

Universal Multiple-Octet Coded Character Set
 International Organization for Standardization
 Organisation Internationale de Normalisation
 Международная организация по стандартизации

Doc Type: Working Group Document**Title: Proposal for encoding characters for Myanmar minority languages in the UCS****Source: Michael Everson****Status: Individual Contribution****Replaces: N2768, N1883R****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2006-04-02**

Since the Myanmar script was first encoded, it has been known that a number of additions used by minority languages would be needed. This proposal requests their addition. It contains the proposal summary form.

The languages supported by this proposal are Mon, Shan, Pali in Shan script, S’gaw Karen, Western Pwo Karen, Eastern Pwo Karen, and Kayah. Most of the characters proposed are spacing letters, but combining vowel signs, combining medial consonant signs, and combining tone marks are also proposed.

The history of the Myanmar script is not one of a single line of development. The Mon script, in fact, is probably the oldest of the traditions, though the letterforms of the former have been “Burmized” due to later influence, particularly that of typography. A number of language-specific differences arose during the period of development, much as has happened with the Arabic and Cyrillic scripts. Most of the letters are used in common, but some letters have language-specific forms. These are not unifiable with “standard” Myanmar letters, and books in Burmese about Mon, for instance, use both of them concurrently. In the discussion of the additions below, the language-specific letters are listed, in the brief shorthand “x contrasts with Burmese y”.

The new rendering model proposed in N3043 which disunifies visible ၆ ASAT from stacking ၇ VIRAMA applies to the characters here. The general implication of this is that when following VIRAMA, the LETTERS here should be rendered below and usually slightly smaller than the base letter. Where there is a departure from the mainstream stacking behaviour for Burmese, characters have been added here to facilitate minority-language usage. For example, ၈ LETTER NA and ၉ LETTER MA subjoin as expected in Burmese ၁၀ ၁၁ so the special Mon subjoined forms ၁၂ CONSONANT SIGN MON MEDIAL NA and ၁၃ CONSONANT SIGN MON MA are encoded as dependent consonant signs.

Additions for Mon

A number of characters contrast with Burmese characters: ၁၄ LETTER MON E contrasts with Burmese ၁၅ LETTER E; ၁၆ LETTER MON NGA contrasts with Burmese ၁၇ LETTER NGA; ၁၈ LETTER MON JHA contrasts with Burmese ၁၉ LETTER JHA; ၂၀ VOWEL SIGN MON II contrasts with Burmese ၂၁ VOWEL SIGN II. Other characters are unique to Mon: ၂၂ VOWEL SIGN MON O represents open o; ၂၃ LETTER MON BBA and ၂၄ LETTER MON BBE represent bilabial implosives; ၂၅ CONSONANT SIGN MON NA and ၂၆ CONSONANT SIGN MON MA are mentioned above; ၂၇ CONSONANT SIGN MON MEDIAL LA is used in S’gaw Karen for ya, where it contrasts with Burmese ၂၈ CONSONANT SIGN MEDIAL YA proposed in N3043. A clarification should be given regarding ၂၉ LETTER

MON NGA which merits discussion. While Burmese င NGA stacks as expected ၵ, Mon င NGA stacks by rendering only its “diacritic” ၵ; that is, *ၵ does not occur. It could be possible to treat the diacritic as a medial (like ၵ CONSONANT SIGN MON MEDIAL NA and ၵ CONSONANT SIGN MON MA) but this is impractical due to attested glyph variants of the letter. Both င and ၵ are attested glyph variants of the letter, and if *ၵ were encoded as a medial, it could be confusing as to whether it should be applied to င LETTER NGA or to ၵ VOWEL SIGN E (which isn’t an independent letter, but a dependent vowel). The encoding proposed here is simpler. (Figures 1, 2, 3, 9, and 10.)

Additions for Shan

A number of characters contrast with Burmese characters: ၶ LETTER SHAN A contrasts with Burmese ၶ LETTER A; ၷ LETTER SHAN KA contrasts with Burmese ၷ LETTER KA; ၸ LETTER SHAN KHA contrasts with Burmese ၸ LETTER KHA; ၹ LETTER SHAN CA contrasts with Burmese ၹ LETTER CA; ၺ LETTER SHAN NYA contrasts with Burmese ၺ LETTER NYA; ၻ LETTER SHAN NA contrasts with Burmese ၻ LETTER NA; ၼ LETTER SHAN PHA contrasts with Burmese ၼ LETTER PHA; ၽ LETTER SHAN THA contrasts with Burmese ၽ LETTER SA; ၾ LETTER SHAN HA contrasts with Burmese ၾ LETTER HA; ၿ LETTER SHAN HSIPAW RA contrasts with Burmese ၿ LETTER RA; ႀ VOWEL SIGN SHAN AA contrasts with Burmese ႀ VOWEL SIGN AA; ႁ CONSONANT SIGN SHAN WA contrasts with the Burmese ႁ CONSONANT SIGN WA proposed in N3043. Other characters are unique to Shan: ႂ LETTER SHAN FA and ႃ LETTER SHAN HSIPAW FA represent [f] in different orthographies; ႄ VOWEL SIGN SHAN E represents open e; ႅ VOWEL SIGN SHAN A represents short *a* word-internally; ႆ VOWEL SIGN SHAN EE ABOVE represents close e word-internally; ႇ VOWEL SIGN SHAN E ABOVE represents open e word-internally; ႈ VOWEL SIGN SHAN FINAL Y is used in rising diphthongs. Shan extends the VISARGA function with additional tone marks ႉ, SIGN SHAN TONE-2, ႊ; SIGN SHAN TONE-3, ႋ SIGN SHAN COUNCIL TONE-4 (used in Shan Council orthography), ႌ SIGN SHAN TONE-5, ႍ SIGN SHAN TONE-6, and ႎ SIGN SHAN COUNCIL EMPHATIC TONE (used in Shan Council orthography). (Figures 4 and 6.)

Additions for Shan Pali

A number of characters used for Pali in Shan context contrast with Burmese characters: ႏ LETTER SHAN PALI GA contrasts with Burmese ႏ LETTER GA; ႙ LETTER SHAN PALI GHA contrasts with Burmese ႙ LETTER GHA; ႚ LETTER SHAN PALI JA contrasts with Burmese ႚ LETTER JA; ႛ LETTER SHAN PALI JHA contrasts with Burmese ႛ LETTER JHA; ႜ LETTER SHAN PALI TTA contrasts with Burmese ႜ LETTER TTA; ႝ LETTER SHAN PALI TTHA contrasts with Burmese ႝ LETTER TTHA; ႞ LETTER SHAN PALI DDA contrasts with Burmese ႞ LETTER DDA; ႟ LETTER SHAN PALI DDHA contrasts with Burmese ႟ LETTER DDHA; Ⴀ LETTER SHAN PALI NNA contrasts with Burmese Ⴀ LETTER NNA; Ⴁ LETTER SHAN PALI DA contrasts with Burmese Ⴁ LETTER DA; Ⴂ LETTER SHAN PALI DHA contrasts with Burmese Ⴂ LETTER DHA; Ⴃ LETTER SHAN PALI BHA contrasts with Burmese Ⴃ LETTER BHA; Ⴄ LETTER SHAN PALI LLA contrasts with Burmese Ⴄ LETTER LLA. (Figure 5.)

Additions for S’gaw Karen

Three characters used in S’gaw Karen are not used in Burmese: Ⴅ LETTER SGAW KAREN SHA contrasts with Burmese Ⴅ *rha* (which is Ⴅ LETTER RA + Ⴆ CONSONANT SIGN MEDIAL HA); Ⴇ SIGN SGAW KAREN HATHI and Ⴈ SIGN SGAW KAREN KE PHO are tone marks. (Figures 7, 8, 10, 11, 12, and 14.)

Additions for Western Pwo Karen

Four characters used in Western Pwo Karen are not used in Burmese: Ⴉ LETTER WESTERN PWO KAREN THA contrasts with Burmese Ⴉ *sa*; Ⴊ LETTER WESTERN PWO KAREN PWA is the last letter of the Western Pwo Karen alphabet; Ⴋ VOWEL SIGN WESTERN PWO KAREN EU and Ⴌ VOWEL SIGN WESTERN PWO KAREN UE are vowel signs; Ⴍ SIGN WESTERN PWO KAREN TONE-1, Ⴎ SIGN WESTERN PWO KAREN TONE-2, Ⴏ SIGN WESTERN PWO KAREN TONE-3, Ⴐ SIGN WESTERN PWO KAREN TONE-4, and Ⴑ SIGN WESTERN PWO KAREN TONE-5 are tone marks. (Figures 13, 14, 15, and 16.)

Additions for Eastern Pwo Karen

One character used in Eastern Pwo Karen contrasts with a Burmese character: ၈ LETTER EASTERN PWO KAREN NNA contrasts with Burmese ၈ NNA. Two other characters are unique to Eastern Pwo Karen: ၉ LETTER EASTERN PWO KAREN YWA and ၁၀ LETTER EASTERN PWO KAREN GHWA. (Figures 18 and 19.)

Additions for Kayah

One character used in Kayah contrasts with a Burmese character: ၁၁ VOWEL SIGN KAYAH U is used alongside Burmese ၁၂ VOWEL SIGN U. Two characters are unique to Kayah: ၁၃ VOWEL SIGN KAYAH AE and ၁၄ VOWEL SIGN KAYAH EE. (Figure 20.)

Ordering

The unified order for the Myanmar script incorporating the characters here is given below. Ordering is syllable-based, so this is indicative of only one level of ordering.

ka < shan-ka < kha < shan-kha < ga < shan-pali-ga < gha < shan-pali-gha < nga < mon-nga < ca < shan-ca < cha < ja < shan-pali-ja < jha < shan-pali-jha < mon-jha < sgaw-karen-sha < nya < shan-nya < nnya < tta < shan-pali-tta < ttha < shan-pali-ttha < dda < shan-pali-dda < ddha < shan-pali-ddha < nna < shan-pali-nna < eastern-pwo-karen-nna < ta < tha < da < shan-pali-da < dha < shan-pali-dha < na < shan-na < pa < pha < shan-pha < shan-fa < ba < bha < shan-pali-bha < ma < ya < ra < la < wa < shan-tha < sha < ssa < western-pwo-karen-tha < sa < great-sa < ha < shan-ha < lla < shan-pali-lla < mon-bba < eastern-pwo-karen-ywa < eastern-pwo-karen-gwa < a < shan-a < shan-hsipaw-fa < shan-hsipaw-ra < i < ii < u < uu < vocalic-r < vocalic-rr < vocalic-l < vocalic-ll < e < mon-bbe < western-pwo-karen-pwa < mon-e < o < au

Issues

Several characters look as though they could be sequences of a base character plus the proposed *U+103E ၁၅ CONSONANT SIGN MEDIAL HA. These are: ၁၆ LETTER SHAN FA, ၁၇ LETTER SHAN HA, ၁၈ LETTER SGAW KAREN SHA, ၁၉ LETTER WESTERN PWO KAREN PWA, ၂၀ LETTER EASTERN PWO KAREN YWA, and ၂၁ LETTER EASTERN PWO KAREN GHWA. At the meeting in Yangon, this was discussed at length. All of the letters have their own place in the alphabet of the language which uses them (see Figures 4, 7, 12, and 18). In Pwo Karen, for instance, ၁၈ LETTER SGAW KAREN SHA and ၁၉ LETTER WESTERN PWO KAREN PWA, are both treated as separate letters of the alphabet, sorted rather far from the base letters ၁၆ *ra* and ၁၇ *pa*, both of which do, as it happens, take genuine medials (၁၆ *pya*, ၁၇ *pla*, ၁၈ *pra*, ၁၉ *pwa*, and ၂၀ *rwa*) which are sorted as expected under ၁၇ *pa* and ၁၆ *ra*. In better typography and in handwriting, ၁၈ LETTER SGAW KAREN SHA contrasts with ၁၉ *rha* (though much printed matter is not exemplary of the best typography). Shan uses two letters, ၁၆ LETTER SHAN FA and ၁၇ LETTER SHAN HA, both of which can be seen with alternate shapes ၁၆ and ၁၇. It's probable that the origin of the former is ၁၆ *pha* + ၁၅ *-ha*, but the origin of the latter is (according so Sai Kam Mong 2004) a shape like ၁၇, where the top part isn't analyzable to any other letter. Since the Myanmar script is to be a unified set to deal with all of these languages, we judge it best to let ၁၅ be used in its traditional productive medial role in the Burmese, Mon, and S'gaw Karen languages, but to encode as unique letters the ones used non-productively in Pwo Karen. In Pwo Karen, the angled marks are typically fused to the letters, which also suggests a difference. Precedent for this can be found in the letterforms used for *jha*: In Burmese, alongside ၁၅ is found the form ၁၆, which looks as though it is a ligature of ၁၅ *ca* and ၁၅ *-ya* (but it doesn't), and in Mon the forms ၁၆ and ၁၇ are often found, probably better rendered ၁၆ in a generic font; it is not ၁၆ *ja* (+ ၁၅ *-ha*) + ၁၅ *-ya*.

Unicode Character Properties

1022;MYANMAR LETTER SHAN A;Lo;0;L;;;;N;;;;;
1028;MYANMAR LETTER MON E;Lo;0;L;;;;N;;;;;
1033;MYANMAR VOWEL SIGN MON II;Mn;0;NSM;;;;N;;;;;
1034;MYANMAR VOWEL SIGN MON O;Mn;0;NSM;;;;N;;;;;
1035;MYANMAR VOWEL SIGN SHAN E;Mc;0;L;;;;N;;;;;
105A;MYANMAR LETTER MON NGA;Lo;0;L;;;;N;;;;;

105B;MYANMAR LETTER MON JHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
105C;MYANMAR LETTER MON BBA;Lo;0;L; ; ; ; ;N; ; ; ; ;
105D;MYANMAR LETTER MON BBE;Lo;0;L; ; ; ; ;N; ; ; ; ;
105E;MYANMAR CONSONANT SIGN MON MEDIAL NA;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
105F;MYANMAR CONSONANT SIGN MON MEDIAL MA;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1060;MYANMAR CONSONANT SIGN MON MEDIAL LA;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1061;MYANMAR LETTER SHAN KA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1062;MYANMAR LETTER SHAN KHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1063;MYANMAR LETTER SHAN CA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1064;MYANMAR LETTER SHAN NYA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1065;MYANMAR LETTER SHAN NA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1066;MYANMAR LETTER SHAN PHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1067;MYANMAR LETTER SHAN FA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1068;MYANMAR LETTER SHAN THA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1069;MYANMAR LETTER SHAN HA;Lo;0;L; ; ; ; ;N; ; ; ; ;
106A;MYANMAR LETTER SHAN HSIPAW FA;Lo;0;L; ; ; ; ;N; ; ; ; ;
106B;MYANMAR LETTER SHAN HSIPAW RA;Lo;0;L; ; ; ; ;N; ; ; ; ;
106C;MYANMAR VOWEL SIGN SHAN A;Mc;0;L; ; ; ; ;N; ; ; ; ;
106D;MYANMAR VOWEL SIGN SHAN AA;Mc;0;L; ; ; ; ;N; ; ; ; ;
106E;MYANMAR VOWEL SIGN SHAN EE ABOVE;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
106F;MYANMAR VOWEL SIGN SHAN E ABOVE;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1070;MYANMAR VOWEL SIGN SHAN FINAL Y;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1071;MYANMAR SIGN SHAN TONE-2;Mc;0;L; ; ; ; ;N; ; ; ; ;
1072;MYANMAR SIGN SHAN TONE-3;Mc;0;L; ; ; ; ;N; ; ; ; ;
1073;MYANMAR SIGN SHAN COUNCIL TONE-4;Mc;0;L; ; ; ; ;N; ; ; ; ;
1074;MYANMAR SIGN SHAN TONE-5;Mc;0;L; ; ; ; ;N; ; ; ; ;
1075;MYANMAR SIGN SHAN TONE-6;Mc;0;L; ; ; ; ;N; ; ; ; ;
1076;MYANMAR SIGN SHAN COUNCIL EMPHATIC TONE;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1077;MYANMAR CONSONANT SIGN SHAN MEDIAL WA;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1078;MYANMAR LETTER SHAN PALI GA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1079;MYANMAR LETTER SHAN PALI GHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107A;MYANMAR LETTER SHAN PALI JA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107B;MYANMAR LETTER SHAN PALI JHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107C;MYANMAR LETTER SHAN PALI TTA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107D;MYANMAR LETTER SHAN PALI TTHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107E;MYANMAR LETTER SHAN PALI DDA;Lo;0;L; ; ; ; ;N; ; ; ; ;
107F;MYANMAR LETTER SHAN PALI DDHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1080;MYANMAR LETTER SHAN PALI NNA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1081;MYANMAR LETTER SHAN PALI DA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1082;MYANMAR LETTER SHAN PALI DHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1083;MYANMAR LETTER SHAN PALI BA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1084;MYANMAR LETTER SHAN PALI LLA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1085;MYANMAR LETTER SGAW KAREN SHA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1086;MYANMAR SIGN SGAW KAREN HATHI;Mc;0;L; ; ; ; ;N; ; ; ; ;
1087;MYANMAR SIGN SGAW KAREN KE PHO;Mc;0;L; ; ; ; ;N; ; ; ; ;
1088;MYANMAR LETTER WESTERN PWO KAREN THA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1089;MYANMAR LETTER WESTERN PWO KAREN PWA;Lo;0;L; ; ; ; ;N; ; ; ; ;
108A;MYANMAR VOWEL SIGN WESTERN PWO KAREN EU;Mc;0;L; ; ; ; ;N; ; ; ; ;
108B;MYANMAR VOWEL SIGN WESTERN PWO KAREN UE;Mc;0;L; ; ; ; ;N; ; ; ; ;
108C;MYANMAR SIGN WESTERN PWO KAREN TONE-1;Mc;0;L; ; ; ; ;N; ; ; ; ;
108D;MYANMAR SIGN WESTERN PWO KAREN TONE-2;Mc;0;L; ; ; ; ;N; ; ; ; ;
108E;MYANMAR SIGN WESTERN PWO KAREN TONE-3;Mc;0;L; ; ; ; ;N; ; ; ; ;
108F;MYANMAR SIGN WESTERN PWO KAREN TONE-4;Mc;0;L; ; ; ; ;N; ; ; ; ;
1090;MYANMAR SIGN WESTERN PWO KAREN TONE-5;Mc;0;L; ; ; ; ;N; ; ; ; ;
1091;MYANMAR LETTER EASTERN PWO KAREN NNA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1092;MYANMAR LETTER EASTERN PWO KAREN YWA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1093;MYANMAR LETTER EASTERN PWO KAREN GHWA;Lo;0;L; ; ; ; ;N; ; ; ; ;
1094;MYANMAR VOWEL SIGN KAYAH OE;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1095;MYANMAR VOWEL SIGN KAYAH U;Mn;0;NSM; ; ; ; ;N; ; ; ; ;
1096;MYANMAR VOWEL SIGN KAYAH EE;Mn;0;NSM; ; ; ; ;N; ; ; ; ;

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- ပုၤဖျိၤလိၤဆၢၤခွဲး ဒဲး ပယးအဒိၤပယိၤ = ပိုးကရင်-မုၢ်မာအဘိၤခါန် = *Pwo Kayin-Myanmar Dictionary*. 1989. (Western Pwo Karen).

Figures

12 MON VOWELS

သွိုမန် (၁၂) အခပ်၊

အ	အာ	အု	အူ ^၀	ဥ	ဥါ
ဇ	အဲ	ဩ	အိ	အံ	အား

VOWEL-SYMBOLS

လကျန်သွို

-	-၁	-၀	-၈	-ါ	-ါါ
၆-	-`	၆-၁	-´	-°	-း

Figure 1. Sample from Nai Pan Hla’s 1989 Mon dictionary, showing LETTER MON E, VOWEL SIGN MON II, and VOWEL SIGN MON O.

35 MON CONSONANTS

ခန်ကျော်န် (၂) လွှေင်ဗျန်

က	ခ	ဂ	ဃ	င
စ	ဆ	ဇ	ဈ	ည
ဋ	ဌ	ဍ	ဎ	ဏ
တ	ထ	ဒ	ဓ	န
ပ	ဖ	ဗ	ဘ	မ
ယ	ရ	လ	ဝ	သ
ဟ	ဉ	ဏ	အ	ဗျ

Figure 2. Sample from Nai Pan Hla’s 1989 Mon dictionary, showing LETTER MON NGA, LETTER MON JHA, LETTER MON BBA, and LETTER MON BBE.

Subscript Letters	Symbols	with combination
င	၁	တူ tūa/təŋa°/
ည	၂	ကူ kñā/kəŋa°/
ဋ	၃	တူ tḍa/təḍa°/
န	၄	တူ tna/təna°/
မ	၅	တူ tma/təma°/
ယ	၆	ကျ kya/ca°/
ရ	၇	ကြ kra/kra°/
လ	၈	ကူ kla/kla°/
ဝ	၉	ကူ kwa/kwa°/
စ	၁၀	ကူ kḥa/kḥa°/
ဟ	၁၁	လှ lha/hla°/

Figure 3. Sample from Nai Pan Hla's 1989 Mon dictionary, showing CONSONANT SIGN MON MEDIAL NA, CONSONANT SIGN MON MEDIAL MA, and CONSONANT SIGN MON MEDIAL LA.

သွခိၣ်ကၢၤခိၣ်,လိၣ်ဂံၢ်တံးဂှၢ်း ဂှၢ်းလိၣ်းမေၤလး; ပိးခွၣ်.တံးခဝ်

◆ မေၤဂှၢ်းလိၣ်း
 ဂ ခ င ဃ ဎ ဏ ဏ ဏ ခိၣ်
 ဝ ဃ ဃာ မ ဃာ ရ လ ဝ ဂှၢ်း

◆ မေၤသိၣ်ဂိၣ်
 ခ တ ဃ ဆ

◆ မေၤဂှၢ်းလိၣ်း
 က ကူ ဂိၣ် ဂိၣ် ကူ ကူ
 ကေ ဂေ ကူ ဂေ ကူ ဂိၣ် ဂိၣ်

◆ မေၤသိၣ်သွခိၣ်.
 ကံ ကံ ကူလံ ကူလံ ကံ ကူလံ ကူလံ

◆ မေၤဂှၢ်းသွခိၣ်.
 ကဝ် ကဝ် ဂိၣ် ဂိၣ် ဂိၣ် ကံ

◆ တူပ်မိၣ်တံးသိၣ်လၢင်
 ကမ် ကမ် ဂိၣ် ဂိၣ် ဂိၣ် ကူမ် ကူမ် ကွမ် ကူမ် ကူမ်
 ကခိၣ် ကခိၣ် ဂိၣ်ခိၣ် ဂိၣ်ခိၣ် ဂိၣ်ခိၣ် ကူခိၣ် ကူခိၣ် ကွခိၣ် ကူခိၣ် ကူခိၣ်
 ကင် ကင် ဂိၣ် ဂိၣ် ဂိၣ် ကူင် ကူင် ကွင် ကူင် ကူင်

◆ တူပ်မိၣ်တံးသိၣ်ခတံး.
 ကဝ် ကဝ် ဂိၣ် ဂိၣ် ဂိၣ် ကူဝ် ကူဝ် ကွဝ် ကူဝ် ကူဝ်
 ကတ် ကတ် ဂိၣ်တံး ဂိၣ်တံး ဂိၣ်တံး ကူတ် ကူတ် ကွတ် ကူတ် ကူတ်
 ကဂ် ကဂ် ဂိၣ်ဂ် ဂိၣ်ဂ် ဂိၣ်ဂ် ကူဂ် ကူဂ် ကွဂ် ကူဂ် ကူဂ်

◆ မေၤဂှၢ်းသွခိၣ်.
 ဂ + ဃ = ဂှၢ်း ဂ + ဃာ = ဂှၢ်း ဂ + ရ = ဂှၢ်း

◆ မံးသိၣ်
 ကါ ကါ ကါ ကါ ကါ ကါ

Figure 4. Sample from a Shan-Thai reader, showing LETTER SHAN KA, LETTER SHAN KHA, LETTER SHAN CA, LETTER SHAN NYA, LETTER SHAN NA, LETTER SHAN PHA, LETTER SHAN FA, LETTER SHAN HA, LETTER SHAN A, LETTER SHAN PALI GA, LETTER SHAN HSIPAW FA, LETTER SHAN HSIPAW RA, LETTER SHAN THA, VOWEL SIGN SHAN E, VOWEL SIGN SHAN AA, VOWEL SIGN SHAN A, VOWEL SIGN SHAN FINAL Y, VOWEL SIGN SHAN EE ABOVE, VOWEL SIGN SHAN E ABOVE, CONSONANT SIGN SHAN MEDIAL WA, SIGN SHAN TONE-2, SIGN SHAN TONE-3, SIGN SHAN TONE-5, and SIGN SHAN TONE-6.

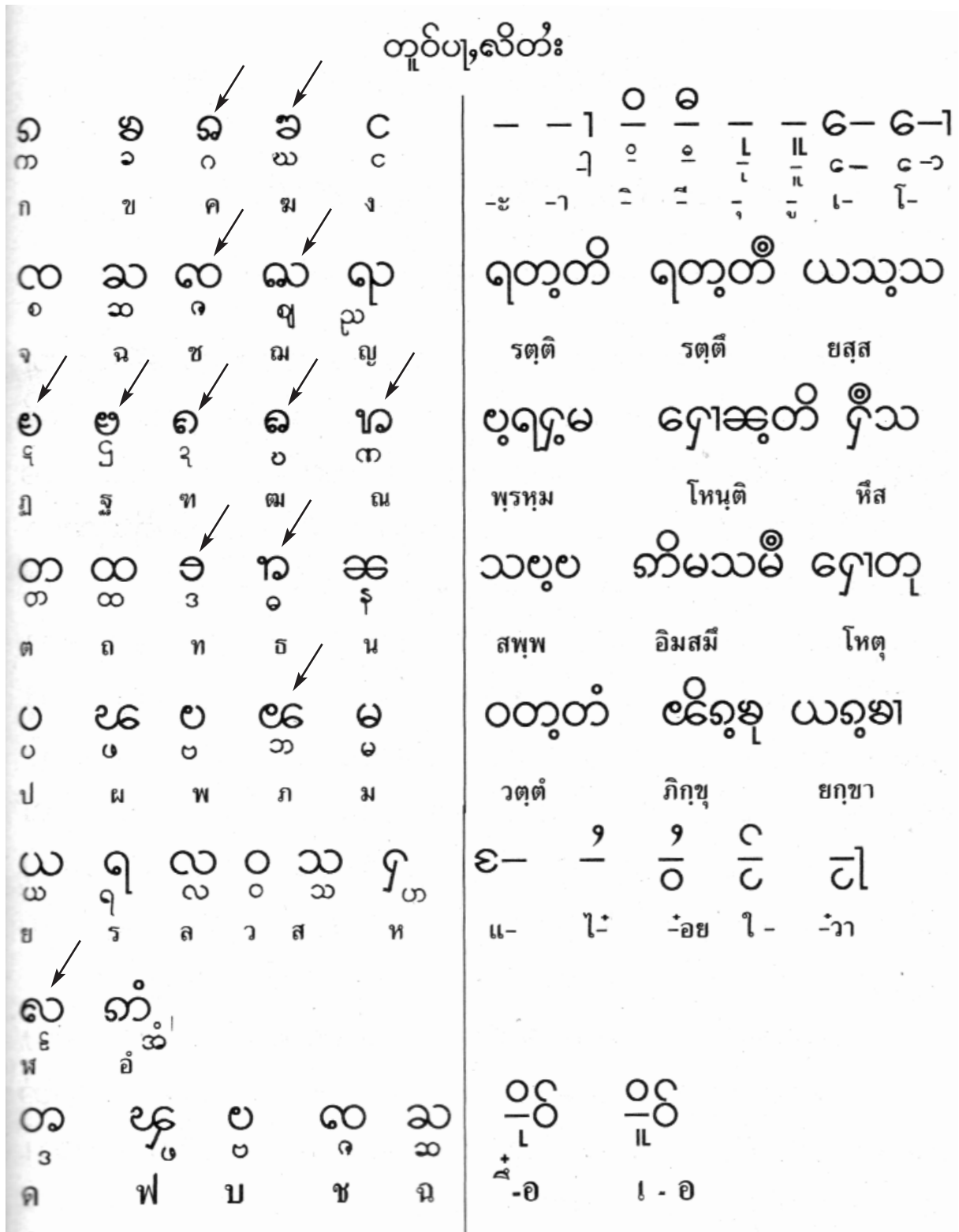
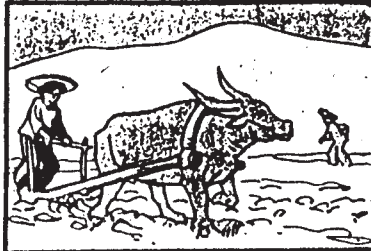


Figure 5. Sample from a reader in Shan and Thai, showing LETTER SHAN PALI GHA, LETTER SHAN PALI JA, LETTER SHAN PALI JHA, LETTER SHAN PALI TTA, LETTER SHAN PALI TTHA, LETTER SHAN PALI DDA, LETTER SHAN PALI DDHA, LETTER SHAN PALI NNA, LETTER SHAN PALI DA, LETTER SHAN PALI DHA, LETTER SHAN PALI BHA, and LETTER SHAN PALI LLA.

ဆ်းသ်း	မၤ ခဲး	 <p>ရခဲးထဲးခဲး</p>
မံး ရဲး	ဂဲးမၤ	
တဲး ခဲး	ဂၤဂဲး	
ထဲးခဲး	မံးဂဲး	
ဝဲးခဲး	တီးခဲး	
လဲးဆ်း	ဂဲးလဲး	


 <p>ဂဲးလဲး</p>	မၤမံးဆ်းလဲးခဲး
	ယၤပဲးမၤပဲးတီးခဲး
	ရၤပဲးတီးဂဲး
	ဂၤမံးပဲးမၤလဲးသဲး
	ပဲးမၤယံးယံးယံးလဲး
	မံးရၤတီးဂဲးခဲးတဲး

Figure 6. Sample from a Shan Council reader, showing SIGN SHAN COUNCIL EMPHATIC TONE and SIGN SHAN TONE-4.

လဲးယၤဂဲးမိၤပုၤတဖၣ်ခဲးလီၤတၢ်လဲးသး

က	ခ	ဂ	ဃ	င
ကးခိၣ်ထံး	ခးကဝိၤ	ဂးဆဲး	ဃးမိၣ်	ငးဆီၣ်ရိၣ်
စ	ဆ	ဇ	ဈ	ည
စးဖျၢၣ်	ဆးတံး	ဇးသ့ၣ်ပး	ဈးခဲး	ညးညိၣ်ခိၣ်
တ	ထ	ဒ	န	ပ
တးဝဲးဂု	ထးတယံး	ဒးတဒါ	နးဆဲး	ပးတမိ
ဖ	ဘ	မ	ယ	ရ
ဖးပဝဲး	ဘးတကူး	မးခဲးသး	ယးဆီၣ်ထီ	ရးကုၣ်ကျိၤ
လ	ဝ	သ	ဟ	
လးကုၣ်ထီၣ်	ဝးကဝိၤ	သးခဲး	ဟးကုၣ်လီၤ	
	အ	ဇ		
	အးခဲးဆီ	ဇးကတၢ်		

Figure 7. Sample from a reader in S'gaw Karen, showing LETTER SGAW KAREN SHA.

လိာ်ဖျါနိာ်ပုဂ်တၢ်က့ၤက့ၤလၢအညီဆူအကီ
 ဝိး
 တၢ်က့ၤအက့ၤ

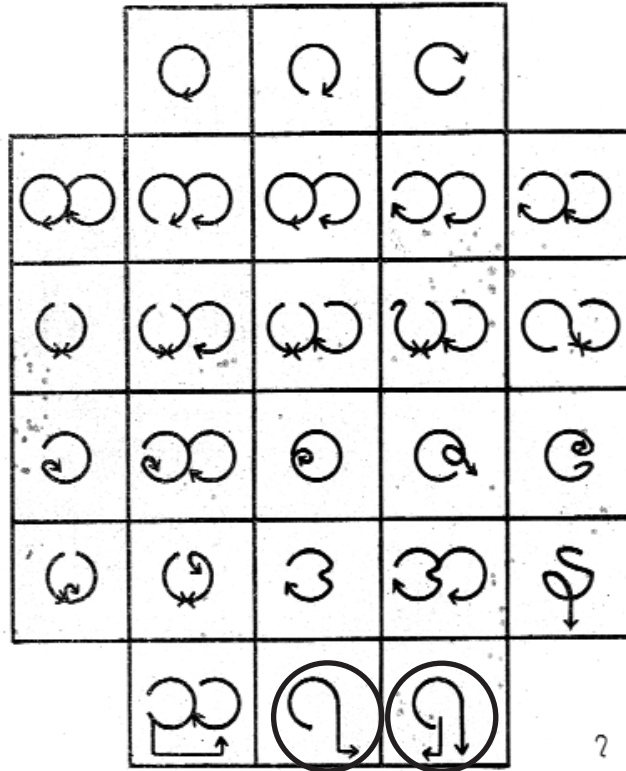


Figure 8. Sample from a reader in S'gaw Karen, showing the ductus for writing S'gaw Karen letters. Note the difference between LETTER RA and LETTER SGAW KAREN SHA.

လိာ်ဖျါနိာ်တၢ်ပာ်

၂ ပုဂ် ဂ အခါနဲးတၢ်ဆိးလိာ်ဖျါနိာ်အဂၢၢ်အံၤ - ဝ + ဂ = ငှ | ဝ + ဂ = ဟ

၃ " ယ " " " " " - ဝ + ယ = ဝှ | က + ယ = ကှ

၄ " ခ " " " " " = က + ခ = ကျ | ဝ + ခ = ဝှ

၅ " ဓ " " " " " - က + ဓ = ကျ | ဓ + ဓ = ဝှ

၆ " ဝ " " " " " = က + ဝ = ကှ | ဝ + ဝ = ဝှ

၇ မုာ်လိာ်ဖျါနိာ်တၢ်ပာ်တၢ်ဝိးဝဲက့ၤတီၢ်နိာ်ပုဂ် အဖျါနိာ်တၢ်ပာ်လိာ်.
 ဝဲမိ ၇ + ၇ = တၢ် (နိာ်ပိာ်တြီာ်--(Geometry)

Figure 9. Sample from a reader in S'gaw Karen, showing CONSONANT SIGN MON MEDIAL LA (used in S'gaw Karen for ya) alongside characters proposed in N3043, CONSONANT SIGN MEDIAL HA (used in S'gaw Karen for ga), CONSONANT SIGN MEDIAL RA, CONSONANT SIGN MEDIAL YA (used in S'gaw Karen for la), and CONSONANT SIGN MEDIAL WA.

တၢ်သီၣ်ဒိၣ်ပုၣ်

၁.	-ါ	=	အါ	←	အး	အါ	=	အါ
၂.	-ံ	=	အံ		အး	အံ	=	အံ
၃.	-ါ	=	အါ	←	အး	အါ	=	အါ
၄.	-ါ	=	အါ		အး	အါ	=	အါ
၅.	-ါ	=	အါ		အး	အါ	=	အါ
၆.	-ါ	=	အါ		အး	အါ	=	အါ
၇.	-ါ	=	အါ		အး	အါ	=	အါ
၈.	-ါ	=	အါ		အး	အါ	=	အါ
၉.	-ါ	=	အါ		အး	အါ	=	အါ

တၢ်သီၣ်ထိးနီ

၁.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၂.	-ံ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၃.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၄.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၅.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၆.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၇.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၈.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၉.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၁၀.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ
၁၁.	-ါ	=	အါသံ	အး	အါ	အါ	သံ	=	အါ

Figure 10. Sample from a reader in S'gaw Karen, showing vowels and tone marks, including VOWEL SIGN TALL AA (proposed in N3043), VOWEL SIGN SHAN A, SIGN SGAW KAREN HATHI, SIGN SGAW KAREN KE PHO, and CONSONANT SIGN MON MEDIAL LA.

ပနၢ်ဝါ

ဒိၣ် ဒိၣ် ဒိၣ် လီၤ ပနၢ် ဝါ	လဲၤ ဝဲၣ် ဘၣ် လၢ ဆိၣ် ဒိၣ် သ့ၣ်
ဟ် ဟ် ဒိၣ် လီၤ ပနၢ် ဝါ	ဆိၣ် ဒိၣ် သ့ၣ် ပှၤ ဝဲၣ် လၢ ဟီၤ
ဒိၣ် လီၤ လၢ ဘ့ၣ် ဒိၣ် ဘ့ၣ် လၢ	ထိး ဝါ ကွီၤ ပှၤ ဒိၣ် အ ကိၣ်
ဘ့ၣ် ဒိၣ် ဘ့ၣ် လၢ လဲၤ မၤ ပှၤ	ဒိၣ် အ ကိၣ် လၢ နး တိၣ် စ့
လဲၤ မၤ ဘၣ် စိၣ် ဝဲၣ် ဝဲၣ်	နး တိၣ် စ့ အ က ဝဲၣ် ဟီၣ်
စိၣ် ဝဲၣ် ဝဲၣ် စိၣ် ဝဲၣ် ဝဲၣ်	အ ဝဲၣ် ထံ လီၤ စိၣ် လီၤ စိၣ်
စိၣ် ဝဲၣ် ဝဲၣ် စိၣ် ဝဲၣ် ဝဲၣ်	လီၤ စိၣ် ဘၣ် ဆိၣ် ဝဲၣ် တ ကိၣ်
ဆး ထူ မိ ဘၣ် ပီၤ ပီၤ ကျၢ်	ဆိၣ် ဝဲၣ် တ ကိၣ် လံၣ် လူၣ် အိ
ပီၤ ပီၤ ကျၢ် လဲၤ ဝဲၣ် အ ဝဲၣ်	လံၣ် လူၣ် အိ ကဲ ထီၣ် လၢ နီ
	ကဲ ထီၣ် နီ ပှၤ က ညိၣ် အိၣ်

Figure 11. Sample from a reader in S'gaw Karen, showing SIGN SGAW KAREN HATHI and SIGN SGAW KAREN KE PHO. The CONSONANT SIGN MEDIAL WA (proposed in N3043) is shown with a triangular glyph.

ပု ဖျိုးရှို အလံမုဖျိုး

က	ခ	ဂ	ဃ	င	
စ	ဆ	ဇ	ည	ရှ	
တ	ထ	ဒ	ဓ	ပ	
ဖ	ဘ	မ	ယ	ရ	
လ	ဝ	၁	ဗ	အ	
		ဇ	ပု		

Figure 12. Sample from a reader in Western Pwo Karen, showing LETTER SGAW KAREN SHA, LETTER WESTERN PWO KAREN THA, and LETTER WESTERN PWO KAREN PWA.

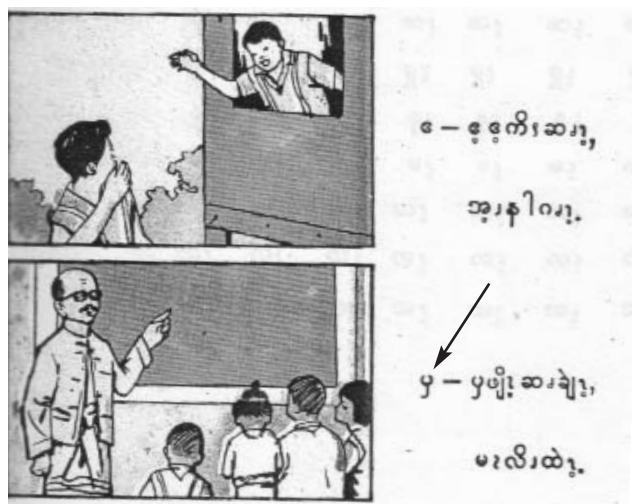


Figure 13. Sample from a reader in Western Pwo Karen, showing LETTER WESTERN PWO KAREN PWA listed as a separate letter of the alphabet: ပု *pwa* is for ပုဖျိုး *pwaphli* 'Pwo Karen'.



“ကျိၼ်ဖးအဝဲး”

- နးဝဲးဘွဲး - နမိလးပိယခဲၼ်လၢကျိၼ်ဖးအဝဲး.
- နးဝဲးလူၤ - ကျိၼ်ဖးနီၤပုၼ်းသ့ၼ်လးဆၢနီၤလဲၤ.
- နးဝဲးဘွဲး - ကျိၼ်ဖးနီၤ ပုၼ်းသ့ၼ်လးဆၢဝဲး, ဒဲးဘုၼ်ခဲၼ်လီၤ.
- နးဝဲးလူၤ - ဆၢဝဲးနီၤပုၼ်းသ့ၼ်လးဝဲးဘုၼ်ခဲၼ်လဲၤ.
- နးဝဲးဘွဲး - ပဘၢရဲၤန့ဆၢဖးဝဲး? ပဘၢသ့ၼ်လးဆၢဝဲးပိယလီၤ.
- နးဝဲးလူၤ - ဘုၼ်ခဲၼ်နီၤပုၼ်းသ့ၼ်လးဝဲးဘုၼ်ခဲၼ်လဲၤ.
- နးဝဲးဘွဲး - ပဘၢရဲၤန့ဆၢဖးဝဲး? ဘၢသ့ၼ်လးအချဲၤနီၤလီၤ.
- နးဝဲးလူၤ - ဆၢလၢဘုၼ်ခဲၼ်နီၤ ပခိးဝဲးဘုၼ်ခဲၼ်လဲၤ.

Figure 14. Sample from a reader in Western Pwo Karen, showing LETTER WESTERN PWO KAREN THA, LETTER SGAW KAREN SHA, and LETTER WESTERN PWO KAREN PWA.

လံၤလူၤဘီၤ (သရ)

-ၼ်	း	း	း	-ၼ်	-ၼ်	း	း	း	း
ကါ	ကံ	က့	ကဲ	ကၢ	ကံၤ	ကု	ကူ	ကိ	ကီ
ခါ	ခံ	ခု	ခဲ	ခၢ	ခံၤ	ခု	ခု	ခိ	ခီ

Figure 15. Sample from a reader in Western Pwo Karen, listing the vowel signs and showing VOWEL SIGN TALL AA (proposed in N3043), as well as VOWEL SIGN WESTERN PWO KAREN EU, and VOWEL SIGN WESTERN PWO KAREN UE.

လံခဒိဖ (သတ်ပုံ)

↙ ↘ ↙ ↘ ↙ ↘ ↙ ↘ ↙ ↘

၃ ၂ ၁ ၂ ၃ ? ၁ ၂ :

က၃ က၂ က၁ က၂ က၃ က? က၁ က၂ က:

ခ၃ ခ၂ ခ၁ ခ၂ ခ၃ ခ? ခ၁ ခ၂ ခ:

Figure 16. Sample from a reader in Western Pwo Karen, listing the tone marks and showing SIGN WESTERN PWO KAREN TONE-1, SIGN WESTERN PWO KAREN TONE-2, SIGN WESTERN PWO KAREN TONE-3, SIGN WESTERN PWO KAREN TONE-4, SIGN WESTERN PWO KAREN TONE-5.

လိက်စဉ်းမောင်ယွာ.

က	ခ	ဂ	ဃ	င
စ	ဆ	ဇ	ဈ	ည
ဋ	ဌ	ဍ	ဎ	ဏ
တ	ထ	ဒ	ဓ	န
ပ	ဖ	ဗ	ဘ	မ
ယ	ရ	လ	ဝ	သ
	ဟ	ဋ	အ	
	ဓ	ဏ	ဏ	

Figure 18. Sample from a reader in Eastern Pwo Karen, showing LETTER EASTERN PWO KAREN NNA, LETTER EASTERN PWO KAREN YWA, and LETTER EASTERN PWO KAREN GHWA.

ကောင်လိက်ဖွဲ့ဆိုခွင့်
အိုယဉ်ထင်လုံအိုကး

၇	၇	၇	၇	၇
၇	၇	၇	၇	၇
၇	၇	၇	၇	၇
၇	၇	၇	၇	၇
၇	၇	၇	၇	၇
၇	၇	၇	၇	၇
၇	၇	၇	၇	၇

Figure 19. Sample from a reader in Eastern Pwo Karen, showing the ductus for writing Eastern Pwo Karen letters. Highlighted are LETTER EASTERN PWO KAREN YWA, LETTER EASTERN PWO KAREN NNA, and LETTER EASTERN PWO KAREN GHWA.



ဘီအမုးနံးတံဟံတံကိကျူအခဲးနီ၊ အမူထို
 တးတဲတေစံးဒိထိုးကျိးကဲးရံ၊ တံး၊ အအိကျိနီ
 အမူထိုတးတးနအိနီ ရံ အသဲပျဲဒါကေနီ
 တံ။ မံတံးဟံရံ၊ အမူထိုတး ထိုဒိအလဲးအိ
 တးဒိအိ ဇိစံနီပံကြိဒိအါဒါကျိးနလဲးတဲနီ။

Figure 20. Sample from a story in Kayah, “The Greedy Dog and his Bone”, showing VOWEL SIGN KAYAH OE, VOWEL SIGN KAYAH U, and VOWEL SIGN KAYAH EE.

TABLE XX - Row 10: MYANMAR

	100	101	102	103	104	105	106	107	108	109
0	က	တ	ဣ	ု	ဝ	စ	ွ	ံ	ာ	ာ်
1	ခ	ထ	အ	ေ	ဝ	မ	ဂ	့	ာ	က
2	ဂ	ဒ	က	ဲ	၂	ဗ	စ	း	ာ	ဟ
3	ဃ	မ	ဒိ	ံ	၃	ဗ	ဂ	ံ	မ	ဃ
4	င	န	ြိ	ဲ	၄	ဇ	ရာ	ံ	လ	ံ
5	စ	ပ	ဣ	ံ	၅	ဇ	ဆ	း	ှ	ံ
6	ဆ	ဖ	ဣ	ံ	၆	ာ	မ	ံ	ာ	ံ
7	ဇ	ဇ	ဇ	ံ	၇	ာ	ဇ	ံ	ာ	
8	ဈ	တ	ဣ	ံ	၈	ံ	သ	ာ	ာ	
9	ဉ	မ	ြိ	ံ	၉	ံ	ာ	ာ	ာ	
A	ည	ဃ	ြိ	ံ	၁	ံ	ာ	ာ	ာ	
B	ဋ	ရ	ါ	ံ	၂	ံ	ာ	ာ	ာ	
C	ဣ	လ	ံ	ံ	၃	ံ	ာ	ာ	ာ	
D	ဣ	ဝ	ံ	ံ	၄	ံ	ာ	ာ	ာ	
E	ဃ	သ	ံ	ံ	၅	ံ	ာ	ာ	ာ	
F	က	တ	ု	ံ	၆	ံ	ာ	ာ	ာ	

G = 00
P = 00

TABLE XX - Row 10: MYANMAR

hex	Name
00	MYANMAR LETTER KA
01	MYANMAR LETTER KHA
02	MYANMAR LETTER GA
03	MYANMAR LETTER GHA
04	MYANMAR LETTER NGA
05	MYANMAR LETTER CA
06	MYANMAR LETTER CHA
07	MYANMAR LETTER JA
08	MYANMAR LETTER JHA
09	MYANMAR LETTER NYA
0A	MYANMAR LETTER NNYA
0B	MYANMAR LETTER TTA
0C	MYANMAR LETTER TTHA
0D	MYANMAR LETTER DDA
0E	MYANMAR LETTER DDHA
0F	MYANMAR LETTER NNA
10	MYANMAR LETTER TA
11	MYANMAR LETTER THA
12	MYANMAR LETTER DA
13	MYANMAR LETTER DHA
14	MYANMAR LETTER NA
15	MYANMAR LETTER PA
16	MYANMAR LETTER PHA
17	MYANMAR LETTER BA
18	MYANMAR LETTER BHA
19	MYANMAR LETTER MA
1A	MYANMAR LETTER YA
1B	MYANMAR LETTER RA
1C	MYANMAR LETTER LA
1D	MYANMAR LETTER WA
1E	MYANMAR LETTER SA
1F	MYANMAR LETTER HA
20	MYANMAR LETTER LLA
21	MYANMAR LETTER A
22	MYANMAR LETTER SHAN A
23	MYANMAR LETTER I
24	MYANMAR LETTER II
25	MYANMAR LETTER U
26	MYANMAR LETTER UU
27	MYANMAR LETTER E
28	MYANMAR LETTER MON E
29	MYANMAR LETTER O
2A	MYANMAR LETTER AU
2B	MYANMAR VOWEL SIGN TALL AA
2C	MYANMAR VOWEL SIGN AA
2D	MYANMAR VOWEL SIGN I
2E	MYANMAR VOWEL SIGN II
2F	MYANMAR VOWEL SIGN U
30	MYANMAR VOWEL SIGN UU
31	MYANMAR VOWEL SIGN E
32	MYANMAR VOWEL SIGN AI
33	MYANMAR VOWEL SIGN MON II
34	MYANMAR VOWEL SIGN MON O
35	MYANMAR VOWEL SIGN SHAN E
36	MYANMAR SIGN ANUSVARA
37	MYANMAR SIGN DOT BELOW
38	MYANMAR SIGN VISARGA
39	MYANMAR SIGN VIRAMA
3A	MYANMAR SIGN ASAT
3B	MYANMAR CONSONANT SIGN MEDIAL YA
3C	MYANMAR CONSONANT SIGN MEDIAL RA
3D	MYANMAR CONSONANT SIGN MEDIAL WA
3E	MYANMAR CONSONANT SIGN MEDIAL HA
3F	MYANMAR LETTER GREAT SA
40	MYANMAR DIGIT ZERO
41	MYANMAR DIGIT ONE
42	MYANMAR DIGIT TWO
43	MYANMAR DIGIT THREE
44	MYANMAR DIGIT FOUR
45	MYANMAR DIGIT FIVE
46	MYANMAR DIGIT SIX
47	MYANMAR DIGIT SEVEN
48	MYANMAR DIGIT EIGHT
49	MYANMAR DIGIT NINE
4A	MYANMAR SIGN LITTLE SECTION
4B	MYANMAR SIGN SECTION
4C	MYANMAR SYMBOL LOCATIVE
4D	MYANMAR SYMBOL COMPLETED
4E	MYANMAR SYMBOL AFOREMENTIONED
4F	MYANMAR SYMBOL GENITIVE
50	MYANMAR LETTER SHA
51	MYANMAR LETTER SSA
52	MYANMAR LETTER VOCALIC R
53	MYANMAR LETTER VOCALIC RR
54	MYANMAR LETTER VOCALIC L
55	MYANMAR LETTER VOCALIC LL
56	MYANMAR VOWEL SIGN VOCALIC R
57	MYANMAR VOWEL SIGN VOCALIC RR
58	MYANMAR VOWEL SIGN VOCALIC L

hex	Name
59	MYANMAR VOWEL SIGN VOCALIC LL
5A	MYANMAR LETTER MON NGA
5B	MYANMAR LETTER MON JHA
5C	MYANMAR LETTER MON BBA
5D	MYANMAR LETTER MON BBE
5E	MYANMAR CONSONANT SIGN MON MEDIAL NA
5F	MYANMAR CONSONANT SIGN MON MEDIAL MA
60	MYANMAR CONSONANT SIGN MON MEDIAL LA
61	MYANMAR LETTER SHAN KA
62	MYANMAR LETTER SHAN KHA
63	MYANMAR LETTER SHAN CA
64	MYANMAR LETTER SHAN NYA
65	MYANMAR LETTER SHAN NA
66	MYANMAR LETTER SHAN PHA
67	MYANMAR LETTER SHAN FA
68	MYANMAR LETTER SHAN THA
69	MYANMAR LETTER SHAN HA
6A	MYANMAR LETTER SHAN HSIPAW FA
6B	MYANMAR LETTER SHAN HSIPAW RA
6C	MYANMAR VOWEL SIGN SHAN A
6D	MYANMAR VOWEL SIGN SHAN AA
6E	MYANMAR VOWEL SIGN SHAN EE ABOVE
6F	MYANMAR VOWEL SIGN SHAN E ABOVE
70	MYANMAR VOWEL SIGN SHAN FINAL Y
71	MYANMAR SIGN SHAN TONE-2
72	MYANMAR SIGN SHAN TONE-3
73	MYANMAR SIGN SHAN COUNCIL TONE-4
74	MYANMAR SIGN SHAN TONE-5
75	MYANMAR SIGN SHAN TONE-6
76	MYANMAR SIGN SHAN COUNCIL EMPHATIC TONE
77	MYANMAR CONSONANT SIGN SHAN MEDIAL WA
78	MYANMAR LETTER SHAN PALI GA
79	MYANMAR LETTER SHAN PALI GHA
7A	MYANMAR LETTER SHAN PALI JA
7B	MYANMAR LETTER SHAN PALI JHA
7C	MYANMAR LETTER SHAN PALI TTA
7D	MYANMAR LETTER SHAN PALI TTHA
7E	MYANMAR LETTER SHAN PALI DDA
7F	MYANMAR LETTER SHAN PALI DDHA
80	MYANMAR LETTER SHAN PALI NNA
81	MYANMAR LETTER SHAN PALI DA
82	MYANMAR LETTER SHAN PALI DHA
83	MYANMAR LETTER SHAN PALI BHA
84	MYANMAR LETTER SHAN PALI LLA
85	MYANMAR LETTER SGAW KAREN SHA
86	MYANMAR SIGN SGAW KAREN HATHI
87	MYANMAR SIGN SGAW KAREN KE PHO
88	MYANMAR LETTER WESTERN PWO KAREN THA
89	MYANMAR LETTER WESTERN PWO KAREN PWA
8A	MYANMAR VOWEL SIGN WESTERN PWO KAREN EU
8B	MYANMAR VOWEL SIGN WESTERN PWO KAREN UE
8C	MYANMAR SIGN WESTERN PWO KAREN TONE-1
8D	MYANMAR SIGN WESTERN PWO KAREN TONE-2
8E	MYANMAR SIGN WESTERN PWO KAREN TONE-3
8F	MYANMAR SIGN WESTERN PWO KAREN TONE-4
90	MYANMAR SIGN WESTERN PWO KAREN TONE-5
91	MYANMAR LETTER EASTERN PWO KAREN NNA
92	MYANMAR LETTER EASTERN PWO KAREN YWA
93	MYANMAR LETTER EASTERN PWO KAREN GHWA
94	MYANMAR VOWEL SIGN KAYAH OE
95	MYANMAR VOWEL SIGN KAYAH U
96	MYANMAR VOWEL SIGN KAYAH EE
97	(This position shall not be used)
98	(This position shall not be used)
99	(This position shall not be used)
9A	(This position shall not be used)
9B	(This position shall not be used)
9C	(This position shall not be used)
9D	(This position shall not be used)
9E	(This position shall not be used)
9F	(This position shall not be used)

A. Administrative

1. Title

Proposal for encoding characters for Myanmar minority languages via the UCS.

2. Requester's name

Michael Everson

3. Requester type (Member body/Liaison/Individual contribution)

Individual contribution.

4. Submission date

2006-03-30

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

Yes.

6b. More information will be provided later

No.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

No.

Proposed name of script

1b. The proposal is for addition of character(s) to an existing block

Yes.

1c. Name of the existing block

Myanmar.

2. Number of characters in proposal

66

3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)

Category A.

4a. Proposed Level of Implementation (1, 2 or 3)

Level 2

4b. Is a rationale provided for the choice?

Yes.

4c. If YES, reference

Brahmic Level 2 implementation.

5a. Is a repertoire including character names provided?

Yes.

5b. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?

Yes.

5c. Are the character shapes attached in a legible form suitable for review?

Yes.

6a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Michael Everson.

6b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson, Fontographer.

7a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

No.

7b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

No. The characters to be represented are not new to SC2.

8. Special encoding issues: Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes.

9. Additional Information: Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script.

See above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

Yes. See N2827, N1883R, and Unicode 1.0, which are all relevant documents.

2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

Yes.

2b. If YES, with whom?

San Lwin (Director General, Myanmar Language Commission), **Tun Tint** (Myanmar Language Commission), **Thein Oo** (President, Myanmar Computer Federation), **Kyaw Thein** (Vice-President, Myanmar Computer Federation), **Myint Myint Than** (Director, Myanmar Computer Federation), **Zaw Htut** (Myanmar Computer Professional Association, Myanmar's NET), **Htoo Myint Naung** (Myanmar Project, Technomation Studios, Universities of Computer Studies Yangon), **Myint Thu** (Myanmar Project, Myanmar Heritage Publications), **Ngwe Tun** (Mon—Myanmar Computer Professional Association, Solveware Solution, Myanmar Info-Tech), **Maung Maung Thant** (Myanmar Computer Professional Association), **Jai Pah Bung Mein** (Shan—SSi Technologies), **Saw Hare Sei** (S'gaw Karen—Ayeyawady Data Centre), **Saw Baldwin Khaing Oo** (S'gaw Karen—Ayeyawady Data Centre), **Nant Silver Tun** (Western Pwo Karen—Pwo Kayin Conference), **William Wai Lin Kyaw** (Myanmar Computer Professional Association, Myanmar Linux Users Group), **Ye Myat Thu** (Alpha Mandalay, Alpha Info-Tech), **Martin Hosken** (Payap University), **Keith Stribley** (Thanlwinsoft).

2c. If YES, available relevant documents

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

People in Myanmar.

4a. The context of use for the proposed characters (type of use; common or rare)

Common.

4b. Reference

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where?

In Myanmar.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

Yes.

6b. If YES, is a rationale provided?

Yes.

6c. If YES, reference

Contemporary use and accordance with the Roadmap.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

N/A.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

Yes.

8b. If YES, is a rationale for its inclusion provided?

This proposal requests disunifications and a change in the sequences currently specified for Myanmar because those sequences do not work. Apart from that, the proposed U+1088 MYANMAR LETTER WESTERN PWO KAREN THA looks like U+1041 MYANMAR DIGIT ONE but UCS encoding principles always differentiate such pairs. Compare U+101D MYANMAR LETTER WA and U+1040 MYANMAR DIGIT ZERO.

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

Yes.

10b. If YES, is a rationale for its inclusion provided?

Yes.

10c. If YES, reference

See "Issues" above.

11a. Does the proposal include use of combining characters and/or use of composite sequences?

Yes.

11b. If YES, is a rationale for such use provided?

Yes.

11c. If YES, reference

Brahmic vowel and consonant signs.

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

11e. If YES, reference

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

No.

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?