A Tentative Phonemic Statement of Kadiwéu.

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0. INTRODUCTION.

The Kadiwéu language is not as yet classified as belonging to any language group by most authorities. However, one classification places it within the Macro-Ge group. There are two surviving dialects - Guaicuru which is almost extinct, and Kadiwéu.

The Kadiwéus are located in the pantanal area of southern Mato Grosso state. The main settlements lie due west of Miranda in a reserve under the jurisdiction of the F.N.I. on the posts Presidente Alves de Barros, Nalique, and São João. The last of these is practically closed down. The main group of Indians live in three villages near to the post Presidente Alves de Barros. Most of the occupants of a fourth remoter village have recently moved to the main settlement area.

The number of speakers of the language is difficult to assess because of the very wide scattering of houses, and also because many of the Kadiwéus work away from the area on fazendas. The situation is further complicated by a large degree of inter-marriage with non-Kadiwéus. The number of speakers may lie in the region of 500.

Work on the language was commenced by S.I.L. members in 1958 but was discontinued after a short time. It was re-commenced in 1968 by an S.I.L. linguistic team, a total of about ten and a half months being spent in the village Pé da Serra. A number of language informants were employed, including men, women, and younger people. The language material was repeated with at least three informants. It was found that there are small differences in the speech of men and women, but these differences have not been included in this paper because they do not affect the phonemic analysis. The differences lie at higher levels of analysis.

The following analysis was done using material which covered over a thousand utterances, ranging in length from single words to simple sentences.

1. SYLLABLE PATTERNS.

The non-suspect CV combinations which form syllables are:

CV as in

gonɛ́'l•ɛ•gʊwa'	homem
na'	coisa
lá'k•ɛ•dʊ'	cobra
ló'l•a•dógu'	casca
ɛ́'l•ɛ'	bom

V as in

ɛ́'b•ikʊ'	chuva
ɛ́'l•ɛ'	bom
á'm•ogu'	nevoeiro
ó'k•o'	pessoa

Syllable sequences are listed in section 8.

2. INTERPRETATION OF SUSPECT SEGMENTS AND SEQUENCES.

2.1. Suspect segments.

These are [w], [y], [u], and [i].
They are interpreted as /w/, /y/, /u/, and /i/ respectively, according to their position in syllables.

e.g.	á'ḳ.i.dɪʔ	rio
	díwɛ.tɛʔ	está frio
	godá.'m.udɪʔ	cabelo
	lá'w.udɪʔ	sangue
	gowá'y.a.gáčɪʔ	artelho
	bɛ́yagɪyó'ḳ.odɪʔ	o joelho está mau
	gowó'ḳ.omágaʔ	estômago
	nɪ'gɛ́.a.nɪkáwa.nɪgɪʔ	nenê

2.2. Suspect sequences.

These are [tš] and [dž] (otherwise [ć] and [j]).
They are treated as single segments in the absence of [š] and [ž].
See Appendix 9.2a.

3. CHART OF PHONES.

p	t	k	k̟
b	d	g	g̟ ɡ
	c̆		
	ɟ̆ j		
w	y		
m	n		
	l		

i ɩ ɩ²	i̟ ɩ̟ ɩ²̟	u	u̟
		o	o̟
ɛ	ɛ̟		
	a		a̟

All allophones are ringed. All contoids may be lengthened, and so contoid length has not been entered on the chart in order to preserve clarity.

4. CONTRASTIVE CHART OF PHONEMES.

CONSONANTS				LABIAL	ALVEOLAR	VELAR	UVULAR
ORALS	STOPS		VL.	p	t	k	k̥
			VD.	b	d	g	g̥
	CONTINUANTS	AFFRICATES	VL.		č		
			VD.		ǰ		
		LATERAL			l		
	LIQUIDS			LABIAL	NON-LABIAL		
				w	y		
NASALS				m	n		

VOWELS	FRONT	MID	BACK
HIGH	i		u
LOW	e	a	o

Key: VL = VOICELESS

VD = VOICED

5. EVID[illegible]CE FOR PH[illegible]MIC D[illegible]CISIO[illegible].

5.1. Contrasting pairs of soun[illegible]s.

/p/		/b/	
ɩlɩpɩtɛhɩʔ	vôçe chup[illegible]	ɩlɩbɩtɛhɩʔ	êle chup[illegible]
wáǰɩpatɛ́taʔ	êle ouv[illegible]	ǰɩ́bataʔ	eu p[illegible]go
nákɩpaga̧ʔ	êles tom[illegible]m	dɩ́bata·	êle p[illegible]g[illegible]
gápɛógu̧ʔ	[illegible]arro[illegible]	ǰa'b·ɛyagɩé'l·aʔ	a fruta é estraga[illegible]a
'gó.paʔ	copa	gó'b·a·gáɩʔ	n[illegible]o
gótɩpí.ǰɛʔ	peito	lɩ'b·í·ɛʔ	chifre

/t/		/d/	
adá·'b·itɩ́tɩʔ	voçê está em pé	adá·bɩdɩ́tɩʔ	não levanta!
ɩlɛ́tɛ·gádɩʔ	coisa pintada	lɛ́dɛ·dɛʔ	mãe
á'č·utɩʔ	pula	'w·á·yuɩ'l·a·gá'č·udɩʔ	os passaros estão voando.
~~áŋiá~~ ániátɩʔ	gente perde	'ániadɩʔ	perdeu
ánatɩʔ	voçê viu?	ánadɩʔ	não enxergou

/t/		/č/	
ɩ'ṭ·imɩʔ	molhado	ɩ'č.igɩʔ	êle está puxando
nó'p·iṭɛnaʔ	flecha	bɩgɩ'č·ɛ·nɛʔ	gato
ɛ·íṭoátaióŋɩgípɩʔ	tenho duas crianças	ɩ'č·umɛgi·gɩ·	êle é solteiro
óṭakígu̧ʔ	tipo de flor amarelo	ó'č·a·guʔ	arco iris
nɩ́koṭɛ́dɩʔ	êle está sentado	niogó'č·ɛgɩʔ	jacaré
wá·'ṭ·uʔ	boceja	á'č·utɩʔ	pula
ǰá'n·ieg̣áṭɩʔ	nós caimos	gowá'y·a·gádɩʔ	artelho
ɛ́ṭakádu̧ʔ	agulha	ɛ́čakógu̧ʔ	saia
nɩ́wɛṭága̧ʔ	o tempo é frio	nɩgɛ́'č·aka̧ʔ	grosso

/d/		/ǰ/	
díbata·	êle pega	ǰíbata·	eu pego
dióʹt·ɛʔ	êle está dormindo	ǰióʹt·ɛʔ	eu durmo
dáʹw·i·	êle está caçando	ǰáʹw·iʔ	eu caço
ídʹ·ɛlogólɛʔ	lagoa	íʹǰ·ɛ·gáiʔ	bicho
nadí·	êle viu	náǰ·idiʔ	banha
ɛ́tahádu'	agulha	núʹd·a·ǰuʔ	faca
níogódiʔ	agua	ánieʹjóǰɛʔ	batata

/j/ (allophone [j])		/y/	
jɛ́lodiʔ	vou correr	yɛ́lowadiʔ	êle mata
jaráyuʔ	[illegible]	yáʹp·akágaʔ	branco
jáčahóguʔ	eu bato	yáčahóguʔ	êle bate
jút·gídɛ·	faz tempo	yóʹt·ɛdiʔ	estrêla
jókolɛʔ	eu jogo	yókolɛʔ	êle joga

/č/		/ǰ/	
níogóʹč·ɛgiʔ	jacaré	nugóʹǰ·ɛgiʔ	peixe
ɛ́čibɛ́gɛgaʔ	pedra branca	ɛ́·ʹǰ·iguʔ	eu vou
yáʹč·ahóguʔ	êle bate	jaǰánuʔ	já cheguei
gowáʹy·a·gáčiʔ	artelho	áʹh·a·mitíwaǰiʔ	voçês
áʹč·utiʔ	pula	núʹd·a·ǰuʔ	faca
íʹč·agúdiʔ	vermelho	íǰa·gɛʔ	êle fala
bigíčɛ·nɛʔ	gato	níʹǰ·a·ligiǰɛ́giʔ	reptil

/m/		/n/	
ʹm·ɛ́·tigoáʔ	êle diz : "não"	nɛ́ʹč·ɛgiʔ	êle raspa

dí·mıgı?	casa	nolé·tınígı?	cheio
ıŋmátatagádı?	azul	ınεgélcátı?	não mate, não!
ǰága·	acabou	ǰá'n·agı?	eu vim
ε·mέǰı?	eu falo	ε·mέ'l·εgı?	sou grande
á'm·ogu?	nevoiero	nɔ́'k·otíεkı?	êle vomita

/k/	/k̡/	/g/	/g̡/
wá'k·alú't·i·dı? leite	á'k·a·mı? você	ága·nagánı? você canta	agá'n·iodı? êle não come
ε·ǰáwalákε? eu racho	yálakε· sarou	έ'w·otεná'm·agε· êle está dando volta	íǰa·gε? êle fala
ǰúk·i·kε? Estou robando	έ't·akulígılogó'w·iekε? o milho é amarelo	lıgé·'lε? barriga	'l·iegεladí· casa dêle
nıó'k·εlígı? lingua	ıdékεmεkudı? êle sempre mata	yógε·gı? arara	gogé'n·o·gε? olhos
go'd·á·wokenı? barriga da perna	gowó'k·omága? estomago	ópakílogoa? rato grande	logó'n·agı? pé dêle
'έ·liodıtéloku? largo, amplo	ǰówo·ku? eu penso	nálogu? pulga	'l·á.wogu? flor
	lí'n·ieku? nariz dêle	'í'g·u? coisa que foi	'íegu? terra
agí·'k·a? não tem	dılá'j·ieka? êle está rindo		
ní'k·a·gábı? ano		ní'g·a·nıgı? criança	ınega'ǰí.niodága? vamos comer
	ǰεló't·ieka? estou doente		wé't·iega? morro, pedra
godá'k·ilu? cabeça	á'k·i·dı? rio	lıbí't·agı? osso	agíe'k·a? não tem
'íwıléku? você lava	[illegible]	'íwılegí· êle lava	
ǰaá'k·u? saco		ǰaá'g·u? vou coar	

/ɔ/ /ɔ̣/

(contrasting in utterance initial position)

ɔ́tɛ̀ʔ	agua salobra	ɔ̣́'t·udɪʔ	tocano
ɔ̀uʔ	braca	ɔ̣̀nu·duʔ	mosquito

/i/ /ɛ/

á'ɲ̣·i·dɪʔ	rio	lá'ɲ̣·ɛ·dɪʔ	cobra
dá'w·i·	êle está caçando	nɪwó'k·udɪɔ̣̀odá·'w·ɛ̀ʔ	o vento está soprando
unínɪtékɪʔ	um	nɪwá't·ɛkɛʔ	canoa
ná'd·ɛdɪʔ	êle está inchado	lédɛ·dɛʔ	mãe
níoɔ̣̀ódɪʔ	agua	ɔ̣̀ó'd·ɛ̀ʔ	ventre
nɪ́'k·a·ɡábɪʔ	ano	nɛ́'k·ɛ·nɪ́'ɡ·uʔ	cachorro
ɪ́'w·a·lu	mulher	ɛ́'w·alɪɡɪtɛdíbɛkɪʔ	êle está andando
ɪ́la·ɔ̣̀ágɪʔ	passaro	ɛ́'l·aʔ	fruta
ɪ̀ɔ̣̀ó·wɪʔ	amarelo	ɔ̣̀adó·'w·ɛ̀ʔ	dente

/u/ /o/

nugó'ǰ·ɛɡɪʔ	peixe	nóko̤ʔ	dia
yú't·ikɛʔ	minha leiteira	yó·'t·ɛdɪʔ	estrêla
'ɪ̀ᵉ.ɡunódlɛʔ	panela de barro	ɪ̀ɔ̣̀ó'n·aɡɪʔ	pé
dú't·iwádɪʔ	areia	dó't·aɔ̣a't·íbɛkɪʔ	êle está falando
ɡúnɪᵉɔ̣̀i·nuguʔ	nosso prata	ɔ̣́ónɪlaɡá'd·iʔ	agua para tomar banho
~~ǰúɪ̀ɪ·ikeɡe~~	~~tira leite~~		
dá'p·ikóɡuʔ	quente	ǰú't·ikoɔ̣̀oʔ	tira leite
dá'l·u·	êle está brindando	wá·donaɡa·ló·	ela é casada
ǰówo·ɲ̣uʔ	eu penso	ɔ́'ɲ̣·oʔ	nós

/V/		/V·/	
ábə̲ʔ	está trabalhando?	ábə̲·	voçê vai pegar?
ɑ̨ɛ́liodɪʔ	não é grande	ɑ̨ɛ́'l·iodí·	não é o pai dêle
ítʊmɪʔ	molhado	ítʊmí·	êle está satisfeito
íčɪgɪʔ	voçê puma	íčɪgí·	êle puma
dá't·iɑ̨dɛʔ	está chuvendo?	dá't·iɑ̨·dɛʔ	está chuvendo
ábɑ̨tíwɛkɪʔ	êle cabe	ábɑ̨·tɪwɛkɪʔ	voçê cabe

5.2. Sounds which do not contrast.

5.2.1. [j] and [ǰ]

[j] occurs only utterance initially in unstressed syllables. It occurs in soft speech, and freely fluctuates with [ǰ] . Elsewhere only [ǰ] occurs.

e.g.	jɛgadá·latɪʔ	até logo
	nú'd·a·ǰu̲ʔ	faca
	ná'ǰ·idɪʔ	banha

5.2.2. Lengthened and normal phones. (contoids)

Lengthened phones occur in stressed syllables, normal phones occur elsewhere.

e.g.	wá·'t·uʔ	boceja	'wɛ́·ɛ̨ɛ̨oáʔ	êle diz: "não"
	nač̲á'p·uʔ	garro	ná'ǰ·ɑ̨onɪʔ	papagaio
	lá'm·udɪʔ	pluma	'di·mígɪʔ	casa
	'ɪ̨ɛ̨gunólɛʔ	panela	lɪ'b·ó·lɛʔ	carne
	lá'w·udɪʔ	sangue	'l·í·waɡaʔ	anta

5.2.3. [ɕ] and [ʒ]

[ɕ] and [ʒ] fluctuate freely. [ɕ] more generally occurs in careful speech, but rarely in utterance initial position. [ʒ] usually occurs in the utterance initial position. [ʒ] does not occur in stressed syllables.

e.g.	godá·'m·udɪʔ	cabelo
	ɛ́'g̣·iúɔ́ɪʔ	macaco
	gonáˈp·a·g̣atɛʔ	orelhas

5.2.4. [i] , [(ɪ^{e})] , [ɪ]

[i] occurs in VV combinations and in non-final stressed syllables.
[(ɪ^{e})] occurs preceding uvular stops.
[ɪ] occurs elsewhere.

e.g.	dí·mɪgɪʔ	casa
	níogódɪʔ	agua
	náˈɣ·idɪʔ	banha
	ínɪ^{e} g̣ag̣oˈdí·i^{e} g̣ɛladɪʔ	vamos para casa
	níˈg·a·nɪgɪʔ	criança

6. PREDICTABLE PHONETIC DATA NOT LISTED ABOVE.

6.1. The Glottal.

The glottal stop is of morpho-phonemic significance rather than phonemic. It occurs utterance finally, sometimes signifying the loss of a final syllable. It is absent when the last vowel of the utterance is lengthened.

Seiler (IJAL 31 No.1, p.58) quotes Kroeber-Grace, "Many of our forms were recorded at times with, and at times without, a glottal stop. Most of the cases involve an intervocalic position. It seems probable that the glottal stop is inserted for added distinctiveness in careful speech, but is ommitted in rapid speech."

There are a few instances in Kadiwéu of an inter-vocalic glottal stop and the interpretation quoted above would seem to reasonably explain these instances. Similar forms were recorded with and without the inter-vocalic glottal at different times.

6.2. Voiceless Vowels.

Ultimate syllables in an utterance often lose the voicing of both consonant and vowel. Voiceless vowels do not occur elsewhere and are not considered to be of phonemic significance. The same forms were recorded both with and without this voiceless tendency.

6.3. Voiceless Uvular Fricative.

The occurrence of this is rare, found in the speech of a few people belonging to the same family group. It is intervocalic, replacing /tV/ or simply /t/. It may represent therefore a small dialectical difference at the morpho-phonemic level.

6.4. High Tone.

High tone on a syllable is of morpho-phonemic significance and will be dealt with more fully in a later paper.

A provisional set of rules for its occurrence are:

High tone occurs on (i) the first syllable of a verb stem
(ii) " " " " " noun "
(iii) penultimate syllables of utterances

The occurrences of high tone are sometimes modified by intonation patterns. (See Appendix 9.1.1.)

6.5. Reduction of Vowel Length.

In certain sequences of syllables the vowel of the first syllable tends to become shorter.

The sequences are CVgV where the vowels V are identical, and C may be a stop or nasal.

The effect in rapid speech is to give CgV and this was recorded at times. This last form is not in accord with the established syllable patterns.

6.6. Stress.

Stress is of morpho-phonemic significance and is therefore outside of the scope of this paper. Generally, stressed syllables follow the first high tone syllables within word boundaries in the case on nouns and verbs. Stress does not seem to occur in noun and verb modifiers.

6.7. Lengthening of Consonants.

Lengthening of consonants occurs in stressed syllables. It is particularly noticeable in the case of the unvoiced stops and affricate.

7. FORMATIONAL STATEMENT OF PHONEMES.

7.1. Consonants.

There are fifteen consonants.

7.1.1. Consonants are lengthened in stressed syllables. Alveolar stops and nasals tend to be slightly dentalised.

7.1.2.

/p/	[p]	voiceless bilabial stop	ɛ́'p·ɛnáɪ̯ʔ	lua
			ná'p·alí't·ɛʔ	machado
/b/	[b]	voiced bilabial stop	'b·ɛɣagɪʔ	mau
			ɪ̨bo·nɪgɪʔ	presente
/t/	[t]	voiceless alveolar stop	dátiódɛʔ	vai chuver
			wɛ́'t·iᵉga̤ʔ	pedra
/d/	[d]	voiced alveolar stop	'd·i·míɡɪʔ	casa
			yó'd·awaʔ	minha mulher
/k/	[k]	voiceless velar stop	wá'k·ipɛʔ	êle bebe
			yá'p·akága̤ʔ	Branco
/g/	[g]	voiced velar stop	gṳʔ	brasa
			ná'd·ɛgó'g·uʔ	capim
/ḳ/	[ḳ]	voiceless uvular stop	á'ḳ·i·dɪʔ	rio
			yálaḳɛ·	sarou
/g̤/	[g̤]	voiced uvular stop	g̤á'd·iú'd·uʔ	sua mãe
			nug̤ó'ǰ·ɛgɪʔ	peixe
	[ɠ]	voiced uvular fricative freely fluctuates with [g̤] in unstressed syllables.		
/č/	[č]	voiceless alveolar affricate	ɪ̨nɛg̤údɪʔ	meu tio
			ná'č·ok̤onɪʔ	papagaio
/ǰ/	[ǰ]	voiced alveolar affricate	ǰálu	eu brinco
			ná'ǰ·idɪʔ	banha

[j] voiced alveolar fricative, occurs utterance initial in unstressed syllables. It may fluctuate with [ǰ] in this position.

/m/	[m]	voiced bilabial nasal	'm̲·ɛ́·tɛgoá'	êle diz: não
			dí·m̲ɪgɪ'	casa
/n/	[n]	voiced alveolar nasal	n̲íogódɪ'	agua
			ɛ́'n̲·oálɛ'	noite
/l/	[l]	voiced alveolar lateral	l̲ó'l̲·idɪ'	figado
			ɛ́'l̲·a'	fruta
/y/	[y]	voiced palatal resonant	y̲ó't·ɛdɪ'	estrêla
			'ß·ɛy̲agɪ'	mau
/w/	[w]	voiced labio-velar resonant	w̲á·'t·u'	boceja
			ɪ'w̲·o·gu'	pau

7.2. Vowels.

There are five vowels.

7.2.1. Voiceless vowels may occur in unstressed final syllables in soft speech.

7.2.2.

/i/ [i] voiced high close front unrounded vocoid.
Occurs in VV combinations and stressed non-final syllables.

d̲í·mɪgɪ'	casa
n̲íogódɪ'	agua
dú't·i̲wádɪ'	areia

[ɪᵉ] falling glide from voiced high open front unrounded vocoid to mid-closed position. (falls from high close position in stressed syllables)
Occurs preceding uvular stops.

ɪnɪ́ᵉgɪ́ɔtɛʔ — não durma, não

ɲɔdɪ́ˈmɪ̈ᵉɲuʔ — nosso nariz

[ɪ] voiced high open front unrounded vocoid.
occurs in all other positions.

nɪ́ˈʒɪ̈ɪ̈ɡɪ̈ʔ — criança

/e/ [ɛ] voiced mid open front unrounded vocoid.

wɪ́ˈtɛlɪ̈ʔ — marimbundo

nɛ́ˈkɛɲɪ́guʔ — cachorro

/a/ [ɐ] voiced low mid unrounded vocoid

ápɔlɪkaganaga — cavalo

ǰaǰánuʔ — ja cheguei

/u/ [u] voiced high open back rounded vocoid.

nɪɡɛ́ˈǰuʔ — quando eu chego

núˈčupaʔ — curto

/o/ [ɔ] voiced mid open back rounded vocoid.

ɔ́ˈkɔ — verde

nɔ́ˈlɛdɪʔ — fogo

8. DISTRIBUTION OF PHONEMES.

8.1. Patterns.

8.1.1. Syllable patterns.

These are: V
CV

(see Appendix 9.2c)

8.1.2. Combinations of syllable patterns.

Maximum vowel sequences occurring are

(a) two dissimilar vowels or three vowels, two adjacent being similar, within word boundaries

(b) three dissimilar vowels across word boundaries

(see 8.2.2.)

8.2. Distribution.

8.2.1. Consonants.

There is one limitation on the distribution of consonants:

the unvoiced stops and affricate do not occur in the word initial position.

8.2.2. Vowels.

Any vowel can occur in any position singly. Limitations occur in vowel sequences and are shown in the following charts. The chief limitations concern the vowel /u/ and are probably due to its appreciably lower rate of incidence. (see 9.3b.)

8.2.2.1. $V_1 V_2$ within word boundaries.

V_1 \ V_2	a	e	i	o	u
a	1	•	3	•	•
e	•	6	•	8	•
i	5	9	4	2	10
o	6	11	1	12	•
u	13	•	14	•	15

numbers in the squares refer to the examples listed below.

8.2.2.2. $V_1 V_2$ across word boundaries.

V_1 \ V_2	a	e	i	o	u
a	1	2	3	4	.
e	5	6	7	8	.
i	5	9	4	2	10
o	6	11	1	12	.
u	13	16	14	.	15

Key to examples in charts above:

1. etoinaga nudaaǰu — a faca está cega
2. liǰigagawaa eliɔduu — êle anda com a mãe
3. naigi — caminho
4. nigiǰowa oǰiigudi — êle é velho
5. niale abidege — a árvore está queimando
6. meete goa — êle diz: "não"
7. igame ite — onde está?
8. igamigote meote — como êle faz?
9. ligietegi — ôvo
10. eeliodi iutaga — com sono
11. ǰigoeti — vou amarrar
12. gogekooge — nossos olhos
13. ee iǰagiǰun eletidi — eu e outros
14. napiɣui — sujo
15. gunuudu — mosquito
16. igu elodi — êle vai correr

8.2.2.3. Three (dissimilar) vowel sequences occurring across word boundaries:

/aio/	ee itoata ionigipi	tenho duas crianças
/eoi/	ǰaleedi ueeyeleo iheyakaga dinaniti	Êle está correndo porque caiu
/oai/	etidoa iguetedi	Êle está amarrando
/uae/	ee iǰagiǰua eletidi	eu e outros.

8.2.2.4. Three vowel sequences (two vowels similar) occurring within word boundaries:

/oii/	adoiitibeki	voçê tem mêdo
/ioo/	datioode	está chuvendo

8.2.2.5. Three vowel sequences (two vowels similar) occurring across word boundaries:

/aae/	ličigagawaa elioduu	êle anda com a mão
/eei/	ee iǰoledi	eu e outro
/eeu/	ee učiigudi	eu sou velho
/iiu/	eeliodi iutaga	com sono
/iaa/	emi agwi	vai caçar?
/iee/	akaami ee	voçê e eu
/uii/	yadilu iigu	a terra é sêca

9. APPENDICES.

9.1. Intonation and Intensity.

9.1.1. Effect of intonation on high tone.

The general intonation pattern is a falling one. This tends to emphasize high tone on syllables occurring early within utterances, and to mask high tone occurring later within utterances.

9.1.2. Effect of intensity on voicing.

The general intensity pattern is a diminishing one over an utterance. This tends to emphasize earlier syllables and to weaken later ones. Final syllables may lose voicing of both consonant and vowel in soft or rapid speech. They may even be lost completely and replaced by a glottal.

Similar utterances were noted both with and without voicing of phonemes in the last syllable.

The general effect upon stressed syllables is parallel to the effect of intonation upon high tone. (9.1.1.)

9.2. Phonemic evidence provided by borrowed words.

9.2.1. Absence of common phonemes.

The phoneme changes in borrowed words point to the absence of certain common types of phonemes, e.g. fricatives and /r/.

(a) In the assimilation of borrowed words into the language, non-alveolar fricatives become stops and alveolar fricatives become affricates.

e.g.	feizão	beiǰao
	café	gaape
	mesa	nameǰa
	açucar	ačuka-lapakigigi

(b) The phoneme /r/ was included in tentative earlier work done by other workers. This cannot be substantiated. In the assimilation of borrowed words /r/ becomes /l/.

e.g.	abóbora	aboobile
	rádio	laadiu
	garrafa	galaapa
	chaleira	ǰaleela

(c) The Portuguese feature of nasalisation does not occur in Kadiwéu and is dropped completely in borrowed words.

9.2.2. Presence of common phonemes.

Phoneme changes in borrowed words substantiate the presence of certain phonemes, e.g. stops and affricates. This evidence is of more importance in the case of phonemes with a lower rate of incidence. (see 9.3.)

Examples of these changes can be seen in sections above and below, especially 9.2.1a.

9.2.3. Syllable patterns.

The changes in borrowed words point to the absence of any CC combinations in the syllabic structure. Changes in words must conform to both phonemic and syllabic structure. To b separate consonant clusters, vowels are interposed.

e.g.	quatro	goatolo

9.2.4. Phoneme distribution.

Changes in borrowed words point to limitations of phoneme distribution.

The voiceless stops and affricate cannot occur word initially,

e.g.	sabão	ǰabao
	saco	ǰaaku
	chinela	ǰineela
	chaleira	ǰaleela
	copo	goopa
	caneta	gaaneta
	paletó	balitu

9.3. Relative occurrence rates of phonemes.

A phoneme count was made in a large number of utterances. The following lists show the phonemes in order ranging from the highest to the lowest rates of incidence. The first column of figures gives the actual count, the second shows the incidence rate relative to the least occurring phoneme.

(a) Consonants.

Phoneme	Count	Ratio (relative to lowest)
d	153	7.0
n	140	6.4
l	116	5.3
g̊	110	5.0
g	97	4.4
t	89	4.0
w	72	3.3
k	50	2.3
j̊	38	1.7
k̊	34	1.5
m	34	1.5
p	27	1.2
y	27	1.2
b	24	1.1
č	22	1.0

(b) Vowels.

i	425	6.0
a	349	5.0
æ	208	3.0
o	143	2.0
u	70	1.0

Comment

It is noticeable in the case of consonants that generally the higher counts lie with two features - voicing and alveolar position.

This would suggest that although the relative rates of occurrence of /n/ to /m/ is a ratio greater than 4 to 1, there is no need to look for a possible allophonic relationship, ruled out by other phonemic evidence. There are similar high ratios for other alveolar sounds with respect to bilabials.

For vowels, the higher counts lie with front and mid vowels. The back vowels have an appreciably lower ratio.

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1969.