

A TENTATIVE PHONEMIC STATEMENT OF WASKIA

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- 0 INTRODUCTION
- I OUTLINE OF PHONEMES
- 2 INTERPRETATION
- 3 DESCRIPTION OF PHONEMES
- 4 DISTRIBUTION
- 5 CONTROVERSIAL OR UNSOLVED ISSUES
- 6 ORTHOGRAPHY

0 INTRODUCTION

This paper is a tentative description of the phonemic system of Waskia, a non-Austronesian language of Papua New Guinea classified by Z'Graggen as belonging to the Kowan family, Isumrud Stock, Adelbert Range Phylum. Waskia is spoken by about 10,000 speakers living in the northern portion of Karkar Island, Madang Province.

This paper is based on a dictionary of approximately 1000 words collected during six months' residence in the village of Kaul I during 1976. Our language helper, Bangsik Akus, was very helpful in checking the data.

I OUTLINE OF PHONEMES

I.I Charts of Phonemes

I.I.I Consonants

	<u>Bilabial</u>	<u>Alveolar</u>	<u>Velar</u>
Voiceless stops	p	t	k
Voiced stops	b	d	g
Fricative		s	
Lateral		l	
Vibrant		r	
Nasals	m	n	ŋ
Semi-vowels	w	y	

For convenience in this paper:

/i/ = /ɪ/

/r/ = /ɻ/

1.1.2 Vowels

	<u>Front</u>	<u>Central</u>	<u>Back</u>
Higher	i		u
Lower	e	a	o
Higher glides	u _i		
Lower glides	u _e e ⁱ	u _a a ^e a ^u	

1.2 Contrastive features

1.2.1 Consonants

There are fourteen consonant phonemes in Waskia. They contrast in manner of articulation as to voiceless stop, voiced stop, fricative, lateral, vibrant, nasal, and semi-vowel. Stops and nasals contrast as to bilabial, alveolar, and velar points of articulation. Fricative, lateral, and vibrant occur at alveolar and the semi-vowels at bilabial and alveolar points of articulation.

1.2.2 Vowels

There are five single vowel phonemes and six glide phonemes. The single vowel phonemes contrast as to front, central, and back points of articulation. Front and back vowels occur in higher and lower tongue positions. Central vowel occurs in lower tongue position. There are three on-glide phonemes: high back vocoid glides to higher front and lower front and central vocoids. There are three off-glide phonemes: lower front glides to higher front vocoid, and lower central glides to lower front and higher back vocoids.

2 INTERPRETATION

2.1 Status of items which may be either consonant or vowel

(i) and (u) have been interpreted as /y/ and /w/ when they are non-syllabic. They may fill the onset slot of CV and CVC syllables.

/'yes/	('yɛs)	'caterpillar'
/'wal/	('wal̩)	'fish'
/'yawara/	('yawər̩a)	'good'

2.2 Status of items which may be either sequence or unit

Vocoid glides (^ue) (^ua) (^ui) (eⁱ) (a^e) (a^u) have been interpreted as units as they fill the peak slot of V, CV, and CVC syllables.

/ ^u g ^u e/	(' ^u g ^u e)	'blood'
/' ^u ŋanaram/	(' ^u ŋ ^u anāram)	'feared'
/' ^u k ^u i/	(' ^u k ^u i)	'eyelash'
/' ⁱ e ⁱ mar/	(' ⁱ e ⁱ mař)	'my friend grandchild'
/' ^u ka ^e tam/	(' ^u ka ^e tam)	'black'
/' ^u ka ^u sik/	(' ^u ka ^u sik)	'dog'

3 DESCRIPTION OF PHONEMES

3.1 Consonants

3.1.1 Work Chart

	<u>Bilabial</u>	<u>Alveolar</u>	<u>Velar</u>
Voiceless stops	p p	t t	k k y
Voiced stops	b	d	g g w
Fricative		s s w y	s s w y
Lateral		l	l
Vibrant		r r y r	r r y r
Nasals	m	n	ŋ
Semi-vowels	w	y	

3.1.2 Description

3.1.2.1 Voiceless stops

Each of the voiceless stops has an unreleased allophone which occurs in word final position.

- /p/ (p) voiceless bilabial unaspirated stop occurs word initially and medially.
 (P) voiceless bilabial unreleased stop occurs ^{word} syllable finally.
- | | | |
|------------|---------------------|------------|
| /'pepelal/ | ('pepelai̯) | 'bald' |
| /ʌX 'nup/ | ('nu ^P) | 'his name' |
- /t/ (t) voiceless alveolar unaspirated stop occurs word initially and medially.
 (t) voiceless alveolar unreleased stop occurs ^{word} syllable finally.
- | | | |
|----------|-----------------------|-------------|
| /'tam/ | ('tam) | 'tree' |
| /ba'tir/ | (ba'tir̯) | 'knife' |
| /pu'lut/ | (pu'lu ^t) | 'man's bag' |
- /t/ and /s/ fluctuate in the following words:
- | | | |
|------------|---|------------|
| /i'met/ | (i'me ^t)~(i'me ^s) | 'woman' |
| /'kosopat/ | ('koṣopa ^t)~('koṣopas) | 'his lung' |

- /k/ (k) voiceless velar unaspirated stop occurs word initially and medially.
 (k^y) voiceless palatalized stop occurs in free fluctuation with (k) word medially in the environment of /eⁱ/ /a/.
 (k) voiceless velar unreleased stop occurs syllable finally.
 word
- | | | |
|-----------------------|---|------------------|
| 'kam/ | 'kam) | 'period of time' |
| 'nika/ | ('nikʌ) | 'your(s)' |
| 'le ⁱ kas/ | ('le ⁱ k ^y as) ~ ('le ⁱ kas) | 'type of coral' |
| /dak/ | ('da ^k) | 'type of tree' |

3.1.2.2 Voiced stops

- /b/ (b) voiced bilabial stop occurs word initially and medially.

'bom/	('bɔm)	'sago'
'abiran/	('abiran)	'my lips'
<i>/b/ and /g/ fluctuate in the following word:</i>		
'bibinag/	('bibinag) ~ ('bibinag)	'his shoulder'

- /d/ (d) voiced alveolar stop occurs word initially and medially.

/di'dado/	(di'dado)	'both'
<i>/d/ and /s/ fluctuate in the following word:</i>		
'doleg/	('do ^l eg) ~ ('so ^l eg)	'his leg'

- /g/ (g) voiced velar unaspirated stop occurs word initially.

(g^w) voiced velar labialized stop occurs word initially in free fluctuation with (g) in the following word:

/go'tek/	(g ^w 't ^w ek) ~ (g ^w 't ^w ek)	'small'
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(g^y) voiced velar palatalized fricative occurs in free fluctuation with (g) in the environment of /eⁱ/ /a/ or /e/.

(ŋ) voiced velar nasal occurs word medially if the following non-final consonant is /m/ or /n/.

(w) voiced bilabial semi-vowel occurs in a restricted set of words word medially in free fluctuation with (g).

(g̊) voiced velar fricative occurs word medially.

'game/	('game)	'east wind'
'de ⁱ ga/	('de ⁱ g ^y a) ~ ('de ⁱ ga)	'seated gathering'
'de ⁱ gem/	('de ⁱ g ^y em) ~ ('de ⁱ ge ^m)	'sat down'

/araga'nako/	(a ^g ag ^a nako)	'we will climb'
/'tugumam/	('tu ^g umam)	'he filled up'
/'tugusam/	('tu ^g usam) ~ ('tuwusam)	'I am filling up'
/'aguso/	('awuso) ~ ('aguso)	'he plants'
/'ugiso/	('uwiso) ~ ('ugiso)	'he makes (a fire)'
/'lage/	('la ^g e)	'road'

3.1.2.3 Fricative

/s/ (s) voiceless alveolar grooved fricative occurs word initially, medially and finally.

(s^w) voiceless alveolar labialized grooved fricative occurs in free fluctuation with (s) word medially in the environment of

/u/ or /a^u/ __ /a/ or /o/.

(s^y) voiceless alveolar palatalized grooved fricative occurs in free fluctuation with (s) word medially in the environment of /i/ or /eⁱ/ __ /a/ or /o/.

/sa'sal/	(sa'sal)	'hut'
/'wos/	('wɔ ^s s)	'paddle'
/'anusan/	('anus ^w an) ~ ('anusan)	'we wash'
/'te ⁱ so/	('te ⁱ s ^y o) ~ ('te ⁱ so)	'he comes'

3.1.2.4 Lateral

/l/ (i) voiced alveolar flapped lateral occurs word initially and medially, and finally

/'lila/	('li ^l ə)	'calm'
/'dal/	('da ^l ə)	'boat'

3.1.2.5 Vibrant

/r/ (r) voiced alveolar trilled vibrant occurs word medially and finally.

(r̩) voiced alveolar flapped vibrant occurs in free variation with (r̩) word medially. This fluctuation is not shown elsewhere in the paper.

(r̩^y) and (r̩^y) voiced alveolar palatalized trilled and flapped vibrants occur in free fluctuation with (r̩) and (r̩) in the environment of /eⁱ/ __ /a/ or /e/.

/'sor/	('so ^r)	'place'
/ma'rak/	(ma'ra ^k) ~ (ma'fak)	'awake'
/'te ⁱ rem/	('te ⁱ r ^y em) ~ ('te ⁱ fem)	'I came'
/'le ⁱ ram)	('le ⁱ r ^y am) ~ ('le ⁱ fam)	'filled'

3.1.2.6 Nasals

- /m/ (m) voiced bilabial nasal occurs word initially, medially, and finally.

/'memek/	('mɛmɛk)	'bad'
/'tam/	('tam)	'tree'

- /n/ (n) voiced alveolar nasal occurs word initially, medially, and finally.

/'nina/	('ninʌ)	'you (pl)'
/'naman/	('naman)	'we ate'

- /ŋ/ (ŋ) /xxx/ voiced velar nasal occurs word initially, medially, and finally.

/'maga/	('mɑgʌ)	'stone'
/'ŋŋŋ/	('ŋŋŋ)	'open-wide'
<i>/ŋ/ and /n/ fluctuate in the following words:</i>		
/'san/	('sap)~('san)	'some'
/umu'tan/	(umu'tap)~(umu'tan)	'that'

3.1.2.7 Semi-vowels

- /w/ (w) voiced bilabial semi-vowel occurs word initially and medially.

/'wal/	('wai̯)	'fish'
/'bawe/	('bawe)	'drum'

/w/ and /b/ fluctuate in the following word:

/'kuwulin/	('kuwulɪŋ)~('kubulɪŋ)	'fly'
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- /y/ (y) voiced palatal semi-vowel occurs word initially and medially.

/'yawara/	('yawʌrʌ)	'good'
/'guyak/	('güya ^k)	'lightweight'

3.1.3 Contrasts

/p/ and /b/ contrast in the following environments:

* /'ponor/	('pɔnɔr̩)	'knuckle'
/'bom/	('bɔm)	'sago'
* /pa'ren/	(pʌ'rɛn)	'limbaum'
/ba'rim/	(bʌ'fɪm)	'seat'
* /pu'lut/	(pu'lut̩)	'man's bag'
/bu'lulu/	(bu'lulu)	'butterfly'
/'pagam/	('pagam)	'broken'
/'balam/	('balam)	'spoke'
§ /'sipiman/	('sipiman)	'scratched'
/'sibibel/	('sibibɛl)	'onion'
/'pek/	('pek̩)	'type of fruit'
/'belelek/	('bɛlɛlɛk̩)	'goat'
* /'kaparam/	('kapəram)	'went down'
/'nabadir/	('nabədir̩)	'our brothers-in-law'

/t/ and /d/ contrast in the following environments:

* /'tanan/	('tanən)	'centipede'
/'daro/	('dərə)	'breadfruit'
* /'t ^u agu/	('t ^u agu)	'his stomach'
/'d ^u ap/	('d ^u a ^p)	'source'
* /'timam/	('timam)	'stiff'
/'digo/	('digo /	'boys' house'
* /'tom/	('tom)	'time'
/'dolara/	('dɔlərə)	'shame'
/'tama/	('tamə)	'fire'
/dagor/	(dʌgɔr̩)	'house rat'
/'toraman/	('tɔrəmən)	'image'
/'dora/	('dɔrə)	'pictureXX'
* /'betarem/	('betərəm)	'put'
/'nedelen/	('nedələn)	'your (pl) legs'

/k/ and /g/ contrast in the following environments:

/'kigilik/	('kigi ^{lili} ^k)	'different'
/'gigira/	('gi ^{gi} ^r ^ʌ)	'old'
* /'keran/	('ke ^{ra} ⁿ)	'your (s) mouth'
/'geman/	('ge ^{ma} ⁿ)	'your (s) liver'
* /'kapa/	('ka ^p ^ʌ)	'galip tree'
/'gawa/	('ga ^w ^ʌ)	'leaf'
/'kam/	('ka ^m)	'period of time'
/'game/	('ga ^{me})	'east wind'
* /eka'lako/	(e ^k k ^a 'la ^k o)	'yesterday'
/'egerem/	('e ^g e ^{re} ^m)	'touched'
* /'k ^u agi/	('k ^u agi)	'eyeball'
/'g ^u an/	('g ^u an)	'bark of tree'

Note: The contrast between voiceless and voiced stops is neutralized word finally. Unreleased stops occur word finally and have been included as allophones of the voiceless stops.

/l/ and /r/ contrast in the following environments:

* /'ilua/	('il <u>u</u> [~] a)	'hold'
/'irua/	('i <u>r</u> u <u>u</u> [~] a)	'dance'
* /'dal/	('dai <u>l</u>)	'boat'
/'yar/	('ya <u>r</u> [~])	'west wind'
* /'mimili/	('mi <u>m</u> ili)	'immature'
/'diri/	('di <u>r</u> i)	'flower'
± /'k ^u ali/	('k ^u <u>al</u> i)	'high up'
/'k ^u ari/	('k ^u <u>a</u> ri)	'her husband'
* /'bolala/	('bo <u>l</u> ala)	'together'
/'wanara/	('wa <u>n</u> ara)	'earthquake'

/t/, /d/, /s/, /l/ and /r/ contrast in the following environments:

/'tam/	('tam)	'tree'
/'daro/	('da <u>r</u> o)	'breadfruit'
/'saŋ/	('sa <u>ŋ</u>)~('san)	'some'
/'laŋi/	('la <u>ŋ</u> i)	'coast'
* /'eteman/	('e <u>t</u> eman)	'smashed open'
/'nedelen/	('ne <u>d</u> e <u>l</u> e <u>n</u>)	'your(pl) legs'
/'eseman/	('e <u>s</u> eman)	'asked'
/'eleman/	('e <u>l</u> eman)	'crocheted'
/'ereman/	('e <u>r</u> eman)	'covered up'
/pu'lut/	(pu' <u>l</u> u ^t)	'man's bag'
/'wos/	('w <u>ɔ</u> s)	'paddle'
/'gul/	('gu <u>l</u>)	'roof'
/'bur/	('bu <u>r</u> [~])	'smoke'

/n/ and /ŋ/ contrast in the following environments:

* /'nay/	('nay)	'mother'
/'ŋay/	('ŋay)	'open-wide'
* /'nam/	('nam)	'ate'
/'ŋam/	('ŋam)	'shark'
* /'ani/	('ani)	'I'
/'laŋi/	('laŋi)	'coast'
* /ku'sen/	(ku'sen)	'scraped coconut'
/ku'seŋ/	(ku'seŋ)	'type of vine'
* /'taman/	('taman)	'took'
/'gemaŋ/	('gemaŋ)	'your (s) liver'
/'nina/	('ninʌ)	'you (pl)'
/'niŋam/	('niŋam)	'garden'

/b/ and /w/ contrast in the following environments:

* /'bur/	('bur̚)	'smoke'
/'wur/	('wur̚)	'song'
* /'balam/	('balam̚)	'spoke'
/'wal/	('wal̚)	'fish'
* /'bega/	('beg̚)	'betel vine'
/'wetaŋ/	('wetaŋ̚)	'not hidden'
* /'balara/	('bal̚raŋ̚)	'plant shoots'
/'wanara/	('wan̚raŋ̚)	'earthquake'
/'ba/	('ba)	'father'
/'wa/	('wa)	'I beg your pardon?'

/n/ and /l/ contrast in the following environments:

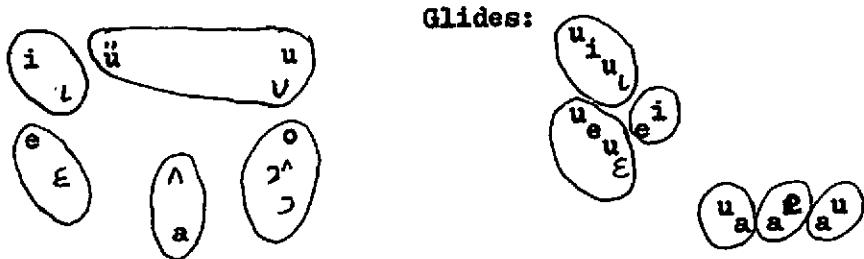
* /'na/	('na)	'food'
/'la/	('la)	'only'
* /'nina/	('nin̚a)	'you (pl)'
/'lila/	('ili̚a)	'calm'

/g/, /j/, and /w/ contrast in the following environments:

* /'gap/	('ga ^p)	'spoon'
/'jam/	('jam̚)	'shark'
/'wal/	('wal̚)	'fish'
* /'yagor/	('yag̚or̚)	'small canoe'
/'yajor/	('yaj̚or̚)	'planting'
/'bawe/	('bawe)	'hand-drum'

3.2 Vowels

3.2.1 Work Chart



3.2.2

- /i/ (i) voiced high open front unrounded vocoid occurs word medially preceding /h/.
 (ii) Voiced high close front unrounded vocoid occurs word initially, medially, and finally.

/'niŋi/

('nɪŋɪ)

'inside'

/'ipi/

('ipi)

'cold'

- /ə/ (e) voiced mid close front unrounded vocoid occurs word finally, and in penultimate open syllable when word ends in /o/.
 (ɛ) voiced mid open front unrounded vocoid occurs word initially and medially.
- | | | |
|-----------|-----------|---------------|
| /'lage/ | ('lɑ̄ge) | 'road' |
| /gu'reko/ | (gu'rɛko) | 'I will wash' |
| /'awete/ | ('awɛte) | 'together' |
| /'memek/ | ('mɛmɛk) | 'bad' |
- /a/ (a^u) voiced low central unrounded vocoid gliding to voiced high close back rounded vocoid occurs word medially preceding /su/ or /gu/.
 (ʌ) voiced mid open central unrounded vocoid occurs in unstressed open syllables.
 (a) voiced low central unrounded vocoid occurs word initially, medially, and finally.
- | | | |
|----------------|--|-----------------|
| /kasunagu'rem/ | (ka ^u suna ^u gu'rɛm) | 'shifted' |
| /'tage/ | (tɛk 'tage) | 'type of snake' |
| /'nina/ | ('ninʌ) | 'you (pl)' |
| /'amu/ | ('amu) | 'male' |

- /o/ (ɔ^) voiced mid open back rounded vocoid occurs in closed syllables preceding /r/ and /s/ and inopen syllables preceding /r/, /t/, and /y/.
- (ɔ) voiced low close back rounded vocoid occurs elsewhere in closed syllables and inopen syllables preceding /l/, /n/, and /ŋ/.
- (o) voiced mid close back rounded vocoid occurs elsewhere.

/'sor/	('sɔ̄r)	'place'
/'wos/	('wɔ̄s)	'paddle'
/'koray/	('kɔ̄raj)	'his mouth'
/'totesan/	('tɔ̄tɛsan)	'scratch'
/'goyak/	('gɔ̄ya ^k)	'garamut'
/'bom/	('bɔ̄m)	'sago'
/'bolala/	('bɔ̄lał)	'together'
/'ponor/	('pɔ̄nor)	'knuckle'
/pu'rory/	(pu'řřɔ̄)	'banana-galip sweet'
/'bo/	('bo)	'a'
/'noko/	('noko)	'his'
/'owɔ̄'re/	(owɔ̄'ře)	'over there'

- /u/ (v) voiced high open back rounded vocoid occurs preceding /ŋ/.
- (ü) voiced high close front rounded vocoid occurs preceding /i/ or /y/.
- (u) voiced high close back rounded vocoid occurs elsewhere.

/'puŋuru/	('puŋuru)	'type of shell'
/'muinan/	('müinan)	'danger'
/'guyak/	('güya ^k)	'light'
/'umu/	('umu)	'that'
/'nuna/	('nunʌ)	'they'

<i>/^ui/</i>	(^u _t)	voiced high close back rounded vocoid gliding to voiced high open front unrounded vocoid occurs preceding /j/.
	(^u _i)	voiced high close back rounded vocoid gliding to voiced high close front unrounded vocoid occurs elsewhere.
	/'g ^u iŋ/	('g ^u iŋ) 'type of bird'
	/'k ^u i/	('k ^u i) 'eyelash'
<i>/^ue/</i>	(^u _e)	voiced high close back rounded vocoid gliding to voiced mid close front unrounded vocoid occurs word finally.
	(^u _ɛ)	voiced high close back rounded vocoid gliding to voiced mid open front unrounded vocoid occurs elsewhere.
	/'g ^u e/	('g ^u e) 'blood'
	/'k ^u etk ^u et/	('k ^u ɛt ^u k ^u ɛt) 'small bush frog'
<i>/^ua/</i>	(^u _a)	voiced high close back rounded vocoid gliding to voiced low central unrounded vocoid occurs word medially and finally.
	/'d ^u alaɾa/	('d ^u aləɾa) 'mad'
	/'k ^u a/	('k ^u a) 'type-of-clam'
	/'d ^u aɸ/	('d ^u aɸ) 'source'

3.2.3 Contrasts

/i/ and /e/ contrast in the following environments:

* /'agari/	('agari)	'my husband'
/'agere/	('agere)	'my tooth'
* /'kiti/	('kiti)	'gall-bladder'
/'keta/	('keta)	'yourself(s)'
* /'mimili/	('mimili)	'immature'
/'memek/	('memek)	'bad'
* /'laŋi/	('laŋi)	'coast'
/'lage/	('lage)	'road'
/si'lale/	(si'lale)	'newborn'
/'se/	('se)	'and'

/e/ and /a/ contrast in the following environments:

* /'dep/	('de ^p)	'fish type'
/'gap/	('ga ^p)	'spoon'
/'mena/	('mena)	'no'
/'maga/	('maga)	'stone'
* /'nenəŋa/	('nenəŋa)	'your(pl)'
/'ananaŋa/	('ananaŋa)	'our'
* /'ale/	('ale)	'then'
/'la/	('la)	'only'
* /'yager/	('yageř)	'root'
/'nugar/	('nugar)	'kandere'
* /'ewere/	('ewere)	'here'
/'awete/	('awete)	'together'

/o/ and /u/ contrast in the following environments:

* /'lom/	('lɔm)	'mud'
/'luman/	('luman)	'wing'
* /'sor/	('sɔr)	'place'
/'bur/	('bur)	'smoke'
* /'mone/	('mone)	'his hair'
/'munan/	('munan)	'custom'
* /'kolara/	('kɔlərə)	'play'
/'kuka/	('kukə)	'small crab'
* /'ponor/	('ponɔr)	'knuckle'
/'pujuru/	('pujuru)	'large cowrie'

/a/ and /o/ contrast in the following environments:

* /'kar/	(kar)	'garden fence'
/'por/	(pɔr)	'pig fence'
* /eka'lako/	(eka'lako)	'yesterday'
/ka'loko/	(ka'loko)	'will make'
* /'ba/	('ba)	'father'
/'bo/	('bo)	'a'
/'nama/	('namə)	'go'
/'nome/	('nome)	'his mother-in-law'
/'maya/	('maya)	'stone'
/'mone/	('mone)	'his hair'
* /'nika/	('nikə)	'your (s)'
/'ko/	('ko)	'of'

/e/ and /o/ contrast in the following environments:

* /'keray/	('kə̄raj)	'your (s) mouth'
/'koray/	('kɔ̄raj)	'his mouth'
/'neton/	('nɛtɔn)	'your (s) son-in-law'
/'noton/	('nɔtɔn)	'his son-in-law'
/'neme/	('nɛme)	'your (s) mother-in-law'
/'nome/	('nɔme)	'his mother-in-law'
* /'deley/	('də̄lej)	'your (s) leg'
/'doley/	('dɔ̄lej)	'his leg'
/'kere/	('kə̄re)	'your (s) tooth'
/'kore/	('kɔ̄re)	'his tooth'
* /'geman/	('gə̄man)	'your (s) liver'
/'gomay/	('gɔ̄məj)	'his liver'
/'nenega/	('nənēga)	'your (pl)'
/'nonoga/	('nɔnōga)	'their'
* /'ewere/	('e wə̄re)	'over here'
/'owore/	('owɔ̄re)	'over there'
* /'moke/	('mə̄ke)	'his brow'
/'ko/	('ko)	'of'

/i/ and /u/ contrast in the following environments:

* /'nip/	('ni ^P)	'your (s) name'
/'nup/	('nu ^P)	'his name'
* /'nina/	('ninʌ)	'you (pl)'
/'nuna/	('nunʌ)	'they'
/'ni/	('ni)	'you (s)'
/'nu/	('nu)	'he'
* /'kimik/	('kimi ^k)	'your (s) body'
/'kumik/	('kumi ^k)	'his body'
* /'imi/	('imi)	'here'
/'umu/	('umu)	'there'
* /'kiriaŋ/	('kiriaŋ)	'yam'
/'kuriaŋ/	('kuriaŋ)	'child'

/eⁱ/ and /a^e/ contrast in the following environments:

* /'e ⁱ mas/	('e ⁱ mas)	'my grandchild'
/'ka ^e mak/	('ka ^e ma ^k)	'sugar'
* /'te ⁱ man/	('te ⁱ man)	'came'
/'ka ^e m/	('ka ^e m)	'god'
* /'e ⁱ tak/	('e ⁱ ta ^k)	'today'
/'ka ^e tam/	('ka ^e tam)	'black'

/a^e/ and /a^u/ contrast in the following environments:

* /'ka ^e mak/	('ka ^e ma ^k)	'sugar'
/'ka ^u sik/	('ka ^u si ^k)	'dog'
* /'ka ^e m/	('ka ^e m)	'god'
/'ka ^u r/	('ka ^u r)	'lime'

/uⁱ/ and /u^e/ and /u^a/ contrast in the following environments:

* /'k ^u i/	('k ^u i)	'eyelash'
/'g ^u e/	('g ^u e)	'blood'
/'k ^u ali/	('k ^u ali)	'type of clam' 'high'
* /'g ^u in/	('g ^u in)	'type of bird'
/'k ^u etk ^u et/	('k ^u etk ^u et)	'type of frog'
/'ŋ ^u ajaram/	('ŋ ^u ajaram)	'feared'
/'g ^u an/	('g ^u an)	'skin'

/^ui/ and /u/ and /i/ contrast in the following environments:

* /'k ^u i/	('k ^u i)	'eyelash'
/'kuka/	('kuk ^u)	'type of small crab'
/'kiti/	('kiti)	'gallbladder'
* /'g ^u i/	('g ^u i)	'type of bird'
/'gul/	('gul)	'roof'
/'giman/	('giman)	'carried'

/^ue/ and /u/ and /e/ contrast in the following environments:

* /'g ^u e/	('g ^u e)	'blood'
/'gul/	('gul)	'roof'
/'gemay/	('gema ^u)	'your (s) liver'
* /'k ^u etk ^u et/	('k ^u ɛt ^u k ^u ɛt)	'type of frog'
/'kumik/	('kumi ^k)	'his body'
/'k ^u et ^u 'keta/	('keta ^u)	'yourself (s)'

/^ua/ and /u/ and /a/ contrast in the following environments:

* /'k ^u amuru/	('k ^u amuru)	'his nose'
/'kunum/	('kunum)	'mortar'
/'kamuru/	('kamuru)	'your (s) nose'
* /'t ^u agu/	('t ^u agu)	'his stomach'
/'tuguman/	('tu ^u uman)	'buried'
/'tagu/	('tagu)	'your (s) stomach'
* /'k ^u amin/	('k ^u amin)	'his tongue'
/'kumi/	('kumi)	'plant cutting'
/'kamin/	('kamin)	'your (s) tongue'
/'b ^u adir/	('b ^u adir)	'his brother-in-law'
/'bugu/	('bugu)	'fork'
/'badir/	('badir)	'your (s) brother-in-law'

/eⁱ/, /e/ and /i/ contrast in the following environments:

* /'e ⁱ tak/	('e ⁱ ta ^k)	'now'
/eka'lako/	(εka'lako)	'yesterday'
/'iluman/	('iluman)	'held'
* /'teroy/	('terɔy)	'good'
/'timam/	('timam)	'stiff'
/'te ⁱ man/	('te ⁱ man)	'came'
/'be ⁱ ŋa/	('be ⁱ ŋa)	'afternoon'
/'peŋpeŋ/	('peŋpeŋ)	'close-set'

/a^e/, /a/ and /e/ contrast in the following environments:

* /'ka ^e m/	('ka ^e m)	'god'
/'kam/	('kam)	'period of time'
/'kema/	('kema)	'your(s) forehead'
* /'ka ^e tam/	('ka ^e tam)	'black'
/'katalek/	('katalex ^k)	'red-leaved shrub'
/'keta/	('keta)	'yourself(s)'

/a^u/ and /a/ and /u/ contrast in the following environments:

*	/'ka ^u sik/	('ka ^u si ^k)	'dog'
	/'kasik/	('kasi ^k)	'many'
	/'kusik/	('kusi ^k)	'roof beam'
*	/'ga ^u k/	('ga ^u k)	'tobacco'
	/'gap/	('ga ^p)	'spoon'
	/'gur/	('gur [~])	'space of time'
*	/'ka ^u r/	('ka ^u r)	'lime'
	/'kar/	('ka ^u r)	'garden fence'
	/'kumik/	('kumi ^k)	'his body'
	/'da ^u la/	(^u 'da ^u la)	'wind'
	/'daro/	('da ^u ro)	'breadfruit'
	/'dun/	('dun)	'head of canoe'
*	/'na ^u r/	('na ^u r)	'coconut'
	/'na/	('na)	'food'
	/'nu/	('nu)	'he'

3.3 Supra-segmental Items

3.3.1 Phonemic status of tone, stress, and length.

Pitch and length are not phonemically relevant in Waskia. Word stress is not fully predictable but strong tendencies have been observed, as follows:

3.3.1.1 Words other than verbs.

Stress is predominantly on the first syllable in two- and three-syllable words, and on the second syllable in four-syllable words.

In two-syllable words ending in an open syllable stress is almost always on the first syllable. /pu're/ 'thunder' is the only known exception, stress having shifted to the syllable begun by the dominant letter /r/.

In two-syllable words ending in a closed syllable stress is commonly on the first syllable, less commonly on the second syllable. The consonants /r/ /l/ /s/ and /g/ if they begin the second syllable often attract the stress to that syllable, for example:

/ba'ras/	'star'	/pu'rong/	'banana-galip sweet'
/ga'lep/	'light'	/pu'lut/	'man's bag'
/sa'sal/	'shelter-hut'	/ku'sen/	'scraped coconut'
/da'gor/	'rat'	/ba'gun/	'cup'

There are exceptions, for example:

/'welang/	oil'
/'ka ^u sik/	'dog' (perhaps on first syllable because of glide)
/'bugury/	'bee'

Body part and family relationship terms that conjugate are not affected stress-wise by the presence or absence of certain consonants, for example:

/'korang/	'his mouth'	/'doleng/	'his leg'
/'nugar/	'his nephew'		

In three-syllable words stress is predominantly on the first syllable. There are exceptions, e.g. /ma'tangi/ 'outside'. The consonants /r/ and /l/ (but not usually /g/ and /s/), if they begin the second syllable, often attract the stress to that syllable, for example:

/ba'rarem/	'reef'	/bu'lulu/	'butterfly'
Compare,			

/'wosasel/	'wide'	/'bugulik/	'damp'
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3.3.1.2 Verbs

Stress in verbs is to a great degree predictable.

Future tense: Stress is penultimate.

/nama'nako/ 'we will go'

A suffixed clitic does not change this stress, nor does the absence of the final vowel or syllable from the basic form, thus:

/na ma'nako-wo/ 'we will go right away'

/nama'nak/ 'we will go'

Other tenses:

In two-syllable words the first syllable is usually stressed, e.g. /'balam/ 'he said'

In words of three and more syllables primary and secondary stress are hard to distinguish. However there is always a stress (either primary or secondary) on the final syllable. In three syllable words first and last syllables are stressed about equally, e.g. /'nama'man/ 'they went'

In four-syllable words the predominant but not invariable pattern is second and final syllable stress, e.g.

/ge'rago'so/ 'he wanders about'

/a'nuwa'so/ 'he is washing'

Words of five and more syllables vary in their stress according to the components present. Final syllable stress with stress on preceding alternate syllables is the preferred rhythm but is affected fairly predictably by infixes and length of stem.

Examples:

/'baga-'laga-'san/	'they kept on staying' (alternate syllable stress)
/ba'taga-truka'san/	'they used to cut' (alternate syllable stress)
/ba'tagāra'san/	'they cut' (stem stress is retained)
/'baga-la'ga-ka'san/	'they would keep on staying' (infix /-laga-/ accommodates its stress)
/'nama-gi'lingi-'san/	'they all go' (/gi'lingi-/ always retains its stress)
/'nama-gi'lingi-ka'san/	'they would all go'

5.3.2 Stress Contrasts

Very few contrasts for which there is no apparent reason have been found.

+ /a'maru/	'when'
/'awila/	'how many'
* /na'nawus/	'daughter'
/'naniwus/	'our wives'
* /pu'lut/	'man's bag'
/'welaj/	'oil'
* /ba'gun/	'cup'
/'bugun/	'bee'

3.3.3 Intonation

Statements: Statements start at a medium pitch and drop to low on the last one two or three syllables.

ani 'nijam te 'namasam

'I'm going to my garden'

'kani i'lagala 'manga gawa i'lagala

'two pots cost two kina'

Questions: All questions start at a relatively high pitch.

- (a) Those using 'agila 'do they, isn't it, will he, etc' drop to low pitch on 'agila. The use of this word implies an alternative to the statement.

nu nama'ruko 'agila?

'he will go, will he?'

- (b) Those using question words e, a, drop to low pitch on last one or two syllables of the statement then rise very slightly on the question word.

nu Ma'dang nama'ram, e?

'did he go to Madang?'

'bia agi 'gotek a?

'the big one or the small one?'

nama'nako, e?

'shall we go then?'

- (c) Those using interrogative words such as 'who' and 'why' drop to low pitch on the last one or two syllables.

'kani i'lagala 'awila?

'how much do two po. cost?'

ni a'nape ko 'k^uesam?

'what do you want?'

Expressed alternatives: agi 'or' is always at a markedly lower pitch than surrounding words.

'tuwik kap^uruk agi 'worem kap^urak agi ani 'me ko iki'sam

'I don't know if it will be wet or fine'

'ni 'g^uay 'ka^etam agi di'riam be're ko 'k^uesam, a?

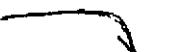
'Do you like the black or the red cloth?'

Listing: As items are being listed there is no rise and fall in pitch.

Imperatives: The stressed syllable of the verb receives extra intensity, and the preceding syllables are at a relatively high pitch.

	ka'parko!	'get down!'
	nama'nako!	'we'll go now!'

In non-command imperatives the stressed syllable of the verb is lengthened and spoken at a relatively high pitch. The suffix -wo is spoken very indistinctly.

	nama'nakowo	'let's go!'
	bagaralkowo	'you (pl) stay'

Exclamations: These are short, start high and drop low.

	'e ⁱ k e	'truly!'
	'mena	'no, not at all!'

Responses: These are short, start medium and drop low.

	o	'O!K.'
	'terong	'good'
	'mena	'no'
	e ⁱ	'yes'

4 DISTRIBUTION

The syllable in Waskia consists of a single vowel phoneme as nucleus with optional onset and/or coda - (C)V(C). The resultant four syllable types contrast as follows:

V	/'e/	'question word'
CV	/'na/	'food'
VC	/'am/	'can'
CVC	/'bom/	'sago'

Although there are VVC and CVVC combinations, a syllable break always occurs between the vowels (see 4.3.2)

4.1 General Distribution

Each syllable type occurs word initially, medially, and finally. Words of up to eight syllables have been observed. Up to three syllable types may occur in a single word.

V.CV.VC	/a .nu.'em/	'washed'
VC.CV	/ir.ko /	'you(s) will dig'
V.CV.VC.CV	/a .su.'al.ko/	'you(pl) will plant'
CVC.CVC	/'del.den/	'sloping'
CV.V	/'bi.a/	'big'
V.CV.V.CV	/a.nu'e.ko/	'I will wash'
CV.CV.CVC.CV	/na.ma'mon.ko/	'they will go'
V.CV.CV.CV.CV.CVC	/a.nu.ga.li.ni.ka'san/	'they used to wash'
CV.CV.CV.CV.CV.CV.CVC	/ku.lu.ku.ru.ku.tu.gu'rem/	'I have finished folding'

4.2 Phoneme Com binations Within the Syllable

Any consonant may fill the initial consonant slot of CV or CVC syllables. Any consonant except a voiced stop or a semi-vowel may fill the final consonant slot of VC or CVC syllables.

Any vowel may fill the nucleus of CV or CVC syllables. Any vowel except an on-glide may fill the nucleus of a V syllable. Only /e/ /a/ and /e/¹ have been observed filling the nucleus of a VC syllable. The only distributional restrictions of vowels with particular preceding or following consonants which have been noted are:

- /p/ /s/ /r/ /w/ and /y/ never precede an on-glide,
- /t/ / m/ /n/ and /l/ never precede /i/ or /e/;
- /d/ never precedes /i/;
- /n/ never precedes /e/;
- /a/ follows only /k/, /m/, /l/

¹/r/ never occurs word initially.

4.3 Distribution of Phonemes Across Syllable Boundaries

4.3.1 Consonants

Consonant clusters occur only across syllable boundaries. The following combinations of consonants occur: k.p n.p k.t n.t n.t p.k m.k n.k n.k l.d s.g t.m k.m l.m l.n k.s

/'memekpa/	'bad!'
/te'ronpa/	'good!'
/'doktak/	'his neck'
/su'anta/	'one'
/nuŋu'ninta/	'true!'
/i'lupko/	'you (s) hold!'
/a'tumko/	'you (s) pound!'
/nama'monko/	'they will go'
/u'leŋko/	'the day before yesterday'
/'delden/	'sloping'
/'ge ⁱ gos/	'snout'
/'ka ^e tman/	'blackened'
/'gekmam/	'fastened'
/a'milmilmaso/	'he rejoices'
/'t ⁱ kutukulnay/	'short'
/uku'rukse/	'tomorrow'

The following additional combinations of consonants occur in reduplicated words: t.p m.p n.p n.d k.g n.p n.m l.o p.s r.s

/ka'petpet/	'double canoe'
/'pempem/	'always'
/'kenken/	'type of bird'
/'dondon/	'type of plant'
/'perpen/	'close-set'
/'mehmeh/	'later'
/'ŋualŋual/	'foolish'
/'supsup/	'fat'
/'sirsir/	'grass'

4.3.2 Vowels

The following syllable types may combine to form clusters of two vowels across syllable boundaries:

CV.V	/'bi.a/	'big'
(v) CV.VC	/anu'em/	'I washed'
V.VC	/a 'uk/	'how?'

If the second syllable of the combination is an open syllable the following combinations of vowels occur: i.a i.e i.o u.i u.e u.a u.o e.i e.e.a e.e.o a.e.a. If the second syllable of the combination is a closed syllable the following combinations occur: i.a a.u u.e u.a e.i a.

Second Syllable Open:

/d i'a.ra/	'trading'
/i.ki'e.ko/	'I will know'
/i.ki'o.ko/	'he will know'
/'mu.i.nan/	'danger'
/'nu.e/	'kandere'
/'i.ru.a/	'dance'
/a .nu'o.ko/	'he will wash'
/ke ⁱ i.ko/	'I will cook'
/me ⁱ a/	'long'
/ke ⁱ o.ko/	'he will cook'
/ka ^e a.ka.san/	'they used to try'

Second Syllable Closed:

/a 'ri.ni.am/	'yellow'
/a'uk/	'how? '
/a.gu'em/	'I planted'
/a.gu'am/	'he planted'
/ke ⁱ em/	'I cooked'
/ke ⁱ am/	'he cooked'

5 CONTROVERSIAL OR UNSOLVED ISSUES

5.1 On-glides

Having three on-glide phonemes, /^ui/ /^ue/ /^ua/, was thought to be preferable to having labialized consonant phonemes for the following reasons:

1. On-glide phonemes are fewer in number. According to the present data nine labialized consonant phonemes would be needed, /t^w/ /k^w/ /b^w/ /d^w/ /g^w/ /s^w/ /l^w/ /m^w/ /ŋ^w/ . Further elicitation, especially of body part and family relationship terms (see 2), may reveal even more consonants followed by an on-glide.

2. Body part and family relationship terms conjugate to show possession. A feature of the pattern is the backing of the vowel to distinguish third person singular from second person singular, e.g. /i/ to /u/, /e/ to /o/, /a/ to /a/.

First p. s.	Second p. s.	Third p. s.
/e ⁱ mas/	/'nimas/	/'numas/ 'grandchild'
/'awimik/	/'kimik/	/'kumik/ 'body'
/'adeley/	/'deley/	/'doley/ 'leg'
/'ajamuru/	/'kamuru/	/'k ^u amuru/ 'nose'
/'atagu/	/'tagu/	/'t ^u agu/ 'stomach'
/'amali/	/'mali/	/'m ^u ali/ 'female private part'
/'agari/	/'kari/	/'k ^u ari/ 'husband'
/'abadir/	/'badir/	/'b ^u adir/ 'brother-in-law'

This pattern is also present in the plural forms, e.g.

First p. pl.	Second p. pl.	Third p. pl.
/'nabadir/	/'nebadir/	/'nobadir/ 'brother-in-law'
/'nadeley/	/'nedeley/	/'nodoley/ 'leg'

Pronouns also reveal this pattern:

First p. s. /'ani/	Second p. /ni/	Third p. /'nu/
pl. /'ana/	/'nina/	/'nuna/

3. If labialized consonant phonemes were introduced many of them would have a very low function load, in some cases only one or two words.

4. The phonemes /s/ and /g/ each have a labialized allophone.

6 ORTHOGRAPHY

6.1 Suggested orthography

Phoneme	Allophones	Suggested orthography
/p/	(p) (p̚)	p
/t/	(t) (t̚)	t
/k/	(k) (k̚) (k̚y)	k
/b/	(b)	b
/d/	(d)	d
/g/	(g) (g̚) (g̚w) (g̚y) (ŋ)(w)	g
/s/	(s) (s̚w) (s̚y)	s
/l/	(l̚)	l
/r/	(r̚) (r̚) (r̚y)	r
/m/	(m)	m
/n/	(n)	n
/ŋ/	(ŋ)	ng
/w/	(w)	w
/y/	(y)	y
/i/	(i) (ɪ)	i
/e/	(e) (ɛ)	e
/a/	(a) (ʌ) (a̚u)	a
/o/	(o) (ɔ) (ɔ̚)	o
/u/	(u) (v) (ü)	u
/uᵢ/	(uᵢ) (uᵣ)	ui
/uᵑ/	(uᵑ) (uᵑε)	ue
/uᵘ/	(uᵘ)	ua
/eᵢ/	(eᵢ)	ai
/aᵑ/	(aᵑ)	ae
/aᵘ/	(aᵘ)	au
/'/	(')	unmarked

6.2 Reasons for suggested orthography

6.2.1 /eⁱ/ is ai for the following reason:

The Waskia people always write ai for the phoneme /eⁱ/.
/eⁱ/ occurs in the common verb stems /teⁱ/ 'come' and /keⁱ/ 'cook on a fire'

6.2.2 Word final voiceless stops

It may prove advisable for b,d,g to be used to represent voiceless unreleased stops as the former church language used in the area, Graget, has b, d, g, in this position and some Waskia speakers spell, for example, /bu'ruk/ (*bu'ru^k*) 'pig' as burug. Contrast between voiced and voiceless stops is neutralised in Waskia in word final position.

6.3 WASKIA pronunciation of some English words

snake	(si'ne ^K)
plate	(pi'le ^t)
school	(su'kul)
grass	(gʌ'ras)
nail	('gil)
spoon	(si'pun)
driver	(dʌ'ra ^e wʌ)
pumpkin	('pankən)
blue	(bu'lu)
bridge	(bi'řis)
horse	('wɔ^s)
handkerchief	('aŋsi ^k)
poison	('fɔ^i'sin)
pussy	('pusi)
cow	('bulumakau)

6.4 Sample Text

Phonetic transcription: 'ani 'aga kuri'aj gɔ'tɛk tɛk 'ago 'nang a p

Orthographic transcription: ani aga kuriang gotekek ago nanga dusap

English transcription: I will tell you a story about me and the little children.

P: 'bo bʌliko

O: bo baliko.

P: u'lengkala 'ani ku'riaj gɔ'tɛk tɛk 'nun̩ bilguwurem ti'rɔm 'arungu 'krismas

O: ulengkala ani kuriang gotekek nunga biguwurem tirom arungu Krismas

E: Some time back I gathered the children together in the evening and was teaching them Christmas songs when heavy rain fell.

P: 'wur 'dən bʌluwarem 'se tu'wi k 'biʌ 'kaparam

O: wur den baluwarem se tuwik bia kaparam.

P: 'da^{uy}laⁱ 'biaⁱa 'teⁱkaso ale pu're 'biaⁱa nunguningkiri 'pagam 'se ku'riaj

O: daula biala taikaso ale pure biaia nunguningkiri pagam se kuriang

E: A big wind came up and then loud thunder clapped and the children cried and went silly, got up and ran to me.

P: gɔ'tɛk tɛk 'niaman 'ŋai'man bʌrasaman 'na^uman 'an̩ng 'te 'teⁱman

O: gotekek niaman ngualaman barasaman naguman atinga te taiman.

P: 's^uen 'la 'agarak^k 'da^ugulaman gʌlɛp 'nikim 'te 'bangaman 'mu 'eteman

O: suen la agarak dagulaman galep nikim te bangaman mu eteman

E: They all fell on top of me and they stayed in the lamp's light. They hit the lamp and it fell down.

P: 'se 'da^ugulam

O: se dagulam.

- P: 'ani 'aga 'kaniram ku'řiajg>'tε^ktε^k 'nuguru ni'akasan 'se 'kari
 O: ani aga kaniram kuriang gotektek ninguru niakasan se kari
 E: It burnt me. The children were really crying and a headman heard the noise they were making and came down and came inside.
- P: 'supul̥ŋ 'bo kuri'aŋ g>'tε^ktε^k 'nunŋa 'nirŋŋ i'kam ale 'kaparam
 O: supuling bo kuriang gotektek nunga nirung ikam ale kaparam.
 P: kuri'aŋ g>'tε^ktε^k 'saŋ 'niŋman 'mu 'nunŋa ilu'am
 O: kuriang gotektek sang niaman mu nunga iluam.
 E: Some of the children cried and he held them.
- P: tu'wi^k pu're 'menaram 'se ga'la^p 'te kuri'aŋ 'nunŋa 'nunam 'nonet
 O: tuwik pure menaram se galep te kuriang nunga nunam nonet
 E: The rain and thunder stopped and the children went with the light to their mothers' and fathers' place.
- P: 'nunŋa 'te 'namaman
 O: nunga te namaman.
- P: 'ani 'aga kuri'aŋ g>'tε^ktε^k 'arŋŋu 'nang^a 'duap g>'tε^k bu'tata.
 O: ani aga kuriang gotektek arungu nanga duap gotek butata.
 E: That is the little story about me and the children. That's all.