

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 the Mro script in the SMP of the UCS****Source: Martin Hosken and Michael Everson****Status: Individual Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2009-10-27**

1. Introduction. Mro (or Mru) is a Tibeto-Burman language spoken primarily in Bangladesh with a few speakers in India. The script proposed here was invented in the 1980s and is of the class of “messianic” scripts with no genetic relationship with existing scripts. In the last 10 years there has been an acceptance among all the Mro to use this script and literacy levels among the 100,000 Mro exceed 80%.

Some of the characters of the Mro alphabet have a visual similarity to those from other alphabets, but this relationship is purely coincidental, and the Mro alphabet stands alone as a unity.

2. Structure. The Mro script has no technical complexity: it is a simple left to right alphabet with no combining characters or characters with special function. There are no tone marks. Some sounds are represented by more than one letter. The sound [k] is usually represented by ꠕ KEAAE *kəə*, as in ꠕꠟC *kow* ‘village’, ꠕꠟꠕꠟ *boŋko* ‘owl’, but in a few words the letter ꠕ KOO *ko* is used, as in ꠕꠟ *ko* ‘gold’. The sound [m] is usually represented by ꠘ MAEM *məm*, as in ꠘꠕꠕꠕ *maŋ* ‘go’, ꠘꠘꠘ *śmo* ‘fool’, but in a few words the letter ꠙ MIM *mim* is used, as in ꠙꠕꠕꠕ *min* ‘cat’, ꠙꠕꠕ *cmi* ‘rice’. The sound [l] is usually represented by ꠖ OL *əl*, as in ꠖꠕꠕꠕ *ləŋ* ‘boat’, ꠖꠕꠕ *khla* ‘spoon’, but in a few words the letter ꠗ LA *la* is used, as in ꠗꠕꠕꠕ *lamə* ‘moon’, and in a few words ꠘ LAN *lan* is used (we have no example). The vowels ꠟꠕ *oə* are used as a digraph to describe the vowel [ø].

3. Digits. Mro has a set of digits.

4. Collating order. Collation order is as in the code chart.

5. Character names. Consonant letter names are traditional, based here on phonetic transcription rewritten in the usual UCS conventions; ꠟ is transliterated AE; ꠘ is transliterated EA; ꠖ is transliterated O; ꠗ is transliterated OO.

6. Punctuation. Two script-specific punctuation characters are known, ꠕꠕ DANDA and ꠕꠕꠕ DOUBLE DANDA. Two of the Mro letters are used as abbreviations. The letter ꠕꠕ TEK *tek* can be used instead of the word ꠕꠕꠕ *tek* ‘quote’. The letter ꠗ HAI *hai* can be used for groups of letters like ꠕꠕꠕ *hai* or ꠕꠕ ꠗꠕ: ꠗꠕꠕꠕ *hai-kan*, ꠕꠕꠕꠕꠕ *hai-kan*: ‘stir curry’; ꠗꠕꠕꠕ *hai-ləŋ*, ꠕꠕꠕꠕꠕ *hai-ləŋ* ‘to row’; ꠕꠕ *wəi*, ꠕꠕꠕ *wəi* ‘have’; ꠕꠕ *kəi*, ꠕꠕꠕ *kəi* ‘to break’.

7. Linebreaking. Letters and digits behave as in Latin and other alphabetic scripts. Words are separated by spaces in Mro.

8. Unicode Character Properties.

16A40;MRO LETTER TA;Lo;0;L;;;;N;;;;;
16A41;MRO LETTER NGL;Lo;0;L;;;;N;;;;;
16A42;MRO LETTER YO;Lo;0;L;;;;N;;;;;
16A43;MRO LETTER MIM;Lo;0;L;;;;N;;;;;
16A44;MRO LETTER BA;Lo;0;L;;;;N;;;;;
16A45;MRO LETTER DA;Lo;0;L;;;;N;;;;;
16A46;MRO LETTER A;Lo;0;L;;;;N;;;;;
16A47;MRO LETTER PHI;Lo;0;L;;;;N;;;;;
16A48;MRO LETTER KHAI;Lo;0;L;;;;N;;;;;
16A49;MRO LETTER HAE;Lo;0;L;;;;N;;;;;
16A4A;MRO LETTER DAI;Lo;0;L;;;;N;;;;;
16A4B;MRO LETTER CHU;Lo;0;L;;;;N;;;;;
16A4C;MRO LETTER KEAAE;Lo;0;L;;;;N;;;;;
16A4D;MRO LETTER OL;Lo;0;L;;;;N;;;;;
16A4E;MRO LETTER MAEM;Lo;0;L;;;;N;;;;;
16A4F;MRO LETTER NIN;Lo;0;L;;;;N;;;;;
16A50;MRO LETTER PA;Lo;0;L;;;;N;;;;;
16A51;MRO LETTER OO;Lo;0;L;;;;N;;;;;
16A52;MRO LETTER O;Lo;0;L;;;;N;;;;;
16A53;MRO LETTER RO;Lo;0;L;;;;N;;;;;
16A54;MRO LETTER SHI;Lo;0;L;;;;N;;;;;
16A55;MRO LETTER THEA;Lo;0;L;;;;N;;;;;
16A56;MRO LETTER EA;Lo;0;L;;;;N;;;;;
16A57;MRO LETTER WA;Lo;0;L;;;;N;;;;;
16A58;MRO LETTER E;Lo;0;L;;;;N;;;;;
16A59;MRO LETTER KO;Lo;0;L;;;;N;;;;;
16A5A;MRO LETTER LAN;Lo;0;L;;;;N;;;;;
16A5B;MRO LETTER LA;Lo;0;L;;;;N;;;;;
16A5C;MRO LETTER HAY;Lo;0;L;;;;N;;;;;
16A5D;MRO LETTER RI;Lo;0;L;;;;N;;;;;
16A5E;MRO LETTER TEK;Lo;0;L;;;;N;;;;;
16A60;MRO DIGIT ZERO;Nd;0;L;;0;0;0;N;;;;;
16A61;MRO DIGIT ONE;Nd;0;L;;1;1;1;N;;;;;
16A62;MRO DIGIT TWO;Nd;0;L;;2;2;2;N;;;;;
16A63;MRO DIGIT THREE;Nd;0;L;;3;3;3;N;;;;;
16A64;MRO DIGIT FOUR;Nd;0;L;;4;4;4;N;;;;;
16A65;MRO DIGIT FIVE;Nd;0;L;;5;5;5;N;;;;;
16A66;MRO DIGIT SIX;Nd;0;L;;6;6;6;N;;;;;
16A67;MRO DIGIT SEVEN;Nd;0;L;;7;7;7;N;;;;;
16A68;MRO DIGIT EIGHT;Nd;0;L;;8;8;8;N;;;;;
16A69;MRO DIGIT NINE;Nd;0;L;;9;9;9;N;;;;;
16A6E;MRO DANDA;Po;0;L;;;;N;;;;;
16A6F;MRO DOUBLE DANDA;Po;0;L;;;;N;;;;;

9. Acknowledgements. This project was made possible in part by support from Payap University Linguistics Institute, Chiang Mai, Thailand.

10. Figures.

၁၅၂ ၂၅၂

၁	၂	၃	၄	၅
၆	၇	၈	၉	၁၀
၁၁	၁၂	၁၃	၁၄	၁၅
၁၆	၁၇	၁၈	၁၉	၂၀
၂၁	၂၂	၂၃	၂၄	၂၅
၂၆	၂၇	၂၈	၂၉	၃၀
၃၁	၃၂	၃၃	၃၄	၃၅

Figure 1. Chart of Mro letters, in alphabetical order (reading from left to right).
The header reads *saṅ loṅ*.

၁	၁၁	၁၂	၁၃	၁၄	၁၅	၁၆	၁၇	၁၈	၁၉	၁၁၀
၂	၂၁	၂၂	၂၃	၂၄	၂၅	၂၆	၂၇	၂၈	၂၉	၂၁၀
၃	၃၁	၃၂	၃၃	၃၄	၃၅	၃၆	၃၇	၃၈	၃၉	၃၁၀
၄	၄၁	၄၂	၄၃	၄၄	၄၅	၄၆	၄၇	၄၈	၄၉	၄၁၀
၅	၅၁	၅၂	၅၃	၅၄	၅၅	၅၆	၅၇	၅၈	၅၉	၅၁၀
၆	၆၁	၆၂	၆၃	၆၄	၆၅	၆၆	၆၇	၆၈	၆၉	၆၁၀
၇	၇၁	၇၂	၇၃	၇၄	၇၅	၇၆	၇၇	၇၈	၇၉	၇၁၀
၈	၈၁	၈၂	၈၃	၈၄	၈၅	၈၆	၈၇	၈၈	၈၉	၈၁၀
၉	၉၁	၉၂	၉၃	၉၄	၉၅	၉၆	၉၇	၉၈	၉၉	၉၁၀
၁၀	၁၀၁	၁၀၂	၁၀၃	၁၀၄	၁၀၅	၁၀၆	၁၀၇	၁၀၈	၁၀၉	၁၀၁၀

Figure 2. Chart of Mro numbers from 1 to 100.



Figure 4. Mro alphabet wall chart, in alphabetical order (reading from left to right).

UTC: \$\$\$\$
 WG2: \$\$\$\$
 contact: Michael
 Everson
 document: Nxxxx,
 L2/09-xxx
 font: Uni16A40Mro
 target: Amd8

	16A4	16A5	16A6
0	ᱚ 16A40	ᱛ 16A50	ᱜ 16A60
1	ᱝ 16A41	ᱞ 16A51	ᱟ 16A61
2	ᱠ 16A42	ᱡ 16A52	ᱢ 16A62
3	ᱣ 16A43	ᱤ 16A53	ᱥ 16A63
4	ᱦ 16A44	ᱧ 16A54	ᱨ 16A64
5	ᱩ 16A45	ᱪ 16A55	ᱫ 16A65
6	ᱬ 16A46	ᱭ 16A56	ᱮ 16A66
7	ᱯ 16A47	ᱰ 16A57	ᱱ 16A67
8	ᱳ 16A48	ᱴ 16A58	ᱵ 16A68
9	ᱶ 16A49	ᱷ 16A59	ᱸ 16A69
A	ᱹ 16A4A	ᱺ 16A5A	
B	ᱻ 16A4B	ᱼ 16A5B	
C	ᱽ 16A4C	᱾ 16A5C	
D	᱿ 16A4D	᱀ 16A5D	
E	᱁ 16A4E	᱂ 16A5E	᱃ 16A6E
F	᱄ 16A4F		᱅ 16A6F

Letters

- 16A40 ᱚ MRO LETTER TA
- 16A41 ᱛ MRO LETTER NGI
- 16A42 ᱜ MRO LETTER YO
- 16A43 ᱝ MRO LETTER MIM
- 16A44 ᱞ MRO LETTER BA
- 16A45 ᱟ MRO LETTER DA
- 16A46 ᱠ MRO LETTER A
- 16A47 ᱡ MRO LETTER PHI
- 16A48 ᱢ MRO LETTER KHAI
- 16A49 ᱣ MRO LETTER HAO
- 16A4A ᱤ MRO LETTER DAI = i
- 16A4B ᱥ MRO LETTER CHU
- 16A4C ᱦ MRO LETTER KEAAE
- 16A4D ᱧ MRO LETTER OL
- 16A4E ᱨ MRO LETTER MAEM
- 16A4F ᱩ MRO LETTER NIN
- 16A50 ᱪ MRO LETTER PA
- 16A51 ᱫ MRO LETTER OO
- 16A52 ᱬ MRO LETTER O
- 16A53 ᱭ MRO LETTER RO
- 16A54 ᱮ MRO LETTER SHI
- 16A55 ᱯ MRO LETTER THEA
- 16A56 ᱰ MRO LETTER EA
- 16A57 ᱱ MRO LETTER WA
- 16A58 ᱲ MRO LETTER E
- 16A59 ᱳ MRO LETTER KO
- 16A5A ᱴ MRO LETTER LAN
- 16A5B ᱵ MRO LETTER LA = symbol for 'month'
- 16A5C ᱶ MRO LETTER HAI
- 16A5D ᱷ MRO LETTER RI = o
- 16A5E ᱸ MRO LETTER TEK
- 16A5F <reserved>
- 16A60 ᱚ MRO DIGIT ZERO
- 16A61 ᱛ MRO DIGIT ONE
- 16A62 ᱜ MRO DIGIT TWO
- 16A63 ᱝ MRO DIGIT THREE
- 16A64 ᱞ MRO DIGIT FOUR
- 16A65 ᱟ MRO DIGIT FIVE
- 16A66 ᱠ MRO DIGIT SIX
- 16A67 ᱡ MRO DIGIT SEVEN
- 16A68 ᱢ MRO DIGIT EIGHT
- 16A69 ᱣ MRO DIGIT NINE
- 16A6A <reserved>
- 16A6B <reserved>
- 16A6C <reserved>
- 16A6D <reserved>
- 16A6E ᱃ MRO DANDA
- 16A6F ᱄ MRO DOUBLE DANDA

A. Administrative

1. Title

Proposal for encoding the Mro script in the SMP of the UCS

2. Requester's name

Martin Hosken and Michael Everson

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

Individual contribution.

4. Submission date

2009-10-27

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)

Yes.

1b. Proposed name of script

Mro.

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

No.

1d. Name of the existing block

2. Number of characters in proposal

43.

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. Is a repertoire including character names provided?

Yes.

4b. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?

Yes.

4c. Are the character shapes attached in a legible form suitable for review?

Yes.

5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Martin Hosken.

5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson, FontLab.

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

7. 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.

8. 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. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database <http://www.unicode.org/Public/UNIDATA/UnicodeCharacterDatabase.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

See above.

C. Technical – Justification

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

No.

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?

John Clifton.

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?

See above.

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

To write the Mro language.

4b. Reference

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

Yes.

5b. If YES, where?

In Bangladesh.

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

No.

6b. If YES, is a rationale provided?

6c. If YES, reference

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

Yes.

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

No.

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

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?

Glyphs have a superficial similarity to other scripts but this is accidental; Mro is unique.

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

No.

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

11c. If YES, reference

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?