

# TONES AND VOWELS IN SOUTHERN THAI : A DIACHRONIC ANOMALY

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To recognise an anomaly requires awareness of a norm, and for increasing such awareness in the case of tonal development we are indebted to A.G. Haudricourt. In particular, his careful comparative analysis of relationships between the arising of tones and the loss of consonantal distinctions in Southeast Asian languages has provided important hypotheses that will continue to guide future research.

Tai languages in general provide support for viewing tonogenesis primarily in terms of compensation for consonantal loss, but an ultimate working-out of proposals such as those of Haudricourt (1961) remains to be completed for these languages. Toward this general end it is useful to point out problems in Tai diachronic phonology (e.g. Brown 1975, 1976, 1979; Jones 1966, 1976); in this way, once aired, the problems may lead to further insights or hypotheses. Gedney's (1972) puzzle relating to Tai vowel development led, for example, to Haudricourt's (1975) interesting subsequent comments. It is with this in mind that we explore an issue in Southern Thai diachronic tonal and vowel development - Southern Thai here referring to Tai (Southwestern-branch) varieties spoken in the peninsular region from about the Isthmus of Kra to the Malaysian border area, at least in pockets (approximately 7°N to 11°N).<sup>1</sup>

Below we first describe briefly what is taken as regular for Southern Thai tonal and vowel development. Then we turn to an interesting anomaly concerning (apparently) tonally-conditioned vowel lowering.

[For typographic convenience, the transcription used is based on the phonemic representation of Haas (1964, etc.), but with long vowels indicated, e.g. as *a:*, and with the actual vowel symbols

TABLE 1

TAI TONE CATEGORIES

	open, unmarked	open, marked 1	open, marked 2	closed (long)
High class	A <sub>H</sub>	B <sub>H</sub>	C <sub>H</sub>	D <sub>H</sub>
Mid class	A <sub>M</sub>	B <sub>M</sub>	C <sub>M</sub>	D <sub>M</sub>
Low class	A <sub>L</sub>	B <sub>L</sub>	C <sub>L</sub>	D <sub>L</sub>

employed being a slight modification of the official Thai Royal Institute system. Short vowels are thus: (high) *i*, *u* *u*; (mid) *e*, *oe*, *o*; (low) *ae*, *a*, *o'*. Royal Institute consonants are also used, except that *c* appears for the unaspirated counterpart of *ch*. The sequence *ny* here marks a palatal nasal consonant such as occurs in some Southern Thai varieties. Initial glottal stops are not shown. Tones are either indicated through etymological lettering as described below or by using Chao's 1-to-5 scale system after the

manner of Li (1977:5). In most cases citation forms are considered below; for discussion of sandhi-like processes when tones occur in natural speech, see Panupong (1972), Court (1975), Gandour (1977), Diller (1979). Geographical place-names are given in standard simplified Romanisation (thus *Nakhon* rather than *Nakho'*:n).]

# 1. Regular tonal mergers

Vocabulary in Southern Thai generally exhibits regular correspondences as to tone with cognates in other Tai varieties, and it is usual to represent such regularities through correspondence categories as in Table 1, although labeling systems differ somewhat. Here we use A,B,C,D to suggest correspondences leading to reconstruction of a Proto-Tai tonal system in which stop-final items had (or came to have) tone D, at least for long-vowel items<sup>2</sup>, and other vocabulary was distributed over tones A,B and C. Whether or not final sounds such as -s or -h were originally present and responsible for the arising of the tone B, and other laryngeals for C, are intriguing questions following naturally from Haudricourt's (1961,etc.) proposals, especially relating to Vietnamese; for the Tai family, direct evidence is elusive.<sup>3</sup> In any event, as the column headings for Table 1 suggest, the Thai writing system reflects this schema for Proto-Tai tones by regularly leaving A- and D-tone words unmarked, but marking B- and C-tones with may<sup>45</sup>-e:k<sup>11</sup> (1) and may<sup>45</sup>-tho:<sup>33</sup> (2) respectively. 'Regularly' must be emphasized, since correspondence patterns constitute the basis of Table 1, with spelling simply a secondary witness

TABLE 2

SOUTHERN THAI TONAL MERGERS

	[1] [A <sub>H</sub> +B <sub>H</sub> ]	[2] [A <sub>M</sub> +B <sub>M</sub> ]	[3] [C <sub>H</sub> +D <sub>H</sub> ]	[4] [C <sub>M</sub> +D <sub>M</sub> ]	[5] [B <sub>L</sub> +D <sub>M</sub> ]	[6] [C <sub>H</sub> +C <sub>M</sub> ]	[7] [A <sub>M</sub> +A <sub>L</sub> ]	[8] [AB <sub>H</sub> +B <sub>M</sub> ]
Pathiw/Chumphon	+	-	-	-	+	+	+	+
Ranong	+	unstable	-	-	+	+	unstable	-
Langsuan/Bandon	+	+	-	-	+	+	unstable	-
Phanom	+	+	-	-	+	-	-	-
Kanchanadit/Ko Samui	+	+	unstable	[+]	+	-	-	-
Phuket	+	+	+	+	-	unstable	-	-
General Lower Southern	+	+	+	+	-	-	-	-



which often provides convenient points of reference, but is sometimes spurious, as we see below.

In this way 'High', 'Mid' and 'Low' classes are named in Table 1 to suggest the orthographic groups into which Thai consonants have traditionally been divided since the *Chindamani* treatise of the 17th Century. Phonetic features of consonants in each group, such as aspiration for the 'High' series, appear to have caused regular register-type differentiation, thus increasing the tonal complexity of the original system.<sup>4</sup> A three-way separation of this sort is characteristic of Southern Thai, but to the north there is much two-way splitting, often [H+M]/[L] (Li 1977:25). It would be reasonable to suppose, but difficult to prove, that in some emergent stage of Southern Thai the split [H+M]/[L] occurred as it also did to the north, and then a subsequent split to [H]/[M]/[L] originated in the lower regions of the Southern Thai dialect area from which it spread (to some extent) northward; but an anomaly with regard to this is discussed below.

By now it is clear that no Tai variety tolerates a maximal 3x4 tonal system with a phonetically separate tone for each of the twelve cells in Table 1, although Dong (Kam) in Guizhou seems to tolerate nine. The majority of dialects merge (or refuse to split) in such a way that phonetically speaking at least (and leaving aside short-vowel stop-final items) five-, six-, and seven-tone systems are determined. The five tones of Standard Central Thai in the present notation are

thus:  $[A_M + A_L]^{33} / [B_H + B_M + D_H + D_M]^{11} / [C_H + C_M + B_L + D_L]^{41} / [C_L]^{45} / [A_H]^{24}$ .

Depending somewhat on how one counts, well over fifty other Tai systems have now been documented in works such as Haas (1954), Egerod (1961), Jones (1965), Brown (1965), Moskalev (1970) and in various Chinese publications. (See also Strecker, 1969.)

Certain patterns of coalescing of original categories (Table 1) now occur over wide domains of the Tai area, and can be used (along with segmental and lexical phenomena) to define subgroups. Thus the majority of Lao dialects show  $[B_H + B_M + B_L]^{33}$ , either because the original Proto-Tai B tone failed to undergo register separation in the case of these dialects (hardly plausible, since on other grounds at least the register separation HM/L must have occurred very early and one particular tone in Lao dialects would hardly have escaped it; see Li 1977:26), or because there was a subsequent remerger, either in ancestral Proto-Lao or as a later sweeping areal feature.

$[B_L + D_L]$  similarly has a wide domain, extending from north of Chiangmai, down through Central Thai, and south to take in all varieties of Southern Thai under discussion below. The phonetic realisation of this merged tone varies from high or mid falling to the north to low or low rising in Southern dialects.

For Southern Thai, the merger  $[A_H + B_H]$  can be taken as virtually definitive for dialect grouping. Although the same merger occurs in Khamti (of Assam, India; Harris 1976:114) and partially in Nung (Jones

1976:172), these are so removed from Southern Thai in other structural respects as to point to independent parallel tonal development. In the Southern Thai area only Tak Bai (Brown 1965:135), an 'island' in a predominantly Malay-speaking area, leaves  $A_H$  and  $B_H$  unmerged.<sup>5</sup>

While the merger [ $A_H+B_H$ ] is virtually pan-Southern, other (subsequent?) tonal mergers distinguish eight or ten structural subtypes for the Southern Thai area. Table 2 is a representative display of the main subsystems. Only phonetic merger, i.e. complete pitch and contour convergence among items as arranged by Table 1, is shown in Table 2.<sup>6</sup> A few less stable varieties, mainly in the Malay-majority area, are omitted. Thus Satun, while structurally similar to Phuket in Table 2, has speakers favouring various contours (Brown 1965:134; Court 1975:70). Differences have been documented for Takua Pa (Jones 1965:227; Brown 1965:121). In some cases reported differences may be attributable to the use of urban students or other areally and socially mobile people as language assistants, where speech may depart from that of older stable rural residents (Egerod 1972). For our purposes, variation of this sort will not be taken as anomalous.

Table 2 indicates only phonetic mergers, and does not indicate phonetic detail as to how merged and unmerged categories are actually realised (see Haas 1954; Henderson 1954; Egerod 1961; Jones 1965; Brown 1965; Panupong 1972; Diller 1979, 1982).

In addition to strictly phonetic mergers, issues of complementary distribution can be taken into account.<sup>7</sup> As a result certain phonetically different tones can now be taken as conditioned allophonic variants of the same tonal phoneme, with further 'abstract' mergers to be postulated (Jones 1965). Elsewhere (Diller 1979) it is suggested that two different abstract five-tone systems of this sort become cohesive phonologically at separated points in a Southern Thai areal-social continuum. Independent structural criteria appear to converge to define these five-tone phonological reductions, which stand out against their six- and seven-tone phonetic backgrounds. These focal points are approximately at Bandon (Surat) and Songkhla. Between these plausible five-tone reductions are dialects, particularly around Nakhon Sithammarat (henceforth Nakhon) where there is a weakening of criteria associated with the abstract solutions: segmental complementarity with respect to tone and suprasegmental parallelism among putative allophonic tonal variants. Thus in Nakhon varieties the initial /y-/ may occur on seven phonetic tones and also there is decreased parallelism among prospective tonal candidates for allophonic grouping.

## 2. Tone development

Depending on data and method, for example, on how much weight one gives to phonological as opposed to purely phonetic systematisation, and also in the former case on which particular solutions are accepted, different views of intra-Southern tonal development can

arise. Data like Table 2 alone could hardly force a unique diachronic explanation. Brown (1965:69) and Jones (1965:199) for example, present somewhat different diachronic tree diagrams for intra-Southern development, and others could be proposed. Problems familiar from nearly any rigorous application of the classical Comparative Method are present here: which particular mergers are to be considered as independent parallel developments, which as inherited from a common source? And similar problems with splits arise (note the Lao case above).

The evolution of the Ko Samui tonal system proposed by Brown (1965:115, 116, 123; with terminology adapted) provides a convenient illustration of the issues involved:

1600 Chaiya:  $[A_H + B_H]/[C_H + D_H]/[A_M]/[B_M]/[C_M + D_M]/$   
 $[B_L + D_L]/[A_L]/[C_L]$

Ko Samui:  $[A_H + B_H]/[C_H + D_H]/[A_M + B_M]/$   
 $[C_M + D_M + B_L + D_L]/[A_L]/[C_L]$

An eight-tone system has been reduced to six through two mergers (ignoring again short-vowel final-stop items). But what is the status of these mergers? We see from Table 2 that the merger  $[C_M + D_M + B_L + D_L]$  is in fact unique to Ko Samui (and to nearby mainland areas like Kanchanadit and Khanom) but within the compound merger the component  $[D_M + B_L]$  occurs in all Southern Thai dialects to the north of Ko Samui as well. The merger  $[A_M + B_M]$  is even less a specifically Ko

Samui innovation: it has occurred in all Southern varieties south of Langsuan. Thus much of this tonal history reconstructed for Ko Samui has been repeated elsewhere, and some conservative applications of the Comparative Method would want to limit Ko Samui's innovation to  $[C_M + B_L (+ \dots)]$  and trace the other mergers back to intermediate proto-stages subsuming more of the modern varieties.

In other Southern varieties similar problems arise, and taken as a whole it is a mere arbitrary exercise to specify and defend one ancestral tree diagram over another. It is interesting here to note Bloomfield's (1933:317) comments on parallel resemblances and the evolution of the Comparative Method in 19th Century Indo-European studies:

"As more and more of these resemblances were revealed, the older scholars who insisted upon the family-tree diagram faced an insoluble problem. Whichever special resemblances one took as evidence for closer relationships, there remained others, inconsistent with these, which could be explained only by an entirely different diagram. The decision, moreover, was too important to be evaded, since in each case it profoundly altered the value of resemblances."

One classical way of dealing with non-unique developmental trees and the sharing of innovations was the 'wave theory' of Johannes Schmidt in the 1870s, which postulated successive diffusions of phonological change over an interactive speech area.

Examination of Table 2, along with local social history and features of the southern landscape, makes the 'wave theory' plausible

in accounting for the development of present-day Southern Thai tone-system differentiation. Perhaps in fact the isthmian geography provides nearly optimal conditions in which to study this model of diachronic sound change.

Historically, a substantial Tai-speaking population has been in the peninsular area for over five hundred years, at least on the east coast north of about 8°N. In the south as elsewhere dominant Thais (who apparently have always been 'hypogamous') have intermarried with indigenous predecessors, in this case Malays, but perhaps also Mon-Khmers or other Austroasiatics, or even Indian colonists.<sup>8</sup> The west coast has been more sporadically populated and not so firmly within the Thai orbit until the present dynasty, during the early years of which (1782-1820) Burmese attacks caused much population disruption.

Population on the east coast was more stable, but by no means static. A linguistic 'wave theory' finds a measure of support in local historical materials (e.g. the *Chronicles of Nakhon Sithammarat*; Wyatt, 1975). A reading of these discloses a long history of comings-and-goings among the principal contiguous towns and their nearby rural areas with disease, pirate attacks, escape from overlords, military conscriptions and campaigns, trade, and monastic ordination all providing documented impetus for contact over the centuries.

While it is true that before the railroad and highways were introduced in this century the east-coast southern Thai population was

to some extent geographically divided by mountains (Khao Luang) into upper (Surat) and lower (Songkhla-Nakhon) groups, the natural separation has had only moderate effects in terms of structural dialect subdivision. Segmentally, north of the mountains final  $-k$  after long vowels has become final glottal stop; to the south, initial  $ng-$  has merged with  $h-$  and  $\text{ʃ-}$  with  $khw-$ . The conservative initials  $m\ell-$ ,  $mr-$  and  $ny-$  occur mainly to the south, but are in any event being replaced.<sup>9</sup>

The propagation of tonal changes appears to be marked off to some extent by the mountains also. The boundary is ignored by some areal patterns, such as a gradual north-to-south progression of the  $A_H$  tone from high falling to high rising-falling to high rising.<sup>10</sup> But in the case of tonal coalescence there appears to be a tendency for horizontal mergers (in terms of Table 1) to occur in Nakhon, Songkhla, etc. (General Lower Southern) but for vertical mergers, especially of [M] with [L] categories, to characterize the north. One way of reading Table 2 would be to see mergers [1] to [4] as south-to-north areal diffusions, but [5] to [8] as north-to-south ones. This reading might gain some support from the discussion of five-tone phonemic reductions above: there appear to be two especially cohesive structural systems - one to the north, one to the south. Intermediate varieties could be seen as subject to somewhat antagonistic diffusional pressures. In the case of Ko Samui reviewed above, if the island is not taken as completely 'isolated' but as partly subject to southern



([A<sub>M</sub>+B<sub>M</sub>]) and northern ([B<sub>L</sub>]+[D<sub>M</sub>]) tonal propagations, a tonal history similar to Brown's becomes the more compelling.

Whatever particular tree-wave diachronic interpretations of Table 2 one might favour, the general historical results it summarises will be taken as normal.

### 3. Marginal tonogenesis.

Also normal for purposes here is a somewhat marginal case of tonogenesis which has been occurring in some rural varieties of the Langsuan area. This shift, described in detail elsewhere (Diller, 1982) involves only D<sub>H</sub> items originally in -k like the following:

	<u>tone</u>	<u>Nakhon</u>	<u>Langsuan</u>
'pestle'	D <sub>H</sub>	sa:k	sa:
'areca'	"	ma:k	ma:
'sugar-palm beer'	"	wa:k	wa:
'ox hump'	"	no:k	no:
'loom'	"	hu:k	hu:

The shift--k to glottal stop after long vowels was noted above for northern isthmian dialects; in the Langsuan varieties, the change is being carried one step further through lenition of final glottal stop. Another feature of northern isthmian dialects, aberrant from the point of view of Tai varieties in general, is the refusal of D<sub>H</sub> to share

the same phonetic tonal contour with one of the unstopped H categories. This gives rise to a tonal situation such as  $[A_H+B_H]^{52}$ ,  $[C_H+C_M]^{33}$ ,  $[D_H]^{44}$ . Now when this situation coincides with loss of final glottal stop (originally from *-k*) lexical triplets can arise such as:

	<u>tone</u>	<u>Nakhon</u>	<u>Langsuan</u>
'doctor'	$A_H$	$[mo':]^{452}$	$[mo':]^{52}$
'pot'	$C_H$	$[mo':]^{44}$	$[mo':]^{33}$
'fog'	$D_H$	$[mo':k]^{44}$	$[mo':]^{44}$

The last item thus introduces a new open-syllable tone, albeit quite restricted.

Another somewhat marginal phenomenon concerned with loss of final glottal stops (but not with tonogenesis) involves relationships like the following:

	<u>tone</u>	<u>Songkhla</u>	<u>Nakhon</u>
'wok'	$[B_L+D_L]$	<i>tha:?</i>	<i>tha:</i>
'dock'	"	<i>tha:</i>	<i>tha:</i>
'rubbish'	$[C_H+D_H]$	<i>nya:?</i>	<i>ya:</i>
'grass'	"	<i>nya:</i>	<i>ya:</i>

Nakhon, Phatthalung, Trang, etc., admit homophony-producing mergers for items like 'wok', 'rubbish', etc. (Cognates in Central Thai end in a short vowel with glottal stop. Southern Thai may delete - or

fail to acquire - initial prefix-like syllables. Rural Southern varieties regularly show long vowels for these items.)<sup>11</sup>

#### 4. Vowel length.

Turning to regular Southern Thai reflexes of Proto-Tai vowels, we are confronted with the rather different reconstructions of Sarawit (1973) and Li (1977). The former's system is remarkably like that of the standard orthography, although in given items specific modern Central Thai vowels are not necessarily conservative. Twelve short-long pairs of vowels (including five diphthongs) are reconstructed. On the other hand, Li's system does not recognise length at all (even for the ubiquitous distinction *-a/-a:-*) and, perhaps as a consequence, posits instead over sixty vocalic nuclei including various diphthongs and triphthongs.

There is some evidence in modern Southern varieties which might lead one to wonder whether a Central-Thai-like long-short symmetrical vowel system was in fact characteristic of (at least) the immediate progenitor of Southern varieties. Among rural speakers for example *í* and *í:* come close to complementary distribution, with the latter occurring finally and before nasals:

	<u>tone</u>	<u>Central</u>	<u>Rural Southern</u>
'to grill'	C <sub>M</sub>	<i>píng</i>	<i>pí:ng</i>
'to snatch'	A <sub>L</sub>	<i>chíng</i>	<i>chí:ng</i>

	<u>tone</u> [a]	<u>Central</u>	<u>Rural Southern</u>
'ginger'	A <sub>H</sub>	khing	khi:ng
'to sever'	A <sub>H</sub>	sin	si:n
'stone'	A <sub>H</sub>	hin	hi:n
'sea leech'	A <sub>M</sub>	pling	pli:ng

compare:

'Chinese'	A <sub>M</sub>	ci:n	ci:n
'foot'	A <sub>M</sub>	ti:n	ti:n
'to climb'	A <sub>M</sub>	pi:n	pi:n <sup>12</sup>

However until further work on Proto-Tai vowels is done, in part by extending distributional analysis like that of Brown's (1979) for Central Thai to other varieties, we perhaps should remain tentatively content with Sarawit's neo-orthographic reconstructions, and for purposes here we assume orthographic vowels are conservative.

Another vowel-length issue is more straightforward, and involves the lengthening of *-ay* to *-a:y* and *-aw* to *-a:w* in all [C] tones and also usually in [B<sub>L</sub>], probably under phonetic influence of the mainly level tonal contours involved. This was noticed by Egerod (1961:69) who also observed that unlengthened *-ay* and *-aw* had a back (to which we could add slightly centralised) quality. The full glide-final distribution is thus:

	[A]	[B]	[C]
[H],[M]	ay,a:y	ay,a:y	a:y
	aw,a:w	aw,a:w	a:w
[L]	(same as above)	a:y	(same as above)
		a:w	

(See also Diller, 1979:67-69. Familiar problems are raised by these orthographic distinctions in Central Thai speech also.)

Note the interesting local spelling convention apparently used to represent these phonetic differences in 18th century Nakhon documents (Wyatt, 1975:15-16): the symbol *may*<sup>45</sup> *muān*<sup>45</sup> occurs to spell items with the-by then lengthened? - [C] tones which in the standard language are spelt with *may*<sup>45</sup> *mala:y*<sup>33</sup>.)

#### 5. Anomalous vowel lowering.

We now turn to an anomaly in Southern Thai vowel correspondence, originally noticed in passing by Egerod (1961:70) and given a brief diachronic analysis by Haudricourt (1961). It concerns shift of the vowels *i*:', *u*':, and *u*: to *e*:', *oe*:' and *o*:' in vocabulary which is etymologically of categories [B], [C] and [D]. These lowered vowels occur widely in rural speech throughout most of the south in items such as in Table 3, although there is item-by-item local variation.

Not shown in Table 3 are high-vowel items subject to the preglottal-stop vowel-lengthening principle mentioned above. These regularly undergo vowel-lowering, whether or not they lose the final

TABLE 3

## RURAL SOUTHERN VOWEL LOWERING

	tone	Central	Rural Southern		tone	Central	Rural Southern
'inner bark'	C <sub>L</sub>	(kra)phi:	phe:	'to investigate'	D <sub>H</sub>	su':p	soe:p
'quick succession'	B <sub>H</sub>	thi:	the:	'meal (time)	C <sub>L</sub>	mu':	moe:
'place'	B <sub>L</sub>	thi:	the:	'to raze'	C <sub>L</sub>	ru':	roe:
'sp. small fish'	B <sub>M</sub>	(kra)di:	de:	'wave'	D <sub>L</sub>	khlu':n	khloe:n
'rib'	B <sub>H</sub>	si:	se:	'dark'	D <sub>L</sub>	mu':t	moe:t
'division'	D <sub>H</sub>	si:k	se:k	'slippery'	B <sub>L</sub>	lu':n	mloe:n
'indebted'	C <sub>H</sub>	ni:	ne:	'grandfather'	B <sub>M</sub>	pu:	po:
'to divide'	D <sub>M</sub>	pli:k	ple:k	'male'	C <sub>H</sub>	phu:	pho:
'to awaken'	B <sub>M</sub>	tu':n	toe:n	'carpenter bee'	B <sub>L</sub>	phu:	pho:
'other'	B <sub>M</sub>	u':n	oe:n	'to tie'	D <sub>H</sub>	phu:k	pho:k
'to revive'	C <sub>L</sub>	fu':n	foe:n, phoe:n	'correct'	D <sub>H</sub>	thu:k	tho:k
'rafter'	B <sub>H</sub>	khu':	khoe:	'pair'	B <sub>L</sub>	khu:k	kho:k
'handspan'	D <sub>L</sub>	khu':p	khoe:p	'sp. tree'	B <sub>L</sub>	(pra)du:	do:
'honest'	B <sub>L</sub>	su':	soe:	'to fight'	C <sub>H</sub>	su:	so:
'to buy'	C <sub>L</sub>	su':	soe:	'loom'	D <sub>H</sub>	hu:k	ho:k
				'child'	D <sub>L</sub>	lu:k	lo:k

glottal stop:

	<u>Central</u>	<u>Songkhla</u>	<u>Phatthalung</u>
'coconut extract'	[ (ka) thi? ] <sup>45</sup>	[ the: ? ] <sup>23</sup>	[ the: ] <sup>23</sup>
'stuffed'	[ cu? ] <sup>11</sup>	[ co; ? ] <sup>33</sup>	[ co: ] <sup>33</sup>
'storm'	[ (pha) yu? ] <sup>45</sup>	[ (pha) yo: ? ] <sup>23</sup>	[ (pha) yo: ] <sup>23</sup>
'fountain'	[ phu? ] <sup>45</sup>	[ pho: ? ] <sup>23</sup>	[ pho: ] <sup>23</sup>

As of the present, it would be difficult to find rural Southern speakers who consistently lowered vowels for all items in accordance with the conditions stated above. Rather, there is by now considerable speaker, areal and item-by-item variation, probably because vowels are being shifted to accord with Standard Central Thai.<sup>13</sup>

Recent loans from Central Thai are not normally vowel-shifted, and occasionally pairs occur like the following:

	<u>tone</u>	<u>Central</u>	<u>Songkhla</u>
'boat slip'	B <sub>M</sub>	u:	o:
'repair gauge'	"	"	u:

The Songkhla lowered-vowel form (common in older toponyms, like [khlo':ng]<sup>31</sup> [0:]<sup>34</sup> near Sathing Phra) is presumably inherited, whereas the unlowered form is a recent dialect borrowing.<sup>14</sup> Yet non-Tai vocabulary such as 'storm' in the list above (from Indic or Khmero-Indic) is sometimes affected,<sup>15</sup> suggesting either an early time of entry or at least analogical treatment.

The presence of forms of mixed provenance in Southern Thai probably accounts for widespread exceptions to the lowering principle as stated above. Particularly in urbanised versions of Southern Thai speech there is a strong tendency to 'undo' the lowering rule and to restore Central-Thai-like high vowels for [B]-, [C]- and [D]- category items. This complicates questions of functional load as we see below.

In terms of an explanation for this tone- (or tone-category-) conditioned vowel lowering, an attractive possibility lies in compensatory shifting to avoid homophony due to tonal coalescence. Specifically, where tones [A] and [B] merge, viz  $[A_H + B_H]$  and  $[A_M + B_M]$ , in pairs like the following, vowel lowering appears to block homophonic merger:

	<u>presumed source</u>	<u>rural Southern Thai</u>
'group'	mu: $[B_H]$	mo: $[A_H + B_H]$
'pig'	mu: $[A_H]$	mu: [ " ]
'four'	si: $[B_H]$	se: [ " ]
'to polish'	si: $[A_H]$	si: [ " ]
'grandfather'	pu: $[B_M]$	po: $[A_M + B_M]$
'crab'	pu: $[A_M]$	pu: [ " ]

(Note that in urbanised Southern Thai homophony is introduced by raising vowels to accord with the standard language, but with tones kept as in local rural Southern: thus 'group' and 'pig' are both heard as mu:  $[A_H + B_H]$ , e.g. in urban Nakhon as mu: [452].)



Could we not posit for these items some tone-conditioned phonetic process at work in a 'push-chain' or 'pull-chain' manner? Several problems arise. First, for the [C] and [D] high-vowel vocabulary we find similar lowering but without tonal mergers to 'justify' it; one would need to find some diachronic argument that would apply to these categories as well as to [B], or resort to unmotivated analogizing. Secondly and more seriously, in the affected tone categories vowel lowering *creates* at least as much homophony as it blocks.<sup>16</sup> Consider:

	<u>presumed source</u>	<u>rural Southern Thai</u>
'fight'	su: [C <sub>H</sub> ]	so: [C <sub>H</sub> ]
'chain'	so: [" ]	" [" ]
'child'	lu:k [D <sub>L</sub> ]	lo:k [D <sub>L</sub> ]
'world'	lo:k [" ]	" [" ]

Finally, there is in fact considerable *low-vowel* homophony created by the mergers [A<sub>H</sub>+B<sub>H</sub>] and [A<sub>M</sub>+B<sub>M</sub>] which is not in any way avoided by vowel shifting. Thus *ha:n* [A<sub>H</sub>+B<sub>H</sub>] 'to be bold' (the [A<sub>H</sub>] reading) or 'goose' (the [B<sub>H</sub>] one); *taw* [A<sub>M</sub>+B<sub>M</sub>] 'stove' (the [A<sub>M</sub>] reading) or 'turtle' (the [B<sub>M</sub>] one). If some compensatory process were going on, it would be rather misdirected: it would be striving to avoid homophony in an area (high vowels) where it is relatively infrequent on a lexical basis anyway, while ignoring its more significant effects elsewhere (low vowels, -a, -a:).

If functional load in phonological opposition cannot shed much light on this vowel lowering rule, might a more phonetic-articulatory explanation be forthcoming? There have been recent reviews of the effects of tone on vowel height (Maddieson, 1974; Hombert, Ohala and Ewan, 1979: 51-52), and such effects have been documented, with certain reservations, for Hausa, Ngizim, Maninka and Fuzhou Chinese. In the latter, for example, vowel raising correlates with tone raising - a process also reported to a limited extent in Lahu by Matisoff (1973). There appear to be no cases of the reverse process: vowel lowering correlated with lowered tones, or for that matter, correlated with any other reported tonal processes. Thus apparently tone-vowel relationships so far observed in other languages do not offer much basis for a reconstruction of Southern Thai changes as justified by more general and recognised phonetic processes.

We could hardly speculate, for example, that it is present-day Southern [B]-, [C]- and [D]-tone mid vowels that are conservative, while [A]-tone high counterparts were produced by tone-conditioned raising when (except for Southern Thai [H] and [M] items) [A] and [B] become distinct tones. This might do for Southern Thai taken alone, but it would fly in the face of wider Tai evidence (Sarawit, 1973; Li, 1977), and of Chinese loan relationships.

Although [A] -category high vowels must be taken as conservative, there are suggestive pieces of comparative evidence that point to Southern Thai mid vowels in at least certain [B], [C] and [D] items as

conservative as well. Consider for example the following Southern mid-vowel items:

'four'	se:	[B <sub>H</sub> ]	cp. Central Thai	si:
'to ride'	khe:	[B <sub>H</sub> ]	" " "	khi:
'excrement'	khe:	[C <sub>H</sub> ]	" " "	khi:
'bone'	do:k	[D <sub>H</sub> ]	" " "	kradu:k

Mid vowels are also reported for these and similar non-[A] items in various Zhuang and Dong-Shui (or Mak-Sui) varieties of Tai (broadly defined). Might it not be possible that these vowels directly reflect those of Proto-Tai and that other varieties (like the direct progenitor of Central Thai) have undergone subsequent raising (perhaps conditioned by tone, as in the Fuzhou case)? There are two problems. One is that mid-high relationships of this sort have been reported for [A]-category vocabulary as well: Gedney (1972:53) has shown that for Longming Zhuang mid-vowel correspondences are regular regardless of tone. Also Chinese evidence offers little support for a Proto-Tai [B,C,D] -tone mid-vowel hypothesis. The four items cited above all appear to be Chinese loans, which Karlgren (1964) reconstructs respectively for Ancient Chinese as: *si*, *g'yie*, *si* and *ko'k* (leaving aside questions of tone; slight orthographic changes have been made). 'Bone' here might offer some support to at least a non-high vowel in Proto-Tai.<sup>17</sup> The question awaits more comparative analysis.

We next turn to another possible explanation: the nearby phenomenon of Mon-Khmer register-associated vowel distinctions. In

some pronunciations of Khmer native vocabulary with initial sonorants or with initial stops now voiceless (but presumed on the basis of Indic loans to have been previously voiced) may take, as Jacob describes it (1974: xii), "a breathy 'chest' voice ...comparatively relaxed", whereas initial consonants associated with original voicelessness take a "clear 'head' voice and a certain degree of tension". This description accords well with that of Haudricourt (1965), who describes these as *registre de poitrine* (with lax quality) and *registre de tête* (with tense quality). Henderson (1952) perhaps confirming Martini (1942) reports a secondary tendency for lower and higher pitch to be correlated with these laryngeal states.<sup>18</sup> Shorto (1962), Huffman and others have considered similar register phenomena in related Mon-Khmer languages.

Now along with these laryngeal register features, which Huffman, Jenner (1974), and others have shown are by no means obligatory or even perceptible among many Khmer speakers, there go two distinct sets of vowels (Martini, 1942). Of particular interest to the present inquiry is the treatment of what on philological grounds must have been originally high vowels.<sup>19</sup> The potentially 'breathy'-lax items with voiced (or originally voiced) initials show conservative high vowels *i:*, *u:*, *u:*, whereas the 'heady'-tense voiceless-initial items have undergone lowering to *e:*, *oe:*, *o:*. In other words, they have undergone a sound change superficially parallel to that in Southern Thai, as shown in Table 4.

TABLE 4

VOWEL LOWERING IN SOUTHERN THAI AND KHMER

<u>Southern Thai</u> <u>tone categories</u>	<u>Khmer original</u> <u>initials</u>	<u>Khmer</u> <u>register</u>
preservation of <i>i:</i> , <i>u:</i> , <i>u:</i> [A]	voiced	(II.) <i>registre de</i> <i>poitrine</i> ( <i>'breathy'</i> -lax)
lowering to <i>e:</i> , <i>oe:</i> , <i>o:</i> [B],[C],[D]	voiceless	(I.) <i>registre de</i> <i>tête</i> ( <i>'heady'</i> -tense)

In terms of trying to see in Table 4 anything more than chance parallelism, two issues arise. First, could a more-or-less universal or at least widespread diachronic process be at work to produce the parallelism? Hardly. In fact, the Khmer situation is the exact opposite of the Fuzhou-Lahu high-tone high-vowel interrelationship mentioned above: for Khmer, higher pitch (where recognised, e.g. Henderson, 1952) or at least laryngeal tenseness is reported along with *lowering* of high vowels, and laryngeal laxness, breathiness, and *absence* of raised pitch correlates with their preservation as high. Whatever is involved here, it is not universal.

Secondly, Khmer register differentiation, whether it may involve laryngeal features, pitch difference or simply vowel distinctions, is almost certainly conditioned by initial consonants. That is, the presence

(and perhaps subsequent loss) of voicing is held responsible for development of the 'breathy'-lax register, but absence of original voicing, for the 'heady'-tense one. There is nothing at all in the distribution of initials in Tai tone categories [A] on the one hand and [B], [C], [D] on the other, to suggest even remote parallelism with the Khmer case. The Tai categories [A], [B], [C] and [D] appear unrestricted as to initial, and it is rather in the differentiation of series [H], [M] and [L], -the rows in Table 1- that the languages show vaguely similar consonant-conditioned splitting. Thus, intriguing though Table 4 may seem, it apparently is useless in elucidating Southern Thai vowel lowering.

A final areal issue must be raised, this one not involving Mon-Khmer but rather nearby dialects of Malay. It is a feature of Pattani and Kelantan Malay to find relationships with Standard Malay like the following (de Queljoe, 1971):

	<u>Standard Malay</u>	<u>Pattani</u>
'scabies'	kudis	kudeh
'finished'	habis	habeh
'to press'	pichit	peche?
'anchovies'	bilis	bileh
'pinch'	ketit	koete?
'hundred'	ratus	ratoh
'glutinous rice'	pulut	pulo?
'grass'	rumput	roepo?
'storm'	ribut	ribo?

For Kelantan and Trengganu varieties C.C. Brown (1956:127)

states the relationship for high front vowels as follows:

... *-ib*, *-id*, *-ip* and *-it* are all pronounced as the *-ek* in balek is pronounced in 'Standard Malay'; thus nasek (nasib), Sa'ek (Sa'id), getek (getip), belek (belit);  
... final *-is* is pronounced as final *-ek* is pronounced in 'Standard Malay': thus kereh (keris) ...

For Pattani the lowering applies to many corresponding cases of *-u-* as well, and there are also instances of Pattani lowering mid vowels.<sup>20</sup>

What make the Malay relationships particularly interesting are the final segmental changes which accompany vowel lowering. These changes, essentially *-s* to *-h* and *-p*, *-t* (and perhaps earlier *-k*) to final glottal stop, appear to be necessary conditions for lowering; e.g. it does not occur in:

	<u>Standard Malay</u>	<u>Pattani</u>
'here'	(di)sini	sini
'rope'	tali	tali
'elbow'	siku	siku
'one'	satu	satu

Returning to Haudricourt's (1954) hypothesis as to the origin of tones in Vietnamese, we find a remarkable resemblance between the lost final segmentals he postulated as giving rise to tones and the Pattani segmentals involved in vowel lowering. Table 5 summarises the relationship (employing [B], [C] and [D] analogously to their use in Thai, as established through early Chinese loan patterns).

TABLE 5

LENITION OF FINAL SEGMENTALS

Proposed origin of Vietnamese tone category:	Final segments subject to lenition	Conditions for Pattani lowering:
[B]	fricatives	Yes
[C]	glottal stops	-
[[D]]	oral stops	Yes

Would it be rash to suppose that laryngeal traces of former final segmentals which had given rise to Proto-Tai tones [B] and [C] centuries earlier lingered on in Southern Thai somewhat longer than in other dialects,<sup>21</sup> and finally became involved in the lowering of high vowels as a Pattani-like areal sound change came into effect? Would it not, in fact, be a rather extraordinary coincidence were the Pattani Malay and Southern Thai lowering rules *not* related, particularly in view of the plausibility of Haudricourt's laryngeal explanation for Vietnamese tonogenesis?

But the anomaly we have been discussing must remain such, and the suggestions above must remain speculation, until more is determined about the diachronic interactions of Southern Thai with local Malay. The latter, for example, could have 'caught' vowel lowering from the former; and other explanations could be put forth as well. In fact, several of the proposals examined critically above might be partially correct, and the vowel-lowering anomaly might find its resolution in an interactive combination of such factors. Or perhaps there is something we have not considered?



## NOTES

- <sup>1</sup> The Thai National Research Council has kindly facilitated field research reported here, and support has come from the Ford Foundation Southeast Asia Fellowship Program and the Australian National University. Special gratitude goes to Professor Suthiwong Phongphaibun of the Southern Thai Cultural Institute of Si Nakharinwirot University, Songkhla, to Achan Sutira Wacharaboworn and to Jaroon Kandhanaphen.
- <sup>2</sup> There is far from general agreement on whether and how much distinctive vowel length there was in Proto-Tai; views of Sarawit (1973) and Li (1977) are contrasted below. Here we ignore for the moment what are presently short-vowel stop-final items (see note 16). The D category, whether long or short, usually (in the case of phonetic shapes) or systematically (in the case of phonological economy) coincides with open categories. An exception is mentioned below.
- <sup>3</sup> Jones (1965) and Brown (1965) have both observed final glottalisation of final glottal stops in various Tai dialects, especially in the C tones, which accords well with Haudricourt's (1961) proposals. They have made use of such laryngeal finals in their Proto-Tai reconstructions, in quite different ways. Others, especially Li (1977), have not considered glottalisation of this sort conservative. In Southern Thai there is virtually no surviving direct evidence for Proto-Tai final laryngeals, but indirect indications are taken up below.

Sporadically Indic words in *-h* appear in Central Thai with a B tone (usually marked in by *may*<sup>45</sup> - *e:k*<sup>11</sup> in the orthography, where a cancelled *-h* also appears):

deha-	the:	[B <sub>L</sub> ]	body
sneha-	sane:	[B <sub>H</sub> ]	affection; charm
leha-	le:	[B <sub>L</sub> ]	trick

4

Brown (1975) has called attention to a fundamental problem in Tai register separation: the split [H+M]/[L], if treated by a straightforward application of the Comparative Method, seems to have produced non-uniform results:

[1]<sup>HM</sup>[relatively higher pitch]/<sup>L</sup>[relatively lower pitch]  
 [2]<sup>HM</sup>[relatively lower pitch]/<sup>L</sup>[relatively higher pitch]

[1] is characteristic of Southern varieties; [2], of dialects in Northern Thailand, and, less perfectly, Central Thai. Brown (1975:40, etc.) has made interesting proposals on multiple splitting. Strecker (1979) has discussed these matters insightfully also, with particular attention to internal relationships or pressures within specific systems (thus rather in the spirit of Martinet, 1955). His specific conclusions, however, do not apply to Southern varieties.

5

Could Tak Bai represent the survival of an early Lao/Southern Thai pidgin? According to the *Hikayat Patani* (Teeuw and Wyatt, 1970:81) Lao captives from Lan Chang were sent by the Thai king in 1564 to be settled in the area. The present-day Tak Bai lexicon, while scarcely Lao, has many "unSouthern" features and the six-tone [H+M]/[L] tonal

system comes surprisingly close to what Brown (1965:89) reconstructs for 1350 Lan Chang.

A more recent case of 'transplanted Lao', or actually Black Tai, is found in the Lao Song community near Chumphon, an offshoot of the larger captive Black Tai community resettled in Phetburi in the early 19th century. Chumphon Black Tai appears to be conservative with respect to its six-tone  $[H+M]/[L]$  tonal system but local Southern Thai is supplying many lexical items and introducing phonological innovations, such as aspirated stops with L-series tones.

<sup>6</sup> Note that Table 2 omits the merger  $[B_L+D_L]$ , which is assumed for the entire South as mentioned above.

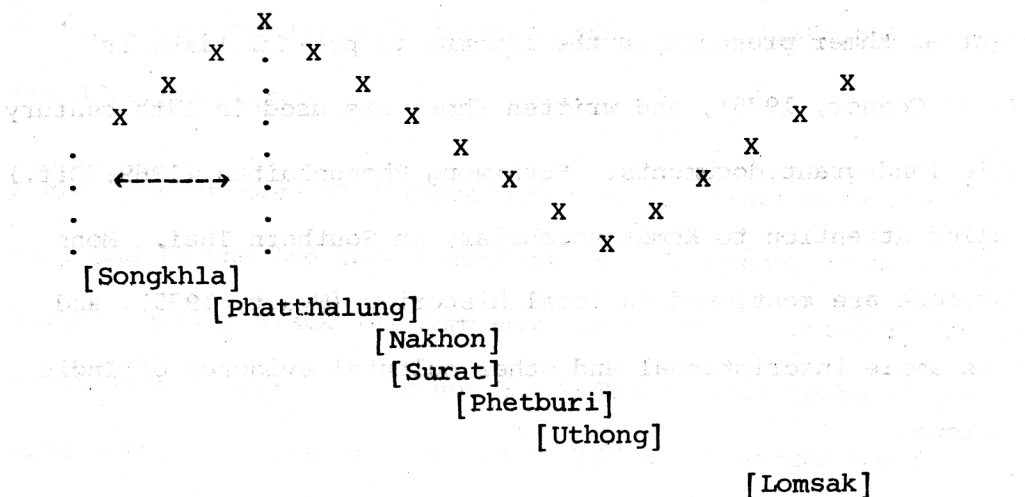
<sup>7</sup> In fact in a marginal way Table 2 incorporates such distributional criteria: although the merger  $[C_H+D_H]$ , merger [3] in Table 2, is shown as having occurred in the 'General Lower Southern' dialects (e.g. Nakhon, Phatthalung, Songkhla, etc.), the actual pitch values involved are usually [443] for  $C_H$  and [444] for  $D_H$ , i.e. the stop-final items lack the slight terminal fall in pitch characteristic of the other items (isolated citation forms being assumed). North of Nakhon the divergence gradually becomes more pronounced, and it would appear arbitrary to specify exactly where the tone 'separates' phonetically; phonologically it is plausible to maintain  $/C_H+D_H(+ \dots)/$  as a tonal phoneme for much of the South.

<sup>8</sup> A substantial Khmer presence in the isthmus in pre-Tai times is likely (O'Connor, 1975), and written Khmer was used in 17th century monastic land-grant documents. Suthiwong Phongphaibun (1969:70ff.) has called attention to Khmer vocabulary in Southern Thai. Mons and Javanese are mentioned in local histories (Wyatt, 1975), and there is ample inscriptional and other cultural evidence of Indic populations.

<sup>9</sup> Also tenuous is the only characteristically west-coast segmental difference: lowering and diphthongisation of high long vowels: thus for *mu'*: [A<sub>L</sub>] 'hand' is heard 'moey'. As Brown noticed (1965:63), only A items are involved, and it would appear even here this vowel shift is sporadic (or rapidly being undone under influence from 'segmental invasion' of superimposed Central Thai).

Phuket and nearby areas at first maintained communication links with the northern part of the isthmus, but later Nakhon came to have importance, especially for defence, and Nakhon oversaw the abandonment and subsequent resettling of Phuket in the early 19th century (Ratchaphantharak, 1974). It is understandable that these dialects have some affinities with northern isthmian varieties (e.g. -*k* becoming glottal stop after long vowels), but in other respects are more like Nakhon ([C<sub>H</sub>+D<sub>H</sub>]).

This appears to be part of a larger "sinusoidal" or roller-coaster distribution of the A<sub>H</sub> tone:



But before seeing some sort of rather too literal application of the 'wave-theory' in this, we should keep in mind internal tone-system relationships whose dynamic pressures (Jones, 1965; Strecker, 1979) may enhance or suppress areal tendencies. Some of the local dynamics may involve sandhi readjustments among contours associated with specific stress patterns. The Songkhla A<sub>H</sub> tone in pretonic position falls, i.e. 'advances' along the sinusoidal curve (Panupong, 1972:103). Some younger Songkhla speakers appear to be extending this falling contour to stressed syllables, i.e. reaching the Nakhon segment of the curve. If so, the falling tone may have been moving south rather stealthily, by affecting unstressed syllables first.

- 11 This applies to content words like nouns and verbs, but not to particles. In most cases glottal mergers are with open categories  $C_H$ ,  $C_M$  and  $B_L$ , but in Phatthalung and Trang  $A_H$  is usually involved. In the Trang-Phatthalung area are some additional segmental oddities (from the point of view of other Southern varieties).

For some speakers initial nasals *m-* and *n-* sporadically become stops, merging with *b-* and *d-*, but the status of this shift is problematic (Egerod, 1961:66). It is treated as a 'speech impediment' or affectation by local people, and is in any case mainly an item-by-item phenomenon and no speakers have been located for whom it has become a structural generalisation. Homophony is not the result, since *m-*, *n-* are restricted to [H] and [L] vocabulary, and *b-* and *d-* to [M], and in Trang-Phatthalung [M] is kept tonally distinct. The effect is rather to increase the distribution of *b-*, *d-* and, in structural phonemic terms, to undermine what was complementary tonal distribution between [M] and the other categories. (A merger of *y-* and *ny-* has similar results; see Diller, 1979:122ff.)

As though part of the same 'phonological conspiracy', viz, an invasion of [M] initials into [H] and [L], one Trang subvariety deaspirates all [H] and [L] initial stops (Egerod, 1961:66; Jones, 1965:200). It is tempting to join Haudricourt (1961) in seeing Malay contact influence in this, but the question must await further investigation.

Another Trang abnormality involves a reversal of the processes of final segmental lenition mentioned in the preceding paragraphs. In a few varieties in the Trang area, e.g. at Ban Nam Phrai, final glottal stops have been replaced by *-k*, with homophony-producing mergers:

	<u>Songkhla</u>	<u>Ban Nam Phrai</u>
'to divide'	[waaʔ] <sup>44</sup>	[waak] <sup>44</sup>
'sugar-palm beer'	[waak] <sup>44</sup>	[waak] <sup>44</sup>
'falling apart'	[hooʔ] <sup>44</sup>	[hook] <sup>44</sup>
'to lure with light'	[looʔ] <sup>44</sup>	[look] <sup>44</sup>
'table'	[tooʔ] <sup>33</sup>	[took] <sup>33</sup>

While this unorthodox glottal-to-velar stop sound change is not directly a tonal anomaly, it has consequences for tonogenetic generalisations: it warns that in tone languages although final segmentals are usually conservative, they are not invariably so.

12 But there are common exceptions like *kin* [A<sub>M</sub>] 'eat' and *lin* [C<sub>L</sub>] 'tongue', etc.

13 This is also true for various other irregular vowel correspondences, such as the following characteristic of the Ranot area between Songkhla and Nakhon:

	<u>tone</u>	<u>Central</u>	<u>Southern (Ranot)</u>
smelly	A <sub>H</sub>	men	min
to smell	H <sub>M</sub>	dom	dum
dark	A <sub>H</sub>	mon	mun
rope	D <sub>L</sub>	chu'a:k	chia:k
sp. hornbill	D <sub>L</sub>	ngu'a:k	hia:k
all	DS <sub>H</sub>	mot	met, maet
house	A <sub>L</sub>	ru'a:n	roen

14 Another possibility is that [o:]<sup>34</sup> here is cognate with Central Thai [o:]<sup>11</sup>[B<sub>M</sub>] 'small boat', but if so the word appears to have fallen out of use in Southern Thai (Phongphaibun and Chittham, 1971:604). For this merger, cf. discussion below.

15 Sanskrit *vayu*; however a Pali nominative from *vayo* is also attested (Southern adverb 'habitually, usually, nowadays', variously heard as *a:yo:?,yo:,nyo:* with final-syllable tone [CD<sub>H</sub>]): Could an etymology be somehow found in Pali-Sanskrit *ayu* 'age, condition'?

16 It must be admitted however that there are few if any Proto-Tai [B<sub>H</sub>] or [B<sub>M</sub>] words reconstructable with mid vowels, and apparently none potentially homophonous with corresponding high-vowel items subject to lowering.

For [B<sub>L</sub>], which does not merge tonally in the same way, a few such pairs can be found: thus corresponding to Central Thai *su':*[B<sub>L</sub>] 'honest' and *soe:*[B<sub>L</sub>] 'stupid' one hears in Southern Thai the latter form with the former meaning; 'stupid' in rural speech is regularly *mroe:* or *mloe:* [B<sub>L</sub>], so confusion does not arise.

In other cases homophony caused by vowel lowering may be tolerated; thus: *khe:* [C<sub>H</sub>] (1) 'crocodile' (a regular reduced form, cp. Central Thai *co':rakhe:*) (2) 'excrement' (with vowel lowered, cp. Central Thai *khi:*). When, in a given utterance misunderstanding could arise, (2) may be specified by 'unlowering' the vowel (back, presumably) to high. Jones (1965:210) noticed variation of this type in the case



of Phatthalung. It seems rather widespread in otherwise conservative speech and we are rather hesitant to discount it at once as recent segmental borrowing from Central Thai. (See also note 17.)

Of related interest is the strong tendency for *mid* vowels -e- and -o- in stop-final items to lower somewhat as well, in some varieties to the point of systematic merger with -ae- and -o'- (although actual cases of lexical homophony do not seem to occur). Egerod (1961:69) noticed this, and extended the generalisation to cover not only short-vowel stop-final items, but also (in the present notation) [C] and [B] items as well, but examples of the latter are not cited. This is at variance, e.g. with Phongphaibun and Chittham (1971:61), who cite mergers like:

	<u>Presumed source</u>	<u>Southern Thai</u>
'bitter'	khom [A <sub>H</sub> ]	khom [A <sub>H</sub> +B <sub>H</sub> ]
'suppress'	khom [B <sub>H</sub> ]	" "

If Egerod's rule had applied, the latter item would be kept distinct as *kho'm*. Although there may be Southern varieties where [B]-tone lowering of this sort has occurred, they have yet to come to Phongphaibun and Chittham's (or to our) attention. Brown (1965:63) appears to have followed Egerod in stating a 'strong form' of the short-mid-vowel lowering rule. As for such lowering in [C] tones, Phongphaibun and Chittham (1971:220) indicate lowered articulations for items such as *to'n* [C<sub>M</sub>] 'classifier for plants and trees' and Egerod's form (1961:74) *laen* [C<sub>H</sub>] 'to play', cited for Ko Samui, is heard widely (cp. Central Thai *len*,

spuriously respelt as [B<sub>L</sub>]). Elsewhere (Diller, 1976:38) we have suggested that there is a phonetic continuum of at least five stages of vowel lowering from mid to low in some Southern varieties, but only one phonemic demarcation, which could be variously drawn.

An interesting consequence of the Egerod-Brown 'strong form' of short-mid-vowel lowering would be, in concert with the long-vowel lowering rule discussed above, to produce a six-vowel system for vocabulary in tone-categories [B], [C] and [D]:

i	u'	u	e:	oe:	o:
ae	a	o'	ae:	a:	o':

(excluding diphthongs). Might this represent a phonological 'target' toward which Southern varieties are drifting? - But the drift is probably being reversed by opposite pressures from the standard language. Answers must await more field research.

- 17 If the item is indeed a Chinese loan. The Archaic Chinese reconstruction *klak* (with some variation as to vowel and the possibility of a final -g; Karlgren 1964:203) along with Li's (1977: 127,267) Proto-Tai reconstruction *?dluok* makes an early borrowing appear reasonable. Archaic Chinese reconstructions for the preceding three items are: *syoed*, *g'ia*, *syoer*. One must also bear in mind that Southern Chinese varieties show forms like *sey* 'four' (Cantonese).

18 In this regard, Jenner (1974:48) and Errington (1976:170) attribute opposing views to Martini.

19 i.e. Indic high-vowel signs are used. Register-associated diphthongization and centralizing also occur for other vowels, but it is not clear how this may relate to the present problem, as there are no corresponding Southern Thai shifts. (Note however the quality and distribution of *-ay*, *-aw* mentioned above.)

Khmer vowel lowering is located "some time during the period of the fifteenth through seventeenth centuries A.D." by Errington (1976:170). The Modern Khmer distributional facts are confused somewhat by loans from Thai, etc., although there are orthographic means available for marking this.

20 For somewhat similar Southern Thai lowering, see note 16.

21 But see note 3. Jones (1965) has documented final laryngeal components in many Tai varieties; he generally takes such laryngealization as conservative.

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