

Evidence of tonal activity in Aslian

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1. Introduction

The number of Mon-Khmer languages in which contrastive tone occurs is relatively small. The best known example is of course Vietnamese with six contrastive tones. In rare cases, linguists have even been able to observe the process of shift under way from non-tonal to tonal within the Mon-Khmer family, as in the case of Kammu (Svantesson 1989, Suwilai 2001).

More typical of the Mon-Khmer family is for tonal activity not to be primary but to occur as part of a bundle of phonological phenomena, e.g. voice quality, diphthongization, and vowel length, that are combined to create so-called register differences. Although pitch variation is not an obligatory element of register, it is extremely common, and register is known to occur in Palaungic, Pearic, Bahnaric, Khmer and Mon (see Svantesson 1989 for a useful overview).

The Aslian group of languages is one of the few branches of the Mon-Khmer family where tonal phenomena of one kind or another is not usually reported (eg Svantesson 1989) to occur. These languages, spoken on the Malay Peninsula, are generally considered to have simple stress-based prosodic systems, without evidence of register-like or tonal phenomena of any kind. It is our view that this position needs to be changed, in the light of a survey presented here of available information regarding tone in Aslian languages. There is in fact clear evidence of tonal activity in the Northern Aslian subgroup, represented by languages such as closely related Jahai and Kensiw, spoken by small groups living on both sides of the Malaysian-Thai border.

2. Tone in Northern Aslian

As long ago as the 1920s, Schebesta (1926:205) reported a simple two way (high v. low) tone contrast in a small set of monosyllables in Jahai, given at (1):

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Back:mid, Text:dark :: mid-W:0.22, B-Peak:29 :: gamma:1, B:130, W:200

(1)	high tone		low tone	
	jóʔ	‘part of a blowpipe’	jòʔ	‘bough’
	nús	‘sleeping mat’	nùs	‘lip’
	jéʔ	‘1S’	jèʔ	‘1D INCL’
	héʔ	‘1P INCL’	hè:i	‘1D INCL’
	égʔ	‘to give’	ègʔ	‘belly’
	gús	‘to rub fat into the face’	gùs	‘to come down’

More recently, however, Burenhult (2001) found no such evidence in the variety of Jahai he was able to record and describe. It appears unlikely that Schebesta was wrong—he was able to provide very specific detail of what he considered to be tonally contrastive, albeit of very low functional yield. The difference between his and Burenhult’s finding suggest instead that tone where it occurs in Jahai is either not characteristic of all varieties of Jahai, or that the rare examples of contrastive tone first reported by Schebesta (1926) may have been lost in Jahai in the intervening seventy years.

The most secure example of tonal activity in Aslian is found in the Yala variety of Kensiw—spoken in Southern Thailand. There are, however, two seemingly very different descriptions of tone in this language. Phaiboon (1984), who was the first to discuss tone in Yala Kensiw, describes the phenomenon as entirely predictable by environment and hence non-phonemic. He provides a very detailed description of the rules involved in tone assignment. With respect to plurisyllabic words, pitch patterns occur as follows: unstressed minor syllables bear low tone, syllables with secondary stress carry mid tone, while final syllables always bear primary stress. Three tone levels (high, mid, low) are reported to occur as follows:

- high tone occurs on all vowels before final /p, t, c, k, s, ŋ, h, w, j/, eg. /'báp/ ‘monitor lizard’, /'cót/ ‘to light (fire)’, /'pés/ ‘to stroke gently’, /'nán/ ‘same’. It also occurs before final glottal /ʔ/, e.g. /'náʔ/ ‘mother’, except if the vowel is /a/ which is itself preceded by /b, br, bl, d, t/. The conditioning of high tone by final obstruents is also consistent with examples of high tone reported by Schebesta (1926) and listed in (1). In all of these cases, while word-initial structures vary from onset-less to the presence of some kind of consonant, the high tone (as are most contrasting low tones) is followed by an obstruent.
- mid tone occurs in open final syllables, before final /m, n, ŋ, l/, e.g. /'jū/ ‘sawfish’, /'tēm/ ‘right’, /'sōl/ ‘to be shy’.
- low tone occurs only on low vowel /a/ before final glottal /ʔ/, if preceded by /b, br, bl, d, t/, e.g. /'bàʔ/ ‘to carry on shoulder’, /'blàʔ/ ‘by oneself’, /'dàʔ/ ‘side’ and /'tàʔ/ ‘uncle’.

Overall the distribution of conditioning environments given by Phaiboon (1984) has the following general characteristics:

- tone in monosyllables is almost always conditioned by the identity of the final segment
- the identity or nature of the stressed vowel has no effect, with the partial exception of /a/. The behaviour of /a/ is discussed again in more detail below
- obstruents form a class to condition high tone on the preceding vowel, with the partial exception of final /ʔ/
- liquids and nasals, with the exception of /ŋ/ form a class to condition mid tone
- low tone is very rare, occurring in highly restricted circumstances.

This distribution pattern also has in our view unusual elements:

- the specific details of conditioning before the final glottal stand out—it is the only case where vowel height as well as the identity of the prevocalic segment(s) have an effect on tone height. It is true that the low open vowel /a/ is known to have lower intrinsic pitch than other vowels across languages (Lehiste 1970). But if that were the case here, a low tone effect in Yala Kensiw should be observable in other contexts as well. With respect to the prevocalic elements /b, br, bl, d, t/, there does not seem to have full phonetic coherence. The grouping of /b, br, bl/ suggests that it is the presence of the voiced bilabial stop that determines tone setting in this sub-set. Svantesson (1989) reports similar for Kammu in which the initial stop in the prevocalic cluster determines tone height on the following vowel. In Kammu and in many other languages, voiced stops condition low tone on the following vowel. However, the presence of voiceless /t/ and the absence of /g/ in a set that otherwise includes only voiced stops does not suggest that a phonetically natural class is operating here.
- whilst obstruents form a natural class, nasals do not: final velar /ŋ/ triggers high tone, whilst the other three nasals /m, n, ɲ/ trigger mid tone.

It is not unreasonable in our view, to suggest that the factors purported to condition tone before final glottal /ʔ/ are phonetically less than certain, and may well be masking phonemic tone contrast in Phaiboon's (1984) own data. We are certainly able to identify evidence suggestive of at least partial contrast, drawing from the lengthy wordlist provided by Phaiboon:

(2)	high tone		low tone	
	páʔ	'each'	bàʔ	'to carry on shoulder'
	láʔ	'penis'	blàʔ	'by oneself'
	lātáʔ	'waterfall'	tàʔ	'uncle'

The existence of some kind of tonal activity in Yala Kensiw, first suggested by Phaiboon (1984) has been more recently confirmed by Bishop (1996), although the details are somewhat different. According to the latter, pitch is contrastive, rather than predictable, but involves only two tones (high v. mid). Mid tone is considered to be the normal setting in most words, with only rare examples of high tone. She provides specific details of a high v. mid tone contrast in a small number of monosyllables, e.g.

(3)	high tone		low tone
	gúj	‘head’	gūj ‘language’
	kéc	‘to cut’	kēc ‘to be stuck’
	káp	‘deaf and mute’	kāp ‘to bite’

Inspection of Bishop’s (1994) lengthy Kensiw wordlist allows for the identification of nine items with high tone: eight of these are monosyllabic, and one is disyllabic. Additional items, not already listed in (3), are:

(4)	paŋjú	‘to have diarrhoea’
	dúp	‘to shelter with wings’
	kít	‘vagina’
	wát	‘temple’
	ǰék	‘to stab’
	ǰóh	‘to break by smashing’

Of the nine items with high tone, eight are monosyllabic, six have a final voiceless stop (which Phaiboon (1984) claims conditions high tone), seven have a (voiced or voiceless) stop immediately preceding the high tone. The only example of a non-obstruent onset (see in /wát/) is a clear loan (see below). It is not surprising that Bishop (1996) reports no low tone—the phonotactic conditioning of this tone given by Phaiboon (1984) is so restricted that any examples, where they might be exist, would occur much more rarely than the few examples of high tone Bishop (1994) identifies. Bishop (1996) also notes that native speakers are aware of pitch contrast in Kensiw, although they find it difficult to provide minimal pairs on request.

Acoustic analysis independently confirms pitch contrast. Bishop (1996) provides a measurement plot of pitch contours in the contrastive pair: /gúj/ ‘head’ v. /gūj/ language. This is recreated here for readers in Figure 1. The separation of pitch contours is, from a typological perspective, relatively small in terms of Hertz, which makes the perception of the difference more difficult. However, the visual difference in height and shape, between high and mid tones, is quite clear. We note too that the two tones merge fully towards vowel offset. The fact that the clearest difference in shape and height occurs at vowel onset suggests that in historical terms it is the nature of the preceding obstruent that predominated in conditioning tone in Kensiw, rather than that of the post-vocalic segment as Phaiboon (1984) suggests. This same point will be discussed again below when considering in further detail the origins of high tone in Kensiw.

Kensiw pitch contrast

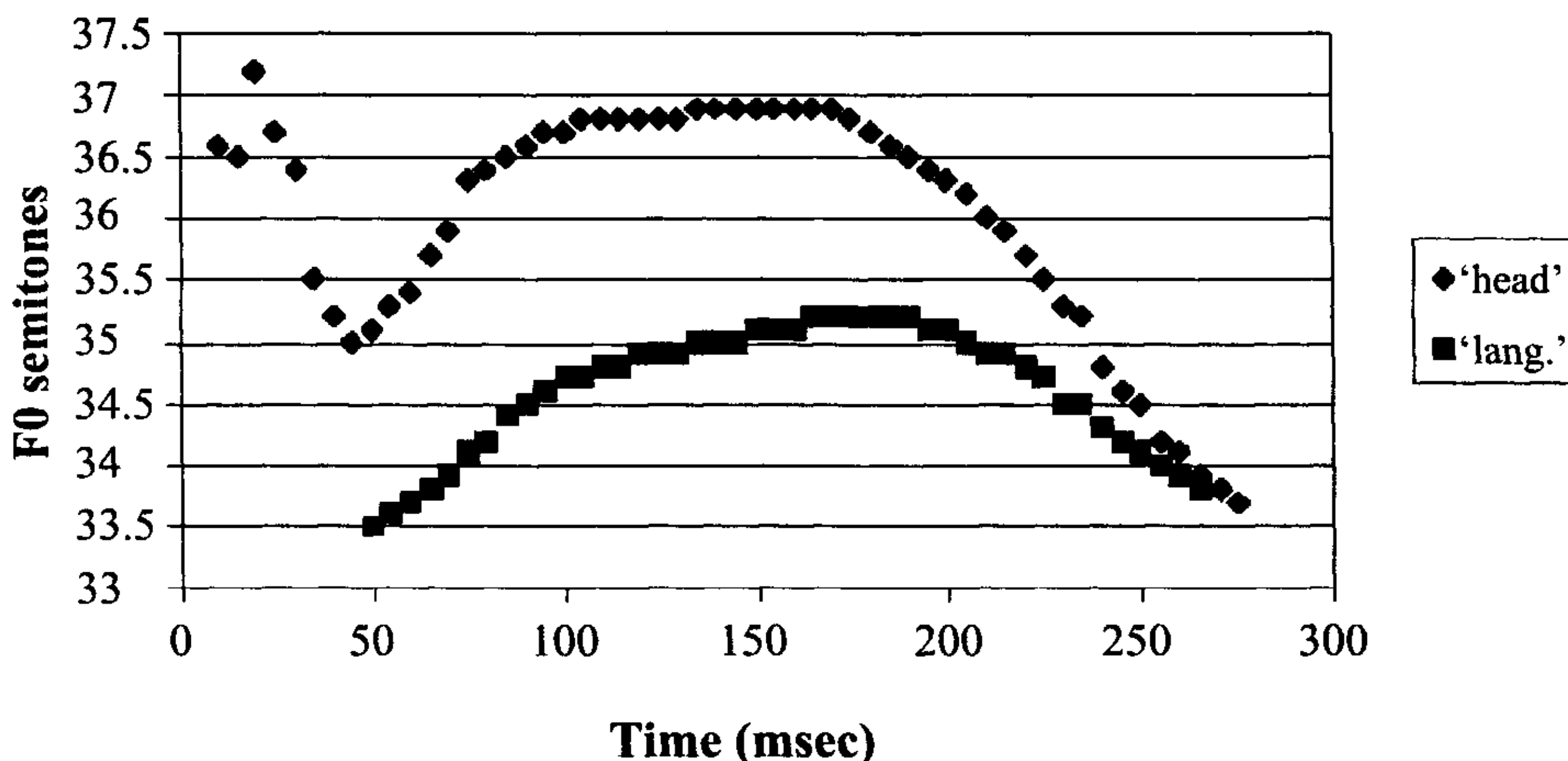


Figure 1. Acoustic Measurement of Pitch (F0) Contour in the Contrasting Pair /gúj/ 'head' and /gūj/ 'language'.

Given the low frequency of high tone, Bishop suggests that "Kensiw is not a tonal language". But from a strictly analytical point of view, such a statement is not true. Kensiw is a tonal language, but one in which tone has very low functional yield. The additional statement made by Bishop that "...it seems premature to assign any general significance to pitch in Kensiw" needs, in our view, some reassessment. There is real significance with regard to the following:

- (a) tone in Kensiw is unrelated to any kind of register-like phenomena commonly found in Mon-Khmer languages. Neither Phaiboon (1984) nor Bishop (1996) note any association with voice or vowel quality;
- (b) we now have real evidence, confirmed independently by direct linguistic observation, native speaker intuition and acoustic analysis, of tonal contrast in a language belonging to a grouping (Aslian) within Mon-Khmer not traditionally associated with tonal activity of any kind.

It is unclear at this stage as to why Phaiboon (1984) and Bishop (1996) differ so much in their description of tone in Kensiw. According to Phaiboon (1984) contrastive tone in the segmental form /guj/ is not possible: high tone occurs predictably before final glides. Yet Bishop (1996) provides acoustic evidence confirming contrast specifically in this context. It is possible that their different results reflect the different tonal behaviour of different speakers. On the other hand, we have already argued above that Phaiboon's analysis of tone in Kensiw as fully predictable may not be entirely accurate, as there is good reason to suggest that tone is at least partly contrastive in his own data set.

However, Phaiboon's sensitivity, as a native speaker of tonal Thai, to tonal differences and their possible conditioning, is also of great value.

It is not clear at this stage to what extent tone in Kensiw is restricted to the Yala variety. Bauer (1990) makes no reference to tonal activity in his description of Trang Kensiw, but if, as Bishop (1996) suggests, high tone occurs only rarely, then it is not impossible that Bauer simply did not have the opportunity to observe it in his variety.

3. Speculation about the Historical Origins of High Tone in Kensiw

The historical source of tone in Kensiw remains unclear, but some initial speculation here is a useful starting point for further discussion and investigation.

In the first instance, contact with Thai could reasonably be expected to be a factor. We have well documented examples of historically non-tonal Austronesian languages spoken in Thailand showing clear signs of contact-related tonal development, e.g. Moklen/Moken (Larish 1997, Pensiri 1982). If Bishop's (1996) presentation of tone in Kensiw is correct, Kensiw does not show the same kind of pervasive evidence of non-contrastive tonal activity throughout the lexicon that is evident in these languages, even when contrast may still be rare. Yet this kind of low-level tonal pervasiveness is precisely the kind of phenomenon that Phaiboon's (1984) detailed account suggests also occurs in Kensiw.

The form /wàt/ 'temple' is almost certainly a loan, but the source appears not to be Southern Thai which has /wát/ with low tone (U. Tadmor, p.c.). The original source may instead be Mon—known to have been in long contact with Aslian (Bauer 1992).

Tone in Kensiw is plausibly also the result of internal development. The particular acoustic pattern associated with high tone, seen in the plot, is consistent with some kind of strongly released stop, such as a voiceless aspirate. Bishop (1996:239) herself is aware of the release effect, and suggests that "... in addition to a pitch contrast, there may also be a three-way contrast in initial consonants of lenis and fortis voiceless and voiced consonants." She makes brief reference to other objective and subjective evidence which would support such a position but this is not made explicit or discussed further. We would suggest that Bishop is on the right track—there is evidence, in our view, of a historical three-way distinction in Kensiw: voiceless unaspirated, voiced plain and a third voiceless aspirate series. Voiceless unaspirated and aspirated stops would be expected to condition high tone, while voiced stops low. The correlation between high tone and voiceless aspirate stops is cross-linguistically well-known, and is indeed found in Kammu today (Svantesson 1989 for details). As stop series merge, traces of an earlier stop contrast often remain in pitch differences on the following vowel.

Contrary to earlier claims by Diffloth (1975) that aspirate stops are found only in Southern Aslian, both Phaiboon (1984) and Bishop (1996) show that they exist in Yala Kensiw. Drawing on Phaiboon's wordlist, we find clear evidence of a three-way synchronic contrast: /kat/ 'to scratch', /khat/ 'to polish' v. /gat/ 'yam-like plant'. Bishop (1996) notes that most examples of voiceless aspirates are found in Thai and Malay loans, but also recognizes that there are other cases for which a similar explanation is not available. This suggests that in these cases voiceless aspirates are indeed native.

Unexpected transcription differences between Benjamin (1976), Phaiboon (1984) and Bishop (1996), as well as internal comparative evidence in Aslian, also suggest that onset obstruents transcribed as voiced by Bishop were once or perhaps still are voiceless, as in the Kensiw examples at (5). In two of the listed examples ('head', 'stab'), Benjamin (1976) and Phaiboon (1984) transcribe an initial voiceless stop, where Bishop has a voiced stop. On the other hand, in the case of 'cut', Bishop has a voiceless stop, where the other two transcribers have an initial voiced stop. These differences suggest an unstable stop contrast system, with evidence of a shift from voiceless to voiced. The original starting point may well have been a voiceless aspirated stop /kh/, which is still found in the Southern Aslian forms for 'head'.

(5)	'cut'	'head'	'stab'
Benjamin	gət	kuy	ceg
Phaiboon	géc	kúj	cék
Bishop	kéc	gúj	ᵑék
Southern Aslian (per Benjamin 1976)		khoy	

4. Conclusion

We can now add Aslian to the list of subgroupings within Mon-Khmer that show evidence of some kind of tonal activity. There is no doubt that tone is contrastive in Kensiw and possibly also Jahai. Although at present, the phenomenon is restricted to the Northern branch of Aslian, it is possible that examples of tone may also occur in other Aslian branches. Factors such as very low frequency of contrast (as in Kensiw) and a likely tendency on the part of earlier investigators of Aslian languages not to consider the possibility of any use of pitch may well have combined to deter the observation of tone at this point. Further investigation of tone in other branches of Aslian would certainly be valuable in improving our understanding of Aslian phonology and its historical development. We have provided some initial speculation about the historical origins of high tone in Kensiw, suggesting that it may be conditioned by the pre-vocalic voiceless obstruent, as in other Mon-Khmer languages such as Kammu. This voiceless obstruent may also have been aspirated in origin, but it is clear that only further detailed investigation of tone in Aslian is able to make clear the precise mechanism of tone development in Kensiw and Jahai.

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