HOW MANY TONES FOR SOUTHERN THAI?

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Sometimes linguistic questions press themselves on us with all the urgency of common sense, and interpretive detachment is needed to wonder some about the questions themselves. Given a tone language, it might seem reasonable to demand how many tones there are, and to be content only with an unambiguous integer as answer: Mandarin, 4; Vietnamese, 6; Black Miao of Yong-Cong, 8. In this paper we examine a case in which the question is unrevealing unless further qualified.

For the Tai language family (including what may be a few 'cousins') tone-count reports show a range:2

- Dai, Be (Hainan 'cousins') - 4
- Central Thai; Lao varieties - 5
- Black and White Tai - 6
- Chuang of Ta-sing - 7
- Chuang of Yan-sho - 8
- Kam (a Kuei-chow 'cousin') - 9

Especially to the north, Tai shows a predilection for the 6-tone system as evidenced by over 40 Chuang varieties, over 40 Pu-yi varieties, Nung, Saek, Sui and others. 5-tone systems are also frequent, and all Tai varieties for which reliable tone reports are available fall somewhere in the 3-to-9 range.

Although tones vary phonetically from place to place, tonal correspondence for much vocabulary is regular (less so for 'cousins'). If we lay aside for the moment several restricted cases, including syllables terminating in final stops, a fairly clear picture can be drawn. Vocabulary in a typical 6-tone language such as White Tai can be sorted into 15 correspondence categories. These are designated a-o in Figure 1 and depend both on tone and on status of initial consonant.

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<table>
<thead>
<tr>
<th>tone</th>
<th>[+aspirated]</th>
<th>[-aspirated]</th>
<th>[+aspirated]</th>
<th>[-aspirated]</th>
<th>other designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a</td>
<td>b</td>
<td>c</td>
<td></td>
<td>M0-H0; A1; A1-3</td>
</tr>
<tr>
<td>2</td>
<td>d</td>
<td>e</td>
<td>f</td>
<td></td>
<td>M1-H1; B1; B1-3</td>
</tr>
<tr>
<td>3</td>
<td>g</td>
<td>h</td>
<td>i</td>
<td></td>
<td>M2-H2; C1; C1-3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>j</td>
<td>k</td>
<td></td>
<td>L0; A2; A4</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>l</td>
<td>m</td>
<td></td>
<td>L1; B2; B4</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>n</td>
<td>o</td>
<td></td>
<td>L2; C2; C4</td>
</tr>
</tbody>
</table>

Examples: a: phaa₁ 'oliff'; b: kaw₁ 'to scratch';
c: vaan₁ 'sweet'; d: phaa₂ 'to split'; e: kaw₂ 'old';
f: vaan₂ 'to scatter, to sow'; g: thaa₃ 'to wait';
h: kaw₃ 'mines'; i: law₃ 'whiskey'; j: taa₄ 'to paint';
k: min₄ 'louse'; l: taa₅ 'landing'; m: law₅ 'to tell';
n: taa₆ 'to defy'; o: law₆ 'enclosure'

In varieties of this type correspondence categories a, b and c coincide as to tone. This can be called a case of tonal coincidence and represented as /abc/. Figure 1 indicates that in languages like White Tai inherited Tai vocabulary items with aspirated-stop initial consonants are restricted as to tone. Some northern varieties have no aspirates at all. But there is no reason yet to be suspicious about asking or answering the number of tones, and these 6-tone systems can be abbreviated /abc/defghi/jklmn/, with actual pitch levels and contours for any particular tone varying from place to place.

Nor is there much problem counting tones as one moves southward to varieties like Lao of Luang Prabang or Central Thai where j, l and n items now take on aspirated initials (as though sifted into the left column of Figure 1). The patterns of tonal coincidence for b and h are altered, and in addition we find cases of tonal merger in which homophony can result. This can be indicated by brackets; e.g. if /[im]/ appears then items like the following become homonyms:

law (correspondence category i) 'whiskey'

law (correspondence category m) 'to tell'

The net effect of these redistributions (from the point of view of Figure 1) may be a 5-tone system such as that of Luang Prabang Lao, /ac/bjk/o[d1][fm]/gi/hno/, or that of Central Thai, usually cited in the order /bjkldef/h[gl][im]/no/ac/.
Tai varieties below the Kra Isthmus can be called Southern Thai and in general have aspirated initials for \( j, i \) and \( m \) items as in the 5-tone systems above. However patterns of tonal coincidence and tonal merger are different. For major Southern varieties on the Pacific side of the Malay Peninsula tonal detail shifts areally as represented in Figure 2. In this case latitude is a convenient index and triplets of numbers from 1 to 5 indicate low to high features of pitch level and contour.\(^3\) Note that in all the varieties for correspondence categories \( a, b, c, d, e \) and \( f \) there are homophonic mergers \([ad]\), \([cf]\) and \([be]\); also \([ad]\) everywhere coincides with \([cf]\).

**FIGURE 2**

Southern Thai tonal detail

<table>
<thead>
<tr>
<th></th>
<th>ad</th>
<th>cf</th>
<th>be</th>
<th>gi</th>
<th>h</th>
<th>jk</th>
<th>lm</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°N</td>
<td>532</td>
<td>532</td>
<td>231</td>
<td>333</td>
<td>333</td>
<td>231</td>
<td>234</td>
<td>221</td>
</tr>
<tr>
<td>9°N</td>
<td>543</td>
<td>543</td>
<td>343</td>
<td>&quot;</td>
<td>&quot;</td>
<td>331</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>8°N</td>
<td>454</td>
<td>454</td>
<td>344</td>
<td>443</td>
<td>&quot;</td>
<td>321</td>
<td>223</td>
<td>211</td>
</tr>
<tr>
<td>7°N</td>
<td>455</td>
<td>455</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
<td>222</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

Examples: \( ad \): phaa 'cliff', 'to split' (i.e. homonyms); 
\( cf \): waan 'sweet', 'to scatter'; \( be \): kaw 'to scratch', 'old'; \( gi \): thaa 'to wait'; laaw 'whiskey'; \( h \): kaaw 'nine'; \( jk \): thaa 'to paint'; mlen 'louse'; \( lm \): thaa 'landing'; laaw 'to tell'; \( no \): thaa 'to defy'; laaw 'enclosure'

The majority of Southern Thais speak varieties in this general range. Above and in pockets below the zone there are separate characteristics, and on Samui Island \( h \) coincides with \( lm \). The West Coast has a smaller, historically less stable population; Figure 2 is still applicable, but with a measure of areal mixing. Cf. Court (1975) for one such dialect; his Note 5 raises in a general way some of the questions discussed below.

How many tones are there in Southern Thai?

To answer this, clearly we must first distinguish areal subtypes. For a First Approximation discrete contours and pitches in Figure 2 can simply be counted for each areal variety. Near 10°N /\([be]jk/\) and /\(gih/\) are each phonetically single tonal entities, so the 5-tone system /([ad]([cf]/)[be]jk/gih/lm/no/) is distinguished. Farther south there is first a 6-tone, then a 7-tone system. The former has been reported by Jones (1965),\(^4\) and the latter by Haas (1958) for Nakhon Sriathammarat and by Henderson (1959) for Songkhla, etc.
If we are counting phonetic tonal entities we need to expose a tacit assumption made above. So far only isolated or phrase-final stressed syllables have been subject to counting. In real speech contexts tone languages are notorious for their tonal sandhi and Tai languages are no exception.

A Second Approximation might be undertaken along this line inquiry. Gandour (1975) has called attention to loss of rising contour in certain Phuket forms (viz. lam) and Vichin Panupong (1972) has presented measurements for Songkhla pretonic syllables from categories a, d, c, and f, which undergo contour reversal (from about 455 to 54 or 43) as do those from b and e (344 to 32). For Songkhla (7°N) speech Vichin thus enumerated 9 discrete tonal entities, viz. 7 tonic plus 2 pretonic alternates.

Probably 'at least 9' would be a safer count. In Songkhla speech citation-form tonic homonyms occur in the g and i categories, e.g.

\[
\text{maay-443} \quad 'to burn'; 'preverbal negative form'; 'phrase-final question particle'
\]

In slow unnatural articulation the following sequence is ambiguous:

\[
\text{maay-443 maay-443}
\]

Interpretations are (a) 'Is it burning?' and (b) 'It is not burning'. However in natural rapid speech placement of phrase stress disambiguates (b) by assigning a shortened noncontour alternate for the preverbal negative form.

Court (1975:70) has distinguished a grand total of nineteen etic tones for Satun; this includes canonical forms, free variants and sandhi forms.

Other examples could be cited. The problem is when in principle to stop counting. The more opulent a tone system becomes on the basis of tone sandhi, the more confident one is that for most purposes tone counting should involve notions of contrast and complimentarity. One assumes that sandhi can be 'taken care of' by automatic rules of some sort. Lexically contrastive use of tone on the other hand is a basic phonological constituent for tone languages.

A Third Approximation is required to represent the tonal economy of the lexicon. Although some may consider it antediluvian, the tonal phoneme (toneme, distinctive prosodeme, etc.) is here the issue, and data in Figure 2 can be subjected to rather classical structural analysis. We note that items of categories b, e and h have unaspirated stops as initial consonants, and such initials are in complimentary distribution with those in other categories. This suggests reduction to 5-tone systems for the 7°N, 8°N and 9°N varieties. The 10°N variety is phonetically
(i.e. by the First Approximation) 5-tone already and cannot be further reduced by this means. Cf. Court (1975) for a discussion of the Satun system and its reduction; Songkhla 7°N is so reduced below.

The actual construction of these reduced systems must rely on a further somewhat unbridled notion, that of phonetic similarity, but now applied to tones. Wang (1967) has made important progress in this direction, and it would appear that close parallelism (perhaps with differentiation by a single nonkinetic feature) is a natural criterion for establishing tonal allophones.

Although the reduced tone systems may be non-unique solutions, they need not be wholly arbitrary. Take the case of 7°N. The problem here is to find for [be] and for h corresponding aspirate-initial tones to complete tonal phonemic units. For [be] a good choice is clear: not only does [ad][cf] have a contour both parallel and immediately adjacent, but phonological behaviour is shared as well. In pretonic tonal sandhi we noted above that both [ad][cf] and [be] are subject to the same sort of contour reversal. This is good motivation for formulating a lexical tone, say, tone 1, as /[ad][cf] + [be]/, for which [be], the allophone on lower pitch, occurs in conjunction with unaspirated-stop initials.

The foregoing can be summarised in two rules if one follows the notation of Wang (1967) and further allows the gaucherie a$ to represent multiplication of variable algebraic signs.

Rule 1

\[
\text{tone } 1 \quad + \quad [\text{low}] \quad + \quad [\text{high}] \quad + \quad [\text{aspirated}] \quad + \quad [-\text{continuant}] \\
\quad [\text{+contour}] \\
\]

Rule 2

\[
[\text{+contour}] \quad + \quad [\gamma \text{falling}] \quad + \quad [-\gamma \text{stress}] \\
\]

Similarly gi can be plausibly paired with h. The fact that the resulting system /[ad][cf] + [be]/gi + h/jk/1m/no/ is equivalent to the 6-tone system of Figure 1 with its tones 1 and 2 merged is interesting diachronically but need not be adduced as evidence for present purposes.

However a distributional addendum does second the solution above. In the 7°-8°N area unaspirated-stop initials sometimes occur with the 'wrong' tones in Malay loans and in other items not regular as to Tai correspondence category. Thus the initials b- and d- may occur in items coinciding tonally with jk or 1m:
baŋ-321 'address term to older male' (cp. Malay abang)
bea-222 'since, last'
dar-321 'wide-weave winnowing basket' (cp. Malay badang)
dee-321 'this (emphatic)'
doo-321 'that (emphatic)'

Of course this is no challenge to the 5-tone system proposed above since the additional data simply indicate that unaspirated-stop initials, like others, are actually unrestricted as to lexical tone. But other solutions would be strained. If, say, [be] were taken as an alternate of jk (perhaps on the basis of the 10°N situation) allophonlic conditioning would become problematic and conflicts would occur with forms like:

baŋ-344 'in the way (visually)'
dar-344 'loud'

Similarly [be] would be uncomfortable with Im.

As one moves north of 7°N cohesive parallelism within /[ad][cf]+[be]/ begins to disintegrate and also the addendum above becomes insignificant (through shifted tones, occurrence of nasal initials instead of b- and d-, and infrequency of Malay loans). [be] eases its way phonetically toward jk and finally coincides with it at 10°N as can be seen in Figure 2.

So by the Third Approximation we can enumerate 5 structural tones at 10°N automatically and again at 7°N quite plausibly. Between these systems there appears to be a certain transitional ambiguity: while 5-tone structures can still be imposed on 6- and 7-tone phonetic back-grounds through invoking complimentarity, the resulting solutions seem less compelling than the others.

In fact for certain transitional varieties in the Trang-Phatthalung area complimentarity also disintegrates. Sporadically for some, systematically for others, aspirated-stop initials are replaced by unaspirated counterparts with segmental functional load shifted to the tonal system.

For clarity, in the preceding approximation certain facts of initial palatal nasal and semivowel distribution have been overlooked. We can now turn to these matters and see how they affect the structural tone counts. For this Fourth Approximation an added dimension of socio-linguistic variation needs to be considered.

'Urban hybrid' as distinct from rural Southern Thai varieties need to be distinguished, although these labels are only suggestive. Structurally an urban hybrid is a mixture of Central Thai segmentals and Southern Thai tones, i.e. the tones of one of the Southern areal systems. Some illustrations are given in Figure 3. Functionally the hybrids constitute the normal colloquial vehicle among educated urbanised
Southerners, although many may control both hybrid and rural (i.e. more 'purely Southern') forms as an important resource for manipulating social distance.

**FIGURE 3**

Southern Thai (7°N) rural, urban hybrid and Central Thai forms

<table>
<thead>
<tr>
<th>Southern rural</th>
<th>Southern urban hybrid</th>
<th>Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṅīŋ-455</td>
<td>yīŋ-455</td>
<td>yīŋ-234</td>
</tr>
<tr>
<td>ṅay-455</td>
<td>yay-455</td>
<td>yay-221</td>
</tr>
<tr>
<td>ṅaa-443</td>
<td>yaa-443</td>
<td>yaa-432</td>
</tr>
<tr>
<td>hoon-455</td>
<td>gōon-455</td>
<td>gōon-234</td>
</tr>
<tr>
<td>see-455</td>
<td>sīi-455</td>
<td>sīi-221</td>
</tr>
<tr>
<td>mīñn-222</td>
<td>līnn-222</td>
<td>līnn-432</td>
</tr>
</tbody>
</table>

't'woman'

'big'

'grass'

'cockscomb'

'four'

'slippery'

The occurrence of initial ṅ- is restricted areally, socially, and also with respect to tonal distribution. Elsewhere y- occurs in vocabulary items in the [+continuant] categories. It also occurs as though [-continuant] in a rather aberrant and restricted set of items we can designate y*. Details of distribution are summarised in Figure 4.

**FIGURE 4**

Distribution of initial palatal continuants in Southern Thai

<table>
<thead>
<tr>
<th>correspondence categories</th>
<th>7°-8°N rural</th>
<th>7°-8°N urban hybrid</th>
<th>9°-10°N</th>
</tr>
</thead>
<tbody>
<tr>
<td>c, f, i</td>
<td>ṅ</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>k</td>
<td>ṅ, y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>m, o</td>
<td>y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>y*</td>
<td>y (tone be)</td>
<td>y (tone be)</td>
<td>y (tone cf)</td>
</tr>
</tbody>
</table>

How are these segmental particulars relevant to the counting of tones?

If one is inclined to be strict in examining systematic complimentarity the curious distribution of y* especially as it relates to ṅ- becomes structurally significant.

At 7°N, for rural speech the 5-tone system of the Third Approximation is confirmed. Rule 1 simply needs to be expanded to specify the higher-pitch allophone of tone 1 for ṅ-, the lower-pitch one for y-. (Furthermore an inverse analytic possibility of recognising 7 tones in the lexicon and taking segmental pairs ṅ-/y- along with ph-/p-, etc. as allophonic alternates is now weakened; note pairs with characteristic k such as:
ñaa-321 'preverbal negative imperative marker'
yaa-321 'species of fish (Rastrelliger)'

However for the 7°N urban hybrid the preceding pair are homonyms and [cf] and [be] no longer have initial consonants in strict complimentary distribution. This means 6 structural tones.

The same can be said for 8°N and holds until a mountainous isogloss signals the phonetic 'leap' of r# out of [be] into [cf]. At this point we are back to the 5 structural tones of the Third Approximation. (This 'leap' is diachronically interesting and is the only major Southern areal shift which is not a gradient one. Near the isogloss running from Khanom through Na San south to Krabi-Trang competing r# [be] vs [cf] alternates are heard.)

The outcome of the above ñ-/y- Fourth Approximation is thus to confirm 5-tone structural systems at ends of a continuum to which a social axis is now added. At the same time the questionable 5-tone systems for intermediate varieties are now technically invalid.

A final Fifth Approximation is needed in order to revise slightly the earlier counts with respect to syllables terminating in final stops. In most Tai cases stopped syllables coincide tonally with one or another of the unstopped categories a-0 with no tonal proliferation. Figure 5 shows that this is generally true for Southern Thai, but with a couple of special considerations.

**FIGURE 5**

Tonalities of representative Southern Thai stop-final syllables

<table>
<thead>
<tr>
<th></th>
<th>7°N rural</th>
<th>9°-10°N</th>
<th>cp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>thoot</td>
<td>444</td>
<td>444</td>
<td>g</td>
</tr>
<tr>
<td>laat</td>
<td>444</td>
<td>444</td>
<td>i</td>
</tr>
<tr>
<td>{ñaap</td>
<td>444</td>
<td>-</td>
<td>i</td>
</tr>
<tr>
<td>yaaap</td>
<td>333</td>
<td>444</td>
<td>r#</td>
</tr>
<tr>
<td>yiap</td>
<td>333</td>
<td>234</td>
<td>h, l</td>
</tr>
<tr>
<td>toot</td>
<td>222</td>
<td>234</td>
<td>I</td>
</tr>
<tr>
<td>laot</td>
<td>222</td>
<td>234</td>
<td>m</td>
</tr>
</tbody>
</table>

Firstly, in the more northern varieties an extra phonetic (i.e. First Approximation) entity must be recognised, 444, which fails to coincide exactly with one of the unstopped categories. However structurally (i.e. by the Third and Fourth Approximations), the concurrent criteria of complimentarity and contour agreement for projected allophones again preserve a system of 5 tonal contrasts.
Secondly, in the varieties farther south no phonetic additions are required, but the palatal continuants γ- and ŋ- now occur with problematic tonalities 333 (e.g. yaap 'to trample') and 444 (e.g. ŋaap, yaap 'rough'). Lexical tone /gi + h/ is now technically valid only for those varieties consistently distinguishing ŋ- for i-items at 444 (viz. 7°–8°N rural). Elsewhere the previous structural count of 6 tones must be upped to 7, bringing us full circle back to the count of the First Approximation. The count 7 now has structural validity as well, although this rests on the distribution of a single initial consonant.8

In conclusion it might be charged that the discussion above is a matter of outdated quibbling, and that contrast and complimentarity should be left behind when suprasegmental/segmental relationships are at issue. But not so. Clearly, a valuable result confirms the analytic usefulness even of narrowly-defined complimentarity. The result is that independent structural criteria are found to converge in certain cases.

At two separated points in an areal-social continuum distinct 5-tone systems become quite cohesive phonologically. Segmental complimentarity and suprasegmental parallelism gradually shift in concert to produce this result. The reduced systems stand out against 6- and 7-tone phonetic backgrounds.

In between these systems there is some structural ambivalence. Is the distribution of a single initial consonant enough basis for an increased tone count? Just how much parallelism between potential tonal allophones needs to be stipulated? These questions could be answered variously, but the fact they arise at all is really the issue. Depending on where in the Southern Thai continuum we look, local linguistic facts require specific interpretive clarifications for the question 'how many tones?'

Furthermore, it may well be possible to develop an operational test to evaluate degree of tone-system 'integralness' at a given point in the continuum. Such a test would have both sociolinguistic and psycholinguistic dimensions, and could provide interesting insight into how tone systems change.
NOTES

1. The Thai National Research Council has facilitated field research reported here, which was conducted in 1976-77 with support from the Ford Foundation Southeast Asia Fellowship Program. The Southern Thai Cultural Studies Institute, directed by Acan Suthiwong Phongphaibun at Sri Nakharinwirot University, Songkhla, has provided much helpful assistance.


3. cf. Wang 1967. Figures here are derived from normalised sound spectrogram contours. There is general agreement with earlier reports of Haas (1958), Henderson (1959), etc., but some departure from Haudricourt (1972:82, particularly for his tone classes represented by 'chicken' and 'father').

4. This is a Trang variety departing slightly from the schema here; see also following discussion.

5. For an opposite sort of shift, cp. the register common in Southern Thai shadow puppetry for narrative summary: tonal distinctions are submerged in monotone chanting, and segmentals must be relied on to convey the message (perhaps rather predictable anyway).

6. Of course the /-y- distinction is actually a gradient one with varying degrees of nasal air-stream reduction along with lenition of palatal closure. Similarly gradient is the urban elite to rural social transition. For historical discussion of the distinction, cf. Duangduan...

7. $r^*$ seems to be restricted to 20 items, of which 7 form a final-stop subclass to be mentioned later. In addition to items noticed by Egerod (1961:73) and Brown (1965:146) are $e$-category items:

- $\text{yaq} \quad 'to\ test\ depth'$
- $\text{yoon} \quad 'to\ slacken'$
- $\text{yoon} \quad 'betel\ tray'$

Note also that $\text{yik} \ 'to\ pinch'$ and $\text{yaan} \ 'rubber\ tree'$ are $r^*$, but not $\text{yik} \ 'curly'$ and $\text{yaan} \ 'Dipterocarpus\ tree'$; 'pond\ heron'. Respective pairs are both homographs and homonyms in Central Thai.

8. A few exclamatory forms provide further support, e.g. $\text{doo}$ (as though ad) 'way\ over\ there'; for 7°N rural varieties they are badgering the tonal reduction, as are urban hybrid forms creeping into rural speech. Thus younger rural speakers will accept and produce $\gamma$- alternates for $\ddot{a}$- (but not $\ddot{a}$- alternates for $\gamma$- for $r^*$).
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