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.[1] 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.

FIGURE 1

Tai 6-tone system

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

Examples: a: phaa$_1$ *'cliff'*; b: kaw$_1$ *'to scratch'*;
c: vaan$_1$ *'sweet'*; d: phaa$_2$ *'to split'*; e: kaw$_2$ *'old'*;
f: vaan$_2$ *'to scatter, to sow'*; g: thaa$_3$ *'to wait'*;
h: kaw$_3$ *'nine'*; i: law$_3$ *'whiskey'*; j: taa$_4$ *'to paint'*;
k: min$_4$ *'louse'*; l: taa$_5$ *'landing'*; m: law$_5$ *'to tell'*;
n: taa$_6$ *'to defy'*; o: law$_6$ *'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/def/ghi/jk/lm/no/, 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/e[dl][fm]/gi/hno/, or that of Central Thai, usually cited in the order /bjk/def/h[gl][im]/no/ac/.

Tai varieties below the Kra Isthmus can be called Southern Thai and
in general have aspirated initials for *j, l* 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*] every-
where coincides with [*cf*].

FIGURE 2
Southern Thai tonal detail

	ad	cf	be	gi	h	jk	lm	no
10°N	532	532	231	333	333	231	234	221
9°N	543	543	343	"	"	331	"	"
8°N	454	454	344	443	"	321	223	211
7°N	455	455	"	"	"	"	222	"

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 Srithammarat
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. *1m*) and Vichin Panupong (1972) has presented measure-
ments 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 enumer-
ated 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.

maay-443   *'to burn'*; 'preverbal negative form'; 'phrase-final
                   question particle'

In slow unnatural articulation the following sequence is ambiguous:

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 $\alpha\beta$ to represent multipli-
cation of variable algebraic signs.

Rule 1

$$\text{tone 1} \rightarrow \begin{bmatrix} \alpha\beta\text{high} \\ -\text{low} \\ +\text{contour} \end{bmatrix} \bigg/ \begin{bmatrix} \alpha\text{aspirated} \\ -\beta\text{continuant} \end{bmatrix} \underline{\hspace{2cm}}$$

Rule 2

$$[+\text{contour}] \rightarrow [\gamma\text{falling}] \big/ [-\gamma\text{stress}] \underline{\hspace{1cm}}$$

Similarly *gi* can be plausibly paired with *h*. The fact that the
resulting system /[*ad*][*cf*] + [*be*]/*gi* + *h*/*jk*/*lm*/*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 *lm*:

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

Southern rural	Southern urban hybrid	Central	
ñiŋ-455	yiŋ-455	yiŋ-234	*'woman'*
ñay-455	yay-455	yay-221	*'big'*
ñaa-443	yaa-443	yaa-432	*'grass'*
hɔɔn-455	ŋɔɔn-455	ŋɔɔn-234	*'cockscomb'*
see-455	sii-455	sii-221	*'four'*
mləən-222	lɨɨn-222	lɨɨn-432	*'slippery'*

The occurrence of initial ñ- is restricted areally, socially, and also with respect to tonal distribution.[6] 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 r*.[7] Details of distribution are summarised in Figure 4.

FIGURE 4

Distribution of initial palatal continuants in Southern Thai

correspondence categories	7°-8°N rural	7°-8°N urban hybrid	9°-10°N
c, f, i	ñ	y	y
k	ñ, y	y	y
m, o	y	y	y
*r**	y (tone *be*)	y (tone *be*)	y (tone *cf*)

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

If one is inclined to be strict in examining systematic compliment-arity the curious distribution of r* especially as it relates to ñ- 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 ñ-, the lower-pitch one for y-. (Further-more an inverse analytic possibility of recognising 7 tones in the lexicon and taking segmental pairs ñ-/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 Y* 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 Y* [be]~[cf] alternates are heard.)

The outcome of the above ñ-/y- Fourth Approximation is thus to con-firm 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-o* 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

	7°N rural	9°-10°N	cp.	
thɔɔt	444	444	g	*'to take off'*
laat	444	444	i	*'market'*
ñaap	444	—	i	*'rough'*
yaap	—	444		
yiap	333	444	Y*	*'to trample'*
tɔɔt	333	234	h, l	*'to nibble'*
thɔɔt	222	234	l	*'to cast'*
laat	222	234	m	*'to spread'*

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 struc-turally (i.e. by the Third and Fourth Approximations), the concurrent criteria of complimentarity and contour agreement for projected allo-phones again preserve a system of 5 tonal contrasts.

Secondly, in the varieties farther south no phonetic additions are required, but the palatal continuants y- and ñ- now occur with problematic tonalities 333 (e.g. yiap *'to trample'*) and 444 (e.g. ñaap, yaap *'rough'*). Lexical tone */gi + h/* is now technically valid only for those varieties consistently distinguishing ñ- 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.

N O T E S

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2. White Tai forms in this paper are from Donaldson (1970) cited in a standardised form. For Chuang, cf. Moskalev 1971. For other Tai languages see bibliographies in Gething, Harris and Kullavanijaya (1976).

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 ñ-/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

Suwatee and Pranee Kullavanijaya (1976; in Gething, Harris and
Kullavanijaya, 1976).

7. ʏ* 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:

    yaŋ   *'to test depth'*
    yɔɔn   *'to slacken'*
    yɔɔŋ   *'betel tray'*

Note also that yik *'to pinch'* and yaaŋ *'rubber tree'* are ʏ*, but not
yik *'curly'* and yaaŋ *'Dipterocarpus tree'*; *'pond heron'*. Respective
pairs are both homographs and homonyms in Central Thai.

8. A few exclamatory forms provide further support, e.g. 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 y- alter-
nates for ñ- (but not ñ- alternates for y- for ʏ*).

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