

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

**Doc Type:** Working Group Document

**Title:** Preliminary proposal for encoding the Bamum script in the BMP of the UCS

**Source:** Michael Everson and Charles Riley

**Status:** Individual Contribution

**Action:** For consideration by JTC1/SC2/WG2 and UTC

**Date:** 2007-03-21

**0. Introduction.** This is a preliminary proposal to encode the Bamum script in the BMP of the UCS. Bamum is spoken by about 215,000 people living in Cameroon, chiefly in West Province, most of Noun Division around Foumban, as well as in the extreme north of Mifi Division and in the southeast of Bamboutos Division. It is a Benue-Congo language of the Grassfields branch. The Bamum script was devised in c. 1896 by Sultan Njoya and his scribes. The traditional Bamum corpus consists of many hundreds of manuscripts, chiefly of history texts, treatises on traditional medicine, local cartography, personal correspondence, and illustrated folktales.

The development of the Bamum script exemplifies the shift from a logographic writing system to a syllabic one. The earliest Bamum texts have a strong logographic component, and early on the logographs were used syllabically, such as in the name  $\dot{\text{a}}^{\text{p}}^{\text{p}} \text{Mbuembue}$  (where  $\text{p}$  is *pue* ‘hand’ and  $\dot{\text{a}}$  indicates that what follows is a personal name). The Bamum script underwent five structural revisions, culminating in the 1918 revision known as *Akauku* ‘Alphabet’, consisting of 88 characters. It is this last form which enjoys current use in Bamumland. Accordingly, it is this form of the Bamum script which is proposed for encoding in the BMP. The remaining Bamum characters, belonging to the previous revisions, number somewhere between 500 and 600; these do not need to be encoded in the BMP, but should instead be encoded in the SMP. They require further study before they can be proposed.

**1. Structure.** The Bamum script is a left-to-right script containing 80 base characters, two combining diacritics, and six punctuation marks. One of the diacritics, the KOQNDON (from *ko?ndon*), is regularly applied to all of the 80 base characters to extend the syllabic repertoire. The other, the tukwentis, is known to be used with only 13 base characters.

**2. Character names.** The transcription of the consonants is fairly straightforward. The following convention is used to transcribe the vowels: *a* A, *u* U, *e* EE, *o* O, *ə* AE, *i* I, *ɛ* E, *u* EU, *ü* UE; *ʔ* Q is used for the glottal stop. The IPA forms which are transcribed are taken from Dugast and Jeffreys 1950.

**3. Digits.** The last ten base characters in the syllabary are digits, which are also used as letters. Historically, the last of these was used for 10, but when decimal mathematics were introduced its use was modified to 0.

**4. Punctuation.** Five sentence punctuation marks are used, which correspond to, and were probably inspired by, European punctuation. The FULL STOP *!* or *jak* indicates a “point: and corresponds to <.>; the COLON *!:* or *beshtik jak* indicates “two points” and corresponds to <:>; the COMMA *τ* or *kipti* corresponds



A6B4;BAMUM LETTER SUU;Lo;0;L;;;;;N;;;;;  
A6B5;BAMUM LETTER MU;Lo;0;L;;;;;N;;;;;  
A6B6;BAMUM LETTER SHII;Lo;0;L;;;;;N;;;;;  
A6B7;BAMUM LETTER SU;Lo;0;L;;;;;N;;;;;  
A6B8;BAMUM LETTER SHEUX;Lo;0;L;;;;;N;;;;;  
A6B9;BAMUM LETTER SEUX;Lo;0;L;;;;;N;;;;;  
A6BA;BAMUM LETTER KYEE;Lo;0;L;;;;;N;;;;;  
A6BB;BAMUM LETTER KET;Lo;0;L;;;;;N;;;;;  
A6BC;BAMUM LETTER NUAE;Lo;0;L;;;;;N;;;;;  
A6BD;BAMUM LETTER NU;Lo;0;L;;;;;N;;;;;  
A6BE;BAMUM LETTER NJUAE;Lo;0;L;;;;;N;;;;;  
A6BF;BAMUM LETTER YOQ;Lo;0;L;;;;;N;;;;;  
A6C0;BAMUM LETTER SHU;Lo;0;L;;;;;N;;;;;  
A6C1;BAMUM LETTER YUQ;Lo;0;L;;;;;N;;;;;  
A6C2;BAMUM LETTER YA;Lo;0;L;;;;;N;;;;;  
A6C3;BAMUM LETTER NSHA;Lo;0;L;;;;;N;;;;;  
A6C4;BAMUM LETTER KEUX;Lo;0;L;;;;;N;;;;;  
A6C5;BAMUM LETTER PEUX;Lo;0;L;;;;;N;;;;;  
A6C6;BAMUM LETTER NJEE;Lo;0;L;;;;;N;;;;;  
A6C7;BAMUM LETTER NTEE;Lo;0;L;;;;;N;;;;;  
A6C8;BAMUM LETTER PUE;Lo;0;L;;;;;N;;;;;  
A6C9;BAMUM LETTER WUE;Lo;0;L;;;;;N;;;;;  
A6CA;BAMUM LETTER PEE;Lo;0;L;;;;;N;;;;;  
A6CB;BAMUM LETTER FEE;Lo;0;L;;;;;N;;;;;  
A6CC;BAMUM LETTER RU;Lo;0;L;;;;;N;;;;;  
A6CD;BAMUM LETTER LU;Lo;0;L;;;;;N;;;;;  
A6CE;BAMUM LETTER MI;Lo;0;L;;;;;N;;;;;  
A6CF;BAMUM LETTER NI;Lo;0;L;;;;;N;;;;;  
A6D0;BAMUM LETTER REUX;Lo;0;L;;;;;N;;;;;  
A6D1;BAMUM LETTER RAE;Lo;0;L;;;;;N;;;;;  
A6D2;BAMUM LETTER KEN;Lo;0;L;;;;;N;;;;;  
A6D3;BAMUM LETTER NGKWAEN;Lo;0;L;;;;;N;;;;;  
A6D4;BAMUM LETTER NGGA;Lo;0;L;;;;;N;;;;;  
A6D5;BAMUM LETTER NGA;Lo;0;L;;;;;N;;;;;  
A6D6;BAMUM LETTER SHO;Lo;0;L;;;;;N;;;;;  
A6D7;BAMUM LETTER PUAE;Lo;0;L;;;;;N;;;;;  
A6D8;BAMUM LETTER FU;Lo;0;L;;;;;N;;;;;  
A6D9;BAMUM LETTER FOM;Lo;0;L;;;;;N;;;;;  
A6DA;BAMUM LETTER WA;Lo;0;L;;;;;N;;;;;  
A6DB;BAMUM LETTER NA;Lo;0;L;;;;;N;;;;;  
A6DC;BAMUM LETTER LI;Lo;0;L;;;;;N;;;;;  
A6DD;BAMUM LETTER PI;Lo;0;L;;;;;N;;;;;  
A6DE;BAMUM LETTER LOQ;Lo;0;L;;;;;N;;;;;  
A6DF;BAMUM LETTER KO;Lo;0;L;;;;;N;;;;;  
A6E0;BAMUM LETTER MBEN;Lo;0;L;;;;;N;;;;;  
A6E1;BAMUM LETTER REN;Lo;0;L;;;;;N;;;;;  
A6E2;BAMUM LETTER MEN;Lo;0;L;;;;;N;;;;;  
A6E3;BAMUM LETTER MA;Lo;0;L;;;;;N;;;;;  
A6E4;BAMUM LETTER TI;Lo;0;L;;;;;N;;;;;  
A6E5;BAMUM LETTER KI;Lo;0;L;;;;;N;;;;;  
A6E6;BAMUM LETTER MO;Nl;0;L;;;;;1;N;;;;;  
A6E7;BAMUM LETTER MBAA;Nl;0;L;;;;;2;N;;;;;  
A6E8;BAMUM LETTER TET;Nl;0;L;;;;;3;N;;;;;  
A6E9;BAMUM LETTER KPA;Nl;0;L;;;;;4;N;;;;;  
A6EA;BAMUM LETTER TEN;Nl;0;L;;;;;5;N;;;;;  
A6EB;BAMUM LETTER NTUU;Nl;0;L;;;;;6;N;;;;;  
A6EC;BAMUM LETTER SAMBA;Nl;0;L;;;;;7;N;;;;;  
A6ED;BAMUM LETTER FAAMAE;Nl;0;L;;;;;8;N;;;;;  
A6EE;BAMUM LETTER KOVUE;Nl;0;L;;;;;9;N;;;;;  
A6EF;BAMUM LETTER KOGHOM;Nl;0;L;;;;;0;N;;;;;  
A6F0;BAMUM LETTER KOQNDON;Mn;230;NSM;;;;;N;;;;;  
A6F1;BAMUM LETTER TUKWENTIS;Mn;230;NSM;;;;;N;;;;;  
A6F2;BAMUM LETTER NJAEMLI;Po;0;ON;;;;;N;;;;;  
A6F3;BAMUM FULL STOP;Po;0;CS;;;;;N;;;;;  
A6F4;BAMUM COLON;Po;0;CS;;;;;N;;;;;  
A6F5;BAMUM COMMA;Po;0;CS;;;;;N;;;;;  
A6F6;BAMUM SEMICOLON;Po;0;ON;;;;;N;;;;;  
A6F7;BAMUM QUESTION MARK;Po;0;ON;;;;;N;;;;;

## **7. Bibliography.**

Dugast, J. & M. D. W. Jeffreys. 1950. *L'écriture des bamum: sa naissance, son evolution, sa valeur phonétique, son utilisation*. Mémoires de l'Institut Français d'Afrique Noire, Centre du Cameroun.

Nchare, Oumarou. [s.d.]. *The Writing of King Njoya: genesis, evolution, use*. Foumban: Palais des Rois Bamoun, Maison de la Culture.

Schmitt, Alfred. 1963. *Die Bamum-Schrift*. Band I: Text. Wiesbaden: Otto Harrassowitz.

## **Acknowledgements**

This project was made possible in part by invaluable support from the Bamum Scripts and Archives Project in the Palace of Bamum Kings, Foumban, Cameroon, as well as by support from HRAF, the Human Relations Area Files, Inc. at Yale University, New Haven.

TABLE XX - Row A6: BAMUM

	A6A	A6B	A6C	A6D	A6E	A6F
0	𐞂	𐞃	𐞄	𐞅	𐞆	𐞇
1	𐞈	𐞉	𐞊	𐞋	𐞌	𐞍
2	𐞎	𐞏	𐞐	𐞑	𐞒	𐞓
3	𐞔	𐞕	𐞖	𐞗	𐞘	𐞙
4	𐞚	𐞛	𐞜	𐞝	𐞞	𐞟
5	𐞠	𐞡	𐞢	𐞣	𐞤	𐞥
6	𐞦	𐞧	𐞨	𐞩	𐞪	𐞫
7	𐞬	𐞭	𐞮	𐞯	𐞰	𐞱
8	𐞲	𐞳	𐞴	𐞵	𐞶	
9	𐞷	𐞸	𐞹	𐞺	𐞻	
A	𐞼	𐞽	𐞾	𐞿	𐟀	
B	𐟁	𐟂	𐟃	𐟄	𐟅	
C	𐟆	𐟇	𐟈	𐟉	𐟊	
D	𐟋	𐟌	𐟍	𐟎	𐟏	
E	𐟐	𐟑	𐟒	𐟓	𐟔	
F	𐟕	𐟖	𐟗	𐟘	𐟙	

G = 00  
P = 00

**TABLE XX - Row A6: BAMUM**

hex	Name	hex	Name
A0	BAMUM LETTER A	F9	(This position shall not be used)
A1	BAMUM LETTER KA	FA	(This position shall not be used)
A2	BAMUM LETTER U	FB	(This position shall not be used)
A3	BAMUM LETTER KU	FC	(This position shall not be used)
A4	BAMUM LETTER EE	FD	(This position shall not be used)
A5	BAMUM LETTER REE	FE	(This position shall not be used)
A6	BAMUM LETTER TAE	FF	(This position shall not be used)
A7	BAMUM LETTER O		
A8	BAMUM LETTER NYI		
A9	BAMUM LETTER I		
AA	BAMUM LETTER LA		
AB	BAMUM LETTER PA		
AC	BAMUM LETTER RII		
AD	BAMUM LETTER RIE		
AE	BAMUM LETTER LEEEEE		
AF	BAMUM LETTER MEEEEE		
B0	BAMUM LETTER TAA		
B1	BAMUM LETTER NDAA		
B2	BAMUM LETTER NJAEM		
B3	BAMUM LETTER M		
B4	BAMUM LETTER SUU		
B5	BAMUM LETTER MU		
B6	BAMUM LETTER SHII		
B7	BAMUM LETTER SU		
B8	BAMUM LETTER SHEUX		
B9	BAMUM LETTER SEUX		
BA	BAMUM LETTER KYEE		
BB	BAMUM LETTER KET		
BC	BAMUM LETTER NUAE		
BD	BAMUM LETTER NU		
BE	BAMUM LETTER NJUAE		
BF	BAMUM LETTER YOQ		
C0	BAMUM LETTER SHU		
C1	BAMUM LETTER YUQ		
C2	BAMUM LETTER YA		
C3	BAMUM LETTER NSHA		
C4	BAMUM LETTER KEUX		
C5	BAMUM LETTER PEUX		
C6	BAMUM LETTER NJEE		
C7	BAMUM LETTER NTEE		
C8	BAMUM LETTER PUE		
C9	BAMUM LETTER WUE		
CA	BAMUM LETTER PEE		
CB	BAMUM LETTER FEE		
CC	BAMUM LETTER RU		
CD	BAMUM LETTER LU		
CE	BAMUM LETTER MI		
CF	BAMUM LETTER NI		
D0	BAMUM LETTER REUX		
D1	BAMUM LETTER RAE		
D2	BAMUM LETTER KEN		
D3	BAMUM LETTER NGKWAEN		
D4	BAMUM LETTER NGGA		
D5	BAMUM LETTER NGA		
D6	BAMUM LETTER SHO		
D7	BAMUM LETTER PUAE		
D8	BAMUM LETTER FU		
D9	BAMUM LETTER FOM		
DA	BAMUM LETTER WA		
DB	BAMUM LETTER NA		
DC	BAMUM LETTER LI		
DD	BAMUM LETTER PI		
DE	BAMUM LETTER LOQ		
DF	BAMUM LETTER KO		
E0	BAMUM LETTER MBEN		
E1	BAMUM LETTER REN		
E2	BAMUM LETTER MEN		
E3	BAMUM LETTER MA		
E4	BAMUM LETTER TI		
E5	BAMUM LETTER KI		
E6	BAMUM LETTER MO		
E7	BAMUM LETTER MBAA		
E8	BAMUM LETTER TET		
E9	BAMUM LETTER KPA		
EA	BAMUM LETTER TEN		
EB	BAMUM LETTER NTUU		
EC	BAMUM LETTER SAMBA		
ED	BAMUM LETTER FAAMAE		
EE	BAMUM LETTER KOVUE		
EF	BAMUM LETTER KOGHOM		
F0	BAMUM SIGN KOQNDON		
F1	BAMUM SIGN TUKWENTIS		
F2	BAMUM SIGN NJAEMLI		
F3	BAMUM FULL STOP		
F4	BAMUM COLON		
F5	BAMUM COMMA		
F6	BAMUM SEMICOLON		
F7	BAMUM QUESTION MARK		
F8	(This position shall not be used)		

Sultan NJOYA, Roi des Bamun, 1<sup>er</sup> écrivain Camerounais



5377 1889 **FOUMBAN-CAMEROUN** 3777 1933

Figure 1. Sample of a postcard showing the syllabary.

**Le Sultan Njoya Roi des Bamun**

1<sup>er</sup> (écrivain, linguiste et théologien) camerounais



1889 - 1933

Foumban - Cameroun

Figure 2. Sample of a postcard showing the syllabary.

Some licence has been taken by the artist, Idrissou Njoya, with respect to the Sultan's use of a computer!



## A. Administrative

### 1. Title

Preliminary proposal for encoding the Bamum script in the BMP of the UCS.

### 2. Requester's name

Michael Everson and Charles Riley

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

Individual contribution.

### 4. Submission date

2007-03-21

### 5. Requester's reference (if applicable)

### 6. Choose one of the following:

#### 6a. This is a complete proposal

No.

#### 6b. More information will be provided later

Yes.

## 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

Bamum.

#### 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

88

### 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?

Jason Glavy via Michael Everson.

#### 5b. 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. 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. 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?**

Oumarou Nchare (Director of Cultural Affairs, Bamum King's Palace, Foumban), Aboubakar Njiassé Njoya, Zakari Nkepu, Konrad Tuchscherer.

**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?**

In Cameroon.

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

Used to write the Bamum language.

**4b. Reference**

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

Yes.

**5b. If YES, where?**

In Cameroon.

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

Yes. Positions A680-A6DF are proposed.

**6b. If YES, is a rationale provided?**

Yes.

**6c. If YES, reference**

Contemporary use.

**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, but only superficially so.

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

Yes.

**10c. If YES, reference**

Script-specific diacritics are appropriate for this script due to the origin, typical glyph size, and semantics of the diacritics. We oppose unification with generic circumflex and macron.

**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)?**

Yes.

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

No

**11c. If YES, reference**

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

Yes.

**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?**