

Title: CJK & Unihan Group Recommendations for UTC #177 Meeting

Author: Ken Lunde

Date: 2023-11-01

This document provides the CJK & Unihan Group recommendations for the UTC #177 meeting, based on a meeting that took place on 2023-10-13 from 6 to 8:30PM PDT, which was attended by Yi Bai, Eiso Chan, Jaemin Chung, Lee Collins, Peter Constable, Kushim Jiang, Ken Lunde, CheonHyeong Sim, Stephan Hyeonjun Stiller, Harald Tveiten, Xieyang Wang, and Yifán Wáng via [Zoom](#). The Chair of the [CJK & Unihan Group](#), Ken Lunde, chaired the meeting.

The CJK & Unihan Group reviewed public feedback and documents that were received since the UTC #176 meeting took place. Comments are marked in **green**, and Recommendations to the UTC are marked in **red**. A “plain text” Copy&Paste-ready version of the Recommendations is also provided as the PDF attachment named *recommendations-20231013.txt*.

GB 18030-2022 Amendment 1

01) L2/23-240: China Activity Report for IRG #61 Meeting [IRG N2623]

Comments: Per Section 2.2 of document IRG N2623 (aka L2/23-240), which is China’s activity report for the IRG #61 meeting, the third draft of GB 18030-2022 Amendment 1, which will be issued soon, is expected to redefine the scope of Implementation Level 1 so as to include the following five new Ideographic Description Characters (IDCs) that were added in Unicode Version 15.1:

U+2FFC		IDEOGRAPHIC DESCRIPTION CHARACTER SURROUND FROM RIGHT
U+2FFD		IDEOGRAPHIC DESCRIPTION CHARACTER SURROUND FROM LOWER RIGHT
U+2FFE		IDEOGRAPHIC DESCRIPTION CHARACTER HORIZONTAL REFLECTION
U+2FFF		IDEOGRAPHIC DESCRIPTION CHARACTER ROTATION
U+31EF		IDEOGRAPHIC DESCRIPTION CHARACTER SUBTRACTION

Recommendations: The group recommends to the UTC the following disposition ➡

Note: Developers whose products must undergo GB 18030 testing and certification need to be aware that the five new Ideographic Description Characters in Unicode Version 15.1, U+2FFC through U+2FFF and U+31EF, are expected to be added to the scope of Implementation Level 1 according to the third draft of GB 18030-2022 Amendment 1, based on document L2/23-240 and Section 01 of document L2/23-237.

PRI #483 Feedback

[PRI #483](#) (*Proposed Update UAX #38*) was issued shortly after Unicode Version 15.1 was released, mainly to document the new provisional *kFanqie* property, but no feedback has been received prior to its closing date of 2023-10-11. Although the declared closing date has passed, its closing

date should be extended to 2024-01-02 to accommodate feedback to be resolved during the UTC #178 meeting in January of 2024.

Public Feedback

The two items of public feedback from [L2/23-233](#) that are in this section were discussed by the group, and for convenience, the following data files, which are PDF attachments, include the recommended Unihan database additions and changes based on them:

- *Unihan-additions-20231013.txt*
- *Unihan_IRGSources-changes-20231013.txt*

The recommended Unihan database changes are also shown inline, following the **Recommendations**.

02) ID20230730170821

Date/Time: Sun Jul 30 17:08:21 CDT 2023

ReportID: ID20230730170821

Name: Paul Masson

Report Type: Error Report

Opt Subject: **kPhonetic for U+5807**

I have been in direct contact with Ken Lunde and we both agree this value should be 574 as appears on p.85 of Casey. I am submitting this feedback to provide tracking for the change.

Comments: The group discussed this feedback, and agreed that adding **574** as the *kPhonetic* property value of U+5807 would be appropriate, particularly because it is the first ideograph that appears in this phonetic group in the dictionary that serves as the basis for this provisional property.

Recommendations: The group recommends to the UTC the following disposition ➡

Action Item for Ken Lunde, CJK: Update the Unihan database to add “574” as the *kPhonetic* property value of U+5807, based on feedback [ID20230730170821] in document L2/23-233 and Section 02 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Convey to the feedback submitter the CJK & Unihan Group comments in Section 02 of document L2/23-237. See feedback [ID20230730170821] in L2/23-233.

New:

U+5807	kPhonetic	574
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03) ID20230810172154

Date/Time: Thu Aug 10 17:21:54 CDT 2023

ReportID: ID20230810172154

Name: Ken Lunde

Report Type: Error Report

Opt Subject: **Proposed kRSUnicode property value changes and additions**

The following two ideographs are structurally the same as U+9F52 齒, but are missing two strokes:

U+2398A 𪗇

U+2EBBD 𪗈

Their kRSUnicode property values are currently as follows:

U+2398A kRSUnicode 77.9

U+2EBBD kRSUnicode 211.0

I recommend that they be changed to the following, which involves adding a second property value and changing the number of residual strokes for Radical #211 from 0 to -2:

U+2398A kRSUnicode 77.9 211.-2

U+2EBBD kRSUnicode 211.-2 77.9

Comments: The group discussed this feedback, and agreed that these *kRSUnicode* property value changes would be appropriate. Ken Lunde also added both ideographs to his list of *kStrange* property candidates with “l:U+9F52” as their property value, which are expected to be submitted for the UTC #178 meeting.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the informative kRSUnicode property values of U+2398A and U+2EBBD, based on feedback [ID20230810172154] in document L2/23-233 and Section 03 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Change the kRSUnicode property values of U+2398A and U+2EBBD, based on feedback [ID20230810172154] in document L2/23-233 and Section 03 of document L2/23-237, and provide to Ken Lunde an updated Unihan data file, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the Unihan database to change the kRSUnicode property values of U+2398A and U+2EBBD, based on feedback [ID20230810172154] in document L2/23-233 and Section 03 of document L2/23-237, for Unicode Version 16.0.

Current:

U+2398A	kRSUnicode	77.9
U+2EBBD	kRSUnicode	211.0

Adjusted:

U+2398A	kRSUnicode	77.9 211.-2
U+2EBBD	kRSUnicode	211.-2 77.9

UAX #38 / Unihan Database Documents

The three documents in this section were discussed by the group, and for convenience, the following data files, which are PDF attachments, include all of the recommended Unihan database additions, changes, and removals based on them:

- *Unihan-additions-20231013.txt*
- *Unihan-changes-20231013.txt*
- *Unihan-removals-20231013.txt*
- *Unihan_IRGSources-additions-20231013.txt*
- *Unihan_IRGSources-changes-20231013.txt*
- *kMandarin-additions-20231013.txt*

With the exception of *kMandarin* property value additions and the large number of Unihan database changes, additions, and removals proposed in document L2/23-209 that affect provisional properties, the recommended Unihan database changes are also shown inline, immediately following the **Recommendations**.

04) L2/23-144: Request for Horizontal Extension in the J-column of ISO/IEC 10646

Comments: This proposal was discussed during the UTC #176 and was accepted. After carefully analyzing this horizontal extension, Michel Suignard determined that “JMJ-039803” needed to be added as the *kIRG_JSource* property value of U+24138, and Ken Lunde agreed. Our friends at the Japan NB confirmed that this new property value is necessary for synchronization with the *Moji Jōhō Kiban* (文字情報基盤) database.

Recommendations: The group recommends to the UTC the following disposition ⇒

Consensus: Accept the proposal to add a normative *kIRG_JSource* property value to U+24138, based on document L2/23-144 (Japan NB) and Section 04 of document L2/23-237, for Unicode Version 16.0.

Note: The assignment of “JMJ-039803” as the *kIRG_JSource* property value of U+24138 has already been implemented by both Michel Suignard (for ISO/IEC 10646) and Ken Lunde (for Unicode Version 16.0), so no UTC action is necessary.

New:

U+24138	<i>kIRG_JSource</i>	JMJ-039803
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05) L2/23-209: Unihan property feedback for CJK Ext. I

Comments: The group discussed this proposal to add, change, and remove property values based on the 622-ideograph CJK Unified Ideographs Extension I repertoire that was standardized in Unicode Version 15.1, and agreed that these are appropriate additions, changes, and removals. Three of the changes affect *kRSUnicode* property values. As usual, the *kMandarin*

property value additions that are proposed in this document will need to be checked by the CLDR-TC prior to the UTC accepting them.

The following are property value additions that reference [IRG Working Set 2021](#) serial numbers that are highlighted in **red**, which Ken Lunde recorded for future addition to the UniHan database after this working set has been standardized as a new CJK Unified Ideographs block:

U+2EC9A	kTraditionalVariant	WS2021-01709
WS2021-01709	kSimplifiedVariant	U+2EC9A
U+2ECC4	kTraditionalVariant	WS2021-02141
WS2021-02141	kSimplifiedVariant	U+2ECC4
U+2ECCE	kTraditionalVariant	WS2021-02104
WS2021-02104	kSimplifiedVariant	U+2ECCE
U+2ED15	kTraditionalVariant	WS2021-02533
WS2021-02533	kSimplifiedVariant	U+2ED15
U+2ED53	kSemanticVariant	WS2021-02830
WS2021-02830	kSemanticVariant	U+2ED53
U+2EDB5	kSpoofingVariant	WS2021-02094
WS2021-02094	kSpoofingVariant	U+2EDB5
U+2EDFC	kTraditionalVariant	WS2021-04060
WS2021-04060	kSimplifiedVariant	U+2EDFC
U+2EE27	kTraditionalVariant	WS2021-04233
WS2021-04233	kSimplifiedVariant	U+2EE27

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the informative kRSUnicode property values of U+9D2B, U+2ED3F and U+2EDD9, based on document L2/23-209 (Chan) and Section 05 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Change the kRSUnicode property values of U+9D2B, U+2ED3F and U+2EDD9, based on document L2/23-209 and Section 05 of document L2/23-237, and provide to Ken Lunde an updated UniHan data file, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the UniHan database to change the kRSUnicode property values of U+9D2B, U+2ED3F and U+2EDD9, based on document L2/23-209 and Section 05 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the UniHan database to add, change, or remove provisional property values, based on document L2/23-209 and Section 05 of document L2/23-237, for Unicode Version 16.0.

Action Item for Sharon Chen, CJK: Ask the CLDR-TC to check the proposed kMandarin property value additions, then report back to the UTC. See document L2/23-209 and Section 05 of document L2/23-237.

Current:

U+9D2B	kRSUnicode	196.5
U+2ED3F	kRSUnicode	102.5
U+2EDD9	kRSUnicode	159'.5

Adjusted:

U+9D2B	kRSUnicode	196.5 102.11
U+2ED3F	kRSUnicode	102.5 196'.5
U+2EDD9	kRSUnicode	159'.5 196'.4

06) L2/23-225: Request to update the G-Source reference for U+320DD [IRG N2648]

Comments: The group discussed this proposal, which is meant to resolve a duplicate *kIRG_GSource* property value in Extension H that has existed since Unicode Version 15.0, and agreed that a change is necessary. This proposal was brought to the attention of our friends in the China NB, and they confirmed that the recommended property value change was appropriate. The IRG also recommends this change.

In an effort to avoid this situation in the future, Ken Lunde developed, as part of UniHan database maintenance, a new Python script, *dupIRGSources.py*, that reports duplicate property values among the 11 normative *kIRG_{G,H,J,KP,K,M,S,T,U,UK,V}Source* properties.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the normative *kIRG_GSource* property value of U+320DD, based on document L2/23-225 (Chan & Ho) and Section 06 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Change the *kIRG_GSource* property value of U+320DD, based on document L2/23-225 and Section 06 of document L2/23-237, and provide to Ken Lunde an updated UniHan data file, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the UniHan database to change the *kIRG_GSource* property value of U+320DD, based on document L2/23-225 and Section 06 of document L2/23-237, for Unicode Version 16.0.

Current:

U+320DD	<i>kIRG_GSource</i>	GZ-4321207
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Adjusted:

U+320DD	<i>kIRG_GSource</i>	GZ-4321208
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07) L2/23-243: Request to confirm one unification for U+2C21C [IRG N2636]

Comments: The IRG recommends accepting the *kTotalStrokes* property value correction for U+2C21C 漾, from 12 to 13, and to horizontally extend U+2C21C to add “GHZR-31789.03” as its *kIRG_GSource* property value, as proposed in document IRG N2636 (aka L2/23-243). This document further proposes new *kSimplifiedVariant*, *kTraditionalVariant*, *kCantonese*, and *kMandarin* property values that reference U+2C21C. Of course, the *kMandarin* property value addition will need to be checked by the CLDR-TC before it can be accepted. China has been tasked to provide to WG2 the G-source representative glyph by 2023-10-31. The group therefore recommends that the UTC accept the *kTotalStrokes* property value change and *kIRG_GSource* property value addition.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the informative *kTotalStrokes* property value of U+2C21C, and to add GHZR-31789.03 as a new normative *kIRG_GSource* property value for

U+2C21C, based on document L2/23-243 (Chan) and Section 07 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Change the kTotalStrokes property value of U+2C21C, and add GHZR-31789.03 as a new kIRG_GSource property value for U+2C21C, based on document L2/23-243 and Section 07 of document L2/23-237, and provide to Ken Lunde an updated Unihan data file, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the Unihan database to change the kTotalStrokes property value of U+2C21C, and to add GHZR-31789.03 as a new kIRG_GSource property value for U+2C21C, based on document L2/23-243 and Section 07 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the Unihan database to add provisional property values, based on document L2/23-243 and Section 07 of document L2/23-237, for Unicode Version 16.0.

Action Item for Sharon Chen, CJK: Ask the CLDR-TC to check the proposed kMandarin property value addition, then report back to the UTC. See document L2/23-243 and Section 07 of document L2/23-237.

Current:

U+2C21C	kTotalStrokes	12
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Adjusted:

U+2C21C	kTotalStrokes	13
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New:

U+6FF4	kSimplifiedVariant	U+2C21C
U+2C21C	kCantonese	jing4
U+2C21C	kIRG_GSource	GHZR-31789.03
U+2C21C	kMandarin	yíng
U+2C21C	kTraditionalVariant	U+6FF4

UAX #45 / U-Source Documents

The four documents and fifth subsection in this section were discussed by the group, and for convenience, the following data files, which are PDF attachments, include all of the recommended UAX #45 *USourceData.txt* data file additions and changes based on them:

- *USource-additions-20231013.txt*
- *USource-changes-20231013.txt*

These recommended UAX #45 *USourceData.txt* data file additions and changes are also shown inline, immediately following the **Recommendations**.

08) L2/23-202: Proposal to encode one ideograph for Korean place names to UAX #45

Comments: The group reviewed this proposal, and agreed that adding the ideographs to UAX #45 is reasonable, with an assigned status value of **FutureWS**. The ideograph, whose

representative glyph is shown below, can therefore be considered as a candidate for inclusion in the UTC's submission for the next IRG working set:

尅

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept one new U-Source ideograph as UTC-03394 with a UAX #45 status value of FutureWS, based on document L2/23-202 (Lee) and Section 08 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Add one new record to the UAX #45 USourceData.txt data file and its representative glyph to USourceGlyphs.pdf, based on document L2/23-202 and Section 08 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Convey to the author of document L2/23-202 the CJK & Unihan Group comments in Section 08 of document L2/23-202.

New:

UTC-03394;FutureWS;;5.6;;𠂇尅;UTCDoc L2/23-202;kKorean KWUMI MI;7;3

09) L2/23-213: Proposal to add one common character used for Duanxi ink-stone to UAX #45

Comments: The group reviewed this proposal, and agreed that adding the ideograph to UAX #45 is reasonable, with an assigned status value of **FutureWS**. The ideograph, whose representative glyph is shown below, can therefore be considered as a candidate for inclusion in the UTC's submission for the next IRG working set:

鵲

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept one new U-Source ideograph as UTC-03395 with a UAX #45 status value of FutureWS, based on document L2/23-213 (Chan) and Section 09 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Add one new record to the UAX #45 USourceData.txt data file and its representative glyph to USourceGlyphs.pdf, based on document L2/23-213 and Section 09 of document L2/23-237, for Unicode Version 16.0.

New:

UTC-03395;FutureWS;;196'.9;;𪛗春鸟;UTCDoc L2/23-213;kTraditionalVariant U+2A0B9;kMandarin chūn;kCantonese ceon1;14;1

10) L2/23-214: Proposal to add one common character to mark the rhythm of Chinese traditional music to UAX #45

Comments: The group reviewed this proposal, and agreed that adding the ideographs to UAX #45 is reasonable, with an assigned status value of **FutureWS**. Also see Section 9 of document L2/23-012. The group noted that U+21B1D 𠂇 should be added as a *kSpoofingVariant* candidate for this ideograph. The ideograph, whose representative glyph is shown below, can therefore be considered as a candidate for inclusion in the UTC's submission for the next IRG working set:

𠂇

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept one new U-Source ideograph as UTC-03396 with a UAX #45 status value of FutureWS, based on document L2/23-214 (Chan) and as amended in Section 10 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Add one new record to the UAX #45 USourceData.txt data file and its representative glyph to USourceGlyphs.pdf, based on document L2/23-214 and as amended in Section 10 of document L2/23-237, for Unicode Version 16.0.

New:

UTC-03396;FutureWS;;1.2;;𠂇𠂇𠂇;UTCDoc L2/23-214;kSemanticVariant
U+6563:kSpoofingVariant U+5344 U+535D U+5EFE U+8279 U+21B1D;2;3

11) L2/23-226: Proposal to add one character used for ancient geographical name related to Mazu belief and customs to UAX #45

Comments: The group reviewed this proposal, and agreed that adding the ideographs to UAX #45 is reasonable, with an assigned status value of **FutureWS**. The ideograph, whose representative glyph is shown below, can therefore be considered as a candidate for inclusion in the UTC's submission for the next IRG working set:

𩺰

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept one new U-Source ideograph as UTC-03397 with a UAX #45 status value of FutureWS, based on document L2/23-226 (Chan) and Section 11 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Add one new record to the UAX #45 USourceData.txt data file and its representative glyph to USourceGlyphs.pdf, based on document L2/23-226 and Section 11 of document L2/23-237, for Unicode Version 16.0.

New:

UTC-03397;FutureWS;;195'.7;;𩺰𩺰𩺰;UTCDoc L2/23-226;kTraditionalVariant
U+9BD1:kMandarin xī:kCantonese hei1;15;3

12) IRG Working Set 2024

Comments: Per Recommendation IRG M61.15 in IRG N2620 (aka L2/23-250), which is discussed in more detail in Section 24 of this document, the deadline for submissions to IRG Working Set 2024 is 2024-07-26. Including the four additional U-source ideographs in the previous four numbered sections, the number of U-source ideographs in UAX #45 whose status is **FutureWS** is 173, which would serve as candidates for the UTC's submission. Among these candidates, UTC-03378 𩺰 has been deemed unifiable with U+9BC7 𩺰 per UCV #322 whose unifiable forms are shown below. Its UAX #45 status value should therefore be changed from **FutureWS** to **Variant**, which reduces the number of IRG Working Set 2024 candidates to 172.

魚 𩺰 𩺰 𩺰 𩺰 𩺰 𩺰

Recommendations: The group recommends to the UTC the following disposition ➡

Action Item for Ken Lunde, CJK: Prepare the UTC's submission for IRG Working Set 2024, and submit it to the IRG prior to the 2024-07-26 deadline, based on Section 12 of document L2/23-237.

Action Item for Ken Lunde, CJK: Modify the record for UTC-03378 in the UAX #45 USourceData.txt data file, based on Section 12 of document L2/23-237, for Unicode Version 16.0.

Current:

UTC-03378;FutureWS;;195.7;;𩺰𩺰完;UTCDoc L2/23-130 30;kJapanese あめ:Variant of 𩺰;17;4

Adjusted:

UTC-03378;**Variant**;**U+9BC7**;195.7;;𩺰𩺰完;UTCDoc L2/23-130 30;;17;4

Other Documents

The 13 documents and the 13th subsection in this section were discussed by the group, and for convenience, the following data file, which is a PDF attachment, includes all of the recommended Unihan database changes based on them:

- *Unihan_IRGSources-changes-20231013.txt*

The recommended Unihan database changes are also shown inline, immediately following the **Recommendations**.

13) L2/23-116: Proposal to update Appendix F: Documentation of CJK Strokes in Unicode 16.0

Comments: The Unicode Editorial Committee is already working on this as an update to the Core Specification for Unicode Version 16.0. The document author provided ready-to-use SVG files, which have been attached to Editorial Committee GitHub Issue #65.

Recommendations: The group recommends to the UTC the following disposition ➡

No UTC action is required.

14) L2/23-167: Proposal to update representative glyph of U+3029 SUZHOU NUMERAL NINE

L2/23-227: Feedback on L2/23-167 (Proposal to update representative glyph of U+3029 SUZHOU NUMERAL NINE)

Comments: The group reviewed this proposal to improve the representative glyph for U+3029 文 HANGZHOU NUMERAL NINE in the [CJK Symbols and Punctuation](#) block, along with the feedback in document L2/23-227, and agreed with the feedback that Suggestion #1 would be the most accurate representative glyph. The document author provided the improved representative glyph so that the open source [CJK Symbols](#) font, which is used for producing the code charts for the *CJK Symbols and Punctuation* block, can be updated accordingly. The IRG also reviewed this proposal, and agrees with this group's recommendations.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the representative glyph of U+3029, based on document L2/23-167 (Koo), the feedback in document L2/23-227 (Chan), and Section 14 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the glyph for U+3029 in the open source CJK Symbols TrueType font using the glyph in the OpenType font that the author of document L2/23-167 provided, then provide the updated CJK Symbols TrueType font to Michel Suignard and the Charts Group, based on Section 14 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Convey to the author of document L2/23-167 the CJK & Unihan Group comments in Section 14 of document L2/23-237.

15) L2/23-204: US/Unicode Activity Report for IRG #61 Meeting [[IRG N2630](#)]

Comments: This document is the UTC's activity report as delivered during the IRG #61 meeting in October of 2023, and is therefore an FYI document for the UTC.

Recommendations: The group recommends to the UTC the following disposition ➡

No UTC action is required.

16) L2/23-211: Proposal to add an RSIndex.txt data file to each release of the Unicode Standard

Comments: The group reviewed this proposal, and agreed that the addition of this data file in the release of the Unicode Standard would be helpful for developers, because it provides the content of the *RSIndex.pdf* Radical-Stroke Index in machine-readable form. With regard to producing comparable data files for the *IICoreRSIndex.pdf* and *UnihanCore2020RSIndex.pdf*

Radical-Stroke Indexes, the group agreed that this could be considered in the future based on public feedback. One of the group members suggested that the actual characters in the second field be added as a third field, which Ken Lunde instead implemented as a comment. See the *RSIndex-20231013.txt* data file (PDF attachment). The prototypical example below illustrates the traditional, Chinese simplified, and non-Chinese simplified collation order:

211.0 U+9F52 U+2398B U+2EBBD U+9F7F U+6B6F # 齒齒齒齒齒

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to add the *RSIndex.txt* data file to the release of the Unicode Standard, based on document L2/23-211 (Lunde) and Section 16 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Whistler, RMG: Update the Unicode Version 16.0 landing page to add link text for the *RSIndex.txt* data file, based on document L2/23-211 and Section 16 of document L2/23-237.

Action Item for Markus Scherer, PAG: Add the *RSIndex.txt* data file to the “charts” directory of Unicode Version 16.0, based on document L2/23-211 and Section 16 of document L2/23-237.

Action Item for Peter Constable, RMG: Add an item to the BRS (Big Red Switch) for Unicode Version 16.0, assigned to Ken Lunde, to update the *RSIndex.txt* data file, based on document L2/23-211 and Section 16 of document L2/23-237.

Action Item for Peter Constable, RMG: Add an item to the BRS (Big Red Switch) for Unicode Version 16.0, assigned to Markus Scherer, to stage the *RSIndex.txt* data file, based on document L2/23-211 and Section 16 of document L2/23-237.

17) L2/23-212R: Proposal to add standardized variation sequences for four quotation marks

Comments: The group discussed the original version of this proposal, L2/23-212, and while they agreed that these Standardized Variation Sequences (SVSes) would solve some long-standing issues that have been affecting East Asian fonts and text, they also agreed with the feedback from the Script Ad Hoc Group about improvements that could be made to the proposal. A revised proposal, L2/23-212R, was provided to this group and to the Script Ad Hoc Group on 2023-10-14.

Recommendations: The group recommends to the UTC the following disposition ➡

See document L2/23-238.

18) L2/23-220: Proposal to encode (disunify) two stroke characters in CJK Strokes block [IRG N2647]

Comments: The group reviewed this proposal to disunify U+31C8 乚 CJK STROKE HZWG and U+31DE 乚 CJK STROKE SZZ, and agreed that the evidence to do so is sufficient. The suggested code points, U+31E4 and U+31E5, are also reasonable. The representative glyphs for the two new characters will need to be added to the open source [CJK Symbols](#) TrueType font, which is

used to produce the code charts for the [CJK Strokes](#) block. In addition, because CJK strokes are used in IDSes (*Ideographic Description Sequences*), IDS database maintainers will need to be aware of these disunifications, and the grammar for IDSes in Chapter 18, Section 18.2, will need to be updated accordingly. The group also recommends that the hyphens in the third column of the tables in Appendix F be changed to spaces. The second table in Section 4.4 of UAX #38 will also need to be updated to add U+31E4 and U+31E5. The IRG also reviewed this proposal, and agrees with this group's recommendations.

The group also recommends that these two characters be included in Unicode Version 16.0 for the following two reasons: 1) at least for CJK- and Unihan-related work, character disunifications are treated as *de facto* urgently-needed characters; and 2) Appendix F of the Core Specification is in the process of being overhauled for Unicode Version 16.0, and it would be useful to reflect these two additions in the revised appendix.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept U+31E4 CJK STROKE HZXG and U+31E5 CJK STROKE SZP, based on document L2/23-220 (Koo) and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Whistler, UTC: Update the Pipeline to add U+31E4 CJK STROKE HZXG and U+31E5 CJK STROKE SZP, based on document L2/23-220 and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Whistler, PAG: Update NamesList.txt by moving the annotation “1st stroke of 98DE 飞” from U+31C8 to U+31E4, and adding “8th stroke of 594A 隹” as the annotation for U+31E5, based on document L2/23-220 and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Add the glyphs for U+31E4 and U+31E5 to the open source CJK Symbols TrueType font using the glyphs in the OpenType font that is attached to document L2/23-220, then provide the updated CJK Symbols TrueType font to Michel Suignard and the Charts Group, based on document L2/23-220 and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update PRI #483 to add a new row to the second table in Section 4.4 to accommodate U+31E4 and U+31E5, based on document L2/23-220 and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, EDC: Add to Editorial Committee GitHub Issue #65 the updated SVG files for U+31C8 and U+31DE, along with the SVG files for U+31E4 and U+31E5, which are attached to document L2/23-220, based on document L2/23-220 and Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, EDC: Update the IDS (Ideographic Description Sequence) grammar in Chapter 18, Section 18.2 to extend the definition of “CJK_Stroke” to include U+31E4 and U+31E5, based on document L2/23-220 and as amended in Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, EDC: Request that the author of document L2/23-220 supply updated versions of all SVG files for Appendix F provided to date that replace the hyphens in the third column with spaces, then attach the updated SVG files to Editorial Committee

GitHub Issue #65, based on document L2/23-220 and as amended in Section 18 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Convey to the author of document L2/23-220 the CJK & Unihan Group comments in Section 18 of document L2/23-237.

19) L2/23-221: Proposal to modify the representative glyph of U+31D2 CJK STROKE P

Comments: The group reviewed this proposal to improve the representative glyph for U+31D2 / CJK STROKE P in the [CJK Strokes](#) block, and agreed that it would be an improvement. The proposal includes as PDF attachments 1) an OpenType font that includes the updated glyph; and 2) an updated SVG file for Appendix F of the Core Specification. The glyph in the OpenType font would be used to update the glyph in the open source [CJK Symbols](#) font, which is used for producing the code charts for the *CJK Strokes* block. There is already an open issue, Issue #65, in the Editorial Committee GitHub repository for updating Appendix F using SVG files that were provided by the author of this document.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the representative glyph for U+31D2, based on document L2/23-221 (Koo) and Section 19 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the glyph for U+31D2 in the open source CJK Symbols TrueType font using the glyph in the OpenType font that is attached to document L2/23-221, then provide the updated CJK Symbols TrueType font to Michel Suignard and the Charts Group, based on Section 19 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, EDC: Add to Editorial Committee GitHub Issue #65 the updated SVG file for U+31D2 that is attached to document L2/23-221, based on Section 19 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Convey to the author of document L2/23-221 the CJK & Unihan Group comments in Section 19 of document L2/23-237.

20) L2/23-242: Proposal to Change Glyph of U+21128 [IRG N2651]

Comments: The IRG recommends accepting the representative glyph change request for a single V-source ideographs proposed in IRG N2651 (aka L2/23-242). Vietnam has been tasked to provide to WG2 the updated representative glyph by 2023-10-31. The group therefore recommends that the UTC accept this V-source representative glyph change.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the V-source representative glyph for U+21128, based on document L2/23-242 (Vietnam NB) and Section 20 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Apply the V-source representative glyph change for U+21128 to the code charts for the CJK Unified Ideographs Extension B block with an updated font provided by Vietnam, based on document L2/23-242 and Section 20 of document L2/23-237, for Unicode Version 16.0.

21) L2/23-244: Suggestions to correct representative glyphs of 4 CJKUIs [IRG N2616]

Comments: The IRG recommends accepting the representative glyph changes proposed in IRG N2616 (aka L2/23-244), but only for U+2B92C 𠂇 in Extension E (G-source) and U+32268 𪛗 in Extension H (UK-source). China will respond to the proposal to change the G-source representative glyphs for U+2BBEE 𠂇 and U+2BD9A 𠂇 during the IRG #62 meeting next year. China and UK have been tasked to provide to WG2 the updated representative glyphs by 2023-10-31. The group therefore recommends that the UTC accept these G- and UK-source representative glyph changes.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the G-source representative glyph for U+2B92C and the UK-source representative glyph for U+32268, based on document L2/23-244 (Wang) and Section 21 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Apply the G-source representative glyph change for U+2B92C and the UK-source representative glyph change for U+32268 to the code charts for the CJK Unified Ideographs Extension E and Extension H blocks, respectively, with updated fonts provided by China and UK, respectively, based on document L2/23-244 and Section 21 of document L2/23-237, for Unicode Version 16.0.

22) L2/23-245: Proposal to update the reference glyphs for 3 characters [IRG N2642]

Comments: The IRG recommends accepting the three G-source representative glyph changes proposed in IRG N2642 (aka L2/23-245). In addition, the representative glyph change for U+2D156 𠂇 necessitates that a second *kRSUnicode* property value, 96.2, be added, and that the *kTotalStrokes* value be changed from 5 to 6. China has been tasked to provide to WG2 the updated representative glyphs by 2023-10-31. The group therefore recommends that the UTC accept these three G-source representative glyph changes, along with the *kRSUnicode* and *kTotalStrokes* property value changes for U+2D156.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to change the G-source representative glyphs for U+203D8, U+25B9F, and U+2D156, and to change the *kRSUnicode* and *kTotalStrokes* property values for U+2D156, based on document L2/23-245 (Jiang) and Section 22 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Apply the G-source representative glyph changes for U+203D8, U+25B9F, and U+2D156 to the code charts for the CJK Unified Ideographs Extension B and Extension F blocks, respectively, with an updated font provided by China, based on document L2/23-245 and Section 22 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Change the kRSUnicode and kTotalStrokes property values of U+2D156, based on document L2/23-245 and Section 22 of document L2/23-237, and provide to Ken Lunde an updated UniHan data file, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update the UniHan database to change the kRSUnicode and kTotalStrokes property values of U+2D156, based on document L2/23-245 and Section 22 of document L2/23-237, for Unicode Version 16.0.

Current:

U+2D156	kRSUnicode	22.3
U+2D156	kTotalStrokes	5

Adjusted:

U+2D156	kRSUnicode	22.3 96.2
U+2D156	kTotalStrokes	6

23) L2/23-249: Editorial Report on Miscellaneous Issues [IRG N2622]

Comments: This is an FYI document for the UTC, because all of the necessary actions in Sections 1, 3, and 4 are covered by Sections 06, 07, 14, 18, and 20 through 22 of this document.

Recommendations: The group recommends to the UTC the following disposition ➡

No UTC action is required.

24) L2/23-250: IRG Meeting #61 Recommendations and Action Items [IRG N2620]

Comments: While this is mainly an FYI document for the UTC, because all of the necessary actions have been specified under documents that are referenced elsewhere in this document, it is important to point out the future IRG meeting schedule and the IRG Working Set 2021 review schedule, both of which impact UTC experts.

Per Recommendation IRG M61.01, the next IRG meeting, **IRG #62 (2024-03-18 through 2024-03-22)**, will be virtual (Zoom) and hosted by the Unicode Consortium; **IRG #63 (2024-10-21 through 2024-10-25)** will be tentatively hosted by ROK, and may be hybrid (Zoom); **IRG #64 (2025-03-17 through 2025-03-21)** will be virtual (Zoom) and hosted by the Unicode Consortium; **IRG #65 (2025-10-13 through 2025-10-17)** will be hosted by China, and may be hybrid (Zoom); and **IRG #66 (tentatively 2026-03-16 through 2026-03-20)** will be virtual (Zoom) and hosted by the Unicode Consortium.

Per Recommendation IRG M61.05, **IRG Working Set 2021 Version 6.0** is scheduled to be available by **2023-12-15**, with **2024-01-26** being the deadline to submit comments via the Online Review Tool (ORT). The review assignments have not yet been announced by the IRG Chief

Editor. The ORT Manager is scheduled to release Consolidated Comments by **2024-02-21**, with responses from submitters due by **2024-03-08**. The UTC does not need to submit any revised representative glyphs for its submission.

Per Recommendation IRG M61.13, the IRG is planning to submit IRG Working Set 2021 to WG2 after the IRG #62 meeting, which effectively confirms that the new CJK Unified Ideographs Extension J block would not be targeted for Unicode Version 16.0 (2024), but instead Unicode version 17.0 (2025).

Recommendations: The group recommends to the UTC the following disposition ➡

No UTC action is required.

25) UTC Action Item 151-A142 Redux

Comments: This particular UTC Action Item from the UTC #151 meeting (2017-05-08 through 2017-05-12) was assigned to Michel Suignard and John Jenkins (RIP) to incorporate the data from the [Unihan_Derived-draft1.txt](#) data file that was included in [PRI #344](#) into the Unihan database for Unicode Version 11.0.

Although Michel incorporated the derived data into the *Unihan.txt* data file, which excluded U+2E80 in the [CJK Radicals Supplement](#) block and U+31C0 through U+31CF, U+31D5, U+31D7 through U+31D9, U+31DB through U+31DE, and U+31E1 through U+31E3 in the [CJK Strokes](#) block, because they did not have an *Equivalent_Unified_Ideograph* property value, John never incorporated the derived data into the Unihan database.

Each time John received an updated *Unihan.txt* data file from Michel, he explicitly removed the derived data prior to updating the Unihan database proper. In other words, this was clearly not overlooked, but rather we suspect that incorporating this derived data into the Unihan database was at odds with statements in UAX #38 that would prevent their inclusion, such as the second table in Section 4.4.

Furthermore, the following 11 additional characters in the CJK Strokes block ended up with *Equivalent_Unified_Ideograph* property values prior to the property's inclusion in Unicode Version 11.0, which are not reflected in the *Unihan.txt* data file: **U+31C6** 𠂢 (U+200CC 𠂢), **U+31CF** 𠂣 (U+4E40 𠂣), **U+31D5** 𠂤 (U+200CD 𠂤), **U+31D7** 𠂥 (U+200CA 𠂥), **U+31D8** 𠂦 (U+200CE 𠂦), **U+31D9** 𠂧 (U+2010C 𠂧), **U+31DB** 𠂩 (U+21FE8 𠂩), **U+31DC** 𠂪 (U+200CB 𠂪), **U+31DD** 𠂫 (U+4E40 𠂫), **U+31DE** 𠂬 (U+200D1 𠂬), and **U+31E1** 𠂱 (U+2010E 𠂱).

On the grounds that the *kRSUnicode* and *kTotalStrokes* property data for the characters that have an *Equivalent_Unified_Ideograph* property value can be derived, the group recommends that the associated data in the *Unihan.txt* data file be removed, that the language in Section 2.1.1 of UAX #38 be clarified, and that a reference to the *Equivalent_Unified_Ideograph* property be added as a new bullet at the end of Section 4.4 of UAX #38.

Recommendations: The group recommends to the UTC the following disposition ➡

Consensus: Accept the proposal to remove the kRSUnicode and kTotalStrokes property values for the CJK Radicals Supplement, Kangxi Radicals, and CJK Strokes blocks from the Unihan.txt data file, based on Section 25 of document L2/23-237, for Unicode Version 16.0.

Action Item for Michel Suignard, CJK: Remove the kRSUnicode and kTotalStrokes property values for the CJK Radicals Supplement, Kangxi Radicals, and CJK Strokes blocks from the Unihan.txt data file, based on Section 25 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Lunde, CJK: Update PRI #483 (Proposed Update UAX #38) to clarify the relationship between the Equivalent_Unified_Ideograph property and UAX #38 in Section 2.1.1, and to add a reference to the Equivalent_Unified_Ideograph property at the end of Section 4.4, based on Section 25 of document L2/23-237, for Unicode Version 16.0.

Action Item for Ken Whistler, EDC: Add an entry for EquivalentUnifiedIdeograph to Section 1 of UAX #41, based on Section 25 of document L2/23-237, for Unicode Version 16.0.

That is all.