THE PHONOLOGY OF MALAKMALAK

DAVID B.W. BIRK

0.1. INTRODUCTION

MalakMalak is an Australian language spoken by a dwindling number of Aboriginals on the Daly River, Western Arnhem Land, about one hundred miles south-west of Darwin. There are currently not more than twenty speakers for only nine of whom it is the mother-tongue. The outlook for the language is bleak. Seven of these nine are a family of unmarried brothers and sisters who appear resigned to the celibacy demanded of them by their late mother. The eighth is the aged father of the family. The ninth is Solomon, the son of my original informant, the late Harry Putyput'. The former is himself ageing and unwell and his ten year old son speaks rather more English than MalakMalak.

Historically, MalakMalak territory is situated on the north side of the Daly River, with the boundary about sixty miles from the mouth (Stanner 1933; Capell 1963). Most of the surviving speakers live on the north side at Wooliana. Stanner’s topographical description of the Daly River (op. cit. pp. 380; 385) estimates the area of Aboriginal habitation to have been a ‘narrow strip of country, less than twenty miles long, on the alluvial flats between the middle and lower reaches of the ... river.’ It is originally to the MalakMalak that this settled strip of country belonged, according to Stanner (op. cit).

1.1. CONSONANTS

1.10. There are fourteen consonantal phonemes: four stops p t tʃ k, four nasals m n n̥ŋ ɡ, two laterals l l̥, one vibrant (flapped) ɳ, one continuant r, and two semi-consonants w ɣ.
1.11. **CONSONANTAL CONTRASTS.**

The stops contrast at bilabial, apico-alveolar, lamino-alveolar, and dorso-velar points of articulation.

**Word-initial examples:**

- pak
- tuřk
- tvuřk
- kak
- sit
- drink
- bury
- hurt

**Word-medial examples:**

- apap
- mata
- mat'yan
- akak
- sick, tired
- rain
- foot
- vomit

**Word-final examples:**

- pap
- pat
- piti
- pik
- rush
- fly
- rub firesticks together
- rope

1.12. The nasal phonemes m n n'y ƞ are voiced and contrast at bilabial, apico-alveolar, lamino-alveolar, and dorso-velar points of articulation.

**Word-initial examples:**

- man
- nan
- n yatn yat
- qatqat
- stomach
- that (demonstrative)
- chip wood
- be unable to fix something

**Word-medial examples:**

- aman
- pön yö
- pana
- pana
- now
- banyan
- father
- again

**Word-final examples:**

- pam
- qan
- tin y
- taq
- put
- comparative particle
- try (adverb)
- mix (intr.)
1.13. The lateral phonemes are voiced and contrast at apico-alveolar and lamino-alveolar points of articulation.

Word-medial examples:

\[\text{yilik} \quad \text{lily-root}\]
\[\text{yilyi} \quad \text{bubble}\]

Word-final examples:

\[\text{gul} \quad \text{penis}\]
\[\text{nul} \quad \text{sea-breeze}\]

Of the two lateral phonemes only the apico-alveolar can occur word-initially.

1.14. The vibrant (flapped) \(r\) is apico-alveolar contrasting with the semi-consonant post-alveolar frictionless continuant \(\check{r}\):

Word-medial examples:

\[\text{miři} \quad \text{sun}\]
\[\text{miri} \quad \text{tears}\]

Word-final examples:

\[\text{tar} \quad \text{bite}\]
\[\text{tar} \quad \text{crush}\]

Neither \(r\) nor \(\check{r}\) occur in word-initial position.

1.15. The semi-consonants \(w\) and \(y\) are voiced and contrast at the bilabial and lamino-palatal points of articulation.

Word-initial examples:

\[\text{wapi} \quad \text{take} \quad \text{walk} \quad \text{stone}\]
\[\text{yipi} \quad \text{leave} \quad \text{yalk} \quad \text{moon}\]

Word-medial examples:

\[\text{tawut} \quad \text{blood} \quad \text{treyo} \quad \text{shark}\]

1.16. **CONSONANTAL VARIANTS**

\(/p/ \quad [p]\)

(1) Voiceless bilabial stop, occurring word-initially and word-finally:

\[\text{payak} \quad [\text{payak}] \quad \text{back}\]
\[\text{larap} \quad [\text{larap}] \quad \text{bind}\]
[11] Word-finally, released and unreleased\textsuperscript{1} allophones alternate:
\begin{itemize}
\item \textit{tap} [\textit{tap} \sim \textit{ta}^p] \quad \textit{grab}
\end{itemize}

[b] Voiced bilabial stop, occurring intervocically, and following voiced consonants:
\begin{itemize}
\item \textit{tapak} [\textit{tabak}] \quad \textit{break}
\item \textit{tumpu}$\check{\textit{r}}$k [\textit{tumbu}$\check{\textit{r}}$g] \quad \textit{hiccough}
\end{itemize}

/\textit{t}/ \quad [\textit{t}]

(1) Voiceless apico-alveolar stop, occurring word-initially and word-finally, and following a voiceless consonant:
\begin{itemize}
\item \textit{tat}$\check{\textit{v}}$ [\textit{tat}$\check{\textit{v}}$] \quad \textit{hit}
\item \textit{tat} [\textit{tat}] \quad \textit{see/find}
\item \textit{tiktat} [\textit{tiktat}] \quad \textit{look back}
\end{itemize}

(11) Word-finally, released and unreleased voiceless allophones alternate:
\begin{itemize}
\item \textit{t\check{\textit{v}}y\check{\textit{e}}y}\check{\textit{t}} [\textit{t\check{\textit{v}}y\check{\textit{e}}y}\check{\textit{t}} \sim \textit{t\check{\textit{v}}y\check{\textit{e}}y}\check{\textit{t}}^\prime] \quad \textit{red kangaroo}
\end{itemize}

[d] Voiced apico-alveolar stop, occurring intervocically, and following voiced consonants:
\begin{itemize}
\item \textit{titit} [\textit{tidit}] \quad \textit{cheeky yam}
\item \textit{anta} [\textit{and}A] \quad \textit{allright}
\end{itemize}

/\textit{t\check{\textit{v}}}/ \quad [\textit{tv}]

(1) Voiceless lamino-alveolar stop, occurring word-initially and word-finally:
\begin{itemize}
\item \textit{t\check{\textit{v}}iy\check{\textit{v}}y} [\textit{t\check{\textit{v}}iy\check{\textit{v}}y}] \quad \textit{pick up}
\end{itemize}

(11) Word-finally, released and unreleased voiceless allophones alternate:
\begin{itemize}
\item \textit{yinm\check{\textit{e}}y}\check{\textit{i}}\check{\textit{t}}y \ [\textit{yinm\check{\textit{e}}y}\check{\textit{i}}\check{\textit{t}} \sim \textit{yinm\check{\textit{e}}y}\check{\textit{i}}\check{\textit{t}}^\prime] \quad \textit{little (plm)}
\end{itemize}

[d\check{\textit{v}}] Voiced lamino-alveolar stop, occurring inter-vocically, and following voiced consonants:
\begin{itemize}
\item \textit{at\check{\textit{v}}\check{\textit{a}}} [\textit{adv\check{\textit{a}}}] \quad \textit{grandmother}
\item \textit{ye\check{\textit{n}}\check{\textit{v}}\check{\textit{r}}} [\textit{yen\check{\textit{n}}\check{\textit{v}}\check{\textit{r}}}] \quad \textit{dew}
\end{itemize}

/\textit{k}/ \quad [\textit{k}]

(1) Voiceless dorso-velar stop, occurring word-initially and word-finally:
\begin{itemize}
\item \textit{kak} [\textit{kak}] \quad \textit{hurt}
\end{itemize}
(11) Word-finally, released and unreleased voiceless allophones alternate:

\[ \text{mint\text{"y}itak} [\text{mind\text{"y}idak} \sim \text{mind\text{"y}ida}^k] \text{ emphatic pronoun} \]

[g] Voiced dorso-velar stop, occurring intervocically, and following voiced consonants:

\[ \text{kakak} [\text{kag\text{"a}k}] \text{ long way} \]
\[ \text{pọ̈ŋköl} [\text{pọ̈ng\text{"o}l}] \text{ knee} \]

[/l/ Voiced apico-alveolar lateral resonant, occurring word-initially, word-medially, and word-finally:

1. \[ \text{la\text{"a}k} [\text{la\text{"a}k}] \text{ eat (meat)} \]
2. \[ \text{työlöl} [\text{työlöl}] \text{ go down (both recede (of water) and descend)} \]
3. \[ \text{pa\text{"a}lpa\text{"a}l} [\text{pa\text{"a}lba\text{"a}l}] \text{ wide} \]

[l] Velarized lateral, conditioned by an immediately preceding high open back rounded vowel, occurring, either by itself or as the first member of a cluster whose second member is the voiced dorso-velar stop [g]:

\[ \text{ku\text{"u}l} [\text{ku\text{"u}l}] \text{ stab (turtle)} \]
\[ \text{mu\text{"u}lk} [\text{mu\text{"u}lg}] \text{ bamboo} \]
\[ \text{pu\text{"u}lk} [\text{pu\text{"u}lg}] \text{ baby chicken} \]

[/y/ [i] Fronted on- or off-glide:

\[ \text{ya\text{"a}l} [\text{ya\text{"a}l}] \text{ moon} \]
\[ \text{yọ̈yọ̈} [\text{yọyọ}] \text{ he stands up/lies down (v. 3.15; 3.16)} \]
\[ \text{czy} [\text{czy}] \text{ spear (verb root)} \]

[/w/ [u] Rounded on-glide:

\[ \text{wa\text{"a}l} [\text{wa\text{"a}l}] \text{ stone} \]

1.2. VOWELS

1.20. There are five vocalic phonemes in MalakMalak:

[/i/ high close front unrounded
[/ε/ mid open front unrounded
[/ö/ mid close retracted front unrounded
[/a/ low open central unrounded
[/u/ high open back rounded
1.21. VOCALIC CONTRASTS

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i/</td>
<td>High close front unrounded vocoid occurring as the norm of the phoneme.</td>
<td>mi [mi] food, pi [pi] go</td>
</tr>
<tr>
<td>[i]</td>
<td>High open front unrounded vocoid occurring in unstressed syllables. It occurs as carrier of primary stress only when immediately preceded, or immediately followed, by a fronted on-glide, e.g. yin'ya ['i:nYa] (initiated) man, piyip [pi'ip] sick.</td>
<td>yinin [yin'in] nose, tinin [ti'inn]</td>
</tr>
<tr>
<td>[e]</td>
<td>Mid close front unrounded vocoid</td>
<td>pi! [pi!] go! (Verb Root imperative)</td>
</tr>
</tbody>
</table>
## THE PHONOLOGY OF MALAKMALAK

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Allophone</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ɛ/</td>
<td>[ɛ]</td>
<td>Mid open front unrounded vocoid and the norm for this phoneme</td>
<td>te [te] meat, pe [pe] golden catfish</td>
</tr>
<tr>
<td></td>
<td>[ɛ̃]</td>
<td>This allophone of /ɛ/ has a high fronted off-glide occurring immediately preceding the lamino-alveolar stop [tv] and the lamino-alveolar nasal /n̥/</td>
<td>tetetv [tẽtvtẽtv] white ant, tven [tṽn̥v] make</td>
</tr>
<tr>
<td>/œ/</td>
<td>[ø̃]</td>
<td>Mid close retracted front unrounded vocoid, and the norm for this phoneme.</td>
<td>tõm [t̃om] weak, p̃opo [p̃õbo] fan flames</td>
</tr>
<tr>
<td>/a/</td>
<td>[a]</td>
<td>Low open central unrounded vocoid, and the norm for this phoneme.</td>
<td>ma [ma] wallaby, pam [pam] put (p10)</td>
</tr>
<tr>
<td></td>
<td>[ã]</td>
<td>This allophone of /a/ has a high fronted off-glide, occurring immediately preceding the lamino-alveolar consonants /tv/, /n̥v/, /tṽ/</td>
<td>matyan [mãdyan] foot, -man [mãn̥] &quot;departing from&quot; (suffix), ɳalv [ɳãlv] skin</td>
</tr>
<tr>
<td>/u/</td>
<td>[u]</td>
<td>High open back rounded vocoid and</td>
<td>punu [pûnu], puĩu [pûĩu]</td>
</tr>
</tbody>
</table>
1.3. THE INTERPRETATION OF GLIDES

The only sequences of vocoids that occur in the language are glides of the form \(\mathbf{\text{iV}}, \mathbf{\text{Vi}}\) and \(\mathbf{\text{uv}}\), where \(\mathbf{\text{i}}\) and \(\mathbf{\text{u}}\) are high front unrounded and high back rounded vocoids, respectively; \(\mathbf{\text{V}}\) is any admissible vocoid. The question arises as to whether the \(\mathbf{\text{i}}\) and \(\mathbf{\text{u}}\) are to be interpreted as semi-consonants or as vowels.

The only evidence available for deciding between these two possibilities are the following two classes:

(1) the \(\mathbf{\text{[ui]}\text{i}}\) case; and

(2) the \(\mathbf{\text{[ei]}\text{i}}\) diphthong case.

(1) The former case concerns the word \(\mathbf{\text{[ui]}\text{i}}\text{breast/milk} \) (which is distinct from \(\mathbf{\text{[ui]}\text{anger/fight}}\). The question is whether the vocalic nucleus of \(\mathbf{\text{[ui]}\text{i}}\) is to be interpreted as a long vowel /\text{i}/ or as a disyllable with an intervocalic lamino-palatal semi-consonant, /\text{i}v/.

There are two arguments against the 'long vowel' hypothesis. Firstly, vocalic length is not systematically phonemic in the language. Secondly, the word \(\mathbf{\text{[ui]}\text{i}}\) is disyllabic: there is a perceptible chest-pulse between the two like vowels. Hence, to interpret the fronted on-glide in any way other than as a lamino-palatal semi-consonant would seem to be contrary to the phonetic facts.

(2) The \(\mathbf{\text{[ei]}\text{i}}\) diphthong case concerns the Verb Root \(\mathbf{\text{[ei]}\text{i}}\text{kill} \) (potentially or actually) with a missile immediately followed by the Auxiliary \(\mathbf{\text{[a]}\text{i}}\text{A}]:\)
\[ \varepsilon^i + [a^i\lambda] \]

The question is whether the fronted off-glide of \([\varepsilon^i]\) is to be interpreted vocalically or semi-consonantally.

The argument against the vocalic interpretation stems from the vowel-elision rule that results from the operation of sandhi (v.1.4.) within the Verb Complex (v. fn. 4.). According to this rule, when vowels are contiguous across word-boundaries the vowel of the vowel-initial word elides the word-final vowel of the preceding word. Thus, if the fronted off-glide of \([\varepsilon^i]\) is interpreted as a vowel the following should result: \([\varepsilon^i] + [a^i\lambda] > [\varepsilon a^i\lambda]\) (a solution which does not adequately reflect the phonetic facts in that the vocalic sequence \([\varepsilon a^i\lambda]\) does not occur in the language). But if, on the other hand, the fronted off-glide is interpreted as a lamino-palatal semi-consonant the vowel-elision rule cannot apply, and the sequence \([\varepsilon^i] + [a^i\lambda]\) is interpreted as \(\varepsilon y\ aya\), as is heard in the language.

In review, then, it is clear that if the fronted glides are interpreted as semi-consonants, not only is this nearer to the phonetic facts but syllabic structure is also made neater by the avoidance of uncharacteristic vocalic sequences.

Thus, when occurring word-initially, \(i\) preceded by a fronted on-glide is interpreted as \(yi\):

\([i\in\nu a] > \yin\nu a\) (initiated) man

Similarly, \(u\), when occurring word-initially, immediately preceded by a back rounded on-glide is interpreted as \(wu\):

\([u\um\nu\a] > \wumu\wa\) steal

1.4. SANDHI

Vocalic contiguity across word-boundaries is handled differently in the language depending upon whether it occurs within or outside the Verb Complex.\(^3\) Within the Verb Complex sandhi takes place:

1. \(pf\) \(\dot{a}t.ta\) > \([p\dot{a}t\lambda]\)
   (VR) go (Aux) lexSP.2 (Pres/Past)
   We (excl.) go/went.

2. \(t\dot{a}tma\ y^i.ta\) \(+\-\delta\in\nu\gamma\) > \([t\dot{a}tma\ y\Id\delta\in\nu\gamma]\)
   (VR) see.cnt (Aux) 3sgmSP.2(Pres/Past +1sgOP)
   He is/ was looking at me.
3. ánti ɬyma wút.ta
adv (recip) (VR) spear.cnt (Aux)3plSP.2(pres/Past)
[ɬndē'i.ma wút.]

They fought each other with spears.

In these and similar cases, as a result of the operation of sandhi the vowel of the vowel-initial word elides the word-final vowel of the preceding word, retaining its stress in the process, and a new phonological word is formed. Thus, in the case of both the trisyllabic words [yədárən̪a] and [ɬndē'i.ma] primary stress falls on the second syllable through the process of elision.

Outside of the Verb Complex sandhi does not take place:

4. mɪ akána [mɪ ægänə] ~ mɪ ákanə [mɪ ægänə]
vegetable food adv (neg) (v.1.6.)
No food.

5. tē ářpuرع [tē ářbuřu]
meat 1(ic)OP(bf)
Meat for us (inclusive).

1.5. SYLLABLE PATTERNS

The following syllable types occur:

V    a.ya 1sgSP.1(Punct)
VC   ak  a species of catfish
CV   tē  generic marker for animals hunted for meat, and the meat itself.
CVC  tēk  camp
CVCC tuřk  drink (Verb Root).

1.6. THE PHONOLOGICAL WORD

1.60. GENERAL REMARKS

The phonological word in MalakMalak is a minimal utterance carrying one primary stress. The phonological word defined by the position of the phonological stress. In the one, stress falls on the first syllable and all odd-numbered syllables subsequent to this. In the other case stress falls on the second syllable and all even-numbered syllables subsequent to this. In the former case, phonological word-boundary immediately precedes primary stress. In the latter case phonological word-boundary recognition is assisted by potential pause and, to a minor degree, phonemic distribution: ɨv, ɬ and r cannot
occur word-initially, nor word-finally.

Word stress carries little functional load in MalakMalak. Primary stress is usually accompanied by raised pitch. In the following examples of individual cases primary stress is marked by (') and secondary stress by (').

Monosyllabic words carry primary stress:

```
tín' pí
(adv) go
Try and go!
```
```
yén wá
yamstick pick up
Pick up the yamstick!
```

Words of two syllables are stressed on the first syllable:

```
yöntön he (Subject Pronoun)
týńgar spear
múyiny dog
wúru arm (or rivulet)
```

The only exceptions to this rule are (1) primary stress falls on the phase-final syllable of yes/no interrogatives and imperatives (see section 1.7.), and (2) where roots are reduplicated, in which case they carry reduplicated primary stress:

```
lámiám talk/have a chat
pítpity rub firesticks
wérkwérk flat-tailed catfish
mírmír melt
tóytóy stretch (intr.)
```

Trisyllabic words are usually stressed on the first and third syllables:

```
álawàr woman
mélipapú father (reference as opposed to address)
máparà follow
ákunmàn where from?
```

However, a contrastive stress-pattern may be realized within the trisyllabic phonological word: primary stress may fall on the second syllable, giving the word an emphatic force:

```
akúnmàn where from?
mélipápú father
akánà negative (adverb/adjective)
```

If a trisyllabic phonological word in the Verb Complex has a second syllable primary stress this will be a result of sandhi (v.1.4.).
Tetrasyllabic words are usually stressed on the first and third syllables:

- mútyu-même: very many
- múnankà: beautiful
- kárákarwàrat: take a number of objects out (of some container)

Tetrasyllabic auxiliaries receive primary stress on the second, and secondary stress on the fourth, syllables. This is the only stress-placement possibility for tetrasyllabic auxiliaries in the language:

- wiřniwà: They will sit.
- nukúttöyùg: You (pl.) are going to lie down.
- nukútyuwà: You (pl.) stood up.
- nák aŋkáyawà: You and I eat/ate (non-meat food).

Pentasyllabic words always take primary stress on the second syllable and secondary stress on the fourth:

- tyeatwéřamàŋkii: fork-stick
- aŋkñiyàŋkii: You and I will stand.
- aŋkñönyùŋkii: You and I will lie down.
- ořkñönyùŋkì: They will lie down.
- aŋkñiyàŋkì: We are all going to stand.
- pařàrròtòřrat: get up and stand up (pl. subject)

Heptasyllabic words also always take primary stress on the second syllable, secondary stress falling on the fourth and sixth syllables (in accordance with the rule that every second syllable is stressed):

- te aŋ wuwùnunùnuwàkñ: He would have given you (sg) meat.

Hexasyllabic words take primary stress on the first syllable, secondary stress on the third and fifth:

- nöŋkñòřówyùŋkì: You (pl.) will lie down.

That is to say, this is regular in terms of the first-syllable and odd-numbered subsequent-syllable stress rule.

Similarly, octasyllabic words take primary stress on the first syllable and secondary stress on odd-numbered syllables subsequent to this:

- te aŋ nöŋkuřúntuŋwófoòwàkkà: You (pl.) would have given them meat.

The environment for almost all instances of obligatory second-syllable stress-placement is the Verb Complex (cf. the sandhi phenomenon, 1.4.). For example, the only heptasyllabic words in the language occur as inflected auxiliaries. Pentasyllabic words tend to be either auxiliaries,
or Verb Roots such as paʃaratiɾət; pentasyllabic nouns like tʁetweɾamɔŋki are rare.

1.61. THE DISTRIBUTION OF PHONEMES WITHIN THE PHONOLOGICAL WORD

1.61.1. Consonant Distribution

Any single consonant except ɾ, ŋ and r may occur word-initially. There are no consonant clusters in the phonological word-initial position.

1.61.2. Consonant clusters are unequally divisible into those that occur intra-syllabically and those that occur inter-syllabically. There are seven intra-syllabic consonant-clusters, all of which have a liquid as initial consonant in the cluster, and ninety-six inter-syllabic clusters.

Of the clusters that have a stop as the final consonant, fifteen have an initial nasal:

<table>
<thead>
<tr>
<th>Consonant Cluster</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tumpurk</td>
<td>hiccup</td>
</tr>
<tr>
<td>lamtɛl</td>
<td>stop (someone doing something)</td>
</tr>
<tr>
<td>lamtyɛk</td>
<td>stop (tr.)</td>
</tr>
<tr>
<td>timkut</td>
<td>bury (rubbish etc.)</td>
</tr>
<tr>
<td>yunpayin</td>
<td>good</td>
</tr>
<tr>
<td>piyantuk</td>
<td>underneath</td>
</tr>
<tr>
<td>yeɾtvir</td>
<td>dew</td>
</tr>
<tr>
<td>alanki</td>
<td>bring back</td>
</tr>
<tr>
<td>wanypi</td>
<td>paddle (a canoe)</td>
</tr>
<tr>
<td>manytutma</td>
<td>big crowd (of people)</td>
</tr>
<tr>
<td>puɾuŋpuɾuŋ</td>
<td>boil (Verb Root)</td>
</tr>
<tr>
<td>taŋtavma</td>
<td>hit repeatedly</td>
</tr>
<tr>
<td>lʊɾtyɾat</td>
<td>(of bird, with anatomical food-bag) replenish</td>
</tr>
<tr>
<td>manytvɛtmatan</td>
<td>not produce children</td>
</tr>
<tr>
<td>pʊŋköl</td>
<td>knee</td>
</tr>
</tbody>
</table>

Five have an initial lateral:

<table>
<thead>
<tr>
<th>Consonant Cluster</th>
<th>Meaning</th>
</tr>
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<tbody>
<tr>
<td>pilp</td>
<td>slap</td>
</tr>
<tr>
<td>altak</td>
<td>break (tr.)</td>
</tr>
<tr>
<td>kaltvɛt (puntuna)</td>
<td>carry (on head)</td>
</tr>
<tr>
<td>yalk</td>
<td>moon</td>
</tr>
<tr>
<td>tapulyp</td>
<td>extinguish fire (with fingers, as opposed to feet)</td>
</tr>
</tbody>
</table>

Four have a vibrant ŋ as initial consonant:

<table>
<thead>
<tr>
<th>Consonant Cluster</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tʋuɾp</td>
<td>cut</td>
</tr>
<tr>
<td>muɾtuk</td>
<td>hatch</td>
</tr>
</tbody>
</table>
muŋyŋ trip
djŋ̄̕k die

Four have a continuant r as initial consonant:

kurpuk wash
lerp meet (predicated of a large number of persons)
t̷̂r̷̂wər̷̂tel forget
purwartyet get dark
purkin grey kangaroo
kark go up a slope (a bank, e.g.)

Four have a geminated stop sequence:

lup.pi.ma together.go.continuative
at.ta lex SP.2 (Pres./Past)
katv.t̷̂nû̷rikwat throw.put inside: throw inside
lak.kat̷̂ eat (meat).throw: leave some meat (when unable to eat more)

Ten have a heterorganic stop sequence:

tap.tapali hold on to something moving (animal)
tap̷̂riŋ drop
kumitpû̷lk sand goanna
yittv̷̂t̷̂vat slough skin
ŷ̷t̷̂kar scale (fish)
kat̷̂puk might beat (competitively)
tat̷̂vakak hurt (tr.)
ŷ̷kiŋ small
lamtv̷̂maktan try to stop unsuccessfylly
waktv̷̂lkmak waterfall

Of the remaining clusters that have a nasal as initial consonant, six have semi-consonants as final member:

manwiŋyŋ hungry
tat wöwọ̀ntọnyọ́ŋ he/she sees/saw us (excl.)
kinyŋat hang (up)
man̷̂yur cover
tviŋyanwat send over (food e.g.)
katv̷̂puk yọ́ŋpuŋyọ́ŋ he might beat us (ex) (competitively)

Of the clusters that have a stop as the initial consonant, thirteen have a nasal as final consonant:

apma be quiet!
tapnö grab him (male human or animal)
tapŋa grab (something) over there
antatatma find each other
tatnö find him
nya tnyat chip wood
tutna causative.deictic suffix
kut'ma whistle
tatynö hit him
watynuru try
nakma eat
nanakna really
payaknarö beetle

Eight have a semi-consonant as final consonant:
tapwapakkatv turn over (tr.) (of a turtle, e.g.)
apyurali participial form of yur: lie (down)
tatwur be missing
tatyur sleep fitfully
yukutywat move (fire e.g.) along (to harden
newly-cut canoe)
katyipi leave behind (tr.)
yanakwuna just one
wakyn wet

Of the remaining clusters that have a nasal as the final consonant, twelve have nasals as initial consonants. (Three of these are germinated sequences which are morphemically glossed in what follows):
lam lam ma talk (VR).cnt
tam.nöyat cook (meat) wrapped up (i.e.,in paperbark)
manmal wing
ynun na spatial specifier.locative
-yinna in/on/beside
la Jama light (antithesis of dark)
tvöynö fire-place (lit. belongs to fire)
tatyömpung nayl he is going to hit her.
wanyma row or paddle
tatyiminynö he sees/saw him
eyinmanynäa nobody
tvinnyukma water-rat

Of the remaining clusters that have an initial lateral, four have a nasal as final consonant:
wilm a swim
töön stretch (Intr.)
mulymulyma  ripe/soft
nilyilgaga  take bark off in small strips (away from speaker)

Three have a semi-consonant as final member:
nöwölweřiyên yita  he makes a lot of trouble
kalyur  carry
tyılıwuřkali  wrinkled (skin)

Of the remaining clusters that have a vibrant (flapped) ř as initial consonant, three have a nasal as final consonant:
pärmätŋ  old woman
kaʁnilyur  scratch skin so as to break it
kaʁŋöyат  light pipe/cigarette

One has a lateral as final consonant:
kaʁläk  pick edible meat (worm etc.) out of ground and eat it (predicated of a bird, e.g.)

Two have semi-consonants as final members:
kuʁwapi  drag along
kaʁyit  comb hair

Of the remaining clusters that have a continuant r as the initial consonant, three have a nasal as final consonant:
arma  dry (VR)
alawarnö  for or belongs to the woman
tarŋifk  kill (VR) with a missile

One has a lateral as final consonant:
manytųurlinyŋ  bush rope

Two have semi-consonants as final members:
yarwa  leader (of fighting contingent) or boss
alawaryinga  beside the woman

Of the clusters with an apico-alveolar lateral as the second consonant, one has a stop as initial consonant:
tatŋiam  capsize

Two have a nasal as initial consonant:
lamiam  talk (vb. stem)
manlapar  lung
1.61.3. Twenty-nine three-consonant clusters have been attested. They all occur word-medially across morpheme boundaries. The characteristic pattern is a syllable-final cluster (called an intra-syllabic cluster (v.1.61.2.)) followed by any one of the set of consonants permissible as second member of a two-consonant cluster. The typical composition of a syllable-final cluster in this phonological structure is: a liquid followed by a bilabial or dorso-velar stop or, in one instance, a dorso-velar nasal.

\[
\begin{align*}
\eta l k p a k & \quad \text{sit down when full up with food} \\
\eta l g a l k t a r g a l k & \quad \text{bump into someone} \\
\eta l k t y e t & \quad \text{stand up when full up with food} \\
t r a l k m a & \quad \text{fall} \\
t e l k g a & \quad \text{singe hair from animal (away from speaker)} \\
\eta l k w u k u t y & \quad \text{fill (lot of people) with food} \\
t r a l k y u r & \quad \text{bend over} \\
t v i r k t y e t & \quad \text{join (VR) (e.g. two bits of wood)} \\
k e r k k a t y & \quad \text{startle} \\
p e r k m a & \quad \text{rest (VR)} \\
k a r k w a t & \quad \text{take (meat, e.g.) from fire} \\
t v u r k y i w a f a , t o n o & \quad \text{lot of people go into jungle} \\
\eta l a m u k m a & \quad \text{swear, curse} \\
a n u r k n a & \quad \text{half-way} \\
t v u r k w a t & \quad \text{swallow} \\
t v u r k y i w a y a , t o n o & \quad \text{one person goes into jungle} \\
t a l p t a l p m a & \quad \text{run along playing} \\
k o l p t y e t & \quad \text{roast (a single animal)} \\
k o l p m a & \quad \text{roast (unmarked for quantity)} \\
t a p u l y p & \quad \text{extinguish fire} \\
p u l y p y u r & \quad (\text{fire}) \text{ dies down} \\
t o l g m a & \quad \text{stretch (VR)} \\
l e r p m a & \quad \text{meet, of a large number} \\
t v u r p p a k , (p o n k ö l) & \quad \text{kneel down} \\
t v u r p t e t y & \quad \text{cut off} \\
t v u r p k a t y & \quad \text{dig} \\
t v u r p t y e t & \quad \text{plant (VR)} \\
t v u r p p m & \quad \text{plant (p10)} \\
m a n t u m t o r p y u r & \quad \text{spiked by fin (of catfish)} \\
\end{align*}
\]

1.61.4. Vowel Distribution

The vowels /a/ and /e/ may occur word-initially, /i/, /ö/ and /u/ may not. The only other constraints on vocalic distribution are,
firstly, that /a/, /ɛ/ and /u/ do not follow /ɪ/ and, secondly that there are no vocalic clusters (v.1.3.).

1.7. THE PHONOLOGICAL PHRASE

The phonological phrase consists of phonological words. There is a variety of phonological phrases defined by the following intonation patterns. 8

A phrase-final fall in pitch level marks the end of a (non-interrogative) sentence.

A phrase-final high rise in pitch marks the end of a yes/no question. In an information question the interrogative carries a high pitch on its first syllable and primary stress falls on the phrase-final syllable with a concomitant low rise in pitch.

When the phrase-final intonation is no different from the pitch-level of the rest of the phrase, this denotes a sentence-medial phrasal statement. When the phrase-final intonation differs from that of the rest of the phrase only in that it has a low rise contour, this denotes a sentence-medial anticipative intonation.

The imperative intonation is marked by two features. Firstly, it is spoken faster than normal. Secondly, the phrase-final syllable receives primary stress with a concomitant low rise in pitch.

An emphatic negative involves a sharp fall in pitch.
NOTES

1. A raised consonant represents an unreleased consonant.

2. Only one instance has been recorded in which vocalic length has a distinctive value: kupuk [kubuk] dive (predicated of an individual) as against kwpuk [kubuk] dive (predicated of a number of persons). This is equivalent to the partial reduplication that has a pluralizing function with certain Verb Roots: e.g. yur > yurur: lie down (predicated of an individual and a number, respectively).

3. The Verb Complex (VC) may be expanded as follows:
   (adverb) {(Verb Root)(Auxiliary)} (object pronoun)

4. See section 1.6., below, for a discussion of Word Stress.

5. Primary stress falls obligatorily on the second syllable for five- and seven-syllable words and for four-syllable auxiliaries. Second syllable primary stress is optional for trisyllabic words (except where sandhi is involved, in which case it is obligatory).

6. Relative loudness, pitch and length were not measured mechanically in the analysis of stress.

7. More precisely, regarding the latter, what R.H. Stetson ('Motor Phonetics', 1928) called 'abutting consonants'.

8. What follows is not an exhaustive statement of the intonation patterns. Much more research into this area of the language is needed before such a statement will be possible.
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