

PHONOLOGY OF THE WESTERN DIALECT OF WAKAYA

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1. Vowel Phonemes

A notable feature of Wakaya phonology is the extensive use of the short central vowel [ ]. I have attempted to devise a workable set of rules by which this can be classified as an allophone of another vowel or other vowels, according to its environment, but I abandoned this when it appeared that the rules were becoming too complex and unsystematic. I am therefore using the following set of vowel phonemes:

	FRONT	BACK
HIGH	i, ii	u, uu
CENTRAL	e	
LOW	a	

There is a temptation, and some motivation for it (see GB:40) to regard /e/ as a short low vowel phoneme, and /a/ as the corresponding long vowel phoneme. The phoneme /a/ does usually behave in some ways, notably in its effect on stress patterns, as a long vocoid although it is normally shorter than /ii/ or /uu/. However, /e/ is phonetically more akin to the high vowels than to /a/ and is often realized as [i] or [u].

There is considerable overlap in the ranges of realisations of the high and central vowels in certain environments. For example, following initial /m/, /u/ is often realised as [ ]; thus /mulerru/ 'sick' is [m l ], [m l ] or [m l ]; /mutupuk/ 'to jump' is often [m d b g], /munerru/ 'ripe' is [m n ], [m n ] or [m n ]. Examples of the opposite process / / being realised as [u] - also occur in two of the words just quoted; this may be due to the influence of the preceding and following /u/ or the /e/. It is clear that in many such cases there will be difficulty in deciding which phoneme a vowel belongs to' in /mulerru/ and /munerru/, for example, the frequency of [ ] in the first syllable is greater than that of [ ], and the reverse applies for the second syllable. Also, if we regard the vowel in the second syllable as belonging to /e/ we can explain the realisation [ ] as being due to the influence of neighbouring vowels; if we assigned it to the phoneme /u/ there is no obvious explanation of the realisation [ ]. Obviously, where there are few examples of a word in the corpus, such decisions on the phoneme composition of a word may be quite unreliable.

A possible alternative is to regard the vowel of the second syllable of the above words as /u/ and to have a rule that unstressed /u/ before a consonant may be realised as [ ]. However, this explanation raises some difficulties, e.g. /pukarrup/ 'old man's' is [b ga b].

We can support our decisions on such doubtful vowels by studying the effect of the environment on the distribution of vowels. However, such study shows that there is not a completely regular pattern. For example, there is a considerable difference in the pattern of vowel- initial

syllables beginning with /p/ and with /m/, and this is not paralleled by corresponding differences for other stop- nasal pairs such as /k/ and / /.

Table 1, based on the contents of the lexicon, lists initial CVC combinations for words with main stress on the final syllable.

TABLE 1

Initial C V C

C1 V C2

Oral stops Laterals Nasals Rhotics/Semi-vowels

p a 0, th, n, rn, ny, rr, r, y  
 e th, j, rl, n r,  
 (3)  
 i t, j, l, ly, n, ny, rr,  
 (4) (2)  
 ii l, ly, w, y  
 u p, th, t, rt, j, l, m, n, rn, ng, r  
 (2) (3) (8) (2) (2) (2)  
 uu t, l, m, n, ng  
 (3) (2)  
 t a p, l, ng, r, w  
 (2)  
 e p, r  
 i n  
 u k, n, r, w  
 (4) (2)  
 uu ng  
  
 rt a l ng  
 e p, rt, rn, rr  
 i t, l m  
 ii rt, m, ng  
 u k, ny,ng, r, y  
 (2)  
  
 j a p, t  
 (2)  
  
 e l ny, rr, r  
 ii (2) (2) (2) l (2) (8) (3)  
 ii ly, n  
 u rt, k, l, n, w  
  
 [Breen: 5]  
 k a th, k, l, m, n, ny,ng  
 (3) (2)  
 e rt, k, l, m, n, ng, r  
 (3) (3) (3) (3)  
 i j, l, ly, ny,ng, rr  
 (3) (5) (3)  
 ii m, n, w  
 u p, th, t, rt, j, k, l, m, nh, n, ny,ng, rr, r, w, y  
 (2) (7) (4) (9) (2) (2) (3) (3) (4) (4)  
 u 0 t, l r  
 (2)  
  
 m a 0 rt, l, nh, n, rn, ng, rr, r, w  
 (2) (3) (2) (2)  
 e k, l, nh, n, rn, ny,ng, rr, r

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(3) (2) (3) (2)
i th, t, j, m, n, ny,ng, rr, r
(2)
ii p, j, k, l, nh, n, ng, rr
(2) (2) (2)
u t, k, l, n, rn, ny, rr, r, w
(3) (6) (3)
uu g n w
(2)

nh a n
(3)
e ng
(2)
uu k

rn a l, rn, y
e n
u ng
uu rr

ny i l, n,
ii l, ny,
u n

[Breen:      6]
ng a th, rt, j, l, m, nh, n, rr, r
(5) (2) (2)
e th, l, rl, n, rn
(2) (3) (2) (2)
i t, n, ny, y
(4) (2)
ii p,
u p, th, j, l, m, n, rr, r, w
(2) (4) (6) (2) (2)
uu n ng, rr

rl a 0 p, l, n, ng
e p, k, l, ng, rr
i m, n, r
(2) (2)
u k, w

y a l, m, n, ng, rr, r w
e rt, r
u p, t,rt, k, ng, rr, w
(5) (3) (4)
uu n

w a p, t, k, l, m, n, r, w
e th, j, lh, l, ly, n, ny, r
(3) (4) (3)
i j, l, n, rr,
(6) (2) (7)
ii 0 t, l, ly, ng,
(2) (2)

0 i p, t, rt, j, k, lh, l, ly,m, n, rn, ny,ng, rr, r, w, y
(5) (3) (2) (12) (2) (5) (10) (5) (3) (7)
ii n
u p, th, t, rt, k, l, m, nh, n, rn, ny,ng, rr, r
(2) (2) (2) (3) (9) (3) (11) (2) (3) (5)

[Breen:      7]

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Table 2 gives initial CVC combinations for words without main stress on the first syllable.

TABLE 2

Initial C V C (C) (V)

C1 V C2

p e t, rt, l, n, rn, r

(2) (2)

i n

u k, l

(2)

th i th

u rt

rt i r

(2)

j i k, l n, rr, r

(2) (2)

k e p, rt, l, n, rn, ng, r

(2) (2)

i j, l, ly, rr

u b l

(5)

m a l ?

e rt, l, n,

(2)

u t, ng

nh a n ?

e ng

i n

ng a rr ?

e k

i n

u p t, l, r

rl e p

i l

[Breen: 8]

y u g w

w e th, r

i nh, rr

0 i k, lh, l n, ny, ng, rr

(2) (3 or 2) (3)

u p, t, rt, k, l, n, rr, r

(2) (2) (2) (2) (4)

These tables illustrate the apparent impossibility of assigning [ ] regularly to any other vowel phoneme or phonemes. However, there are no minimal pairs contrasting /e/ with /i/ or /u/; the nearest seem to be such pairs as:

/pejerniy/ 'swallowed' /pijingka/ 'limestone'  
/penkerniy/ 'went' /pinkirrerniy/ 'defecated'  
/kelij/ 'was struck' /kiliy/ 'now' /kekerniy/ 'cried' /kukumu/ 'fish'

Although there are clearly biases for or against certain phonemes in certain positions, there appears to be no prospect of eliminating any vowel phoneme.

## 2. Stress

The stress on most words can be described by a fairly simple rule. The main stress in a word is on the first syllable unless the vowel of the second syllable is long or low and that of the third syllable is not long or low, in which case the second syllable is stressed (or both the first and the second may be stressed to a lesser degree).

Thus we have:

/kilyal/ [g lyal] 'meat'  
/ngarru/ [na: ] 'man'  
/wenngirr/ [w nn ] 'woman'  
/kerewa/ [g r wa] 'child'  
/pulu/ [b l ] 'that'  
/nginyinngi/ [n ny nni] 'tears' (NOUN)  
/nguparretiy/ [n ba di] 'bathes'  
/keliil/ [g li:l] 'west'  
/thukuku/ [d g g ] 'dead man'  
/wiiwanga/ [wi:wana] 'stranger'  
/watakwi/ [wadagwi] 'hook'

and so on.

However, there are an undesirably high number of exceptions to this rule. Many of these could be eliminated by postulating two low vowel phonemes \*/a/ and \*/aa/, the latter attracting the stress away from the final syllable as do /ii/ and /uu/, and the former not. A number of examples would remain unaccounted for. Alternatively, we may regard stress as phonemic and mark it in those cases where it does not follow the rule stated above. This eliminates almost all of the exceptions and seems to accord better with the phonetic facts. It is therefore adopted at this stage.

Thus we have:

/ku'palupa/ 'crested pigeon'  
/ku'japi/ '[?]splitjack (Capparis sp.)'  
/mi'miimu/ 'mother's father'  
/utata'kem/ 'to smash'  
/ngi'naparl/ 'maybe'  
/mutu'reki/ 'crooked'  
/ili'npi/ 'armpit'

/pulu'werru/ 'man' is [bulu'w u], but this may be explained by a rule that /uwe/ functions, as far as stress is concerned, like /uu/; in fact /uwe/ is often realised as [u:]. Note the pairs: /melamelayi/ 'to refuse to go' /me'langwi/ 'cloud' and /kilyal/ 'meat, animal' /ki'lyalt/ [gi'ly ld] 'female animal' and the trio: /mutupuk/ 'to jump' /mutu'reki/ 'crooked' /mutuu/ 'kangaroo rat'.

The only words which do not seem to be adequately represented by the system of six vowel phonemes and phonemic stress are: [da:bug ] 'black-headed python' [waba:ba ] 'clothes'

In both cases the unusually long (for the particular environment) vowel [a:] is derived from, or may even be a realisation of the sequence \*/awa/ (compare Eastern Wakaya /thawapuku/ and [wa'baa''ba ] and Bularnu /wapawapa/). It may be best to use a doubled vowel symbol for these two words: /thaapuki/ and /wapaaparr/. [sic: JS: in the present orthography, since doubled vowels are used anyway to represent long vowels, these perhaps should be written with three vowels.] Other aspects of stress, e.g. secondary stress and intonation will not be discussed at present.

### 3. Descriptions of the Vowel Phonemes

/i/ is approximately [ ] except in environments which favour a more raised and fronted articulation, in which case it is close to [i]. Such environments include a following /y/ or 0 (i.e. the /i/ is word- final). In certain environments /i/ tends to be centralised and a range of sounds overlapping with the range of /e/ may be heard. For example, /kinaj/ 'down' may be realised as [g na 'dy] or [g na'dy] (or with a vocoid intermediate between these two). /kirretiy/ 'stand (pres)' is [g ' di] or [g ' di]. Final /i/ or /i/ before final /y/ may be occasionally semi- long, or, rarely, long. Initial /i/ is usually [ ], rarely [y ] or [y ]. There may be some length. Examples of /i/ in various examples and positions in a word are given below. /ilinji/ 'vegetable food' [ 'l nydyi] /irrkerniy/ 'climbed' [ ' g ni] /irtungu/ 'Soudan' (place- name) [y ' d ] [y ' d ] /iwanthi/ 'type of coolamon' [y 'wanti] /irriwu/ 'clever man' [.' w ] /mitipa/ 'Mittiebah' (place- name) [m d ba] /un ri/ 'wind' [ n ri] /wirringarru/ /wirringinji/ 'crossways' [w ' 'nydyi] /ii/ is higher and more fronted than /i/. In a word of one or two syllables it is in the region of [i:]. In a longer word it may be semi- long or even short, in which case it may be distinguishable from /i/ only by its quality: [i] as compared to [ ]. There is one example (to be checked) of a word- initial /ii/: /iintimi/ 'flour' [i:nd mi]. Other examples of /i:/ include: /kiim/ 'let go' (imperative) [gi:m] /urii/ 'sinew' [ ri:] /kiiwerr/ 'child' [gi:w ] [gi.w ] /tiimerlarn/ 'I will chop' [di.m lan] /u/ is typically [ ]. When /w/ follows it is raised and retracted to about [u]. A form with spread lips, [ ], is heard rarely. Word initially it is normally [ ] but sometimes, especially in certain words, [w ] or [w ]. In certain environments /u/ may be centralised and become indistinguishable with / /; some examples were given earlier (GB:2) of cases where this happened following an initial /m/.

Examples of words containing /u/ include: /mulungu/ 'devil' [m 'l ], [m 'l ] (probably also [m 'l ]) /kukumu/ 'fish' [g 'g m ] /unuwunumerniy/ 'lost' (past tense) [ 'nuw ''n m ''ni] /urikal/ 'bloodwood' [ ga.'l] (Eucalyptus terminalis) /uriirr/ 'tree, stick' [w rii' ], [w rii' ], [w rii' ] /pulu/ 'that' [b l ], or, when cliticized and unstressed, [b l ] /uu/ is higher and more retracted than /u/. in a word of one or two syllables it is close to [u:]. In a longer word it may be [u.] or even [u]. Examples: /puungk/ 'to paint' [bu:' g ], [bo: k] ([o:] is\*\*) /puungkerniyaniip/ 'we painted [bu.' g niya'nib] ourselves' /kuu/ 'boy' [gu:] /uu/ may occur word- initially; /uunthi/ 'vomit' is a possible example. /a/ is typically stressed, and half- long and retracted with respect to cardinal [a], thus [\_a\_]. In a word of one or two syllables a stressed /a/ in the first syllable is long, [\_a:~]. In longer words /a/ may be short, especially if it is unstressed. Stressed /a/ after /y/ (which is uncommon) may be fronted to , and often /w/ may be (but normally is not) retracted to [ ]. Final /a/ may be lengthened or distorted to [\_a\_u] in certain circumstances, e.g. when the word is shouted or strongly stressed, especially if the /a/ is an emphatic suffix. The front vowel [ ] occurs in a few instances in an environment where [\_a\_] would be expected: /werangu/ 'husband' is [w r ' ], /kilyalt/ 'female animal' is [g 'ly ld] and /pelangu/ 'subsection name' is [b l ' ].

Other examples of /a/ include: /ngarru/ 'man' [a:] /wera/ 'dog' [w ra.] /thurtangu/ 'long' [d da' u] /kilyal/ 'meat, animal' [g lya.'l] /kujapi/ 'splitjack' [g 'dyabi] /e/ is a short central vocoid, typically [ ] but in certain environments close to [ ] or [ ]. In certain cases, with word- initial /b/ or /g/ preceding and a lateral or /r/ following, unstressed /e/ tends to disappear. /perlaji/ 'bloodwood' [b la'dyi], [b la'dyi], [b la'dyi] /kerangu/ 'catfish' [g ra' ], [gra' ] and /pelangu/ (see GB:16) However, contrast: /kelaki/ 'pigweed' [g la'gi] /keliil/ 'west' [g l:'l] where this does not seem to happen.

Other examples of /e/ are: /perangka/ 'white' [b na' ga] /perij/ 'before' [b 'r dy ] (rarely, in the derived form [b ri'dy- ] /penpamerniy/ 'hid' [b nba.'m ni] /ngerlimil/ 'south' [ 'l m l] The [ ] which occurs word- finally on words which end in a consonant phoneme is, obviously, regarded as non- phonemic. This seems to occur more frequently in some cases than in others; it is not surprising that a word ending in a heterorganic consonant cluster will always have some vocalic release, as [b 'ng ] for /penk/. while in some cases, e.g. final /m/, it is not often heard; for example [dy 'ny wa'm, gi:m, b 'm n m, d ' g m] for the imperative forms of the verbs /jinyirrewam/ 'to skin', /kiim/ 'to let go', /pumenem/ 'to wait a minute' and /thurrukum/ 'to blow (a fire)'. Other examples of final [ ] or [ ] and of final contoid] are: /peth/ 'dig' (imperative) [b 't ] /thuk/ 'throw' (imperative) [t 'g ] /murruw/ 'murderer' [m ' w ] /kiliy/ 'now' [g 'li], [g 'liy], [g 'liy ], /kiriirr/ 'woman' [g ri:' ], [g ri:' ], /thalt/ 'saddle' [ta:'ld ] /kengelt/ 'subsection name' [g ' ld] /kinyewiny/ 'straighten' (imperative)[g 'ny w 'ny], [g 'ny w 'ny ] /imp/ 'you (sing.)' [i:mb], [i'mb ] and others.

The above descriptions of the various realisations of Western Wakaya vowel phonemes are not complete nor entirely self- consistent, but probably include the major points.

4. Consonant Phonemes

The contoid phones of Wakaya can be grouped into the twenty phonemes shown in the table.

PERIPHERAL APICAL LAMINAL

Bilabial Velar Alveolar Post- Dental Alveolar Alveolar

Stop p k t rt th j Nasal m ng n rn nh ny

Lateral l rl lh ly

Flap rr- > ?

Glide w ? <- r ? <- y The following minimal pairs and sub- minimal pairs illustrate the contrasts between consonant phonemes.

\_Stops\_

/miipi, miikerl, mitipa, mithithi, miiji,/  
`hole', 'in vain', 'Mittiebah', 'white woman', 'anus',  
/mijikuriima/  
`water hen'  
/mutupukerniy, mukuthu/  
`jumped', 'soft'  
/inperniy, interniy/  
`fell', 'tied'  
/putepu, pujepajirniy, purtuki/  
`baby', 'stumbled', 'thigh'  
/petherniy, pejerniy, petiirr, pertiipi/  
`dug', 'swallowed', 'place, country', 'big'  
/kertiji, keketiy/  
`coolamon', 'cries'(pres)  
/purnngip, purnngik, purnngirt/

`stone': genitive, locative, allative

/irrparr, irrkaru, irrjart/

`camp', 'climber', 'spear'

\_Nasals\_

/pumenem, punumenthariy, pungumantiy/

`wait a minute', 'to grind'(imperative), 'claps'(pres)

/marniyarn, marniyanh/ /manu, marnu/

`I hit', 'hit me' 'fat', 'killer'

/in, ing, ipiny/

`you'(Acc), 'look'(imper), 'you'(du,Acc)

/inpa, impa/

`fell', 'you'(Voc, emph)

/kunhi, kuuni, kunerniy/ /nganii, nganhi/

`mother', 'faeces', 'kissed' 'we'(pl,ex), 'hair'

\_Laterals\_

/ki'lakila, kilyalt/ /kilipi, kilyipilem/

`galah', 'female animal' 'deep', 'tickle'(imper)

/ilhangkwi, ilarnin/

`cold', 'Relative marker- I- you(Acc)'

/ilhepilhepi, ileki, ipulyapelyi/

`lung', 'river', 'lightning'

/ngalii, ingarliy/

`we'(du,ex) 'would have seen'

\_Flap and glides\_

/mayanh, mawu/ /kirrirr, kirriiriy/

`might hit me', 'witchetty grub' 'woman', 'for a woman'

/kilirrarliy, kiliyarn/

`would have run', 'now- I'

\_Peripherals\_

/pulumanha, mulumerniy, unuwunumerniy, kulungkarn, nguluka/

`many', 'did well', 'lost', 'adze- I', 'in front'

/kengelt, kekeleketiy/

`subdivision name'(fem), 'is worried'

/wipi, miipi, ngiiperniy/

`whip', 'hole', 'made'

/kuluwi, kulunginjirri/

`axe', 'lagoon'

\_Apicals\_

/piteku, pileku, pinilt/

`beetle', 'mother's brother', 'ear'

/mulungu, murruw, mutupukerniy, \*\*/

`devil', 'murderer', 'jumped', /ngathekerl, ngathekert/ /ngalii, nganii/

`with me', 'to me' 'we'(du,ex), 'we'(pl,ex)

/martarn, marlarn, marnarn, marrarnu/

`together- I', 'I will hit', 'killer- I' 'speaker'

/marliy, marniy/

`would have hit', 'hit'

\_Laminals\_

/impilhi, impinhilt, piilyi, pijingka, pilyirinju/

`sweat', 'eyebrow', 'vagina', 'limestone', 'subsection name'

/kijiiwi, kinyewiny/

`two', 'straighten'(imper)

/penkarrekany, parrkwikanh, parrkwikath/

`going away', 'nulla- nulla- inst- me', nulla- nulla- inst- I'

## 5. Descriptions of the consonants

### \_Stops\_

/p/ bilabial, lenis, weakly voiced or occasionally voiceless (in word- final position, e.g. [iimp] 'you')

/k/ velar, lenis, weakly voiced. Labialised after /u/ even if another consonant intervenes, e.g. [yugwa] or [yug a] 'water'

/t/ apico- alveolar stop, lenis, weakly voiced.

/rt/ apico- post- alveolar stop, lenis, weakly voiced.

/th/ lamino- interdental, articulated with the tongue tip between the teeth and the body of the tongue raised somewhat towards the palate, so that a palatal off- glide is frequently heard. This makes it difficult to distinguish /th/ from /j/ in many cases, at least in the speech of the only informant in this dialect, who does not usually wear his false teeth. Sometimes voiceless and a little stronger in articulation, especially word- initially, e.g. [thug ] /thuk/ 'throw' (imperative).

/j/ lamino- alveolar stop, articulated with the tongue tip behind the lower teeth and the body of the tongue raised towards the palate and making contact with the alveolum. Lenis and weakly voiced, with often a palatal off- glide.

### \_Nasals\_

Points of articulation are as for the corresponding stops. All are voiced nasal continuants. /ng/ is labialised after /u/. /nh/ may have a palatal off- glide, as may /ny/.

### \_Laterals\_

Points of articulation as for the corresponding stops. All voiced bilateral continuants. /lh/ occurs in only a few words.

### \_Flap\_

/rr/ alternates between an alveolar flap [ ] and glide [ ]; the latter is indistinguishable from /r/.

### \_Glides\_

/w/ is a voiced labio- velar semivowel.

/y/ is a voiced palatal semivowel.

/r/ is a voiced postalveolar semivowel.

Word- finally /w/ and /y/ occur only following the homorganic vowel and are normally not pronounced. However, they may be, e.g. /kiliy/ 'now' [g liy ]. However, a final [y] or [y ] (or [w] or [w ]) is not necessarily an indication that the corresponding consonant phoneme occurs in that position; in fact, there are examples of such final off- glides when the glide phoneme does not occur, e.g. /miipi/ 'hole' [mi:'bi ], /me'ntiirru/ 'brother- in- law' [m 'ndi:ruw]. See GB:35.

## 6. Phonotactics

Detailed study of phoneme distribution has not yet been done. However, some remarks can be made. The following phonemes may occur word- initially:

All consonants except the alveolars /t/, /n/, /l/, /rr/, the laterals /lh/ and /ly/ and the glide /r/, plus the vowels /i/ and /u/. Possibly /ii/ and /uu/ may also occur in this position, or, alternatively, there may be no opposition between short and long vowels in this position. Regarding the alveolar consonants, it may be more correct to say that the distinction between the two apical series is lost in initial position than to say that /t/, /n/ and /l/ do not occur in this position; the deficiencies of the informant make it difficult to decide on this point. [NOTE: in the retyping, since there is no contrast between initial alveolars and postalveolars, I have used the alveolar form. JHS] Consonant clusters do not occur word- initially, although in certain cases a phonetic cluster of peripheral stop and lateral or apical glide can occur in this position, see GB:16 and 17 above. All consonants may occur intervocalically. All consonants except /lh/ and /ly/, and all vowels except /e/ may occur word- finally. In addition the following consonant clusters may occur word- finally:

/mp/ as in /imp/ 'you'(sing.)  
/np/ as in /inp/ 'fall'(imper.)  
/ngk/ as in /puungk/ 'paint'(imper.)  
/nk/ as in /penk/ 'go'(imper.)  
/rrk/ as in /irrk/ 'climb'(imper.)  
/nt/ as in /int/ 'tie'(imper.)  
/lt/ as in /kuult/ 'river gum tree'  
/rnt/ as in /maarnt/ 'ankle'  
/rlt/ as in /merlt/ 'no'  
/nth/ as in /manth/ 'was hitting'  
/nj/ as in /ngurninj/ 'I'

Examples of the consonants in initial, intervocalic and final position are given in the following table.

# INITIAL INTERVOCALIC FINAL

p /piiwi/ /jipelyu/ /jap/ 'saliva' 'duck' 'don't!' k /kilipi/ /jika/ /lek/ 'deep' 'yam'  
'bring' (imper.)

t /utakemerniy/ /yungkumet/ 'broke' 'blue- tongue lizard'

rt /[r]tunymanti/ /ngartakunya/ /kertekert/ 'is wrestling' 'swan' 'dry'

th /theperr/ /uthul/ /ilinhath/ 'grass' 'liar' 'brother- in- law'

j /jilyi/ /ngitijirru/ /kuurij/ 'dust' 'budgerigar' 'this way'

m /mart/ /jimurru/ /kiim/ 'together' 'friend' 'let go' (imper.)

ng /ngampi/ /ingerniy/ /ipeng/ 'chin' 'saw' 'for you two'

n /ngunerniy/ /puun/ 'lay down' 'too, also'

rn /[r]nalt/ /perangka/ /ngathekerlarn/ 'humpy' 'white' 'from me'

nh /nhuuki/ /menhelt/ /nganh/ 'waterlily' 'fire' 'me'

ny /nyiinyu/ /minyirru/ /kany/ 'baby boy' 'ant' 'away'

l /pulu/ /kal/ 'that' 'not'

rl /[r]lapi/ /ingarliy/ /yuwerrerl/ 'hand' 'would have seen' 'will sit'

lh /impilhi/ 'sweat'

ly /kilyal/ 'meat'

rr /pukarru/ /irr/ 'old man' 'you' (pl.)

w /wilepa/ /turuwiitiy/ /murruw/ 'bark' \*\*'is hopping' 'murderer'

r /urungku/ /ker/ 'crab' 'copulate'

y /yungunt/ /tuyurrumarnu/ /kiliy/ 'smoke' 'restless' 'now' Examples of initial and final  
vowels include:

/ilingenthu/ 'husband'

/iintimi/ 'flour' (?)

/upuki/ 'fire'

/uunthi/ 'vomit' (?)

/wera/ 'dog'

/nganii/ 'we' (pl,ex)

/kuu/ 'boy'

Biconsonantal clusters include homorganic nasal stop and apical lateral stop, apical nasal plus peripheral stop or nasal (/rnp/ missing), alveolar continuant plus peripheral stop and several others, some, such as /nyp/ and /nym/, /lm/ and /rrng/ apparently representing what might be complete sets of laminal (or lamino- alveolar) nasal plus peripheral stop or nasal and alveolar continuant plus peripheral nasal respectively, and the remainder apparently isolated individuals: /tp/, /lw/, /rk/ and /ngw/.

(There seems to be some fluctuation between /n/ and /rr/ before /ng/, and it may be that there is no opposition between the two in this environment. (e.g. /yurrngu/, /yunngu/ 'sky'.) ([LATER NOTE:] no, only noted in Eastern dialect.) [NOTE: because there are no contrasts between:

/nth/ and /nhth/, /lth/ and /lhth/

/rnt/ and /rnrt/, /rlt/ and /rlrt/

/nj/ and /nyj/, /lj/ and /lyj/

I have written them as /nth/, /lth/, /rnt/, /rlt/ and /nj/ respectively in the retyping. JHS]

#### Homorganic nasal + stop

mp /impinhilt/ /kenempa/ /umpa/ 'eyebrow' 'green' 'snappy gum (tree)'

ngk /perangka/ /laangki/ /ingkalku/ 'white' 'shoulder' 'fork- tailed kite'

nt /ngunterniy/ /thintingi/ /munguunt/ 'gave' 'back of head' 'caterpillar'

rnt /ternteri/ /ngenngernt/ 'ridge' 'tucker'

nth /kunthinngi/ /kenanthi/ /uunthi/ 'yellow' 'emu' 'vomit'

nj /injilt/ /melinji/ /ngurninj/ 'word' 'jealous' 'I'

#### Heterorganic nasal + stop

np /jinpetiy/ /kenajanpernant/ /unparr/ 'sings' 'come back down' 'house'

nk /inkapu/ /junkujunku/ /peli'nkerniy/ 'kangaroo' 'grey- haired' 'opened'

rnk /urnkepurru/ 'corella'

nyp /walanypurru/ 'pelican'

#### Homorganic lateral + stop

lt /nyiilt/ /kunyengult/ /ngulteth/ 'needlebush' 'breast' 'back'

rlt /merlt/ 'no'

Heterorganic lateral + stop

lp /jelpengi/ /ngelperl/ /ulpumarniy/ 'tail' 'will enter' 'missed'

lk /kepalkopal/ /miilki/ /ulkarr/ 'quick' 'side' 'red ochre'

Stop + stop

tp /wiitpu/ /itpuwi/ 'egg' 'mud'

Flap + stop

rrp /irrparr/ /merrpunga/ 'camp' 'tomorrow'

rrk /wilyerrki/ /kurrkumerniy/ 'leaves' 'held'

Glide + stop

rk /parkuna/ 'frog sp.'

Lateral + nasal

lm /ngethelmerlt/ 'calf of leg'

Lateral + glide

lw /thalwata/ 'sea, salt water' (probably a borrowing from English)

Flap + nasal

rrng /limpirrangi/ 'mother- in- law'

Nasal + glide

ngw /me'langwi/ 'cloud' There are a few examples of clusters of three consonants; in all cases the final consonant of the cluster is /w/, the second is a velar, and the vowel /i/ follows and /a/ precedes. This combination /wi/ corresponds to /u/ in the Eastern dialect.

ngkw /ilhangkwi/ 'cold weather'

nngw /nhanngwi/ 'ashes'

rnngw /marngwi/ 'dream'

rrkw /parrkwi/ 'nulla- nulla'

rkw /ngarkwi/ 'hole'

Syllable types in Wakaya include the following:

V, VC, VCC (V represents any vowel, short or long)

CV, CVC, CVCC

CCV, CCVC

V occurs only word- initially except (tentatively) in the stems /thaapuku/ (CV.V.CV.CV) and /wapaaparr/ (CV.CV.V.CVC) (see GB:11). VC and VCC occur only word- initially. CCV occurs only in the stems with biconsonantal clusters, listed on GB:30, and so includes only /kwi/ and /ngwi/. CCVC occurs only when one of these words combines with a suffix of the form C, e.g. /kwik/ in /ngarkwik/ 'in the hole'. CVCC occurs only word- finally.

Monosyllabic words include /in/ 'you'(Acc), /imp/ 'you'(Nom), /pa/ 'and', /kil/ 'not', /piint/ 'a long way away'. [GB: 42] Restrictions on syllable types, and their frequencies of occurrence, in various parts of words have not been studied. Examples of some of the possible word types are listed.

CV.CV /nhuuki/ V.CV /inu/ 'waterlily' 'name'

CV.CVC /mekert/ V.CVC /ipung/ 'for a while' 'for you two'

CVC.CV /yunngi/ VC.CV /umpa/ 'sky' 'snappy gum'

CVC.CVC /yunngik/ VC.CVC /irrjart/ 'in the sky' 'spear'

CV.CVCC /kilimp/ V.CVCC /ilimp/ 'not- you' 'relative marker- you(Nom)'

CVC.CVCC /ngenngernt/ VC.CVCC /irrwelt/ 'tucker' 'fingernail'

CV.CV.CV /marraju/ V.CV.CV /ileki/ 'kangaroo' 'creek'

CV.CVC.CV /pulernmi/ V.CVC.CV /urungku/ 'copi'\*\*\* 'crab'

CVC.CV.CV /parkuna/ VC.CV.CV /inkapu/ 'frog' 'kangaroo'

CVC.CVC.CV /kunthinngi/ VC.CVC.CV /ingkalku/ 'yellow ochre' 'hawk'

CV.CV.CVCC /mertakult/ V.CV.CVCC /ingerlimp/ 'crooked' 'you will see'

CVC.CV.CVCC /manthingimp/ VC.CV.CVCC /impinhilt/ 'you were hitting' 'eyebrow'

etc.

Three syllable words with final syllable CVC can be derived from three syllable words with final syllable CV by adding a suffix such as /- rl/ or /- k/ Operative/Locative. [End of interpolation - resumed Breen: 30] Some facts regarding the co- occurrence of consonants and vowels in the initial CVC (not necessarily or usually the initial syllable) of a word can be obtained from tables 1 and 2 above (GB:4- 8). Table 1, listing initial CVC with stressed vowel, shows the following biases in these cases:

initial /j/, /ny/ for a following /i/ initial /m/ for /ii/ (eleven of the 34 words in the lexicon with /ii/ as first vowel begin with /m/.) initial /th/, /nh/, /rn/ against /i/ initial

/k/ for /u/ initial /p/ for /uu/ (eight of the 24 relevant items) initial /rl/ against /u/ initial /y/ against /e/. Initial /yi/ and /wu/ do not occur, as there is no contrast with initial /i/ and /u/ and the latter interpretation is more in accord with the phonetic facts.

There is a strong preference for /l/ and /n/ as the second consonant of a word; in fact these are the two most common consonants following each of the stressed first syllable vowels. Other favoured combinations are /t/, /k/, /r/ and /w/ after /u/ and /m/ /ny/ and /rr/ after /i/. The lamino- dental and apico- post- alveolar consonants and /y/ are not favoured for the second consonant position. In unstressed initial syllables the vowel is almost always /e/, /i/ or /u/, and these occur with approximately equal frequencies. The following biases are noted: initial /j/ for a following /i/ initial 0: for /i/ (twelve of the 32 cases when /i/ is the unstressed vowel in an initial syllable) and for /u/ (15 of the 32 cases) initial /p/ and, to a lesser extent, /k/ for /e/ initial /m/ against /i/.

The consonant following an initial unstressed syllable is most commonly /l/ or /n/ (again); the combinations /ul/ and /in/ being particularly common. Some consonants have never been noted in this position /m/, /rl/ and /y/ - and others in only one item in the lexicon /j/, /nh/, /ny/, /lh/, /ly/ and /w/.

Other positions in the word have not been studied, except that it has been noticed that /e/ is the most common non- initial- syllable unstressed vowel, followed by /u/, /i/ and /a/.

## 7. Morphophonemics

The vowel /e/ is inserted between a stem- final consonant and a stem- initial suffix or clitic. (Compare the non- phonemic [ ] often added to a stem- final consonant.) (For exception see GB:38.). Thus /penk/ 'to go', imperative /penk/ [b ng ], with the present tense suffix /tiy/ gives /penketiy/ [b ng diy]. Other examples are:

/ngalp/ + /rl/ - > /ngalperl/

`to enter' future

/uriirr/ + /rt/ - > /uriirrert/

`tree' allative

/marniy/ + /arn/ + /pulu/ - > /marniyarnepulu/

`hit'(past) 'I' 'that' 'I hit him.'

The corpus includes some examples, involving clitic demonstratives, which do not appear to conform to this rule. These include:

/lirlarlarnperiy/ call- fut- I- that- purp 'I'm going to call out to him.' (/lirla/ 'to call out') and some others in which the cluster /np/ is formed, \*\* and /japulu/ 'don't- that' (/jap/ + /pulu/) in which one of the consonants involved appears to have been deleted. Another rule deletes stem- final /i/ and /u/ before any suffix beginning with /a/.

/lapi/ + /awiy/ - > /lapawiy/

`hand' dual 'two hands'

/kutinyu/ + /arn/ - > /kutinyarn/

`ignorant' 'I' 'I don't know'

/ileki/ + /arn/ - > /ilekarn/

`river' ablative 'from the river'

/purnngi/ + /ampi/ - > /purnngampi/

`stone, hill' 'that'(fem/neut) 'that hill'

It is possible that such a rule may also apply to a suffix beginning with /e/; the purposive nominal inflection suffix is tentatively glossed as /riy/ but may be more correctly /eriy/, in which case stem- final /i/ and /u/ would be deleted. The phonetic facts on this point are not yet clear; for example, it is not known whether the purposive forms of /urinhathu/ 'younger brother' and /urinhathi/ 'younger sister' should be written /urinhathuriy/ and /urinhathiriy/ respectively or whether they are indistinguishable as /urinhatheriy/.

A further rule converts a final long vowel to a short vowel with homorganic glide when a suffix beginning with /a/ is added (except in the case of verbs in the potential mood, which use a ligative to be discussed later, under Grammar, before the suffix). For example: /urii/ 'sinew' + /arn/ 'I' - > /uriyarn/ (i.e. only \_stem\_- final long vowel.)

There are few examples to illustrate this rule. Note that the ablative of /kuu/ 'boy' was given as /kuurarn/, with /rr/ interposed, rather than as /kuwarn/.

The distinctions between word- final /i/ and /iy/ and between final /u/ and /uw/ are based on morphophonemic factors. Phonetically, final /i/ and /iy/ are indistinguishable. However, addition of an /a/- initial suffix results in a deletion in the former case but not in the latter. Final /iy/ thus gives the same result, when such a suffix is added, as final /ii/, but they differ phonetically (when no suffix is present), being, respectively, [i] and [ii]. The three- way distinction is further illustrated in the following table.

/i/ ([i]) + /a/ - > /a/

/iy/ ([i]) + /a/ - > /iya/

/ii/ ([i:]) + /a/ - > /iya/

As far as /u/, /uw/ and /uu/ are concerned, there are practically no data, but it appears that the system is the same. Where a suffix with initial /i/ is added (such as /imp/ 'you') /ii/ becomes /iy/, final /i/ is deleted, and there is some evidence to suggest that, sometimes at least, /iy/ + /i/ gives /ii/ rather than /iyi/. This requires further investigation. There is also a rule to delete stem- final /a/ before a prefix beginning with /a/ (but in the case of word- final /a/ belonging to a bound morpheme the ligative /ng/ separates the suffixes. This will be discussed under Grammar.) This rule may not apply to all suffixes beginning with /a/; alternatively a morpheme (ligative ?) /rr/ may be interposed, either obligatorily for some suffixes or optionally for some or all. Thus we have in the corpus: /wera/ 'dog' + /awiy/ dual - > /werawiy/ 'two dogs' but /wera/ 'dog' + /arn/ ablative - > /werarrarn/ 'from the dog' (and /kerewa/ 'child' + /angkuwa/ 'her' - > /kerewaangkuwa/) (Isolated examples.) Compare: /wetha/ 'bit' + /anh/ 'me' - > /wethanganh/ 'bit me' Some derived forms of /kerewa/ 'child' undergo haplology, thus: /kerewa/ + /awiy/ dual - > /kerewiy/ 'two children', instead of \*/kerewawiy/.

The operative/locative form of this seems to be even further reduced: /keriyarl/ instead of \*/kerewiyarl/. The plural, /kerewa/ + /wil/, is /kerewul/ 'children'.

Suffixes with initial /i/ do not seem to be added to words with stem-final /a/, and when they are added to words with final /a/ the ligative /ng/ intervenes. Words ending in /y/ (and probably /w/) seem to be exceptions to the rule stated on GB:33, in that when a consonant-initial suffix is added the final consonant of the word is dropped, e.g. /penkerniy/ + /pulu/ -> /penkernipulu/ 'went' 'that' 'he went'

There appears also to be a rule in such cases transferring the main stress of the word to be cliticized (only if it has two syllables) on to the final syllable of the word to which it is attached, thus: /penkernipulu/ is [b 'ng n 'b l ] or [b 'ng n 'b l ], possibly also with some lengthening of the vowel to which the stress is shifted. This rule applies also to words with final vowels as well as final vowel plus homorganic glide. /mulerru/ + /pulu/ -> /mulerrupulu/ [m 'l u'b l ] 'sick' 'that' 'he is sick'. In some cases, of course, there is already a main stress on the final vowel, in which case the stress on the cliticised word can be regarded as being deleted, e.g. /werapulu/ [w ra'b l ] 'that dog'

Where the rule would result in stresses on two successive syllables it does not apply, e.g. /marniy/ + /pulu/ -> /marnipulu/ [ma'n b l ] 'hit'(past) 'that' 'hit him' /inkapupulu/ 'that kangaroo' -> [ nga'b b 'l ] There are a very few examples of reduction of other vowels to /e/ when a stem formative is added to a root; such reduction of a stem-final unstressed /u/ or /i/ may not be significant, but it also occurs with a stressed /a/. /lalu/ + /ngenthu/ -> /lelengenthu/ 'elder brother' third person possessor 'his brother' (or 'two brothers') /lapi/ + /kirr/ -> /lepekirr/ 'hand' intransitive verb formative 'to put out one's hand' or + /k/ + /irr/ operative intransitive verb formative 8. Comparisons with Bularnu and Warluwara (A late addition inspired by a conversation with Ken Hale.)

Some diachronic notes on these three languages were included in my thesis on Warluwara and the remarks made there on the consonants probably will apply (being in the field at the time of writing I do not have the opportunity to look at them.)

The main purpose of the following comparative notes on the vowels is to check Hale's suggestion that Wakaya /e/ is probably a reflex of an earlier \*a. if this is so, Wakaya /a/ has probably descended from an earlier \*a:. The following tables give comparison of Wakaya words (column 1), the Bularnu and Warluwara equivalents (labelled (B) or (W) where the word is not the same in both languages) (column 2) and a possible proto-form (column 3).

Vowel length is written for Bularnu and Warluwaa (except verbs, which would have a long vowel only in the imperative) although it is not phonemic, and Warluwara intervocalic consonants are written as voiced or voiceless although this distinction is phonemic only for homorganic nasal-stop clusters. The lists are not exhaustive.

## NOTES

1. I have kept the voiced/voiceless distinctions for Bularnu and Warluwara as is. I have used th, dh etc. for interdentals, rt, rd etc. for retroflexes, rr and r for r and r. As well, I use ng for the velar nasal, and nk for the cluster n + g JHS] [NOTE 2: under the proto forms I have put relevant cognates from Warumungu (Wr) and Warlpiri (Wp). JHS] 1. Wakaya /e/ corresponding to \*a Wakaya Bularnu/Warluwara proto English /peth/ badha- (B) badha to dig watha- (W) (Wp) pajirni ('bite')/penk/ бага- (B) banka to go paka- (W) (Wr) apan (Wl) to jump (Wp) wapami /kerewa/ garali gara+? child (Wr) kiwari (Wp) kurdu /kek/ gaga- (B) gaga to cry gaa-, ga a- (W) (Wr) kakan /ker/ gara- gara to copulate (Wp) kura /ipel/ ibala (B) (y)ibala you(dual) ipala (W) (Wr) amppul (Wp) - npala /ileki/ ilaga (B) (y)ilaga creek /yew/ yawa- yawa to rub /nenkerr/ nakarra- nankarra to cut /ngerlimil/ ngarlamarla ngarlamarla (Wk) south west - others /ngelp/ ngapa- (B) ngalba to enter ngalwa (W) /lek/ laga- (B) rлага to carry /nheng/ nhanga- nhanga to get /kekerril/ gagarra (B) gagarra (Wk) east gaara (B) [sic ?W] south (Wr) kakurru east (Wp) kakarra east /wera/ warayi (B) warayi dog (warawurla (W)) /yemu/ yama (B) yama(ra) this (mara (W)) (Wr) ama this, he /urrema/ warrama warrama to look for /urrentema/ warranduma /kutherr/ gudhani (B) gudhani(?) tooth guthana (W) /menhelt/ manhali (B) manhali(?) fire manhala (W).

2. Wakaya /a/ corresponding to \*a Wakaya Bularnu/Warluwara proto English /patu/ ba:du (B) ba:ndu butt of tree ba:ndu (W) (Wr) partta /yal/ ya:rlu, yalu (B) ya:lu they(pl) yanu (W) /wanku/ wa:ga, waga (B) wa:nka alive waka (W) (Wr) wankka /lalu/ la(:)la rla:la elder brother /nant/ na(:)na rna:na elder sister /mawu/ ma:wu ma:wu witchetty grub.

3. Wakaya /i/ corresponding to \*ya (word- initially) Wakaya Bularnu/Warluwara proto English /inp/ yaba- (B) yanba to fall yapa- (W) (Wr) wanppan /ing/ yanga- yanga to see (Wp) nyangu /irrk/ yaka- (B) yarrga to climb yar a- (W) (Wpi) warrkarni /irrpa/ yapayi (B) yarrbayi camp /injem/ yadyima (B) yadyunma(?) to smell yatyunma (W).

4. Wakaya /u/ corresponding to \*wa (word- initially) Wakaya Bularnu/Warluwara proto English /ul/ warla- warla to pull /urrentema/ warranduma- warranduma to bark (Wr) warurr/ukunhu/ wagonhu wagonhu left (hand) /utelt/ wadulu (B) wadulu stomach /urtaj/ wardadyi (B) wardadyi wild orange /uka/ (wagaya: origin wagaya Wakaya not known) /ungkarnu/ wagurla (B) wanggu+? crow wakurla (W) (Wr) wangkarna Note also /u/ from \*wa: /umpa/, wa:mba (W) 'snappy gum'.

5. Wakaya final /a/ corresponding to \*ayV Wakaya Bularnu/Warluwara proto English /wera/ warayi (B) warayi dog /irrpa/ yapayi (B) yarrbayi camp /uka/ wagaya (?) wagaya Wakaya .

6. Wakaya /i/ corresponding to \*a Wakaya Bularnu/Warluwara proto English /tirrep/ rdarripa- (B) rdarripa to bite /kiny/ ganyi- ganyi- to stand on (Wr) kanyanta /kirr/ gari- garri- to stand (Wp) karrimi /ngerlimil/ ngarlamarla ngarlamarla south (Wk), west /irinthu/ iranhangu irandha+? wild /kiliy/ galiya galiya now /wiy/ wayi wayi question particle /kijiiwiy/ gutyiya (B) gudya(?) two (/wiy/ is (Wr) kujjarra a dual suffix) gutya (W) (Wr) - kujjurr /miny/ manyi (B) manyi to hold (Wp) mani /irrwelt/ irrwili (B) (y)irrwilli fingernail (Wr) lirrppi

7. Wakaya /u/ corresponding to \*a Wakaya Bularnu/Warluwara proto English /nguperr/ ngaburra- (B) ngaburra (?) to bathe /thukult/ dhugarli (B) dhugarli (?) boomerang dhuwarli (W) /yukunngu/ yakulu (B) yarrgulu one (Wagaya yarr ulu (W) form may not be cognate.) /kuyult/ guyali (B) guyali (?) grinding stone.

8. Wakaya /e/ corresponding to \*i Wakaya Bularnu/Warluwara proto English /pej/ birrtiyi- (W) birrtiyi- (?) to swallow.

9. Wakaya /e/ corresponding to \*u Wakaya Bularnu/Warluwara proto English /nguperr/ ngaburra- (B) ngaburra (?) to bathe /melurru/ mulurru (B) mulurru turpentine bush (Wr) mu(r)lurr

10. Wakaya /i/ corresponding to \*u Wakaya Bularnu/Warluwara proto English /kijiiwi/ gutyiya (B) gudya(?) two (/wi/ is (Wr) kujjarra a dual suffix) gutya (W) (Wr) - kujjurr /irr/ wurru wurru (?) you(pl).

11. Wakaya /i/ corresponding to \*(y)i Wakaya Bularnu/Warluwara proto English /int/ ida (B) (y)inda to tie ita (W) /injilt/ idyali (B) (y)inydyal(i) word ityala (W) /irrwelt/ irrwili (B) (y)irrwili nail /imungu/ imungu (B) (y)imungu fly (Wr) yimarnga.

12. Wakaya /u/ corresponding to \*u Wakaya Bularnu/Warluwara proto English /kuyult/ guyali (B) guyali grinding stone /kunj/ gudya- (B) gunydy to drink gutya- (W) /kujerr/ gudyirri- (B) gudyirri to laugh /imungu/ imungu (B) (y)imungu fly (Wr) yimarnga 13. Wakaya /i/ corresponding to \*i Wakaya Bularnu/Warluwara proto English /pinilt/ binali (B) binali ear (Wp) pina knowledgeable (Wr) pina /jinp/ dyiba- (B) dyinba to sing dyipa- (W) (Wp) yunparni /jinng/ dyinanga (W) dyinanga to know /kirrii(rr)/ girringulu (B) girri+? woman girriya (B) (Wr) kirriji

I can find very little information on \*i: and \*u:, partly, at least, because I do not have my Warluwara vocabulary nor my rules for vowel length in Warluwara available to me at the time of writing. However, examples like /miingki/ mi:gi (B) \*mi:nggi ground mi:ki (W) /muunku/ mu:ka \*muunka good suggest that proto long high vowels remain long high vowels in Wakaya.

It seems fairly clear that Wakaya intramorphemic /e/ does correspond to proto \*a. However, not all instances of \*a have become /e/; initial \*ya and \*wa have become /i/ and /u/, respectively, and this is easily explained, but \*a has become /i/ in a number of cases which are not so easily explained. Assimilation may be involved in some cases. Correspondences between /u/ and \*a also are difficult to explain at present, \*a: seems to have become /a/ and the other proto vowels, \*i, \*i:, \*u and \*u: are unchanged. The items listed under 8, 9 and 10 in the tables above seem to be exceptions. Another exception which comes to mind is /larr/ from \*rlarri 'to hear'.

Wakaya intermorphemic /e/ is not, of course, a reflection of any proto vowel but simply results from the dropping of earlier word- final vowels. Similarly, word- final /u/ and /i/, which mark the masculine and non- masculine genders, respectively, in many cases, do not reflect any proto vowels. The situation should become clearer when a more complete comparison is carried out, when Eastern Wakaya vocabulary items are included, and perhaps when Yanyula is included.