

An Interpretation of Voiceless Sonorants in Sinitic and Tai

Chang Yü-hung

National Taiwan University

ABSTRACT

It is generally maintained that both Tai and Sinitic used to have voiceless sonorants historically in addition to a voiced series. The evidence is primarily the upper register tones and fricative initials. However, neither the upper tonal register nor the fricative initials necessarily mean that the syllables had voiceless sonorant initials. There are other possibilities. As a matter of fact, the voicelessness of sonorant initials in Tai and Sinitic may turn out to be secondary development. The primary contrast is in phonation types, of which aspiration is responsible for devoicing. Data from other languages confirm that aspiration, in turn, can be a result of consonantal deletion. If these languages are tonal, their aspirated sonorant syllables normally have an upper register tone. Analogy, if permissible in historical linguistics, will motivate a quest for initial clusters whose reflexes are voiceless sonorants.

1. THE ISSUE

Contrastive series of initial sonorant consonants are so common in the languages in Southeast Asia that it should be reasonable to expect that they occurred in Sinitic and Tai as well. Since Jerry Norman's proposal, for old southern Chinese, of a series of voiceless nasals and liquids that are different from the normal voiced unmarked nasals and liquids, endorsements continue to follow, and there is no argument among scholars on the subject, except may be only Zhang Guangyu (1989). The new series of sonorants are believed to have been voiceless.

There are three kinds of current evidence of historically voiceless nasals and liquids in Sinitic. One is modern upper register tones; another is modern fricative initials, especially the voiceless glottal fricative *h*-; the third is, in the Han and pre-Han times, the use of nasal characters as the phonetics or as the paranomes of fricative characters, or vice versa. In Tai, the evidence comes from Siamese orthography and linguistic comparisons. Both Tai cases involve glottal fricative

initials in the upper register syllables.

Of the three kinds of Sinitic evidence, the third will not be discussed here for lack of data and accessible literatures. The other two have problems. First, modern Sinitic syllables with fricative initials which are said to be reflexes of nasal syllables have lower register tones rather than upper register. Second, comparative (Kam-)Tai shows correspondences of glottal fricative initials to practically all kinds of sonorant initials, irrespective of tone register. Third, either stratum-wise or structure-wise, upper register syllables with modern sonorant initials certainly could not belong to the same category as lower register syllables with modern fricative initials.

In Hokkien, for example, there are sonorant syllables with upper register tones (Figure 1). According to the traditional simple dichotomy of voiced versus voiceless initials practiced in modern Chinese linguistics, as well as South-east Asian linguistics, voicelessness is responsible for higher pitches, that is, upper register tones. It follows that syllables with upper register tones must have had voiceless initials. It then follows that these Hokkien sonorant syllables in Figure 1 must have had voiceless nasal and liquid initials historically. Also in Hokkien, there are syllables with glottal fricative initials which correspond to sonorant initial syllables (Figure 2), many of which still retain nasality. With or without nasality in their modern forms, they also are considered as historically having voiceless sonorant initials. Contrary to expectations, however they uniformly have lower register tones. The immediate question is how to distinguish the two categories. With regard to tonal register, which is conventionally believed to be the result of initial voicing contrast, the fricative initials fail to witness historical voiceless sonorant initials in the conventional sense, for syllables in this category fail to have tones as belonging to the upper register. It would be more logical to say, rather, that their fricative initials are the results of something else other than voicelessness.

A list of Kam-Tai words (Figure 3.¹ Li is left out for short of cognates) shows that any nasal, liquid, or semivowel initial can correspond to a fricative of some sort, mostly guttural. All these nine languages and dialects in China, as well as Siamese, have such correspondences. The list is by no means complete,

1. In phonological representations, Chinese linguistics tone order B, C, and 3/B1, 4/B2, 5/C1, 6/C2 correspond to Kam-Tai C, B, and 3/C1, 4/C2, 5/B1, 6/B2 respectively.

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|---|--|
| 1. 摸 me/mi A1 'to hold small articles in one palm' | 21. 瞞 ni? D1 'to blink; wink' |
| 2. 毛 mo A1 'hair' | 22. 癢 ngiau A1 'to tickle; ticklish' |
| 3. 摸 mo/bo/bong A1 'to grope; to touch' | 23. 寒 gan C1 'freezing cold' |
| 4. 叢 bong A1 '(clf) bush' | 24. 齧 ge C1 'to gnaw' |
| 5. 襖 mua A1 'to put cloth (es) /arm on shoulder(s)' | 25. 夾 giap D1 'to clip so as to hold' |
| 6. 凹 mau A1 'dented' | 26. 咬 ngau? D1 'to snap with mouth' |
| 7. 尪 ban A1 'the youngest of siblings' | 27. 夾 nge?/ ngue? D1 'to hold in chopsticks, etc; pod' |
| 8. 網 bang A1 'to catch with net' | 28. 鱗 lan A1 'fish scale' |
| 9. 不 bong C1 'not serious about' | 29. 籠 lang A1 'cage' |
| 10. 物 mi? D1 'thing' | 30. 不 lang A1 'not dense' |
| 11. 脈 me? D1 'pulse' | 31. 啉 lim A1 'to drink' |
| 12. 蚱 tshaume? B-D1 'grasshopper' | 32. 黧 loo A1 'burnt' |
| 13. 溼 bak D1 'to stain' | 33. 瀉 lau C1 'to drain; running stomach' |
| 14. 取 ni A1 'to take with tips of fingers' | 34. 空 lang C1 'to leave space' |
| 15. 奶 ne/ ni A1 'milk' | 35. 露 loo C1 'dew' |
| 16. 貓 niau A1 'cat' | 36. 打 long C1 'to hit with head or end of instrument' |
| 17. 拈 liam A1 'to catch with tips of fingers; go on tiptoe' | 37. 高 lo/lio C1 'tall' |
| 18. 潤 lun C1 'for crunchy things to become soggy' | 38. 落 lau?/lak D1 'to fall' |
| 19. 萎 lian A1 'to wither' | 39. 橐 lok D1 'envelope; to put in envelope' |
| 20. 躡 ne?/ni? D1 'to stand on tiptoe' | 40. 角 lut D1 'to fall off' |

Figure 1. Hokkien Upper Register Words with Sonorant Initials

1. 明 hanatsai A2-B-C1 'tomorrow'
2. 茅 hm A2 'cogongrass'
3. 媒 hm A2 'matchmaker'
4. 默 hm? D2 'silent'
5. 燃 hiã A2 'to burn'
6. 嬈 hiau A2 'for female to be sexually excited'
7. 耳 hĩ/hi C2 'ear'
8. 肉 hek D2 'meat'
9. 箬 hio? D2 'leaf'
10. 諾 hioo? D2 'yes'
11. 牙 halan A2 -A1 'crimson'
12. 魚 hi A2 'fish'
13. 危 hui A2 'dangerous'
14. 瓦 hia C2 'roof tile'
15. 蟻 hia C2 'ant'
16. 艾 hiã C2 'mugwort'
17. 岸 huã C2 'bank of river, etc.'
18. 硯 hĩ C2 'ink stone'
19. 額 hia? D2 'forehead'
20. 逆 henghek A2-D2 'overbearing and unjust'
21. 鷲 bahio? C2-D2 'chicken hawk'
22. 雲 hun A2 'cloud'
23. 園 hng A2 'garden; field'
24. 雨 hoo C2 'rain'
25. 與 hoo C2 'to give'
26. 遠 hng C2 'far'

Figure 2. Nasal Syllables with Glottal Fricative Initials in Hokkien

	1. Tree	2. Yellow	3. Bird	4. Water	5. Bamboo shoot	6. Descend	7. Gill	8. Mush-room
Mulam	mai ⁴	ŋa:n ³	nɔk ⁸ /mɣɔk ⁸	nəm ⁴	na:ŋ ²	—	fop ⁷	ŋa ⁴
Kam	məi ⁴	ma:n ^{3ʹ}	mok ⁸	nam ³	na:ŋ ²	—	ŋa:p ¹⁰	—
Sui	mai ⁴	ma:n ³	mok ⁸	nam ³	na:ŋ ¹	—	ʔŋa:k ⁷	ʔa ¹
Maonan	mai ⁴	ma:n ³	nɔk ⁸	nam ³	na:ŋ ¹	—	hək ⁷	⁰ ga ¹
Wuming	fai ⁴	hen ³	ɣɔk ⁸	ɣam ⁴	ɣa:ŋ ²	ɣoŋ ²	—	—
Longzhou	mai ⁴	—	nuk ⁸	nam ⁴	—	nup ²	hək ⁷	—
Buyi	vai ⁴	jian ³	zo ²⁸	zam ⁴	za:ŋ ²	zoŋ ²	ɣu ²⁷	—
Sipsong pana	mai ⁴	—	nok ⁸	nam ⁴	—	luŋ ²	ŋa:p ⁹	—
Dehong	mai ⁴	—	lok ⁸	lam ⁴	—	luŋ ²	—	—
Siamese	ma:i ⁴	—	nok ⁸	na:m ⁴	—	loŋ ²	ŋuak ⁷	—
	ไม้		นก	น้ำ		ลง	เหงือก	

	9. Ramie	10. Saliva	11. Spider	12. Five	13. Goose	14. Gnaw	15. Snake	16. Boat
Mulam	ŋa ¹	ŋɔ ⁶	—	ŋɔ ⁴	ŋa:n ⁶	—	tui ²	—
Kam	—	ŋwe ²	ŋo ²	ŋo ⁴	ŋa:n ⁶	ŋam ⁴	sui ²	lo ¹
Sui	ʔa ¹	ʔe ¹	ɣo ¹	ŋo ⁴	ŋa:n ⁶	ɣan ⁵	hui ²	lwa ¹
Maonan	⁰ ga ¹	⁰ gi ¹	—	ŋɔ ⁴	ŋa:n ⁶	—	zui ²	—
Wuming	—	—	—	ŋu ⁴ /ha ³	ha:n ⁵	hen ⁴	ŋu ²	ɣu ²
Longzhou	—	—	—	ha ³	pən ⁶	ŋen ⁴	ŋu ²	lu ²
Buyi	—	—	—	ɣa ³	ɣa:n ⁵	jian ⁴	ŋu ²	zu ²
Sipsong pana	—	—	—	ha ³	ha:n ⁵	ŋen ³	ŋu ²	hə ²
Dehong	—	—	—	ha ³	ha:n ⁵	—	ŋu ²	hə ²
Siamese	—	—	—	ha ³	ha:n ⁵	—	ŋu ²	rua ²
				ห้า	ห่าน		งู	เรือ

Figure 3. Kam-Tai Fricative-Sonorant Correspondences (1-16)

	17. Ear of Grain	18. Wake	19. Bones	20. Daughter-in-law	21. Let Go Free	22. Thorn	23. Thin, of Liquids	24. Enter
Mulam	mɣa:ŋ²	hɣɸ¹	hɣa:k⁷	hɣa:u³	la:ŋ⁶	lɣn¹	l̥əu¹	lɔ³
Kam	mjeŋ²	ljo¹ʹ	la:k⁹	lja³ʹ	sa:ŋ⁴/so:ŋ⁵ʹ	sun¹	—	la:u³
Sui	ᵐbja:ŋ¹	lju¹	la:k⁷	ɬa³	huŋ⁵	ⁿdu:n¹	ɬu¹	ɬa:u³
Maonan	ᵐbja:ŋ¹	dju²	da:k⁸	lja³	sɔŋ⁵	ⁿdu:n¹	lju¹	da:u⁴
Wuming	ɣioŋ²	dju¹	do:k⁷	—	la:ŋ⁶	on¹	saw¹/liu¹	hau³
Longzhou	ʃu:ŋ²	—	duk⁷	—	—	—	liu¹	khau³
Buyi	zu:ŋ¹	—	dua²⁷	—	—	on¹	saw¹	ɣau³
Sipsong pana	hoŋ²	diu¹	duk⁹	—	—	—	l̥əu¹	xau³
Dehong	hoŋ²	—	luk⁷	—	—	—	l̥əu¹	xau³
Siamese	ruaŋ²	—	du:k⁷	—	—	—	le:u¹	khau³
	วาง		กระดูก				เหลว	เข้า

	25. Carrying Pole	26. Red	27. Leak	28. Steal	29. Six	30. Crawl	31. Search	32. Eagle
Mulam	—	la:n³	lau⁶	lak⁸	lok⁸	la⁶	la⁴	—
Kam	la:n²	—	lau⁶	ljak⁸	ljok⁸	—	la⁶	—
Sui	ɬa:n¹	ha:n³	ɣo⁶	ljak⁷	ljok⁸	—	—	—
Maonan	ᵐga:n¹	la:n³	lɔ⁶	ljak⁷	ljok⁸	la:i⁵	—	—
Wuming	ha:n²	—	ɣo⁶	ɬak⁸	ɣok⁷/lok⁸	ɣa:i⁶	ɣa¹	ɣo:m⁶
Longzhou	ha:n²	—	ʃu⁶	lak⁸	huk⁷	la:i⁶	—	lam⁶
Buyi	ɣa:n²	—	zo⁶	za²⁸	zo²⁷	za:i⁶	za¹	zuam⁶
Sipsong pana	ka:n²	—	ho⁶	lak⁸	hok⁷	—	ha¹	(huŋ⁴)
Dehong	ka:n²	—	ho⁶	lak⁸	hok⁷	—	—	(huŋ⁴)
Siamese	ka:n²	—	rua⁶	lak⁸	hok⁷	luai⁴	ha¹	—
	(Stem) ก้าน		รั้ว	ลัก	หก	เลื้อย	หา	

Figure 3. Kam-Tai Fricative-Sonorant Correspondences (17-32)

	33. Wind	34. Lick	35. Large	36. Bedbug	37. Seed	38. Quick	39. Know
Mulam	ləm ²	—	—	—	la:k ⁸	(hwai ⁵)	ro ⁴
Kam	ləm ²	lja ²	—	—	—	(hoi ⁵)	wo ⁴
Sui	zum ¹	lja:k ⁷	—	—	—	(hoi ⁵)	—
Maonan	ləm ¹	—	—	—	—	lju ⁵	wo ³
Wuming	ɣum ²	ɣi ²	huŋ ¹	ɣu:t ⁸	ɣa:k ⁸	ɣu ⁵	ɣo ⁴
Longzhou	lum ²	li ²	luŋ ¹	lə:t ⁸	la:k ⁸	(khvai ⁵)	ʈu ⁴
Buyi	zum ¹	zi ²	ɣuŋ ¹	lu:t ⁸	lu ²⁸ (Son)	—	zo ⁴
Sipsong pana	lum ²	le ²	loŋ ¹	hət ⁸	luk ⁸ (Son)	(vai ⁵)	hu ⁴
Dehong	lom ²	le ²	loŋ ¹	hət ⁸	luk ⁸ (Son)	—	hu ⁴
Siamese	lom ²	lia ²	su:ŋ ¹	ruət ⁸	lu:k ⁸ (Son)	reu ²	ru ⁴
	ลม	เลีย	ลัว	เรือด	ลูก	เร็ว	รู้

	40. Skinny	41. Long	42. Two	43. Peddy-field	44. Medicine	45. House	46. Cool
Mulam	ɣəm ¹	ɣa:i ³	ɣa ²	ɣa ⁵	—	ɣa:n ²	hɣum ⁵
Kam	wum ¹	ja:i ³	ja ²	ja ⁵	—	ja:n ²	jim ^{5'}
Sui	ʔɣum ¹	ʔɣa:i ³	ɣa ²	ʔɣa ⁵	ha ¹	ɣa:n ²	ɣa:ŋ ⁵ /ŋa:n ⁵
Maonan	ʔwom ¹	ʔja:i ³	ja ¹	ʔja ⁵	za ²	ja:n ¹	—
Wuming	pjo:m ¹	ɣa:i ³	—	—	ʔju ¹	ɣa:n ²	—
Longzhou	—	ʈi ²	—	—	ja ¹	ʈə:n ²	—
Buyi	pjuam ¹	zai ²	—	—	ʔju ¹	za:n ²	—
Sipsong pana	jɔm ¹	ja:u ²	—	—	ja ¹	hən ²	—
Dehong	jɔm ¹	ja:u ²	—	—	ja ³ ja ⁶	hən ²	—
Siamese	phɔ:m ¹	ja:u ²	—	na: ²	ja ²	ruan	jen ²
	ผอม	ยาว		นา	ยา	เรือน	เย็น

Figure 3. Kam-Tai Fricative-Sonorant Correspondences (33-46)

owing to limited accessibility to literatures. The cases of the labial nasal (but not other nasals) are weak, some of the items may not be suitable, and many blanks are awaiting to be filled. Nevertheless, the correspondences presented here sufficiently indicate that the development of sonorant initials to glottal and other fricatives is not limited to upper register syllables. Syllables with either voiced or voiceless sonorant initials have an equal chance of developing fricative initials.

The Kam-Tai cases make the Hokkien items in Figure 2, vis-a-vis Figure 1, even less likely to be able to claim voiceless initials in their older forms, especially when Kam-Tai ‘five’, ‘six’, and ‘goose’ are compared. The fricative ‘five’, ‘six’, and ‘goose’ have upper register tones, and the sonorant ‘five’, ‘six’, and ‘goose’ have lower register tones. Such distribution of tones is logical, but to place the Hokkien items, with lower register tones, in Figure 2 in the historically upper register needs justifications.

2. ASPIRATION

The foregoing is not a denial of the possibility that voiceless sonorant initials can become voiceless glottal fricatives. As a matter of fact, it is a normal tendency. Sui dialectal comparison clearly demonstrates such a possibility (Figure 4). Miao sociolinguistics also supports it, though transitional stages may be involved (Figure 5). Examples from various languages multiply. The point is that voiceless glottal fricative initials may also have other sources than voiceless sonorants, or at least other motivations, especially when the syllables have lower register tones.

Before exploring the “other motivations”, I shall first investigate the nature of the so-called “voiceless” sonorants and their universal development. In Figure 5, the Miao bilabial nasal initials are double marked as voiceless and aspirated. The double marking is also present in dental and palatal nasals in the same source of material. It sends an unmistakable message that voiceless sonorants tend to be aspirated, if not inherently aspirated. The aspiration is also recorded or even described for Kam (Liang 1980a:8-9), Pubiao (Chen 1984a:71), Yao (Chen 1984b:17), Tibetan (Zhang Jichuan:16), Wa (Zhou and Yan:202f), etc. The aspiration feature also manifests itself when a syllable with voiceless nasal initial breaks up into two syllables, as in Achang (Figure 6), where the aspiration in the

Sandong	Yang'an	Pandong	
1. mə ¹	h̃wa ¹		dog
2. mai ⁵	h̃wai ⁵	h̃wai ⁵	new
3. məja:n ³	h̃wa:n ³		used (half old)
4. mə ³	h̃o ³	h̃o ³	mouse
5. mə ³	h̃a ³	h̃ja ³	bow
6. məja:n ⁵	h̃a:n ⁵	h̃ja:n ⁵	cool
7. mə ⁵	h̃u ⁵	h̃u ⁵	pig
8.	h̃u ¹	h̃iu ¹	stinking

Figure 4. Sui Fricative-Nasal Correspondences
(From Zhang Junru 1980b: 79, 81)

Pingzhai 50 ⁺ yr Yanzhai 60 ⁺ yr	Pingzhai 50 ⁻ yr	Yanzhai 50-60yr	Yanzhai 50 ⁻ yr	
1. mə'ε ³³	p'ε ³³	f'ε ³³	hε ³³	flea
2. mə'o ³³	p'o ³³	f'o ³³	ho ³³	fine hair
3. mə'o ⁴⁵	p'o ⁴⁵	h'o ⁴⁵	ho ⁴⁵	puffed rice
4. mə'aŋ ³⁵	p'aŋ ³⁵	f'aŋ ³⁵	haŋ ³⁵	night

Figure 5. Miao Fricative-Nasal Correspondences
(From Wang Chunde 1984:13a)

1. ɲ̥ɔŋ]	ni] xɔŋ]	nose
2. ɲ̥ɔŋ]	ni] xɔŋ]	hoe

Figure 6. Breaking of Achang Voiceless Palatal Nasal
(From Dai Qingxia 1985: 13a)

second syllables is realized as the voiceless velar fricative.

The “voiceless” sonorants are, therefore, better treated in the light of aspiration, even though in at least one language they are phonetically unaspirated.² Bodman (1985:10) makes a point that he “prefer[s] to regard the new series [in southern Chinese] as aspirated rather than voiceless nasal”. The concept of “aspiration”, however, should be clarified, along with “murmuring” and “breathiness”, when discussing syllable types and features. Both aspirated (secondary clear) syllables and murmured (muddy) syllables are characterized by an extra puff of air, which shall be called “breathiness”. Bodman’s “aspirated”, more specifically, is “un-murmured breathy”. However, for the sake of convenience and convention, hereafter breathy without murmuring will often be referred to as “aspirated”, versus “murmured”, when no confusion shall arise.

The fact that the newly defined “aspiration” (breathiness without murmuring) is different from “aspiration” in its conventional definition is seen in Achang grammar (Dai and Cui:73-74) and in the effects of this phonation type on tones in Tai and Sinitic, such as Suzhou (cf. Ye:6). In the contrast between active and causative, the types of syllables, described as differing in initials, are decisive. Causative is characterized by breathiness, including voiceless aspirated stops and affricates, “voiceless” nasals and lateral, and voiceless fricatives. The same group of segments constitutes Tai “high consonants”, or “secondary clear” syllables in the terminology of traditional Chinese phonology. These high consonants, including “voiceless” sonorants, are defined as “aspirated”.³

For aspiration to be breathy is too obvious a fact that it is too often neglected, and we shall neglect it for the time being. As for murmuring, its breathiness can yield voiceless aspiratedness for obstruents, as seen in modern Siamese low consonants and in many Sinitic reflexes of lower register words, and even aspiratedness for fricatives, as described in Fang 1966. When the breathiness in muddy, murmured syllables become stronger, it can become aspiration or secondary clear. On the contrary, the breathiness in clear, aspirated syllables can also be reduced to murmuring or muddy, such as shown in the transcriptions of

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2. Professor Jerold Edmondson kindly informed me (26 July 1990) that E has “developed u.a. [unaspirated] voiceless sonorants.”
 3. Wang Li in his *Hanyu Yinyunxue* (1946, reprinted 1972, Hong Kong: Zhonghua Book Co., p. 63) also calls them “aspirate surd” [voiceless aspirated]. If one prefers to avoid confusion, a less common term “spirantisation” should be more suitable.

Maonan (Edmondson and Yang 1987) and Kam (Liang 1980b:9).

With Bodman's concept of "aspirated nasals" for Sinitic, with the fact that voiceless sonorants in most cases are aspirated, and with the affirmation that both aspiration and murmuring are breathy, items in Figure 2 become easy to explain. Sometime in the history of Hokkien, as well as in Min in general, the breathiness of murmured syllables became so strong as to affect the initials, devoicing them but retaining their pitch contrast with un-murmured (clear) syllables, that is, the syllables remain in the lower register so far as pitches are concerned. The devoiced sonorants continued to be breathy and ultimately became the glottal fricative.

The explanation can be applied to Kam-Tai as well, though not to all items in Figure 3. Nevertheless, this paper will restrict its scope to Tai only. The six categories of Proto-Tai initial consonants (Zhang Junru 1980a:32) can be rearranged as in Figure 7, where Li's (1977) reconstructions are also incorporated. Gedney's (1985:120) ordering of phonation types is not followed here. These scholars' "voiced" is considered as "murmured" here instead, so as to account for modern aspiration. The rearrangement makes it very clear that both aspirated (high) and murmured (low) sonorants, sharing the feature breathy, can have reflexes as glottal fricative and that these syllables with modern glottal fricative initials can be in either tonal register *depending on their original phonation types*.

The blank slot in Figure 7 offers an alternative explanation for Figure 1. Items in Figure 1 are believed to have had voiceless sonorant initials because of their tonal register; however, none of them have a glottal fricative initial. It could be possible as well that they are reflexes of syllables which were historically plain and non-breathy, or even glottalized, that is, having an initial belonging to either set of the mid consonants, but not the high consonants. The explanation is supported by modern Wu phonemics.

In the majority of the post-Qieyun Sinitic phonological systems, the split pattern of tone-B syllables (Figure 8) is that sonorant syllables behave as if they were un-murmured in having the upper register tone, i.e. tone 3/B1.⁴ As for

4. Exceptions with regard to the split of tone B are acknowledged. However, whether these exceptions are pre-Qieyun or post-Qieyun reflexes needs further researches. Even if they are post-Qieyun, it is necessary to investigate whether murmuring is far more difficult to retain in the specific phonological environment provided by tone B. Such environment

	Non-Sonorant	Sonorant
Plain (non-breathy)	p t k ts	
Glottalized (non-breathy)	ʔb ʔd	ʔ ʔm ʔn ʔne ʔŋ ʔj ʔw
Aspirated	ph th kh tsh f s x h	m̥ n̥ ŋ̥ l̥ r̥
Murmured	b̤ d̤ g̤ dz̤ ʋ̤ z̤ ɣ̤	m̤ n̤ ŋ̤ l̤ r̤ j̤ w̤ ɦ̤

Figure 7. Proto-Tai Initials

Historical Tone Category	Register	Murmuring	Sonorant	Modern Tone Category
B	1	—	—	3
	1	—	+	3
	2	+	—	6
C	2	+	—	6
	2	+	+	6
	1	—	—	5

Figure 8. The General Split Pattern of Post-Qieyun Sinitic
Tone B and Tone C

tones A, C, and D, sonorant syllables behave as if they were murmured in having the lower register tones, i.e. 2/A2, 6/C2, and 8/D2. Some modern Wu dialects, such as Shanghai, Wenzhou, and Wenling, still maintain register contrast and have nasal and liquid syllables in both registers. In Wenling (Li Rong:1), which has the general post-Qieyun tonal split pattern, tone-3/B1 nasal, lateral, and zero initial syllables are glottalized, and those in the other tone categories are murmured. Structurally, the glottalized syllables fill in the empty slot in Figure 7, for glottalization is concomitant with sonorants and, therefore, is not emic with regard to sonorants. Either plain or glottalized, the primary contrast is between murmured and un-murmured, and the secondary contrast is between breathy and non-breathy. There is no contrast between voiced and voiceless.

In spite of the regular post-Qieyun split pattern, sonorant initial syllables also occur in tones 1/A1, 5/C1, and 7/D1 throughout Sinitic, some more, some less. In Shanghai (Xu and Tang:7), like in Wenling, upper register sonorants of all tone categories are glottalized, and lower register ones are murmured. Such contrast between breathy/murmured and non-breathy/un-murmured sonorant syllables seems to have been wider-spread, even universal, in Sinitic.

The sonorant initials in the upper-register non-breathy/un-murmured syllables did not have to be devoiced. Chang 1973 suggests a contrast between murmured and un-murmured *syllables* for Middle Chinese, rather than a contrast between voiced and voiceless *initials*. The evidence is primarily the breathiness in the modern reflexes of historical muddy syllables (including those with fricative initials), and the existence of murmured syllables in some modern Chinese. If the same contrast between breathy/murmured and non-breathy/un-murmured is applied to the history of Min, items in Figure 1 will be more adequately explained. The non-breathy (mid, either glottalized or plain) sonorant syllables have retained their sonorant initials and upper register tones (Figure 1); whereas the murmured and breathy ones (low), except some labial nasals,⁵ lost their sonorant initials but have retained their breathiness and second register tones

has to be discovered by experimental phonetics. It could be vital to the study of tonogenesis, at least concerning tone B.

5. Figure 2:2-4. These exceptions could serve, in a way, in the following section as evidence of the occurrence of pre-sonorants in Hokkien in the past. A contrast between murmured and un-murmured pre-sonorant cluster syllables could be postulated. However, since strong evidence from other sources is yet to be discovered, a note is made for them here instead. They will be investigated in future studies.

(Figure 2). So far as the evidence provided by available data can tell, there did not have to be voiceless sonorants (high) at the time of Hokkien tonal split.

3. PRE-SONORANTS

“Breathiness” or “aspiration”, according to the statement above, is the key to the problem of the conflict between Figure 1 and Figure 2 and to the interpretation of “voiceless” sonorants. However, to the extent of my knowledge, the notion of aspiration, such as that in Tai high consonants, has not been taken advantage of to tackle the problems of voiceless sonorants beyond the sphere where orthography and comparative material can resolve. In this section I shall correlate Tai aspiration to pre-sonorant clustering so as to explore the more remote origins of voiceless or aspirated sonorants. I shall also make a conjecture that Sinitic follows the same path of sound change. In fact, Mei and Norman 1971 has already postulated **Cl-* as the source for **lh-* from solid data.

The Kam-Sui three-way contrast of glottalized (mid), aspirated (high), and voiced/murmured (low) sonorants is not evident in modern Tai, but it is in Zhang Junru’s (1980a) Proto-Tai. Contrasts such as Siamese

- <ha-C> ‘five’
- <hna-C> ‘face’
- <na-C> ‘younger maternal uncle/aunt’

(where “C” is one of the tone categories) are challenging indeed. Do they involve a two-way contrast or a three-way contrast in the past? Li (1977) reconstructs the initials of <ha-C> and <hna-C> as **h-* and **hn-* respectively in Proto-Tai. But if Tai ‘five’ is in effect related to Sinitic ‘five’ as well as Kam-Sui ‘five’, an explanation is needed to distinguish <ha-C> and <hna-C> as either belonging to different strata, or having had different syllable structures, or otherwise. This paper is not able to answer the question concerning the reconstructions of these lexical items. However, it may be helpful, for now and for future studies, to make analogical or parallel observations by referring to other languages concerning the aspiration of sonorants.

In various Southeast Asian languages, the segmentals preceding or following sonorants can aspirate the syllables or devoice the sonorants, or both. In Bunu (Figure 9) and in most Amdo Tibetan dialects (Figure 10), post-nasal voice-

Gundong	Da'nanshan	
1. ɦ ₁ ha ¹	ntsh ₁	coarse
2. ɦ ₁ hi ¹	ntsha ¹	clear
3. ɦ ₁ han ¹	ntshon ¹	foot-bindings
4. ɦ ₁ hei ¹	ntshan ¹	blood
5. ɦ ₅ he ⁵	ntshai ⁵	fear
6. ɦ ₅ ho ⁵	ntsho ⁵	wash (clothes)

Figure 9. Bunu Pre-nasalized Clusters
(From Chen Qiguang 1984b: 17)

	Daofu	Qilian	Tianzhu	Luqu	
1. མཐོ་བ་	mt'o	mt'o	mt'o	nt'o	high
2. མཚོ་	mts'o	mts'o	mts'o	nts'o	lake
3. འཕྲེན་པ་	nt'en	nt'en	nt'en	nt'ən	to tug
4. འཁོར་	ŋk'or	ŋk'or	ŋk'or	ŋk'or	circle

Figure 10. Tibetan Pre-nasalized Clusters
(From Zhang Jichuan 1981: 15b)

less aspirated obstruents motivate the nasal initials to devoice. Pre-nasal and pre-liquid consonants also have the same function (Figure 11, mainly from *ibid*:16 and *Gesangjumian*:17). In some Tibetan dialects, most pre-sonorant consonants, whether voiced or not and whether aspirated or not, become the velar fricative with different degrees of breathiness. In some others, there are conditions, such as the Kang dialect of Tibetan, where only nasals preceded by *s- are devoiced. In Proto-Vietnamese, sonorants preceded by a spirant were also rendered voiceless (cf. Haudricourt:50).

The post-sonorant clustering will not be discussed beyond this point, for it is not canonical in Sino-Tai. The examples in Figures 9 and 10 only serve to further illustrate that a sonorant clustering with other consonants can be devoiced. It is the pre-sonorants that interest us here specifically, for pre-sonorant clustering is canonical in Tai and old Sinitic and can yield high tones, disregarding whether the pre-sonorants are voiced or voiceless—at least so in Tibetan (Zhang Jichuan:15-16). Above all, it seems to be a universal tendency in Southeast Asia that pre-sonorant consonants are often reduced to aspiration, if they are not completely lost, if the sonorants are not lost or reduced to semivowels, and if there is no vocalic intrusion between the pre-sonorants and the sonorants. As such, it is not unreasonable to consider “voiceless” sonorants in Sinitic and Tai as evolving from pre-sonorant clusters.

In modern Siamese, the forms of initial consonant clusters are very limited in variety, and many orthographically clustered consonants are pronounced with an intrusive *a* in between. However, (1) the contractions of some clusters, e.g. <cr> → /c/, <sr> → /s/, and <dr> → /s/, (2) the different pronunciations of the same spellings, e.g. <sra²⁷> → /sara²⁷ ‘vowel’, sa²⁷ ‘a well’/, (3) lexical doublets (Figure 12, cf. also the interdialectal correspondences in Li 1977:36, 69, 93, 121, 128, 134), and (4) comparative studies, all point to a richer inventory of pre-sonorant clusters in the past. In other words, there could have been a contrast of *pre-sonorants* and *pre-syllables* in Tai, like the case in Cua (Maier:16):

<i>Pre-sonorant</i>	<i>Pre-syllable</i>
bla ‘answer’	bala ‘jest: joke’
vluk ‘drown’	valuk ‘lake’
klaat ‘fog’	kalaat ‘hunk of meat’
trâk ‘eggplant’	tarâk ‘unison call in prayer chant’

The modern Siamese intrusive *a*’s, then, might not all have their historical exis-

	Xiahe, Gansu	Guide, Qinghai	BATANG Ganzi, Sichuan	GANDE Guolo, Qinghai	Lhasa, Tibet	
1. dmag དམག	^h mak					soldier
2. dmar-po དམར་པོ་		hmaro				red
3. rmo རྫོ་	^h mo					plough
4. rma-bya རྫི་བྱ་		hmaf _ɕ a				peacock
5. sman སྐྱེན་	^h man		m̥ɛ̃]		m̥ɛ̃:]	medicine
6. gnam གནམ་	^h nam	hnam			nam]	sky
7. rna རྩ་	^h na	hna			ʔa[m̥] t̥oʔ]	ear
8. sna སྒྲ་	^h na		ɲa]		nə] ku]	nose
9. gnjid གཞིད་	^h ɲət	hɲəl			ɲɛ:]	sleep
10. rnjed·pa རྩེད་པ་	^h ɲet	hɲel				find
11. snjan-po སྒྲིན་པོ་	^h ɲan-po					pleasant to hear
12. snjing སྒྲིང་			ɲ̥i]		ɲ̥i:]	heart

13. dngul དངུལ་	^h ŋu		^ʔ ŋu	ŋyː˥	silver
14. rnga རྩ་	^h ŋa	hŋa	^ʔ ŋa		drum
15. rnga-morng རྩ་མོརྩ་				^ʔ a˥ moŋ˥	camel
16. lnga ལྔ་	^h ŋa	ŋa˥	^ʔ ŋa	ŋa˥	five
17. sngo སྐོ་	^h ŋo 'blue'	ŋo˥			young grass
18. klog ལྟོག་	^h lok				read
19. gla གྲ་	^h la		^ʔ la	la˥	wage
20. bla-ma བླ་མ་	^h lama			la˥ ma˥	lama
21. rlurng རྩེརྩ་	^h luŋ		^ʔ loŋ		the wind
22. gyag གཡག་	^h jah	hjaak		ja˥˥	yak
23. gyu གཡུ་			^ʔ ja		turkoiis
24. gyer-ma གཡེར་མ་				^ʔ e˥ ma˥	Guinea pepper

Figure 11. Reflexes of Tibetan Pre-sonorant Consonants

0. ขนด / คด	khandòt/khót	crooked
1. ฉลือก / ฉีก	chalī:k/chī:k	to tear
2. นิลวย / สวย	chaluay/sūay	beautiful
3. โฉลก / โชค	chalò:k/sò:k	chance; luck; fate
4. เถลือก / เถิก	thalò:k/thè:k	uncovered (as when clothing is blown back by the wind); inverted (as when an umbrella is blown inside out by the wind)
5. ทนม / ทม	thanom/thom	a house; a home
6. ฟนวจ / บวช	phanùat/bùat	to (be) ordain(ed) as a member into the priesthood
7. สนุข / สุข	sanùk/sùk	happy(ness)
8. สว่าง / สาร	sawǎ:ng/sǎ:ng	ghosts; demons
9. แมลง / แมง	malɛ:ng/mɛ:ng	insect

Figure 12. Graphic Initial Cluster & Single Consonant Doublets in Siamese

tence. If this is true, then the inventory of pre-sonorant clusters must have been larger than what has been reconstructed as to date. Other clusters that are not evident in the written script are also awaiting to be discovered. Many of these pre-sonorant initial clusters, belonging to some strata, may have become aspirated or voiceless sonorants. The orthographically pre-aspirated sonorants in Siamese and the descriptively voiceless sonorants in Kam-Sui are possibly of this origin. The hypothesis opens room for Siamese orthographic pre-sonorant *h*'s to be considered as a phonologically pre-sonorant consonant or even as the resultant breathiness from the simplification of consonant clusters, rather than a marker of voicelessness.

What is true for Tai may be true for Sinitic also. Scholars already hypothesized changes such as **sm-* > **xm-*, **sn-* > **hn-*, and **sng* > **xng* from Proto-Chinese to Old Chinese (cf. Mei:334), which conform to the universalism mentioned above. The “**s-* orgy” cannot be a privilege of Tibeto-Burman after all. Beside the **s-* and the more common pre-sonorant velar stops, there must have been an array of other more unexpected pre-sonorants in Sinitic. This point, perhaps, can only be reasoned, but not proved.

A comparison of Figure 11 and Figure 13 may be helpful in clarifying the logic of the assumption. In Figure 13, both Sui voiceless/aspirated and glottalized nasals correspond to orthographic Siamese aspirated nasals, with some exceptions. In other words, Siamese nasals written with a pre-sonorant *h-* correspond to two types of nasals in Sui: aspirated (high) and glottalized (mid). In Figure 11, Tibetan pre-sonorant consonants can become either aspiration (high) or glottalization (mid), or can even cause the sonorants to be lost. Furthermore, Luquan Lolo ²*h-* corresponds to Burmese *Cr-* and *r-*, which are reconstructed as **Cr-* by Nishida (1985:233). In other words, both glottalized sonorant syllables and aspirated ones can be reflexes of pre-sonorant clusters of various kinds. In this respect, it might be that items in Figure 13 had other pre-sonorant consonants beside ²- and *h-*. Pushing the analogy further, I wonder whether the same situation is also true for many items in Figure 1. That is, no matter whether they are preglottalized (²-) or pre-aspirated/devoiced (*h-*) in some stage of their evolution, these items had pre-sonorant clusters in an earlier stage.

Opinions differ, of course. Li (1977) reconstructs some pre-sonorant consonants for Tai, such as **xl-* for ‘six’, which are purely based on lexical comparisons. Edmondson (1990:7) considers E high consonants, corresponding to Kam

Sui	Siamese	
1. ma ¹	ma ¹	หมา dog
2. mu ⁵	mu ¹	หมู pig
3. na ³	na ³	หน้า bow
4. no ¹	nau ¹	หนาว winter
5. no ³	nu ¹	หนู mouse
6. ɲa:n ⁵	jen ²	เย็น cool
7. ʔuk ⁷	no:k ⁸	นอก outside
8. ʔa ¹	ɲa ²	งา sesame
9. ʔwat ⁷	no:k ⁸	โงก to nod
10. ʔjon ¹	ju:n ²	ยืน to stand
11. ʔma ³ 'soft'	mo ⁵	หม้อ young of cattle
12. ʔmi ¹	mi ¹	หมี a bear
13. ʔna ³	na ³	หน้า the face/ front
14. ʔnun ¹	no:n ¹	หนอน maggot
15. ʔna ¹	na ¹	หนา thick
16. ʔa:k ⁷	ɲwak ⁷	เหงือก gills

Figure 13. Sui Voiceless and Glottalized Sonorants and Their Siamese Correspondences

and Zhuang modern mid and low consonants (cf. also Sui in Figure 13:1-6), as being devoiced or aspirated conditioned, rather, by high tones. What this paper offers is to search beyond the limit of current comparative materials by fitting Sino-Tai in the pattern of Tibeto-Burman or Austroasiatic sound change. Without the vision, it will be difficult to penetrate the “iron curtain” (Gedney’s (1985:123) words) of reconstruction or to distinguish some syllable structures, such as those of <ha-C> ‘five’ and <hna-C> ‘face’, on the deeper level of their linguistic histories. The present study can solve no such specific problems. It nevertheless has located an area which may be of interest to some future researchers to search for clusters in Tai, and perhaps also in Sinitic, in relation to voiceless sonorants.

4. THE EXPLANATION IN SHORT

Based on the belief that there are some universal patterns of sound change, this paper boldly and freely uses analogy as a guide to explain the so-called “voiceless” nasal and liquid in Tai and Sinitic as possibly having their origin in initial clustering and in breathiness. Pre-sonorant consonants motivate higher pitches and breathiness or, less frequently, glottalization. Strong aspiration devoices the sonorants. If the aspiration is even stronger, sonorants can be deleted, with nasality delayed (i.e. retained as vocalic nasalization). If the aspiration is weak, diminished, and finally lost, the sonorants become plainly voiced. In either case, however, the syllables have higher pitches, that is, in the upper register, such as Siamese *ha*³ ‘five’ and *na*³ ‘face’, or Hokkien *moo*¹ ‘hair’ and *lun*⁵ ‘soggy’.

Nevertheless, modern upper register syllables with voiced sonorant initials are not necessarily all reflexes of these aspirated syllables (high), commonly known as syllables with voiceless sonorant initials. Any un-murmured syllable (high or mid) regularly belongs to the upper register. It can be plain, glottalized, or aspirated. Therefore, items in Figure 1 can come from different sources, not necessarily exclusively from aspirated syllables with voiceless sonorant initials. Nor all nasalized syllables with a fricative initial and a lower register tone are originally murmured. Their historical “voiceless” sonorant initials, if ever existed, are merely an intermediate stage. As such, items in Figure 2 belonged to the lower register. They have not shifted register ever since the tonal split.

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漢語傣語次濁幽聲母闡釋

張裕宏

台大外文系

摘 要

學者一般認為傣語與漢語歷史上除次濁響聲母外有另一套不帶音的，其主要證據為單數調與喉擦音聲母。然而單數調與喉擦音聲母並不必然意味其音節在古代有次濁幽聲母。其實傣語與漢語的次濁幽聲母可能還是後期的發展結果。更早期的區別可能在於「語音氣勢」(phonation types)，其中「送氣」與幽化有關。其他語言的資料肯定複輔音聲母簡化可引起送氣，而且有聲調語言的送氣次濁聲母音節通常有單數調或高調。由其他語言的情況推論漢語、傣語，可借以探尋次濁幽聲母所反映的複輔音聲母。