

THE TONE AND SYLLABLE STRUCTURE OF TURUNG¹

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1. Introduction – the Turung

The Turung, also called Tai Turung or Tairong, are a group of around 1200 people living in seven villages in Assam, India. Four of these villages are in Jorhat district, two in Golaghat district, and one in the Karbi Anglong autonomous district, all of which are on the south side of the Brahmaputra River.

Today the Turungs speak a language that they call Turung or Singpho or sometimes simply *ii³ buu² ga²³* ‘our language’. This language is part of the Jingpho² group within Tibeto-Burman, but its lexicon contains a significant Tai admixture, and Turung differs in terms of both phonology and syntax from Jingpho as has been described by Hanson (1896), Matisoff (1974a) and Dai (1992). Some dialects of Singpho spoken in India (one form of which was described by Needham 1889) are not intelligible to Turung speakers, and there appears to be a dialect continuum between Turung and the various Singpho varieties.

The Turungs believe that they were once a Tai speaking people, and that their name was originally *taiA4 loŋA1*, a Tai term meaning ‘great Tai’. British sources dating back to the early 19th century always describe the Turung as a Tai speaking group. For example, Grierson (1904) described them as one section of the Shans (i.e. Tais) “who at various times entered Assam has retained this name, and its members are now known as the Tairongs, Turūngs or Shām (*i.e.* Shān) Turūngs.”

Grierson added that at the time that he was writing, there were very few speakers of Turung/Tairong, putting the number at 150. The information he gives about the language shows that it was Tai, albeit slightly aberrant (see Morey 2005:44). The reason for the small number of people speaking Turung/Tairong as a Tai language was that this group had been taken prisoner by the Kachins (or Singphos) and that “during their servitude to the Kachins they entirely forgot their own language, and now only speak that of their conquerors, Singpho.” (Grierson 1904:167).

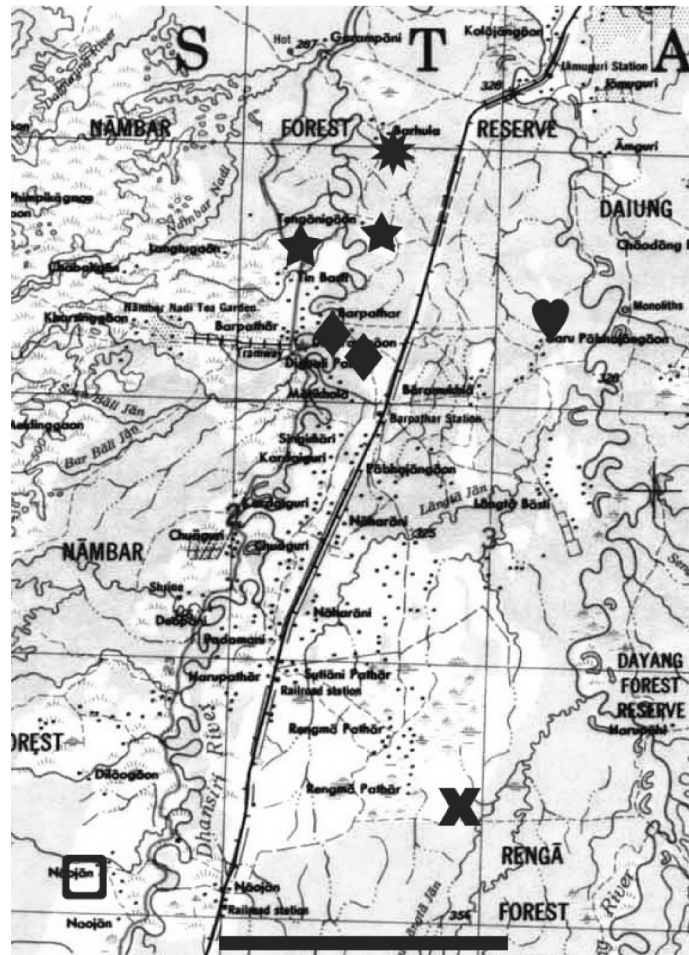
¹ This paper is a much revised version of one presented at the SEALS XV meeting in Canberra. I acknowledge the helpful comments of those who attended on that occasion, and also Alexandra Y. Aikhenvald, Alec Coupe, Randy LaPolla, Mark Post and Marija Tabain. I am particularly grateful to Kon Kham Turung, of Rengmai village, who was my main consultant for the data included in this paper. Abbreviations in this paper are as follows:

A.AG	anti-agentive	C	consonant	DEF	definite
GV	generalised verb	N	nasal POSS		possessive
PRT	particle	T	tone	V	vowel

² Also spelled Jinghpaw and Jingpho (e.g. in Dai and Diehl 2003). The spelling adopted here, also used by Matisoff (2003), parallels the spelling Singpho used in India. In Burma, the language is also called Kachin, a Burmese word referring to various Tibeto-Burman speaking groups in Kachin state, of whom the Jingpho are the most numerous (see Leach 1964 for a fuller discussion).

Table 1: Aiton and Turung villages

Description of village	Examples	Symbol on map
Aiton speaking villages (Turung women are married into the village, but their children generally do not learn Turung)	Duburoni (Ban Nam Thum), Bargaon (Ban Lung)	◆
Aiton speaking villages with minority Turung speaking households	Tengani, Ahomani	★
Previously Turung speaking village that has switched to Aiton speaking	Barhula	✱
Village with both Aiton speaking and Turung speaking areas of roughly equal size	Balipathar	◻
Turung speaking village where the language shows a high level of Tai mixing	Rengmai	✕
Turung speaking village (Aiton women are married into the village, but their children do not learn Aiton)	Basapathar	♥



Map of the middle Dhonsiri River, south of the junction of the Doiyang and the Dhonsiri; scale bar – about 10km

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The Turungs themselves do not accept that they were enslaved by Kachins or Singphos, but their own histories do state that they lived in close proximity to the Singphos in Upper Assam, and hence acquired Singpho language. Modern Singpho scholars from Upper Assam, on the other hand, regard the Turung as one of the clans (*khong*) of the Singpho who got their name because they lived in the neighbourhood of the Tarung River, which is in Kachin State and the Sagaing Division of northern Burma.

Many older Turungs maintain that their parents and grandparents spoke Tai, and that the Turung community was once Tai speaking, whereas the present-day Turungs are a mixed community. The Turung caste or family names, which represent the male line in Turung villages, include both Singpho forms like *lə gung^l* and Tai forms like *man³ nuu³*, from *maan³ nur^l*, which in Tai Aiton means ‘village-up’.

Since making an agreement with the Tai speaking Aitons in the early 19th century, the Turungs have intermarried with Aitons. In all Turung villages, some Turungs have married Aiton wives, and many Turung women have moved to Aiton speaking villages and married Aitons. This has led to a complex contact situation between Aiton and Turung. In the Dhonsiri valley, straddling the borders of Karbi Anglong and Golaghat districts, there are 5 Aiton villages and 3 Turung villages as shown on the map below. Table 1 sets out the linguistic situation in each of the villages:

All Turungs speak Assamese, the language of wider communication in Assam. Some also speak English, and some can speak Hindi. At least partial passive knowledge of these two national languages of India is widespread. In addition, some Turungs have competence in the languages of other tribal groups with whom they are in contact.

2. The segmental phonemes of Turung

The consonant inventory of Turung is presented in Table 2:

Table 2: *Consonant Phonemes in Turung*

	Bilabial	Dental / Alveolar	Palatal / affricate	Velar	Glottal
Voiceless unaspirated stops	p	t	c [tɕ]	k	ʔ
Voiceless aspirated stops	ph	th		kh	
Voiced	b	d	j [dʒ]	g	
Nasals	m	n	ny	ng	
Voiceless fricative		s			h
Semi vowel	w		y		
Rhotic Approximant		r			
Lateral Approximant		l			

This inventory differs significantly from the syllable onset inventory given for Jingpho (Dai and Diehl 2003:402) in several ways. Some of the differences reflect differences of analysis or presentation: Dai and Diehl include initial stop-glide sequences in their table, which we treat as clusters, and they use IPA symbols where we use digraphs. Some of the differences, however, are significant. Turung has an /h/

phoneme, which is found only marginally in Jingpho³. This phoneme is found with words borrowed from Assamese or Tai, but does occur with some native words such as *hong*² ‘sunlight’, apparently a reflex of proto Tibeto-Burman **hway* ‘shine, bright, yellow’ (reconstruction in Matisoff 2003:430).

Only one other fricative, /s/, is found in Turung (although [f] or [ɸ] are variants of /ph/ especially in younger person’s speech). Jingpho in Burma makes a distinction between the initial of ‘to eat’ <Sha> and ‘to go’ <Sa> (Hanson 1906), but both these words have the same initial in Turung, although with different tones. Matisoff (1974b) gives the Jingpho words for ‘die’ and ‘ten’ as *sī* and *ṣī* respectively, whereas in Turung both words are identically pronounced *sii*³.

Permitted final consonants in Turung are listed in Table 3:

Table 3: Final Consonant Phonemes in Turung

	Bilabial	Dental / Alveolar	Palatal	Velar	Glottal
Voiceless unaspirated stops	p	t		k	ʔ
Nasals	m	n		ng	

Final -k is uncommon with proto Tibeto-Burman final **-k* having regularly become -ʔ in Turung, as it has in Jingpho (see Matisoff 2003:319). Most words with final -k are Tai or other borrowings, but at least one very common Turung function word, *bok*³ ‘all’, also has final -k.

Phonetically both /l/ and /r/ are sometimes found syllable finally in Turung. This comes about as follows: the word *dai*³ *lə* *khan*³ ‘therefore’ is a compound formed from three words: *dai*³ *naa*³ *khan*³ ‘that-POSS-cause’. In fast pronunciation, the schwa in the sesquisyllabic structure reduces, and the word can be realised as [dail khan].

The Turung vowels are presented in Table 4:

Table 4: Vowels in Turung

i		u
e	ə	o
	a	

Vowel length is not contrastive in Jingpho, but it is in Turung, at least marginally. For example, *peen*³ ‘to fly’ clearly has a long vowel (0.30”), contrasting with *naa*¹ *pen*³ ‘earlobe’ that has a short vowel (0.19”). Words with nasal codas and long [e] or long [a] in Turung are cognate with words that are realised in Jingpho with initial stop-glide clusters (e.g. *pyen* ‘to fly’). The reflex of this glide is expressed as length in Turung. The length of the vowel in *peen*³ is the same as the length of the vowel when a word has no consonantal coda, so that words like *phée*³ ‘anti-agentive’ are also written in this paper with long vowels.

³ Hanson (1906) lists four words with initial /h/ that are interjections, borrowings or alternative pronunciations of function words. In the *Jingpho Miwa Ga Ginsi Chyum*, there are seven words with initial /h/, mostly proper names or interjections.

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The schwa is found as the vowel on the minor syllable of a sesquisyllabic structure (see below Section 4.3).

3. The tones of Turung – a brief survey

A minority of the Turung lexicon, nevertheless containing some of the most basic vocabulary, is monosyllabic. In September 2003, Kon Kham Turung, a 20 year old Turung/Assamese/English trilingual speaker of Rengmai village, suggested that for monosyllables, Turung had five tones, three on syllables with sonorant finals and two on syllables with stop finals. He exemplified these as shown in Table 5⁴:

Table 5: *Tones as worked out by Kon Kham Turung.*

Tone No.	Description of tone	Pitch contour (Hz)	example	gloss
Tone 1	Low falling	135-110	waa ¹	‘DEF’
Tone 2	Rising then high falling	120-170-90	waa ²	‘return’
Tone 3	Level	140-120	waa ³	‘tooth’
Tone 4	Low falling and short	150-120	wa ⁴	‘bite’
Tone 5	Rising then high falling and short	125-155-140	wa ⁵	‘pork’

When this was discussed with other Turung informants, it was felt that that there was a third tone on stopped syllables, a level tone as in *wa*²³ ‘make (a basket)’ a word that Kon Kham Turung maintained had the same tone as *wa*²⁴ ‘bite’.

Since the profile of the two stopped tones is similar to tones 1 and 2, three tones are posited for Turung monosyllables, exemplified in (1):

- 1) 1 Falling *waa*¹ ‘DEF’; *wa*²¹ ‘bite’
- 2 High rising then falling *waa*² ‘return’; *wa*²² ‘pig’
- 3 Level *waa*³ ‘tooth’; *wa*²³ ‘make (a basket)’

Subsequent to the discussion leading to the analysis presented in Table 5, a word list of about 1200 items was recorded by Kon Kham Turung, and this list will form the basis of the analysis presented here⁵. The pitch range as measured in Hz that Kon Kham Turung exhibited when recording the original five tones was somewhat lower than the range he used when recording the larger word list that forms the basis for all the other analysis in this paper.

⁴ This was recorded on a Sony Digital Handycam TRV110E Camcorder with a stereo microphone.

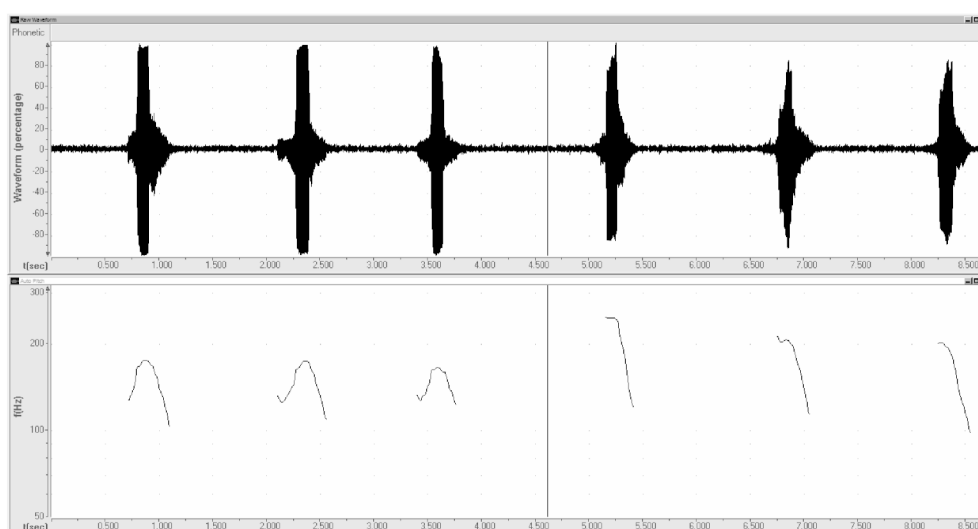
⁵ This list was recorded using a backup Sony Cassette player, with stereo microphone. At the time that the word list was being recorded, neither my handycam nor minidisc player were functioning,

Using the *Speech Analyzer* Version 1.5, the contours of all monosyllabic tones were closely examined, and a further tone shape was observed, a very steep falling tone, as found on the word *sai*² ‘blood’. This tone was observed only when the initial consonant was voiceless and thus we suggest that it is an allotone of the rising-falling tone (tone 2 in Table 5), although native speakers who were consulted did not always agree that these tones were the same. In (2) we compare two Turung words with this tone, where the pitch of the tone has been given in Hz.

- 2) *sai*² ‘blood’ (pitch range 200-120 Hz)
*dai*² ‘father’s younger brother’ (pitch range 130-180-110 Hz)

When the initial is voiceless, the pitch of the highest point of the tone is higher than when the initial is voiced, as shown in the following diagram, produced in *Speech Analyzer*, comparing *nam*² ‘forest’ and *phun*² ‘wood’.

Table 6: Pitch chart comparing *nam*² ‘forest’ and *phun*² ‘wood’.

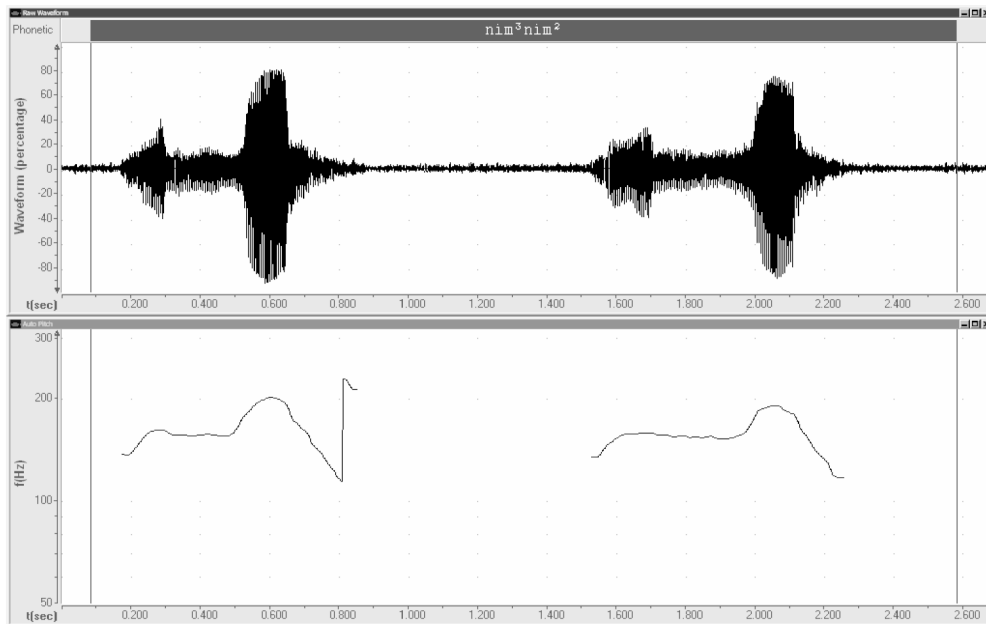


The tone marked with the number 1 also has a falling contour, but falls more gently and from a lower starting position, as shown in (3)

- 3) *jon*¹ ‘mongoose’ (pitch range 150-120 Hz)

The third tone is level. Analysis with *Speech Analyzer* sometimes shows pitch movement at the beginning of words that are analysed as bearing this level tone. Words with initial obstruents tend to show a initial fall, as with the word *jan*³ ‘sun’, which has a pitch range of 180-150-150Hz, but the vowel is clearly level and was regarded as level by the informants. With nasal initials, there was sometimes a rise shown on the initial, as in the word *nim*³ *nim*² ‘owl’ shown in Table 7:

Table 7: *Pitch chart for nim³ nim³ ‘owl’.*



In Table 7 the slight rise at the beginning of the first syllable followed by a level coda can be clearly seen. This rise occurs at the same time as the release of the initial nasal consonant. The second syllable, which carries the prominent 2nd tone, is much more strongly released, as can be seen from the waveform in the upper portion of the table. This syllable commences with the rise at about 0.500 seconds, and reaches a peak at above 200Hz and then sharply falls⁶.

Due to the prominence of this 2nd tone, it is usually not difficult to distinguish it from the other tones, but distinguishing the level tone (Tone 3) and the low falling tone (Tone 1) is more problematic. First of all, many words that carry what is perceptibly a level tone nevertheless show some diminution in pitch.

Secondly, although the words that are analysed as carrying the low falling tone tend to be in the lowest pitch range of an individual speaker, and those words that are analysed as being level tone are more in the mid to high range of that speaker, there are many cases where it is difficult to tell. Whereas Tai Aiton speakers, when given examples of the tones such as those presented in Table 5 can assign any new word to one or other of the tonal categories (see Morey 2005), Turung speakers generally are not able to say whether two words have the same tone or not. When Turung speakers are asked whether the words for ‘ear’ and ‘tooth’ in Table 8 have the same tone or not, their usual response is that they are “just a little bit different”. This will not necessarily mean that there is a tonal distinction. It may be vowel height, quality or other factors that influence their perception.

In Table 8, several words are presented with analysis of pitch contour done using *Speech Analyzer*.

⁶ The sharp rise shown at the end of the first pronunciation represents an extraneous sound.

Table 8: *Comparison of the low falling tone (1st) and level tone (3rd) in Turung*

gloss	example	pitch contour (Hz)
mongoose	jon ¹	140-115
ear	naa ¹	145-130
turtle	tau ³	180-180
stomach	kan ³	190-180
tooth	waa ³	(120)-160-160-150
face	man ³	(140)-160-160

The first two words are clearly falling, and clearly low. The fall is not as steep as that of words with the 2nd tone, but both in terms of pitch and contour they contrast with the second pair of words: whereas ‘mongoose’ and ‘ear’ have pitches that are in the lower part of Kon Kham’s speech range, ‘tortoise’ and ‘stomach’ are in his mid range. The contrast between these words seems clear, but what are we to make of the last two words, ‘tooth’ and ‘face’, which are somewhat lower than ‘tortoise’ and ‘stomach’ but still level? Both have voiced initials and this appears to explain the lower pitch. Since Kon Kham himself characterised the word for ‘tooth’ as a level tone, and distinct from a word with a falling contour, these words are also analysed as level.

When we examine disyllabic words neither of whose syllables carry the 2nd tone, we see considerable variation in pitch between the two syllables that it appears can only be explained by positing a distinction between a low (falling) and mid (level) tones. Some such words are listed in Table 9.

Table 9: *Disyllabic words showing the comparison of the low falling tone (1st) and level tone (3rd) in Turung*

gloss	example	σ1 pitch contour (Hz)	σ2 pitch contour (Hz)
valley	ning ³ gam ¹	160-160	160-120
cave	pung ³ khoo ³	170-180-170	190-170-170
spring	khaa ¹ bong ³	150-115	150-140
lion	hang ³ sii ¹	175-185	165-145

Tones in this paper will be marked according to the principles set out in (1) following the form recorded by Kon Kham Turung where possible.

4. Turung syllable structure

4.1 Monosyllables with a single consonant onset

In the analysis of Turung syllable structure presented here, phonetically the minimal Turung syllable is one that has an optional initial consonant, a vowel nucleus marked by tone, and a coda which may be a vowel, a nasal, or a stop consonant, as in (**Error! Reference source not found.**).

$$4) \quad (C) V+T+ \left\{ \begin{array}{c} V \\ S \\ N \end{array} \right\}$$

In monosyllables, vowel final words are realised with longer vowels than the vowels of words that have a coda. In his initial recording of the tones (Table 5), Kon Kham Turung pronounced *waa*³ ‘tooth’ with a vowel 0.39” in length and *wa*²³ ‘make (basket)’ with a vowel of 0’19” length. If *waa*³ ‘tooth’ were pronounced with a short vowel, even without a final glottal, it would probably be misinterpreted by Turung speakers. Phonetically at least, *waa*³ ‘tooth’ should be regarded as CVV, and in this paper will be written with a double vowel. Diphthongs such as in *sai*² ‘blood’ also conform to the requirements of (4). Under this analysis, we can view the Turung monosyllable as bimoraic.

In (4) the initial consonant was described as optional. For Jingpho, some scholars, such as Matisoff (1974b,2003) write a glottal stop in front of an initial vowel, where Dai (1992) and Maran (1971) omit the glottal stop and write vowel initial words. No claim is made by Matisoff and others who write initial glottal stops that there is a contrast between vowel initial words and those with glottal stops, in other words no putative contrast between *ang* and *ʔang*.

One piece of evidence favouring phonemic status for initial glottal stop might be that words like *mə eən*² ‘saliva’ are realised as [mêʔê:n], in which the vowel and tone of the major syllable replicated on the minor syllable (see below Section 4.3 for a discussion of this phenomenon) and with a glottal stop. It could be argued that this glottal stop shows that the originally meaningful syllable *eən*² should be analysed as having a glottal initial. This word is written by Dai as mǎ³¹ jen³³ but as məʔyēn by Matisoff (2003:114), the latter stating that in the speech of LaRaw Maran, the initial consonant of the major syllable is a preglottalised sonorant. As with *peen*³ ‘to fly’, discussed above, this is one of the cases where Turung does not preserve an initial semivowel that is found in Jingpho, and that as a result the vowel of the major syllable is realised as a long vowel.

The glottalisation observed in the word for ‘saliva’ in Turung is much weaker than the glottal stop in *kha*²¹ *sin*² ‘bathe’, which is often realised phonetically as a trisyllabic structure [khàʔ ʔə sîn]. Moreover, sometimes a vowel final word followed by a vowel initial word show vowel coalescence, as with *naa*² *ang*³ ‘ricefield-at’ that can be realised as [naŋ]. These two pieces of evidence would suggest that the glottal stop not be posited as an initial phoneme in Turung.

4.2 Initial clusters

In Turung, in addition to monosyllables, disyllables and other multisyllabic words, the latter of which are not discussed in detail in this paper, there are three type of words that may be regarded as longer than a syllable, but shorter than a disyllable. These are:

- 4) Words with initial clusters, as *kraa*² ‘hair of the head’
Sesquisyllabic words, as *lə ta*²² ‘arm’
Nasal syllables, as *n*¹ *lung*² ‘stone’

The term **sesquisyllable** was first devised by Matisoff (1973:86) to refer to an iambic structure consisting of a short syllable (minor syllable) followed by a long syllable (major syllable). In Turung, most sesquisyllabic words can be realised with initial clusters, as will be discussed below. Given this, phonetic realisation alone is

therefore not enough evidence to posit that a word has a phonemic initial cluster, and we will need to establish criteria to decide whether a word is to be analysed as having an initial cluster or being sesquisyllabic. The first criterion will be the phonetic nature of the cluster. In the analysis of Turung presented here, only those clusters that have a second member that is a semivowel or a liquid will be recognised as phonemically clusters. The second criterion is that if a word is reconstructed with a cluster in proto-Tibeto-Burman, then we can recognise it as a cluster in Turung.

In the case of *kraa*², the proto form is given as **kra* by Matisoff (2003) and **(s)-kra* by Benedict (1972). Furthermore, the initial cluster has the rhotic /r/ as its second member, and thus meets both criteria to be analysed as having an initial cluster. However, in Jingpho as reported by Hanson (1906), the word is given as <kāra>, suggesting a sesquisyllabic reading.

A second example of a cluster is the word *sə brang*² ‘young man’, analysed as a sesquisyllable with an initial cluster in the major syllable, an analysis supported by Hanson’s notation as <Shābrang>. If we were to analyse this word as a single syllable, it would require a triconsonantal onset, and if we were to analyse it as not having clusters at all, it would require positing two minor syllables.

This latter analysis is possible. Matisoff (2003:149) has pointed out that words with two short syllables, that is double sesquisyllables, are found in Hanson (1906); e.g. <lāsāwi> ‘bone marrow, kind of bamboo, whittle off’ and <pāsāwi> (varying with <bāsāwi>) ‘plaid cloth’. The variation in transcription given by Hanson for this latter word suggests that he also found the analysis of this word problematic: it being either a double sesquisyllable or a minor syllable followed by a major syllable with an initial cluster.

When Turung speakers themselves write their language in Assamese script, which has no schwa, they generally write the vowel of the sesquisyllable as the same as the vowel of the main syllable. This reflects one of the allowable pronunciations of these words (see below Section 4.3. The Assamese writing system contains many initial consonant clusters, so that we would expect cluster-initial words to be written with a cluster. However, as Table 10 shows, words which have initial clusters, such as *kru*²² ‘six’ are written as two syllables in the same way as words that that analysed as sesquisyllables. In the case of *kru*²² ‘six’, possible pronunciations vary in the same way as with sesquisyllables (see (6)below).

Table 10: *Written forms of Turung sesquisyllables and clusters.*

Gloss	Turung word	Written form in Assamese	Hanson	Proto form (Benedict 1972)
three	mə sum ³	<mu sum>	Māsum	*g-sum
four	mə lii ³	<mi li>	Māli	*b-liy = *b-ləy
five	mə ngaa ¹	<ma nga>	Mānga	*l-ŋa ~ *b-ŋa
six	kru ²²	<ku ru>	Kru	*d-ruk

4.3 Sesquisyllables

In the languages of the Jingpho group, the vowels of the minor syllable in a sesquisyllabic structure are interpreted in a variety of ways: with a schwa, as in Matisoff (1974b, 2003), followed here, or with a short <ă> symbol, following Hanson (1906),

and employed in his phonetic transcriptions by Dai and others in the *Jingpho Miwa Ga Ginsi Chum* (Jingpho-Chinese Dictionary). In the Kachin writing system now in use in for Jingpho in Kachin State of Burma, the vowel of the minor syllable is simply written as <a>.

Sometimes the minor syllable of the sesquisyllable seems to be a meaningful element, possibly reflecting an earlier stage of the language when some of these were compounds. In (5), consisting of several words relating to body parts, the minor syllable is a reduction of proto-Tibeto-Burman **l(y)ak* ‘arm’:

- 5) *lə yung*³ ‘finger’
 *lə sa*²² ‘artery’
 *lə ta*²² ‘arm’

Sesquisyllables such as those in (5) can be realised in three ways,

- i) as single syllables with initial clusters,
- ii) as sesquisyllables where the vowel of the minor syllable is a schwa, or
- iii) as sesquisyllables where the vowel of the minor syllable is in harmony with the vowel of the major syllable, or with the initial consonant of the major syllable if that is a semi-vowel.

The word for finger can thus be realised as any of the three possibilities in (6):

- 6) [ljung] ‘finger’
 [lə jung] ‘finger’
 [li jung] ‘finger’

The cluster realisation is particularly frequent in fast natural speech and can lead to the phonetic realisation of clusters that do not meet the first criterion for clusters given above. For example, kinship terms in Turung are all monosyllabic words that are realised with one of two prefixes:

- 7) *a* ‘prefix denoting one’s own relative’
 k(ə) ‘prefix denoting another’s relative’

When the *k(ə)* prefix is used with one of these words, in fast speech the onset is often an initial cluster. For example, the word for ‘elder brother’, the major syllable of which is *phuu*², can be realised as [kp^hu:], with an initial cluster, even in utterance initial position. Gemination occurs when the initial consonant of the kinship term is /k/, as with *kə kuu*² ([k:u:]) ‘someone else’s brother-in-law’. This realisation with geminate initial has only been recorded following the vowel final possessive marker *naa*³.

Although at the phonetic level the number of initial clusters in Turung is very large indeed, at an abstract level, these are regarded as the reduction of sesquisyllables, so that a large list of phonemic initial clusters is not posited for Turung.

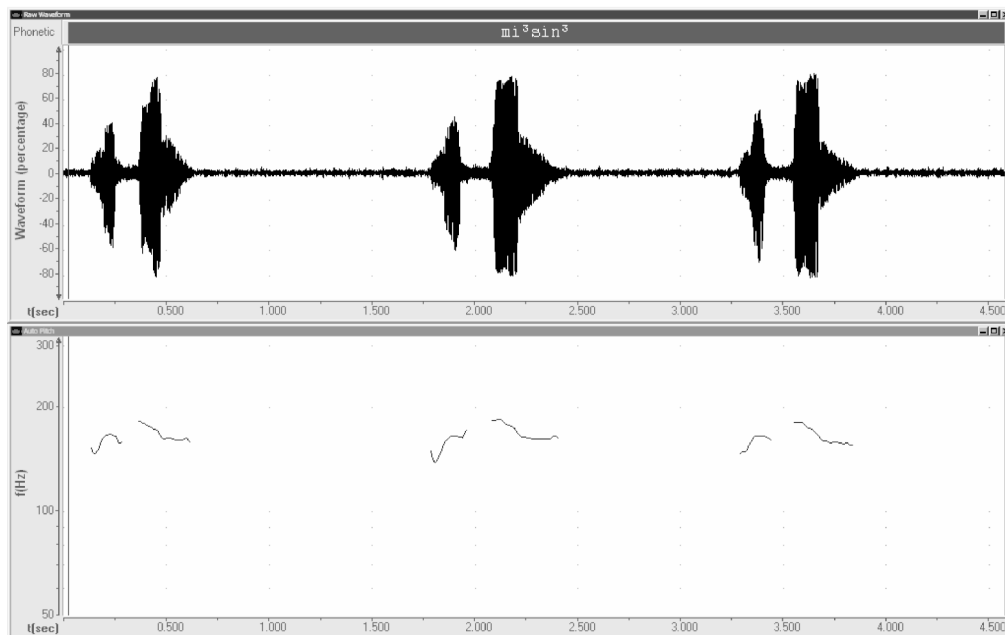
A major question remains to be investigated: Is the minor syllable a tone-bearing unit? Writing about Jingpho, Matisoff (2003:98) said that “even though the vowels in all these minor syllables are the same, and unstressed to boot, it has been claimed (*e.g.* by Maran ... a native speaker) that they bear a two-way tonal contrast”. Matisoff himself

added that he had “never perceived any such contrast in Maran’s speech”, going on to point out that in Dai’s 1983 dictionary of Jingpho, three tonal contrasts were distinguished on the minor syllables.

So far in this paper, the minor syllable has not been marked for tone. When analysed by *Speech Analyzer*, pitch generally only shows up when the initial consonant of the minor syllable is voiced, so that the pitch that is realised may only reflect the pitch of that voiced consonant rather than the vowel which would be expected to be segment carrying contrastive tone. In the case of all the words analysed for this paper where the minor syllable was realised with a schwa, the pitch of that minor syllable was low. This matches Matisoff’s observation that in Dai’s dictionary the low tone /31/ was most frequent for the minor syllable (2003:98). If we accepted that the tones were indeed low, we might mark them all as tone 1 here. In those cases where the sesquisyllable is realised as a monosyllable with initial cluster, we would then need to suggest that the tone has been lost.

On some occasions when sesquisyllabic words are realised, the minor syllable bears a vowel that is in harmony with the vowel of the major syllable, and they do bear tone. The word *mə sin³* ‘ice’ is often realised with a clear instantiation of /i/ as the vowel in the minor syllable, and that minor syllable being slightly longer than if it were realised with a schwa. This is shown in the following pitch diagram made using *Speech Analyzer*:

Table 11: Pitch chart for *mə sin³* ‘ice’



As discussed above in [Section 3](#), with the high level tone, (Tone 3), obstruent initials such as /s/ are often realised with a slight fall and nasal initials with a rise, as seen in this diagram. When this is taken into account, we can see that this word is realised as [mi sin], with both syllables bearing a mid level tone. It is argued here that even though the minor syllable in this example is clearly tone bearing and fully vocalised, the vocality has come by harmony with the major syllable, and the tone by

spreading from that syllable. In other words both vowel and tone in the minor syllable match those in the major syllable. No contrastive tone for the minor syllable is posited.

Some disyllabic words are also pronounced with short initial syllables, and are thus quite similar to some of the realisations of sesquisyllables. For example, *pu*³ *sai*² ‘freshwater eel’, was pronounced in elicitation with a short initial syllable (0’12”) and a much longer second syllable (0’41”). The first syllable had a hint of final glottal closure and the structure was very similar to a sesquisyllable. However, unlike the pronunciation of *mə sin*³ ‘ice’ discussed above, neither the vowel nor the tone of the short syllable reflected the vowel of the major syllable. This word, then, is analysed as a multisyllabic word, made up of two full syllables. It may, over time, come to be regarded as sesquisyllabic, in which case we would expect pronunciations like [pâ sâi] or [pə sâi].

4.4 Nasal Syllables

The third type of syllable presented above in (4) is here called a ‘nasal syllable’, consisting of a minor syllable that is a syllabic nasal, followed by a major syllable, as in *n*¹ *lung*² ‘stone’. In all the examples recorded in Turung so far, the initial consonant of the major syllable may be a stop, fricative or semivowel, but not a nasal consonant, unlike in Jingpho (see Table 13 below). Phonetically, the nasal assimilates to the place of articulation of the major syllable, and will here be written in this assimilated form, following the expressed wishes of the Turung community.

Table 12 presents examples of this type of syllable. In each case the minor syllable, the syllabic nasal, is analysed as having the 1st tone, the low falling tone, although the actual profile of the tone varies slightly, and to some extent reflects the profile of the tone of the main syllable.

Table 12: *Turung nasal syllables.*

gloss	example	pitch contour of syllabic nasal	pitch contour of major syllable
ground	ng ¹ gaa ¹	160-150	160-140
stone	n ¹ lung ²	150-160	150-200-120
air	m ¹ bung ³	150-160	170-160

In the case of *ng*¹ *gaa*¹ ‘ground’⁷, the nasal syllable falls slightly, in line with the main syllable; whereas *n*¹ *lung*² ‘stone’ shows a slight rise is perceptible, suggesting a tendency to reflect the rising-falling profile of the major syllable.

Matisoff (2003:129) discussed nasal syllables in Jingpho, describing the language as “particularly interesting in this regard” and pointing out that the syllabic nasals “can bear tone”. Some examples of such words are given in Table 13, where the syllabic nasal is in variation with full syllable (“dimidiated to a full syllable, *nin*- or *num*-”).

⁷ Matisoff (2003:129 fn103) cast doubt on whether a form like this was found in Jingpho; it is certainly found in Turung.

Table 13: Nasal syllables in Jingpho (from Matisoff 2003:129).

lizard	ñ-sāṇ-sòn
edge	ñ-gàm / ñṇ-gàm
stone	ñ-lùṇ
tail	ñ-mài
axe	ñ-wā / ñṇ-wā
wound, scar	ñ-mà / ñùm-mà

In most of these examples, the tone of the syllabic nasal is the same as the tone of the major syllable, the exception being the word for ‘axe’. In Turung, ‘axe’ is realised as *nung*¹ *waa*¹, with a full first syllable. No form *n*¹ *waa*¹ has been recorded. Several other Jingpho words that have been recorded as nasal syllables are only recorded with full first syllables in Turung, as for example Jingpho *ñ-sà* ‘old’ which in Turung is *ning*¹ *saa*². Interestingly, in all words where Turung has a full syllable and Jingpho has only a syllabic nasal for the first syllable, Turung has a low tone on the first syllable.

As discussed earlier, Turung does not seem to have nasal syllables where the major syllable has a nasal initial. Whereas Jingpho has *ñ-mài* for ‘tail’, in Turung this word is *mai*³ *can*³, without any evidence of a syllabic nasal.

In fact, monomorphemic words with syllable nasal initials in Turung seem to fall into two groups. Several very common function words were pronounced with a high tone on the syllabic nasal, as can be seen with the first two examples in Table 14. This has tentatively been marked as Tone 2.

Table 14: Tones on Turung nasal syllables.

gloss	example	pitch contour of syllabic nasal (Hz)	pitch contour of major syllable (Hz)
this	n ² dai ³	200-200	200-190
here	ng ² goi ¹	190-200-190	190-170
bow	n ¹ dan ³	140-150-140	160-160
cloth	m ¹ baa ¹	130-130	140-120
court, yard	m ¹ pan ¹	130-130	140-130
room	n ¹ dun ³	150-150	170-160
seed	n ¹ lii ³	160-160	170-170
bran, husk	n ¹ san ²	150-150	200-150
husked rice	ng ¹ guu ¹	140-140-120	150-170-160

The content words in Table 14 all exhibit syllabic nasals with lower tones than those found on the two function words, but are these tones all the same? In the case of the words for ‘bow’, ‘cloth’ and ‘court’, the tone of the syllabic nasal was clearly low and in the case of ‘cloth’ and ‘court’ virtually matched the tone of the major syllable and so these were listed as tone 1. Where the major syllable is tone 3, the higher, level tone, as with ‘room’ and ‘seed’, the tone of the syllabic nasal is also higher, as in the case of *n*¹ *dun*³ ‘room’. Here, however, the syllabic nasal bore a perceptually lower tone than the major syllable, and is therefore analysed as the 1st tone.

Let us turn back for a moment to the word *m¹ bung³* ‘air’ seen above in Table 12. The presence of a syllabic nasal here is interesting because many words relating to the weather are sesquisyllabic, with a prefix *mə-*, such as *mə sin³* ‘ice’, discussed in Section 4.3 above. This prefix is arguably a reduction of the word *mu²* ‘sky’. Given that, we might expect that the word for ‘air’ also included this prefix, which has now become a syllabic nasal, rather than remaining as the minor syllable of a sesquisyllabic structure. Hanson does record this word as <Nbung>, showing that it is a nasal syllable.

There is another type of nasal syllable, the negative marker *n³*. For Jingpho, Matisoff (2003:40) regarded this as a nasal prefix, although in the writing system used by Jingphos in Kachin state it is written as a separate word. When I first heard this morpheme, in the speech of an Aiton-Turung bilingual who was trying to teach me the Turung language prior to my first fieldwork in Rengmai village in 2003, I noticed that with verbs that bore the 2nd tone (rising and high falling), the verb seemed to have a lower tone in the negative form than when it was in the positive. Unfortunately this was not recorded, and speakers do not always produce a similar effect.

Interestingly, for Jingpho, Matisoff has noted that when a verb has a low tone, the negative prefix causes it to assume the high-falling sandhi tone, as *lù* ‘have’, *n³-lù* ‘not have’. In Turung, this verb *luu²* already has a high-falling tone in citation, and as hinted earlier, there is some possibility that in Turung there is a reverse process in operation.

To check any potential effects of the negative marker on the tone of the verb, Table 15 lists three verbs with the negative form and compares the pitch contour of the verb both with and without the negative morpheme preceding it.

Table 15: *The Turung negative.*

gloss	example	pitch contour of negative nasal (Hz)	pitch contour of verb (Hz)
cooked	sə duu ³		σ1 130-120; σ2 160-150
uncooked	n ³ sə duu ³	160-140	σ1 130-130; σ2 170-160
ripe	min ³		(130)-170-170
unripe	n ³ min ³	170-170	170-170
good taste	muu ³		(120)-170-170
tasteless	n ³ muu ³	140-160	170-170

As can be seen, there is no appreciable effect on the tone of the verb from the negative nasal. It has been assigned the level tone here, in particular in view of the form *n³ min³* ‘unripe’ where the tone on the negative nasal and the verb are identical. These two morphemes were realised with continuous articulation, but a clear pulse between the two nasals segments (that of the negative marker and the initial consonant of the verb) is clearly audible.

On the other hand, *n³ muu³* ‘bland’ was realised with a long, geminate [m] as the initial consonant, as [m:u:]. It is only the length that signalled the negation⁸. The length of the initial nasals was measured, using *Speech Analyzer*, for this word in both negative and positive, as shown in (8):

⁸ There are a number of cases in the Turung texts where only length of the initial nasal segment signals the negative. This has sometimes led to misunderstanding by the present writer.

- 8) muu³ ‘good taste’ [mu:] 0’14”
 n³ muu³ ‘tasteless’ [m̥u:] 0.19”

The negative initial nasal is significant longer, nearly one and a half times the length of that in the positive verb.

One further consideration is the possibility that a sesquisyllable with a minor syllable *mə* might come to be realised as a nasal syllable. When Kon Kham pronounced the word for ‘bruise’, *phi²² mə lu²¹* quickly, it was phonetically realised as [phî m lù], suggesting a syllabic nasal. However, this word is analysed as being a sesquisyllable, firstly because another informant pronounced the word clearly as [phî mə lù], and secondly because if it were a syllabic nasal, the place of articulation of the nasal would have assimilated to the initial consonant of the final syllable, being realised as [phî n lù].

5. Notes on stress in Turung

One difficulty in the tonal analysis of Turung is that tones are affected by their position in a phrase or utterance. Compare the tokens of the word *ding³ laa¹* ‘old man’ in three contexts, compared in Table 16.

Table 16: *Effect of neighbouring segments on the tone of ding³ laa¹ ‘old man’*

example	gloss	pitch contour of 1st syllable of <i>ding³ laa¹</i> ‘old man’ (Hz)	pitch contour of last syllable of <i>ding³ laa¹</i> ‘old man’ (Hz)	pitch contour of <i>waa¹</i> ‘DEF’ (Hz)	pitch contour of <i>waa²</i> ‘return’ (Hz)
<i>ding³ laa¹</i>	‘old man’	150-150	150-135	-	-
<i>ding³ laa¹ waa¹</i>	‘the old man’	140-130	140-160-140	140-110	-
<i>ding³ laa¹ waa¹ waa²</i>	‘the old man went back’	140-140	140-140	140-140	140-160-100

The recording of this word in citation was part of the recording of the longer word list, whereas the two examples of the word in context were from the original analysis of the tones presented above in Table 5, where Kon Kham Turung’s pitch range was generally lower than it was in the word list.

Taking this into account, we suggest that the first syllable of *ding³ laa¹* does not change significantly from one example to another, but that the second syllable does. When followed by the definiteness marker, a syllable which also carries the low falling, 1st, tone, the last syllable of *ding³ laa¹* shows higher pitch and falling contour, perceptually similar to the 2nd tone. In the last example, on the other hand, the syllables were all level and any contrast between the 1st and 3rd tone was neutralised.

The word *sum¹ pho²¹* ‘person’ was pronounced in elicitation with two very similar tones, both falling from about 160 to 140 Hz. However, when Kon Kham combined this word with the definiteness marker *waa¹*, the second syllable was significantly higher than the first, and was perceptually similar to the 2nd tone.

It is argued here that when a noun is followed by the definiteness marker, it forms a single phonological word, especially when only the noun and definiteness marker are present. Such phonological words behave like compounds. In compounding of more than two syllables, two processes occur. The first is a natural tendency towards sesquisyllabic structures, where the first syllable is weakened. The second is adding stress to the penultimate major syllable.

For example, in elicitation, *munɡ*² ‘country’ has a clear rising-high-falling profile, with a pitch contour of 120-200-100 Hz. However, in the compound *munɡ*² *kang*³ *ɡaa*¹ ‘earth, land’, the first syllable (150-170-160Hz) is much lower than the second (190-170Hz) a syllable that is also pronounced much more strongly. We would argue that this can be explained, as can the examples with the definiteness marker above, as cases of penultimate stress.

This penultimate stress applies to the penultimate major syllable. The word *lə ɡong*³ *lə yung*³ ‘toe’ is made up of two sesquisyllables, both of which in elicitation consisted of a unstressed first syllable and a second syllable that was level at a pitch of about 180Hz. In the compounded form, however, the second syllable, *ɡong*³ was clearly higher in tone and more stressed than the last syllable *yung*³.

The tendency for disyllabic words to reduce to sesquisyllabic structures means that sometimes the anti-penultimate syllable is stressed, as with *ng*¹ *ɡaa*¹ *sum*³ *mun*¹ ‘dust’, where the stressed syllable is *ɡaa*¹ which was realised as a rising tone, reaching up into the higher levels of Kon Kham’s pitch range. In citation of the word *ng*¹ *ɡaa*¹ ‘ground’, the tone is low falling. This analysis is supported by the fact that in at least some of Kon Kham’s pronunciations of the word, the syllable *sum*³ was reduced to [sə].

6. Turung tones – a reprise

In Section 3 above, we posited three tones for monosyllables in Turung, listed in (1) above. In Section 4.4 we further suggested that there are three tones for syllabic nasal syllables, but that the profile of these tones was different from the tones of monosyllables. The two systems are compared in Table 17:

Table 17: Turung tones

Tone No.	Example	Gloss	Tone contour (Hz)	Example	Gloss	Tone contour of σ1 (Hz)
1	jon ¹	mongoose	150-120	m ¹ baa ¹	cloth	130-130
2	sai ²	blood	200-120	n ² dai ³	this	200-200
3	tau ³	turtle	180-180	n ³	NEG	170-170

The syllabic nasals consist of three level tones, the 1st tone being low, the 2nd tone high and the 3rd tone mid. The tones on monosyllables differ, in that both the low and high tone are falling tones, whose beginning pitch is similar to that of the corresponding syllabic nasal.

We might then ask where the contours for monosyllables have come from? The three contours listed in Table 17 are very similar to the three tones of Aiton, with which Turung has long been in contact (see Morey 2005:160f) and perhaps the realisation of tone on monosyllabic words has been influenced by Aiton. In view of this, it is worth

noting that Turung speakers admit that ‘the tune’ is one of the salient differences between their variety and that of the Singphos of Upper Assam.

And what of parallels between our analysis of Turung tones and the tonal systems of the neighbouring Jingpho language? There does appear to be one parallel: a high proportion, though by no means all, of the words that Matisoff (1974b) lists as low tone for Jingpho are found with the 2nd tone (high) in Turung.

The Jingpho mid tone, on the other hand, corresponds with all three Turung tones, although it is most commonly found corresponding with the 3rd tone and 1st tones, as shown in Table 18.

Table 18: *Comparison of Jingpho mid tone in Matisoff (1974b) and Turung.*

Matisoff No.	English gloss	Jingpho Mid Tone	Turung	pitch contour (Hz)
5	‘fly (v.)’	pyēn	peen ³	170-170
6	‘moon, month’	tā, sētā	sə taa ¹	160-135
12	‘smoothed out’	prī	a ¹ prii ²	180-210-100
20	‘ant’	ūkyīn	gu ³ gin ³	190-190
26	‘prison’	thōŋ	thong ²	185-200-110
76	‘barking deer’	khyī	cə khii ³	200-180-180
85	‘ten’	ši	sii ³	180-180
101	‘die’	sī	sii ³	180-180
111	‘dream’	māŋ	(yup ²) mang ¹	150-120-120
134	‘hundred’	lōtsā	lə caa ¹	160-140

The problem of the tonal analysis of Turung is exacerbated by the fact that tonal inconsistencies among the Turung are not uncommon. When eliciting the word for ‘vomit’ *m¹ phat¹*, the major syllable was pronounced in two different ways, once as low falling, and once as a much higher falling tone. One minimal pair which some old Turung speakers pronounced is given in (9)

- 9) *sat¹* ‘rice’
 sat² ‘kill’

When asked about this contrast, Kon Kham expressed the view that the two words were the same, and when talking about them with other Turung informants, referred to the first alternative as in (10):

- 10) saa² dii³ sat¹ phee³ ai¹ khii³ san²
 eat GV rice A.AG PRT 3SG ask
- ngaa² waa¹ .
 HAVE DEF
- ‘It is the *sat¹* which we eat that he is asking about.’

The phrase *saa² dii³ sat¹* ‘the *sat¹* which we eat’, is used to distinguish this word from the other *sat²* ‘to kill’. If Kon Kham regarded these two words as having contrastive tones, we would not expect him to need to refer to *sat¹* ‘rice’ in this way. So

it is that Turung speakers do not all agree on the tones of particular words. Readers of this paper will also have gathered that modern researchers on languages of the Jingpho group do not always agree on the analysis either. It might, in view of this, be appropriate to end with a quote from Ola Hanson, who lived many years with Jingpho speakers:

“The difficult problem regarding the tones may seem to have been entirely ignored, as no tonal marks have been introduced. ... The tones are more important than generally admitted by Kachin students, but they can be mastered only with the help of a native teacher, and it would be useless to burden these pages with tonal marks **in regard to which no two Europeans would ever agree.**” (Hanson 1906:iv bold mine)

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