



ISO/IEC JTC 1/**SC 2 N4899**  
ISO/IEC JTC 1/SC 2/**WG 2 N5244**  
2024-02-06

ISO/IEC JTC 1/SC 2/WG 2  
Universal Coded Character Set (UCS) - ISO/IEC 10646  
Secretariat: ANSI

DOC TYPE: Meeting minutes

TITLE: Unconfirmed minutes of WG 2 meeting 70  
Wilfrid Laurier University, Waterloo, ON, Canada (with Remote participants via Zoom);  
2023-06-19/23

SOURCE: V.S. Umamaheswaran ([bhanudorai@rogers.com](mailto:bhanudorai@rogers.com)), Recording Secretary  
Michel Suignard ([michel@suignard.com](mailto:michel@suignard.com)), Convener

PROJECT: JTC 1.02.18 - ISO/IEC 10646

STATUS: SC 2/WG 2 participants are requested to review the attached unconfirmed minutes, note and act on appropriate noted action items, and to send any comments or corrections to the convener as soon as possible but no later than the due date below.

ACTION ID: ACT

DUE DATE: 2024-05-31

DISTRIBUTION: SC 2/WG 2 members and Liaison organizations

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ISO  
International Organization for Standardization  
Organisation Internationale de Normalisation

ISO/IEC JTC 1/SC 2/WG 2  
Universal Coded Character Set (UCS)

ISO/IEC JTC 1/SC 2 **N4899**  
ISO/IEC JTC 1/SC 2/**WG 2 N5244**  
2024-02-06

Title:	Unconfirmed minutes of WG 2 meeting 70 Wilfrid Laurier University, Waterloo, ON, Canada (with Remote participants via Zoom); 2023-06-19/23
Source:	V.S. Umamaheswaran ( <a href="mailto:bhanudorai@rogers.com">bhanudorai@rogers.com</a> ), Recording Secretary Michel Suignard ( <a href="mailto:michel@suignard.com">michel@suignard.com</a> ), Convener
Action:	WG 2 members and Liaison organizations
Distribution:	ISO/IEC JTC 1/SC 2/WG 2 members and liaison organizations

(Note: Links to the documents in this document from the agenda document are from [WG2 registry](#) on Unicode site, [SC 2 livelink repository](#), IRG site (the links will be of the form <http://appsrv.cse.cuhk.edu.hk/%7Eirg/irg/irg46/IRGNxxxx>) or to [UTC/L2 Register](#) site, as needed. Some of these documents need access authorizations.)

## 1 Opening and roll call

The face to face meeting started at 13:00h (EDT) along with the scheduled Zoom Call (coordinated by the convener Mr. Michel Suignard at iso.zoom.us). The convener Mr. Michel Suignard welcomed all the delegates. This was the first face to face meeting after the Covid-19 pandemic interval of almost four years. He thanked Canada for hosting this meeting. The logistics for the meeting are well-organized by the host Dr. Karljürgen Feuerherm (and the Wilfrid Laurier University).

He pointed out to the attendees that the comprehensive document that contains the list of attendees and contact information from several previous WG2 meetings will not be maintained any more. The attendance list that appears with each WG2 meeting recommendations and minutes document will be continued. See document [N5151](#).

### 1.1 Roll call

Attendees, both in the meeting room as well as on Zoom call, introduced themselves. Following **24** experts accredited (or invited) by **8** national bodies and **4** liaison organizations were present at different times during the meeting, either in person or via Zoom call.

(Note: This list is put together from Zoom call records and WG2 experts' attendance and ISO registrations for this meeting. Please let us know if any corrections are needed.)

Name	Accreditation	Affiliation
Abdul-Rahman Mawlood-Yunis	.Guest – Canada	Wilfrid Laurier University
HU JiaJia	.Guest – China	Beijing Normal University; Small Seal expert
Omar Aden	.Guest – Sweden	Independent; Somali expert
Richard COOK	.Guest - Unicode	Independent; Small Seal expert
Qin LU	.IRG Convener	Hong Kong Polytechnic University [retired]
Masaru TAKECHI	.SC 2 Chairperson	NHK Foundation
Ayuko NAGASAWA	.SC 2 Secretariat	IPSJ/ITSCJ
Toshiya SUZUKI	.SC34 (liaison)	Hiroshima University
Lin Mei WEI	.TCA (Cat. C Liaison)	Chinese Foundation for Digitization Technology
Yen Ling TSENG	.TCA (Cat. C Liaison)	Chinese Foundation for Digitization Technology
Michel SUIGNARD	.WG 2 Convener; USA	Unicode, Inc.
Karljürgen FEUERHERM	Canada	Wilfrid Laurier University

V.S. (Uma) UMAMAHESWARAN	Canada	Independent
Zhuang CHEN	China	CESI
Jan KUČERA	Czech Republic	Charles University
Michael EVERSON	Ireland	Evertime
Shuichi TASHIRO	Japan	Kaishi Professional University
Kyongsok KIM	Korea	Pusan National University
Petra Fogelberg	Sweden	SIS
Andrew WEST	UK	Independent
Craig CUMMINGS	USA	Unicode
Ken LUNDE	USA	Apple, Inc.
Deborah ANDERSON	USA, UC Berkeley (Cat. C Liaison)	University of California, Berkeley
Peter CONSTABLE	USA, Unicode (Cat. A Liaison)	Microsoft Corp.

(Note: The above list is based primarily on the list of experts who attended in person and those who registered with ISO to attend the SC 2/WG 2 meeting. Names of some experts who participated via ZOOM call may not appear in the above list. Corrections can be sent to the convener.)

Mr. Peter Constable and Dr. Deborah Anderson volunteered to be on the drafting committee assisting the convener Mr. Michel Suignard and the recording secretary Dr. Umamaheswaran, in drafting the meeting recommendations.

## 2 Approval of the agenda

Input document:

[5210](#) WG2 meeting #70, June 19-23, Agenda (will be final agenda location), revised; Michel Suignard, Convenor; 2023-06-06

Mr. Michel Suignard: All the documents referenced in the agenda are on ISO WG2 list and on Unicode register. The latest agenda is version 2 and will be updated as the meeting progresses.

Agenda item 9.4 – proposals in this item are targeted for inclusion in Amd. 2.

Agenda items 10.xx contain new contributions for discussion. Documents under 10.3 through 10.9 have been seen before.

There is no plan for any new amendment.

I will create a new document containing expected update to DAM 2.2 by end of this meeting.

Experts were reminded to identify any new contributions to the convener.

*Disposition:* Approved the agenda as was presented. Updates to the agenda were posted to the WG2 website as the meeting progressed.

(Note: the agenda item numbers in these minutes may not align with the agenda item numbers in document [N5210](#). All the changes made during the meeting are included in the appropriate sections in these minutes. Some agenda items have been regrouped, reorganized or renumbered. Agenda items that did not have any document to discuss do not appear in these minutes. Documents on the agenda that did not have any discussion are only for information to WG2 experts, or are for future meetings. The following table of contents reflects the discussed items.)

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### 3 Approval of minutes of meeting 69

Input document:

[5199](#) WG2 meeting #69 unconfirmed minutes, [Action Items](#); V.S. Umamaheswaran, Secretary; 2023-01-30

Dr. Umamaheswaran: I have not received any comments on the circulated unconfirmed minutes in document [N5199](#) so far. Please give me any feedback you may have before the end of this meeting.

Following corrections in document [N5199](#) are noted, based on off-line comments received before the end of the meeting:

- a. Section 10.1 – List of Carried forward contributions, and in section 13.6 - Action item 69-7b  
Add the missing “Proto-Elamite ([L2/20-192](#))” after “Proto-Cuneiform ([L2/22-239](#))”  
Update reference for Ranjana to ([L2/23-028](#))
- b. Section 13.6 – Action item 69-7b:  
Add the missing “Shuishu ([N4758](#) [N4922](#) [N4839](#) [N4956](#), [N4942](#), [N4946](#), [N5110](#))” carried forward from section 10.4 in M69 minutes.
- c. Section 13 – Action Items:  
Reword the paragraph before the table in section 13.1 to indicate that Action items from meeting 60 have been already addressed.  
“All the action items recorded in the minutes of the previous meetings from 25 to 61, and 64 to 66, have been either completed or dropped. Status of outstanding action items from previous meetings 62, 63, 67, 68 and new action items from meeting 69 are listed in the tables below.”

*Disposition:* Adopted the minutes of meeting 69 with above corrections.

#### 4 Review of action items from previous meeting

Input document:

[5199-AI](#) Action items from Meeting #69 unconfirmed minutes; V.S. Umamaheswaran, Secretary; 2023-01-30

Dr. Umamaheswaran reviewed and updated the action items from the previous meetings. The tables below show the updated status for each item. Of the **26** action items that were reviewed, **9** items are carried forward, and **17** items are marked as either 'noted' or 'completed'.

##### 4.1 Outstanding action items from meeting 62, San Jose, CA, USA; 2014-02-24/28

Item	Assigned to / action (reference resolutions in document <a href="#">N4554</a> , and unconfirmed minutes in document <a href="#">N4553</a> for meeting 62, with any corrections noted in the minutes of meeting 63 in document <a href="#">N4603</a> ).	Status
<b>AI-62-6</b>	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
<b>a.</b>	To take note of section 2.1 in document <a href="#">N4544</a> on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M63 through M69 -- in progress.	In progress.
<b>b.</b>	With reference to <a href="#">N4543</a> Character Name considerations; Michel Suignard; 2014-02-20, to elaborate on character names in the P&P document working with Mr. Michael Everson. M63 through M69 -- in progress.	In progress.

##### 4.2 Outstanding action items from meeting 63, Colombo, Sri Lanka; 2014-09-29/10-03

Item	Assigned to / action (Reference recommendations in document <a href="#">N4604</a> , and unconfirmed minutes in document <a href="#">N4603</a> for meeting 63 (with any corrections noted in the minutes of meeting 64 in document <a href="#">N4739</a> ).	Status
<b>AI-63-6</b>	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
<b>a.</b>	To take note of section 2.1 in document <a href="#">N4620</a> on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M64 through M69 -- in progress.	In progress.

##### 4.3 Outstanding action items from meeting 66, Hohhot, Inner Mongolia, China; 2017-09-25/29

Item	Assigned to / action (Reference recommendations in document <a href="#">N4874</a> , and unconfirmed minutes in document <a href="#">N4953</a> for meeting 66, with any corrections noted in the minutes of meeting 67 in document <a href="#">N5020</a> ).	Status
<b>AI-66-6</b>	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson). TCA (Lin Mei Wei), Mongolia experts	
	To take note of and act on the following item:	
<b>b.</b>	<i>M66.18 (Naxi Dongba script)</i> : WG2 accepts the Naxi Dongba ad hoc report in document <a href="#">N4895</a> , and invites the author of the script to provide a revised version with the characters reordered according to the type of classification used in the source dictionaries, based on the revised chart in document <a href="#">N4898</a> . WG2 recommends to SC2 to accept the revised version of the script, consisting of 1188 characters in a new block Naxi Dongba in the range 1A800...1ACFF for encoding in the standard. M67 through M69 -- in progress.	In progress.

##### 4.4 Outstanding action items from meeting 67, SOAS, University of London, London, UK; 2018-06-16/20

Item	Assigned to / action (Reference recommendations in document <a href="#">N4954</a> , and unconfirmed minutes in document <a href="#">N5020</a> for meeting 67, with any corrections noted in the minutes of meeting 68 in document <a href="#">N5122</a> ).	Status
<b>AI-67-7</b>	BIS (K. Manikandan), Experts on Assamese from India and elsewhere.	
	To take note of and act on the following item:	
<b>a.</b>	<i>M67.25 (Assamese script)</i> : After consideration of the proposal in document <a href="#">N4947</a> to encode the Assamese script, WG2 recommends that SC2 accept the ad hoc report on Assamese script in document <a href="#">N4999</a> , which has the following main recommendations: <ul style="list-style-type: none"> <li>a. Add Assamese character names in the nameslist as annotations,</li> <li>b. Change the block header from Bengali to Bengali-Assamese, and,</li> <li>c. Prepare a revised contribution on new characters to be added.</li> </ul> WG2 encourages the experts on Assamese script to continue the work towards a revised contribution and submit to WG2. WG2 recommends that SC2 invites the national body of India, BIS, to coordinate this effort.	In progress.

	M68 and M69 - in progress.	
<b>AI-67-8</b>	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson). TCA (Lin Mei Wei), Mongolia experts	
	To take note of and act on the following items:	
<b>c.</b>	<i>M67.26 (Shuishu script)</i> : WG2 invites the authors of Shuishu script (Block 1B300-1B4FF Shuishu Logograms and Block 1B500-1B52F Shuishu Radicals from document N4894R) that was taken out of PDAM 2.2 based on ballot comments, to revise their proposal, taking into account the feedback received at this meeting (see documents N4942, N4946 and N4956), working with other experts interested in this script. M68 and M69 - in progress.	In Progress.

#### 4.5 Outstanding action items from meeting 68, Microsoft Campus, Redmond, WA, USA; 2019-06-17/21

Item	Assigned to / action (Reference recommendations in document N5054, and unconfirmed minutes in document N5122 for meeting 68, , with any corrections noted in the minutes of meeting 69 in document N5199.	Status
<b>AI-68-7</b>	Experts from China (Chen Zhuang), and other experts interested in Lisu Monosyllabic script.	
	To take note of and act on the following item:	
<b>a.</b>	<i>Recommendation M68.18 (Lisu Monosyllabic Script)</i> : WG2 invites the authors of documents N5047 to revise their proposal on Lisu Monosyllabic script, taking into account the feedback received at this meeting, working with other experts interested in this script. M69 - in progress	In Progress.
<b>AI-68-8</b>	Experts from TCA (Selena Wei), and other experts interested in Bopomofo.	
	To take note of and act on the following item:	
<b>a.</b>	<i>Recommendation M68.19 (Bopomofo Script)</i> : WG2 invites the authors of documents N5088 to revise their proposal on Bopomofo script, taking into account the feedback received at this meeting, working with other experts interested in this script. M69 - in progress	In Progress.
<b>AI-68-9</b>	Experts from TCA (Selena Wei), China (Chen Zhuang), and other experts interested in Oracle Bone script.	
	To take note of and act on the following item:	
<b>a.</b>	<i>Recommendation M68.20 (Oracle Bone Script)</i> : WG2 invites the authors of documents N5090 to revise their proposal on Oracle Bone script, taking into account the feedback received at this meeting, working with other experts interested in this script. M69 - in progress	In Progress.

#### 4.6 New action items from Virtual meeting 69 – 2022-06-20 & 23

Item	Assigned to / action (Reference recommendations in document N5154, and unconfirmed minutes in document N5199 for meeting 69, with any corrections noted in the minutes of meeting 70 in document N5244, the document you are reading.)	Status
<b>AI-69-1</b>	Recording Secretary - Dr. V.S. UMAmaheswaran	
<b>a.</b>	To finalize the document N5154 containing the adopted meeting recommendations and send it to the convener as soon as possible.	(Was Completed by Convener). Document N5154.
<b>b.</b>	To finalize the document N5199 containing the unconfirmed meeting minutes and send it to the convener as soon as possible.	Completed. Document N5199.
<b>AI-69-2</b>	Convener - Mr. Michel Suignard	
<b>a.</b>	To add relevant contributions carried forward from previous meetings to agenda of next meeting. (See list of documents under AI-69-7, item b below.)	Completed; See document N5210
<b>AI-69-3</b>	Editor of ISO/IEC 10646: (Mr. Michel Suignard with assistance from contributing editors)	
	To prepare the appropriate amendment texts, sub-division proposals, collection of editorial text for the next edition, corrigendum text, or entries in collections of characters for future coding, with assistance from other identified parties, in accordance with the following:	
<b>a.</b>	<i>M69.01 (Disposition of ballot comments of CDAM1.2 to 6<sup>th</sup> Edition)</i> : WG2 recommends that SC2 accept the disposition of ballot comments on CDAM1.2 to 6 <sup>th</sup> edition in document N5194 (SC2 N4809). The following significant changes are noted: <ul style="list-style-type: none"> <li>a. Addition: 2B739 CJK UNIFIED IDEOGRAPH-2B739</li> <li>b. Glyph changes for U+5F50 and U+32351.</li> </ul>	Completed. Document N5194 was sent to SC2.

b.	<i>M69.02 (Additional changes to Amendment 1):</i> WG2 recommends that the Project Editor add the 51 Horizontal Hanja extensions documented in <a href="#">N5179</a> and further CJK related glyph and data changes included in document <a href="#">N5195</a> .	Completed.
c.	<i>M69.03 (Progression of CDAM1.2):</i> WG2 recommends that the Project Editor prepare the final text of CDAM1.2 of the 6th edition of the standard, which will include the changes arising from recommendations <b>M69.01</b> through <b>M69.02</b> above, along with the final disposition of comments (document <a href="#">N5194</a> ), and forward it to the SC2 secretariat for processing as a DAM ballot. The target starting dates are DAM 2022-07-01, FDAM 2023-02-01, AMD 2023-05-01.	Completed. FDAM1 was sent out by SC2 as <a href="#">SC2 N4832</a> on 2023-01-16.
d.	<i>M69.04 (New Program of work for a second amendment to ISO/IEC 10646 6<sup>th</sup> edition):</i> WG2 recommends that SC2 accept to start a new program of work for a second amendment to ISO/IEC 10646 6th edition. The supporting document is <a href="#">N5182</a> and the starting repertoire is detailed in <a href="#">N5181</a> . The target dates are: CDAM: 2022-08-01, DAM 2024-06-01, FDAM 2025-02-01, AMD 2025-05-01.	Completed. Documents <a href="#">N5181</a> and <a href="#">N5182</a> were sent to SC2.
e.	<i>M69.05 (new scripts):</i> WG2 recommends that the Project Editor add the following scripts with following new blocks, characters with their glyphs as referenced in document <a href="#">N5181</a> for future encoding in the standard: a. TODHRI (block: 105C0..105FF), new code points: 105C0-105F3 b. GARAY (block: 10D40..10D8F), new code points: 10D40..10D65, 10D69..10D85, 10D8E..10D8F c. TULU-TIGALARI (block: 11380..113FF), new code points: 11380..11389, 1138B, 1138E, 11390..113B5, 113B7..113C0, 113C2, 113C5, 113C7..113CA, 113CC..113D1, 113D4..113D5, 113D7..113D8, 113E1..113E2 d. SUNUWAR (block: 11BC0..11BFF), new code points: 11BC0..11BE1, 11BF0..11BF9 e. KIRAT RAI (block: 16D40..16D7F), new code points: 16D40..16D79	Completed.
f.	<i>M69.06 (additions to existing scripts):</i> WG2 recommends that the Project Editor add the following additions to existing scripts with following new blocks (as appropriate), characters with their glyphs as referenced in document <a href="#">N5181</a> for future encoding in the standard: a. Telugu: 0C5C TELUGU ARCHAIC SHRII b. Kannada: 0CDC KANNADA ARCHAIC SHRII c. Balinese: • 1B4E BALINESE INVERTED CARIK SIKI • 1B4F BALINESE INVERTED CARIK PAREREN • 1B7F BALINESE PANTI BAWAK d. Latin Extended-D: A7CB LATIN CAPITAL LETTER RAMS HORN e. Arabic Extended-C: 10EFC ARABIC COMBINING ALEF OVERLAY f. Myanmar Extended-C (new block 116D0..116FF): • 116D0..116D9 MYANMAR PAO DIGIT ZERO to MYANMAR PAO DIGIT NINE • 116DA..116E3 MYANMAR EASTERN PWO KAREN DIGIT ZERO to MYANMAR EASTERN PWO KAREN DIGIT NINE	Completed.
g.	<i>M69.07 (Characters from legacy computers and teletext):</i> WG2 recommends that the Project Editor add the following additions to existing scripts with following new blocks (as appropriate), characters with their glyphs as referenced in document <a href="#">N5181</a> for future encoding in the standard: a. Control Pictures: • 2427 SYMBOL FOR DELETE SQUARE CHECKER BOARD FORM • 2428 SYMBOL FOR DELETE RECTANGULAR CHECKER BOARD FORM • 2429 SYMBOL FOR DELETE MEDIUM SHADE FORM b. Symbols for Legacy Computing Supplement (new block 1CC00..1CEBF): • 1CC00..1CCF9 UP-POINTING GO-KART to OUTLINED DIGIT NINE • 1CD00..1CEAF BLOCK OCTANT-3 to LOWER HALF RIGHT ONE QUARTER BLOCK c. Supplementary Arrows-C: • 1F8B3..1F8BB DOWNWARDS BLACK ARROW TO BAR to SOUTH WEST ARROW FROM BAR d. Symbols for Legacy Computing:	Completed.



	<ul style="list-style-type: none"> <li>1FBCB..1FBEF WHITE CROSS MARK to TOP LEFT JUSTIFIED LOWER RIGHT QUARTER BLACK CIRCLE</li> </ul>	
<b>h.</b>	<p><i>M69.08 (Characters from Smalltalk):</i> WG2 recommends that the Project Editor add the following additions to existing scripts with following new blocks (as appropriate), characters with their glyphs as referenced in document <a href="#">N5181</a> for future encoding in the standard:</p> <p>a. Symbols for Legacy Computing Supplement (new block 1CC00..1CEBF):</p> <ul style="list-style-type: none"> <li>1CEB0..1CEB3 HORIZONTAL ZIGZAG LINE to BLACK RIGHT TRIANGLE CARET</li> </ul> <p>b. Supplementary Arrows-C:</p> <ul style="list-style-type: none"> <li>1F8B2 RIGHTWARDS ARROW WITH LOWER HOOK</li> </ul>	Completed.
<b>i.</b>	<p><i>M69.09 (Progression of CDAM2):</i> WG2 recommends that the Project Editor prepare the text of CDAM2 of the 6th edition of the standard, which will include the changes arising from recommendations M69.05 through M69.08 above and forward it to the SC2 secretariat for processing as a CDAM2 ballot. The draft code charts are in document <a href="#">N5181</a>. The target starting date is 2022-08-01.</p>	Completed. See documents <a href="#">SC2/4817</a> and <a href="#">SC2/4843</a> ; CDAM 2.2 was also sent for comments, to be dealt with at this meeting.
<b>AI-69-4</b>	IRG Rapporteur and IRG Editor (Dr. Lu Qin)	
	To take note of and act upon the following item:	
<b>a.</b>	<p><i>M69.12 (Future meetings):</i> WG2 endorses the following schedule for future meetings:</p> <p>....</p> <p>IRG Meeting 59 virtual, 2022-10-17/21 (Beijing daytime)</p> <p>IRG Meeting 60 virtual, 2023-03-20/24 (Beijing daytime)</p> <p>....</p>	Noted.
<b>AI-69-5</b>	Ad hoc group on roadmap (Dr. Umamaheswaran)	
<b>a.</b>	To update the Roadmaps with the results from this meeting.	Completed.
<b>AI-69-6</b>	Experts from TCA (Selena Wei), China (Chen Zhuang), Japan (Toshiya Suzuki), and other experts interested in Small Seal script	
	To take note of and act on the following item:	
<b>a.</b>	<p><i>M69.10 (Small Seal script):</i> WG2 recommends that SC2 note the progress made by the experts from China and TCA in document <a href="#">N5188</a>, <a href="#">N5189</a>, <a href="#">N5190</a>, and <a href="#">N5191</a>, and encourages these experts to work with experts from USA and Japan and others to progress towards a consolidated contribution for encoding the script.</p>	Completed.
<b>AI-69-7</b>	Experts from all national bodies and liaison organizations	
	To take note of and provide feedback on the following items.	
<b>a.</b>	<p><i>M69.12 (Future meetings):</i> WG2 endorses the following schedule for future meetings:</p> <p>WG2 Meeting 70 – 2023-06-19/23 – (Waterloo, Ontario, Canada), backup Aberdeen, Scotland, UK (Co-located with SC2 plenary meeting 28)</p> <p>WG2 Meeting 71 – 2024-06 Prague, Czech Republic, backup: Aberdeen, Scotland, UK, or Japan IRG Meeting 59 virtual, 2022-10-17/21 (Beijing daytime)</p> <p>IRG Meeting 60 virtual, 2023-03-20/24 (Beijing daytime)</p>	Noted.
<b>b.</b>	<p>The following is a list of contributions carried forward from earlier meetings. They are open for review and feedback to the authors from interested experts from SC2/WG2 and Liaison organizations. Scripts marked in bold below are new or updates of previous list in Meeting 69 agenda document.</p> <p>Afáka (<a href="#">N4292</a>), Bagam (<a href="#">N4293</a>), Balti ‘B’ (<a href="#">N4016</a>), Balti scripts (<a href="#">N3842</a>), Beria (<a href="#">L2/08-265</a>), Bété (<a href="#">L2/19-044</a>), Bima (<a href="#">L2/16-119</a>), <b>BlissSymbols</b> (<a href="#">N5130</a>, <a href="#">N5149</a>, <a href="#">N5171</a>), Brusha (<a href="#">L2/17-183</a>), Buginese extensions (<a href="#">L2/16-159</a>), Chinese Chess Symbols (<a href="#">N3910</a>), <b>CJK Buddhist Symbols</b> (<a href="#">N5166</a>), Diwani Siyaq Numbers (<a href="#">L2/15-066R</a>), Eebee Hmong (<a href="#">N4668</a>), Egyptian Hieroglyphs Extended-A (<a href="#">N5063</a>), Egyptian Hieroglyphs Extended-B (<a href="#">N4944</a>), Jianzi Musical Notation and Format Controls, (<a href="#">N5041</a>), <b>Jurchen</b> (<a href="#">N4795</a>, <a href="#">N5131</a>), , Kerinci (<a href="#">L2/16-074</a>), Khambu Rai (<a href="#">N4018</a>), Khatt-i Baburi (<a href="#">N4130</a>), Khitan Large (<a href="#">N4631</a>, <a href="#">N4642</a>), Khotanese (<a href="#">L2/15-022</a>), Kpelle (<a href="#">N3762</a>), Kulitan (<a href="#">L2/15-232</a>), Lampung (<a href="#">L2/22-044</a>), Landa (<a href="#">N3768</a>), Leke (<a href="#">N4438</a>), Linear Elamite (<a href="#">L2/21-233</a>), <b>Lisu Mono-Syllabic</b> (<a href="#">N5047</a>, <a href="#">N5121</a>), Loma (<a href="#">N4786</a>, <a href="#">N4837</a>), Lota Ende</p>	Noted. Egyptian Hieroglyphs and Jurchen are in the M70 agenda.

	<p>(<a href="#">L2/16-076</a>), Mandombe (<a href="#">L2/16-077R</a>), Moon (<a href="#">N4128</a>), Mwangwego (<a href="#">N4323</a>), Naxi Dongba (<a href="#">N4898</a>), Naxi Geba (<a href="#">N4886</a>, <a href="#">N4887</a>), Obsolete Simplified Chinese Ideographs (<a href="#">N3695</a>), Old Yi (<a href="#">N3288</a>), Oracle Bone (<a href="#">N5090</a>), Palaeohispanic Northern (<a href="#">L2/22-146</a>), Palaeohispanic Southern (<a href="#">L2/22-147</a>), Pau Cin Hau Syllabary (<a href="#">L2/16-014</a>), Persian Siyaq (<a href="#">L2/21-105</a>), Proto-Cuneiform (<a href="#">L2/22-239</a>), <b>Proto-Elamite</b> (<a href="#">L2/20-192</a>), Pungchen (<a href="#">L2/17-181</a>), Ranjana (<a href="#">L2/23-028</a>), <b>Shuishu</b> (<a href="#">N4758</a> <a href="#">N4922</a> <a href="#">N4839</a> <a href="#">N4956</a>, <a href="#">N4942</a>, <a href="#">N4946</a>, <a href="#">N5110</a>), Southwest China Hieroglyphs (<a href="#">N4856</a>, <a href="#">N4901</a>), Sumbawa (<a href="#">L2/16-096</a>), Tamga symbols (<a href="#">N5092</a>), Tocharian (<a href="#">L2/15-236</a>), (Tolong Siki (<a href="#">N3811</a>) in M70 agenda), Vexillology symbols (<a href="#">L2/17-089</a>), Western Cham (<a href="#">N5098</a>), Woleai (<a href="#">N4146</a>), Zou (<a href="#">N3864</a>).</p>	
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## 5 JTC1 and ITTF matters:

### 5.1 JTC1 Code of Conduct

Input document:

[5213](#) ISO & IEC Codes of Conduct; ISO/IEC; 2023-04-05

Mr. Michel Suignard displayed the document for information to delegates to follow. There was no discussion.

## 6 SC2 matters:

### 6.1 Related to Amd. 1 to 10646 6th Edition

Input documents:

[SC2/N4815](#) Text for 10646 6<sup>th</sup> Edition DAM1 ballot, 2022-07-08

[SC2/N4829](#) Summary of voting on 10646 Ed.6 DAM1, 2022-11-29

[5195](#) CJK & Unihan Group Recommendations for UTC #171 Meeting Ken Lunde 2022-04-16

[5196](#) Disposition of comments on DAM1 to ISO/IEC 10646 6th edition; Michel Suignard, Project editor; 2023-01-09

[SC2/N4832](#) Text for 10646 6<sup>th</sup> Edition FDAM1:2023, 2023-01-16

[SC2/N4854](#) Result of voting on 10646 Ed.6 FDAM1:2023, 2023-05-01

The above documents are for information, tracking what has happened with Amd. 1 earlier.

There was one editorial comment on FDAM1 ballot. There were no additional characters or any technical changes.

It will be sent for publication.

*Relevant Recommendation M70.01: (Disposition of ballot comments of FDAM 1 to 6<sup>th</sup> Edition):* WG2 notes that FDAM 1 to 6th edition has been approved per voting results in document [SC2/N4854](#), with one editorial correction, and the corrected version will be sent for publication.

### 6.2 Related to Amd. 2 10646 6th Edition

Input documents:

[SC2/4817](#) Text for ISO/IEC 10646 (Ed.6) CDAM2, 2022-08-30

[SC2/4828](#) Result of CDAM2 consultation, 2022-11-28

[5208](#) Disposition of comments on 10646 (Ed.6) CDAM2; Michel Suignard, Project editor; 2023-03-03

Above documents are related to CDAM 2 to 6<sup>th</sup> edition of 10646, sent to SC2 for two rounds of consultation. The disposition of comments of the second consultation is dealt with under the agenda item 7.1 below.

## 7 WG 2 matters:

### 7.1 Disposition of comments on CDAM 2.2

Input documents:

[SC2/N4843](#) Text for ISO/IEC 10646 (Ed.6) CDAM2.2, 2023-03-12

[SC2/N4855](#) Result of CDAM2.2 consultation, 2023-05-09

[5214R](#) Proposal to encode 603 urgently need ideographs, revised; Ken Lunde, USA NB; 2023-05-01

[5223](#) Draft disposition of comments on 10646 Ed.6 CDAM2.2; Michel Suignard, Project editor; 2023-06-06

[L2/22-046](#) Proposal to encode numerals for Eastern Pwo Karen and Pa'O; Ben Mitchell; 2022-02-23

[L2/22-151R](#) Proposal to encode the OI Onal script (revised); Biswajit Mandal, Jan Kučera; 2022-10-31

[L2/22-236](#) Proposal to encode KAWI SIGN NUKTA; Febri Muhammad Nasrullah; 2022-10-17

[L2/22-260](#) Proposal to encode three characters in Tulu-Tigalari; Srinidhi A, Sridatta A; 2022-10-25

[L2/23-069R3](#) Revised designs of the alchemical symbols block (revision 3); Kirk Miller; 2023-11-06

Output documents:

[5233](#) Disposition of comments on ISO/IEC 10646 6th edition CDAM2.2; Michel Suignard, Project editor; 2023-06-22

[5235](#) Additional draft repertoire for 10646-2020 Amendment 2 (cdam2.3), revised; Michel Suignard, Project editor; 2023-08-04

[5236](#) Additional draft repertoire for provisionally accepted code points; Michel Suignard, Project editor; 2023-06-22

Mr. Michel Suignard: Comments were received from UK and USA. Document [N5233](#) has the proposed dispositions for most of these and some items are for discussion.

#### 7.1.1 USA (Comments 001 to 005):

T-001: USA requests adding 603 CJK characters in a new block named CJK Unified Ideographs Extension I, in the range 2EBF0..2EE4F, to represent names required by Chinese central government and deemed to be urgent by Chinese NB – referencing [L2/23-114 \(WG2/N5241R\)](#).

See discussion under item 9.3.4 on page 15.

*Disposition:* Accepted.

T-002: USA requests adding a missing character 11F5A KAWI SIGN NUKTA, referring to the rationale in document [L2/22-236](#).

See discussion under item 9.3.6 on page 16.

*Disposition:* Accepted.

T-003: USA requests adding 44 characters for a new script named OI Onal in a new block 1E5D0..1E5FF, referring to proposal in document [L2/22-151R](#).

See discussion under item 9.3.5 on page 16.

*Disposition:* Accepted.

ED-004: USA requests changing the font used for Alchemical Symbols block 1F700..1F7FF, referring to the rationale in document [L2/23-069R3](#).

*Disposition:* Accepted.

T-005: USA requests adding two characters 113D2 TULU-TIGALARI GEMINATION MARK and 113D3 TULU-TIGALARI SIGN PLUTA to Tulu-Tigalari block, with a reference to proposal document [L2/22-260](#).

See discussion under item 9.3.1 on page 14.

*Disposition:* Accepted two of the three proposed characters.

#### 7.1.2 UK (GB) (Comments 006 to 010):

ED-006: UK requests removal of cross reference to 0191 LATIN CAPITAL LETTER-F WITH HOOK, from A798 LATIN CAPITAL LETTER F WITH STROKE in the code chart for A798 since A798 has a new glyph.

Mr. Michel Suignard: The new glyph is recent and may be the preferred one. The previous alternate glyph also exists. The cross reference is still useful.

*Disposition:* Not accepted.

ED-007: UK requests rewording the note for 31EF in the code chart from “used to describe a character with a stroke removed.” to “used to describe a character with a stroke or component removed.”

Mr. Michel Suignard: We can accept this in principle. I propose the note be reworded as “used to describe a character or a component with a component removed.”

*Disposition:* Accepted in principle, with proposed new rewording for the note for 31EF.

ED-008: UK proposes to move the Eastern Pwo Karen digits from 116DA..116E3 to 116E0..116E9, with rationale that the contiguous range of all existing script-specific digits are contained within a range 0 to F.

Mr. Michel Suignard: According to the document [L2/22-046](#) on Numerals for Eastern Pwo Karen and Pa’O, another set of numerals for Khamti is expected, once finalized. I propose that we do not accept the UK request.

*Disposition:* Not accepted.

ED-009: UK requests correcting the name for 2FBE0 from “OP JUSTIFIED .....” to “TOP JUSTIFIED ...” in the code chart.

*Disposition:* Accepted.

ED-010: UK requests align the names for 2FFF and 31EF in the names list to the corresponding names in the code chart – 2FFF IDEOGRAPHIC DESCRIPTION CHARACTER ROTATION and 31EF IDEOGRAPHIC DESCRIPTION CHARACTER SUBTRACTION. These are typos in the names list.

*Disposition:* Accepted.

The final disposition of comments is in document [N5233](#). CDAM 2.3 will be prepared incorporating additions and changes arising out of the discussions of the various proposals in the rest of the agenda items of this meeting. One of the objectives for Amendment 2 to the 6<sup>th</sup> edition of 10646 is to ensure inclusion of the repertoire of Unicode version 15.1 (that will be published in the next couple of months).

*Relevant Recommendation M70.02 (Disposition of comments of CDAM 2.2):* WG2 recommends that SC2 accept the disposition of ballot comments on CDAM2.2 to 6<sup>th</sup> edition in document [N5233](#). The following significant changes are noted in the disposition document:

- a. 603 urgently needed CJK unified ideographs:  
2EBF0..2EE4A in a new block in the range 2EBF0..2EE4F named ‘CJK Unified Ideographs Extension I’
- b. 1 Kawi character  
11F5A KAWI SIGN NUKTA
- c. 44 Ol Onal characters in a new block  
1E5D0..1E5FA and 1E5FF In a new block in the range 1E5D0..1E5FF, named ‘Ol Onal’
- d. 2 Tulu-Tigalari characters  
113D2 TULU-TIGALARI GEMINATION MARK  
113D3 TULU-TIGALARI SIGN PLUTA

## 7.2 Progression of Amendment 2

Output documents:

[5233](#)–Disposition of comments on ISO/IEC 10646 6th edition CDAM2.2; Michel Suignard, Project editor; 2023-06-22

[5235](#) Additional draft repertoire for 10646-2020 Amendment 2 (cdam2.3), revised; Michel Suignard, Project editor; 2023-08-04

There was some discussion on what to include in the next version of Amendment 2, at various times during the meeting.

In addition to the Disposition of Comments in the above section, the meeting had reviewed and accepted several proposed scripts, individual characters, glyph additions and corrections etc. to be included in Amendment 2. The discussions and dispositions under the various following agenda items deal with these. The progression of Amendment 2 will include these additions and corrections. Amendment 2 progresses to CDAM 2.3, for another round of national body comments, before progressing to a DAM 2 ballot. The target project dates are included in the relevant recommendation M70.06 below. The relevant recommendation numbers M70.02 to M70.05 are spread in different pages in this document.

The project editor may also decide to include mature proposals in the Amendment 2 draft, per the relevant recommendation 70.13 below. The objective for the final Amendment 2 repertoire is to be in synchronization with the repertoire of Unicode version 16.

For other proposals that were accepted for future encoding, but not included in Amendment 2, WG2 can request SC2 for a project subdivision, possibly for the next edition of the standard, around the July 2024 meeting. This will enable the SC 2 project for Amendment 2, to be within its target dates.

Mr. Michel Suignard explained the rationale behind the target dates for Amendment 2 in recommendation M70.06 – Progression of CDAM 2.2, during the review of the Draft Recommendations towards the end of the meeting.

*Relevant Recommendation M70.06 (Progression of CDAM2.2):* WG2 recommends that the Project Editor prepare the final text of CDAM2.3 of the 6th edition of the standard, which will include the changes arising from recommendations **M70.02** through **M70.05** above, along with the final disposition of comments (document [N5233](#)), and forward it to the SC2 secretariat for circulating for commenting. The charts are in document [N5235](#). The target starting dates are CDAM2.3 2023-08-01, DAM2 2024-06-01, FDAM2 2025-02-01, AMD2 2025-05-01.

*Relevant Recommendation M70.13 (Additions to Amendment before next WG2 meeting):*

WG2 recognizes that some scripts and additional characters which are under preparation as potential additions to the standard could become mature and will have consensus among WG2 experts to include in the standard. The project editor should be able to add these to the balloted texts, after exercising due diligence. Candidates include, but are not limited to, Egyptian Hieroglyphs (approx. **3945** characters) mentioned in recommendation M70.07, or other **185** additional characters (captured in document [N5236](#)) mentioned in recommendations M70.08 to M70.12 above.

### 7.3 Roadmap Snapshot

Input document:

[Roadmap](#) Roadmap snapshot accessed as of 2023-06-19.

The snapshots of the roadmap as of this WG2 meeting (meeting 70) are BMP version 15-0-0, SMP version 15-0-2, SIP version 15-0-1, TIP version 15-0-0 and SSP version 15-0-0. They include all the script proposals in the action item from WG2 meeting 69, and additional or updated script proposals before this WG2 meeting (meeting 70).

## 8 IRG status and reports

Input documents:

[5185](#) IRG #59 Recommendations and Action Items; IRG; 2022-10-21

[5202](#) IRG Principles and Procedures (IRG PnP) Version 16; IRG Convenor; 2023-03-24

[5203](#) IRG #60 Recommendations and Action Items; IRG; 2023-03-24

[5204](#) Summary IRG 59 and 60; IRG; 2023-05-18

The above documents are for information to WG2 experts. Comments can be sent to the IRG convener Dr. Qin Lu.

Dr. Qin Lu: The WS-2021 is expected as the next major collection. It has been frozen now and is under review. A preliminary version will be available after the October 2023 meeting of IRG. We will have a version to submit to WG2 after the March 2024 meeting of IRG.

The next two planned meetings (before the next SC2 and WG2 meetings) are:

IRG#61, Yale University, 2023-10-16/20; this has already been approved by WG2 and SC2.

IRG#62, Online Zoom (Unicode), 2024-03-18/22; IRG needs approval for this meeting.

*See relevant recommendation M70.15 on future meetings under item 15 on page 32.*

## 9 Contributions related to ballots:

### 9.1 Related to and incorporated into first draft of Amendment 2 text -10646 Ed.6 CDAM2

Input documents:

[5181](#) ISO/IEC 10646 repertoire proposals post Amd1; Michel Suignard, Project editor; 2022-06-08

[L2/22-113R](#) Unicode request for two BMP Latin characters (revised); Kirk Miller; 2022-06-14; (Proposal to encode Latin S with diagonal stroke)

[L2/22-116](#) Proposal to Encode Four Pegon Characters (Arabic); Rikza F. Sh; 2022-06-22

[L2/22-119](#) Proposal to encode Cyrillic letter Khanty Tje; Nikita Manulov; 2022-06-22

[L2/22-157](#) Proposal to Encode the Gurung Khema; Biswajit Mandal; 2022-07-18

The above documents are for information to WG2 experts.

## 9.2 Related to and incorporated into the second draft of Amendment 2 text - 10646 Ed.6 CDAM2.2

Input documents:

[L2/22-127](#) CJK & Unihan Group Recommendations for UTC #172 Meeting; Ken Lunde; 2022-07-21  
[L2/22-196](#) Latin: glyph change for Capital letter f with stroke; Denis Moyogo Jacquerye; 2022-08-30  
[L2/22-199](#) Latin: glyph change for Small letter y with short right leg; Denis Moyogo Jacquerye; 2022-08-30  
[L2/22-238](#) Proposal to add Code Charts support for KP Source glyphs; Yi Bai (白 易), CheonHyeong Sim (沈天珩); 2022-10-17  
[L2/22-247](#) CJK & Unihan Group Recommendations for UTC #173 Meeting; Ken Lunde; 2022-11-01  
[L2/22-256](#) T-Source Glyph Correction and Horizontal Extension; TCA; 2022-10-24  
[L2/22-259](#) IRGN2556R2 V-Source Glyph and Codes Updates; Vietnam NB; 2022-10-24 (V-Source Glyph and Codes Updates)  
[L2/23-011](#) CJK & Unihan Group Recommendations for UTC #174 Meeting; Ken Lunde; 2023-01-11  
[L2/23-012](#) Recommendations to UTC #174 January 2023 on Script Proposals; Deborah Anderson, et al; 2023-01-17  
(Page 11 -Name change for LARGE TYPE PIECE RAISED UPPER RIGHT ARC)  
[5186](#) Request to change glyphs of 63 K-source Hanja chars in UCS; KIM Kyongsok; 2022-11-11  
[5193](#) Proposal to encode five new Ideographic Description Characters; Ken Lunde, et al.; 2022-11-11  
[5196](#) Disposition of comments on DAM1 to ISO/IEC 10646 6th edition; Michel Suignard, Project editor; 2023-01-09  
(Note: disposition of Korea's Request to change glyphs of 3 K-source Hanja (Ext H) for Amd. 1 was accepted, but postponed to Amd. 2, to be done along with the 63 K source glyph changes per document [N5186](#) for Amd. 2)

The above documents are for information to WG2 experts.

## 9.3 Related but not incorporated into ISO/IEC 10646 Ed.6 CDAM2.2

The following sections deal with proposals for potential inclusion in the text for next draft of Amendment 2. Some of these are referenced in the comments on CDAM 2.2 that was sent for SC2 consultation (*see document [N5223](#) Disposition of comments on CDAM 2.2*).

### 9.3.1 Proposal to encode three characters in Tulu-Tigalari

Input documents:

[L2/22-248](#) (page 9 about three Tulu Tigalari characters) Recommendations to UTC #173 October 2022 on Script Proposals; Deborah Anderson, et al; 2022-10-31  
[L2/22-260](#) Proposal to encode three characters in Tulu-Tigalari; Srinidhi A, Sridatta A; 2022-10-25

Mr. Michel Suignard: Tulu Tigalari script is in Amd. 2. Three additional characters are requested. (Note: Only L2 docs are referenced here.)

Dr. Deborah Anderson: The proposal was for adding three characters, but only two were accepted.

Prof. Kyongsok Kim: Don't the referenced documents have WG2 document numbers?

Mr. Michel Suignard: I have referenced only L2 documents without assigning them a WG2 number also, in the past. It is too much effort. The L2 documents get revised with the same number; but I will have to issue a new WG2 number each revised version. L2 document numbers are stable for reference purposes. Sometimes the same document, has three different numbers – one for SC2, one for SC2/WG2 and one for L2.

*Disposition:* Accept: 113D2, 113D3: Germination Mark and Pluta.

*See relevant recommendation M70.02 item d under section 7.1 above on page10.*

### 9.3.2 Horizontal extension of 134 K Hanja chars

Input document:

[5197](#) Horizontal extension of 134 K Hanja chars; ROK (South Korea); 2023-03-29

The proposal is to add Horizontal extension of 134 K characters in the CJK charts. It was reviewed by IRG and accepted by IRG. There was no discussion at this meeting.

*Disposition:* Accepted for inclusion in Amd. 2.

*Relevant Recommendation M70.04 (CJK Horizontal Extensions):* WG2 recommends that SC2 accept the following CJK Horizontal extensions for existing characters to be included in the standard:

- a. Addition of 134 K Hanja character proposed in document [N5197](#).
- b. Adding K source reference KU-03E02 for code point 3E02, as proposed in document [N5198](#).
- c. Addition of 36422 Kanji extensions for JMJ sources, based on document [N5221](#).

### 9.3.3 Adding K source reference KU-03E02

Input document:

[5198](#) Adding K source reference KU-03E02; KIM Kyongsok (ROK); 2023-03-26

The proposal to add K source reference KU-03E02 to U+03EE02 was reviewed by IRG and accepted by IRG. There was no discussion at this meeting.

*Disposition:* Accepted for inclusion in Amd. 2.

*See relevant recommendation M70.04 item b in section 9.3.2 above.*

### 9.3.4 Proposal to encode 603 urgently needed ideographs

Input documents:

[5201](#) Draft GB 18030-2022 Amendment Feedback & Recommendations; US NB; 2023-02-03

[5214R](#) Proposal to encode 603 urgently need ideographs, revised; Ken Lunde, USA NB; 2023-05-01

[L2/23-082](#) CJK & Unihan Group Recommendations for UTC #175 Meeting; Ken Lunde; 2023-04-22

The above 3 are inter-related documents.

Mr. Peter Constable: China went through two revisions of their standard GB 18030-2022. They are reviewing the current proposed 603 ideographs.

The UTC is prepared to encode these in Unicode version 15.1. We need to know the repertoire before next UTC meeting. Whatever comes out of this WG2 meeting should be known. China seems to have some revisions to these proposed 603 Urgently Needed Characters. We need to know how long the tweaks may take. Also would like to know China's time table for their GB 18030 standard requirement.

Discussion:

- a. Mr. Chen Zhuang: We found a few errors. We may also need a few more characters.
- b. Mr. Peter Constable: Unicode version 15.1 is currently under Beta Review. Would you be able to feedback, a WG2 contribution, before end of this month?
- c. Mr. Chen Zhuang: We can send our contribution by end of this month.
- d. Mr. Michel Suignard: We need to know what the stable repertoire would be; what the GB standard needs. We need to avoid incomplete versions
- e. Dr. Ken Lunde: As long as China sends all information about changes – we can send it to the UTC.
- f. Dr. Lu Qin: The Working Set 2021 in IRG, has some of these characters. We need to know if there would be any updates to that also.
- g. Dr. Ken Lunde: Some of these are not easy to find. They are not supplied by China. I am maintaining a comprehensive list of these sets.
- h. Mr. Peter Constable: If we have all these resolved by next UTC, the final decision will be made for Unicode version 15.1.
- i. Mr. Michel Suignard: As code chart producer, I have the current proposed set in it. With the Chinese final feedback I can make the final version available.
- j. Mr. Peter Constable: It would be useful to have something reflected in SC2 resolution, something like "SC2 request China to provide comments and corrections by end of June to be incorporated into PDAM 2.2 document". Also requesting the feedback be forwarded to Unicode Consortium for incorporation in Unicode version 15.1. : Can you provide any preliminary comments that we can see before end of this week?
- k. Mr. Michel Suignard: Do we have a list of the questionable characters? Can we get a feedback from China by end of this week, or, do we have to wait longer?
- l. Mr. Chen Zhuang: I do not have the information. I understand what you are asking for.
- m. Dr. Ken Lunde: Once I get the information from China I can provide the information to you. I need to emphasize that we need the information before end of this month. Due to time being a huge factor we bypassed IRG in this particular case. Normally we would not be doing that. I like to get feedback to be in Sync for Unicode 15.1 – by end of June 2023.



- n. Mr. Michel Suignard: Checking for unification is not a small task – there are over 100000 ideographs. If I get more information before end of this week we can revisit. Otherwise, we will progress with what we have for CJK Extension I.

During the discussion of the draft recommendations related to the acceptance of the 603 UNCs, there was further discussion.

Discussion:

- a. Prof. Kyongsok Kim: Regarding CJK Extension I, we know further comments on this will revise the current set. I think we are rushing this set.
- b. Mr. Peter Constable: There is a reason for implementations to be compliant with corresponding Chinese GB standard; we need to satisfy need for China also.
- c. Mr. Michel Suignard: The Chinese standard is being finalized. We should try to meet their requirements in a timely manner.
- d. Prof. Kyongsok Kim: I have disagreement with this. CJK Extension I is related to CJK ideographs. It has not been sent to IRG for their review and opinion.
- e. Mr. Michel Suignard: WG2 has every right to discuss this here ... IRG is a sub group of WG2. There is still time because we are sending this for National Body Consultation and IRG also will be reviewing it.

*Disposition:* Accepted the 603 UNC ideographs in a new block named "CJK Extension I", provisionally, subject to revision based on feedback from China.

*Relevant Recommendations:*

- a) See relevant recommendation M70.02 item a, under section 7.1 above on page 10.
- b) M70.03 (Feedback on CJK Extension I): In consideration of preliminary feedback that China will request some changes to the draft repertoire in CJK Unified Ideographs Extension I, and noting China's urgent need for these characters, WG2 recommends that SC2 invite China to submit a document with comments on CJK Unified Ideographs Extension I to SC2 by end of June 2023, to incorporate changes into the next draft of CDAM2 prior to circulation for comments.

### 9.3.5 Proposal to encode the OI Onal script

Input document:

[L2/22-151](#) Proposal to encode the OI Onal script (revised); Biswajit Mandal, Jan Kučera; 2022-10-31

Discussion:

- a. Mr. Jan Kučera: The proposal is to encode a script to write Bhumij language for use in some parts of Odisha, West Bengal and Jharkhand, in India. It is similar to OI Chiki. It includes some signs for long vowels. A list of characters and a code chart are provided. Needs 3 columns. Originally it was designed with Casing but not anymore. The user community is happy with it.
- b. Mr. Michel Suignard: UTC has accepted it.

*Disposition:* Accept the proposed script for inclusion in Amd. 2.

*See relevant recommendation M70.02 item c, under section 7.1 above on page 10.*

### 9.3.6 Proposal to encode KAWI SIGN NUKTA

Input document:

[L2/22-236](#) Proposal to encode KAWI SIGN NUKTA

Dr. Deborah Anderson: Kawi script is already encoded. The proposal is to add one sign Kawi Sign Nukta at 11F5A. It has been reviewed by UTC. Attestation is provided in the proposal. There was no discussion at this meeting.

*Disposition:* Accepted for inclusion in Amd.2.

*See relevant recommendation M70.02 item b, under section 7.1 above on page 10.*



## 10 Script contributions not related to ballots

### 10.1 Carried forward - not related to ballots

The following contributions are being carried forward, with references to a mix of WG2 and UTC documents. Most preliminary proposals usually have UTC numbers, whereas most documents that were in progress or submitted to WG2 do have WG2 numbers. All the documents that have a WG2 number are in the [WG2 document repository](#). The list below has been updated from what was in the agenda document [N5210](#).

Afáka [N4292](#)  
Bagam [N4293](#)  
Balti 'B' [N4016](#)  
Balti scripts [N3842](#)  
Beria [L2/08-265](#)  
Bété [L2/19-044](#)  
Bima [L2/16-119](#)  
Brusha [L2/17-183](#)  
Buginese extensions [L2/16-159](#)  
Chinese Chess Symbols [N3910](#)  
CJK Buddhist symbols [N5166](#)  
Diwani Siyaq Numbers [L2/15-066R](#)  
Eebee Hmong [N4668](#)  
Jianzi Musical Notation and Format Controls, [N5041](#)  
Kerinci [L2/16-074](#)  
Khambu Rai [N4018](#)  
Khatt-i Baburi [N4130](#)  
Khitani Large script [N4631](#), [N4642](#)  
Khotanese [L2/15-022](#)  
Kpelle [N3762](#)  
Kulitan [L2/15-232](#)  
Lampung [L2/22-044](#)  
Landa [N3768](#)  
Leke [N4438](#)  
Linear Elamite [L2/21-233](#)  
Lisu Monosyllabic [N5047](#), [N5121](#)  
Loma [N4786](#), [N4837](#)  
Lota Ende [L2/16-076](#)  
Mandombe [L2/16-077R](#)

Moon [N4128](#)  
Mwangwego [N4323](#)  
Naxi Dongba [N4898](#)  
Naxi Geba [N4886](#), [N4887](#)  
Obsolete Simplified Chinese Ideographs [N3695](#)  
Old Yi [N3288](#)  
Oracle Bone [N5090](#)  
Palaeohispanic Northern [L2/22-146](#)  
Palaeohispanic Southern [L2/22-147](#)  
Pau Cin Hau Syllabary [L2/16-014](#)  
Persian Siyaq [L2/21-105](#)  
Proto-Cuneiform [L2/22-239](#)  
Proto-Elamite [L2/20-192](#)  
Pungchen [L2/17-181](#)  
Pyu [N3874](#)  
Ranjana [L2/23-028](#)  
Shuishu [N4758](#), [N4922](#), [N4839](#), [N4956](#), [N4942](#),  
[N4946](#), [N5110](#)  
Southwest China Hieroglyphs [N4856](#), [N4901](#)  
Sumbawa [L2/16-096](#)  
Tanga symbols [N5092](#)  
Tocharian [L2/15-236](#)  
Vexillology symbols [L2/17-089](#)  
Western Cham [N5098](#), [L2/22-095](#)  
Woleai [N4146](#)  
Zou [N4044](#)

### 10.2 New scripts or additions to existing blocks.

#### 10.2.1 Shuowen Small Seal

##### 10.2.1.1 Documents from before June 2022.

Input documents:

[4688](#) Proposal to encode Small Seal Script in UCS ; TCA and China; 2015-10-20  
[4853](#) Shuowen Seal Ad Hoc Meeting Resolutions; Ad hoc group; 2017-09-01  
[5034](#) Report of Discussion on Small Seal Script during WG2 #67; Suzuki Toshiya; 2018-12-17  
[5089](#) Shuowen Seal Informal Meeting Report (June 1st 2019, Beijing); Selena Wei, et al.; 2019-06-01  
[5105](#) Proposal to encode Small Seal Script, [Appendix](#); TCA, China; 2019-06-19  
[5105](#) [Appendix](#)  
[5108](#) Report of Seal Script discussion at WG2 #68; Suzuki Toshiya; 2019-06-19  
[5117](#) Shuowen Seal Encoding Report; TCA; 2019-09-27  
[5118](#) About the future extension of Shuowen Seal; Selena Wei, Yenling Tseng; 2019-09-27  
[5119](#) Shuowen Seal Ad Hoc Meeting Report, Taipei, Oct 2019; Shuowen ad hoc; 2019-10-01  
[5123](#) Comments on several criteria to distinguish Shuowen Seal Glyphs (Feedback to WG2 N5118); Suzuki Toshiya; 2019-12-01  
[5133](#) Comparison table of N5105 proposal (of Shuowen Seal) and Changzhi's version, [data](#); Suzuki Toshiya; 2020-04-01  
[5133](#) [data](#) attachment  
[5187](#) TCA and China Feedback on N5133 Experts from TCA and China 2022-06-20  
[5188](#) About the future extension of other versions of Shuowen Seal TCA 2022-06-17

[5189](#) THX Seal glyph Correction Principles Selena Wei 2022-06-17  
[5190](#) THX correction glyph summary table TCA and China 2022-02-20  
[5191](#) THX Property Table (pdf 14.5MB), [Excel format](#) TCA and China 2022-06-20  
[5191](#) [Excel format](#)

Mr. Michel Suignard: All the above are earlier documents, feedbacks on them, and discussions at meetings, prior to our last meeting in June 2022. We had introduced some of the documents from TCA at the last meeting. We will deal with documents post-June 2022 meeting at this meeting.

#### 10.2.1.2 UCS Seal Script Source Mapping Data.

Input document:

[L2/22-279](#) UCS Seal Script Source Mapping Data; Richard Cook; 2022-11-08

Mr. Michel Suignard introduced document [L2/22-279](#) and briefly explained its contents. The sources are identified by X, K and D. A table with K and D entries was prepared. Introduced the markings with + and – for major and minor Unifications. X source is used as a reference. A recommendation for future work is included. We need more resources to be able to do the future work. TCA resources deal with the one source (X) and not for the other columns K and D. We can have X column completely populated, but K and D columns will not be at the moment, without further work by experts. Dr. Toshiya Suzuki had prepared [N5211](#) which is a comparison chart.

#### 10.2.1.3 Considerations concerning Small Seal and Feedback from TCA

Input document:

[5209](#) Considerations concerning the Small Seal encoding initiative, [Table PDF](#), [XLS](#); Michel Suignard, Project editor; 2023-03-11

[5230](#) TCA feedback to n5209 (Considerations about Small Seal encoding initiative, Suignard), [data xls](#); TCA; 2023-06-16

#### Document [N5209](#):

Mr. Michel Suignard: I saw the documents prepared by TCA and from Dr. Richard Cook. I was trying to make sense of the progress on this script. The situation is complex – the script is from about 2000 years ago; the original documents are lost. Reconstruction has been going on for last 200 plus years. There are three main branches in the analysis.

THX was prepared by TCA. Indexing is done by radicals which is part of the set. A three column table is prepared for comparison purposes. The glyphs are not 100% precise. We need feedback on these. The glyphs are primarily from X-version of the glyphs.

There are different views. Some experts consider some of the entries are variants. TCA removed some, Dr. Richard Cook removed some more. When we unify we need to decide which ones stay, and which are sort of arbitrary. I kept the way TCA picked the primary. There is no evidence to refer to, till we have the complete repertoire. In addition to clear case of 33 unifications, there are several candidates. There are 55 entries appearing in two sources but not in the third one. See attached spreadsheet for information. We may have a code chart similar to the Unihan, identifying the individual source glyphs. Code chart fragment is shown in the document. The traditional radical from CJK is also included as was prepared in the TCA document.

I will like to have some feedback and input on this document from the experts.

#### Document [N5230](#):

Ms. Lin Mei Wei (Selena) walked through the TCA feedback document on [N5209](#). Provided suggested corrections and items to review from document [N5209](#).

Mr. Michel Suignard: Some questions from document [N5209](#) are not addressed. I will get back to you. We can make progress based on your feedback document.

#### 10.2.1.4 14 column Glyph Comparison chart

Input document:

[5211](#) 14-Column Seal Script Glyph comparison chart 2017-12-06, [data \(pdf 420MB\)](#); Suzuki Toshiya, Richard Cook; 2023-04-03

Mr. Michel Suignard: Dr. Toshiya Suzuki had prepared document [N5211](#) which is a comparison chart. These were previously posted at his university site. It is primarily for reference by the experts on Small Seal script.

#### 10.2.1.5 Comments to latest documents from TCA/China (n5187, 5189, 5190) and feedback from TCA

Input document:

[5219](#) Small seal, comments to latest documents from TCA/China (n5187, 5189, 5190); Suzuki Toshiya; 2023-06-03

[5231](#) TCA feedback to n5219 (comments from Suzuki); TCA and China; 2023-06-16

Document [N5219](#):

Dr. Toshiya Suzuki: Document [N5219](#) contains my comments on the TCA version THX. Several glyphs had been changed; six types of reasons for the glyph changes are described. Examples of the various types of changes are shown. Unifiable changes could be acceptable, but several of them are non-unifiable. We need to decide whether the changes can be acceptable or not.

Specific comments on flipping the glyph and other glyphs using this and other glyphs for radicals are included.

Suggests type 4 and type 6 ae easiest for unification consideration. It has been sent to TCA.

Mr. Michel Suignard: One of the reasons for such issues are due to THX and CCB being used in TCA.

Feedback from TCA is in document [N5231](#).

Document [N5231](#):

Mr. Hu Jiajia walked through the document, explaining responses to concerns and comments raised in document [N5219](#).

Discussion:

- a. Mr. Michel Suignard: To some extent we need to state the unification principles similar to CJK. The people need to understand why unification and the resulting representative glyph. I think you have addressed the concerns from Dr. Toshiya Suzuki. We should be able to proceed.
- b. Dr. Toshiya Suzuki: I do not have serious objection. Should some of these glyphs be unified or coded separately?
- c. Mr. Hu JiaJia: If they have similar components, we can; otherwise, no.
- d. Dr. Lu Qin: Some unification principles with examples can be documented. Otherwise, from an outsider's viewpoint it will be questionable.
- e. Ms. Lin Mei Wei (Selena): We can get a document on unification principles.
- f. Mr. Michel Suignard: I agree with that. We need a document on unification principles. I think Dr. Toshiya Suzuki would be an ideal candidate for preparing such a document. This will allow us to be consistent in making any unifications or dis-unifications as we go forward.

#### 10.2.1.6 Preliminary Draft of Mapping Table for Shouwen Seal

Input document:

[5232](#) Preliminary Draft of Mapping Table for Shuowen Seal: from CCZ to N5191, [data \(zip\)](#); Suzuki Toshiya; 2023-06-16

Document [N5232](#)

Dr. Toshiya Suzuki introduced and walked through the document. Sample mapping tables between different sources are described. The comments show Unification or not etc. A flow chart to guide on deciding type of mapping was described. Several cases of TBD for mapping tables were also shown – for determination as we go forward.

Discussion:

- a. Mr. Michel Suignard: I have been assuming THX column would be the reference point. I thought CCB column will be in the code charts. We can always define a mapping option. It is tricky when we have a disunification, a new entry will have to be entered in the X column which will be a reference.
- b. Dr. Toshiya Suzuki: I request a review by TCA / China experts to exclude the unifiable ones from the coding part.
- c. Ms. Lin Mei Wei (Selena): We will look at your input and feedback. The bug you reported has been corrected in the font table sent to Mr. Michel Suignard; it was an error.

- d. Dr. Toshiya Suzuki: I would point out cases where there is entry in CCB but not in THX. Check all the TBD comments.
- e. Mr. Michel Suignard: I am glad to see we are making progress. I would like to see a document on Unification Principle. It will be useful to have an ad hoc group with all experts in the same room, if it will be feasible. We now know what the next steps are.
- f. Dr. Richard Cook: I listened to the conversations. I liked the synthesis of information prepared by Dr. Toshiya Suzuki. I am working on the multi-column charts and is still in the works. I had flagged a number characters and Dr. Toshiya Suzuki has addressed those in a revised table.
- g. Mr. Michel Suignard: I have the mapping information from you. As to multicolumn charts we need the fonts etc. We can start with X source as a reference. The final repertoire would be after resolving unifiable or not etc.

*Disposition:* Acknowledge progress on the script. Encourage continued meeting of experts.

*Relevant Recommendation M70.14 (Small Seal script):* WG2 recommends that SC2 note the progress made by the experts from China, TCA, Japan and the US on several revised proposals submitted at this meeting, and encourages these experts to continue their co-operative effort towards a consolidated contribution for encoding the script.

### 10.2.2 Jurchen script

Input document:

[4795](#) Towards an encoding of the Jurchen script and implications for Khitan Small Script; Andrew West, et al; 2017-05-03

[5131](#) A Supplementary Proposal to Encode the Jurchen Characters; Sun Bojun, et al. China; 2020-02-10

[5207](#) Towards an Encoding of the Jurchen Script; Andrew West; 2023-03-15

Mr. Andrew West: Several proposals have been made over 10 years ago. The 2009 proposal had a number of characters. There was no consensus on how they should be encoded. Also, a reliable source to depend on could not be agreed on. These were reviewed. I suggested unifying some of these. This proposal in document [N5207](#) is for 896 ideograph characters and 50 radicals. The document is for review and getting agreement on the repertoire and radicals. The annex shows a comparison chart. I seek feedback towards preparing a concrete proposal.

Discussion:

- a. Mr. Michel Suignard: When do you expect a final proposal?
- b. Mr. Andrew West: Once I get feedback from experts and all the comments are solved. The corpus of Jurchen text is not very many. Many of the inscriptions are not very clear to interpret. Some of these characters were written about 200 years later.
- c. Mr. Michel Suignard: The names are going to be based on code points? Yes. Would it be a single column? Yes. You will have some data file associated with it? Yes – relating to Tangut, Nushu etc.
- d. Mr. Andrew West: There is a comparison of two fonts. The JING font is used in this document. ZHZKCHIN-jurc font is proposed by China to be used in the final version. I have shown the differences in the glyphs.
- e. Mr. Peter Constable: There are cases where some of the columns are empty.
- f. Mr. Andrew West: These omissions have to be corrected or added. Not too difficult to do.
- g. Mr. Michael Everson: Is the new font better?
- h. Mr. Andrew West: Difficult to say. Personally it may be better in some cases. I would leave it to experts to decide. Pointing to first page, some of the characters are identical to some Chinese characters – sometimes adding dots on the right side. I want experts to feedback on this item.
- i. Mr. Michael Everson: I think we should give you round of applause for all this work. is there a summary list of questions for experts to provide you feedback on?
- j. Mr. Andrew West: No; there is no summary list of questions.
- k. Prof. Kyongsok Kim: How many characters are proposed?
- l. Mr. Michel Suignard: I think 896 is in the proposal. It is not huge.
- m. Mr. Andrew West: Document [N5131](#) from China proposes 15 more characters, which they have found in another source they discovered. These have also been addressed in document [N5207](#).

*Disposition:* Action item on experts from National bodies and Liaisons for feedback.

### 10.2.3 Proposal to Encode the Chisoi script

Input document:

[L2/22-218](#) Proposal to Encode Chisoi (revised); Biswajit Mandal; 2023-01-09

Dr. Deborah Anderson: Chisoi is used in the states of West Bengal, Odisha and Jharkand for Kurmali/Kudmali language in India. A number of versions have been reviewed by the UTC and is approved preliminarily.

Discussion:

- a. Mr. Jan Kučera: Glyph changes that were requested from before were incorporated.
- b. Mr. Michel Suignard: I need some leeway to encode them either in Amd. 2 or next edition.

*Disposition:* Accepted for future encoding.

*Relevant Recommendation M70.08 (Chisoi script):* WG2 recommends to SC2 to accept for future encoding of **40** characters for Chisoi script at code points 16D80..16D9D, 16DA0..16DA9; in a new block in the range 16D80..16DAF named 'Chisoi', based on the proposal in document [L2/22-218R3](#).

### 10.2.4 Proposal to encode the Tai Yo Script

Input document:

[L2/22-289](#) Final Proposal to encode the Tai Yo Script (replaces L2/22-208) (revised); Viet Khoi Nguyen, et al; 2023-01-09

Dr. Deborah Anderson: The script is also known as Tay Do in Vietnam. It is one of two scripts used for the Tai Yo language. There were previous proposals on these. UTC has reviewed this and accepted provisionally. Writing direction is from Top to Bottom, and from Right to Left. Examples are shown.

(Note: The proposal has more information about the effects arising out of the writing direction, and the direction of glyphs in the code chart.)

*Disposition:* Accepted for future encoding.

*Relevant Recommendation M70.09 (Tai Yo script):* WG2 recommends to SC2 to accept for future encoding of **55** characters for Tai Yo script at code points 1E6C0..1E6DE, 1E6E0..1E6F5, 1E6FE, 1E6FF; in a new block in the range 1E6C0..1E6FF named 'Tai Yo', based on the proposal in document [L2/22-289R](#).

### 10.2.5 Proposal to encode the Sidetic script

Input document:

[L2/23-019](#) Revised proposal to encode Sidetic in Unicode; Anshuman Pandey; 2023-01-06

(Sidetic is a right to left script, for writing a now-extinct language that was used in an ancient city 'Side' located in the region of Pamphylia, on the southern coast of Anatolia on the Mediterranean.)

Dr. Deborah Anderson: Experts have reviewed this proposal. There may be additional characters coming in the future. The UTC has approved it provisionally.

*Disposition:* Accepted for future encoding.

*Relevant Recommendation M70.10 (Sidetic script):* WG2 recommends to SC2 to accept for future encoding of **29** characters for Sidetic script at code points 10940..1095C; in a new block in the range 10940..1095F named 'Sidetic', based on the proposal in document [L2/23-019](#).

### 10.2.6 Proposal to encode the Tolong Siki

Input document:

[L2/23-024](#) Proposal to encode Tolong Siki; Anshuman Pandey; 2023-01-11

Dr. Deborah Anderson: Tolong Siki is a modern script used in the states of Jharkhand, Bihar and West Bengal in India, for writing Kurukh language. The author has worked with the script experts and users since 2010. The background and evidence are given in the proposal. The repertoire is stable. UTC has reviewed and provisionally accepted the proposal.

*Disposition:* Accepted for future encoding.

*Relevant Recommendation M70.11 (Tolong Siki script):* WG2 recommends to SC2 to accept for future encoding of 54 characters for Tolong Siki script at code points 11DB0..11DDB, 11DE0..11DE9; in a new block in the range 11DB0..11DEF named 'Tolong Siki', based on the proposal in document [L2/23-024](#).

#### 10.2.7 Proposal to encode dashed-box symbols

Input document:

[5212](#) Proposal to encode dashed-box symbols in Plane 14, revised; Michael Everson; 2023-06-15

Mr. Michael Everson: A revised version of the document, N5212R is to be referenced. The proposal addresses the ability to visualize many of the characters that have glyphs with dashed or dotted boxes etc. in charts. But, at present there is no way to visualize them or to write about them in the standard. The proposal is to have glyphs for these encoded as VISUAL versions of the various boxed characters etc. Examples are VS1, ZWJ etc. The proposal is to have a collection of glyphs for all the boxed characters etc. in Plane 14, with names derived from the characters they are glyphs of. Any future additions of boxed or similar characters can have a glyph in this plane also.

Discussion:

- a. Mr. Peter Constable: A number of people that would say the date on which it was received would question the seriousness of the proposal. Having all the Meta characters may be superfluous when you can use the code point directly.
- b. Mr. Michael Everson: Yes. I have submitted proposals which have serious nature on 1<sup>st</sup> of April in the past. This document is also for serious consideration. What I have shown here is the need to be able to see what is in a sequence of characters ... such as with ZWJ etc.
- c. Mr. Peter Constable: I would invite you present this to the Unicode Script Ad Hoc group's next meeting. There are similar-looking characters in the dashed boxes collection. We should look at the duplicates.
- d. Dr. Karljürgen Fuerherm: Why do you need a glyph to show that there is an escape mechanism?

(There was an open discussion on whether they will be duplicates and how to deal with these etc.)

- e. Mr. Michel Suignard: Both duplicates handlings have merits.
- f. Mr. Peter Constable: Prefer duplicates (for example, of Virama symbols ...) be avoided. You can explain more clearly as to what you are trying to do; for example in section 5.

*Disposition: Action item* - Mr. Michael Everson is invited to provide a revised document.

#### 10.2.8 Draft proposal for an extended Egyptian Hieroglyphs repertoire

Input document:

[5215](#) Draft encoding proposal for an extended Egyptian Hieroglyphs repertoire, [dB \(pdf 41MB\)](#); Michel Suignard, et al.; 2023-04-18

Mr. Michel Suignard summarized the history of the work done to arrive at the proposal. It is a group effort.

This document [N5215](#) (and the database attached to it) includes 4117 characters of which 172 are for further analysis. Classification of the glyphs into different groupings is explained. All are proposed for Egyptian Hieroglyphs Extension A. Extension B will not be needed any more.

The character naming will be EGYPTIAN HIEROGLYPH – xxxxx. In section A.19, for example, the name has two additional piece of information – the current PUA code and IFAO reference. These additional pieces will not be in the final charts. Annotations are shown; but would probably be changed to refer to the Gardiner scheme.

A new data file is proposed. The format and example entries in the data file are explained. Some more modifications may be done to these entries.

Mr. Michel Suignard walked through the different Appendices. Existing code blocks and Variation sequences were shown – with marking of core and non core. Rotation by 45 deg will be added.

A list of references is also included.

New block charts were shown with different coloured cells. Categories are marked in the nameslist. Cross references in the annotations are not true cross references – they are for personal reference for this work. Sample pages from the database that the experts group is using to arrive at conclusions were shown. Once a decision is made it cannot be changed, but additions can be made for further discussion. Work has been going on for more than 5 years. One has to acknowledge that there will be errors made – the collection is too big. More information can be added over time.

Pointed out the glyphs for Arrows. These are unlike bidi; not by shape. The Egyptian Hieroglyph conventions are different. The proposal is to move them to the Arrows block.

Pointed out also Black Dot at 146F1 in the chart. It is NOT a punctuation, and has to be treated as another symbol. An explanation on it is provided.

Discussion:

- a. Mr. Peter Constable: There will be questions if they go into the current Arrows block. The current convention in the block is by shapes.
- b. Mr. Michael Everson: I would prefer that these be not in the Arrows block. Just describe them by functions.
- c. Mr. Michel Suignard: If we name them by appearance we need to have annotation that in Egyptology it is functional etc.

*Disposition:* Accepted in principle. Allowed the editor to add to Amd. 2, once the proposal gets firm.

*Relevant Recommendation M70.07 (Egyptian Hieroglyphs):* WG2 recommends to SC2 to accept in principle for future encoding the proposal for Egyptian Hieroglyphs Extension A in document [N5215](#), and invites the author to revise the document based on discussion at this meeting.

#### 10.2.9 Preliminary proposal for encoding the Aiha script in the SMP

Input document:

[5226](#) Preliminary proposal for encoding the Aiha script in the SMP ; Michael Everson; 2023-06-16

Mr. Michael Everson: Document [N5226](#) is a preliminary proposal on Aiha script. The script is an invented script for Kesh language by Ursula K. Le Guin. Evidence of use and a sample code chart is included. The Guin Estate is enthusiastic about its encoding. 4 cols are proposed.

Discussion:

Mr. Peter Constable: In the case of Klingon ... proposer provided the documentation. It was interchanged within the user community ... demonstrated that there was a user community. It came down to legal issue. Have you demonstrated that there is an active user community interchanging data etc.

Mr. Jan Kučera: As to the copyright notice, do we have any issues?

Mr. Michael Suignard: You cannot copyright an alphabet. Endorsement from the Guin Estate should cover its use.

*Disposition:* Action item on experts from National bodies and Liaisons for feedback.

#### 10.2.10 Blissymbols

Input documents:

[5149](#) On the keyboard inputting of Blissymbols; Michael Everson; 2020-12-31

[5171](#) On radicals for lexicography in Blissymbols; Michael Everson; 2022-01-09

[5228](#) Revised code charts for the encoding of Blissymbols; Michael Everson; 2023-06-21

Mr. Michael Everson: The proposal on Blissymbols was first made several years ago. The proposal in document [N5228](#) requests 1463 characters. The document replaces the 1998 version, and a second one, which was a delta over the original one. Keyboarding was addressed in document [N5149](#). Radicals are discussed in document [N5171](#). Back in 1998 we were told that you cannot invent new scripts. Blissymbols is a constructed script. It is concept based. These symbols are put together to form words. In 1970s they discovered in Canada that it can be used with children with cerebral palsy and the like. It has spread to many countries since then. It is not very popular due to its non-computerized nature.



The kind of things you can communicate with these is very wide. Blissymbols Communications International (BCI) manages the vocabulary, database, dictionary etc. It is an ongoing vocabulary expansion. Walked through some examples; such as EYE+combiningMark+Action indicator to form a word, and several others.

Discussion:

- a. Mr. Peter Constable: You mentioned increases in vocabulary. How about new symbols?
- b. Mr. Michael Everson: By now the new symbols growth is not expected; but it could happen in the future years. Several of the characters can be used as radicals. I had to teach them to differentiate between characters, words etc. The Blissymbols were used in a court case; the officers of the court were also educated. The Unicode names for the symbols can be concatenated to form the words in many cases. There was an ISO IR on this set. No mapping is provided at this time.  
It is our desire that the BCI is recognized as the source for these symbols and any future requests should come through them. Example of using symbols for forming words ... under section 4. The Glyph requirement is very much controlled. There are rules for designing them and using them. Examples of glyphs following the rules are shown. There are 34 combining marks, a set called 'Thing Indicators'. These were discussed in 1998. These indicators cannot be decomposed; neither would we want to do that due to complexity on ordering etc.  
A dotted square is being used to indicate combining marks in this proposal.
- c. Mr. Peter Constable: The dotted square is used currently used with other meanings versus dotted circles.
- d. Mr. Michel Suignard: We can discuss this.
- e. Mr. Michael Everson: I have used pre-composed glyphs for the charts.
- f. Mr. Peter Constable: People may choose to use many more combinations.
- g. Mr. Michael Everson: According to BCI, only one character can precede or follow the combining action indicator. Examples of horizontal placements of indicators were explained. Rules about attachment points was pointed out. There are two SPACES ... One Full matrix square and a Half Square. There are rules on using these. There is an inherent quarter space. These are explained.
- h. Mr. Peter Constable: Would any of existing spaces in the standard do the function?
- i. Mr. Michael Everson: No, due to the strict matrix square requirement. Others are font dependent and can be all over the place. I will include some explanation on this. Explanation of the character names – in the current spreadsheet database was given. The naming convention used is explained. The character names are used in transcribing the symbols in English.
- j. A section on International Alphanumeric Characters explains them; 11 subsets of them. Walked through some examples of use of these different subsets. Rules of line break were pointed out. Collation order would need some discussion. Over the past 50 years a number of glyphs have changed. In order to show that the old glyphs can be preserved, the variation selector is proposed to indicate previous meaning with the old symbol. A list of these was provided.
- k. When Bliss is used in Israel it goes from R to L from 1979. Direction changes R to L. Glyphs Have mirror images. In Bliss the symbols for animal heads are in the direction of the writing. In RTL the mirror image is used. Some glyphs do not mirror – example: water symbol. It is similar to BiDi mirroring. Something will be said about vertical writing. Numbers have special behaviour; always Left to Right sequence ... example: century. The 'years mark' mirrors. The names list includes pointer to 1998 version; this may not be retained. A delta from the 1998 proposals is also shown for information. Additions since 1998 till now is coloured.
- l. The nature of several characters were explained; the base character, with pointers in them etc. These pointers cannot be used to construct in general.  
  
(There were several comments and discussion on different glyphs and character names in the chart. Suggestions for additional explanatory texts were made.)
- m. Dr. Deborah Anderson: We would need a full list of characters, their bidi mirroring property and bidi mirroring glyph property etc.
- n. Mr. Michel Suignard: Some informative text will help in explaining the kinds of special behaviour of characters. Is there any way to express that a character cannot mirror? I need to know it for the Egyptian Hieroglyphs also.



- o. Mr. Peter Constable: It is in the bidi mirroring property data file. You can have a supporting letter from BCI –confirming that they will be the source / sponsor for this proposal. This would also be address any copyright licensing etc. issues. Request that UTC as an authority for Bliss. Also future additions have to go through their agreement with participation from all the member bodies of BCI. BCI owns the Vocabulary.
- p. Mr. Michael Everson: BCI does not have any ownership over the character repertoire.
- q. Mr. Peter Constable: There is a Script Ad Hoc in Unicode; they will be reviewing this proposal.
- r. Mr. Michel Suignard: Some of the glyphs are very small. It is going to be pretty hard to see. Some resizing may need to be considered – and indicate the correct size to use in (for example) a Technical Note.

*Disposition:* Action item on experts from National bodies and Liaisons for feedback.

### 10.3 Additions to existing scripts or blocks

#### 10.3.1 Proposal to encode Alternate BA for the Bengali Language

Input document:

[L2/22-268](#) Proposal to Encode Alternate BA for the Bengali Language (revised); Vinodh Rajan, Deepto Chakraborty; 2022-12-23

The proposal points out the need for differentiating sound BA and VA in Bengali orthography, for wrong words from other languages like Sanskrit. Some publications have invented a new letter for this distinction. Multiple forms of use are shown.

Mr. Peter Constable: The proposal identifies some security concerns. They have to understand the ramifications. It may not get supported in IDNs for example. There is ground for encoding. It has been provisionally assigned by UTC.

*Disposition:* Accepted for future encoding.  
See item d in relevant recommendation M70.12 below.

#### *Relevant Recommendation M70.12 (Character Additions)*

WG2 recommends to SC2 to accept for future encoding the following additional characters:

- a. Two Quranic Arabic characters (based on document [L2/22-281R](#)):  
10EFB ARABIC SMALL LOW NOON  
10EC5 ARABIC SMALL YEH BARREE WITH TWO DOTS BELOW  
(Note: the project editor has the glyphs)
- b. Arabic Biblical End Of Verse (based on document [L2/23-103](#)):  
10ED0 ARABIC BIBLICAL END OF VERSE
- c. Blank character for Khitan Small script (based on document [N5205](#)):  
18CFF KHITAN SMALL SCRIPT CHARACTER-18CFF
- d. Bengali Letter Alternate BA (based on document [L2/22-268R](#)):  
09FF BENGALI LETTER ALTERNATE BA
- e. Two characters for Middle English (based on document [N5225](#)):  
A7D2 LATIN CAPITAL LETTER DOUBLE THORN  
A7D4 LATIN CAPITAL LETTER DOUBLE WYNN

#### 10.3.2 Proposal to encode Two Quranic Arabic Characters

Input document:

[L2/22-281](#) Proposal to Encode Two Quranic Arabic Characters (Replaces L2/22-153) (revised); Rikza F. Sh.; 2023-01-05

Dr. Deborah Anderson: This proposal was revised based feedback from the UTC. The examples, and properties were corrected. It has been provisionally accepted by UTC.

*Disposition:* Accepted for future encoding. The project editor has the glyphs.  
See item a in relevant recommendation M70.12 under section 10.3.1 above on page 25.

### 10.3.3 Proposal for ARABIC BIBLICAL END OF VERSE

Input document:

[L2/23-103](#) Proposal for ARABIC BIBLICAL END OF VERSE; Lorna Priest Evans; 2023-07-10

Dr. Deborah Anderson: Had some discussions at UTC. The proposal makes a case for an End of Verse character for use in Arabic script for Urdu and Kashmiri. The proposal compares it with existing End of Verse markers and explains the difference. This was accepted in principle at the UTC.

*Disposition:* Accepted for future encoding. The project editor has the glyphs.

*See item b in relevant recommendation M70.12 under section 10.3.1 above on page 25.*

### 10.3.4 Proposal to encode a blank character for Khitan Small Script

Input document:

[5205](#) Proposal to encode a blank character for Khitan Small Script; Andrew West; 2023-03-01

Mr. Andrew West: The proposal is for a script-specific blank character, to indicate illegible or lost character in Khitan text using Khitan Small Script. The Khitan Small script is a complex script combining many components into a single character. The script has been used for some time, but recently started encountering problems in renderings. The example of rendering of U+25A1 is shown. The proposal is for adding 18CFF KHITAN SMALL SCRIPT CHARACTER-18CFF.

Mr. Michel Suignard: You are depending on the shaping engine. Are you expecting U+25A1 to behave like the other Khitan characters?

Mr. Andrew West: It seems to work on the web. But if I need to print a document it breaks.

Mr. Michael Everson: I think it is safer to follow-through your proposal. In Figure 2 you are showing dotted box. Should this be a dashed box? Pointed out change in shape in an example. I propose we accept the character as proposed.

Mr. Andrew West: The dotted box limits its usage. If we use a script-specific one we could select between the two. Current use in Chinese fonts is shown in example.

Mr. Peter Constable: The segmentation behaviour for a geometric shape is not the same as that for a script-specific case. A variety of other reasons too. I recommend a script-specific character.

Dr. Deborah Anderson: This proposal has been accepted by UTC. Would the name be changed per comment given to you? As is in the proposal.

*Disposition:* Accepted 18CFF KHITAN SMALL SCRIPT CHARACTER-18CFF for future encoding.

*See item c in relevant recommendation M70.12 under section 10.3.1 above on page 25.*

### 10.3.5 Proposal to encode 116 Tangut components and 29 Tangut ideographs

Input documents:

[5217](#) Proposal to encode 2 Tangut components and 29 Tangut ideographs; Andrew West; 2023-05-31

[5218](#) Proposal to encode 114 Tangut components; Andrew West; 2023-05-31

Document [N5217](#):

Mr. Andrew West: 2 Tangut components proposed are from Western Xia period. These 2 components are in addition to the 114 components proposed in document [N5218](#). The 29 ideographs are from different sources. Some of these ideographs are new. Others are considered to be variants, but the differences are significant, having different components compared with regular forms and proposed to be separately encoded.

The next project is to describe the Ideographic Variation Sequences and register in the Ideographic Variation Database. A future Unicode Technical Note suggested to document the Tangut glyph unification principles. Andrew walked through the several evidences for the 29 proposed characters.

Document [N5218](#):

Mr. Andrew West presented the explanations for the proposed Tangut components used for indexing purposes in recently published Tangut dictionaries. Two of these are used to index themselves. He also explained how many radicals have already been encoded, which ones can be unified and what remains to be encoded. 114 components are listed. Two more were proposed in document [N5217](#). He also pointed out some interesting cases where foot notes have been provided; for example, RR128.

The 116 Tangut components would need a new block. A new block named 'Tangut Components Supplement' with a range of 128 code points is proposed.

Discussion:

- a. Mr. Michel Suignard: You mentioned that there may be some changes to existing Tangut glyphs. There are suggestions for glyph changes in the proposal's notes. You need to identify these glyph changes separately.
- b. Dr. Deborah Anderson: What was your position with experts? Like -- do we need to have separate characters with single or double strokes, on the use of strokes etc.? There has been some reluctance about changes in other non CJK scripts due to stroke differences. I will leave it to experts' opinions.
- c. Mr. Michel Suignard: I do not think we should start using strokes for scripts like Tangut.
- d. Dr. Ken Lunde: We could annotate them; similar to for Hangul script. The CJK Strokes should not be re-purposed for non CJK.
- e. Mr. Michel Suignard: It is a good chance this proposal would be seen positively. We have not discussed if these will go into Amd. 2. Currently Amd. 1 and Unicode 15.0 are in synch. Amd. 2 may not be in synch with Unicode 16. A new project sub division would be required.
- f. Dr. Deborah Anderson: This proposal has not been seen at UTC.
- g. Mr. Michel Suignard: This has to be reviewed. The code point allocation, block suggestion etc. has to be discussed.

*Disposition:* Action item on experts from National bodies and Liaisons for feedback.

#### 10.3.6 Proposal to add 18 Latin characters for Somali

Input document:

[5220](#) Addition of eighteen Latin characters for Somali; Omer Aden; 2023-05-08

Mr. Omer Aden presented the document. He acknowledged encouragement from Dr. Deborah Anderson, Ms. Ayuko Nagaswa and others. Somali language is written using the Latin Alphabet. Somali has 392 letters. There were several Arabic sounds that could not be represented. A and AA as an example – single Somali letter versus two Latin letters. Some of the special characters needed for the sounds in Somali language are not encoded. The proposal requests to encode 18 letters that have been using multiple Latin characters. One of the intents was to use these on keyboards as single keys.

Discussion:

- a. Mr. Michael Everson: This proposal is towards Spelling Reform. I do not support this proposal. There are other examples such as Finnish which uses length markers etc. for sounds.
- b. Mr. Omer Aden: The characters as proposed ... are new single letters different from two ordinary Latin letters. It becomes important when it comes to keyboards etc.
- c. Mr. Michel Suignard: We are not encoding languages, but writing systems. The problem you have identified is not unique; it is in several languages using the Latin script. For example, ou, in French. There was some debate on having a single letter 'ou' some time ago. I can understand that you want to simplify the input methods etc. But from encoding point of view it can be dealt with.
- d. Mr. Peter Constable: There are many languages that have the same issue. Spanish, Indonesian are examples that use combination of characters for sounds they need. Introducing new characters will be harmful for Somali rather than simplifying. In practice, it will cause confusion for those who are using the current methods. There can be security issues on the internet with mix of current and new methods.

- e. Dr. Deborah Anderson: Cornelius has sent you a virtual keyboard with the characters you have proposed. Have you looked into that? There was a suggestion to use fonts for combined characters; how does that work for you?
- f. Mr. Omer Aden: It may be possible to use; I have not shown people to be able to use it. That method did work.
- g. Mr. Peter Constable: I would suggest you engage with the CLDR group for guidance related to keyboard layout.
- h. Mr. Michel Suignard: You can always create a font showing ligatures for letter combinations; it is a common mechanism in font. They don't have to be separately encoded at the coding level. You can take a look at TrueType technology, for example.  
I do not see much support for your proposal. Mr. Michael Everson and Mr. Peter Constable have also given you more reasons, such as security issue etc. Several languages have similar issues as you have indicated. But we do not encode combinations or ligatures as single code points. We do have opposite examples also; such as OE in French.

*Disposition:* Not accepted.

### 10.3.7 Revised proposal for the addition of LATIN CAPITAL LETTER TURNED W

Input document:

[5224](#) Revised proposal for the addition of LATIN CAPITAL LETTER TURNED W; Michael Everson; 2023-05-31

Mr. Michael Everson: We have seen this proposal earlier. The proposal requests Capital letter Turned W corresponding to existing lowercase turned w. It is needed in preparing some documents. In Scot the uppercase and lower case are distinct. In 2019 while I was preparing a book on Scot, the two forms appeared. Pitman Shorthand is another script where the case distinction is needed for transliterating purposes. There are other cases where they are needed as mentioned in the proposal document. Examples of use are also included. Some examples were presented.

Discussion:

- a. Mr. Karljürgen Feuerherm: The purpose of IPA is to represent sounds – not to write books. In principle, one could use Uppercase for all the Latin letters.
- b. Mr. Michael Everson: In some transcriptions both cases may not be needed. In Shorthand they are needed.
- c. Mr. Peter Constable: In technical sense both cases may be needed. Pitman Shorthand is an example. The question I have is on whether there is a user need versus a single person wanting to publish a book. The text you are digitizing does not have the casing. It would be helpful if you could show more examples of use.
- d. Mr. Michael Everson: I have more examples where I need this character in publishing area.
- e. Mr. Peter Constable: The purpose of encoding is for encouraging interchange etc. There are a lots of other examples where we encourage using PUA; for individual uses etc. It would be better if you can show examples of wider use than just a single publishing case.
- f. Mr. Michael Everson: I am currently using Private Use Area; but want a standard code point for it. Similar characters have been accepted in the standard earlier. We have facilitated general use of both cases in Latin alphabet. I do not see need for any more examples, and the use cases I have given are not adequate for accepting this character for encoding.
- g. Mr. Peter Constable: The general criterion is usage beyond just the contributor.
- h. Mr. Karljürgen Feuerherm: What was the rationale for casing the previous characters mentioned in the proposal? The same rationale should be applied here too.
- i. Mr. Jan Kučera: The criteria could change over time. Some characters may have been accepted based on earlier criteria.
- j. Mr. Michael Everson: The number of characters that we have accepted in the past has been on case by case basis of usage need.

*Disposition:* The matter was left for an ad hoc group to discuss and recommend. No decision was arrived at before the end of the meeting.

#### 10.3.8 Revised proposal to add two characters for Middle English

Input document:

5225 Revised proposal to add two characters for Middle English; Michael Everson, Andrew West; 2023-06-01

Mr. Michael Everson: Presented the document N5225. The proposal is for two capital letters -- Double Thorn and Double Wynn -- used in Ormulum. These characters were proposed way back in 2019, 2020. They were not accepted at that time. Spaces were left for them in the chart. These are needed for usage in titles etc. in either CAPS or in SMALL. These characters do not appear at the beginning of a word. They are orthographically bound to a preceding letter. Normally they would appear in middle of a word; that is not the only case of using Capital Letters.

Discussion:

- a. Dr. Deborah Anderson: The objections earlier were that there is no evidence, user community etc. The early commenters wanted examples of use.
- b. Mr. Michael Everson: I have shown an example of use. I do not know whether Orm used it or not in his work. The example shows how a normal usage would be.
- c. Dr. Deborah Anderson: Since this argument about casing keeps arising all the time, formal criteria for case pairing should be drafted.
- d. Mr. Michael Everson: Two holes were left for these with the earlier proposal.
- e. Mr. Karljürgen Feuerherm: I see the argument reasonable. Are there similar holes in other middle-English manuscripts?
- f. Mr. Michael Everson: Orm was the only document editor for Ormulum. In case of other Middle-English there are none.
- g. Mr. Peter Constable: I would like this be discussed at the UTC.
- h. Dr. Deborah Anderson: There is a typo in the property list.
- i. Dr. Umamaheswaran: I suggest we accept for inclusion in the Amd. 2. Ballot comments can address any disagreement.

*Disposition:* Accepted for future encoding.

*See item e in relevant recommendation M70.12 under section 10.3.1 above on page 25.*

#### 10.3.9 Revised proposal to add the Combining Overcurl

Input document:

5227 Revised proposal to add the combining overcurl; Michael Everson, et al.; 2023-06-16

Mr. Michael Everson: We had seen this request in 2017. N5227 does not go through the background material. It was part of the combining character proposal. The feedback was that it was a bad idea – an atomic character should be used. It is used frequently in England in several medieval English documents. I have seen it in Scotland and England ... not in Welsh. It is an abbreviation mark / diacritical mark.

The previous argument was that it is hard to construct in a font. A description of the previous discussion is provided. Examples of similar other combining marks are also given. Searching issues exist when it can appear on any one of several letters. Example of use of Overcircle with letters are also shown. The request is to encode a single combining mark at 1ACF OVERCURL (with a quarter circle at 45 deg.).

Discussion:

- a. Mr. Peter Constable: When it was presented the suggestion was made that these should be atomic characters. It went into the ballot and there was disagreement. The earlier suggestion was based on the information at that time.
- b. Mr. Michael Everson: In 2017 I had seen this only in Cornish documents. The reading is always an m or n with different markings. With Overcurl it is over several other letters. I have found them in several other documents; however, the meaning is completely different. If pre composed characters are to be

encoded, every time we discover another character we need to make a new proposal. I do have some text currently using these and would like to give away the plain text that I cannot do right now.

- c. Mr. Peter Constable: You have made a number of things that are not primarily to justify encoding. You have not included any of what you have seen as evidences as support for us to understand. You had given examples showing them as different from other letters.
- d. Mr. Michael Everson: I can prepare another document with examples etc. The other combining marks are always over m or n. This is polyvalent.
- e. Mr. Jan Kučera: Have to make a case that it cannot be unified with others etc.

*Disposition:* Action item - Mr. Michael Everson is invited to provide more examples in support for the proposal.

#### 10.4 Miscellaneous Proposals

##### 10.4.1 Request for 36422 Kanji Horizontal Extensions for JMJ sources

Input document:

[5221](#) Request for 36422 Horizontal Extensions in the J-column for JMJ sources, [chart \(pdf 716MB\)](#); Japan NB; 2023-04-24

Prof. Toshiro Shuichi presented the case for the horizontal extension proposed in document [N5221](#). The request is to add the missing 36422 JMJ source glyphs in the CJK code charts from the collection identified as 391 "MOJI-JOHO-KIBAN IDEOGRAPHS-2018" in the standard. Some mapping changes for font implementation in the proposal for 44 characters were shown.

Discussion:

- a. Mr. Michel Suignard: Does the current data include these 44 characters. An updated Data File should be sent to the editor.
- b. Mr. Peter Constable: What is the issue with Annex A?
- c. Mr. Michel Suignard: Only code points are identified in Annex A. Content of the corresponding .txt file will change. There will be side effects on existing implementations.
- d. Prof. Toshiro Shuichi: Mappings from old and new to the glyph will need to be done in fonts.
- e. Mr. Peter Constable: Having a new .txt file alone is not enough to alert vendors to changes in the mapping for fonts. Would like to see some notifications to alert vendors.
- f. Dr. Ken Lunde: I have come to similar conclusions by comparison of existing data and the proposal from Japan. Vendors should pay attention only to the JIS standards. The source references identify purpose for which these code points are used. Unihan database Property files identify this usage. Regarding the mapping, I would like to know the correct IVSs for these. There are 5 of these that would need change to IVSs in the collection.
- g. Prof. Toshiro Shuichi: Would like the mapping to be first step. The IVS information will come later.
- h. Dr. Ken Lunde: I will send the information with IVSs to Japan.
- i. Prof. Toshiro Shuichi: We have to wait for the Japan national committee.
- j. Mr. Michel Suignard: You are going to provide the updates for us to proceed with code charts – correct? Yes.
- k. Do you want to wait for IRG review? It can be ballot comment. The data set is quite large and the font is needed for the code chart. The pdf document has it – but to get that into the standard, I need a list of font vs pointer for each glyph.
- l. Prof. Toshiro Shuichi: We have the data file and font.
- m. Mr. Peter Constable: Does JP have a timeline by which this Horizontal Extension has to be done?
- n. Mr. Michel Suignard: Unicode would like to have it as early as possible.

*Disposition:* Accepted for inclusion in Amd. 2. Action item: Japan to send the info to Project Editor; for preparation of next version Amd. 2.

*See relevant recommendation M70.04 item c in section 9.3.2 above on page 14.*

## 11 Errata/modification

### 11.1 Glyph Corrections for Tangut Ideographs

Input document:

[5206](#) Glyph Corrections for Eight Tangut Ideographs; Andrew West; 2023-03-01

[5237](#)-Glyph corrections for four Tangut ideographs; Andrew West; 2023-06-21

#### 11.1.1 Document [N5206](#):

Mr. Andrew West: Since coding of Tangut, we have come to better understand the Tangut orthography. Like Chinese the strokes are joined together. The ancient blocks are being examined carefully and several corrections to the glyphs are surfacing. Five of the corrections are related to Tangut-Chinese dictionary. They were not previously checked. The glyph forms did not match the manuscripts. The three others are some strokes leaning and associated stroke count (for one of them). Evidences are provided. I had a feedback from Sun Bo Jun not to change the glyph for 18171. I guess we can live with that.

Discussion:

- a. Dr. Deborah Anderson: Are you in agreement to keep the current glyph for 18171?
- b. Mr. Andrew West: I think yes; even though it does not seem correct.

*Disposition:* Accept 7 glyph changes for Amd. 2.

*See relevant recommendation M70.05 in section 11.1.2 below.*

#### 11.1.2 Document [N5237](#):

Mr. Andrew West: These four glyph corrections are from the notes in document [N5218](#) that was discussed earlier under item 10.3.5 (on page 26). A table showing the glyph changes for 17121, 17C51, 17DOB and 180DF, and references to the note number in document [N5218](#) is provided. Change to 17DOB radical number when new radical is encoded is pointed out. This set is different from those in document [N5206](#).

Mr. Peter Constable: I suggest an update to document [N5218](#).

*Disposition:* Accepted the changes to the four glyphs.

*Relevant Recommendation M70.05 (Glyph Corrections):* WG2 recommends that SC2 accept the glyph corrections in the standard, for seven out of eight (excluding glyph for code point 18171) Tangut ideographs as proposed in document [N5206](#), and for four more Tangut ideographs as proposed in document [N5237](#).

## 12 Architecture issues

### 12.1 Referencing String ordering and comparison from ISO/IEC 10646 ([N5216](#))

Input document:

[5216](#) Referencing String ordering and comparison from ISO/IEC 10646; Michel Suignard, Project editor; 2023-04-19

Mr. Michel Suignard introduced the document. Explained the rationale and benefits of being able to keep in synch with corresponding Unicode specifications and latest repertoire in 10646 and corresponding Unicode versions. This is triggered mainly by absence of someone taking over the SC2 project on 14651. We do expose other items like BiDi algorithms etc. from the Unicode standard. A key aspect of the repertoire is 'ordering'. I have proposed text for new clauses and Annex for inclusion in the standard.

Discussion:

- a. Mr. Peter Constable: There could be some differences in the synchronization due to publication schedule.
- b. Mr. Michel Suignard: There is always a synchronization point we strive for between 10646 and Unicode. Unicode may have more versions than the synch points. In the future, text of 14651 would not be available, beyond the current version.
- c. Mr. Peter Constable: There are references to 14651 from elsewhere. It would be better to have new text for 14651 with a permanent reference to DUCET and will be in synch with the latest repertoire of 10646. I suggested you could be the project editor—I can assist.
- d. Mr. Michael Suignard agreed to this suggestion.



*Disposition:* Accepted to recommend to SC2 to nominate Mr. Michel Sugnard as the new project editor for ISO 14651. Also request the creation of a new edition of 14651 with text based on document [N5216](#).

*This recommendation from WG2 was communicated to SC2 secretariat as a response to the request from SC2 to WG2. (This recommendation missed inclusion in the meeting recommendations document N5234. The SC 2 committee manager Ms. Ayuko Nagasawa was in attendance.)*

## 13 Liaison reports and new requests

### 13.1 SEI

Input document:

[5229](#) SEI Liaison report; Deborah Anderson, SEI, UC Berkeley; 2023-05-20

Dr. Deborah Anderson presented the liaison report. The report lists scripts that are contributed to PDAM 2.2, for future Amd. 2. Also a number of other items that have been presented to WG2 consideration. A list of active work on proposals is also included.

Dr. Deborah Anderson will be retiring end of the month, but will continue to volunteer. A poster of world's writing system is available from SEI for a donation.

The meeting expressed their appreciation to the Dr. Debbie Anderson and to SEI for several years of valuable contributions to the work of WG2.

There were no other Liaison Reports at this meeting.

## 14 Other business

### 14.1 Web site review of code charts

Mr. Michel Suignard: Showed the Unicode website page on code charts; the organization of the charts by blocks or related of related blocks. There is also a link for a single file with all the charts. There is a lot of duplicated work between Unicode and 10646 charts. I would like to simplify the effort. There is also a French version of the charts prepared by French community. Block names and character names are translated as an additional benefit. Showed the French version of the charts also. The only difference is that there is a Unicode Copyright at the bottom. There should not be a conflict with the ISO Copyright side – as long as the original source of copyright has given permission to ISO. Unicode has already given copyright on another page to ISO - under the Fonts paragraph. An experimental page for 2017 edition has proposed wording, but yet to be explored with ITTF via SC2. It is not ready for this meeting.

### 14.2 Web sites for WG2 document collections

The website of dkuug is holding some of the older WG2 documents, though many have been transferred to the WG2 repository at the Unicode web site (by Mr. Michel Suignard). All newer documents are in the repository at the Unicode web site. Excepting some documents mirroring SC2 documents, which are of restricted access; all the other documents are open.

#### *Relevant Appreciations:*

*M70.16 (Appreciation to DKUUG for web site support):* WG2 thanks DKUUG and its staff for its continued support of the web site for the older WG2 documents.

*Appreciation M70.17 (Appreciation to Unicode Consortium):* WG2 thanks the Unicode Consortium and its staff for providing the web site, for its assistance in code chart productions, and other support for WG2.

## 15 Future meetings

There was some discussion on the location and dates for the future meetings. The next meeting location was proposed to be in Prague hosted by Czech Republic in July 2024. The meeting will be co-located with SC2 meeting. WG2 is seeking a host for the following meeting.



*Relevant Recommendation M70.15 (Future meetings):* WG2 endorses the following schedule for future meetings:

- WG2 Meeting 71 – 2024-06 17 21 Prague, Czech Republic (co-located with SC2)
- WG2 Meeting 72 – 2025-06 – Seeking Host
- IRG#61, Yale University, New Haven, CT, USA; 2023-10-16/20
- IRG#62, Online Zoom (Unicode), 2024-03-18/22

## 16 Closing

### 16.1 Meeting #70 recommendations

Output document:

[5234](#) Meeting M70 Recommendations; V.S. Umamaheswaran, Michel Suignard; 2023-06-23

A draft of the meeting recommendations, prepared by the drafting committee, was reviewed by WG2 experts. Any discussion of note leading to these recommendations is included under the appropriate ‘*Relevant Recommendation*’ included under the appropriate agenda item above.

Experts accredited (or invited) by the national bodies or liaison organizations for Canada, China, Czech Republic, Ireland, Japan, Republic of Korea, UK, SC34 (Liaison), SEI - UC Berkeley (Liaison), the Unicode Consortium (Liaison), and USA, were present (either in person or via Zoom call) when the following recommendations were adopted.

There were minor edits to the wordings of some of the resolutions. Except for disagreement on some of the recommendations related to inclusion of CJK Extension I from expert from Republic of Korea, there was consensus on all the other recommendations. See the final set of recommendations in document [N5234](#) that would be forwarded to SC 2 for review and approval.

The character counts at the end of the meeting is as follows: **143925** in the published 6<sup>th</sup> edition of ISO/IEC 10646, **5327** additions in DAM1, **1785** additions for CDAM2 (2.3), and **4230** (approx.) accepted for future additions, totalling **155267** (approx.) allocated characters at the end of this meeting.

The recommendations included the following:

*M70.18 (Appreciation to Host):* WG2 thanks the national body of Canada and Wilfrid Laurier University, for hosting the meeting. In addition, WG 2 thanks Dr. Jonathan Newman (VP of Research), Dr. Karljürgen Feuerherm, and supporting staff, especially Ms. Susan Mackenzie, Carolyn Morrison, Anthony Trinh and Umar Rasool, as well as the staff from the Wilfrid Laurier University Food Services. WG2 also appreciates the Wilfrid Laurier University for hosting of the enjoyable dinner on Wednesday evening.

### 16.2 Adjournment

The WG2 meeting ended around noon EDT on Friday 2023-06-23.

(The final plenary of SC 2 followed about an hour later.)

## 17 Outstanding Action items

All the action items recorded in the minutes of the previous meetings from 25 to 60, 64 to 66 and 69, have been either completed or dropped. Status of outstanding action items from previous meetings 62, 63, 67, 68 and new action items from meeting 70 are listed in the tables below.

### 17.1 Outstanding action items from meeting 62, San Jose, CA, USA; 2014-02-24/28

Item	Assigned to / action (reference resolutions in document <a href="#">N4554</a> , and unconfirmed minutes in document <a href="#">N4553</a> for meeting 62, with any corrections noted in the minutes of meeting 63 in document <a href="#">N4603</a> ).	Status
<b>AI-62-6</b>	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
<b>a.</b>	To take note of section 2.1 in document <a href="#">N4544</a> on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M63 through M70 -- in progress.	In progress.
<b>b.</b>	With reference to <a href="#">N4543</a> Character Name considerations; Michel Suignard; 2014-02-20, to elaborate on character names in the P&P document working with Mr. Michael Everson. M63 through M70 -- in progress.	In progress.

### 17.2 Outstanding action items from meeting 63, Colombo, Sri Lanka; 2014-09-29/10-03

Item	Assigned to / action (Reference recommendations in document N4604, and unconfirmed minutes in document N4603 for meeting 63 (with any corrections noted in the minutes of meeting 64 in document N4739).	Status
AI-63-6	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
a.	To take note of section 2.1 in document N4620 on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M64 through M70 -- in progress.	In progress.

17.3 Outstanding action items from meeting 66, Hohhot, Inner Mongolia, China; 2017-09-25/29

Item	Assigned to / action (Reference recommendations in document N4874, and unconfirmed minutes in document N4953 for meeting 66, with any corrections noted in the minutes of meeting 67 in document N5020).	Status
AI-66-6	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson). TCA (Lin Mei Wei), Mongolia experts	
	To take note of and act on the following item:	
b.	<i>M66.18 (Naxi Dongba script)</i> : WG2 accepts the Naxi Dongba ad hoc report in document N4895, and invites the author of the script to provide a revised version with the characters reordered according to the type of classification used in the source dictionaries, based on the revised chart in document N4898. WG2 recommends to SC2 to accept the revised version of the script, consisting of 1188 characters in a new block Naxi Dongba in the range 1A800...1ACFF for encoding in the standard. M67 through M70 -- in progress.	In progress.

17.4 Outstanding action items from meeting 67, SOAS, University of London, London, UK; 2018-06-16/20

Item	Assigned to / action (Reference recommendations in document N4954, and unconfirmed minutes in document N5020 for meeting 67, with any corrections noted in the minutes of meeting 68 in document N5122).	Status
AI-67-7	BIS (K. Manikandan), Experts on Assamese from India and elsewhere.	
	To take note of and act on the following item:	
a.	<i>M67.25 (Assamese script)</i> : After consideration of the proposal in document N4947 to encode the Assamese script, WG2 recommends that SC2 accept the ad hoc report on Assamese script in document N4999, which has the following main recommendations: <ul style="list-style-type: none"> <li>d. Add Assamese character names in the nameslist as annotations,</li> <li>e. Change the block header from Bengali to Bengali-Assamese, and,</li> <li>f. Prepare a revised contribution on new characters to be added.</li> </ul> WG2 encourages the experts on Assamese script to continue the work towards a revised contribution and submit to WG2. WG2 recommends that SC2 invites the national body of India, BIS, to coordinate this effort. M68 and M70 -- in progress.	In progress.
AI-67-8	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson). TCA (Lin Mei Wei), Mongolia experts	
	To take note of and act on the following items:	
c.	<i>M67.26 (Shuishu script)</i> : WG2 invites the authors of Shuishu script (Block 1B300-1B4FF Shuishu Logograms and Block 1B500-1B52F Shuishu Radicals from document N4894R) that was taken out of PDAM 2.2 based on ballot comments, to revise their proposal, taking into account the feedback received at this meeting (see documents N4942, N4946 and N4956), working with other experts interested in this script. M68 and M70 -- in progress..	In Progress.

17.5 Outstanding action items from meeting 68, Microsoft Campus, Redmond, WA, USA; 2019-06-17/21

Item	Assigned to / action (Reference recommendations in document N5054, and unconfirmed minutes in document N5122 for meeting 68, , with any corrections noted in the minutes of meeting 69 in document N5199).	Status
AI-68-7	Experts from China (Chen Zhuang), and other experts interested in Lisu Monosyllabic script.	
	To take note of and act on the following item:	
a.	<i>Recommendation M68.18 (Lisu Monosyllabic Script)</i> : WG2 invites the authors of documents N5047 to revise their proposal on Lisu Monosyllabic script, taking into account the feedback received at this meeting, working with other experts interested in this script. M70 -- in progress.	In Progress.
AI-68-8	Experts from TCA (Selena Wei), and other experts interested in Bopomofo.	

	To take note of and act on the following item:	
<b>a.</b>	<i>Recommendation M68.19 (Bopomofo Script)</i> : WG2 invites the authors of documents <a href="#">N5088</a> to revise their proposal on Bopomofo script, taking into account the feedback received at this meeting, working with other experts interested in this script. M70 -- in progress.	In Progress.
<b>AI-68-9</b>	Experts from TCA (Selena Wei), China (Chen Zhuang), and other experts interested in Oracle Bone script.	
	To take note of and act on the following item:	
<b>a.</b>	<i>Recommendation M68.20 (Oracle Bone Script)</i> : WG2 invites the authors of documents <a href="#">N5090</a> to revise their proposal on Oracle Bone script, taking into account the feedback received at this meeting, working with other experts interested in this script. M70 -- in progress.	In Progress.

#### 17.6 New action items from Virtual meeting 70– 2023-06-19/23

Item	Assigned to / action (Reference recommendations in document <a href="#">N5234</a> , and unconfirmed minutes of meeting 70 in document <a href="#">Nxxxx</a> , the document you are reading.)	Status
<b>AI-70-1</b>	Recording Secretary - Dr. V.S. UMaaheswaran	
<b>a.</b>	To finalize the document <a href="#">N5234</a> containing the adopted meeting recommendations and send it to the convener as soon as possible.	Completed.
<b>b.</b>	To finalize the document <a href="#">Nxxxx</a> containing the unconfirmed meeting minutes and send it to the convener as soon as possible.	Completed.
<b>AI-70-2</b>	Convener - Mr. Michel Suignard	
<b>a.</b>	To add relevant contributions carried forward from previous meetings to agenda of next meeting. (See list of documents under <b>AI-70-x</b> , item b below.)	
<b>AI-70-3</b>	Editor of ISO/IEC 10646: (Mr. Michel Suignard with assistance from contributing editors)	
	To prepare the appropriate amendment texts, sub-division proposals, collection of editorial text for the next edition, corrigendum text, or entries in collections of characters for future coding, with assistance from other identified parties, in accordance with the following:	
<b>a.</b>	<i>M70.02 (Disposition of comments of CDAM 2.2)</i> : WG2 recommends that SC2 accept the disposition of ballot comments on CDAM2.2 to 6 <sup>th</sup> edition in document <a href="#">N5233</a> . The following significant changes are noted in the disposition document: <ul style="list-style-type: none"> <li>a. 603 urgently needed CJK unified ideographs: <ul style="list-style-type: none"> <li>2EBF0..2EE4A in a new block in the range 2EBF0..2EE4F named ‘CJK Unified Ideographs Extension I’</li> </ul> </li> <li>b. 1 Kawi character <ul style="list-style-type: none"> <li>11F5A KAWI SIGN NUKTA</li> </ul> </li> <li>c. 44 Ol Onal characters in a new block <ul style="list-style-type: none"> <li>1E5D0..1E5FA and 1E5FF In a new block in the range 1E5D0..1E5FF, named ‘Ol Onal’</li> </ul> </li> <li>d. 2 Tulu-Tigalari characters <ul style="list-style-type: none"> <li>113D2 TULU-TIGALARI GEMINATION MARK</li> <li>113D3 TULU-TIGALARI SIGN PLUTA</li> </ul> </li> </ul>	
<b>b.</b>	<i>M70.04 (CJK Horizontal Extensions)</i> : WG2 recommends that SC2 accept the following CJK Horizontal extensions for existing characters to be included in the standard: <ul style="list-style-type: none"> <li>d. Addition of 134 K Hanja character proposed in document <a href="#">N5197</a>.</li> <li>e. Adding K source reference KU-03E02 for code point 3E02, as proposed in document <a href="#">N5198</a>.</li> <li>f. Addition of 36422 Kanji extensions for JMJ sources, based on document <a href="#">N5221</a>.</li> </ul>	
<b>c.</b>	<i>M70.05 (Glyph Corrections)</i> : WG2 recommends that SC2 accept the glyph corrections in the standard, for seven out of eight (excluding glyph for code point 18171) Tangut ideographs as proposed in document <a href="#">N5206</a> , and for four more Tangut ideographs as proposed in document <a href="#">N5237</a> .	
<b>d.</b>	<i>M70.06 (Progression of CDAM2.2)</i> : WG2 recommends that the Project Editor prepare the final text of CDAM2.3 of the 6th edition of the standard, which will include the changes arising from recommendations <a href="#">M70.02</a> through <a href="#">M70.05</a> above, along with the final disposition of comments (document <a href="#">N5233</a> ), and forward it to the SC2 secretariat for circulating for commenting. The charts are in document <a href="#">N5235</a> . The target starting dates are CDAM2.3 2023-08-01, DAM2 2024-06-01, FDAM2 2025-02-01, AMD2 2025-05-01.	

e.	<i>M70.08 (Chisoi script):</i> WG2 recommends to SC2 to accept for future encoding of <b>40</b> characters for Chisoi script at code points 16D80..16D9D, 16DA0..16DA9; in a new block in the range 16D80..16DAF named 'Chisoi', based on the proposal in document <a href="#">L2/22-218R3</a> .	
f.	<i>M70.09 (Tai Yo script):</i> WG2 recommends to SC2 to accept for future encoding of <b>55</b> characters for Tai Yo script at code points 1E6C0..1E6DE, 1E6E0..1E6F5, 1E6FE, 1E6FF; in a new block in the range 1E6C0..1E6FF named 'Tai Yo', based on the proposal in document <a href="#">L2/22-289R</a> .	
g.	<i>M70.10 (Sidetic script):</i> WG2 recommends to SC2 to accept for future encoding of <b>29</b> characters for Sidetic script at code points 10940..1095C; in a new block in the range 10940..1095F named 'Sidetic', based on the proposal in document <a href="#">L2/23-019</a> .	
h.	<i>M70.11 (Tolong Siki script):</i> WG2 recommends to SC2 to accept for future encoding of <b>54</b> characters for Tolong Siki script at code points 11DB0..11DDB, 11DE0..11DE9; in a new block in the range 11DB0..11DEF named 'Tolong Siki', based on the proposal in document <a href="#">L2/23-024</a> .	
i.	<i>M70.12 (Character Additions):</i> WG2 recommends to SC2 to accept for future encoding the following additional characters: a. Two Quranic Arabic characters (based on document <a href="#">L2/22-281R</a> ): 10EFB ARABIC SMALL LOW NOON 10EC5 ARABIC SMALL YEH BARREE WITH TWO DOTS BELOW (Note: the project editor has the glyphs) b. Arabic Biblical End Of Verse (based on document <a href="#">L2/23-103</a> ): 10ED0 ARABIC BIBLICAL END OF VERSE c. Blank character for Khitan Small script (based on document <a href="#">N5205</a> ): 18CFF KHITAN SMALL SCRIPT CHARACTER-18CFF d. Bengali Letter Alternate BA (based on document <a href="#">L2/22-268R</a> ): 09FF BENGALI LETTER ALTERNATE BA e. Two characters for Middle English (based on document <a href="#">N5225</a> ): A7D2 LATIN CAPITAL LETTER DOUBLE THORN A7D4 LATIN CAPITAL LETTER DOUBLE WYNN	
j.	<i>M70.13 (Additions to Amendment before next WG2 meeting):</i> WG2 recognizes that some scripts and additional characters which are under preparation as potential additions to the standard could become mature and will have consensus among WG2 experts to include in the standard. The project editor should be able to add these to the balloted texts, after exercising due diligence. Candidates include, but are not limited to, Egyptian Hieroglyphs (approx. <b>3945</b> characters) mentioned in recommendation M70.07, or other <b>185</b> additional characters (captured in document <a href="#">N5236</a> ) mentioned in recommendations M70.08 to M70.12 above.	
<b>AI-70-4</b>	IRG Rapporteur and IRG Editor (Dr. Lu Qin)	
	To take note of and act upon the following item:	
a.	<i>M70.15 (Future meetings):</i> WG2 endorses the following schedule for future meetings: WG2 Meeting 71 – 2024-06 17 21 Prague, Czech Republic (co-located with SC2) WG2 Meeting 72 – 2025-06 – Seeking Host IRG#61, Yale University, New Haven, CT, USA; 2023-10-16/20 IRG#62, Online Zoom (Unicode), 2024-03-18/22	
<b>AI-70-5</b>	Ad hoc group on roadmap (Dr. Umamaheswaran)	
a.	To update the Roadmaps reflecting the results from this meeting.	
<b>AI-70-6</b>	USA (Mr. Michel Suignard)	
	To take note of and act on the following item:	
a.	<i>M70.07 (Egyptian Hieroglyphs):</i> WG2 recommends to SC2 to accept in principle for future encoding the proposal for Egyptian Hieroglyphs Extension A in document <a href="#">N5215</a> , and invites the author to revise the document based on discussion at this meeting.	
<b>AI-70-7</b>	China (Mr. Chen Zhuang)	
	To take note of and act on the following item:	
a.	<i>M70.03 (Feedback on CJK Extension I):</i> In consideration of preliminary feedback that China will request some changes to the draft repertoire in CJK Unified Ideographs Extension I, and noting China's urgent need for these characters, WG2 recommends that SC2 invite China to submit a document with comments on CJK Unified Ideographs Extension I to SC2 by end of June 2023, to incorporate changes into the next draft of CDAM2 prior to circulation for comments.	
<b>AI-70-8</b>	Ireland (Mr. Michael Everson)	
	To take note of and act on the following items:	

a.	Invited to provide more examples to support the proposal in document <a href="#">N5227</a> on Combining Overcurl.	
b.	Invited to provide a revised proposal on ‘Encode dashed-box symbols in Plane 14’ in document <a href="#">N5212</a> addressing the discussion under section 10.3.9.	
<b>AI-70-9</b>	Experts from TCA (Selena Wei), China (Chen Zhuang), Japan (Toshiya Suzuki), USA (Mr. Michel Suignard, Dr. Richard Cook) and other experts interested in Small Seal script	
	To take note of and act on the following item:	
a.	<i>M70.14 (Small Seal script)</i> : WG2 recommends that SC2 note the progress made by the experts from China, TCA, Japan and the US on several revised proposals submitted at this meeting, and encourages these experts to continue their co-operative effort towards a consolidated contribution for encoding the script.	
<b>AI-70-10</b>	Experts from all national bodies and liaison organizations	
	To take note of and provide feedback on the following items.	
a.	<i>M70.15 (Future meetings)</i> : WG2 endorses the following schedule for future meetings: WG2 Meeting 71 – 2024-06 17 21 Prague, Czech Republic (co-located with SC2) WG2 Meeting 72 – 2025-06 – Seeking Host IRG#61, Yale University, New Haven, CT, USA; 2023-10-16/20 IRG#62, Online Zoom (Unicode), 2024-03-18/22	
b.	From the items discussed at this meeting: a. Jurchen script (documents <a href="#">N4795</a> , <a href="#">N5131</a> and <a href="#">N5207</a> ). See discussion under section 10.2.2. b. Aiha script (document <a href="#">N5226</a> . See discussion under section 10.2.9. c. Blyssymbols (documents <a href="#">N5149</a> , <a href="#">N5171</a> and <a href="#">N5228</a> ). See discussion under section 10.2.10. d. Tangut ideographs and components (documents <a href="#">N5217</a> and <a href="#">N5218</a> ). See discussion under section 10.3.5.	
c.	The following is a list of contributions carried forward from earlier meetings. They are open for review and feedback to the authors from interested experts from SC2/WG2 and Liaison organizations. Scripts marked in bold below are new or updates of previous list in Meeting 69 agenda document.  Afáka <a href="#">N4292</a> , Bagam <a href="#">N4293</a> , Balti ‘B’ <a href="#">N4016</a> , Balti scripts <a href="#">N3842</a> , Beria <a href="#">L2/08-265</a> , Bété <a href="#">L2/19-044</a> , Bima <a href="#">L2/16-119</a> , Brusha <a href="#">L2/17-183</a> , Buginese extensions <a href="#">L2/16-159</a> , Chinese Chess Symbols <a href="#">N3910</a> , CJK Buddhist symbols <a href="#">N5166</a> , Diwani Siyaq Numbers <a href="#">L2/15-066R</a> , Eebee Hmong <a href="#">N4668</a> , Jianzi Musical Notation and Format Controls, <a href="#">N5041</a> , Kerinci <a href="#">L2/16-074</a> , Khambu Rai <a href="#">N4018</a> , Khatt-i Baburi <a href="#">N4130</a> , Khitan Large script <a href="#">N4631</a> , <a href="#">N4642</a> , Khotanese <a href="#">L2/15-022</a> , Kpelle <a href="#">N3762</a> , Kulitan <a href="#">L2/15-232</a> , Lampung <a href="#">L2/22-044</a> , Landa <a href="#">N3768</a> , Leke <a href="#">N4438</a> , Linear Elamite <a href="#">L2/21-233</a> , Lisu Monosyllabic <a href="#">N5047</a> , <a href="#">N5121</a> , Loma <a href="#">N4786</a> , <a href="#">N4837</a> , Lota Ende <a href="#">L2/16-076</a> , Mandombe <a href="#">L2/16-077R</a> , Moon <a href="#">N4128</a> , Mwangwego <a href="#">N4323</a> , Naxi Dongba <a href="#">N4898</a> , Naxi Geba <a href="#">N4886</a> , <a href="#">N4887</a> , Obsolete Simplified Chinese Ideographs <a href="#">N3695</a> , Old Yi <a href="#">N3288</a> , Oracle Bone <a href="#">N5090</a> , Palaeohispanic Northern <a href="#">L2/22-146</a> , Palaeohispanic Southern <a href="#">L2/22-147</a> , Pau Cin Hau Syllabary <a href="#">L2/16-014</a> , Persian Siyaq <a href="#">L2/21-105</a> , Proto-Cuneiform <a href="#">L2/22-239</a> , Proto-Elamite <a href="#">L2/20-192</a> , Pungchen <a href="#">L2/17-181</a> , Pyu <a href="#">N3874</a> , Ranjana <a href="#">L2/23-028</a> , Shuishu <a href="#">N4758</a> , <a href="#">N4922</a> , <a href="#">N4839</a> , <a href="#">N4956</a> , <a href="#">N4942</a> , <a href="#">N4946</a> , <a href="#">N5110</a> , Southwest China Hieroglyphs <a href="#">N4856</a> , <a href="#">N4901</a> , Sumbawa <a href="#">L2/16-096</a> , Tamga symbols <a href="#">N5092</a> , Tocharian <a href="#">L2/15-236</a> , Vexillology symbols <a href="#">L2/17-089</a> , Western Cham <a href="#">N5098</a> , <a href="#">L2/22-095</a> , Woleai <a href="#">N4146</a> , Zou <a href="#">N4044</a> .	

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