

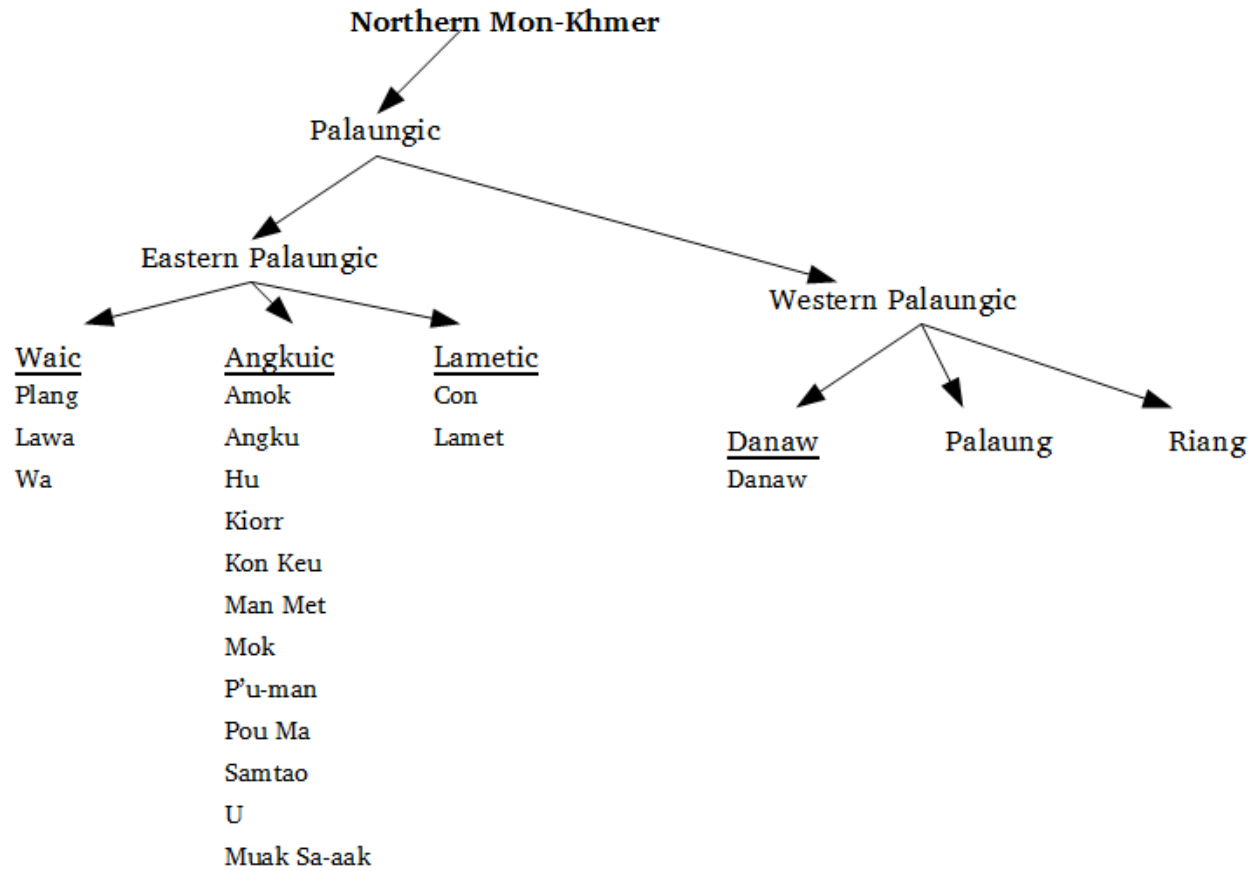
An analysis of Muak Sa-aak tone

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Language classification

- Also known as Tai Loi
- Austroasiatic, Mon-Khmer, Northern Mon-Khmer, Palaungic, Eastern Palaungic, Angkuic
- Documentation:
 - Articles by Svantesson: on Hu (1991) and U (1988)

Language family tree



Characteristics of Angkuic languages

- “Germanic” shift:
 - proto-voiceless initial stops >> aspirated;
 - proto-voiced initials >> voiceless.
- Retention of proto h- and s- distinction.
- Hu, U: tone; no contrastive vowel length.
 - Tonogenesis linked to vowel length.

Segmental phonology: consonants (21)

| | Labial | Alveolar | Alveolo-palatal | Post-palatal |
|---------------------|--------------------|--------------------|------------------|------------------|
| Plosive | p b p ^h | t d t ^h | c c ^h | k k ^h |
| Nasal | m | n | ɲ | ŋ |
| Fricative | f | s | | h |
| Central approximant | w | r | j | |
| Lateral approximant | | l | | |

Final consonants

| | Bilabial | Alveolar | Alveolo-palatal | Velar |
|-------------|----------|----------|-----------------|-------|
| Plosive | p | t | c | k |
| Nasal | m | n | ɲ | ŋ |
| Approximant | w | l | j | |

Consonant clusters

| | w | r |
|----------------------|------------------|------------------|
| p | pw | pr |
| p^h | p ^h w | p ^h r |
| k | kw | kr |
| k^h | k ^h w | k ^h r |

Vowels (18)

| | Front | Centralized back unrounded | Back rounded |
|-----------|-------|----------------------------------|-----------------|
| Close | i i: | ʊ ʊ: | u u: |
| Close-mid | e e: | ɤ ɤ: | o o: |
| Open | ɛ ia | a a: | ɔ ua |

Tones:

- Voice quality is not distinctive; it is an accompanying feature of tone.
- Does not carry a high functional load.
 - Restriction on occurrence of tones according to syllable structure.

Tone 1:

- Tone 1: low tone; accompanying stiff voice.
 - Checked long syllables (final p, t, c, k)
 - Long open syllables
 - Sonorant finals (m, n, ŋ, j, w, l) regardless of vowel length

Tone 2:

- Tone 2: high constricted tone
 - High allotone in short syllables; modal voice.
 - Short open syllables
 - Short checked syllables (final p, t, c, k)
 - Falling allotone in long syllables; creaky.
 - Long open syllables
 - Sonorant-final syllables (final m, n, ŋ, j, w, l)

Tone 3:

- Tone 3: falling tone; modal voice
 - Long open syllables
 - Sonorant-final syllables (m, n, ŋ, ŋ, j, w, l)

Minimal sets for tone and vowel length

| Syllable type → | | smooth long | smooth short | open long | open short | checked long | checked short |
|-----------------|----------------------------|----------------------------------------|------------------------------------------|--------------------------------------------------------|-------------------------------|-----------------------------------------------|------------------------------------------------|
| Tone | Phonetic realization | | | | | | |
| 1 | low, stiff | <i>ra:ŋ¹</i> 'abandoned' | <i>raŋ¹</i> 'rich' | <i>ci:¹</i> 'sap' | | <i>k^ha:p¹</i> 'chin' | |
| 2 | high modal (short) | | <i>raŋ²</i> 'fallow field' | | <i>ci²</i> 'do' | | <i>k^hap²</i> 'enough' |
| | high-falling creaky (long) | <i>ra:ŋ²</i> 'separate' | | <i>ci:²</i> 'point' | | | |
| 3 | high-falling, modal | <i>ra:ŋ³</i> 'flower' | <i>raŋ³</i> 'shining' | <i>cu:¹ci:³</i> 'make a hole' | | | |

Tone by syllable structure

Tone 1 (low)

Tone 2 (high constricted)

Tone 3 (high falling)

| | | | | | | |
|-------|---------------------------------------------------------------|--------------|---------------------------------------|----------------|---------------------------|------------|
| CVS | <i>pʌl</i> ¹ | “fall” | <i>kan</i> ² | “be defeated”* | <i>kam</i> ³ | “language” |
| CCVS | <i>k^hu:ʰ</i> ³ <i>kran</i> ¹ | “lazy” | <i>p^hrɿŋ</i> ² | “clam” | <i>prɛŋ</i> ³ | “head” |
| CVVS | <i>kɿ:n</i> ¹ | “before”* | <i>kuan</i> ² | “bottle” | <i>kaŋ</i> ³ | “house” |
| CCVVS | <i>kɿ:n</i> ¹ | “lying down” | <i>k^hruan</i> ² | “gather” | <i>kri:l</i> ³ | “skinny” |
| CVP | -- | -- | <i>kat</i> ² | “burn” | -- | -- |
| CCVP | -- | -- | <i>prɛt</i> ² | “lick” | -- | -- |
| CVVP | <i>kat</i> ¹ | “fasten” | -- | -- | -- | -- |
| CCVVP | <i>t.pru:t</i> ¹ | “swallow” | -- | -- | -- | -- |
| CV | -- | -- | <i>ke</i> ² | “they (3PL)” | -- | -- |
| CCV | -- | -- | <i>kra</i> ² | “stir” | -- | -- |
| CVV | <i>ke</i> ¹ | “pour” | <i>pɔ:ʰ</i> <i>ka</i> ² | “trader” | <i>ka</i> ³ | “pack (v)” |
| CCVV | <i>pra</i> ¹ | “split open” | --- | --- | <i>kra</i> ³ | “mat” |

Tone and syllable type

| Syllable type | Tone 1 | Constricted Tone 2 | | Tone 3 |
|------------------------------|-----------|--------------------|------------------------|-----------------------|
| | Low stiff | High modal | High-falling creaky | High-falling modal |
| short open, short checked | | X | | |
| long checked | X | | | |
| long open, long smooth | X | | X | X |

Interpretation as 3-tone system

- High and low tone in complementary distribution.
- Long open syllables and sonorant final syllables have three laryngeal settings: low pitch, high-falling creaky pitch, and high-falling.

Angkuic tonogenesis

- Register or tone could not develop out of an initial consonant voicing distinction.
- In Hu, U languages, tonogenesis linked to loss of contrastive vowel length.
- Muak Sa-aak has tone- but retains vowel length contrast.
 - 3 factors: loss of some final consonants
 - borrowing
 - vowel length

Initial consonant shift:

Germanic shift in initial consonants: Muak Sa-aak compared to Hu, U, Lamet, Northern Kammu, Southern Kammu (Khmu) (adapted from Svantesson 1991: 68)

| Muak Sa-aak | Hu | U | Lamet | Northern Kammu | Southern Kammu | |
|---------------------------------------|--------|-------|--------|----------------|----------------|------------------|
| p ^h ɣŋ ³ | phíŋ | phèt | píŋ | píŋ | piŋ | “to shoot” |
| tam ¹ | thàŋ | thán | táaŋ | táaŋ | taaŋ | “to weave” |
| k ^h a:p ¹ | khàp | khap | káap | káap | kaap | “jaw” |
| səpual ³ | pàŋ | pán | pàaŋ | -- | -- | “white” |
| pri ² | pɾíʔ | qí | priiʔ | priʔ | briʔ | “forest” |
| puc ² ta:k ¹ | phltàk | ʔatǎʕ | pltàak | ktáak | kdaak | “palm (of hand)” |
| ka:ŋ ³ | kàŋ | káã | --- | kàaŋ | gaanŋ | “house” |
| kak ² | kák | kàk | kàk | -- | -- | “to bite” |

Tonogenesis

- Svantesson used Lamet, which retains vowel length distinctions and some final consonants (-h and -s) which are lost in other Palaungic languages.
- Compared Muak Sa-aak data with this Lamet data, looking at tone, vowel length, and type of final consonant.

Final sonorants:

- Maintained vowel length; developed falling Tone 3, with modal voice

| | Muak Sa-aak | Lamet | U (Angkuic) |
|---------------------|--------------------------|-------------|---------------------|
| “dry field” | <i>ma:l³</i> | <i>màar</i> | <u><i>mâ</i></u> |
| “black” | <i>lan³</i> | <i>làn</i> | <u><i>làɿ</i></u> |
| “iron” | <i>t.ɲan³</i> | <i>rɲàn</i> | <u><i>ʔanàɿ</i></u> |
| “eye” | <i>ɲa:j³</i> | <i>ɲàay</i> | <u><i>ɲây</i></u> |
| “arrow” | <i>te:³</i> | <i>tèey</i> | <u><i>tè</i></u> |
| “belly, stomach” | <i>k.tɯl³</i> | <i>ktîl</i> | <i>tû</i> |

Glottal stop finals:

- These have all become the high allotone of checked Tone 2. Regardless of the vowel length in Lamet data, in Muak Sa-aak, all are short.

| | Muak Sa-aak | Lamet | U (Angkuic) |
|----------------|--------------------------|--------------|--------------------|
| “rope, string” | <i>p.c^{hi}²</i> | <i>plsíʔ</i> | <u><i>sí</i></u> |
| “dog” | <i>c^{hɔ}²</i> | <i>sóʔ</i> | <u><i>sò</i></u> |
| “wind” | <i>s.ma²</i> | <i>ʔmáaʔ</i> | <u><i>samà</i></u> |
| “fish” | <i>k^ha²</i> | <i>káaʔ</i> | <i>khà</i> |

Final stops /p, t, c, k/

- If short vowel, these have become Tone 2, short allotone; if long vowel, these have become Tone 1.

| | Muak Sa-aak | Lamet | U (Angkuic) |
|--------------------|--------------------------|-------------|-------------|
| “bite” | <i>kak</i> ² | <i>kàk</i> | <i>káɿ</i> |
| “hair” | <i>suk</i> ² | <i>khúk</i> | <i>súɿ</i> |
| “pig” | <i>le:k</i> ¹ | <i>lìk</i> | <i>líɿ</i> |
| “bow, crossbow” | <i>ʔa:k</i> ¹ | <i>ʔáak</i> | <i>ʔǎɿ</i> |

*-h, *-s

- These appear to have become low Tone 1, but are now open syllables in Muak Sa-aak, since these finals no longer exist.

| | Muak Sa-aak | Lamet | U (Angkuic) |
|------------|-------------------------------------|--------------|----------------|
| “wide” | <i>waː¹</i> | <i>wàh</i> | <i>vâ</i> |
| “charcoal” | <i>c^heː¹</i> | <i>krsás</i> | <i>é</i> |
| “bear” | <i>k^hreː¹</i> | <i>krís</i> | <i>χí</i> |
| “begin” | <i>kaw²</i> | <i>kóɔh</i> | <i>kò</i> |

Falling allotone of Tone 2

- Only 1 in 10 of Tone 2; most do not match up to the Lamet data
- Most borrowed from Tai Lue, and usually have a glottalized tone in Tai Lue.

Tone and syllable type

| Syllable type | Tone 1 | Constricted Tone 2 | | Tone 3 |
|--------------------------------------|--------------|--------------------|------------------------|-----------------------|
| | Low stiff | High modal | High-falling creaky | High-falling modal |
| short open, short | | X | | |
| checked long | X | | | |
| checked long open, long smooth | X | | X | X |

Conclusion

- Set aside syllable structures affected by borrowing and by the loss of the *-h and *-s finals:
 - Three pitches remaining, for three syllable structures.
 - Tone a function of length and final consonant type.

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