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by

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GRAMMATICAL SKETCH OF DUMAGAT (CASIGURAN)

THOMAS N. HEADLAND and ALAN HEALEY (2.4)

1. LINGUISTIC CLASSIFICATION OF CASIGURAN DUMAGAT

In addition to Casiguran Dumagat there are two other mutually intelligible dialects to the north of Casiguran: the dialect spoken by some one thousand Palanan Negritos, and Paranan, the dialect of about six thousand non-Negrato Filipinos living in Palanan, Isabela. These two dialects are mutually intelligible with each other and with Casiguran Dumagat. Other Negrato, or Dumagat, languages are mutually unintelligible with Casiguran Dumagat (for example, Baler, Dingalan (Umirey), northern Isabela, Cagayan, etc.).

This language, with its three dialects, forms part of a chain of nine closely related languages and dialects which runs down the eastern side of Luzon from the northern tip almost as far south as Baler, Quezon. The percentages of cognates shared by these dialects and languages are presented in Table 1, and are based upon the word lists and counts of Headland and Mayfield (1965). It is noteworthy that two of these nine dialects, namely Kasiguranin and Paranan, are spoken by non-Negrato groups.

This chain of languages and dialects seems to constitute a distinct subdivision within the languages of Luzon, and perhaps one of the eleven or twelve major subdivisions of the languages of the Philippines (Dyen 1965a:30). In Table 2 are presented some comparisons between Casiguran Dumagat and other better known languages of Luzon. The cognate percentages here are based on word lists and counts in Headland and Mayfield (1965) and in Reid (1971).

Most of these cognate counts were made from a basic word list of 372 words, titled the "1966 Expanded Philippine Word List". This is the standard list presently used by the Summer Institute of Linguistics for linguistic surveys in the Philippines. (See Reid 1971:viii, for a description of this list and its contents.)

When any two dialects were being compared, a pair of words were considered to be cognate if they had two differences or less, or if it could be readily seen that they both came originally from the same Proto-Malayo-Polynesian word by regular sound shifts.

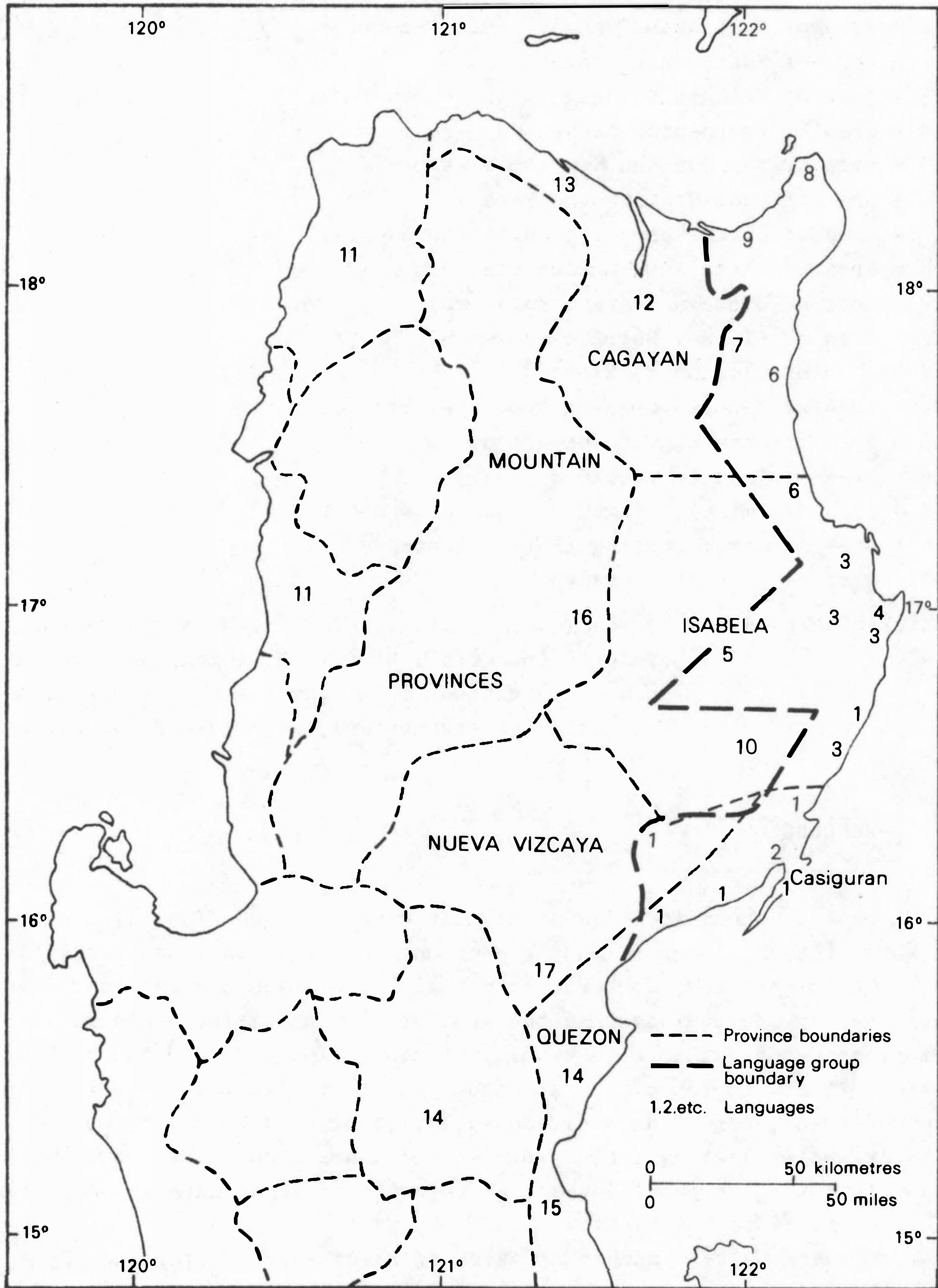
TABLE 1
A SUB-DIVISION OF NINE LUZON LANGUAGES
AND THEIR COGNATE RELATIONSHIPS

1. Casiguran Dumagat (Negrito)	77								
2. Kasiguranin		88							
3. Palanan Dumagat (Negrito)	71		81						
4. Paranan		84	79	81					
5. San Mariano Negrito			93	60	63				
6. Roso Negrito				75	54				
7. Santa Margarito Negrito				73	67				
8. Santa Ana Negrito		76			65				
9. Gonzaga Negrito			87						
				82					
					81				
						78			

TABLE 2
COGNATE COMPARISONS BETWEEN CASIGURAN DUMAGAT
AND SOME BETTER KNOWN LANGUAGES OF LUZON

Casiguran Dumagat - Dicomay Negrito	60%
Casiguran Dumagat - Ilocano	40%
Casiguran Dumagat - Central Cagayan Agta (Negrito)	39%
Casiguran Dumagat - Atta Negrito	38%
Casiguran Dumagat - Tagalog	38%
Casiguran Dumagat - Umirey (Dingalan) Dumagat (Negrito)	36%
Casiguran Dumagat - Pagan Gaddang (Butigui)	34%
Casiguran Dumagat - Ilongot	25%

MAP OF NORTHERN AND CENTRAL LUZON



CODE TO MAP

- 1 = area of Casiguran Dumagat (Agta) speakers
- 2 = area of Kasiguranin speakers
- 3 = area of Palanan Dumagat (Agta) speakers
- 4 = area of Paranan speakers
- 5 = area of San Mariano Negrito speakers
- 6 = area of Roso Negrito speakers
- 7 = area of Santa Margarita Negrito speakers
- 8 = area of Santa Ana Negrito speakers
- 9 = area of Ganzaga Negrito speakers
- 10 = area of Dicamay Negrito speakers
- 11 = area of Ilocano speakers
- 12 = area of Central Cagayan Agta speakers
- 13 = area of Atta Negrito speakers
- 14 = area of Tagalog speakers
- 15 = area of Umirey (Dingalan) Dumagat speakers
- 16 = area of Pagan Gaddang (Butigui) speakers
- 17 = area of Ilongot speakers

thick broken line = boundary of a chain of nine known languages and dialects (numbers 1 through 9) which together make up a sub-division of languages within the Malayo-Polynesian (Austronesian) languages of Luzon.

2. PHONOLOGY

2.1 ACCENT

Accent is phonemic. Accent usually occurs on the final syllable of a word, though there are many exceptions to this trend, especially in words that have been borrowed from Tagalog, Spanish and English*. An accented syllable always has the peak of the intonation contour. A final accented syllable is usually stressed (loudest) and the syllable before it is shortened. An accented penult is always lengthened. In this section, non-final accented syllables are marked by the symbol (') preceding that syllable. Except for a small number of words with accent on the antepenult, the vast majority of words have accent either on the ultima or the penult.

There are quite a number of pairs of words which differ only by accent.

*Examples can be found in Headland, Thomas N. and Janet D., *Casiguran Dumagat Dictionary* (Pacific Linguistics, Series C.28).

anak	<i>child</i>
'anak	<i>children</i>
bala	<i>type of basket</i>
'bala	<i>bullet</i>
sulat	<i>lime container</i>
'sulat	<i>letter</i>
sida	<i>viand</i>
'sida	<i>broken</i>
dulong	<i>base of a tree</i>
'dulong	<i>bow of a boat</i>
ganéb	<i>thud</i>
'ganéb	<i>door</i>
salinan ko	<i>I will pass by.</i>
sa'llnan ko	<i>I will change it.</i>
mégtabasék	<i>I am cutting grass.</i>
még'tabasék	<i>I am cutting cloth.</i>
mégtamo kame ta éya	<i>We are rebuilding the fire there.</i>
még'tamo kame ta éya	<i>We are going there.</i>

It is noteworthy that all of the instances of word pairs differing by accent have only a single consonant between the ultima and penult. Words which have a consonant cluster between the ultima and penult do not seem to show a contrast in the placement of accent. Words of the pattern CVCCV (with final glottal stop) invariably have accent on the penult. Words of the pattern CVCCVC are pronounced in everyday speech sometimes with an accented ultima and sometimes with an accented penult, and both of these by the same person.

2.2 CONSONANTS

The consonant phonemes of Casiguran Dumagat are: p, t, k, b, d, g, s, h, m, n, ng, l, r, w, y, and glottal stop. Most of the consonant symbols have their usual phonetic value. The diagraph ng represents the velar nasal, and r is an alveolar flap.

Stops are unaspirated. Glottal stop is not symbolized, except in the few instances where it occurs following a consonant, where it is then represented by a hyphen. Since no utterance initial or final vowels occur, a word such as *aso dog*, is to be read as beginning and ending with a glottal stop. Similarly, since no vowel clusters occur,

words written with two vowels together (e.g. *taon year*) are to be read as having a glottal stop between the vowels.

2.3 VOWELS

There are eight vowel phonemes in Casiguran Dumagat. These are *a, e, ë, é, i, o, ö, u*. *a* is low central, *e* is mid close front, *ë* is mid open front, *é* is mid close central (the Philippine *pepet* vowel), *i* is high front, *o* is mid close back, *ö* is mid open back, and *u* is high back, as shown in Table 3.

TABLE 3. PHONETIC QUALITY OF VOWEL PHONEMES

	front	central	back
high	i		u
mid close	e	é	o
open	ë		ö
low		a	

Casiguran Dumagat is the only Philippine language to date that has been found to have eight vowels. Three Philippine languages show seven vowels (Bilaan, T'boli or Tagabili, and Balangao of eastern Bontoc). A few languages show six vowels (e.g. Ifugao, Central Cagayan Agta, etc.). Most of the languages show four or five vowel systems. Since it has been considered extremely doubtful that a Philippine language could have eight vowels, we have felt it fitting to list here sets of several minimal pairs of vowel contrasting words, in order to demonstrate that there are in fact eight vowels in Casiguran Dumagat. This section concludes with a suggestion as to how the eight vowels might have developed from a (Philippine) proto-language four vowel system.

Several pairs of vowels were suspect as being allophones of one phoneme. However, the following pairs of contrasting words show that the eight vowels are in fact all separate phonemes.

i AND *e*

<i>még'dingding</i>	<i>to make a wall</i>
<i>még'dengdeng</i>	<i>to warm oneself by a fire</i>
<i>a'gege</i>	<i>cloth used to make fire by friction</i>
<i>a'gegi</i>	<i>to scorn a lover</i>

ti 'Déngdéng	a woman's name, with particle
te 'dingding	<i>There is a wall.</i>
de	personal plural noun-marking particle
di	nonpersonal plural noun-marking particle
i AND ë	
mali	<i>mistake</i>
'malë	<i>a long time</i>
pati	<i>also</i>
patë	<i>death</i>
i AND é	
Oping	a woman's name
opéng	<i>type of evil spirit</i>
mégibut	<i>to throw away</i>
mégébut	<i>to make a hole</i>
'dingding	<i>wall</i>
'Déngdéng	a woman's name
méglinis	<i>to clean</i>
méglinés	<i>to be moving</i>
e AND ë	
sélpét	<i>to clamp</i>
sélpët	<i>fiery minivet (type of bird)</i>
még'nesnes	<i>to whimper</i>
még'nësnës	<i>to wipe off</i>
diget	<i>ocean</i>
digët	<i>to sew</i>
séme	<i>chin</i>
sémë	<i>to bounce up and down</i>
e AND é	
agei	<i>scream of an evil spirit</i>
agél	<i>caryota palm</i>
mégules	<i>to cut hair</i>
méguiés	<i>to cover with a blanket</i>
singet	<i>arrow notch</i>
singét	<i>bee sting</i>

'keskes	<i>to scale fish</i>
'késkés	<i>a woman's belt</i>
ë AND é	
ngahitingët	<i>sound of a splitting tree</i>
ngahitingét	<i>sound of grinding teeth</i>
lukët	<i>armpit</i>
bukét	<i>mouse</i>
u AND ö	
Haduy	<i>a man's name</i>
hadöy	<i>spoiled roots</i>
bigu	<i>new</i>
bigö	<i>Miscanthus sinensis (grass)</i>
'gulgul	<i>to sharpen an arrowhead</i>
'gölgöl	<i>for a dog to yelp</i>
ulitö	<i>unmarried man</i>
'ölitö	<i>unmarried men</i>
u AND é	
busog	<i>hunting bow</i>
bésog	<i>full from eating</i>
'gulgul	<i>to sharpen an arrowhead</i>
'gélgél	<i>to slice meat</i>
'bilug	<i>round</i>
bilég	<i>deer prints</i>
kédut	<i>knife</i>
kédét	<i>thick brush</i>
o AND ö	
lango	<i>drunk</i>
langö	<i>fly</i>
siko	<i>elbow</i>
sikö	<i>you</i>
'dipos	<i>stern</i>
dipös	<i>last born chi</i>
'togtog	<i>to tap out a rhythm</i>
'töktök	<i>to peck</i>

o AND u

tu	topic noun-marking particle
to	oblique noun-marking particle
'tugtug	<i>type of bird</i>
'togtog	<i>to tap out a rhythm</i>
talon	<i>forest</i>
talung	<i>egg plant</i>

o AND é

ipés	<i>cockroach</i>
ipos	<i>tail</i>
kuyong	<i>stomach</i>
kuyéng	<i>rat</i>
mégsingot	<i>to sniff</i>
mégsingét	<i>to sting</i>

ö AND a

lébök	<i>dent</i>
lébak	<i>ravine</i>
'töktök	<i>to peck</i>
'taktak	<i>lizard</i>
mégtakö	<i>to steal</i>
mégtaka	<i>to be amazed</i>
délö	<i>to hit the mark</i>
dila	<i>tongue</i>

ö AND é

'gölgöl	<i>yelp of a dog</i>
'gelgél	<i>to slice meat</i>
kéyög	<i>hunchbacked</i>
kuyéng	<i>rat</i>

a AND é

mag-	verbal prefix, future tense
még-	verbal prefix, present tense
sabeng	<i>mouth of a river</i>
sébeng	<i>footprints</i>

sibat	<i>spear</i>
sibét	<i>strong</i>
melawa	<i>wide</i>
meléwa	<i>tears</i>

Several multiple contrasts occur, and these are listed for assistance in seeing the phonemic status of these vowels.

mali	<i>mistake</i>
'male	<i>a type of fruit</i>
'malë	<i>a long time</i>
'gölgöl	<i>howl of a dog</i>
'gulgul	<i>to file an arrowhead</i>
'gélgél	<i>to slice meat</i>
'mésmés	<i>to jerk by the neck</i>
'nesnes	<i>whine of a dog</i>
'nësnës	<i>to wipe off</i>
'dingding	<i>wall</i>
'dengdeng	<i>to warm oneself by a fire</i>
'DéngDéng	<i>a woman's name</i>
'tegpas	<i>to chop</i>
'tugtug	<i>type of bird</i>
'togtog	<i>to tap out a rhythm</i>
alës	<i>type of wildcat</i>
ulés	<i>blanket</i>
ules	<i>to cut hair</i>
ulas	<i>to make a fire by friction</i>
'tiktik	<i>to stick into the ground</i>
'tëktëk	<i>to shake the contents out of a bottle</i>
'tékték	<i>dripping of water</i>
'taktak	<i>lizard</i>
'töktök	<i>to peck</i>
'toktok	<i>mountain peak</i>
'tugtug	<i>type of bird</i>
'togtog	<i>to tap out a rhythm</i>

2.4 HISTORICAL DEVELOPMENT OF EIGHT VOWELS (by Alan Healey)

Since Casiguran Dumagat is so far unique among Philippine languages in having eight distinctive vowels, it is of interest to enquire how these vowels developed from the four vowel phonemes of the original language of the Philippines.¹ Because it appears that Casiguran Dumagat has borrowed a large number of words from Tagalog, any Dumagat word has been excluded from consideration if it is identical to the Tagalog word or differs from it only by the loss of h or by the substitution in the final syllable of e for i or of o for u.

The vocabulary of the Proto-Philippine language has not yet been reconstructed in detail, and the words used below are somewhat tentative in form. They are marked with a double star. Most of them have been especially reconstructed by the author for the present purpose, mainly on the basis of Reid (1971) and Surian ng Wikang Pambansa (1971). A few Proto-Philippine reconstructions are taken from Conant (1913) and unpublished work by Charles and Zorc. The single starred words listed below are reconstructions from Proto-Malayo-Polynesian, in Dyen's (1965a) sense of that name. They are taken from Dempwolff (1938), Dyen (1953, 1965b), and Blust (1971) and are cited in Dyen's (1953) orthography. These well-known, published reconstructions have been used in preference to the more tentative Proto-Philippine ones whenever the two appear to be identical, or to differ only by a well-known consonant shift or merger.

The statements made below do not apply to reduplicated monosyllables except when they are explicitly mentioned.

2.4.1 The Casiguran Dumagat phoneme ö developed in the following three circumstances:

(a) In Proto-Philippine reduplicated monosyllables *u became Dumagat ö in both syllables.

*k ^u t ^u k ^u t	k ^ö t ^ö k ^ö t	<i>dig a hole</i>
*T ^u k ^u T ^u k	t ^ö k ^ö t ^ö k	<i>knock, peck</i>

(b) The Proto-Philippine disyllabic sequence *au reduced to Dumagat ö.

* <i>laud open sea</i>	dil ^ö d	<i>downriver</i>
** <i>(u)litau</i>	ulit ^ö	<i>single young man</i>

(c) The Proto-Philippine word-final sequence *aw reduced to Dumagat ö in eight instances.

* <i>lanaw</i>	lan ^ö	<i>a fly</i>
* <i>qañjaw</i>	ald ^ö	<i>day</i>
** <i>(D)ayaw</i>	d ^é y ^ö	<i>praise</i>

**kalaw	kalö	<i>hornbill (bird)</i>
**Nayaw	ngayö	<i>raid</i>
**takaw (< *(t)a(n)kaw)	takö	<i>steal</i>
**sa(m)paw	tapö	<i>waterfall</i>
**bukjaw	bukhö	<i>throat, neck</i>

Word final *aw became Dumagat aw in three instances.

*pakaw	pakaw	<i>handle</i>
**tanqaw	tan-aw	<i>see at a distance</i>
**esNaw (< **seNaw)	ésngaw	<i>steam, vapor</i>

No contextual factor has been discovered which determines whether ö or aw is developed in such final syllables.

In two instances when final *aw was preceded by a voiced consonant in Dumagat, *aw became ew in Dumagat.

*qañjaw	aldew, aldö	<i>day</i>
** agaw <i>snatch</i>	agew	<i>hurry</i>

2.4.2 The Casiguran Dumagat phoneme ë developed in the following four circumstances:

(a) In Proto-Philippine reduplicated monosyllables *i became Dumagat ë in both syllables.

*bitbit <i>hold with fingers</i>	bëtbët	<i>carry by hand</i>
**nisnis	nësnës	<i>to wipe off</i>

(b) The Proto-Philippine disyllabic sequences *ai, *aqi, and *aha reduced to Dumagat ë.

*kain	kën	<i>woman's wrap-around skirt</i>
**mai	më	<i>verbal or adjectival prefix</i>
**zaRaquit (< *zaqit)	digët	<i>sew, patch</i>
*bahaR	bëg	<i>loincloth, G-string</i>

One exception to this statement has been noted:

**etaqi (< *taqi)	'etay	<i>feces</i>
-------------------	-------	--------------

(c) The Proto-Philippine word-final sequences *ay and *ey reduced to Dumagat ë in seven instances.

*anay	anë	<i>termite</i>
**aNay	angë	<i>go, come</i>
*balay	bilë	<i>house</i>
*piray <i>rheumatism</i>	pilë	<i>crippled</i>
*matey	matë	<i>die</i>
*patey <i>kill</i>	patë	<i>dead</i>
**qaRtey (< *qatey)	agtë	<i>liver</i>

In four instances *ay and *ey became Dumagat ay.

*wasay	wasay	<i>axe</i>
**baybay	baybay	<i>beach, sand</i>
**kijay	kihay	<i>eyebrow</i>
*pajey	pahay	<i>unhusked rice</i>

No contextual factor has been discovered which determines whether *ë* or *ay* is developed in such final syllable.

(d) In two instances where Dumagat *e* would have been expected to develop, *ë* developed instead.

*isa (and *esa)	<i>ësa</i>	<i>one</i>
*siDah	<i>sidë</i>	<i>they</i>

2.4.3 The Casiguran Dumagat phoneme *o* developed in the following three circumstances:

(a) In a final syllable *u became Dumagat *o* if the preceding consonant is not a voiced stop in Dumagat.

*besuR	<i>bésog</i>	<i>satiated</i>
*sesuN	<i>lésong</i>	<i>(rice) mortar</i>
*telu	<i>étélo</i>	<i>three</i>
**qasuk (< *qasu(h))	<i>asok</i>	<i>smoke</i>
*apuy	<i>apoy</i>	<i>fire</i>
*kayu (or *kahiw)	<i>kayo</i>	<i>tree</i>
*lanuy	<i>nangoy</i>	<i>swim</i>
*balu(h)	<i>bilu</i>	<i>widow</i>
**bayu	<i>biyo</i>	<i>to pound (rice)</i>
*batu	<i>bitu</i>	<i>stone</i>
*Danum	<i>dinom</i>	<i>water</i>
**Ramut	<i>gimot</i>	<i>root</i>
**tilu(h) (< *tuli(h))	<i>tilu</i>	<i>earwax</i>

(b) In an initial syllable that is accented in Dumagat, *u became *o* in three instances.

*tu(n)Zuq	<i>'toldu</i>	<i>finger</i>
**uRsa (< *Rusa)	<i>'ogsa</i>	<i>deer</i>
*(h)u(n)taq	<i>'ota</i>	<i>vomit</i>

In an initial accented syllable *u became *u* in four instances.

**buliq	<i>'bule</i>	<i>buttocks</i>
*quma(h)	<i>'uma</i>	<i>farm</i>
**luRtaq, **lutaq	<i>'luta</i>	<i>ground</i>
**mula	<i>'mula</i>	<i>to plant</i>

No contextual factor has been discovered which determines whether *o* or *u* is developed in initial accented syllables.

(c) In disyllabic words in Proto-Philippine, the sequences **uqe* and **ahu* reduced to monosyllabic Dumagat *o*.

<i>*bituqen</i>	<i>biton</i>	<i>star</i>
<i>**tuqed</i> (< <i>*(tT)uhu(dj)</i>)	<i>tod</i>	<i>knee</i>
<i>*Dahun</i>	<i>don</i>	<i>leaf</i>

2.4.4 The Casiguran Dumagat phoneme *e* developed in the following four circumstances:

(a) In a final syllable **i* became Dumagat *e* if the preceding consonant is not a voiced stop in Dumagat.

<i>*taNis</i>	<i>sanget</i>	<i>cry, weep</i>
<i>**Nisit</i>	<i>ngitet</i>	<i>black</i>
<i>*kulit</i>	<i>kulet</i>	<i>skin</i>
<i>*buli()</i>	<i>'bule</i>	<i>buttocks</i>

One exception to this statement has been observed:

<i>**tamqis</i> (< <i>*(t)amis</i>)	<i>tam-is</i>	<i>sweet</i>
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(b) In an initial syllable that is accented in Dumagat, **i* became *e* in the only instance.

<i>**qisbu</i> (and <i>**siqbu</i>)	<i>'esbu</i>	<i>urine</i>
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(c) In disyllabic words in Proto-Philippine, the sequences **iqe*, **aqi*, **ahi* and **ei* reduced to monosyllabic Dumagat *e*.

<i>*liqeR</i>	<i>leg</i>	<i>neck</i>
<i>**taRaqinep</i>	<i>tagenép</i>	<i>dream</i>
<i>**unahik</i> (< <i>*nahik</i>)	<i>unek</i>	<i>climb</i>
<i>**uDahik</i>	<i>udek</i>	<i>go upstream</i>
<i>*bebei</i>	<i>bébe</i>	<i>woman</i>

(d) In a final syllable **a* became Dumagat *e* if the preceding consonant is a voiced stop in Dumagat (cf. section 3.6).

<i>*beras</i>	<i>béges</i>	<i>husked rice</i>
<i>*tuba(h)</i>	<i>tube, tubi</i>	<i>fish poison</i>
<i>*quZan</i>	<i>uden</i>	<i>rain</i>
<i>*quRas</i>	<i>uges</i>	<i>wash hands</i>
<i>**tabaq</i> (< <i>*(t)abe(q)</i>)	<i>tabe</i>	<i>fat</i>
<i>*kaRat</i>	<i>kaget</i>	<i>bite</i>
<i>*laja(h)</i>	<i>lade</i>	<i>weave mat</i>
<i>*maja(h)</i>	<i>made</i>	<i>dry</i>
<i>**baRat</i>	<i>biget</i>	<i>banana</i>
<i>**dadag</i>	<i>dideg</i>	<i>red</i>

*daRat <i>surface</i>	di <u>g</u> et	<i>sea</i>
*(dD)aRa <u>q</u>	di <u>g</u> e	<i>blood</i>
*qañ <u>jaw</u>	a <u>ld</u> ew	<i>day</i>
**agaw <i>snatch</i>	a <u>g</u> ew	<i>hurry</i>

Two exceptions to this statement have been observed:

*quDa <u>N</u>	u <u>d</u> ang	<i>shrimp</i>
*s <u>i</u> Dah	s <u>i</u> dë	<i>they</i>

2.4.5 The Casiguran Dumagat phoneme *u* developed in the following four circumstances:

(a) The Proto-Philippine bisyllabic sequence **uhe* became Dumagat *u* (cf. 2.4.3(c)).

**buhek (< *buhek, *buhuk)	buk	<i>hair</i>
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(b) In a final syllable **u* became Dumagat *u* if the preceding consonant is a voiced stop in Dumagat (cf. 2.4.3(a)).

**baqRu(h) (< *baqeRu(h))	bigu	<i>new</i>
*zaRum	digum	<i>needle</i>
*DiRus	digus	<i>bathe</i>
*tiDuR	tidug	<i>sleep</i>
*si(r)uN <i>dark</i>	sidung	<i>space under house</i>
**kiduj	kéduh	<i>thunder</i>
**qisbu (and **siqbu)	'esbu	<i>urine</i>
*tu(n)Zuq	'toldu	<i>finger</i>

(c) In an initial syllable that is unaccented in Dumagat, **u* became *u* (cf. 2.4.3(b)).

*qutek	uték	<i>brain</i>
*hulet	ulés	<i>cover, blanket</i>
**Nudel	ngudél	<i>blunt</i>
*ujIN	uging	<i>charcoal</i>
*kulit	kulet	<i>skin</i>
*tuba(h)	tube, tubi	<i>fish poison</i>
*quzan	uden	<i>rain</i>
*quRas	uges	<i>wash hands</i>
*quDaN	udang	<i>shrimp</i>
*Duwah	éduwa	<i>two</i>
**tuqlaN (< *(t)ulaN)	tulang	<i>bone</i>
*bulan	bulan	<i>moon</i>
*hulaR	ulag	<i>snake</i>
*kuha(h)	kuwa	<i>what-you-may-call-it</i>
**bukjaw	bukhö	<i>throat, neck</i>

(d) In an initial syllable that is accented in Dumagat, *u became u in four out of seven instances (cf. 2.4.3(b)).

2.4.6 The Casiguran Dumagat phoneme i developed in the following three circumstances:

(a) In a final syllable *i became Dumagat i if the preceding consonant is a voiced stop in Dumagat (cf. 2.4.4(a)).

*ujiN	uging	<i>charcoal</i>
*kaRi	'kagi	<i>say, tell</i>

(b) In an initial syllable that is unaccented in Dumagat, *i became i (cf. 2.4.4(b)).

**Nisit	ngitet	<i>black</i>
*ikan	ikan	<i>fish</i>
*kilat	kilat	<i>lightning</i>
*(n)ihaN	ngiwang	<i>skinny</i>
**kijay	kihay	<i>eyebrow</i>
*piray	pilë	<i>crippled</i>
*siDah	sidë	<i>they</i>
*DiRus	digus	<i>bathe</i>
*tiDuR	tidug	<i>sleep</i>
*siruN	sidung	<i>space under house</i>
**tilu(h) (< *tuli(h))	tilo	<i>earwax</i>
**ipus	ipos	<i>tail</i>
** (q)ikej	ikéh	<i>cough</i>
**Nipen (< *(h)ipen)	ngipén	<i>tooth</i>

Two exceptions to this statement have been observed:

**kiduj	kéduh	<i>thunder</i>
*isa (and *esa)	ësa	<i>one</i>

(c) In an unaccented initial syllable Proto-Philippine *a became Dumagat i in fifteen out of fifty instances.

*baseq	bisa	<i>wet</i>
*dakel	dikél	<i>big</i>
*balu(h)	biło	<i>widow</i>
**bayu	biyo	<i>to pound (rice)</i>
*batu	bito	<i>stone</i>
*Danum	dinom	<i>water</i>
**Ramut	gimot	<i>root</i>
**baqRu(h) (< *baqeRu(h))	bigu	<i>new</i>
*zaRum	digum	<i>needle</i>
*Zalan	dilan	<i>road</i>

**baRat	biget	banana
**dadag	dideg	red
*daRat <i>surface</i>	diget	sea
*(dD)aRaq	dige	blood
*balay	bilë	house

In the remaining 35 instances *a became Dumagat a.

**lasem (< **alsem < *asem)	lasém	sour
*qatep	atép	roof
*tazem	tadém	sharp
**pajes	pahés	wind
*kayu (or *kahiw)	kayo	tree
*apuy	apoy	fire
*alap	alap	take, get
**palad	palad	sole
*kaRat	kaget	bite
*laja(h)	lade	weave mat
*anay	anë	termite
*taNis	sanget	cry, weep

Another 25 instances of *a becoming Dumagat a are to be found in various other lists above. No contextual factor has been discovered which determines whether l or a is developed in initial syllables.

2.4.7 The Casiguran Dumagat phoneme é developed from Proto-Philippine *e in reduplicated monosyllables and in all other circumstances except in sequences *ei, *ey, *iqe, *uqe, *uhe, *aqe, and *ahe.

*sepsep	sépsép	suck
*enem	éném	six
*(t)elen	télén	swallow
**bejek	béhék	baby pig

Many other instances are listed in other sections.

Two exceptions to this statement have been observed:

*lemes <i>dip in, dive in</i>	limés	drown
*seNet	singét	sting

2.4.8 The Casiguran Dumagat phoneme a developed in the following six circumstances:

(a) In Proto-Philippine reduplicated monosyllables *a became Dumagat a in both syllables.

**wakwak	wakwak	crow
**bakbak	'bakbak	frog

*pakpak <i>wing-beats</i>	'pakpak	<i>wing</i>
**baybay	baybay	<i>beach, sand</i>

(b) The Proto-Philippine bisyllabic sequences *aqe, *ahe, and *ae reduced to Dumagat monosyllabic a.

**memaqen (< *mamaq)	éman	<i>betel chew</i>
**tahep	tap	<i>winnow</i>
*kaen	kan	<i>eat</i>

(c) In a final syllable *a became Dumagat a when the preceding consonant is not a voiced stop in Dumagat (cf. 2.4.4(d)).

**deqtaR	détag	<i>floor</i>
*epat	épat	<i>four</i>
**sa(ñ)japan	sahéman	<i>west</i>
**nenaq, **nanaq (< *nanaq)	néna	<i>pus</i>
*alap	alap	<i>take, get</i>
*wanan	kawanan	<i>right side</i>
*Zalan	dilan	<i>road</i>

Many more instances have already been given in other lists above.

One exception to the above statement has been observed:

**Najan (< *(h)ajan)	ngahen	<i>name</i>
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(d) In three out of eleven instances word final *aw became Dumagat aw (cf. 2.4.1(c)).

(e) In five out of twelve instances word final *aqi, *ay, and *ey became Dumagat ay (cf. 2.4.2(b,c)).

(f) In an initial accented syllable *a became Dumagat a.

**laqya (also **luqya)	'laya	<i>ginger</i>
*kaRi	'kagi	<i>say, tell</i>

(g) In 35 out of fifty instances, *a in an initial unaccented syllable became Dumagat a. (In the other instances *a became i, but no contextual factor had been discovered which determines which vowel is developed.) (Cf. 2.4.6(c).)

2.4.9 In what has been described above there are four cases in which Casiguran Dumagat exhibits pairs of apparently competing reflexes.

final *aw became either ö or aw (2.4.1(c))

final *ay and *ey became either ë or ay (2.4.2(c))

initial accented syllable *u became either o or u (2.4.3(b))

initial unaccented syllable *a became either i or a (2.4.6(c))

Two possible explanations warrant investigation. Firstly, it may be that when word accents are eventually reconstructed for Proto-Philippine

vocabulary that one or more of these pairs of reflexes will prove to be in complementation on the basis of accent. Secondly, the words containing the second reflex of each of these four pairs may prove to be loanwords from Ilocano, Kasiguranin, or an earlier stage of Tagalog that still had the pepet (schwa) vowel.

At all events, loanwords from Tagalog and other sources have played an important part in the development of the phonology of Casiguran Dumagat. The four "new" vowels (e, ë, o, and ö) not found in Proto-Philippine are clearly the product of context-determined sound changes. In the early stages of change at least, they would have been in complementary distribution with the four "older" vowels (i, é, a, and u). In process of time, however, loanwords coming into the language filled the gaps which these changes left in the distribution of the "older" vowels, and this created contrasts between the "old" and the "new". As these two processes of sound change and borrowing continued the eight vowels became firmly established as fully contrastive, as has been shown in section 2.3.

3. MORPHOPHONEMIC CHANGE

In a Casiguran Dumagat dictionary*, only stems are listed. Thus, if the reader wishes to look up the meaning of a Dumagat word, he must first use the morphophonemic rules of the language to help him identify its stem, and then he can turn to its alphabetical place in the dictionary with no trouble. Six of the most common types of morphophonemic changes are described below. For a more detailed description of the morphophonemics see Headland 1965b.

3.1 ASSIMILATION

3.1.1 When the consonant n occurs at morpheme boundaries, either medial or final in a word, and is followed by the consonants m, b, p, k, or g, the n assimilates to the point of articulation of those consonants.

-in- + k**é**bil → kembil *took*
 angen + ko → angeng ko *I will get*

3.1.2 When prefixes ending in ng (see section 6) are attached to a stem beginning with the consonant s, p, b, t, d, or k, the velar nasal of the prefix assimilates to the point of articulation of that consonant, and the consonant itself is dropped.

* Such as Headland, Thomas N. and Janet D., *Casiguran Dumagat Dictionary* (Pacific Linguistics, Series C.28).

méng- + sébkal → ménébkal *to chant*
 mang- + pana → mamana *to shoot*
 nang- + kagkag → nangagkag *to dry*

3.2 REPLACEMENT

3.2.1 Whenever the mid close vowels o and e occur in closed syllables, if the syllable becomes open due to suffixation, these vowels will be replaced by their high close counterparts, u and i.

gamot + -én → gamutén *to treat sickness*
 béges + -a → bégisa *that rice*

3.2.2 The reverse occurs when -um- and -in- are infixes to stems with the pepet vowel é in their first syllable. The pepet drops out (see 3.3.1), a consonant cluster is formed, the infixes become closed syllables, and their vowels are replaced by o and e respectively.

-um- + gébék → gombék *to approach*
 -um- + éléd → omléd *to submerge*
 -in- + kétol → kentol *to cut*

3.2.3 Whenever a stem ending in ö or ë is suffixed, these vowels change to aw and ay, respectively.

délö + -en → délawén *to hit a target*
 bilë + -an → bilayan *to build a house*

3.2.4 When i or e, or u or o become non-syllabic by the suffixation of -an on the stem in which they occur, they are replaced by y or w respectively.

sanike + -an → sanikyan *shame*
 kabito + -an → kabetwan *riverbed*

3.3 REDUCTION

3.3.1 Affixation of a stem in which a pepet vowel occurs in the syllable contiguous to the affix will cause the optional dropping out of that pepet vowel.

édép + -én → édpén/édépén *to put out a fire*
 még- + éman → mégman/mégéman *to chew betel nut*
 -um- + kéret → komret/kuméret *to strike a match*

3.3.2 When the suffix -én is added to a vowel final stem, the pepet vowel of the suffix optionally drops out.

tokso + -én → tokson/toksuén *to joke*

kagi + -én → kagin/kagién *to say*

3.3.3 The final consonant of the particle *dén* *now, already*, drops out when the particle is followed by a word beginning with the consonant *s*.

Naluktut dé side. *They were startled.*

3.4 THE PREFIX i-

3.4.1 The prefix *i-* may be optionally dropped when preceding any other prefix beginning with *p-*, when the verb is in the non-past tense.

ipaktoi or paktoi *to cut for someone*

ipangalap or pangalap *to get for someone*

However, this prefix cannot be dropped when the form of the verb is in the past tense.

nipaktol *cut for someone*

3.4.2 When the *i-* prefix occurs on a word whose first syllable is open and contains the *pepet* vowel, the *pepet* is dropped (see 3.3.1), and the *i-* prefix manifests itself as *ie-*.

i- + sépa → *iespa* *to chew betel nut*

i- + tébung → *iyetbung* *to drop into a hole*

3.5 WORDS ENDING IN h

When a word ending in *h* is followed by another word, the vowel preceding the *h* will be reduplicated again after the *h*.

mégikéh + ék → mégikéhé ék *I am coughing.*

kuduh + ko → kuduhu ko *my magic*

hah + mo → haha mo *You carry it.*

3.6 THE SUFFIX -an

The verbal suffix *-an* has an allomorph, *-en*, which occurs whenever the stem onto which it occurs has a final voiced stop (cf. section 2.4.4(d)).

toktokan *to knock*

kébilan *to touch*

pégluksuan *jumping place*

bunogen *shaman*

takiében *to cover*

binayaden *paid*

4. NOUN-MARKING PARTICLES

There is a class of particles in Casiguran Dumagat, the members of which introduce phrases as noun-like and show their relationship to the verb (J. Headland 1966). We call these particles noun-marking particles. These noun-marking particles occur in eleven different forms: *tu, i, no, na, to, ta, ti, ni, du, di, de*. The nonpersonal plural particles can occur reduplicated (*dudu* and *didi*), making a total of thirteen possibilities. These particles contrast on the syntactic and lexical levels.

TABLE 4. MATRIX OF NOUN-MARKING PARTICLES

			topic	attributive	oblique
singular	nonpersonal	absent	<i>tu</i>	<i>no</i>	<i>to</i>
		present	<i>i</i>	<i>na</i>	<i>ta</i>
	personal		<i>ti</i>	<i>ni</i>	<i>ni</i>
plural	nonpersonal	absent	<i>du</i>	<i>du</i>	<i>du</i>
		present	<i>di</i>	<i>di</i>	<i>di</i>
	personal		<i>de</i>	<i>de</i>	<i>de</i>

4.1 SYNTACTIC LEVEL

On the syntactic level the noun-marking particles signal noun phrases as topic, attributive, or oblique.

4.1.1 Topic

The topic is any focused noun phrase within a clause, as signaled by the verbal affixation in the predicate.

1. *Nékgagi tu anak.* *The child spoke.*
2. *Nékgagi i anak.*² *The children spoke. (or) The particular child spoke (you know the one).*
3. *Nékgagi du anak.* *The children spoke.*
4. *Nékgagi dudu anak.* *The (many) children spoke.*
5. *Nékgagi di anak.*² *The particular children spoke (you know the ones).*
6. *Nékgagi didi anak.*² *The (many) particular children spoke.*
7. *Nékgagi ti Juan.* *John spoke.*
8. *Nékgagi de Juan.* *John (and his companions) spoke.*
9. *Nékgagi tu Juan se.*³ *John (who is deceased) spoke.*

4.1.2 Attributive

The attributive is any unfocused subjective phrase or any noun possessor phrase.

- | | |
|-------------------------------------|--|
| 10. Kinagi no anak. | <i>The child spoke.</i> |
| 11. Kinagi na anak. ² | <i>The children spoke. (or) The particular child spoke (you know the one).</i> |
| 12. Kinagi du anak. | <i>The children spoke.</i> |
| 13. Kinagi dudu anak. | <i>The (many) children spoke.</i> |
| 14. Kinagi di anak. ² | <i>The particular children spoke (you know the ones).</i> |
| 15. Kinagi didi anak. ² | <i>The (many) particular children spoke.</i> |
| 16. Kinagi ni Juan. | <i>John spoke.</i> |
| 17. Kinagi de Juan. | <i>John (and his companions) spoke.</i> |
| 18. Kinagi no Juan se. ³ | <i>John (who is deceased) spoke.</i> |

4.1.3 Oblique

The oblique is any unfocused noun phrase which is not subject of the clause.

- | | |
|--|--|
| 19. Kinagi ko to anak. | <i>I said it to the child.</i> |
| 20. Kinagi ko ta anak. ² | <i>I said it to the children. (or) I said it to the particular child (you know the one).</i> |
| 21. Kinagi ko du anak. | <i>I said it to the children.</i> |
| 22. Kinagi ko dudu anak. | <i>I said it to the (many) children.</i> |
| 23. Kinagi ko di anak. ² | <i>I said it to the particular children (you know the ones).</i> |
| 24. Kinagi ko didi anak. ² | <i>I said it to the (many) particular children.</i> |
| 25. Kinagi ko ni Juan. | <i>I said it to John.</i> |
| 26. Kinagi ko de Juan. | <i>I said it to John (and his companions).</i> |
| 27. Kinagi ko to Juan se. ² | <i>I said it to John (who is deceased).</i> |

4.2 LEXICAL LEVEL

On the lexical level the noun-marking particles contrast as to personal versus nonpersonal, plural versus singular, and present versus absent.

4.2.1 Personal Versus Nonpersonal

Particles *ti*, *ni* and *de* mark phrases as personal (a person's name or a kinship term). All other noun-marking particles mark phrases as nonpersonal. See above examples 1, 7, 10, 16, 19 and 25.

4.2.2 Plural Versus Singular

Particles *du*, *di* and *de* mark phrases as plural. All other noun-marking particles mark phrases as singular. See above examples 3, 5, 8, 12, 14, 17, 21, 23 and 26. Often, however, the singular particles are used even when the noun is plural (as in examples 2, 11 and 20).

4.2.3 Present Versus Absent

Nonpersonal particles contrast as to present and absent. *i*, *na*, *ta* and *di* mark phrases as present. *tu*, *no*, *to* and *du* mark phrases as absent. See above examples 1, 2, 10, 11, 19, 20, 21 and 23. By the terms 'present' versus 'absent' we mean several things. For example, the difference between examples numbered 1 and 2 above could be one or more of several, depending on the context under which it is spoken. Though both clauses literally mean, *The child spoke*, the choice of noun-marking particle can reflect one or more several opposite meanings. This can best be shown by Table 5.

TABLE 5. PRESENT VERSUS ABSENT

present <i>i</i> , <i>na</i> , <i>ta</i> , <i>di</i> can mean:	in contrast to	absent <i>tu</i> , <i>no</i> , <i>to</i> , <i>du</i> can mean:
alive	vs.	dead
known	vs.	unknown
general	vs.	specific
actual	vs.	non-actual
in sight	vs.	out of sight
present in time	vs.	past in time
mass nouns	vs.	singular nouns

5. PRONOUNS

5.1 PERSONAL PRONOUNS

There are four sets of personal pronouns in Casiguran Dumagat.

5.1.1 The Set I Emphasis pronouns can substitute for any pre-predicate noun phrase marked by one of the Topic set of noun-marking particles (see section 4).

Tu anak, éy méladu siya. As for the child, he is sick.

Siko, éy méladu ka. As for you, you are sick.

5.1.2 The Set II Topic pronouns can substitute for any post-predicate noun phrase marked by one of the Topic set of noun-marking particles.

Méglakad tu anak ta banwan. *The child walks to town.*

Méglakad siya ta banwan. *He walks to town.*

5.1.3 The Set III Attributive pronouns can substitute for any noun phrase marked by one of the Attributive set of noun-marking particles.

Ginahoti no lakay tu ulag. *The man hit the snake.*

Ginahoti na tu ulag. *He hit the snake.*

5.1.4 The Set IV Oblique pronouns can substitute for any noun phrase marked by one of the Oblique set of noun-marking particles.

Ibugtong no anak to bébe. *The child sells to the lady.*

Ibugtong no anak dide. *The child sells to them.*

The four sets of personal pronouns are shown in the following table:

TABLE 6. PERSONAL PRONOUNS

SET I Emphasis	SET II Topic	SET III Attributive	SET IV Oblique	
sakén	ék	ko ~ ta	diyékén	Singular
sikita	kita	ta	dikita	<i>I</i>
siko	ka	mo	diko	<i>thou and I</i>
siya	siya	na	diya	<i>thou</i>
				<i>he, she, it</i>
sikame	kame	me	dikame	Plural
sikitam	kitam	tam	dikitam	<i>we-not-you</i>
sikam	kam	moy	dikam	<i>we-all</i>
sidë	sidë	de	dide	<i>you</i>
				<i>they</i>

Whenever two (or three) pronouns occur in a single clause, they occur in an order consistent with the following scheme: Set I preceding the verb; following the verb is ék, Set III (except ék), and Set IV. If a clause contains an auxiliary (such as éwan *not*, diyan *don't*, gustu *want to*, palagi *always*, sabay *at the same time*) it precedes the verb and the pronouns are ordered with respect to the auxiliary rather than with respect to the verb.

Igewat mo diya. *Hand it to him.*

Diyan mo diya igewat. *Don't hand it to him.*

Méiyamut side dikita. *They are mad at you and me.*
 Inaguman de ka? *Did they help you?*
 Pinabadil ko siya diya. *I had him shoot her.*

Whenever the first person singular pronoun, ko, of the Set III pronouns occurs in a clause together with a second person pronoun, ka or kam, of the Set II pronouns, the form of the Attributive pronoun changes from ko to ta. Examples: Sinuntut ta ka (never *Sinuntut ko ka) *I hit you.*

5.2 DEMONSTRATIVE PRONOUNS

There are two sets of demonstrative pronouns, as shown in the following table:

TABLE 7. DEMONSTRATIVE PRONOUNS

I	II	
éye	se	<i>this, here (near speaker)</i>
ina	sina	<i>that, there (near addressee, or in sight of both)</i>
éya	sa	<i>that, there (far from both)</i>

The Set I demonstrative pronouns can substitute for the head word of any noun phrase.

Méglakad ék ta bile. *I am going to the house.*
 Méglakad ék ta éya. *I am going there.*

The Set II demonstrative pronouns can substitute for any oblique noun phrase,⁴ except those expressing time.

Niyedton ko san ta lamesa. *I put it on the table.*
 Niyedton ko san sa. *I put it there.*

The Set I demonstrative pronouns, plus the noun-marking particle ta can substitute for any occurrence of the Set II demonstrative pronouns, but the latter are used far more frequently.

Niyedton ko san sa. *I put it there.*
 Niyedton ko san ta éya. *I put it there*

Any demonstrative pronoun may take the demonstrative pronoun suffix -e, which adds a meaning of definiteness or exactness to the thing or place referred to.

Niwahak ko san se. *I just left it here.*
 Niwahak ko san see. *I just left it right here.*
 Maguhay kam ta éya. *Wait there.*
 Maguhay kam ta éyae. *Wait right there.*

6. VERBS

The inflection and use of verbs is the most complex part of the grammar of Casiguran Dumagat. Many different categories are indicated by affixes or affix combinations as may be seen in Tables 8, 9 and 10.

6.1 TENSE

All independent forms of the verb show a contrast between past and non-past (present, future and imperative) tense. The past tense is marked by *-in-* or *n-* and the non-past is marked by *m-* except in the cases of *-en*, *-an*, *i-* and *-um-*. (The occurrence and meaning of *-in-* in dependent verbs requires further investigation.)

Umunek siya. *He is climbing./He will climb.*

Inunek siya. *He climbed.*

In those instances where there are two past tense forms side by side in Tables 8, 9 and 10 (such as *minag-* and *nag-*), there seems to be no difference in their meanings.

If one compares forms vertically in Tables 8, 9 and 10, it will be seen that there are many pairs of forms that are the same except for the vowel, one containing *a* and one containing *é*. In the non-past forms, such as *mag-* and *még-*, the *a* at times indicates future and imperative whereas *é* indicates present continuous and habitual.

Mégman side. *They are chewing betel nut.*

Magman side. *They will chew betel nut.*

However, in other instances, they seem to be the same tense and differ in transitivity or in other ways that are less clear.

Mégdigus ék. *I will bathe (myself).*

Magdigus ék. *I will bathe (the child).*

Méglogbut ék. *I submerge (myself) in water.*

Maglogbut ék. *I submerge (it) in water.*

6.2 FOCUS

Casiguran Dumagat is like other Philippine languages in that it has several grammatical devices for highlighting one element or another in a clause. The best known of these devices is termed 'focus'. The verb in the predicate is affixed to indicate either Subject Focus or Object Focus, and correspondingly the subject or object in the clause is given a preposed topic-marking particle. About half of the verbal affixes are Subject Focus affixes and about half are Object Focus affixes.

Magbuno ék ta manok.
kill I oblique chicken
 'I will kill the chicken.'

Bunuén ko tu manok.
kill I topic chicken
 'The chicken is what I will kill.'

6.3 ORIENTATION

A second device which Casiguran Dumagat uses for giving prominence to one element in the clause is what might be called 'orientation'. In Tables 8, 9 and 10 the horizontal blocks of affixes labelled 1, 2, 3 and 4 each has its own distinctive orientation.

6.3.1 Orientation 1

Orientation 1 is essentially intransitive, and no participant other than the actor or experiencer is considered important enough to be mentioned in the clause.

Inuméwat tu anak to dilod.
surface topic child oblique downriver
 'The boy came to the surface downriver.'

Mébuktet dén ti Mensiyan.
pregnant already topic Mensiyan
 'Mensiyan is pregnant.'

Umunek tu anak.
climb topic child
 'The child will climb the tree.'

On the other hand, orientations 2, 3 and 4 are essentially transitive, and one additional participant in the situation is made explicit and prominent by being expressed as the object. For many, but not all, verb stems a different participant functions as object in each of these three orientations.

6.3.2 Orientation 2

Orientation 2 usually has as its object the participant that is most directly affected by the action. Sometimes the action is reflexive and there is no object. It should be noted that the suffix -an has the allomorph -en following b, d or g (see section 3.6).

Mangunek tu anak to pitukan.
climb topic child oblique honey
 'The child will climb up to get the honey.'

Unekén no anak tu pitukan.
climb attrib. child topic honey

'Honey is what the child will climb up to get.'

Mégsabun ék ta damit.
soap I oblique cloth

'I am soaping up the clothes.'

Sabunen ko i damita.
soap I topic cloth-that

'The clothes are what I am soaping up.'

6.3.3 Orientation 3

Orientation 3 may have as its object the location, end point, or recipient of the action, or the participant most affected by the action. The subject focus affixes signify a reciprocal or competitive action.

Méginanan du anak to baybay.
run topic children oblique beach

'The children are racing along the beach.'

Ginanan no anak tu dada na.
run-away attrib. child topic aunt his

'It is his aunt that the child will run away from.'

Mégsabunan du anak to tapo.
soap topic children oblique waterfall

'The children soaped each other up at the waterfall.'

Sinabunan no anak tu uiu na.
soap attrib. child topic head his

'It was his hair that the child soaped up.'

6.3.4 Orientation 4

Orientation 4 may have as its object an instrument or body part used in the action or the participant most affected by the action.

Nangiginan ék to uiés ni Seray.
ran-away I oblique blanket attrib. Seray

'I ran away with Seray's blanket.'

Niginan ko tu uiés ni Seray.
ran-away I topic blanket attrib. Seray

'It was Seray's blanket that I ran away with.'

Néngiukag ék to anak.
woke-up I oblique child

'I woke up the child.'

Nilukag ko dén tu anak.
woke-up I already topic child

'The child is the one I woke up.'

6.3.5 In orientation 2, and in orientation 4 of Table 10, there are pairs of affixes such as mag- and mang- that differ by an affix-final g and ng. For those verbs which take both g and ng affixes, the difference in meaning has been difficult to identify. For some verb stems ng forms signify a more intensive action. *mégkan to nibble*, *méngan to eat*. For other verbs the two forms have different objects. *mégbuno to kill (an animal)*, *mémuno to murder (a person)*. On some verbs the two affixes show a difference in tense. *magsibak to chop wood (present)*, *mangsibak to chop wood (future)*. On at least one verb the two affixes differentiate the object as singular or plural. *méngakit to invite one person*, *mégakit to invite several people*.

6.3.6 Not all of the orientations may be used with any given verb stem. A preliminary investigation of verb stem classes (J. Headland 1969) indicates that these restrictions on the occurrence of the orientation blocks of affixes may well prove to be definable in terms of stem classes. Similarly, the various meanings of the orientations, of g versus ng, and of a versus é (section 6.1), may also prove to depend on the class of the verb stem with which they occur.

TABLE 8. BASIC VERBAL AFFIXATION

		SUBJECT FOCUS VERB		OBJECT FOCUS VERB (A)		OBJECT FOCUS VERB (B)		DEPENDENT VERB IN TEMPORAL CLAUSE		
		NON-PAST	PAST	NON-PAST	PAST	NON-PAST	PAST			
ORIENTATION	1	ma- mé- me- -um-	mina- miné- mine- -inum-	na- ne-				ka- ké- ke- ké-		
	2	mag- még-	minag- minég-	nag- nég-	-én	-in-	ma- mé-	mina- miné-	na- na-	pag- pég-
		mang- méng-	minang- minéng-	nang- néng-						pang- péng-
	3	mag--an még--an	minag--an minég--an	nag--an nég--an	-an	-in--an	ma--an mé--an	mina--an miné--an	na--an na--an	pég--an
4	mangi- méngi-	minangi- minéngi-	nangi- néngi-	i-	ni-				pangi- péngi-	
ABILITATIVE		maka- méka-	minaka- minéka-	naka- néka-					paka- péka-	
PURPOSIVE		méki-	minéki-	néki-					péki-	

Blank spaces within the blocks indicate that the particular affix combination has not been found to occur.

TABLE 9. CAUSATIVE VERBAL AFFIXATION WITH pa-

		SUBJECT FOCUS VERB		OBJECT FOCUS VERB (A)		OBJECT FOCUS VERB (B)	
		NON-PAST	PAST	NON-PAST	PAST	NON-PAST	PAST
ORIENTATION	1	mapa- mépa-	mi napa- napa-				
	2	magpa- mégpa- mangpa- méngpa- magpe-	mi nagpa- nagpa- mi négpa- négpa- mi nangpa- nangpa- mi nagpe- nagpe-	pa--én	pina-	mapa- mépa-	mi napa- napa-
	3	magpa--an mégpa--an	mi nagpa--an nagpa--an mi négpa--an négpa--an	pa--an	pina--an	mapa--an	mi napa--an napa--an
	4	mangipa- méngipa- mangipe- méngipe-	mi néngipa- néngipa- mi néngipe- néngipe-	(i)pa- (i)pe-	nipa- nipe-	mepa- mepe-	mi nepa- nepa- mi nepe- nepe-

Abilitative aspect does not occur with causative verbal affixation with pa- (see 6.4.1).

Purposive aspect does not occur with causative verbal affixation with pa- (see 6.4.2).

Dependent clauses do not occur with causative verbal affixation with pa-.

Blank spaces within the blocks indicate that the particular affix combination has not been found to occur.

TABLE 10. VERBAL AFFIXATION WITH <pag->

	SUBJECT FOCUS VERB			OBJECT FOCUS VERB (A)		OBJECT FOCUS VERB (B)		DEPENDENT VERB IN TEMPORAL CLAUSE	
	NON-PAST	PAST		NON-PAST	PAST	NON-PAST	PAST		
ORIENTATION 1	mapag- mépég-	minapag- minépeg-	napag-						
COOPERATIVE VOICE (box A)	maggpag- mégpég-	minagpag- minégpég-	nagpag- négpég-	pag--én pég--én	pinag- pinég-	mapag- mépég-	minapag- minépeg-	napag- B	pagpag- pégpég-
(box B) CAUSATIVE VOICE	maggpang- mégpéng-	minagpang- A	nagpang- A	pang--én peng--én	pinang-				pégpéng- A
ORIENTATION 3				pag--an pég--an	pinag--an pinég--an	mapag--an	minapag--an	napag--an	
BENEFACTIVE VOICE	méngipag-	minéngipag-	néngipag-	(i)pag- (i)pég-	nipag- nipég-	mepag-	minepag-		péngipag-
				(i)pang- (i)péng-	nipang- nipéng-	mepang- mepéng-	minepang- minepéng-		
EXTERNAL ABILITY	makapag- mékapég-	minakapag- minékapég-	nakapag- nékapég-						pakapag- pékapég-
COOPERATIVE PURPOSIVE VOICE	mékipag- mékipég-	minékipag- minékipég-	nékipag- nékipég-						pékipag- pékipég-
	mékipang- mékipéng-	minékipang- minékipéng-	nékipang- nékipéng-						pékipéng-

Blank spaces within the blocks indicate that the particular affix combination has not been found to occur.

6.4 ASPECT

6.4.1 Abilitative Aspect

The abilitative affixes of Table 8 signify that the actor has within himself the ability to perform the action. This affixation only has subject focus and dependent forms.

Tu kuyéng minalimés da éwan makanangoy.
topic rat drown because no can-swim

'The rat drowned because he didn't know how to swim.'

Ewan makalakad tu pile.
no can-walk topic cripple

'The cripple could not walk.'

6.4.2 Purposive Aspect

The purposive affixes of Table 8 signify that the actor goes to do something or get something (often the stem is a noun). In some measure the action is intense or deliberate, or has an unstated purpose behind it.

mégaged to beg

butag betel nut

ménuyu to win someone's
favor

méguhon to converse

dios God

mékiaged to go and beg

mékibutag to go and get betel nut

mékisuyu to make an effort to
win someone's favor

mékiuhon to plead

mékidios to be religious

6.4.3 Continuative Aspect

The continuative aspect is signalled by the combination of certain affixes with a partial reduplication of the first syllable of the stem, as shown in Table 11. This affixation only has subject focus forms, and indicates that the action is continual, repetitive or intensive.

TABLE 11. CONTINUATIVE ASPECT

	non-past	past	
consonant initial stems	mégCé--én	minégCé--én	négCé--én
glottal initial stems	mégé--én	minégé--én	négé--én

mégéasenén keep eating salt

mégéeknudén stay sitting

mégéginanén running on and on

minégsésangitén kept on crying

6.4.4 Casual Aspect

The casual aspect is signalled by the combination of certain prefixes with a fully reduplicated stem, as shown in Table 12. This aspect indicates that an action is done casually or slowly, and only has subject focus forms.

TABLE 12. CASUAL ASPECT

non-past	past	
magR-	minagR-	nagR-
mégR-	minégR-	négR-

méglakad-lakad kame san.
walk we just
'We're just walking around.'

6.4.5 Playing Aspect

The playing aspect is shown by the combination of these same prefixes with reduplication of the first syllable of the stem (which is often a noun) as shown in Table 13. This aspect only has subject focus and dependent forms, and signifies that the actor (usually a child) is playing at an action or pretending to be something.

TABLE 13. PLAYING ASPECT

	non-past	past	
consonant initial stems	magCV- mégCV-	minagCV- minégCV-	nagCV- négCV-
glottal initial stems	magV- mégV-	minagV- minégV-	nagV- négV-

badil	gun	mégbabadil	to play guns
ikan	fish	méglikan	to swim, pretending one is a fish
mégliso	to hide something	mégliliso	to play hide and seek
mégogsa	to shoot a deer	mégogosa	to pretend one is a deer

6.4.6 Deceptive Aspect

The deceptive aspect is formed by the combination of certain affixes with the reduplication of the first two syllables of the stem, as shown in Table 14. This aspect only has subject focus forms and signifies that the actor is only pretending to do the action in an attempt to deceive.

TABLE 14. DECEPTIVE ASPECT

	non-past	past	
consonant initial stems	magCVCV(C)--an mégCVCV(C)--an	minagCVCV(C)--an minégCVCV(C)--an	nagCVCV(C)--an négCVCV(C)--an
glottal initial stems	magVCV(C)--an mégVCV(C)--an	minagVCV(C)--an minégVCV(C)--an	nagVCV(C)--an négVCV(C)--an

matidug *be asleep* mégtidug-tidugan *to pretend to be asleep*
 purupeta *prophet* mégpurupurupetaan *to predict something false*

6.4.7 Accidental Aspect

The accidental aspect is formed by combining the inner prefix ke- with other affixes. Only a few combinations have been observed and these are listed in Table 15. This aspect has forms for all focuses and also dependent forms. It signifies that the action is done accidentally or unintentionally.

TABLE 15. ACCIDENTAL ASPECT

intentional action			accidental action		
még-	minég-	nég-	{ méke-	minéke-	néke-
			{ mégke-	minégke-	négke-
még--an	minég--an	nég--an	mégke--an	minégke--an	négke--an
méngi-	minéngi-	néngi-	méngike-	minéngike-	néngike-
-én	-in-		ke--an	{ kine--an	
				{ kine-	
-an	-in--an		ke--an	kine--an	
i-	ni-		ike-	nike-	

Mékepana ék dén ta anak.
arrow I already oblique child
 'I accidentally shot the child.'

Kineinuman na kan tu petrolyo.
drink he hearsay topic kerosene
 'They say he accidentally swallowed some kerosene.'

6.5 CAUSATIVE VOICE WITH PREFIX pa-

The affixial forms in Table 9 consist of most of the basic affixations (Table 8) combined with the inner prefix pa-. However, pa- does not combine with the Abilitative and Purposive forms, nor with the dependent forms used in temporal clauses. The forms containing pe- could be regarded as involving a fusion of pa- and i-.

The addition of pa- signifies that there is an extra participant in the situation who causes the actor to act. The causer is always expressed in the subject and the caused actor is expressed either in the referent or the object, depending on the particular affix.

Inunek no ulito tu pitukan.
climb attrib. single-man topic bee
 'Honey is what the man climbed up (the tree) to get.'

Nipaunek ko to ulito tu pitukan.
climb I oblique single-man topic bee
 'Honey is what I had the man climb up (the tree) to get.'

Niunek no ulito tu lgut.
climb attrib. single-man topic rope
 'It was rope that the man took up (the tree).'

Nipeunek ko to ulito tu lgut.
climb I oblique single-man topic rope
 'It was rope that I had the man take up (the tree).'

6.6 VOICES OF <pag-> PREFIXES

The affixial forms in Table 10 consist of most of the basic affixations (Table 8) combined with the inner prefixes pag-, pég-, pang- and péng-. The general effect of adding this <pag-> group of affixes is to bring an extra participant into the situation which a verb describes. This shows up in the English translation in several different ways.

6.6.1 Causative Voice

The object focus affixes of orientation 2 in Table 8, plus <pag-> are causative in meaning. These have some differences (such as transitivity) from the corresponding pa- forms (section 6.5).

Inunek no ulito tu pitukan.

climb attrib. single-man topic bee

'Honey is what the man climbed up (the tree) to get.'

Pinangunek ko tu ulito ta pitukan.

climbed I topic single-man oblique bee

'The man is the one I had climb up to get the honey.'

Pinaunek ko tu ulito.

climb I topic single-man

'The man is the one I had climb up the tree (so the bull wouldn't gore him).'

6.6.2 Cooperative Voice

The subject focus and dependent affixes of orientation 1 in Table 8, plus <pag-> always take a plural subject and signify a cooperative activity.

Nagpagiskuwela kame to araw ta Kalabgan.

went-to-school we the past-time oblique Kalabgan

'We all went to school together at Kalabgan long ago.'

Du bébe me éy mégpégladey ta abék.

topic-pl. women our link weave oblique mat

'Our women all weave mats (working) together.'

Mépgékgona kitam san se a mégiknud a mesapal kitam.

like we only this link sit link starving we

'We just sit around like this together starving to death.'

6.6.3 Cooperative Purposive Voice

The purposive affixes of Table 8, plus <pag-> may take either a singular or plural subject and signify that the actor is making an effort to join others in the activity.

mékipagtarabaho *to go and join others in working*

mékipaguhon *to seek to converse with others*

mékipagkasal *to go to a wedding*

6.6.4 External Ability

When <pag-> is added to the abilitative affixes of Table 8 the combination signifies that the actor is given his ability by some outside circumstance or person. This contrasts with the abilitative affixes of Table 8, which without <pag-> signify an internal ability originating within the actor.

Makaantipara dén ti Déngdeng.

diving-goggles already topic Déngdeng

'Déngdeng knows how to go spear-fishing.'

Makapagantipara dén ti Dénngéng.
diving-goggles already topic Dénngéng

'Dénngéng can now go spear fishing (because the river has become clear).'

6.6.5 Benefactive Voice

When <pag-> is combined with the orientation 4 affixes of Table 8, the extra participant brought into the situation is the person (other than the actor) for whom the action is being performed. This beneficiary is expressed in the object, and may or may not be in focus.

Méngipagsikaw ék ni Didog.
make-field I oblique Didog
 'I am making a field for Didog.'

Ipagsikaw ko ti Didog.
make-field I topic Didog
 'It is for Didog that I am making a field.'

Minepangimet mo tu anak ta bétek na?
make you topic child oblique spear his
 'Was it for the child that you made a spear?'

6.7 INNER PREFIX ka-

In some instances the inner prefix ka- is derivational and changes the meaning of the stem unpredictably. mégtidug *to sleep*; mégkatidug *to lie down*. However, in most instances, ka- is inflectional, and carries various meanings onto the stems on which it occurs. On some verb stems it means 'plural subject', and the sequence magka- seems to be the plural equivalent of me-, when used to describe a state.

Mesibét siya. *He is strong.*
 Magkasibét side. *They are strong.*

On some noun stems ka- means *obtain*.

biténg *pig net*
 mégbiténg *to set a pig net*
 mégkabiténg *to get a pig net*

APPENDIX 1

ACCULTURATION

Until recent years the Negritos along the northeast coast of Luzon have lived relatively isolated from the influences of the Western world and modern Philippine life. They have been kept isolated by the rugged Sierra Madre mountain range which runs along the whole eastern side of the northern half of Luzon, and by the rough and dangerous seas along the east coast during the six months of northeast monsoon winds each year.

For this reason the Negritos along the east coast still reflect many of the traits they must have had in pre-Spanish times. Most of them are still a semi-nomadic, food gathering people, living in extremely simple houses or lean-to shelters. The men are skilled hunters with bow and arrow, the women at fishing and gathering wild roots, or making a type of starchy food by processing the pulp of the wild Caryota palm (agé). The men still wear a G-string, and the women a wrap-around skirt. Their religion is animistic. Their infant mortality is 65%.

However, the authors have witnessed a great deal of acculturation in the last ten years. This has been caused by the recent influx of cheap transistor radios, the introduction of industries such as logging, mining, sawmills, and especially the effect of the high population explosion in the Philippines (3.3 per annum). This population explosion has finally pushed large numbers of landless Filipinos over the rim of the Sierra Madre mountains and down into the Casiguran valley. There have been at least two non-Negrito towns on the northeast coast of Luzon since early Spanish times (Casiguran and Palanan), but not until the last decade have large numbers of outsiders moved into the area. The 1960 population of the Casiguran-Dilasag-Dinalongan area totalled 9113 (Special Bulletin No.1, 1960). The 1970 population of the same area totalled 22,684 (Advanced Report No.54, 1970). This shows a population increase of 149%.

One can thus guess the effect this has had on the Dumagats in these areas. Ten years ago the Dumagat men in the authors' village spent most of their time fishing, or hunting wild pig and deer with bow and arrow. Today these same men work most of the time for the lowland Filipinos on their farms downriver, and only go hunting a few times a month. Ten years ago almost all of the hunting was done with bow and arrow. Today 90% of the hunters use home-made shotguns. Ten years ago there was meat in the village almost daily. Today what little game the hunters bring home is traded to the lowland Filipinos downriver for commodities such as rice, cloth, and wine.

We can be almost certain that the acculturation of the Dumagats will be even greater in the next decade, as landless settlers continue to pour into the area, where there are still vast areas of virgin jungle to be homesteaded. In addition to this, the government began last year the construction of the first road into Casiguran. When this is completed it will bring even more changes to the area.

THE EFFECT OF ACCULTURATION ON THE LANGUAGE

Though the authors have seen no evidence that the Dumagat language is dying out, there have been hundreds of new words introduced into the language in the last decade, from Spanish and English, as well as Tagalog and Ilocano. The men especially, and to a somewhat lesser extent the women, are rapidly becoming fluent in Tagalog. Following are a few examples of recently borrowed words which are now a part of the Dumagat lexicon:

mégbertday to have a birthday party; yelo ice; sine movie; opera medical operation; palaslayt flashlight; dyet jet airplane; lipistik lipstick; mégkomlet to be late for school.

APPENDIX 2

KINSHIP TERMS

Most vocative terms may also be used as a term of reference with the additional implication of endearment. For a more complete description of the kinship system, see T. Headland 1965a.

'aka	<i>older sibling</i> (reference)
akéng	<i>older sibling</i> (vocative)
'ama	<i>father</i> (reference)
amay	<i>uncle</i>
améng	<i>father</i> (vocative)
anak	<i>child, offspring</i> (reference)
anéng	<i>nephew, niece</i>
'apo	<i>grandparent, grandchild</i> (reference)
'apo ta tod	<i>great-grandparent</i> (reference)
'apo ta siko	<i>great-great-grandparent</i> (reference)
asawa	<i>spouse</i> (reference)
bakés	<i>wife</i> (vocative or reference)
ba'lai	<i>parents of one's son- or daughter-in-law</i>
'boboy	<i>grandparent, grandchild</i> (vocative)
'dada	<i>aunt</i>
dipös	<i>last born child in a family</i> (reference)
'duduy	<i>(term of endearment of parent to his child)</i>
idas	<i>spouse of brother- or sister-in-law</i>
'ina	<i>mother</i> (reference)
inéng	<i>mother</i> (vocative)
'kayong	<i>brother- or sister-in-law</i>
lakay	<i>husband</i> (vocative or reference)
'maméng	<i>father</i> (vocative) (used only by small children)
manugen	<i>parents-in-law; son- or daughter-in-law</i> (reference)

mété'tena	<i>immediate family group (consisting of at least two children plus at least one parent) (reference)</i>
minaka	<i>older sibling who has died (reference)</i>
mina'wadi	<i>younger sibling who has died (reference)</i>
'nanéng	<i>mother (vocative) (used only by small children)</i>
pa'nganay	<i>first born child in a family</i>
partidu	<i>any relative of Ego's generation (syn: top)</i>
pa'tena	<i>one parent plus one of his/her children</i>
'pengan	<i>cousin (reference)</i>
'pengan-'buu	<i>first cousin (reference)</i>
té'tötöp	<i>all relatives of Ego's generation (collective term)</i>
töp	<i>any relative of Ego's generation (syn: partidu)</i>
'wadi	<i>younger sibling (reference)</i>
wadeng	<i>younger sibling (vocative)</i>

APPENDIX 3

NUMBERS

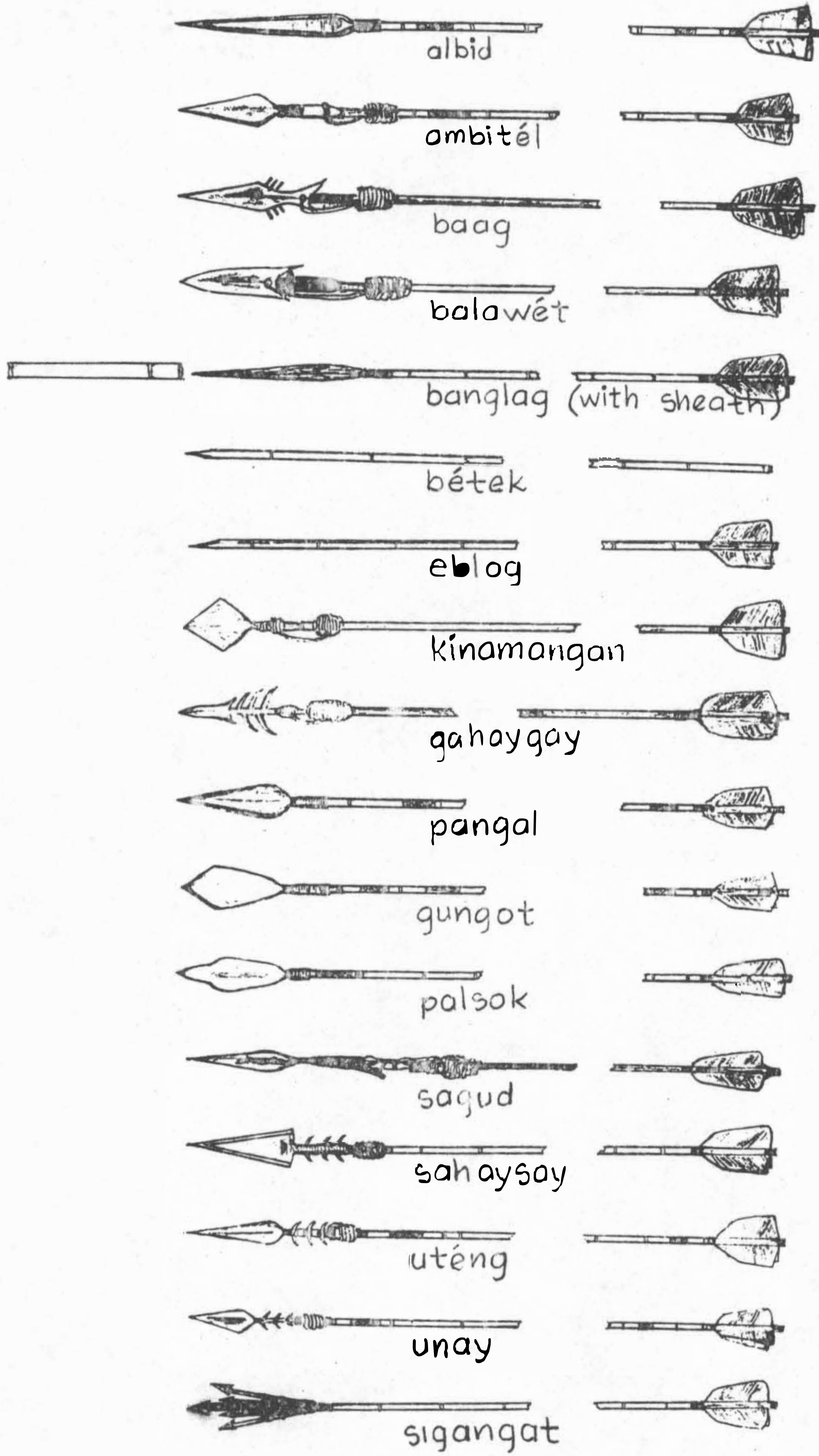
ësa/ëssa	<i>one</i>	sandaan	<i>one hundred</i>
éduwa/duwa	<i>two</i>	ësa a 'datos	<i>one hundred</i>
étélo	<i>three</i>	éduwa a 'datos	<i>two hundred</i>
épat/éppat	<i>four</i>	étélo a 'datos	<i>three hundred</i>
lima	<i>five</i>	puru'meru	<i>first</i>
éném	<i>six</i>	ikaduwa	<i>second</i>
pitu	<i>seven</i>	ikatélo	<i>third</i>
walu	<i>eight</i>	ikaépat	<i>fourth</i>
siyam	<i>nine</i>	ikalima	<i>fifth</i>
'sapulu	<i>ten</i>	ikaéném	<i>sixth</i>
'sapulu éy ta ësa	<i>eleven</i>	ikapitu	<i>seventh</i>
'sapulu éy ta éduwa	<i>twelve</i>	ikawalu	<i>eighth</i>
'sapulu éy ta étélo	<i>thirteen</i>	ikasiyam	<i>ninth</i>
'sapulu éy ta épat	<i>fourteen</i>	ikasapulu	<i>tenth</i>
'sapulu éy ta lima	<i>fifteen</i>	ësa a 'beses	<i>once</i>
du'wapulu	<i>twenty</i>	penduwa	<i>twice</i>
étélo a pulu	<i>thirty</i>	pentélo	<i>three times</i>
épat a pulu	<i>fourty</i>	penépat	<i>four times</i>
li'mapulu	<i>fifty</i>	penlima	<i>five times</i>
éném a pulu	<i>sixty</i>	penéném	<i>six times</i>

SPANISH NUMBERS (used when referring to the time of day, and often when counting money)

'unu	<i>one</i>	saes	<i>six</i>
dos	<i>two</i>	si'yete	<i>seven</i>
tres	<i>three</i>	'otyo	<i>eight</i>
'kuwatro	<i>four</i>	nu'webi	<i>nine</i>
'singku	<i>five</i>	diyes	<i>ten</i>

'onse	<i>eleven</i>	diyesi saes	<i>sixteen</i>
'dose	<i>twelve</i>	diyesi si'yete	<i>seventeen</i>
'trese	<i>thirteen</i>	diyesi 'otyo	<i>eighteen</i>
ka'torse	<i>fourteen</i>	diyesi nu'webi	<i>nineteen</i>
'kinse	<i>fifteen</i>	'bente	<i>twenty</i>

APPENDIX 4
Dumagat Arrows



N O T E S

1. A previous investigation (Headland and Wolfenden 1967) was much briefer and was marred by the printer's omission of the diacritics used to distinguish the vowels.
2. Demonstrative pronouns and demonstrative-like noun suffixes (cf. section 5.2) occur optionally (and frequently) in substantive phrases with the noun-marking particles *i*, *na*, *ta* and *di*. These demonstratives are obligatorily absent in phrases with any of the other noun-marking particles.
3. The use of this type of phrase to refer to a deceased person is optional. It is used only occasionally, to show respect, and may be a form of speech that is dying out. The phrase requires the *se* particle after the noun.
4. Five exceptions have been found in the Dumagat concordance to this statement, all occurring in clauses with the verb *pabayan* *disregard*. Examples are: *Pabayan mo sina. Disregard that. Pabayan mo sa, Améng, éng mamuno. Disregard that one, Father, when he kills someone.*

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THE VOWELS OF CHAMORRO

JEANNETTE WITUCKI

0. INTRODUCTION

The ensuing description of the vowels of Chamorro¹ depicts usages of the Casual style of speech, which is one of four styles which can be conveniently recognized in the repertoire of most speakers.² My terms for these four styles of speech are: Pedantic, Careful, Casual, and Fast. Both Pedantic and Fast speech involve frequent distortions of speech norms, and are better left for special descriptive treatment. Careful speech is the most understandable to a novice, but lacks many natural changes. Casual is a relatively well-balanced style, in terms of communicative efficiency, for both native and novice. It is low in distortions which make for misunderstanding; it is not overly fast or slow; and it is the natural style for relaxed conversation. By way of contrast, Fast speech is difficult at times for even a native to understand, due to slurring and omissions, and the informative function is further diluted by tension and the emotional connotation (as in speaking under stress of excitement, anger, or anxiety). Pedantic speech, on the other hand, is excessively slow, and features being demonstrated are over-emphasized. This often results in placing stress on a normally unstressed syllable, to show the normatively correct pronunciation of its segments (at the expense of mispronouncing the whole word or phrase). For these reasons, Casual speech provides the best illustration of the norms of Chamorro pronunciation.

1. THE VOWEL PHONEMES

1.1. VOWEL CHART

The vowel phonemes of Chamorro may be charted as follows:³

/i/

/u/

/ai/

/ao/

/a/

1.2. VOWEL FREQUENCIES

The chart below gives the relative frequencies of the vowel phonemes. These frequencies were taken from a count of vowels in the different words occurring in a long Chamorro text of everyday conversation.

Phoneme:	Frequency:
/a/	379
/i/	198
/u/	266
/ai/	34
/ao/	29

2. GENERAL FEATURES OF CHAMORRO PHONOLOGY

Certain features of Chamorro phonology affect the production of both vowels and consonants; others affect the vowels only, but apply equally to all vowels. Section 2 deals with these phenomena. Special notation devices for dealing with laryngealization and nasalization (Subsections 2.6. and 2.7.) will be found only in the discussion of these processes, and will be omitted from the rest of this paper.

2.1. LENGTH

Length is not phonemic; it is a reflex of relative stress and speed. Length increases with strength of stress, and decreases with greater speed. Length-specifying rules for Chamorro are rather complex, due to the intimate connection between length and the ideals for shape of stressed syllables. These ideals vary for specific sound components; i.e., syllable shape depends in part upon features of the vowels or consonants involved. Furthermore, how one produces a proper syllable under stress is partly determined by factors external to the syllable in question. For example, the shape of a stressed syllable is sometimes determined by the nature of the C_1 of the following syllable. In short, rules for length are rules for syllabic norms, given varying stresses and varying segmental components. These rules will be described in the next section.

2.2. STRESS

Stress is not phonemic, except in a very few cases. These are rare exceptions, similar to optional English *pérmit*, *permít*, but the stress-meaning shift is obligatory in Chamorro:⁴

/tsatííʔíʔ/	<i>to hate</i>
/tsátííʔíʔ/	<i>poor eye-sight.</i>
/ápásí/	<i>to pay (for)</i>
/apas\	<i>pay (noun)</i>
/atúŋuʔ sí hosé/	<i>He knows Jose.</i>
/átuŋùʔ/	<i>friend</i>

In each of the above pairs, the form with stress on the initial syllable may be regarded as a substantive; this usage violates the norm (given below) for placement of primary stress in Chamorro.

Stress levels often can be referred to as simply high stress versus low stress, but these general categories each comprise two specific stress levels. The two general and four specific stress levels are symbolized and defined as follows:

High stress:

- “ Double stress; most stressed syllable in a breath-group.⁵
- ’ Primary word stress.

Low stress:

- ` Secondary word stress.
- Minimal or no stress (unmarked).

High stress levels are accompanied by low pitch, which generally rises thereafter by even steps to the end of the word or phrase, unless utterance final, where pitch drops again to low. Three pitch levels are most often heard; a fourth, extra high pitch can be recognized in the final syllable of a question or *exclamation*. The foregoing is only a very broad indication of the use of pitch in Chamorro; there are of course other pitch-sequence patterns in addition to those mentioned.

The use of the four stress levels, and the first three pitches (numbered 1, 2, and 3, for low, middle, and high), is illustrated in the following Chamorro sentence:

#sín. ¹ ñ ² Λ	há ^{u3}		su. ¹ má. ¹⁻² .g ³ Λ		g\ld. ² dz ² Λ	há. ¹ .mí ¹ #
<i>are-able</i>	<i>you</i>		<i>to-stay</i>		<i>at-place</i>	<i>ours.</i>
<i>(You may stay at our house.)</i>						

The basic stress rule for Chamorro decrees that primary word stress falls on the penultimate syllable of every free form with two or more syllables. It rather often happens that short phrases are treated as such word units; a major stress on a minor word is then reduced:

...ʔí.pán.nūn ʔl.là.ŋit'...

...*the handkerchief (veil) of the sky*...

Note that in this phrase, the separate word /laŋit/, *sky*, lacks a primary stressed syllable.

The penultimate syllable stress rule does not hold in the following cases:

Words with reduplication of the final syllable (rare):

dí.kì.kìʔ *little, small*

Expletives:

ʔái dǎax (*Scaring away pig in garden.*)

xíi ʔʌ.déi (*Chasing cats off the porch.*)

Loan words:

/kolót/ *color* (Spanish color)

/lugwát/ *place* (Spanish lugar)

/tsàpanís/ *Japanese*

Most loan words are Spanish, and since Spanish also has a strong preference for penultimate syllable stress, many such loan words retain the Spanish stress placement at the same time that they adhere to the Chamorro stress rule:

/flóris/ *flowers* (Spanish flores)

But: /florís-hu/ *my flowers*

Other exceptions are a number of three syllable substantives, which, in some cases at least (mentioned earlier), contrast with verbals that are identical in form except for having penultimate stress.

The regular stress rules follow; these are also rules for syllable norms, and for changes in segment length which are contingent upon stress level, in part. All of the high stress rules are specifications for the high stressed syllable plus the following syllable. In 95% of Chamorro words, these are the penultimate and ultimate syllables.

2.2.1. Double stress

Under double stress, a long final segment is produced in the normal syllable, which is either CV· or CVC·.

Rule 1:

- a. CV.CV(C) \longrightarrow c[̣]ṿ. CV(C)⁶
- b. CVC.V(C)

Both moras of the lengthened vowel are voiced before a voiced consonant, and before /h/ and /ʔ/. The first mora has greater stress and length; this is especially evident in the diphthong vowels, where the second mora has a different articulation and is quite short:

- a. gãa^l.gi *it is (located)*
 mãa^u.lik⁷ *good*
 hãa.dzu *wood*
 tsũu.iiʔ *bring!*
- b. tset⁷.nót⁷.mu *your sore*
- | | | | | | | |
|---|-----|---------------|---|---|----------------------------|----------------|
| - | -mu | your |] | → | tset ⁷ .nụ̃.ɗan | <i>wounded</i> |
| + | -an | entity having | | | | |

Before a voiceless consonant (except /h/ and /ʔ/), the second mora fades into voicelessness before the especially distinct syllable break:

- bʌ.lãɸ.tiʔ *sea slugs*
 gi tãɸ.si *in the sea*
 ʔa.flĩj.tu *fry!*

Rule 2:

$$C_1VC_2.C_3V(C_4) \longrightarrow C_1\check{V}C_2.C_3V(C_4)$$

This rule states that before $C_2.C_3$, the double-stressed vowel is usually not lengthened; C_2 is lengthened:

- dãŋ̣.ku.lù *large*

A stop is always unreleased in this environment; the lengthening is of the holding time:

- tãt⁷.lu *again*

2.2.2. Primary stress

Under primary word stress, vowels are short (with exceptions noted below). The norm for the stressed syllable is CVC.

Rule 1:

$$C_1V.C_2V(C_3) \longrightarrow C_1\check{V}C_2.C_2V(C_3) : V_1 \neq /ai, ao/.$$

/ma.tu/ *to arrive* → má⁷t⁷tu *arrived*

/gu.maʔ/ *house* → gi.gí⁷m.məʔ *in the house*

If C_2 is complex, only the first segment doubles (to provide a closing consonant for the first syllable):

ma.hátʔtsʌ	<i>they raised (it)</i>
ʔi ʔótʔtʃu	<i>the other (one)</i>

Exceptions: A primary stressed vowel lengthens before /g/, /h/, and /b/ -- except before /bɪ/ (Spanish *br*), which becomes [pʔbɪ] :

/g/: gaʔ.lá.gu	<i>dog</i>
/h/: gwá.ha	<i>there is, are</i>
/b/: hó.bɪn	<i>young (Spanish joven)</i>
/bɪ/: lépʔbɪu	<i>book (Spanish libro)</i>
pópʔbɪi	<i>poor (Spanish pobre)</i>

Before fricatives /s, f/, there is free variation between double stress and primary stress rules for open syllable:

táʃ.si ~ tá.s.si	<i>sea</i>
gwáʃ.fi ~ gwáf.fi	<i>fire</i>

CV.V(C) follows *Rule 1*, as V + V are automatically separated with [ʔ] before the second V. The consonantal feature [ʔ] is doubled when the first V is under primary stress:

/paɬao-an/	<i>woman</i>	→	pʌ.láʔʔ.ʔʌn
------------	--------------	---	-------------

With CVC.CV(C) there is no change; neither vowel nor consonant is lengthened, as realization of preferred (primary stressed) syllable shape (CVC) is inherent:

mai.góʔ.ñʌ	<i>his sleep</i>
sóm.nækʔ	<i>sun</i>

Diphthongs serve as long vowels (though shorter here than with double stress); hence primary stressed C+ai, C+ao also undergo no change:

/maigoʔ/	<i>sleep</i>	→	mái.goʔ
/taotao/	<i>person</i>	→	táo.to ^h

Rule 2:

$$C_1VC_2.V(C_3) \longrightarrow C_1\acute{V}C_2.C_2V(C_3)$$

The rule states that before a vowel-initial syllable, the final C of the stressed syllable doubles to provide an initial C for the next syllable:

/dadalak/	<i>tail, plus /-i/ personal directive</i>
→ dʌ.dʌ.lákʔki	<i>he followed (after someone)</i>

2.2.3. Low stress

Syllables retain underlying CV or CVC shape with low stress condition (secondary or no stress):

tátʔlu	again
gi tá.s.si	to the sea
dáŋ.ku.lù	large

However, there is a tendency to divide the segments of a lone medial affricate under secondary stress:

gìd.za há.mi at our house

A CVC.V(C) series becomes CV.CV(C):

/hal-um/ → hà.lum inside

2.2.4. Reduplicated series

The reduplicated syllable is normally the underlying form of the stressed syllable; the usual stress rules apply to single reduplications occurring in words of only two or three syllables. Stress is also reduplicated, up to the primary stress level. However, in a final syllable, a low stress level generally occurs:

/taotao/	→	táo.to ^h	person
/tsaktsak/	→	tsǎkʔtsàkʔ	chop!
/matsuʔtsuʔ/	→	ma.tsóʔ.tsùʔ	to work

In words which are four or more syllables in length, reduplicated series of syllables fall under the low stress rule, no matter what the stress they are given. There is no lengthening of vowels or consonants, as the whole reduplication consisting of two or three syllables is uttered in the time-beat of one syllable. A C₂ or the glide part of a diphthong is lost as speech becomes faster; this extra shortening is associated with triple repetition of a syllable, or with the co-occurrence of more than one prefix and/or infix:

/matsuʔtsuʔ/	to work	→	ma.tsú.tsú.tsùʔ	they were working
/taltal/	to read	→	tu.má.tái.tè ^l	is reading

However, the vowel in a penultimate syllable may be lengthened before a non-reduplicated final syllable:

/taotao/	person	→	ʔi.tá.tá.tǎ.ñʌ	her body
/maila/	to come	→	má.má.mǎ ^l .lʌ	(it) is coming

2.3. FORCE

The pronunciation of Chamorro is much more forceful than is that of (American) English. Two features result from this: First, Chamorro pronunciation is much more sharp and distinct, so that even final, least-stressed syllables are clearly enunciated. Second, breath expenditure is much greater, especially on emphasized syllables with voiceless segments:

/makahna/ → ma.káʰ.na *a mountain on Guam*
 /tuhni/ → ʔi.tʰ.nin *the support poles of (the window)*

[H] = a very forceful aspirated sound, without oral obstruction.

Before sentence or discourse pause, a final vowel usually ends with an aspirated off-glide:

...gɪ ʔun bʌn.dʌʰ# ...*on one side*

In the same environment, a vowel-final syllable (which does not start with a voiced stop) may become totally voiceless, and strongly aspirated:

...ʔi ʔótʰ.tʰuʰ# ...*the other (one)*
 ...bi.dá.muʰ# ...*your doing*

2.4. GLOTTAL BREAKS

The glottal stop is a separate consonant phoneme in Chamorro, but it also occurs as a regular non-phonemic feature of pronunciation in the environments #__V and V__V:

#__V: ʔá.ga *ripe banana*
 ʔun- *you sg., subject pronoun*

V__V: /puti/ *flash + /-an/ entity having....*
 → pu.tʰʔ.ʔʌn/ *star*
 Spanish dios → si dzúʔ.ʔus *God*

Note that between vowels, [ʔ] behaves as a consonant, doubling after primary stress.

2.5. VOWEL FRONTING

A preceding /i/ within, or proclitic to, a word causes fronting assimilation (and unrounding) of high stressed /a/ and /u/ in the next syllable over one (underlying) intervening consonant:

/u/: /unai/ *sand* → gl.ʔín.nei *to the beach*
 /a/: /tasi/ *sea* → gi.tʰæ.si *to the sea*

This also applies to the stabilized [o] allophone of /u/ (as it appears in stems whose syllabic construction allows only the [o] allophone):

tso?.tsu? work → ?i.tsé?.tsù? the work

Between morphemes, there is a conscious 'morphophonemic' fronting of vowels which follow particles and affixes containing /i/. Some of these are: /i/, *the*; /gi/, *in, at, to*; /ni?/, *which*; /-in-/, perfective-nominative. This phenomenon is usually described as being strictly morphophonemic, but the same alternation (with any stress level) is unconsciously (and optionally) produced within words and word-unit phrases:

/guma?/ house → ?i.gí?.mæ? the house
 /na/ that → ha.lí?.?i nə..., he saw that...
 /gwihan/ fish → gwí?.hən fish

Fronting after /i/ does not affect proper names or address terms:

?i.ná?.na the mother
 ?i.tá?.ta the father
 si dzó? Joe
 si tsá?η Chang
 si dzú?.?us God

In the last three examples, /si/ is an honorary particle which precedes all proper names of human (and higher) beings. Hence there is never vowel fronting after /si/.

Fronting does not affect some loan words:

?i.bó?s the voice voz, voice
 ?i.?ót!třu the other otro, other
 gì?.?i.plãq.tu on the plate plato, plate
 ?i.là.mi.tá? the half la mitad, the half

(These examples are, of course, all from Spanish.)

Fronting also does not apply to some nouns used as human predicates:

#ki má?tsiŋ dən# What a monkey Dan is!

Double fronting often occurs after a double occurrence of [i]

/gwihan/ fish → gwí?.hən fish → ?i.gwí?.hən the fish

2.6. VOWEL DISSIMILATION

Where the rules call for a low stressed series of two or more of the same high vowel, the least stressed will usually dissimilate to a lower variant:

/i/:	ʔ̀.bi.sítʔ̀.tʌ	<i>the visit</i>
	ʔ̀.di.nʌn.sɪn	<i>the right one</i>
/u/:	dáŋ.ku.lùʔ ~ dʰáŋ.ku.lùʔ	<i>large</i>

2.7. LARYNGEALIZATION OF VOWELS

Vowels are usually laryngealized [V̆] before phonetic [ʔ]. Degree of realization depends partly on relative stress, and partly on the forcefulness of the utterance; softer speech carries proportionately less laryngealization. Under double stress, a long vowel is strongly laryngealized, especially on the second mora which becomes an off-glide of the same or slightly higher quality:

náʔ̆.dzi	<i>put it with</i>
mʌ.ʔ̆áʔ̆.ñou	<i>scared</i>
hæ.póʔ̆.lu	<i>he put</i>
ha.líʔ̆.ʔ̆iʔ̆	<i>he saw</i>
hæ.tʰáʔ̆.lu	<i>he again (looked at)</i>

Under primary stress, the single mora is moderately laryngealized:

páʔ̆.gu	<i>now</i>
táʔ̆.lu	<i>again</i>
gáʔ̆.gaʔ̆	<i>thing, animal</i>

Under secondary stress, laryngealization is slight (marked here with off-set diacritic):

gwìʔ̆	<i>he, him</i>
dzùʔ̆	<i>I, me</i>

With no stress, influence of [ʔ] ranges from slight laryngealization, to vowel tenseness, to no apparent effect. Occasionally a following vowel will also be laryngealized; it is usually at least tense:

trɛ̃s. náʔ̆.ʔ̆á.ʔ̆án.ni	<i>three days</i>
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2.8. NASALIZATION OF VOWELS

Nasalization in Chamorro has a relatively backed quality. It is especially evident with high stress levels, and high vowels /i,u/.

Rule 1:

V	→	Ṽ	/	___N, N___	in the same syllable.
N = any nasal except /m/					

/n/:	tán.nũ?	land, earth
	gwí.hĩn	fish
	dǎn.	Dan
/ñ/:	?l.tsɪ?.tsó?.ñǎ	his doings
/ŋ/:	hũŋ.gǎn	yes
	mũŋ.ŋǎ	Don't!
	mát!tsĩŋ	monkey

This nasalization is retained in a CV reduplication which has an underlying CVN:

tũ.tũŋ.nõ?	knowing	<	/tuŋtuŋu?/
ma.sós.sũn	it is burning	<	/masunsun/

Rule 1 is void before a strong glottal stop, unless another nasalized syllable precedes:

hu.ná?.?i? gw!?	I gave him
But: mǎn.nǎ?.?i?. dzù?	they gave me

Rule 1 nasalization is optional (anticipatory) on a syllable- before a single N beginning the next syllable:

há.nõ	~	há.nõ	go out
pyǎ.nũ	~	pyá.nũ	piano

Rule 2:

V	→	Ṽ / m__m:
mám.pus		very, greatly

Rule 3:

In a syllable with one /m/ (and no other nasal), nasalization is:

- Obligatory with high close vowels [i u];
- Optional with lower vowels [æ o u ɪ ɛ];
- Lacking with low vowels [a ʌ ɔ] and diphthongs [ai ao]:

(a)	?ũn.tsõ ^u ?mĩ	you pour it
	dzǎ.mũ	you like
(b)	pũm.měs.kʌ ~ pu.més.kʌ	fishing
(c)	mʌ.lǎ.gu	(he) ran
	mát!tu	arrived
	tsʌ.mõ.ru	Chamorro
	mǎ. ^l .lʌ	come
	mǎ. ^u .lɪkʔ	good

Rule 4:

Nasalization which begins on the first syllable may extend throughout an entire word or breath group (phrase or clause); this is marked with \sim over each word of such a unit. Such nasalization will pass over any consonant in a softly uttered phrase:

# $\widetilde{dz}\acute{a}n.n\acute{i}.h\grave{a}$		<i>They like</i>	
# $\widetilde{?}\acute{a}n$	$\widetilde{m}\acute{a}t\grave{.}ta$	$\widetilde{g}\acute{i}.z\acute{a}.ni$	<i>When you look to the left</i>
# $\widetilde{?}un.l\acute{i}?.?i?$		<i>You see</i>	

Nasalization is stopped by a forcefully uttered stop consonant, especially /? dz gw/:

# $\widetilde{?}\acute{u}m.m\acute{\lambda}$	+	$gw\acute{a}id\grave{.}dza$		<i>They loved each other</i>	
# $\widetilde{s}\acute{i}.n\grave{\lambda}$		$\widetilde{d}\acute{u}.m\acute{\lambda}n.d\acute{\lambda}n$	$dz\grave{?}$	$\widetilde{p}y\acute{a}.nu\#$	<i>I can play the piano.</i>

3. SPECIFIC VOWEL REALIZATIONS

The descriptions of 'phonetic norms', which are given in this section, refer to the consciously preferred pronunciation of the vowel phonemes, as they are produced in the absence of any altering influence except high stress (but without the lengthening which is sometimes concomitant with such stress).

Rule symbols: !! = obligatory rule; ! = preferred rule; no symbol = optional rule. Stress: ' = high; ___ = low.

3.1. /i/: The norm is high, front, close; it is the most stable and most active of Chamorro vowels, and the third most frequent. 'Most active' means that /i/ is the vowel which has the greatest modifying influence on other vowels. It is the most stable vowel in that it undergoes the least allophonic change, and it never assimilates to other vowels.

Rule 1:

/i/	!!	→	[ε]	/C ₁ ___C ₂ .C ₃	(C ₂ ≠ C ₃)
tsé?.lu					<i>sibling</i>
mλ.néη. h ₁ η					<i>cold (adj.)</i>

If C₂ is either /h/ or /?/, it may be lost or assimilated in fast speech, so that C₃ appears to be the only consonant⁷, as in $l\acute{e}.gwa? \sim l\acute{e}g.gwa?$ (Fast to Casual), $l\acute{e}h.gwa?$ (Careful), from phonemic /lih.gwa?/, to *stir*.

Rule 2:

/i/	!!	→	[i]	/C___C	C ₂ ≠ [?]
-----	----	---	-----	--------	----------------------

hu.fã. ¹ .sɪn	<i>I asked (him)</i>
tsád̄.dɪk̄ ¹	<i>quickly</i>
hìn.na.són̄.ñʌ	<i>he thought</i>
But: tsú̄.ɪɪ?	<i>bring it</i>
hu.ɪf̄?.?ɪ? gwɪ?	<i>I see him.</i>

3.2. /a/: The norm is low, front-central, open. The common unstressed variant, [ʌ], is also produced more fronted, with the lips more spread, than is its English analog /ʌ/ in *lug*. The allophone [ə] is relatively high as well as front. /a/ is by far the most frequent Chamorro vowel; it is also the least stable vowel, reacting to the greatest number of influences, and having the greatest range of allophonic variations. /a/ can be said to be stable only in the absence of all modifying influences, a state which rarely exists.

Rule 1:

/a/ ɪɪ → [ə] /i.C' (C) (See Section 2.5. for examples.)

Rule 2:

/a/ ! → [ə] /#C__ (C) with any or no stress.

#man.- ~ #mən.- pl. obj. marker on verb
#dzá̄.hu ~ #dzá̄̄.hu *I like*

(But never applies to /hafa/, *what*; /gwaha/, *there is*.)

Rule 3:

/a/ → [ə]

- before or after a high vowel, over a single or geminate C; any position, any stress.
- under high stress, before a voiced bilabial C.

Examples:

a.	sí̄.hə ~ sí̄.ha ~ sí̄.hʌ	3rd p. pl.
	nu.má̄ŋ.ŋu nu.má̄ŋ.ŋu	<i>swimming</i>
	sád̄.dʊk̄ ¹	<i>river</i>
	pʌ.tás̄.su ^h	<i>my feet</i>
b.	dzám̄.mʌk̄ ¹	<i>crush!</i>
	mám̄.pʊs	<i>very</i>
	bã̄.bwi	<i>pig</i>

Rule 4:

/a/ ! → [ə] with extended fronting effect.

Fronting, once begun, tends to extend throughout the breath-group unless stopped by a series of unlike (excluding [ʔ]) consonants:

#t i . ʔ á ʔ . ʔ á ʔ . g ə ʔ #	<i>Not-ripe bananas.</i>
... dz ə h ə . ʔ á ʔ . t ə n t á t ʔ . l u	<i>...and he looked again</i>
But: # ʔ ə n m á t ʔ . t a ...	<i>When you look...</i>

Rule 5:

/a/ ! → [ʌ] /C__ (C). With no stress.

-ñʌ ~ -ña	<i>his, hers, its</i>
#su.máʔ.sʌ.gʌ.dzùʔ...	<i>I am staying (at)...</i>

But after /h/ [a] is preferred:

gwá . ha	<i>there is, there are</i>
sí . ha	<i>they</i>

Fronting supercedes Rule 5. In order of preference:

kə . d ə ~ k ə . d ʌ ~ k ə . d a *each*

Rule 6:

/a/ ! → [ʌ] / $\left[\begin{array}{c} N_1 \\ b \\ d(z) \end{array} \right] _ N_2 : N_2 \neq [m]$

nʌŋ . gʌ	<i>wait</i>
mʌn . nu k ʔ	<i>chicken</i>
ʔ ʔ . d i n . n ʌ n . s i n	<i>the right one</i>
dzʌŋ . g i n	<i>then</i>
dzʌ n .	<i>and</i>
dʌ n . d ʌ n	<i>playing an instrument</i>
bʌ n . d ʌ	<i>side</i>

There is some apparently free variation, under high stress, between [ʌ], [ə], and [a] in the environment of [l]; it is probably due to a conflict between multiple conditioning agents:

hu . l ʌ s . s ʌ s	<i>I skinned (it)</i>
mʌ . l á s . s ʌ s dzùʔ	<i>I skinned myself</i>
mʌ . l á s . s ʌ s dzùʔ	<i>I skinned myself</i>
mʌ l . l ʌ k ʔ ~ m á l . l ʌ k ʔ ~ m á l . l ʌ k ʔ	<i>ready to go</i>

Rule 7:

/a/ → [ɔ] under high stress after [ts], and after [m] (where Rule 6 does not apply):

tsɔ̃ː.dɔʔ	egg
tsɔ̃ːŋː	Chang (a name)
mɔ̃ː.tai	dead
mɔ̃ː.tʌ	face

3.3. /u/: The norm is high, close, round and back. It is the second most frequent vowel.

Rule 1:

/u/ !!	→ [o]	/C ₁ __'C ₂ .C ₃ V(C): (C ₂ ≠ C ₃)
pókʔ.pukʔ		swelling
sóm.nəkʔ		sun

If C₂ is either /h/ or /ʔ/, it may be lost or assimilated in fast speech, so that C₃ appears to be the only consonant, as in the examples below:

ió.kwiʔ	~	iókʔ.kwiʔ	(Fast to Casual)	→
iɔ̃ː.kwiʔ	(Careful)	<	phonemic /iuʔ.kwiʔ/	also
?i.tón.ni	(Casual)	→	?i.tɔ̃ːh.ni	(Careful)
	<	phonemic /tuh.ni/	support (poles)	

/u/ ! → [o] also where /mu/ is the stressed or the following syllable:

/muhun/	→	mɔ̃ː.hun	opinion
/dzumuk/	→	dzóm.mukʔ	fat
/tumʊ/	→	tóm.mo	knee

This change may avoid confusion between words with mu or um in the root syllable, and words with a mu- or -um- affix. It does not apply to a reduplicated sequence:

/mumu/	→	mú.mù	to fight
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It is perhaps more likely that the described alternation is due to occurrence of /u/ in an underlying closed syllable, which is realized as such except under double stress. That is, the underlying forms of the first three examples may be /muh.un/, /dzum.uk/ or /dzuh.muk/, and /tuh.mu/, respectively. But, however probable, this solution will not have been adequately tested until I complete more of my analysis of the Chamorro suffixes.

Rule 2:

/u/ !!	→	[i]	/i.C__' before a single or a geminate C.
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But after Rule 1 is applied:

/u/ !! → [o] → [ɛ] /i.C__ before two unlike C's.
(See Section 2.5. for examples.)

Rule 3:

/u/ !! → [u] /.C__C_f : C_f = word-final C, ≠ [ʔ,ŋ].
ʔù.mu.ʔútʔtutʔ to be cutting off
páʔ.gun child

Rule 4:

/u/ → [o] ~ [u] ~ [u] /.C__(?)#
tán.noʔ earth
dzùʔ I, me
tsátʔ.mu Don't!
dzáʔ.hu I like

Generally, the [o] will follow low vowel [a], and the [u] will follow a high vowel; in both cases, only a single or geminate consonant stands between the two vowels. The [u] occurs uninfluenced by any preceding vowel; that is, it occurs in a monosyllable, or after two unlike consonants.

Rule 5:

/u/ !! → [o] /g__? in final, unstressed position.
mʌ.láʔ.goʔ dzùʔ I want
táʔ.goʔ to send for, order

3.4. /ai/: The norm is like the vowel sound in English *I*, *buy*; or in Spanish *báila* (dance). The first mora is longer than the second; the norm occurs under high stress (but lengthens only under double stress).

Rule 1:

/ai/ ! → [ei] /.C__ word-final
/bai hu/ → bèi hu I will...
/anaí/ → ʔà.nei when (past)
/unaí/ → ʔi.ʔín.nei the sand
/taitai/ → táí.tei to read

3.5. /ao/: The norm is more low and round than English /au/ in *house*. It occurs under high stress; the first mora is longer than the second, but the phoneme is lengthened only under double stress.

Rule 1:

/ao/	!	→	[ou]	/ .C <u> </u>	word-final
/kao/		→	kòu		<i>interrogative</i>
/hanao/		→	hu.mán.nòu	gl	<i>he went to</i>
/pao/		→	pòu		<i>odor</i>

Rule 2:

/ao/	!	→	[o]	/ .C <u> </u>	syllable-final, word-final
/taotao/	<i>person</i>	→	ʔi.tá ^u .to.mǔʔ.nə		<i>the ancestor (spirit)</i>
/pao/	<i>odor</i>	→	po.ʔáʔ.tsuʔ		<i>smell of coral (rock)</i>
/hau/	<i>you sg.</i>	→	mǎ ^l .sɿ.ho		<i>yourself</i>

Note: High stressed [ao] in word-final position derives from Spanish -ado:

ʔà.tʃɿ.sá ^o	<i>late</i>	<	<i>atrasado</i>
ʔès.tu.fá ^o	<i>stew</i>	<	<i>estofado</i>

Both /ai/ and /ao/ may reduce to [a] in a reduplication, especially if three reduplicated syllables are involved:

tu.má.tá ^l .tè ^l	<i>is reading</i>	<	/taitai/	<i>to read</i>
má.má.mǎ ^l .lɿ	<i>it is coming</i>	<	/maila/	<i>to come</i>
ʔi.tá.tá.tǎ ^l .ñɿ	<i>her body</i>	<	/taotao/	<i>person</i>

N O T E S

1. Chamorro is the native language of the Mariana Islands in Micronesia. Most of the data for this analysis was obtained on Guam, in the summer of 1971, during a field trip which was assisted by a Grant-in-Aid of Research from the Society of the Sigma Xi. Before studying Chamorro in the field, I worked with two Chamorro-speakers temporarily living in the Los Angeles area. These are: Ruperta Blas, from Toto, Guam, and Robert Underwood, from Sinajaña, Guam. (Both Toto and Sinajaña are near the capital city, Agaña, on the central western coast of Guam.) While on Guam, I lived with and was helped by Mrs. Rosario Sablan, who resides in Merizo on the southern coast. Mrs. Sablan is originally from Agaña, but she has lived for fifteen years in Merizo. Nevertheless, her Chamorro is still most similar to that of the Agaña area, and she states that even after all these years, her speech is marked as an outsider's compared with that of persons born in Merizo. At any rate, the extent of her adaptation to Merizo speech habits is no problem here, since she notes that the principal difference (between village and area dialects on Guam) is in characteristic sentence melodies, which are not considered in this paper. A second major informant while on Guam was Mrs. Remedios Perez, of Agaña. Therefore, all of my informants speak the Chamorro of the same general geographical area, the environs of Agaña, Guam.

2. The division of one language dialect into four styles of speech was suggested by James Harris' treatment of Spanish in his *Spanish Phonology*, 1969.

3. Traditionally Chamorro has been regarded and written as having six simple vowels and two diphthongs. For an exploration of this view, and comparison with the view presented in this paper, see Witucki (1973).

4. All Chamorro forms are given in this paper in phonetic notation, unless specifically placed in phonemic slants.

Other symbols used:

#	Utterance pause.
	Pause between clauses.
	Pause between phrases.
.	Syllable break, or equally brief break between words within a phrase. (An average pause between words is indicated by spacing.)
ʏ	Voiceless (aspirated) vowel.

Phonetic symbols have commonly assigned values, with the following exceptions:

[ʊ] is rounder than is usually meant by the symbol; it is produced with the lips more protruding, as for [u].

[ts, dz] These sequences each represent a single phoneme. However, I retain the two-segment notation when discussing Chamorro phonology, because the first (stop) segment is often doubled, as in gwí'd'dzʌ, third person singular subject pronoun. It might make confusing reading to go notationally from /gwiza/ to [gwí'd'dzʌ], *he, she, it*; or from /haca/ to [há't'tsʌ], *to raise*.

5. A breath-group usually consists of a clause composed of one or two phrases.

6. Chamorro has vowel-initial words, but this lack of initial phonemic C is not reflected in the formulas, as it would entail functionless additional notation. Phonetically, all words are C-initial, since initial vowels are always preceded by consonantal feature [?].

7. Donald Topping (1968:77) suggested the phonemic presence, and loss in fast speech, of /h/ and /ʔ/ as C₂ in this environment. With my own data, I was able to document the reality (and loss or assimilation) of both /h/ and /ʔ/ in this situation. See Witucki (1973) for fuller discussion of the problems involved.

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