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NOTES ON THE "PIDGIN ENGLISH" CREOLE
OF ROPER RIVER*

M.C. SHARPE

Most Aboriginals resident at Ngukurr (Roper River Settlement) during my visits there in 1966-68 speak as their first language (if younger) or usual language of communication (if older) a creole language which they refer to as Pidgin English (henceforth referred to as PE in this paper). Those fluent in English clearly differentiate the two and rarely mix them; those less fluent in English will speak a mixture of English and PE (the proportion varying with their familiarity with English) to visiting non-Aboriginals. However, almost all of them, including the most fluent in English, respond with more ease and with greater precision if the non-Aboriginal uses PE rather than English.

Two such creoles are reported from Bagot Settlement, Darwin, and, if information from others, many not being linguists, is correct, very similar creoles are spoken in other areas of the Northern Territory where there are cattle stations. Some are less mutually intelligible with English, the degree of mutual intelligibility varying with the degree of contact with white Australians. It is higher at Roper River than at Nutwood Downs and Hodgson Downs cattle stations, for example.

My elderly informant at Ngukurr, Mr Barnabas Roberts, an Alawa tribesman (now deceased), told me that stockmen brought PE to the Territory from the Queensland canefields in the last century, during the time when South Sea Island labourers were brought there. (As some of these workers took this lingua franca, known as Beach-la-Mar, back to New Guinea, it has presumably exerted some influence on the emergence of Neo-Melanesian.)

*This article also appears in the Australian Institute of Aboriginal Studies NEWSLETTER New Series No. 2, June 1974. A few details have been updated here.
My informant told me this pidgin became a lingua franca at Ngukurr at its inception as a mission in 1908, when Aborigina ls from a dozen or so tribes found refuge there. It has become much more anglicised with increasing contact with white Australians. It is, however, still distinct from English as a language, unlike Queensland Aboriginal English dialects (referred to here as AbE), which are dialects of English.

In support of its relationship with Neo-Melanesian, similarities in structure and also in specific words can be adduced. For example, the usual PE word for 'food' at Ngukurr is daga, and for 'eat' is dagad dagad. PE speakers recognised kaikai (Neo-Melanesian for 'food, eat') as the old word in their PE. buji 'if' in PE seems derived from sposim in Neo-Melanesian by the phonological rules of the language.

There is also much in Queensland AbE which is reminiscent of PE, so much so that it seems most likely that AbE evolved from a pidgin English, and one very similar to Roper PE. The PE word for 'old woman' (apparently from English) is ulgumen (or olgomen), which is also known and used by some AbE speakers in Central Queensland. The expression jaya lug 'it's there, see!' is used with the same intonation in both PE and AbE. There are other shorter expressions used in both PE and AbE with the same phonology and intonation.

Some older Queensland Aborigina ls do indeed still use a pidgin.\(^1\) It appears that for the less isolated communities, this pidgin has evolved into a dialect of English. A similar process may well be going on at Ngukurr, which, if conditions had not changed, would produce a variant dialect of English within a few generations.

This suggested connection of PE with Beach-la-Mar is disputed by Flint,\(^2\) who on good historical grounds shows:

1. Beach-la-Mar, developing in the 18th century in the Pacific "is the direct ancestor of Solomon Island Pidgin and New Guinea Pidgin, though it shows many differences from both",\(^3\) and New Guinea Pidgin (Neo-Melanesian) was well established in north-west New Guinea by the 1880s.

2. The Pidgin spoken on the canefields was brought by Pacific Island labourers from 1863 onwards. Only between 1876 and 1884 were New Guinea labourers brought in.

3. "Long before 1880 - when both Kanaka Pidgin and New Guinea Pidgin were developed - the original Australian Aboriginal Pidgin was already established in all areas of white settlement, including the Northern Territory."\(^4\)

4. The Islanders despised the Aborigina ls and had very little contact with them, therefore the language could hardly have been transferred.
It may therefore be that the pidgin Mr Roberts said was brought by stockmen was not that of the canefields, though one may have influenced the other through white contacts. My informant was old enough to remember the early years of this century, and to have met and heard accounts from older people at the time. He was also notable in other spheres for distinguishing hearsay from both probable and known fact, and from his own experience. His account therefore should not be dismissed merely because he is not a trained linguist or historian (or dare I say - because he is not a highly educated European?).

The writing and publishing of this paper has been delayed due to a number of factors. However, it was completed in time to be of use to another linguist (John Sandefur) now working on the creole. His transcriptions differ slightly for some words; we know now of a fourth preposition and more verb auxiliaries; he has more information on the stylistic continuum, including comments by creole speakers on how they see it; however, his data extend rather than contradict what is presented here.

PROBLEMS IN STUDYING PE

When studied in detail, PE at Ngukurr seems very variable, both with different speakers and with the same speaker on different occasions. One missionary nurse at Ngukurr, having done a short course in linguistics, had attempted to study PE. She had, however, abandoned the attempt, because as she told me, it varied so much from speaker to speaker. Flint in correspondence mentioned an attempt in the Torres Strait Islands to write their pidgin in the schools. This attempt was abandoned because of lack of agreement among speakers.

A possibility at Ngukurr was that each tribal group had a slightly different pidgin dialect, the difference being related to their own languages (and partially to the extent of contact with whites, as some tribal groups had minimal contact), or that there were two or more pidgin dialects used in different circumstances. Jernudd\(^5\) reported three English and pidgin-type languages at Bagot Settlement, Darwin, which he referred to as Aboriginal English (a restricted form of English), Creole and Roper Pidgin. He reports:

"The youth Creole is linguistically different from Pidgin. Creole is typologically closer to English than Pidgin since it has a similar phonology (although particularly the intonational characteristics are closer to Pidgin) and a more English vocabulary. Its syntax is basically a Pidgin syntax. Pidgin has preserved an Aboriginal-type phonology, in addition
to sharp syntactical differences from English. It is often referred to as Roper Pidgin (from Roper River). Many school-children switch between and are able to comment on the two Aboriginal English varieties, Pidgin and Creole. For them these varieties functionally stand in a diglossic relation (in addition to the diglossic relation between them and English). They use Pidgin to adults, Creole among themselves. Their Pidgin is in effect a modified Creole.6

Evidence at Ngukurr did not suggest two forms of creolised pidgin, in particular the same devoiced stops were used in speech to whites and among themselves, by children and adults; however, evidence does suggest a stylistic continuum with a Pidgin English at one extreme, and English at the other.

I have therefore gathered and sifted data using the two hypotheses below. The first hypothesis in particular has been applied by Flint and his associates in their analysis of Queensland Aboriginal English,7 and appears to account very well for the speech heard there. The two hypotheses are:

1. PE and standard English form the limits of a cline or stylistic continuum, and language heard will vary in type along this cline, depending on who the conversationalists are, and, if they are an Aboriginal talking with a European (or possibly also an Aboriginal not speaking or hearing PE), with the former's ability to handle English.

2. PE speakers (and native language speakers) have the same freedom to borrow foreign words and phrases with or without adjustment in pronunciation, as English speakers have. Just as in borrowing a French phrase or word, English speakers may or may not adapt the pronunciation towards that of English, so I have assumed PE speakers may do with borrowed English phrases or words.

Applying these hypotheses means, until the linguist is fluent enough and has a sophisticated enough informant, a somewhat arbitrary assigning of expressions to PE and English. There will be some difference of opinion when informants are asked whether an expression is PE or English, or whether it is correct PE or not, according to age group. (For example, Mr Roberts complained that the younger generation do not speak PE properly, quoting their use of bi mayn for 'my'.) There is also too much interference with PE, so similar to English, when questioning is done in English, so that monolingual elicitation in PE is to be aimed at. Where possible for this analysis, I have used PE utterances between native PE speakers; although the text examples given at the end of this
paper and some examples quoted were spoken to the linguist and tape-recorded, the analysis applies basically to overheard shorter utterances between native speakers. There was a marked shift in style, vocabulary and phonology in Mr Roberts' speech, for example (particularly in the early stages of my work at Ngukurr), when speaking to me or to relatives at Nutwood Downs (he also speaks good English to visiting non-Aboriginals). Excluded from study here is speech of some Aboriginal residents at Ngukurr who have come from non-PE speaking areas (such as Groote Eylandt). These have, like myself, learnt PE after they have learnt English, and their PE usage clearly betrays this fact.

PHONOLOGY

Phonologically, it appears the PE of a few decades ago had a phonology very similar to that of the languages of the area, and these had for the most part phonemes and patterning typical of many Australian languages. In 1967 the phonology of the PE spoken at Hodgson Downs and Nutwood Downs was still similar to this. That at Ngukurr also permitted some English phonemes and patterns. A chart of "old" phonemes is shown in Table 1. At Ngukurr, and among some speakers elsewhere, /e/, /o/ and /s/ (and sometimes /f/ and /ʃ/) are permitted phonemes, although /s/ often fluctuated with /ʃ/ in some words.

Tongue position is in general more retracted than in English, with the tip flattened. The rest position of the tongue is with the tip resting behind the bottom teeth, and the blade near the alveolar ridge. This lends a retroflexed quality to all alveolars.

Table 1. "Old" Phonemes of PE

<table>
<thead>
<tr>
<th></th>
<th>bilab</th>
<th>alv</th>
<th>retr</th>
<th>alv/pal</th>
<th>velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>devoiced stops</td>
<td>b</td>
<td>d</td>
<td>ɖ</td>
<td>ʃ</td>
<td>g</td>
</tr>
<tr>
<td>nasals</td>
<td>m</td>
<td>n</td>
<td>ɳ</td>
<td>ɲ</td>
<td>ŋ</td>
</tr>
<tr>
<td>laterals</td>
<td>l</td>
<td>ɭ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liquids</td>
<td>ɭ</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>semivowels</td>
<td></td>
<td>y</td>
<td>w</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vowels</td>
<td></td>
<td>i</td>
<td>u</td>
<td></td>
<td>a</td>
</tr>
</tbody>
</table>
The devoiced stops bear closer resemblance to English voiced stops than to the English voiceless stops.

The retroflexed alveolars did not occur word or syllable initially.

The alveolar flap (/ɻ/) does not occur word initially. Possibly [ɻ] and [r] are in mutually exclusive distribution and therefore belong to the one phoneme.

After the alveopalatal sounds /ɻ/, /ŋ/ and /y/ (actually labiodental articulation except when contiguous to alveolars), the phoneme /a/ is fronted to become phonetically [æ]. After the velars /g/, /ŋ/ and /w/, /a/ is backed to become phonetically /o/.

With certain exceptions, consonant clusters are avoided word or syllable initially. In English borrowings, /i/ or a harmonising vowel was usually inserted between the consonants of an initial cluster: /silib/ or /gilib/ 'sleep', /sineg/ or /gil neg/ 'snake', /bilang id/ 'blanket' and /buʃum/ 'from'; but /bla/ or /błaŋa/ 'belonging to', /brabl i/ 'really' and /sdori/ 'story'.

Stress is phonemic, although it is often predictable to English speakers. For example, /'dil ib/ 'tea', /'gil ib/ 'sleep', /'ginu/ 'canoe', /'gil neg/ 'snake'.

TECHNICAL ORTHOGRAPHY

The technical orthography chosen here is the same as the practical orthography on which Ngukurr residents are in substantial agreement. In all examples given below, the following conventions are followed: for /ɻ/, j; /ŋ/, ny; /ŋ/, ng; /ŋɡ/, n-g; /ɻ/, /ŋ/ and /l/, rd, rn and rl respectively; and for /ɻ/, rr. All other symbols are as in Table 1.

ADAPTATION OF ENGLISH WORDS

English words adapted into PE (often with meaning shifts) follow several patterns, which appear to have applied at different times historically, in the general order shown below.

1. Older words are adapted to the phoneme system shown in Table 1, with no initial or final consonant clusters (except with bl and br shown above). Single syllable words, other than auxiliaries, function words and clitics, are shunned.

   namu/numu 'no, don't' (last vowel now o)
   wanim/wanem 'what'
   -bala (adjective suffix) (from fellow)
   nugudbala 'bad' (from no good)
   dumaji 'very' (from too much)
NOTES ON THE "PIDGIN ENGLISH" CREOLE OF ROPER RIVER

buj i 'if' (presumably of common origin with Neo-Melanesian spossim)
dumarra 'tomorrow'
jilib 'sleep'
dilib 'tea'

2. Some words are adapted to a system with a fourth vowel e added (Alawa has this phoneme). Sometimes this phoneme arises from contradiction of ay.
laygim/legim 'like'
guwe 'go away'
wanim/wanem 'what'
bujiged 'cat' (from pussy cat)

3. Some words where the English has s allow fluctuation of s and j; others, including those where English has j or ch etc., and some where English has s, allow only j.
sineg/jineg 'snake'
silib/jilib 'sleep'
basdam/bajdam 'beforehand' (from past time, former form preferred)
but
buj i 'if' (from suppose through Neo-Melanesian)
binji 'stomach, belly' (from English, cognate with binge)
dumaji 'very' (from too much)

4. Some words are adapted to a five vowel system, with o added to the above four vowels, and initial consonant clusters are allowed.
sbiya 'spear'
sdori 'story'
olmen 'old man'

INTONATION

In intonation PE is very similar to the local languages. The reader is referred to my Alawa Phonology and Grammar for more detail on phonology and intonation. Briefly, conversational intonation is rather similar to that of Australian English, with rising sentence final intonation (rather than falling) on many statements, especially when an expression of attention is called for from the listener. A final intonational glottal stop is often present at the end of a phrase with such rising intonation. This glottal stop is more often present in narrative than in conversation, though it is very frequent after na
(or namu) 'no' and ngi 'isn't it so?' in conversation. A feature very different from English is the continuous aspect intonation, in which the voice rises to a higher pitch, either sustaining the vowel of a word (usually the verb) or repeating a word several times, with gradual increase of laryngealization, followed by a drop to normal pitch and normal voicing.10

**PRACTICAL ORTHOGRAPHY**

Quite a few literate adults (older and younger) had a surprisingly consistent orthography for PE. The English series of voiced stops (with j chosen for /d/) was unanimously chosen for the devoiced stops. The digraph rr was chosen for the trilled or flapped liquid, ny for /ñ/ , and ng for /ŋ/. (My suggestion, barely discussed with the people, for /ŋ/ in the rare cases when these two phonemes are contiguous, was n-g.) Spelling agreement was high on a number of words, particularly those with "old" phonemes only, but problems occurred with quite a number of words. (On my second hypothesis above, these could be English borrowings, sometimes partly assimilated in pronunciation to PE forms.) One such word was 'camp', which is now fairly commonly used at Ngukurr. By contrast, the word for 'play, pretend', phonetically [giyaman], and that for 'come', phonetically [gaman] were spelt, with little hesitation, as giyaman and gaman respectively.

**GRAMMAR**

**PRONOUNS**

Table 2 (opposite page) shows the basic set of pronouns of PE. First person pronouns allow variation of forms in certain positions as described below the table.

**POSSESSION**

The possessor is indicated by a preposed pronoun or noun, or (usually) preposedbla plus pronoun or noun, e.g. mayn ay 'my eye', yumob mani 'your money', im asbin 'her husband', blanga im blagbala 'his fellow countryman', bla wi 'ours'.

**REFLEXIVE PRONOUN**

There is a reflexive pronoun mijalb, the same form for all persons and numbers.
olmen bin lujim mijalb 'The old man died' (lit. 'lost himself')
melabad mijalb 'we by ourselves'

Table 2. Pronouns

<table>
<thead>
<tr>
<th>Pronouns</th>
<th>Singular</th>
<th>Plural</th>
<th>Dual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st inclusive</td>
<td>yunmi(^a)</td>
<td>yunmalabad(^b)</td>
<td>-</td>
</tr>
<tr>
<td>1st exclusive</td>
<td>mi(^c)</td>
<td>melabad(^b)</td>
<td>mindubala</td>
</tr>
<tr>
<td>2nd person</td>
<td>yu</td>
<td>yulabad(^d,e)</td>
<td>yundubala</td>
</tr>
<tr>
<td>3rd person</td>
<td>im</td>
<td>(im)alabad(^f,g)</td>
<td>(im)dubala(^f)</td>
</tr>
</tbody>
</table>

\(^a\) This pronoun refers to two people, the speaker and the one spoken to, but is here listed as a singular because of its form, and because its counterparts in the local languages also pattern as such.\(^a\)

\(^b\) Wi is sometimes found for yunmalabad and possibly melabad, as subject and also frequently following bla, e.g. bla wi 'our business' (usually inclusive).

\(^c\) Ay may be used in subject position, e.g. ay/mi bin gu 'I went', and appears preferred there. Mayn is used as possessive pronoun, e.g. mayn ay 'my eye'. Younger speakers use the expression ... bla mayn 'my ...'; Mr Roberts regards this as wrong grammar.

\(^d\) Yu lob is preferred at Ngukurr for second person plural, yulabad on the cattle stations nearby.

\(^e\) Mibala, yu(m)bala, imbala are occasionally heard as plurals, even from speakers who usually use the forms listed above.

\(^f\) Im is occasionally prefixed to third person plural and dual.

\(^g\) Je 'they' sometimes occurs.

ADJECTIVES AND NUMERALS

The suffix -bala usually indicates an adjective or numeral; some words with this suffix may also act as nouns, and some are time words.
yarlbun gudbala daga 'Lilyseed is a good food.'
nagidbala 'He has no clothes on.'
du, dubala 'two', 'they'(dual)
thrribala 'three'
jarran jigibala jineg 'That is a poisonous snake.'
yalabala 'halfaaste'
dagbala na 'It was dark/night then.'
abilirala 'morning time'

PLURALISING OF NOUNS

There is usually no alteration in form of nouns for plurals. Exceptions are the words for 'old man' and 'old woman'.
olemen 'old man' ologenmen 'old men'
olegenmen 'old woman' olgooolgenmen 'old women'

VERBS TRANSITIVE AND INTRANSITIVE

Most transitive verbs are distinguished from intransitive verbs by the suffix -um ~ -im; the vowel is usually /u/ unless following a syllable containing the vowel /i/. Clitics -ab 'up', -dan 'down', -ad 'out', etc. and the continuous suffix -bad follow the -um suffix.

mi gu 'I am going' mi abum 'I have it'
mi gaman 'I am coming' mi gilim 'I (will) hit it'
dubala bin dog la mi 'they talked to me'
im bin basaway 'he died' mi gugum 'I am cooking/will cook it'
ay bin jidan 'I sat down' yu garrim? 'have you got it?'
im bin buldan 'he fell down'
im bin jinginad la wi 'he was calling out to us'
masgidu bin idimab mi 'the mosquitos were biting badly.'
jangudanwe 'west' (from sun go down way)
mi bin megimbad 'I was making it'
but ay gibid yu mani 'I give you money' (no -um)

PREPOSITIONS

Three prepositions exist: langal/a 'to towards, at', blanga/bla 'pertaining to, property of, for the purpose of', and burrum 'from, in (of language).'

langal/a ay bin jidan la im 'I camped at his place.'
yu gin wed la mi lilbid? 'Can you wait for me a little?'
NOTES ON THE "PIDGIN ENGLISH" CREOLE OF ROPER RIVER

dubaJa bin dog la mi 'They talked to me.'
yu gan jingga bad langa mi 'You can't think of me.'
blanga/bla melabada bajimab bla yu? 'Shall we fetch it for you?'
im blanga yumob mani 'It's your money.'
blanga im blagbala 'his fellow countryman'
bla masgidu im gejim 'for killing mosquitoes'
bla album sandri bla imalabad 'for the aid of their country'
burrum mi bin gu burrum jaya 'I went on from there'
burrum alawa 'in Alawa'

TENSE, ASPECT AND MOOD OF VERBS

Tense, aspect and mood of verbs are shown by preposed auxiliaries and the verb final suffix -bad. The suffix indicates continuous aspect.
im bin megim ginu. 'He made a canoe.' (and finished it)
im bin megimbad ginu. 'He was making a canoe.' (but hasn't finished it yet)

A partial list of verb auxiliaries is given in Table 3. An unmarked verb is nonpast tense. bin is also used as the past tense of the copulative verb (there is no nonpast form).
bin im jaya 'He is there.'
melabad bajimab bla yu? 'Shall we get it for you?'

Table 3. Verb Auxiliaries

<table>
<thead>
<tr>
<th>Verb</th>
<th>Following bin in past tense forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin (past)</td>
<td>andi/anda 'want to' (intention)</td>
</tr>
<tr>
<td></td>
<td>urldi/urldu&lt;sup&gt;a&lt;/sup&gt; 'used to' (habitual past)</td>
</tr>
<tr>
<td>gin</td>
<td>'can'</td>
</tr>
<tr>
<td>gan</td>
<td>'can't'</td>
</tr>
<tr>
<td>maydbi</td>
<td>'may'</td>
</tr>
</tbody>
</table>

<sup>a</sup>bin must be present for this. bin urldi/urldu is sometimes replaced by yusdu.
Two of them were there. 'I went to the races.' We finished. (contraction of melabad bin binis)

Can you wait for me a little? 'I can't take yours.' I want to go. 'He was going to tell me.' I wanted to get back for a long time.

I used to stop with him. 'Two men used to kill it and take it to their camp.' We used to get tobacco. 'We used to come to Saltwater Creek.'

The verb go' also has an auxiliary use as in English. Go to sleep!' 'Want to sleep now.'

ADJECTIVE-LIKE VERBS

There may be some adjective-like verbs. If so, they have no -bala suffix, in translation are classified as verbs by English speakers, yet lack tense differentiation. A suspected example is jabi 'understand', where no past tense form has been found to date in the data.

Do you understand?'

NEGATIVE COMMANDS

Leave it' is used before the verb for commands to refrain from an action, don't' in other cases.

Stop it.' Don't lose it.'

MISCELLANEOUS WORD TYPES

A few examples of word types are given in the following paragraphs. Locatives and directionals include iya 'here', jaya 'there', dije 'this way', jangudanwe 'west'. Certain directional information is given in some verb suffixes, for example:

gu 'go' gaman 'come'
guwin 'enter, go in'
gamin 'come in, enter'
guhab 'go up, climb'
gamab 'come up, approach'
gudan 'go down, descend'
gambeg 'come back, return'
guward 'go out, go about'
guwe 'go away'

Time words and phrases include:
burrum jaya 'after that' (also 'from there')
dumarra 'tomorrow'
baymbay 'soon, later'
basdam/bajdam 'in the past'
alibala 'morning time'

Interrogatives include:
wanin/wanem 'what' (also in non-interrogative sense 'thingumajig, what's it')
waya 'where, why, how' (also as conjunction)
wije 'which way' (e.g. wije san? 'Where is the sun now?')

The most common demonstratives are dijan 'this' and jarra "that'.
More anglicised forms sometimes occur, e.g. jad/jed 'that'.

Interjections and sentence words of various types occur. There is yuway 'yes' and namu 'no'; namu, however, is also used as a negative
with verbs, etc., as noted above. wai 'well' may introduce a sentence;
orayd 'alright' may begin or end one. jalu indicates a particular
subject of conversation is disposed of; binis/finish can also be used
in this way. ngi (with intonational glottal stop concluding) is often
used sentence finally when assent from the hearer is looked for by the
speaker. gurdi is an expression of mild horror. bubala 'poor fellow',
an expression of nostalgia or pity, can also be used as an adjective.

yu jabii? yuway. 'Do you understand? Yes.'
yu garrim? namu. 'Have you got it? No.'
... jan barnim. orayd. '... the sun is hot. OK.'
wai, im bin dalim mi ... 'Well, he told me ...'
ay bin jagum sweg, ebriji mayn, jalu. 'I tossed in my swag and
all my belongings.'
melabad bin abum jabis --- binis.17 'We had a service.'
dagbala na ngi. 'It's dark now, isn't it.'
yu laygim Miss X? namu. gurdi! 'You like Miss X? No. Oh help!' (on realising Miss X could have overheard this)
bubala mi. 'Poor old me.'
bubala jedi 'the jetty' (with nostalgia - it was a historic spot)

Conjunctions include an 'and', buji 'if', and anles 'unless'.

NOTES ON THE "PIDGIN ENGLISH" CREOLE OF ROPER RIVER
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... jan barnim. orayd. '... the sun is hot. OK.'
wai, im bin dalim mi ... 'Well, he told me ...'
ay bin jagum sweg, ebriji mayn, jalu. 'I tossed in my swag and
all my belongings.'
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yu laygim Miss X? namu. gurdi! 'You like Miss X? No. Oh help!' (on realising Miss X could have overheard this)
bubala mi. 'Poor old me.'
bubala jedi 'the jetty' (with nostalgia - it was a historic spot)
TEXT EXAMPLES

Three textual examples are given here. Text A, very short, is extracted from conversation with Welwe, a Ridarrngu man who spoke no English, after I and another white woman had attended the women's part in the Kunapipi ceremony. Text B is an account by Barnabas Roberts of his arranging of a service at one of the cattle stations (he is a lay preacher). Text C is part of an account by Barnabas of hitching a ride on his way to Katherine from Nutwood Downs. Texts B and C were spoken for tape-recording in my presence. Of the three texts, Text C is the most heavily influenced by English in both phonology and vocabulary, and Text A the least. Note that in the context of a past tense narrative, bin, the overt signal of past tense, can often be omitted.

TEXT A

olgomen ol yumob gelele olwe ...
The old women, all of you were always giving the gelele call
melabad olbibul bin dog gud binji brabli yu bin album
we old people were really happy (that) you assisted
jad seremani.
that ceremony.

TEXT B

... jabis, jodbala wi abum. wi abum jodbala.
a service, a short one we'll have. We'll have a short one,
namu langbala. dumaji san. jan barnim. orayd.
not a long one, too much sun. The sun is hot. OK.
burrum jaya alabad - melabad bin abum jabis --17 finish.
After that they - we had a service
wad abad mani. melabad bajimab bla yu? wal, buji
What about money? Shall we fetch it for you? Well, if
yulabad layg. ay gan bulimad langa alabad. im blanga
you like. I can't take it to them (?). It's
yumbala mani. namu mayn. ay gan digidad burrum yulabad,
your money, not mine. I can't take it from you,
anles yulabad gibid mi mijalb. namu mayn. im
unless you give it to me yourselves. It's not mine. It
blanga jerj. wandi gu la jerj, bla
belongs to the church. It'll go to the church, for
album gandri bla yunmalabad. ay bin laygajad. helping our country. I (explained it) like that.

orayd melabad bajimab. alabad im bajimab, burrum langa OK we'll fetch it. They fetched it and put it on

debul. abda jad waya melaban finish. ay bin gejim. the table. After that we finished. I took it.

ay bin degim la may camp. ay bin burrum langa pouch. I took it to my camp. I put it in (my) pouch.

melaban silib. aba wig naja sandi muwa. We slept. After a week, there was another Sunday.

melabad bin abum sabis.
We had a service.

TEXT C
dagbala na, dagbala na. jen, jen ledi im bin dalim mi,
It was dark then. Then the lady told me,
o olmen, olmen, jarran bas im mandi gamab abas nayn.
"Oh old man, old man, that bus is going to come at 9.30."
o wal du led fo mi, du go - du gul nayd daym.
"Oh well, too late for me, too co - too cold nighttime,
gulbala. ay bin dog. o yunmi wed. maydbi yunmi it'll be cool", I said. "Oh wait, maybe we'll
bayndim muwa naja drag. wal im bin bayndim jad dubala find another truck." Well, she found those two
men, bin gamab goda wid. dubala bin lodimab, degim la men, they came with wheat. They loaded it up and took it to
kajarran. fo reskos, reshos. dubala bin shibdi, Katherine, for racecourse - race horse. They moved and
megim rum bla mi. ay bin jagum sweg jaya, ebrijing mayn, made room for me. I threw my swag in, all my things,
jaldu. wi bin gu, wi bin drabling raydab la larrama.
OK We went, we were travelling right up to Larrimah,
an wi bin sdop jaya fo lil wayl. dubala bin dringgaimbad,
and we stopped there for a while. They were drinking
jad drongbala strong drink. drongbala dronggimbala ngugu. that strong drink. strong intoxicating water
wada. balgim wada. (Sharpe:) balgi? (Roberts:) balgim.
water. bitter water. balgi? balgim.

nugudbala des yuno. megim gu sili. andaburrgiyunu
Bad taste you know, makes them silly. (Alawa) After that
ngulujala ---17 dubala bin danim da lilwan
we went (a long way), they turned there(?) a little, and
bin hidim wadi. lim. (Alawa) duwi nari. im bin blagim
hit a tree, a limb, (Alawa) leaning out. It blocked
mi iya. an jad wadi rayd jaya. (Alawa) nambarla
me here, and that tree was right there. He said/it did(?)
gada nari. o wi gula dri jaya (Alawa) nari.
where it was. We were angry (?) that the tree was there.
wi bin jes misdim, wi bin andi ged gild jaya, an jad nugud.
We just missed it; we almost got killed there, which was no good.
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NOTES


7. The Queensland Speech Survey of the University of Queensland, carried out by Flint, Dutton, Alexander and others.

8. Alawa has prenasalised stops, which can occur word initially. These are not common in Australian languages, nor are they present in PE except possibly in an occasional word borrowed from Alawa.


10. Sharpe 1972, 4.4.6, p. 37.


12. As there is no preposition before the pronoun, it appears the recipient is object or first referent of the verb as in Alawa, see
13. This corresponds to the case form used in the languages of the area, e.g. in Alawa, alawiyunu 'in Alawa', where the elative case, signalled by -yunu plus change in stem final vowel, is usually translated 'from'.

14. This contraction of melabad bin to melaban was heard several times from Barnabas Roberts, but was not noted from other speakers.

15. wandi and mandi have been heard at times in the same context as andi/anda. I am not certain whether they are alternate forms or are semantically distinct from andi/anda.

16. More evidence may prove this tentative classification false. However, in Alawa such verbs do exist, e.g. ŋayelya 'I understand'; ŋayi ŋayelya 'I don't understand' (no mood inflection, unlike other verbs), ŋawuŋun 'I don't know'.

17. Continuous action intonation on jabis, and on ngulujala.
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NGARDILPA (WARLPIRI) PHONOLOGY

(LANGUAGE OF THE WARNAYAKA TRIBE,
A SUBTRIBE OF THE WARLPIRI TRIBE)

LOTHAR JAGST

0. INTRODUCTION

The purpose of this paper is to present a phonemic analysis of the Ngardilpa language spoken by the Warnayaka tribe, a subtribe of the Warlpiri tribe. This presentation includes the description of the phonemes, syllable and word structures, stress patterns, intonational features and morphophonemics.¹

Prenasalised stops have been assigned phonemic status in the analysis presented in this paper. Differences between apico-alveolar and apico-dental consonants in word-initial position were difficult to ascertain. The discovery of the phone [e] in seeming contrast with other vowels made it hard to decide whether it should be a full phoneme or an allophone of one of the vowels. Analysis of stress led to the discovery that, while stress is phonologically contrastive, it is grammatically predictable because morphemes are inherently stressed.

1. PHONEME INVENTORY

Ngardilpa phonemes comprise twenty-three consonantal phonemes and six vowel phonemes: p, t, tj, k, m, n, r, n, nj, 0, l, l, lj, r, r, w, y, l, l, a, a, u, u.

1.1 CONSONANTAL PHONEMES

The inventory of twenty-three consonantal phonemes includes five stops, five pre-nasalised stops, five nasals, three laterals, two vibrants and three semi-consonants.
1.1.1 Stops

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

The bilabial stop /p/ has two allophones. One is the voiceless bilabial stop [p] which occurs in word-initial and intervocalic positions and as the second member in consonant clusters where the first member is not a nasal. The other one is the voiced bilabial stop [b] which occurs in word-initial position where it freely varies with its voiceless counterpart. It also occurs as the second member in consonant clusters where the first member is a heterorganic nasal.

The apico-alveolar stop /t/ has two allophones. One is the voiceless apico-alveolar stop [t] which occurs in intervocalic position and as the second member in a consonant cluster. The other one is the voiced apico-alveolar stop [d] which only occurs as the second member in a consonant cluster and in that position varies with its voiceless counterpart.

The apico-domal stop /tʃ/ has two allophones. One is the voiceless apico-domal stop [tʃ] which occurs in word-initial and intervocalic position and as the second member in a consonant cluster. The other one is the voiced apico-domal stop [ɹ] which only occurs as the second member in a consonant cluster and in that position freely varies with its voiceless counterpart.

The lamino-alveolar palatalised stop /tʃ/ has allophones ranging from a lightly articulated voiceless lamino-alveolar palatalised stop [tʃ] to a clearly discernible voiceless affricate [tʃ]. These allophones occur in free variation in word-initial and intervocalic positions and as the second member in consonant clusters. However, the most frequently encountered allophone is the affricate [tʃ] and it is considered to be the norm.

The dorso-velar stop /k/ has two allophones. One is the voiceless dorso-velar stop [k] which occurs in word-initial and intervocalic positions and as the second member in consonant clusters. The other one is the voiced dorso-velar stop [ɡ] which occurs in word-initial position and as the second member in consonant clusters where the first member is not a nasal, varying freely in both positions with its voiceless counterpart.

All of the above stops are pronounced either with or without aspiration, even individual speakers are not consistent in this. However, it seems that non-aspirated pronunciation of the stops is the norm.

The following examples demonstrate how the various stops contrast in word-initial and intervocalic positions.
Word-initial contrasts:

/paŋi/  'little boy'
/ŋaŋi/  'heel'
/tjaŋi/  'becomes'
/kaŋi/  'stands'

Intervocalic contrasts:

/wapiŋa/  'father'
/watiya/  'tree'
/watjiŋi/  'waist'
/watjilŋi/  'runs'
/wakilpiŋi/  'bush bean'

1.1.2 Prenasalised Stops

Prenasalised stops comprise a voiced nasal followed by a homorganic voiced or voiceless stop.

In the earlier stages of analysis prenasalised stops were regarded as consonant clusters. They are now regarded as unit phonemes because the native speakers do not separate them into two separate segments word medially as the nasal closure of one syllable and the stop onset of the next. Extensive checking and psycholinguistic testing revealed that consonant clusters comprising nasal plus homorganic stop are, therefore, inseparable and function as a single phonemic unit. Discovery of one of the prenasalised stops in word-initial position strengthened the hypothesis since univalent CC clusters do not occur word-initially.

The prenasalised stops contrast at bilabial, apico-alveolar, apico-domal, lamino-alveolar, and dorso-velar points of articulation. They always occur syllable-initially.

The bilabial prenasalised stop /m̪p̄/ has one allophone, the voiced bilabial prenasalised stop [m̪]. This stop is the only one in the prenasalised series that has been found to occur word-initially.2

The apico-alveolar prenasalised stop /nt̪̄/ has two allophones. One is the apico-alveolar prenasalised stop [nt̪] with voicing only on the nasal segment, and the other is the voiced apico-alveolar prenasalised stop [nd̪]. Both of these allophones occur in free variation, but the voiced one seems to be the norm while the other one occurs more frequently in emphasised speech.

The apico-domal prenasalised stop /ŋt̪̄/ has two allophones. One is the apico-domal prenasalised stop [ŋt̪] with voicing only on the nasal segment, and the other is the voiced apico-domal prenasalised stop [ŋd̪].
Again, both of these allophones occur in free variation, but the voiced one seems to be the norm while the other one occurs more frequently in emphasised speech.

The lamino-alveolar palatalised prenasalised stop /\textsuperscript{n}tj/ has a range of allophones beginning with a lamino-alveolar palatalised prenasalised stop [\textsuperscript{n}tj] and ending with a prenasalised affricate [\textsuperscript{n}k]. In this whole range the nasal segment is always voiced and occurs with varying degrees of palatalisation. These various allophones occur in free variation and those comprising the affricate occur more frequently and are considered to be the norm.

The dorso-velar prenasalised stop /\textsuperscript{0}k/ has two allophones. One is the dorso-velar prenasalised stop [\textsuperscript{0}k] with voicing only on the nasal segment, and the other is the voiced dorso-velar prenasalised stop [\textsuperscript{0}g]. Both of these allophones occur in free variation, but the voiceless one occurs more frequently and seems to be the norm.

The following examples demonstrate how the prenasalised stops contrast intervocally with nasals and stops:

| /pama/ | 'delicacy' | /yama/ | 'shade' |
| /pama/ | 'blind' | /ya\textsuperscript{m}pa/ | 'ceases' |
| /papa/ | 'call of emu' | /yapa/ | 'person' |
| /wan\textsuperscript{k}i/ | 'cross' | /manu/ | 'and' |
| /wa\textsuperscript{n}t\textsuperscript{i}/ | 'falls' | /ma\textsuperscript{n}ta/ | 'grab!' |
| /wat\textsuperscript{i}/ | 'man' | /ma\textsuperscript{a}ta/ | 'tired' |
| /wa\textsuperscript{a}ja/ | 'snake' | /na\textsuperscript{u}\textsuperscript{u}\textsuperscript{u}/ | 'they ate' |
| /wa\textsuperscript{a}ji/ | 'stabbing spear' | /wu\textsuperscript{a}ju\textsuperscript{u}/ | 'far' |
| /wa\textsuperscript{a}ji/ | 'waist' | /pu\textsuperscript{u}\textsuperscript{u}u/ | 'mid-back' |
| /kan\textsuperscript{j}i\textsuperscript{g}/ | 'brings' | | |
| /ku\textsuperscript{n}t\textsuperscript{j}uru\textsuperscript{u}/ | 'smoke' | | |
| /kut\textsuperscript{ju\textsuperscript{u}/} | 'threw' | | |
| /wa\textsuperscript{a}nu/ | 'without' | /yu\textsuperscript{u}/ | 'gave' |
| /wa\textsuperscript{a}ka/ | 'speaks' | /yu\textsuperscript{a}ka/ | 'give!' |
| /waku/ | 'arm' | /yu\textsuperscript{a}ka/ | 'enters' |

1.1.3 Nasals

The nasals contrast at bilabial, apico-alveolar, apico-domal, lamino-alveolar, and velar points of articulation.

The voiced bilabial nasal /m/ and the voiced velar nasal /\textsuperscript{n}/ occur in word-initial and intervocalic positions and as the second member in
heterorganic consonant clusters.

The voiced apico-alveolar nasal /n/ only occurs intervocalically and as the first member in heterorganic consonant clusters.

The apico-domal nasal /ŋ/ has two allophones. One is the voiced apico-domal nasal [ŋ] which occurs in word-initial and intervocalic positions and as the first member in heterorganic consonant clusters. The other one is the voiced flapped apico-alveolar nasal [ɳ] which only occurs following the vowels /a/ or /u/, and it is the norm in this position even though it freely varies with the apico-domal allophone.

The voiced lamino-alveolar nasal /nj/ occurs in word-initial and intervocalic positions and as the first or second member in heterorganic consonant clusters.

The following examples demonstrate how the various nasals contrast in word-initial and intervocalic positions.

**Word-initial contrasts:**

/maŋa/ 'grass'  /muŋj̪tju/ 'blunt'
/ŋama/ 'ant'  /ŋuŋu/ 'flour'
/njaŋu/ 'saw (verb)'  /njuŋtu/ 'you (sing.)'
ŋama/ 'female'  /ŋuŋtju/ 'good'
/miŋa/ 'vegetable food'  /ŋaŋpula/ 'here'
/ŋiŋya/ 'what?'  /ŋaŋpula/ 'young girl'

**Intervocalic contrasts:**

/kamulu/ 'camel'  /pimiŋi/ 'aunt'
/kunŋjtju/ 'low'  /piŋa/ 'knowing'
/kunŋuru/ 'sad'  /piŋa/ 'tobacco'
/kunjili/ 'they carry'  /pinji/ 'hits'
/kunulu/ 'they carried'  /pinjili/ 'ant'
/wanaŋi/ 'leg'  /ŋama/ 'female'
/waŋa/ 'snake'  /ŋana/ 'who?'
/wanja/ 'emu feather'  /ŋaŋa/ 'groin'
/wanja/ 'crow'

1.1.4 **Laters**

The laterals contrast at apico-alveolar, apico-domal, and lamino-alveolar points of articulation.

The voiced apico-alveolar lateral /l/ and the voiced lamino-alveolar lateral /lj/ only occur intervocalically and as the first member in heterorganic consonant clusters.
The apico-domal lateral /l/ has two allophones. One is the voiced apico-domal lateral [l] which occurs in word-initial and intervocalic positions and as the first member in heterorganic consonant clusters, and in a few instances in compounds as the second member in consonant clusters. The other is the voiced flapped apico-alveolar lateral [ɬ] which only occurs when preceded by the vowels /a/ or /u/, and is the norm in this position even though it freely varies with the apico-domal allophone.

The following examples show the occurrence of the lateral /l/ in word initial position:

/ʃa̞ṃɔľaŋ/ 'father-in-law'
/ʃa̞l̪aŋ/ 'blue-tongue lizard'
/ʃa̞l̪aŋ/ 'mouth'

Contrast between the various laterals in word-medial position is shown in these examples.

/ʃa̞ma̞i̞pa/ 'boomerang'
/ʃa̞ma̞i̞pa/ 'companion'
/ʃa̞ma̞i̞pakoľaŋ/ 'baby boy'
/ʃa̞ṃu̞l̪a̞jə̞/ 'jealous'
/ʃa̞ṃu̞l̪u̞ru̞/ 'white ant'
/ʃa̞ṃu̞l̪u̞jə̞/ 'nose'

1.1.5 Neutralisation between Apico-alveolar and Apico-domal Series

The contrast between the apico-alveolar series /t, n, l/ and the apico-domal series /ɬ, ŋ, l/ is neutralised in word-initial position and in morpheme-initial position within compound constructions. The apico-domal series is the norm in word-initial position, therefore symbols from that series are used word-initially in the examples throughout this paper.

/ʃoṃana̞/ [ʃoṃana̞ ~ ṭoṃana] 'horse'
/ʃa̞nṭi̞ṇjaŋji̞/ [ŋa̞nṭi̞ṇjaŋji̞ ~ naŋṭi̞ṇjaŋji] 'stares'
/ʃa̞ma̞i̞pa/ [ʃa̞ṃa̞i̞pa ~ la̞ṃa̞i̞pa] 'father-in-law'
/ʃa̞ṃi̞ẉaŋji̞ [ʃa̞ṃi̞ẉaŋji̞ ~ ʃa̞ṃi̞ẉaŋji] 'breaks limbs with weapon'

The degree of retroflexion of the apico-domal series fluctuates in intervocalic position. Retroflexion is usually quite pronounced following the vowel /a/, not quite so pronounced following the vowel /u/, and sometimes almost imperceptible following the vowel /i/.

/ʃa̞ẉi̞i̞[i̞] [ʃa̞ẉi̞[i̞] ~ wa̞i̞[i̞]] 'waist'
/ʃa̞ṃu̞ŋa̞ [ʃa̞ṃu̞ŋa̞ ~ ṃu̞tu̞na] 'old woman'
/ʃa̞ṃi̞wa [ʃa̞ṃi̞wa ~ ṃi̞wa] 'shield'
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1.1.6 Vibrants, Trills, and Apico-domals

Five phonetically distinct r sounds occur in Ngardilpa speech.

The voiced apico-alveolar vibrant /ɾ/ and its allophone, the voiced apico-alveolar trill [ɾ], contrast in intervocalic position with the voiced apico-domal vibrant /ɭ/ and the voiced apico-domal semi-consonant /ɭ/ and its allophone, the voiced approximated resonant continuant [ɾ].

The vibrant /ɾ/ and its allophone, the trill [ɾ], freely vary in intervocalic positions and as the first member in consonant clusters. The vibrant /ɾ/ seems to be the norm but the allophone [ɾ] with varying length is invariably predictable in all cases where emphasis is applied to a word that contains a word-medial consonant cluster in which the first member is the vibrant /ɾ/.

The apico-domal vibrant /ɭ/ occurs in word-initial and intervocalic positions.

The semi-consonant /ɭ/ and its other allophone, the continuant [ɾ], freely vary in word-initial and intervocalic positions and as the first member in consonant clusters. The continuant [ɾ] seems to be the norm.

In word-initial position the contrast between the apico-alveolar vibrant /ɾ/ and the apico-domal vibrant /ɭ/ is neutralised in that they freely vary. However, the contrast between these neutralised Vibrants and the semi-consonant /ɭ/ is maintained.
1.1.7 Contrasts between Phonetically Similar Consonantal Segments

In this section contrasts are presented between consonantal segments which have not yet been compared with each other.

Apico-domal lateral /ḷ/ and apico-domal semi-consonant /ɾ/ in inter-vocalic position:

/μα Declarations  'kangaroo' /kαi Declarations 'boomerang'
/μα Declarations 'black' /kα Declarations 'other'

Apico-domal lateral /ḷ/ and apico-alveolar vibrant /ɾ/ in word-initial and word-medial position:

/μα Declarations  'mound' /-k!/ Declarations 'unique, only'
/ɾf Declarations 'woman' /k! Declarations 'fluting'

Apico-alveolar stop /t/ and apico-alveolar vibrant /ɾ/ in intervocalic position:

/puta Declarations 'tries' /mutu Declarations 'hitting stick'
/puɾa Declarations 'thirsty' /muɾu Declarations 'scar'

Apico-domal stop /ʈ/ and apico-alveolar vibrant /ɾ/ in intervocalic position:

/mu Declarations 'red ochre' /ka Declarations 'billy-can'
/muɾu Declarations 'scar' /kaɾaw Specifications 'coolibah'
Apico-domal stop /ɬ/ and apico-domal vibrant /ɭ/ in intervocalic position:

/miŋa/ 'shield'  /kaŋŋiŋa/ 'tooth'
/miɹa/ 'knee'  /kaŋŋiɹa/ 'white'

Apico-alveolar stop /t/ and apico-domal vibrant /ɭ/ in intervocalic position:

/mata/ 'tired'  /puta/ 'tries'
/mɑt̪a/ 'maybe'  /puʃa/ 'follows'

Bilabial stop /p/ and bilabial semi-consonant /w/ in word-initial position:

/paŋŋa/ 'eyes'  /piʃiŋa/ 'cold'
/waŋŋa/ 'emu feathers'  /wiʃiŋa/ 'young man'

1.1.8 Semi-consonants

The voiced bilabial semi-consonant /w/ and the voiced alveo-palatal semi-consonant /y/ both occur in word-initial and intervocalic positions.

/waŋŋi/ 'you don't say!'  /jawa/ 'no, nothing'
/wiʃi/ 'watercourse'  /tiʃiʃi/ 'water'
/wuʃa/ 'wait'  /yuwuʃu/ 'big boy'
/yani/ 'goes'  /maiʃa/ 'more'
/ʃiʃi/ 'point'  /miʃi/ 'food'
/yuwa/ 'wow, amazing!'  /kuyu/ 'meat'

In deliberate, slow or emphasised speech the semi-consonant /w/ is perceived as merely a rounding of the lips with a slight degree of consonantal tenseness but it still acts as a distinct syllable boundary.
In the phonemic sequences /awu/ or /uwu/ in deliberate speech the phoneme /w/ freely varies with the glottal stop[ʔ].

/tʃawutjawu/ [tʃawutjawu ʃjauʔutjaʔu] 'small intestines'
/yuˈwuʃu/ [yuwuʃu ʃyuʔuʃu] 'big boy'
/ŋa̱tuwu/ [ŋa̱tuwu ʃŋa̱tuʔu] 'horse'

In normal speech in the phonemic sequence /awu/ within a morpheme, the phoneme /w/ is perceived as the high close back vowel [u] offgliding from the preceding vowel. The vowel /u/ is elided.

/tʃawutjaʔu/ [tʃaʔuʃjaʔu] 'small intestines'
/oawu/ [oa̱ʔu] 'bad'

In normal speech in the phonemic sequence /uwu/ within a morpheme, the phoneme /w/ is perceived as either an offglide with accompanying
elision of the following vowel /u/, or as just a lengthening of the initial vowel /u/.

/yu'yu'u/ [yu'yu'u ~ yu:yu'] 'big boy'
/qa'ntu'tu/' [qa'ntu'tu ~ qa'ntu:] 'horse'

When the phoneme /w/ occurs in the phoneme sequence /awa/ within a morpheme it is perceived as the high close back vowel [u] offgliding from the preceding vowel.

/jawa/ [ja'wa] 'no, nothing'
/pa'pawawu/' [pa'pawawu'] 'star'

In deliberate, slow or emphasised speech the phoneme /y/ is perceived as a voiced alveo-palatal semi-consonant with varying degrees of weak to strong articulation but still acts as a distinct syllable boundary. In such deliberate speech the phoneme /y/ in the phonemic sequences /ayi/ and /iyi/ freely varies with the glottal stop [ʔ].

/nju'fuwiyi/ [nju'fuwiyi ~ nju'fuwiyi] 'long time ago'
/miyi/ [miy ~ mi?] 'food'

In the phonemic sequences /yitj, yinj, yilj/ when word-initial, the phoneme /y/ is perceived either as a voiceless alveo-palatal semi-consonant [Y] or as a voiceless glottal fricative [h].

/yitja'tu/ [Yitja'tu ~ hitja'tu] 'true'
/yinja/ [Yin ~ hin] 'there'
/yilja/ [Yilja ~ hilja] 'sends'

In normal speech the phoneme sequence /ayi/ within a morpheme, the phoneme /y/ is perceived as the high close front vowel [i] offgliding from the preceding vowel. The vowel /i/ of the sequence is elided.

/ŋalalaiy/' [ŋalalai] 'too bad'
/wa'yi?i/ [wa'yi?] 'bush carrot'

In normal speech in the phonemic sequence /iyi/ within a morpheme, the phoneme /y/ is perceived as just a lengthening of the initial vowel /i/.

/nju'fuwiyi/ [nju'fuwiyi] 'long time ago'
/miyi/ [mi?] 'food'

1.2 VOWEL PHONEMES

The inventory of six vowel phonemes comprises the high front vowels
NGARDILPA (WARLPIRI) PHONOLOGY

/ɪ/ and /iː/, the high back vowels /u/ and /uː/, and the low-central vowels /a/ and /aː/.

1.2.1 Vowel Contrasts

The vowels /i/, /u/, and /a/ contrast as in the following examples:

/wɪ̞ɾi/ 'watercourse' /mɪ̞ɾi/ 'loose dirt in goannas' burrow
/wuɾa/ 'wait!' /mulju/ 'nose'
/waɾi/ 'you don't say!' /maya/ 'more'
/-kɪɾi/ 'unique, only' /piɾi/ 'stone'
/-kʊɾi/ 'with' /pula/ 'shouts'
/kala/ 'and' /pala/ 'dies'

Contrast between a short vowel and its lengthened counterpart is demonstrated in the following examples:

/mɪ̞mi/ 'forehead' /yanilki/ 'goes now'
/mi̞m̞iːnjanji/ 'scrutinises' /yunilka/ 'dirty'
/kulkuɾaɾa/ 'holds with lips' /ŋuɾpa/ 'unknowing'
/ku̞lkumpantsi/ 'folds tightly' /ŋu̞ɾpa/ 'larynx'
/tjatjaɾaɾi/ 'other grandmother' /maɾmaɾmaɾi/ 'weakens'
/tjaɾtaɾkaɾi/ 'opens and closes' /maɾmaɾmaɾi/ 'twinkles'

1.2.2 Vowel Allophones

Both short and long vowels have strongly retroflexed allophones when contiguous to retroflexed consonants.

/-kɪɾi/ [kɪɾi] 'unique, only'
/piɾaːli/ [pɪɾaːli] 'ritual friend'
/muɾuɾu [muɾuɾu] 'large white ant'
/yuɾu [yuɾu] 'hollow'
/maɾpa [maɾpa] 'companion'
/waɾu [waɾu] 'fire'

The high front vowel /i/ has three allophones. The high close front unrounded allophone [ɪ] occurs contiguous to the phoneme /y/, following palatalised consonants, and in word-final position.

/miɾi [miɾi] 'food'
/njiya [n̥iya] 'what?'
The voiced mid close front unrounded allophone [e] occurs only in word-final position when preceded by the phoneme sequences /uw/ or /uŋt/. Words comprising these sequences in word-final position are relatively rare.

\[
\begin{align*}
/yuwi/ & [yuwe] & \text{'yes'} \\
/kumuŋtji/ & [kumuŋtje] & \text{'nameless one'}
\end{align*}
\]

The high open front unrounded allophone [i] occurs elsewhere.

\[
\begin{align*}
/pikiŋi/ & [pikiŋi] & \text{'woomera'} \\
/kiŋi/ & [kiŋi] & \text{'fluting'}
\end{align*}
\]

The high back vowel /u/ has three allophones. The high close back rounded allophone [u] occurs contiguous to the phoneme /w/, and in word-final position.

\[
\begin{align*}
/nuŋuwiŋi/ & [nuŋuwiŋi] & \text{'long time ago'} \\
/yuwuŋu/ & [yuwuŋu] & \text{'big boy'}
\end{align*}
\]

The high open back rounded allophone [u] occurs elsewhere.

\[
\begin{align*}
/kutu/ & [kutu] & \text{'close'} \\
/kuyu/ & [kuyu] & \text{'meat'}
\end{align*}
\]

When the vowel /u/ is followed by the phoneme /ŋ/ some speakers pronounce it as a voiced high close front rounded vowel [ʊ] with an accompanying change in pronunciation of the phoneme /ŋ/ to that of the voiced apico-alveolar nasal /n/.

\[
\begin{align*}
/kunjunjŋaqi/ & [kuŋŋeqi ~ kunkyŋeqi] & \text{'sucks'} \\
muyunjku & [muyeqku ~ muyenku] & \text{'bobs up and down'}
\end{align*}
\]

In reduplicated constructions the final vowel /i/ or /u/ of the initial group of syllables being reduplicated is pronounced as though it were in word-final position.

\[
\begin{align*}
/kikikiti/ & [kitikiti] & \text{'armpit'} \\
/milikipiki/ & [milipipki] & \text{'eyebrow'} \\
/jiŋjiŋjiŋjiŋji/ & [jiŋjiŋjiŋjiŋji] & \text{'immediate area around ears'} \\
/milikipiki/ & [milipipki] & \text{'shoulderblade'} \\
/ŋukuŋku/ & [ŋukuŋku] & \text{'chest'} \\
/tgapjyawupju/ & [tgapjyawupju] & \text{'mouth'} \\
/tjalŋutjalaŋu/ & [tjalŋutjalaŋu] & \text{'long time ago (20-40 years)'} \\
puluulu/ & [puluulu] & \text{'(stand) still'}
\end{align*}
\]
The low central vowel /a/ has three allophones. The voiced low close back rounded allophone [ɔ] only occurs when preceded by the semi-consonant /w/ and followed by a bilabial consonant. The voiced mid open central unrounded allophone [ʌ] occurs elsewhere except in word-final position, where only the voiced low open central unrounded allophone [ə] occurs. In interconsonantal position the allophone [a] freely varies with the allophone [ʌ].

/wəmpana/ [wəmpana ~ wəmpa] 'wa l laby'
/wapami/ [wəpami ~ wəpam] 'walks'
/maljpakaŋa/ [maljpakaŋa ~ maljpakaŋa] 'b aby boy'
/malpa/ [malpa ~ malpa] 'boomerang'

All vowels in utterance-final position may be followed by a weakly articulated glottal stop.

2. PHONEME DISTRIBUTION

2.1 CONSONANT DISTRIBUTION WITHIN THE PHONOLOGICAL WORD

The phonological word in Ngardilpa is defined as a minimal utterance marked by primary stress and borders demarcated by features such as potential pause, pitch, and predictable occurrences of certain phonemes governed by phoneme distribution. Secondary stress is a further feature in words comprising three or more syllables.

All words begin with a consonant. Any single consonant except /t/, /l/, /ŋ/, /p/, /k/, /n/, /j/, and /ŋ/= has been found to occur in word-initial position. See statement concerning /t, n, l/ in Section 1.1.5, and statement on /f, ŋ/ in Section 1.1.6.

Neither single consonants nor consonant clusters occur in word-final position. However, in stems of compounds and reduplicated constructions consonants do occur in stem-final position of the non-final stem/s.

Any single consonant and certain consonant clusters may occur in word-medial position. Consonant clusters comprise only two consonants and may occur:

a) within morphemes and morpheme-initially;

b) within compound verbs at root boundaries;

c) within reduplicated constructions.

2.1.1 Category A, Consonant Clusters within Morphemes

Thus far, 25 different consonant clusters have been recorded within morphemes, three of these were in morpheme-initial position.
Homorganic Clusters

Lateral + stop:

/it/ /ku/tu/ 'side, waist'
/it/ /yu/ /u/ 'hollow'
/ijtj/ /y/ /ijtj/ /l/ 'fingernail'

Nasal + stop:

/nj/ /tja/ /ganpa/ 'opossum'
/nk/ /kink/ /l/ 'devil'
/-nku/ /ju/ /u/ 'you (2nd pers.pl. subj.suffix)'
/np/ /w/ /ppa/ 'lightning'
/ŋ/ /paŋku/ 'cousin'
/nj/ /n/ /nj/ /nja/ 'spits'
/nj/ /m/ /yjunju/ 'twitches'

Nasal + nasal:

/nm/ /mu/ /mna/ 'early'
/nj/ /m/ /nadj/ 'lightening'

Lateral + stop:

/lpl/ /milpa/ 'eye'
/-lpa/ 'used to (habitual tense aspect suffix)'
/lk/ /ya/ /lk/ /l/ 'sky'
/-lku/ 'now (present tense aspect suffix)'
/lpl/ /ma/ /lp/ /a/ 'companion'
/lk/ /mu/ /lk/ /u/ 'intestines'
/ljp/ /ma/ /rja/ /l/ 'sacred site, ceremony, or ground painting'
/ljk/ /w/ /ljk/ /a/ 'cold'

Lateral + semi-consonant:

/lw/ /ka/ /lwa/ 'egret'
/lw/ /wa/ /lwa/ 'tree lizard'

Vibrant /r/ + stop:

/ɾp/ /wi/ /ɾ/ /pi/ 'corner of mouth'
/ɾtj/ /nu/ /ɾ/ /tju/ 'good'
/ɾk/ /y/ /ɾ/ /na/ /ɾ/ 'spider'
Vibrant /ɾ/ + nasal:

/ɾm/ /yunkuɾmü/ 'bush bean tree'
/ɾŋ/ /ŋŋŋŋŋŋi/ 'curving to the left (of flight of boomerang)'

Semi-consonant /ɾ/ + nasal:

/ɾŋ/ /ɾaɾŋa/ 'really'

2.1.2 Category B, Consonant Clusters within Compound Verbs at Root Boundaries

Thus far, in this category 33 different consonant clusters have been recorded at the root boundaries of compound verbs.

Homorganic Clusters

Lateral + lateral:

/||/ /wawulawuluwani/ 'tugs'

Heterorganic Clusters

Nasal + stop:

/np/ /piɾmanpinji/ 'rebounds, bounces'
/ŋp/ /jakaŋpinji/ 'loosens, opens'
/njŋ/ /ŋunuŋpinji/ 'removes'
/ntj/ /ŋapantjaŋkami/ 'burns severely'
/nk/ /ŋayinkitiŋi/ 'breathes deeply'
/nk/ /tjinaŋkititiŋi/ 'stumbles'

Nasal + nasal:

/ŋm/ /tjuŋtuŋmani/ 'clicks'
/njm/ /tunjmani/ 'groans'
/njŋ/ /kunjunjani/ 'sucks'

Nasal + semi-consonant:

/ŋw/ /ŋaŋtjatŋiŋwani/ 'walks stooped over'

Lateral + stop:

/lp/ /piɾtjlipinji/ 'deals a crashing blow'
/ŋp/ /tjwuŋpinji/ 'jumps'
/ŋk/ /tjwuŋkaŋlipinji/ 'it sunfishes'
/lŋ/ /wilpinji/ 'beats up'
/lk/ /muljmulkaŋkami/ 'leaves impression in ground'
Lateral + nasal:
/\m/ /tə:manı/ 'licks, snaps'
/\nj/ /miyijninamı/ 'works while sitting'
/\ŋ/ /tjuljungamı/ 'floats in water'

Lateral + lateral:
/\lj/ /ra:ljuwaŋı/ 'breaks limbs with weapon'

Lateral + semi-consonant:
/\lw/ /kapalkalwapami/ 'stagger'
/\lw/ /tjuljulwapami/ 'walks through water'
/\ljw/ /kiwiljkiwiljwapanı/ 'reels, staggering'
/\ljy/ /wuruljyanı/ 'escapes'

Vibrant /\l/ + stop:
/\lp/ /rįljpiŋpaŋtını/ 'punctures'
/\l/j/ /waŋkuřtını/ 'barks at'
/\lk/ /waŋfaŋfaŋkitjuŋı/ 'rolls on ground'

Vibrant /\l/ + nasal:
/\lm/ /tjaŋkumani/ 'lifts'
/\ln/ /kaŋfını/ 'crunches'

Vibrant /\l/ + lateral:
/\ll/ /ruŋkuřluwaŋı/ 'slices off with weapon'

Vibrant /\l/ + semi-consonant:
/\lw/ /waŋwilweŋkamı/ 'whirrs, makes a fluttering noise'
/\ly/ /raŋtjaŋyını/ 'supplies, gives repeatedly'

Semi-consonant /\l/ + stop:
/\lk/ /yarjaŋkaŋı/ 'rub'

2.1.3 Category C, Consonant Clusters within Reduplicated Constructions

Thus far, in this category 25 different consonant clusters have been recorded at the boundaries of reduplicated roots in compound verbs.

Homorganic Clusters

Lateral + stop:
/\lj/ /uŋuŋpatıŋı/ 'slashes'
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Vibrant /ɾ/ + vibrant /ɾ/: 
/ɾɾ/ /ɾuⁿkuɾɾuⁿkuɾp₄tᵫini/ 'scraps off'

Nasal + stop:
/np/ /panpantjaŋkamᵫ/ 'burns severely'
/pp/ /paⁿtjaŋpaⁿtjaŋpamᵫ/ 'leaves a trail'
/ŋtj/ /tjuŋtjuŋmᵫni/ 'clicks'
/ŋk/ /kiⁿtjaŋkiⁿtjaŋpamᵫ/ 'waddles'
/njk/ /kunjknjunj疳ᵫni/ 'sucks'

Nasal + semi-consonant:
/ŋy/ /yaⁿtajyaⁿtajpamᵫ/ 'sneaks away quietly'
/njw/ /winjwinmᵫni/ 'whistles quietly'

Lateral + stop:
/lk/ /kapalkapalwamᵫ/ 'stagger'
/lp/ /plπajπajpakanᵫ/ 'plucks, flicks'
/ltj/ /tjuwultjuwulpinji/ 'bucks, hops'
/lk/ /kujkumaŋᵫni/ 'holds tightly between lips'
/ljk/ /kiwiλkiwiλjwamᵫ/ 'reels, staggars'

Lateral + nasal:
/ljm/ /muljmultiplywamᵫ/ 'walks leaving deep impressions'
/ljn/ /nλλλλλλlplpakanᵫ/ 'cuts against the grain'

Lateral + semi-consonant:
/lw/ /wawulwawulwᵫpanicᵫni/ 'tugs'

Vibrant /ɾ/ + stop:
/ɾp/ /paɾpaɾpaɾ₄mᵫni/ 'heats up'
/ɾt/ /tutututu²pamᵫ₄₄tᵫini/ 'pecks'
/ɾtj/ /tjitjitjititwamᵫ/ 'walks with head bowed down'
/ɾk/ /kaliɾkaliɾkamᵫ_/ 'spreads out, splits up'

Vibrant /ɾ/ + nasal:
/ɾm/ /muɾmuɾᵫnᵫni/ 'chews noisily'

Vibrant + semi-consonant:
/ɾw/ /waɾwaɾwaɾkitjᵫni/ 'rolls on ground'
/ɾy/ /yawiyawiyᵫpatjᵫni/ 'cuts through in many places'
Semi-consonant /r/ + semi-consonant:

/ɣr/    /ɣyaɣaɣaɟaʃiɹi/   'rubs'

2.1.4 Observations Concerning Consonant Clusters

The data collected thus far yielded 50 different consonant clusters, all of which occur in each of the three categories. The following chart facilitates comparisons of clusters in the three categories.

<table>
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<tr>
<th>Category A</th>
<th>Category B</th>
<th>Category C</th>
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</table>
Categories A and C share 3 consonant clusters, categories B and C share 2 consonant clusters, categories A and B share 6 consonant clusters, in addition to the 11 consonant clusters they all share in common. This leaves 5 consonant clusters that are unique to category A, 14 to category B, and 8 to category C.

The first member of a consonant cluster in any category is always either a nasal, a lateral, a vibrant, or in rare instances the semi-consonant /ɾ/.

The second member of a consonant cluster may never be the consonants /n/, /l/, /j/, /ɾ/, and /ɾ/.

A total of only 6 homorganic consonant clusters were recorded, the remaining 44 are heterorganic.

2.2 Vowel Distribution Within the Phonological Word

Vowels do not occur in word-initial position but all words end with a vowel. Vowel clusters do not occur. Long vowels never occur in word-final position.

The vowels /i/ and /u/ very rarely co-occur in contiguous syllables in words that do not comprise reduplicated or compounded constructions.
Vowel harmony normally occurs. Only a few exceptions have been recorded, as follows:

/kuŋitji/  'shield'
/kuŋitji/  'mother-in-law'
/yukurĩ/  'green'
/kuŋiʁa/  'south'

3. SYLLABLES

Only two syllable types occur, CV and CVC.

CV type syllables:
/pi.na/  'knowing'
/kuŋ.yu/  'meat'
/ma.-license/  'kangaroo'
/miː.diː.nja.nji/  'scrutinises'
/fuː.kau/  'pushed'
/pi.[aː.lːi]/  'ritual friend'

CVC type syllables:
/klin.ki/  'devil'
/ŋuŋ.tju/  'good'
/ŋa.wuŋ.ŋa.wuŋ.pa/  'hot'
/lili.ki/  'staring'
/muː.paiJu/  'very careful'
/maːʃ.maːʃ.ma.ni/  'twinkles'

Within a phonological word up to 11 CV syllables may occur consecutively.

/ma.ːi.ki.tja.ʃa[.u.ka.pai.nja.nu ya].ki.ni/  'the two dogs are biting one another'

But at the most only two contiguous CVC syllables occur in phonological words that do not comprise reduplicated constructions.

/ʃiŋ.piŋ.pa.ŋti.ni/  'punctures'
/waŋ.kuŋ.tji.ni/  'barks at'
/ŋaŋ.piŋ.ni/  'curving to the left'
/piŋ.man.pi.ni.ni/  'rebounds'

In reduplicated constructions, however, three or four contiguous CVC syllables may occur.
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Some bounded morphemes have the phonemic shape of CCV.

/-Iku/  (present tense aspect suffix)
/-Ipa/  (habitual tense aspect suffix)
/-npa/  (2nd per.sing.subj.pronominal suffix)
/-nkuju/  (2nd pers.pl.subj.pronominal suffix)

After suffixation the initial consonant of CCV suffixes fills the postnuclear margin of the final syllable of the morpheme to which it was suffixed.

/walj.kakapa/  'I am feeling cool' + /-Iku/ 'now'
/walj.kakapaIku/  'I am feeling cool now'

Thus after suffixation the syllabic division of the consonant cluster of the suffixed morpheme no longer coincides with the lexical division.

4. WORD STRESS

Phonological words in Ngardilpa comprise one and up to fifteen syllables. Words comprising more than fifteen syllables have not yet been found in the data. Monosyllabic words and words comprising more than ten syllables are relatively rare.

The phonological word carries primary stress on the first syllable and secondary stress on specific syllables as explained below, but the final syllable is always unstressed. Primary stress is perceived as increased intensity or loudness, raised pitch, and sometimes length. Secondary stress is perceived as less loudness and less length than in primary stress, with pitch usually no higher than that of the contiguous, non-stressed syllables.

In this section, primary stress will be symbolised by /"/ preceding the syllable, and secondary stress by '/" preceding the syllable.

In two- and three-syllable words no secondary stress occurs.

/"pl.na/  'knowing'
/"wa.ni^n\tja/  'throat'

Exception: A few two syllable words do not conform to the stress patterning as outlined above but they are extremely rare, e.g. /yu."wi/ 'yes'.

In mono-morphemic words comprising four syllables, secondary stress occurs on the penultimate syllable.
In mono-morphemic words comprising five and up to seven syllables, secondary stress occurs on the penultimate syllable. These are words that do not contain reduplicated syllables. Such words comprising more than seven syllables have not been found in the data.

In mono-morphemic words containing reduplicated syllables and comprising five and up to eight syllables, secondary stress occurs, as follows:

(a) on the first syllable of each reduplicated group of syllables when these groups are preceded by two or more non-reduplicated syllables.

(b) on the first syllable of the second group of reduplicated syllables when only one syllable, i.e. the word-initial primary stressed syllable, precedes the reduplicated group of syllables.

(c) on the first syllable of each reduplicated group of syllables following one word-initial group of reduplicated syllables comprising two or more syllables.

Mono-morphemic words containing reduplicated syllables and comprising more than eight syllables have not been found in the data.
In poly-morphemic words stress is determined by the inherent stress of each of the morphemes comprising such words.

Poly-syllabic morphemes comprising two and up to eight syllables are inherently stressed as explained above in the section dealing with monomorphemic words.

Mono-syllabic morphemes other than verb roots have no inherent stress but they carry primary stress when they occur in word-initial position of poly-morphemic words, and secondary stress when they occur as the fourth syllable in a string of five inherently unstressed syllables.

The following examples of poly-morphemic words are marked only according to morphemes. Morpheme boundaries are marked by the symbol _ . Verb roots are underlined. The symbols for primary and secondary stress remain unchanged.

"piŋman-_pl-nji/ 'rebounds'
"paŋ-paŋ-_paŋ-mi/ 'heats up'
"panka-tja-[-tjaŋa/ 'he and I ran'
"wiŋki-_paka-ŋi/ 'winks'
"kaŋta-_paŋu-_kar-[-li/ 'the other old women'
"ka-njtja-_ya-nu-IPA-[-tjaŋa/ 'then, while carrying it, they went'

"najnuu-_njaŋu-_kuŋ-tju/ 'he, towards himself, (is)'
"tjanjuŋu-nja-ka-npa-_maŋa-ŋi/ 'do you have tobacco?'
"piŋa-_kuŋ-[-ku-ka-_ma-ni/ 'he was then filling (it) up'
"puta-kuŋ-[-pal-ja-_puŋa-_njaŋu/ 'we(excl.) now tried to think about (it)'
"wilpi-_ma-nu-IPA-[-pala-_yaŋa/ 'the two of them were pulling (it) away again'
"kula-_pina-IPA-nku-[-yiŋka-IPA-_ya-nu/ 'you all did not then return together'
"kulaŋa-_wiŋ-[-njaŋu-_tja-_tjuka-_yiŋka-ŋu/ 'repeatedly, he poked the spear at himself first'

When a mono-syllabic morpheme occurs in word-initial position and is followed by a verb root, it carries primary stress while the first syllable of the verb root carries secondary stress.

"paŋ-_paŋ-mi/ 'flies (verb)'
"fu-[-ka-ŋu/ 'pushed'
"fa-[-l_-paka-ŋi/ 'fells a tree'
"pu-[-l-_-kitji-ŋi/ 'removes from between the lips'
When the exclamation or intensifier suffix /-wu/ is added to a word, the primary stress shifts from the first syllable to the penultimate syllable, and secondary stress, if any, is lost.

/"ya."pi.ya + wu > ya."pi."ya.wu/ 'stop it! (emphatic)'
/"ja.wa + wu > ja."wa.wu/ 'no! (emphatic)'
/"ya.ti.'tja."fa + wu > ya.ti.tja."fa.wu/ 'north! (emphatic)'

5. INTONATION

Intonation in Ngardilpa is a complex phenomenon. Intonation is applied to phrases to affect their shade of meaning, but not their basic meaning. Sometimes intonation begins and ends at the borders of important grammatical units or of actual or potential phonological ones. Sometimes sequences of several intonation contours occur in series without pauses separating them. Speech tempo in conjunction with intonation is important also.

With intonational differences a speaker of Ngardilpa can express all sorts of mental states or feelings, such as satisfaction, discontent, disbelief, surprise, disappointment, contempt, hatred, pity, complacency, impatience, fear, doubt, pride, contentment, frustration, bellicosity, repugnancy, gaiety, etc.

Having said all that, it is significant to note that according to Hockett (1955), English intonations are built out of seven ultimate phonologic constituents, which occur only in certain arrangements relative to each other and relative to the remainder of the macrosegment. There are three pitch levels, three terminal contours, and one feature of the all-or-none type which is called "extra height". A macrosegment is defined as a stretch of speech or a short utterance with no internal pauses, and in English a macrosegment consists of two immediate constituents, namely, intonation and a remainder. There are in English less than a hundred different intonations and a transfinite number of different remainders.

Many alternative techniques for analysis of intonational systems have been and are being used by investigators, but thus far apparently no unified technique has as yet been developed. To date the intonational system of Ngardilpa has not been analysed beyond a preliminary investigation. This investigation revealed that some of the many possible intonation contours comprise the same types of elements found in some intonation contours of some of the other Western Desert Languages as well as English (this became apparent when reading Hockett).

No attempt will be made here to list or describe any of the many
types of intonation contours in Ngardilpa. A definitive description of the intonational system is presently beyond the scope of this paper because it has not yet been determined to what level within the phonological hierarchic structure this intonational system should be assigned.

6. MORPHOPHONEMICS

Most of the morphophonemic changes in Ngardilpa are governed by vowel assimilation or mutation. Vowel assimilation occurs between the vowels /i/ and /u/, and the assimilation is either progressive or regressive. The remaining changes are due to the phenomenon that requires certain suffixes to begin with a prenasalised stop when affixed to disyllabic words, and with a lateral when affixed to poly-syllabic words.

The base form of a suffix or verb is the form displayed when the suffix in question is affixed to a noun ending with the vowel /a/, or the verb in question has a suffix affixed that is void of the elements that usually trigger regressive assimilation.

Some tense suffixes cause regressive assimilation on the vowels of the verbs to which they are affixed. The elements in tense suffixes that trigger such assimilation are the vowels /i/ and /u/, and the prenasalised stop /ŋ/ when it occurs suffix-initial.

\[
\begin{align*}
\text{Ipu } & + -nJj > \text{pi nj}j/ & \text{hits}' \\
\text{Iyu } & + -nJj > \text{yi nj}j/ & \text{gives}' \\
\text{kitj}j & + -nu > \text{kutjupu/} & \text{threw}' \\
\text{tja} & + -nu > \text{tja} & \text{scrapped}' \\
\text{Ipu } & + -nJtja > \text{pi nj}tja/ & \text{keeps on hitting}' \\
\text{Iyu } & + -nJtja > \text{yi nj}tja/ & \text{keeps on giving}'
\end{align*}
\]

The final vowel of noun stems causes progressive assimilation of the vowel of the following suffix. The ergative suffix {-u} has four allomorphs, -u ~ -i ~ -ku ~ -ki. When the noun stem comprises three or more syllables the allomorph -u follows stem-final vowels /a/ or /u/, and the suffix vowel assimilates following the vowel /i/ to form the allomorph -i. When the noun stem is disyllabic the allomorph -ku follows stem-final vowels /a/ and /u/, and the suffix vowel assimilates following the vowel /i/ to form the allomorph -ki.

\[
\begin{align*}
\text{Ipuuku/ } & + {-}u > \text{puuku}u/ & \text{bullock}' \\
\text{maliki/ } & + {-}u > \text{maliki} & \text{dog}' \\
\text{wa} & + {-}u > \text{wau}ku & \text{fire}' \\
\text{wati/ } & + {-}u > \text{wati} & \text{man}'
\end{align*}
\]
Pronominal suffixes comprising the vowels /i/ and /u/ that are subject to progressive assimilation are as follows:

\[ \{-|i\} \rightarrow -|i \sim -|u \rightarrow 'you and I (subj.)' \]
\[ \{-|itja\|a\} \rightarrow -|itja\|a \sim -|utja\|a \rightarrow 'he and I (subj.)' \]
\[ \{-|ipa\} \rightarrow -|ipa \sim -|upa \rightarrow 'you all and I (subj.)' \]
\[ \{-|nuju\} \rightarrow -|nuju \sim -|nji|i \rightarrow 'you all (subj.)' \]
\[ \{-|u\} \rightarrow -|u \sim -|j|i \rightarrow 'they (subj.)' \]
\[ \{-|ju\} \rightarrow -|ju \sim -|j|i \rightarrow 'I (obj.)' \]
\[ \{-|ku\} \rightarrow -|ku \sim -|ku\|i \rightarrow 'you (obj.)' \]
\[ \{-|ku|a|a\} \rightarrow -|ku|a|a \sim -|ku|a|a\|a \rightarrow 'you two (obj.)' \]

Various other suffixes that are also subject to progressive vowel assimilation are as follows:

\[ \{-|ku\|a\} \rightarrow -|ku\|a \sim -|ku\|a\|a \rightarrow 'towards (allative)' \]
\[ \{-|ku\} \rightarrow -|ku \sim -|k|i \rightarrow 'to (dative benefactive)' \]
\[ \{-|ku|a|u\} \rightarrow -|ku|a|u \sim -|ku|a|u|a \rightarrow 'of, belonging to (possessive)' \]
\[ \{-|nu|u\} \rightarrow -|nu|u \sim -|nu|u\|i \rightarrow 'with (instrument)' \]
\[ \{-|\|i\} \rightarrow -|\|i \sim -|\|i \rightarrow 'moving hither (manner)' \]
\[ \{-|nu|u\} \rightarrow -|nu|u \sim -|nu|u\|i \rightarrow 'from (elative)' \]
\[ \{-|ku|\} \rightarrow -|ku \sim -|ku\|i \rightarrow 'now (present tense aspect)' \]

Another suffix, the locative suffix \{-|a\} has two allomorphs, \(-|a \sim -|ka\). The allomorph \(-|a\) is suffixed to noun-stems comprising three or more syllables, and the allomorph \(-|ka\) to disyllabic noun-stems.

/yuwa|a|/ + \{-|a\} > /yuwa|a|la/ → 'in the house'
/wa|a|ja|a| + \{-|a\} > /wa|a|ja|a|ka/ → 'on the ground'

One particular suffix, however, is immune to vowel assimilation:

/tju|a|na| + \{-|k|i|i\} > tju|a|na|k|i|i/ → 'only the truth'
/\|a|nay|a| + \{-|k|i|i\} > \|a|nay|a|k|i|i/ → 'only what's his name'
/yalu|mPU| + \{-|k|i|i\} > yalu|mPU|k|i|i|/ → 'only over there'
APPENDIX

LEXICOSTATISTICAL WORD LISTS

The following 100-word list was supplied by Swadesh and modified by Samarin (1967:221).

1. I /ŋatju/
2. you (sing.) /njuŋtu/
3. we (incl.) /ŋalipa/
4. this /ŋajaŋpu/
5. that /ŋali/
6. who? /ŋana/
7. what? /ŋijaŋya/
8. not /ŋawa/
9. all /yuŋtulupatu/
10. many /panu/
11. one /tjiŋta/
12. two /tjiŋama/
13. big /wiŋri/
14. long /kiŋkiŋi/
15. small /wita/
16. woman /kaŋtaŋa/
17. man /ŋaŋkaŋa/
18. person /yapa/
19. fish /yawu/
20. bird /tjuŋpu/
21. dog /tjaŋtu/
22. house /yuwaŋjaŋi/
23. tree /watiya/
24. seed /ŋujuŋ/
25. leaf /tjaŋjuŋpaŋa/
26. root /ŋaŋŋtjuŋa/
| 27.  | bark       | /wuŋamiŋi/ |
| 28.  | skin       | /plŋiŋi/   |
| 29.  | flesh      | /yilaŋa/   |
| 30.  | blood      | /yaiju/    |
| 31.  | bone       | /yunkuŋu/  |
| 32.  | grease     | /tjaŋa/    |
| 33.  | egg        | /ŋiŋiŋi/   |
| 34.  | horn       | /malŋiŋiŋi/|
| 35.  | tail       | /ŋiŋiŋi/   |
| 36.  | feather    | /plŋiŋiŋiŋa/|
| 37.  | hair       | /manliŋa/  |
| 38.  | head       | /tjuŋu/    |
| 39.  | ear        | /jaŋa/     |
| 40.  | eye        | /miŋiŋa/   |
| 41.  | nose       | /mulju/    |
| 42.  | mouth      | /jiŋa/     |
| 43.  | tooth      | /kaŋiŋi/   |
| 44.  | tongue     | /tjalanpa/ |
| 45.  | fingernail | /yliŋjilil/|
| 46.  | foot       | /wiŋyla/   |
| 47.  | knee       | /miŋi/     |
| 48.  | hand       | /řaka/     |
| 49.  | belly      | /miŋyulo/  |
| 50.  | neck       | /kaŋaŋa/   |
| 51.  | breasts    | /ŋapulu/   |
| 52.  | heart      | /kuŋuŋuŋu/ |
| 53.  | liver      | /yiliŋma/  |
| 54.  | drink      | /ŋaŋi/     |
| 55.  | eat        | /ŋaŋi/     |
| 56.  | bite       | /yaiŋini/  |
| 57.  | see        | /ŋiŋaŋi/   |
| 58.  | hear       | /puŋaŋaŋaŋi/|
| 59.  | know       | /plŋa/     |
| 60.  | sleep      | /tjaŋa/    |
| 61.  | die        | /puŋkatjaŋi/|
| 62.  | kill       | /liŋŋiŋiŋiŋaŋaŋaŋaŋi/|
| 63.  | swim       | /tjuŋiŋaŋiŋiŋaŋaŋaŋaŋaŋaŋi/|
| 64.  | fly        | /paŋpaŋi/  |
| 65.  | walk       | /wapa/     |
| 66.  | come       | /yaniŋi/   |
| 67.  | lie        | /ŋuna/     |
The following 100-item word list is O'Grady's List A and it is presented here to facilitate comparison with entries as listed in other Western Desert Language phonology papers also using O'Grady's List A.

<p>| 68. sit          | /njina/     |
| 69. stand       | /kaŋi/      |
| 70. give        | /jinji/     |
| 71. say         | /waŋka/     |
| 72. sun         | /-nililpa/  |
| 73. moon        | /maŋlipi/   |
| 74. star        | /yaŋtjiŋlipi/ |
| 75. water       | /ŋapa/      |
| 76. rain        | /ŋapa/      |
| 77. stone       | /pamaŋpa/   |
| 78. sand        | /waljaŋa/   |
| 79. earth       | /walja/     |
| 80. cloud       | /maŋkuŋŋu/  |
| 81. smoke       | /yuuljuŋu/  |
| 82. fire        | /waŋju/     |
| 83. ash         | /yuŋlipa/   |
| 84. burn        | /tjaŋka/    |
| 85. path        | /yiqiŋi/    |
| 86. mountain    | /ŋanka/     |
| 87. red         | /yaljuyalju/|
| 88. green       | /yukuŋŋi/   |
| 89. yellow      | /kaŋtawaŋŋa/|
| 90. white       | /kaŋŋiŋi/   |
| 91. black       | /maŋu/      |
| 92. night       | /muŋa/      |
| 93. hot         | /ŋawuŋŋawuŋpa/|
| 94. cold        | /piŋinya/   |
| 95. full        | /tjuŋupulŋpaŋi/ |
| 96. new         | /njulŋpa/   |
| 97. good        | /ŋuŋtuŋ/    |
| 98. round       | /ŋiŋiŋiŋiŋiŋi/ |
| 99. dry         | /ŋiŋiŋiŋiŋiŋiŋi/ |
| 100. name       | /yiŋi/      |</p>
<table>
<thead>
<tr>
<th>Number</th>
<th>Body Part</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>nose</td>
<td>/mulju/</td>
</tr>
<tr>
<td>6.</td>
<td>ear</td>
<td>/jaŋa/</td>
</tr>
<tr>
<td>7.</td>
<td>beard</td>
<td>/tjaŋanka/</td>
</tr>
<tr>
<td>8.</td>
<td>mouth</td>
<td>/jĩfã/</td>
</tr>
<tr>
<td>9.</td>
<td>tooth</td>
<td>/kațiři/</td>
</tr>
<tr>
<td>10.</td>
<td>tongue</td>
<td>/tjaalanja/</td>
</tr>
<tr>
<td>11.</td>
<td>throat</td>
<td>/ŋu:řpa,wanĩntja/</td>
</tr>
<tr>
<td>12.</td>
<td>nape</td>
<td>/kakařa/</td>
</tr>
<tr>
<td>13.</td>
<td>armpit</td>
<td>/kitikitl,ŋakuljka/</td>
</tr>
<tr>
<td>14.</td>
<td>elbow</td>
<td>/matiŋtiŋi/</td>
</tr>
<tr>
<td>15.</td>
<td>hand</td>
<td>/řaka/</td>
</tr>
<tr>
<td>16.</td>
<td>fingernail</td>
<td>/yiljtjiĩ,mištjanpa/</td>
</tr>
<tr>
<td>17.</td>
<td>chest</td>
<td>/ŋantułuŋuʃ,ʃukuʃuku/</td>
</tr>
<tr>
<td>18.</td>
<td>rib</td>
<td>/ramařa/</td>
</tr>
<tr>
<td>19.</td>
<td>breast (woman’s)</td>
<td>/ŋapulu/</td>
</tr>
<tr>
<td>20.</td>
<td>heart</td>
<td>/kušuʃuʃu/</td>
</tr>
<tr>
<td>21.</td>
<td>liver</td>
<td>/yiliŋa/</td>
</tr>
<tr>
<td>22.</td>
<td>belly (external)</td>
<td>/milyaũ/</td>
</tr>
<tr>
<td>23.</td>
<td>thigh</td>
<td>/waŋaři/</td>
</tr>
<tr>
<td>24.</td>
<td>knee</td>
<td>/miʃi/</td>
</tr>
<tr>
<td>25.</td>
<td>foot</td>
<td>/wiʃiŋa/</td>
</tr>
<tr>
<td>26.</td>
<td>skin</td>
<td>/pliŋti/</td>
</tr>
<tr>
<td>27.</td>
<td>blood</td>
<td>/yalju/</td>
</tr>
<tr>
<td>28.</td>
<td>fat, grease</td>
<td>/tjaɾa/</td>
</tr>
<tr>
<td>29.</td>
<td>bone</td>
<td>/yunkũnu/</td>
</tr>
<tr>
<td>30.</td>
<td>name</td>
<td>/yiʃi/</td>
</tr>
<tr>
<td>b</td>
<td>31.</td>
<td>to see /nja-/</td>
</tr>
<tr>
<td>32.</td>
<td>to hear</td>
<td>/puʃjanja-/</td>
</tr>
<tr>
<td>33.</td>
<td>to eat</td>
<td>/ŋa-/</td>
</tr>
<tr>
<td>34.</td>
<td>to drink</td>
<td>/ŋa-/</td>
</tr>
<tr>
<td>35.</td>
<td>saliva</td>
<td>/njinjpa,yaya/</td>
</tr>
<tr>
<td>36.</td>
<td>to bite</td>
<td>/yaʃki-/</td>
</tr>
<tr>
<td>37.</td>
<td>urine</td>
<td>/mau/</td>
</tr>
<tr>
<td>38.</td>
<td>excrement</td>
<td>/kuna/</td>
</tr>
<tr>
<td>39.</td>
<td>to cry, weep</td>
<td>/yula-/</td>
</tr>
<tr>
<td>40.</td>
<td>to speak</td>
<td>/waŋka-/</td>
</tr>
<tr>
<td>41.</td>
<td>to smell it</td>
<td>/paŋti-/</td>
</tr>
<tr>
<td>c</td>
<td>42.</td>
<td>to be sitting /njina-/</td>
</tr>
<tr>
<td>43.</td>
<td>to be standing</td>
<td>/kaʃi-/</td>
</tr>
<tr>
<td>44.</td>
<td>to be lying down</td>
<td>/ŋuna-/</td>
</tr>
<tr>
<td>45.</td>
<td>to go, walk</td>
<td>/ya-/</td>
</tr>
<tr>
<td>46.</td>
<td>to climb</td>
<td>/waɾka-/</td>
</tr>
</tbody>
</table>
47. to fall /waⁿti-/  
48. to take it, grasp /ma-/  
49. to give /yu-/  
50. to hit (with hand) /pu-/  
51. to cut it (meat) /patji-/  
52. person, Aborigine /yapa/  
53. woman /kaⁿta,řutju/  
54. old man /tja.luʃu/  
55. a spear /kuʃaʃa/  
56. fire /waʃu/  
57. (cold) ashes /yuʃpilpa/  
58. smoke /kuʃnjtuʃu/  
59. to be burning /tjaŋka-/  
60. water /ŋapa,tjuwiʃi/  
61. stone /pamaʃpa/  
62. ground, earth /waʃaʃa/  
63. sky /ŋuʃu/  
64. sun /waⁿta,ŋilllpa/  
65. moon /maʃlpi/  
66. star /yaʃnjtlpiʃi/  
67. by and by /ŋaka/  
68. now, today /tjalalaŋu/  
69. wind /mayawunpa/  
70. north /yatitjaʃa/  
71. east /kakaʃaʃa/  
72. south /kuʃija/  
73. west /kalaʃa/  
74. up /kankalaʃa/  
75. down /kanʃnjtjaʃa/  
76. far /wuⁿtuʃu/  
77. big /wiʃi/  
78. small /wita/  
79. long /kifiʃi/  
80. short /ʃaʃu/  
81. meat /kuyu/  
82. rotten (meat) /puka/  
83. dog /tjaⁿtu,maʃki/  
84. tail /ŋiⁿtiʃi/  
85. snake /waʃa/  
86. egg /ŋilpiʃi/  
87. a fly /yamani/  
88. (vegetable) food /miʃi/
89. tree /watiya/
90. leaf /tjaļjuʃpa/
91. one /tjiŋta/
92. two /tjiʃama/
93. many /panu/
94. I intr. /ŋatju/
95. you (sing.) intr. /ŋjuŋtu/
96. this /ŋjampu/
97. what? /ŋjinya/
98. where? /ŋjaŋpaŋa/
99. who? /ŋana/
100. black (as dog) /maru/
NOTES

1. Dr A. Capell (1963) lists Waljbiri (Wailbri) as a Western Desert Language along with Walmanba (Walmala), Ngardi and Wanajaga (Waneiga) as dialects, whereas O'Grady, Voegelin and Voegelin (1966:39) subordinated Western Desert Languages under the Wati Subgroup but Wailbri under the Ngarga Subgroup.


The spelling of the names of the tribes and languages in the next four paragraphs conform to the phonemic representation used throughout this paper. In the title these names are spelled according to the practical orthography.

According to the members of the Wañayaka subtribe residing at the Hooker Creek Aboriginal Settlement in the Northern Territory, the situation is as follows: Wañpiri is the collective name for a people or tribe comprising four subtribes, namely, Wañmaña, Wañayaka, Nañi, and Nañiya. The Wañmaña tribe speaks Wañmaña, the Wañayaka tribe speaks Nañilpa, the Nañi tribe Njinin, and the Nañiya tribe Nañiya. A high degree of mutual intelligibility seems to exist between speakers of Nañilpa and Wañmaña, but exact percentages of intelligibility between these and other languages spoken by the subtribes will not be available until after a dialect intelligibility survey has been conducted.

The Nañiya tribe supposedly was the "original" and largest tribe, but today only a small number of them remains and many others have intermarried with members of the other subtribes.

In 1969 the Wañpiri population, including the four subtribes, stood at 2520. This figure was supplied by the Northern Territory Administration, Welfare Branch Research Department.

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At Hooker Creek the Waŋayaka subtribe is definitely in the majority; approximately 570 Waŋayaka reside there in contrast to about only 15-25 members of the Waŋmaŋa subtribe. Greater numbers of Waŋmaŋa are said to reside at Warrabri and Yuendumu Aboriginal Settlements in the Northern Territory. Additional members of the different subtribes of the Waŋpípi tribe live in varying numbers in other places in the Northern Territory (Papunya, Wave Hill and Bagot Aboriginal Settlements, Wave Hill Station, Alice Springs, Willowra Station, Coniston Station, Barrow Creek, Wauchope, Tennant Creek, Phillip Creek, Banka Banka, Renner Springs, Elliot, Newcastle Waters, Daly Waters, Katherine, Limbunya, Rosewood, Mistake Creek, Inverway, Birrindudu, Mt Doreen, Mt Dennison, Napperby, Mt Wedge, Mt Allan, and other cattle stations and towns not mentioned here), and in Western Australia (Gordon Downs, Nicholson, Flora Valley, Ord River, Billiluna, Halls Creek, Spring Creek, and Kununurra).

The data for this paper was collected during seven months in 1971 and checked over a further period of two years at Hooker Creek Settlement under the auspices of the Summer Institute of Linguistics, with the assistance of language informants, Jerry and Paddy Jangala. The author is indebted to Miss Velma Leeding and others of the Summer Institute of Linguistics for their helpful and constructive comments and criticisms on the analysis of some of the phonemes in this paper.

Thanks is also due to Dr Kenneth Hale of Massachusetts Institute of Technology for supplying his unpublished "Lessons in Walbiri", and to Miss Irene Marker and Mrs Marjorie (Hockaday) Marsh of the Summer Institute of Linguistics for access to their unpublished "Wallbri Phonology".

The description presented here is based on the phonological procedures and approach developed by Dr Kenneth L. Pike (1947).

2. According to speakers aged 40 and over, the prenasalised stop /\(^m_p/ occurs word-initially only because the initial syllable has been elided many decades ago. Younger speakers are not even aware of this and say that these words have always had the prenasalised stop /\(^m_p/ in word-initial position.

3. A compound verb stem comprises two roots. The second root is a finite verb. The first root is dependent and functions only in this position. The first root may be a reduplication of itself.

4. The co-existence of long vowels /u:/ and /i:/ and the sequences /uwu/ and /iyi/ was determined by counting the syllables in words in
deliberate speech. The long vowels did not become two syllable nuclei as did the sequences.
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THE PHONOLOGY OF MALAKMÁLAK

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 PutáPutá. 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 ṭ k, four nasals m n ṇ ꧾ, two laterals l ḷ, one vibrant (flapped) ř, one continuant r, and two semi-consonants w y.
1.11. **CONSONANTAL CONTRASTS.**

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

Word-initial examples:

- pak
- tuňk
- tovyňk
- kak
- sit
- drink
- bury
- hurt

Word-medial examples:

- apap
- mata
- matyňan
- akak
- sick, tired
- rain
- foot
- vomit

Word-final examples:

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

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

Word-initial examples:

- man
- nañ
- nyatnñat
- ñatñat
- stomach
- that (demonstrative)
- chip wood
- be unable to fix something

Word-medial examples:

- aman
- pönyö
- pana
- pana
- now
- banyan
- father
- again

Word-final examples:

- pam
- ñan
- tinya
- tag
- 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:

\[
yilik \quad lily-root
\]
\[
yilyi \quad bubble
\]

Word-final examples:

\[
gul \quad penis
\]
\[
nuлы \quad sea-breeze
\]

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

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

Word-medial examples:

\[
miři \quad sun
\]
\[
miri \quad tears
\]

Word-final examples:

\[
tar \quad bite
\]
\[
tar \quad crush
\]

Neither ř nor 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:

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

Word-medial examples:

\[
tawut \quad blood \quad tрыyо \quad shark
\]

1.16. CONSONANTAL VARIANTS

/p/ [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{align*}
tap & \ [\text{tap} \sim \text{ta}^p] \quad \text{grab} \\
\end{align*}

[b] Voiced bilabial stop, occurring intervocically, and following voiced consonants:

\begin{align*}
tapak & \ [\text{tabak}] \quad \text{break} \\
tumpuṛk & \ [\text{tumbuṛg}] \quad \text{hiccough} \\
\end{align*}

/\text{t}/ \ [\text{t}]

(1) Voiceless apico-alveolar stop, occurring word-initially and word-finally, and following a voiceless consonant:

\begin{align*}
tatv & \ [\text{ta}^t\text{v}] \quad \text{hit} \\
tat & \ [\text{tat}] \quad \text{see/find} \\
tiktat & \ [\text{tiktat}] \quad \text{look back} \\
\end{align*}

(11) Word-finally, released and unreleased voiceless allophones alternate:

\begin{align*}
tvēyōt & \ [\text{tvēyōt} \sim \text{tvēyōt}^t] \quad \text{red kangaroo} \\
\end{align*}

d] Voiced apico-alveolar stop, occurring intervocically, and following voiced consonants:

\begin{align*}
titit & \ [\text{tidLt}] \quad \text{cheeky yam} \\
ant & \ [\text{anda}] \quad \text{allright} \\
\end{align*}

/\text{ty}/ \ [\text{ty}]

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

\begin{align*}
tviyitv & \ [\text{tviyitv}] \quad \text{pick up} \\
\end{align*}

(11) Word-finally, released and unreleased voiceless allophones alternate:

\begin{align*}
yinmeyitv & \ [\text{yinmeyitv} \sim \text{yinmeyitv}^t] \quad \text{little (plm)} \\
\end{align*}

dy] Voiced lamino-alveolar stop, occurring inter-vocically, and following voiced consonants:

\begin{align*}
atvāŋ & \ [\text{advāŋ}] \quad \text{grandmother} \\
yentvir & \ [\text{yendvir}] \quad \text{dew} \\
\end{align*}

/\text{k}/ \ [\text{k}]

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

\begin{align*}
kak & \ [\text{kak}] \quad \text{hurt} \\
\end{align*}
(11) Word-finally, released and unreleased voiceless allophones alternate:

min¥itak [mind¥idak ~ mind¥idak] emphatic pronoun

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

kakak [kagak] long way
pöököl [pöögöl] knee

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

1. lak [lak] eat (meat)
2. työööl [työööl] go down (both recede (of water) and descend)
3. palpal [palbal] 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]:

kul [kul] stab (turtle)
mulk [mulɡ] bamboo
pulk [pułɡ] baby chicken

/y/ [ɭ] Fronted on- or off-glide:

yalg [y̞alɡ] moon
yööyö [y̞ö̞yö] he stands up/lies down (v. 3.15; 3.16)
cɭ [c̞] spear (verb root)

/w/ [u̞] Rounded on-glide:

wałg [u̞alɡ] stone

1.2. VOWELS

1.20. There are five vocalic phonemes in MalakMalak:

/ɪ/ high close front unrounded
/ɛ/ 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>Allophone</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ɪ/</td>
<td>[ɪ]</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></td>
<td>[ɨ]</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 ˈya [ˈɪnˈya] (initiated) man, piyip [ˈpɪˈɪp] sick.</td>
<td>yin ˈɪn [ˈɪnˈɪn] nose, ti ˈɪn [ˈtɪˈɪn]</td>
</tr>
<tr>
<td>[e]</td>
<td>Mid close front unrounded vocoid</td>
<td>pi! [ˈpɛ!] go! (Verb Root imperative)</td>
<td></td>
</tr>
<tr>
<td>Phoneme</td>
<td>Allophone</td>
<td>Description</td>
<td>Examples</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>/ɛ/</td>
<td>[ɛ]</td>
<td>Mid open front unrounded vocoid and the norm for this phoneme</td>
<td>te [tɛ] meat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>occurring only in the following stressed syllable:</td>
<td>pe [pe] golden catfish</td>
</tr>
<tr>
<td>[ɛ̃]</td>
<td></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 /nɔ/</td>
<td>tɛtɛtɛtv [tɛ'tɛtɛ'tv] white ant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tɛnɔ [tɛ'nɔ] make</td>
</tr>
<tr>
<td>/ɔ/</td>
<td>[ɔ]</td>
<td>Mid close retracted front unrounded vocoid, and the norm for this phoneme.</td>
<td>tɔm [tɔm] weak</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pɔbɔ [pɔbɔ] 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</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pam [pam] put (p10)</td>
</tr>
<tr>
<td>[ã]</td>
<td></td>
<td>This allophone of /a/ has a high fronted off-glide, occurring immediately preceding the lamino-alveolar consonants /tv/, /nɔ/, /iɛ/.</td>
<td>matɔn [ma'ðɔn] foot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>menɔ [mɛ'nɔ] &quot;departing from&quot;(suffix)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>nɔaiɛli [nɔ'iɛli] skin</td>
</tr>
<tr>
<td>[ʌ]</td>
<td></td>
<td>mid open central unrounded vocoid occurring in unstressed syllables.</td>
<td>pana [panʌ] again</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>waka [waga] bring</td>
</tr>
<tr>
<td>/u/</td>
<td>[u]</td>
<td>High open back rounded vocoid and</td>
<td>puntu [pʊnʊ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pulu [pʊlu]</td>
</tr>
<tr>
<td>Phoneme</td>
<td>Allophone</td>
<td>Description</td>
<td>Examples</td>
</tr>
<tr>
<td>---------</td>
<td>-----------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>[ɔ]</td>
<td>Low close back rounded vocoid (found only, so far, in two monosyllabic lexical items).</td>
<td>mu [mo] goose  wu [wo] barramundi</td>
<td></td>
</tr>
<tr>
<td>[u^i]</td>
<td>This allophone of /u/ has a high fronted off-glide occurring immediately preceding the lamino-alveolar consonants /t\lambda/ and /l\lambda/</td>
<td>wut\lambda [wu^i\lambda] feel around in shallow water (for turtles) nu\lambda [nu^i\lambda] sea-breeze</td>
<td></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 iV, Vi and uV, where i and u are high front unrounded and high back rounded vocoids, respectively; V is any admissible vocoid. The question arises as to whether the i and u are to be interpreted as semi-sonants or as vowels.

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

(1) the [u^i\lambda] case; and
(2) the [e^i] diphthong case.

(1) The former case concerns the word [u^i\lambda] breast/milk (which is distinct from [u^i] anger/fight). The question is whether the vocalic nucleus of [u^i\lambda] is to be interpreted as a long vowel /i:/ or as a disyllable with an intervocalic lamino-palatal semi-sonant, /i\lambda/. There are two arguments against the 'long vowel' hypothesis. Firstly, vocalic length is not systematically phonemic in the language. Secondly, the word [u^i\lambda] 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-sonant would seem to be contrary to the phonetic facts.

(2) The [e^i] diphthong case concerns the Verb Root [e^i] kill (potentially or actually) with a missile immediately followed by the Auxiliary [a^i\lambda]:
[ε^i] + [a^i\lambda]

The question is whether the fronted off-glide of [ε^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 [ε^i] is interpreted as a vowel the following should result: [ε^i] + [a^i\lambda] > [εa^i\lambda] (a solution which does not adequately reflect the phonetic facts in that the vocalic sequence [εa^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 [ε^i] + [a^i\lambda] is interpreted as ey 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

[\v^in\v\a] > yin\v\a (initiated) man

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

[\v^umu\v\a] > wumuwa 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. Within the Verb Complex 'sandhi takes place:

1. p'at\,ta > [p\v^at\,\lambda]
   (VR) go (Aux) lexSP.2 (Pres/Past)
   We (excl.) go/went.

2. t\v^at\,ma y'\,ta +-\v^in\v\n > [t\v^at\,ma \v^yid\v^in\v\n]
   (VR) see.cnt (Aux) 3sgmSP.2(Pres/Past +1sgOP)
   He is/was looking at me.
3. ánti  ēyma  wút.ta  >  
   adv (recip) (VR) spear.cnt (Aux)3plSP.2(pres/Past)  
   [Čándēi 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 [yudāři:nY] and [Čándēi ma] primary stress falls on the second syllable through the process of elision.

Outside of the Verb Complex sandhi does not take place:

4. mī akāna  [mī āgān]  ~ mī ákanā  [mī āganā]  
   vegetable food adv (neg)  (v.1.6.)  
   No food.

5. tē āṁru ṭu  [tē āru ṭu]  
   meat 1(ic)OP(bf)  
   Meat for us (inclusive).

1.5. SYLLABLE PATTERNS

The following syllable types occur:

V  a.ya  lsgSP.1(Punct)
VC  ak  a species of catfish
CV  tē  generic marker for animals hunted for meat, and the meat itself.
CVC  tek  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.²

There are two types of 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.⁶ 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: ĭv, ĭ 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:

\[ \text{tíní} \quad \text{pí} \quad \text{(adv) go} \quad \text{Try and go!} \]

\[ \text{yén} \quad \text{wá} \quad \text{yamstick pick up} \quad \text{Pick up the yamstick!} \]

Words of two syllables are stressed on the first syllable:

\[ \text{yúntén} \quad \text{he (Subject Pronoun)} \]
\[ \text{tvángar} \quad \text{spear} \]
\[ \text{múyinú} \quad \text{dog} \]
\[ \text{wórú} \quad \text{arm (or rivulet)} \]

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:

\[ \text{lâmiâm} \quad \text{talk/have a chat} \]
\[ \text{pítýpíty} \quad \text{rub firesticks} \]
\[ \text{wôrkwôrk} \quad \text{flat-tailed catfish} \]
\[ \text{mîrfîr} \quad \text{melt} \]
\[ \text{tûytûy} \quad \text{stretch (intr.)} \]

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

\[ \text{álawar} \quad \text{woman} \]
\[ \text{mélipapú} \quad \text{father (reference as opposed to address)} \]
\[ \text{máparà} \quad \text{follow} \]
\[ \text{ákunmánú} \quad \text{where from?} \]

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:

\[ \text{ákúnmanú} \quad \text{where from?} \]
\[ \text{melpapú} \quad \text{father} \]
\[ \text{akána} \quad \text{negative (adverb/adjective)} \]

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:

- mútyuśwùna: very many
- múnankàřa: beautiful
- kárárkwàrat: 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:

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

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

- týetwéńaméŋkìl: fork-stick
- anqúnìnyàŋka: You and I will stand.
- anqúñònyùŋka: You and I will lie down.
- wòřünònyùŋka: They will lie down.
- aŋkúnyàŋka: We are all going to stand.
- paŋrattỳřɛt: 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 an wuwúntunùnuwàkà: He would have given you (sg) meat.

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

- nòŋkónפònònyùŋka: 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 an nòŋkuřùntuwòřòwàkà: 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 pařarattvëřat; pentasyllabic nouns like tveytwëřamängkił are rare.

1.61. THE DISTRIBUTION OF PHONEMES WITHIN THE PHONOLOGICAL WORD

1.61.1. Consonant Distribution

Any single consonant except jv, ř 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:

- tumpurk - hiccup
- lamteł - stop (someone doing something)
- lamtrə̌ak - stop (tr.)
- timkut - bury (rubbish etc.)
- yunpayin - good
- piyantuk - underneath
- yentvë̌r - dew
- alanki - bring back
- wanypi - paddle (a canoe)
- manytutma - big crowd (of people)
- puŋupuŋ - boil (Verb Root)
- tanjatyma - hit repeatedly
- luŋtyę̌řat - (of bird, with anatomical food-bag) replenish
- manytvë̌tmatan - not produce children
- pǒŋköl - knee

Five have an initial lateral:

- pïlp - slap
- altak - break (tr.)
- kalɛ̌tz (puntuna) - carry (on head)
- yaiłk - moon
- tapuľyp - extinguish fire (with fingers, as opposed to feet)

Four have a vibrant ř as initial consonant:

- tveyřp - cut
- muřtuk - hatch
muṯṯv̪iŋ trip
ŋiŋk die

Four have a continuant r as initial consonant:

kurpuŋk wash
lerp meet (predicated of a large number of persons)
trewörtel forget
purwartvet 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)
kav.tvuŋk vat throw.put inside; throw inside
lak.kav eat (meat).throw; leave some meat (when unable to eat more)

Ten have a heterorganic stop sequence:

taptapali hold on to something moving (animal)
tapv̪iŋ drop
kumispuŋk sand goanna
yittiŋkat slough skin
yitkaŋ scale (fish)
kavpuŋk might beat (competitively)
tatv̪akak hurt (tr.)
yikiŋ small
lamiŋkaŋt tan try to stop unsuccessfly
wakv̪alkma waterfall

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

manwiŋuk hungry
tat wōwontøyŋūŋ he/she sees/saw us (excl.)
kinywat hang (up)
manŋyur cover
tv̪ıŋwawat send over (food e.g.)
kavpuŋk yönpuŋyʊŋ 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!
tepn̪ı grab him (male human or animal)
tepŋa grab (something) over there
anti tatma  find each other
tatnö       find him
nYatnYat    chip wood
tutŋa        causative.deictic suffix
kutŋma       whistle
tatŋnö       hit him
watŋnuru     try
ŋakma        eat
nanakna      really
payakŋarö    beetle

Eight have a semi-consonant as final consonant:
tapwapaŋkatŋy  turn over (tr.) (of a turtle, e.g.)
apyrurali     participial form of yur: lie (down)
tatwur        be missing
tatyur        sleep fitfully
yukutŋwat     move (fire e.g.) along (to harden newly-cut canoe)
katŋyipi      leave behind (tr.)
yanakwuna     just one
wakyɛn        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):
lamlam.ma     talk (VR).cnt
tam.ŋöyat     cook (meat) wrapped up (i.e., in paperbark)
manmal        wing
ŋun.na        spatial specifier. locative
-yanŋa         in/on/beside
lajŋma        light (antithesis of dark)
tvöŋnö        fire-place (lit. belongs to fire)
tatŋyömpŋŋŋŋaŋy he is going to hit her.
wanyŋma       row or paddle
tat yimŋŋŋnö    he sees/saw him
eŋinmanŋŋa    nobody
tvinnŋyukma    water-rat

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

Three have a semi-consonant as final member:

nööwlweńeyı́n yıta  he makes a lot of trouble
kaɬyur  carry
tı́lıwuŋkali  wrinkled (skin)

Of the remaining clusters that have a vibrant (flapped) ŋ as initial consonant, three have a nasal as final consonant:

paɬmatı́  old woman
kaɬnilı́yur  scratch skin so as to break it
kaɬŋöyat  light pipe/cigarette

One has a lateral as final consonant:

kaɬläk  pick edible meat (worm etc.) out of ground and eat it (predicated of a bird, e.g.)

Two have semi-consonants as final members:

kuɬwapi  drag along
kaɬyı́t  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
tarŋı́ŋk  kill (VR) with a missile

One has a lateral as final consonant:

manı́tyurlı́nı́  bush rope

Two have semi-consonants as final members:

yarwa  leader (of fighting contingent) or boss
alawaryı́ŋa  beside the woman

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

tatı́lam  capsize

Two have a nasal as initial consonant:

ı́lam  talk (vb. stem)
manı́par  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.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ꜱɛlɛpak</td>
<td>sit down when full up with food</td>
</tr>
<tr>
<td>tɛrɛlɛktɛrɛlɛk</td>
<td>bump into someone</td>
</tr>
<tr>
<td>ꜱɛlkɛtyɛk</td>
<td>stand up when full up with food</td>
</tr>
<tr>
<td>tɛyɛlɛkma</td>
<td>fall</td>
</tr>
<tr>
<td>tɛlɛŋa</td>
<td>singe hair from animal (away from speaker)</td>
</tr>
<tr>
<td>ꜱɛlkɛwukutv</td>
<td>fill (lot of people) with food</td>
</tr>
<tr>
<td>tɛyɛlɛkyur</td>
<td>bend over</td>
</tr>
<tr>
<td>tɛyɛrktyɛk</td>
<td>join (VR) (e.g. two bits of wood)</td>
</tr>
<tr>
<td>kɛrkkafv</td>
<td>startle</td>
</tr>
<tr>
<td>pɛrkma</td>
<td>rest (VR)</td>
</tr>
<tr>
<td>kɛrkwat</td>
<td>take (meat, e.g.) from fire</td>
</tr>
<tr>
<td>tɛyɛɾukyɛwəfa, tɔnɔ</td>
<td>lot of people go into jungle</td>
</tr>
<tr>
<td>ꜱɛlɛmuɛkma</td>
<td>swear, curse</td>
</tr>
<tr>
<td>aŋuɾkna</td>
<td>half-way</td>
</tr>
<tr>
<td>tɛyɛɾkwat</td>
<td>swallow</td>
</tr>
<tr>
<td>tɛyɛɾkyawə, tɔnɔ</td>
<td>one person goes into jungle</td>
</tr>
<tr>
<td>talptalpma</td>
<td>run along playing</td>
</tr>
<tr>
<td>kɔlp tyɛk</td>
<td>roast (a single animal)</td>
</tr>
<tr>
<td>kɔlpma</td>
<td>roast (unmarked for quantity)</td>
</tr>
<tr>
<td>tapuɪp</td>
<td>extinguish fire</td>
</tr>
<tr>
<td>pulɛpyur</td>
<td>(fire) dies down</td>
</tr>
<tr>
<td>tɔlɛŋma</td>
<td>stretch (VR)</td>
</tr>
<tr>
<td>lɛrɛpma</td>
<td>meet, of a large number</td>
</tr>
<tr>
<td>tɛɾpɛpak, (pɔŋkɔl)</td>
<td>kneel down</td>
</tr>
<tr>
<td>tɛɾpɛtyɛk</td>
<td>cut off</td>
</tr>
<tr>
<td>tɛɾpkafv</td>
<td>dig</td>
</tr>
<tr>
<td>tɛɾp tyɛk</td>
<td>plant (VR)</td>
</tr>
<tr>
<td>tɛɾppam</td>
<td>plant (pl0)</td>
</tr>
<tr>
<td>mantum tɔɭpyur</td>
<td>spiked by fin (of catfish)</td>
</tr>
</tbody>
</table>

1.61.4. Vowel Distribution

The vowels /a/ and /ɛ/ may occur word-initially, /i/, /ɔ/ and /u/ may not. The only other constraints on vocalic distribution are,
firstly, that /a/, /ɛ/ and /u/ do not follow /ɪv/ 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 kuwpuk [ku:buk] 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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