cināini/: (/cīna/ “mother” + /-ini/ “his, her”)

/cinʌvurāini/: (/cinʌvūra/ “grown up” + /-ini/ “he”)

/koacapāin/: (/loacapāin/ “utensils, things” + /-ini/ “his”)

/vanāini/: (/vanāi/ “reason” + /-ini/ “its”)

/vʌcʌrāŋāini/: (/vʌcʌrāŋa/ “female head decoration” + /-ini/ “her”)

/ivatūini/: (/ivātu/ “to come” + /-ini/ “he”)

/kalūini/: (/kālu/ “tree” + /-ini/ “his”)

/mamanūini/: (/mamānu/ “children” + /-ini/ “his”)

/tamakuīni/: (/tamāku/ “to smoke” + /-ini/ “he”)

/tamūini/: (/tāmu/ “grandparents” + /-ini/ “his”)

/aratāmūini/: (/aratāmū/ “to grow out” + /-ini/ “it”)

Kanakanavu Language

All vowels can occur in sequences of two. The connection of two vowels and their position of occurrence are as follows. The vertical line indicate the vowels in the preceding position, while the horizontal line indicate those in the following position. ( $\emptyset$ -C), (C-C), (C- $\emptyset$ ) and ( $\emptyset$ - $\emptyset$ ) are the positions of the vowel clusters in the morphemes.

	i	e	a	u	ʉ	o	ɤ
i	x	x	x	x	x	x	x
e	x	x	x	x			
a	x	x	x	x	x		x
u	x	x	x	x			
ʉ	x	x	x		x		
o	x	x	x	x	x	x	
ɤ							x

Instance:

	$\emptyset$ -C	C-C	C- $\emptyset$	$\emptyset$ - $\emptyset$
ii	/iiri/ “left hand”	/tiiṁāi/ “small”	/umuri/	
ie		/amisieni/ “why”	/ʔarivalē/ “to respond”	
ia	/iavātu/ “to come”	/taniāra/ “day”	/ʔakia/ “no”	/ia/ (particle)
iu		/tinumaniulāu/ “to humbug”		
iʉ		/masʉpācʉ/ “to wash clothes”		
io	/iovatu/ “to come”	/sioná/ “place name”	/putukekio/ “to work”	
iɤ		/masiṁn/ “ninety”		
ei		/tinēina/ “to cast away”	/cūṁrei/ “to see”	
ee		/meēsua/ “then”	/matēe/ “to stay”	
ea		/marutēanʉ/ “just going”	/matēa/ “to tell...to stay”	

eu	/nipapeurūu/ “stripped off”	
ai	/cāiŋa/ “ear ornament”	/macāi/ “to die”
ae		/kisapatāe/ “to catch up with”
aa	/aāka/ “no good”	/anaanán/ “right side”
au	/aūmaŋ/ “garlic”	/caŋáa/ “onion”
		/alakāu/ “to come out”
aʉ	/arivulāʉn/ “to strike”	/carāʉ/ “blood”
aʃ		/nimarivulāʃ/ “struck”
ui	/civūini/ “his liver”	/tutūi/ “boar, pig”
ue		/ʔapacūe/ “anyhow”
ua	/tarūan/ “little grass house”	/ikūa/ “me”
uu	/uūŋu/ “horn”	/satūu/ “wooden box or basket”
ʉi	/cūini/ “string of a bow”	
ʉe		/ʉsūe/ “to pat”
ʉa	/eianūaru/ “saw”	/kalūa/ “lover”
ʉʉ	/ʉūcu/ “cloud”	/ʉsūʉ/ “tear (eyes)”
	“to stretch longer”	

# Kanakanavu Language

oi	/vōini/	
	"eyes"	
oe	/roēmi/	/itarōe/
	"to forget"	"wait"
oa	/ʔaloalōvu/	/cocōa/
	"thatched roof"	"other people, others"
ou	/masiupoupāŋ/	/tapurōu/
	"to talk dis- orderly"	"sparrow"
ou	/pōun/	
	"to sell to"	
oo		/kisoōe/
		"to say"
ʌ	/pusuŋŋna/	
	"to roast again"	

## 2.4 Sequences of three or more vowels

We find no more than four vowels forming a sequence in this language. In the sequences of three or four vowels, any one of the vowels may bear a stress or a pitch. Every member of the sequences is syllabic, so that we do not refer to them as triphthongs. The combination of three or four vowels which can be found in our notes are shown below:

/ʔāiakʌ/	/ciáu/	/cikāe/
(exclamation)	"a kind of fish"	"I!, me!"
/cuūan/	/ikāuana/	/kanakanaūa/
"bone"	"surname"	"elder brother"
/kincaucáua/	/kíoa/	/loaēta/
"relative"	"female personal name"	"all play gladly"
/lumīuu/	/maaíni/	/makauáre/
"to catch fish"	"salt"	"afterwards, later on"
/maŋtuāi/	/maramíat/	/maruīāma/
"short"	"to call, wake up"	(place nams)
/mateāe/	/miāuru/	/niaramīat/
"stay!"	"to hull rice"	"woke up"
/ŋiau/	/ŋuāi/	/paramīat/

"cat"	"that is"	"to cause to wake up"
/piuāna/	/pouāna/	/puāu/
"story, verses of song"	"story"	"to sell"
/puātn/	/rumīuu/	/sirañe/
"to sell to"	"to scoop up fish"	"very"
/takacauāna/	/tarasakasakaāe/	/tarāua/
"many places"	"to see secretly"	"to see secretly"
/quaiāva/	/pasiuāe/	/puatēiri/
"it original is"	"to talk secretly"	"to kick"
/roōei/		
"rattan, to cut rattan"		

### 3. SYLLABLES

#### 3.1 The structure of syllables

As in the other languages of the Austronesian family, the phonological structure of Kanakanavu is polysyllabic. Most of the simple words in the language consist of three or four syllables. Words comprising five or more syllables can be found especially in the reduplicated, affixed or compound words. Monosyllabic and dissyllabic words are not too numerous. The syllable in a word includes a syllabic vowel and all preceeding non-syllabic consonants (if any), or a syllabic nasal.

We find that there has a formula which can be used to indicate the structure of the words in this language. In the formula listed below, W stands for word, S for syllable, and N for syllabic nasal.

$$W \longrightarrow S$$

$$S \longrightarrow \begin{cases} (C)V \\ N \end{cases}$$

e. g., /cāni/ "song, road" /kamūcu/ "to hope"  
 /maricuvucuvūŋu/ "to collect"  
 /ikimin/ "we", /apūŋu/ "feathers"  
 /pōii/ "to come back", /roōei/ "to cut rattan"  
 /ūai/ "rattan", /ūia/ "cooking-pot"

#### 3.2 Combination of non-syllabic and syllabic and syllabic sounds in syllables

In this language, we find that there are 140 syllables attested in our

material. The combination of non-syllabic and syllabic sounds in the syllables are as below:

	i	e	a	ʉ	ɣ	u	o	Ø
p	x	x	x	x	x	x	x	
t	x	x	x	x	x	x	x	
k	x	x	x	x	x	x	x	
ʔ	x		x			x		
m	x	x	x	x	x	x	x	x
n	x	x	x	x		x	x	x
ŋ	x	x	x	x		x	x	x
l	x	x	x	x		x	x	
r	x	x	x	x		x	x	
v	x	x	x	x		x	x	
s	x	x	x	x	x	x	x	
h			x			x	x	
c	x	x	x	x		x	x	
Ø	x	x	x	x		x	x	
mp			x	x			x	
mm	x		x					
mv	x							
mt			x					
mn			x					
mc						x		
np	x		x			x		
nm	x		x	x				
nt	x		x	x		x		
nn	x		x					
nr			x					
ns		x	x					
nv			x					
nc	x	x	x			x		
nk			x					
sp			x					
st			x					
sc			x					



sk				×	×
cn			×		
kh				×	
ŋp		×		×	
ŋv		×			
ŋt		×	×		
ŋn		×			
ŋl		×			
ŋs	×				
ŋc		×		×	
ŋk	×	×	×	×	×

#### 4. STRESS AND PITCH

Most of the words in the Kanakanavu language comprise at least two syllables. In general, one of them is spoken with a greater degree of stress and a higher degree of pitch than the others. The stress of a word is always on the penult or third to the last syllable. As a matter of fact, in most words, the stressed syllables coincide with the highest pitched syllables of the words, and make the stressed syllables' sound with a higher pitch and a stronger stress than the stressed syllables without the coincidence of the high pitches. In such cases, we use pitch-accent mark. /ʔanīvi/ "wall", /paratūkān/ "to divide, to separate". Only a few words bear a stress but no high pitch, so we use an accent mark on the stressed vowel: /cáu/ "people, man", /tapuróu/ "sparrow".

In words of four or more than four syllables, pitch always rises from the second syllable, and reaches its peak on the stressed syllable, then falls on the last syllables.

#### 5. INTONATION

Within a month of investigation on this language in the field, we recorded ten tapes of material by transistor tape-recorder. The texts which we took down were all the material told by the older informants in the tape, then retold and interpreted by the younger informants. Thus we could observe natural intonation without any interruption. In general, we can divide the intonation of this language into two types:

Kanakanavu Language

(1) All the utterances without the morpheme /ia/ have a mid-level tone in the beginning and a falling pitch on the last syllables of the utterances. e. g.,

/manɯŋcāu kalūa/iisa/

(2) Utterances with the morpheme /ia/ have a rising tone in the parts preceding the morpheme /ia/, and have a mid-level falling tone in the parts after the /ia/, just like the tone said in (1). e. g.,

/sua talisi/ia mācāasu/

Exclamatory, interrogative and imperative utterances differ from declarative utterances only in the inflections in the morphemes and not in the intonations.