

Towards the Encoding of the Bamum Script in the UCS
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Phases of the Bamum Script

The invention of the Bamum script begins with the 16th king of the Bamum kingdom, Ibrahim Njoya, who ruled between c. 1895 and 1931. According to most sources, Njoya is believed to have begun working on the script shortly after the beginning of his reign, around 1896. With the help and close attention of scribes from the start, the script soon expanded to cover an estimated 500 logographs (of which 466 are known) in its first phase, the *lewa* (roughly translated as ‘book’.) Although no significant works are believed to have survived from this initial period (1896-1899), Mme. Idelette Dugast and Mervyn D. W. Jeffreys, writing in 1950, present some evidence to suggest that at least in certain instances (in the spelling of proper names such as Mbuombuo and Njoya, for example) the writing began to make use of the syllabic values of these logographs, as the names were spelled with one sign per syllable. Many of the logographs were monosyllabic, and would have lent themselves to such a use. They further observe that this early set of characters included words from discernable categories such as terms for notables of the palace, animals, parts of the body, food and field products, and household objects. During its first phase, the numbers one through ten were introduced, and from analysis of their order in an early table, Dugast & Jeffreys conclude that at this time, it would have possible to see the script written vertically from top to bottom, an orientation which changed to left-to-right horizontal directionality in all its subsequent phases. The table of the *lewa* characters also appears as ‘Zeichentafel A’ in A. Schmitt’s *Die Bamum-Schrift*, 1960.

Among this initial set of characters is one which served a unique function, the *njemli*, used to introduce proper names, or to change the meaning of a logograph—albeit not in a predictable way—for example, from ‘week’ to ‘antelope’; ‘ruins’ to ‘drum’; etc. The shape of the glyph has changed, but the character is still in use in the modern form of the script, as (ǝ).

Between c. 1899 and c. 1905, Njoya suppressed the use of 69 characters¹, and introduced another forty-five. The second phase of the character set is known as the *mbima* (‘mixed’, equal to Schmitt’s ‘Zeichentafel B’). This phase of the script, according to the informants of Dugast & Jeffreys, was restricted in use to only a few members of the palace, and they only knew of one or two surviving works that had been produced using the script.

Njoya proceeded quickly into a third phase of the script, called the *nyi nyi n̄sa m̄fiu* (‘to see farther’, see also Schmitt’s ‘Zeichentafel C’). Here, another 54 signs were removed. No new signs were added; anything in use during this time had already existed in an earlier phase.

From this point forward through subsequent phases, only another four new characters would be innovated: those for *ndaa*, *nḡee*, *fu*, and *nje*. The rest of the changes between phases from this time on consist of a further net reduction of the character set, for the most part, with some limited reintroductions of characters from earlier periods. Texts that survived from this period (1906-1908) include letters from Njoya to his mother, replies from his mother, letters to other correspondents, an agricultural calendar, and other works. Facsimiles of these works are reproduced in Schmitt, *Die Bamum-Schrift*, v. 3.

¹Dugast and Jeffreys report this figure as 72, but I am interpreting this reference of theirs as an error, since the data they provide only yields 69 characters.

The fourth phase of the script, the *rii nyi nfa mfu*², consisted of approximately 290 characters. It is during this phase that the characters began to be grouped two by two, a convention that continues into the modern phase of the script to aid recitation and memorization.

The fifth phase of the script, the *rii nyi mfu men*, saw the character set reduced to around 200 characters. It is this phase which Dugast & Jeffreys deem to be “l’alphabet le plus défectueux”, in that many of the phonemic possibilities have been restricted, while among those characters that remain, many are retained to express a distinction in tone between homonyms.

There was one last major transformation that the script would pass through, an overhaul in 1910 by Njoya to reduce the alphabet to a set of 70 characters, mostly monosyllabic, or carrying the value of a single vowel or phoneme, for the phase known as the *a ka u ku*. A diacritic mark was introduced at this point, the *kəʔndən* (or *toukwen*): (̂), which usually carried the function of glottalizing the final vowel of a syllable, and later, the *toukwentis* (̄) was added, with the regular function of converting a full syllable into a phoneme occurring in the final position of a word. There are some exceptions to the functions of both of these diacritical marks; these cases are examined in Table 1. Some stylistic variations of the *a ka u ku* were developed between 1910 and 1922: *ngutngura*, *lerəwa niet*, *mfemfe* (or *ngkuəngkuə*), and *mi ntuntə*; each shared essentially the same character set with no significant variation in use between them.

Functions of the *toukwen* (or *kəndən*):

ᵐ	ᵐ̂	ᵐ	ᵐ̂	ᵐ	ᵐ̂	ᵐ	ᵐ̂
nyi	nye	rie	z	njem	yəm	m	n
ᶄ	ᶄ̂	ᶄ	ᶄ̂	ᶄ	ᶄ̂	ᶄ	ᶄ̂
shuu	yuu	ket	keʔ	nuə	ɲuə	njuə	yuən
ᵐ	ᵐ̂	ᵐ	ᵐ̂	ᵐ	ᵐ̂	ᵐ	ᵐ̂
kuu	uu	wi	ü	ni	nən	kwen	ɲuət ²
ᶄ	ᶄ̂	ᶄ	ᶄ̂	ᶄ	ᶄ̂	ᶄ	ᶄ̂
fem	mvəp	pi	pin	mben	pen	mən	mən ³
ᶄ	ᶄ̂	ᶄ	ᶄ̂	ᶄ	ᶄ̂		
kpa	ɲma	vü	fü	gom	ɲgəm		

Function of the *toukwentis*⁴:

ᶄ̄	ᶄ̄̂
ᶄ̄	ᶄ̄̂

Table 1. Functions of the diacritical marks. While in regular cases, the *toukwen* functions to add a glottal stop and the *toukwentis* truncates a syllable to a terminal consonantal phoneme, there are several exceptions, as listed above, following p. 32 *bis* and *ter* of Dugast and Jeffreys, whose primary informants for this exercise were Nji Mama and Yerema Issah⁵.

²According to Oumarou Nchare, the value of ᶄ̂ is *kwet*.

³High tone.

⁴Further investigation is needed to clarify the values of ᶄ̄̂ and ᶄ̄̂̂, and to distinguish between the terminal phonemes represented by ᶄ̄̂ and ᶄ̄̂̂.

⁵Another of Dugast & Jeffrey’s informants, Mfəpu, held the view that the value of ᶄ̂ is *riem*, ᶄ̂̂ is *wam* (rather than *waʔ*), and that ᶄ̂̂̂ is *ndoʔ*, rather than *loʔ*.

consonant cluster. Father Henri Martin explicitly states that he is following Ward's method, but replaces (u) with (ũ), and uses apostrophes to represent glottal stops.

Post-1960, there has been more divergence from the conventions Ward introduced in 1938. Emmanuel Matateyou's *Parlons Bamoun* relies on a 1979 conference held in Yaoundé to develop a national alphabet for Cameroonian languages. The main differences in his transcription method include the marking of tone (high, low, medium, rising and falling); the use of (ɥ) for (u), and use of (ɓ) as an additional plosive.

Neither Jean Ndane nor Oumarou Nchare explicitly mention a source for their transcription conventions, but both make ample use of diacritics in an apparent effort to bring the transcription closer to an orthography familiar to readers of French, abandoning use of extended IPA characters.

In the present report, I have made no effort to strictly follow any one method, since each requires explanation on its own terms, but have generally tried to stay consistent with a modified use of Ward's analysis, while for the most part overlooking tonal markings and using extended IPA characters sparingly.

Considerations for Encoding Numbers and Punctuation

The characters for the numerals serve a dual function, usable for syllables or phonemes as well. All may take the *toukwen*, to glottalize the syllable, while only the character for '1' (*mo*) may take the *toukwentis*. Before *a ka u ku*, the tenth numeral character stood for '10' (*ghom*), or the number of tens in a given number. With the introduction of *a ka u ku*, the system of writing numbers shortened to allow 2 to represent zero (*ndəm ndəm*) directly in decimal representation.

It should be mentioned here that Sultan Njoya innovated not only a script for his own language, but invented a new language as well for which the Bamum script is also used. The invented language, known as Shümom, retains all the same phonemic values of the script throughout the alphabet, but applies different names to the numerals and to punctuation. While for the letters and numbers, the Bamum names are familiar and recognizable as the basis for character naming, the same might not be as true for the punctuation marks. In the Bamum language, the names for the Latin-based punctuation marks are largely borrowed from western languages, as follows:

Comma	<i>koma</i>	,
Full stop	<i>pon</i>	.
Semicolon	<i>pon ne koma</i>	;
Colon	<i>pe'pon</i>	:
Question mark	<i>pon ne yu pishe</i>	?

In Shümom, the equivalent names are:

Comma	<i>kipti</i>	τ
Full stop	<i>jak</i>	/·
Semicolon	<i>kipti jak</i>	τ/·
Colon	<i>beshtik jak</i>	/·/·
Question mark	<i>wili</i>	↓

Alternative strategies for encoding the archaic stages

There are several factors to consider in developing a collation that would include the archaic character set. To begin with, each phase had a unique sort order associated with it; thus a unified collation could not, by definition, be both traditional and comprehensive at the same time. Thus it becomes a matter of whether to

split the character set into archaic and modern ranges, and what best suits user expectations.

There would need to be 88 codepoints available for the modern *a ka u ku* to be encoded in the BMP. A subset of the archaic character sets is unifiable with the modern set, making the minimum space needed for the archaic range to be encoded in the SMP another 444 codepoints. Alternatively, if disunified, the figure for the archaic range could reach 586. If there is insufficient space left in the BMP to encode the set in modern use, the minimum space needed on the SMP, unifying where possible, would be 532 codepoints. All of the above figures are stated under the assumption of no precomposed characters.

For meeting user expectations, two chief alternatives emerge: either (i) sort according to a reliable inventory of the characters, such as Dugast & Jeffreys, or (ii) sort the archaic characters according to the spelling of the values in the modern *a ka u ku*. Either strategy presents certain costs: in the first case, Dugast & Jeffreys have established a sort that gives primary weight to the chronological period in which the character was last used, and secondary weight to the order in which it appears in the earliest reference table that includes it. While this is of some use, particularly to historians of the script, it requires that the user know during which phase(s) a given character was in use, and where it would have appeared in a reference table. In the second case, given a known character name, the user would be able to find it more easily, except that spelling conventions would vary widely, as there are to date few authoritative sources that offer an adequate treatment of lexicography in the Bamum script.

Considerations for keyboard implementation:

A preference was expressed for a keyboard layout that would present the characters in order, paired between shift and non-shift states (*a/ka; u/ku; etc.*) despite the fact that there is no question of casing involved. We propose the following layout, which largely meets this test, although the number of characters extends slightly beyond the three ranges of keys normally used for the alphabet. For the last four syllabic characters *men, ma, ti, and ki*, we have made use of the upper right-hand corner of the layout, leaving four other spaces open for mathematical symbols or other punctuation as needed. This layout, based on a sketch by Zakari Nkepu, is presented in Figure 2.

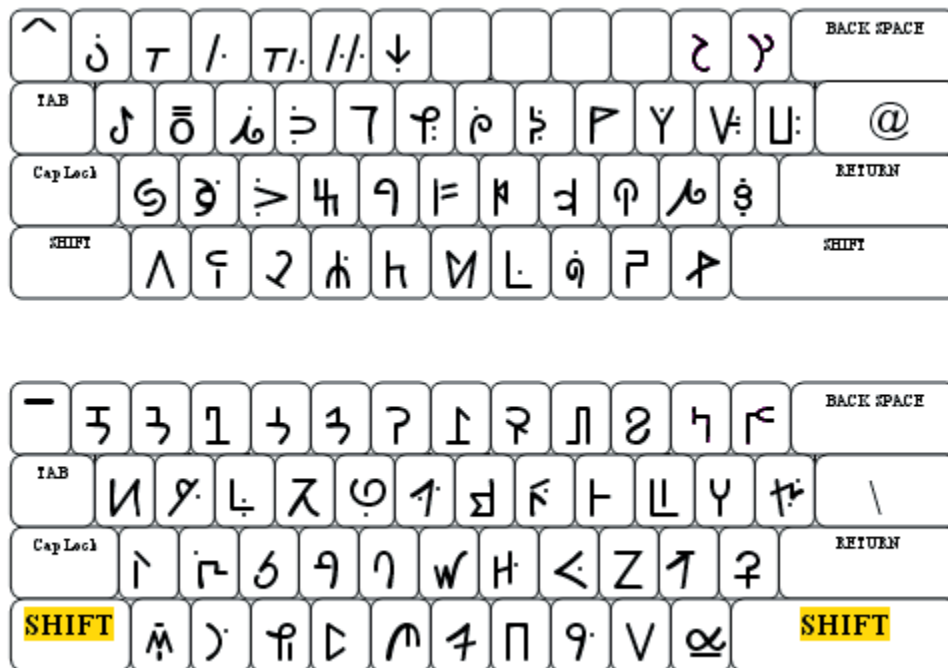


Figure 2. Proposed keyboard layout for Bamum.

Sources

- Dugast, Idelette and M.D.W. Jeffreys. 1950. *L'écriture des Bamum*. Yaoundé: IFAN.
- Matateyou, Emmanuel. 2002. *Parlons Bamoun*. Paris : L'Harmattan.
- Musées de Marseille. 1997. *Les dessins bamum*. Marseille / Foumban: Musée des Arts Africaines, Océaniens, Amérindiens.
- Nchare, Oumarou. [c. 2005] *L'écriture du roi Njoya: naissance-évolution-utilisation*. Foumban: Palais des Rois Bamoun.
- Ndane, Jean. 1989. *Syllabaire en langue bamoun / Ndâ Shùkét Pamom*. Yaoundé: CEPER.
- Njoya, Ibrahim. 1952. *Histoire et Coutumes des Bamum*, translated by Fr. Henri Martin. Yaoundé: IFAN.
- . 1987. *Ijga Nsapjam: Recueil de proverbes Bamum*, translated by Emmanuel Ghomsi, Aboubakr Njiasse Njoya, and Martin Njimotapon Njikam. Yaoundé: Centre de Recherche et d'Études Anthropologiques.
- Schmitt, Alfred. 1963. *Die Bamum-Schrift*. Wiesbaden : Harrasowitz.