SOME KADAI LANGUAGES OF NORTHERN GUANGXI CHINA

Jerold A. Edmondson
Professor of Linguistics
University of Texas at Arlington
Box 19557 Arlington, TX 76019 USA

Northern Guangxi-Zhuang Autonomous Region (Guangxi) is an area where a large number of linguistic groups inhabit a relatively confined area.[1] For example, in Rongshui Miao Autonomous County and Luocheng Mulam Autonomous County there are: (1) Miao-Yao languages—four kinds of Miao, two kind of Yao, (2) Kadai languages—four distinct varieties of Kam, Zhuang, E, Sui, Mulam, Maonan, and also (3) Han Chinese—Putonghua (norm Mandarin), Gui-Liuhua (SW Mandarin, the former court language of Guilin and Liuzhou, now centered in nearby metropolitan areas, Ngai (a kind of Hakka spoken by a local peasant group), Tuguai (a kind of Cantonese associated with lumbering and rafting, the local street vernacular), Makai (language of the petty Hakka merchants who came from Guangdong Province to do business with the minority peoples), Yangsan (a very archaic kind of Cantonese with 10 tones), and Southern Min (recent immigrants from Fujian). Multilingualism is very common with each language having its own niche in the linguistic macrocosm of the area. Among the Kadai languages there is also quite a lot of similarity among the tonal systems of Kam, Zhuang, E, Mulam, and Maonan. At the same time this area represents the southern-most frontier for Kam and Sui as well as an area approaching the northern extreme of Zhuang settlement. Mulam, Maonan, and E are found nowhere

[1]Support for this research was provided by the Committee on Scholarly Exchange with the PRC and the National Endowment for the Humanities for the period Jan-Jun 1990.

I need also to add that by Kadai languages I will be using the term as in Benedict (1975:xix-xx) to include the branches: Tai, Kam-Sui, others. I do not use it as in Benedict (1942), in which Kadai referred only to "others". Zhuang and E belong to the Tai Branch of Kadai, whereas Kam is a Kam-Sui language.

else. Thus, it is not surprising that in this peripheral area special linguistic properties have developed.
In this paper I wish to report on some special tonal properties of Rongshui and Luocheng Counties. Data for this study were gathered during a fieldwork expedition in Jan-Jun 1990. In the analysis of the data gathered both comparative and instrumental methods were used. In particular I intend to describe: (1) ultracomplex tonal contours in the Kam of Luocheng County Nalun Township (Nalun Kam) and in the Zhuang of Rongshui Sanfang Township (Sanfang Zhuang) as well as the (2) dimorphism in the E of Rongshui County Yongle Township (Yongle E), cf. map. I will also try to put these development in historical perspective and discuss the implications of these phenomena for a formal theory of tones.

1. Ultracomplex tonal contours. The tradition of speaking about contours in tone languages is associated with Pike (1948:9-12). Pike claimed that pitch could be used in two different ways in natural languages: as register or a basic high or low associated with each syllable—these kinds of tones are generally found in languages of Africa and the New World—and contours in which pitch glides are basics of the system—these kinds are generally found in Asian languages. For register languages the norm is pitch level; for contour languages the norm is pitch glide. Thus, register vs. contour stressed the dichotomous typological nature of pitch prosodies and indeed these terms came to be used like blood-typing of a language in which mixing R or C types would lead to disastrous consequences. Yip (1989) suggested a prosodic universal-donor principle, arguing that register glides were like phonological tone clusters, whereas contours were similar to affricates, being branching with left and right edges but occupying only a single organizational slot. These edges can enter into phonological rules. The two differ by the presence of a tonal root tier indicated by $\oplus$, which unifies the sequence of levels or melody into a unit (contour) below the syllable level. The tonal root level organizes 'atomic' tone levels into a 'tone molecule', which is then attached to the Tone Bearing Unit (TBU), the syllable. The crucial point, however, is that both systems, in this view, are made up of levels. (σ = syllable, L = LOW, and H = HIGH):

Asian unit contours
branching tones

African level-spreading contours
tone clusters

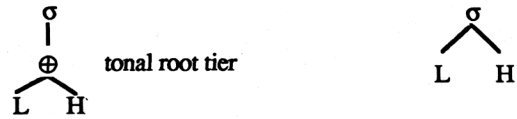


Figure 1: Branching tones vs. tone clusters.

But if Asian contours can be regarded as melodies or sequences, then the complexity of the glide become of interest. Simple pitch glides would be of the types: upward glides (L-H trajectory) or downward glides (H-L trajectory). Complex glides would involve glides with reversing direction, e.g. rising-falling (L-H-L trajectory) or falling-rising (H-L-H trajectory). Pike mentions (9) the possibility of ultracomplex pitch glides, i.e. falling-rising-falling (H-L-H-L trajectories) or rising-falling-rising (L-H-L-H trajectories), but doesn't provide any data. Indeed, Yip (1989) states that she knows of no accounts of such contouring.

In the following we report on two languages for which we believe there is good evidence of such ultracomplex tonal contours and discuss the significance of ultracomplex contours in a formal theory of tones. That some Kadai language—especially Kam—evidence ultracomplex contouring is not completely unexpected, since Kam is perhaps the most tonally complex language of East Asia or perhaps anywhere.

Kam tones have arisen in a two-step process. In the first step the proto-tone categories A, B, and C (Li 1977), divided via The Great Tone Split (Brown 1975) to yield six categories.[2] The process also occurred in the other languages under discussion here as well, Sanfang Zhuang and (Kjang) E. The Great Tone Split produced two sets of tones categories conveniently labeled HIGH and LOW, the HIGH from original voiceless initials and the LOW from original voiced initials. There are several accounts of how to represent the Great Tone Split in terms of feature geometry; these are reviewed in Duanmu (1990:98-155). Following Kingston and Solnit (1991), I will regard tonogenesis to be a process of spreading of

[2]I will ignore the categories DS and DL.

features of the onset onto the vowel. Actually this conception is contained in Halle and Stevens (1971), who posited laryngeal features, stiff and slack vocal cords, with distribution over both vowels and consonants. Duanmu (1990) reformulated this process in geometrical terms as in Figure 2. Lar = Laryngeal node; V/R = Voicing/Register; [+st] = stiff vocal cords

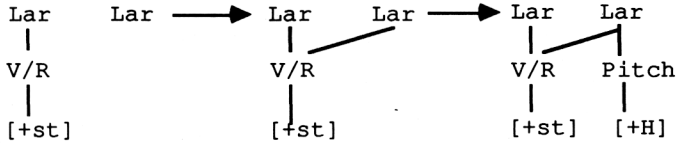


Figure 2: The Great Tone Split

At a later date in Kam the spreading process was repeated. This Second Tone Split occurred in syllables with a depressor consonant initial (preserved as breathy or aspirated onset) resulting today in a third RISING set of tones for most locations within Kam territory, cf. Dongyu Diaocha Baogao (1957). We know of this change because some locations such as Liping Pingtu, Congjiang Guandong, and Liping Shuikou failed to undergo it. We also know that the Second Tone Split transpired much more recently than the Great Tone Split because the depressor feature of the onset has not yet disappeared; the changes it wrought in the contours of affected syllables have not yet been obscured by subsequent changes and may be described as an adjoining of a low tone to the left edge of the tonal root tier, i.e. LOW + HIGH = RISING. Using Chao's Scale-of-Five system each member of the HIGH set split into a HIGH in the environment of voiceless onset and RISING in the environment of aspirated onset, i.e. for aspirated initials 1 -> 1' (55 -> 35); 5 -> 5' (53 -> 453), and 3 -> 3' (323 -> 13).[3] These changes in most places have not as yet involved detachment of the depressor feature, i.e. in RISING tones initials are still aspirated or breathy.

[3]In this paper I use the tone numbers employed in the Chinese Jianzhi series of descriptions, i.e. A1=1; A2=2; B1=5; B2=6; C1=3; C2=4; DS1=7; DS2=8; DL1=9; and DL2=10. Prime marks 1', 3', 5', 7', and 9' suggest the conditioning aspiration of the initial, cf. Li (1977) and Wang (1984).

Figure 3 expresses this development without being explicit about what laryngeal features lower onset or its mechanism.

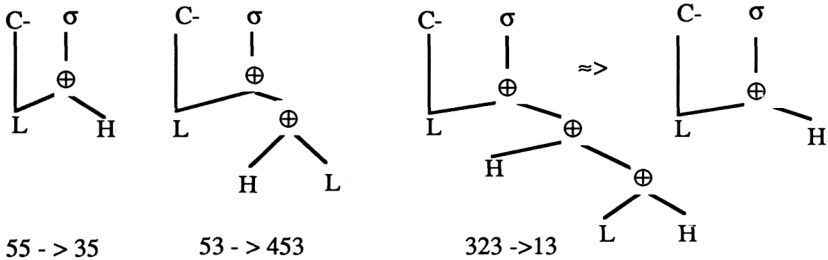


Figure 3: The Second Tone Split

A complete set of contrasts for all nine tones may be illustrated by Rongjiang Kam: pa^{1} 'fish'; pha$^{1'}$ 'grey; ashes'; pa^{2} 'harrow'; pa^{5} 'leaf'; pha$^{5'}$ 'to break'; pa^{6} 'rice husk'; pa^{3} 'aunt'; phja$^{3'}$ 'to turn over', and pa^{4} 'locust'.

Nalun Kam also has nine tones in open syllables, but its tone values are not exactly like those just discussed. The people of this village say they migrated from Fulu in the Rongjiang River Valley on the Guangxi-Guizhou border about five generations ago. Since then, they have lived in two small isolated communities located about 20 km apart in northern Luocheng County at Nalun and Dongnan. In the winter of 1990 I conduct data elicitation on Nalun and Dongnan from Mr. Shi Yunming (about 60) and Mr. Shi Meng (about 35). Afterwards these data were analyzed using CECIL, a hardware-software speech analysis package for small DOS laptop computers, cf. Edmondson (1990a) for a review of its capabilities.[4]

[4]The tone plots in this paper represent composite plots of five repetitions of each syllable adjusted for time and mean pitch height. The zero time point corresponds to the first burst of the waveform and thus voicing onset usually begins somewhat later.

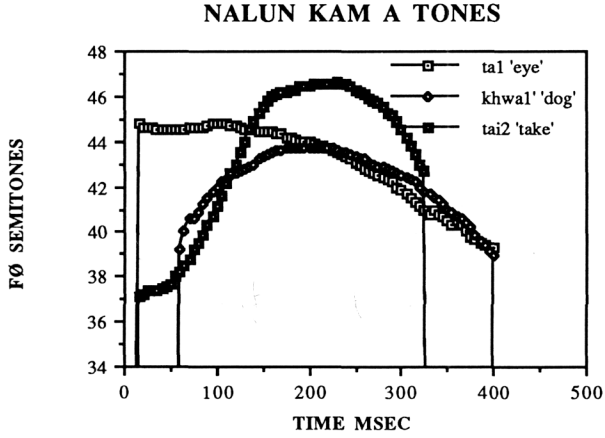


Figure 4: Nalun Kam Tone A.

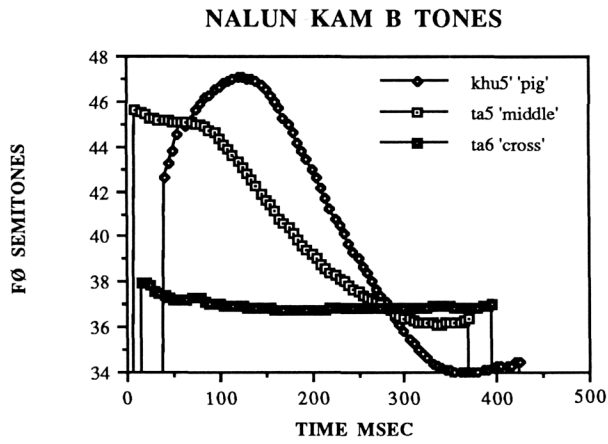


Figure 5: Nalun Kam Tone B.

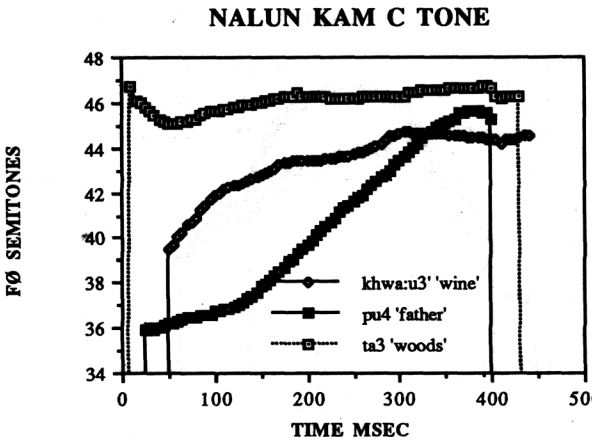


Figure 6: Nalun Kam Tone C.

The system of tone for Nalun Kam is:

	*A	*B	*C
	1	5	3
HIGH	43	512	55
	2	6	4
LOW	154	22	15
	1'	5'	3'
RISING	343	4512	35

Figure 7: Nalun Kam tone values, tone categories, and historical sources

As the tone values indicate, Nalun Kam possesses four tones with complex contours. Tone2 and tone4 differ only by virtue of the L at the right edge of tone2. Also tone1 and tone5 are not that dissimilar in overall shape. In Nalun it appears that speakers have added a reversal of direction in just these places to avoid homophony with other pitch trajectories. Moreover, one can also note that the principle LOW + HIGH = RISING characterizes the effect of the Second Tone Split in Nalun no less than for Rongjiang, i.e. 43 -> 343; 512 ->

4512; and 55 -> 35. This scenario of sound changes suggests that both processes were edge effects, in the historically earlier case a right edge effect and in the Second Tone Split a left edge effect. The result was the creation an ultracomplex tone contour.

Turning now to a second instance of ultracomplex contouring, consider the case of Sanfang Zhuang. Sanfang Zhuang represents a lesser-studied kind of Zhuang, assigned to the Liujiang vernacular type. Its most distinctive features are the initials [ᵑgw- ᵑgj- ᵑgjw-] not found in Wuming Zhuang. On the basis of the following composite plots I assume the following tone values.[5]

	*A	*B	*C
	1	5	3
HIGH	51	43	442
	2	6	4
LOW	3231	21	313

Figure 8: Sanfang Zhuang tone values, tone categories, and historical sources.

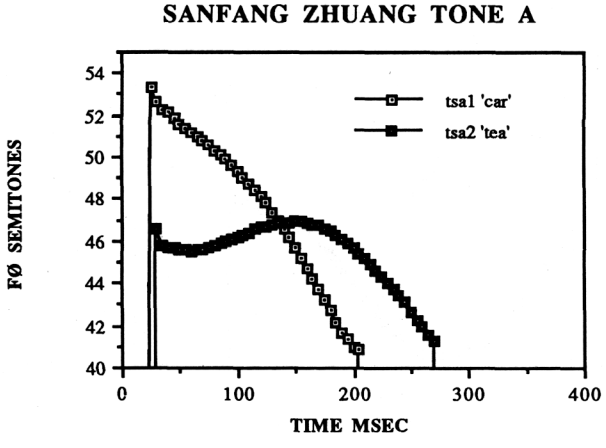


Figure 9: Sanfang Zhuang Tone A.

[5]Judgments about tone values are based on a wide variety of examples with various kinds of onset consonants.

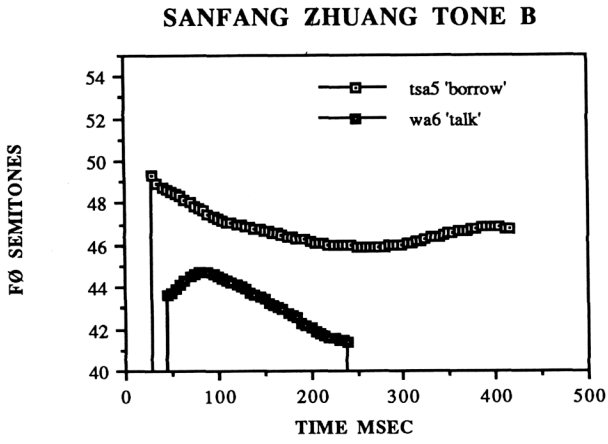


Figure 10: Sanfang Zhuang Tone B.

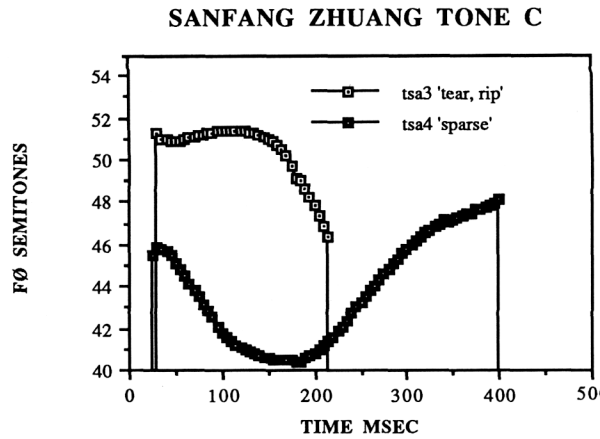


Figure 11: Sanfang Zhuang Tone C.

Sanfang Zhuang was compared to the Zhuang at Qiaosan in nearby Huanjiang Maonan Autonomous County. In this case it appears as if only Sanfang tone2 differs from Qiaosan

in having a drop before rising. Also in faster speech our main helper for this language, Ms. Wei Feng (about 40 years of age), could omit this initiatory pitch drop. This data suggests that for some speakers a L has been added to the left edge of tone2.

Locations such as Nalun Kam and Sanfang Zhuang raise many interesting questions. In particular one needs to ask how the contour melodies are structured. Is there embedding of contours or do root tiers directly dominate tones? Thus would we represent a 4512 tone as in a or b?

Figure 12: Ultracomplex contours in Nalun Kam.

2. Dimorphism in E. E or Kjang E is a language whose existence was only recently recognized. To date published information about this language is scarce, i.e. Chen and Zhang (1988) and Edmondson (1990b). It is a mixed language that more than the surrounding languages has absorbed lexical items, sounds, and even grammatical features from Tuguai Han. In fact, it seems to have undergone fusion of two linguistic systems, cf. Markey (1981). Nevertheless, I will argue that E has retained a number of very archaic features of considerable interest. In March 1990 Professor Yang Quan of Central Institute of Nationalities and I were able to conduct about three days of fieldwork in E with the help of Mr. Lu Ze (63 years of age) and Mr. Meng Wei (65).

On the basis of a CECIL analysis of E, I have determined the tone values to be:

	*A	*B	*C
HIGH	1 53	5 35	3 55
LOW	2 31	6 35	4 13

Figure 13: E tone values, tone categories.

Since there is little published about E, I begin with a collection of Kadai vocabulary. I have only included examples that seem reasonably secure of the cognate status. The proto-initials are given according to the Li (1977).

		Labial initials			
well, spring	mən^{1}	* ʔb-	village	man^{3}	* ʔb-
flower	mjok^{7}	*ʔbl/r-	mountain	pjʻa^{1}	* b-
rain	fɛn^{1}	* f-			
pig	m̥u^{1}	* hm-	dog	m̥a^{1}	* hm-
plum	m̥an^{3}	* hm-	new	m̥o^{5}	*hm-
slippery	m̥ak^{9}	*ml/r-			
tree	mai^{4}	* mw-	hand	mu^{1}	*mw-
go, to	paiˀ^{1}	* p-	duck	pjɛt^{7}	* p-
vegetable	pjʻak^{7}	* pʻl/r-	taro	pjʻuk^{7}	* pʻl/r-
fish	pjʻa^{1}	* pl-	fire	hwi^{1}	* v-
teeth	hjɛn^{1}	* v-			
		Dental initials			
nose	nɛŋ^{1}	* ʔd-	child	lik^{7}	* ʔd-
good	li^{1}	* ʔd-			
belly	toŋ^{2}	* d-	copper	toŋ^{2}	* d-
wind	ɬəm^{1}	* dl-	steal	ɬek^{7}	*dl-
wine	ɬau^{3}	* hl-			
river	ɬa^{1}				
face	n̥a^{3}	* hn-	thick	n̥a^{1}	* hn-
heavy	n̥ak^{7}	* hn-			
paddy	na^{2}	* n-	sibling, y	nuŋ^{4}	* n-
sleep	nun^{2}	*n-			
bamboo shoot	n̥aŋ^{1}	* nl-	bird	n̥ok^{7}	* nl-
water	n̥am^{3}	* nl/r-			
garden	ɕyn^{1}	* s-	intestine	sai^{3}	* s-
high	saŋ^{1}	*s-	four	si^{5}	*s-
ten	tɕəp^{7}	*ʤ-	buy	tɕu^{5}	*ʤ-
ground	tam^{1}	* t-	mud	tam^{1}	* t-
pond	tam^{2}	* th-			
stone	ɬin^{1}	* thr-			

sweat	ɬo^{5}	* thr-			
fart	ɬat^{7}	* tl-			
eye	pj'a^{1}	* tr-	die	pj'ai^{1}	*tr-
carry on pole	ɬap^{9}	*thr-			
		Liquid initials			
blood	lyt^{9}	* l-			
house	ɬan^{1}	* r-			
bark (dog)	ɬau^{5}	*hr-			
		Sibilant initials			
hungry	juk^{9}	*ʔj-			
		Velar initials			
narrow	hip^{7}	* g-			
chicken	kai^{5}	* k-	tiger	kok^{7}	* k-
frog	kop^{7}	* k-	old	kau^{1}	*k-
sell	p'ai^{1}	*kh-			
egg	kj'ai^{5}	* khr-			
salt	kj'ou^{1}	* kl-	head	kj'au^{3}	* kl-
rice, seedling	kj'a^{3}	* kl-			
silver	ŋɛn^{2}	* ŋ-			
cow	hwai^{1}	* ŋw-			
carrying pole	ɳan^{1}	*ɣ-	itch	ŋəm^{1}	*ɣ-
rice	wu^{5}	* x-	ginger	hiŋ^{1}	* x-
road	ɬan^{1}	* xr-	ear	ɬo^{1}	* xr-
		Laryngeal initials			
five	ŋa^{3}	*h-	yellow	ŋan^{3}	*h-

There are a few surprises in this collection of common Tai vocabulary. In particular one finds in E a relatively large number of items in HIGH tones with voiceless sonorant initials where LOW tones and voiced initials are predicted, e.g. hwi^{1} 'fire', hjɛn^{1} 'teeth', ɬəm^{1} 'wind', ɬek 'steal', ɬa^{1} 'river', ɳaŋ^{1} 'bamboo shoot', ɳok^{7} 'bird', ɳam 'water', ɬan^{1} 'house', hip^{7} 'narrow', hwai^{1} 'cow', ɳan^{1} 'carrying pole', tɕɔp^{7} 'ten', tɕu^{5} 'buy'.[6]

If one compares these data with data from the Kam-Sui Branch of Kadai, then in virtually all these cases one

[6]There are also a number of items from preglottalized initials that have changed to nasals. These have followed a different path of development.

finds a HIGH tone. In Edmondson and Yang (to appear) we have provided an account of just this kind of data suggesting that in the proto-language a dimorphism existed. Roots could appear in two forms—dyadic (disyllabic or sesqui-syllabic) or monosyllabic. This state may have persisted until the time of the breakup of proto-Tai and proto-Kam-Sui into daughter languages. Today, all these contemporary languages are resolutely monosyllabic as a result of the fusion of dyadic roots into monosyllables. At the collapse of dyads into monads rules of tone spreading and segmental feature geometry applied. The principles of tonal and segmental spreading under syllabic fusion, I have called Purtle's Law, cf. Edmondson and Yang (to appear). Voiced sonorants such as //w j l r m n ŋ// are transparent to voiceless initials in the same syllable, e.g. syllables with clusters //pl tl kl hl// always have HIGH tones, but in dyads the sonorants may be transparent or opaque to the spreading of a tone from the adjoining syllable to the left, e.g. the survivor from the collapse of dyadic syllables //p-l t-l h-l// may have HIGH or LOW tones. Generally speaking, in the Tai group sonorants blocked spreading, cf. Wuming Zhuang 'blood' **luːt**^{8} *from the dyad* ***ph-laːt**^{D}, whereas Kam-Sui often regards sonorants to be transparent as in Rongjiang Kam **pʻjaːt**$^{9'}$ from ***phlaːt**^{D}.[7] Another example of these change can be seen in the lexical item for fire, in which the [-voice] segmental feature and H spreads to the surviving second syllable E, i.e. w is transparent.

Figure 14: Purtle's Law for hwi^{1} 'fire'.

E seems to have developed in a manner parallel to Kam-Sui in regard to the fusion of disyllables even though it definitely belongs to the Tai in regard to its diagnostic vocabulary, cf. **na**^{2} 'rice field', **liŋ**^{2} 'monkey'.

[7] I have written a dash in place of the vowel of the first syllable to remain vague about its nature.

Both of the phenomena described in this paper represent developments that run counter to trends established by better documented varieties of Wuming Zhuang and Rongjiang Kam. This is another example of the principle that the most linguistic interesting features are found in languages least well-documented and sometimes even in language generally regarded with distain.

References

Bao Z.M. (1990) 'On the nature of tone.' MIT Ph.D. Dissertation.

Benedict, P.K. (1942) 'Thai, Kadai, and Indonesian: A new alignment in Southeastern Asia.' **American Anthropologist** 44.4.I.576-601.

(1975) **Austro-Thai language and culture.** New Haven: HRAF Press.

Brown, J.M. (1975) 'The Great Tone Split: Did it work in two opposite ways?' Reprinted (1985) **From Ancient Thai to modern dialects and other writings on historical linguistics.** Bangkok: White Lotus Co., Ltd.

Chen Q.G. and Zhang W. (1988) 'Wusehua chutan' (An outline of the Wuse dialect). **Yuyan yanjiu** 2.149-67.

Dai Y.C. (1991) The phonological domain of tone in Chinese: Historical perspectives. Simon Fraser University M.A. Thesis.

Dongyu Diaocha Baogao. (1957) No author listed. (Report on investigating the Kam language.) Unpublished Central Institute of Nationalities, Beijing.

Duanmu S. (1990) 'A formal study of syllable, tone, stress and domain in Chinese languages.' MIT Ph.D. Dissertation.

Edmondson, J.A. (1990a) 'Review of Computerized Extraction of Components of Intonation in Language (CECIL): a language analysis system for the field linguist.' **Notes in Computing.** October-November 26-28.

(1990b) 'Fusion and diffusion in E, a Kadai language of northern Guangxi, PRC.' T. Dutton et al (eds) Memorial volume for Don C. Laycock (Pacific Linguistic Series). Department of Linguistics, Australian National University, Canberra.

_____ and Yang Q. (to appear) 'Dong-Suiyu yuyin jihexue: shengjiang quxian, bianyuan, ertaixing.'

(Phonological geometry in Kam-Sui: contours, edges, and dimorphism.) **Minzu yuwen.**

Gedney, W.J. (1989) Selected papers on comparative Tai studies. Michigan Papers on South and Southeast Asia. Ann Arbor: Center for South and Southeast Asian Studies.

Kingston and D.B. Solnit. (1991) The tones of consonants. Ms. Univ. of Mass, Amherst and Univ. of Michigan.

Li, F.K. (1977) **A handbook of comparative Tai.** The University Press of Hawaii.

Li Shaoni and J.A. Edmondson (1990b) 'Yunnan Jianchuan Baiyu yinzhi he yindiao leixing' (Voice-quality settings and pitch in the Bai language of Yunnan Province.) **Zhongyang Minzu Xueyuan Xuebao.** 5.70-4.

Markey, T. (1981) 'Diffusion, fusion and creolization: A field guide to developmental linguistics.' **Papiere zur Linguistik** 24.1.3-38.

Pike, K.L. (1948) **Tone languages: A technique for determining the number and type of pitch contrasts in a language, with studies in tonemic substitution and fusion.** Ann Arbor: The University of Michigan Press.

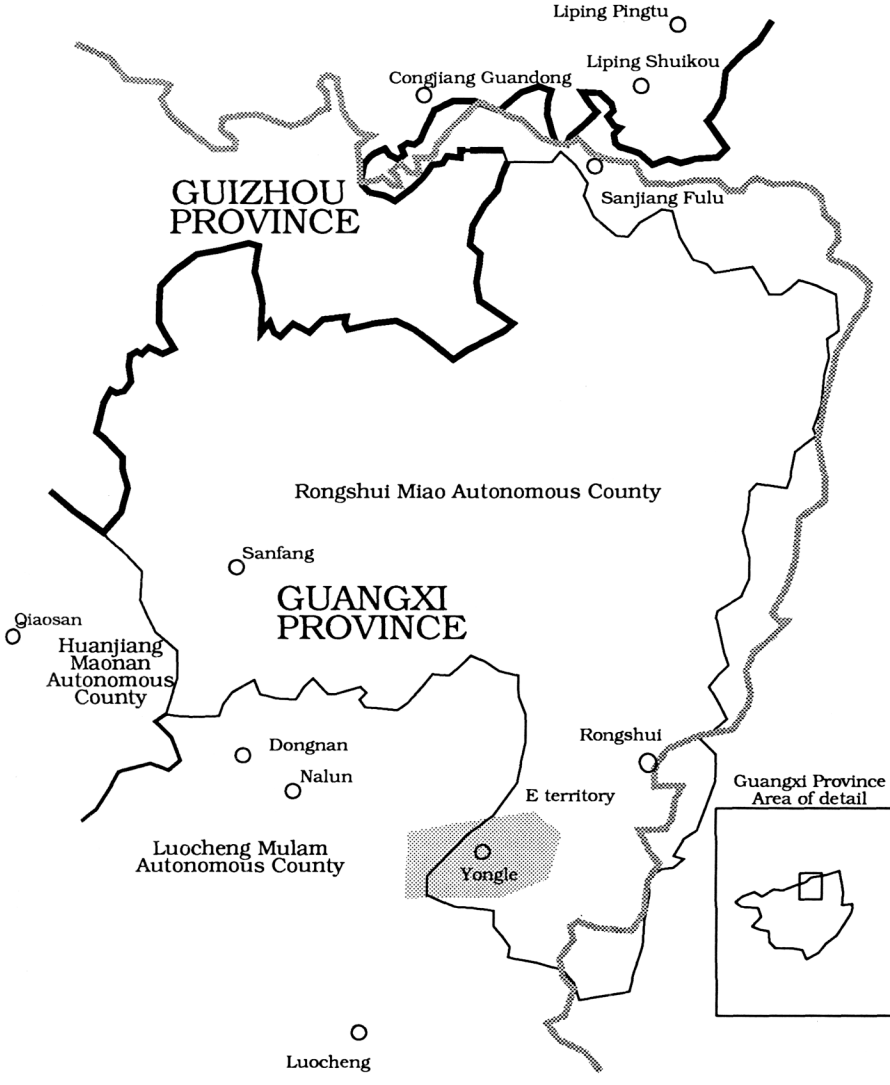
Wang J. (1984) **Zhuang-Dong yuzu yuyan jianzhi.** (Sketches of languages of China Kadai nationalities.) Beijing: Minorities Publishing House.

Yip, M. 1980. The tonal phonology of Chinese. Ph.D. dissertation. MIT Press. Also Indiana University Linguistics Club.

(1989) 'Contour tones.' **Phonological Yearbook** 6.149-74.

(in press.) 'Tonal register in East Asian languages.' In K. Snider/H. van der Hulst (eds), **The representation of tone.** Foris Publications.

Zhang, Y.S. and Wei J.Y. (1991) Zhuangyu fangyan ji qi biaozhunyin. (Zhuang varieties and their standards.) To appear in J.A. Edmondson and D.B. Solnit (eds) Comparative Kadai: The Tai branch.


Liping Pingtu
Liping Shuikou
Congjiang Guandong
GUIZHOU
PROVINCE
Sanjiang Fulu
Rongshui Miao Autonomous County
Sanfang
GUANGXI
PROVINCE
Qiaosan
Huanjiang
Maonan
Autonomous
County
Dongnan
Nalun
Rongshui
E territory
Guangxi Province
Area of detail
Luocheng Mulam
Autonomous County
Yongle
Luocheng