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Title: Unicode Technical Report #3: Early Aramaic, Balti, Kirat (Limbu), Manipuri (Meitei), and Tai Lü scripts

Source: Rick McGowan (UTC), Michael Everson (IE)

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Apparently, Unicode Technical Report #3, published in 1993, was never submitted to JTC1/SC2/WG2 for distribution. Since a number of scripts in that Technical Report have already been encoded, or since other proposals for them have already been put forward to WG2, distribution of the UTR#3 itself at the present time would not be very useful.

This document presents the names and code tables of the scripts in the UTR#3 which have not yet been otherwise discussed in WG2, namely: Early Aramaic, Balti, Kirat/Limbu, Manipuri/Meitei, and Tai Lü.

These proposals were written by Rick McGowan. Formatting and some minor editing in this document is by Michael Everson.

Early Aramaic

The Aramaic alphabet branched from the 22 letter alphabet used for Phoenician and evolved along separate lines culminating in Syriac, Arabic and other scripts. The Early Aramaic block should be used for Late Aramaic (especially papyri), Palmyrene, and Nabataean, Mandaic and their immediate precursors and successors.

The order shown in the accompanying chart matches the order of the Early Phoenician block and the shapes shown there are in the Palmyrene style.

See the Phoenician block introduction and the Early Alphabets block introduction in UTR#3 for further information and issues.

Healey, John F. *The Early Alphabet*.

Cross, Frank Moore. *The Invention and Development of the Alphabet*.

Diringer, David. *Writing*.

Aramaic Names List, draft 1999-07-20

- 00 ARAMAIC LETTER ALEPH
- 01 ARAMAIC LETTER BETH
- 02 ARAMAIC LETTER GIMEL
- 03 ARAMAIC LETTER DALETH
- 04 ARAMAIC LETTER HE
- 05 ARAMAIC LETTER WAW
- 06 ARAMAIC LETTER ZAIN
- 07 ARAMAIC LETTER HETH
- 08 ARAMAIC LETTER THET
- 09 ARAMAIC LETTER YODH
- 0A ARAMAIC LETTER KAPH
- 0B ARAMAIC LETTER LAMED
- 0C ARAMAIC LETTER MEM
- 0D ARAMAIC LETTER NUN
- 0E ARAMAIC LETTER SAMEKH
- 0F ARAMAIC LETTER AIN

- 10 ARAMAIC LETTER PE
- 11 ARAMAIC LETTER SAN
- 12 ARAMAIC LETTER QOPPA
- 13 ARAMAIC LETTER RESH
- 14 ARAMAIC LETTER SHIN
- 15 ARAMAIC LETTER TAU

	0	1
0	𐤀	𐤁
1	𐤂	𐤃
2	𐤄	𐤅
3	𐤆	𐤇
4	𐤈	𐤉
5	𐤊	𐤋
6	𐤌	
7	𐤍	
8	𐤎	
9	𐤏	
A	𐤐	
B	𐤑	
C	𐤒	
D	𐤓	
E	𐤔	
F	𐤕	

Balti

The Balti script is now extinct, but was formerly used to write the Balti language of Baltistan, in what is now part of Ladakh in Northern Kashmir. The script was apparently introduced in about the fifteenth century CE when the people converted to Islam. It is related to the Arabic script.

In contrast to many other Brahmic scripts, Balti is written from *right to left* horizontally, in the Arabic manner. All of the vowel signs except long *a* are integrated into the glyphs used for consonants, becoming projections from the consonants rather than being separate marks as in most of the modern Brahmic scripts. The consonants apparently have an inherent *a* vowel (or an explicit vowel sign *a* may appear; there may not be a distinction between long and short *a*). There appears to be a sign (overdot) used to indicate the end of a word, but no interword spacing seems to be used.

The base form of *b* is the same as *p* and *t*; only the dots distinguish these. There are two other similar pairs. These appear to approximately parallel similar dotted versus dotless letters in Arabic.

Issues: The set of Balti consonants is too small to make it worth encoding parallel to any of the other Brahmic scripts, or to Arabic. Not enough information is available at this time to determine the completeness of the accompanying chart. The digits, if any, are unknown. It is unknown how much literature is available in the old Balti script, or what the level of scholarly interest in it is. The function of the character listed in the names list as “Balti null vowel or word ending” is uncertain.

Grierson, G. A. *Linguistic Survey of India, Vol. 3.*

One photocopy of 2 pages (326 and 327) from an unknown volume in German.

Balti Names, draft 1999-07-20

00 BALTI LETTER A	10 BALTI LETTER NA
01 BALTI LETTER BA	11 BALTI LETTER HA
02 BALTI LETTER PA	12 BALTI LETTER JA
03 BALTI LETTER TA	13 BALTI LETTER KHA
04 BALTI LETTER GA	14 BALTI LETTER THA
05 BALTI LETTER HHA	15 BALTI LETTER TSA
06 BALTI LETTER CA	16 BALTI LETTER NGA
07 BALTI LETTER CHA	17 BALTI VOWEL SIGN A
08 BALTI LETTER DA	18 BALTI VOWEL SIGN AA
09 BALTI LETTER RA	19 BALTI VOWEL SIGN E
0A BALTI LETTER ZA	1A BALTI VOWEL SIGN I
0B BALTI LETTER SA	1B BALTI VOWEL SIGN O
0C BALTI LETTER SHA	1C BALTI VOWEL SIGN U
0D BALTI LETTER KA	1D BALTI NULL VOWEL OR WORD
0E BALTI LETTER LA	ENDING?
0F BALTI LETTER MA	

	0	1
0	𑄀	𑄁
1	𑄂	𑄃
2	𑄄	𑄅
3	𑄆	𑄇
4	𑄈	𑄉
5	𑄊	𑄋
6	𑄌	𑄍
7	𑄎	𑄏
8	𑄐	𑄑
9	𑄒	𑄓
A	𑄔	𑄕
B	𑄖	𑄗
C	𑄘	𑄙
D	𑄚	𑄛
E	𑄜	
F	𑄝	

Kirat (Limbu)

The Limbu (or Kirat or Kiranti) alphabet is (or was) used among the Limbu of Sikkim and Darjeeling. Kirat is structurally similar to the Lepcha (Rong) script. It has 20 consonants (including the stand-alone “A” as in other Brahmic scripts), 8 vowel signs, 7 (or 8 or 10?) final consonants. Letters YA, RA, and WA may be subscripted in a manner similar to the Tibetan and Rong scripts. There appears to have been, at sometime in the past, an orthographic reform, and two slightly different varieties of the script appear to be in existence.

There are three other symbols needed for proper pronunciation of Limbu. These are *mukphreng* (aspiration mark), *kehmphreng* (length mark) and *sa-i* (possibly the virama). The *sa-i* appears to be used to remove the inherent A sound like a *virama*. *Sa-i* has been conjectured to occur visibly only in word-medial position. It has been observed also in apparent word-final position. Its function may be therefore different from an invisible *virama*.

Kirat appears to include three other marks, the names of which are not presently known. These are (1) a mark indicating colon or full stop, (2) a mark indicating a prolonged final note during a chant, (3) a mark which looks like the Oriya *anusvara* (a circle above) indicating an acute type of accent.

The accompanying chart was prepared from a draft supplied by Lloyd Anderson. The ISCII model and layout is followed in the accompanying chart. The shaded cells to the far right are final consonants (lower nine cells), a “tr” conjunct and a “j” rendering form.

Issues: It is not known whether the Kirat script is still in use as of this writing (1992). It was reported in 1855 as nearly extinct, but sources as recent as 1979 are available.

This draft for Kirat is by no means complete. Sources vary even as to the correct number of final consonants (or “conjoint letters” called *kedumba sok*); there may be as many as ten of them.

There are two different approaches to encoding of Kirat. If the script is postulated to contain an invisible *virama* distinct from *sa-i*, then the final consonants could be rendered in text by using this *virama* followed by the corresponding normal forms. If, however, no such invisible *virama* is postulated, then the final consonants should be encoded distinctly. There is no concrete evidence yet available [to this author] for or against such an invisible *virama* that is distinct from *sa-i*. Both are transliterated into Devanagari by use of half-consonant forms, as Devanagari has no such distinction at all. The final consonants cannot be rendered alone by use of *sa-i*, since the *sa-i* appears to be always visible when it occurs, and *kedumba sok* forms also occur without the *sa-i*. There thus appears to be some distinction, and *sa-i* alone is insufficient to generate both forms. *Sa-i* is also seen with full consonants, where it presumably functions like a *virama* (in eliding the inherent vowel).

In either case, the script bears some similarity to the Lepcha script, and it seems that the same conceptual model should be used for both. Kirat could be laid out in a manner compatible with ISCII and parallel to Devanagari as far as the arrangement of its vowels and consonants. However, since it has a somewhat smaller complement of consonants than Devanagari, and needs no precomposed long vowels, many empty codepoints are unnecessarily scattered throughout such an encoding. Kirat could also be encoded parallel to Tibetan as far as the arrangement of its consonants.

Campbell, A. *Note on the Limboo Alphabet of the Sikkim Himalaya*.

Chemsong, Iman Singh. *The Kirat Grammar (Limbu)*.

Subba, B. B. *Limbu Nepali English Dictionary*.

Kirat Primary Book.

Limbu Reader VI.

Kirat (Limbu) Names List, draft 1999-07-20

00	Reserved	3A	Reserved
01	Reserved	3B	Reserved
02	Reserved	3C	Reserved
03	KIRAT ASPIRATION MARK (mukhphreng)	3D	KIRAT VOWEL SIGN AH (tit-cha)
04	Reserved	3E	KIRAT VOWEL SIGN AA
05	KIRAT LETTER A	3F	KIRAT VOWEL SIGN I
06	Reserved	40	KIRAT VOWEL SIGN II
07	Reserved	41	KIRAT VOWEL SIGN U
08	Reserved	42	KIRAT VOWEL SIGN UU
09	Reserved	43	Reserved
0A	Reserved	44	Reserved
0B	Reserved	45	Reserved
0C	Reserved	46	KIRAT VOWEL SIGN AE (peh-cha)
0D	Reserved	47	KIRAT VOWEL SIGN E
0E	Reserved	48	KIRAT VOWEL SIGN AI
0F	Reserved	49	Reserved
10	Reserved	4A	Reserved
11	Reserved	4B	KIRAT VOWEL SIGN O
12	Reserved	4C	KIRAT VOWEL SIGN AU
13	Reserved	4D	KIRAT VIRAMA (sa-i)
14	Reserved	4E	Reserved
15	KIRAT LETTER KA	4F	KIRAT LENGTH MARK (kehmphreng)
16	KIRAT LETTER KHA	50	Reserved
17	KIRAT LETTER GA	51	Reserved
18	KIRAT LETTER GHA	52	Reserved
19	KIRAT LETTER NGA	53	Reserved
1A	KIRAT LETTER CHA	54	Reserved
1B	KIRAT LETTER CHHA	55	Reserved
1C	KIRAT LETTER JA	56	Reserved
1D	KIRAT LETTER JHA	57	Reserved
1E	KIRAT LETTER NYA	58	Reserved
1F	Reserved	59	Reserved
20	Reserved	5A	KIRAT STOP
21	Reserved	5B	Reserved
22	Reserved	5C	KIRAT SUBSCRIPT YA
23	Reserved	5D	KIRAT SUBSCRIPT RA
24	KIRAT LETTER TA	5E	KIRAT SUBSCRIPT WA
25	KIRAT LETTER THA	5F	Reserved
26	KIRAT LETTER DA		
27	KIRAT LETTER DHA	65	KIRAT CONJUNCT TR
28	KIRAT LETTER NA	66	KIRAT RENDERING FORM OF JA
29	Reserved	67	KIRAT FINAL CONSONANT K
2A	KIRAT LETTER PA	68	KIRAT FINAL CONSONANT NG
2B	KIRAT LETTER PHA	69	Reserved
2C	KIRAT LETTER BA	6A	KIRAT FINAL CONSONANT T
2D	KIRAT LETTER BHA	6B	KIRAT FINAL CONSONANT N
2E	KIRAT LETTER MA	6C	KIRAT FINAL CONSONANT P
2F	KIRAT LETTER YA	6D	KIRAT FINAL CONSONANT M
30	KIRAT LETTER RA	6E	KIRAT FINAL CONSONANT R
31	Reserved	6F	KIRAT FINAL CONSONANT L
32	KIRAT LETTER LA		
33	Reserved		
34	Reserved		
35	KIRAT LETTER WA		
36	KIRAT LETTER SHA		
37	KIRAT LETTER SSA		
38	KIRAT LETTER SA		
39	KIRAT LETTER HA		

	0	1	2	3	4	5	6
0				ॠ	ी		
1					ु		
2				ॡ	ू		
3	ं						
4			ॐ				
5	३	४	५	६			७
6		८	९	०	१		२
7		३	४	५	६		७
8		८	९	०	१		२
9		३		५			
A		८	९			॥	
B		३	४		६		७
C		८	९		६	७	८
D		३	४	५	६	७	८
E		३	४	५		७	८
F			३	४	५		७

Manipuri (Meithei)

The Manipuri script is a recently extinct script that was formerly used to write the Meithei language in Manipur State, India. The script may have been introduced as early as the fourteenth century CE or as late as the sixteenth. The only available source has been Grierson (see below).

The script is of the same lineage as Devanagari. Unlike Devanagari, there are no independent signs for vowels other than *a*, the other independent vowels being expressed as signs upon the independent vowel *a* (similar to the Tibetan method). The consonantal and vowel systems are both fairly complete, so it is probably most useful and correct to encode it in the ISCII manner, parallel to Devanagari as much as possible.

The *anusvara* (nasalization) mark in Manipuri produces some special rendering forms depending on the vowel preceding it. There are eight of these, producing the endings *ang*, *-ng*, *-ng*, *-ing*, *-eng*, *-ung*, *ng*, and *-ong*. The rendering forms look like ligatures of the vowel sign with the *anusvara*, or similar. Manipuri contains no long O vowel, so the place of the long O is filled with the diphthong sign AO, which does not seem to fit elsewhere.

Issues: Because Manipuri lacks special symbols for the independent vowels, the entire first column of an encoding completely parallel to Devanagari would be empty but for *anusvara* and the letter A. Therefore, to save one column, these have been moved into the column containing the consonants, so that A occurs just before KA, and the *anusvara* is left in the third position of that same row. The script can thus be put into four rows instead of five. There are presumably digits belonging to Manipuri, but no samples have been available. Space for them is available in the fifth column of the chart. It is also not known how much scholarly and historical interest there is in the Manipuri script.

Grierson, G. A. *Linguistic Survey of India*, Vol. 3, pt. 3., Bombay?, 1898?

Manipuri Names draft, mostly parallel to ISCII, 1992-10-23

```
00
01
02 MANIPURI ANUSVARA
03
04 MANIPURI LETTER A
05 MANIPURI LETTER KA
06 MANIPURI LETTER KHA
07 MANIPURI LETTER GA
08 MANIPURI LETTER GHA
09 MANIPURI LETTER NGA
0A MANIPURI LETTER CA
0B MANIPURI LETTER CHA
0C MANIPURI LETTER JA
0D MANIPURI LETTER JHA
0E MANIPURI LETTER NYA
0F MANIPURI LETTER TTA

10 MANIPURI LETTER TTHA
11 MANIPURI LETTER DDA
12 MANIPURI LETTER DDHA
13 MANIPURI LETTER NNA
14 MANIPURI LETTER TA
15 MANIPURI LETTER THA
16 MANIPURI LETTER DA
17 MANIPURI LETTER DHA
18 MANIPURI LETTER NA
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- 19
- 1A MANIPURI LETTER PA
- 1B MANIPURI LETTER PHA
- 1C MANIPURI LETTER BA
- 1D MANIPURI LETTER BHA
- 1E MANIPURI LETTER MA
- 1F MANIPURI LETTER YA

- 20 MANIPURI LETTER RA
- 21
- 22 MANIPURI LETTER LA
- 23
- 24
- 25 MANIPURI LETTER WA
- 26 MANIPURI LETTER SHA
- 27 MANIPURI LETTER SSA
- 28 MANIPURI LETTER SA
- 29 MANIPURI LETTER HA
- 2A MANIPURI LETTER KSHA
- 2B
- 2C
- 2D
- 2E MANIPURI VOWEL SIGN AA
- 2F MANIPURI VOWEL SIGN I

- 30 MANIPURI VOWEL SIGN II
- 31 MANIPURI VOWEL SIGN U
- 32 MANIPURI VOWEL SIGN UU
- 33
- 34
- 35
- 36 MANIPURI VOWEL SIGN E
- 37
- 38 MANIPURI VOWEL SIGN AI
- 39 MANIPURI VOWEL SIGN OI
- 3A MANIPURI VOWEL SIGN O
- 3B MANIPURI VOWEL SIGN OI
- 3C MANIPURI VOWEL SIGN AU
- 3D MANIPURI VIRAMA
- 3E
- 3F

- 40 MANIPURI DIGIT ZERO
- 41 MANIPURI DIGIT ONE
- 42 MANIPURI DIGIT TWO
- 43 MANIPURI DIGIT THREE
- 44 MANIPURI DIGIT FOUR
- 45 MANIPURI DIGIT FIVE
- 46 MANIPURI DIGIT SIX
- 47 MANIPURI DIGIT SEVEN
- 48 MANIPURI DIGIT EIGHT
- 49 MANIPURI DIGIT NINE
- 4A
- 4B
- 4C
- 4D
- 4E
- 4F

	0	1	2	3	4
0		𑜀	𑜁	𑜂	0
1		𑜃		𑜄	1
2	𑜅	𑜆	𑜇	𑜈	2
3		𑜉			3
4	𑜊	𑜋			4
5	𑜌	𑜍	𑜎		5
6	𑜏	𑜐	𑜑	𑜒	6
7	𑜓	𑜔	𑜕		7
8	𑜖	𑜗	𑜘	𑜙	8
9	𑜚		𑜛	𑜜	9
A	𑜝	𑜞	𑜟	𑜠	
B	𑜡	𑜢		𑜣	
C	𑜤	𑜥		𑜦	
D	𑜧	𑜨		virama	
E	𑜩	𑜪	𑜫		
F	𑜬	𑜭	𑜮		

Tai Lü (Chieng Mai, Northern Thai)

The Tai Lü script is widely used for various Tai dialects in northern Thailand, Yunnan, and parts of Myanmar (they are variously referred to as Lannathai, Yuan, or Kam Muang). The Tai Lü script is of the Brahmic variety, and is structurally similar to both the Thai and Myanmar scripts to which the affinities can be easily seen in the forms. The script is also known by the name *Northern Thai*; neither name seems to be a standard. The script referred to as *Chieng Mai* by Nakanishi is a fancier typographical form of the Tai Lü script, and hence included here. The *language* known as Tai Lü is in use in northern Thailand and in Yunnan province of China. There are about 1 million speakers of Tai Lu, and this script is officially recognized by the Chinese government.

Each Tai Lü consonant has an inherent vowel and (apparently) an inherent tone. Most of the consonants contain an inherent “o” vowel (or “a”?), but some seem to contain other inherent vowels. There are 41 consonants, five stand-alone vowels, and 32 vowel signs. The vowel system of the Northern Thai language is very complex, so the script contains a correspondingly large number of vowel signs, though some of them are written as compounds of simpler graphic symbols.

The traditional order of the consonants as given by Davis is distinctly different from the typical Devanagari order (for instance, the *aspirated* letters all come before the associated unaspirated ones, while Devanagari order is the opposite).

Issues: This draft is nowhere near complete as not enough is known at this time and sources are currently scarce. The chart is thought to contain a complete repertoire of possible candidates for encoding, except for punctuation and digits.

The vowel system could be greatly reduced by removing several compound vowel signs and manufacturing these vowels from simpler vowels and glyphic fragments. The glottal stop consonant itself is a component of the graphic representation of two other vowel signs.

The letters at codepoints 1B, 1D, 1E, 1F may be conjuncts of some type involving 18 together with other letters. Perhaps: MA=1B=18+13, LA=1D=18+14, NYA=1E=18+07, NGA=1F=18+03.

The names list is fully inadequate for any purpose except unique identification. The names were generated by taking Davis's pseudo-IPA transliterations and formulating unique names from them, while utilizing only the symbols allowed in ISO names.

Because the order cited by Davis differs so significantly from the Devanagari order, the utility and correctness of this order should be corroborated by other sources.

Davis, Richard. *A Northern Thai Reader*.

Pontalis, Pierre Lefevre. *L'invasion Thaie en Indo-Chine*.

Tai Lü (Chieng Mai, Northern Thai) names, rev 1992-10-21

```
00 TAI LU LETTER KHA
01 TAI LU LETTER KA
02 TAI LU LETTER KHAA1
03 TAI LU LETTER NGAA
04 TAI LU LETTER SA1
05 TAI LU LETTER CAA
06 TAI LU LETTER SAA1
07 TAI LU LETTER NYAA
08 TAI LU LETTER LAATHA
09 TAI LU LETTER LAADA
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- 0A TAI LU LETTER LAATHAA
- 0B TAI LU LETTER LAANAA
- 0C TAI LU LETTER THA
- 0D TAI LU LETTER TAA
- 0E TAI LU LETTER THAA
- 0F TAI LU LETTER NAA1

- 10 TAI LU LETTER PHA
- 11 TAI LU LETTER PAA
- 12 TAI LU LETTER PHAA
- 13 TAI LU LETTER MAA
- 14 TAI LU LETTER LAA1
- 15 TAI LU LETTER LAA2
- 16 TAI LU LETTER WAA
- 17 TAI LU LETTER SA2
- 18 TAI LU LETTER HA
- 19 TAI LU LETTER LAA3
- 1A TAI LU LETTER A
- 1B TAI LU LETTER MA
- 1C TAI LU LETTER WA
- 1D TAI LU LETTER LA
- 1E TAI LU LETTER NYA
- 1F TAI LU LETTER NGA

- 20 TAI LU LETTER FA
- 21 TAI LU LETTER FAA
- 22 TAI LU LETTER HAA
- 23 TAI LU LETTER LAEAE
- 24 TAI LU LETTER NAA2
- 25 TAI LU LETTER LII
- 26 TAI LU LETTER PA
- 27 TAI LU LETTER KHAA2
- 28 TAI LU LETTER SAA2
- 29 TAI LU LETTER I
- 2A TAI LU LETTER II
- 2B TAI LU LETTER U
- 2C TAI LU LETTER UU
- 2D TAI LU LETTER EE
- 2E
- 2F

- 30 TAI LU VOWEL SIGN A
- 31 TAI LU VOWEL SIGN AA
- 32 TAI LU VOWEL SIGN I
- 33 TAI LU VOWEL SIGN II
- 34 TAI LU VOWEL SIGN I BAR
- 35 TAI LU VOWEL SIGN II BAR
- 36 TAI LU VOWEL SIGN U
- 37 TAI LU VOWEL SIGN UU
- 38 TAI LU VOWEL SIGN E
- 39 TAI LU VOWEL SIGN EE
- 3A TAI LU VOWEL SIGN AE
- 3B TAI LU VOWEL SIGN AEAE
- 3C TAI LU VOWEL SIGN O
- 3D TAI LU VOWEL SIGN OO
- 3E TAI LU VOWEL SIGN OH
- 3F TAI LU VOWEL SIGN OHOH

- 40 TAI LU VOWEL SIGN UEH
- 41 TAI LU VOWEL SIGN UE

	0	1	2	3	4
0	၅ kh	ဗာ pha	ဖာ fa	ာ a	ာ hch
1	က k	ပာ pa	ဖာ fa	ာ aa	ာ ue
2	ဃ khaa'	ဘ phaa'	ဃ haa'	ိ i	ိ ich
3	ာ ngaa	မာ maa	ာ laa	ိ ii	ိ ie
4	ဆ sa'	လ laa'	ာ naa'	ိ t	ိ ee
5	ာ caa	ာ laa'	ာ lii	ိ t	ိ ee
6	ာ saa'	ဝ waa	ပ pa	ိ u	ိ ee
7	ဃ nyaa	ဃ sa'	ာ khaa'	ိ uu	ိ ee
8	ဃ laatha	ာ ha	ာ saa'	ိ e	ိ any
9	ာ laada	ာ laa'	ာ i	ိ ee	ိ am
A	ဃ laatha	ာ a	ာ ii	ိ ee	ိ aw
B	ာ lanaa	ာ ma	ာ u	ိ ee	ိ oo'
C	ာ tha	ာ wa	ာ uu	ိ ee	ိ aa'
D	ာ ta	ာ la	ာ ee	ိ oo	ိ any'
E	ာ thaa	ာ nya		ိ ee	ိ oo
F	ာ naa'	ာ ha		ိ ee	ိ aa'

42 TAI LU VOWEL SIGN IEH
43 TAI LU VOWEL SIGN IE
44 TAI LU VOWEL SIGN I BAR E
45 TAI LU VOWEL SIGN I BAR SCHWA
46 TAI LU VOWEL SIGN SCHWA
47 TAI LU VOWEL SIGN SCHWA SCHWA
48 TAI LU VOWEL SIGN ANG
49 TAI LU VOWEL SIGN AM
4A TAI LU VOWEL SIGN AW
4B TAI LU VOWEL SIGN OO TWO
4C TAI LU VOWEL SIGN ANG TWO
4D TAI LU VOWEL SIGN ANG THREE
4E TAI LU VOWEL SIGN O MEDIAL
4F TAI LU VOWEL SIGN A MEDIAL