ISO
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION

ISO-IEC JTC1/SC2/WG2
Multiple-Octet Coded Character Set

ISO-IEC/JTC1/SC2/WG2 N 2033

3rd June 1999

Title	Proposal for Extension of Myanmar Coded Set
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Status	Individual experts' contribution
Action	For further consideration of Myanmar script in UCS

* Professor Okell is author of the definitive books 'Burmese, an Introduction to the Script' and 'A Guide to the Romanization of Burmese' and 'A Reference Grammar of Colloquial Burmese'.

1 Introduction

The Proposal for a basic Myanmar (Burmese) coded character set which has been accepted for inclusion in UCS (given in SC2 N 3203) is adequate for the presentation of the letters of the Myanmar alphabet when substantial use is made of the combining or composition coding technique. This coded set will be here called the 'present UCS set'.

However further study has shown that for processing applications it is inadequate. For such processing applications an extension of that set of coded characters is needed to permit effective use of Myanmar in computers.

This present proposal has made full use of Myanmar's Proposal WG2 N 815. However, that document did not give the full character set, and was superseded by a Revised Myanmar Proposal tabled at the London WG2 meeting (in blue cover). For some reason, which might be merely a misunderstanding of committee procedures, this has not become a WG2 document. Nevertheless, its important changes are included in its code table and in its final page giving the official Myanmar orthography; these are included in this paper as Appendix 1. It is this Myanmar code table that will be referred to in this paper.

This present proposal completely implements, within the context of UCS, all the characters in the Revised Myanmar Proposal.

In this present paper it is shown in section 3 that Myanmar has the distinctive feature of tones associated with each vowel.

It is shown in section 4 that Myanmar has the distinctive feature of 'open' and 'closed' syllables, the latter having a 'final consonant' after the vowel. Appendix 2 records research done specifically for this paper by Professor John Okell which shows that the structure of closed syllables is more complex than previously thought.

It is shown in section 5 that in closed syllables the vowels use a different arrangement for their tone-values from that used in open syllables.

It is shown in section 6 that the processing applications of sorting and of establishing line-breaks are more complex than for other scripts, and impact on the character coding.

It is shown in section 7 that Myanmar has the distinctive feature of what is called 'induced creaky-tone'.

It is shown in section 8 that all requirements of the Myanmar national contributions have been satisfied.

It is shown in section 10 that the use of the composition technique for Myanmar presents serious difficulties for processing applications, which are avoided by use of the proposed extended set of characters.

2 Independent Vowels

It is an unusual and distinctive feature of Myanmar that all independent vowels may be written by the addition of a vowel-sign to the 'vowel-base' character 1021; this behaves as a consonant, so it may equally well be thought of as a 'pseudo-consonant'. In processing it is essential that it be treated as a consonant, not a vowel.

However some independent vowels (but not all) can also be written with distinctive characters, coded at 1023, 1024, 1025, 1026, 1027, 1029, 102A in the present UCS set. These forms have to be distinguished for the correct spelling of words.

The Myanmar revised document shows one other with an explicit tone-mark ဉ့ LETTER HIGH-TONE U. See Myanmar code table in Appendix 1 at 14B6, and on the second page, right-hand column 14th item. In archival documents a similar letter ဎ့ LETTER HIGH-TONE E is used.

These are provided in the proposed extension set as distinctive characters.

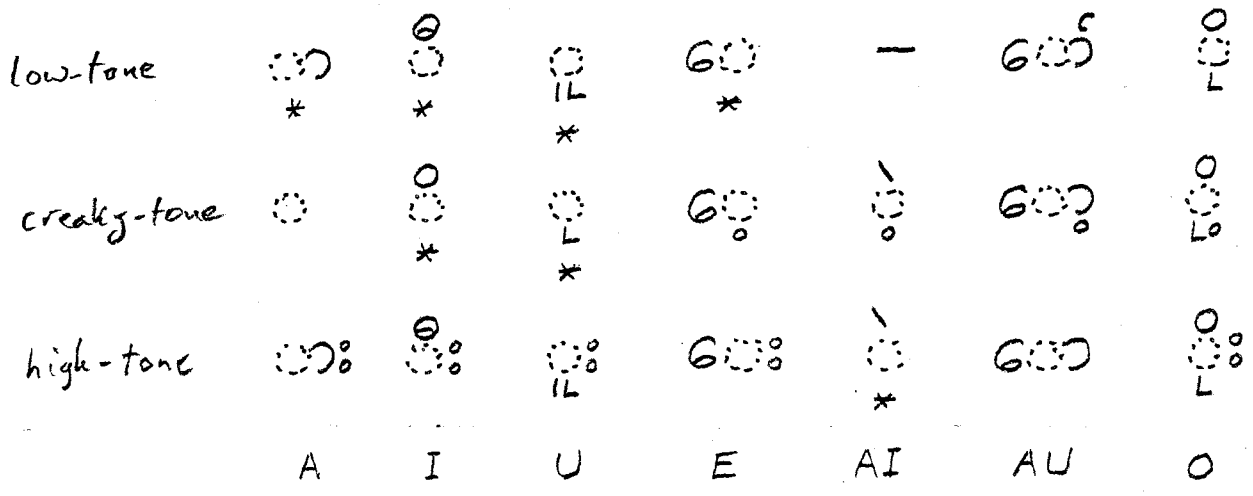
3 'Tonal Vowels'

It is an unusual and distinctive feature of Myanmar that it is essential for a tone to be associated with each vowel. Therefore for convenience in this paper it may be said that Myanmar uses 'tonal vowels', although this term does not exactly carry the correct meaning. Furthermore, each vowel with its associated tone is regarded as a distinct letter of the alphabet -- this practice being normal both within Myanmar and also amongst foreign experts. The requirement is well illustrated in Myanmar's Proposals. See cells 14C3 to 14E3 of their code table, and in the right-hand column of the list on the last page (both in Appendix 1). It is the aim and purpose of this extension set to provide as single 16-bit coded characters all the Myanmar vowels with

their associated tone-values.

The full set of 'tonal' vowel-signs used with open syllables (see section 4 below) is given in Table 1 below. In open syllables there is no way to write a vowel without specifying its tone, either explicitly or implicitly, and absence of a tone-mark is of significance.

Table 1: 'Tonal' Vowel-Signs Used in Open Syllables



Note 1: The matrix is not entirely full; one 'tonal vowel' does not occur, this is marked with a dash.
Note 2: Seven of the 'tonal' vowel-signs are provided in the present UCS set, these are marked with an asterisk.

As with all other Indic scripts, the glyph element ◌ , whether it represents the letter E or is part of letter AU, is coded after its associated consonant shown by a dotted circle.

It will be seen that amongst the creaky-tone vowel-signs two are of distinctive shape so it may be said their tone-value is implicit, whereas the others use the tone-mark ◌̰ to show an explicit tone-value. Likewise, for two of the high-tone vowel-signs the tone-value is implicit, while the others show an explicit tone-mark ◌̋ The tone-value of all the low-tone vowel-signs is implicit. In open syllables the implicit vowel associated with each consonant has an implicit creaky-tone; that is to say, the absence of a vowel-sign and of a tone-mark indicates creaky-tone A.

These explicit tone-marks are coded at 1037 and 1038. However, their names in the present UCS set are misleading, so in this paper they will be referred to by their Myanmar names Aukmyit and Wisapauk.

Note 3: Aukmyit is correctly drawn as a small circle, not as Dot Below. It is entirely different from Indic NUKTA.
Note 4: Although Wisapauk is similar in appearance to VISARGA, it does not have the normal Indic grammatical uses nor does it add a final aspirate to a syllable.

Note 5: It might be very desirable that something be done to prevent users being confused by these misleading names, either in the standard or by explanation in Unicode.

The user of Myanmar learns to identify these groups of glyph-elements and recognize them as a whole, without relating the components to the letters as used individually. This practice of reading the glyph-elements of a character as an entity applies also where Myanmar 'borrows' the glyphs of certain characters and puts them together, as glyph-elements, to write an entirely different---and usually unrelated---character. For example the glyphs used alone for the characters ◌ာ (VOWEL SIGN AA) and ◌ေ (VOWEL SIGN E) and ◌် VIRAMA are put together to give ◌ော VOWEL SIGN LOW-TONE AU; and for example where the HIGH-TONE VOWEL-SIGN O ◌ို is built up from ◌ိ CREAKY-TONE I plus ◌ု CREAKY-TONE U plus ◌့ Wisapauk.

In archival documents VOWEL SIGN HIGH-TONE AI may take the form ◌ꩻ . See Appendix 2, page 4.

It is thus shown that to simplify processing applications twelve extra vowel-signs used in open syllables require to be coded as entity characters; together with a thirteenth for archival documents. These are provided in the proposed extension set as distinctive characters.

4 Structure of Syllables

Like all Indic scripts the syllables of Myanmar are important and have a significant effect on processing applications. However, the structure of Myanmar syllables is different from the structure of Indic syllables.

Myanmar employs the feature of open and closed syllables, the latter being those with a 'final consonant', that is with the inherent vowel of that consonant deleted by VIRAMA. As with the multiple-component vowels, the user reads the entire syllable as an entity.

In this paper a 'final consonant' will be represented by ◌်

Two columns in the Myanmar document headed 'Devowelizer' show some of the combinations of vowel-sign and 'final consonant' that occur in practice. However the research done by Professor John Okell given in Appendix 2 shows in its last table that there are additional combinations not given in the Myanmar document. Notice also that three conjuncts may occur, which may be called 'final conjuncts'. Notice also that the final nasal letter in each varg, together with the character ◌ံ ANUSVARA and together with the semi-vowels ◌ျ YA and ◌ြ RA, may have tone-marks associated with them.

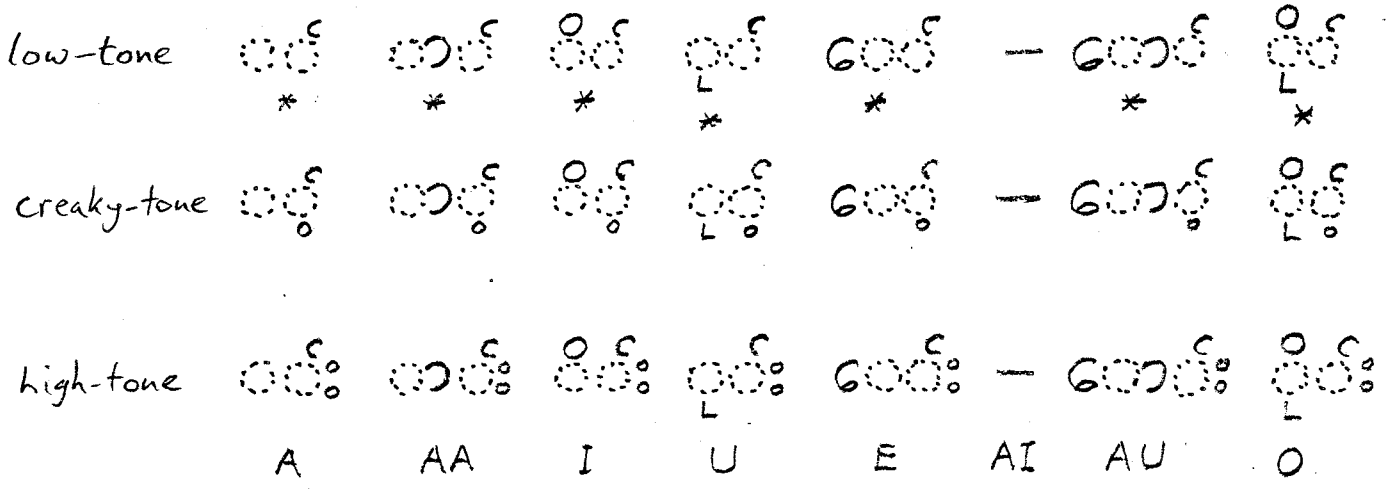
Note specially that Professor Okell shows that, especially for transcription from other scripts (in particular, English words), there may be two (or occasionally three)

of the so-called 'final consonants' in a single syllable.

5 Vowels and Tones in Closed Syllables

Columns D and E in the main table of Appendix 2 give the vowel-signs and tone-marks used in closed syllables. Analysis of this set of combinations gives the set of vowel-signs used in closed syllables shown in Table 2 below. For the convenience of WG2 members this has been arranged to match Table 1 for vowels and tones in open syllables.

Table 2: 'Tonal' Vowel-Signs Used in Closed Syllables



Notice that in a closed syllable the absence of an explicit tone-mark has the significance of specifying low-tone.

In closed syllables the implicit vowel associated with each consonant has an implicit low-tone; that is to say, the absence of a vowel-sign and of a tone-mark indicates low-tone A. This is different from open syllables.

Notice also that the explicit tone-marks are presented under or after the first 'final consonant', yet the vowel-sign and the tone-mark are read as an entity. Together they determine the non-consonantal sound-value of the whole syllable.

Note 6: Seven of these vowel-signs are the same as those used in open syllables (although the tone-value of some are different) and thus do not seem to need to be specifically coded. They are marked with an asterisk.
Note 7: Alternatively, for native syllables, one may say that, for closed syllables only, the vowel-sign is tone-free and that the tone of the whole syllable is determined by the tone-mark; and that the absence of a tone-mark indicates low-tone. In practice the tone of a syllable relates to the vowel and the 'final' nasal or semi-vowel.

However, this approach would not seem to give the desired simplification of programming.
Note 8: The addition of VIRAMA to form a 'final consonant' does not mean the formation of a conjunct, nor does it necessarily give a syllable boundary.

Note 9: Only a limited number of 'final consonants' (the nasals and semi-vowels) occur in closed syllables that use explicit tone-marks. See final table in Appendix 3, on the right.

It is thus shown that for simplification of processing applications fourteen extra vowel-signs used in closed syllables require to be coded as entity characters.

6 Sorting and Line-breaks

As with other Indic scripts, two of the important processing applications are sorting and provision for line-breaks. Although not the direct responsibility of WG2, they must be considered because they have significant impact on the characters to be coded. By careful choice of these characters, the programming for these two processes can be much simplified. (Such simplification has been a major consideration in the choice of coded characters of all other scripts in UCS.)

First, sorting. In modern practice all open syllables are sorted before all closed syllables. It is considered it will be adequate for the sorting routine to distinguish the type of syllable by identifying the absence or presence of a 'final consonant'. This will make the sorting routine more complex than for any other script.

However, when the composing coding technique is used, for closed syllables the tone-mark, if present, will follow after a consonant + virama + ZWNJ, that is it will come four 16-bit bytes further along the data stream than the vowel-sign; or in the case of a 'final conjunct' six bytes. With the extended characters proposed in this paper, this problem would not arise. (For Latin script, accented letters have been provided to solve a much less-severe form of this problem.)

Second, line-breaking. As with other Indic scripts, line-breaks can only occur at a syllable boundary. To provide for automatic formatting, and more especially for re-formating during text editing, it is important that the algorithm to determine each syllable boundary should be as simple as possible, and the choice of coded characters affects this.

For Myanmar the situation is more severe than for other Indic scripts for it is often written without Spaces between words. Furthermore, the structure of closed syllables presents a significant complication.

It is considered that the extended set of characters proposed in this paper will significantly simplify this processing application.

7 'Induced Creaky-Tone'

A unique feature of Myanmar is that the creaky-tone-mark Aukmyit may be added to a vowel-sign with its associated tone-mark. This is employed to indicate possession (much like 's in English), and has other grammatical uses. It then converts a syllable in low-tone (and sometimes a high-tone) into creaky-tone. This use may be called

'induced creaky-tone'.

When used for this purpose, according to UCS usage it would be coded independently. But because the glyph is superimposed on others, but NOT combined with them, it gives rise to the grouped glyphs shown in columns C and E of the main table in Appendix 2. This superimposition is a task for the presentation system. (It is this that accounts for the apparent anomaly of two tone-marks being associated with one vowel-sign.)

This use of Aukmyit has different graphical effects in open and closed syllables. However, when the characters proposed in this paper are used, a single rule that Aukmyit shall be coded immediately after the character for the vowel-sign with its associated tone-mark will suffice for all situations. If the composition technique is used, in conjunction with the normal rules of UCS, that simple rule would no longer apply.

8 Other Characters in Myanmar Proposal

The Myanmar Proposal includes a number of characters which, according to UCS usage, would be coded as sequences of characters, and thus form grouped-glyphs. These are discussed in this section but are not included in this proposal.

One such set comprises the character ◌ं ANUSVARA (1036) which is used to write a final nasal-m superimposed on vowel-signs (for example). According to UCS usage it would be separately coded and is then NOT combined. This gives the following grouped glyphs in the Myanmar Proposal: ◌ं ◌ंL
to which others may be added.

Mention may be made of four other grouped glyphs that appear in the Myanmar document: ◌ं ◌ं ◌ंLo ◌ंL
However these are not recognized in this paper as being used in practice, or needing to be coded as individual characters.

It should be noted that the objectives of the Myanmar documents differ from UCS:

- The characters in the Myanmar code table are based on the graphic elements that need to be presented at a single active-position. UCS leaves this to the sophistication of the presentation system. Likewise, UCS assumes the use of an 'intelligent' keyboard for input.
- UCS code table need not follow sorting sequence.
- UCS has to consider all languages written in Myanmar script.
- UCS has to consider characters in archival documents, and transliteration.

9 Justification

This proposed extension to the Myanmar set comprises individually coded characters for the letters of sections 2, 3 and 5 above that are not already in the present UCS set. A suggested code table and the list of names are attached.

The justification for these is to reflect the practical use of Myanmar, to provide every one of what users of Myanmar regard as the letters of their alphabet each coded uniquely as a 16-bit entity, to deal effectively with the different requirements of open and closed syllables, to simplify programming, to permit the use of Implementation Level 2 and, in particular to avoid composition techniques which lead to the problems high-lighted in the next section.

The extended set reflects the fact that in Myanmar each vowel-sign and tone-mark comprise a single unit of information, even though they may be widely separated graphically. Each vowel+tone unit is coded individually, to aid processing of such units of information.

10 Problems with Composition Technique

Composition of Myanmar characters is significantly different from some other scripts e.g Latin. In processing applications its use would lead to significant problems. As examples:

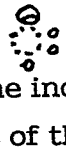
i The vowel-sign ◌ေ◌ HIGH-TONE AU would have to be composed from the sequence ◌ေ VOWEL SIGN E plus ◌ော VOWEL SIGN AA. Note that these components are not related in any way to AU. Likewise for vowel-sign ◌ို LOW-TONE O from ◌ိ VOWEL SIGN I plus ◌ု VOWEL SIGN U, and two other similar letters of the alphabet.

ii For vowel-signs containing the glyph-element ◌် it could be difficult to distinguish in the coded data stream its use to indicate possession (see section 7).

iii The vowel-sign ◌ေ◌ာ် LOW-TONE AU would have to be composed from a sequence of two vowel-signs plus a visible VIRAMA which is not acting to form a conjunct nor is it Explicit VIRAMA nor does it give a closed syllable. This distinction needs to be maintained.

iv The coding of a closed syllable containing any of the creaky-tone or low-tone vowel-signs could be complex or confusing, because the syllable boundary does not occur after the Explicit VIRAMA.

v The group of glyph-elements ◌ုံ is correctly the vowel-sign ◌ု CREAKY-TONE U followed by ◌ံ ANUSVARA, Romanized as -um. According to UCS usage this would be coded erroneously in the sequence ◌ံ ANUSVARA followed by the vowel-sign. This would occur with many other similar groups of glyph elements or characters.

vi In the group  HIGH-TONE I WITH INDUCED CREAKY-TONE the UCS conventions would give the incorrect sequence  . There are three other groups of this type.

vii In Myanmar a single unit of information may comprise one, two or three graphic elements in the vowel-sign together with one or two graphic elements in the tone-mark(s). With the composition technique, a single unit of such information would comprise a multiplicity of coded characters which, especially in closed syllables, may be widely separated in the coded data stream.

By use of the characters of the extension set none of these problems arise. Furthermore, the extension set provides all the letters of the alphabet with entity coding (each one 16 bits). Thus it provides an option for the user to employ entity coding. This facility has been provided for all Indic scripts, now including Sinhala, Tibetan and Khmer; also, entity coding is provided for the large set of tonal vowels used by Vietnamese (cells 1EA0 to 1EF9 in Extended Latin and elsewhere).

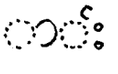
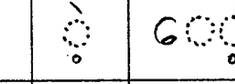
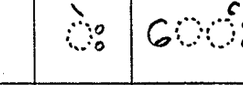
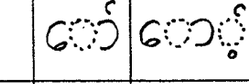
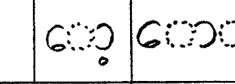
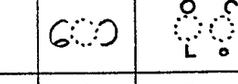
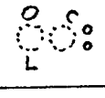
By use of Implementation Level 2 with the 'unique coding rule' of clause 24.2 of the new ISO 10646, ambiguous (or alternative or equivalent) coding is avoided.

It may be noted that, except for problem 10.i, these problems are unique to Myanmar.

11 Procedure within WG2

It is left to WG2 to decide whether Myanmar should be treated in UCS as two collections, that is Basic (as in the present UCS set) and an Extended Set. Or whether the characters here proposed should be merely added to those in the present UCS set. This is what was done with the enhancement of Tibetan. It would have the advantage of providing within one collection all the characters needed when using the combining technique or alternatively using entity coding, as has been done with all Indic scripts, Sinhala, Tibetan and Khmer.

TABLE 240 - Row 10: EXTENDED MYANMAR

	102	103	104	105	106
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
A					
B					
C					
D					
E					
F					

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List of Names

1028 MYANMAR LETTER HIGH-TONE E (archival)

103A MYANMAR LETTER HIGH-TONE U
103B MYANMAR VOWEL SIGN HIGH-TONE A
103C MYANMAR VOWEL SIGN HIGH-TONE I
103D MYANMAR VOWEL SIGN HIGH-TONE U
103E MYANMAR VOWEL SIGN CREAKY-TONE E
105F MYANMAR VOWEL SIGN HIGH-TONE E

105A MYANMAR VOWEL SIGN CREAKY-TONE AI
105B MYANMAR VOWEL SIGN HIGH-TONE AI (archival)
105C MYANMAR VOWEL SIGN LOW-TONE AU
105D MYANMAR VOWEL SIGN CREAKY-TONE AU
105E MYANMAR VOWEL SIGN HIGH-TONE AU
106F MYANMAR VOWEL SIGN LOW-TONE O

1060 MYANMAR VOWEL SIGN CREAKY-TONE O
1061 MYANMAR VOWEL SIGN HIGH-TONE O
1062 MYANMAR VOWEL SIGN CREAKY-TONE A CLOSED
1063 MYANMAR VOWEL SIGN HIGH-TONE A CLOSED
1064 MYANMAR VOWEL SIGN CREAKY-TONE AA CLOSED
1065 MYANMAR VOWEL SIGN HIGH-TONE AA CLOSED
1066 MYANMAR VOWEL SIGN CREAKY-TONE I CLOSED
1067 MYANMAR VOWEL SIGN HIGH-TONE I CLOSED
1068 MYANMAR VOWEL SIGN CREAKY-TONE U CLOSED
1069 MYANMAR VOWEL SIGN HIGH-TONE U CLOSED
106A MYANMAR VOWEL SIGN CREAKY-TONE E CLOSED
106B MYANMAR VOWEL SIGN HIGH-TONE E CLOSED
106C MYANMAR VOWEL SIGN CREAKY-TONE AU CLOSED
106D MYANMAR VOWEL SIGN HIGH-TONE AU CLOSED
106E MYANMAR VOWEL SIGN CREAKY-TONE O CLOSED
106F MYANMAR VOWEL SIGN HIGH-TONE O CLOSED

Myanmar Code Table

	148	149	14A	14B	14C	14D	14E	14F
0	lc	က	တ	ဠ	lcm	◌ုး	◌ံ့	◌ြွှ
1		ခ	ထ	အ	◌့	◌ူ	◌ို	◌ွှ
2		ဂ	ဒ	ဣ	း	◌ူ့	◌ို့	◌ွှ
3		ဃ	ဓ	ဤ	◌ာ	◌ူး	◌ိုး	၎င်း
4		င	န	ဥ	◌ာ့	◌ူး	◌င်	၏
5		စ	ပ	ဦ	◌ား	ေ◌	lvm	◌ိ
6	၀	ဆ	ဖ	ဦး	◌ါး	ေ◌့	◌ျ	◌ှို
7	၁	ဇ	ဗ	ဧ	◌ိ	ေ◌း	◌ြ	◌ို့
8	၂	ဈ	ဘ	ဩ	◌ိ့	◌ဲ	◌ွ	၊
9	၃	ဉ	မ	ဪ	◌ိး	◌ဲ့	◌ှ	။
A	၄	ည	ယ		◌ီ	ေ◌ာ	◌ျွ	
B	၅	ဋ	ရ		◌ီ့	ေ◌ာ့	◌ြွ	
C	၆	ဌ	လ		◌ီး	ေ◌ာ်	◌ျှ	
D	၇	ဍ	ဝ	Ln	◌ီး	◌်	◌ြှ	
E	၈	ဎ	သ	Sh	◌ု	ေ◌ာ်	◌ွှ	
F	၉	ဏ	ဟ	ln	◌ု့	◌ံ	◌ျွှ	

မြန်မာအက္ခရာဝလိစဉ် Myanmar Character Set (in sorted order)

Appendix page 2.

Transpose

Consonent + Vowel modifier + Devoweliser + Consonent modifier

ကိန်းစဉ်	မျည်းစဉ်	+	မျည်းမွှေစဉ်	+	အသတ်စဉ်	+	ထရတွဲစဉ်
၀	က		◌ျ (ယပင့်)		အက် k		အ
၁	ခ		◌ြ (ရရစ်)		(ဣက်)		အာ
၂	ဂ		◌ွ (ဝဆွဲ)		(ဥက်)/(ဥတ်)		(အု)
၃	ဃ		◌ှ (ဟကိုး)		အောက်		အား
၄	င		◌ျွ (ယဝင့်ဝဆွဲ)		ဣက်		(အား)
၅	စ		◌ြွ (ရရစ်ဝဆွဲ)		(အုန်) kn		အိ/ဣ
၆	ဆ		◌ျှ (ယဟင့်ဟကိုး)		(အင်) g		အီ/ဤ
၇	ဇ		◌ြှ (ရရစ်ဟကိုး)		(အိုက်)		(အီ)
၈	ဈ		◌ွှ (ဝဆွဲဟကိုး)		(အုပ်)		အီး
၉	(ဉ)		◌ျွှ (ယဟင့်ဝဆွဲဟကိုး)		အင် ṅ		(အီး)
၁၀	ည		◌ြွှ (ရရစ်ဝဆွဲဟကိုး)		အင့်		အု/ဥ
၁၁	ဋ				အင်း		အူ/ဦ
၁၂	ဌ				(အိုင်)		(အူ)
၁၃	ဍ				အောင်		အူး/ဦး
၁၄	ဎ				အောင့်		(အူး)
၁၅	ဏ				အောင်း		အေ/ဧ
၁၆	တ				အိုင်		အေ့
၁၇	ထ				အိုင့်		အေး
၁၈	ဒ				အိုင်း		အဲ
၁၉	ဓ				အစ် c		အဲ့
၁၀	န				(အာစ်)		အော/ြသ
၁၁	ပ				(အိစ်)/(ဣစ်)		◌ၢ် အော့
၁၂	ဖ				(အုစ်)/(ဥစ်)		အော်/ြသော်
၁၃	ဗ				(အစ်) ṭ		အံ
၁၄	ဘ				(အိန်) ṭn		အံ့
၁၅	မ				အည် ñ		အို
၁၆	ယ				အည့်		အိုဝ်
၁၇	ရ				အဉ်း		အိုး
၁၈	လ				(အာဉ်)		
၁၉	ဝ				(အိဉ်)		
၁၀	သ				(အုဉ်း)		
၁၁	ဟ				(အော်ဉ်)		
၁၂	ဠ				အဉ် ñ်		
၁၃	အ				အဉ့်		
					အဉ်း		
					ဃ → ခ ဧဉ်		
					(အင်) t		
					(အိန်)		
					(အုဉ်)		
					(အာဉ်) tn		
					(အဏ်) ṇ		
					(အိုဏ်)		
					(အုဏ်)/(ဥဏ်)		
					အတ် t		
					(အာတ်)		
					အိတ်/(ဣတ်)		
					အုတ်/(ဥတ်)		
					(အော်တ်)		
					(အဒ်) d		
					(အာဒ်)		
					(အိဒ်)/(ဣဒ်)		
					(အုဒ်)		
					(အိုဒ်)		

Continued

					အန် n		
					အန်		
					အန်း		
					(အာန်)		
					အိန်/(ဣန်)		
					အိန်		
					အိန်း		
					အုန်		
					အုန့်		
					အုန်း		
					အပ် p		
					အိပ်		
					အုပ်/(ဥပ်)		
					(အောပ်)		
					(အမ်) b		
					(အိမ်)		
					(အုမ်)		
					(အာဘ်) bh		
					အမ် m		
					အမ့်		
					အမ်း		
					အိမ်		
					အိမ့်		
					အိမ်း		
					အုမ်/(ဥမ်)		
					အုံ/(ဥံ)		
					အုံ့		
					အုံး		
					အုး		
					အယ် y		
					(အာယ်)		
					(အိုယ်)		
					(အာရ်) r		
					(အေရ်)		
					(အိုရ်)		
					(အာလ်) l		
					(အိလ်)		
					(အုလ်)		
					(အိုလ်)		
					(အသ်)		
					(အာသ်)		
					(အိသ်)		
					(အုသ်)		
					(အိုသ်)		
					(အဟ်)		
					(အာဟ်)		
					(အိတ်)		
					(အိုဟ်)		
					(အိုဠ်) l		

မှတ်ချက်။

၁။ ပါဠိဆင့်ပုဒ်များ။ ကင်းစီးပုဒ်များကို ဖိုးဖိုး အသတ်ပါပုဒ်များနှင့် တစ်ပေါင်းတည်း စဉ်သည်။

၂။ အောက်ပါ သံယုတ်ဖျည်းကွဲများကို အဖြင် အတိုင်း ဖိုးဖိုးအက္ခရာနောက်မှ စဉ်သည်။

ဥ ၊ ဥ ။ ယ ၊ ဟျ

၃။ အဖြန်မပါသော ပုဒ်ကိုကို အဖြန်မပါသော ဆိုင်ရာ မူလပုဒ်နောက်မှ စဉ်သည်။

အ၊ အာ။ အာ။ အား။
အိ၊ အီ။ အီ။ အီး။
အု၊ အူ ။ အူ။ အူး ။

၄။ ဗိသဂ္ဂနိသံ ပါသည်ဖြစ်စေ၊ မပါသည်ဖြစ်စေ စာလုံးပေါင်းအတိုင်း စဉ်သည်။

ခဏ္ဍီး	(အေကုဏ်ဒု)
ဇရာဝတီ	(အေကုပ်ဒု)
သင်္ဂီဂ	(အင်ကုပ်ဒု)
သဒ္ဒေါ	(အင်ကုဏ်ဒု)
မန္တရား	(အန်ကုပ်ဒု)
မန္တန်	(အန်ကုဏ်ဒု)

၅။ ဣ၊ ဤ၊ ဥ၊ ဦ။ ဧ၊ ြသ၊ ြသော် အက္ခရာများကို အိ၊ အီ။ အု၊ အူ။ အူ။ အေ၊ အော၊ အော် တို့နှင့် ကာရန်အလိုက်ရောမွှေ တစ်ပေါင်းတည်း စဉ်သည်။

Reference : Myanmar Orthography prescribed by Myanmar Language Commission (1986).

From: John Okell
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Appendix 2 - page 1

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Tue 11 May 1999

Dear Hugh,

The attached chart is an attempt to do what I promised some weeks back, namely to make a comprehensive list of all combinations of vowel, tone mark and final. The exercise has thrown up something that all of us had overlooked before, namely the "added finals" that Burmese writers use to represent final consonants in non-Burmese words and names.

We have all — including the Myanmar delegation — been so preoccupied with establishing the regular system which all Burmese know, plus its mildly eccentric spellings for Pali words and Sanskrit words and grammatical relations, that we have failed to take into account the bizarre sequences of characters that writers use when they want to represent final consonants in a non-Burmese word or name.

The addition of "added finals" has some surprising consequences. Hitherto we have all agreed that the syllable boundary occurs after a tone mark, or virama, or virama with tone mark, etc, but the syllables now brought to light make nonsense of these rules. A final consonant may be followed by a second final, and a tone mark may be followed by a final, and so on — sequences that never occur in the regular Burmese system. It makes me think that the best solution for syllable boundaries is the one I suggested to you before: abandon the attempt to define the boundary by listing the possible *ends* of syllables, and approach it instead from the far side of the boundary: it is far easier to list the *beginnings* of new syllables. And once you have identified a new syllable by its starting character, then you know it is safe to put a boundary before it.

I would expect most Burmese — including the Myanmar delegation — to dismiss the "added final" sequences on the grounds that they are by definition not Burmese words. On the other hand they do appear daily in newspapers and magazines, almost all of which are typeset by computer, so any coding system must cater for them. The accompanying chart includes many examples taken from published material that was computer typeset.

As you will see, I have put in separate columns combinations that relate to open syllables and closed syllables in the regular system, and those that are devised to represent non-Burmese final consonants.

THE BURMESE WRITING SYSTEM

Sequences of vowel sign, final consonant, tone mark

Key to following table

1. REGULAR SYSTEM

1.1 open syllables

A = basic vowel sign

B = vowel sign modified to show different tone

C = vowel sign from column B with additional tone mark (့) to show induced creaky tone (for possessive and other grammatical relations)

1.2 closed syllables

D = basic vowel sign (i.e. column A, now tone-free) followed by final consonant

In the chart "+" stands for any final consonant

Note that ် should be read as representing either a consonant bearing the "killer stroke" (athat/virama) or a consonant forming the first of a conjunct pair. The difference is that while ် may be followed by a tone mark or (if there is no tone mark) a linebreak, the latter may not be followed by either.

E = vowel sign followed by final consonant (i.e. column D) followed by tone marks

2. SYLLABLES WITH ADDED FINALS

Added finals are used to represent final consonants in non-Burmese words and names. They are added to regular syllables, or to a regular syllable with an added final.

Note that added finals in non-Burmese words may be written optionally in brackets: e.g. ဆွစ်စ်ရုံးလ် or ဆွစ်(စ်)ရုံး(လ်) "Swiss roll"

F = regular open syllable with added final (thereby becomes closed syllable)

G = regular closed syllable with added final (or regular open syllable with two added finals, e.g. ကို် > ကို််)

Maximum possible sequence:

vowel sign	+ tone mark	+ final cons	+ tone mark	+ final cons	+ tone mark

Normally there will only be one tone mark in a syllable.

Rarely, a non-Burmese word may be written with *three* final consonants; e.g. ဖိုးလစ်(ဒ်)(စ်) "Phillips", ဖက်စ်စ် "fax"

H = examples of F and G, mainly taken from printed texts. Words in square brackets are not attested from printed texts, but suggest ways in which Burmese script might on occasion be adapted by a resourceful Burmese typesetter to represent some non-Burmese sequence of vowel and final consonant. It would be sensible to anticipate and cater for such sequences even though they are not attested in the small corpus I have to hand.

The sequences of characters in cols A to E are too common and well known to require exemplification.

In this chart Minus stands for the consonant with which the vowel-sign is associated; it is written ◌ in UCS. It is coded before the vowel-sign. Plus stands for a 'final consonant', and is written ◌် in this paper. It is coded after the vowel-sign.

REGULAR SYSTEM					REGULAR SYLLABLES WITH		
Open syllables			Closed syllables		ADDED FINALS		
A	B	C	D	E	F	G	H
-			-်	-့် -်း -့်း		-်် -့်် -်း်	ဖရန့်ဇကပ်ဖ်ကာ။ အောဘယ်လ်၊ဂန့်စ်။ ဘတ်စ်ကား။ ပေါ့ဂီတာစရပ်စ် မူလတန်းကျောင်း။ ဟော့(ဘ်)မက်ဒေါ့ဝယ်လ်။ အောလစ်ဗ်။ ဖီးလစ်(ပ်)(စ်) ဖေါက်(စ်) ရှေ့နေ။ ဆိုက်ပရပ်စ်ပင်။ ရှစ်(ထ်)။ မင်းသား ကယ်ရီဂရန့်ထ်။
	-ာ		-ာ်	-ာ့် -ာ်း -ာ့်း			
		-ွ			-ွ်	-ွ််	ဟာ့ဒ်ဝဲ၊ ဆော့ဖ်ဝဲ၊
	-ား				-ား်	-ား််	ချားလ်စ်ရှိုင်ရာဝယ်။
		-ွား					
ေ-			ေ-်	ေ-့် ေ-်း ေ-့်း		ေ-်် ေ-့်် ေ-်း်	ကဗျာဆရာယိတ်စ်။ ဂျိမ်းစ်လှကျော်။
	ေ-				ေ-်	ေ-််	[ယတ်ဇမီန်]
		ေ-ွ					
	ေ-း				ေ-း်	ေ-း််	[ရဘီးန်]
		ေ-ွး					
-ေ			-ေ်	-ေ့် -ေ်း -ေ့်း		-ေ်် -ေ့်် -ေ်း်	ကုတ်(ခ်)
					-ေ့်	-ေ့််	ထရစ်ပယ်ဒီဖြူ့စ်ရှင်းနည်း
	-ော				-ော်	-ော််	[ယူလ်]
		-ွော					
	-ော်း				-ော်း်	-ော်း််	နယူးစ်ဝိခ်မဂ္ဂဇင်း။
		-ွော်း					

e	ေ-			ေ-်	ေ-့ ေ-်း ေ-့း	ေ-််	[ဆေန်ဖ်ဘရီ]
		ေ-့				ေ-့်	ဗင်္ဂလားဒွေ့ရှ်
		ေ-း			ေ-း်	ေ-း််	နယူးဆောက်ဝေးစ်။
			ေ-့း				
ai	ဲ				ဲ်	ဲ််	ပလပ်စမာဂျဲလ်။ ဟီမိုဂလိုဗင်ရောင်ချယ်ဆဲလ်။ တွဲလ်ဗို့။ အဲရ်ကွန်ဒီးရှင်း။
		ဲ့			ဲ့်	ဲ့််	[ဘဲ့နဲ့ထိ]
		ဲ့း*					
au	ော			ော်	ော့ ော်း ော့း	ော််	ဘလောက်စ်အက်ိုး။ ဖီးလစ်(ပ်)(စ်) ဖေါက်(စ်) ရှေ့နေ။
		ော့			ော့်	ော့််	လော့ဒ် ကစ်ချင်နာ။ အာဇော့ပင်လယ်။ မက်ကင်းတော့ရ်ကွန်ပျူတာ။
		ော်			ော််	ော်််	[ကျော်နဲ့]
			ော့်				
o	ို			ို်	ို့ ို့်း ို့း	ို််	[ရိုစ်ထိ]
		ို့			ို့်	ို့််	အောက်စဖို့ဒ်။ "ပိုဗေးရိုလ်" မဂ္ဂဇင်း။ ဝါရင်တန်ပို့စ်
		ို့း			ို့း်	ို့း််	ဝင်းဒိုးစ် 3.1။ ပူပီဂိုးလ်ဘတ်စ်။
			ို့း				

* obsolescent sequence, still found in some older texts

Originals of non-Burmese words shown in Burmese script in column H

Franz Kafka, Abel Gants, Bus car, Port Gita Strasse (?) elementary school, Bob McDowell, Olive, Phillips Fox Advocates, cypress tree, shit, the actor Cary Grant
hardware, software
Charles Shirewell (?)
the poet Yeats, James Hla Gyaw
Yasmeen

Continued

Rabin
Coke
The Triple Diffusion Process
Newsweek Magazine
Sainsbury
Bangladesh
New South Wales
plasma gel, haemoglobin staining cell (?), twelve volt, air conditioned
Bent
blouse, Phillips Fox Advocates
Lord Kitchener, the Sea of Azov, Macintosh computer
Quorn
roast
Oxford, Poveroll (?) magazine, Washington Post
Windows 3.1, Whoopie Goldbergs

The full range of possible final consonants

Final consonants	Final consonants followed by tone marks
က် ခ် ဂ် ဃ် င်	င့် င်း င့်း
စ် ဆ် ဇ် ဈ် ည် ဉ်	ည့် ည်း ည့်း ဉ့် ဉ်း ဉ့်း
ဋ် ဌ် ဍ် ဎ် ဏ်	ဏ့် ဏ်း ဏ့်း
တ် ထ် ဒ် ဓ် န်	န့် န်း န့်း
ပ် ဖ် ဗ် ဘ် မ် ံ	မ့် မ်း မ့်း ့ ့်း ့း
ယ် ရ် လ် ဝ်	ယ့် ယ်း ယ့်း ရ့် ရ်း ရ့်း (လ်း ဝ်း not found)
သ် ဟ် ဠ် အ်	(ဟ်း ဠ်း not found; သ်း အ်း not poss)
Combined consonants used as finals in non-Burmese words	Examples:
ချ် = kh y (pron ch)	မစ္စတာရတ်(ချ်)။ စတိတ်ချ်ရှိုး။ ပီအိတ်ချ်ဒီ။ Mr Ratch. Stage show. PhD.
ရှ် = rh (pron sh)	မက်ကင်းတော့ရှ်ကွန်ပျူတာ။ ရပ်ရှ်မိုးတောင်။ ပွတ်ရှ်ပူးအောက်ပွတ်။ Macintosh computer. Mt Rushmore. Push-pull output
ဂျ် = g y (pron ge)	နစ်ခိုးလပ်စ်ခေ့ဂျ်။ ဒေါက်တာဆတြိန်းဂျလပ်ဗ် Nicholas Cage. Dr Strangelove.

ဦးကြီးတို့ စပါးခုပေါင်း ဆက်တိုက်ရောင်း

ကျောက်တန်းဧပြေ၁၀၊ရီ၂၄

ပထမအကြိမ် ပြည်သူ့လှုတ်တော်နှင့် ပြည်သူ့ကောင်စီအဆင့် ဆင့်ပွဲစည်းရေးဂုဏ်ပြုကြို၊ဆိုသော အားဖြင့်ကျောက်တန်းမြို့နယ်ကျုံကန်ကျေးရွာမှ တောင်သူဦးကြီးများသည် စပါးတင်း ၆၀၀ ကျော်ကို လှည်းအစီး ၂၄၀ဖြင့် ကျုံကန် စပါးဒိုင်တွင် ဧပြီ၁၀ရက် နံနက်ပိုင်းက စုပေါင်းရောင်းချကြသည်။

အလားတူ စုပေါင်း စပါးရောင်းချပွဲကို ကျောက်တန်းမြို့နယ်အတွင်း ဧပြီ၁၀ရက် ညနေ ၄ နာရီတိုက် ပြုလုပ် သွား မည်ဟု သိရသည်။

...o..

ပြင်သစ် ကိုယ်စားလှယ်အဖွဲ့ ဆိုက်ရောက်လာ

ရန်ကုန် ဧပြီ၁၀ရီ၂၄

ပြင်သစ် အမျိုးသား သွားသွတ်တော် ယဉ်ကျေးမှုနှင့် လူမှုရေးရာ ကော်မီရှင်၏ ဒုတိယ ဥက္ကဋ္ဌ မစ္စတာကာရရီလ် ဦးဆောင်သော ပြင်သစ်ပါလီမန်ကိုယ်စားလှယ်အဖွဲ့သည် ယနေ့ည နေ ၆နာရီခွဲက ရန် ကုန် မဂ်လာဒုံလေဆိပ်သို့ ရောက်ရှိ ကြရာ နိုင်ငံခြားရေး ဝန်ကြီးဌာန နိုင်ငံရေး ဦးစီး ညွှန်ကြားရေး မှူး ချုပ် ဦးသောင်းထိုက် နှင့် တာဝန်ရှိ ပုဂ္ဂိုလ်များ၊ မြန်မာ နိုင်ငံ ဆိုင်ရာ ပြင်သစ် သံအမတ်ကြီး နှင့် သံရုံး အရာရှိများက ကြိုဆို ကြသည်။

ဝင်ငွေခွန် ဥပဒေသစ်ပြဋ္ဌာန်း (သတင်း)

ပညာစစ်တန်းသင်

မအူပင် ဧပြီ၁၀ရီ ၂၄

ရောဝတီတိုင်း အခြေခံ ပညာရေးစစ်တန်းကော်ယူရေး နည်းပြသင်တန်းကို ယမန်နေ့နံနက်ပိုင်းက မအူပင် အထက်တွင် ဖွင့်လှစ်သည်။

ယင်း နည်းပြ သင် တန်း ကို ပညာရေးသုတေသနမူပဂ္ဂိုလ်များ လာရောက်ပို့ချရာတိုင်းအတွင်းမြို့နယ် ပညာရေးစစ်တန်း ကော်ယူရေးအဖွဲ့ဝင်များ တက်ရောက်၏။

ဦးကြီးအချို့ ကုန်သည်ထံမှ စပါးပြန် ဝယ်ရ အစိုးရထံသတ်မှတ်စပါးတင်းရောင်းနိုင်ရန်

မန္တလေး ဧပြီ၁၀ရီ ၂၄

မန္တလေးတိုင်းအတွင်း စပါးထွက်သော မြို့နယ်ကျေးရွာများသို့ အထွက်နှုန်းပေါ် သတ်မှတ်ထားသည့် စပါးများ ဝယ်ယူရရှိရေး အတွက် ပါတီ ဗဟိုကော်မီတီဝင်များနှင့်တိုင်းပြည်သူ့ကောင်စီဝင်များ ကွင်းဆင်း စည်းရုံးဝယ်ယူလျက်ရှိရာ ယခင်ကထက်ပိုမိုရောင်းချလာကြသည်ဟုသိရသည်။

ကွင်းဆင်းရှင်း

ယခုအခါ ကွင်းဆင်းစည်းရုံး ဝယ်ယူရေး အဖွဲ့ဝင် များ သည် လယ်စိုက်သူတဦးချင်း၏ အထွက်နှုန်းအပေါ် အစိုးရအား ရောင်းချရမည့် စပါးအရေအတွက်များကို မတ်လ ၃၁ ရက် နောက်ဆုံးထားပြီး ရောင်းချကြရန်၊ နှင့် သတ်မှတ်စပါး ရောင်းချခြင်းမပြုသူများအား ကုန် သွယ် ရေး ၁ အမိန့်ကြော်ငြာစာ အမှတ် ၄၀အရ အရေးယူသွားမည် ဖြစ်ကြောင်း ကျေးရွာအထိဆင်း၍ ပညာပေးဟော်ပြောလျက်ရှိသည်။

၁၀ ပြန်ဝယ်

ယင်း ဟောပြောစည်းရုံးချက်အရ အချို့ လယ်ယာ ဦးကြီးတို့သည် အစိုးရထံသို့ သတ်မှတ်သည့် အတိုင်း ပြန်လည် ရောင်းချနိုင်ရေးအတွက် ကုန်သည် များထံ

စာမျက်နှာ ၆ ကော်လံ ၃ ★

ဧပြီ၁၀ရီ ၂၄ ရက် နံနက် ၁၁နာရီက မန္တလေးမြို့ ရွှေဘုန်းကြီးကျောင်းအုပ်ကြီးလက်ဆို ပေးရှုစဉ် (သတင်း၆)

ကောင်ခီ ဈေးလမ်းညွှန် တဖွဲဖြိုး တဖွဲ အဖြိုး ရွှေးချယ်

ရန်ကုန် ဧပြီ၁၀ရီ ၂၄

ပြည်သူ့ကောင်စီအဆင့်ဆင့်၏ ပထမ ဘဏ္ဍာကြိမ် အစည်းအဝေးတွင် ယာယီသဘာပတိတဦးကို ရွေးချယ်တင်မြှောက်၍ ပြည်သူ့ကောင်စီဝင် များက ကတိသစ္စာပြုကြပြီးနောက် သက်ဆိုင်ရာအဖွဲ့အစည်းများကို တခုပြီးတခုရွေးချယ်တင်မြှောက်ဖွဲ့စည်းသွား ရန်လိုကြောင်းဖြင့် ပထမအကြိမ် ပြည်သူ့ကောင်စီ အဆင့်ဆင့်တွင်းအဖွဲ့အစည်းများရွေးချယ်တင်မြှောက်ပုံ ကျင်းပရေးညွှန်ကြားချက်တွင် ဖော်ပြပါရှိသည်။

ဖွဲ့စည်း

ဘယဆေးကုန်ကြမ်း ပြည်တွင်းထွက်တိုး

ရန်ကုန် ဧပြီ၁၀ရီ ၂၄

မြန်မာနိုင်ငံ ဆေးဝါးလုပ်ငန်းစက်ရုံသည် ပြည်တွင်းထွက် ဘယဆေး ကုန်ကြမ်းများကို တိုးတက် ဝယ်ယူအသုံးပြုလျက်ရှိရာယခုနှစ်၌ ကျပ် သိန်း ၉၀ ကျော် ဖိုး အထိ ဝယ်ယူ သုံးစွဲသွားမည်ဟုသိရ၏။

စက်ရုံအတွက်လိုအပ်သည့် ကုန်ကြမ်း တန်ဖိုးမှာ သိန်း ၃၅၀ ကျော်ရှိရာ နှစ်အနည်းငယ်အတွင်း ပြည်တွင်း၌သာ အများဆုံး ရရှိ ဝယ်ယူ နိုင်ရေးအတွက် ဆိုင်ရာတို့က ပူးပေါင်း ဆောင်ရွက်လျက်ရှိသည်ဟုသိရ၏။ (၀၃၀)

....o....

ကြို တင်ဝယ်စပါး လကုန် အပြီးသွင်းမည်

တွံတေး ဧပြီ၁၀ရီ၂၄

တွံတေးမြို့နယ် သမဝါယမ

ဧပြီ၁၀ရီ ၂၄ရက်က မန္တလေး၁၄ရပ်အထက် ၆ မူလ တန်းဆရာဖြစ်သင်တန်း တက်လို သူများ စစ်ဆေးစဉ်။

တောလှုံရေးကောင်စီကပြဋ္ဌာန်းထားသောပြည်သူ့ကောင်စီ ဥပဒေနှင့် အညီ ပထမအကြိမ် ပြည်သူ့ကောင်စီ အစည်းအဝေးများက ပြည်သူ့ကောင်စီ ချောင်ကျေးရွာတွင် စပါးဝယ်ယူရေး ဆွေးနွေးပွဲ ကျင်းပ သည်။ တောင်သူ လယ်သမား များက

အမှတ် ၁၅၆၁၊ ၁၃၃၅–၃ တပေါင်းလဆန်း ၅ ရက် တနင်းလာနေ့ ၂၅–၂–၇၄

ဟံသာဝတီ

A Burmese newspaper. Its title is ဟံသာဝတီ *hansāwatī*.

Nakanishi page 73. -19-

PROPOSAL SUMMARY FORM

A. Administrative

1. Title: Proposal for Extension to Myanmar Coded Set

2. Requester's name: Professor John Okell and Hugh McG Ross, U.K.

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

4. Submission date:

5. Requester's reference (if applicable):

6. (Choose one of the following:)
This is a complete proposal: ; or,
More information will be provided later: Complete proposal

B. Technical - General

1. (Choose one of the following:)

a. This proposal is for a new script (set of characters):
Proposed name of script:

b. The proposal is for addition of character(s) to an existing block:
Name of the existing block: Addition to existing Myanmar block

2. Number of characters in proposal: Twenty nine

3. Proposed category (see section II, Character Categories): A

4. Proposed Level of Implementation (see clause 15, ISO/IEC 10646-1): Levels 3 and 2
Is a rationale provided for the choice?
If Yes, reference: Yes, in this Proposal

5. Is a repertoire including character names provided?: Yes

a. If YES, are the names in accordance with the 'character naming guidelines' in Annex K of ISO/IEC 10646-1? Yes
b. Are the character shapes attached in a reviewable form? Yes

6. Who will provide the appropriate computerized font (ordered preference: True Type, PostScript or 96x96 bit-mapped format) for publishing the standard?
Michael Everson, Everson Gunn Teoranta, Ireland
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used: Michael Everson. Truetype

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

Definitive books by Professor Okell 'Burmese, an Introduction to the Script' and 'A Guide to the Romanization of Burmese' and 'A Reference Grammar of Colloquial Burmese'. Also:
Myanmar's Proposal WG2 N 815, as superseded by the Revised Myanmar Proposal tabled at the London WG2 meeting (in blue cover). Also:
Official National Statement of Myanmar Orthography.

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

Yes, attached to this Proposal. Myanmar is well known.

8. Special encoding issues: No

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, in particular presentation, formatting, sorting, searching, matching, indexing, transliteration.

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? No
If YES explain

2. 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.
If YES, with whom?
If YES, available relevant documents?

Myanmar national body, and Myanmar national experts. Experts and users within School of Oriental and African Studies, London University.

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

45 million people live in Myanmar. All are potential users of these characters,

4. The context of use for the proposed characters (type of use; common or rare) Common
Reference: See Nakanishi page 73

5. Are the proposed characters in current use by the user community? Yes.
If YES, where? Reference:

6. After giving due considerations to the principles in N 1352 must the proposed characters be entirely in the BMP?
If YES, is a rationale provided? Yes.
If YES, reference: See FPDAM 26.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)? Preferably adjacent to Basic set of FPDAM 26.

8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?
If YES, is a rationale for its inclusion provided?
If YES, reference:

Yes for presentation only. But problems, most unique to use of Myanmar writing system, arise for processing applications. Rationale is included in this Proposal.

9. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?
If YES, is a rationale for its inclusion provided? No.
If YES, reference:

10. Does the proposal include use of combining characters and/or use of composite sequences (see clause 4.11 and 4.13 in ISO/IEC 10646-1)?
If YES, is a rationale for such use provided? No.
If YES, reference:

Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?
If YES, reference: No.

11. Does the proposal contain characters with any special properties such as control function or similar semantics?
If YES, describe in detail (include attachment if necessary) No.

D. SC 2/WG 2 Administrative (To be completed by SC 2/WG 2)

1. Relevant SC 2/WG 2 document numbers:

2. Status (list of meeting number and corresponding action or disposition):

3. Additional contact to user communities, liaison organizations etc: