The origin of tones in Vietnamese

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The origin of tones in Vietnamese (1954)

translated by Marc Brunelle

Abstract

[This paper revisits Maspero's (1912) insights about the Vietnamese tone system and its link with consonant types. H. Maspero noted structural similarities between the tone systems of Vietnamese and Tai; he projected these tone systems into the indefinite past, and concluded (against Przyluski) that Vietnamese belonged to the same language family as Siamese. The present article shows that tones developed in Vietnamese from a non-tonal proto-language, as they also did in Chinese, Tai, and Miao-Yao (Hmong-Mien). Correspondences between initial voicing and tone register are illustrated by data from Vietnamese, Chinese and Tai, while the relationship between laryngeal codas and tone contours is established through a comparison of Vietnamese with other Mon-Khmer languages. This brings out the main mechanisms involved in East Asian tonogenesis.]

[1. Introduction]

[1.1. The issue of the classification of Vietnamese: is tone a relevant criterion?]

In 1912, Henri Maspero claimed that Vietnamese did not belong to the Mon-Khmer language family, but must rather be a member of the Thai[1] family, for the following reasons:

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[1]. [Haudricourt emphasized a distinction between Dioi (also known as "Zhuang", after the Chinese ethnonym *Zhuàng* 壮) and closely related languages on the one hand, and on the other hand the rest of the family, referred to as "*le thai proprement dit*" (1956: 313). Haudricourt's views on Tai language

1. Tone systems are an integral part of what defines a language family, since there are regular tone correspondences between languages of the same family, for example, between the various dialects of Thai-Tay or between the various dialects of Chinese.

2. A non-tonal language, when it borrows words from a tonal language, does not borrow tones, as exemplified by Siamese loanwords into Khmer.

3. The relation between tones and initials is the same in Vietnamese and in Thai-Tay. It sets apart a series of high initials (aspirates and fricatives), which do not have the same influence on tones as plain voiceless stops, the latter constituting the middle series (Maspero 1912: 114–116).

In 1924, J. Przyluski reaffirmed the Mon-Khmer affiliation of Vietnamese, pointing out that:

> "Until we understand the circumstances under which a given language loses or preserves its tone system, it is safer not to take into account the loss or preservation of tone systems when determining language genealogy." (Przyluski 1924: 395–396)

Finally, G. Cœdès further stated in 1948:

> "In my opinion, given that we can neither deny the fundamentally Mon-Khmer character of the Annamese vocabulary nor the fundamentally Tai character of its tone system, the real issue is to determine if it is more likely for a non-tonal Mon-Khmer language to have adopted the Tai tone system or for a Tai language to have incorporated a considerable amount of Mon-Khmer vocabulary." (Cœdès 1948: 72)

The progress of general linguistics, by bringing out the special importance of what distinguishes words, i.e. what is "distinctive" (the object of phonology), as opposed to the various aspects of the material realization of the sounds of language (the object of phonetics), allows us to revisit with profit some parts of Henri Maspero's work and to answer G. Cœdès's question.

[1.2. The analysis of Middle Chinese tones]

Let us first examine what Maspero wrote about tones:

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classification can be found in "On the reconstruction of initial consonants in monosyllabic languages: the case of Proto-Tai" (1956; this volume) and his 1967 article about Lakkia.]

"Chinese tones were not simple phenomena; they were made up of two elements, height and contour. Height depended on the initial, while contour depended at least to some extent on the final. Vowel quality and duration were irrelevant. In Middle Chinese, there were two heights and four contours. Voiceless initials, with or without aspiration, were high; voiced initials were low. The four contours are what is commonly called 'the four tones' (四聲 sì shēng) of Chinese. The most salient feature of this system is thus the effect of the initial." (Maspero 1912: 88-89)

Maspero adds in a note:

"It is intriguing that the Chinese, who investigated these questions so thoroughly, do not have words to refer to the high and low tone series. This is probably due to the emphasis that they put on the theory of the four tones. They generally use the words 清 [qīng] and 濁 [zhuó] that, literally, apply to the initial and mean 'voiceless' and 'voiced', respectively, but they attribute very little importance to tone height: instead, they essentially focus on contours. In dictionaries ordered by rhymes, no distinction [in terms of tone height] is made and words with voiceless and voiced initials are jumbled together in the same rhymes." (Maspero 1912: 89, endnote 2)

One could infer from Maspero's text that the Chinese of the 6th century had taken their analysis of the eight tones of their language so far that they had broken them down into four contours and two heights and they had words to designate the four contours (四聲 *sì shēng*) but no terms to designate tone heights. On the other hand, Maspero insists on the correspondence between initials and height:

"Actually, the characteristic of Far Eastern languages is not so much the existence of tones (since examples have been found elsewhere, as in some African languages, for instance) as the regular system whereby tone height depends on whether the initial was originally voiceless or voiced." (Maspero 1912: 89, endnote 1)

However, a few lines before, Maspero had admitted that "in almost all modern languages, phonetic evolution has introduced a degree of confusion that makes this phenomenon unrecognizable". To the modern linguist, it is precisely because there are no correspondences between initials and tones, i.e. because a syllable composed of the same consonants and vowels can

take on any of the five or six tones of the language,[2] that Cantonese, Vietnamese and Siamese are languages that have five or six tones.

In Middle Chinese, following Maspero's own description, the situation was different: a word having a **k**- as its initial could only receive one of the three "high" tones (out of six) and a word with an initial **g**- could only receive one of the three "low" tones (out of six). No syllable made up of the same consonants and vowels could select among more than three tones to form a word. In view of this state of affairs, all modern linguists will agree with the observation of the 6th-century Chinese authors: there were only three tones in Middle Chinese. The association of initials with a given musical height is an unconscious, purely phonetic phenomenon, which is also found in other languages (for instance in Hottentot: Beach 1938).

Middle Chinese had only three tones up until the 9th century. At that time, the voiced stops **g**, **j** [IPA: ɟ], **d** and **b** devoiced to **k**, **c**, **t** and **p**, aspirated or not depending on dialects and on tones. From that point on, the musical height of the tone became a contrastive phonological property used to distinguish words. Two words which used to be distinct because one had an initial **k**- and the other had an initial **g**- came to have the same initial, **k**-, and to be distinguished solely by the higher tone of the former. The three-tone system thus became a six-tone system.

[1.3. Analogy between the Chinese tone system and the tone systems of Thai-Tay and Vietnamese]

Maspero was absolutely right to insist on the analogy between the Chinese tone system and the tone systems of Thai-Tay and Vietnamese. We do not have ancient descriptions of Thai-Tay, but the Siamese script shows that around the 12th century the language only had three tones and had voiced [initial] stops. Then, when these voiced stops devoiced – as in Chinese –, the three-tone system split into a six-tone system. These six tones are still distinct in the Thai-Tay dialects of southern China and northern Vietnam, but their number has been reduced to five in Siamese following the merger of two of the tones. In order to transcribe the three tones in Old Thai [i.e.

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[2]. To simplify the demonstration, we only consider non-checked syllables: syllables ending with a voiced sound (a vowel, or a nasal consonant). Syllables closed by -k, -t or -p are treated as having additional tones in Cantonese and Middle Chinese; this is why Cantonese is said to have nine tones, and Middle Chinese to have had eight.

prior to the split of the tone system], only two symbols were needed; these symbols are still used in Thai orthography: *mai ek* (ไม้เอก) and *mai tho* (ไม้โท).

Vocabulary that is shared by Thai-Tay and Chinese[3] allows us to establish the following tone correspondences:

[Table 1. Tone correspondences between Thai-Tay and Chinese]

Thai script	Chinese	[tone contour]	[diacritic used in tables]
no tone mark	平聲 *píng shēng*	[level tone]	[꜀X]
mai ek (ˋ)	去聲 *qù shēng*	[falling tone]	[Xꜛ]
mai tho (ˊ)[4]	上聲 *shǎng shēng*	[rising tone]	[꜂X]

[2. The three tones of Old Vietnamese]

H. Maspero showed that the six tones of Vietnamese can be divided into two series (Maspero 1912: 95–96): one series composed of the three tones *ngang*,[5] *hỏi* and *sắc* was associated with former voiceless initials, while another composed of the three tones *huyền, ngã* and *nặng* occurred with former voiced initials. The situation in Old Vietnamese, i.e. before the 10th century, was thus the same as in Proto-Tai and in Chinese: there were only three tones, which were each split into two during the initial-consonant shift. We will designate these old tones by concatenating the names of their two modern reflexes: *ngang-huyền*, *hỏi-ngã* and *sắc-nặng*, respectively.

The correspondence between the three tones of Old Vietnamese and the three tones of Proto-Thai-Tay is given in a list provided by Maspero[6]

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3. This list of shared vocabulary was established by H. Maspero and K. Wulff (Maspero 1920: 62, 68, 84, 86, 94, 117; 1927–1935: 321–322; Wulff 1934: 171–187) under the hypothesis of a genealogical relation; however, the list remains valid if one considers, following P. K. Benedict (1942), that they are loanwords, which is also my opinion.

4. [The symbol for *mai tho* given by Haudricourt is the current form; in the original Siamese script (in the 13th century), this tonal category was written with ˑ.]

5. Maspero used the label *bằng* for the tone left unmarked in the orthography. In fact, this word is a Vietnamese translation of Chinese *píng* 平 and refers to the set of the two tones *ngang* and *huyền*.

6. [Proto-Thai-Tay and Middle Chinese forms were added by Haudricourt.]

(Maspero 1912: 97), to which we can also make a few additions (Tables 2, 3 and 5).

2.1. Tone *ngang-huyền*

[Table 2. Correspondences for the Old Vietnamese tone *ngang-huyền* (Sinological terminology: *píng*)]
2a. Maspero's examples

meaning	Vietnamese[7]	Siamese[8]	Proto-Thai-Tay	Middle Chinese[9]
'to pound'	*đâm* [dɤ̆m˧]	ตำ *tām*	tam	—
'to divide'	*băn*[10] [ɓăn˧]	ปัน *pan*	pan	分 ₵pi̯uən
'to follow'	*noi* [nɔj˧]	โดย[11] *toy*	(Khmer: เดาะ [daɔj][12])	—
'sloping'	*nghiêng* [ŋiəŋ˧]	เอียง *ʔeyṅ*	(Khmer: เអៀង [ʔiəŋ])	—
'lead'	*chì* [ci˨]	ชิน[13] *jin*	ɟun	鉛 ₵i̯wän[14]
'net'	*dò* [ðɔ˨]	ขอ *yạ*	—	—
'raft'	*bè* [ɓɛ˨]	แพ *bee*	be	—
'to explore'	*mòng*[15] [mɔŋ˨]	มอง *mạṅ*	—	—
'to flay'[16]	*đòn* [dɔn˨]	ทวน *dvan*	(Khmer: เรាณ 'to hit' [tɯːl][17])	—

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7. [In Vietnamese orthography, tone *huyền* is indicated by a grave accent, and tone *ngang* is left unmarked.]
8. [The translitteration of the forms in Thai script has been provided by the editors according to the system of Coedes.]
9. [Middle Chinese reconstructions are cited from Karlgren (1940).]
10. [In modern Vietnamese, this Chinese root is only found in *băn khoăn* 'to be torn between two options, indecisive'.]
11. Maspero believed the Siamese word was of Thai stock: he compared it to a word found in Ahom and Shan (Maspero 1912: 64), but the tone of the Shan word indicates that it corresponds to Siamese ด้วย *tvay²* 'with'. [This word means 'by; as well, also, too' in Siamese.] Maspero adds one word, 'to stroke' *mo*, which is not found in Vietnamese dictionaries.
12. [This Khmer word has the very specific meaning of 'to follow in order to mate' and refers to male animals.]
13. [This archaic word refers to an alloy containing lead.]
14. [The form is wrongly printed with an apostrophe instead of the tone mark in the original, and the mistake is copied in the SELAF reprint. We have restituted Karlgren's form A^A2 32.]
15. [*Mòng* means 'to long for'.]
16. The meaning of *đòn* is rather 'stick, pole, rod'.

2b. Additional examples

meaning	Vietnamese	Siamese	Proto-Thai-Tay	Middle Chinese
'taro'	*môn* [mon˧]	บอน[18] *pan*	ꜰʔbɔn	—
'lady'	*nàng* [naŋ˨]	นาง *nāṅ*	ꜰnaŋ	娘 ꜰniạng
'dark'	*mù* [mu˨]	มัว *mvă*	ꜰmuo	霧 miu̯ʔ 'mist'
'ivory'	*ngà* [ŋa˨]	งา *ṅā*	ꜰŋa	牙 ꜰnga 'tooth'

2.2. Tone *hỏi-ngã*

[Table 3. Correspondences for the Old Vietnamese tone *hỏi-ngã* (Sinological terminology: *qù*)]

3a. Maspero's examples

meaning	Vietnamese[19]	Siamese	Proto-Thai	Middle Chinese
'spring'	*mỏ* [mɔ˨]	บ่อ *pạ¹*	ꜰʔbɔʔ	—
'to be in'	*ở* [ɤ˨]	อยู่ *ʔyū¹*	ꜰʔjuʔ	—
'to sow'	*vãi*[20] [vaj˦]	หว่าน *hwān¹*	w̥aːnʔ	—
'to bloom'	*nỏ̂* [no˨]	หน่อ *hna̩¹*	n̥ɔʔ 'bud'	—
'to swell'[21]	*phỏng* [fɔŋ˨]	ป่ง[22] *paṅ¹*	puŋʔ	—
'ricefield'[23]	*rãy* [rɤ̌j˦]	ไร่ *rai¹*	rajʔ	—
'hole'	*lỗ* [lo˦]	รู *rū*	ru[24]	—

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17. [This word either means 'width, size' or 'single, unique, isolated'. It does not have the meaning attributed to it by Haudricourt, whose Khmer source we have not been able to identify.]
18. [In Siamese, the meaning of the word has now shifted to refer to a plant of the *Caladium* genus.]
19. [Tone *hỏi* is marked with a superscript question mark: *ả*; *ngã* is marked with a tilde: *ã*.]
20. [Haudricourt follows Maspero in misspelling this word as *vải*.]
21. [*Phỏng* actually means 'burnt'. 'To swell' is *phồng*. The error can be traced back to Maspero (1912: 97).]
22. [Now spelt โป่ง *poṅ¹*.]
23. The meaning is 'swidden, slash and burn field'.
24. Maspero indicates an oblique tone. This is a mistake: the word has a level tone; *ru* with *mai ek* means 'to scratch, to scrape'.

3b. Additional examples

meaning	Vietnamese	Siamese	Proto-Thai	Middle Chinese
'loom'[25]	*cửi* [kɯj˩˧]	ก กี่ *kī¹*	ki⁷	機 ₌ki[26]
'to ride (horse)'	*cỡi* [kɤj˦˥]	ขี่ *khī¹*	kʰi⁷	騎 ₌giᵉ
'written word'	*chữ* [cɯ˦˥]	ชื่อ *jīa̠*	ɟɯ⁷ 'name'	字 dziᵊ
'bean'	*đỗ* [ɗo˦˥]	ถั่ว *thvă¹*	tʰuo⁷	荳 dəu⁷
'slap'	*vả* [va˩˧]	ฝ่า *phā¹*	fa⁷ 'palm'	—
'basin'	*ảng, ang* [aŋ˩˧], [aŋ˥˥]	อ่าง *ʔān¹*	aːŋ⁷	盎 ˀâng⁷
'to make sth float'	*lõng*[27] [lɔŋ˦˥]	ล่อง *lan¹*	lɔːŋ⁷	—

These correspondences indicate that at the time when the Tai language which is the ancestor of Siamese was spoken to the north-east of the Red River (the time when Old Vietnamese only had three tones), the tone *hỏi-ngã* had the same phonetic realization as the Old Thai tone marked by *mai ek* and the tone *qù* of Middle Chinese. It was therefore a falling tone. Chinese loanwords in Vietnamese show the same correspondence.

[Table 4. Correspondences between Old Vietnamese tone *hỏi-ngã* and Middle Chinese tone *qù*]

meaning	Vietnamese	Middle Chinese[28]
'to entrust'	*gởi* [ɣɤj˩˧]	寄 kieᵊ
'lots (divination)'	*quẻ* [kwɛ˩˧]	卦 kwāiᵊ
'mustard'	*cải* [kaj˩˧]	芥 kaiᵊ
'to marry (one's daughter)'	*gả* [ɣa˩˧]	嫁 kaᵊ
'chopped vegetables'[29]	*gói* [ɣɔj˩˧]	膾 kuâiᵊ

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25. ['Loom' is *khung cửi*. *Cửi* is used in other expressions related to weaving but does not usually stand alone.]
26. It is interesting to note that for 'loom' and 'to ride', Vietnamese and Thai agree in pointing to a reconstructed tone [qu] which disagrees with that indicated in the old rhyming dictionaries [ping].
27. [This archaic word refers to a type of leisure boat.]
28. The correspondences between Vietnamese *g* [ɣ] and Chinese k, and between Vietnamese *d* [ð] and Chinese t have already been pointed out elsewhere (Haudricourt 1950: 180-181). [Haudricourt notes Middle Vietnamese *d* as a delta: δ; the IPA equivalent is [ð]. The modern pronunciation in Hanoi Vietnamese is z.]
29. [*Gỏi* is a kind of salad.]

meaning	Vietnamese	Middle Chinese[28]
'cage'	*cũi* [30] [kuj˧˩]	櫃 kwiˀ
'to release'	*thả* [tʰa˧˩]	赦 śi̯aˀ
'to try'	*thử* [tʰɯ˧˩]	試 śiˀ
'year'	*tuổi* [tuəj˧˩]	歲 si̯wäiˀ
'hare'	*thỏ* [tʰɔ˧˩]	兔 t'uoˀ
'belt'	*dải* [ðaj˧˩]	帶 tâiˀ
'lung'	*phổi* [foj˧˩]	肺 pi̯wɒiˀ [31]
'to encourage'	*ủi* [32] [uj˧˩]	慰 ˀweiˀ
'fairness'	*nghĩa* [ŋiə˧˩]	義 ngi̯ĕˀ
'to heal'	*chữa* [cɯə˧˩]	助 dẓi̯woˀ
'chopsticks'	*đũa* [ɗuə˧˩]	箸 diwoˀ
'pouch'	*đãy* [ɗăj˧˩]	袋 dâiˀ
'hat'	*mũ* [mu˧˩]	帽 mâuˀ
'easy'	*dễ* [ðe˧˩]	易 i̯ĕˀ
'interest'	*lãi* [laj˧˩]	利 liˀ
'projecting, protruding'	*lồ* [lɔ˧˩]	露 luoˀ

Given the considerable number of Chinese loanwords in Vietnamese, one might wonder whether the words of Chinese origin that are common to Vietnamese and Thai-Tay have been borrowed separately in the two languages. Under the hypothesis that Thai-Tay and Vietnamese are not close relatives, loanwords attest a shared culture contemporaneous with the peak of Chinese influence, from the 3rd to the 6th century AD.

[2.3. Tone *sắc-nặng*]

The correspondences given by Maspero for the tone *sắc-nặng* are presented in Table 5a, and additional examples are provided in Table 5b.

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[30]. [Haudricourt writes *củi*.]

[31]. [For typographical convenience, Haudricourt typed Karlgren's ɒ as *A*. The original notation is restored in the translation.]

[32]. [This root is only found in *an ủi*, which means 'to comfort, to console'.]

[Table 5. Correspondences for Old Vietnamese tone *sắc-nặng* (Sinological terminology: *shăng*)]

5a. Maspero's examples

meaning	Vietnamese[33]	Siamese	Proto-Thai-Tay	Middle Chinese
'noise'	*tiếng* [tiəŋ˧˥]	เสียง *sīeyṅ*	ꜩsieŋ 'sound'	聲 ꜩśi̯äng
'strong'	*cứng* [kɯŋ˧˥][34]	แข็ง[35] *khĕeṅ*	ꜝkʰɛŋ	彊 ꜛgi̯ang
'to arrive'	*đến*[36] [ɗen˧˥]	ถึง *thịṅ*	ꜩtʰɯŋ	—
'to flee'	*trốn* [ʈon˧˥]	ผลุน *phlun*	—	—
'to dare'	*dám*[37] [ðam˧˥]	ย่าม *yām¹*	ꜛˀjaːm	—
'to dip'	*chấm* [cˇm˧˥]	จิ้ม *cim²*	—	—
'banana'	*chuối* [cuəj˧˥]	กล้วย *klvay²*	ꜛkluoj	—
'bread'	*bánh* [ɓɛɲ˧˥]	แป้ง *peeṅ²*	ꜛpɛng	餅 ꜛpi̯äng
'deformed'	*méo* [mɛw˧˥]	เบี้ยว[38] *pīeyv²*	ꜛˀbiew	—
'belly'	*bụng* [ɓuŋ˧˩]	พุง *buṅ*	—	—
'winding'	*quẹo* [kwɛw˧˩]	เคี้ยว[39] *gīeyv²*	—	—
'that'	*nọ* [nɔ˧˩]	นี้ *nī²*	ꜛni	—
'debt'	*nợ* [nɤ˧˩]	หนี้ *hnī²*	ꜛn̥i	—
'alcohol'	*rượu* [ɾɯəw˧˩]	เหล้า *hlau²*	ꜛlaw	酒 ꜛʦi̯ə̆u
'hook'	*nganh* [ŋɛɲ˧˩]	เงี่ยง[40] *ṅīeyṅ¹*	(Khmer: เงีือง [ŋiəŋ])	—

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33. [Tone *sắc* is marked with an acute accent: *á*; tone *nặng* is marked with a subscript dot: *ạ*.]
34. [Neither *tiếng* nor *cứng* match the Chinese and Tai tone A. The Vietnamese words both likely were words originally with final glottal stops. The meaning of Vietnamese *cứng* is 'hard'. The Chinese word 彊 'strong' (Pinyin: *qiáng*) was borrowed into Vietnamese as part of the Sino-Vietnamese layer, as *cường* [kɯəŋ˧˩], with the meaning 'strong'.]
35. [Haudricourt omits the diacritic.]
36. [Haudricourt writes *đến*.]
37. Maspero gives the Siamese word หยาม *hyām*, which means 'to insult'; the word that we give is satisfactory meaning-wise, but its spelling is not etymological. It should be written หย้าม *hyām²*. [Due to the merger of the Old Thai tone *mai tho* of the high series with the tone *mai ek* of the low series, ย่าม *yām¹* and หย้าม *hyām²* both came to be pronounced as [jaːm] with the falling tone, whence the possibility of a spelling replacement.]
38. [Haudricourt uses the wrong diacritic.]
39. [Haudricourt omits the diacritic.]
40. [This word actually means 'The pointed part of a hooked object'. The diacritics are misplaced in the original].

5b. Additional examples

meaning	Vietnamese	Siamese	Proto-Thai-Tay	Middle Chinese
'crossbow'	*ná* [naˀ]	หน้า *hnā²*	ˈnḁ	弩 ˈnuo
'morning glory'	*muống* [muəŋˀ]	บุ้ง *puṅ²*	ˀbung	—
'market'	*chợ* [cɤˀ]	ซื้อ *jī̱a²*	ˈzɯ 'to buy'	市 ˈźi
'down'	*đáy*[41] [ɗăjˀ]	ใต้ *tai²*	ˈtəj	底 ˈtiei
'to go meet'	*đón* [ɗɔnˀ]	ต้อน *ṭan²*	ˈtɔ:n	—
'incomplete'	*thiếu* [tʰiəwˀ]	เสี้ยว *sīev²*	ˈsiew	少 ˈsi̯äu

Maspero deemed the first words of the list convincing enough to establish a correspondence between the Vietnamese tone *sắc* and the unmarked tone of the High series in Siamese. However, the first two words [of Table 5] seem to be Chinese loanwords in Thai-Tay and the second word has two possible tones in Chinese, *píng* and *shǎng*. Chinese words with tone *shǎng* have given words with *sắc-nặng* in Vietnamese, as shown in Table 6.

[Table 6. Vietnamese words with tone *sắc-nặng* corresponding to Chinese words with tone *shǎng*]

meaning	Vietnamese	Middle Chinese
'to feel moved'	*cám* [kamˀ]	感 ˈkâm
'widow'	*goá bụa* [ɣwaˀ ɓuəˀ]	寡婦 ˈkwa ˈbi̯əu
'stool'	*ghế* [ɣeˀ]	杌 ˈki
'difficult'	*khó* [kʰɔˀ]	苦 ˈk'uo
'skilful'	*khéo* [kʰɛwˀ]	巧 ˈk'au
'paper'	*giấy* [ʒɤjˀ]	紙 ˈt'śi̯e̥
'race'	*giống* [ʒoŋˀ]	種 ˈt'śiwong
'lord'	*chúa* [cuəˀ]	主 ˈt'śi̯u
'younger aunt'	*thím* [tʰimˀ]	嬸 ˈśi̯əm
'cursive'	*tháu* [tʰăwˀ]	草 ˈts'âu
'purple'	*tiá* [tiəˀ]	紫 ˈtsi̯e̥
'bushel'	*đấu* [ɗɤwˀ]	斗 ˈtəu
'to compare'	*ví* [viˀ]	比 ˈpi
'plank'	*ván* [vanˀ]	板 ˈpwan
'root'[42]	*vốn* [vonˀ]	本 ˈpuən

[41]. [This word means 'bottom'.]

[42]. [The Vietnamese word is glossed by Haudricourt as *capital* 'main, essential'; this morpheme takes on the meaning 'original' in Vietnamese compounds.]

meaning	Vietnamese	Middle Chinese
'tile'	*ngói* [ŋɔj˧˥]	瓦 ˤngwa
'to host'	*chửa* [cɯə˧˥]	貯 ˤtʼɨwo
'family'	*họ* [hɔ˧]	戶 ˤɣuo
'to dye'	*nhuộm* [ɲuəm˧]	染 ˤńiäm
'to endure'	*nhịn* [ɲin˧]	忍 ˤńiə̆n
'astrological year - horse'	*ngọ* [ŋɔ˧]	午 ˤnguo
'astrological year - chicken'	*dậu* [ðɤ̆w˧]	酉 ˤiəu
'to bow'	*lạy* [lă j˧]	禮 ˤliei
'all'	*mọi* [mɔj˧]	每 ˤmuâi
'cold'	*lạnh* [lɛɲ˧]	冷 ˤlɒng
'similar'	*tợ* [tɤ˧]	似 ˤzi

The tone *sắc-nặng* was thus, like the Chinese tone *shăng*, a rising tone.

[3. Re-examining Maspero's argument that the existence of a middle series constitutes a uniquely shared feature of Vietnamese and Thai]

[3.1. Emergence of a middle series in Thai-Tay and in other language families of the area]

Before discussing whether we can distinguish a middle series from a high series of initials in Vietnamese, let us examine whether it is true that the existence of a middle series is really a distinguishing characteristic of the Thai-Tay language family.

Maspero, projecting the tone system into the indefinite past, believed that the presence of a middle series was a Proto-Thai-Tay property, only preserved in Siamese (Maspero 1911; 1912: 99). In contrast, if we examine the facts from a dynamic point of view, we can see how the middle series became distinct during the initial-consonant shift, when the three-tone system turned into a six-tone system. In Proto-Thai-Tay, there were voiceless initials (p, t, k, pʰ, tʰ, kʰ... [i.e. voiceless stops] and m̥, n̥, l̥ [i.e. voiceless continuants]), and voiced initials (b, d, g... and m, n, l...). In most Thai-Tay languages, b, d, g devoiced to p, t, k and the voicing contrast turned into a high/low tone contrast. The words that used to begin in b, d, g... and m, n, l... now belong to the low tone series while the words that used to begin in p, t, k... and m̥, n̥, l̥... now belong to the high tone series. However, in Siamese (and in neighbouring Lao dialects), voiced stops

became aspirated as they devoiced: **b**, **d**, **g** became **p^h**, **t^h**, **k^h**, also acquiring a low pitch. [Syllables with] Proto-Thai-Tay unaspirated voiceless stops ***p**, ***t**, ***k** thus did not have to modify their original pitch because they were not at risk of merging with [syllables with] the former voiced stops: they do not belong to the high series because they do not have to contrast with a low series. They form an intermediate series, called "middle series", whose unmarked tone (= *píng* 平) merges with the unmarked tone of the low series, while its marked tones merged with those of the high series.

In Dioi,[43] according to Li Fang-kuei's analysis (Li 1944), since voiced stops became voiceless unaspirated (there are no aspirates in the language), the only initials that could not undergo a merger with something else during the initial-consonant shift are the preglottalized initials: **ˀb**, **ˀd**, **ˀy**. The middle series is here limited to these preglottalized consonants: one of the tones of that series (corresponding to Proto-Thai-Tay *mai tho*) merged with the corresponding tone of the low series while the other tones merged with the high series.

In Proto-Thai-Tay and Proto-Dioi, there was a voiceless sonorant series (Thai spelling has them as *hm*, *hn*, *hñ*, *hl* and *hw*, but with ***hr** and ***hṅ** both written as *h*). That is why previously voiced sonorants now belong to the low series: former voiceless sonorants became voiced as they created the high series. In Tang Chinese, on the other hand, there was only one series of sonorants, voiced as expected, while there was a voicing contrast among stops and fricatives. In the Sino-Vietnamese dialect (the Vietnamese reading of Chinese characters) that derived from it, sonorants, albeit voiced, form a middle series: their *píng* tone merges with high series *ngang* while the other tones merge with *ngã* and *nặng*, the tones of the low series (Maspero 1912: 91–95).

In Proto-Yao (Miao-Yao [Hmong-Mien] family), there were three series of initials for both stops and sonorants: voiceless aspirated, voiceless glottalized and voiced. An initial-consonant shift first caused a merger between glottalized and voiced consonants: the voiced stops **b**, **d**, **g** devoiced to **p**, **t**, **k** and the glottalized sonorants **ˀm**, **ˀn**, **ˀl** became **m**, **n**, **l**. This is the current state of the Mien dialect, where the former voiced consonants form the low series and the former glottalized consonants form the high series. Aspirated **p^h**, **t^h**, **k^h** and **m̥**, **n̥**, **l̥**, when intact, have high-series tones. However, in the Mun dialect where aspirated sonorants **m̥**, **n̥**, **l̥**

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43. [Remember that Haudricourt's Thai-Tay group excluded Dioi (Zhuang): in his view of the Tai family, Dioi was a sister group to Thai-Tay.]

have become plain voiced sonorants **m**, **n**, **l**, former aspirates form a middle series in which the *píng* tone merges with the high series *píng* tone, the *shăng* tone merges with the low series *qù*, the *qù* tone merges with the low series *shăng* and the *rù* tone merges with the high series *rù* (Haudricourt 1951).[44]

[3.2. There is no middle series in Vietnamese]

A middle tonal series is defined by the fact that some of its tones merge with those of the low series and others with those of the high series. It arises during the initial-consonant shift which creates the high and low series; whether it emerges or not depends on the onset system of the language.

In Vietnamese, *sắc* and *ngang* both belong to the high series. The presence of *sắc* in a correspondence where we expect *ngang* is thus not a proof of the existence of a middle series. Besides, this phenomenon seems anterior to the initial-consonant shift because it is found, as we will see, in Mon-Khmer words. Finally, it is clear that the existence of a middle series is not a specific property of Thai-Tay languages.

[4. The origin of the three tones of Old Vietnamese: comparison with Mon-Khmer toneless languages]

If we now examine the correspondences between Vietnamese and Mon-Khmer given by Maspero (Maspero 1912: 91–95), we realize that his distinction between high initials (i.e. aspirates) and middle initials (i.e. unaspirates) does not solve the problem of the distribution of *sắc* and *ngang*. He does find a few Vietnamese words with tone *sắc* that have an aspirated initial in some languages: 'eight' *tám* [tam˦], Mnong *pham*; 'leaf'

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44. [Haudricourt later corrected his interpretation of the Yao-Mun initial-consonant shift: rather than a two-way split with a middle series, he posited a one-time three-way split (tripartition) (Haudricourt 1961). By this correction he undermines his argument that languages of various Asian families outside of Thai and Vietnamese share the typological characteristic of having a middle series. But in the next section Haudricourt demonstrates that there is no middle series in Vietnamese anyway. Several new examples of splits with middle series were listed in Haudricourt 1961.]

lá [la˦], Mon *sla*, Bahnar l̥a; 'rice' *lúa* [luə˦], Mon *sro*. However, he also cites other words: 'fish' *cá* [ka˦], 'louse' *chấy* [cɤ̆j˦], 'dog' *chó* [cɔ˦], 'four' *bốn* [ɓon˦], that have the same tone (*sắc*), but do not exhibit aspiration in Mon-Khmer languages. In contrast, the word 'year' (Bahnar and Mnong **snam**) corresponds to Vietnamese *năm* [năm˧] with the *ngang* tone.

Nonetheless, Maspero clearly saw the correspondence of the tone *hỏi-ngã* with Mon-Khmer words ending in a voiceless fricative **-h** stemming from ***-s** or ***-ś**.[45] Here are some examples: 'seven' *bẩy* [ɓɤ̆j˨], Mon *tpah*; 'nose' *mũi* [muj˧], Mon *muh*; 'root' *rễ* [re˧], Mon *rüh*, Mnong **ries**.

Assuming that Vietnamese was originally a toneless Austroasiatic language, we can therefore outline the way in which the *hỏi-ngã* tone appeared. The final fricative became a laryngeal *h* produced by an abrupt slackening of the larynx. The slackening of the vocal folds produced a drop in the pitch of the preceding vowel, i.e. a falling tone. This falling tone, which was at first a mere phonetic consequence of the final *h*, became a phonologically relevant tone, characteristic of the word, when the final *h* disappeared in the course of evolution.

We can give a similar explanation for the origin of the tone *sắc-nặng*, thanks to new data. The Austroasiatic languages include not only the Mon-Khmer group in the south, but also the Palaung-Wa languages (Shafer 1952) in the north. Of the latter, we will cite (i) Riang, spoken in the Shan states and recorded by H. G. Luce (professor at Rangoon University and lecturer at the School of Oriental Studies of London University), (ii) Lamet, studied by K. G. Izikowitz (director of the Ethnographic Museum of Göteborg), and (iii) Khmu, recorded in Luang Prabang by the pastor W. A. Smalley (former student at Columbia University).[46] In these languages, we find final glottal stops in words which have the tones *sắc* and *nặng* in Vietnamese: 'leaf' *lá* [la˦], Riang **laʔ**, Khmu l̥aʔ; 'rice' *gạo* [ɣaw˨], Riang **koʔ**, Khmu **rənkoʔ**; 'fish' *cá* [ka˦], Riang, Khmu **kaʔ**; 'dog' *chó* [cɔ˦], Riang, Khmu **soʔ**; and 'louse' *chí* [ci˦], Riang **siʔ**.

A glottal stop following a vowel is produced by an increase in vocal fold tension (the opposite of what we have seen for final *h*). During the articulation of the vowel, the increase in vocal fold tension in anticipation of the coda glottal stop produces a rising tone. This tone, a phonetic consequence of the glottal stop, becomes a truly phonological tone used to distinguish the word when the glottal stop disappears. Unfortunately, in Palaung-Wa languages, the glottal stop is not found in sonorant-final words, so that nothing in the Riang word 'four' **pon** explains the tone of Vietnamese *bốn* [ɓonˀ]. But this combination is not impossible [in principle], since it is attested in Lushai, a Tibeto-Burman language (Henderson 1948).

[Table 7. Schematic table of the origin of Vietnamese tones]

Early Christian era (no tone)		6th century (three tones)	12th century (six tones)	Now
[earlier stage]	[later stage]			
pa		pa	pa	ba
sla	l̥a	l̥a	la	la
ba		ba	pà	bà
la		la	là	là
pas	pah	pà	på	bả
slas	l̥ah	l̥à	lả	lả
bas	bah	bà	pã	bã
las	lah	là	lã	lã
paX[47]	paʔ	pá	pá	bá
slaX	l̥aʔ	l̥á	lá	lá
baX	baʔ	bá	pạ	bạ
laX	laʔ	lá	lạ	lạ

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[47]. [X stands for unknown phonological material that had become a final glottal stop by the stage represented in the second column.]

[5. Concluding remarks]

This account of the origin of Vietnamese tones does not disprove the relationship of Vietnamese with Tai, because it is likely that in the first century of our era, neither the ancestor of Tai, nor Old Chinese, nor Proto-Miao-Yao [Proto-Hmong-Mien] had tones. The development of tones caused by changes in codas and initials must have happened in parallel in all four languages, under the cultural influence of Chinese, an influence that is attested by loanwords.

The genetic affiliation of Vietnamese must therefore be established by means of basic vocabulary (Haudricourt 1953).

Comments

This fundamental article follows upon an article of the preceding year ("The place of Vietnamese in Austroasiatic", this volume) in which Haudricourt argued that basic vocabulary indicated that Vietnamese belonged to the Austroasiatic family, and that the presence or absence of tone does not constitute decisive evidence for language classification. In the present article, Haudricourt pursues his argument for the Austroasiatic origin of Vietnamese, showing, by comparison with related, toneless Austroasiatic languages, exactly which features evolved into the Old Vietnamese tones, giving rise to a system comparable to those of Middle Chinese and Old Thai. This demonstration provided the foundation for his theory of the Old Chinese origin of the Middle Chinese *qù* tone ("How to reconstruct Old Chinese", this volume) and indeed for the whole theory of the origin of tone in East Asia.

Haudricourt completed his general model of tone and register in East Asia with articles in 1961 concerning initial-driven tone splits and in 1965 concerning initial-driven register formation.

A clarification about stop-final syllables (D / rù *tones)*

Haudricourt did not discuss stop-final syllables (tonal category D; sinological label: *rù*), to simplify the demonstration. Thus Table 7 has only three blocks of rows, corresponding to the three tones of Old Vietnamese (6th century). The syllables which had (and still have) final stop consonants, because they remained toneless at the time (they became tonal

only after the initial consonant shift), are not represented in Table 7. This has led to misunderstandings. To clear these up, we provide an expanded table (Table 8) which includes the missing CVC category.

Table 8. Vietnamese tones: etymology, modern orthographic names and notation. Phonetic values from Kirby (2011: 386). C_i=initial consonant

stage 1 (pre-tonal)		*CV	*CVʔ	*CVh	*CVC
stage 2 (tonal)		A level	B rising	C falling	D toneless
stage 3 (split)					
*voiceless C_i	tone	A1 (*ngang*)	B1 (*sắc*)	C1 (*hỏi*)	D1 (*sắc*)
	orthog.	*a*	*á*	*ả*	*áp, át, ák*
	IPA	a˦ [44]	a˦ [24]	a˨ [312]	ap˦ [45], at˦, ak˦
*voiced C_i	tone	A2 (*huyền*)	B2 (*nặng*)	C2 (*ngã*)	D2 (*nặng*)
	orthog.	*à*	*ạ*	*ã*	*ạp, ạt, ạk*
	IPA	a˧ [32]	a˨ [22ˀ]	a˧ [3ˀ5]	ap˨ [21], at˨, ak˨

Table 8 follows the now widely-accepted format of Haudricourt's later articles, beginning with "Two-way and three-way splitting of tonal systems..." (1961, this volume) in which the old tonal categories are shown in columns and the old initial series in rows. The order of the tones is A (corresponding to Chinese *píng*), B (*shǎng*), C (*qù*), D (*rù*, stop-final). Note that in the present article, in the exposition as well as in Tables 1 and 7, the order of the tones is *píng*, *qù*, *shǎng*, which is the traditional order of the Thai tones (basic, mai ek, mai tho).

A number of scholars (*e.g.* Diffloth 1989: 146, Thurgood 2002: 335, 2007: 265), purporting to summarize Haudricourt's article, present a table, similar to our Table 8, but conflating tonal categories B (*shǎng*) and D (*rù*) in a single column,[48] listing their respective etymological sources, glottal stop and oral stop final, together in the column header. From there it

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[48] The tones of these two categories have the same names (*sắc*, B1 and D1; *nặng*, B2 and D2) and the same symbols in Modern Vietnamese: see Table 8. Phonetically though, although close, they are not identical, as can be seen in the values given in the table, as well as in phonetic studies showing that Vietnamese D2 is not glottalized, unlike B2 (Michaud 2004, Brunelle et al. 2010).

is only a short step to attribute to Haudricourt the opinion that stop finals are the direct ancestor of the B tone. Such a misrepresentation of Haudricourt's model tends to find its way into authoritative textbooks, such as the "Tonogenesis" chapter of *The Blackwell Companion to Phonology* (Kingston 2011: 2311).

The distinction between a "consonant-based" and a "phonation-based" model of tonogenesis: a spurious dichotomy?

It has been argued "that the Haudricourt analysis should be updated, replacing its segmentally-driven model by a laryngeally-based model, incorporating the effects of voice quality distinctions" (Thurgood 2002). This description of Haudricourt's model as consonant-based, in contrast to a phonation-based alternative, is widely cited. The whole discussion rests on the mistaken idea that Haudricourt posited a "direct" influence of segments on pitch/tone, an idea itself derived from the confusion we explained earlier.

A careful perusal of Haudricourt's present article (for end-based events) coupled with "Mon-Khmer consonant shifts" (1965, this volume) (for initial-based events) should suffice to set this misrepresentation straight.

In this article, as generally, Haudricourt reminds us of the "special importance of what distinguishes words, i.e. what is "distinctive" (the object of phonology), as opposed to the various aspects of the material realization of the sounds of language (the object of phonetics)" (end of section 1.1). So the detailed mechanisms by which pitch arises from earlier non-pitch material is not his main object. He nevertheless offers some hypotheses.

Concerning final consonants, Haudricourt (1954) clearly states that final /-**h**/ and /-ʔ/ constitute laryngeal events. For category C (Chinese terminology: *qù*, Vietnamese: *hỏi-ngã*), "[t]he final fricative became a laryngeal **h** produced by an abrupt slackening of the larynx. The slackening of the vocal folds produced a drop in the pitch of the preceding vowel, i.e. a falling tone." As for category B (*shǎng*, *sắc-nặng*), the opposite change takes place: "A glottal stop following a vowel is produced by an increase in vocal fold tension (the opposite of what we have seen for final **h**). (...) the increase in vocal fold tension in anticipation of the coda glottal stop produces a rising tone."

As for voicing oppositions among initial consonants, the 1954 article does not go into the topic of the phonetic mechanisms, and is not a sufficient source to discuss Haudricourt's global model. For phonetic hypotheses about the possible mechanisms involved in tonal splits driven by an initial consonant shift, one has to turn to the 1965 article ("Mon-Khmer consonant...") where a unified mechanism for the development of tonal and registral contrasts, including vowel-timber modifications, is proposed, something like what other authors have called a "tense/lax laryngeal syndrome" (Matisoff 1973). Previous readers were less likely to see the complete picture, because they did not have all the material under the same book-covers.

Since the 1970s, experimental investigations into laryngeal behaviour have shown that much more physiological complexity is involved than was suggested by Haudricourt's reflections on phonetic mechanisms underlying tonogenesis: see in particular Edmondson and Esling (2006) and Keating et al. (2010). Phonetic studies of synchronic variation are another recent approach, shedding light on tonogenetic processes in progress, *e.g.* Brunelle (2012) on Cham, Kirby (2014) on Khmer, Yang et al. (2015) on Lalo, and Pittayaporn and Kirby (2017) on Cao Bằng Tai.

The issue of sonorant-final syllables carrying tone B (shăng, sắc-nặng)

As predicted by Haudricourt's reconstruction, tone C (*qù, hỏi-ngã*) does not occur on nasal-final syllables of Austroasiatic stock, where it would imply earlier sequences of a nasal followed by /h/. Tone C on nasal-final syllables is only found in borrowings from Chinese, and in words of expressive origin (Ferlus 2004: 299, citing Maspero). On the other hand, there exist numerous nasal-final syllables carrying tone B. Haudricourt pointed out that the Palaung-Wa languages did not provide comparative evidence for the final resonants plus glottal stop which he was led to reconstruct for these words.

While emphasizing that present-day correspondences between Vietnamese tones and final -ʔ in other Austroasiatic languages are far from tidy, William Gage mentions in Chong (Pearic branch of Austroasiatic) the presence of four sonorant-final words with medial glottalization that are cognate with Vietnamese words of tone category B1: 'cooked' **chiiʔn**, Viet. *chín*; 'four' **phooʔn**, Viet. *bốn*; 'wind' **kyaʔl**, Viet. *gió*; and 'far' **cŋɔʔy**, Viet. *ngái*. He interprets them as "the most encouraging indications yet found in

support of Haudricourt's hypothesis, allowing us to extend it beyond open syllables" (Gage 1985: 33).

Diffloth (1989: 146-148) suggests, in line with Haudricourt's model, to reconstruct glottalization for all items carrying tone B in Vietnamese. He proposes to reconstruct this feature (labelled "creaky voice") at the stage of the common ancestor of Vietnamese and its closest relatives within Austroasiatic (Proto-Vietic, a.k.a. Proto-Viet-Muong), and possibly to Proto-Austroasiatic.

Ferlus (2004) hypothesizes that final glottal constriction on sonorant-final syllables was absent in Proto-Austroasiatic, and that it developed in Early Proto-Viet-Muong (Proto-Vietic) on those sonorant-final words that had sesquisyllabic structure. The idea is that a syllabic "tenseness" evolved into a glottal constriction, resulting in the same tonogenetic effects as etymological **-ʔ**.

To this day, this remains an open issue, to be investigated through further research into the diachronic evolution of the Austroasiatic language family. Sagart (1991) notes that the same issue is found in Chinese, and suggests that the source of the glottal stop in words of the nasal-ending series is to be found in an earlier series of voiced stop endings, developing to nasal plus glottal stop: *-**b**, *-**d**, *-**g** > -**mˀ**, -**nˀ**, -**ŋˀ**.

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