2. Phonology

The phonemic inventory of Kaki Ae includes the eleven consonants and ten vowels shown in Table 1.

Table 1: Phonemes of Kaki Ae

p		k	ʔ	i ĩ	u ũ
m	n				o õ
ɸ β	s		h	ɛ ɛ̃	
	l				a ã
w					

Stress is always penultimate.

There are no closed syllables or syllable initial consonant clusters. Therefore all consonants may occur in only two positions: word-initially and intervocalically. Most consonants may occur in both positions, the possible exceptions being /ʔ/ and /w/. The situation for /w/ is discussed with vowel sequences. Regarding /ʔ/, I have found no evidence for a word-initial contrast between /ʔV/ and /V/. There is, however, contrast between these sequences morpheme-initially in the following forms.

/ɛlɛɑ-ʔɛ-ʔɛnɑ/   'I see you (sg)'
/ɛlɛɑ-ɛ-ʔɛnɑ/   'I see you (pl)/them'

Therefore it is not unreasonable to expect that a contrast between /ʔV/ and /V/ may well be found in word-initial position.

There is allophonic variation for two of the consonant phonemes. The phoneme /l/ varies between [l] and [d] word-initially, and between [l] and [ɾ] intervocalically, as shown in the following forms.

/lalɛ/   [la.ɾɛ ~ da.ɾɛ ~ da.lɛ]   'sun'
/alo/   [a.ro ~ a.lo]   'head'

When intervocalic /l/ is realised as [l], word-initial /l/ is realised as [ɾ], that is, /laɾɛ/ cannot be realised as *[la.lɛ].

---

[4]/βeraʔa/ (recorded by Brown as /meraʔa/) is the general word for 'skin' in Kaki Ae; /ruɾu/ is the general word for 'skin' in Kaipi.

[5]Brown gives /fae foʔolo/ as an alternate form for 'sand'.

The phoneme /β/ varies between [b] and [m] word-initially, and between [β] and [v] intervocalically, as shown in the following forms.

/βɛraʔa/   [bɛ.ra.ʔa ~ mɛ.ra.ʔa]   'skin'
/ɛβɛra/   [ɛ.βɛ.ra ~ ɛ.vɛ.ra]   'dog'

The contrast between nasal and oral vowels is clear after oral consonants as shown in the following examples.

/ao/	'you'	vs. /ã̃ʔo/	'a swamp'
/aʔo/	'ladle'	vs. /ã̃ʔõ/	'large bilum'
/ɛama/	'bird sp.'	vs. /ɛ̃a/	'house'
/ɛhɛ/	'that'	vs. /ɛ̃hɛ̃/	'yes'
/ɛʔɛlo/	'white'	vs. /ɛ̃ʔɛ̃/	'coconut'
/iʔi/	'piece of food'	vs. /ĩʔĩha/	'to burn'
/oʔɛka/	'to make'	vs. /õʔɛ̃ha/	'to try to do'
/oʔiamuha/	'to put'	vs. /oʔĩ/	'to say'
/uʔuli/	'centipede'	vs. /ũʔũka/	'two'

After nasal consonants there does not seem to be a distinction; all vowels seem to be nasalised. Most sequences of vowels are all oral. The only sequence of nasal vowels found thus far is in /ã̃ɛ̃ʔa/ 'that'. The following words with sequences of nasal vowel followed by oral vowel have been found.

/ã̃oʔa/	'swamp'
/ɛ̃a/	'house'
/ɛ̃aʔa/	'that's all'
/ɛ̃aʔĩʔa/	'same'
/nɛʔũa/	'1st plural object agreement suffix'
/ũa/	'to put into'
/ũani ~ ũaʔi/	'someone'

The sequence /ã̃o/ is a diphthong; all other sequences are across syllable boundaries. No monomorphemic forms with sequences of oral followed by nasal vowels have been found, although such sequences have been found across morpheme boundaries in words like /ɛrɛ-amu-hɛ-ã̃ʔɛ/ 'did you see it?'. The sequence /ɛã̃/ is also across syllable boundaries.

No long vowels have been found. Eight diphthongs have been found: /ɛi ɛu aɛ ai au ao oi ou/. The diphthong /ɛi/ is realised as phonetic [ei]. Examples are given in Table 2 for all eight diphthongs in five environments whenever possible: word-initial, between consonants, word-final, before a vowel, and after a vowel.

Table 2: Diphthongs in Kaki Ae

ɛi	/ɛisi/	'banana'	/mɛima/	'hornbill'	/βɛiβɛi/	'long'	
ɛu			/lɛuha/	'to go around'			
aɛ	/aɛna/	'betelnut'	/naɛlo/	'who?'	/ɸaɛ/	'sand'	
	/ɛnaɛa/	'to buy'					
ai	/aipalo/	'pig'	/ɸaiʔaɸaiʔa/	'wet'	/apaɛ/	'young'	
	/aiɛʔi/	'fire'					
au	/auʔiha/	'to say'	/ɸaula/	'garden'	/mɛhau/	'heavy'	
	/aualɛ/	'spider'					
ao	/aolaka/	'make (canoe)'	/kaola/	'unripe'	/nao/	'I'	

oi			/koiʔala/	'another'	/βoi/	'spear'
ou	/oulaha/	'to remove'	/lɛouha/	'to swim'		

In addition to these diphthongs, the following eleven sequences of vowels occurring across syllable boundaries have been found: /ɛo ɛa oɛ oa io iɛ ia ui uɛ uo ua/. The only sequence not found is /iu/. Examples are given in Table 3 for all eleven sequences in as many of the same environments as for diphthongs as possible for each sequence.

Table 3: Vowel Sequences across Syllable Boundaries

ɛo	/lɛou/	'to swim'				
ɛa	/ɛama/	'bird sp.'	/βeaʔɛ/	'cockatoo'	/ɸɛlɛa/	'to jump'
			/ɛnaɛa/	'to buy'		
oɛ	/oɛla/	'new'	/moɛa/	'old'	/noɛ/	'nose'
oa			/koalɛ/	'a trip'	/ɸoa/	'vine type'
io			/siolo/	'dry season'	/aio/	'clay pot'
iɛ	/iɛ/	'green parrot'	/aiɛʔi/	'fire'		
ia	/siahu/	'power'	/sia/	'okari tree'	/ɸaia/	'arrow type'
ui	/ɸuia/	'moon'				
uɛ			/haʔuɛhumo/	'to cough'	/muɛ/	'to return'
uo	/uo/	'mountain'				
ua	/ūaha/	'he put it into'	/ɸuani/	'seed'	/lalua/	'cassowary'
			/aualɛ/	'spider'		

A comparison of the sequences in Table 2 with those in Table 3 shows that syllabification of vowel sequences is predictable. Sequences are always realised as one syllable (that is, they are diphthongs) if the second vowel is higher than the first. They are two syllables if the first vowel is higher than the second or if the two vowels are equal in height.

Sequences of three vowels generally also follow these principles of syllabification. A word like /ɸaia/ [ɸai.a] 'arrow type' syllabifies as two syllables. Since the second vowel is higher than the first or third vowel it syllabifies with the first vowel and forms a separate syllable from the third vowel. A word like /moɛa/ [mo.ɛ.a] 'old', on the other hand, syllabifies as three syllables since the second vowel is equal in height to the first vowel and higher than the third. Thus it forms a separate syllable from either the first or third vowel.

In this context the questionable nature of the phonemic status of /w/ can be discussed. There are apparent contrasts between /w/ and /u/ as shown in the following example.

> /warɛhava/   'first'
> /ūaha/   'put into something'

However, such contrasts are rare and only in initial position. In fact, only two words have been found with initial /w/, one of which alternates with /u/ (/wãʔĩ/ [wã.ʔĩ ~ u.ã.ʔĩ] 'to go down'). The one phonetic occurrence of word-medial [w] is in /ɸuia/ [ɸu.i.a ~ ɸwi.a] 'moon'.

There do not seem to be widespread morphophonemics in evidence. There are modifications in the pronouns, especially in the diphthongs, that are outlined in section 6.3. There is also general reduction of sequences of identical vowels across morpheme boundaries. For example,

[ɛɾɛamuʔɛna] 'I see it' is derived from /ɛlɛa-amu-ʔɛna/ (cf. [ɛɾɛaʔɛʔɛna] < /ɛlɛa-ʔɛ-ʔɛna/ 'I see you', [aɾiamuʔɛna] < /ali-amu-ʔɛna/ 'I throw it', and [aɾiʔɛʔɛna] < /ali-ʔɛ-ʔɛna/ 'I throw you'). When the second vowel in the sequence is nasal, the remaining vowel is also nasal as in [aβahã̃ʔɛ] < /aβa-ha-ã̃ʔɛ/ 'did he go up?'. Finally, /ʔ/ is deleted after a consonant across a morpheme boundary as in [amamɛnu] < /ama-m-ʔɛnu/ 'I hit it'. This is easily explained in terms of the general constraint against consonant clusters.