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Comments on the 'Hani' dialects of Loloish.

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My interest in the Hani dialects of the Loloish (or Yi-ish) branch of the Tibeto-Burman languages began some six years ago when I was attempting a rough subgrouping of the dialects cited by Matisoff in his study of the proto-Loloish tonal split (Matisoff 1972). In that work, Matisoff had, in passing, questioned the linguistic relevance of some of the Chinese ethnolinguistic groupings; the name 'Hani', in particular, had been applied to dialects that seemed, at least superficially, quite divergent. Looking at the full range of Hani dialects, rather than just at the extremes, however, I noticed that, appropriately arranged, they suggested a series of stages in a relatively simple phonological evolution. And from this perspective, the original Hani grouping looked much less far-fetched. At the time, I reported these observations in a short, unpublished paper, then put the question of subgrouping aside for other things.

Since that time, several articles (Nishi 1975, Bradley 1977a, Wang 1981) dealing with some of the same Hani material have appeared. Yet I feel my own work still covers some new ground and deserves a better fate than moldering in a file. So I welcome this opportunity to publish it, revised and updated as much as possible 1), in this issue of LTBA 2).

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1. It would have been interesting to explore the relationship of the Hani dialects to those in the so-called 'Bisoid' group (Matisoff 1972, Bradley 1977a), that includes the dialects of Bisu, Phunoi, Pyen and possibly Mpi (cf. Matisoff 1976) as well. Hani (or 'Hanoid') and Bisoid probably form a major 'Southern' subdivision within Loloish, on a par with the Lahu, Lisu and Yi subdivisions. Bradley (1977a) does propose such a Southern grouping, in fact; but he excludes certain of the Hani dialects, as we will see. For me to have attempted to include discussion of the Bisoid dialects in this article would have meant a complete rewriting rather than a revision.

2. Section 3 of this article was the subject of a paper presented at the 13th Sino-Tibetan Conference held at the University of Virginia in 1980.

1. Background.

Chinese ethnolinguistic classifications usually recognize five divisions in their Yi-ish (Loloish) subbranch of languages: Hani, Lahu, Lisu, Yi (=Lolo Proper) and Naxi (=Nakhi) 3). Bradley (1975) casts doubt on the inclusion of Naxi. That the others form a coherent Loloish grouping is, however, uncontroversial; what is still not generally accepted is the composition of some of the four divisions. Lahu dialects are relatively compact; Lisu, less so. But Hani and Yi, as presented in the Chinese writings, contain apparently diverse dialects, and as a result, neither name has gained much currency among linguists outside China. Here we will consider only the Hani dialects.

1.1. Materials.

The Hani dialects are not as well documented as some of the other Loloish languages spoken in southwestern China, but several articles have appeared in the years since 1949: Li Yungsuei (1979) has provided us with a short grammatical sketch of Lüchun Hani, the dialect with the largest number of speakers; and Hu Tan and Dai Qingsha (1964) provided several hundred citations from the same dialect in the course of a discussion on the incidence of a 'tense' versus 'lax' vowel quality distinction that appears in most Hani dialects. The Lüchun dialect was discussed by Bradley (1969,1977a); it is also the Ha(HT) of Matisoff (1972).

In addition to Lüchun forms, Hu and Dai cite from half a dozen to over fifty forms from a range of Hani dialects spoken in southern Yunnan. Li mentions most of these, and some others besides, in a survey of Hani dialects at the end of his article. He cites very few forms, however.

Very recently, Wang (1981) has discussed the affiliations of one of the dialects mentioned by Hu and Dai, that called 'Haoni', citing several dozen additional forms and enlarging upon observations made by both Hu and Dai and, later, Li.

Another dialect named Hani, this one spoken in the Eshan region of central Yunnan (see map), formed the basis

3. Zhang (1967) and Luo and Fu (1954) include a sixth language, Achang, (=Maingtha) a language generally considered to be Burmish rather than Loloish, in their Yi-ish subdivision. Luo and Fu also include Minjia (or Bai). The most recent classification that I know of, Jou and Dai (1980), puts Achang with Zaiwa (=Atsi) in a single subgrouping (presumably Burmish), isolates Bai, and settles on the original five as Yi-ish once again.

of a grammatical sketch and vocabulary compiled by Gao Huanian (1955). Gao's dialect, which diverges quite sharply from the Hu and Dai dialects, is very similar to a dialect named 'Woni', also spoken in the Eshan region, described in a brief article by Yuan Jiahua (1947). Gao's Hani and Yuan's Woni are cited in Matisoff (1972) as Ha(K) and Wo. respectively.

Looking ahead: After a brief discussion of the names 'Hani', 'Woni' and 'Akha', we will examine the Hu and Dai dialects; then we will go on to consider the aberrant Eshan dialects described by Gao and Yuan. We will try to show that some of the most obvious differences among dialects labelled 'Hani'are relatively superficial; that the apparent breadth of dialect differentiation is, in part, the result of a small number of phonological changes that have taken place in the history of Hani. The conclusions support those of Nishi (1975), whose study of Hani and Akha overlaps this one.

1.2. Nomenclature: Hani, Woni and Akha.

Bradley, in an unpublished study of the Akha dialects (1969), noticed the similarity between the dialect of Akha spoken in the Kengtung region of Burma-- the dialect that formed the basis of Lewis's Akha to English dictionary--and the Lüchun dialect of Hani described by Hu and Dai (and, later, by Li). The dialects are so similar that it is safe to conclude that at least some of the Hani are simply 'Akha' living in China. But not all, so it seemed. As we mentioned earlier, Matisoff (1972:10) had noticed that Gao's Eshan Hani dialect (and the almost identical dialect described by Yuan) were, apparently, quite different from Hu and Dai's Lüchun Hani (and Lewis's Akha), and he had suggested that they belonged to separate divisions within Loloish. Bradley (1977a) concurred, and went further: after examining the Hu and Dai dialects he concluded that they, too, fell on different sides of the breach: one group (Li's HA-YA; cf.2 below), that included the important Lüchun dialect, he placed with dialects such as Lewis's Akha in an 'Akhoid' subdivision; the others (Li's BI-KA and HAO-BAI), he placed with Gao's Hani and Yuan's Woni in a 'Wonoid' group, the latter linked not to his 'Southern' dialects (Akhoid and Bisoid, basically), but to his 'Central' subdivision that includes Lahu and Lisu (Bradley 1977a:38). Thus, the Hani grouping assumed by Hu and Dai, and later by Li and Wang and others, was split into two groups,one 'Hani proper', the other 'Woni', the two immediately affiliated not with each other, but with languages in distinctly different subdivisions of Loloish.

There is no good precedent for distinguishing the names Hani and Woni in this way. In Chinese writings, they are intended to be synonomous; after 1949, 'Hani', an autonym of

the Lüchun and Jiayin speakers according to Li (1979:134), replaced 'Woni' just as 'Yi' replaced 'Lolo'. Thus Yuan, writing in 1947, calls his dialect 'Woni', while Gao, describing a nearly identical dialect in 1955, calls his 'Hani'.

A connection betweeen Woni and Akha (and, hence, Hani) was noticed long ago. W.H. Davies, one of the first Europeans to encounter the Loloish peoples, met with a number of tribes on his travels in south-central Yunnan, which he reported to be called, generically, 'Woni' by the Chinese. Their individual names, he transcribed as K'a-tu, Pu-tu, Ma-hei, Pi-o, Lo-pi and A-K'a or K'o (Davies 1909:393). The last is the name of the southernmost of the tribes according to Davies. It is, of course, our Akha. The heartland of the Woni peoples, he placed in the district of Talang Ting (modern Mojiang), well within Hu and Dai's Hani region.

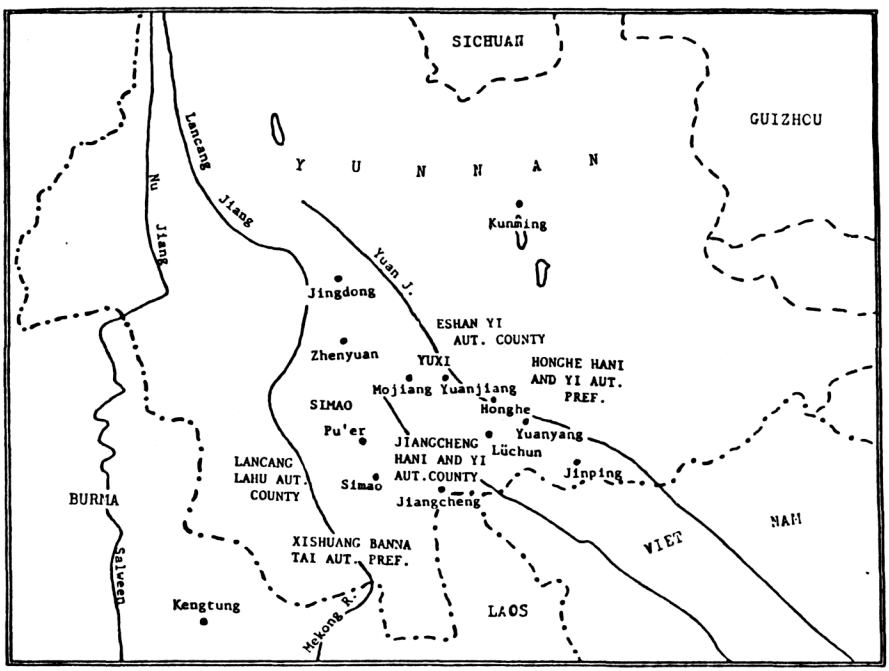
Davies provided word lists of A-K'a and Ma-hei in an appendix to the account of his travels. Davies also notes that the Ma-hei call themselves Pa-hawng, i.e. what in Hu and Dai is transcribed Baihong. K'a-tu and Pi-o are presumably Hu and Dai's Kaduo and Biyue, respectively. Baihong, Kaduo and Biyue are the three dialects that Bradley pared away from Hani 'Proper' and placed in a Wonoid group. Pu-Tu is mentioned as a Hani dialect in Luo and Fu (1954).

Several decades after Davies' work appeared, Shafer and Benedict, who made use of Davies' Ma-hei word list (but not his A-K'a, which was superseded by the work of Roux), wrote in the introduction to the "Burmish-Loloish" volume of their comprehensive survey of Sino-Tibetan (1939: viii), "the term 'Woni' is applied indiscriminatingly (sic) to the Loloish tribes of southern Yunnan, yet these groups do perhaps show some linguistic unity."

The doubts that Shafer and Benedict felt about the name 'Woni' have, as we have seen, persisted through the change in names. It may be the Chinese ethnolinguistic groupings are incorrect--this paper is intended to shed some light on that question; but correct or not, it is clear that the autonym 'Hani' was intended to replace the older name 'Woni' and that, included within its reference, were the people identified as 'Akha' outside China. Unfortunately, both 'Hani' and 'Akha' are well-established names now, and it would be useless to try to choose one over the other. Here, I will use 'Hani' for those dialects spoken within China, and 'Akha' for those spoken outside, in Laos, Burma and Thailand. No special linguistic significance should be attached to this convention however.

2. The Hu and Dai dialects.

Hu and Dai cite examples from almost a dozen varieties of Hani speech, spoken in regions stretching across southern Yunnan. Li, who is concerned primarily with the Lüchun dialect, also has a short section on other dialects, as we have mentioned. Partly on the basis of shared lexical material (cf. §3.3 below), and partly on the basis of shared phonological properties of the kind discussed in section 3, Li divides Hani into three dialects, the first of which is composed of two subdialects. The dialects and subdialects are then broken up into regional varieties 4), which include most of those cited by Hu and Dai 5). Li's subgrouping is reproduced below, together with some geographical information.



Some important towns and administrative units in the region of HANI speaking peoples.

4. 'Dialect', 'subdialect' and 'regional variety' translate Li's 'fangyan' (方言), 'cifangyan' (次方言) and 'tuhua' (土话), respectively. On the chart, Hani, Yani, Biyue and Kaduo are Chinese renderings of Hani autonyms according to Li. But Lüchun and Jiayin varieties are named after the regions where they are spoken.

5. Hu and Dai's Qidi and Meiluo dialects are not mentioned by Li and so do not appear in the chart. And conversely, Hu and Dai make no mention of Li's Enu dialect.

HA-YA dialect (590,000 speakers 6))

Hani subdialect

Lüchun 綠春	In Lüchun, Honghe, Yuanyang, Jinping counties of the Honghe Hani and Yi Aut. Prefecture.
Jiayin 甲寅	

Yani subdialect

Yani 雅尼	In Gelanghe in Xishuang Banna, and Lanzang Lahu Aut. County in the Simao region.

HAO-BAI dialect (120,000 speakers)

Haoni 豪尼	In Mojiang and Yuanjiang counties in the Yuxi region.
Baihong 白宏	

BI-KA dialect (220,000 speakers)

Biyue 碧約	In Mojiang, Pu'er, Zhenyuan and Jingdong counties and in Jiangcheng Hani and Yi Aut. county, all in the Simao region.
Kaduo 卡多	
Enu 哦怒	

Looking at the map, we can see that the BI-KA dialect is spoken in an area between the Lancang (Mekong) and Yuan (Red) Rivers, the HAO-BAI, in a compact area slightly to the east of BI-KA, and the HA-YA in regions on either side of the other two, the Hani subdialects in the east, along the Yuan River, the Yani in the west, around the Lancang.

6.Lewis (1968a) estimates the total Akha population to be 300-500,000. But if Li's population figures are correct, then the number of Akha/Hani has been greatly underestimated. For even if the name Akha were to be restricted to speakers of HA-YA (including the Akha outside of China) dialects, their total numbers would be near a million, the majority of them still in China.

2.1. The Lüchun dialect.

2.1.1. Phonemic inventory:

All syllables have the form C(onsonant) V(owel [7]) plus T(one):

C:							V:					
	p	pj	t	ts	tʂ	k		ɿ				
	ph	phj	th	tsh	tʂh	kh		i	y		ɯ	u
								e			ɤ	o
	b	bj	d	dz	dʐ	g						ɔ
										a		
	m	mj	n		ɳ	ŋ						
			l	s	ʂ	x						
				z	j	ɣ						
						ø						

T:	lax syllables	tense syllables
	55 'high'	
	33 'mid'	33 'mid'
	31 'low'	31 'low'

A 35 tone is limited to certain (but not all) loans from Chinese. According to Li, the initials /f/, /tj/, /thj/, and /dj/, and the diphthongs /ue/ and /ua/ are also found in material borrowed from Chinese.

In native lexical material, the plain and aspirated series of voiceless stops (including affricates) are in complementary distribution with the tense and lax vowels respectively, giving rise to the following possibilites (the velar initials stand for all positions of articulation) [8]:

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7. /ɿ/ is a high front apical vowel; 'h' following a consonant marks aspiration.

8. Tense vowels are marked in various ways in Hani/Akha materials. Hu and Dai mark them with a line under the vowel; Lewis, by the attitude of the tone marks, ^ for laryngealized (our 'tense'), v for normal (our 'lax'); Brun and Egerod symbolize them with a final '-q'. When space allows, I mark tense vowels with a tilde under the vowel. Otherwise they are marked with a 'c' ('constricted') after the tone numbers (Matisoff's convention), as in /ka 33c/.

ga g̱a
ḵa
kha

This same distribution held when Lewis recorded his dialect of Akha in Burma; he symbolized only two series of stops (p,b etc.), the plain/aspirated difference being subphonemic 9). But, for the Hani within China, the introduction of Chinese loans with ordinary (lax) vowels and voiceless, unaspirated initials (ka etc.) has caused the phonologization of a third series of stops.

2.1.2. Tense versus lax.

The two 'manners' of vowel discussed by Hu and Dai are labelled 紧 (jǐn) and 松 (sùng), terms that translate most easily as 'tense' versus 'lax', respectively. "Tense vowels", we are told, "are produced with tense larynx and vocal cords" (Hu and Dai p.80) 10), while their opposites, the lax vowels, are not. It is clear that different voice qualities are being described, but the precise nature of the difference is not clear. Presumably, the voice qualities found in Hani are similar to those found in Akha dialects. Lewis, for example, writing of the dialect spoken in Burma, to the southwest of the Hu and Dai region, describes the difference between tense and lax vowels (which he calls laryngeal and oral) as follows:

> The oral vowels are characterized by an expanded pharyngeal cavity, with no restriction of the passage of air. The laryngealized vowels are characterized by faucalization and laryngealization, with a glottal stop at the end when the syllable occurs in an utterance final position. (Lewis 1968a:x)

Dellinger(1968:17), writing about an Akha dialect

9.In Lewis's Akha, the two features are not, actually, in complete complementary distribution (cf. Lewis 1968a:ix). A few loans violate the general pattern, as they do in Hani. In Lewis's Akha, it should be noted, the complementary distribution of plain and aspirated *extends to the voiceless* fricatives /x,s,š/, which are unaspirated when followed by laryngealized (tense) vowels and aspirated when followed by oral (lax). The same is true of Brun and Egerod's dialect. Neither Hu and Dai nor Li mention aspirated fricatives.

10.Quotations from Hu and Dai(1964) are given in my own translation.

spoken in northern Thailand, uses much the same terminology, describing what he calls 'glottalization' (i.e. tense voice quality) as faucalization with laryngealization, adding that "it is perceived as a strained (or creaky) voice quality of the vowel." And Brun (1973:139), also recording a dialect of Akha spoken in Thailand, describes the two voice qualities as "laryngealized, over-articulated, 'creaky'", versus "under-articulated, 'breathy'".

Two features seem to be present in the tense-lax distinction, then 11): 'breathy' versus 'glottalized', 'laryngealized', 'creaky' etc. represent distinctions along the single dimension of 'glottal stricture' (Ladefoged 1971:17); while 'expanded pharyngeal cavity' versus 'faucalization' suggest advanced versus retracted tongue-root, respectively (cf. Gregerson 1976). These two components of 'voice quality' are potentially independent. It is quite possible to produce faucalized or pharyngealized sounds with and without creaky voice.

The tense/lax distinction in Hani is not only a feature of vowels, as Hu and Dai describe it, but plays over the syllable as a whole; the distinction is, in other words, one of 'register', as Bradley(1969) and others have observed. Register is typically realized as a cluster of phonetic features, one of which is voice quality, others of which include pitch level and vowel quality (cf. the chart of 'laryngeal attitudes' in Matisoff 1973b:76). Thus in Khmer (Henderson 1952), 'normal' phonation is accompanied by relatively higher pitch, and 'breathy' by relatively lower; and, in addition, each register in Khmer has a particular vowel system associated with it.

Such a cluster of phonetic features is reported for the tense/lax distinction in Hani: the complementary distribution of plain and aspirated voiceless stops has been mentioned; in addition, in tense syllables, vowels tend to be slightly more open, pitch slightly higher, duration slightly shorter, and voicing (in the voiced portion of the syllable) slightly 'stronger' than in the corresponding lax (Hu and Dai:76-80) 12).

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11. Wyss, however, also writing about a Thai dialect of Akha (Wyss 1976:152) mentions only the feature of tongue-root position (i.e. expanded pharyngeal cavity versus faucalization) to describe the distinction.

12. For Akha, Egerod(1971b) also observes a difference in the quality of voiced initial stops and affricates in the two registers: voiced initials tend towards preglottalization when combined with laryngealized vowels, and tend towards prenasalization when combined with non-laryngealized vowels. Lewis (1968a x), in addition, observes differences in the realization of the alveopalatal fricative /j/, which is palatalized when

What can we conclude about the tense-lax opposition in Hani then? Vowels produced with "tense larynx and vocal cords" certainly describes voicing with a closer than normal glottal stricture, possibly creaky voice. But if we are going to use the term 'creaky', it is not the relaxed creaky voice (=vocal fry) associated, for example, with the end of certain intonation contours in English; for if it were, we should expect it to be associated with slightly lowered pitch not slightly raised (cf. Ladefoged 1971:15). It is more likely to be voicing with what Catford (1977:103) calls 'anterior' or 'tense' creak.

As for the involvement of the tongue-root position in the tense-lax opposition in Hani, we have only the indirect evidence of the slight shift in vowel quality of the kind commonly associated with differences in tongue-root position rather than differences in glottal stricture. So it seems likely that the two features that compose the distinct voice qualities found in Akha are also present in the Hani dialects.

There are, it should be noted, significant differences between register in Hani (and Akha), and register in a language such as Khmer. In the former, vowel quality and pitch play a very minor role in distinguishing registers; voice quality is the predominant cue (and, of course, unlike Khmer, it is the tense register that is marked in Hani and Akha, not the lax.) 13) In Hani/Akha, pitch, rather than supporting the register opposition, cuts across it: the five tones of the Lüchun dialect can be treated as combinations of three pitch heights, 55, 33, 31, and two registers, tense and lax, with the combination 55-tense, not occurring.

1.3. Origins of the tense-lax opposition:

Comparative evidence clearly shows that the tense-lax opposition in Hani and Akha reflects the distinction of checked versus smooth (smooth=vowel final or nasal final) syllables in the proto-language: 14)

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followed by a laryngealized vowel and unpalatalized when followed by a plain.

13. Register in the Mon-Khmer languages has a different provenience from that of Hani/Akha. The former derives from initial features, the latter from final.

14. Here and elsewhere, Ha=Hu and Dai's Hani, Ak=Lewis's Akha, Lh=Matisoff's Lahu and WB=Written Burmese. Akha forms are cited in Lewis's transcription, except for tones, which are H(igh), M(id) or L(ow) and Mc(onstricted) or Lc. WB forms are cited in Duroiselle's transliteration (cf. Okell 1971). WB forms give us a glimpse of a language that had many of the features of proto-Loloish and proto-Lolo-Burmese.

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	Ha	Ak	Lh	WB
stop,rest	na 31	na L	nâ	na:
deep	na 31c	na Lc	ná	nak
son	za 31	za L	yâ	sa:
descend	za 31c	...	yà?	sak

Proto-Loloish displayed an array of final consonants comparable to those seen in WB. Many survive intact in archaic Loloish dialects, such as Phunoi (Bradley, 1977b). But in most dialects, these finals have been lost or replaced by distinctions of vowel quality, sometimes leaving a residual glottal stop, as in the case of Lahu /yà?/. In phrase final position, this final glottal stop survives in Akha, according to Lewis (cf. p.8 above), but in other positions the final glottal closure has been anticipated in the vocalic portion of the syllable, ending up as the tense or creaky glottal stricture that we described earlier. The involvement of the tongue-root would seem to be an additional articulation, and remains unexplained.

2.2. Other Hu and Dai dialects.

Hu and Dai cite a fair number of examples from Biyue, Kaduo (BI-KA) and Haoni and Baihong (HAO-BAI) varieties, and a small numer from Yani, Jiayin (both HA-YA), Qidi, Meiluo, and Mojiang. Ignoring loanwords from Chinese, we see that all these dialects have the two (phonemic) manners of initial stops characteristic of Hani/Akha, by contrast with the three found in Lahu and Lisu and the four in most Yi. And all show a basic tonal system with three pitch levels, high, mid and low (falling).

The major differences among the dialects are surveyed in tabular form in Li's article: presence versus absence of tense voice quality; of a series of voiced stops; of the complementary distribution of initial and voice quality such as that found in the Lǔchun dialect; of final nasals; of a labio-palatal series; and so on. The first three, covering the phonetic values of the two-way manner opposition of initials, and the 'strength' of the register opposition, are particularly interesting: if we look at just the extremes, we find the 'conservative' Lǔchun dialect, with a voiced/voiceless opposition of initial stops and the well-developed register opposition at one extreme, and the 'innovative' Baihong dialect with a plain-aspirated opposition

For purposes of this paper, I let WB forms stand in as an approximation of the proto-language, thereby avoiding controversy about its reconstruction.

of initial stops and no trace of the register distinction at the other. We will now look at the full evolution in detail.

3. Stages of historical development reflected by the Hu and Dai dialects.

Basing ourselves on the two criteria of initial manner and strength of the register opposition, we can distinguish seven major stages in the evolution of Hani. With one exception, each stage is attested to by one or more of the modern dialects. The exception is stage 3 for which we have only incomplete evidence from Meiluo. Without more data we cannot be sure that Meiluo is not at stage 4.

1. Proto-Hani

*ga *ga?
*ka *ka?

2 (HA-YA dialects)
Lüchun, Yani(?), Lewis's Akha.

ga g̰a
k̰a
kha

3. Meiluo (?)

(ga) (g̰a)

k̰a ~ kh̰a
(kha)

4. Qidi

g̰a
ka
(kha) (kh̰a)

5. (HA-YA)
Jiayin (according to Li)

ka k̰a

kha kh̰a

6. (HAO-BAI, BI-KA)
Biyue, Haoni, Kaduo

ka k̰a(~)

kha kh̰a(~)

7. (HAO-BAI)
Baihong

ka
kha

TABLE 1: Seven stages in the evolution of Hani. KEY: g, k, kh represent the three manners of stop at all points of articulation; V̰ stands for tense vowel quality; V̰(~) indicates that the distinction is limited to certain vowels.

3.1. COMMENTS

STAGE 1: This is the hypothetical antecedent of the Lüchun dialect. Final occlusion survives in the form of a glottal stop.

STAGE 2: This is the stage attested by the HA-YA dialects. Tense glottal stricture is present in the voiced portion of the syllable. Since the presence of final glottal stop alone does not seem to affect the manner of initial stops in other Lolo-Burmese languages, we may assume that it is the stricture of the vowel that is responsible for the complementary distribution of initial and voice quality that we observe. Shortly, we will suggest an explanation for this distribution.

STAGES 3 and 4: Hu and Dai (p.80) cite only a few words from the Meiluo dialect, enough to illustrate the free variation between plain and aspirated voiceless stops in tense syllables:

	Lüchun	Meiluo	Jiayin 15)
boil	tɕa 31c	tɕa ~ tɕha 31c	tɕha 31c
hoe	ka 33c	ka ~ kha 33c	kha 33c
break	tse 33c	tse ~ tshe 31c	tshi 33c
cold(water)	tse 31c	tse ~ tshe 33c	tshi 31c
go up	ta 33c	ta ~ tha 33c	ta 33c 16)
half	pa 33c	pa ~ pha 33c	pha 33c

It is quite possible that in this dialect the voicing of initial stops in lax syllables had already been lost (i.e. ga > ka) as it has in stage 4, represented by Qidi (Hu and Dai p.80). In Qidi, voiced initial stops have been replaced by voiceless unaspirated in lax syllables, but remain voiced in tense:

	Lüchun	Qidi	Biyue
eat	dza 31	tsa 31	tso 31
hit,beat	di 31	ti 31	tɯ 31
foam,soak	dɯ 33c	dɯ 33c	tɯ 33c
live,exist	de 31c	de 31c	tɪ 31c

There is evidence from other languages that the voicing of initials tends to persist in syllables with tense voice quality. Matisoff (1973a:18) noticed a similar phenomenon

15. Hu and Dai cite all six of their Jiayin forms in the 31c tone. The evidence of the other dialects suggests that in the case of 'hoe', 'cold(water)' and 'go up', the tones should be 33c instead, and I have, therefore, corrected them.

16. We would expect Jiayin /tha 33c/. Akha /da Mc/ 'climb up' would be cognate with Jiayin /ta 33c/, but not with the others.

in the Sani dialect of Yi (Ma 1951). In Sani, proto-Loloish initial voiced oral stops have lost their voicing under proto-tone 1, but remain voiced under proto-tone 2. Thurgood(1980:211) confirms Matisoff's observation and finds the same phenomenon in the geographically contiguous, and closely related Axi dialect(Yuan 1953), where it is explicitly linked to a difference in voice quality. This kind of interaction between initial and following tense vowel is an anticipatory assimilation along the dimension of glottal stricture. Ladefoged(1971:21), on a scale of 1 (=glottal closure) to 10 (=open glottis), places voiced stops at 5-6, voiceless stops at 9. Presumably, voicing tends to persist longer in tense syllables because the relatively closed glottal stricture of tense voicing suppresses movement towards the relatively open stricture of voiceless stops. (Why there should be a tendency for voiced intials to lose their voicing in Loloish and other TB languages is another matter.)

Anticipatory assimilation is probably also the cause of the complementary distribution of aspiration and voice quality found in HA-YA dialects (cf. Stage 2). Ladefoged (1971:21), while acknowledging the possibility that glottal stricture might play a subordinate role, considers plain and aspirated voiceless stops to differ primarily in voice-onset-time. But Catford, in a more recent work, notes that aspirated and plain initial stops do differ in their degree of glottal stricture: "Modern techniques of glottography and laryngoscopy show that unaspirated voiceless sounds have a narrowed (though not completely closed) glottis, while aspirated sounds have a more or less widely open glottis" (Catford 1977:114). And he goes on to cite data in Kim(1970) that shows a smooth correlation between opening of the glottis and voice-onset-time of Korean initial stops. The distribution of aspiration that we observe in the HA-YA dialects would seem to support Catford's (and Kim's) emphasis on the importance of glottal stricture in the plain/ aspirated distinction.

Given these interactions between initial consonant and voice quality, then, it is unlikely that Hani dialects ever passed through a stage in which the two manners were realized voiced and voiceless aspirated:

ga ga̤

kha kha̤

Since Qidi has minimal pairs differing in aspiration (kha,ka), it would probably be better to treat the initial mannners as phonemically /kh/ and /k/, with the latter

voiced in tense syllables, rather than /kh/ and /g/, with the latter voiceless in lax syllables. In any case, the number of phonological units remains the same, as, indeed, it does until stage 6.

STAGES 5 and 6: At stage 5, the shift in the manner of initial stops is complete, and the register opposition remains at full strength: all vowels occur with both tense and lax voice, as they do in Lǔchun. Hu and Dai do not cite enough forms to show it, but according to Li(1979:148), this stage is attested by the Jiayin dialect.

In Biyue, Kaduo and Haoni, tense vowel quality is no longer found on all vowels. In Biyue, /u/, and /a/ on certain tones, do not occur with tense voice; for the vowel /a/, tense voice quality has been lost on the higher of the two possible tonal reflexes of checked syllables 17). Thus Hu and Dai (p.80):

	Lǔchun	Biyue
deep	na 31c	na 31c
weave	ɣa 31c	ja 31c
steam	sa 31c	sa 31c

But:

comb(v)	ka 33c	kha 33
drip(v)	dza 33c	tsa 33
black	na 33c	nɐ 33

The other two dialects at stage 6, Kaduo and Haoni, show more drastic weakening of the register opposition: in Kaduo, /u̱/, /u/, /ɪ/ and /ɔ/ of the eleven vowel phonemes do not occur in tense syllables; in Haoni, only the high vowels /1/, /i/ and /u̱/ of the eleven do occur in tense syllables 18).

17. Other Loloish dialects also suggest an antipathy between pitch height and glottal stricture. In general, in reflexes of proto-Loloish checked syllables, the higher the pitch of the modern tone, the less likely it is that glottal stricture (on the voiced portion of the syllable), or final glottal closure has survived (cf. Matisoff 1972,note 9). Even in the Luquan and Nasu dialects of the Yi (=Lolo Proper) group, which show a tonal flip-flop in checked syllables compared to other Loloish languages, it is still the modern pitch value of the tones rather than the proto-environment that conditions the presence of final glottal stop.

18. Hu and Dai (p.80) write: "In general, high vowels and apical vowels persist longer in preserving the op-

STAGE 7: The culminating stage is represented by the Baihong dialect which contains neither voiced initials nor any trace of the registers.

SUMMARY: The evolution that we have just examined can be summarized as follows:

A. (1-5) A shift in the value of the voiceless stops from plain to aspirated eliminates one of the exponents of the register distinction, that of the 'manner' of voiceless stops and affricates. The old voiced series then fills the gap left by the aspiration of the voiceless plain. To this point there has been no loss of phonological distinctions.

B. (6-7) The tense voice quality weakens (6) and disappears (7), resulting in the merger of the two registers.

3.2. Was there any 'compensation' for the loss of register?

It is not uncommon for registers (or, at least, the voice qualities associated with them) to disappear 19); but often "they leave their trace in the tonal system or in the vocalic system, or both", as Egerod observes (1971a:163). Given the complex nature of the opposition in Hani, it would not be surprising to find that the attenuation of one phonetic feature was accompanied by the elevation of another. Any one of the features of initial manner, pitch, vowel quality or length--or a combination of them--could have replaced phonation as the main phonetic exponent of register.

3.2.1. Aspiration.

Of the several features available, aspiration would seem able to assume the phonetic load most easily. At stage 2, the loss of tense voice quality would have phonemicized the opposition of plain versus aspirated voiceless stops:

ga	g̲a		ga
	k̲a	>	ka
kha			kha

Remarkably, none of the Hu and Dai dialects has availed itself of this opportunity. In every dialect, devoicing of

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position of lax versus tense." This is certainly true of Biyue.

19. As has happened in most Chinese dialects, if, indeed, we are correct in regarding phonation differences to be the source of the tonal categories of Ancient and Archaic Chinese.

the initials precedes the loss of tense voice quality. In fact, the shift from voiced to voiceless seems to be a precondition to the weakening of the register opposition. Phonologization, if it occurs at all, results from non-canonical Chinese loanwords. There is one possible exception: in a Thai dialect of Akha described by Nishida (1965/66), the tense/lax distinction may have been lost before the shift of initials from voiced to voiceless:

		Lǔchun		Nishida's Akha	
copper	sew	gɯ 31	gu 31c	gɯ̀	-gù
	bite		ko 31c		ko
separate		-kha 31		-khà	

Although no voice quality contrast is actually marked in the transcription, Nishida mentions that glottal stricture does occur on the mid (unmarked) tone, the tone of /ko/ 'bite' for example. So tense and lax syllables have not completely merged yet even in this dialect.

3.2.2. Vowel quality.

Hu and Dai argue that in some cases, the opposition of lax versus tense has been replaced by a distinction of tongue height, with reflexes of tense vowels generally lower that those of lax. They cite correspondences of the following sort:

Lǔchun	Biyue	Haoni	Baihong
a	o	ɔ	a
a̰	a/a̰	a	a

The sychronic pattern, in which vowels in tense syllables are slightly lower than their counterparts in lax could be considered the seeds of such a development 20).

20. While we are on the subject of tone (or, rather, the phonation component of tone) affecting vowel quality, it is worth mentioning the interesting development of proto-Loloish *a in the Xide (Sichuan) dialect of Yi (in the 'Northern' subgroup of the Yi division of Loloish). In Xide, proto-L *a remains /a/ under proto-tone *1 but is raised to /ɯ/ under proto-tone *2. Thus, Xide na 33, WB na 'ill'; Xide ha 33, WB ra 'hundred'; Xide ha 33, WB lhya 'tongue', all reflecting proto-tone *1, versus Xide khɯ 33, WB kha: 'bitter'; Xide ŋɯ 33, WB nga: '5'; Xide dzɯ 33, WB ca: 'eat', all reflecting proto-tone *2 (examples from Chen 1963, Hu and Dai 1964). This seems like a clear cut case of tone (as phonation) affecting vowel (over) ——→

But there is an alternative explanation, that is, that the vocalic reflexes are conditioned by the final consonants, a process that is well documented and understood 21). Thus, with WB standing in for the proto-language again:

	Lüchun	Haoni	WB
ill	na 55	nɔ 55	na
bitter	xa 31	xɔ 31	kha:
boil	tɕa 31c	tʃha 31	khyak
weave	ɣa 31c	ja 31	rak

The apparent split in Haoni can be accounted for by the different final consonants of the proto-language.

No matter which interpretation we choose, though, there is no question about the outcome. Ultimately register, whether we consider it a distinction of voice quality, or a particular distribution of vowels, completely disappears. For even in the Baihong dialect, the inventory of vowels still numbers only ten 22).

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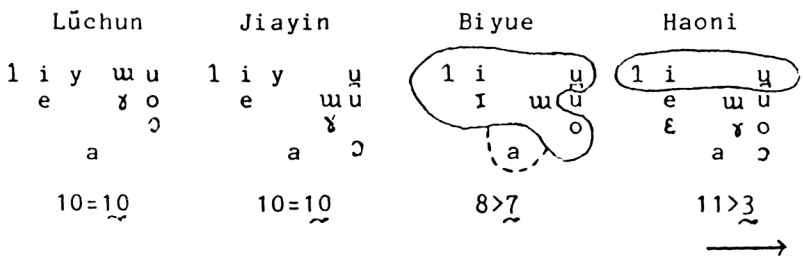
quality. Yet is not what we would expect. Evidence such as the different development of proto-voiced initial stops in the Yi dialects of Sani and Axi, mentioned in the discussion of STAGES 3 and 4 above, suggest that proto-tone *2 had a relatively tenser voice quality associated with it than did proto-tone *1. If tense voice quality lowers vowels, as appears to be the case, then we would expect the reflex of *a under tone *2 to be lower not higher.

21. For examples of the replacement of final features by vowel quality and discussion of the mechanisms involved cf. Thurgood and Javkin 1975, and Michailovsky 1975. Vocalic split conditioned by final consonants often results in merger with reflexes of open or nasal-final syllables. In Lewis's Akha, for example, looking only at the *a rhymes, we find that *a and *ak > a, *aŋ and *ap > ɔ and *at and *an > ɛ .

22. Vowel inventories for half a dozen dialects are provided by Hu and Dai. Those of Lüchun, Jiayin, Biyue and Haoni are reproduced below:



3.3. Conclusion.

To this point, then, we have found nothing that would make us doubt the integrity of the Hani grouping presented by Hu and Dai. The dialects which Bradley regarded as 'non-Akhoid' (ie. BI-KA and HAO-BAI) are the ones that have reached the last stages (6,7) in the developments outlined above.

There are considerable lexical differences among the Hani dialects. Li reports that in approximately 2000 words from dialects in each of his three subdivisions, he found that HA-YA and HAO-BAI showed 70.8% cognate vocabulary, that HAO-BAI and BI-KA showed 60%, but that HA-YA and BI-KA showed only 40%. These lexicostatistics are based on total vocabulary (native and borrowed) rather than on core vocabulary, it should be noted 23). It would be interesting to know the origin of the 60% non-cognate in the last comparison. Hani speaking peoples are in close contact with Tai, Chinese, various Mon-Khmer groups such as Wa, and, of course, other Yi-ish groups such as Yi and Lahu. The low percentage of shared lexical material between HA-YA and BI-KA suggests borrowing from different sources.

For Biyue and Haoni, those vowels that do not occur in tense syllables lie outside the enclosures. Numbers below each inventory indicate the number of vowels that participate in each register.

23. According to Zhongguo Kexueyuan 1959, a comparable figure of 50% of total vocabulary is estimated to be shared by the most divergent Lisu dialects as well, i.e. the 'standard' Nujiang Lisu and the easternmost Luquan Lisu. (The latter is not to be confused with the Luquan Yi mentioned in note 17. Luquan Yi is the predominant language of the region.)

4. Gao's Hani and Yuan's Woni

As with some of the Hu and Dai dialects, it seems to have been the combination of phonological features such as lack of voiced initial stops and a register opposition, on the one hand, plus a disturbing number of lexical differences on the other, that led to Gao and Yuan's dialects being set apart from the other Hani dialects. Geographic isolation is probably responsible for their aberrances: both dialects are spoken in the region of Eshan in Yuxi Prefecture, at the northeastern reaches of the Hani speaking region. Gao reported his village to be in the last stages of assimilation to surrounding Yi and Chinese. Children under the age of seven or eight no longer spoke Hani and even the elders had lost the ability to recite long narratives.

Support for the view that Gao and Yuan's dialects are indeed aberrant Hani dialects is provided by Nishi (1975), who compared Gao's dialect with Hu and Dai's Lüchun and Lewis's Akha. He cites a large number of examples and there is no need to duplicate his work here. A selection of cognates is provided in the second appendix of this paper, and I refer to the numbered sets of that appendix in the discussion below.

4.1. Sketch of phonological developments in Gao and Yuan's dialects.

Both Gao and Yuan's dialects are at a stage comparable to that of Hu and Dai's Baihong: both series of stops are realized voiceless and the register opposition has entirely disappeared (SET 1). Their tonal systems have undergone some elaboration: Gao's Hani exhibits a high-falling (53) and a low-rising (13) tone, and Yuan's Woni, a high-rising (35)--all three with much lower incidence than any of the other tones. But the basic tonal system is the same as that of the other Hani dialects, with high, mid and low pitch distinctions (SET 2).

Other typical Hani developments: like most of the Hani/Akha dialects (but not BI-KA), Gao and Yuan's dialects have replaced original voiceless velar stops with fricatives (though unlike most of the others, original voiced velar stops, apparently, remain stops!), resulting in their merger with original (unprefixed) velar fricatives (SET 3). And also like most other Hani dialects (as well as Lahu dialects), they have replaced the proto-clusters *kr-, *gr-, with plain velar stops (SET 4).

One of the most noticeable differences between the otherwise very similar Gao's Hani and Yuan's Woni is that the latter, like Hu and Dai's Yani, several of the dialects reported by Li and most of the (Akha) dialects outside

China, preserves the closure (though not necessarily the point of articulation) of some of the proto-Loloish final nasals (SET 5). Conservative development of final nasals is characteristic of the Akha/Hani group (and also Bisoid), setting it off from Lahu, Lisu and Yi.

4.1.1. Less typical developments.

Gao and Yuan's dialects show three series of affricates, an apico-alveolar (ts), an apico-palatal (tɕ) and a retroflex (tʂ). Their distribution is partially conditioned: all three occur before /a/, but only /tʂ/ before /o/, only /tɕ/ before /e/, only /ts/ before /ɔ/, and so on. These affricates represent a partial restructuring of the proto-series *ky-, *c (*tʂ or *tʃ) and *ts (SET 6); a precise statement cannot be made on the basis of the data. The same situation is reported by Li for Jiayin (in the HA-YA dialect), and for a least one variety of BI-KA; but unfortunately we are not shown sufficient number of examples to compare them with Gao and Yuan's data.

Another interesting feature of Gao and Yuan's dialects is the presence of two manners of lateral, a voiced and a voiceless, in contrast with the single manner found in the Hu and Dai dialects (SET 7). But Li reports dialects in both his HA-YA (i.e. the most Akha-like of the dialects) and the HAO-BAI groups with the same opposition.

Finally, corresponding to the front rounded vowel /y/, that is the reflex of proto-L *o (WB -ui), Gao and Yuan have unrounded vowels: /ɤ/ after velars, /i/ or /ɿ~ʅ/ elsewhere (SET 8). The same development is found in Li's Shueikuei dialect (HAO-BAI), a dialect not cited by Hu and Dai: Ak ngoe H; Shueikuei ni 55; Gao ni 33; Yuan ni 55; WB nui_.

4.2. Lexical evidence

There is also lexical evidence linking Gao and Yuan's dialects to the Hu and Dai group. Both exhibit what look to be fleshed in versions of prefixal elements that have been reconstructed on independent evidence for Lolo-Burmese: the so-called 'velar animal prefix', *k-, (Matisoff 1969: 190-99), and the 'body-part prefix', *s- (Matisoff 1973: 15-18). In the following examples, Lahu (Matisoff) and Lisu (Fraser--his transcription is opaque, but it will serve our purposes well enough) are provided to set off the Hani:

	Akha	Gao	Lahu	Lisu
hawk 24)	k'a-dze L-H	xɔ-tsi L-H	á-cè	dzyē^{4}
dove	k'a-k'oe L-L	xo-xɤ́ L-L	gû	a'gu^{5}
smbr deer	k'a-tseh L-Mc	xa-tɕhe L-M	khí-yī	htsye^{2}
frog	k'a-pa L-L	xɔ-phɔ L-L	pā-tɛ́-nɛ̂?	wu'pa^{1}
tiger	k'a-la L-L	xɔ-hlɔ L-M	lâ	la^{5}ma^{3}
leopard	k'a-zui L-L	xai 53	mɔ̀?-yì?	la^{5}wu'du^{5}
liver	sha-tsah L-L	sɔ-tʂho 53-L	ɔ̀-šɛ̄	si^{5} hpyá^{1}
lung	sha-paw L-Lc	sa-pho L-L	ɔ̀-chî-phô?	–
thigh	sha-pya L-L	sɔ-phɔ L-L	pù-tɛ-qu	–
bone	sha-yoe L-L	sə-i L-L	ɔ̀-gô	waw^{5}taw^{3}

Despite the slight irregularities in the vowel correspondences in the prefixal syllables (Akha k'a-, sha- : Gao xɔ-, sɔ- would be regular), both syllables of the Akha and Gao words are obviously cognate. Gao's dialect often shows some degree of vowel harmony in polysllabic words: eg. 'nose', Ak na-meh H-H : Gao nɤ-mɤ́ H-M. These disyllabic forms, incidentally, are in all but a few cases ('tiger', possibly 'chicken') innovative formations, not retentions from the proto-languages. In 'frog', for example, reconstructed as *k-?-pa^{2} by Bradley (1979:#66), Akha is alone among Loloish languages in providing evidence for the *k- prefixal 25).

There are many other cases in which Akha and Gao's dialect show lexical agreement in contrast to dialects in other branches of Loloish. We do not have enough material to do a lexicostatistical analysis 26), but some examples of

24. There is no room in the table for a representative of the other major Loloish division, the Yi. So we cite here the appropriate forms from the Yi dialect of Sani (Ma 1951):hawk tɬe 55; dove dɣ-hlʐ 11-33; smbr deer tshż-pɑ/mɑ 33-55/33; frog ɑ-pɑ-mɑ 44-55-33; tiger lɑ 55; leopard ʐ 2s; liver sʐ-pɤ-mɑ 11-33-33; lung tshʐ-pho-mɑ 11-33-33; thigh (no form); bone ɣɯ-pɣ 11-33. (Here, as elsewhere, the voiceless lateral /ɬ/ is written /hl/.)

25. There is good evidence for it elsewhere in TB, however. In Gyarong (northwest Sichuan), a language that is probably more closely related to Tibetan that to Lolo-Burmese, there is a prefixial element kV~khV found in the names of some animals-- but in other nouns as well: khaşpye 'frog'; kheşţşek 'leopard' and khorei 'snake', for example (Zhang and Zhang 1976; examples are all from the Tzu-ta dialect). In the case of 'snake', Akha/Hani does not show a velar prefix, but in the other words, it does.

26. I have not tried to isolate a set of roots unique to Hani/Akha, or to 'Southern' Loloish, again, because the

compounds are cited below:

	Akha	Gao	Lahu	Lisu
salt	sa-deu L-Lc	tsha-tə L-H	a-lɛ̀?	htsa^{5} baw^{3}
gall bldr	pya-kui L-H	phi-khə L-M	ɔ̀-kɨ	ji^{44}
sweat	ku-pyu L-H	khə-pu L-H	kɨ̄	chi^{1}
fish	nga-sha L-L	ŋɔ-sɔ L-L	ŋâ	ngwa^{1}
water	i-cu H-Lc	i-tʂhu H-L	ɪ-kâʔ	yi^{3} jya^{3}
nose	na-meh H-H	nɤ̃-mɤ̃ H-M	nā-qhɔ̂	na^{1}bē^{44}
fire	mi-dza L-L	mi-tsɔ L-L	à-mī	a^{1}taw^{1}
chin	meh-tah L-L	mi-tu L-L	pâ-pi-qu	mū^{5}prgh^{1}du^{3}
mouth	meh-poe L-H	mi-phi L-H	mɜ̀ʔ-qɔ	mrgh^{5}lrghe^{2}
beard	meh-mah L-L	mi-mu L-L	pâ-cɨ̂ʔ-mu	mū^{5}tsi^{3}

In most of these examples, one or other of the syllables is a widely distributed root in Loloish; however, the fact that two dialects select the same combination of roots over and over again suggests a period of (unique) common development. To be sure, there are also many examples where the lexical material does not match:

	Akha	Gao	Lahu	Lisu
snake	a-law H-H	sɔ-hlu H-M	há-vɨ̀	hu^{3}
bird	a-ji H-H	ŋa-ʑɔ H-M	ŋâʔ	nyá^{2}
intestines	baw-u M-H	zu-lu M-H	ɔ̀-ɡ̈ù-tɛ̂ʔ	wu^{44}
star	a-gui L-H	pi-kə L-M	mɜ̀ʔ-kə	ku^{3}ra^{5}
crossbow	ka Mc	kha-pə H-H	khâʔ	hchyá^{2}

But we have seen this to be the case among the Hu and Dai dialects as well.

4.3. Conclusion

No one piece of evidence cited in sections 5.1 and 5.2 is sufficient on its own to make a case for grouping Gao and Yuan's dialects with Hu and Dai's in a single 'Hani' subdivision. And, admittedly, some of the shared phonological features cited in 4.1 are retentions from the proto-language rather than innovations-- and others could be so interpreted, depending on how one conceives of proto-Loloish. But taken as a whole, the phonological and lexical evidence

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data does not permit it. Akha pu M; Gao phu M 'village' (also Mpi m^{44}-phuʔ^{4} and Jinuo(Ge 1981) phu^{5} 'clsfr. for villages'), reconstructed as *pu^{3} (*Bradley 1979: #355D*), for example, is represented by the roots *kak(H), Bradley's #355A, and *koŋ^{3}, Bradley's #355B, in other divisions of Loloish.

for a period of unique, shared development is good. There may be controversy still about the internal articulations of the group, but on the evidence that we have to date, I see no reason to doubt the linguistic relevance of the name 'Hani' as it is used in the Chinese writings.

	Lüchun	Biyue	Kaduo	Haoni	Baihong
ze catt	phe 31	phɪ 31	phɪ̱ 31	-	-
(spicy)	(pi H)	phi 55	-	-	-
ape,pare	bo 33	-	-	-	pu 33
	be 33c	pi 33c	pe 33c	-	-
ot	bɤ 33c	-	-	-	pɤ 33
e	bi 31c	pi 31	-	-	-
te	phju 55	-	-	fu̱ 55	-
h	ŋa-de 31-55	-	-	-	ŋa-sa 31-31
e	ŋa 31c	-	-	-	ŋa 31
e	ŋi 33c	-	-	ni 33c	-
ick	na 33c	a-na 31-33	-	-	-
nel	a-mɯ 55-33c	-	-	a-nɤ 55-33	-
st	ne-xa 31c-31	ŋi 31c	-	-	-
p	na 31c	na 31c	-	-	na 31
nk	mi 33c	-	-	mi 33c	-
d(v)	mu 31c	-	-	mu̱ 31c	-
ny	mja 31	mo 31	-	-	-
ck	(myeu Lc)	mo 31c	-		-
nkey	a-mju 55-31c	-	a-mjo 55-31c		-
y	lu 55	-	-	lu̱ 55	-
at	lo 31	-	-	lu̱ 31	xu 31
ase	le 31	-	-	-	le 31
ough	lu 31c	-	lo 31c	-	-
nd	a-la 31-31c	a-la 31-31c	-	-	-
ok at	xu 33	-	-	fu̱ 33	-
w(v)	xɤ 33	-	-	-	xɤ 33
tter	xa 31	kho 31	-	xɔ 31	xa 31
od	xo 31	-	-	-	a-xu 55-31
g	xɯ 31	-	-	xɯ 31	-
ree)bark	a-xo 55-33c	-	-	-	a-xo 55-33
ck(teeth)	xɣ 31c	-	-	-	xɣ 31
op(v)	xe 31c	-	-	-	xe 31
ar	xu 31c	-	kho 31c	xu̱ 31c	-
li	ɣɤ 33	-	-	-	ɣɤ 33
ne	ɣy 31	tsi 31	-	-	-
l clsfr	ɣa 31	-	-	-	ɣa 31
edle	a-ɣo 31-31c	-	-	ɣo 31	a-ɣo 31-31
ave	ɣa 31c	ja 31c	-	ja 31	ɣa 31
g	a-ɣa 31-31c	va 31c (sic)	-	-	-
ght	ɕe 31c	-	ɕe 31c	-	xe 31
ower	a-je 55-33c	a-ji 31-33c	-	-	-
ist	jɤ 31c	-	-	-	jɤ 31
mand	sa 55	-	-	ʃɔ 55	-
me(v)	sa 33c	sa 33	-	-	-
uch	so 33c	-	-	so 33	so 33

	Lüchun	Biyue	Kaduo	Haoni	Baihong
wipe,rub	si 33c	-	-	si 33c	-
new	sɿ 31c	-	-	ʃi 31c	-
seven	sɿ 31c		-	ʃi 31c	-
steam	sa 31c	sa 31c	-	sa 31	sa 31
kill	se 31c	-	-	-	ɕe 31
crush	zɿ 33c	-	-	zɿ 33c	-
leopard	xa-zɿ 31-31	-	-	xɔ-zɿ 31-31	-
evening	ɔ-tɕi 31-31c	-	-	ʁo-tʃhi 31-31c	

Note: pi H 'hot' and myeu Lc 'lick' in the Lüchun column are cited from Lewis 1968a. (Li gives Lüchun mjɤ 31c 'lick'.)

Miscellaneous sets. Final nasals.

	(HA-YA) Lüchun	Yani	(HAO-BAI) Langran 27)	Baili	(HA-YA) Akha
pound	thɔ 31	thaŋ 31	thoŋ 31	thɔ̃ 31	tah L
wear	dɔ 33	duŋ 33	-	-	dm M
full	bjɔ 33	bjaŋ 33	-	-	byah M
pillow	-	ʁuŋ 31	-	-	u-g'm L-L
tender	nɔ 31	naŋ 31	noŋ 31	nɔ̃ 31	yaw-nah M-L
pair	dzɔ 55(Li)	dzuŋ 33	tsy 33	tsɤm 24	dzm M

Laterals.

	(HA-YA) (BI-KA) 28) Lüchun	Caiyuan	(HAO-BAI) Shueikuei	Baili	(?) Mojiang
roll up	lɯ 33c	-	-	-	xɔ 33c
moon	(ba la M-M)	-	-	-	xɔ 33
boat	lo 31	lu 31	hlɣ 31	xu 31	-
undress	le 33c	le 33c	hli 33c	xe 33	-

27.Langran and Baili are taken from Li(1979). And so are the Lüchun and Yani forms for tender and pair .
28.Caiyuan, Shueikuei and Baili forms are all taken from Li(1979).

Appendix 2: Main phonological developments in Gao's Hani and Yuan's Woni.

1. Phonemic inventories.

a. Gao's Hani.

C: p t ts tɕ tʂ k ʔ
ph th tsh tɕh tʂh kh
m n ŋ
ɸ s hl ɕ ʂ x
β z l ʐ

R: i l/ɿ u
e ə o
æ ɤ ɔ
a

(ie, iu, ai, au)
(iŋ, eŋ, aŋ, oŋ)

T: 55 = H (53)
33 = M (13)
31 = L

b. Yuan's Woni.

C: p t ts tɕ tʂ k ʔ
ph th tsh tɕh tʂh kh
m n
f s hl ɕ s x
z l j z

R: i 1 u
I ɤ o
e ɔ
ɛ a

uŋ, oŋ, (aŋ)

T: 55 = H (35)
33 = M
31 = L

Comments.

In Woni, /ɧ/, forms a single lexical item 'four'(cf. note 30, below). Gao's 53 and 31 tones are found far less frequently that the other three tones, but they do occur in native vocabulary. In both dialects, as in Akha (and probably in the Hu and Dai dialects as well), diphthongs arise from the elision of an open syllable and a following particle. Syllables ending in /-ŋ/ in Gao's Hani and in most (but not all) cases in Yuan's Woni are loans from Chinese and elsewhere.

SET 1: Initials and syllable types.

Summary.

Ha=Ak	Gao,Yuan	WB	pL
pha	phɔ	pha	*pa
pa̰	pha	phak	*pak
ba	pɔ	pa	*ba
ba̰	pa	pak	*bak

Examples.

	Akha	Gao	Yuan	WB
foot	a-kui L-H	ə-khə H-H	khɤ H	khre
frog	k'a-pa L-L	xɔ-phɔ L-L	xɔ-phɔ L-L	pha:
crossbow	ka Mc	kha-pə H-H	kha-pɤ M-M	-
sharp	ta Mc	tha M	tha M	thak
clear,bright	ba M	pɔ 13	-	-pa.
eat	dza L	tsɔ L	tsɔ L	ca:
cold	ga Mc	ka H	ka H	-
waist,back	jo Lc	tʂu L	-	kyok

SET 2: Tones.

Summary.

*T	Ak=Ha	Gao	Yuan	WB
*1	H	H(M)	H	low level(-)
*3	M	M	M	creaky(-ˀ)
*2	L	L	L	high falling(-:)
*Hc	Hc	H/M	H/M	(checked syllables) 29)
*Lc	Lc	L(M)	L(M)	(checked syllables)

29. The modern reflexes of proto-high-checked syllables in Gao and Yuan's dialects are evenly spread between the H and M tones. However, the fact that the two dialects do not agree amongst themselves suggests late developments. The proto-low-checked tone is realized L in the majority of cases, M sporadically.

SET 3: Proto-L *k, *g, merge with *r (and others) as fricatives.

Summary.

Ak=Ha	Gao/Yuan	WB
x	x	kh
ɣ	k	k,ʔ,h,r

Examples.

	Akha	Gao	Yuan	WB
bitter	k'a L	xɔ L	-	kha:
dove	k'a k'oe L-L	xo-xɤ L-L	-	khui(-T)
difficult	k'a Mc	xa 13	-	khak
smoke	u-k'oe L-L	mɤ-xɤ L-H	mɛ-xɛ L-L	khui:
fog	ju-k'oe L-L	tsɤ-kɤ L-L	-	-
nine	g'oe L	kɤ L	-	kui:
needle	a-g'aw L-Ls	ko M	-	ʔap
pillow	u-g'm L-L	ʐu-ku L-L	u-ku M-M	khoŋ: ʔum:
hum clfr	g'a L	kɔ L	kɔ L	-
vegetable	g'aw-pa L-Lc	ko-tsha L-53	-	haŋ:-si:
mo's bro	a-g'oe L-M	ɤ-kɤ H-L	-	ʔu:-ri:

SET 4: Proto-L *kr-, *gr-

Summary.

Ak=Ha	Gao/Yuan	WB
k	kh	khr
g	k	kr

Examples:

	Akha	Gao	Yuan	WB
gall	pya-kui L-H	phi-khə L-M	phi-kɤ	-khre
sweat	ku-pyu L-H	khə-pu L-H	-	khr/ywe
hear	ga L	kɔ 13	kɔ L	kra:
star	a-gui L-H	pi-kə L-M	-	kray

SET 5: Retention of proto-L final nasals.

Summary.

Akha	Gao	Yuan	WB
ah([ṽ])	back Vs	back Vs+ŋ	-ŋ
m(=m̥)	back Vs	back Vs+ŋ	-m

Examples.

	Akha	Gao	Yuan	WB
horse	mah L	mu L	moŋ L	mraŋ:
sell	ah L	o L	uŋ L	roŋ:
warm	lah H	-	hloŋ H	loŋ
open	pah M	phɔ H	phuŋ-xɔ M-M	pwaŋ.,phwaŋ.
full	byah M	-	poŋ-fu M-M	praŋ̃.,phraŋ̃.
three	sm H/L	s̱u L	suŋ L	sum:
sky	m L,	o L		muigh:
enter	u H	u M	oŋ-je H-H	waŋ
old	maw L	zɔ-mo L-L	moŋ L	
sheep	yaw H	zu M	zu-zuŋ H	-

SET 6: The affricates.

Summary.

Ak/Ha	Gao/Yuan	WB	proto-L
c(=tɕ)	tʂh	khy	*ky
j(=dʑ)	tʂ	ky	*gy
c	ts,tɕ,tʂ	ch	*c
j	(dz,dʑ,dʐ)	c	*j
ts	ts,tʂ	ch	*ts
dz	dz,dʐ	c	*dz

Examples.

	Akha	Gao	Yuan	WB
sweet	coe H	tʂʅ H	tʂhɿ H	khyui
dung	ce L	tʂhʅ-tɕ L-L	-	khye:
boil	ca Lc	tʂha M	tʂha M	khyak
friends	caw L	tʂhu L	-	khyaŋ:
waist	jo Lc	tʂu L	-	kyok
goat	ci-myeh Lc-Lc	tshi L	-	chit
medecine	(ja-g'a Mc-L)	nɔ-tʂhʅ M-L	nɔ-tɕhi	che:
liquor	ji-ba H-L	tsi-pɔ H-L	-	-
husked rice	ceh-pyu H-H	tɕhi-phu H-H	-	chan
tooth(molar)	jui H	ʂʅ-tʂʅ L-H	sɿ-tsɿ L-H	ʔa.cway
hot	tsa H	tshɔ H	tshɔ H	-
joint	tsui Lc	tshɔ L	-	ʔa.chac
eat	dza L	tsɔ L	tsɔ L	ca:
itch	dzui Mc	tshɿ M	-	-
oil,fat	tsi H	tʂhi H	-	chi
ride	dzi L	tʂʅ L	tsɿ L	ci:
rule(v)	dzoe L	tʂʅ-mɔ-phɔ L-H-L	-	cui:

SET 7: Laterals.

Examples.

	Akha	Gao	Yuan	WB
hand	la Lc	la L	la M	lak
come	la H	lɔ H	lɔ H	la
four 30)	oe L	li L	ɬɻ L	le:
tongue	meh-la L-H	u-hlɔ L-H	ɔ-hlɔ L-H	lhya
boat	law L	hlu L	-	(loŋ:?)
wind(n.)	ja-leh L-H	o-hli L-M	oŋ-hli L-H	le
moon	ba-la M-M	pɔ-hlɔ M-H	-	la.

SET 8: Unrounding of proto-L *o

Summary.

Ak/Ha	Gao/(Yuan)	WB
oe(=ö)	ɘ̃/after velar C	ui
oe(=ö)	i/ elsewhere	ui

Examples.

	Akha	Gao	Yuan	WB
steal	k'oe L	xɘ̃ 13	xɛ L	khui:
dove	k'a-k'oe L-L	xo-xɘ̃ L-L	-	khui,khyui:
nine	g'oe L	kɘ̃ L	-	kui:
mo's brother	a-g'oe L-M	ɘ̃-kɘ̃ H-L	-	
male(animals)	a-poe L-H	-phi H	-	ʔa.phui:
price/expnsv	poe L	phi L	-	ʔa.phui:
g-father	poe-pi L-L	i-phi H-L	-	ʔa.phui:
insect	a-boe H-L	pi-tʂu L-L	-	pui:
green	nyoe H	ni M	-	ɲui
weep	ngoe H	ni M	ni M	ŋui
bone	sha-yoe L-L	sə-i L-L	-	ʔa.rui:
sweet	coe H	tʂʅ H	tʂhl H	khyui

30. The peculiar development of proto-Loloish '1' with high front vowels in Akha has been discussed at length in Matisoff 1969: 139-148. Note also Lüchun(Li) /o 31c/ (c!)'four'.

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Abbreviations: AL Anthropological Linguistics; ALHaf. Acta Linguistica Hafniensia (Munksgaard); AOr. Acta Orientalia (Copenhagen); BLS Berkeley Linguistic Society; BSOAS Bulletin of the School of Oriental and African Studies (London); CAAAL Computational Analyses of Asian and African Languages (Tokyo); JP Journal of Phonetics; LTBA Linguistics of the Tibeto-Burman Area (Berkeley); MZYW Minzu Yuwen (Peking); OPWSTBL Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics; STC International Conference on Sino-Tibetan Languages and Linguistics; ZGYW Zhongguo Yuwen (Peking).

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