Proposal to add NEGATIVE CIRCLED DIGIT ZERO

Eric Muller
December 14, 2001 - Revised 2002-05-05

The proposal is to add the character ❶ NEGATIVE CIRCLED DIGIT ZERO, to complete the series U+2776 ❶ – U+277F ❿, U+24EB ⓫ – U+24F4 ⓴, and make it similar to the series U+24EA ⓪, U+2460 ① – U+2473 ⑳.

This character is found in fonts that include circled digits and numbers, such as the font European Pi 1 sold by Adobe Systems Inc. It is also found in two Japanese vendors character sets: Biblos Gaiji character set (at F2 94) and Fontworks Japanese character set (at F2 4E); those sets are described in Ken Lunde's book "CJKV Information Processing", pages 570 and 575 respectively.

The proposed code point is U+24FF, the last unassigned code point in the Enclosed Alphanumerics block (in Unicode 3.2).

The properties are modeled on those of similar characters:
- General category: Number, Other (No)
- Canonical Combining Class: 0
- Bidirectional category: Other Neutrals (ON)
- Digit value: 0
- Numeric value: 0
- Mirrored: No

Note that this proposed character would not have a compatibility decomposition.

<table>
<tr><td colspan="2">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 for guidelines and details before filling this form.)
See http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html for latest <i>Form</i>.
See http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html for latest <i>Principles and Procedures</i> document.
See http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html for latest roadmaps.</td></tr>
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A. Administrative

1. **Title:**	**Proposal to add NEGATIVE CIRCLED DIGIT ZERO**
2. Requester's name:	Adobe Systems Inc. (contact: Eric Muller)
3. Requester type (Member body/Liaison/Individual contribution):	Expert contribution
4. Submission date:	December 12, 2001
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: Enclosed Alphanumerics
2. Number of characters in proposal: 1
3. Proposed category (see section II, Character Categories):   A
4. Proposed Level of Implementation (1, 2 or 3) (see clause 14, ISO/IEC 10646-1: 2000):
      Is a rationale provided for the choice?
         If Yes, reference:
5. 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 ISO/IEC 10646-1: 2000?   Yes
      b. Are the character shapes attached in a legible form suitable for review?   Yes
6. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for
      publishing the standard?   Adobe Systems Inc., PostScript Type1 format
      If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools
      used:
      Adobe tools; font currently sold as European Pi 1

7. References:
      a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? Yes
         Japanese vendor sets
      b. Are published examples of use (such as samples from newspapers, magazines, or other sources)
         of proposed characters attached?   No
8. 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
9. 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 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.

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?   UTC

        If YES, available relevant documents: L2/01-450

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)   Common

    Reference:

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

    If YES, where? Reference: available in fonts

6. After giving due considerations to the principles in *Principles and Procedures document* (a WG 2 standing
    document) must the proposed characters be entirely in the BMP?   Yes

        If YES, is a rationale provided?   Yes

            If YES, reference:

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

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 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
    (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?   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 character(s)?   No

        If YES, is the equivalent corresponding unified ideographic character(s) identified?

            If YES, reference: