ISO/IEC JTC1/SC2/WG2 N4980

2018-06-13

Universal Multiple-Octet Coded Character Set

International Organization for Standardization

Organisation Internationale de Normalisation

Международная организация по стандартизации

TITLE: PROPOSAL TO FIX GLYPHS IN BOPOMOFO EXTENDED BLOCK
AND ENCODE ONE BOPOMOFO LETTER
SOURCE: TCA, BOBBY TUNG, BUT KO, SELENA WEI
STATUS: INDIVIDUAL CONTRIBUTION
ACTION: FOR CONSIDERATION BY JTC1/SC2/WG2 AND UTC
DATA: 2018-06-13

1.   Introduction

This is a proposal for two purposes. One is to fix glyphs in Bopomofo Extended. Another purpose is to encode one Bopomofo letter(a subscript 《). For these purposes, we provide a new font file and hope to replace Bopomofo in next ISO/IEC 10646 to correct those issues.

2.   Issues

(1)   Fix glyphs in Bopomofo Extended

Bopomofo Extended is additional Bopomofo characters for writing phonetic Min Nan, Hakka Chinese. Ministry of Education Taiwan published "The Phonetic Symbols System for Dialect" in January 12th 1998. TCA submitted to in March 19th 1998 as Bopomofo Extended (N1713R).

But Glyphs in Bopomofo Extended block are different with original submission (see fig.1).

Those differences are:

A.   ट U+31A6 BOPOMOFO LETTER OO and related glyphs

U+31A6	BOPOMOFO LETTER OO	ट
U+31A7	BOPOMOFO LETTER ONN	ढ़
U+31B1	BOPOMOFO LETTER OM	ढ़

U+31A6 ㆎ is used in Min Nan, its sound is between U+311B ㄛ and U+311C ㄜ. To differ from them, It's shape is an horizontal stroke with a curve in diamond shape, not a hook like ㄛ and ㄜ.

Both U+31A7 ㆧ and U+31B1 ㆱ use U+31A6 ㆎ as component due to pronunciation context.

So it's glyphs should follow glyph of U+31A6 ㆎ.

B.   Nasal vowels

U+31A5	BOPOMOFO LETTER ENN	ㄵ
U+31A9	BOPOMOFO LETTER ANN	ㄚ
U+31AA	BOPOMOFO LETTER INN	ㆺ
U+31AB	BOPOMOFO LETTER UNN	ㄨ
U+31AE	BOPOMOFO LETTER AINN	万
U+31AF	BOPOMOFO LETTER AUNN	ㄠ
U+31B3	BOPOMOFO LETTER INNN	ㄐ

These 9 glyphs are nasal vowels share same stroke that is a circle which crossed in the end. It's important indicator for pronunciation. But in Unicode 10 standard, those glyphs are with circle closed in the end.

C.   Voiced consonants

U+31A0	BOPOMOFO LETTER BU	ㄅ
U+31A1	BOPOMOFO LETTER ZI	ㆡ
U+31A2	BOPOMOFO LETTER JI	ㄐ
U+31A3	BOPOMOFO LETTER GU	ㄍ

These 4 glyphs are voiced consonants share same stroke that is closed circle in the end. In Unicode 10 standard, the circle in those glyphs is too small if compare to original submission. And

U+31A0 ㆠ should follow glyph of U+3105 ㄅ, not U+3123 ㄣ.

We provide a font file (fig.3) that contain glyphs in Bopomofo and Bopomofo Extended block that is reviewed by Ministry of Education Taiwan. We want to replace sample glyphs in next update of ISO/IEC 10646 to correct those issues.

(2) Encode one Bopomofo letter

U+31BB	BOPOMOFO FINAL LETTER G	《

BOPOMOFO FINAL LETTER G (a subscript 《) was in "The Phonetic Symbols System for Dialect" published by Ministry of Education Taiwan in 1998 (fig.2). But it is not submitted to Unicode yet.

Recently Bopomofo Extend is wildly used for dialect education in Taiwan. We'd like to correct glyphs in Bopomofo Extended Block and submit BOPOMOFO FINAL LETTER G to complete the system in Unicode standard to ensure it can be used on information system for exchange and presentation.

3. *Unicode Properties*

31BB;BOPOMOFO FINAL LETTER G;Lo;0;L;;;;;N;;;;;
Other properties are the same as for other Bopomofo letters.

4. Figures

Fig 1. Encode error and Shapes bias in Bopomofo Extend Block.

	Dictionary	MOE Doc	N1713R L2/98-090	L2/98-202	L2/98-321	Unicode 10.0 Chart	2018 TCA New Font	
Iusse 1:	**Need to be appended**							
U+31BB	□ «	《					《	Missing since N1713R.
Issue 2 / Case 1:	**Shape is not good – oo**							
U+31A6	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	A good shape is a 3-sides diamond [Ref2]. It got wrong since L2/98-321.
U+31A7	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	It contains a ㄇ, not ㄆ. Wrong since N1713R.
U+31B1	ㄱ	ㄱ	ㄱ	ㄱ	ㄱ	ㄱ	ㄱ	It contains a ㄇ, not ㄆ. It got wrong since L2/98-321.
Issue 2 / Case 2:	**Shape is not good – Nasal vowels**							
U+31A9	ㄓ	ㄓ	ㄓ	ㄓ	ㄓ	ㄓ	ㄓ	The loop should be crossed. Wrong since N1713R.
U+31A7	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	ㄇ	The loop should be crossed. Although the images were not clearly, they was correct in N1713R to L2/98-321 and Unicode 3.0. However, new fonts shown in Unicode 10.0 code charts got wrong. Glyphs of most of existing fonts look correct
U+31A5	ㄗ	ㄗ	ㄗ	ㄗ	ㄗ	ㄗ	ㄗ	
U+31AA	ㄐ		ㄐ	ㄐ	ㄐ	ㄐ	ㄐ	
U+31AB	ㄘ	ㄘ	ㄘ	ㄘ	ㄘ	ㄘ	ㄘ	
U+31AE	ㄞ	ㄞ	ㄞ	ㄞ	ㄞ	ㄞ	ㄞ	
U+31AF	ㄟ	ㄟ	ㄟ	ㄟ	ㄟ	ㄟ	ㄟ	
U+31B3		ㄔ	ㄔ	ㄔ	ㄔ	ㄔ		
Issue 2 / Case 3:	**Roughly correct – Voiced consonants**							
U+31A0	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ	ㄅ	End with a closed loop. It look like a ㄅ in Unicode 10.0.
U+31A1	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	ㄆ	End with a closed loop. The sample font shown in Unicode code chart is not very good but acceptable.
U+31A2	ㄩ	ㄩ	ㄩ	ㄩ	ㄩ	ㄩ	ㄩ	
U+31A3	ㄣ	ㄣ	ㄣ	ㄣ	ㄣ	ㄣ	ㄣ	

Fig 2. Sample of BOPOMOFO FINAL LETTER G 's usage.

方音符號	例字
ㄨ ㄛ ㄏ	□□
ㄨ ㄨ ㄏ	□□
ㄨ ㄚ ㄅ	
ㄚ ㄅ	合壓
ㄚ ㄌ	達漆
ㄚ ㄍ	角六
ㄛ ㄅ	□
ㄛ ㄌ	福屋
ㄛ ㄨ ㄌ	溜(泉)
ㄨ ㄨ ㄌ	核(泉)
ㄨ ㄍ	黑(泉)
ㄧ ㄅ	急立
ㄧ ㄌ	七筆
ㄧ ㄍ	色竹
ㄧ ㄚ ㄅ	業粒
ㄧ ㄚ ㄌ	切設
ㄧ ㄚ ㄍ	約(漳)
ㄧ ㄛ ㄍ	育祝
ㄨ ㄌ	熨律
ㄨ ㄚ ㄌ	越罰
ㄨ ㄚ ㄍ	□

左欄例字：鳶張、貓、換碗、妹媒、黃(漳)、關、暗甘、安限、港項、蔘(漳)、王往、蔘(泉)、恩根(泉)、登(泉)、音淹、因印、永兵、閹鹽、煙演、涼雙、勇強

三、聲調對照：

方音符號系統		例字
陰平	無號	公
陰上	、號	選
陰去	＼號	半
陰入	∟無	發
陽平	無	年
陽去	／	電
陽入	•	術

例字：公選半發年電術 好去七長願毒 東

Fig 3. Glyphs in font file.

ㄅ	ㄆ	ㄇ	ㄈ	ㄉ	ㄊ	ㄋ	ㄌ
uni3105 3105	uni3106 3106	uni3107 3107	uni3108 3108	uni3109 3109	uni310A 310A	uni310B 310B	uni310C 310C
ㄍ	ㄎ	ㄏ	ㄐ	ㄑ	ㄒ	ㄓ	ㄔ
uni310D 310D	uni310E 310E	uni310F 310F	uni3110 3110	uni3111 3111	uni3112 3112	uni3113 3113	uni3114 3114
ㄕ	ㄖ	ㄗ	ㄘ	ㄙ	ㄚ	ㄛ	ㄜ
uni3115 3115	uni3116 3116	uni3117 3117	uni3118 3118	uni3119 3119	uni311A 311A	uni311B 311B	uni311C 311C
ㄝ	ㄞ	ㄟ	ㄠ	ㄡ	ㄢ	ㄣ	ㄤ
uni311D 311D	uni311E 311E	uni311F 311F	uni3120 3120	uni3121 3121	uni3122 3122	uni3123 3123	uni3124 3124
ㄥ	ㄦ	ㄧ	ㄨ	ㄩ	ㄪ	ㄫ	ㄬ
uni3125 3125	uni3126 3126	uni3127 3127	uni3128 3128	uni3129 3129	uni312A 312A	uni312B 312B	uni312C 312C
ㄭ	ㄮ	ㄯ	ㆠ	ㆡ	ㆢ	ㆣ	ㆤ
uni312D 312D	uni312E 312E	uni312F 312F	uni31A0 31A0	uni31A1 31A1	uni31A2 31A2	uni31A3 31A3	uni31A4 31A4
ㆥ	ㆦ	ㆧ	ㆨ	ㆩ	ㆪ	ㆫ	ㆬ
uni31A5 31A5	uni31A6 31A6	uni31A7 31A7	uni31A8 31A8	uni31A9 31A9	uni31AA 31AA	uni31AB 31AB	uni31AC 31AC
ㆭ	ㆮ	ㆯ	ㆰ	ㆱ	ㆲ	ㆳ	ㆴ
uni31AD 31AD	uni31AE 31AE	uni31AF 31AF	uni31B0 31B0	uni31B1 31B1	uni31B2 31B2	uni31B3 31B3	uni31B4 31B4
ㆵ	ㆶ	ㆷ	ㆸ	ㆹ	ㆺ	ㆻ	ㆼ
uni31B5 31B5	uni31B6 31B6	uni31B7 31B7	uni31B8 31B8	uni31B9 31B9	uni31BA 31BA	uni31BB 31BB	uni31BB 31BB

4. Reference

"The Phonetic Symbols System for Dialect (方音符號系統)" published by Ministry of Education Taiwan in Jan 12th 1998:

1.
https://depart.moe.edu.tw/ed2400/News_Content.aspx?n=115F1082F1FB6842&sms=EFB4F5BEE71F2ECF&s=7999ED5540060D14

2. http://ws.moe.edu.tw/001/Upload/userfiles/方音符號系統資料下載.pdf

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
Please fill all the sections A, B and C below.
Please read Principles and Procedures Document (P & P) from http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html **for guidelines and details before filling this form.**
Please ensure you are using the latest Form from http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html**.**
See also http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest** *Roadmaps.*

A. Administrative

1. **Title:** *Proposal to FIX GLYPHS IN Bopomofo Extended BLOCK AND encode one Bopomofo letter*
2. Requester's name: *TCA, Bobby Tung, But Ko, Selena Wei*
3. Requester type (Member body/Liaison/Individual contribution): *Individual contribution*
4. Submission date: *2018-06-13*
5. Requester's reference (if applicable):
6. Choose one of the following:
   This is a complete proposal: *YES*
   (or) More information will be provided later:

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters): *NO*
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: *YES*
      Name of the existing block: *Bopomofo Extended*
2. Number of characters in proposal: *1*
3. Proposed category (select one from below - see section 2.2 of P&P document):
   A-Contemporary ___ B.1-Specialized (small collection) X 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 ___
4. Is a repertoire including character names provided? *YES*
   a. If YES, are the names in accordance with the "character naming guidelines"
      in Annex L of P&P document? *YES*
   b. Are the character shapes attached in a legible form suitable for review? *YES*
5. Fonts related:
   a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?
      But Ko
   b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):
      But Ko (buttaiwan@gmail.com)
6. References:
   a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? *YES*
   b. Are published examples of use (such as samples from newspapers, magazines, or other sources)
      of proposed characters attached? *YES*
7. 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)? *NO*

8. 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. 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/reports/tr44/) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

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:
3. Information on the user community for the proposed characters (for example:
　　size, demographics, information technology use, or publishing use) is included?　　　　　NO
　　Reference:
4. The context of use for the proposed characters (type of use; common or rare)　　　　　rare
　　Reference:
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 the P&P document must the proposed characters be entirely
　　in the BMP?
　　　　　If YES, is a rationale provided?
　　　　　　If YES, reference:
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?　　YES
8. Can any of the proposed characters be considered a presentation form of an existing
　　character or character sequence?　　　　　NO
　　　　　If YES, is a rationale for its inclusion provided?
　　　　　If YES, reference:
9. Can any of the proposed characters be encoded using a composed character sequence of either
　　existing characters or other proposed characters?　　　　　NO
　　　　If YES, is a rationale for its inclusion provided?
　　　　　If YES, reference:
10. Can any of the proposed character(s) be considered to be similar (in appearance or function)
　　to, or could be confused with, an existing character?　　　　　NO
　　　　If YES, is a rationale for its inclusion provided?
　　　　　If YES, reference:
11. Does the proposal include use of combining characters and/or use of composite sequences?　　NO
　　If YES, is a rationale for such use provided?
　　　　If YES, reference:
　　Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?
　　　　If YES, reference:
12. Does the proposal contain characters with any special properties such as
　　control function or similar semantics?　　　　　NO
　　　　If YES, describe in detail (include attachment if necessary)

13. Does the proposal contain any Ideographic compatibility characters?　　　　　NO
　　If YES, are the equivalent corresponding unified ideographic characters identified?
　　　　If YES, reference:

(Detach the following pages from the filled summary form before submitting).

Information accompanying submissions

The process of deciding which characters should be included in the repertoire of the standard by WG 2 depends on the availability of accurate and comprehensive information about any proposed additions. WG 2, at its San Francisco meeting 26, designed a form (template) that will assist the submitters in gathering and providing the relevant information, and will assist WG 2 in making more informed decisions.

This form is part of the WG 2 Principles and Procedures document and is available on line at http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html.

A duly completed proposal summary form must accompany each new submission. The latest version of this form must be used in submissions. Such a form will assist WG 2 to better evaluate the proposal, and progress the proposal towards a speedier acceptance and inclusion in the standard. Submitters are also requested to ensure that a proposed character does not already exist in the standard.

Submitters are encouraged to visit the "Where is my Character" page on the Unicode web site for more information on checking if their proposed character or script is already encoded in the standard, or a similar proposal has already been made by someone else. There are also several electronic discussion lists maintained by the Unicode consortium that one could use to discuss with other experts internationally on various subjects related to the standard. Submitters are also encouraged to familiarize themselves with ISO/IEC TR15285 – Character Glyph Model. The latest version of ISO/IEC 10646 as well as ISO/IEC TR15285 are available on line under 'Freely Available Standards' at: http://standards.iso.org/ittf/PubliclyAvailableStandards/ .

National bodies should take note of the guidelines in section *C.4 Some guidelines on proposing new material as ballot comments* in the P&P document.

In addition to text extracted from the standard in *Annex L: Character-naming guidelines* in the P&P document, the following definitions from the standard are also referenced in the proposal summary form:

> *Clause 4.12 Combining character*:
> A member of an identified subset of the coded character set of ISO/IEC 10646 intended for combination with the preceding non-combining graphic character, or with a sequence of combining characters preceded by a non-combining character (see also 4.14).
> NOTE – ISO/IEC 10646 specifies several subset collections, which include combining characters.
>
> *Clause 4.14 Composite sequence*:
> A sequence of graphic characters consisting of a non-combining character followed by one or more combining characters (see also 4.12).
> NOTE 1 – A graphic symbol for a composite sequence generally consists of the combination of the graphic symbols of each character in the sequence.
> NOTE 2 – A composite sequence is not a character and therefore is not a member of the repertoire of ISO/IEC 10646.

Submitter's responsibilities

The national body or liaison organization (or any other organization or an individual) proposing new character(s) or a new script shall provide:

1. Proposed category for the script or character(s), character name(s), and description of usage.
2. Justification for the category and name(s).
3. A representative glyph(s) image on paper:
   If the proposed glyph image is similar to a glyph image of a previously encoded ISO/IEC 10646 character, then additional justification for encoding the new character shall be provided.
   Note: Any proposal that suggests that one or more of such variant forms is actually a <u>distinct</u> character requiring separate encoding should provide detailed, printed evidence that there is actual, contrastive use of the variant form(s). It is insufficient for a proposal to claim a requirement to encode <u>as characters</u> in the Standard, glyphic forms which happen to occur in another character encoding that did not follow the Character-Glyph Model that guides the choice of appropriate characters for encoding in ISO/IEC 10646.
   Note: WG 2 has resolved in Resolution M38.12 not to add any more Arabic presentation forms to the standard and suggests users to employ appropriate input methods, rendering and font technologies to meet the user requirements.
4. Mappings to accepted sources, for example, other standards, dictionaries, accessible published materials.
5. Font resource:
   A font must be provided to the Editor promptly after the characters have been approved by WG2 for use in printing the charts. If a font is not provided, the Editor cannot include the glyphs in the charts and, as a result, the repertoire of characters corresponding to these glyphs will not be included in draft amendments. Fonts must be in one of the following formats (in preferential order): OpenType, TrueType, Postscript Type 1.
   Fonts submitted must have no license restrictions that prevent embedding into PDF documents. Because of synchronization between ISO/IEC 10646 and The Unicode Standard, any grant of license must cover use in publishing both standards and related documents (see resolution M45.30). For technical reasons, the editors must be able under that license to freely modify or replace glyph outlines in their copies of the fonts. The submitter should be prepared to provide fonts of suitable quality and license conditions, unless equivalent fonts are already available to the editors.
6. List of all the parties consulted:
   Towards ensuring that all significant stakeholders have been consulted, WG 2 requests that submitters solicit feedback from other groups who use the proposed characters, and list these contacts. Submitters are encouraged to provide the email id-s of the submitters as well as other experts who have been consulted to facilitate any clarification queries.
7. Equivalent glyph images:
   If the submission intends using composite sequences of proposed or existing combining and non-combining characters, a list consisting of each composite sequence and its corresponding glyph image shall be provided to better understand the intended use.
8. Compatibility equivalents:
   If the submission includes compatibility ideographic characters, identify (per resolution M45.29):
   - the source, which contains two distinct code positions that correspond to a single unified CJK Ideograph character of ISO/IEC 10646
   - the ISO 10646 unified CJK Ideograph
   - the code position in the source for the unified CJK ideograph
   - the code position in the source for the proposed compatibility ideograph
9. Properties that may affect the BiDi processing
   Any BiDirectional algorithm related properties associated with the characters should be spelled out (see UAX#9 - http://www.unicode.org/reports/tr9/).
10. Any additional information that will assist in correct understanding of the different characteristics and linguistic processing of the proposed character(s) or script.
11. If any of the proposed characters are suitable as *syntax* characters please take note of guideline D.2.5 (on page 24 and of Unicode Standard Annex 31 at http://www.unicode.org/reports/tr31/.
12. If the proposal is for a new script, identify the standardized characters that are commonly used directly in the script, or proposed to be unified with the characters of the script, in particular standardized characters allocated in different blocks. Examples include punctuation marks and combining marks. Such information will assist in assigning properties for characters shared across multiple scripts or in identifying character repertoires needed to support particular languages.
13. If you are aware of already standardized characters that are visually close to any of the proposed characters, you are invited to list them in the proposal. This will assist in the analysis of the script for 'visually confusables', towards providing additional guidance on use of the standard from a security perspective (see UTR#36 - Unicode Security Considerations – at http://www.unicode.org/reports/tr36/).