THE PHONOLOGY OF MALAKMALAK

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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 Putʸ Putʸ. 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 tʸ k, four nasals m n nʸ ŋ, two laterals l lʸ, one vibrant (flapped) ɾ, one continuant r, and two semi-consonants w y.

Birk, D.B.W. "The Phonology of Malakmalak". In Sharpe, M., Jagst, L. and Birk, D. editors, *Papers in Australian Linguistics No. 8.* **A-39:59-84**. Pacific Linguistics, The Australian National University, 1975. DOI:*10.15144/PL-A39.59*

1.11. *CONSONANTAL CONTRASTS.*

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

Word-initial examples:

pak	*sit*
tuǩk	*drink*
tʸuǩk	*bury*
kak	*hurt*

Word-medial examples:

apap	*sick, tired*
mata	*rain*
matʸan	*foot*
akak	*vomit*

Word-final examples:

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

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

Word-initial examples:

man	*stomach*
nan	*that* (demonstrative)
nʸatnʸat	*chip wood*
ŋatŋat	*be unable to fix something*

Word-medial examples:

aman	*now*
pönʸö	*banyan*
paŋa	*father*
pana	*again*

Word-final examples:

pam	*put*
ŋan	comparative particle
tinʸ	*try* (adverb)
taŋ	*mix* (intr.)

1.13. The lateral phonemes are voiced and contrast at apico-alveolar and lamino-alveolar points of articulation.

Word-medial examples:

yiɬik	*lily-root*
yiɬʸi	*bubble*

Word-final examples:

ŋuɬ	*penis*
nuɬʸ	*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	*sun*
miri	*tears*

Word-final examples:

tař	*bite*
tar	*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	*take*	walk	*stone*
yipi	*leave*	yalk	*moon*

Word-medial examples:

tawut	*blood*	tʸɛyö	*shark*

1.16. *CONSONANTAL VARIANTS*

/p/ [p]

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

payak	[payʌk]	*back*
ɬarap	[ɬarʌp]	*bind*

(ii) Word-finally, released and unreleased[1] allophones alternate:

tap [tap ∿ ta^{p}] *grab*

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

tapak	[tabʌk]	*break*
tumpuřk	[tumbuřg]	*hiccough*

/t/ [t]

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

tatʸ	[ta^{i}tʸ]	*hit*
tat	[tat]	*see/find*
tiktat	[tiktʌt]	*look back*

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

tʸɛyöt [tʸɛyöt ∿ tʸɛyö^{t}] *red kangaroo*

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

titit	[tidɪt]	*cheeky yam*
anta	[andʌ]	*allright*

/tʸ/ [tʸ]

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

tʸiyitʸ [tʸiyɪtʸ] *pick up*

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

yinmɛyitʸ [yinmɛyitʸ ∿ yinmɛyi^{tʸ}] *little* (plm)

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

atʸaŋ	[adʸʌŋ]	*grandmother*
yɛntʸir	[yɛndʸɪr]	*dew*

/k/ [k]

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

kak [kak] *hurt*

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

mintʸitak [mindʸidak ∿ mindʸida^{k}] emphatic pronoun

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

kakak	[kagʌk]	*long way*
pöŋköl	[pöŋgöl]	*knee*

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

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

[ł] 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	[kuł]	*stab (turtle)*
mulk	[mułg]	*bamboo*
pulk	[pułg]	*baby chicken*

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

yalk	[^{i}alg]	*moon*
yöyö	[^{i}ö^{i}ö]	*he stands up/lies down* (v. 3.15; 3.16)
ɛy	[ɛ^{i}]	*spear* (verb root)

/w/ [^{u}] Rounded on-glide:

walk	[^{u}alg]	*stone*

1.2. VOWELS

1.20. There are five vocalic phonemes in MalakMalak:

/i/ 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*

mi	*food (non-meat)*	
tɛ	*meat*	
tö	*hole*	
ma	*wallaby*	
mu	*goose*	
yɛlik	*liver*	
yöyöwa	3sgmSP.5/6 (Pres)	*he lies down/stands up*
yuyuwa	3sgmSP.5/6 (Past)	*he lay down/stood up*
larap	*bind*	

All vowels have slightly nasalized allophones between nasals:

nimpit	[nĩmbɪt]	*swag*
mɛŋkit	[mɛ̃ŋgɪt]	*white cockatoo*
möntöl	[mõ̃ndöl]	*shoulder*
ŋanʸ	[ŋãnʸ]	*bush cucumber*
ŋun	[ŋũn]	*deictic specifier*

1.22. *VOCALIC VARIANTS*

Phoneme	Allophone	Description	Examples
/i/	[i]	High close front unrounded vocoid occurring as the norm of the phoneme.	mi [mi] *food* pi [pi] *go*
	[ɪ]	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 onglide, e.g. yinʸa [ʲɪnʸa] *(initiated) man*, piyip [pɪʲɪp] *sick*.	yinin [yɪnɪn] *nose* tiřin [tɪřɪn]
	[e]	Mid close front unrounded vocoid	pi! [pé!] *go!* (Verb Root imperative)

Phoneme	Allophone	Description	Examples
		occurring only in the following stressed syllable:-	
/ɛ/	[ɛ]	Mid open front unrounded vocoid and the norm for this phoneme	tɛ [tɛ] *meat* pɛ [pɛ] *golden catfish*
	[ɛ^{i}]	This allophone of /ɛ/ has a high fronted off-glide occurring immediately preceding the lamino-alveolar stop [t^{y}] and the lamino-alveolar nasal /n^{y}/	tɛt^{y}tɛt^{y} [tɛ^{i}t^{y}tɛ^{i}t^{y}] *white ant* t^{y}ɛn^{y} [t^{y}ɛ^{i}n^{y}] *make*
/ö/	[ö]	Mid close retracted front unrounded vocoid, and the norm for this phoneme.	töm [töm] *weak* pöpö [pöbö] *fan flames*
/a/	[a]	Low open central unrounded vocoid, and the norm for this phoneme.	ma [ma] *wallaby* pam [pam] *put* (pl0)
	[a^{i}]	This allophone of /a/ has a high fronted off-glide, occurring immediately preceding the lamino-alveolar consonants /t^{y}/, /n^{y}/, /l^{y}/.	mat^{y}an [ma^{i}d^{y}an] *foot* -man^{y} [ma^{i}n^{y}] *"departing from"*(suffix) ŋalʸiiʸ [ŋa^{i}lʸiʸ] *skin*
	[ʌ]	mid open central unrounded vocoid occurring in unstressed syllables.	pana [panʌ] *again* waka [wagʌ] *bring* tapak [tabʌk] *break*
/u/	[ʊ]	High open back rounded vocoid and	puntu [púndʊ] pulu [púlʊ]

Phoneme	Allophone	Description	Examples
		the norm for the phoneme (in unaccepted syllables).	
	[ɔ]	Low close back rounded vocoid (found only, so far, in two monosyllabic lexical items).	mu [mɔ] *goose* wu [wɔ] *barramundi*
	[[ʊ^{i}]]	This allophone of /u/ has a high fronted off-glide occurring immediately preceding the lamino-alveolar consonants /tʸ/ and /lʸ/.	wutʸ [wʊ^{i}tʸ] *feel around in shallow water (for turtles)* nulʸ [nʊ^{i}lʸ] *sea-breeze*

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- onsonants or as vowels.

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

(1) the [^{u}ɹ^{i}ɹ] case; and

(2) the [ɛ^{i}] diphthong case.

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

There are two arguments against the 'long vowel' hypothesis. Firstly, vocalic length is not systematically phonemic in the language.[2] Secondly, the word [^{u}ɹ^{i}ɹ] is disyllabic: there is a perceptible chest-pulse between the two like vowels. Hence, to interpret the fronted on-glide in any way other than as a lamino-palatal semi-consonant would seem to be contrary to the phonetic facts.

(2) The [ɛ^{i}] diphthong case concerns the Verb Root [ɛ^{i}] *kill* (potentially or actually) *with a missile* immediately followed by the Auxiliary [a^{i}ʌ]:

$[\varepsilon^{i}]$ + $[a^{i}\wedge]$

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

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

$[^{i}\text{ɪn}^{\text{ɣ}}\text{a}]$ > yinᵞa *(initiated) man*

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

$[^{u}\text{ʊmʊ}^{u}\text{a}]$ > 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.[3] Within the Verb Complex sandhi takes place:

1. pí át.ta > [pátʌ]
   (VR) *go* (Aux) lexSP.2 (Pres/Past)
   We (excl.) *go/went.*

2. tátma yí.ta +-ářinᵞ > [tátmʌ yɪdářɪnᵞ]
   (VR) *see*.cnt (Aux) 3sgmSP.2(Pres/Past +1sgOP)
   He is/was looking at me.

3. ánti ɛ́yma wú̱t.ta >
adv (recip) (VR) *spear*.cnt (Aux)3plSP.2(pres/Past)
[ʌndɛ́ⁱmʌ wú̱tʌ]
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 [yɪdářɪnʸ] and [ʌndɛ́ⁱmʌ] primary stress falls on the second syllable[4] through the process of elision.

Outside of the Verb Complex sandhi does not take place:

4. mí akána [mí ʌgánʌ] ∿ mí ákanà [mí ágʌnà]
vegetable food adv (neg) (v.1.6.)
No food.

5. tɛ́ ářpuřù [tɛ́ ářbuřù]
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	tɛ	*generic marker for animals hunted for meat, and the meat itself.*
CVC	tɛk	*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.[5]

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: ɪʸ, ř and r cannot

occur word-initially, nor w 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 (ˊ) and secondary stress by (ˋ).

Monosyllabic words carry primary stress:

tínʸ pí	
(adv) *go*	*Try and go!*
yén wá	
yamstick pick up	*Pick up the yamstick!*

Words of two syllables are stressed on the first syllable:

yönтön	*he* (Subject Pronoun)
tʸáŋar	*spear*
múyinʸ	*dog*
wúru	*arm (or rivulet)*

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

lámlám	*talk/have a chat*
pítʸpítʸ	*rub firesticks*
wérkwérk	*flat-tailed catfish*
mírmír	*melt*
túytúy	*stretch* (intr.)

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

álawàr	*woman*
mélpapù	*father (reference* as opposed to *address)*
máparà	*follow*
ákunmànʸ	*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:

akúnmanʸ	*where from?*
mɛlpápu	*father*
akána	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:

mútʸuřwùna	*very many*
múnankàřa	*beautiful*
kárarkwàrat	*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:

wiříniwà	*They will sit.*
nukúttöyùŋ	*You* (pl.) *are going to lie down.*
nukútyuwà	*You* (pl.) *stood up.*
ŋák aŋkáyawà	*You and I eat/ate (non-meat food).*

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

tʸɛtwéřamàŋkil	*fork-stick*
aŋkíniyàŋka	*You and I will stand.*
aŋkönöyùŋka	*You and I will lie down.*
wöřönöyùŋka	*They will lie down.*
ařkíniyàŋka	*We are all going to stand.*
pařárattʸèřat	*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):

tɛ aŋ wuwúntunùnuwàkna: *He would have given you* (sg) *meat.*

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

nöŋköřönöyùŋka *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:

tɛ aŋ núŋkuřùntuwöřöwàkka
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 pařárattʸèřat; pentasyllabic nouns like tʸɛtwɛ́řamàŋkil are rare.

1.61. *THE DISTRIBUTION OF PHONEMES WITHIN THE PHONOLOGICAL WORD*

1.61.1. Consonant Distribution

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

1.16.2. 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[7] clusters.

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

tumpuřk	*hiccough*
lamtɛl	*stop (someone doing something)*
lamtʸak	*stop* (tr.)
timkut	*bury (rubbish etc.)*
yunpayin	*good*
piyantuk	*underneath*
yɛntʸir	*dew*
alanki	*bring back*
wanʸpi	*paddle (a canoe)*
manʸtutma	*big crowd (of people)*
puřuŋpuřuŋ	*boil* (Verb Root)
taŋtatʸma	*hit repeatedly*
luŋtʸɛřat	*(of bird, with anatomical food-bag) replenish*
manʸtʸɛtmatan	*not produce children*
pöŋköl	*knee*

Five have an initial lateral:

pilp	*slap*
altak	*break* (tr.)
kaltʸɛt (puntuna)	*carry (on head)*
yalk	*moon*
tapulʸp	*extinguish fire (with fingers, as opposed to feet)*

Four have a vibrant ř as initial consonant:

tʸuřp	*cut*
muřtuk	*hatch*

muřtʸiř *trip*
ŋiřk *die*

Four have a continuant r as initial consonant:

kurpuk *wash*
lɛrp *meet (predicated of a large number of persons)*
tʸɛwörtɛl *forget*
purwartʸɛt *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)
katʸ.tʸuřkwat *throw.put inside: throw inside*
lak.katʸ *eat (meat).throw: leave some meat (when unable to eat more)*

Ten have a heterorganic stop sequence:

taptapali *hold on to something moving (animal)*
taptʸiř *drop*
kumitpuluk *sand goanna*
yittʸɛřat *slough skin*
yitkař *scale (fish)*
katʸpuk *might beat (competitively)*
tatʸkak *hurt* (tr.)
yikpi *small*
lamtʸaktan *try to stop unsuccessfully*
waktʸalkma *waterfall*

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

manwiyuk *hungry*
tat wöwöntönyöřö *he/she sees/saw us* (excl.)
kinʸwat *hang (up)*
manʸyur *cover*
tʸiyaŋwat *send over (food e.g.)*
katʸpuk yönpuŋyöřö *he might beat us* (ex) *(competitively)*

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

apma *be quiet!*
tapnö *grab him (male human or animal)*
tapŋa *grab (something) over there*

anti tatma	*find each other*
tatnö	*find him*
nʸatnʸat	*chip wood*
tutŋa	causative.deictic suffix
kutʸma	*whistle*
tatʸnö	*hit him*
watʸŋuru	*try*
ŋakma	*eat*
nanakna	*really*
payakŋarö	*beetle*

Eight have a semi-consonant as final consonant:

tapwapakkatʸ	*turn over* (tr.) *(of a turtle, e.g.)*
apyurali	participial form of yur: *lie (down)*
tatwur	*be missing*
tatyur	*sleep fitfully*
yukutʸwat	*move (fire e.g.) along (to harden newly-cut canoe)*
katʸyipi	*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 geminated 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
-yinŋa	*in/on/beside*
laŋma	*light* (antithesis of *dark*)
tʸöŋnö	*fire-place* (lit. *belongs to fire*)
tatʸyömpuŋ ŋayi	*he is going to hit her.*
wanʸma	*row or paddle*
tat yiminʸnö	*he sees/saw him*
ɛyinmanʸŋa	*nobody*
tʸinnʸukma	*water-rat*

Of the remaining clusters that have an initial lateral, four have a nasal as final consonant:

wilma	*swim*
tölŋ	*stretch* (intr.)

mulʸmulʸma	*ripe/soft*
nilʸilʸŋa	*take bark off in small strips (away from speaker)*

Three have a semi-consonant as final member:

nöwölwɛřiyɛn yita	*he makes a lot of trouble*
kalyur	*carry*
tʸilʸwuřkali	*wrinkled (skin)*

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

pařmatʸ	*old woman*
kařnilyur	*scratch skin so as to break it*
kařŋöyat	*light pipe/cigarette*

One has a lateral as final consonant:

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

Two have semi-consonants as final members:

kuřwapi	*drag along*
kařyit	*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*
tarŋiřk	*kill* (VR) *with a missile*

One has a lateral as final consonant:

manʸtʸurlinʸ	*bush rope*

Two have semi-consonants as final members:

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

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

tatʸlam	*capsize*

Two have a nasal as initial consonant:

lamlam	*talk* (vb. stem)
manlapar	*lung*

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

ŋalkpak	*sit down when full up with food*
tarŋalktarŋalk	*bump into someone*
ŋalktʸɛt	*stand up when full up with food*
tʸalkma	*fall*
tɛlkŋa	*singe hair from animal (away from speaker)*
ŋalkwukutʸ	*fill (lot of people) with food*
tʸalkyur	*bend over*
tʸirktʸɛt	*join* (VR) (e.g. two bits of wood)
kɛrkkatʸ	*startle*
pɛrkma	*rest* (VR)
karkwat	*take* (meat, e.g.) *from fire*
tʸuřurkyiwařa, tönö	*lot of people go into jungle*
ŋalamuřkma	*swear, curse*
aŋuřkna	*half-way*
tuřkwat	*swallow*
tʸuřkyiwaya, tönö	*one person goes into jungle*
talptalpma	*run along playing*
kölptʸɛt	*roast (a single animal)*
kölpma	*roast (unmarked for quantity)*
tapulʸp	*extinguish fire*
pulʸpyur	*(fire) dies down*
tölŋma	*stretch* (VR)
lɛrpma	*meet, of a large number*
tuřppak, (pöŋköl)	*kneel down*
tʸuřptɛytʸ	*cut off*
tuřpkatʸ	*dig*
tuřptʸɛt	*plant* (VR)
tuřppam	*plant* (pl0)
mantum töřpyur	*spiked by fin (of catfish)*

1.61.4. **Vowel Distribution**

The vowels /a/ and /ɛ/ may occur word-initially, /i/, /ö/ and /u/ may not. The only other constraints on vocalic distribution are,

firstly, that /a/, /ɛ/ and /u/ do not follow /ɪʏ/ 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.

N O T E S

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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