TO: UTC

FROM: Deborah Anderson, Manish Goregaokar, Jan Kučera, Ken Whistler, Roozbeh

Pournader, and Peter Constable 1

SUBJECT: Recommendations to UTC #179 April 2024 on Script Proposals

DATE: April 18, 2024

The Script Ad Hoc group met on February 16, March 15, and April 12, 2024, in order to review proposals. The following represents feedback on proposals that were available when the group met.

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¹ Also participating were Craig Cummings, Quinn Dombrowski, Lorna Evans, Andrew Glass, Liang Hai, Ned Holbrook, Anushah Hossain, Richard Ishida, Robin Leroy, Norbert Lindenberg, Steven Loomis, Kirk Miller, Denis Moyogo Jacquerye, Cheon Hyeong Sim, Harald Tveiten, Lawrence Wolf-Sonkin, Ben Yang. The text for the comments and recommendations was based on notes primarily Manish Goregaokar and Jan Kučera with assistance from Debbie Anderson and Quinn Dombrowski.

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A. PROPOSALS REQUIRING UTC ACTION

I. AFRICAN SCRIPTS

1. Beria Erfe

Document: <u>L2/24-004R</u> Proposal for encoding the Beria Erfe (Zaghawa) script in the SMP of the UCS — Siddick Adam Issa, et al.

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign 50 code points U+16EA0..U+16EB8, U+16EBB..U+16ED3 in a new Beria Erfe block U+16EA0..U+16EDF for 50 Beria Erfe characters as described in L2/24-004R
- 2. Action Item for Ken Whistler, UTC: Update the Pipeline to include 50 Beria Erfe characters

U+16EA0..U+16EB8, U+16EBB..U+16ED3 in a new Beria Erfe block U+16EA0..U+16EDF. [Reference: Section 1 of <u>L2/24-068</u>]

3. **Action Item** for Lorna Evans, SAH: Send a Beria Erfe font to Michel Suignard. [Reference: Section 1 of L2/24-068]

Comments: This is a proposal for 50 characters for the Beria Giray Erfe script, used to write the Beria language in Chad, Sudan, and the diaspora. It is a cased alphabet, with capital letters typically extending below the baseline. Some characters can take accent marks from the Combining Diacritical Marks block.

The script is used by multiple communities which seem to have alignment on its usage, potentially with some differences on usage of combining marks.

In earlier proposals the script name contained "Giray," which means writing, but this was removed from the name based on Script Ad Hoc recommendations. "Erfe" refers to the livestock branding marks the script was based on, hence "Giray Erfe" distinguishes the script from the branding marks. "Zaghawa" is an exonym of the language and while not in the script name, the proposal asks that it be mentioned alongside the script name in the code chart and Core Spec chapter.

UTC 178 viewed a prior version of this proposal (<u>L2/24-004</u>) where the capital and lowercase letters were interleaved. On the recommendations of UTC and PAG, this proposal has been updated (<u>L2/24-004R</u>) to have separately grouped uppercase and lowercase letters. Other updates made included corrections to line break properties and collation.

Space is reserved between the uppercase and lowercase groups, at U+16EB9..U+16EBA, for potential future uppercase letters, and additional space is reserved at U+16ED4..U+16EDF for potential future lowercase letters and digits.

The Action Item from the <u>January 2024 SAH Recommendations</u> for the Roadmap allocation for Beria Erfe to be expanded from three columns to four columns is reflected in the 15.1.2-Draft2 of the SMP Roadmap. The name has already been changed to "Beria Erfe" on the Roadmap.

The community has been informed of the changes (with access to the revised proposal), and is in agreement with the changes.

II. EUROPEAN SCRIPTS

2. Armenian

Document: <u>L2/24-107</u> Revised Proposal to encode three Armenian superscript characters - Hossep Dolatian

Recommendation: We recommend the UTC make the following disposition:

- 1. **Consensus**: Provisionally assign 3 Armenian modifier letters U+0558, U+058B, U+058C in Armenian block as described in L2/24-107 [Reference: Section 2 of L2/24-068]
- Action Item for Ken Whistler, UTC: Update the Pipeline to include 3 Armenian modifier letters U+0558, U+058B, U+058C in Armenian block as described in <u>L2/24-107</u> [Reference: Section 2 of <u>L2/24-068</u>]

Comments: This document proposes three modifier lowercase Armenian letters for use in Armenian dialectology.

The characters are named MODIFIER LETTER ARMENIAN SMALL <name of Armenian letter>, a standard pattern when naming modifier versions of cased characters, cf. U+1E030 MODIFIER LETTER CYRILLIC SMALL A.

Michel Suignard reports he does not need a font provided for these characters.

3. Cyrillic

Document: <u>L2/24-104</u> Annotation for Cyrillic Tje - Manulov

Recommendation: We recommend the UTC make the following disposition:

 Action Item for Ken Whistler, EDC: Consider adding the cross-reference and annotation to U+050F CYRILLIC SMALL LETTER KOMI TJE and U+1C8A CYRILLIC SMALL LETTER TJE (or their capital forms) in the names list as described in <u>L2/24-104</u>, for Unicode 16.0 [Reference: Section 3 of <u>L2/24-068</u>]

Comments: U+1C8A CYRILLIC SMALL LETTER TJE (proposed by L2/22-119, alongside U+1C89 CYRILLIC CAPITAL LETTER TJE), represents a "tje" (palatalized t) sound in the Khanty language. Unicode also has U+050F CYRILLIC SMALL LETTER KOMI TJE for the Komi languages. This request to add a cross-reference and annotation may be useful to help people know of the existence of the other character.

III. MIDDLE EASTERN SCRIPTS

4. Arabic

4a ARABIC LETTER NOON WITH RING ABOVE

Document: <u>L2/24-046</u> Proposal to encode ARABIC LETTER NOON WITH RING ABOVE — Evans

Recommendation: We recommend the UTC make the following disposition:

- 1. **Consensus**: Provisionally assign U+088F ARABIC LETTER NOON WITH RING ABOVE in the Arabic Extended-B block as described in <u>L2/24-046</u> [Reference: Section 4a of <u>L2/24-068</u>]
- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include U+088F ARABIC LETTER NOON WITH RING ABOVE in the Arabic Extended-B block as described in <u>L2/24-046</u> [Reference: Section 4a of <u>L2/24-068</u>]
- 3. **Action Item** for Lorna Evans, SAH: Send a font to Michel Suignard with U+088F ARABIC LETTER NOON WITH RING ABOVE. [Reference: Section 4a of <u>L2/24-068</u>]

Comments: This proposes ARABIC LETTER NOON WITH RING ABOVE for use in Western Punjabi for a retroflex $/\eta$ /.

There are two existing characters that the user community considered using for this purpose: there's U+06BB & ARABIC LETTER RNOON (used in Sindhi) and U+0768 ARABIC LETTER NOON WITH SMALL TAH (used in Shahmukhi for Punjabi). RNOON is not preferred since it is in medial position confusable with a U+0679 ARABIC LETTER TTEH, and NOON WITH SMALL TAH in Nastaliq is confusable with a NOON adjacent to a TTEH.

Ample evidence for the character is provided, alongside two letters of support.

Additional Background:

While Eastern Punjabi has been standardized, the same is not true for Western Punjabi, where Arabic has not yet been used as a medium of instruction and hence has no standardized alphabet. The proposed character was mentioned earlier in <u>L2/19-111</u> (called in that document, ARnoon) but at the time it was not evident that it was required. Although ARNOON would be an appropriate name for this character, "RNOON" is already used for U+06BB, so a descriptive name is proposed: ARABIC LETTER NOON WITH RING ABOVE.

The issue relating to *arnoon* was discussed at a Unicode conference in 2005 and later in an article in 2011. The 2011 article suggested different options for the representation of *arnoon*, most having appeared in different written materials, but many causing problems.

The author of $\underline{L2/24-046}$ recommends the glyph with the shape of noon with ring above, which is already in use by the Punjabi board in Lahore.

4b Arabic letter for Swahili

Document: L2/24-055 Proposal to add Arabic letter for Swahili — Denis Moyogo Jacquerye

Recommendation: We recommend the UTC make the following disposition:

 Consensus: Provisionally assign U+10EC7 ARABIC LETTER YEH WITH FOUR DOTS BELOW in the Arabic Extended-C block as described in <u>L2/24-055</u> [Reference: Section 4b of <u>L2/24-068</u>]

- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include U+10EC7 ARABIC LETTER YEH WITH FOUR DOTS BELOW in the Arabic Extended-C block as described in <u>L2/24-055</u> [Reference: Section 4b of <u>L2/24-068</u>]
- 3. **Action Item** for Lorna Evans, SAH: Send a font with ARABIC LETTER YEH WITH FOUR DOTS BELOW to Michel Suignard. [Reference: Section 4b of <u>L2/24-068</u>]

Comments: This proposes encoding U+10EC7 ARABIC LETTER YEH WITH FOUR DOTS BELOW for use for the palatal nasal. The character is found in 20th century Swahili manuscripts of Muhamadi Kijuma.

Ample evidence is provided. The character would go into the Arabic Extended-C block.

Note from the proposal author, which might be worth capturing in documentation:

Muhamadi Kijum's orthography uses Teheh (067F $\stackrel{\iota}{\hookrightarrow}$) for the retroflex/alveolar t, transcribed $\langle t \rangle$, and Teh (062A $\stackrel{\iota}{\hookrightarrow}$) for the postdental/interdental t, transcribed $\langle \underline{t} \rangle$. Muyaka bin Haji's orthography also uses both letters the same way. Yahya Ali Omar more recently used Tteh (0679 $\stackrel{\iota}{\hookrightarrow}$) instead. Not all scribes make the distinction. Both are written $\langle t \rangle$ in Swahili Latin orthography and they are pronounced the same in many dialects.

4c Twenty-five more honorifics

Document: <u>L2/24-077</u> Proposal to encode twenty-five more Arabic honorifics — Roozbeh Pournader, Rikza F. Sh., and Amir Mahdi Moslehi

Recommendation: We recommend the UTC make the following disposition:

- 1. **Consensus**: Provisionally assign 25 Arabic code points U+FBC3..U+FBD2 and U+FD91 in the Arabic Presentation Forms-A block, and U+10ED1..U+10ED8 in the Arabic Extended-C block, as described in <u>L2/24-077</u> [Reference: Section 4c of <u>L2/24-068</u>]
- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include 25 Arabic code points U+FBC3..U+FBD2 and U+FD91 in Arabic Presentation Forms-A, and U+10ED1..U+10ED8 in Arabic Extended-C, as described in L2/24-077 [Reference: Section 4c of L2/24-068]
- 3. **Action Item** for Roozbeh Pournader, SAH: Send a font to Michel Suignard for 25 honorifics in Arabic. [Reference: Section 4c of <u>L2/24-068</u>]

Comments: This proposes 25 more honorifics, similar to the 8 honorifics recently accepted by $\underline{178\text{-}C16}$ ($\underline{L2/24\text{-}002}$ and Section 3a of $\underline{L2/24\text{-}013R}$).

To date, 27 honorifics have been accepted or provisionally assigned (proposal documents: $\underline{L2/19-289R}$, $\underline{L2/19-319}$, $\underline{L2/20-042}$, $\underline{L2/20-081}$, and $\underline{L2/24-002}$).

We agreed the evidence is acceptable.

Seventeen of the proposed characters will fill up Arabic Presentation Forms-A block completely

(U+FBC3...U+FBD2 and U+FD91). The remaining eight (U+10ED1..1U+0ED8) will go into the Arabic Extended-C block. This is the first time we're adding honorifies to Arabic Extended-C.

5. Cuneiform

5a Additions and Corrections

Document: L2/24-074 On cuneiform UN and KALAM - Leroy

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Create a formal alias CUNEIFORM SIGN KALAM of type "correction" for U+12327 CUNEIFORM SIGN UN GUNU, for Unicode Version 16.0. [Reference: <u>L2/24-074</u> and Section 5a of <u>L2/24-068</u>]
- Consensus: Swap the reference glyphs for U+12326 CUNEIFORM SIGN UN and U+12327 CUNEIFORM SIGN UN GUNU, for Unicode 16.0. [Reference: <u>L2/24-074</u> and Section 5a of <u>L2/24-068</u>]
- 3. **Action Item for** Robin Leroy, PAG: In NameAliases.txt, add a formal alias CUNEIFORM SIGN KALAM of type "correction" for U+12327 CUNEIFORM SIGN UN GUNU, for Unicode Version 16.0. [Reference: <u>L2/24-074</u> and Section 5a of <u>L2/24-068</u>]
- 4. **Action Item for** Robin Leroy, SAH: Create a glyph erratum for U+12326 CUNEIFORM SIGN UN and U+12327 CUNEIFORM SIGN UN GUNU, based on L2/24-074. [Reference: Section 5a of L2/24-068]
- 5. **Action Item for** Robin Leroy, Ken Whistler, EDC: Update Unicode Technical Note #27, Known anomalies in Unicode character names, to mention U+12327. [Reference: <u>L2/24-074</u> and Section 5a of <u>L2/24-068</u>]
- 6. **Action Item for** Robin Leroy, SAH: Work with Steve Tinney to ensure that the distinction between signs UN and KALAM is documented in the Oracc Sign List, and that the correct code points are used for them. [Reference: <u>L2/24-074</u> and Section 5a of <u>L2/24-068</u>]
- 7. **Action Item for** Deborah Anderson, UTC: Ensure that a comment is made at the next possible stage of ISO/IEC 10646:2020/Amd 2 requesting the glyph change for U+12326 CUNEIFORM SIGN UN and U+12327 CUNEIFORM SIGN UN GUNU and a formal alias of type "correction" for U+12327 CUNEIFORM SIGN UN GUNU with the value CUNEIFORM SIGN KALAM, based on L2/24-074. [Reference: Section 5a of L2/24-068]

Comments: A document by Enrique Jiménez with comments on cuneiform signs that are either missing in Unicode or in error has been forwarded to the SAH. Those comments are being reviewed by cuneiform experts. One item from the comments is addressed by this document.

U+12327 CUNEIFORM SIGN UN GUNU and U+12326 CUNEIFORM SIGN UN compound a couple mistakes in encoding.

The glyph for CUNEIFORM SIGN UN GUNU is an appropriate glyph for the sign UN, whereas the

glyph for CUNEIFORM SIGN UN is the appropriate glyph for the sign KALAM. There is no attested UN $gun\hat{u}^2$, the sign UN is already gunified (it is KALAM $gun\hat{u}$) and there is no attested sign with further gunification.

Since both the names and the reference glyphs define character identity, there is a choice to be made as to which one is the real UN; based on evidence of usage in fonts and in encoded corpora, the proposal argues that the least disruptive option is to say that the one *called* UN is UN, not that the one that *looks like* UN is UN. This is also conveniently the easiest option as far as the Standard is concerned. The proposal therefore requests that the reference glyphs for UN GUNU and UN be swapped, with a formal alias renaming UN GUNU to KALAM.

5b Proposed UTR Unicode Cuneiform Sign Lists

Document: DUTR #56: Unicode Cuneiform Sign Lists

1. **Consensus:** Approve Draft UTR #56 for publication as Unicode Technical Report #56, Unicode Cuneiform Sign Lists. [Reference: Section 5b of <u>L2/24-068</u>]

- 2. Action Item for Rick McGowan, UTC: Close PRI #485. [Reference: Section 5b of L2/24-068]
- 3. **Action Item for** Robin Leroy, EDC: Shepherd the publication of UTR #56. [Reference: Section 5b of L2/24-068]

Comments: After a brief review of this Draft UTR, we recommend the UTC push UTR #56 from draft to publication. The one change noted was that Oracc Global Sign List has been renamed Oracc Sign List. The change was made in coordination with the editor of DUTR #56; the draft was updated the next day.

IV. EAST ASIAN SCRIPTS

6. Tangut components

Document: L2/24-048 Review of Proposal to encode 114 Tangut components — West

Recommendation: We recommend the UTC make the following disposition:

Consensus: Revise previous consensus <u>177-C27</u> to remove the current Tangut Component-783 (U+18D8E) from provisional assignment, and moving Tangut Component-784 – Tangut Component-884 from U+18D8F..U+18DF3 to U+18D8E..U+18DF2 with names Tangut Component-783 – Tangut Component-883 as described in <u>L2/24-048</u> [Reference: Section 6 of

² Sumerian gunu = "speckled", used in sign names in second and first millenium lexical texts to mean "hatched", and borrowed by Assyriologists into their own languages to describe cuneiform signs, whence French gounifié and English "gunified".

L2/24-0681

Action Item for Ken Whistler, UTC: Update the pipeline to remove Tangut Component-884
 (U+18DF3) to reflect the "removal" of Tangut Component-783 as described in <u>L2/24-048</u>
 [Reference: Section 6 of <u>L2/24-068</u>]

Comments: This document provides feedback from the author of the Tangut components proposal (Proposal to encode 114 Tangut Components, $\underline{L2/23-247}$). The characters proposed in $\underline{L2/23-247}$ were provisionally assigned by $\underline{177-C27}$.

This document proposes unifying Tangut Component-783 (U+18D8E) with Tangut Component-324 (U+18943), and has a glyph correction for Tangut Component-822 (U+18DB5).

The process of removing Tangut Component 783 ought not leave a "hole" in the block: the remaining components should be shifted back by one, and the numbering should be updated to stay contiguous. In other words, this change updates the range U+18D80..U+18DF3 (TANGUT COMPONENT-769 through TANGUT COMPONENT-884) to U+18D80..U+18DF2 (TANGUT COMPONENT-769 through TANGUT COMPONENT-883), with the glyphs for U+18D8F..U+18DF3 being shifted by one to U+18D8E..U+18DF2.

The document has been reviewed by the Chinese expert on Tangut, Dr. Sun Bojun, and she is agreeable to the proposed changes.

The SAH feedback has been relayed to Andrew West, and he has already sent a font to Michel Suignard.

V. SOUTH AND CENTRAL ASIAN SCRIPTS

7. Kannada

Documents:

<u>L2/23-216</u> Revised request to change glyphs of four Kannada characters – Srinidhi and Sridatta <u>L2/24-054</u> Feedback on request to change glyphs of Kannada Vocalic L/LL — Shriramana Sharma

Recommendation: We recommend the UTC make the following disposition:

1. **Action Item** for Deborah Anderson, EDC: Update the Core Spec to mention alternate glyph forms for the four Kannada VOCALIC L/LL characters [Reference: Section 7 of <u>L2/24-068</u>]

Comments: The document <u>L2/23-216</u> recommends glyph changes for four VOCALIC L/LL Kannada characters, with attestation. The second document is feedback from Shriramana Sharma (L2/24-054).

The proposed glyphs appear in manuscripts and printed sources, and the authors of <u>L2/23-216</u> demonstrate that the glyphs reflect the actual native forms, as well as their historical relation to Southern Brahmi-derived scripts. In contrast, the glyphs in the code chart are Devanagari-like. It appears early

printed examples may have been due to lack of proper fonts available.

Although Sharma is in favor of the proposed glyph changes (<u>L2/24-054</u>), the group did not recommend making the glyph changes requested, since there are printed examples of the code chart glyphs (see below). Instead, we suggest the Core Spec include text about the glyphs for these very rare characters.

Additional Background:

Initially, the proposal authors Srinidhi and Sridatta were not able to locate examples of the representative glyphs in the code charts in original sources, only in native secondary sources (see <u>L2/17-041</u>). However, Sharma had noted (<u>L2/17-160</u>) that the current code chart glyphs are indeed found in publications, sometimes alongside the proposed shapes.

8. Oriya

Document: <u>L2/24-106</u> Request to encode DOT ABOVE characters for the ORIYA/ODIA script in the UCS — Evans

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign 2 Oriya code points U+0B53 ORIYA SIGN DOT ABOVE and U+0B54 ORIYA SIGN DOUBLE DOT ABOVE in Oriya block as described in <u>L2/24-106</u> [Reference: Section 8 of <u>L2/24-068</u>]
- Action Item for Ken Whistler, UTC: Update the Pipeline to include 2 Oriya code points U+0B53
 ORIYA SIGN DOT ABOVE and U+0B54 ORIYA SIGN DOUBLE DOT ABOVE in the Oriya
 block as described in L2/24-106 [Reference: Section 8 of L2/24-068]
- 3. **Action Item** for Ken Whistler, EDC: Add annotations to U+0B35 ORIYA LETTER VA, U+0B55 ORIYA SIGN OVERLINE as described in <u>L2/24-106</u> [Reference: Section 8 of <u>L2/24-068</u>]
- 4. **Action Item** for Lorna Evans, SAH: Send a font to Michel Suignard with glyphs for U+0B53 ORIYA SIGN DOT ABOVE and U+0B54 ORIYA SIGN DOUBLE DOT ABOVE. [Reference: Section 8 of L2/24-068]

Comments: The Kui language, a South-Central Dravidian tonal language of India, uses "dot above" for shortening consonants and vowels and "double dot above" for lengthening vowels. This proposal requests the two characters.

The document also mentions that the orthography employs U+0B55 ORIYA SIGN OVERLINE that was proposed in $\frac{L2/19-005}{L2}$ to indicate length.

The proposal suggests InSC as Vowel_Dependent for the two characters: After some discussion, we agreed they should have similar properties/shaping (and description in the Core Spec text) as U+0B55 ORIYA SIGN OVERLINE (which is Vowel_Dependent).

The proposal also requests annotations, since the Kui orthography employs an alternate form of U+0B35 ORIYA LETTER VA. An additional annotation is recommended for U+0B55 ORIYA SIGN OVERLINE

9. Tulu (modern)

Documents:

<u>L2/23-021</u> Additional Document for Unicode Tulu Proposal - Akash Raj Jain <u>L2/23-055</u> Disunification of Tulu-Tigalari script & Invented Tulu Script — Murthy and Rajan

Recommendation: We recommend the UTC make the following disposition:

1. **Action Item** for Jan Kučera, SAH: Send comments to the author of <u>L2/23-021</u>. [Reference: Section 9 of <u>L2/24-068</u>]

Comments: Document <u>L2/23-021</u> is a proposal for modern Tulu whose author, a member of the Karnataka Tulu Sahitya Academy (KTSA), proposes separate encoding from Tulu-Tigalari is on track for publication in Unicode 16.0.)

The second document, <u>L2/23-055</u>, is from the authors of the Tulu-Tiglalari proposal and addresses the script's name and the set of numbers used by Tulu-Tigalari. Its main focus is on the contrast between Tulu-Tigalari and the modern Tulu characters proposed by KTSA, as well as applicable comparisons with Kannada and Malayalam characters. The authors of <u>L2/23-055</u> conclude with reasons for disunification.

The SAH was not in consensus on the best technical approach for handling modern Tulu. One option is to separately encode modern Tulu, but another would be to use Tulu-Tigalari characters, adding any modern Tulu characters that are needed but cannot be represented with Tulu-Tigalari.

More information on usage from the user community is needed, as well as evidence of the script's consistent use in publications and the script's stability. It is possible that the code points for Tulu-Tigalari may suffice for modern users (with an appropriate font). It might be prudent to wait to see if Tulu-Tigalari is adopted for modern Tulu use before taking any further action.

VI. PHONETIC CHARACTERS

10. Affricate ligatures

Document: <u>L2/24-051</u> Unicode request for affricate ligatures — Miller

Recommendation: We recommend the UTC make the following disposition:

1. **Consensus**: Provisionally assign 8 code points U+1DF1F..U+1DF24 and U+1DF2B..U+1DF2C for Latin affricate ligatures in the Latin Extended-G block as described in <u>L2/24-051</u> [Reference:

Section 10 of <u>L2/24-068</u>]

- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include 8 Latin code points U+1DF1F..U+1DF24 and U+1DF2B..U+1DF2C in Latin Extended-G block as described in L2/24-051 [Reference: Section 10 of L2/24-068]
- 3. **Action Item** for Kirk Miller, SAH: Send a font to Michel Suignard for the 8 Latin affricate ligatures. [Reference: Section 10 of <u>L2/24-068</u>]

Comments: This proposal requests six modern non-sibilant coronal affricate ligatures and two historical sibilant ligatures.

These are alternate ligature forms for representing affricate sounds in the IPA, found in use in the community. In typical modern IPA (post 1989 Kiel convention) these are represented with a tiebar above or below, e.g. /t͡ʃ/, if using U+0361 COMBINING DOUBLE INVERTED BREVE, but the ligatures can be found in historical documents, as well as in modern documents authored by linguists who do not care for the aesthetics of the tiebar

Not all of these have evidence, but we are recommending them based on IPA's request in L2/24-049. Note that the names proposed continue the established IPA misnomer of calling ligatures 'digraphs.'

11. Annotation for U+A71D

Document: <u>L2/24-087</u> Annotation for U+A71D — Kirk Miller

Recommendation: We recommend the UTC make the following disposition:

 Action Item for Ken Whistler, EDC: Consider adding annotations to U+01C3 LATIN LETTER RETROFLEX CLICK, U+A71D MODIFIER LETTER RAISED EXCLAMATION MARK, and U+107B9 MODIFIER LETTER RETROFLEX CLICK WITH RETROFLEX HOOK as detailed in <u>L2/24-087</u>, for Unicode 16.0 [Reference: Section 11 of <u>L2/24-068</u>]

Comments: U+01C3 LATIN LETTER RETROFLEX CLICK is a phonetic letter used to represent the alveolar click consonant. This phonetic notation can also appear as a modifier. However the corresponding modifier character, U+A71D MODIFIER LETTER RAISED EXCLAMATION MARK, is not necessarily easily discovered. This document proposes that cross-references be added between these two, as well as between U+A71D and U+107B9 MODIFIER LETTER RETROFLEX CLICK WITH RETROFLEX HOOK.

12. COMBINING DOT ABOVE LEFT (U+1DF8) usage in Latin

Document: <u>L2/24-091</u> Note on U+1DF8 combining dot above left — Miller

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Add Latn to the Script_Extensions property of U+1DF8 in the ScriptExtensions.txt file as documented in <u>L2/24-091</u> for Unicode 16.0 [Reference: Section 12 of <u>L2/24-068</u>]
- 2. **Action Item** for Roozbeh Pournader, PAG: Add Latn to scx of U+1DF8, for Unicode 16. [Reference: Section 12 of L2/24-068]

Comments: The character U+1DF8 COMBINING DOT ABOVE LEFT is attested with Latin letter <i> and <i> (U+0269 LATIN SMALL LETTER IOTA) as well as <> U+1DA5 MODIFIER LETTER SMALL IOTA, in Americanist phonetic notation.

As it has a ccc of 228, when used with <i> it must be used with U+0131 LATIN SMALL LETTER DOTLESS I to correctly suppress the existing tittle.

U+1DF8 has an existing scx of Cyrl, Syrc.

The author also requests an annotation be added to the names list about its use with Latin.

Note: There is an open Action Item $\underline{151-A3}$ that is related to this issue, on the ambiguity of soft-dotting for characters that have $\underline{cc} = 230$.

13. Combining Double Caron

Document: L2/24-105 Unicode request for double caron - Miller

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign U+1ACF COMBINING DOUBLE CARON in the Combining Diacritical Marks Extended block as described in <u>L2/24-105</u> [Reference: Section 13 of <u>L2/24-068</u>]
- Action Item for Ken Whistler, UTC: Update the Pipeline to include U+1ACF for COMBINING DOUBLE CARON in the Combining Diacritical Marks Extended block as described in L2/24-105 [Reference: Section 13 of L2/24-068]
- Action Item for Kirk Miller, SAH: Send a font to Michel Suignard with U+1ACF COMBINING DOUBLE CARON [Reference: Section 13 of <u>L2/24-068</u>]

Comments: This diacritic is used for marking certain tone contours in phonetic notation. Similar code points from the same notation are already encoded, including U+1AB0 COMBINING DOUBLED CIRCUMFLEX ACCENT.

This diacritic was previously proposed in $\underline{L2/23-189}$ and was noted in section 18 of the SAH Recommendations $\underline{L2/23-164}$ as an FYI to the UTC. The UTC took no action at the time.

The attestation is currently only in a pedagogical context. Only one example is provided, but the IPA has voiced their support of this proposal in L2/24-049 (top of page 2).

14 IPA diacritics above and one below

Document: L2/24-080 Unicode request for IPA diacritics above and one below Kirk Miller

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign 12 combining diacritical marks U+1AE0..U+1AEB in the Combining Diacritical Marks Extended block as described in <u>L2/24-080</u> [Reference: Section 14 of <u>L2/24-068</u>]
- Action Item for Ken Whistler, UTC: Update the Pipeline to include 12 combining diacritical marks U+1AE0..U+1AEB in the Combining Diacritical Marks Extended block as described in L2/24-080 [Reference: Section 14 of L2/24-068]
- 3. **Action Item** for Kirk Miller, SAH: Send a font to Michel Suignard with the 12 combining diacritic characters. [Reference: Section 14 of <u>L2/24-068</u>]

Comments: This document proposes 12 IPA and ExtIPA diacritics. Eleven characters are "combining above" versions of existing IPA and ExtIPA diacritics that combine below the base letter, for use with base letters that have descenders as per IPA recommendations. One character, U+1AE6 COMBINING DOUBLE ARCH BELOW, is proposed alongside U+1AE7 COMBINING DOUBLE ARCH ABOVE. These constitute a pair of historical IPA characters; they are also referred to as "turned omega" diacritics. U+1AE6 should be kept distinct from U+033C COMBINING SEAGULL BELOW, which has a different use.

Not all of the proposed characters have evidence, but we are recommending them based on IPA's request in L2/24-049.

15. Letters with palatal hook

Document: <u>L2/24-050</u> Unicode request for letters with palatal hook — Miller

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign 14 Latin code points U+1DF2D..U+1DF3A for letters with palatal hooks in Latin Extended-G block as described in <u>L2/24-050</u> [Reference: Section 15 of <u>L2/24-068</u>]
- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include 14 Latin code points U+1DF2D..U+1DF3A for letters with palatal hooks in Latin Extended-G block as described in L2/24-050 [Reference: Section 15 of L2/24-068]
- 3. **Action Item** for Kirk Miller, SAH: Send a font to Michel Suignard for 14 Latin letters with palatal hook. [Reference: Section 15 of <u>L2/24-068</u>]

Comments: This document proposes 14 IPA characters that have a hook on them, used to mark

palatalization. As noted in the proposal, though letters with palatal hook were officially retired from IPA in 1989, they continue to be used today.

Similar characters already exist in Unicode e.g. U+1D80 LATIN SMALL LETTER B WITH PALATAL HOOK. Unicode also has U+0321 COMBINING PALATALIZED HOOK BELOW, however the atomic characters with palatal hooks do not decompose to it. Rather than encouraging the proliferation of U+0321 (which may exacerbate the double-encoding problem for the existing characters), this document proposes atomically encoding the 14 attested examples it has found.

The IPA has expressed its support of this proposal in L2/24-049.

16. Modifier click letters

Document: L2/24-052 Unicode request for modifier pre-Kiel click letters — Miller

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Provisionally assign 5 code points U+107BB..U+107BF for Latin modifier click characters in the Latin Extended-F block as described in <u>L2/24-052</u> [Reference: Section 16 of <u>L2/24-068</u>]
- 2. **Action Item** for Ken Whistler, UTC: Update the Pipeline to include 5 Latin code points U+107BB..U+107BF in the Latin Extended-F block as described in <u>L2/24-052</u> [Reference: Section 16 of <u>L2/24-068</u>]
- 3. **Action Item** for Kirk Miller, SAH: Send a font to Michel Suignard for the 5 Latin modifier click letters. [Reference: Section 16 of <u>L2/24-068</u>]

Comments: This proposes 5 characters for use in the IPA for representing click sounds. They derive from pre-Kiel IPA conventions that are still somewhat in use and include one character that has no modern IPA equivalent. Only one character, *small turned t*, has evidence provided, but we are recommending them based on IPA's request in L2/24-049.

With these 5 characters (and two reserved spots, U+107B1 and U+10786, for *beta* and *chi*), Latin Extended-F block will be full.

One character for the retroflex click, small *psi*, is postponed, pending a decision on whether it should be named Greek or Latin.

The letter from the IPA relayed concern over the shape for *stretched c* and *small esh with double bar*. This document presents the history of the glyphic shapes and suggests the modifier forms should match those of the base letters.

17. Modifier letter capital S

Document: <u>L2/24-081</u> Unicode request for modifier capital S — Miller

Recommendation: We recommend the UTC make the following disposition:

- 1. **Consensus**: Provisionally assign U+A7F1 MODIFIER LETTER CAPITAL S in Latin Extended-D as described in L2/24-081 [Reference: Section 17 of L2/24-068]
- Action Item for Ken Whistler, UTC: Update the Pipeline to include U+A7F1 MODIFIER
 LETTER CAPITAL S in Latin Extended-D as described in <u>L2/24-081</u> [Reference: Section 17 of <u>L2/24-068</u>]
- 3. **Action Item** for Kirk Miller, SAH: Send a font for U+A7F1 MODIFIER LETTER CAPITAL S to Michel Suignard. [Reference: Section 17 of <u>L2/24-068</u>]

Comments: This document proposes a single modifier character for capital S. It is used in the modern orthography for Western Highlands Chatino of Oaxaca to indicate tone sandhi. It also is used as a phonetic and phonemic wildcard symbol. We agreed the character is worthy of recommending as a provisional character.

VII. SYMBOLS

18. Musical Symbols: Request for new block

Document: <u>L2/24-090</u> Supplemental block for musical symbols — Bala and Miller

Recommendation: We recommend the UTC make the following disposition:

- 1. **Action Item** for Uma, RMP: Allocate a block in the roadmap at U+1D250..U+1D28F called Musical Symbols Supplement [Reference: Section 18 of <u>L2/24-068</u>]
- 2. **Action Item** for Uma, RMP: Reallocate the currently allocated Flute (<u>L2/17-312</u>) and Pipa (<u>L2/17-311</u>) blocks in the roadmap at U+1D250..U+1D26F and U+1D280..U+1D2AF to a new consolidated allocation at U+1D290..U+1D2BF, labeled "(Flute) and (Pipa)" [Reference: Section 18 of <u>L2/24-068</u>]

Comments: This is a request for a new block for music symbols, with documentation on characters that could be proposed in the future. The document also builds off a March 2021 proposal paper by Lukas Pietsch on music symbols, a document that was, however, never formally submitted and hence does not appear in the document register.

Currently 4 columns are needed (64 characters). We recommend the block range be U+1D250..U+1D28F in a new block named Musical Symbols Supplement.

V.S. Umamaheswaran (Uma) of the Roadmap Team (RMP) noted a conflict in the current <u>SMP Roadmap</u> between the proposed allocation U+1D250..U+1D28F for Musical Symbols Supplement and "Flute" and "Pipa." The Flute and Pipa blocks ought to be consolidated: the proposals have heavy overlap with each

other and will likely need to be considered together anyway, ending up with fewer total characters being encoded. We recommend they be moved to U+1D290..U+1D2BF, and labeled "(Flute) and (Pipa)".

VIII. FEEDBACK

19. Balinese Core Spec technical change request

Document: L2/24-063 Comments on Public Review Issues (ID20240228052730)

- Action Item for Norbert Lindenberg, EDC: Mention in the description of the Sasak characters in section 17.3 of the Core Specification that these characters have seen little use. [Reference: Section 19 of <u>L2/24-068</u>]
- 2. **Action Item** for Norbert Lindenberg, EDC: Add a reference to UTN 51 for more information on musical symbols to the description of musical symbols in section 17.3 of the Core Specification. [Reference: Section 19 of L2/24-068]
- 3. **Action Item** for Debbie Anderson, SAH: Contact Michael Everson to ask for sources or evidence for the Sasak characters proposed in <u>L2/05-008</u>, especially their conjunct forms. [Reference: Section 19 of <u>L2/24-068</u>]

Comments: This feedback recommends two editorial changes to Chapter 17 of the Core Spec. It also asks for the source and confirmation of use of the conjunct forms of Sasak characters shown in Table 17.3. Without further information on the source and current usage, the feedback author recommends the table be removed, and we agree.

20. Feedback On Asteroid Flora and on Name for one Harrington Diacritic

Document: <u>L2/24-063</u> Comments on Public Review Issues (<u>ID20240222223720</u> and <u>ID20240222230143</u>)

Recommendation: We recommend the UTC make the following disposition:

- Consensus: Approve the name change for the provisionally assigned character U+1ADC from COMBINING FALLING DIAGONAL DIAERESIS to COMBINING DIAERESIS WITH RAISED LEFT DOT [Reference: Section 20 of L2/24-068]
- Action item for Ken Whistler, PAG: Update the Pipeline with the name change for U+1ADC from COMBINING FALLING DIAGONAL DIAERESIS to COMBINING DIAERESIS WITH RAISED LEFT DOT. [Reference: Section 20 of <u>L2/24-068</u>]

Comments: The first feedback recommended unifying U+1CEC2 FLORA, a provisionally assigned asteroid character proposed in <u>L2/23-207</u>, with U+2698 FLOWER, which has an informative alias "botanical term." FLOWER was based on a proposal for symbols used in dictionaries (<u>L2/03-354</u>).

While the glyphic ranges of FLORA and FLOWER overlap, they do not seem to coincide: the proposed reference glyph for FLORA would be unexpected for the botanical dictionary symbol for FLOWER, so there is a case to be made for disunification.

We recommend the UTC take no action on the feedback for U+1CEC2 FLORA.

The second feedback item recommended a name change for the Harrington diacritic COMBINING FALLING DIAGONAL DIAERESIS, a provisionally assigned character based on <u>L2/23-206R</u>. Since "diagonal" in character names typically refers to a diagonal line the name, COMBINING FALLING DIAGONAL DIAERESIS seems less accurate for a mark that is made of two dots at an angle. As a result, the feedback author recommends the name COMBINING DIAERESIS WITH RAISED LEFT DOT.

We agree with this second feedback item and recommend the name be changed to COMBINING DIAERESIS WITH RAISED LEFT DOT.

21. Feedback On Names for Arrows for Egyptology (redux)

Document: <u>L2/24-088</u> On the name of the newly proposed arrows for Egyptology — Eduardo Marín Silva

Recommendation: We recommend the UTC take no action.

Comments: This short doc argues against the SAH response ($\underline{L2/24-013r}$) to the author's comments in $\underline{L2/23-233}$ regarding changes to the arrow names used in Egyptology. (The arrows were proposed in $\underline{L2/23-185}$.) We briefly reviewed $\underline{L2/24-088}$. Our previous comments stand. No action by the UTC is required.

22. Feedback on Alpha: ITA

Document: <u>L2/24-063</u> Comments on Public Review Issues (see <u>Unicode 16.0 Alpha Review</u>)

Recommendation: This is an FYI to the UTC.

Comments: We received feedback from Mach Blechman in support of the proposal <u>L2/23-102R</u> to add characters for the Initial Teaching Alphabet to Latin Extended-G. Karl Pentzlin also inquired about the progress of ITA over the UnicoRe list.

The proposal author of $\underline{L2/23-102R}$ reports he can continue to work on the document. Any further comments from Unicode members or the general public on the latest proposal $\underline{L2/23-102R}$ are

23. Feedback on Book Pahlavi proposal

Document: L2/24-063 Comments on Public Review Issues (ID20240206154504)

This feedback has been forwarded to the proposal authors.

Comments: Book Pahlavi is an in-progress proposal being worked on by Anshuman Pandey and Roozbeh Pournader. The latest proposal is: <u>L2/24-040</u>.

B. DOCUMENTS NOT REQUIRING UTC ACTION

24. Egyptian Hieroglyphs: (More) Lost signs

Document: L2/24-093 Additional lost signs for Ancient Egyptian hieroglyphic text — Mark-Jan Nederhof

Recommendation: We recommend no action be taken by UTC.

Comments: This proposes a set of 12 differently sized lacuna characters for marking lost signs in Egyptian Hieroglyphs text.

We do not recommend these at the moment because there is not a strong signal from the user community that these are needed. In addition, implementation of them could be very challenging.

25. Egyptian Hieroglyphs: Rotations

Document: L2/24-045 Rotations for Ancient Egyptian – a critical analysis — Mark-Jan Nederhof

Recommendation: We recommend the UTC take no action.

Comments: This document analyzes the standardized variation sequences added for Egyptian Hieroglyphs described in <u>L2/21-248</u> and formally proposed in <u>L2/22-012R</u>. The author states that rotations that are under consideration by Egyptologists may represent variations due to the original poor workmanship by scribes, inaccuracies in modern transcription, errors by the encoder, and paleographic detail. Hence such rotations should not be handled by Unicode.

He lists a number of sequences in the current StandardizedVariants.txt file that should be removed, though he admits some do not have support from other Egyptologists involved. (Two sequences that are recommended for removal have already been commented out in StandardizedVariants.txt, see 177-C18.) Although he notes rotations other than 90/180/270 degrees are rare and there is a continuum of possible angles of rotations, the document author still does endorse the need for VS4–VS7.

SAH would like to minimize the removal of accepted standardized variants. We recommend that future standardized variants for Egyptian rotations be added with care.

The document has been forwarded to Egyptologists for their review.

26. Other: New name for SAH with "Working Group"

Recommendations: No action required by UTC

Comments: The Script Ad Hoc was asked to provide a new name that incorporated "working group." After polling, the group agreed on "Script Encoding Working Group," with the three-letter acronym SEW. Updates have been made (care of Ken Whistler) on the page describing the group and the title of the topical document list page.

27. Stale Action Items: Comments for April UTC meeting

Comments: The UTC Chair requested the Working Group responsible for its Action Items, especially those from UTC meeting #158 or earlier, take responsibility for closing them, re-assigning them, or keeping them open (but not for an indefinite amount of time.)

The Script Encoding Working Group generally agreed that issues for the old Action Items would be created and the old Action Items closed. The person assigned to the Action Item should create the issue in the SAH repo, providing background if possible, but should reference the Action Item in the issue.

The following Action Items will be (or have already been) closed and replaced by issues in the SAH repo: 158-A103, 158-A106, 158-A128, 154-A21, 151-A110, 139-A67, 121-A11a, 0-A392.

Note that SAH has not committed to progress on these issues in any specific timeframe.

<u>158-A105</u>: This should remain an open Action Item while Roozbeh Pournader does additional research on the topic.

In theory, the person originally assigned to the AI – or anybody else – can work on the topic. Roozbeh Pournader encouraged others to sign up for those items assigned to him (i.e., <u>158-A106</u> on Indic Syllabic Category and Indic Positional Category for a couple of characters, <u>154-A21</u> on the Indic Syllabic Category of UPADHMANIYA and JIHVAMULIYA, <u>139-A67</u> on Sorani Kurdish, and <u>121-A11a</u> on

28. Yi: Add Sichuan Yi Indexing

Document: L2/24-096 Proposal to add Sichuan Yi (ii) indexing to Unicode - Walters

Recommendation: This document is In Process. However, we would like UTC to discuss and possibly provide some general guidance around this kind of script/language-specific request, where additional data that is useful for implementers but not essential for encoding is being proposed.

Comments: Dennis Walters introduced his work on indexing the Yi script that is already encoded in Unicode, which he feels will aid users in accessing their script (and language) on computers and devices via input methods. He would like it to be part of the Unicode Standard, as part of the UCD.

Discussion touched on the following topics:

- Rename "source", as that term has a different meaning in Unicode. "Source" in Unicode identifies the authoritative reference work that provides information on a character's identity. For "Sichuan Yi", the phonetic names already provide their identity.
- For tags, one member of the group recommended kSY_YiPinyin or kSY_Yi_Pinyin instead of kSY_Pinyin.
- In the document, describe the different data files.

More general comments:

- We recommend the author consider submitting his work as a Unicode Technical Note, which would allow files to be attached to it, perhaps in a format that CLDR can pick up. (Note that GitHub is not always accessible in China. Other hosting options might be possible.)
- Input methods do not need to require formal Unicode data; many languages and scripts have implementations with info that are not part of the Unicode Standard.
- Getting files to be part of UCD would require a UAX or UTR that documents the data and how it
 is used. Including and maintaining such data as part of the UCD involves considerable resources
 and maintenance from an organization whose resources are already stretched thin. Due to limited
 resources, a better approach is for independent groups to be working on independent projects, and
 not rely on Unicode as the gating factor.
- A useful model is the work done on cuneiform, in which an active member of Unicode created a Unicode document (https://www.unicode.org/reports/tr56/tr56-2.html), that points to data hosted elsewhere (in this case, https://oracc.museum.upenn.edu/osl/).

29. Zanabazar: Issues on Cluster-final characters

Document: L2/24-094 Issues on Zanabazar Cluster-final Characters — CheonHyeong Sim

Recommendation: We recommend the UTC take no action.

Comments: SAH reviewed the document and determined that this is a Universal Shaping Engine (USE) classification issue not a Unicode issue. USE has property overrides for this kind of case. Andrew Glass will propose USE overrides to correct these.

Background on the topic (the following is an issue raised by David Corbett, with description):

According to <u>L2/15-337 section 4.10</u>, Zanabazar Square "cluster-final letters may occur after each other in the penultimate and final positions in a cluster". That means there can be two in the same cluster. However, because U+11A3B..U+11A3E are all categorized as MBlw, only one may occur in a USE cluster, which is insufficient.

C. FYI DOCUMENTS

30. Egyptian Hieroglyphs: Notes on control characters for Ancient Egyptian

Document: L2/24-079 Notes on the control characters for Ancient Egyptian in Unicode 15 — Mark-Jan Nederhof

Recommendation: We recommend the UTC take no action.

Comments: This document is essentially documentation by the author on an implementation in JavaScript for use in web pages.

No action is required by the UTC, as this is a FYI item.

31. Other: Letter from IPA: Unicode support for historical and para-IPA letters

Document: <u>L2/24-049</u> Unicode support for historical and para-IPA letters — International Phonetic Association

Recommendation: This is just an FYI to the UTC.

Comments: This is a letter from the IPA in support of various proposals from Kirk Miller. The document

supports various historical and para-IPA characters that have been, or will be, proposed. Specifically, the letters supports superscript modifiers (proposed <u>L2/20-252</u> and <u>L2/20-253</u>), affricate ligatures, superscript versions of subscript IPA and extIPA diacritics, the double caron, and various modifier versions of other letters. The letter notes that not all the desired set of symbols are attested in literature, and omitting gaps that might be accidental could limit the utility of the encoded set of symbols.

There is a comment about the shape of U+0297 and U+1DF0B, since the proposals have rounder shapes created with Gentium. The letter notes that the straight glyph shapes appear in the code charts, and this reflects the preference of the IPA.

D. IN PROCESS

- <u>L2/24-109</u> Proposal for Encoding the Sheek Bakrii Saphaloo Script in the UCS Oreen Yousuf and Daniel Yacob,
- L2/24-110 Preliminary proposal to encode Arabic Crown Letters (حروف النتاج) Goregaokar, Hosny, Yang, Hasan
- L2/24-108 Proposal to include Shughni/Roshani Alphabet Habib Zohoori
- L2/24-100 Proposal to Encode the Box-Headed Script Mandal
- L2/24-102 Proposal to Encode the Kui Gaari in UCS Mandal
- L2/24-101 Revised Proposal to Encode the Kurukh Banna Mandal
- <u>L2/24-111</u> Annotation request for Vietnamese apex Nguyen and Miller
 - \circ MUFI has submitted a response to this at <u>L2/24-103</u>
- L2/24-098 Request to update Code Chart and UCD for Tai Le script Eiso Chan