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1.1. Consonants

1.1.1. Chart

	bilabial	dental-alveolar	palatal	velar
voiceless plosive	π	τ		κ
voiced $\pi\lambda\sigma\tau\omega\epsilon$	β	δ		γ
voiceless fricative		σ		
nasal	m	n		N
lateral		λ		
approximant	ω		ψ	

1.1.2. Evidence

/p/ Bilabial voiceless unaspirated plosive
Occurs syllable initially and finally
(The final release of plosives goes through the nose.)

/puk/ [puk] ‘to break’

/pu/ [pu] ‘to tell’

/yap/ [yap] ‘house’

/b/ Bilabial voiced plosive
Occurs syllable initially only

/bu/ [bu] ‘water’

/nebut/ [nəm.'but] ‘story’

/m/ Bilabial nasal
Occurs syllable initially and finally

/miam/ [mi.'ʃoðmu] ‘many’

/mo/ [m□] ‘already’

/sruom/ [sru.'□m] ‘fork’

/w/ Bilabial approximant
Occurs syllable initially and finally

/woy/ [w□ψ] ‘φιρεα

/wew/ [wew] ‘to make asleep’

/kebew/ [kə.'bew] ‘name of village’

/t/ **Dental- alveolar** voiceless plosive
Occurs syllable initially and finally
(The final release of plosives goes through the nose.)

/ten/ [tɛn] ‘food’

/tuet/ [tũ.'ɛt] ‘to dig’

	/tet/	[tɛt]	‘worm’
/d/	Dental-alveolar plosive		
	[d] Voiced alveolar flap		
	Occurs only following /s/ (In some dialects: variation /l/ [r])		
	/usede/	[u.sə.'de]	‘to dance’
	/sedue/	[sə'dö]	‘man’
	/sedek/	[se.'dek]	‘to sleep’
	Compare:		
	/usle/	[u.'sre]	‘to dance’
	/slue/	[srö]	‘man’
	/slek/	[srek]	‘to sleep’
	[d] Dental-alveolar voiced plosive		
	Slightly imploded, occurs syllable initially		
	/don/	[dɒv]	‘πθοωερə
	/deng/	[dɛŋ]	‘dry’
	/dok/	[dɒk]	‘το τλεə
	/di/	[di]	‘tree’
	/da/	[da]	‘times’
	/duk/	[duk]	‘obey’
/s/	Dental-alveolar fricative		
	Occurs syllable initially		
	/sa/	[sa]	‘rain’
	/sua/	[su.'a]	‘leave’
	/iseng/	[i.'sɛŋ]	‘pain’
	/suk/	[suk]	‘skin’
	/sik/	[sik]	‘from’
	/sak/	[s ɤ k]	‘dry’
/n/	Dental-alveolar nasal		
	[n] Occurs syllable initially and finally		
	/nan/	[nan]	‘soil’
	/namon/	[na.mɒv]	əτωοə
	/nu/	[nu]	‘stomach’
	/nim/	[nim]	‘calm down’
	[ɲ] syllabic dental-alveolar nasal		
	Occurs syllable initially, preceding dental plosives		
	/ndop/	[ɲ.dɒp]	‘smoke’
	/ntrui/	[ɲ.'trü]	‘to brush’
	/ndruim/	[ɲ.'drüm]	‘wrist’
/l/	Dental-alveolar lateral		
	[ɾ] Trilled syllabic vibrant		
	Occurs preceding retroflexed lateral		

/ləlam/	[ɾ.ˈl̠ɔ̌m]	‘to play’
/ləlu/	[ɾ.ˈlu]	‘to insist’
/ləlui/	[ɾ.ˈlui]	‘to stir’
/ləlo/	[ɾ.ˈl̠]	ἄτο μοῦθε

[ɾ] Flapped vibrant

Occurs following dental alveolar plosives and fricatives /t,d,s/

/dlop/	[dr̠ɔ̌π]	ἄτο δρῖνκἄ
/tla/	[tra]	‘to suffer/ to call’
/sлом/	[sr̠ɔ̌μ]	ἄσωολλενἄ

[ɭ] Retroflexed lateral

Occurs following labial and velar plosives

/klaya/	[klæya]	‘one’
/blo/	[bl̠]	‘αβοῦθε
/ple/	[ple]	‘bow’

[ɭ] Flapped retroflexed voiced continuant

Occurs syllable initially

/luagit/	[lu.ˈa.git]	‘leech’
/isuali/	[i.su.ˈa.li]	‘cassowary’
/lo/	[l̠]	‘through’
/lek/	[lek]	‘washed away’
/la/	[la]	‘relief’

/y/ Palatal approximant

Occurs syllable initially and finally

/yap/	[yap]	‘house’
/woy/	[w̠ɔ̌ψ]	ἄσωνἄ

/k/ Velar voiceless plosive

Occurs syllable initially and finally

The final release of plosives goes through the nose.

/ku/	[ku]	‘time/day’
/klak/	[kl̠ɔ̌k]	‘to raise’
/koy/	[k̠ɔ̌ψ]	ἄφῖρἄ
/ke.bui/	[ˈke.bü]	‘something that brings peace’
/king/	[kǐ̠̯]	‘to follow’
/kebong/	[kə.ˈb̠ɔ̌ŋ]	‘to die’

/g/ Velar voiced plosive

Occurs syllable initially

/guon/	[gũ.ˈv̠]	‘name of tree’
/gemang/	[gəˈm̠ɔ̌ŋ]	‘to exist there’
/gum/	[gum]	‘fog’
/gamung/	[ˈga.muŋ]	‘to call together’

/git/	[git]	‘to sharpen’
/ŋ/ Velar nasal		
Occurs syllable initially and finally		
/ŋoy/	[ŋɔ̃ψ]	‘brideprice beads’
/ŋe.ŋam /	[ʔε.ŋ ɤ m]	‘to live in peace’
/ŋuok/	[ŋũ. 'ɔ̃κ]	‘to teach’
/ŋap/	[ŋ ɤ p]	‘to shine’
/ŋit/	[ŋit]	‘dizzy’
/keŋ/	[keŋ]	‘to follow’
/kiŋ/	[kiŋ]	‘to fill’

1.2. Vowels

1.2.1. Chart

	front	central	back
high	ɪ		ʊ
mid	ε		o
low		α	

1.2.2. Evidence

/i/ Front high vowel

[ü] High front rounded vowel

Occurs syllable nucleus following a rounded vowel.

/udui/	[ʊ.'d̥ü]	‘banana’
/ului/	[u.'l̥ü]	‘to prepare pepeda’
/unuik/	[u.'n̥ük]	‘to fold’
/unuim/	[u.'n̥üm]	‘spirit/zest’

Compare [ũ] syllable initial:

/wisi/	[ũi.'si]	‘to stand’
/dewi/	[ʔd̥ε. ũi]	‘prayer’

Compare also [ũ] with [u] :

/usi/	[ũ'si]	‘to call, ask’
/wisi/	[ũi.'si]	‘to stand’
/imuik/	[i.'m̥ük]	‘raspberry’
/ibui/	[i.'b̥ü]	‘to stiffen/ blind’
/alui/	[a.'l̥ü]	‘wave’
/suiŋ/	[s̥ũŋ]	‘to sit’

Compare:

/siŋ/	[siŋ]	‘seedling/to take out’
/suŋ/	[suŋ]	‘ashes, trash’
/puit/	[p̥üt]	‘to burn’

/buit/	[büt]	‘pain’
/nuik/	[nük]	‘tree trunk’
/kui/	[kü]	‘animal droppings’

[ɪ] High front lower rounded vowel

Occurs in unstressed closed syllables.

/banim/	[ˈba.nɪ m]	‘old’
/demeniŋ/	[ðəˈmɛ.nɪ ŋ]	‘new’

[i] High front upper unrounded vowel

Occurs in all other contexts

/besik/	[bəˈsik]	‘drooping’
/ip/	[ip]	‘to stand’
/iti/	[iˈti]	‘to take, to get’

/e/ Front mid vowel

Occurs only rarely, word finally following /l/ .

/ple/	[ple]	‘bow’
/damle/	[ˈd ɤ m.le]	‘name of tree’
/daley/	[ˈda.ley]	‘rank of soldiers’
/ikle/	[iˈkle]	‘gossip’
/ide/	[iˈde]	‘heavy’

[ɛ] Lower mid front vowel (see the main discussion on stress pattern)

Occurs occasionally in word final unstressed syllables, with [a] or [ɛ] in the preceding stressed syllable.

/gabe/	[ˈga.bɛ]	‘exist here’
/yense/	[ˈyɛn.sɛ]	‘kind of vegetable’
/nase/	[ˈna.sɛ]	‘must’

Occurs occasionally also, word initially in stressed position.

/yense/	[ˈyɛn.sɛ]	‘kind of vegetable’
/keli/	[ˈkɛ.li]	‘kind of fruit/rose apple’
/kelui/	[ˈkɛ.lui]	‘juicy’
/mekui/	[ˈmɛ.kü]	‘to fold’
/belui/	[ˈbɛ.lü]	‘panic’

[ö] Mid front rounded vowel

Occurs following a rounded high back vowel

/blue/	[blö]	‘magic’
/nue/	[nö]	‘leave it’
/pluep/	[plöp]	‘gather’
/pue/	[pö]	‘untie’
/ulue/	[uˈlö]	‘to empty’
/tuep/	[tũˈɛp]	‘stump of tree’
/tuen/	[tũˈɛn]	‘to slant’
/tuet/	[tũˈɛt]	‘to dig’

Compare [e] [u] and [ü] in same positions:

/ble/	[ble]	‘name of woman’
/plet/	[plet]	‘to dislocate’
/pu/	[pu]	‘to talk’
/pui/	[pü]	‘to fall’
/tup/	[tup]	‘to hear’

/a/ Central low vowel

[ø] Upper low short central vowel

Occurs in closed syllables

/mlap/	[ml ø p]	‘name of language’
/sat/	[s ø t]	‘tail’
/sak/	[s ø k]	‘dry’
/nan/	[n ø n]	‘earth’
/kay/	[k ø y]	‘to forget’
/kuat/	[kü.' ø t]	‘frog’

Compare:

/yatap/	['ya.t ø p]	‘door’
/bauk/	['ba.uk]	‘porch’

[æ] Front low long vowel

Occurs following [l] and preceding [y] or following [ü] [i] and [e].

/naklay/	[na.kl'æy]	‘all’
/klaya/	['klæ.ya]	‘one’
/blay/	[blæy]	‘diarroeae’
/mlay/	[mlæy]	‘oil’
/piam/	[pi.'æm]	‘wrong’
/teguan/	[tə'güæn]	‘stomach’

Compare:

/dlang/	[dr ø ŋ]	‘wealth/bride price’
/bla/	[bla]	‘hut/cottage’
/semlea/	[sə'mlæa]	‘pepeda’
/mea/	[mæa]	‘will’

[a] Lower long vowel

Occurs in stressed syllables

/mla/	[mla]	‘rest’
/banom/	['ba.n□μ]	‘self’
/kadiŋ/	['ka.dı ŋ]	‘behind’

/u/ Back high vowel

[ü] High centralized and compressed rounded vowel

/tuep/	[tü.'εp]	‘stump of tree’
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/tuen/	[tũ.'ɛn]	‘slant’
/tuet/	[tũ.'ɛt]	‘dig’
/utep/	[ũ.'tɛp]	‘tomorrow’
/usi/	[ũ.'si]	‘ask’

Compare: [ũ'e] and [ö]

/suey/	[sũ'ey]	‘good’
/ulue/	[u.'lö]	‘empty’

[u] Back high rounded vowel

Occurs elsewhere

/babu/	['ba.bu]	‘grandfather/mother/ swollen’
/napu/	['na.pu]	‘day after tomorrow’
/banu/	['ba.nu]	‘moon/month’
/yangu/	['ya.ŋu]	‘yellow’
/wosu/	['w□.σv]	ἄρρε κανγαροῶ
/su/	[su]	‘worm’
/mu/	[mu]	‘hole’
/ku/	[ku]	‘day/time/earth’
/ulue/	[u.'lö]	‘empty’
/u/	[u]	‘to sing’
/kabuŋ/	['ka.buŋ]	‘woman’

/o/ Back mid vowel

[o] Upper mid rounded vowel

Occurs very rarely and only in an open syllable, following [r] and [r.l]

/kaysruo/	['k ɤ y.srũo]	‘eel’
/sruo/	[srũo]	‘earthenware crock’
/rlo/	[r.lö]	‘to move’

[□] Lower mid rounded vowel

Occurs in all other positions.

/so/	[s□]	‘intention/inessive’
/sok/	[σ□κ]	‘take off’
/klong	[κλ□ŋ]	‘to go’
/koy	[k□ψ]	‘fire’
/wosu/	['w□.σv]	‘tree kangaroo’
/blo/	[bl□]	‘above’
/sluakuon/	[sru.'a.kũ□v]	‘name of tribe’

1.3. Word structure and stress

The phonological word (PW) provides a useful construction for specifying underlying stress and syllable patterns. **PW- s** are of two general contrastive classes: ultimate stress and penultimate stress and are basically constructed of 1 to 3 syllables. As follows:

Ultimate stress PW > CVC . 'CCVC

Penultimate stress PW> 'CCVC . CVC

Stress is predictable and is not written. The 'shewa' [ə] is interpreted as /e/. Consider the following examples:

LOW VOCOID [a] [ɤ] [ɛ] [ə] Stressed penultimate syllable (CV). 'CV(C). CV(C) No centralization	HIGH VOCOID [i] [e] [u] [ɔ] Stressed ultimate syllable CV(C). 'CV(C) Centralization [ə]	English gloss	HIGH VOCOID Stressed ultimate syllable V. 'CV(C) No centralization	English gloss
/damoy/ ['dámɔy]		full	/use/ [u.'se]	afternoon
/banim/ ['bá.nim]		old	/udui/ [u.'dü]	banana
/gabe/ ['gá.be]		exist here	/utep/ [u.'tep]	tomorrow
/katui/ ['ká.tü]		axe	/iseng/ [i.'sɛŋ]	pain
/kama/ ['ká.ma]		ear		
/kemtuik/ ['kɛm.tük]		name of tribe		
/kebali/ [kə.'ba.li]		work		
/demening/ [de.'mɛ.niŋ]		new		
/betodop/ [be.'tɔ.dɔp]		again		
/betedon/ [be.'tɛ.dɔn]		younger sibling		
/demanon/ [de.'ma.nɔn]		older sibling		
	/meduim/ [mə.'dūm]	hill		
	/nebo/ [nəm.'bɔ]	pig		
	/nebut/ [nəm.'but]	story		
	/gemang/ [gə.'mɤŋ]	exist there		
	/nebit/ [nəm.'bit]	wind		
	/kebet/ [kə.'bet]	finish		

1.4. Syllable

The syllable (S) functions in the PW in accordance with the existing stress patterns as described above. A vowel (V) functions as obligatory nucleus of the syllable, preceded by one or more non-obligatory consonants (C). Syllables in Kemtuik have the *basic* shape:

CVC . 'CVC. CVC

The underlined *basic* CV combination is obligatory.

The following words are illustrative:

1 syllable	[bu]	‘water’
	[tɛn]	‘food’
	[u]	‘song’
	[i]	‘count’
2 syllables	[mə.'nɪ]	‘other’
	['wa.lɪp]	‘feast’
	['da.bü]	‘heart’
	[i.'ti]	‘give, take’
3 syllables	[tʃən.'da.li]	‘again’
	[kə.'ba.li]	‘to work’
	[wɛŋ.'ka.bü]	‘head’
	[wʃə.'la.ka]	‘lobster’
	[ku.'na.la]	‘thinking’

1.5. Consonant and vowel distribution

1.5.1. Consonant distribution

The following numbering of the basic CV- string will help us to specify the set of consonant members in a numbered class, as follows:

C V C . 'C C V C. C V C (underlined CV pattern is obligatory)
 1 2 3 4 5 6 7

C1 > Includes all consonants

C2 > Includes all nasal consonants

C3 > Includes all consonants

C4 > Includes only /l/

C5 > Includes voiceless plosives, nasals, and semivowels

C6 > Includes all consonants

C7 > Includes voiceless plosives, nasals, and semivowels

The co-occurrence may be stated in the following set of conditions:

Condition 1: Only one consonant cluster can be formed: C + /l/

Condition 2: In the case of C1 being a nasal, and C3 is a voiced plosive, there will be assimilation (printed bold in examples) to the point of articulation of the following C3.

Consider these examples:

/nebut/	[nə m . 'but]	‘story’
/nebo/	[nə m . 'bɔ]	‘pig’
/meduim/	[mə n . 'düm]	‘mountain’

Condition 3: Syllabic consonants are interpreted as CV sequences. They consist of continuant consonants (r, s, m, n, ŋ) and occur in a pre-stressed syllable position.

Consider these examples:

/ndop/	[<u>n</u> . 'dɔp]	‘grasshopper’
/nson/	[<u>n</u> . 'sɔn]	‘to cough’
/ngga/	[<u>ŋ</u> . 'ga]	‘there’
/rlam/	[<u>r</u> . 'lam]	‘play’
/ntaton/	[<u>n</u> . 'taton]	‘brother’
/mtam/	[<u>m</u> . 'tam]	‘sago trail’
/semlea/	[s. 'mlea]	‘sago porridge’

Condition 4: If C2 is a syllabic nasal, the point of articulation of C2 will be predicted by the following C3.

1.5.2. Vowel distribution

Two PW-types were described in 1.3 based on stress and contrast. Observing those PW-types, vowel occurrences are stated below in terms of monosyllabic, disyllabic and occasionally trisyllabic PW's.

- Monosyllabic PW Vowels : C C 'V C includes all vowels or diphthongs
- Disyllabic PW Vowels: C V C . C C 'V C

1 2

V1 > obligatory unstressed centralized vowel /e/ [ə]

V2 > obligatory stressed vowel; includes all vowels or diphthongs.

- Trisyllabic PW Vowels: V. C C 'V C. C V C

1.5.3. Vowel centralization

There is an interesting contrast between HIGH centralized [ə] vocoid and the LOW vocoids [a] [ɛ]. They form two contrasting PW-classes.

For example: /damoy/ ['da.moy] ‘full’ versus /demu/ [də.'mu] ‘stone’

In two and three syllable PW's, a vocoid in stressed position is preceded by a neutralized vocoid: CV(C). 'CV(C). It is neutralized towards the vocoid [ə], with a slight ‘coloring’ of the vocoid in the following stressed syllable.

Consider the following examples:

/ne. 'but/	[nə m . 'but]	‘story’
/ge. 'mang/	[gə. 'mɔŋg]	‘being there’

If that syllable string (occasionally) occurs as: V. 'CV, the vocoid in unstressed position is not centralized.

Consider the following example:

/i.'seng/ [i.'sɛŋ] 'pain'

LOW vocoids (mainly [a], sometimes [ɛ] or [ò]) in stressed position require NOT centralized vocoids in the following not stressed syllables.

Consider the following examples:

/'da.moy/ ['da.moy] 'full'

1.5.4. Reduplication

All word initial consonants and vowels can be reduplicated to indicate continuing action.

suang - susuang	[su.'sũ ʃɔŋ]	'long – longing'
klong - koklong	[kɔ̌.'kλɔ̌ŋ]	'go – going'
iti - iiti	[i.i.'ti]	'give – giving'
suing - susuing	[sũ.'sũŋ]	'sit – sitting'

1.6. Diphthongs

/ui/	[ũi] [ü]
/ue/	[ũe] [ö]
/uo/	[ũɔ̌]
/ua/	[ũ ʃɔ̌]
/ea/	[ɛæ]
/ia/	[i ʃɔ̌]

	Example (verb)	English gloss
[ü]	<i>duing</i>	think
[ũi]	<i>wim</i>	swell
[ü]	<i>truik</i>	chase
[ũe]	<i>suey</i>	good
[syö]	<i>sue</i>	swim
[ũo]	<i>nguok</i>	teach
	<i>bluot</i>	mix
[ũ- ʃɔ̌]	<i>suang</i>	long
	<i>suali</i>	afraid
[i- ʃɔ̌]	<i>miam</i>	plenty
[ɛ-æ]	<i>mean</i>	chip
	<i>meam</i>	disappear

1.7. Alphabet

The Kemtuik alphabet contains 19 symbols, 14 consonants and 5 vowels:

- Consonants: t, k, p, d, g, b, s, n, ng, m, l, r, w, y,
- Semi-consonants: y, w

The following pairs contrast an initial approximant with initial full vowels:

yay	‘care’	iyay	‘caring’
wet	‘seek’	uwet	‘seeking’

- Vowels: i, e, a, u, o
- In borrowed words: /c/ --- [tʃ]; /j/ --- [dʒ] ; /h/ --- [h]

Examples from the national language: *coklat*, *baca*, *Jayapura*, *huruf*.

Dialectal influence from the Gresi (Klesi) language causes the use of [h] in a few cases. E.g. Kemtuik *sogo sogo so* ‘why’ is also being expressed with a different stress pattern as: [s□g□.h□g□σ□]. There are a few other isolated examples where [h] is used in stead of /s/.