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 the addition of characters for a number of them. It contains the proposal summary form.

The languages supported by this proposal are Western Pwo Karen, Eastern Pwo Karen, Kayah, Shan, Pali in Shan script, and Geba Karen. 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. 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 Karen, 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 ੬ ᴀsᴀᴛ from stacking ▢ ᴠɪʀᴀᴍᴀ applies to the characters here, as it does in N3044. See those documents for further details.

Additions for Western Pwo Karen
Four characters used in Western Pwo Karen are not used in Burmese: ᴐ ʟᴇᴛᴛᴇʀ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛʜᴀ contrasts with Burmese သ *sa*; ႃ ʟᴇᴛᴛᴇʀ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴘᴡᴀ is the last letter of the Western Pwo Karen alphabet; ◌ᴊ ᴠᴏᴡᴇʟ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴇᴜ and ◌ɪ ᴠᴏᴡᴇʟ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴜᴇ are vowel signs; ◌ᴢ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛᴏɴᴇ-1, ◌ᴊ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛᴏɴᴇ-2, ◌ᴀ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛᴏɴᴇ-3, ◌ᴜ sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛᴏɴᴇ-4, and ◌s sɪɢɴ ᴡᴇsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ᴛᴏɴᴇ-5 are tone marks. (Figures 4, 5, 6, 7, and 8.)

Additions for Eastern Pwo Karen
One character used in Eastern Pwo Karen contrasts with a Burmese character: ᴄᴏ ʟᴇᴛᴛᴇʀ ᴇᴀsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ɴɴᴀ contrasts with Burmese ᴄᴏ ɴɴᴀ. Two other characters are unique to Eastern Pwo Karen: ႄ ʟᴇᴛᴛᴇʀ ᴇᴀsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ʏᴡᴀ and ႄ ʟᴇᴛᴛᴇʀ ᴇᴀsᴛᴇʀɴ ᴘᴡᴏ ᴋᴀʀᴇɴ ɢʜᴡᴀ. (Figures 9 and 10.)

Additions for Kayah
One character used in Kayah contrasts with a Burmese character: ౕ ᴠᴏᴡᴇʟ sɪɢɴ ᴋᴀʏᴀʜ ᴜ is used alongside Burmese ◌ᴜ ᴠᴏᴡᴇʟ sɪɢɴ ᴜ. Two characters are unique to Kayah: ◌̂ ᴠᴏᴡᴇʟ sɪɢɴ ᴋᴀʏᴀʜ ᴀᴇ and ౙ ᴠᴏᴡᴇʟ sɪɢɴ ᴋᴀʏᴀʜ ᴇᴇ. (Figure 11.)

Additions for Shan

A number of characters contrast with Burmese characters: ၵ LETTER SHAN A contrasts with Burmese အ LETTER A; ၵ LETTER SHAN KA contrasts with Burmese က LETTER KA; ၶ LETTER SHAN KHA contrasts with Burmese ခ LETTER KHA; ၸ LETTER SHAN CA contrasts with Burmese စ LETTER CA; ၺ LETTER SHAN NYA contrasts with Burmese ည LETTER NYA; ၼ LETTER SHAN NA contrasts with Burmese န LETTER NA; ၽ LETTER SHAN PHA contrasts with Burmese ဖ LETTER PHA; ၿ LETTER SHAN THA contrasts with Burmese သ LETTER SA; ႁ LETTER SHAN HA contrasts with Burmese ဟ LETTER HA; ရ LETTER SHAN HSIPAW RA contrasts with Burmese ရ LETTER RA; ႃ VOWEL SIGN SHAN AA contrasts with Burmese ာ VOWEL SIGN AA; ႂ CONSONANT SIGN SHAN WA contrasts with the Burmese ွ CONSONANT SIGN WA proposed in N3043. Other characters are unique to Shan: ၾ LETTER SHAN FA and ၹ LETTER SHAN HSIPAW FA represent [f] in different orthographies; ႄ VOWEL SIGN SHAN E represents open e; ႅ 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 ႌ SIGN SHAN COUNCIL EMPHATIC TONE (used in Shan Council orthography). (Figures 1, 2, and 3.)

Additions for Shan Pali

A number of characters used for Pali in Shan context contrast with Burmese characters: ၷ LETTER SHAN PALI GA contrasts with Burmese ဂ LETTER GA; ၸ LETTER SHAN PALI GHA contrasts with Burmese ဃ LETTER GHA; ၹ LETTER SHAN PALI JA contrasts with Burmese ဇ LETTER JA; ၺ LETTER SHAN PALI JHA contrasts with Burmese ၛ LETTER JHA; ၻ LETTER SHAN PALI TTA contrasts with Burmese ဋ LETTER TTA; ၼ LETTER SHAN PALI TTHA contrasts with Burmese ဌ LETTER TTHA; ၽ LETTER SHAN PALI DDA contrasts with Burmese ဍ LETTER DDA; ၾ LETTER SHAN PALI DDHA contrasts with Burmese ဎ LETTER DDHA; ၿ LETTER SHAN PALI NNA contrasts with Burmese ဏ LETTER NNA; ႀ LETTER SHAN PALI DA contrasts with Burmese ဒ LETTER DA; ႁ LETTER SHAN PALI DHA contrasts with Burmese ဓ LETTER DHA; ႂ LETTER SHAN PALI BHA contrasts with Burmese ဘ LETTER BHA; ႃ LETTER SHAN PALI LLA contrasts with Burmese ဠ LETTER LLA. (Figure 1.)

Additions for Geba Karen

One character used in Geba Karen contrasts with a Burmese character: ႎ VOWEL SIGN GEBA KAREN I, used for a tense "ı", contrasts with Burmese ိ VOWEL SIGN I. (Figure 12.)

Ordering

The unified order for the Myanmar script incorporating the characters here (and those of N3044) 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 ှ CONSONANT SIGN MEDIAL HA. These are: ၾ LETTER SHAN FA, ႁ LETTER SHAN HA, ၡ LETTER SGAW KAREN SHA (proposed in N3044), ႇ LETTER WESTERN PWO KAREN PWA, ႁ LETTER EASTERN PWO KAREN YWA,

and ဟ LETTER EASTERN PWO KAREN GHWA. At a "Workshop on Myanmar Language Processing", held in Yangon 13-15 February 2006 (cf N3043R), 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, ၡ LETTER SGAW KAREN SHA and ၦ LETTER WESTERN PWO KAREN PWA, are both treated as separate letters of the alphabet, sorted rather far from the base letters ရ *ra* and ပ *pa*, both of which do, as it happens, take genuine medials (ပျ *pya*, ပြ *pla*, ပြ *pra*, ပွ *pwa*, and ရွ *rwa*) which are sorted as expected under ပ *pa* and ရ *ra*. Shan uses two letters, ၡ LETTER SHAN FA and ၦ LETTER SHAN HA, both of which can be seen with alternate shapes ၡ and ၦ. It's probable that the origin of the former is ဖ *pha* + ◌ှ *-ha*, but the origin of the latter is (according so Sai Kam Mong 2004) a shape like ၦ, 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 ◌ှ 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 ဈ is found the form ၡ, which looks as though it is a ligature of စ *ca* and ◌ျ *-ya* (but it isn't).

Unicode Character Properties

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1022;MYANMAR LETTER SHAN A;Lo;0;L;;;;;N;;;;;
1035;MYANMAR VOWEL SIGN SHAN E;Mc;0;L;;;;;N;;;;;
1065;MYANMAR LETTER WESTERN PWO KAREN THA;Lo;0;L;;;;;N;;;;;
1066;MYANMAR LETTER WESTERN PWO KAREN PWA;Lo;0;L;;;;;N;;;;;
1067;MYANMAR VOWEL SIGN WESTERN PWO KAREN EU;Mc;0;L;;;;;N;;;;;
1068;MYANMAR VOWEL SIGN WESTERN PWO KAREN UE;Mc;0;L;;;;;N;;;;;
1069;MYANMAR SIGN WESTERN PWO KAREN TONE-1;Mc;0;L;;;;;N;;;;;
106A;MYANMAR SIGN WESTERN PWO KAREN TONE-2;Mc;0;L;;;;;N;;;;;
106B;MYANMAR SIGN WESTERN PWO KAREN TONE-3;Mc;0;L;;;;;N;;;;;
106C;MYANMAR SIGN WESTERN PWO KAREN TONE-4;Mc;0;L;;;;;N;;;;;
106D;MYANMAR SIGN WESTERN PWO KAREN TONE-5;Mc;0;L;;;;;N;;;;;
106E;MYANMAR LETTER EASTERN PWO KAREN NNA;Lo;0;L;;;;;N;;;;;
106F;MYANMAR LETTER EASTERN PWO KAREN YWA;Lo;0;L;;;;;N;;;;;
1070;MYANMAR LETTER EASTERN PWO KAREN GHWA;Lo;0;L;;;;;N;;;;;
1071;MYANMAR VOWEL SIGN KAYAH OE;Mn;0;NSM;;;;;N;;;;;
1072;MYANMAR VOWEL SIGN KAYAH U;Mn;0;NSM;;;;;N;;;;;
1073;MYANMAR VOWEL SIGN KAYAH EE;Mn;0;NSM;;;;;N;;;;;
1074;MYANMAR LETTER SHAN KA;Lo;0;L;;;;;N;;;;;
1075;MYANMAR LETTER SHAN KHA;Lo;0;L;;;;;N;;;;;
1076;MYANMAR LETTER SHAN CA;Lo;0;L;;;;;N;;;;;
1077;MYANMAR LETTER SHAN NYA;Lo;0;L;;;;;N;;;;;
1078;MYANMAR LETTER SHAN NA;Lo;0;L;;;;;N;;;;;
1079;MYANMAR LETTER SHAN PHA;Lo;0;L;;;;;N;;;;;
107A;MYANMAR LETTER SHAN FA;Lo;0;L;;;;;N;;;;;
107B;MYANMAR LETTER SHAN THA;Lo;0;L;;;;;N;;;;;
107C;MYANMAR LETTER SHAN HA;Lo;0;L;;;;;N;;;;;
107D;MYANMAR LETTER SHAN HSIPAW FA;Lo;0;L;;;;;N;;;;;
107E;MYANMAR LETTER SHAN HSIPAW RA;Lo;0;L;;;;;N;;;;;
107F;MYANMAR VOWEL SIGN SHAN AA;Mc;0;L;;;;;N;;;;;
1080;MYANMAR VOWEL SIGN SHAN EE ABOVE;Mn;0;NSM;;;;;N;;;;;
1081;MYANMAR VOWEL SIGN SHAN E ABOVE;Mn;0;NSM;;;;;N;;;;;
1082;MYANMAR VOWEL SIGN SHAN FINAL Y;Mn;0;NSM;;;;;N;;;;;
1083;MYANMAR SIGN SHAN TONE-2;Mc;0;L;;;;;N;;;;;
1084;MYANMAR SIGN SHAN TONE-3;Mc;0;L;;;;;N;;;;;
1085;MYANMAR SIGN SHAN COUNCIL TONE-4;Mc;0;L;;;;;N;;;;;
1086;MYANMAR SIGN SHAN TONE-5;Mc;0;L;;;;;N;;;;;
1087;MYANMAR SIGN SHAN TONE-6;Mc;0;L;;;;;N;;;;;
1088;MYANMAR SIGN SHAN COUNCIL EMPHATIC TONE;Mn;0;NSM;;;;;N;;;;;
1089;MYANMAR CONSONANT SIGN SHAN MEDIAL WA;Mn;0;NSM;;;;;N;;;;;
108A;MYANMAR LETTER SHAN PALI GA;Lo;0;L;;;;;N;;;;;
108B;MYANMAR LETTER SHAN PALI GHA;Lo;0;L;;;;;N;;;;;
108C;MYANMAR LETTER SHAN PALI JA;Lo;0;L;;;;;N;;;;;
108D;MYANMAR LETTER SHAN PALI JHA;Lo;0;L;;;;;N;;;;;
108E;MYANMAR LETTER SHAN PALI TTA;Lo;0;L;;;;;N;;;;;
108F;MYANMAR LETTER SHAN PALI TTHA;Lo;0;L;;;;;N;;;;;
1090;MYANMAR LETTER SHAN PALI DDA;Lo;0;L;;;;;N;;;;;
1091;MYANMAR LETTER SHAN PALI DDHA;Lo;0;L;;;;;N;;;;;
1092;MYANMAR LETTER SHAN PALI NNA;Lo;0;L;;;;;N;;;;;
1093;MYANMAR LETTER SHAN PALI DA;Lo;0;L;;;;;N;;;;;
1094;MYANMAR LETTER SHAN PALI DHA;Lo;0;L;;;;;N;;;;;
1095;MYANMAR LETTER SHAN PALI BA;Lo;0;L;;;;;N;;;;;
1096;MYANMAR LETTER SHAN PALI LLA;Lo;0;L;;;;;N;;;;;
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Bibliography

Khu Myar Reh. 2005. *The greedy dog and his bone*. [Chiang Mai]: [Payap University].

ပပ့်ဂ်ိ်ဆ်းလိဂ်းထံး ပၢဆ်မ့်, (Shan-Thai reader).

ဖဲ့ုလိခင်းထၢ် (Eastern Pwo Karen reader).

သွဆ်ငမ့းလိဂ်းထံး 200 လူဝ်းမူင်း (Shan-Thai reader).

ပှဖျိုးရှိအလံၤ�ထံၤ ၀ိၤၤ၁ဆၤအၤၤ (Western Pwo Karen reader).

ပှဖျိုးရှိဆၤခဲ့ၤ ဒဲ ပယၤ့အဒီ၊ၤပၤယီၤ = ပိုးကၤရၤင်-မြၤန်မၤအၤဘိၤ၀ၢၤန် = *Pwo Kayin-Myanmar Dictionary*. 1989. (Western Pwo Karen).

Acknowledgements

Figures

Figure 1. Sample from a reader in Shan and Thai, showing (with fletchless arrows) 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, and showing (with fletched arrows) LETTER SHAN
KA, LETTER SHAN KHA, LETTER SHAN CA, LETTER SHAN THA, LETTER SHAN NYA, LETTER SHAN NA, LETTER
SHAN PHA, LETTER SHAN HSIPAW RA (or SHAN BA?), LETTER SHAN HA, LETTER SHAN A, LETTER SHAN HSIPAW
FA, VOWEL SIGN SHAN FINAL Y, CONSONANT SIGN SHAN MEDIAL WA, and VOWEL SIGN SHAN AA.

သြခင်ႇၢၶၼ်ႇ,လိၵ်ႈတၢင်ႇႁၢၼ်း ၵူၢႈလိၵ်ႈမေၼေလႇ ႁီႈၶၢင်ႇတၢႈၶၼ်ၵ်

◆ ...
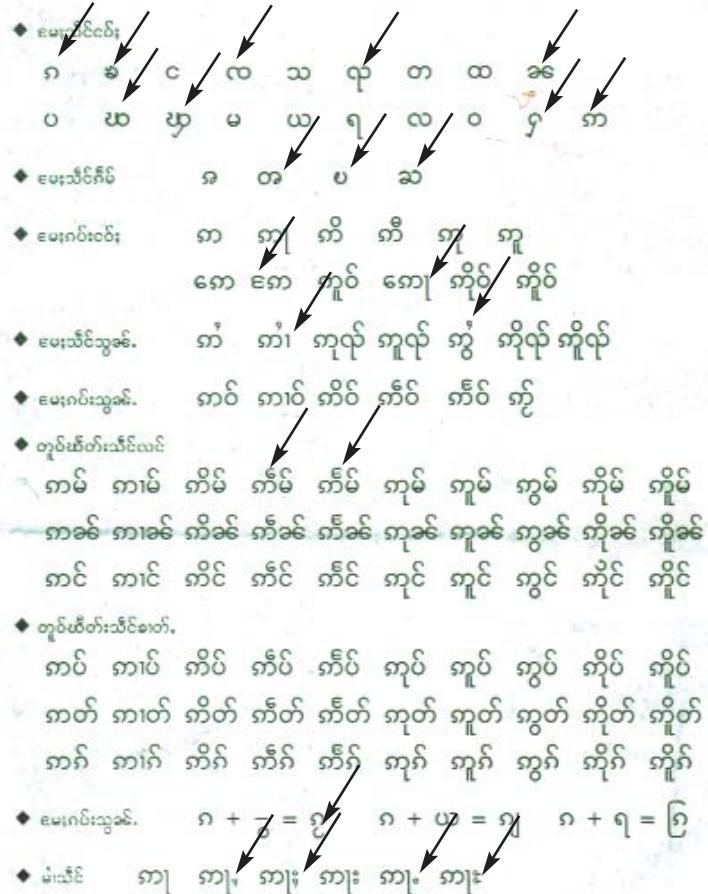
Figure 2. Sample from a Shan-Thai reader, showing LETTER SHAN KA, LETTER SHAN KHA, LETTER SHAN CA, LETTER SHAN NYA, LETTER SHAN NA, LETTER SHAN PHA, LETTER SHAN FA, LETTER SHAN HA, LETTER SHAN A, LETTER SHAN PALI GA, LETTER SHAN HSIPAW FA, LETTER SHAN HSIPAW RA, LETTER SHAN THA, VOWEL SIGN SHAN E, VOWEL 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.
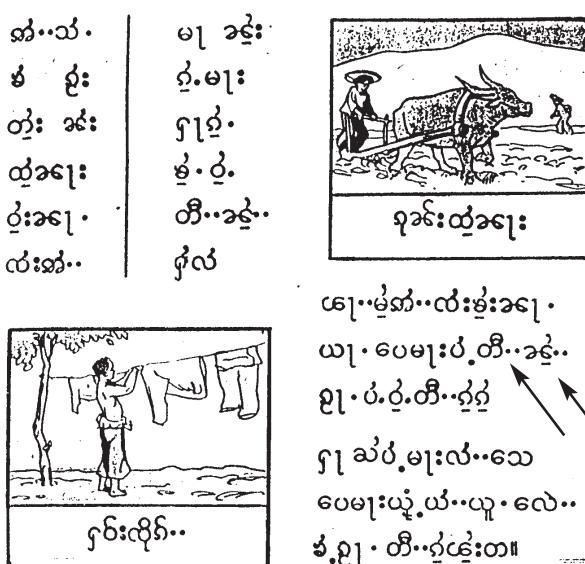
Figure 3. Sample from a Shan Council reader, showing SIGN SHAN COUNCIL EMPHATIC TONE and SIGN SHAN TONE-4.

ပှ ဖျိုၣ်ရှိ အ လံၤ မုၤဖျိုၣ်
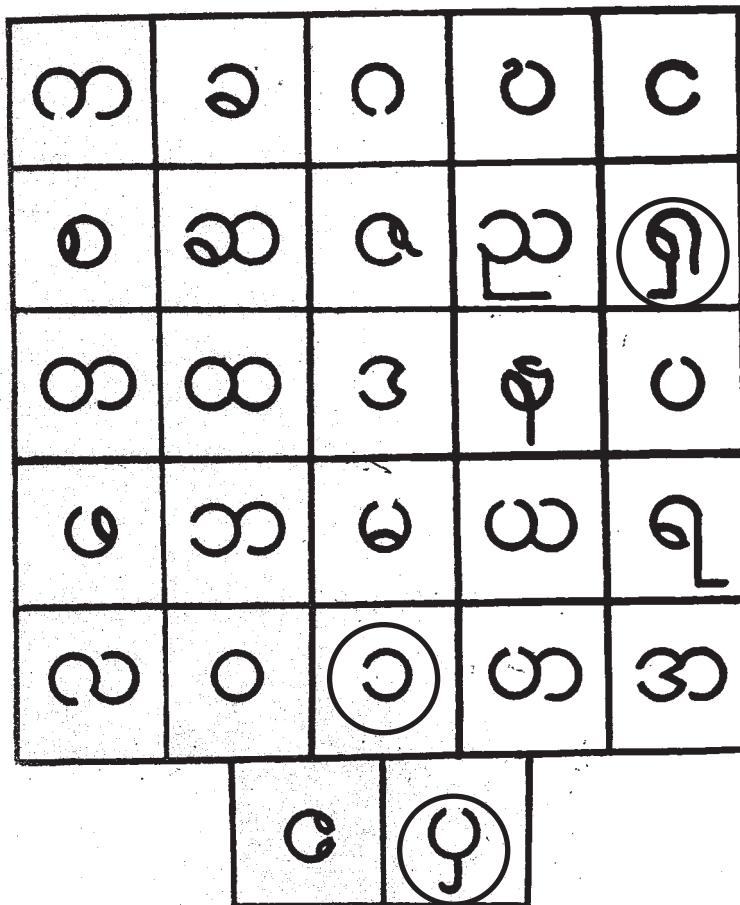
Figure 4. Sample from a reader in Western Pwo Karen, showing LETTER SGAW KAREN SHA, LETTER WESTERN PWO KAREN THA, and LETTER WESTERN PWO KAREN PWA.
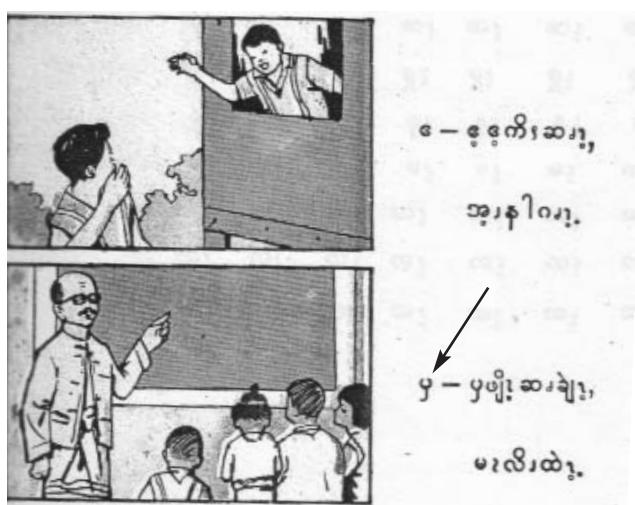
Figure 5. Sample from a reader in Western Pwo Karen, showing LETTER WESTERN PWO KAREN PWA listed as a separate letter of the alphabet: ပှ *pwa* is for ပှဖျိုၣ် *pwaphli* 'Pwo Karen'.

ဆၢမ့ၤလီၤ – ၄၇

“ကျိၤဖၢၣ့အဂဲး”

နၢးဂ့ၢးဘွၢး   –   နမိလွၢးဖိၤယခဲၢ့လၢကျိၤဖၢၣဢၢ.

နၢးဂ့ၢးလူၤ   –   ကျိၤဖၢၣ့နီၤဖုၡၢးၟုၟ့လွၣ့ဆၢနီၤလဲၤ.

နၢးဂ့ၢးဘွၢး   –   ကျိၤဖၢၣ့နီၤ ဖုၡၢးၟုၟ့လၢၟဆၢဂဲ, ဝဲဘုၟဲၢလီၢ.

နၢးဂ့ၢးလူၤ   –   ဆၢဂဲၤနီၤဖုၡၢးၟုၟ့လၟ့ၒၢဘဲၢၟုၟလဲၤ.

နၢးဂ့ၢးဘွၢး   –   ဟဘၢၟုၟနုၟဆၢဖၢၣ့ဝီၢ့ ဟဘၢၟုၟလၟ့ဆၢဂဲၤဖံၤလီၢ.

နၢးဂ့ၢးလူၤ   –   ဘုၟဲၢနီၤဖုၡၢးၟုၟၟၢဘဲၢၟုၟလဲၤ.

နၢးဂ့ၢးဘွၢး   –   ဟဘၢၟုၟနုၟဆၢဖၢၣ့ဝီၢ့ ဘၢၟုၟလၟ့အၟျၢနီၤလီၢ.

နၢးဂ့ၢးလူၤ   –   ဆၢလဘုၟဲၢနီၤ ဟၒ့ၟၢၟုၟဘဲၢၟုၟလဲၤ.

Figure 6. Sample from a reader in Western Pwo Karen, showing LETTER WESTERN PWO KAREN THA, LETTER SGAW KAREN SHA, and LETTER WESTERN PWO KAREN PWA.

လံၤလှဒီၢ (ၥၡ)

◌ၢ   ◌ၢ   ◌ၠ   ◌ဲ   ◌ၡ   ◌ၢ့   ◌ၠ   ◌ၠ   ◌ဳ   ◌ဴ

ကၢ   ကံ   ကၠ   ကဲ   ကၡ   ကၢ့   ကၠ   ကၠ   ကီ   ကဴ

ၡၢ   ၡံ   ၡၠ   ၡဲ   ၡၡ   ၡၢ့   ၡၠ   ၡၠ   ၡဳ   ၡဴ
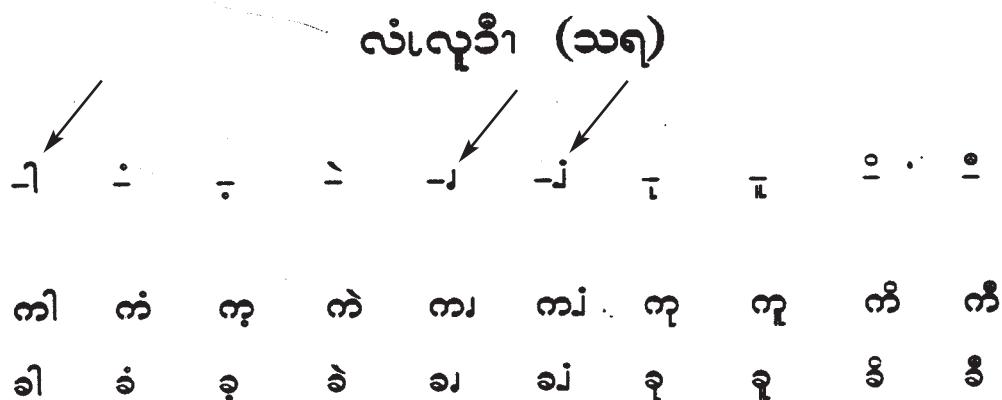
Figure 7. Sample from a reader in Western Pwo Karen, listing the vowel signs and showing VOWEL SIGN TALL AA (proposed in N3043), as well as VOWEL SIGN WESTERN PWO KAREN EU, and VOWEL SIGN WESTERN PWO KAREN UE.

လံၤခဒီၢ် (သၢတ်ပုံ)

ၣ   ၪ   ၫ   ၬ   ၨ   ၣ   ၤ   ၩ   း

ကၣ   ကၪ   ကၫ   ကၬ   ကၨ   ကၣ   ကၤ   ကၩ   ကး

ခၣ   ခၪ   ခၫ   ခၬ   ခၨ   ခၣ   ခၤ   ခၩ   ခး
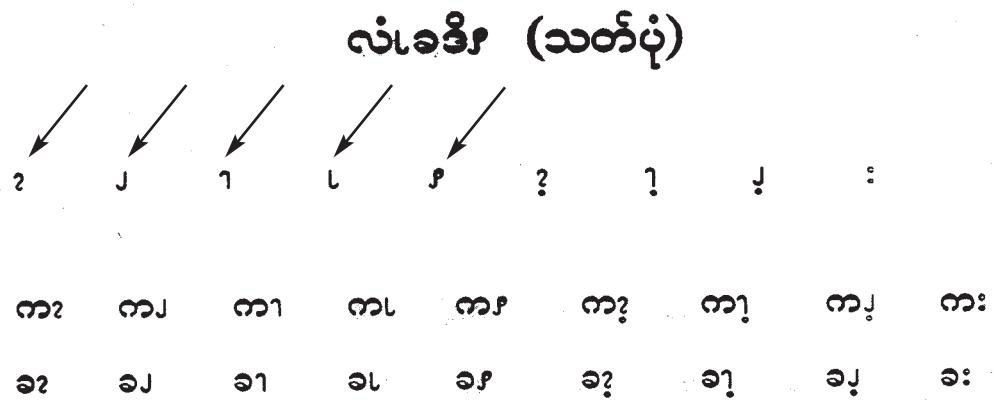
Figure 8. Sample from a reader in Western Pwo Karen, listing the tone marks and showing SIGN WESTERN PWO KAREN TONE-1, SIGN WESTERN PWO KAREN TONE-2, SIGN WESTERN PWO KAREN TONE-3, SIGN WESTERN PWO KAREN TONE-4, SIGN WESTERN PWO KAREN TONE-5.

Figure 9. 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.
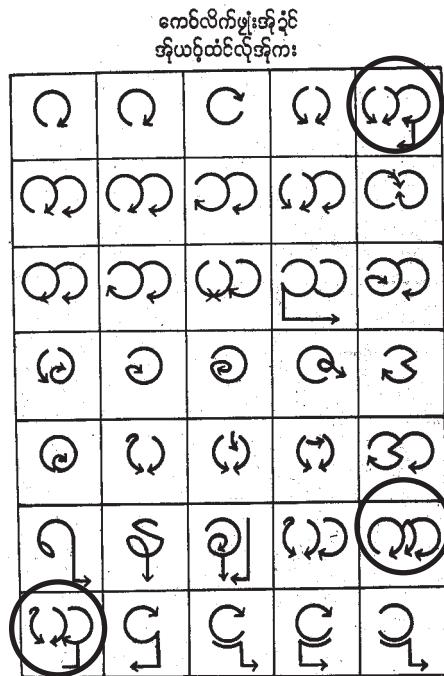
Figure 10. Sample from a reader in Eastern Pwo Karen, showing the ductus for writing Eastern Pwo Karen letters. Highlighted are LETTER EASTERN PWO KAREN YWA, LETTER EASTERN PWO KAREN NNA, and LETTER EASTERN PWO KAREN GHWA.
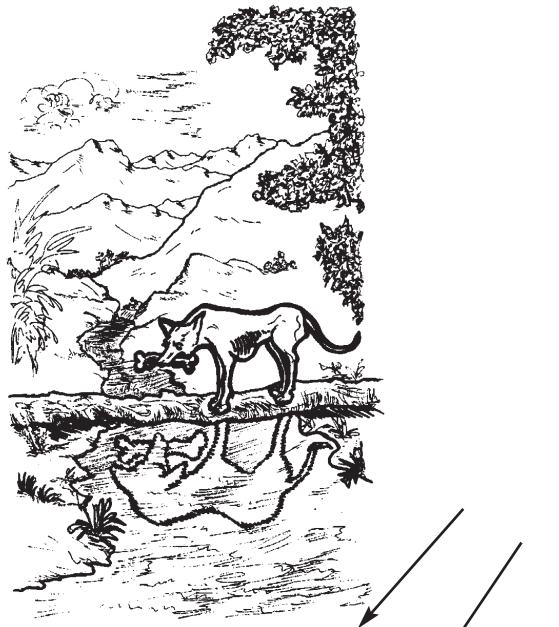
Figure 11. Sample from a story in Kayah, "The Greedy Dog and his Bone", showing VOWEL SIGN KAYAH OE, VOWEL SIGN KAYAH U, and VOWEL SIGN KAYAH EE.

တဲၤမဲၤလိ (၃)

ကံ	ကၢ်	ကၢ်ာ	ကံး	ကံၣ်	ကံၤ	ယ	ယံၤ
ခံ	ခၢ်	ခၢ်ာ	ခံး	ခံၣ်	ခံၤ	ယ	ယ
စံ	စၢ်	စၢ်ာ	စံး	စံၣ်	စံၤ	ယံၤ	ယ

ဒ   ရ   ဝံၤ

ယံၤ   တလံး   ဧလံၤ

<u>ဖး လိ</u>

ဘၢ်လၧကမံၧတကၢ်   စရၢ်စဘး, ဘါသံဝၢ်
ထံအဝ်ၤမၢ်ထံအပါ   ကအၣ်တဲၤရှိး, ကသိသံယၢ်
တစံးကအၣ်အသ်ကး   ဒ်ပဖီအစါအယါ
တဒါထၢ်တဘၢ်ဘၢ်ဝၧ   စၢ်တး ထးလၧ သံၪးဝံး
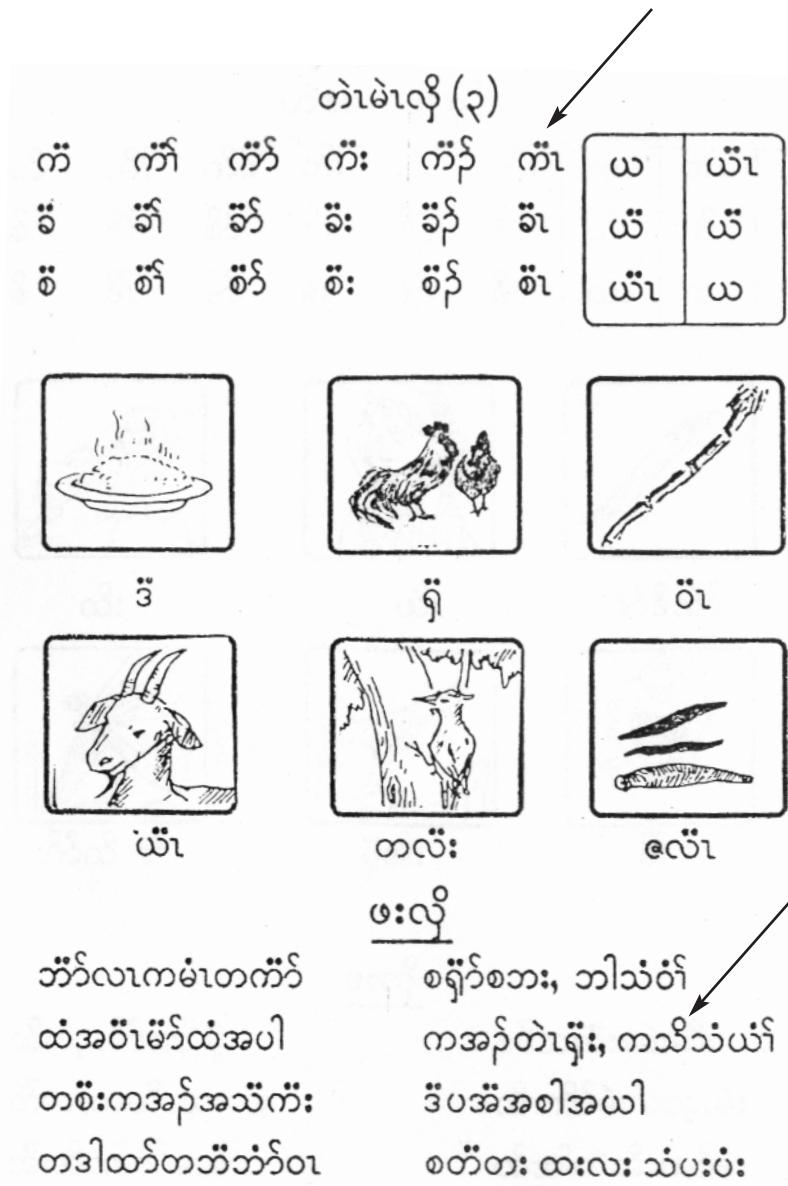
Figure 12. Sample from a Karen Geba primer published in 2005,
showing VOWEL SIGN GEBA KAREN I alongside VOWEL SIGN I.

TABLE XX - Row 10: MYANMAR

	100	101	102	103	104	105	106	107	108	109
0	က	ဃ	ဥ	◌	ဝ	၀		ယ	◌	ၐ
1	ခ	ဆ	အ	ေ◌	၁	၅		◌	◌	ၑ
2	ဂ	၃	ဿ	◌	၂	၇		◌	◌	ၒ
3	ဃ	ဒ	�		၃	၆		◌	◌	ၓ
4	င	န	ၣ		၄	၎		ဂ	◌	ၔ
5	စ	ပ	ၥ	ဧ◌	၅	၉	၁	၈	◌	ၕ
6	ဆ	ဖ	ၦ	◌	၆	◌	၇	၈	◌	ၖ
7	ၐ	ဗ	ၼ	◌	၇	◌	◌	ၺ	◌	◌
8	ၡ	ဘ		◌	၈	◌	◌	၎	◌	
9	ၡ	မ	ၣ	⊡	၉	◌	◌	၎	◌	
A	ၟ	ယ	ေ◌	◌			◌	၄	ၑ	
B	ၠ	ရ	◌	◌	‖		◌	ၼ	ၑ	
C	ၡ	လ	◌	◌	◌		◌	၇	ၐ	
D	ၡ	ဝ	◌	◌	◌		◌	၈	ၼ	
E	ပ	သ	◌	◌	၄		ၮ	ပ	ၼ	
F	ၡ	ဟ	◌	ၿ	◌		ၿ	◌	ၼ	

G = 00
P = 00

TABLE XX - Row 10: MYANMAR

hex	Name	hex	Name
00	MYANMAR LETTER KA	59	MYANMAR VOWEL SIGN VOCALIC LL
01	MYANMAR LETTER KHA	5A	(This position shall not be used)
02	MYANMAR LETTER GA	5B	(This position shall not be used)
03	MYANMAR LETTER GHA	5C	(This position shall not be used)
04	MYANMAR LETTER NGA	5D	(This position shall not be used)
05	MYANMAR LETTER CA	5E	(This position shall not be used)
06	MYANMAR LETTER CHA	5F	(This position shall not be used)
07	MYANMAR LETTER JA	60	(This position shall not be used)
08	MYANMAR LETTER JHA	61	(This position shall not be used)
09	MYANMAR LETTER NYA	62	(This position shall not be used)
0A	MYANMAR LETTER NNYA	63	(This position shall not be used)
0B	MYANMAR LETTER TTA	64	(This position shall not be used)
0C	MYANMAR LETTER TTHA	65	MYANMAR LETTER WESTERN PWO KAREN THA
0D	MYANMAR LETTER DDA	66	MYANMAR LETTER WESTERN PWO KAREN PWA
0E	MYANMAR LETTER DDHA	67	MYANMAR VOWEL SIGN WESTERN PWO KAREN EU
0F	MYANMAR LETTER NNA	68	MYANMAR VOWEL SIGN WESTERN PWO KAREN UE
10	MYANMAR LETTER TA	69	MYANMAR SIGN WESTERN PWO KAREN TONE-1
11	MYANMAR LETTER THA	6A	MYANMAR SIGN WESTERN PWO KAREN TONE-2
12	MYANMAR LETTER DA	6B	MYANMAR SIGN WESTERN PWO KAREN TONE-3
13	MYANMAR LETTER DHA	6C	MYANMAR SIGN WESTERN PWO KAREN TONE-4
14	MYANMAR LETTER NA	6D	MYANMAR SIGN WESTERN PWO KAREN TONE-5
15	MYANMAR LETTER PA	6E	MYANMAR LETTER EASTERN PWO KAREN NNA
16	MYANMAR LETTER PHA	6F	MYANMAR LETTER EASTERN PWO KAREN YWA
17	MYANMAR LETTER BA	70	MYANMAR LETTER EASTERN PWO KAREN GHWA
18	MYANMAR LETTER BHA	71	MYANMAR VOWEL SIGN KAYAH OE
19	MYANMAR LETTER MA	72	MYANMAR VOWEL SIGN KAYAH U
1A	MYANMAR LETTER YA	73	MYANMAR VOWEL SIGN KAYAH EE
1B	MYANMAR LETTER RA	74	MYANMAR LETTER SHAN KA
1C	MYANMAR LETTER LA	75	MYANMAR LETTER SHAN KHA
1D	MYANMAR LETTER WA	76	MYANMAR LETTER SHAN CA
1E	MYANMAR LETTER SA	77	MYANMAR LETTER SHAN NYA
1F	MYANMAR LETTER HA	78	MYANMAR LETTER SHAN NA
20	MYANMAR LETTER LLA	79	MYANMAR LETTER SHAN PHA
21	MYANMAR LETTER A	7A	MYANMAR LETTER SHAN FA
22	MYANMAR LETTER SHAN A	7B	MYANMAR LETTER SHAN THA
23	MYANMAR LETTER I	7C	MYANMAR LETTER SHAN HA
24	MYANMAR LETTER II	7D	MYANMAR LETTER SHAN HSIPAW FA
25	MYANMAR LETTER U	7E	MYANMAR LETTER SHAN HSIPAW RA
26	MYANMAR LETTER UU	7F	MYANMAR VOWEL SIGN SHAN AA
27	MYANMAR LETTER E	80	MYANMAR VOWEL SIGN SHAN EE ABOVE
28	(This position shall not be used)	81	MYANMAR VOWEL SIGN SHAN E ABOVE
29	MYANMAR LETTER O	82	MYANMAR VOWEL SIGN SHAN FINAL Y
2A	MYANMAR LETTER AU	83	MYANMAR SIGN SHAN TONE-2
2B	MYANMAR VOWEL SIGN TALL AA	84	MYANMAR SIGN SHAN TONE-3
2C	MYANMAR VOWEL SIGN AA	85	MYANMAR SIGN SHAN COUNCIL TONE-4
2D	MYANMAR VOWEL SIGN I	86	MYANMAR SIGN SHAN TONE-5
2E	MYANMAR VOWEL SIGN II	87	MYANMAR SIGN SHAN TONE-6
2F	MYANMAR VOWEL SIGN U	88	MYANMAR SIGN SHAN COUNCIL EMPHATIC TONE
30	MYANMAR VOWEL SIGN UU	89	MYANMAR CONSONANT SIGN SHAN MEDIAL WA
31	MYANMAR VOWEL SIGN E	8A	MYANMAR LETTER SHAN PALI GA
32	MYANMAR VOWEL SIGN AI	8B	MYANMAR LETTER SHAN PALI GHA
33	(This position shall not be used)	8C	MYANMAR LETTER SHAN PALI JA
34	(This position shall not be used)	8D	MYANMAR LETTER SHAN PALI JHA
35	MYANMAR VOWEL SIGN SHAN E	8E	MYANMAR LETTER SHAN PALI TTA
36	MYANMAR SIGN ANUSVARA	8F	MYANMAR LETTER SHAN PALI TTHA
37	MYANMAR SIGN DOT BELOW	90	MYANMAR LETTER SHAN PALI DDA
38	MYANMAR SIGN VISARGA	91	MYANMAR LETTER SHAN PALI DDHA
39	MYANMAR SIGN VIRAMA	92	MYANMAR LETTER SHAN PALI NNA
3A	MYANMAR SIGN ASAT	93	MYANMAR LETTER SHAN PALI DA
3B	MYANMAR CONSONANT SIGN MEDIAL YA	94	MYANMAR LETTER SHAN PALI DHA
3C	MYANMAR CONSONANT SIGN MEDIAL RA	95	MYANMAR LETTER SHAN PALI BHA
3D	MYANMAR CONSONANT SIGN MEDIAL WA	96	MYANMAR LETTER SHAN PALI LLA
3E	MYANMAR CONSONANT SIGN MEDIAL HA	97	MYANMAR VOWEL SIGN GEBA KAREN I
3F	MYANMAR LETTER GREAT SA	98	(This position shall not be used)
40	MYANMAR DIGIT ZERO	99	(This position shall not be used)
41	MYANMAR DIGIT ONE	9A	(This position shall not be used)
42	MYANMAR DIGIT TWO	9B	(This position shall not be used)
43	MYANMAR DIGIT THREE	9C	(This position shall not be used)
44	MYANMAR DIGIT FOUR	9D	(This position shall not be used)
45	MYANMAR DIGIT FIVE	9E	(This position shall not be used)
46	MYANMAR DIGIT SIX	9F	(This position shall not be used)
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		

A. Administrative

1. Title

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

2. Requester's name

Michael Everson and Martin Hosken

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

Individual contribution.

4. Submission date

2006-04-09

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

53

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?

Yes.

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, similar characters have been submitted before. See N2768, N3043, N3044

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** (MyMyanmar Project, Technomation Studios, Universities of Computer Studies Yangon), **Myint Thu** (MyMyanmar 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), **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?

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?