L2/16-318

Proposal to encode ten color swatch emoji characters, version 1.02

To: Unicode Consortium
From: Paul D. Hunt
Date: 31 October 2016

Proposal abstract

The proposal requests the addition of ten additional emoji characters for color swatches. These swatches should be combinable with other emoji characters to modify their color appearance. The suggested names for these characters are:

- RED
- ORANGE
- YELLOW
- GREEN
- BLUE
- PURPLE
- WHITE (may potentially use WHITE LARGE SQUARE, U+2B1C)
- BLACK (may potentially use BLACK LARGE SQUARE, U+2B1B)
- GREY
- BROWN

The purpose of this request is to provide a mechanism for emoji users to modify the default color of certain emoji such as ROSE, AUTOMOBILE, BEAR, &c to provide alternatives with specific color appearance. For example, ROSE + YELLOW color swatch could indicate a yellow rose, which has specific symbolic meaning in some cultures that differs from the red ROSE, the default color choice by all vendors currently (except Samsung which shows a pink rose). Likewise, BEAR FACE or BEAR + WHITE may allow for easy representation of the polar bear without having to add emoji characters with this level of specificity. This limited set already includes the primary and secondary colors of the RYB (subtractive) model of color theory.

Potential models for combining with other characters to modify color appearance could follow one of the existing models:

1. Characters as emoji modifiers. In this model color swatches would not be emoji in their own right, but would serve only to modify preceding emoji glyphs. This is not the option preferred by the Emoji subcommittee, since it requires a structural change, affecting segmentation among other processes.
2. Characters to be used as part of ZWJ sequence. In this model, color swatches would combine with preceding emoji glyphs with ZWJ as ‘glue’ between characters.
3. Tagging mechanism. The functionality for coloring glyphs could be handled as part of a tagging mechanism such as proposed in http://www.unicode.org/reports/tr52/tr52-3.html. In that case, new characters would not be needed.

- Wikipedia: RYB color model

https://en.wikipedia.org/wiki/RYB_color_model
- Wikipedia: Subtractive color
https://en.wikipedia.org/wiki/Subtractive_color

Rationale

The purpose of this proposal is twofold. Firstly, to allow for greater customization of emoji appearance by use of color swatches to allow emoji users to personalize emoji to a greater extent. Secondly, to provide a mechanism for creating new emoji for concepts similar to those already encoded in the existing emoji set using a minimal set of characters for modifying appearance as in the polar bear example given above. To expand on this example, black bears could also be represented using the same mechanism. A subset of these could be used for hair color, notably BLACK, BROWN, ORANGE (ginger), YELLOW (blond), GREY, and WHITE.

Factors for Inclusion

A. Compatibility

The compatibility argument for including of the proposed characters are actually forward-looking. This is to say that part of the impetus for proposing these characters is to serve as an emoji base form for additional occupation emoji ZWJ sequences. As with other human forms, it is expected that these characters would be included as part of the set to which skin tone modifiers can be applied.

B. Expected Usage

1. Frequency

N/A, since this provides a generative mechanism with broad usage.

2. Multiple usages

As mentioned in the Rationale section, there are two main anticipated usages for the proposed characters:

1. Customization of emoji color to make them more personalized
2. Representation of more emoji concepts by combining existing emoji with a limited set of new color swatch emoji

3. Emotional Content

Part of the reason that emoji is so popular is due to the fact that it introduces the aspect of color into digital communications that are otherwise typically devoid of color. The addition of color customization would be an opportunity to delight emoji users with opportunities to use a fuller palette of color options especially for personal items such as automobiles, clothing, pets, &c.

C. Image distinctiveness

These colors can be considered sufficiently distinct as they are all named color divisions of the visible light spectrum, excepting the addition of BROWN to more easily specify coffee-colored objects. The color swatches proposed in this document are meant to be limited to other named colors already existing in the emoji set plus the aforementioned addition of BROWN.

D. Completeness

In the arts, the Red-Yellow-Blue model of color theory, which has been popular in western art since renaissance times, includes red, yellow, and blue as ‘primary’ colors that can be combined to produce other hues. Orange, green, and purple (or violet) are referred to as ‘secondary’ colors in this model as they represent the combinations of two primaries, eg. orange consists of the combination of red and yellow pigments.

In his writings on the nature of the visible spectrum, Isaac Newton includes red, orange, yellow, green, blue, indigo and violet (purple) as one of the seven named colors that can be easily differentiated by the human eye. Indigo has intentionally been left out of this proposal for the sake of simplicity.

Crayola, the popular manufacturer of of colored crayons, includes red, orange, yellow, green, blue, purple, brown and black in their most basic set of eight colors. White, black and grey are added to the list of suggested characters to provide for popular neutral colors.

- Wikipedia: Color theory
  https://en.wikipedia.org/wiki/Color_theory
- Wikipedia: RYB color model
  https://en.wikipedia.org/wiki/RYB_color_model
- Wikipedia: Visible spectrum
  https://en.wikipedia.org/wiki/Visible_spectrum
- Wikipedia: Crayola
  https://en.wikipedia.org/wiki/Crayola

E. Frequently requested

This proposal is to address several individual request for emoji characters that can potentially be handled with base + ZWJ + color swatch sequences. Some example include: red panda, polar bear, white rose, &c. Additionally color swatches could potentially be used to combine to provide a mechanism for specifying hair color for emoji persons such as the popular request for ginger-haired emoji.

Factors for Exclusion

F. Overly specific

The ten proposed emoji are unlikely to be construed to be more overly specific than any other currently encoded emoji characters.

G. Open-ended

The human eye can distinguish up to ten million colors. In computing, typical display technologies can display between 65,536 to 16,777,216 color variations (16-bit and 24-bit color depths, respectively) within an RGB color space. This means that it is theoretically possible that the set of color swatch emoji could potentially be prohibitively large. However, this proposal seeks to establish a minimal, useful set of colors for modifying emoji presentation.

- Wikipedia: RGB color model
  https://en.wikipedia.org/wiki/RGB_color_model
- Wikipedia: Color depth
  https://en.wikipedia.org/wiki/Color_depth

H. Already representable

There may be an argument made that the series of colored hearts could serve a double purpose as color swatches.

Characters with emoji representation already exist for BLACK LARGE SQUARE (U+2B1B) and WHITE LARGE SQUARE (U+2B1C). These could be repurposed as color swatches when incorporated into ZWJ sequences and similar characters could be added for other colors.

I. Logos, brands, UI icons, signage, specific people, deities

None of these factors apply.

J. Evidence of Frequency

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 enable gender inclusive emoji representation*
2. Requester's name: *Paul D. Hunt*
3. Requester type (Member body/Liaison/Individual contribution): *Individual Contributor*
4. Submission date: *31 October 2016*
5. Requester's reference (if applicable):
6. Choose one of the following:
   This is a complete proposal: *X*
   (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):
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: *X*
      Name of the existing block: *Supplemental Symbols and Pictographs*
2. Number of characters in proposal:
3. Proposed category (select one from below - see section 2.2 of P&P document):
   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
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?
      I intend to provide such a font
   b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):
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? *NO*
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)?

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.

[1] Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

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.)? *NO*
   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? *Emoji users*
   Reference:
4. The context of use for the proposed characters (type of use; common or rare) *Very common*
   Reference:
5. Are the proposed characters in current use by the user community? *NO*
   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? *NO*
   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)?
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?
   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: