The consonant "R" and laryngeal features in Southeast Asia: aspiration for Tai and a new register complex for Khmer

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*ABSTRACT: The consonant sound "R" seems to have a close relationship with certain laryngeal features. Thus in Lao and Kam Meuang (the Tai dialect of northern Thailand), Proto-Tai "R" has been replaced by [h], a voiceless aspirate which is followed by the etymological tone categories associated with the proto-Tai *voiced initial consonants. In standard Khmer, an initial consonant cluster of stop + any consonant interpolates an aspiration [h] between the consonants, UNLESS the second consonant is an "R". In the colloquial Khmer dialect of Phnom Penh and certain nearby provinces, prevocalic "R", whether on its own or second in a consonant cluster, has been replaced by a kind of "H" and has given rise to a new "register complex". Certain associations of "R" with laryngeal features in other languages are also discussed.*

In mainland Southeast Asia and East Asia generally the consonant "R" is a threatened species. It seems to be secure only in the Austronesian, and perhaps the Austroasiatic, language family. In pre-vocalic position it has been replaced by various other sounds in Burmese, Vietnamese and most of the Tai family of languages. In standard Thai pre-vocalic "R" survives only by dint of strenuous efforts on the part of Thailand's Ministry of Education. It is absent from most dialects of Chinese, except for a kind of retroflex, non-syllabic vocoid in Mandarin. Japanese only has a flapped "R" which is not phonemically distinct from "L". In post-vocalic position "R" can occur only in Austronesian and Austroasiatic, apart from the retroflex vocoid in Mandarin, and it has simply disappeared from various Khmer dialects, including the standard one (see, for instance, Huffman 1970:6, 14, 18, Premsrirat 1995, and Thach 1996:12 s.v. "bɑndə:"). Apart from -- or perhaps as part of -- its precariousness, initial "R" in certain languages of East and Southeast Asia seems to have an affinity with certain laryngeal features (apart from being voiced, which most would consider its "unmarked" status), most notably aspiration, as we will see later, but also including breathy voicing and tonogenesis or "registrogenesis".

For the Tai language family, Li Fang-kuei has described the the status of "R" as follows:

> "[Proto-Tai *r-] was probably a ... tongue-tip vibrant or trill, which probably *required strong breath to achieve* [italics mine -- C.C.]. Words with this initial have [the tones which are associated with the Proto-Tai voiced initials], thus indicating its voiced origin. Among the [Southwestern Tai] dialects, it is preserved in Ahom [an extinct language -- C.C.] and [standard Thai], but Lü has a literary pronunciation hr-, a voiceless r-, for

> the common h- -in ordinary speech; other [Southwestern Tai] dialects show simply h- [or l-, as in colloquial Bangkok dialect -- C.C.]. Among the [Central Tai] dialects it is represented by r- or l- in Nung, Tay and Tho; by [ɬ], a voiceless lateral, in Lungchow; and by hr- in T'ien-pao. Among the [Northern Tai] dialects it is represented by r-, ð-, or ɣ-. That this *r- was accompanied by strong breath (voiced?) can be shown not only by its development into h- in many [Southwestern Tai] dialects, but also by the development of the Proto-Tai *pr- and *tr- into Proto-[Central Tai] *phr- and *thr-..." (Li 1977:142).

In Lao, Kam Meuang (the regional dialect of northern Thailand), Lue (Lü) and other northern Southwestern Tai dialects, Proto-Southwestern *r- (<Proto-Tai *r-) > /h-/[h], as in the following table (DS4, C4, DL4 , etc. indicate the Proto-Tai etymological tone categories in the manner of Gedney 1989:174, 202, numbering the rows, as is commonly done, 1 to 4 from top to bottom):

Standard Thai	***Kam Meuang***
/rak/ DS4	/hak/ 'to love'
/rɔ:ŋ/ C4	/hɔ:ŋ/ 'to sing'
/ri:p/ DL4	/hi:p/ 'to hurry'

Furthermore in Kam Meuang and Shan, earlier pre-vocalic*r- preceded in a cluster by a stop (< Proto-Tai *r-) changes into aspiration of the preceding stop (presumably via a stage of aspirated "R", e.g., [*p^{h}r̥-, *t^{h}r̥-, *k^{h}r̥-] -- actually, Brown 1985:151 reconstructs this sound change for what he calls the Tai of "950 Yunnan"; compare what Li reconstructs for Proto-Central Tai in the quote above and the [t^{h}r̥-] Gwyn Williams found in varieties of Lue: see below):

Standard Thai	***Kam Meuang***
/sat.tru:/ DS123.A234	/sa.t^{h}u:/ DS123.A12 'enemy'
/kron/ A234	/k^{h}on/ A12 'to snore'
/ma.kru:t/ DS123.DL123	/ba?.k^{h}u:t/ DS123.DL123 'kind of citrus'

That this rule continued to be productive into fairly modern times is shown by the fact that the Kam Meuang words above corresponding to Standard Thai /sattru:/ 'enemy' and /makru:t/ 'kind of citrus' do not go back to the Proto-Southwestern Tai period, but were borrowed from Sanskrit and Khmer respectively, i.e., after the Thais came into contact with Indian and Khmer civilization. That this rule may still be productive in varieties of Tai spoken in northern Thailand is suggested by the pronunciation [sɛt.t^{h}ru:] 'enemy', presumably borrowed from present-day standard Thai /sattru:/ '(idem)', recorded by Gwyn Williams (Williams 1986:61). Another piece of evidence of the association between "R" and aspiration is shown by the reflex of Proto-Southwestern Tai *r- in the literary pronunciation of Lue and the ordinary pronunciation of T'ien-pao mentioned in the quote from Li above, presumably [^{h}r̥-] (see also Williams 1986:52, 78-9), as contrasted with the de-rhotacized, but still aspirated, [h-] of ordinary Lue spoken discourse.

Paradoxically, perhaps, we find a *negative* correlation between "R" and aspiration in standard Khmer, where /r/ is a voiced apical trill and where an initial consonant cluster beginning with a stop interpolates an aspiration after the stop

unless the second consonant is an "R". Thus we find that when Khmer borrows Thai [pla:] 'fish' (with its unaspirated [p]) as the first constituent in the compound names of certain fishes, it pronounces it [pʰla:], because in standard Khmer the combination [pl-] is impossible to pronounce without aspiration. On the other hand, the combination [pr-] in that variety of Khmer cannot be pronounced *with* aspiration. That is to say, "R" *blocks* aspiration in preceding initial stops in standard Khmer while it *induces* it in Kam Meuang and Shan, as well as in Proto-Central Tai. I interpret this as meaning that "R" and aspiration share some phonetic feature, and that the blocking rule in standard Khmer is one of dissimilation.

The situation is very different in various *colloquial* dialects of Khmer, where we find something comparable to the aspiration and de-rhotacization of "R" that characterizes various Tai dialects. For instance, in the colloquial dialect of Phnom Penh (see, for instance Noss 1966) and nearby provinces we find that the pre-vocalic "R" of earlier, and still of standard, Khmer has become an aspiration (implicitly voiceless [h-] according to Pisitpanporn 1995:105-113, but voiced [ɦ] accompanied by breathy voice in the varieties that I have personally heard) together with a whole "register complex", which includes breathy voice, a rising-falling pitch (simply rising according to Pisitpanporn 1995) and the raising of the vowels which had been left unraised, or had been lowered, by the first registrogenesis in Khmer (i.e., by the action on these vowels of the old *voiceless initials): in other words, pre-vocalic "R", whether in absolute initial position or following an obstruent in a cluster, has behaved, with respect to its effect on the following vowel, analogously to the old *voiced initial consonants in the period of areal tonogenesis and registrogenesis several centuries ago (see, for instance, Haudricourt 1972:75 fn. 26, Ferlus 1979, Pinnow 1979), as can be seen from the following examples (data from Pisitpanporn 1995):

Standard Khmer	***Phnom Penh dialect***
/raəŋ/	/ɦa̤əŋ/ 'to winnow, sift'
/ʔɒŋ.rae/	/ʔaŋ.hɛ̆ɛ/ 'cradle, hammock'
/ʔaa.kruəʔ/	/ʔaa.kʰŭuəʔ/ 'evil, demon'
/crɒɒʔ/	/cʰŭuaʔ/ 'to fill'
/craeŋ/	/cʰɛ̆ɛŋ/ 'to stand with hand(s) on waist'
/kɒŋ.traa/	/kɒŋ.tʰĭia/ 'contract' (< French *contrat* [kɔ̃tʁa]: note that the registrogenetic rule is still productive)
/kruu/	/kʰu̯u/ 'teacher'
/prəi/	/pʰəəi/ 'forest'

Similar phenomena have been reported for most varieties of Khmer spoken in south Vietnam (Thach 1996:6). It should be noted that this constitutes a *re-introduction* of register into the Khmer dialects in question, since the earlier register contrasts had become extinct in them. It should be further noted that /r/ is a sonorant, and in the first registrogenesis in Cambodian an initial sonorant, being voiced, had the same registral effect as a voiced obstruent, but when it was preceded in a cluster by an obstruent, it was the voicing status of the obstruent that determined the selection of register, whereas in this new registrogenesis the voicing status of the obstruent preceeding the /r/ seems to make no difference, contrarily to what we would expect (see, for instance, San Duanmu 1992:152) -- i.e., the obstruents are voiceless but the /r/ is itself behaving registrogenetically like a (voiced) obstruent. This calls for some theoretical explanation (see, again, San Duanmu 1992:152).

Is it just in the East and Southeast Asian area that "R" leads a precarious existence? By no means, for let us remember that it may take first-language learners of English quite a while to acquire the correct pronunciation of pre-vocalic "R", and inability to pronounce it is a very common speech defect. As for post-vocalic "R", not only have most varieties of Khmer lost it, but it seems never to have existed in East and Southeast Asia outside of Austroasiatic and Austronesian (and the modern phenomenon of the retroflex non-syllabic vocoid in Mandarin), while many varieties of English, and certain varieties of German (not to mention Malay), have de-rhotacized it and turned it into a lengthening and/or a centering diphthongization of the preceding vowel. We can speculate that the *rolled* "R" -- the voiced apical trill [r] -- is especially hard to produce, hence its absence from so many varieties of English, French and German. I would further speculate that its association with certain laryngeal features is due to what I believe is its requirement of a *strong egressive pulmonic airstream* for its production. This makes it hard to maintain voicing and easy to produce aspiration. If one makes a special effort to maintain the voicing, this can, I suggest, lead to *breathy* voicing. It can also lead to the de-trilling of the "R", so that it becomes an approximant. It is harder, I would speculate, to produce a trill in initial than in intervocalic position, and hence there are certain languages, such as Evenki and Efik, where "R" does not occur in initial position, and others such as Spanish,Classical Greek and -- in Southeast Asia -- Saek (an outlier Northern Tai language of Thailand and Laos) where it is *reinforced* in that position -- in Spanish by being "doubled", in Classical Greek by being aspirated, and in Saek by being pre-stopped by a fleeting [d] (Hudak 1993:xxvi). It should, or course, be noted that we are only talking here about tendencies, and relative -- not absolute -- difficulty of production, for, to be sure, there are plenty of languages where a normally voiced, trilled "R" seems to be perfectly stable in all positions, just as in most languages that have pre-vocalic voiced obstruents the existence of these has not been made the occasion for tono- or registrogenesis, and just as the "naturalness" of devoicing final obstruents has not led to this happening in English, nor in certain dialects of German and Javanese, nor in Sundanese, etc. In short, "under what seems to be identical circumstances, one language will undergo a certain sound change and another will not" (Ohala 1987:216). The fact that a given sound change does not always take place does not negate its possible phonetic motivation in terms of "universal limitations of the innate speech capacity" (Stampe 1987:288).

Finally let us note an affinity between pre-vocalic "R" and another laryngeal state (or state functioning as a segment): in Old Mon /r/ was in morphophonemic alternation not only with /l/, which is understandable because they are both "liquids", but also with /ʔ/, and even, it seems, with the implosives /ɓ/ and /ɗ/ (Bauer 1992: 250 and fn.11). We should be aware here that there is evidence that implosive stops, at least in Southeast Asia, are (pre-)glottalized, so that this fact might give them the same affinity with /r/ that the glottal stop here seems to have -- an affinity that crops up also in the change of final "R" to glottal stop that is evidenced in some dialects of Malay (Collins 1985:560 fn. 4).

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