

THE REGISTER PROBLEM IN FIFTEEN MON-KHMER LANGUAGES

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In 1970-71 I collected data on fifteen Mon-Khmer languages in Thailand, Cambodia, and Laos in sufficient depth to make a rudimentary phonological analysis of each.¹ These languages are listed below, along with alternative designations, where applicable and location of the dialect studied:

Thailand

1. Burmese Mon (informant from Moulmein, Burma).
2. Thai Mon (Bangkradi, Bang Khun Thian District, Thonburi Province).
3. Kuy (Ban Kham, Chom Phra District, Surin Province).
4. Chaobon (/ñah kur/ 'mountain people', Niakuol; Ban Wang Ai Pho, Bamnech Narong District, Chayaphum Province).
5. Mal (Thin, Htin, Phay, sometimes called Lawa by the Thai; Ban Cuun, Pua District, Nan Province).
6. Lawa (Thai /lua?/, Lawa /ləv+ə?/; Ban La-Oop, Mae La Noi District, Mae Hong Sorn Province).
7. Chong (/co?ŋ/, Chawng; Ban Thung Saphan, Makham District, Chantaburi Province).

Cambodia

8. Tampuon (Bo Kheo, Andong Pech District, Rattanakiri Province).
9. Brao (La Ban Siek, Lomphat District, Rattanakiri Province).
10. Stieng (/sədiəŋ/; informant born in Bo Duc, Phuoc Long Province, Vietnam; moved to Andong Meah, Andong Pech District, Rattanakiri Province in about 1958).

Laos

- . Souei (Boeung Sai, Sutabali District, Saravane Province).
- . Nge? (Ngeh, Kriang; Ban Bak, Ta Oi District, Saravane Province).
- . Bru (So; Ban Sakuang, Phine District, Savannakhet Province).
- . Alak (/harlak/; Houei Koi, Paksong District, Sedone Province).
- . Loven (Nam Tang, Sanyasila District, Attapeu Province).

ese are all languages about which, with the exception of Mon, very little or nothing has been published.

The purpose of this paper is to investigate the flexes or correlates of the "register" phenomenon, described by Henderson in 1952,² in the above languages. Since Burmese Mon and Thai Mon turn out to be, both in terms of cognate percentages and phonological structure, dialects of the same language,³ we will treat them as one language, and add Cambodian for comparison.

If we are to believe the evidence of the Mon and Cambodian writing systems, Mon-Khmer languages once possessed a series of voiced unaspirated initial stops /b d j g/ in contrast with a series of voiceless aspirated stops ^{*}/p t c k/. The classical theory that the voiced series at some point became voiceless, merging with the voiceless series, and the obviously allophonic differences between vowels following originally voiceless stops and those following originally voiced stops became phonemic, resulting in register distinctions in some Mon-Khmer languages and tonal distinctions in Vietnamese.⁴ those languages which have this feature, 1st

register vowels have been described by such terms as 'clear', 'bright', 'normal', 'head', 'high-pitched', 'tense', or a combination of these, while 2nd register vowels have been described by such terms as 'deep', 'chest', 'breathy', 'sepulchral', 'spooky', 'centralized', 'low-pitched', 'lax', or a combination of these.

A second event, which is presumed to be subsequent to the devoicing phenomenon,⁵ was the development of preglottalized /ʔb ʔd/ which usually align themselves with the voiceless initials in terms of their effect on register. However, all fifteen languages studied here have preglottalized /ʔb ʔd/, and the fact that even those languages which retain the original /b d j g/ nevertheless have /ʔb ʔd/ might suggest that preglottalized stops are at least as old as, if not older than, the devoicing phenomenon.

Finally, since register contrasts occur after initial continuants in some Mon-Khmer languages, we must assume that Proto-Mon-Khmer had a set of fully voiced continuants which conditioned 2nd register vowel allophones, in contrast with a set of preglottalized or voiceless (preaspirated) continuants which conditioned 1st register vowel allophones.⁶ We might be tempted to theorize that, for languages like Cambodian and Kuy, which have no manner contrast in the continuants, the register distinction was generalized to post-continuant positions once it became established as an independent feature of the phonological system, if it were not for the fact that eight of the languages treated here retain manner contrasts in some or all of the continuants; furthermore it is precisely those languages which retain two series of initial stops corresponding to the original

voiceless and voiced series that also retain two series of continuants, whether partial or complete, while those languages that have progressed furthest toward merger of initial stops show the most complete merger of continuants.

Now changes of the kind hypothesized above do not take place overnight; from what we know of sound change, we can assume that the following stages must have occurred in the development, let us say, of modern Cambodian:

- stage 1: voiceless:voiced distinction in initial stops; two-way distinction in initial continuants; as yet little or no vowel differentiation.
- stage 2: simultaneous change in the articulation of one set of initial consonants and development of allophonic variation in following vowels, still in complementary distribution vis-à-vis two distinctive sets of initials.
- stage 3: register becomes phonemic due to a complete merger at some point in the system, probably in the continuants, with retention of allophonic distinction in initials in complementary distribution vis-à-vis first and second register vowels.
- stage 4: complete merger of initial stops, with complete register dichotomy in the vowels.
- stage 5: loss of register contrast due to change in vowel position and diphthongization.

If the preceding scenario has any validity, we would expect to find supportive evidence for it in the synchronic structures of various Mon-Khmer languages. In fact, we find each of the above stages mirrored in one or more of the fifteen languages considered here.

Perhaps the most conservative of the languages looked at with regard to the above sequence of changes is Loven, which retains a fully voiced /b d j g/

series the members of which are lax and homorganically prenasalized, a feature characteristic of lax stops in many of these languages, in contrast with a set of tense voiceless unaspirated stops. All initials except /ʔ r/, including continuants, occur with and without preglottalization, and all initials except /h r s/ occur with and without preaspiration. There is no discernible allophonic variation in the vowels following voiced and voiceless initials.

Lawa also has a series of lax prenasalized voice stops /b d j g/ in contrast with tense /p t c k/ and preglottalized /ʔb ʔd/, as well as a set of preglottalized continuants /ʔm ʔn ʔñ ʔŋ ʔl ʔy/ in contrast with their non-preglottalized counterparts, and a set of preaspirated /hm hn hñ hŋ hr hl hy/ in contrast with their non-preaspirated counterparts; vowels show no register allophones.⁷

Stieng also reflects Stage 1 above, with a /b d j g/ series which is lax and preceded optionally by homorganic prenasalization, in contrast with /p t c k/ and post-glottalized /bʔ dʔ/ (the latter are never prenasalized), as well as a series of post-glottalized nasals /mʔ nʔ ñʔ/; a fuller corpus might reveal other post-glottalized continuants. There is no register differentiation in the vowels.

Brao is intermediate between Stage 1 and Stage 2 in preserving the voiced series /b d j g/, but which are accompanied by slight aspiration which carries through a following vowel, rendering it somewhat voiceless and centralized, in contrast with the clear vowel quality following /p t c k/ and preglottalized /ʔb ʔd ʔj/. What I have analyzed as /ʔj/ is phonetically [ʔy] and may be a remnant of a set of preglottalized continuants.

The languages most characteristic of Stage 2 are Alak, Souei, and Nge?, where original ^{*}/b d j g/ are completely devoiced, but nevertheless contrast with voiceless /p t c k/ in that they are lax and accompanied by slight aspiration /p' t' c' k'/ which conditions a lax breathy quality in a following vowel. These lax initials also contrast with the clusters /ph th kh/, which are never followed by breathy vowel allophones, in both degree and position of aspiration. A very interesting development in these languages, especially in its parallelism with the presumed development of the Cambodian vowel system, is the occurrence of diphthongization after these lax initials, consisting of a high on-glide, especially with the mid and low vowels /e ɛ ə a o ɔ/. The following examples are from Alak, in which this feature is most pronounced, but examples could equally well be drawn from Souei, Nge?, and Bru, and for the vowel /a/, from Tampuon:

1. /p'ahe?/ [p'^əhⁱē?] 'full, satisfied'.
2. /p'alɛɛt/ [p'^əl^əɛ:t] 'miserly' ≠ /mpɛɛt/ [m[̃]pɛɛ:t] 'tongue'.
3. /p'əəp/ [p'ⁱə:p] 'father' ≠ /pəəŋ/ [pə:ŋ] 'on'.
4. /t'aak/ [t'ⁱa:k] 'water' ≠ /taap/ [tⁱa:p] 'to slap'.
5. /k'oo/ [k'^uo:] 'curved' ≠ /tarkoo/ [t^ər^hk^o:] 'knee'.
6. /p'loɔk/ [p'^ul^o:k] 'ivory' ≠ /mbɔɔk/ [m[̃]ɔ^h:k] 'bark (of tree)'.

The effect of a lax initial on a following vowel carries through an intervening continuant or /h/, as

can be seen in examples 1, 2, and 6. This has its parallel in Cambodian; for example: bhluk /pluk/ [p^hl^ouk] 'ivory', damhum /tumhum/ [t^omh^om] 'size'. A specific parallel with modern Cambodian is the complete absence in Bru of a 2nd register long */àà/, which has changed in every case to /ià/, as in Bru /tià/ [t^hi.a], Cambodian /tiə/ 'duck'. Bru 2nd register short /à/ shows the diphthongization characteristic of Alak, Souei, and Nge?; e.g., Bru /səpàn/ [s^op^han], Cambodian /spoə̃n/ 'copper'. Also to be noted is Tampuon /pràh/ [p^hrɛ^h] 'spirit', Cambodian /prəə̃h/ 'god', although nothing has been found paralleling the near complementary distribution of Cambodian /ə̃/ and /õ/ before final consonants.

Alak has a series of preglottalized continuants /ʔw ʔl ʔy ʔr/ contrasting with non-preglottalized /w l y r/, but of the latter only /y/ and sometimes /w/ condition a lax allophone in a following vowel. Nge? has preglottalized /ʔm ʔn ʔñ ʔl/ in contrast with their fully voiced counterparts, but only /y/ is consistently followed by the lax vowel allophone. Although only fully voiced continuants occur in Souei, there are no register contrasts after initial continuants, so that it is preferable to analyze Souei, like Alak and Nge?, in terms of two contrasting series of initial stops.

While Tampuon and Mal can also be analyzed in terms of two contrasting series of initial stops corresponding to original */p t c k/ and */b d j g/, they show somewhat separate development. Tampuon has what might be called the standard inventory of initials /p t c k ʔ h b d m n ñ ŋ w l y r/ (but no /s/) completely reduplicated by a set of initials characterized by post-glottalization in the case of

stops and simultaneous glottalization in the case of the continuants. Oddly, however, it is glottalized initials which condition breathy vowel allophones, more consistently after glottalized stops than after glottalized continuants. In fact, allophonic variation in the vowels appears to be neutralized after continuants; in any case register is clearly sub-phonemic in this language.

Mal has followed a different direction. In 1965 Haudricourt, basing himself on data collected by Ferlus in Sayaburi, Laos, pointed out that in Mal the original /p t k/ > /ph th kh/, while the original /d g/ > /p t k/.⁸ In the dialect which I studied, however, this latter series is phonetically very similar to the equivalent series described above for Alak, Muei, and Nge?, being characterized by lax articulation, prenasalization, and slight aspiration, and conditioning breathiness in a following vowel. These lax initials are furthermore in contrast with a third series of tense unaspirated stops /p t c k/ which, like the aspirates referred to by Haudricourt, are never followed by breathy vowel allophones. In addition, there is a series of prenasalized voiced stops /p nd ŋg/ which are lax and usually, though not always, followed by a certain amount of breathiness throughout the vowel. Filbeck⁹ points out that the latter are in complementary distribution with the voiceless unaspirated stops with regard to prenasalization, and subsumes them under /p t c k/, which may then occur both with and without preceding nasalization. He then analyzes my lax slightly aspirated and prenasalized /mp nt ñc ŋk/ as prenasalized /mph nth kh ŋkh/. The two systems are compared below:

	Huffman					Filbeck			
1.	p	t	c	k		p	t	c	k
2.	ph	th	ch	kh		ph	th	ch	kh
3.	ʔb	ʔd				ʔb	ʔd		
4.	mb	nd		ŋg		mp	nt		ŋk
5.	mp	nt	ñc	ŋk		mph	nth	ñch	ŋkh

I rejected the second analysis because breathy vowel allophones never occur after the aspirate series, but always occur after the lax prenasalized voiceless series. However, in both analyses prenasalization is the marker for lax initials followed by breathy allophones. Furthermore, since register in Mal is non-phonemic, Filbeck's analysis will work synchronically for the Nan dialect, and in fact is more symmetrical than mine, with both unaspirated and aspirated initials occurring with and without prenasalization.

Kuy, Chaobon, Chong, Bru, and Mon all represent Stage 3, in which register has become phonemic, but with some degree of allophonic variation retained in the initial stops in complementary distribution vis-à-vis 1st and 2nd register vowels.

In Kuy there are ten basic vowel positions, each of which occurs both long and short, and both tense and lax (except for ^{*}/ə̀ə̀/), resulting in 39 vocalic nuclei, plus tense and lax /ia ua/, for a total of 41. /p t c k/ are tense before 1st register vowels and lax and slightly aspirated (although less so than the clusters /ph th ch kh/) before 2nd register vowels. Since there has presumably been complete merger of two series of continuants, both tense and lax vowels occur after continuants, resulting in minimal register contrasts; *e.g.*, /naʔ/ 'way, kind'

à?/ 'classifier for person'.

In Chaobon there is also a complete register
chotomy in the vowels, with /p t c k/ exhibiting
tense allophones before 1st register vowels and lax
and slightly aspirated allophones before 2nd register
vowels. An interesting feature of Chaobon is that
1st register vowels are characterized by high-falling
tone (in addition to the other concomitants of 1st
register vowels), while chest register vowels have low
level tone, lax quality, and breathiness. However
both 1st and 2nd register short vowels ending in stops
have high level tone, so the vowel distinction cannot
be analyzed in terms of tone alone.

Chong has 46 vowel nuclei, based on twelve basic
vowel phonemes and a phoneme of register. /p t c k s/
are tense and slightly glottalized before 1st register
vowels (especially /i ii oo/), and lax and slightly
aspirated before 2nd register vowels (although not as
strongly as in other languages which have this
feature). A curious feature in Chong is the occur-
rence of a prefinal glottal before all finals except
-h/, as in /lɑɑʔŋ/ 'bridge' ≠ /lɑɑŋ/ 'banana',
and as in the name Chong /coʔŋ/ itself. This prefinal
glottal is accompanied by a high-falling tone, but
there again no tonal analysis is possible because the
prefinal glottal occurs after both 1st and 2nd
register vowels.

In Bru /p t c k/ are tense and slightly imple-
mented before 1st register vowels, and lax and very
slightly aspirated before 2nd register vowels. There
is perhaps the least allophonic distinction in initial
consonants in this language of any of the languages
discussed so far. Second register vowels are
characterized by strong diphthongization similar to

that described above in Alak, Souei, and Nge? in the case of the low vowels /e ε a o ɔ/, and in the case of the high vowels /i ɨ u/, by a kind of high-pitched high-positioned quality more characteristic of 1st register vowels in other languages. One minimal register contrast was noted after initial continuants /mənə?/ 'one person' ≠ /mənà?/ [m^ən^ɨḁ?] 'putrid'. Further data might reveal others. In fact, some of the languages in Stage 2 above, which were analyzed in terms of two series of initial stops, might have to be reanalyzed in terms of register if further data should turn up minimal register contrasts after initial continuants.

The register distinction in Mon is relatively subtle; 2nd register vowels are mildly lax and breathy, and are slightly lower in quality (more open) than their 1st register counterparts. The distinction is particularly difficult to hear in the low front /ε/ ≠ /è/ position, and may be coalescing. /p t c k/ are partially voiced before 2nd register vowels, although more so in Burmese Mon than in Thai Mon. Both registers occur after continuants.¹⁰

Of the languages compared here, Cambodian would appear to be the least conservative, or the most progressive in terms of the five stages outlined above; it agrees with Stage 4 in having undergone complete merger, both structural and phonetic, of the original voiceless and voiced stops, as well as of the continuants, but looks ahead to Stage 5 in having partially lost the register contrast as a result of change in vowel position and of diphthongization. Stage 4 is perhaps an idealization since, as we have seen in the above Stage 3 languages, change in vowel position and diphthongization co-occur with phonemic

gister, although Henderson's analysis¹¹ would place
 mbodian squarely in Stage 4 in imputing a complete
 gister dichotomy to the vowel system. But the
 mbodian vowel system has been so radically restruc-
 red in the course of the above changes that even
 ose contrasts which rely heavily on register, namely
 n Henderson's terms) /e:/è/, /o:/ò/, and /ɔ:/ɔ̃/,
 n be analyzed in terms of differences in absolute
 osition, as Martini,¹² Pinnow,¹³ and Huffman¹⁴ have
 osen to do. While it is perhaps true that the
 fferences in vowel height involved in these three
 ontrasts would not be sufficient to the ear of a
 mbodian speaker without the concomitant features of
 gister, there is no reason why the contrasts cannot
 e so represented phonemically. Such an analysis
 renders register structurally irrelevant, which is in
 fact already the case in some dialects of Cambodian,¹⁵
 nd places Cambodian in Stage 5.

In 1965 Haudricourt proposed three types of
 onsonant shift for Mon-Khmer languages: 1) a
 Germanic" type in which original */p t k/ >
 ph th kh/ and original */b d g/ > /p t k/, as in
 ay and Samre; 2) a "Mon-Khmer" type in which the
 coalescence of original */p t k/ with */b d g/
 roduced a two-register system, as in Mon and Kuy;
 nd 3) a "Far Eastern" type in which the confusion
 f original */p t k/ with */b d g/ doubled the number
 f tones, as in Vietnamese and Danaw.¹⁶ However, the
 receding discussion shows that the dialect of Mal
 Haudricourt's Phay) studied here and Chong of
 ailand (Haudricourt's Samre) do not really fit the
 ermanic type. In Mal, while */p t c k/ > /ph th
 n kh/, the reflexes of */b d j g/ contrast with a
 hird series, /p t c k/. Chong, in which register

contrasts occur after continuants, must for this reason be analyzed in terms of phonemic register and thus (like Kuy, Chaobon, Bru, and Mon) fits the "Mon-Khmer" type. The remaining languages (including Cambodian as analyzed here) are not accounted for. Thus an appropriate classification for the languages examined here might be the following:

- A. Original voiced:voiceless distinction reflected in the initials:
1. *Conservative* (retention of original /b d j g/ little or no vowel differentiation):
Loven, Lawa, Stieng, Brao
 2. *Transitional* (* /b d j g/ > /p' t' c' k'/; sub-phonemic register differentiation in the vowels):
Alak, Souei, Nge?, Mal, (Tampuon)
- B. Original voiced:voiceless distinction reflected in the vowels:
3. *Register* (phonemic vowel register; retention of sub-phonemic differentiation in the stops vis-à-vis register):
Kuy, Chaobon, Chong, Bru, Mon
 4. *Restructured* (loss of register through restructuring of the vowel system; complete consonant merger):
Cambodian

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²Eugénie J. A. Henderson, 'The Main Features of Cambodian Pronunciation', *BSOAS*, 14 (1952):149-74.

³See the author's 'The Application of Lexico-statistics to Mon-Khmer Languages', paper read at the First International Conference on Austroasiatic Linguistics, January 2-6, 1973, Honolulu, Hawaii.

⁴See, for example, Wilhelm Schmidt, "Grundzüge der Lautlehre der Mon-Khmer-Sprachen", in *Denkschr. ad. Wiss. Wien, Phil.-Hist. Kl.*, 51 (1905):1-233; Heinz-Jürgen Pinnow, "Sprachgeschichtliche Erwägungen am Phonemsystem des Khmer", in *Zeitschrift für Phonetik*, 10 (1957):378-91; A.-G. Haudricourt et Martinet, "Propagation phonétique ou évolution phonologique? Assourdissement et sonorization occlusives dans l'Asie du Sud-Est", in *BSLP*, (1946):82-92; A.-G. Haudricourt, "De l'origine des tons en vietnamien", in *JA*, 242 (1954):69-82.

⁵A.-G. Haudricourt, "Les consonnes églottalisées en Indochine", in *BSLP*, 46 (1950):2-82.

⁶Heinz-Jürgen Pinnow, *op. cit.*, p. 391.

⁷My analysis agrees essentially with that adopted by Donald Schlatter in W. A. Smalley, ed., *Phonemes and Orthography of Eight Marginal Languages of Thailand* [not yet published], Chapter 6: 'Lawa'. I am indebted to Bill Smalley for a prepublication draft of this chapter.

⁸A.-G. Haudricourt, "Mutation consonantique en Mon-Khmer", in *BSLP*, 60 (1965):160-72. Haudricourt refers to the Mal as Phay, which my informant told me is the name used to refer to the Mal by the Meo and Lao. The Thai word for the Mal is Thin (T'in, Htin).

⁹David Filbeck, in W. A. Smalley, *Phonemes and Orthography of Eight Marginal Languages of Thailand* [not yet published], Chapter 3: 'Mal (Thin)'; I am indebted to Smalley for prepublication drafts of this chapter, as well as of Schlatter's chapter on Lawa (note 7 above) and Beulah M. Johnson's chapter on Suay. It should be pointed out, however, that the dialect which I studied is rather different from the one represented in Filbeck, and in fact appears to be identical with Filbeck's 'Pray 4' (see David Filbeck, "On */r/ in T'in", in this volume).

¹⁰For a somewhat different dialect of Mon, see also H. L. Shorto, "Mon Vowel Systems: A Problem in Phonological Statement", in C. E. Bazell, ed., *Memory of J. R. Firth* (London: Longmans, 1966), 8-409.

¹¹Henderson, *op. cit.*

¹²François Martini, "Aperçu phonologique du Cambodgien", in *BSLP*, 42 (1942-5):112-31.

¹³Pinnow, *op. cit.*, p. 387.

¹⁴Franklin E. Huffman, *Outline of Cambodian Grammar*, Ph.D. Thesis, Cornell University, 1967 (available from University Microfilms, Inc., Ann Arbor, Michigan), 244-6; *Cambodian System of Writing and Beginning Reader* (New Haven: Yale University Press, 1970), 6-12.

¹⁵Huffman, *Outline*, 247-9.

¹⁶Haudricourt, "Mutation consonantique en Mon-Khmer".

