Organised Phonology Data Supplement
Kaluli Language

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Southern Highlands Province
Papua New Guinea

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### 1. List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Person</td>
</tr>
<tr>
<td>2</td>
<td>Second Person</td>
</tr>
<tr>
<td>3</td>
<td>Third Person</td>
</tr>
<tr>
<td>C</td>
<td>Consonant</td>
</tr>
<tr>
<td>D</td>
<td>Dual</td>
</tr>
<tr>
<td>DAT</td>
<td>Dative</td>
</tr>
<tr>
<td>DIR</td>
<td>Directional</td>
</tr>
<tr>
<td>DS</td>
<td>Different Subject</td>
</tr>
<tr>
<td>EMPH</td>
<td>Emphatic</td>
</tr>
<tr>
<td>ERG</td>
<td>Ergative</td>
</tr>
<tr>
<td>FUT</td>
<td>Future</td>
</tr>
<tr>
<td>INTENT</td>
<td>Intent</td>
</tr>
<tr>
<td>LOC</td>
<td>Locative</td>
</tr>
<tr>
<td>NOM</td>
<td>Nominaliser</td>
</tr>
<tr>
<td>OPP</td>
<td>Opposite</td>
</tr>
<tr>
<td>P</td>
<td>Plural</td>
</tr>
<tr>
<td>PER</td>
<td>Person</td>
</tr>
<tr>
<td>PRES</td>
<td>Present</td>
</tr>
<tr>
<td>PRON</td>
<td>Pronoun</td>
</tr>
<tr>
<td>PST</td>
<td>Past</td>
</tr>
<tr>
<td>PURP.SS</td>
<td>Purposive, Same Subject</td>
</tr>
<tr>
<td>REL</td>
<td>Relativiser</td>
</tr>
<tr>
<td>S</td>
<td>Singular</td>
</tr>
<tr>
<td>SS</td>
<td>Same Subject</td>
</tr>
<tr>
<td>TP</td>
<td>Topic / Given Information</td>
</tr>
<tr>
<td>UNCERT</td>
<td>Uncertainty</td>
</tr>
<tr>
<td>V</td>
<td>Vowel</td>
</tr>
</tbody>
</table>
2. Introduction

There are approximately 3,000 speakers of the Kaluli language. The Kaluli language group is located on the northern and western slopes of Mt. Bosavi, on the border of the Southern Highlands and Western Provinces of Papua New Guinea. The language is approximately bounded by the Bifo river to the east, and the Libano and Rentoul rivers to the north and west. It extends westward to about the Provincial border, with a couple bilingual villages in Western Province. Most of the villages lie at a fairly even elevation of about 2,500 feet, and are spread in an arc on the slopes of the mountain.

Kaluli is a Papuan language belonging to the Trans-New Guinea Phylum, of the Central and South New Guinea Kutubuan Super-Stock, of the Central and South New Guinea Stock, in the Bosavi Family, according to Wurm (1978). Voorhoeve (1968) adds a further level to the classification by labeling the whole group of Bosavi languages the Pare-Samo-Beami-Bosavi Family.

According to Shaw (1986:47), the 14 languages in the Bosavi Family are broken down into three subfamilies.

<table>
<thead>
<tr>
<th>Strickland Plain</th>
<th>Papuan Plateau</th>
<th>Watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konai</td>
<td>Bedamini</td>
<td>Kaluli</td>
</tr>
<tr>
<td>Agala</td>
<td>Etoro</td>
<td>Sunia</td>
</tr>
<tr>
<td>Samo</td>
<td>Onabasulu</td>
<td>Kasua</td>
</tr>
<tr>
<td>Kalamo</td>
<td>Aimele</td>
<td></td>
</tr>
<tr>
<td>Hesif</td>
<td>Kamula</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bainapi</td>
<td></td>
</tr>
</tbody>
</table>

3. Phonological Units

3.1 Phonemic and Orthographic Inventory

/ a e p t e f k h i k h l m n o s t h u w j /

< a a: b d e f g h i k l m n o o: s t u w y >

< A A: B D E F G H I K L M N O O: S T U W Y >
3.1.1 Phonemic Inventory Charts

3.1.1.1 Consonants

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td>p tʰ t kʰ k</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alveolar</td>
<td></td>
<td>J</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral Flap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>f s h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approx.</td>
<td>j</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

w - (voiced labio velar approximant)

3.1.1.2 Vowels

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close</td>
<td>i u</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close-mid</td>
<td>e o</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-mid</td>
<td>e o</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2 Contrast Sets

3.2.1 Consonants

3.2.1.1 Labials and Labio-velar Approximant

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/p m f w/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/p/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/pis/</td>
<td>[bis]</td>
<td>‘tooth’</td>
<td></td>
</tr>
<tr>
<td>/papo/</td>
<td>[pa'bo]</td>
<td>‘cheek’</td>
<td></td>
</tr>
<tr>
<td>/iseap/</td>
<td>[ise'ap']</td>
<td>‘vomit’</td>
<td></td>
</tr>
<tr>
<td>/m/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/mamo/</td>
<td>[’mamo]</td>
<td>‘flower’</td>
<td></td>
</tr>
<tr>
<td>/tamin/</td>
<td>[’tʰamin]</td>
<td>‘star’</td>
<td></td>
</tr>
<tr>
<td>/jakam/</td>
<td>[ja’gam]</td>
<td>‘cucumber’</td>
<td></td>
</tr>
</tbody>
</table>
3.2.1.2 Alveolars and Palatal

/t/ t n s l j /

/tʰ/ tʰ a'mina/ [tʰa'mina] ‘prior’
/atʰ'ok/ [a'tʰ'ok] ‘calf’

/t/ tapa'le/ [daba'le] ‘loincloth’
/atep/ [a'tə dep] ‘two’

/n/ nafa/ [na'fa] ‘good’
/hinikifu/ [hi'n_i_gifu] ‘pandanus species’
/men/ [men] ‘sago’

/s/ siapu'lu/ [si'a_bulu] ‘sweet potato’
/masi/ [masi] ‘sago bag’
/kis/ [gis] ‘enemy’

/ŋ/ si'lem/ [si'lem] ‘breadfruit’
/kol/ [kol] ‘cloud’

/j/ jakam/ [ja'gam] ‘cucumber’
/wajo/ [wajo] ‘black palm’
3.2.1.3 Velars

/kʰ/ k/

/kʰ/ akuman/ [kʰakum] 'jointed'
/ukʰa/ [u’kʰa] 'okari (galip) nut'

/k/ kalen/ [ga’len] 'crayfish'
/kokotɔ/ [gɔ̥gɔ̥dɔ̥] 'clear'
/tʰok/ [tʰok] 'road'

3.2.2 Vowels

/i e a ɔ o u/

/i/ [i] 'tree'
/ifi/ [i’fi] 'fingernail'
/ilito/ [’ili,do] 'suitable'

/e/ [e] 'plant'
/ela/ [’eJə] 'womb'
/pesejap/ [be,’e;jap] 'beat sago'

/e/ [e] 'yes'
/eletege/ [e’teteqe] 'therefore'
/emele/ [’e,’emele] 'return'

/a/ [a] 'house'
/anaso/ [’a,naso] 'old'
/aka/ [a’ga] 'cuscus'

/ɔ/ [ɔ] 'tree knot'
/pɔmɔnɔ/ [’bɔmɔ,nɔ] 'intestine'
/ɔfɔf/ [ɔ’fɔf] 'wall'
3.2.2.1 Nasalisation

All Kaluli vowels may be nasalised, although nasalisation occurs only on a small percentage of words in the language. Nasalisation does not appear to be predictable, but there are also no clear examples of contrast. Some speakers nasalise words a great deal more than others; however, no distinct group of individuals has been identified which consistently uses more nasalisation, for example age or geographic group.

When a nasalised vowel precedes a [b d g], most speakers pre-nasalise the stop in continuous speech, e.g. /tapo/ ‘all’ is pronounced as [ˈθaθbo], /atep/ ‘two’ as [aθdep] and /wakapi/ ‘angry’ as [waθgabi]. Some speakers maintain the nasalisation on the vowel along with the prenasalised stop, whereas other speakers use an oral vowel with the prenasalised stop. If, however, these words are broken into their component syllables, then the pre-nasalisation disappears, and the nasal vowel remains.

3.3 Phonetic Variants of Contrastive Segments

3.3.1 Labialisation

When a velar stop /k/ or /kʰ/ is followed by /u/, it becomes labialised.

/k/
   /kuani/   [ˈgʷani]   ‘corn’

/kʰ/
   /kʰuanke.lo/   [ˈkʰwanke,lo]   ‘crooked’
3.3.2 Variants of /p t k/

The stops /p t k/ have as allophones [b d g] in the inter-vocalic position.

/p/  [b]
    /papo/  [pa'bo]  ‘cheek’

/t/  [d]
    /ato/  [a'do]  ‘3PER sister’

/k/  [g]
    /aka/  [a'ga]  ‘cuscus’

Inter-vocally the phonemes /p t k/ are normally voiced; however, the voicing is slight and sometimes is missing entirely. Slight voicing may occur word initially on some words. When /p k/ occur in word final position, they are voiceless and unreleased. The phoneme /t/ does not occur in word final position.

/p/  /je lap/  [je'lap']  ‘cry’

/k/  /t h ok/  [t'h ok']  ‘road’

However if a suffix beginning with a vowel is added to the word in focus, the phoneme is again in an intervocalic position and will surface voiced.

/p/
    /je lap/  [je'lap']  ‘cry’
    /je la po/  [je la 'bo]  ‘cry-NOM’

3.3.3 Occurrence of /t h k h/

The voiceless aspirated stops /t h k h/ occur word initially and medially, but not word finally.

Certain speakers consistently replace /t h/ with a fricative [s]. Also, /k h/ at times varies with fricative [x]. This occurs with a significant number of specific speakers. Those who use this variation appear to be consistent in their usage (i.e. they use the [x] in all instances where /k h/ occurs). Thus, kalu ‘man,’ which is normally pronounced [k a]u], becomes [x a]u].
3.3.4 Devoicing of /m n l/

Inter-vocally the phonemes /m n l/ are normally voiced; however, the voicing is slight and sometimes is missing entirely. When /m n l/ occur in the word final position, they are voiceless.

/m/
/tom/  [tom]  ‘six’

/n/
/otⁿalen/  [otⁿalen]  ‘eight’

/l/
/kⁿolu/  [kⁿolu]  ‘cloud’

However, as above with /p k/, if a suffix is added to the word in question, the phoneme will retain its voicing.

3.3.5 Variants of /l/

The alveolar lateral flap /l/ has the retroflexed alveolar lateral flapped allophone [\\] when it precedes rounded vowels, /o/ , /o/ and /u/. When it precedes unrounded vowels, /a/ , /e/ , /e/ , and /i/ it is pronounced as [l].

/l/ [\\]
/aⁿlan/  [aⁿlan]  ‘big’
/aⁿlen/  [aⁿlen]  ‘cricket’
/eⁿle/  [eⁿle]  ‘two’

/l/ [\\]
/meⁿluo/  [meⁿluo]  ‘long ago’
/halⁿo/  [haⁿo]  ‘upwards’
/heⁿlu/  [heⁿlu]  ‘small’
4. Syllable Structure

4.1 Syllable Patterns

Syllables include V, CV, CVV, VC, CVC, CVVC as follows:

<table>
<thead>
<tr>
<th>Syllable</th>
<th>Vowel(s)</th>
<th>English Translation</th>
<th>Kaluli-English Equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>[i]</td>
<td>‘tree’</td>
<td>[‘o.ga] ‘pandanus’</td>
</tr>
<tr>
<td>CV</td>
<td>[kʰi]</td>
<td>‘bone’</td>
<td>[ga.’sa] ‘dog’</td>
</tr>
<tr>
<td>CVC</td>
<td>[men]</td>
<td>‘sago’</td>
<td>[ba.bok] ‘tree name’</td>
</tr>
<tr>
<td>CVV</td>
<td>[nao]</td>
<td>‘brother’</td>
<td>[so.go.’beil] ‘marsupial’</td>
</tr>
<tr>
<td>CVVC</td>
<td>[gain]</td>
<td>‘dual pronoun’</td>
<td>[fe.le.’dein] ‘four’</td>
</tr>
<tr>
<td>VC</td>
<td>[as]</td>
<td>‘string bag’</td>
<td>[e.’an] ‘tongue’</td>
</tr>
</tbody>
</table>

Syllables can only be closed in the final syllable of the word, with the result that there are no consonant clusters in Kaluli (except for a couple quirky words ☺). 

4.2 Maximal Syllable Template

The maximal syllable template is: [CVV]

The final consonant is licensed directly by the prosodic word; it is not licensed on the syllable level.

<table>
<thead>
<tr>
<th>Prosodic Word #</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

A closed syllable can only occur in word final position.

4.2.1 Parameters of the Nucleus

Each of the vowels can stand alone as a word in itself.

VV sequences generally syllabify as a single syllable when the second V is higher than the first. Otherwise, they split as two syllables. An exception to this is in the case of the labialisation of velar stops.
The following vowels can function together as diphthongs in the VV slot as the nucleus.

/ai/ /ha:laito/ [ha'laido] ‘strong’
/ao/ /nao/ [nao] ‘1PER brother’
/au/ /pau/ [bau] ‘tree species’
/oi/ /poi/ [boi] ‘quickly’
/oi/ /hoi.tap/ [hoi’dap] ‘call out’
/au/ /houts/ [hou’dɔ] ‘hunt’
/ei/ /sokopei/ [,so.go’bei] ‘marsupial’
/ei/ /he.nedit/ [he’niet] ‘go.3FUT’

Following are examples of VV sequences which split as two syllables.

/ea/ /keteap/ [,ge.de.’ap] ‘cut’
/oe/ /t’oe.l/ [t’o’l] ‘drying rack’

### 4.2.2 Parameters of the Coda

The phonemes /t̑, k̑, d, h, w, j/ have not been found to close syllables word-finally. Phonemically all instances of word final [w j] are considered /u i/.

When a compound word is formed using a closed syllable as the first syllable, the Stray Erasure Principle comes into play, and because the coda is not prosodically licensed to the syllable, the first syllable drops its coda to become an open syllable.


Stray Erasure also comes into play at the junction of affixes and clitics to a stem that ends in a closed syllable such that the final consonant in the coda of the word being affixed is commonly deleted, although at times other processes occur at these borders as well.

<pejo-kɛ̃ tup-enik-ɔl-kɛ̃> (underlying morphophonemic form)
possum-ERG pull.down-INTENT-1PRES-EMPH
[be’jɔge dubenigɔ’kɛ̃] ‘The possum indeed pulled it down.’

The exception to this rule is when the morphemes /-ma/ ‘DAT,’ and /-lɔ/ ‘REL’ are added to a word ending in a closed syllable. In these cases, the penultimate syllable retains its coda, while the surface forms of the affix change, although they retain a substitute consonant.
This is the only case where you get a coda consonant that is not word final.

The motivation for this is the Syllable Contact Law. This dictates that the /m l/ which are high in sonority are changed to the less sonorous /p t/ in the onset position of a syllable which is contiguous to a closed syllable. The preference in onset position is to have an onset with the lowest possible sonority.

Syllable Contact Law:

In the onset position of a syllable following a closed syllable:

C.l → C.d
C.m → C.b

<of-l₅> → ['of-d₅] ‘sun-REL’
<Saimon-m₅> → ['Saimon-b₅] ‘Simon-DAT’

4.2.3 Function of /w j/

Phonemically, both /w j/ and /u i/ are seen to occur syllable-initially.

/ua/ ['u.a] ‘all of us’
/uwa/ ['uwa] ‘at the stone’
/wa/ [wa] ‘tree name’
/iJa/ [i’Ja] ‘at the tree’
/ja/ [ja] ‘here’
/ip/ [ib] ‘sap’

Phonemically all instances of word final [w j] are considered /u i/.

5. Stress, Tone, and Intonation

Murray Rule (1964) analysed a system with three separate tone levels, high, mid, and low tones, two of which, high and low, he said to be non-predictable and contrastive. Even so, Rule did not include tone as part of his practical orthography. We feel that current evidence suggests that it now carries even less significance. Schieffelin and Feld (1998, p. xvi) have chosen to “analyse those contrastive levels not so much as a low/high distinction, but as a weak/strong stress distinction, which only sometimes sounds like an obvious change of pitch level.”

Foley (1986, p. 63) feels that, although tonal systems have been reported for a number of Papuan languages, they would “seem better analysed as pitch-accent systems rather than as genuine tonal systems.” We concur with this analysis. In a pitch-accent system, accented syllables are differentiated from unaccented syllables by a jump to a higher pitch. Although this pitch-accent system is not predictable, we suggest that it is probably decreasing in its function, and does not need to be written in the orthography.
Several minimal tonal pairs exist in the language; however, speakers are often unable to correctly identify single-syllable pairs in a simple tone frame spoken by a native speaker. It appears rather that they rely heavily on context to identify such pairs. In words composed of two syllables or more, speakers are able to correctly identify minimal pairs out of context.

Examples of Tonal Contrast

\[n\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘mother’}
\[n\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘animal’ (general term)}

\[f\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘taro’}
\[f\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘axe handle’}

\[\text{næl}\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘good’}
\[\text{ⁿæl}\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘lamp’}

\[\text{nǐ̱d̚}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘1S PRON’}
\[\text{ⁿi̱d̚}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘1P PRON’}

Stress in general is fairly free in its placement, rendering it basically unpredictable. There is not a clear default preference for one syllable over another one. There is one minor observable tendency that if a word ends in a heavy syllable closed by a coda consonant, then that syllable tends to attract the stress.

Minimal pairs of stress patterns do exist in the language. They are easily determined by context, and do not need to be marked.

\[k^\text{h}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘axe’}
\[k^\text{h}][\text{ɾ}][\text{ɾ}][\text{ɾ}][\text{ɾ}] \quad \text{‘never mind’}

6. Morphophonemics

All the examples in this section include the surface forms as well as the underlying forms in order to demonstrate the morphophonemic processes at work. In the gloss line of the interlinear examples, a dash (-) will be used to indicate that the underlying forms are actually affixed in some manner, and a slash (/) will be used to indicate that the underlying forms are inseparable from the stem.
6.1 Verbal Morphology

The most complicated aspect of verbal affixation is not the structure or position of the affixes themselves, but the resultant changes to the verb stem. While the affixes tend to be fairly regular in most cases (with the major exception being the past tense), the stem changes in the verb are highly irregular. Murray Rule, an experienced linguist who wrote grammars for some 20 languages in the area, did some work on Kaluli in 1964 and posited seven or more verb classes based on stem changes, but still found a large number of stem changes which could not be predicted based on these classes. We have found similar difficulties in predicting these stem changes. Some of the processes which occur include Vowel Harmony, Vowel Epenthesis, and Consonant Erasure, but developing a set of rules which can be consistently applied, even with multiple verb classes, seems elusive.

Because of the difficulties in positing rules which are consistently able to predict all forms of verbs, four forms of each verb are included in the lexicon. These forms are as follows: the present command form, the future command form, the future first person form and the past form. By removing the affixation from the first three of these forms, three forms of the stem are derived, which are arbitrarily named as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem 1</td>
<td>Present command form minus the /-ma/ suffix</td>
</tr>
<tr>
<td>Stem 2</td>
<td>Future command form minus the /-a:bi/ suffix</td>
</tr>
<tr>
<td>Stem 3</td>
<td>Future first person indicative form minus the /-ma:no:/ suffix</td>
</tr>
<tr>
<td>Stem 4</td>
<td>Past tense form</td>
</tr>
</tbody>
</table>

With these four forms, all other forms can be fairly consistently derived, with the exception of highly irregular verbs. The STEM4, which is the past tense form of the verb form, is highly irregular across the verbal system, and shows up as a wide variety of forms that are not phonologically determined. It is not derivable from any other form, nor is this form used to create any other forms. The other three stem forms are used for deriving other final verb forms as well as the medial and serial verb constructions.

Some of the processes which occur within the verbal morphology are further described here. Although the processes shown here are quite common in the verbal system, they are by no means consistent, so this is why the four forms of the verb have been posited in the lexicon.
6.1.1 Vowel Harmony

Some verb stems tend to display vowel harmony in which the first vowel in the verbal suffix influences the preceding vowel(s) in the verb root. This vowel harmony process occurs only in a restricted set of verbs stems, and appears to be restricted to the domain of verbs with single syllable stems.

/e/ $hVn$-ap`/ /ne/ $hVn$-en$iri$ asu$\lambda$/

[\textit{e} ha`$\text{n}$a`]\ [\textit{ne} he`$\text{n}$en$iri$ asu$\lambda$]\]

3SPRON go-1PRES 1SPRON go-PURP.SS want-1PRES

‘He is going.’

/ne/ $hVn$-$\lambda$/

[\textit{ne} $h\lambda$\textit{n}$\lambda$]\]

1SPRON go-3PRES

‘I want to go.’

6.2 Semi-vowel Shifting and Deletion

The most common morphophonemic process is one which operates similarly for numerous suffixes including the ergative suffix morpheme -a: ‘ERG,’ the topic/nominalising suffix morpheme -o: ‘TP/NOM,’ the locative clitic -a ‘LOC,’ and the uncertainty suffix –ele ‘UNCERT.’ Each of these underlying forms has two allomorphs based on the rules listed and as demonstrated in the table below:

<table>
<thead>
<tr>
<th>Their distribution is as follows: (where V represents a vowel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{-yV} following an unrounded vowel</td>
</tr>
<tr>
<td>\textit{-wV} following a rounded vowel</td>
</tr>
<tr>
<td>\textit{-V} underlying form</td>
</tr>
</tbody>
</table>

Using these rules, the following table can be posited for these forms:

<table>
<thead>
<tr>
<th>Following an unrounded vowel</th>
<th>ERG</th>
<th>TP / NOM</th>
<th>LOC</th>
<th>UNCERT</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{-ya}</td>
<td>-ya</td>
<td>-ya</td>
<td>-ya</td>
<td>-yele</td>
</tr>
<tr>
<td>Following a rounded vowel</td>
<td>\textit{-wa}</td>
<td>\textit{-wa}</td>
<td>\textit{-wa}</td>
<td>\textit{-wele}</td>
</tr>
<tr>
<td>Underlying form</td>
<td>\textit{-a}</td>
<td>\textit{-o}</td>
<td>\textit{-a}</td>
<td>\textit{-ele}</td>
</tr>
</tbody>
</table>

The –V form is posited as the underlying form. To derive the other two forms, we apply a Derived Environmental Rule which applies across morpheme boundaries but not mono-morphemically, that when adding a suffix following a vowel at the end of a stem, a glide or proximate is inserted which agrees in roundness with that vowel.
In the following examples, the first line depicts the phonemic representation, the second depicts the phonetic representation, the third line demonstrates the parsed underlying morphological structures using orthographic symbols, and the fourth is the parsed gloss.

/hiɔ/ sap/
[’hijɔ sap’]
< hi-o: s-ab >
dove-TP sit-3PRES
‘The dove is here.’

/uɔ/ alan santefo/
[’uɔɔ a’lan sande’fo]  
< u-o: alan sandefo: >
stone-TP big throw/PST
‘(He) threw the big stone.’

/hoɔɔ/ no:lɔ ane/
[ho’ɔɔ no:lɔ a’ne]
< ho:no-o: no-lo: ane >
water-TP other-DIR go/PST
‘The water went the other way.’

/honse alan’a fe:lɛtɔwɔ/  
[’honse alan’a fe:lɛdɔwɔ]
< ho:n-se alan-a fa:la:-dowo: >
water-sand big-LOC upwards-occur/PST
‘arrived at the edge of the big river’

7. Orthographic Conventions

The Kaluli orthography was first established in 1964, through the work of Murray Rule (APCM). The orthography which this paper proposes is the same as that which Rule established. There exists a fairly substantial body of printed literature using this orthography, although there is significant variation in the use of spelling conventions.

The use of the colon for the graphemes a: and o: followed the pattern which was established by Rule in the Gogodala language. At the time, the Gogodala church was involved in evangelistic work among the Kaluli. At present, there is little or no contact between these two groups. However, although other graphemes have been informally tested with some success, the present consensus among Kaluli speakers to whom we have talked is that they prefer...
the graphemes introduced by Rule to depict the \( a: \) and \( o: \). Thus we are at present maintaining the use of these symbols. The colon is also being used in several other languages in the Bosavi family, including Kasua, Kamula, and Kubo.

The transitional semivowels \([w \ j]\) are not being written when they occur within a single morpheme following a similar vowel, but are being written when they occur as part of a separate morpheme, in which case the semivowel is written because it appears to assist the readers in identifying the word stem and thus assist in comprehension.

Specifically, when a suffix \(-yo:~-wo:~-o:\) 'NOM' follows a high vowel, the corresponding transitional semivowel is still written. For example, \( siyo: \) 'eye.NOM' and \( sio: \) 'say' are both phonetically \([\text{s}i.\text{\mathit{\epsilon}}]\), but the former is written with the transitional semivowel included because it is part of the nominalising suffix \(-yo: \) and not part of the stem. When \( sio: \) 'say' is nominalised, it is written orthographically as \( sio:wo: \).

7.1 Orthographic Chart of Neighboring Languages

<table>
<thead>
<tr>
<th>Language</th>
<th>/a p t e \text{\textepsilon} f k h i k^h l m n o s \text{\textepsilon} s t u w j /</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaluli</td>
<td>&lt;a b d e a: f g h i k l m n o: s t u w y &gt;</td>
</tr>
<tr>
<td>Kasua</td>
<td>/a b d e f g h i l m n o: s u w j /</td>
</tr>
<tr>
<td></td>
<td>&lt;a p t e a: f k h i l m n o: s t u w y &gt;</td>
</tr>
<tr>
<td>Onobasulu</td>
<td>/a b d e f g h i k l m n o s u w j /</td>
</tr>
<tr>
<td></td>
<td>&lt;a b d e f g h i k l m n o s u w y &gt;</td>
</tr>
<tr>
<td>Kamula</td>
<td>/a b d e f g h i k l m n o s t u w j /</td>
</tr>
<tr>
<td></td>
<td>&lt;a b d e a: f g h i k l m n o s t u w y &gt;</td>
</tr>
<tr>
<td>Edolo</td>
<td>/a ã p t e ë f k h î l m n ò ë s u û w j /</td>
</tr>
<tr>
<td></td>
<td>&lt;a ã b d e ë f g h î l m n ò ë s u û w y &gt;</td>
</tr>
</tbody>
</table>

Kamula orthographically marks high tone in a few words, using \(<\text{\textepsilon}>\) and \(<\text{\textcirc} >\). It marks nasalisation on a few words, using \(<\text{\textcirc} >\).

8. Acknowledgements

We wish to acknowledge the help and encouragement of colleagues in the Linguistics Section of the PNG Branch of SIL in the preparation of this paper, particularly Steve Parker, whose expertise in the field of phonology has been a tremendous boost to us. We wish to thank the Kaluli people themselves for their friendship, help, and patience as we have worked to learn and analyse their language. Some of those who have given significant time and input include Mei Howe, Meiyo Beuwe, Yalibi Baiya, Wano Hemida:, and Segea Sogobaiya.
9. Bibliography


