

ON DAIC LOANS AND INITIAL MUTATION IN THAVUNG

La Vaughn H. HAYES

Fayetteville State University

1. *Introduction*

After centuries of close contact, it is not surprising that Thavung (Thavung) has borrowed a large number of lexical forms from the Daic languages. Michel Ferlus, who discovered this Vietic¹ language in 1965, estimated in 1979 that about 13% of its lexicon is of Lao origin.² In my ongoing study of Thavung phonological history I have tentatively classified 204 words of the 770-word published lexicon as Daic. This figure is double (26.5%) Ferlus's initial count. However, deciding what is or is not a Daic loan is complicated by two major factors.

The first of these is the stratum interaction discussed by Ferlus.³ Daic and Mon-Khmer have exchanged vocabulary in both directions, raising the possibility that a given Mon-Khmer language may have borrowed originally Mon-Khmer forms from Daic. Ferlus cited *khaliang*² 'objets, affaires' as an example.⁴ Thavung borrowed the word, originally a Khmuic form, from Daic as *griɑŋ.

The other factor is the state of knowledge of the phonological histories of these languages since they first came into contact. The history of Daic is relatively well known, but that of Thavung is not — though much has been determined about specific diachronic changes.⁵ The proto-Tai phonology reconstructed by Fang Kuei Li probably predates the first contact of Daic and the ancestor of Thavung,⁶ which I shall term pre-Thavung. But

¹Vietic, more usually known as Viet-Muong, is a branch of the Mon-Khmer language family.

²Ferlus, 1979: 71, 78.

³Ibid., 78.

⁴Ibid.

⁵These changes are cited in Ferlus (1979: 73-8) and my "The Mutation of *R in Pre-Thavung," in this volume.

⁶This statement is more conjectural than I should like, but Daic loanword phonology does not appear to predate Li's proto-Tai in any way.

the nature and extent of Daic phonological influence on pre-Thavung and Thavung are not yet fully understood. Consequently, the assignment of given forms to loan status cannot yet be made on a sure footing, while quantifications such as those given above must remain less than precise.

The purpose of this paper is to discuss certain phonological changes associated with the Daic loan vocabulary in Thavung. In previous studies Ferlus has discussed the problem of initial stop mutation in loanwords and has advanced certain conclusions about the chronology of that mutation.⁷ I propose to review his findings, present others of my own, and argue for a different interpretation of some of the phenomena cited. While the problem of loan classification will be by no means resolved here, the results of the discussion should promote further studies of the problem.

2. *Some Implications of the Mutation of *R*

Both Thavung and the Daic languages are tonal, and their tones may be divided into two registers. These tonal registers formed when certain initial consonants became unvoiced and the pre-existing tones split into two. In Lao and Siamese, both members of the Southwestern Daic subgroup,⁸ initial voiced oral stops, */b d j g/, mutated into the voiceless aspirated stops /ph th ch kh/, as in Siamese /phɛc/ A2 'raft', from Daic L *bɛɛ A.⁹ In Thavung the same voiced initials became voiceless unaspirated stops, /p t c k/, in words of Mon-Khmer origin, as in pOOK² 'attacher', from pre-Thavung *book. However, the Daic loan vocabulary evidences both types of initial mutation:

<i>Thavung</i>	<i>Daic Cognates</i>		
kAA ² 'prix'	L *gaa B,	Siamese khaa B2,	Lao khaa
	'price'		

⁷Ferlus, 1974: 319-21; 1979: 74-5; 1980: 27-30.

⁸This branch of Daic includes Lao, Siamese, Black and White Tai, and others; cf. Li, 1977: 14.

⁹Daic reconstructions preceded by L are based on Li (1977); otherwise they are from Ferlus (1979: 83-94). Li did not list proto-forms, which I have improvised for added clarity; any errors in these are my responsibility. Li's letter identification of the four Daic proto-tones is used, with *B and *C replacing Ferlus's *1 and *2. Unless otherwise stated, Siamese lexical entries are from Li, Lao entries from Ferlus.

hEEm² 'mouvement descendant
(lune)'

*rɛɛm A, Lao hɛɛm A2.

The divergence might be explained by alternation of */r-/ with the Daic voiceless liquid */hr-/ or by the loss or gain of differently voiced presyllabic elements. But forms with such initials also evidence the same two patterns; and besides, it is doubtful that pre-Thavung ever had a voiceless liquid.¹³

hot ¹ 'arroser, asperger'	*hrot D, Lao hot D1
hAA ² 'génie des épidémies'	*hraa B, Lao haa B1
hɛɛp ¹ 'couteau à riz'	L *thɛɛp D, Lao hɛɛp D1
hiat ¹ 'punaise'	L *driɛt D, Siamese riat D2 'bedbug'

The divergence could still be explained away by replacing Ferlus's and Li's initial reconstructions as required. But evidence furnished by the */r/ mutation in the indigenous or non-loan vocabulary suggests that such a solution is not the correct one.

In my study on */r/, ten lexical items of Mon-Khmer origin with /h-/ from that initial were presented, and all have high-register tones (cf. hɔɔ¹ 'tortue' < pre-Thavung *rɔɔ).¹⁴ This fact hints that the vibrant shifted to */h-/ before register-formation, but the finding cannot be made all-inclusive because of the merger of the reflexes of pre-Thavung */h-/ and */r-/. The vibrant can be identified only through cognates, and cognates have not been found for all /h-/ forms. It should be noted, however, that all Thavung words with the spirant initial and low tone are either of Daic origin (and had */r-/), or have voiced presyllables, as in mahuu² 'dans quatre ans'.

Two forms given in the */r/ study had the */mr-/ cluster, as in mahii¹ 'forêt' < *mrii.¹⁵ Positing mutation to voiceless */mh-/ prior to tonal register formation is the most economical solution, for otherwise an unevicenced voiceless presyllabic element must be introduced.

The most convincing evidence, however, is derived from the evolution of the */dr/ cluster. As was shown in the */r/ study,

¹³ Hayes, op.cit., 83-4.

¹⁴ Ibid., 84

¹⁵ Ibid., 85

its voiced apical stop was the product of phonetic conditioning in an older */nr/ sequence.¹⁶ But this stop functioned as a voiceless phone during the register-formation process, as the following examples show. This behavior is the result of */r/ mutation, which converted the voiced */dr/ cluster to a preglottalized unit phoneme, */ʔd/, and which could have taken place only before the registers formed.

<i>Thavung</i>	<i>Late</i> <i>Pre-Thavung</i>	<i>Early</i> <i>Pre-Thavung</i>
kdii ¹ 'cerf'	*kʔdii	*kdrii
dam ¹ 'cinq'	*ʔdam	*dram
cdang ¹ 'droit'	*cʔdaŋ	*cdraŋ
adaang ¹ 'griller sous la braise'	*ʔaʔdaaŋ	*ʔadraaŋ
aduung ¹ 'cageot à poulet'	*ʔaʔduuŋ	*ʔadruuŋ

The evidence seems to me compelling for the conclusion that the mutation of */r/ began in the pre-Thavung era well before the formation of the Thavung tonal registers. The shift was probably completed before the development of the registers began, but it may not have taken place in some environments until afterwards.¹⁷

The mutation of */r/ implies, then, that the chronological order of register-formation and */r/ mutation in pre-Thavung must be reversed. This reversal forces recognition of three strata of Daic loans with the proto-Tai initial liquid. Loans with Thavung tonemes must therefore be divided into pre- and post-register formation layers (see §5). A fourth stratum consists of the more recently acquired loanwords that have retained their Lao tonemes.¹⁸

Recognition of pre- and post-register formation layers of Daic loans suggests a different interpretation of the two types

¹⁶ Ibid.

¹⁷ The low tone of thAng² 'bois, végétal' would be better explained if the vibrant had changed after register formation. Otherwise, the cluster */zr-/ or a voiced presyllabic element must be posited to explain the low-register tone.

¹⁸ This group (40 items, or 5.2% of the lexicon) has been excluded from the study, and all references to Daic loans specify the older and larger set with Thavung tonemes, unless otherwise stated.

of initial-stop mutation discussed by Ferlus. This interpretation will be the subject of the next two sections.

3. *The "Viet-Muong" type of initial mutation*

The Daic loans evidencing Ferlus's "Viet-Muong" type of initial-stop mutation may now be recognized as first-layer loans. Their modern initials are voiceless simple oral stops because these loans entered pre-Thavung with voiced initials and participated in the devoicing process as indigenous vocabulary. The first-layer loans were borrowed before register formation had begun in either Thavung or Lao. The following list includes all examples:

<i>Thavung</i>	<i>Pre-Thavung</i>	<i>Daic Cognates</i>
pEE ² 'radeau'	*bɛɛ	L *bɛɛ A, Siamese phɛɛ A2, Lao phɛɛ 'raft'
pAn ² 'mille'	*ban	*ban A, Lao phan A2.
pEEng ² 'cher'	*bɛɛŋ	L *bɛɛŋ A, Siamese phɛɛŋ A2, Lao phɛɛŋ 'expensive'
tAA ² 'berge'	*daa	L *daa B. Siamese thaa B2, Lao thaa 'ford'
tAA ² 'peindre, oindre'	*daa	L *daa A, Siamese thaa A2, Lao thaa 'to smear, paint'
tEEk ² 'mesurer'	*dɛɛk	*dɛɛk D, Lao thɛɛk D2
tEEŋ ² 'représenter'	*dɛɛŋ	L *dɛɛŋ A, Siamese thɛɛŋ A2, Lao thɛɛŋ 'to put in place of'
tOOn ² 'bûche, section de tronc'	*dɔɔŋ	L *dɔɔŋ B, Siamese thɔɔŋ B2, Lao thɔɔŋ 'section'
tAw ² 'mousse'	*daw	L *dɔu A, Siamese thau A2, Lao thaw 'aquatic moss'
cAn ² 'étage'	*jan	*jan C, Lao can C2 ¹⁹
cAng ² 'peser'	*jaŋ	L *jɔŋ B, Siamese chang B2, Lao cang 'to weigh'.
kAA ² 's'échouer'	*gaa	L *gaa A, Siamese khaa A2, Lao khaa 'to get caught'.

¹⁹The Lao forms here and in the next set may be loans from Thavung, for /s/ < */ch-/ is expected. But the Thavung forms are still suspect as Daic loans. Cf. also L *jaan A, Siamese chaan A2 'veranda, porch'.

kAA ² 'prix'	*gaa	L *gaa B, Siamese khaa B2, Lao khaa 'price'
kuu ² 'paire'	*guu	*guu B, Lao khuu B2.
kAAp ² 'tenir dans les mâchoires'	*gaap	*gaap D, Lao khaap D2.
kEEm ² 'rive'	*gɛɛm	L *ɣɛɛm A, Siamese khɛɛm A2, Lao khɛɛm 'border, edge'.
kEEEn ² 's'étouffer'	*gɛɛn	*gɛɛn C, Lao khɛɛn C2.
akAn ² malaxer, pétrir	*ʔagan	L *gən C, Siamese khan C2, Lao khan 'to press tight'.
kOn ² 'homme, personne'	*gon	L *ɣ(ui)n A, Siamese khon A2, Lao khon 'person'.
akOOn ² 'porter sur l'épaule'	*ʔagɔɔn	L *gɔɔn A, Siamese khɔɔn A2, Lao khɔɔn 'to carry'
kAy ² 'crasse'	*gay	L *ɣɛi A, Siamese khai A2, Lao khay 'dirt of skin'.
kOOy ² 'doucement'	*gɔɔy	L *gɔɔy B, Siamese khɔɔi B2, Lao khɔɔy 'slowly'.

What cannot be determined at present is the possibility that some of the above loans may have been borrowed from members of Southwestern Daic other than Lao and Siamese long after the common Tai period and after the formation of the Thavung registers but during the period when breathiness was still common to all low-register environments.

4. The "Lao" type of initial mutation

The Daic loans evidencing Ferlus's "Lao" type of initial mutation have either voiceless aspirated stop initials or initial /s/ from earlier */ch/. They have such initials because they entered Thavung with them. There was no wavering between equal choices. Forms of this "Lao" type have the same low register as their Daic counterparts. Why this correlation should exist will be the subject of §6. This layer of loans entered the Thavung lexicon after register formation had begun in Thavung and Lao.

mAy ² phAAy ² 'aviron'	---	*baay A, Lao phaay A2.
kthoo ² 'panier'	---	*kadɔɔ A, Lao kathɔɔ A2.
sAng ² 'boucaner'	---	L *ʔjiaŋ C, Siamese jaang C1, Lao jaang 'to dry paddy' ²⁰

²⁰Lao is evidently not the source language; cf. White Tai jang 'to dry, smoke (meat)'.

sAA ² 'lentement'	---	*jaa A, Lao saa A2.
sAt ² 'lancer (javelot)'	---	*jat D, ²¹ Siamese sat D2, Lao sat 'to throw, fling'.
khAAng ² 'menton'	---	L *ɣaaŋ A, Siamese khaang A2, Lao khaang 'chin'.
phAAt ² 'dépiquer, vanner'	---	*vaat D, Lao faat D2.

Another group of loans has voiceless aspirated initials, but high register corresponding to the low register of the Daic cognate forms. Since the original initials were voiced plosives or fricatives, these words had to have been borrowed after the Lao initial mutation had begun but before the Thavung register formation was completed. The group just listed above forms, then, a second stratum in the Daic loan vocabulary while the following items form a third stratum:

sɛɛŋ ¹ 'cymbales'	*chɛɛŋ	*jɛɛŋ B, Lao sɛɛŋ B2.
sam ¹ ʔiik ¹ 'encore'	*cham	*jam C, Lao sam C2.
khup ¹ 'au complet'	*khup	*gop D, Lao khop D2.
akhwat ¹ 'graver, ciseler'	*ʔakhwat	*gwat D, Lao khwat D2.
khuay ¹ 'buffle'	*khuay	L *ɣwaaɪ A, Siamese khwaaɪ A2, Lao khwaaɪ 'buffalo'
aphak ¹ 'hâcher en petits morceaux'	*ʔaphak	L *vək D, Lao fak D2 'to chop, mince'.
phiang ¹ 'paille'	*phiaŋ	L *viaŋ A, Siamese faang A2, Lao fiaŋ 'straw'.

An alternative interpretation would be that pre-Thavung converted Daic voiced fricatives to voiceless spirated stops, i.e. */v ɣ/ > */ph kh/. This interpretation is rejected because voiced aspirated stops have been reconstructed for the pre-Thavung non-loan vocabulary, as in *ghloot < *grloot, > Thavung khaloot² 'ronger (un os)'.²² The failure to convert the voiced fricatives to */bh gh/ would require additional justification, and there is no cogent reason for it at present. An additional counter-argument is that a palatal fricative would have to be set up in two of the above forms as the antecedent of */ch-/, and Li did not reconstruct such a proto-phoneme for proto-Tai or proto-Southwest Tai.

²¹Li reconstructed */z-/ as the proto-Tai initial.

²²Hayes, op.cit.

Loanwords with voiced initials in the pre-register era are amenable to division into three strata because of the differences in the Thavung and Daic post-register formation initials and registers. This division is rarely possible when the pre-register initial was a voiceless phone, because of the parallel development in the two language areas. The following list offers a sample of loans with old voiceless stops (aspirated, unaspirated, and preglottalized) and old fricatives (one example):

phuu ¹ lii ¹ 'celui-ci'	(*phuu)	L *phuu C, Siamese phuu Cl, Lao phuu 'male'
thaw ¹ 'vieux'	(*thaw)	L *thəw C, Siamese thaw Cl, Lao thaw 'old'.
khiaiy ¹ 'beau-frère'	(*khiaiy)	L *khii A, Siamese khəei Al 'son-in-law', Lao khəey 'brother-in-law'.
piin ¹ 'grimper'	(*piin)	L *piin A, Siamese piin Al, Lao piin 'to climb'.
tat ¹ 'couper, trancher'	(*tat)	L *tat D, Siamese tat Dl, Lao tat 'to cut off'.
cɔn ¹ 'être à court de'	(*cɔn)	*cɔn A, Lao cɔn Al.
kɔp ¹ 'grenouille'	(*kɔp)	L *kɔp D, Siamese kɔp Dl, Lao kɔp 'frog'.
bɔɔ ¹ 'mine, source'	(*ʔbɔɔ)	L *ʔbɔɔ B, Siamese bɔɔ Bl, Lao bɔɔ 'spring, well'
tɛɛ ¹ dik ¹ 'le matin'	(*ʔdik)	L *ʔdik D, Siamese dik Dl 'late at night'.
phang ¹ 'enterrer'	(*phaŋ)	L *fəŋ A, Siamese fang Al, Lao fang 'to bury'.

5. *More on the mutation of *R*

Acknowledgment of the pre- and post-register formation loan strata permits an economical solution to the divergence problem in loans with */r-/ discussed in §2. With one exception, cited below, this solution requires no alteration of Ferlus's and Li's proto-Tai initials.

First-stratum loans have /h-/ and high register corresponding to Lao /h-/ and low register. These reflect the pre-Thavung shift of */r-/ to */h-/. Third-stratum loans have /h-/ and low register in both languages. These reflect the mutation of */r-/ in Lao. Loans with /h-/ from Daic liquid initials, whether simple or complex, and with high register in both languages cannot be dated with respect to register formation. The */r-/ forms

previously listed in §2 are here repeated with appropriate pre-Thavung reconstructions. The exception mentioned above is hAA², of which the Daic cognate must be haa B2 < *raa B and which was probably from a dialect other than Lao.

hap ¹ 'accepter'	*rap	L *rap D, Siamese rap D2 'to receive'.
hEEm ² 'mouvement (lune)'	---	*rɛɛm A, Lao heem A2.
hot ¹ 'arroser'	(*rot)	*hrot D, Lao hot D1.
hAA ² 'génie'	---	*raa B; cf. Lao haa B1.
heɛp ¹ 'couteau à riz'	(*rɛɛp)	L *threɛp D, Lao heɛp D1.
hiat ¹ 'punaise'	*riat	L *driet D, Siamese riat D2 'bedbug'.

In §2 the question was raised of what tone and register loans with */r-/ would have taken after register formation. The third-stratum loans clearly have the same register as their cognates, and the reason for this will become clear in the following section. The question remains as to what form */r-/ took in loans borrowed between the now differently dated liquid mutations — and, since register formation began in this interim period (at least in Lao), what register such loans would take. The answer is possibly that the liquid was converted to */l-/, with the word taking low-register tone in all cases. However, only one possible example exists, namely kalAAⁿ² 'marcher à quatre pattes' (cf. Daic *graan A, Lao khaan A2), and there is much doubt about the form and origin of its cognate. Li indicated *gluan A, Siamese khlaan A2 'to crawl, creep', while Vietnamese has trườn 'to crawl', suggesting an old Mon-Khmer loan in Daic.

Other examples may be concealed, however. For example, the pre-Thavung form of khaliang² 'objets, affaires' was reconstructed as *griaŋ (cf. Daic L *griaŋ B, Siamese khriang B2, Lao khiang 'apparatus, thing'). If the word was borrowed after the Lao initial-stop mutation began, then pre-Thavung could have conceivably converted *khriang to *khliang, which would then take low-register tone. The Lao form thereafter became khiang upon shift of the liquid to /h/.

6. *The feature of register correlation*

Recognition of the third stratum of Daic loanwords raises a problem that has not yet been dealt with. As was seen in §4 and §5, these items and their Daic cognates evidence regular tonal register correspondence. This correspondence cannot be explained in terms of the initial voicing distinction, as was the case with the first- and second-strata loans, because that distinc-

tion had been lost in both language areas before the third-layer borrowing took place. But the registers were obviously correlated in some regular way and presumably by some feature inherent in both tonal register systems. The problem is one of discovering what that feature of regular correlation was.

As Ferlus has shown in his register formation study,²³ tonal register languages do not develop many of the phonetic effects associated with compensatory reaction to unvoicing of initial stops. Pitch distinctions are the primary ones. Breathy voice is another, which develops only in low-register environments and tends to disappear. Ferlus has suggested that this voice quality was present in the Southwestern Daic languages at the time of register formation.²⁴ It has since completely disappeared. Thavung had the breathy articulation, perhaps with all low-register forms, but retains it now only with certain low register vowel allophones.

The register-correlation feature could hardly have been a pitch distinction. In tonal register languages pitch onset is relatively higher after voiceless initials and relatively lower after voiced ones. The pattern is clear in Thavung, where high and low level tones occur in high and low registers respectively. It is not at all clear in Siamese and Lao, where pitch onset is high and low in each register, as the following comparison shows:

<i>Register Thavung</i>		<i>Daic</i> ²⁵				
		<i>Proto-tone:</i>	*A	*B	*C	*D
High	Hl	<i>Siamese:</i>	Mr	Ll	f	Ll
		<i>Lao:</i>	Hr	Ll	f	Hr/Ll
Low	Ll	<i>Siamese:</i>	Ml	f	H	H/f
		<i>Lao:</i>	Ml	Lf	Hf	H/f

This representation of the tones of Siamese and Lao portrays

²³Ferlus, 1980: 23-7.

²⁴Ibid., 25-6.

²⁵Li, 1977: 5-6, 16, 28. The figure is not intended to show clearly the modern tones of either language. H = High, L = Low, M = Mid; f = falling, l = level, r = rising.

their development from the four Daic proto-tones. Post-register formation developments have significantly altered the tone system in both languages. It is thus possible that a clearer correlation between initial voicing or register and pitch onset existed in the early post-register formation era. Still, one must wonder if the initials ever had an effect identical to that in Thavung, or if their effect was to alter the pre-existing tones in some other significant way. Whatever the effect was, the pitch onsets of the modern languages do not reveal the desired correlation feature.

Tone correspondence is an even less productive field of inquiry. The Thavung tones are level and unglided; most of the Daic tones are glided. Thavung has four tonemes, two per register, but Daic loanwords may take only one tone in each register (Tones 1 and 2). Lao and Siamese have two or three tones per register, while an earlier stage of Southwestern Daic had four tones per register. It would thus appear that from two to four Daic tonemes were somehow equated with one Thavung toneme. But no common denominator presents itself.

The breathy voice quality seems, finally, to be the only possible feature of correlation. If present in both systems at the same time, as Ferlus thinks, this quality would permit correlation because of its unique relationship to the voiced initials or low-register series. No other phonetic attribute would be necessary, and absence of breathy voice would automatically imply association with the high register.

Two other factors favor the breathy voice correlation: vocalic differentiation and the tone limitation in Daic loanwords. The loans exhibit the same prediphthonguization of vowels as the indigenous vocabulary. This differentiation is phonetic and limited to three low vowels, which are also the only ones retaining breathy articulation. Register assignment on the basis of pitch onset or toneme characteristic would not justify the vowel articulation; breathy voice, on the other hand, would imply it, at least in the low vowels.

Tones 3 and 4 are not found in the Daic loan vocabulary. These tones differ from Tones 1 and 2 solely in having glottal constriction on the vocalic nucleus. In some Daic dialects, glottalization is a phonetic feature of certain tonemes. I have no precise information on Lao or Phou-Thay, but Li records this feature as present in some Siamese dialects and Black and White Tai.²⁶ If glottalization or glottal constriction were generally present in earlier stages of Daic, some trace could be expected

²⁶Li, 1977: 26-7.

in the loan vocabulary. But none has turned up, and none should if breathy voice were the only prosodic feature borrowed with the Daic vocabulary.

It would appear, then, that in the borrowing of the first three layers of loans, Thavung speakers totally disregarded the pitch distinctions of the loaning language(s). Where the post-register formation loans are concerned, the presence or absence of breathy voice in the loanword evidently implied automatic assignment of low or high level pitch respectively. After Daic lost the voice quality, new loans came into the language with their tonemes intact. The speakers of Thavung, with their own language now fully tonal, apparently had no difficulty with the different pitch onsets and contours. Some degree of bilingualism no doubt facilitated this.

7. *Conclusion*

The historical relationships of Thavung and the Southwestern Daic languages are now somewhat more lucid. Through analysis of the liquid and initial occlusive mutations, much can be told about the lexical borrowing by Thavung and the phonological changes in progress in both language areas at the time of that borrowing.

After initial contact, pre-Thavung borrowed proto-Southwest Tai vocabulary; this is the first layer of loans. The register formation process began in the southwestern Daic area, and pre-Thavung borrowed other loanwords; this is the second layer of loans. Then, the process began in pre-Thavung, the completion of which marked the transition to Thavung. During this period and afterwards, some southwestern Daic dialects and Thavung had breathy voice quality in low-register environments. The presence of this quality in southwestern Daic, foreseen by Ferlus in his study of register formation, can be detected perhaps only on the evidence of Thavung. The third layer of loans entered into the Thavung lexicon, with register assignment and other phonetic characteristics determined by that voice quality. After Lao had lost the quality and Thavung was fully tonal, a fourth layer of loans retained their Lao tonemes and remained outside the Thavung tonal register system.

The four strata of Daic loans can be relatively dated with respect to the register formations in Southwestern Daic and Thavung. Neither the formations nor the borrowings can yet be positively dated with respect to calendrical time. The earliest Southwestern Daic inscriptions appeared in the 13th century.²⁷

²⁷Li, 1977: 26.

They indicate that the initial voicing distinction was still intact; thus, the register formation was completed thereafter. We may infer, then, that the formation of the registers in Thavung is a relatively recent phenomenon.

REFERENCES

- Ferlus, Michel, 1974. "Problèmes de mutations consonantiques en thavung," *BSLP*, LXIX.1: 311-23.
- , 1979. "Lexique thavung-français," *Cahier de Linguistique Asie Orientale*, 5: 71-94.
- , 1980. "Formation des registres et mutations consonantiques dans les langues mon-khmer," *MKS VIII*: 1-76.
- Hayes, La Vaughn H., 1983. "The Mutation of *R in pre-Thavung," in this volume.
- Li, Fang Kuei, 1977. *A Handbook of Comparative Tai*. Oceanic Linguistics Special Publication No. 15. The University Press of Hawaii, Honolulu.
- Thompson, Laurence C., 1976. "Proto-Viet-Muong Phonology," in *Austroasiatic Studies*. Oceanic Linguistics Special Publication No. 13. The University Press of Hawaii, Honolulu. II: 1113-1203.