



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 68
Microsoft Campus, Redmond, WA, USA; 2019-06-17/21

SOURCE: V.S. Umamaheswaran (bhanudorai@rogers.com), Recording Secretary
Michel Suignard (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, 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: 2020-05-01

DISTRIBUTION: SC 2/WG 2 members and Liaison organizations

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

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ISO/IEC JTC 1/SC 2/WG 2 **N5122**
2019-12-31

Title:	Unconfirmed minutes of WG 2 meeting 68 Microsoft Campus, Redmond, WA, USA; 2019-06-17/21
Source:	V.S. Umamaheswaran (bhanudorai@rogers.com), Recording Secretary Michel Suignard (michel@suignard.com), Convener
Action:	WG 2 members and Liaison organizations
Distribution:	ISO/IEC JTC 1/SC 2/WG 2 members and liaison organizations

1 Opening

Input document:

[5050](#) Agenda for the 68th Meeting of SC2/WG2, Redmond, WA, USA. 2019-June 17~21; Michel Suignard, Convener; 2019-05-18

Mr. Michel Suignard, the convener, opened the meeting at 11:55h on Monday 2019-06-17.
(Welcoming of the experts by the host, explanation of logistics and meeting facilities, and introduction by the attending experts, were done in the JTC 1/SC 2 plenary session that preceded the WG2 meeting in the morning of Monday 2019-06-17.)

Links to the documents in the agenda document are from [WG2 repository](#) 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](#) site, as needed.

1.1 Roll call

Input document

[5051](#) List of experts, post meeting #68, Redmond, WA USA (**protected**); V.S. Umamaheswaran, Secretary; 2019-09-17

A list of WG2 experts was circulated for reviewing and corrections. The updated list is posted as document [N5051](#). The following **38** experts accredited (or invited) by **10** national bodies and **3** liaison organizations were present at different times during the meeting.

Name	Accreditation	Affiliation
Asmus FREYTAG	.Guest	Unicode, Inc.
Qin LU	.IRG rapporteur	Hong Kong Polytechnic University
Shuichi TASHIRO	.SC 2 Chairman	Information-technology Promotion Agency
Ayuko NAGASAWA	.SC 2 Secretariat	IPSJ/ITSCJ
Lin Mei WEI	.TCA (Cat. C Liaison)	Chinese Foundation for Digitization Technology
Michel SUIGNARD	.WG2 Convener; USA	Unicode, Inc.
Alain LABONTÉ	Canada	Independent
Karljürgen FEUERHERM	Canada	Wilfrid Laurier University
V.S. (Uma) UMAMAHESWARAN	Canada	Independent
Bojun SUN	China	Institute of Ethnology and Anthropology
Chingju LAI	China	SIL International
Gang HAN	China	Wuxi ethnic, cultural and religious department
Jianchun LU	China	Weifang Beida Jade Bird Huaguang Imagesetter Systems Co., Ltd.
Lili HE	China	China Publishing Group Digital Media Co., Ltd.
Nashunwuritu	China	Inner Mongolia University
Xiaowen ZHOU	China	Beijing Normal University

Name	Accreditation	Affiliation
Yifei ZHANG	China	China Publishing Group Digital Media Co., Ltd.
Zhongxi PAN	China	Archives of Sandu Shui Ethnic Autonomous County
Zhuang CHEN	China	CESI
Jan KUČERA	Czech Republic	Charles University
Michael EVERSON	Ireland	Evertime
Tetsuji ORITA	Japan	IBM Japan
Toshiya SUZUKI	Japan	Hiroshima University
Wataru TAKAGI	Japan	Hitachi, Ltd.
Kyongsok KIM	Korea	Pusan National University
Wang Sung YANG	Korea	Hancom
Baatar ENKHDALAI	Mongolia	Communications and Information Technology Authority of Mongolia
Andrew WEST	UK	Independent
Hai LIANG	USA	Unicode, Inc.
Jiali SHENG	USA	Microsoft Corp.
Ken LUNDE	USA	Adobe, Inc.
Ken WHISTLER	USA	Unicode, Inc.
Lisa MOORE	USA	Unicode, Inc.
Roozbeh POURNADER	USA	WhatsApp, Inc.
Deborah ANDERSON	USA, UC Berkeley (Cat. C Liaison)	University of California, Berkeley
Peter CONSTABLE	USA, Unicode (Cat. A Liaison)	Microsoft Corp.
Lee COLLINS	Vietnam	Netflix, Inc.
Thanh Nhân NGÔ	Vietnam	NYU Linguistic String Project

Messrs. Ken Lunde, Liang Hai, Wataru Takagi, and Michel Suignard and Dr. Deborah Anderson volunteered to be on the drafting committee assisting Dr. Umamaheswaran, the recording secretary, in drafting the meeting recommendations.

2 Approval of the agenda

Input document:

[5050](#) Agenda for the 68th Meeting of SC2/WG2, Redmond, WA, USA. 2019-June 17~21; Michel Suignard, Convenor; 2019-05-18

Experts were reminded to identify any new contributions to the convener. The agenda will have updates as the meeting progresses.

Version 6 of the agenda document was posted to WG2 site and was reviewed.

- An update on Small Seal script is expected input from Ms. Lin Mei WEI (Selina) – and one related item may be deleted.
- Added document [N4749](#) agenda item on Symbols, at the request of Mr. Andrew West.

Mr. Michel Suignard: There was a general direction-related ad hoc on Shuishu. There are no specific recommendations or conclusions to present at this meeting. CJK matters will take some time to discuss. We will lose some time on Tuesday afternoon – due to a Social Event planned at Mr. Murray Sargent's place.

Mr. Chen Zhuang: I would like to get discussions on Mono Syllabic Lisu, Jianzi musical symbols, Oracle Bone and Bopomofo, by end of Wednesday. I prefer to get Mongolian discussions done by end of Tuesday.

The following ad hoc meetings are tentatively planned:

- Mongolian – in the afternoon on Monday.
- Latin char and Symbols – Tuesday or Wednesday.
- Vietnamese – Tuesday

An ad hoc on Sort standard 14651 will be held on Wednesday for about an hour, chaired by the project editor Mr. Alain LaBonté.

Disposition: Approved the agenda as updated. Updates to the agenda were posted to the WG2 website as the meeting progressed.

(Note: the item numbers in these minutes may not align with the agenda item numbers in document [N5050](#). 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 material 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 67

Input document:

[5020 Meeting #67 unconfirmed minutes, Action Items](#); V.S. Umamaheswaran, Secretary; 2019-01-11

Dr. Umamaheswaran: I have not received any comments on the circulated unconfirmed minutes so far. Please give me any feedback you may have before the end of this meeting.

Disposition: Adopted the minutes as presented. The convener is to send the adopted minutes for distribution to SC2.

4 Review action items from previous meeting

Input document:

[5020-AI Action Items from WG 2 meeting 67](#); V.S. Umamaheswaran; 2019-01-11

Dr. Umamaheswaran reviewed and updated the action items from the previous meetings. The tables below show the updated status for each item. Of the **48** action items that were reviewed, **10** items are carried forward, and **38** items are marked as either 'noted' or 'completed'.

4.1 Outstanding action items from meeting 60, Chiang Mai, Thailand, 2012-10-22/27

Item	Assigned to / action (reference resolutions in document N4254 , and unconfirmed minutes in document N4253 for meeting 60, with any corrections noted in the minutes of meeting 61 in document N4403).	Status
AI-60-10	Irish national body - Mr. Michael Everson	
a.	To get more information related to the status, its stability and other clarifications based on the discussions in the meeting on document N4323 - Mwangwego script. M61 through M68 -- in progress.	In progress.

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

Item	Assigned to / action (reference resolutions in document N4554 , and unconfirmed minutes in document N4553 for meeting 62, with any corrections noted in the minutes of meeting 63 in document N4603).	Status
AI-62-6	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
a.	To take note of section 2.1 in document N4544 on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M63 through M68 -- in progress.	In progress.

b.	With reference to N4543 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 M68 -- in progress.	In progress.
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4.3 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.	In progress.
AI-63-7	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson)	
	To take note of and act on the following items.	
a.	M63.15 (Khitan Large script): WG2 invites the authors of document N4631 to revise their proposal on the Khitan Large script taking into account the feedback summarized in the ad hoc report document N4642 , working with other experts interested in this script. M64 through M68 -- in progress.	In progress.
c.	M63.17 (Naxi Dongba script): WG2 invites the authors of document N4633 to revise their proposal on the Naxi Dongba script taking into account the feedback received at this meeting, working with other experts interested in this script. M64 through M68 -- in progress.	Completed. See document N4898 .

4.4 Outstanding action items from meeting 65, San Jose, CA, USA; 2016-09-26/30

Item	Assigned to / action (Reference recommendations in document N4772 , and unconfirmed minutes in document N4873 for meeting 65, with any corrections noted in the minutes of meeting 66 in document N4953).	Status
AI-65-6	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson)	
b.	<i>M65.13 (Primitive Scripts of South West China)</i> : WG2 invites the authors of document N4759 to revise their proposal on the Primitive Scripts of South West China taking into account the feedback received at this meeting, working with other experts interested in this script.	Completed. See documents N4856 and N4901 .

4.5 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 items.	
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 M68 -- in progress.	In progress.
d.	<i>M66.21 (Primitive Scripts of South West China)</i> : WG2 invites the authors of documents N4856 and N4901 , to revise their proposals on Muya, Namuz and Ersu scripts, taking into account the feedback received at this meeting, working with other experts interested in this script.	Completed. (Duplicated as M67-AI-67-8d.)

4.6 New 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 - this document you are reading).	Status
AI-67-1	Recording Secretary - Dr. V.S. UMaMaheswaran	
a.	To finalize the document N4954 containing the adopted meeting recommendations and send it to the convener as soon as possible.	Completed. Document N4954 .
b.	To finalize the document N5020 containing the unconfirmed meeting minutes and send it to the convener as soon as possible.	Completed. Document N5020 .

AI-67-2	Convener - Mr. Michel Suignard	
a.	To add relevant contributions carried forward from previous meetings to agenda of next meeting. (See list of documents under AI-67-9, item e below.)	Completed. Document N5050.
AI-67-3	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:	
a.	<i>M67.01 (Disposition of ballot comments of DAM-1 to 5th Edition):</i> WG2 recommends that SC2 accept the disposition of DAM-1 ballot comments in document N4952R. The following name changes are noted: 10F45 SOGDIAN PHONOGRAM SHIN to SOGDIAN INDEPENDENT SHIN 10D1D HANIFI ROHINGYA VOWEL MARK A to HANIFI ROHINGYA VOWEL A 10D1E HANIFI ROHINGYA VOWEL MARK I to HANIFI ROHINGYA VOWEL I 10D1F HANIFI ROHINGYA VOWEL MARK U to HANIFI ROHINGYA VOWEL U 10D20 HANIFI ROHINGYA VOWEL MARK E to HANIFI ROHINGYA VOWEL E 10D21 HANIFI ROHINGYA VOWEL MARK O to HANIFI ROHINGYA VOWEL O 10D23 HANIFI ROHINGYA NA KHANNA to HANIFI ROHINGYA NA KHONNA, and, 10F58 SOGDIAN PUNCTUATION CIRCLES WITH DOTS to SOGDIAN PUNCTUATION TWO CIRCLES WITH DOTS	
b.	<i>M67.02 (Progression of Amendment 1 to the 5th edition):</i> WG2 recommends that its project editor prepare the final text of Amendment 1 to the 5th edition of the standard, which will include the changes arising from recommendation M67.01 above, along with the final disposition of comments (document N4952R), and forward it to the SC2 secretariat for processing as an FDAM ballot. The draft code charts are in document N5005. The target starting date is modified to FDAM 1 2018-08.	Items a and b were completed. See documents N5005 SC2/N4632 and SC2/4651.
c.	<i>M67.04 (Disposition of ballot comments of PDAM-2.3 to 5th Edition):</i> WG2 recommends that SC2 accept the disposition of PDAM-2.3 ballot comments in document N4995. The following significant changes are noted: a. ELYMAIC block is moved from 10EC0..10EDF to 10FE0..10FFF b. Following 4 Wancho tone marks are added: 1E2EC WANCHO TONE TUP 1E2ED WANCHO TONE TUP MANG 1E2EE WANCHO TONE OKOI 1E2EF WANCHO TONE OKOI MANG c. Name of 2E4F MEDIEVAL CORNISH VERSE SEPARATOR is changed to CORNISH VERSE DIVIDER d. Several glyphs are changed (see list in document N4995), and e. Added cross reference to A723 and A725 for A7BD LATIN SMALL LETTER GLOTTAL I	
d.	<i>M67.05 (Additional changes to Amd.2 to 5th Edition):</i> WG2 recommends that SC2 accept the following name changes for following Egyptian Hieroglyph control characters (based on document N5001): 13432 EGYPTIAN HIEROGLYPH START AT TOP to EGYPTIAN HIEROGLYPH INSERT AT TOP START 13433 EGYPTIAN HIEROGLYPH START AT BOTTOM to EGYPTIAN HIEROGLYPH INSERT AT BOTTOM START 13434 EGYPTIAN HIEROGLYPH END AT TOP to EGYPTIAN HIEROGLYPH INSERT AT TOP END 13435 EGYPTIAN HIEROGLYPH END AT BOTTOM to EGYPTIAN HIEROGLYPH INSERT AT BOTTOM END The glyphs for Egyptian Hieroglyph Controls will be changed to accommodate smaller size acronyms within the glyphs.	
e.	<i>M67.06 (IVD registration):</i> WG2 recommends that SC2 accept to append to sub-clause 16.6.3 in the standard, a sentence like the following, to explain the purpose of IVD registration: The purpose of IVD registration is to provide a technical solution to represent ideograph variants that are considered unifiable and should not be encoded in CJK Unified Ideographs.	
f.	<i>M67.07 (Progression of Amendment 2):</i> WG2 recommends that its project editor prepares the final text of Amendment 2 to the 5th edition of the standard, which will include the changes	Items c to f were completed. See

	arising from recommendations M67.04 to M67.06 above, along with the final disposition of comments (document N4995), and forward it to the SC2 secretariat for processing as DAM-2. The draft code charts are in document N5000. The target starting dates are modified to DAM-2 2018-08, FDAM-2 2019-02.	documents SC2/N4633, N5029, N5030, SC2/N4656, and SC2/N4664.
g.	<i>M67.08 (Khitan Small Script)</i> : WG2 accepts the ad hoc report in document N5002 on Khitan Small Script (Block 18B00-18CFF in document N4982R). WG2 recommends that SC2 accept the repertoire for future encoding, with the following changes: <ul style="list-style-type: none"> a. The name of 18B00 KHITAN SMALL SCRIPT ITERATION MARK is changed to be algorithmic, to KHITAN SMALL SCRIPT CHARACTER-18B00. b. Add a new a script-specific format character, 16FE4 KHITAN SMALL SCRIPT FILLER, in the Ideographic Symbols and Punctuation block. 	
h.	<i>M67.09 (Dives Akuru script)</i> : WG2 recommends that SC2 accept the proposal to encode the Dives Akuru script in document N4929, in a new block named Dives Akuru 11900..1195F, and populate it with 72 characters with their names, code points and glyphs as shown in document N4982R.	
i.	<i>M67.10 (Gongche characters for Kunqu Opera)</i> : WG2 recommends that SC2 accept seven ideographs based on document N4967 for encoding in a new block 2A6E0..2A6FF named CJK Unified Ideographs Supplement and populate the first seven code points 2A6E0..2A6E6 with the proposed glyphs and with UTC as source for these ideographs.	
j.	<i>M67.11 (Moji-Joho-Kiban-Ideographs collection)</i> : WG2 recommends that SC2 accept adding a new collection #391: MOJI-JOHO-KIBAN-IDEOGRAPHS 2018 to the standard (based on document N4955), with a note that this collection should be used instead of the current collection # 390.	
k.	<i>M67.12 (New K6 source KS X 1027-5:2014)</i> : WG2 recommends that SC2 accept adding new K6 source corresponding to KS X 1027-5:2014, and corresponding Ideograph glyphs and source code points for 152 CJK Unified Ideographs as proposed in document N4968 in the standard.	
l.	<i>M67.13 (K1-6B6B as source for code point 8C6C)</i> : WG2 recommends that SC2 accept changing the glyph for source K1-6B6B to the correct form as reflected by the other horizontal variants for this ideograph at code point 8C6C in the standard.	
m.	<i>M67.14 (New T source)</i> : WG2 recommends that SC2 accept adding 23 new T-sources for Chemical terminology, with corresponding glyphs and code points, as proposed in the table starting on page 3 of document N4974 to the standard.	
n.	<i>M67.15 (New G-source)</i> : WG2 recommends that SC2 accept 14 additional ideograph glyphs with corresponding GCE and GGFZ sources, as proposed in document N4987, and replace UCI-00942 with source reference G9: 96389B35, in the standard.	
o.	<i>M67.16 (Corrections to G-source glyphs)</i> : WG2 recommends that SC2 accept the 11 glyph corrections to G-source ideographs in document N4988.	
p.	<i>M67.17 (Emoji additions)</i> : WG2 recommends that SC2 accept the following 63 (60 from document N4960 and 3 moved from PDAM 2.2) characters for future encoding with their glyphs as shown in document N4982R: <ul style="list-style-type: none"> 1F6D5 HINDU TEMPLE; 1F6FA AUTO RICKSHAW; 1F7E0 LARGE ORANGE CIRCLE; 1F7E1 LARGE YELLOW CIRCLE; 1F7E2 LARGE GREEN CIRCLE; 1F7E3 LARGE PURPLE CIRCLE; 1F7E4 LARGE BROWN CIRCLE; 1F7E5 LARGE RED SQUARE; 1F7E6 LARGE BLUE SQUARE; 1F7E7 LARGE ORANGE SQUARE; 1F7E8 LARGE YELLOW SQUARE; 1F7E9 LARGE GREEN SQUARE; 1F7EA LARGE PURPLE SQUARE; 1F7EB LARGE BROWN SQUARE; 1F90D WHITE HEART; 1F90E BROWN HEART; 1F90F PINCH; 1F93F DIVING MASK; 1F971 YAWNING FACE; 1F979 TROLL; 1F97B SARI; 1F9A3 MAMMOTH; 1F9A4 DODO; 1F9A5 SLOTH; 1F9A6 OTTER; 1F9A7 ORANGUTAN; 1F9A8 SKUNK; 1F9A9 FLAMINGO; 1F9AA OYSTER; 1F9AE GUIDE DOG; 1F9AF PROBING CANE; 1F9BA SERVICE ANIMAL VEST; 1F9BB EAR WITH HEARING AID; 1F9BC MOTORIZED WHEELCHAIR; 1F9BD MANUAL WHEELCHAIR; 1F9BE MECHANICAL ARM; 1F9BF MECHANICAL LEG; 1F9C3 BEVERAGE BOX; 1F9C4 GARLIC; 1F9C5 ONION; 1F9C6 FALAFEL; 1F9C7 	

	<p>WAFFLE; 1F9C8 BUTTER; 1F9C9 MATE DRINK; 1F9CA ICE CUBE; 1F9CD STANDING PERSON; 1F9CE KNEELING PERSON; 1FA70 BALLET SHOES; 1FA71 ONE-PIECE SWIMSUIT; 1FA72 BRIEFS; 1FA73 SHORTS; 1FA78 BLOOD DROP; 1FA79 ADHESIVE BANDAGE; 1FA7A STETHOSCOPE; 1FA80 YO-YO TOY; 1FA81 KITE; 1FA82 PARACHUTE; 1FA90 RINGED PLANET; 1FA91 CHAIR; 1FA92 RAZOR; 1FA93 AXE; 1FA94 DIYA LAMP; 1FA95 BANJO.</p>	
q.	<p>M67.18 (CJK Ext-G): WG2 recommends that SC2 accept encoding of 4938 CJK Unified Ideographs in a new block 30000..3134F named CJK Unified Ideograph Extension G, and populate it with their glyphs and sources as shown in document N4982R.</p>	
r.	<p>M67.19 (Miscellaneous additions): WG2 recommends that SC2 accept the following additional characters with their glyphs as shown in document N4982R for future encoding in the standard:</p> <ul style="list-style-type: none"> a. 111CE SHARADA VOWEL SIGN PRISHTHAMATRA E b. 111CF SHARADA SIGN INVERTED CANDRABINDU c. 11460 NEWA SIGN JIHVAMULIYA 11461 NEWA SIGN UPADHMANIYA d. 1145A NEWA DOUBLE COMMA e. Following six circled characters: 1F10D CIRCLED ZERO WITH SLASH 1F10E CIRCLED COUNTERCLOCKWISE ARROW 1F10F CIRCLED DOLLAR SIGN WITH OVERLAID BACKSLASH 1F16D CIRCLED CC 1F16E CIRCLED C WITH OVERLAID BACKSLASH 1F16F CIRCLED HUMAN FIGURE f. 11A48 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER LA 11A49 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER SA g. Following seven Tangut Component characters: 18AF3 TANGUT COMPONENT-756 18AF4 TANGUT COMPONENT-757 18AF5 TANGUT COMPONENT-758 18AF6 TANGUT COMPONENT-759 18AF7 TANGUT COMPONENT-760 18AF8 TANGUT COMPONENT-761 18AF9 TANGUT COMPONENT-762 h. 08BE ARABIC LETTER PEH WITH SMALL V 08BF ARABIC LETTER TEH WITH SMALL V 08C0 ARABIC LETTER TTEH WITH SMALL V 08C1 ARABIC LETTER TCHEH WITH SMALL V 08C2 ARABIC LETTER KEHEH WITH SMALL V i. 08C3 ARABIC LETTER GHAIN WITH THREE DOTS ABOVE 08C4 ARABIC LETTER AFRICAN QAF WITH THREE DOTS ABOVE j. 0D81 SINHALA SIGN CANDRABINDU k. 0D04 MALAYALAM LETTER VEDIC ANUSVARA l. 31BB BOPOMOFO FINAL LETTER G m. Add following ten characters to Latin Extended-D block to support Medieval Cornish: A7D0 LATIN SMALL LETTER A WITH OVERCURL A7D1 LATIN SMALL LETTER E WITH OVERCURL A7D2 LATIN SMALL LETTER I WITH OVERCURL A7D3 LATIN SMALL LETTER M WITH OVERCURL A7D4 LATIN SMALL LETTER N WITH OVERCURL A7D5 LATIN SMALL LETTER R WITH OVERCURL A7D6 LATIN SMALL LETTER S WITH OVERCURL A7D7 LATIN SMALL LETTER T WITH OVERCURL A7D8 LATIN SMALL LETTER U WITH OVERCURL A7D9 LATIN SMALL LETTER Y WITH OVERCURL n. Add following five counting rod numerals (moved out from PDAM 2.2): 1D379 SOUTHERN SONG COUNTING ROD UNIT DIGIT FOUR 	

	<p>1D37A SOUTHERN SONG COUNTING ROD UNIT DIGIT FIVE 1D37B SOUTHERN SONG COUNTING ROD UNIT DIGIT NINE 1D37C SOUTHERN SONG COUNTING ROD TENS DIGIT FIVE 1D37D SOUTHERN SONG COUNTING ROD TENS DIGIT NINE</p> <p>o. A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE</p>	
s.	<p><i>M67.20 (next Edition)</i></p> <p>a. WG2 recommends that SC2 create a new project proposal for the next edition of the standard.</p> <p>b. WG2 recommends that its project editor prepare the text for the next edition of the standard based on contents till end of Amendment 2 to the 5th edition and additions from resolutions M67.08 to M67.19 above, and, submit the text for a CD ballot – with the following target dates for starting the ballots: CD 2018-09; CD-2 2019-01; DIS 2019-07.</p>	
t.	<p><i>M67.21 (Consideration for next edition):</i> WG2 recommends that the project editor adopt the proposed changes from page 3 in document N4991, for the next edition to the organization and referencing of the various data files.</p>	
u.	<p><i>M67.22 (Cypro-Minoan script):</i> WG2 recommends that SC2 accept the proposal on the Cypro-Minoan script in document N4733, as a potential candidate for future encoding, in a new block named Cypro-Minoan in a new block 12700..1278F, and populate it with 140 characters with their names, code points and glyphs based on document N4733.</p>	
v.	<p><i>M67.23 (Code point for Square Japanese New Era Name):</i> WG2 recommends that SC2 accept the request for future encoding of the new Japanese Era name at code point 32FF, pending availability of its name and glyph.</p>	
w.	<p><i>M67.24 (Additions to CD 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:</p> <ul style="list-style-type: none"> • Cypro-Minoan script • New Japanese Era name character 	<p>Items g to w were completed. The CD has gone through two rounds of ballots, with adjustments to repertoire by project editor, as needed. See documents SC2/N4629, N5006, N5021, N5032, SC2/N4635 and N5066.</p>
AI-67-4	<p>IRG Rapporteur and IRG Editor (Dr. Lu Qin)</p> <p>To take note of and act upon the following items:</p>	
a.	<p><i>M67.31 (Future meetings):</i> WG2 endorses the following schedule for future meetings: IRG #52 Hong Kong SAR, China, 2019-05-13/17 IRG #53 China(Tentative), 2019-10-21/25, (location TBD)</p>	Noted.
AI-67-5	<p>Ad hoc group on roadmap (Dr. Umamaheswaran)</p>	
a.	<p>To update the Roadmaps with the results from this meeting.</p>	Completed. See latest roadmaps .
AI-67-6	<p>Experts from Japan (Mr. Wataru Takagi)</p>	
a.	<p><i>M67.30 (IRG Process):</i> WG2 recommends that SC2 welcome the input from Japanese national body on improving the working of IRG (in document N4948), and invites the Japanese national body to take into consideration the feedback from the discussion in WG2. M68 in progress.</p>	In progress.
AI-67-7	<p>BIS (K. Manikandan), Experts on Assamese from India and elsewhere.</p>	
a.	<p><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:</p> <ol style="list-style-type: none"> a. Add Assamese character names in the nameslist as annotations, b. Change the block header from Bengali to Bengali-Assamese, and, c. Prepare a revised contribution on new characters to be added. 	In progress.

	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 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.	
a.	<i>M67.27 (Mongolian)</i> : WG2 recommends that SC2 notes the progress made by the Mongolian experts in documents N4989 and N4998, and invites the Chinese national body, working with Mongolian experts, to prepare and submit to WG2, a separate document containing only the proposed additions with rationale and phonetic information.	Completed. See documents N5061, N5062, N5073, N5091 https://unicode.org/wg2/docs/n5091-19211-pd-utr54-draft.pdf and N5093.
b.	<i>M67.28 (Small Seal script)</i> : WG2 recommends that SC2 note the progress made by the experts in document N4973, and encourages the experts to continue the work towards a contribution for encoding the script, taking into account the feedback documents and discussion at this meeting. WG2 notes that another ad hoc meeting of experts is planned by TCA in November 2018 in Taipei (tentatively), and invites all the interested experts to take note towards planning to attend the meeting.	Completed. See document N5089.
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 in progress.	In progress.
d.	<i>M66.21 (Primitive Scripts of South West China)</i> : WG2 invites the authors of documents N4856 and N4901, to revise their proposals on Muya, Namuz and Ersu scripts, taking into account the feedback received at this meeting, working with other experts interested in this script. M68 in progress.	In progress.
AI-67-9	Experts from all national bodies and liaison organizations	
	To take note of and provide feedback on the following items.	
a.	<i>M67.31 (Future meetings)</i> : WG2 endorses the following schedule for future meetings: WG2 Meeting 68 - 2019-06-17/21, Redmond, WA, USA WG2 Meeting 69 – Need Host, Tentative: 2020-06-15/19; (backup Dundee, Scotland, UK) IRG #52 Hong Kong SAR, China, 2019-05-13/17 IRG #53 China(Tentative), 2019-10-21/25, (location TBD)	Noted.
b.	<i>M67.29 (Emoji Ad hoc)</i> : WG2 recommends that SC2 take note of the report from WG2 Emoji ad hoc meeting in document N5003 on improved interworking between WG2 and the Unicode Consortium.	Noted.
c.	<i>M67.03 (Additions in Amendment 2 to 5th edition since meeting 66)</i> : WG2 notes that document N4922 lists 6622 character additions in Amendment 2, in the amendment text that was prepared and sent for PDAM 2.2 ballot after M66. Based on disposition of PDAM 2.2 ballot comments in document N4940, document N4941 lists 605 character additions in the resulting amendment text sent for PDAM 2.3 ballot.	Noted.
d.	To provide feedback on document N4979 containing the latest IRG Principles and Procedures to IRG convener.	Noted.
e.	Following items are carried forward from earlier meetings - filtered at meeting 67: Scripts, new blocks or large collections (awaiting updated proposals from the authors): Afáka (N4292), Bagam (N4293), Balti 'B' (N4016), Balti scripts (N3842), Bima (L2/16-119), Brusha (L2/17-183), Buginese extensions (L2/16-159), Chinese Chess Symbols (N3910), Chorasmian (L2/18-164), Cypro-Minoan (N4733), Diwani Siyaq Numbers (N4122), Eebee Hmong (N4668), Egyptian Hieroglyphs Extension (N4751), Garay (N4709), Jurchen (N4795), Kawi	Noted.

	<p>(N4266), Kerinci (L2/16-074), Khambu Rai (N4018), Khatt-i Baburi (N4130), Khotanese (L2/15-022), Kpelle (N3762), Kulitan (L2/15-232), Lampung (L2/16-073), Landa (N3768), Leke (N4438, 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 (N4687), Palaeohispanic (L2/18-030), Pau Cin Hau Syllabary (L2/16-014), Persian Siyaq (N4125), Proto-Cuneiform (N4760), Pungchen (L2/17-181), Pyu (N3874), Ranjana (N4515), Shuowen Small Seal (N4688 N4853), Southwest China Hieroglyphs (N4856, N4901), Sumbawa (L2/16-096), Tigalari (L2/17-378), Tocharian (L2/15-236), Tolong Siki (N3811), Vexillology symbols (L2/17-089), Vithkuqi (N4854), Western Cham (N4734), Woleai (N4146), and Zou (N4044).</p>	
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5 JTC1 and ITTF matters:

5.1 Notice of Publication: ISO/IEC 10646:2017, Amendment 1

Input document:

[SC2/4651](#) Notice of Publication: ISO/IEC 10646:2017/Amd 1:2019; SC2 Secretariat; 2019-02-05

The above document is for WG2 experts' information. There was no discussion.

6 SC2 matters:

Input documents:

[SC2/N4632](#) Text for ISO/IEC 10646 (Ed.5)/FDAM 1, Information technology -- Universal Coded Character Set (UCS) -- Amendment 1; SC2 Secretariat; 2018-08-20

[SC2/N4633](#) Text for ISO/IEC 10646 (Ed.5)/DAM 2, Information technology -- Universal Coded Character Set (UCS) -- Amendment 2; SC2 Secretariat; 2018-08-20

[SC2/N4647](#); Summary of Voting on ISO/IEC 10646 (Ed.5)/DAM 2, Information technology -- Universal Coded Character Set (UCS) -- Amendment 2; SC2 Secretariat; 2019-01-18

[SC2/N4664](#) Result of Voting on ISO/IEC 10646 (Ed.5)/FDAM 2, Information technology -- Universal Coded Character Set (UCS) -- Amendment 2; SC2 Secretariat; 2019-05-14

[5000](#) DAM2 additional repertoire - code charts; Michel Suignard, Project editor; 2018-06-21

[5005](#) FDAM1 additional repertoire - code charts; Michel Suignard, Project editor; 2018-06-23

[5029](#) Disposition of comments on DAM2 to ISO/IEC 10646 5th edition; Michel Suignard, Project editor; 2019-01-29

[5030](#) FDAM2 additional repertoire - code charts; Michel Suignard, Project editor; 2019-01-29

The above documents are the record of progress of work on Amendments 1 and 2 to 10646 5th edition, since the last WG2 meeting. Both Amendments 1 and 2 to the 5th edition of ISO 10646 have passed their final ballots. These documents are for WG2 experts' information.

Mr. Michel Suignard: The new Japanese era REIWA was not accommodated in Amendment 2, since no technical change (adding a new character) is allowed at FDAM stage, even though Japanese member body had requested its addition as their comment on the FDAM 2 ballot. SC2 had reserved the code point 32FF for it. The ideograph for the new era was finalized only after FDAM2 ballot was issued.

7 WG2 matters:

Input documents:

[5006](#) CD 10646 6th Edition additional repertoire - code charts, [original](#); Michel Suignard, Project editor; 2018-08-16

[SC2/N4635](#) ISO/IEC CD 10646 (Ed.6), Information technology -- Universal Coded Character Set (UCS); SC2 Secretariat; 2018-09-19

[SC2/N4646](#) Summary of Voting on ISO/IEC CD 10646 (Ed.6) - SC 2 N 4635, Information technology -- Universal Coded Character Set (UCS); SC2 Secretariat; 2018-12-25

[SC2/N4654](#) ISO/IEC CD 10646.2 (Ed.6), Information technology -- Universal Coded Character Set (UCS); SC2 Secretariat; 2019-02-12

[5021](#) CD 10646 6th Edition, Draft disposition of comments; Michel Suignard, Project editor; 2019-01-29

[5021R](#) CD 10646 6th Edition, Final disposition of comments; Michel Suignard, Project editor; 2019-01-29

[5032](#) Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.2; Michel Suignard, Project editor; 2019-02-05

The above documents are the record of progress of work on 10646 6th edition, since the last WG2 meeting. They are for WG2 experts' information. The ballot comments received on CD.2 ballot of 10646 6th edition are addressed (below) at this meeting.

7.1 Summary of voting on 10646 6th Edition (CD.2)

Input documents:

[SC2/N4660](#) Summary of Voting on ISO/IEC CD 10646.2 (Ed.6) - SC 2 N 4654, Information technology -- Universal Coded Character Set (UCS); SC2 Secretariat; 2019-05-07

[SC2/N4661](#) Late comments on ISO/IEC CD 10646.2 (Ed.6) - SC 2 N 4654, Information technology -- Universal Coded Character Set (UCS); SC2 Secretariat; 2019-05-08

Of the 24 member bodies who had responded, there were 11 abstentions, 9 approvals without comments, 2 approvals with comments (China and France), 2 disapprovals (Japan and United States). Additionally, there was a late response from Ireland with a change in its response to disapproval.

7.2 Disposition of comments on 10646 6th Edition (CD.2)

Input documents:

- 4907 Proposal to add one combining character for medieval Cornish; Michael Everson et al; 2017-10-17
- 4945 Proposal to encode two additional Zanabazar Square letters, revised; Andrew West; 2018-06-21
- 4954 Meeting #67 recommendations; V.S. Umamaheswaran, Secretary; 2018-06-22
- 4988 Proposal on Updating 11 G glyphs of CJK Unified Ideographs; China NB; 2018-06-13
- 4991 Considerations concerning the publication of ISO/IEC 10646 6th Edition; Michel Suignard, Project editor; 2018-06-17
- 5013 Feedback on N4836 Proposal to add LATIN LETTER THORN WITH DIAGONAL STROKE; Peter Stokes, et al.; 2018-08-06
- 5058 Proposal for Emoji: TROLL; Andrew West, Michael Everson; 2019-05-04
- 5065 Corrections to UCS6CD2 (ISO/IEC CD.2 10646 6th edition, CJK Ext G); Chen Zhuang; 2019-05-24
- 5066 Draft disposition of comments on ISO/IEC CD.2 10646 6th edition; Michel Suignard, Project editor; 2019-06-06
- L2/17-442 Squirrel Emoji Submission; Andrew West; 2017-12-31

Output documents:

- 5106 Disposition of comments on ISO/IEC CD.2 10646 6th edition; Michel Suignard, Project editor; 2019-06-20
- 5100 Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.3, Draft; Michel Suignard, Project editor; 2019-06-15

Ballot comments received from China, France, Ireland, Japan and United States are addressed below. Negative comments from UK on an earlier CD ballot concerning CJK Extension G are also included below.

7.2.1 China – Approval with comments

T.1 Mongolian

China indicated that they may submit comments on the Mongolian block later.

Disposition: Noted. Discussion on Mongolian is part of ongoing work among Mongolian experts.

(See discussion in section 12.1 on page 44.)

7.2.2 France – Approval with comments

All the four comments from France were regarding the block 1D00-1D7F Phonetic Extensions, pointing out that the set of proposed capital and small letters are to complete a set of Latin letters, and would be useful for interface design purposes when markup is not easy to manage.

T.1 France requests adding the missing superscript capital letters for CFQ[̂]SXYZÆ[̂]Ĉ[̂]Ė[̂]Ě[̂]Ë[̂]Ï[̂]Î[̂]Û[̂]Û[̂]Ç.

T.2 France requests adding the missing superscript small capital letters for ABCDEFGHJKMOPQRSTUVWXYZÆ[̂]Ĉ[̂]Ė[̂]Ě[̂]Ë[̂]Ï[̂]Î[̂]Û[̂]Û[̂]Ç.

T.3 France requests adding the missing subscript minuscule letters for bcd_̂fgq_̂wyz.

T.4 France requests adding the missing subscript minuscule for q.

Mr. Michel Suignard: The requests from France are not following the process we use for proposing new characters with justification, using the proposal summary form. The rationale for not including the missing characters in the block are already mentioned as annotations for the block 1D00-1D7F block, and these annotations also apply for the 1D80-1DBF block, being a supplement of the former block. Also, the set of Latin letters is far larger than just the ASCII letters plus a few accented letters needed for French. Markup is the direction suggested for Latin, Greek or Cyrillic scripts (bicameral). Many of the superscript and subscript small letters are found in other blocks as well – such as 2070-209F Superscripts and Subscripts.

Disposition: Not accepted.

7.2.3 Ireland – Disapproval.

T.1 Ireland affirms its strong support for the encoding of 1DFA COMBINING OVERCURL.

The original justification (for inclusion in CD.2) is in document N4907. An additional use case has been found and is elaborated in the rationale provided with the request from Ireland.

The US comment TE.2 requests removal of 1DFA from the CD, along with its supporting arguments for the removal.

Mr. Michel Suignard: Ireland gives more details on why encoding the character as a combining mark is a good thing to do. The US position was to remove the combining mark or have pre-composed characters. The Ireland request was to add it back. The US comment is again to ask for pre-composed characters.

Discussion:

- a. Mr. Michael Everson: The proposed characters came originally from Cornish. Now I have found these in many other manuscripts also. (Examples were shown on the white board.). In London, for Cornish, it was the seven characters we had found. The palaeographic versions needed these as well. If these

were combining, I can count where each of these marks is used, how many etc. The argument against the combining mark was the difficulty for creating fonts, rendering etc. I have created a draft technical note on how the attachments of these marks can be done. These marks are used for abbreviations.

- b. Mr. Peter Constable: It has been a long-established principle that we do not provide encodings for different typographic forms. For the Cornish case, you have not demonstrated contrastive difference between uses of Overcurl versus uses of other marks. In the case of Middle English, it seems they are different.
- c. Mr. Michael Everson: Middle English also uses the various abbreviation marks. However, the Overcurl is not a glyph variant of another mark.
- d. Mr. Peter Constable: I have not heard an argument of contrastive difference between the Overcurl and another mark. If there is a case of use of k with Overcurl, the suggestion is to have atomic coding.
- e. Mr. Michael Everson: I have been using various palaeographic characters from the standard. I suggested the combining mark as being productive in case we find more combined versions.
- f. Dr. Ken Whistler: I am not convinced of the argument that these are needed in plain text. Ease of counting etc. are possible arguments. Palaeographers' use of these are just another markup convention. One would be better off by having another layer of text analysis for counting marked up characters rather than treating them as plain text. Typographical way of representing the text seems to be inappropriate.
- g. Mr. Michel Suignard: Are you in support of atomic characters?
- h. Dr. Ken Whistler: Each time we come up with a manuscript tradition, we may come across other ways of marking up. Trying to represent them as characters in plain text, I think, should not be the direction we should be taking.
- i. Mr. Michel Suignard: I need to know in which direction to go.
- j. Dr. Ken Whistler: The arguments you are hearing is of non-consensus. Personally I am not in favour of either combining mark or atomic characters.
- k. Mr. Andrew West: I think this is an edge case. My preference is to see the combining mark.
- l. Prof. Karljürgen Feuerherm: I see the arguments on both sides. I would like to understand Mr. Peter Constable's argument.
- m. Mr. Peter Constable: Visually, the various marked characters look different. Are these marks being used contrastively? The only argument seems to be for counting the different forms.
- n. Mr. Michel Suignard: I need a consensus position from the experts to resolve this.
- o. Dr. Ken Whistler: The suggestion is to leave it as it is. The US national body may still make ballot comments.

Disposition: Keep the encoding of 1DFA COMBINING OVERCURL as is.

T.2 Ireland affirms its strong support for the encoding of A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE and A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE. Ireland has provided a detailed rationale as to why these characters are not the same as the corresponding characters with a horizontal stroke (that are encoded in the standard to support the Nordicist notations).

The US comment TE.1 requests removal of A7C0 and A7C1 from the CD, along with its supporting arguments for the removal, and a reference to supporting document [N5013](#).

Mr. Michel Suignard: These characters have also been argued between experts.

Discussion:

- a. Mr. Andrew West: These characters are used in English editions in Old and Middle English. As an expert from UK, the national body is interested in getting these in. If the character with horizontal stroke was not encoded, the argument would not be made on the new characters. Contrastive use of these have been asked for. The horizontal stroke form is in Nordic texts whereas the diagonal strokes are in English texts. If these have to be shown together in the plain text, that will be the contrastive use case.
- b. Mr. Peter Constable: You said that one is used in British isle and another one in Nordic countries. That would not be the case of contrastive use.
- c. Mr. Andrew West: Medievalist use one font for both English and Nordic texts. They are using the PUA, and not some OpenType feature.

- d. Mr. Michael Everson: One of the user feedback was that they are using the PUA. The Nordic tradition has thorns with horizontal strokes one at the top and another at the bottom as a pair.
- e. Dr. Lee Collins: What is the difference between similar use cases of CJK ideographs?
- f. Mr. Michel Suignard: There was a suggestion that the glyph for the character with the horizontal stroke could be changed to one with diagonal stroke. Does that solve the issue? It is OK to have different fonts with glyph variants even in the same font.
- g. Mr. Andrew West: CJK has a long tradition of language-specific fonts. There is no such tradition for medieval scholars to use.
- h. Mr. Michael Everson: There are a number of other characters with horizontal and diagonal strokes in the standard already.
- i. Dr. Ken Whistler: I do not think that there is a demonstration that there are two characters from different traditions which are used for the same purpose. I do not think a case has been made that they are separate characters – they are separate glyphs. I am fine with changing the glyph to the predominant use. We can go there only if we make the stipulation that we are not changing the character, but changing only the glyph. If we get an argument later to encode the one with horizontal stroke then it will be moving the code point.
- j. Mr. Andrew West: Changing the glyph will be disruptive – but if that is the way the committee wants to go, then we can use that.
- k. Dr. Ken Whistler: If we change the glyph in CD.3 we may be able to resolve this.
- l. Mr. Michel Suignard: An annotation to indicate that another form also exists would also be needed.

Disposition: Partially accepted. Unify thorns with diagonal stroke with existing thorns at A764 and A765. Change the glyphs for currently encoded A764 and A765 to have diagonal strokes. Annotate these characters to indicate the existence of horizontal forms for the strokes for the glyphs.

T.3 Ireland affirms its strong support for the encoding of 1F9CC TROLL in order to complete the set of fantasy beings. It is inappropriate to unify the European Troll with existing 1F479 JAPANESE OGRE and 1F47A JAPANESE GOBLIN. Also the character was proposed to complete the set of fantasy beings, though it may find its use as an Emoji.

US comment TE.3 requests that this character be removed from the CD, since no formal proposal exists for this character.

Mr. Michel Suignard: There is a new Emoji proposal document [N5058](#) made by Mr. Michael Everson and Mr. Andrew West.

Discussion:

- a. Dr. Ken Lunde: The input document was received by the ESC (Emoji Subcommittee). It is in the queue for review by ESC.
- b. Mr. Andrew West: WG2 does not have any process related to Emoji. Only the UTC has a procedure and process to deal with Emoji. This could be problematic.

Disposition: Noted. Keep the character in CD. The US comment is not accepted.

T.4 With reference to [L2/17-442](#) Ireland reiterates its request for the encoding of 1F9AB SQUIRREL. It is inappropriate to unify the SQUIRREL with existing 1F43F CHIPMUNK character. Vendors are shipping glyphs of a hybrid of a squirrel and chipmunk.

Mr. Michel Suignard: There has been de facto unification among many symbols.

Discussion:

- a. Mr. Andrew West: I have a proposal and it should be in L2 register (it is document [L2/17-442](#)). I had proposals for three symbols and requested Mr. Rick McGowan to post it to UTC register.
- b. Dr. Ken Whistler: If Mr. Andrew West has sent in a proposal it would be sent to the Emoji Subcommittee.
- c. Ms. Lisa Moore: The symbol proposals and emoji proposals go through different processes in Unicode.
- d. Mr. Andrew West: I would invite WG2 experts to read the contribution and see if a case for disunification has been made.

Disposition: The case for SQUIRREL is still weak as current vendor implementation do not differentiate between the two forms. There is no formal proposal for this character addition. It will not be added to the CD at this time.

T.5 Ireland requests the removal of 3050C (UK-02790) from CJK Unified Ideographs Extension G, as it is unifiable with 22C3A. The rationale is also provided in the comment.

Disposition: Accepted – based on CJK Extension G discussion with IRG experts. UK-02790 will be a horizontal extension reference for 22C3A.

E1 Ireland recommends that the glyph for 20BF BITCOIN SIGN be replaced with a more generic shape. A rationale is provided.

Discussion:

- a. Ms. Lisa Moore: The UTC has requested feedback from Bitcoin users on the glyph to use.
- b. Mr. Michael Everson: We had normalized the Euro sign and trying to do the same with Bitcoin.
- c. Ms. Lisa Moore: We had to go and reverse the glyph for Georgian currency sign. We have to be careful.
- d. Mr. Michel Suignard: I agree – that it is not a general practice. It would be case by case.

Disposition: Accepted.

E2 Ireland remains convinced that the glyphs for the set of characters for Egyptian Hieroglyphs Format Controls must be revised to include the abbreviations. A rationale is provided.

Mr. Michel Suignard: These comments were also made in the previous CD ballot. There is no requirement that control characters should have the abbreviations within the glyphs. There are several which do not have them.

Dr. Ken Whistler: I prefer the glyphs proposed by the editor to be better.

Disposition: Not accepted.

E3 Ireland requests that the hatching for 1F7E0, 1F7E7, 1F4D9, 1F536, 1F538, and 1F9E1 be changed to the correct hatching used for the brighter orange. Ireland volunteers to provide the appropriate glyphs.

Disposition: Accepted in principle, pending receiving the appropriate fonts. The editor can make any necessary minor adjustments.

E4 Ireland requests that spelling of ‘color’ be changed to ‘colour’ pointing to several character names and text in the standard where it appears as ‘color’, for consistency, and to follow the SC2 policy of using Oxford spellings for English.

Mr. Michel Suignard: The SC2 policy applies only to the text of the standard, and that will be fixed. There is no such policy for the code charts, which is shared with the Unicode Standard’s charts.

Disposition: Partially accepted. It will be made consistent and corrected in the text portion of the standard.

E5 Ireland recommends that white outlined rather than black silhouettes, for a list of characters in the Supplemental Symbols and Pictographs block (listed in the comments along with the proposed glyphs), for consistency with other glyphs in the standard.

Mr. Michel Suignard: Same comment was made in the previous ballots, but no suitable fonts were received from Ireland. I agree that using white outline glyphs would be preferable for these characters.

Disposition: Accepted in principle, pending receiving appropriate font.

E6 Ireland believes that the glyphs for 1F9B8 SUPERHERO and 1F9B9 SUPERVILLAIN should be improved. A rationale and proposed alternative glyphs are included.

Mr. Michel Suignard: Same comment was made earlier also and were disposed of. While the glyphs could be improved it is not clear that the proposed glyphs are distinctive enough.

Disposition: Accepted in principle

E7 Ireland believes that the glyph for 1F9E7 RED GIFT ENVELOPE should have a closer vertical hatching as other red-coloured glyphs in the standard do.

Disposition: Accepted.

E8 Ireland continues to believe that the glyphs for the hair colour swatches for 1F9B0...1F9B3 should have the same structure as the EMOJI MODIFIER FITZPATRICK TYPE characters, which serve a similar function. Glyphs with and without wiggly box are suggested. These are components and are not meant to be used by themselves.

Mr. Michel Suignard: These are not modifier characters and should not have the wiggly box around them. There was an input from US experts that they can have a square frame around them. The glyphs can certainly be improved.

Disposition: Accepted in principle. The glyphs will be improved and will be inside dotted square boxes similar to control characters.

Based on the above dispositions, Ireland changed its vote to 'Approval'.

7.2.4 Japan – Disapproval.

TE.1 Japan requests to change the content of clause 2 Normative References back to the one in the previous edition; also to change the URL of documents other than Unicode Technical Reports throughout the documents back to the one starting from <http://standards.iso.org/iso-iec/10646/.....> Even though WG2 had made a recommendation (M67.21 in document N4954) towards the change, Japan points out that SC2 had NOT approved it at its last meeting. More rationale is provided.

See also US comments TE5, TE6, TE7, and TE8.

Mr. Michel Suignard: The concern raised by Japan is about how we do pointers to references and technical data files in the CD. It is still open as to how we do this. 10646 is clean in terms of references and attachments. There are several references to UTRs and sections of core specifications of Unicode Standard. Also links to data files such as Derived Age.txt. Collections is unique to 10646 at this time. If Unicode has a UTN or something equivalent on the Unicode side, we can refer to that as well. I have full control on the content of the various referenced files, without having to wait on ITTF to create new URLs for each data file. (Mr. Michel Suignard went over each item in clause 2 of the CD text.)

(Note: The CD for 6th edition was prepared based on some of the project editor's recommendation in document N4991 that was presented to WG2 meeting 67.)

Discussion:

- a. Mr. Peter Constable: It is not clear whether the objection was due to not having SC2 endorsement, or whether Japanese national body is considering it to be inappropriate. We could request SC2 to re-confirm or endorse with another SC2 resolution.
- b. Mr. Tetsuji Orita: We understand the editor has made the CD based on WG2 recommendation. However the balloted text should respect the SC2 resolutions. We made the comment that SC2 did not have a resolution accepting WG2 recommendation.
- c. Mr. Peter Constable: Was it something that was just missed? We can ensure this time the appropriate recommendation is made for SC2 endorsement.
- d. Ms. Ayuko Nagasawa: If there is any technical reason why it cannot be kept at the ISO site, it should be mentioned.
- e. Mr. Michel Suignard: I will seek SC2 endorsement of what we are doing now. If there is further negotiation needed with ITTF we can look at it.
- f. Mr. Peter Constable: What types of files are of concern to the secretariat?
- g. Ms. Ayuko Nagasawa: Only to the files that are attachments to the 6th ed.
- h. Dr. Ken Whistler: I am assuming what you mean by attachments are the DATA files that were attached to the CD. We can recommend to SC2 to endorse the current direction we are taking for CD.
- i. Mr. Wataru Takagi: For the CD level, the SC2 secretariat can manage it. At the DIS level the question of location of attachments will come up again.
- j. Dr. Shuichi Tashiro: I want to confirm that the electronic inserts (.txt files) are part of 10646.
- k. Mr. Michel Suignard: Currently clause 2 contains a list of references and electronic attachments. We need to find a clean way of documenting this in CD text.
- l. Dr. Ken Whistler: In addition to have the SC2 recommendation, we can separate the list of references as normative ones and as just electronic attachments.

Disposition: Partially accepted.

1. Move the list of links to the data files from the clause on Normative References to a new clause,
2. Work with ITTF to get an agreement between the Unicode Consortium and ITTF concerning the URL location of these resources.

TE.2 Japan requests to assign the Gongche characters into code points on the block for script and symbols, moving them from current assignments with CJK ideographs. A rationale is provided.

Mr. Michel Suignard: There was some controversy about whether the Gongche characters are CJK characters or not. If more CJK UNCs get accepted the Gongche characters may be moved again. We may resurrect the CJK Unified Ideographs Supplement, or move to end of CJK Extension B. The name 'Unified' was what we recommended in London WG2 meeting 67.

Discussion:

- a. Mr. Tetsuji Orita: I have no concern about them being CJK. But I do have concern about them being 'Unified'. The history of 'Unified' is that the unification rules are applied to them. These Gongche characters do not follow the unification rules – the question from the users' viewpoint is why these characters are classified as 'Unified'.
- b. Mr. Andrew West: There are lots of characters in CJK beyond just following the rules in Annex S. Gongche are not an extension.
- c. Dr. Toshiya Suzuki: In London we had agreed to call the block as CJK Unified. But Mr. Tetsuji Orita's concern is that the unification rules may not be the same as the Annex S rules. Do we need additional rules? Sorting the Gongche may be different.
- d. Mr. Michel Suignard: All the Gongche characters do have strokes, radicals etc.
- e. Dr. Lu Qin: You mentioned 'Unification'. Unification is concerned about minor differences being dealt with. In these cases, minor differences are separately coded. IRG did not have any objection to call these 'Unified', similar to many other characters that are in the CJK Unified collection.
- f. Mr. Tetsuji Orita: If another ideograph character is proposed with a different meaning, will that be unified with these?
- g. Dr. Lu Qin: It depends on the semantic / meaning of the character. It is similar to soldier and soil character etc. If we have additional rules, it will make it more complex.
- h. Dr. Ken Lunde: Regarding the suggestion for Meta data – the Unihan Database does have entries for such distinctions. The 'k_' definitions could be used for these characters.

Disposition: Not accepted. Name 'CJK Unified' stays. Based on other feedback, these are moved as addition to end of CJK Extension B – 2A6D6..2A6DD. (See more elaboration in the final disposition of comments document [N5106](#).)

TE.3 Japan points out that the glyph for 2278B has undergone changes a few times since the first edition of the standard and is confusing the users of the standard. Japan proposes that the history of changes should be clearly documented in the Annex P in order to avoid the confusion to the user.

Mr. Michel Suignard: Text for Annex P is still to be drafted. Other CJK discussion at this meeting may also affect it.

Disposition: Accepted. The 6th edition has the recommended glyph from document [N4988](#). An entry will be added in Annex P.

TE.4 Japan points out that source reference in G column for 3CFD, 5FF9, 809E, 891D and 21D4C have been changed following recommendation in document [N4988](#). The source reference is normative information and this change may cause the compatibility problem on the data transformation table with existing implementation. Japan requests In order to alert the user, this change history should be recorded in Annex P.

Mr. Michel Suignard: I prefer not to enter these in Annex P, which is mostly used for encoding peculiarities in CJK Extension B.

Dr. Ken Lunde: The changes make sense. They are providing better sources. Annex P may be an overkill, since these are not errors.

Disposition: Not Accepted.

Dr. Lu Qin: It is good that Japanese national body is pointing out the various errors in the sources. Instead of changing the glyphs, the change to the sources is the correct thing to do.

Mr. Tetsuji Orita: Japan's 'Disapproval' stays, because of disposition of our comments on Gongche.

7.2.5 United Kingdom – Negative comments from earlier CD.2

Ballot comments on CD.2 from UK concerning CJK Extension G are repeated below, because they were again addressed during discussion on CJK Extension G at IRG meeting #52 in Hong Kong, after the CD.2 disposition of comments.

TE.38 UK proposes to add UK-01969 (RS 140.9) between 30C5C (T13-3068) and 30C5D (KC-03602) in Extension G. A rationale has been provided.

Disposition: Accepted, based on IRG meeting #52 decisions. See more details in document [N5065](#).

TE.39 UK points out that there is some confusion over the glyph form of 30E21 (GZ-1231301) with an explanation on it. UK proposes not to change the glyph for 30E21, to correct 30E21 (GZ-1231301) RS to 157.8, and to reorder 30E21 (GZ-1231301) between 30E12 (GHR-73955.06) and 30E13 (UK-02121). Disposition: Not accepted. The change in glyph was reconfirmed at IRG meeting #52. See more details in document N5065.

TE.40 UK proposes the following corrections and reordering:

Correct the RS for 300C6 (KC-00229) to 9.16. Correct the RS for 3029A (KC-00729) to 32.12, and reorder 3029A (KC-00729) between 302A6 (GZ-4921103) and 302A7 (UTC-01219). Correct the RS for 30773 (KC-02200) to 85.19, and reorder 30773 (KC-02200) between 30774 (KC-05297) and 30775 (GHR-31928.04). Correct the RS for 3123C (KC-04718) to 196.13, and reorder 3123C (KC-04718) between 31240 (GHR-84968.22) and 31241 (GHR-84976.08).

Disposition: Accepted. IRG#52 editorial report (document N5065) confirmed these changes.

(See also discussion under agenda item 9.3.1 on page 24.)

7.2.6 United States – Disapproval.

TE.1 The US requests the removal of A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE and A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE, along with a rationale.

See also comment T.2 from Ireland.

Disposition: Accepted. See discussion and disposition under Ireland comment T.2 on page 14. Unified with existing thorns at A764 and A765 with glyph changes.

TE.2 The US requests the removal of 1DFA COMBINING OVERCURL along with a rationale.

See also comment T.1 from Ireland.

Disposition: Not accepted. See discussion and disposition under Ireland comment T.1 on page 13.

TE.3 The US requests the removal of 1F9CC TROLL, pointing out more rationale need to be provided.

See also comment T.3 from Ireland.

Disposition: Not accepted. See document N5058 for an Emoji proposal on TROLL. See discussion and disposition under Ireland comment T.3 on page 15.

TE.4 The US requests the removal of 11A48 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER LA and 11A49 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER SA, stating that no new evidence has been provided in the revised contribution document N4945, and additional rationale.

Discussion:

- a. Mr. Andrew West: The evidence for these characters is weak. I am still looking for more evidence.
- b. Mr. Liang Hai: We understand that sometimes these could be on the boundary. When a revised contribution comes back, you would need some guidelines for implementers on when to use these etc.

Disposition: Accepted. Remove 11A48 and 11A49. Await a revised proposal with more evidence.

TE.5 The US strongly supports WG2 recommendation M67.21 (in document N4954), and further requests inclusion of a number of references to files hosted on the Unicode website in Clause 2 of the standard.

See also comment TE.1 from Japan.

Mr. Michel Suignard: The current CD.2 text already has the list of references proposed by the US.

Disposition: Accepted in principle. See discussion and disposition of comment TE.1 from Japan on page 17.

TE.6 The US requests to replace the code charts and lists of character names in the standard with a link to a set of charts to be placed on the Unicode website.

See also comment TE.1 from Japan.

Mr. Michel Suignard: At this point, all I can do is to stick the whole set of charts of about 3000 pages into the standard. I do recognize that there are lots of benefits to keep them under Charts at the Unicode website, and provide different ways of accessing these via blocks, search against them etc.

Discussion:

- a. Mr. Peter Constable: As Unicode liaison expert, Unicode has expressed concerns about the posting of the charts with ISO copyright etc. Unicode may entertain something that is proposed here. It would be to access the charts with Unicode copyright either at Unicode site or at ISO site, or as a single pdf file. Or, ITTF can find their own means of producing the code charts.
- b. Dr. Toshiya Suzuki: You mentioned about managing a 3000 page code charts etc.

- c. Mr. Michel Suignard: There is a single file containing just the charts with no headers etc. The one for Unicode will have a Unicode copyright. The other one will be with ISO copyright. We are now faced with two files with identical content, possibly with slight differences due to synchronization issue, with two different copyright signs. It is better to have some agreement with ITTF to be able to use a single file for both ITTF and Unicode. We used to package the standard as a single .zip file before. Now ITTF has come back and asked for posting attachments on URLs etc.

Disposition: Not accepted. Await solving the concerns about data files before the issue about the charts is addressed.

TE.7 The US proposes to update the link to Allnames.txt file in Annex G.

See also comment TE.1 from Japan.

Disposition: Accepted in principle. See discussion and disposition of comment TE.1 from Japan on page 17.

TE.8 The US proposes to update the link to HanguSy.txt file in Annex R.

See also comment TE.1 from Japan.

Disposition: Accepted in principle. See discussion and disposition of comment TE.1 from Japan on page 17.

Based on the above dispositions, the US vote remains as 'Disapproval'.

Disposition: Finalize the disposition of comments document based on the above discussions. See output document [N5106](#).

Relevant recommendations:

M68.01 (Disposition of ballot comments of CD-2 to 6th Edition): WG2 recommends that SC2 accepts the disposition of ballot comments on CD-2 to 6th edition in document [N5106](#). The following significant changes are noted:

- a. Remove:
A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE, and
A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE.
Change the glyphs at A764 and A765 to have diagonal strokes instead of horizontal strokes.
- b. Remove 3050C (UK-02790) and add source reference UK-02790 to 22C3A.
- c. Move Gongche characters from 9FF0..9FF6 to 2A6D7..2A6DD (end of CJK Extension B).
- d. Add UK-01969 (RS 140.9) as new entry in CJK Extension G (new position is 30C5D).
- e. Remove
11A48 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER LA, and
11A49 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER SA.

M68.13 (Consideration for attachments and references in the next edition): WG2 recommends that the Project Editor create two separate clauses separating the lists of references in the standard: one with the list of data files that would have been attached to the standard, and the other a list of normative references to items common with the Unicode Standard. Further, WG2 recommends that the project editor adopt the proposed changes from CD.-2 disposition of comments for TE.1 from Japan, on page 11 in document [N5106](#). Also, WG2 requests that SC2 endorses this recommendation for preparation of the 6th edition of the standard.

7.3 Roadmap Snapshot

Dr. Umamaheswaran: The latest roadmaps as of 2019-06-17, posted at the [Roadmaps website](#) are BMP Version 12.0.0, SMP Version 12.0.1, SIP Version 12.0.0, TIP Version 12.0.0 and SSP Version 12.0.0. The hyperlinks point to the latest proposals in either the WG2 or Unicode document registers. If you have any feedback, you can send them to my attention.

7.4 Additional repertoire for CD.3 of ISO/IEC 10646:2019 (6th edition)

Input document:

[5100](#) Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.3, Draft; Michel Suignard, Project editor; 2019-06-15

Output document:

[5112](#) Full repertoire for ISO/IEC 10646:2019 (6th ed.) CD-3, Draft; Michel Suignard, Project editor; 2019-07-24

Document [N5100](#) shows the charts containing the repertoire of characters that were anticipated to be included in the 6th edition of the standard, prior to this meeting. It was prepared for information and use by WG2 experts as a reference document. All the characters accepted via recommendations at this meeting were incorporated into the final charts in document [N5112](#).

WG2 recommended a 3rd CD of the 6th edition be circulated for ballot reflecting the recommendations from this meeting. The CD.3 text could add any new requests which are not controversial. However, the DIS text will contain only stable and non-controversial items. *See review and adoption of recommendations from this meeting in section 16.1 on page 46.*

Relevant recommendation:

M68.14 (Progression of CD): WG2 recommends that the Project Editor prepare the final text of CD of the 6th edition of the standard, which will include the changes arising from recommendation M68.01 through M68.13 above, along with the final disposition of comments (document N5106<http://www.unicode.org/wg2/docs/n4952R-dam1DOC.pdf>), and forward it to the SC2 secretariat for processing as an CD-3 ballot. The draft code charts are in document N5100. The target starting dates are modified to CD-3 2019-08, DIS 2019-11, FDIS 2020-07.

8 IRG status and reports

8.1 IRG #51 and #52 Summary report

Input documents:

5014 IRG 51 Recommendation; IRG; 2018-10-26

5059 IRG Meeting #52 Recommendations and Action Items; IRG; 2019-05-17

5060 Summary Report of IRG #51 in Hanoi 2018-10-22~26 and IRG #52 in Hong Kong 2019-05-14~17; IRG; 2019-05-31

IRG N2345 Draft 2 IRG Principles and Procedures (IRG PnP) Version 11; IRG Rapporteur; 2019-04-29

Dr. Lu Qin presented the summary report in document N5060.

Item 1: Future meetings

IRG#53 Shenzhen, China 2019-10-21/25, approved in WG2#67 has already been approved by WG2 and SC2.

The next two meetings are as follows and need WG2 and SC2 approvals.

IRG#54 Los Gatos, CA, USA 2020-05-18/22 (Unicode/Netflix)

IRG#55 New Haven, CT, USA, 2020-10-19/23 (Yale University)

Disposition: Approved. *See relevant recommendation M68.21 on page 45.*

Item 2: Extension G work.

We reviewed CJK Extension G after IRG meeting #51. Japanese experts pointed out that the dates were in conflict since Extension G was in ballot. In IRG meeting #52 we discussed it and found that some minor corrections were needed.

See discussions on CJK Extension G in sections 7.2.5 on page 18 and 9.3.1 on page 24.

Item 3: IRG WS2017

Two rounds of review of WS2017 were done. Reviewing for version 4 before next IRG. It should be ready for review by WG experts.

Mr. Michel Suignard: The intent is to create a working draft based on WS 2017. It is not destined to put it into CD, to avoid some of the issues that we encountered in Extension G. IRG can proceed with the Working Draft without worrying about ballot cycles.

Item 4: IRG PnP is being revised for improving the quality of submission and encouraging IVS for ideograph variants. A revised PnP will be for next WG2 meeting.

Item 5: Annex S examples are quite small. More unification and non-unification examples will be proposed after IRG review. Mr. Henry Chen has setup an online system to aid the work by IRG editors, and he is improving it with input from users.

Mr. Michel Suignard: There are 10 of them coming from two separate documents.

Item 6: We reviewed updates for 2 source references and 9 glyphs from TCA. They have been submitted for WG2 processing.

See discussions under sections 10.4.1 on page 41 and 11.1 on page 43.

Item 7: Guidelines for Normalization of forms derived from historic documents is being done for ROK, TCA, and China glyphs.

Item 8: IRG emphasized variants should use IVS encodings for registration in IVD.

Item 9: Horizontal Extension from ROK, HKSARG, UTC, China and UK have been received. IRG accepted ROK and HKSARG requests. IRG requests WG2 to deal with these requests.

See discussions under sections 10.4.1 on page 41 and 11.1 on page 43.

Item 10: There were 5 T source disunification characters identified, to be dealt with in WG2.

See discussions under sections 10.4.1 on page 41 and 11.1 on page 43.

Item 11: IRG accepted 12 UNCs from China -- 1 simplified and 11 Traditional forms. TCA has to provide the relevant mapping information and TCA equivalents.

Mr. Michel Suignard: I do not have input from TCA. 2 glyphs to cover TCA are needed.

See discussions under sections 10.3.6.1 on page 37 and 10.4.1 on page 41.

Item 12: Jianzi notation was submitted to IRG. It was considered to be out of scope of IRG. IRG is ready to review if any input is required by WG2.

Mr. Michel Suignard: At some point in considering these characters, instead of creating lookalikes, we may need coordination with IRG on using radicals and unification etc.

Item 13: A Variant Database has been created by TCA. It will be added to IRG collection of references for use by IRG.

Item 14: Renaming of IRG. As convener we would like to be still under WG2 direction. We had a discussion on this in SC2.

Discussion:

- a. Mr. Peter Constable: 2018 edition of Directives does not have anything on how to call an ad hoc group. The ad hoc group shall be disbanded once the final report is submitted.
- b. Mr. Michel Suignard: Looks like we will receive interim reports from IRG to WG2.
- c. Ms. Ayuko Nagasawa: We need to re-establish the ad hoc group at each SC meeting.

Disposition: Name of the group will be Ideographic Research Group (IRG). It will be constituted as an ad hoc group reporting to WG2. It will be re-confirmed at every WG2 meeting.

Relevant recommendation:

M68.17 (IRG Name Change): WG2 recommends that SC2 change the name of IRG from 'Ideographic Rapporteur Group' to 'Ideographic Research Group', and make the IRG an ad hoc group reporting to WG2, continuing with its current mission of reviewing contributions on encoding of Unified Ideograph characters in support of East Asian languages, assisting WG2 in the continued development and maintenance of ISO/IEC 10646.

Item 15: There may be some implication from proposed combining marks for use by Vietnam Ideographs.

See discussions under sections 9.2.1 on page 23 and 10.4.1 on page 41.

Item 16: Reference numbers for G4K sources were not there. The list has been submitted to UCS editor.

Item 17: China source reference for about 3937 G characters has been proposed. A review is being done before forwarding to WG2. These were requested by Dr. Ken Lunde.

Item 18: An Errata report has also been submitted to the UCS editor.

See discussions under sections 10.4.1 on page 41 and 11.1 on page 43.

8.2 Japanese National Body comments on CJK repertoire review process

Input document:

[5097](#) Japanese National Body comments on CJK repertoire review process; Japan; 2019-06-12

Mr. Michel Suignard: This document was sent to SC2.

Mr. Tetsuji Orita: Thanks for adding this to WG2 agenda. It is regarding the process of reviewing Extension G by IRG. IRG sends repertoire to WG2. WG2 puts it in a ballot PDAM 2. IRG continued reviewing Extension G.

Feedback was sent to PDAM 2.2. IRG continued their review on Extension G and comments were fed into CD ballot.

IRG continued review of Extension G. Our concern is continued review of IRG even after submitting to ballot.

Discussion:

- a. Dr. Lu Qin: The schedule of IRG meeting and SC2 ballot cycles are not in synch. I agree that we have to coordinate the timing.
- b. Mr. Michel Suignard: There is nothing wrong in parallel processing. IRG continues to review between ballots. There is some restrictions of communication between ballots. We will do the ballots with IRG input with due care for the processing.
- c. Dr. Umamaheswaran: The restriction is on use of ISO provided tools / communication channels while a ballot is ongoing.
- d. Mr. Wataru Takagi: One cannot have communication through official channels provided by ISO.
- e. Mr. Peter Constable: Where is it stated as restriction? The clause from JTC1 directives JA 11 was pointed out by Ms. Ayuko Nagasawa. The directive applies only to documents under ballot.
- f. Dr. Lu Qin: I would like to know what 'Official Channel' means in the directives.
- g. Mr. Peter Constable: What is the concern if IRG continues discussing the document?
- h. Mr. Tetsuji Orita: If IRG finds some changes are needed it gets communicated to national body reps.

- i. Mr. Peter Constable: We are supposed to review the document under ballot. We may get different comments from experts during the review which goes as our response. JA11 does not say anything about IRG working reviewing their own documents. They are not reviewing the document under ballot.
- j. Mr. Michel Suignard: The restriction seems to be on any subset of the document under ballot, by any subgroup under jurisdiction of the SC.
- k. Dr. Umamaheswaran: I think we need a ruling from SC2 secretariat as to where the JA11 rules were broken.
- l. Ms. Ayuko Nagasawa: As long as the document under ballot is not discussed it seems no rules are broken.
- m. Dr. Umamaheswaran: I think secretariat should feedback to the Japanese national body that no rules were broken as per their interpretation of JA11 in document N5097.

9 Script contributions related to ballots:

9.1 Related to and incorporated into 10646 6th Edition CD

Input documents:

- 5009 Proposal to encode: SYMBOL FOR TYPE A ELECTRONICS (revised); Eduardo Marín Silva; 2018-08-03
- 5010 Proposal to encode the Chorasmian script in Unicode; Anshuman Pandey; 2018-07-26
- 5017 Future Additions to ISO/IEC 10646 (July and Sept. 2018); Unicode Consortium; 2018-09-20

The above proposals are for information for WG2 experts. They were incorporated in the 6th edition CD.

9.2 Related to and incorporated into 10646 6th Edition CD.2

Input documents:

- 4907 Proposal to add one combining character for medieval Cornish; Michael Everson et al; 2017-10-17
- 5008 Feedback on draft candidates for Emoji 12.0; Michael Everson; 2018-07-18
- 5012 Discussion of Glyph Error of Phags-pa Alternate YA; Andrew West; 2018-08-30
- 5015 Request to exchange source references for two K chars in ExtF: U+2EB7E and U+2EB89; SHIN Sanghyun, et al.; 2018-12-13
- 5016 Request to move character K6-1022 in Horizontal Extension of KS X 1027-5 from U+3EAC to U+248F2; SHIN Sanghyun, et al.; 2018-12-13
- 5017 Future Additions to ISO/IEC 10646 (July and Sept. 2018); Unicode Consortium; 2018-09-20
- 5018 Comments on SC2 N4635, CD Text of 10646 6th Edition; Peter Constable; 2018-10-20
- 5022 Proposal to encode ADLAM NASALIZATION MARK for ADLaM script; Abdoulaye Barry, et al.; 2018-09-17
- 5023 Proposal to encode ORIYA SIGN OVERLINE; Lorna Evans; 2019-01-01
- 5024 Proposal to encode SYLOTI NAGRI SIGN ALTERNATE HASANTA; Lorna Evans; 2019-01-12
- 5025 Proposal to encode LISU LETTER YHA; Lorna Evans, et al.; 2019-01-08
- 5027 Proposal for addition of mask work symbol; Ken Shirriff; 2019-01-28
- 5028 Proposal to add characters from legacy computers and teletext; Doug Ewell, et al.; 2019-01-04
- 5033 Future Additions to ISO/IEC 10646 (January 2019); Unicode Consortium; 2019-01-17

The above proposals are for information for WG2 experts. They were incorporated in the 6th edition CD.2.

9.2.1 Two Vietnamese Alternate Reading Marks

Input documents:

- 4915 Proposal to Encode Two Vietnamese Alternate Reading Marks; Lee Collins; 2017-11-06
- 5011 Comments on proposed Vietnamese Reading Marks; Andrew West, et al.; 2018-08-30
- 5026 Response to L2/18-281 (also WG2 N5011), Comments on proposed Vietnamese Reading Marks); Lee Collins; 2018-10-20

Dr. Lee Collins: Vietnamese, for writing their native language, usually wrote Chinese characters, sometimes semantically sometimes phonetically. They started adding diacritical marks to distinguish such. TCVN 5573 1993 had standardized these diacritical marks and were intended to be submitted to go into 10646. However they were not submitted mainly because of lack of resources. (Dr. Lee Collins went over the highlights of responses in document N5026 to the comments in document N5011.)

Dr. Thanh Nhân Ngô: When we digitize the documents from villages – there are so many characters with marks. Vietnamese Nôm varies with dialects, and is not standardized. There are about 200+ docs from villages using several of these marks. Vietnamese use tones – mostly used in the Northern part. In the Southern part, with the arrival of missionaries, diacritical marks were used for these tones. We will not be able to encode the flood of marks that may come to us in the future.

Dr. Lee Collins: The two proposed marks are diacritical marks. These are used with ideographs similar to use with Vietnamese characters. They are similar to IVS, in a way. These are needed by the primary user community in Vietnam.

Discussion:

- a. Mr. Michel Suignard: These characters are in CD.2. No comments were received on these characters in the CD.2 ballot. Are there any more comments?

- b. Dr. Lu Qin: The time was so short that IRG experts did not have time to consider and give comments. These marks are usually applied to any character with Ideographs. Are these only for some characters? Are there any more?
- c. Dr. Lee Collins: They can be used with any ideograph character. These two marks will cover 99% of use. They are alternative signs rather than tone marks – to indicate different ways of reading a character.
- d. Mr. Peter Constable: If there was an alternate proposal for atomic characters, it should be reviewed by IRG. Otherwise, it may not be necessary.
- e. Dr. Lu Qin: In my personal opinion, if these marks are considered as phonetic notation it would be of no concern to IRG.
- f. Mr. Michel Suignard: It seems there is consensus to leave them in CD.2. There were comments in previous round of CD, these marks were taken out and based on responses they were added back in CD.2. Considering that between meetings we do not have face to face and disposition of comments will be without such discussion.
- g. Mr. Peter Constable: You mentioned that these are in CD.2 and were no comments. The early concerns came from experts from UK. Any comments from Mr. Andrew West?
- h. Mr. Andrew West: The responses provided by our Cambodian experts are valuable. I cannot speak for my other experts from UK. Based on the response to our comments, as an individual expert, encoding them as marks is the right way to go. Use of such marks in China being different is sort of subjective. We do not have any killer arguments against encoding them.
- i. Ms. Lisa Moore: FYI, at the UTC, we accepted these two marks – for Version 13 to be released next year.
- j. Dr. Lee Collins: It is somewhat subjective whether these are diacritical marks or may be of other uses. Treating them as components would be not be acceptable to IRG.

Disposition: Keep them as they are in CD.2.

9.3 Related to 10646 6th Edition CD.2

9.3.1 CJK Extension G

Input documents:

[5046](#) ISO/IEC 10646 6th edition CJK matters; Michel Suignard, Project editor; 2019-05-11

[5065](#) Corrections to UCS6CD2 (ISO/IEC CD.2 10646 6th edition, CJK Ext G); Chen Zhuang; 2019-05-24

[5096](#) Change of 4 KR (K) glyphs in Ext. G (WS 2015); ROK; 2019-06-12

[5099](#) Feedback on WS2015 V6.1 code chart; Eiso Chan, et al.; 2019-02-18

Mr. Michel Suignard walked through document [N5065](#).

The net result was:

Addition of:

UK-01969 to Extension G.

WS2015-01638(GZ-4511301) Add back to Extension G, 154.15, G font need.

WS2015-02231(GZ-0722601) Add back to Extension G, 86.9, G font need.

Removal of two by unification. 3050C with 22C3A, 309C9 with 254CC.

3050C (UK-02790) To be unified to U+22C3A.

309C9(GZ-1861301) To be unified to U+254CC.

Source changes for some. Stroke count changes for some. Glyph changes for some.

UTC, UK and SAT – we need some convention to identify each of these sources.

U is used for UTC. S can be used for SAT.

Discussion:

- a. Mr. Andrew West: GB would be more confusing, since they may be used for Chinese sources. UK would suffice.
- b. Mr. Michel Suignard: I will be opening the gate potentially. I do not like to see more abbreviations for sources showing up suddenly.
- c. Dr. Lu Qin: S is used for Singapore? No - GS is used for Singapore.

The project editor has proposed way forward to deal with glyph differences for several.

Reference document [N5099](#) for details. Full replacement fonts were received from Korea and China. A careful review is requested by experts.

Disposition: Accept the changes.

Relevant recommendation:

M68.06 (CJK Extension G Updates): WG2 recommends that the Project Editor incorporate the additions, disunifications, source reference corrections, radical corrections and glyph corrections arising out of the review of CJK Extension G (30000..3134F) in CD-2 of the standard, summarized in document N5065. The following additions and deletions are to be noted:

Additions to CJK Ext-G:

UK-01969(30C5D), GZ-4511301(30DD9), GZ-0722601(307BF)

Deletions due to Unifications:

UK-02790(formerly at 3050C), GZ-1861301(formerly at 309C9)

(New CJK Extension G range is 30000..3134A.)

9.3.2 Feedback on new symbols as Counting Rod numbers

Input document:

5071 Feedback for adding new symbols as Counting Rod numbers (N5006); TAO Yang (CCR); 2019-06-07

Discussion:

- a. Mr. Chen Zhuang: I agree with the author of the document N5071.
- b. Mr. Michel Suignard: The suggestion is to keep this set pending further research. UK basically suggested the same. We can either keep these in the CD assuming it will be improved quickly or wait for future addition back to CD. It is currently in CD.2 and in the proposed draft for CD.3.
- c. Mr. Peter Constable: If the opinion is that these are valid, but more may come into the future, what would be the issue of keeping these currently and not wait for more.
- d. Mr. Chen Zhuang: There are more characters using counting rods, and they should be collected and could be unified with those.
- e. Mr. Peter Constable: Do you have any idea about the time line?
- f. Mr. Chen Zhuang: Possibly end of this year.
- g. Mr. Peter Constable: Sometimes such requests end up in being open-ended, and current users should not be kept waiting.
- h. Mr. Andrew West: As to users requesting them – the proposer was not a user, does not know Chinese etc. Once real experts look into these, there could be problem. There are no real users. There is no harm in holding off on these.
- i. Mr. Peter Constable: The US and possibly UTC may have no problem in holding back on these. My concern is that there have been other cases that were open ended and had made users wait.
- j. Mr. Michel Suignard: We have done going ahead with some idea about a set of characters, and leaving holes in the block etc. Not sure if it is the case here. I am fine with holding back on these for now, but it should not going into limbo.

Disposition: It is nice to have a feedback from experts in time. We can remove these from CD.3 for now.

Relevant recommendation:

M68.02 (Counting Rod Numerals): WG2 recommends that the Project Editor remove 5 Southern Song counting rods at 1D379..1D37D from the CD of 6th edition, based on the feedback in document N5071, pending a revised contribution.

10 Script contributions not related to ballots

10.1 Carried forward not related to ballots

10.1.1 Scripts and new blocks

Afáka (N4292), Bagam (N4293), Balti 'B' (N4016), Balti scripts (N3842), Bété (N4876), Bima (L2/16-119), Brusha (L2/17-183), Buginese extensions (L2/16-159), Chinese Chess Symbols (N3910), Cypro-Minoan (N4733), Diwani Siyaq Numbers (N4122), Eebee Hmong (N4668), Garay (N4709), Jurchen (N4795), Kawi (N4266), Kerinci (L2/16-074), Khambu Rai (N4018), Khatt-i Baburi (N4130), Khotanese (L2/15-022), Kpelle (N3762), Kulitan (L2/15-232), Lampung (L2/16-073), Landa (N3768), Leke (N4438, N4837), 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 (N4687), Palaeohispanic (L2/18-030), Pau Cin Hau Syllabary (L2/16-014), Persian Siyaq (N4125<http://std.dkuug.dk/JTC1/SC2/WG2/docs/n4125.pdf>), Proto-Cuneiform (N4760), Pungchen (L2/17-181), Pyu (N3874), Ranjana (N4515), Southwest China Hieroglyphs (N4856, N4901), Sumbawa (L2/16-096), Tigarari (L2/17-378), Tocharian (L2/15-236), Tolong Siki (N3811), Vexillology symbols (L2/17-089), Vithkuqi (N4854), Western Cham (N4734), Woleai (N4146), and Zou (N4044).

The above contributions are being carried forward, with references to a mix of WG2 and UTC documents. Most preliminary proposals usually have UTC numbers, whereas documents that were in progress or submitted to WG2 do have WG2 numbers. All the documents that are in progress in WG2 are in the [WG2 document register](#).

The following changes are needed in the above list of contributions:

Add missing Khitan Large ([N4631](#), [N4642](#)) to the above list. Update reference for Diwani Siyaq Numbers to ([L2/15-066R](#)). Egyptian Hieroglyphs Extension has now two parts. Egyptian Hieroglyphs Extended-A ([N5063](#)) (see agenda item 10.2.3 on page 28) and older document containing Egyptian Hieroglyphs Extended-B ([N4944](#)). Remove erroneous reference to document [N4837](#) for Leke script. Update the URL for document [N3288](#) to <https://www.unicode.org/wg2/docs/n3288.pdf> for Old Yi script. Split Palaeohispanic into Northern Palaeohispanic ([L2/19-332](#)) and Southern Palaeohispanic ([L2/19-333](#)). Update reference for Persian Siyaq to ([L2/15-112R](#)). Update reference for Proto-Cuneiform to ([N4797](#)). Add one more reference for Ranjana script to ([L2/16-015](#)). Update reference for Western Cham to ([N5098](#)). Correct the erroneous reference for Zou to ([N3864](#)).

10.2 New scripts or block

10.2.1 Lisu Monosyllabic Scripts

Input documents:

[5047](#) Proposal to Encode the Lisu Monosyllabic Scripts; Han Gang, et al, China NB; 2019-04-16

[5095](#) Comments on WG2 #68 documents; Deborah Anderson, et al; 2019-06-10

Ms. Lianjun Chun Introduced the document. Two other Lisu experts were also present.

Ms. Lianjun Chun: The scripts are used by more than 2 million Lisu people all over the world. Figures show manuscript samples. A table of 989 characters is shown starting on page 11. Appendix C shows another table.

Page 74 shows a text book.

Discussion:

- a. Dr. Toshiya Suzuki: The pdf document has some font related issues.
- b. Mr. Roozbeh Pournader: What is the title of the book? There are two versions of the book. Are these the same text, or one is a transcription of the other?
- c. Ms. Lianjun Chun: Second one is the original, the first one is copied from the first. They are material to teach the script.
- d. Mr. Roozbeh Pournader: Another question is about ordering. It seems to be based on the Latin pronunciations. This is not usually done for non-Latin scripts.
- e. Mr. Andrew West: It is very common for Chinese, ordering the information presented this way.
- f. Mr. Michel Suignard: We should not spend time on ordering at this time. This document does not relate to modern Lisu. It would be useful to show that too.
- g. Mr. Michael Everson: The right way to order these is by ordering them by the shapes. It would be possible to locate the character by shapes in a collection of 900+ characters.
- h. Mr. Andrew West: It would be a good idea to order by shapes, but not by radicals in a system which is not based on radicals.
- i. Mr. Peter Constable: It seems to be a repertoire that would be candidate for encoding. But at some point in time, we would need some ordering, such as reading order or some pedagogical ordering like what seems to be in the last few pages.
- j. Dr. Lu Qin: Regarding the ordering, the ordering is related to the Latinized version of Lisu. More information will be provided regarding ordering. Shape-based ordering is not appropriate for this script.
- k. Dr. Ken Lunde: If stroke order is used, there seems to be swapping of the strokes between rows 786 and 787 on page 61.
- l. Mr. Roozbeh Pournader: These would also need proposed names – possibly code point based. Some sorting order should be used for the chart. This script should not be delayed based on the ordering alone.
- m. Mr. Michel Suignard: The naming could be based on a catalog, like Tangut. We could also work on a reasonable sorting order.
- n. Dr. Thanh Nhãn Ngô: Regarding the Latin letters on page 79 for each row -- what are these?
- o. Mr. Michel Suignard: It is modern Lisu. We could use the mapping to modern Lisu also for sorting order. The table on page 72 could add a column showing modern Lisu.

- p. Mr. Peter Constable: For the table we may need a sources data file. A legend is needed to interpret the table. The project editor can provide guidance to the authors on the requirement. It is not clear if the stroke count is needed as part of the data file. Is it information just for the proposal or is it also needed in a data file corresponding to the table?
- q. Mr. Michel Suignard: For small sets, we do not ask for data files. We need some indication as to what would be included in the data file, along with how the various columnar data would be used.
- r. Mr. Peter Constable: Table starting on page 6 has some font issues.
- s. Dr. Lu Qin: There is a revised document that will be sent to the convener.
- t. Mr. Roozbeh Pournader: I have a comment on the name of the script. Monosyllabic is probably not the best use. Lisu Syllabary or Lisu Bamboo Script could be better names.
- u. Dr. Lu Qin: I prefer Lisu Syllabary.
- v. Mr. Andrew West: Lisu Syllables would be better name.
- w. Dr. Thanh Nhãn Ngô: If the teaching is based on stroke count, it should probably be the sorting order.
- x. Dr. Toshiya Suzuki: This script was created by a single person. Is the encoding for preserving the old literature? Could the character set be extended? Do you have Lisu publications?
- y. Dr. Lu Qin: It is not just historic. It is being used for teaching now. There are text books.
- z. Dr. Toshiya Suzuki: On page 30, character row 155 – there is some discussion about strokes etc. When you take typesetting, the number of strokes could be different. In a digitized fonts, the stroke count could be an issue?
- aa. Dr. Lu Qin: In the handwritten forms there are different shapes – they are normalized for teaching purposes.
- bb. Dr. Toshiya Suzuki: I would like the proposal to state that it is normalized – it is not for identification of the character.
- cc. Dr. Lu Qin: The teaching is based on phonetic order. The normalized forms are used.
- dd. Mr. Michel Suignard: We may not use the stroke count as sorting order – it is sort of unstable now. The document needs revision – fixing the glyphs, a legend on the data table, reference to modern Lisu, stroke count checking etc.
- ee. Mr. Peter Constable: I would like to have a section on ordering in the revised proposal.
- ff. Dr. Ken Lunde: For character 155 on page 87 in Row 5, first character is probably a better shape.
- gg. Dr. Lu Qin: The revised document could be available in about a month.

Disposition: The authors are invited to prepare a revised document incorporating feedback during the discussion. It could be a candidate for inclusion in CD.3 if a stable update is available in time.

Relevant recommendation:

M68.18 (Lisu Monosyllabic Script): 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.

10.2.2 Yezidi script

Input documents:

5053 Proposal for encoding the Yezidi script in the SMP; Andriy Rovenchak, et al.; 2019-03-11

5057 Future Additions to ISO/IEC 10646 (May 2019); Unicode Consortium; 2019-05-03

5100 Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD-3, Draft; Michel Suignard, Project editor; 2019-06-15

Dr. Deborah Anderson: This proposal came from Ukraine. It has gone through many reviews. Many questions have been sent to the authors and has been reviewed by the UTC script ad hoc. Item 6 in document N5057 also requests that this script be encoded.

Discussion:

- a. Mr. Roozbeh Pournader: This script has evolved into its own version of a minority script, like many other Arabic scripts. The document has some historical letters. These and few other characters are not proposed here.
- b. Mr. Michel Suignard: This script is already in the CD.3 draft.

Disposition: Accept for encoding. Add to CD.3.

Relevant recommendation:

M68.03 (Yezidi script): WG2 recommends that the Project Editor add the encoding of the Yezidi script proposed in document N5053, in a new block named Yezidi in the range 10E80..10EBF, and populate it with 47 characters at 10E80..10EA9, 10EAB..10EAD and 10EB0..10EB1, with their names and glyphs shown in document N5100.

10.2.3 Egyptian Hieroglyphs Extension, 1st and 2nd tranche

Input document:

[5063](#) Revised draft for the encoding of an extended Egyptian Hieroglyphs repertoire, 1st and 2nd tranche; Michel Suignard; 2019-05-21

Mr. Michel Suignard: This is still preliminary and nothing is expected at this meeting. I am working with SEI on it. It is an improved version from an earlier document. Part of it is a database – having sort of source references. Quite a few of these are in Egyptian and have been found on stone engravings. It is a cryptic writing system. We may be going with more characters than what we may need with several possibly ghost characters. It is a pretty large set. A spreadsheet at the end shows the sound – with possible multiple pronunciations depending on the context. There can be many sources, sometimes only one source. These have been done in tranches using Gardiner’s way of taxonomy. This document is a working document. Most of the characters are in a font. Several are still pictures. The script is historic. I would like to get some feedback on the proposal. At some point I may propose to include these in the standard. I can give you the context, feedback etc. if anyone wants it. To some extent the work is similar to work on CJK.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the author of document [N5063](#) on Egyptian Hieroglyphs Extension.

10.2.4 Tamga symbols

Input document:

[5092](#) Preliminary proposal to encode a set of 30 Tamga symbols; Andrew West, Viacheslav Zaytsev; 2019-06-06

Mr. Andrew West: This is a preliminary proposals for symbols called Tamga. Used in Mongolia in coins – needed by numismatic users. There is no consistency in the usage at this time. Would like to get consistent set of symbols to be used in catalogs for coins etc. We are still working with some Russian experts to get the list of characters to be more stable. Numerous source materials are shown in the document – use of the symbols in text etc. At this point it is still preliminary and we are requesting feedback from experts. We would probably get a revised proposal next year.

Discussion:

- a. Dr. Deborah Anderson: Symbol no. 5.20 on page 25 has the glyph missing.
- b. Mr. Andrew West: The explanation is shown – for not including a glyph.
- c. Mr. Peter Constable: I am looking for examples of use in modern texts. You said more examples may be coming, such as Figure 27 on page 36.
- d. Mr. Andrew West: There are others -- Figure 90 with Cyrillic, Figure 105 with Arabic text, Figure107 with English etc.
- e. Mr. Roozbeh Pournader: I have difficulty in figuring out which can be unified and not. The texts seem to be using specific shapes.
- f. Mr. Andrew West: Some of the text are slightly different – different orientations are used for the same symbol. We do not think rotated forms should be coded separately. It is difficult to select and choose what can be unified etc. Appearing in coins, the orientations can be all over depending on how you view the coin.
- g. Mr. Roozbeh Pournader: I do appreciate this thorough documentation of the issues.
- h. Dr. Lee Collins: I am trying to understand the scope of the proposal.
- i. Mr. Andrew West: We do not want to go into areas where we are not experts in – I and my co-author are limiting the proposal to the numismatic set.
- j. Mr. Roozbeh Pournader: There may be wider interest in the Mongolian symbols.
- k. Mr. Andrew West: Of course – we would like to get feedback.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the authors of document [N5092](#) on Tamga symbols.

10.2.5 Western Cham

Input documents:

[4734](#) Proposal to encode Western Cham in the SMP; SEI/Michael Everson, et al; 2016-06-13

[5098](#) Proposal to encode Western Cham; Martin Hosken; 2019-06-12

Dr. Deborah Anderson: Document N5098 is a revised proposal from an earlier document. Another group in Cambodia, other experts in UTC and the user community would like to get some more feedback.

Discussion:

- a. Mr. Michel Suignard: Mr. Martin Hosken has commented that this proposal could be expected to stabilize by next year.
- b. Mr. Peter Constable: For scripts involving complex shaping like these, we give some more time to experts for feedback.
- c. Mr. Roozbeh Pournader: There are also issues about unifications.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the authors of document N5098 on Western Cham script.

10.2.6 Oracle Bone script in 2020

Input document:

[5090](#) Re-propose the Oracle Bone encoding in 2020; TCA, China; 2019-06-13

Ms. Chingju Lai: The document N5090 is in English and Chinese. Shuowen Small Seal script is the final stage of development. That work is used as a reference to do further work on Oracle Bone script. The structure of Oracle Bone has not been fully finalized. It differs from the modern script.

Discussion:

- a. Mr. Michel Suignard: It is strange that work on Oracle Bone has been related to progression of Shuowen Seal script. The indexing part is stable as book reference. The encoding part of Shuowen Seal is probably not done.
- b. Mr. Peter Constable: What is the degree of stabilization of Shuowen Seal script that is needed to prepare a proposal on Oracle Bone script? You asked for a stable encoding of the Shuowen Seal script.
- c. Dr. Toshiya Suzuki: The relation between Oracle Bone and Shuowen Seal scripts may be that encoding Shuowen Seal could be able to progress Oracle Bone.
- d. Mr. Peter Constable: It was not clear to me that the Shuowen Seal script completion was needed for Oracle Bone script progression.
- e. Dr. Toshiya Suzuki: The relationship of cultural heritage is of no real relevance to work of WG2. We would like to know how many characters could be expected for Oracle Bone script.
- f. Ms. Lin Mei Wei: About 3600. Shuowen Seal script proposal is used as a reference.
- g. Mr. Michel Suignard: The document is not a proposal at this time. It is a statement that the work of Oracle Bone script will be based on further progress on Shuowen Seal script encoding. There is a way of referencing the Shuowen Seal script. Oracle Bone script is far from being a proposal at this time. We should welcome the idea and await a proposal on Oracle Bone script encoding. Nice to hear about the progression on this important aspect of Chinese Culture.

Disposition: Encourage continued work.

Relevant recommendation:

M68.20 (Oracle Bone Script): 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.

10.2.7 Shuowen Small Seal script

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

Output documents:

[5108](#) Report of Seal Script discussion at WG2 #68; Suzuki Toshiya; 2019-06-19

[5109](#) Logistic information on Small Seal meeting, Taipei, September; TCA; 2019-06-21

Dr. Toshiya Suzuki walked through the report from an ad hoc meeting in Beijing early this month. Highlighted some background info from Annex 6 of document. Results of work on Q1 to Q3 were explained. Ms. Lin Mei Wei described the results of work on Q5 to Q8.

See also document N5108 authored by Dr. Toshiya Suzuki for a summary of discussions at this WG2 meeting.

Discussion

- a. Mr. Michel Suignard: What would be the next step? I was expecting a document similar to what we do for CJK proposals. Are you going to include the additional sources into the proposal?
- b. Ms. Lisa Moore: Our Seals expert Richard Cook has expressed strong concern. The design should be based on multiple sources. As to the process, please keep us informed so that other experts can participate.
- c. Mr. Andrew West: We would like to get the documents ahead of time to review.
- d. Ms. Lin Mei Wei: We will do the first a set – and can include other versions later.
- e. Mr. Andrew West: You may have an idea as to the number of characters in different versions.
- f. Ms. Lin Mei Wei: We do not have an exact count at this time.
- g. Mr. Andrew West: We need to know how many – if they are small differences, they could be unified.
- h. Ms. Lin Mei Wei: There may be some 100 additional characters to consider from other versions. Some of these could be dealt with IVSs.
- i. Mr. Michel Suignard: I would expect that we would go for first publication with a single source and possibly later with identifying multiple source as horizontal extensions like in CJK, if they are unified. If they are not unifiable extensions they can be coded separately. The data set could be similar to CJK, Tangut etc.
- j. Ms. Lin Mei Wei: An ad hoc meeting is planned for end of September or early October to produce the charts. Please include the ad hoc meeting in Oct 2019 hosted by TCA in Taiwan in a recommendation.
- k. Dr. Toshiya Suzuki: We can also request UTC to provide a repository of documents and meeting schedules etc.
- l. Dr. Ken Lunde: Having the docs in WG2 register is straight forward. For ad hoc meeting documents, you can contact me for example. It is not like other regular documents.
- m. Ms. Lisa Moore: We need someone at the meeting and act as coordinator with some document management role.
- n. Mr. Michel Suignard: I will be looking at possible production issues by preparing some draft charts as a working set.
- o. Mr. Andrew West: The newly added characters have missing ideograph mapping.
- p. Mr. Michel Suignard: What is the taxonomy related to this collection?
- q. Dr. Toshiya Suzuki: Ordered by the appearance in the dictionary. All the versions of the different sources use the same ordering. We do not know what the rules are.
- r. Mr. Andrew West: They are ordered by Radicals. There is a large number of them. Within the Radicals, the ordering seem to be random to us.

Disposition: Encourage continued progress. For feedback from experts.

Relevant recommendation:

M68.15 (Small Seal script): WG2 recommends that SC2 notes the progress made by the experts in document [N5089](#), and encourages the experts to continue the work towards a contribution for encoding the script, taking into account the feedback documents and discussion at this meeting (document [N5108](#)). WG2 notes that another ad hoc meeting of experts is planned to be held from 2019-09-30 to 2019-10-01 at Tatung University, Taipei, and invites all the interested experts to take note towards planning to attend the meeting (see document [N5109](#)).

10.3 Additions to existing scripts or blocks

10.3.1 Tangut

10.3.1.1 Investigation of Tangut unification issues

Input document:

[5031](#) Investigation of Tangut unification issues; Andrew West, Viacheslav Zaytsev; 2019-02-10

[5095](#) Comments on WG2 #68 documents; Deborah Anderson, et al.; 2019-06-10

Mr. Andrew West: Document [N5031](#) contains the background information. In 2013, we had a meeting in Beijing with many experts. We had arrived at unification of some ideographs at that meeting. In 2016, there was another meeting on Khitan – but we discussed also Tangut. Messrs. Jia Changye and Jing Yongshi presented why some of the ideographs should not have been unified. It turns out the font had several of these characters which were wrong. I had an action item to investigate these. I worked with several other experts and produced this report in [N5031](#). Table 1 summarizes the proposed disunifications. (Pointed out where the differences are on the screen.) The assumption that these behave like Chinese characters was not true with these Tangut ideographs. Characters in dictionaries were re-examined by Messrs. Jia Changye and Jing Yongshi and distinctions in strokes and their use

were discovered. Though they do not seem different, and possibly not distinguishable in 12 point fonts, they become visible in larger point sizes and they are different; they have different semantics. One of the dictionaries explains the construction of the ideographs – left part from some idea and right part from some other. Chains of semantically related characters are built up on that basis.

On pdf page 48 there are example of investigation of a given shape in five different sources for bird related chain of 54 characters. Other grouping are also in the report. The investigation showed that we were blinded in our thinking that Tangut was similar to Chinese and had not looked at what Messrs. Jia Changye and Jing Yongshi brought out as semantically different and not just glyph variants.

Disposition: Experts are encouraged to read the details in the report.

10.3.1.2 Proposal to encode 9 Tangut ideographs and 6 Tangut components

Input document:

[5064](#) Proposal to encode nine Tangut ideographs and six Tangut components; Andrew West, et al.; 2019-05-27

[5095](#) Comments on WG2 #68 documents; Deborah Anderson, et al.; 2019-06-10

Mr. Andrew West: After further discussion of the report in document N[5031](#) with Chinese experts we came up with the proposal for disunification in document N[5064](#). Table 1 shows the disunifications, with some new glyph shapes for existing ideographs, and new ideographs with their own glyphs. Source references also reflect the disunification, in the table. The aim was to minimize the disruption. Table 2 shows change of glyphs for several which were accidentally NOT unified originally. Table 3 shows disunifications for components – caused by the stroke differences.

Discussion:

- a. Mr. Michel Suignard: We need to change the radical and stroke counts documented wherever the radicals are changed.
- b. Mr. Andrew West: We are not proposing any changes to the radical and stroke counts in this document. We are proposing a new font and a new key to data with new counts. The important thing is to get the disunifications done. The current users in China use mapped CJK mapped fonts for Tangut also. Others have Tangut specific fonts. The second stage would be to update the count updates.
- c. Mr. Michel Suignard: The components are currently ordered by stroke counts.
- d. Mr. Andrew West: For the 5 new components resulting from disunifications, the radical and stroke counts will be different. The current list of components will not change.
- e. Dr. Toshiya Suzuki: I support the proposals based on glyphs and semantic differences. I would like to know if the users can distinguish all cases .Example of figures on page 19 Type A and Type B columns.
- f. Mr. Andrew West: With the current font, we do have issues where the differences are not clearly noticeable. We will need a new font to get the distinctions properly done. Table 12 shows a better example.
- g. Dr. Deborah Anderson: The UTC has not seen this proposal. Many of the experts have looked at these. Should the new block name be 'supplement'?
- h. Mr. Andrew West: Name can be accommodated.
- i. Mr. Michel Suignard: Looks like we can make progress on this proposal with updated data and font.
- j. Mr. Andrew West: We do not have the fonts yet for the updated glyphs. I can give you the data files and small amounts of glyph changes. When can we get the updated fonts from China?
- k. Prof. Sun Bojun: There were many errors in the current font like what we were talking about. We are getting a new font – probably will be ready next year.
- l. Mr. Liang Hai: Are there any documentation on the many mistakes you mentioned about?
- m. Mr. Andrew West: Fixing the glyphs is one set of problems. The other one is to get the data on radical and stroke count updated.
- n. Mr. Peter Constable: 'Many mistakes' indicates potential for far more changes than just for disunification.
- o. Mr. Michel Suignard: You would be able to get the data file with stroke count etc. earlier. We had a draft at the 1976 meeting of the relevant data. If it is published we may be able to extract from that publication.
- p. Mr. Andrew West: There could be more components etc. that China may propose – they do not impact the disunification proposal.

- q. Mr. Michel Suignard: We should be able proceed based on the request in document N5064. We may not be in a rush to get this into the 6th ed. When it comes to disunification, earlier the better. We may not get more data with glyph changes without impacting the disunification.
- r. Mr. Michael Everson: I agree adding new characters now is better. I would tell our Tangut colleagues not to feel discouraged, because it is the nature of such proposals.

Disposition: Accept proposed disunification and associated changes in glyphs and source references from document N5095.

Relevant recommendation:

M68.04 (Tangut character additions): WG2 recommends that the Project Editor add the following characters with their glyphs, source references and radical counts, as shown in document N5100 for encoding in the standard, based on the proposal in document N5064, and suggested modifications in document N5095:

- a. 9 new Tangut ideographs at 18D00..18D08 in a new block named Tangut Supplement in the range 18D00..18D7F, and
- b. 6 new Tangut components at 18AFA..18AFF in the Tangut Components block.

10.3.2 Latin characters

10.3.2.1 Six phonetic characters for Scots

Input document:

5036 Proposal to add six phonetic characters for Scots to the UCS, revised; Michael Everson; 2019-03-23

Mr. Michael Everson: The proposal was revised on 2019-05-05. We have several books dealing with several dialects in Scotland. There was no standardized orthography for Scots. Working with the experts – mostly IPA characters are used. Rationale for each of the proposed letters and their use was described.

Discussion:

- a. Dr. Deborah Anderson: Are you in touch with the online Scots dictionary people.
- b. Mr. Michael Everson: The Danish person is technical support for the online version of Scots dictionary. It does not have all the characters needed.
- c. Dr. Deborah Anderson: The UTC discussed the proposal and has requested different code points. We are on board.
- d. Mr. Michel Suignard: It would be nice to have the fonts for these if it is to be included in CD.3.
- e. Mr. Michael Everson: Fonts are already available.
- f. Dr. Umamaheswaran: Will there be confusion with APL Tacks?
- g. Mr. Michel Suignard: We could cross reference.

Disposition: Accept for encoding Two combining characters at 1ABF and 1AC0, and Four standalone characters at AB68, AB69, AB6A, and AB6B, based on document N5036.

See item d in relevant recommendation M68.05 on page 34.

10.3.2.2 Latin Letter Reversed Half H

Input document:

5039 Proposal to encode Latin Letter Reversed Half H; Andrew West, Michael Everson; 2019-03-25

Mr. Andrew West: This is a proposal for a letter from Roman province of Gaul. We refer to this as Reversed Half H. A case pair is proposed. Several examples are shown in the document.

Discussion:

- a. Mr. Peter Constable: UTC has reviewed these and is OK with it.
- b. Dr. Toshiya Suzuki: I have no objection to these encoding. I have a question about the glyph shape. There are several examples with no serif at the left end of the stroke.
- c. Mr. Michael Everson: In carvings on stone the serif will break the stone. Others do have serifs.
- d. Mr. Andrew West: The main reason we have the serif is for consistency with the other characters in the font.
- e. Mr. Michel Suignard: Figure 15 has serif.

Disposition: Accept to encode A7F5 Latin Capital Letter Reversed Half H, and A7F6 Latin Small Letter Reversed Half H based on document N5039.

See item c in relevant recommendation M68.05 on page 34.

10.3.2.3 Latin Tironian letters

Input documents:

5042 Proposal to add one or two Latin Tironian letters; Michael Everson, Andrew West; 2019-04-26

5095 Comments on WG2 #68 documents; Deborah Anderson, et al.; 2019-06-10

Mr. Andrew West: This is a proposal to add the capital form of Tironian ET character. It was used as a punctuation mark – though it is equivalent of use similar to Ampersand mark. At the time Tironian Sign ET at 204A was encoded, there was no evidence of its use with casing. We have now the evidence of contrasting use of Tironian ET in Old English with case. The UTC seems to have accepted the need for the character, but the issue is about the casing relationship and its property. Three options have been mentioned in the proposal with their pros and cons.
Discussion:

- a. Mr. Michael Everson: The first three pages of this document shows that the property of the character can be changed. The Old English treated the Tironian ET as a letter in the alphabet (see at the end of page 5). We know that the two forms exist. I would like to know why the casing behaviour change of Tironian Sign ET to lower case cannot be done, so that the case pairings can be done. Modern Irish users use these in two ways and two ways only – between two words (like &) or as equivalent of etc. (like &c.). Many of them do not know its existence in UCS over the last years, and end up in using the digit 7 (without regard for its height etc.). None of these current users would be upset or impacted by changing the property of current Tironian ET to permit case mapping.
- b. Mr. Michel Suignard: Property changes are not for free. I work with IETF and every time we change the property we have to explain that to them.
- c. Mr. Peter Constable: I need clarification, there seems to be no Irish user requirement for casing relationship between the two ETs.
- d. Mr. Michael Everson: They use 7 instead of the missing capital letter ET.
- e. Dr. Ken Whistler: The question about the General Category and about Case Mapping etc. is not within 10646 context. It is specifically for use with Unicode. No one is objecting to encoding the character in 10646. We can make the case to the Unicode Technical Committee as to the property.
- f. Mr. Michel Suignard: We do have a reference to property from 10646 and we would like to have the property stabilized with each proposal. WG2 can have discussion on a common understanding of the property as well.
- g. Mr. Michael Everson: If we encode only the uppercase we will not be able to encode the lowercase, if it is decided not to map it to the current lowercase ET.
- h. Dr. Ken Whistler: That is correct. I think you should make the case to UTC which makes the casing-related decisions. The name could indicate its capital letter use.
- i. Mr. Michel Suignard: Can we have an acceptable name to go ahead with accepting the proposal.

Document N5095 suggests the name TIRONIAN SIGN CAPITAL ET at 2E52 in Supplemental Punctuation Block. The glyph is first one – looks like J -of the three as shown on page 4, based on what is to be seen in Figure 3.
Disposition: Accept to encode 2E52 TIRONIAN SIGN CAPITAL ET using the first glyph (of the three) shown on page 4 in document N5042. The property discussion continues with UTC.

See item b in relevant recommendation M68.05 on page 34.

10.3.2.4 Ten characters for Middle English

Input document:

5043 Proposal to add ten characters for Middle English to the UCS; Michael Everson, Andrew West; 2019-06-10

Mr. Michael Everson: There is an early Middle English manuscript called Ormulum, authored by Mr. Orm. It is an extremely important document because the author invented his own spelling system. He uses multiple consonants for short and long vowels. They are all in verses. It tells more about pronunciations of early English and is important. The entire manuscript is online. There are some paragraph marks to show divisions. Capital letters are different from small ones. Several examples are provided. Several of the needed characters are encoded. The proposal is for four combining marks and six individual characters. There is a combining triple acute accent. Several combining insular characters have been also used for different pronunciations. Use of double bow Thorn and double bow Wynn are also shown. I have not seen capital versions of these in the manuscript. I have discussed the capitalization issues in the proposal even though there is no attestation for the capital forms.

Discussion:

- a. Ms. Lisa Moore: The UTC has not yet reviewed this proposal and would need some time.
- b. Mr. Michael Everson: I would like to have some feedback from experts at this meeting.

- c. Mr. Peter Constable: There are so many examples of use of Triple acute – some are side by side, some are at the top etc. Why do we need a triple acute? The positional relationship is similar to use of the acute in other languages. Looks like it is based on Typographical requirements.
- d. Mr. Michael Everson: It could be possible to get it working that way – however, the combining part will be messy. I do not see any disadvantage having a single triple acute instead of stacking many single acutes.
- e. Mr. Andrew West: There is also issue about double acutes not decomposing. Having a double and a single combining will also be messy and some ambiguity will result in multiple spellings issue. It is simpler to have a single triple acute.
- f. Mr. Peter Constable: I would like to see some more research done. We do not want to go down the road of a slippery slope. Ease of rendering is not a justification for coding it.
- g. Mr. Michael Everson: I will revise the document to address your concern.
- h. Dr. Thanh Nhãn Ngô: There was stacking horizontally in old days of Latin writing. Now they are stacked vertically.
- i. Mr. Michael Everson: Atomic characters will avoid the issue – but that is not the proposal.
- j. Mr. Michel Suignard: I prefer to have some consensus before we can proceed with the proposal.
- k. Mr. Michael Everson: Section 7 in the proposal is on Glyphs. Insular G can have several glyphs that can be used. There are A77D, 1D79, A77E and A77F are similar characters. New A7CA and A7CB are proposed (as shown on page 3, under para 7).
- l. Dr. Deborah Anderson: People have some strong opinions on the proposal.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the authors of document N5043 on proposal for ten characters for Middle English.

10.3.2.5 Four Latin characters for Gaulish

Input documents:

[5044](#) Proposal for the addition of four Latin characters for Gaulish to the UCS; Michael Everson, Andrew West; 2019-05-26

[5095](#) Comments on WG2 #68 documents; Anderson, et al.; 2019-06-10

Mr. Michael Everson: Two remaining letters from an earlier proposed set needed more evidence. The Gauls are using the Latin letters D and S with strokes through them for their writing. Evidence of use is provided. In addition to Roman Gaulish language it is also used in Moro language in Sudan.

Discussion:

- a. Dr. Ken Whistler: [N5095](#) summarizes the UTC discussion on this proposal. Usage of Stroke Overlay raised the question of whether they should be connected or not, based on the evidences. Our suggestion is to use the names with:
 LATIN CAPITAL LETTER D WITH SHORT STROKE OVERLAY
 LATIN SMALL LETTER D WITH SHORT STROKE OVERLAY
 LATIN CAPITAL LETTER S WITH SHORT STROKE OVERLAY
 LATIN SMALL LETTER S WITH SHORT STROKE OVERLAY.

The glyphs are as in document [N5044](#) with the overlay being a short one.

Disposition: Accept to encode the characters in (currently vacant positions) A7C7..A7CA in Latin Extended-D block.

See item a in relevant recommendation below.

M68.05 (Latin character additions): WG2 recommends that the Project Editor add the following characters with their glyphs as shown in document [N5100](#) for encoding in the standard:

- a. A7C7 LATIN CAPITAL LETTER D WITH SHORT STROKE OVERLAY
 A7C8 LATIN SMALL LETTER D WITH SHORT STROKE OVERLAY
 A7C9 LATIN CAPITAL LETTER S WITH SHORT STROKE OVERLAY
 A7CA LATIN SMALL LETTER S WITH SHORT STROKE OVERLAY.
 in Latin Extended-D block, based on the proposal in document [N5044](#), and suggested modifications in document [N5095](#).
- b. 2E52 TIRONIAN SIGN CAPITAL ET
 in Supplemental Punctuation block, based on the proposal in document [N5042](#), and suggested modifications in document [N5095](#).
- c. A7F5 LATIN CAPITAL LETTER REVERSED HALF H
 A7F6 LATIN SMALL LETTER REVERSED HALF H
 in Latin Extended-D block, based on the proposal in document [N5039](#).

- d. 1ABF COMBINING LATIN SMALL LETTER W BELOW
1AC0 COMBINING LATIN SMALL LETTER TURNED W BELOW
in Combining Diacritical Marks Extended block, and,
AB68 LATIN SMALL LETTER TURNED R WITH MIDDLE TILDE
AB69 MODIFIER LETTER SMALL TURNED W
AB6A MODIFIER LETTER LEFT TACK
AB6B MODIFIER LETTER RIGHT TACK
in Latin Extended-E block,
based on the proposal in document N5036.

10.3.2.6 Two characters for Middle Scots

Input documents:

[5045](#) Proposal to add one character for Middle Scots to the UCS; Michael Everson; 2019-04-25

[5095](#) Comments on WG2 #68 documents; Deborah Anderson, et al.; 2019-06-10

Mr. Michael Everson: Middle Scots is language spoken between 1450 and 1700. A long and short S combined form was used in handwriting. But there is no ligature etc. They could have used the German Sharp s—which was available. The Middle Scots S appears in a number of documents. It is polyvalent and can be pronounced differently. The Middle Scots S would not be acceptable for writing German, instead of the Sharp S. Non-suitability of sharp S is described. The UTC Script ad hoc had reviewed the proposal.

Discussion:

- a. Mr. Roozbeh Pournader: Near the end of the document, it talks about the obsolete Long S. What do they mean?
- b. Mr. Michael Everson: Long S was used all the time ex: Congress in English. Not in the starting position. In manuscript it took its own thing. Sometimes in the initial position and elsewhere in the word / sentence. By middle of 19th century use of double S disappeared. This is the result of orthographic reform.
- c. Mr. Peter Constable: Have you discussed the change of use of the different forms in the document? Would like some explanation of how the orthography evolved.
- d. Mr. Andrew West: In the 18th century the long S was using normal s. They got normalized to normal s. However they kept the older form if long S.
- e. Mr. Roozbeh Pournader: I am convinced with the need. However, can you defend the uppercase version?
- f. Mr. Michael Everson: I would defend it the same way as some others. For example, Ram’s Horn in IPA. In my view, casing should be a natural function of Latin script. For things like Middle English or Middle Scots, a modern editor should have the ability to set Old Scots literature using both cases.
- g. Mr. Peter Constable: I would word the argument carefully – to be able to create new editions of Middle English using modern day typographic practice.
- h. Mr. Roozbeh Pournader: The US experts would like some more time to discuss the casing issue.

(There was more discussion about the casing issue.)

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the authors of document N5045 on proposal for two characters for Middle Scots.

10.3.2.7 LATIN CAPITAL LETTER TURNED W

Input document:

[5070](#) Proposal for the addition of LATIN CAPITAL LETTER TURNED W; Michael Everson; 2019-05-10

Mr. Michael Everson: In earlier work on using IPA for Alice in Wonderland, some casing forms of characters were added. In Pitman Shorthand for Alice in Wonderland, there are abbreviated forms with lower case forms and upper case forms. The Turned W was used, but the missing uppercase form of turned W was stumbled upon. Evidence of use of <wh> and <Wh> etc. are shown. Their transcriptions to IPA shows use of lowercase form of turned w and the request is on the need for uppercase turned W.

Discussion:

- a. Mr. Peter Constable: The examples I see are all from a book that you have typeset with different orthographies proposed by different people. What I do not see in the document is that there is a user community that has opted to use the turned capital w. I have no specific objection to it – but would like to see more users.

- b. Dr. Ken Whistler: I am inclined to like this a lot – to be able write my name with ‘Wh’. Mr. Michael Everson is bringing to us an orthography that maybe a ‘single’ user case. Hence this character may not be for a standard.
- c. Mr. Michael Everson: That is true. That was the case also when other turned capital forms for IPA letters were encoded earlier. Currently it is in PUA and can be employed. However, it is nice to have it in the standard rather than in PUA. It does not break anything, nor does it cause any difficulty for font developers.
- d. Mr. Michel Saignard: It would be nice to see some evidence outside the single letter use.

Disposition: Not accepted. Await more evidence of users.

10.3.2.8 Komi Latin letters

Input document:

[5101](#) Komi Latin letters missing in Unicode; Jack Michael Rueter; 2019-04-24

Dr. Deborah Anderson introduced the document.

Discussion:

- a. Mr. Michael Everson: I spoke to the author in advance. In general, I am sympathetic to the need. In the past, there is a dislike to disunify Cyrillic and Latin characters. I asked the author, if he would like to have casing relationship with Capital B and lowercase B; does he really look like a small capital letter B or can he live with what we have etc. The soft sign is used in many minority languages and there is a massive set of data and would make it easier to digitize these.
- b. Ms. Lisa Moore: UTC have not had an opportunity to review the proposal, and would need more time to review it.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the author of document [N5101](#) on proposal on Komi letters.

10.3.3 Arabic

10.3.3.1 ARABIC LETTER LAM WITH SMALL ARABIC LETTER TAH ABOVE

Input document:

[5048](#) Proposal to encode ARABIC LETTER LAM WITH SMALL ARABIC LETTER TAH ABOVE; Lorna Priest Evans (SIL), et al.; 2019-03-25

Mr. Roozbeh Pournader: This character used to exist in Punjabi versions in India and Pakistan. They are not differentiated in Arabic script. In Pakistan text books for children are being designed with improved orthography and they are trying to distinguish between the phonemes. Older examples of use are shown. Character C-30 is being distinguished from C-29 in Table 1. The name may be too long.

Disposition: Accept to encode 08C7 ARABIC LETTER LAM WITH SMALL ARABIC LETTER TAH in Arabic Extended A block from document [N5048](#).

See item f in relevant recommendation M68.10 on page 39.

10.3.3.2 Jeem with dot above, and dot below

Input document:

[5049](#) Proposal to add Arabic letter Jeem with dots above/Jeem with three dots above; Neil Patel, et al.; 2019-03-25

Mr. Roozbeh Pournader: The proposed characters are used in Wolof language for different phonemes. There are two placements of the three dots. There is clearly evidence of use of these.

Disposition: Accept to encode in Arabic Extended A block, 08C5 ARABIC LETTER JEEM WITH THREE DOTS ABOVE and ARABIC 08C6 LETTER JEEM WITH THREE DOTS BELOW from document [N5049](#).

See item e in relevant recommendation M68.10 on page 39.

10.3.4 Bopomofo

10.3.4.1 Cantonese Bopomofo characters

Input document:

[5052](#) Proposal to encode Cantonese Bopomofo Characters; Ben Yang, Eiso Chan; 2019-05-02

Mr. Andrew West: The proposal was prepared by Messrs. Ben Yang and Eiso Chan – with feedback from others to manage Chinese Cantonese. Four needed letters are requested. Examples of use are provided. They are used in a limited manner since they were not standardized like the rest of Bopomofo.

Dr. Deborah Anderson: The UTC has discussed these and approved them.

Disposition: Accept to encode the four Bopomofo characters GW, KW, OE and AH at 31BC..31BF.

See item d in relevant recommendation M68.10 on page 39.

10.3.4.2 Two Bopomofo combining tone marks

Input document:

[5088](#) Proposal to encode two Bopomofo combining tone marks ; Selena Wei/TCA et al.; 2019-06-14

Ms. Lin Mei Wei: The proposal has two items. First is a request for descriptions for four combining marks at 0301, 030C, 0300 and 0307. The second is a request to encode two additional combining tone marks, corresponding to the non-combining equivalents at 02EB and 02EA. A rationale is provided regarding their usage for OpenType feature to adjust tone marks.

Discussion:

- a. Mr. Michel Suignard: The property Lo is incorrect; it should be Mn. The Unicode properties need to be corrected. Glyphs for 02EA and 02EB have been changed in the charts with improved fonts. We can use these styles as dotted circles.
- b. Dr. Ken Lunde: I was going to propose these. I am in support of these.
- c. Mr. Liang Hai: The combining marks are always on the right, even though the non-combining marks are in-line. The annotations are probably inappropriate. The combining marks also should not be on top right. In vertical writing of Bopomofo they appear as equivalent of combining marks on the right side – though they are not classified as combining. I know these are being used in Taiwan. Their encoding model is not shown here, and that is needed to understand introducing the new characters.
- d. Mr. Michel Suignard: Whether a character is combining or not is sometimes blurry. They can be combining only if there is clearly a base character to associate it with.
- e. Dr. Ken Lunde: I am now in agreement to holding off on this proposal for now. There is a mistake in the proposal about the encoded code positions 02AA and 02BB. These should be referencing tone letters in A700 block, having the script property of Bopomofo. (Dr. Ken Lunde: I stand corrected.). Whether additional letters should be encoded distinct from the tones, is a separate issue.
- f. Mr. Andrew West: About the proposed annotations, they should not mention Chinese – only Bopomofo.

Disposition: For feedback by experts. An initial disposition was to accept to encode the two marks at 1AC1 and 1AC2 in the Combining Diacritical Marks Extended block. An ad hoc group met later and recommended not to proceed with the additions. More information is needed about the encoding model.

Relevant recommendation:

M68.19 (Bopomofo Script): 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.

10.3.5 CHAKMA LETTER VAA for Pali

Input document:

[5055](#) Proposal to encode CHAKMA LETTER VAA for Pali; Zachary Scheuren; 2019-04-22

The proposed character is a relatively newly invented character for Pali texts. This character does not cause any architectural concerns. It is used in preference to WAA where it is needed, similar to other cases with such needs. Evidence of use from dictionaries is given on page 5 in the document.

Mr. Michael Everson: I am in favour of introducing character for purposes such as stated. It does not cause any particular trouble.

Disposition: Accept to encode 11147 CHAKMA LETTER VAA in Chakma Block.

See item c in relevant recommendation M68.10 on page 39.

10.3.6 CJK additions not related to Extension G

(See also input documents, discussions and additions included in relevant recommendation M68.07 in section 10.4.1 on page 41 and relevant recommendation M68.09 in section 11.1 on page 43.)

10.3.6.1 UNC-s from China & TCA for Science and Technology

Input document:

[5072](#) UNC Proposal on China & TCA Science and technology, [G attribute](#), [TCA attribute](#); China and TCA; 2019-05-23

[5100](#) Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD-3, Draft; Michel Suignard, Project editor; 2019-06-15

[5107](#) TCA's UNC Proposal for WG2 submission (IRG N2390_TCA); TCA; 2019-06-20

Mr. Chen Zhuang: The proposal is for 12 UNC-s from China and TCA. These are used for scientific purposes, in Journal publication etc.

Mr. Michel Suignard: I would need formal description of the new source GJ. There is a 13th character included in the document. Taiwan is to send in T-source Glyph.

Disposition: Accept to encode 13 UNC-s at code points 9FF0 to 9FFC.

Relevant recommendation:

M68.08 (China and TCA UNCs): WG2 recommends that the Project Editor add thirteen (13) characters at 9FF0..9FFC in the CJK Unified Ideographs block (4E00..9FFF), with their glyphs, source references and radical stroke information as shown in document N5100 for encoding in the standard, based on the proposal in documents N5072 and N5107.

10.3.7 Symbols

10.3.7.1 ASCIA symbols for Roman epigraphy

Input document:

5038 Proposal to encode a pair of Ascias symbols for Roman epigraphy; Andrew West, Michael Everson; 2019-03-25

Mr. Andrew West: Ancient symbols showing a workman's tool such as axe -- Left and Right facing ASCIA symbols are proposed. Multiple shapes are possible. Example of inscriptions are shown. The UTC has reviewed these and has suggested only one orientation would be sufficient.

Discussion:

- a. Mr. Peter Constable: Different orientations seem to be decorative differences. In Figure 20, there seems to be another orientation. Yet a three way distinction is not proposed.
- b. Mr. Andrew West: Left and right facing are mirrored. Sometimes it is rotated counter clockwise.
- c. Mr. Michel Suignard: Text processing can do different rotations.
- d. Dr. Ken Whistler: It is clear that there is a real symbol here. The case is good for encoding a symbol. Many of the uses, it seems to be clear that these are decorative, but there is no semantic difference. There are instances of such symbols such as Anchor Symbol. In use of the anchor symbols, there is an upright and in different orientations. Decorative differences are used in different contexts. The ASCIA symbol is another one such.
- e. Mr. Andrew West: I agree with you in that there are other symbols that are decorative. In this instance, I would like to see both included.
- f. Mr. Michel Suignard: There seems to be consensus for one - 1019C ASCIA SYMBOL with Glyph B from the document.

Disposition: Accept to encode 1019C Ascias Symbol (Glyph B from doc).

See item b in relevant recommendation M68.10 on page 39.

10.3.7.2 Three cross symbols

Input document:

5037 Proposal to encode three cross symbols in the UCS, revised; Michael Everson; 2019-03-22

Mr. Michael Everson: I discovered two new characters in 16th century translation of the Testament into Middle Scots. There are three kinds of crosses used to distinguish different items -- Full Cross, and two Half Crosses. These shapes are called Cross Patties. There is a character named Maltese Cross, which is a Maltese Cross Patty. I have requested 2E51 and 2E52 with the paws missing. I have also proposed a full cross named CROSS OF MALTA to avoid confusion with MALTESE CROSS.

Discussion:

- a. Mr. Andrew West: I think the UTC does not like adding an additional Cross of Malta.
- b. Mr. Michael Everson: Use of Maltese Cross as a Cross Patty could prevent use of Maltese Cross for what it is used for.
- c. Dr. Deborah Anderson: There is no textual evidence of use of the Cross of Malta provided.
- d. Mr. Michael Everson: It is true -- but it is not clear as to avoiding using Maltese Cross as a Cross Patty.
- e. Mr. Andrew West: It would be a good idea to have a separate one; but it would be better not to conflate that with the Cross of Malta. It would be better to separate the proposal into two.
- f. Dr. Umamaheswaran: Do the Cross Patties and regular Maltese Cross appear together in the same text?
- g. Mr. Michael Everson: I see use of Maltese Cross instead of Cross of Malta since the new one which looks differently is not available.
- h. Mr. Roozbeh Pournader: For lay people, the name Maltese Cross and Cross of Malta do not make the difference.

- i. Mr. Michel Suignard: The proposal for Cross of Malta will be separated into a new proposal with more justification.

Disposition: Accept encoding of 2E51 CROSS PATTY WITH RIGHT CROSSBAR and 2E52 CROSS PATTY WITH LEFT CROSS BAR.

See item a in relevant recommendation below.

M68.10 (Miscellaneous additions): WG2 recommends that the Project Editor add the following characters with their glyphs as shown in document N5100 for encoding in the standard:

- a. 2E50 CROSS PATTY WITH RIGHT CROSSBAR, and
2E51 CROSS PATTY WITH LEFT CROSSBAR
in the Supplemental Punctuation block,
based on the proposal in document N5037.
- b. 1019C ASCIA SYMBOL
in Ancient Symbols block, based on the proposal in document N5038.
- c. 11147 CHAKMA LETTER VAA
in Chakma block, based on the proposal in document N5055.
- d. 31BC BOPOMOFO LETTER GW
31BD BOPOMOFO LETTER KW
31BE BOPOMOFO LETTER OE, and
31BF BOPOMOFO LETTER AH
in Bopomofo Extended block, based on the proposal in document N5052.
- e. 08C5 ARABIC LETTER JEEM WITH THREE DOTS ABOVE, and
08C6 ARABIC LETTER JEEM WITH THREE DOTS BELOW
in Arabic Extended A block, based on the proposal in document N5049.
- f. 08C7 ARABIC LETTER LAM WITH SMALL ARABIC LETTER TAH ABOVE
in Arabic Extended-A block, based on the proposal in document N5048.

10.3.7.3 Three Christian symbols

Input document:

[5040](#) Proposal to encode three Christian symbols; Andrew West, Michael Everson; 2019-03-25

Mr. Andrew West: This proposal is a side effect of other similar symbols. Many of the Christian engravings look similar to already encoded symbols in different blocks. 101A0 Greek Symbol Tau Rho in Greek block, for example. In passing there is a mention that it is also used in Latin text. Examples of engravings are shown. It is different from KHI and RO etc. It appears about 100 years later than the Greek manuscripts. Explanation as to why it cannot be unified with existing Rho Cross in Greek block is given in the document. Two more symbols with Alpha and Omega are also proposed.

Discussion:

- a. Dr. Ken Whistler: The assessment of the group in UTC was whether the Greek Rho-Cross or proposed Rho-Cross are distinct is open. If it is a question of script identity, UTC would be amenable to loosen the script property. The two others with alpha omega etc. They are real. However, symbols with letters beg the question of whether they should be in plain text or not. They are icons – Roman examples show these. They have decorative behaviours, where the cross bars are, where the letters are etc. In my view these should not be candidates for text encoding. I would like to see more rationale for text elements to be candidates for text encoding.
- b. Mr. Andrew West: I agree with you in many aspects. We can put aside the alpha omega symbols. As to the question of whether to unify the new one with the Greek symbol or not – my initial thought was to ask for script property change. We can get some more feedback from Greek authors.
- c. Mr. Michael Everson: The Rho Cross is of different origin compared to the Staurograms. Coptic experts may find these symbols in their text as well.
- d. Mr. Tetsuji Orita: I would like to know what kind of users need this character?
- e. Mr. Andrew West: These symbols appear on inscriptions – people who study those will be the users. Studying inscriptions have been going on for a long time since 19th century. They can also be in social media – similar to Emoji use.
- f. Mr. Wataru Takagi: On page 23, it says there is a user community – it just says ‘Yes’. Who are they?

Disposition: Needs more information.

Action item: Authors of document N5040 on Three Christian Symbols, are invited to revise their proposal taking into account comments at this meeting.

10.3.7.4 Emoji Recommendations 2019Q2

Input documents:

5056 Emoji Recommendations 2019Q2; Mark Davis, ESC; 2019-04-30

5100 Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.3, Draft; Michel Suignard, Project editor; 2019-06-15

Mr. Michel Suignard: Document N5056 is for review and comments from WG2 experts from Emoji. We have several of these in draft for next CD in N5100. The yellow ones are the new ones. The best way is to provide feedback by WG2 experts to UTC.

Discussion:

- a. Mr. Andrew West: I have provided feedback – not sure if they are published. Perhaps, it would be useful to WG2 experts also if it is included in WG2 register.
- b. Mr. Michel Suignard: We have to be careful – we may not be able to simply grab the symbol from the web. It has to be made IT free etc.
- c. Mr. Michael Everson: I had made comments in the past – re: Colour etc. It would be useful for us to know whether our comments will be ignored. Can the chart production tool be tweaked for those or not.
- d. Dr. Ken Whistler: There may be technical problems related to use of colour. We could use a different colour which could indicate those that cannot be changed because they are already published (for ex: in Unicode). The pipeline page has the information of what has been published, what is in the queue for publication etc.
- e. Mr. Michel Suignard: Separating those on ballot from those that are published in Unicode vs open in Unicode etc. could be done; but it is more work.
- f. Dr. Ken Whistler: Explained how the status of various characters / scripts are documented on the pipeline page.
- g. Mr. Andrew West: It seems to us that the Emoji seem to be getting frozen at an early stage compared to the ballot cycles. That is the reason why the request was made to show those accepted already.
- h. Dr. Deborah Anderson: I have put together a document with the input from Messrs. Andrew West and Mr. Michael Everson that could be circulated to WG2.
- i. Mr. Michel Suignard: Those that are frozen in Unicode 12.0 can be colour-coded differently.

Disposition: (The intent was) to accept addition of 55 new emoji characters from N5056, intended to be included in Unicode 13.0, with names and glyphs from document N5100. A purple shading of these characters were added by the project editor in document N5100 after the meeting.

Note: However, the addition of these 55 characters was missed being noted, and hence being included while drafting the meeting recommendations; it was also missed while the draft recommendations were checked by the drafting committee prior to their adoption.

The 55 characters that were accepted for inclusion in the standard, are listed below, for the record:

4 characters in Transport and Map Symbols block:

1F6D6 HUT, 1F6D7 ELEVATOR, 1F6FB PICKUP TRUCK, and 1F6FC ROLLER SKATE

10 characters in Supplemental Symbols and Pictographs block:

1F90C PINCHED FINGERS, 1F972 SMILING FACE WITH TEAR, 1F977 NINJA, 1F978 DISGUISED FACE, 1F9A3 MAMMOTH, 1F9A4 DODO, 1F9AB BEAVER, 1F9AC BISON, 1F9AD SEAL, and 1F9CB BUBBLE TEA

41 characters in Symbols and Pictographs Extended-A block:

1FA74 THONG SANDAL, 1FA83 BOOMERANG, 1FA84 MAGIC WAND, 1FA85 PINATA, 1FA86 NESTING DOLLS, 1FA96 MILITARY HELMET, 1FA97 ACCORDION, 1FA98 LONG DRUM, 1FA99 COIN, 1FA9A CARPENTRY SAW, 1FA9B SCREWDRIVER, 1FA9C LADDER, 1FA9D HOOK, 1FA9E MIRROR, 1FA9F WINDOW, 1FAA0 PLUNGER, 1FAA1 SEWING NEEDLE, 1FAA2 KNOT, 1FAA3 BUCKET, 1FAA4 MOUSE TRAP, 1FAA5 TOOTHBRUSH, 1FAA6 HEADSTONE, 1FAA7 PLACARD, 1FAA8 ROCK, 1FAB0 FLY, 1FAB1 WORM, 1FAB2 BEETLE, 1FAB3 COCKROACH, 1FAB4 POTTED PLANT, 1FAB5 WOOD, 1FAB6 FEATHER, 1FAC0 HEART, 1FAC1 LUNGS, 1FAC2 PEOPLE HUGGING, 1FAD0 BLUEBERRIES, 1FAD1 BELL PEPPER, 1FAD2 OLIVE, 1FAD3 FLATBREAD, 1FAD4 TAMALE, 1FAD5 FONDUE, and 1FAD6 TEAPOT.

10.3.7.5 Additional circled numbers

Input document:

4749 Proposal to encode additional circled numbers; Andrew West; 2016-09-12

Mr. Andrew West: [N4749](#) is a revised version for circled numbers. A certain number of these have been encoded for backward compatibility. Many more are proposed. Examples of circled numbers and negative numbers are given. Used in GO games and references in publications (mostly in Far East). There is plenty of evidence of use of these numbers. One method of encoding was to be able to get an arbitrary number into a circle. That method was not preferred by the UTC. The alternative was to encode a number of circled numbers and negative numbers. How should we solve this issue?

Discussion:

- a. Mr. Michael Everson: I came across this in publishing a Cornish dictionary. I have used circled numbers to indicate different items. However, they stop at a certain number in the current standard. The negatives stop at 20 and positives stop at 50. I would favour encoding more of these – a full set.
- b. Mr. Peter Constable: It would be better till one comes up with another set of numbers beyond whatever we encode. These are, in my opinion, how to present numbers. The current set was from legacy character sets. One does not know why the legacy sets stopped at what they did. We could come up with some character like end of Ayah in Arabic. We still have to put a limit – such as 3 digits etc.
- c. Mr. Andrew West: I agree that this is a presentation issue. But we need a solution.
- d. Mr. Liang Hai: The context seems to be rich text situations. Rich Text tools should be the target for such requests. Formatting tools should be used.
- e. Mr. Michel Suignard: You are describing situation where list management, index numbering etc. has to be done automatically.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the author of document [N4749](#) on Circled Numbers.

10.3.8 Jianzi Musical Notation and Jianzi Format Controls

Input document:

[5041](#) Preliminary proposal on encoding Jianzi Musical Notation and Jianzi Format Controls; Eiso CHAN, CAP; 2019-04-13

[5074](#) Comments on Guqin Jianzi proposal ([N5041](#)); China National Database (CNDCP); 2019-06-05

[5095](#) Comments on WG2 #68 documents; Deborah Anderson, et al.; 2019-06-10

Dr. Ken Lunde: Document [N5041](#) contains a preliminary proposal and WG2 should not take any action at this time, other than asking for feedback. There are some model issues etc.

Discussion:

- a. Mr. Michel Suignard: There are some comments from China and USA experts.
- b. Mr. Andrew West: I agree that it is not ready for proceeding. There are two types of characters proposed here. There is a set showing where to put the hands etc. There is another kind of characters which is used in combination with others, in a way similar to ideographs – but creating new ideographs by taking parts from other ideographs.
- c. Dr. Lu Qin: IRG received this document. But it is out of scope of IRG work.

Disposition: For feedback by experts.

Action item: Experts from member bodies and liaison organizations are to provide feedback to the author of document [N5041](#) on Jianzi Musical Notation and Format Controls.

10.4 Miscellaneous Proposals

10.4.1 CJK Horizontal extensions - Editorial Report on Miscellaneous Issues from IRG meeting 52

Input documents:

[5068](#) Editorial Report on Miscellaneous Issues (meeting IRG#52); CJK Editorial group; 2019-05-17

[5075](#) Request for TCA's Horizontal Extension and Updating 11 T Glyphs; TCA; 2018-10-05

[5077](#) HKSAR's Request for Horizontal Extension in the H-column; HKSAR; 2019-04-12

[5081](#) Disunification of U+2F83B/U+5406; TCA; 2019-05-14

[5083](#) Errata report for WG2 submission TCA; TCA; 2019-05-31

[5085](#) Proposed Horizontal U Source Extension; John Jenkins; 2019-05-08

[5086](#) Proposal of China's horizontal extension for technical used characters; China; 2019-05-10

[5087](#) UK Horizontal Extensions; Andrew West; 2019-05-14

[5094](#) 20 questionable V4-Source characters in Ext. C and Ext. E; Eiso Chan; 2019-02-14

[5100](#) Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.3, Draft; Michel Suignard, Project editor; 2019-06-15

Regarding document [N5081](#):

2F83B is a compatibility character and cannot be disunified. If we moved the T and H sources it becomes a ghost character. It becomes TU source. Source will be changed to UCI (origin is unknown or deprecated).

Discussion:

- a. Dr. Ken Lunde: Should we also show an HU source?
- b. Dr. Lu Qin: HK wants to keep the H source – we want the mapping to be stable.
- c. Dr. Ken Lunde: There is also an SVS representation which makes it immune to Normalization.
- a. Dr. Toshiya Suzuki: Even if a character was mistakenly unified – they have been in place over a number of users. In TCA a new character may be acceptable. In other communities both forms may be interchangeably used. More investigations would be needed.
- b. Mr. Michel Suignard: IRG has reviewed this. Japanese experts should have participated there. I prefer not to reopen the discussion that was already done in IRG.
- c. Dr. Toshiya Suzuki: IRG's role is on development of new sets of ideographs. This discussion is about unifications etc., and should be WG2's role.
- d. Mr. Michel Suignard: It is totally within mandate of IRG to give us a recommendation.
- e. Dr. Lu Qin: I understand the issue raised by Japanese expert. The compatibility related issue was discussed in IRG. What is proposed is to accommodate the additional need of TCA. As you see, Hong Kong does not want to change the mapping to H source. HKSAR will not map to the new character.

Disposition:

2F83B –retains H source, and gets a TU source since the T-source has an SVS to 5406 code point.

Add 4DB8 - moving appropriate source references for these.

See Appendix 1 of document [N5068](#) for 4 more disunifications for TCA.

53FD – removed the T source. Added 4DB7 T4-216A with new glyph similar to what was there.

2F8F0 – a compatibility character with single source – changed to TU source; added new 4DBE and moving the current T source to it.

238A7 is unchanged.

2FA02 – a compatibility character. Gets a TU source; added new 4DBF moving current T source to it.

2F878 – a compatibility character. Keeps the H source. T source and U source are moved to new 4DB9.

Dr. Ken Lunde: The U source can also move. No change to JP IVD collection.

Dr. Ken Lunde: 2FA3C – a compatibility character was NOT discussed. It was unified with the same as 2F878. There are IVS-s in IVD for these compatibility chars.

Discussion:

- a. Mr. Tetsuji Orita: I would like to see the T source being attached with 2F878.
- b. Mr. Michel Suignard: We had a precedence with KU.
- c. Dr. Ken Lunde: We may have to revisit the previous case with TU.
- d. Dr. Umamaheswaran: If the TU information is going to be needed by implementers for mapping purposes we can retain it.
- e. Mr. Michel Suignard: So we will retain the TU source for 2F878.

2 from TCA – more from UTC. For the 150 characters from UTC – we are awaiting information from Mr. John Jenkins. For Vietnam – had to add VU for disunified ones. Most of these changes are based on changes to Radicals. These disunifications are recorded in Appendix 2 of document [N5068](#).

Document [N5083](#) shows more information.

4DBA 4DBB 4DBC and 4DBD – characters with Moon radical.

2F8D7 2F984, 2F8DA, 2F8D6 – four compatibility characters were disunified. Being a single source, the characters will get TU sources.

The glyph changes and changes for radicals are in Appendix 2 of document [N5068](#).

Document [N5094](#) is regarding Vietnamese ideographs.

2B83C has V4 source, with a different glyph.

4DB6 is the new character VU source.

Mr. Michel Suignard: All the new glyphs are shown in the code charts. It involved a lot of work – just to figure out what needs to be done, chase after the fonts etc. IRG will make use of the updated charts from the CD for their review.

Disposition: CD 6th edition revision will be based on what is summarized in document N5068.

Relevant recommendation.

M68.07 (CJK Extension A Additions): WG2 recommends that the Project Editor add ten (10) characters 4DB6..4DBF to CJK Extension A (3400..4DBF) that resulted from disunifications that are summarized in document N5068, with background information in documents N5080 (4), N5081 (1), N5083 (4), and N5094 (1).

(See also relevant recommendation M68.09 on page 43.)

11 Errata/modification

11.1 CJK ideographs Corrections - Editorial Report on Miscellaneous Issues from IRG meeting 52

Input documents:

5067 Request to change 4 glyphs in Horizontal Extension of KS X 1027-5 ; ROK; 2019-06-07

5068 Editorial Report on Miscellaneous Issues (meeting IRG#52); CJK Editorial group; 2019-05-17

5075 Request for TCA's Horizontal Extension and Updating 11 T Glyphs ; TCA; 2018-10-05

5078 Modify the T-glyph for U+6BD2 and U+93BF; TCA; 2019-05-10

5080 Disunification of 4 CJK characters; TCA; 2019-05-14

5082 Updated G Font of U+23517; China; 2019-05-31

5083 Errata report for WG2 submission TCA; TCA; 2019-05-31

5084 Request for updating source reference of 522 G4K-Source characters, [attachment, data](#); Kushim Jiang; 2018-12-25

5094 20 questionable V4-Source characters in Ext. C and Ext. E; Eiso Chan; 2019-02-14

5100 Additional repertoire for ISO/IEC 10646:2019 (6th ed.) CD.3, Draft; Michel Suignard, Project editor; 2019-06-15

Document N5068 is the editorial report summarizing the results from review of various input documents listed above. Mr. Michel Suignard briefly went over documents. Charts in document N5100 incorporate the resulting changes. The charts have blue background for glyph changes and source reference updates. Additions are shown with yellow background.

Discussion:

- a. Dr. Lu Qin: IRG members had all reviewed document N5068 – except Japan. They can perhaps review and provide feedback. Document N5082 has an update from China.
- b. Mr. Michel Suignard: Several radical/stroke information have been updated due to disunification. G4K sources have now numeric values – there were 3 separate groups. IRG decided to change G49 to G9. There were only 3 or 4 characters – I prefer to have G49 or G4K with digits instead of G9, which is self-referencing. (Mr. Michel Suignard will take it off line with China.)

Disposition: Accept the proposed changes. A revised code chart will show the updates. *See also discussion under section 10.4.1 on page 41.*

Relevant recommendation:

M68.09 (Miscellaneous CJK updates): WG2 recommends that the Project Editor incorporate the changes to glyphs, source references, horizontal extensions and radical stroke information from document N5068 for inclusion in the standard.

11.2 Change in font for the CJK radical blocks

Input documents:

5069 Proposal to change the font for the CJK Radicals Supplement & Kangxi Radicals blocks; Ken Lunde; 2019-06-10

5079 Glyph for U+2F2A KANGXI RADICAL LAME; John Jenkins; 2019-05-03

Dr. Ken Lunde: Duplicate glyphs were reported in CJK Radical and KangXi radical blocks at the UTC. I decided to prepare a font for both the blocks.

(Details are in the document N5069. Input in document N5079 has also been accommodated.)

Pages 2 and 3 show all the relevant radical blocks. Document N5100 shows the charts using the proposed font. There would still be more adjustments to be made. I got some feedback on Unihan mailing list.

There are 4 characters that are explicitly stated as Japanese simplified form. However, the glyphs are shown in non-Japanese forms. The font fixes the vertical stroke vs diagonal stroke for 2EEB and 2EEF also.

There are two characters in CJK Supplemental block – for which feedback would be useful.

2EB2 is with a glyph identical to 2EAB. 2EAB cannot be changed. 2EB2 can be changed -- to what is shown in KangXi dictionary. Another one is 2EB3. Alternative was discussed (on whiteboard). These are the crucial ones.

There are a few more.

2F25 – two forms appear in KangXi dictionary. One form is used in Taiwan and Hong Kong. Other form is used elsewhere. We are trying to make these glyphs region-agnostic.

2F2C – difference between main index and radical entry glyphs.

Discussion:

- a. Mr. Chen Zhuang: China has reviewed this document and we are OK with it.
- b. Mr. Liang Hai: Originally the glyphs were a mixed bag. In Dr. Ken Lunde’s new fonts, the glyphs are making the glyphs consistent. I would like to make a conscientious decision on this change – since it would have impact on current implementations. There are two glyphs that are necessary to be changed. Others could be used as they are.
- c. Mr. Michel Suignard: In Unicode documentation, one could add some note.
- d. Dr. Ken Lunde: Some text about the placement of the radicals could be inserted. I can send the editor some text.
- e. Mr. Michel Suignard: We can proceed with using the new font. We can use these fonts also for the CJK charts – that will be the side effect.
- f. Mr. Tetsuji Orita: Japan would like to see the resulting charts and provide feedback.

Disposition: Accept proposed font to use in CD.3 of 6th ed.

Relevant recommendation:

M68.12 (Font for CJK Radicals supplement and Kangxi Radical blocks): WG2 recommends that the Project Editor replace the font with the new font proposed in document N5069 for the code chart for CJK Radicals Supplement block (2E80..2EFF) and Kangxi Radicals block (2F00..2FDF) in the standard, based on the rationale provided in that document.

11.3 Change in font for Adlam script

Input document:

5076 Replacement of Adlam Reference Font in Codesheet to Updated Design; Neil Patel, et al.; 2019-04-19

Dr. Deborah Anderson: The request in document N5076 is to change the font for the chart for Adlam script.

Mr. Michel Suignard: Some of the changes are pretty dramatic and one would not expect such changes in a well-established writing system. Adlam script perhaps is relatively new from the font perspective. 1E94B was a new character added in CD.6th ed. (The new chart using the updated font was displayed.)

Mr. Andrew West: The only concern would be that the font developers do not keep tinkering with the font again.

Disposition: Accept the new font for use in 10646 6th edition.

Relevant recommendation:

M68.11 (Adlam font): WG2 recommends that the Project Editor replace the font with the new font proposed in document N5076 for the code chart for Adlam script (1E900..1E95F) in the standard, based on the rationale provided in that document.

12 Architecture issues

12.1 Mongolian

Input documents:

5061 Mongolian Working Group Meeting 3 (MWG3) Report; Lisa Moore; 2019-04-09

5062 Summary of proposals made during the third meeting of the Mongolian working group; Roozbeh Pournader; 2019-04-05

5073 Comments on Mongolian in UCS 6CD.2; China; 2019-06-08

5091 DUTR#54: Unicode Mongolian 12.1 Baseline; Ken Whistler; 2019-06-06

5093 UTC Mongolian Liaison Report to SC2/WG2; Lisa Moore/UTC; 2019-06-06

Output documents:

5103 Mongolian ad hoc report (WG2 meeting #68); Lisa Moore, Ad Hoc Chair; 2019-06-17

5104 Towards a well-formed Mongolian specification that allows interoperable implementations; Liang Hai; 2019-04-04

The Mongolian ad hoc met on Monday PM led by Ms. Lisa Moore.

Document N 5103 is the output report from the ad hoc meeting. Other documents listed above contain discussions after the last WG2 meeting, and were taken into account by the ad hoc meeting.

Discussion:

- a. Mr. Baatar Enkhdalai: I do not want to remove the annotations on Mongolian till the UTN is written.
- b. Mr. Roozbeh Pournader: I have the opposite view point. Too many implementers are using what we have and coming up with divergent implementations. We should remove it as soon as possible.
- c. Ms. Lisa Moore: We can keep the current information in a separate publicly available location – remove it from the standard right now.

- d. Mr. Liang Hai: There is some confusion in understanding. The UTN report preparation may take some time to include all the necessary information – such as shaping etc. The agreement was to capture the existing information in the UTR.
- e. Mr. Michel Suignard: There is a reference to the UTR 54 from the names lists as a temporary measure.
- f. Dr. Ken Whistler: The reference should be a temporary measure. At the next UTC meeting this would be firmed up. Once that happens the reference and the link could be removed from the names list. An informational reference could be put into CD 6th edition and by the time the standard is in FDIS stage the UTR would be firmed up and the reference will be valid.

Disposition: After more ad hoc discussions Section 3 of the report was updated. Accept the ad hoc report on Mongolian. Also accept the Mongolian ad hoc meeting planned for April 2020.

Relevant recommendation:

M68.16 (Mongolian): WG2 accepts the report of the Unicode Mongolian working group at this meeting, and recommends that SC2 note the different action items in N5103. WG2 endorses the creation of the Unicode Technical Report UTR#54 to document the Mongolian variants information and implementation guidelines, towards simplification of the Mongolian names list and referencing from ISO 10646. WG2 further encourages the experts to continue the work on open items identified in the report. WG2 also notes that a WG2 ad hoc Mongolian meeting will take place from 2020-04-01/03 at Adobe, San Jose, CA, USA (tentative location) (Michel Suignard as the convener), and invites all the interested experts to take note towards planning to attend the meeting.

(See also relevant recommendation M68.21 on page 45.)

13 Liaison reports

Input document:

[5102](#) SEI Liaison Report; Deborah Anderson/SEI; 2019-06-13

There was only one liaison report input to WG2 at this meeting. There was no discussion on it. Experts are requested to provide any comments they may have to the author.

14 Other business

14.1 Web site review

There was no discussion. However the hosts of the following web sites were appreciated. The project editor is gradually copying old WG2 documents from dkuug website to Unicode WG2 website.

Relevant recommendations:

M68.22 (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.

M68.23 (Appreciation to Unicode Consortium for web site support): WG2 thanks the Unicode Consortium and its staff for providing the new web site and its support for WG2.

15 Future meetings

Japan has confirmed to be the host for the next meeting (no. 69) from 2020-06-15 to 19. The location will be announced later. Dundee, Scotland, UK is the backup host and location.

Meeting no. 70 will be tentatively in June 2021, most likely be hosted in Dundee, Scotland, UK. Canada will explore being the backup.

In addition to the meetings requested to be approved by IRG (see under item 1 in section 8.1 on page 21), the following ad hoc meetings are also planned before WG2 meeting 69.

Ad Hoc meeting on Shuowen Seal, early Oct 2019, Taipei, Taiwan, Host: TCA.

Ad Hoc meeting on Mongolian, April 1-3, Adobe, San Jose, CA, USA.

Relevant recommendation:

M68.21 (Future meetings): WG2 endorses the following schedule for future meetings:

WG2 Meeting 69 – 2020-06-15/19 – (Japan, Location to be announced), Scotland, UK *backup*
(Co-located with SC2 plenary meeting 25)

WG2 Meeting 70 – 2021-06 (Dundee, Scotland, UK), Canada backup

IRG Meeting 54 Los Gatos, CA, USA 2020-05-18/22 (Unicode/Netflix)

IRG Meeting 55 New Haven, CT, USA, 2020-10-19/23 (Yale University)

Ad Hoc meeting on Small Seal, 2019-09-30 to 2019-10-01, Tatung University, Taipei, Taiwan, Host: TCA (see document N5109 for details).

Ad Hoc meeting on Mongolian, 2020-04-01/03, Host: Adobe, San Jose, CA, USA (tentative location).

16 Closing

16.1 Approval of Recommendations of meeting 68

Output document:

[5054](#) Meeting #68 Resolution; V.S. Umamaheswaran, Secretary; 2019-06-21

WG2 reviewed a set of draft recommendations prepared by the recording secretary with assistance from the drafting committee. The review resulted in some edits and corrections to the draft set. The final set of recommendations is in document [N5054](#). The WG2 convener will submit this document for SC2 consideration.

The character counts at the start of this meeting were as follows. **13793** in the currently published 5th edition including its Amendments 1 and 2. **5840** additions were in CD.2, for a total of **143771** prior to this WG2 meeting (meeting 68). Based on the recommendations at this meeting the CD.3 will have **5941** additions. This would result in a total of **143872** already encoded characters or characters accepted for encoding at the end of meeting 68. *As noted at the end of section 10.3.7.4 on page 40, 55 additional symbols that were accepted during the meeting missed being recorded in the recommendations. This would bring the total to 143927 in CD-3 text.*

Acknowledgements:

Relevant recommendation:

M68.24 (Appreciation to Host): WG2 thanks the national body of USA, and the Unicode Consortium for hosting the meeting. WG2 thanks Microsoft, in particular Ms. Jiali Sheng, Mr. Peter Constable, Ms. Karolina Kowalik and Mr. Ayman Aldahleh for providing the facilities, refreshments and excellent meeting support. WG2 further expresses its appreciation to the Unicode Consortium, Michel and Christine Suignard, and Murray and Kamie Sargent, for the excellent social evening and dinner. *See also appreciations in section 14.1 on page 45.*

16.2 Adjournment

The WG2 meeting 68 ended at 13:05h on Friday 2019-06-21.

17 Action items

All the action items recorded in the minutes of the previous meetings from 25 to 59, 61, 64 and 65, have been either completed or dropped. Status of outstanding action items from previous meetings 60, 62, 63, 66, 67 and new action items from this meeting 68 are listed in the tables below.

17.1 Outstanding action items from meeting 60, Chiang Mai, Thailand, 2012-10-22/27

Item	Assigned to / action (reference resolutions in document N4254 , and unconfirmed minutes in document N4253 for meeting 60, with any corrections noted in the minutes of meeting 61 in document N4403).	Status
AI-60-10	Irish national body - Mr. Michael Everson	
a.	To get more information related to the status, its stability and other clarifications based on the discussions in the meeting on document N4323 - Mwangwego script. M61 through M68 -- in progress.	In progress.

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

Item	Assigned to / action (reference resolutions in document N4554 , and unconfirmed minutes in document N4553 for meeting 62, with any corrections noted in the minutes of meeting 63 in document N4603).	Status
AI-62-6	Ad hoc group on Principles and Procedures (Dr. Umamaheswaran)	
a.	To take note of section 2.1 in document N4544 on Representation of CJK ideograph glyphs; and update the P&P document appropriately. M63 through M68 -- in progress.	In progress.
b.	With reference to N4543 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 M68 -- in progress.	In progress.

17.3 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	In progress.

	update the P&P document appropriately.	
AI-63-7	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson)	
	To take note of and act on the following item:	
a.	M63.15 (Khitani Large script): WG2 invites the authors of document N4631 to revise their proposal on the Khitan Large script taking into account the feedback summarized in the ad hoc report document N4642, working with other experts interested in this script. M64 through M68 -- in progress.	In progress.

17.4 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.	M66.18 (Naxi Dongba script): 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 M68 -- in progress.	In progress.

17.5 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-67-6	Experts from Japan (Mr. Wataru Takagi)	
	To take note of and act on the following items:	
a.	M67.30 (IRG Process): WG2 recommends that SC2 welcome the input from Japanese national body on improving the working of IRG (in document N4948), and invites the Japanese national body to take into consideration the feedback from the discussion in WG2. M68 in progress.	In progress.
AI-67-7	BIS (K. Manikandan), Experts on Assamese from India and elsewhere.	
	To take note of and act on the following item:	
a.	M67.25 (Assamese script): 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"> d. Add Assamese character names in the nameslist as annotations, e. Change the block header from Bengali to Bengali-Assamese, and, f. Prepare a revised contribution on new characters to be added. 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 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.	M67.26 (Shuishu script): 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 in progress.	In progress.
d.	M66.21 (Primitive Scripts of South West China): WG2 invites the authors of documents N4856 and N4901, to revise their proposals on Muya, Namuz and Ersu scripts, taking into account the feedback received at this meeting, working with other experts interested in this script. M68 in progress.	In progress.

17.6 New 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 - this document you are reading).	Status
AI-68-1	Recording Secretary - Dr. V.S. UMaaheswaran	
a.	To finalize the document N5054 containing the adopted meeting recommendations and send it to the convener as soon as possible.	Completed. Document N5054.
b.	To finalize the document N5122 containing the unconfirmed meeting minutes and send it to the convener as soon as possible.	
AI-68-2	Convener - Mr. Michel Suignard	
a.	To add relevant contributions carried forward from previous meetings to agenda of next meeting. (See list of documents under AI-68-11, item c below.)	
AI-68-3	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:	
a.	<p><i>M68.01 (Disposition of ballot comments of CD-2 to 6th Edition):</i> WG2 recommends that SC2 accepts the disposition of ballot comments on CD-2 to 6th edition in document N5106. The following significant changes are noted:</p> <ul style="list-style-type: none"> a. Remove: <ul style="list-style-type: none"> A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE, and A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE. Change the glyphs at A764 and A765 to have diagonal strokes instead of horizontal strokes. b. Remove 3050C (UK-02790) and add source reference UK-02790 to 22C3A. c. Move Gongche characters from 9FF0..9FF6 to 2A6D7..2A6DD (end of CJK Ext. B). d. Add UK-01969 (RS 140.9) as new entry in CJK Ext. G (new position is 30C5D). e. Remove: <ul style="list-style-type: none"> 11A48 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER LA, and 11A49 ZANABAZAR SQUARE CLUSTER-INITIAL LETTER SA. 	
b.	<i>M68.02 (Counting Rod Numerals):</i> WG2 recommends that the Project Editor remove 5 Southern Song counting rods at 1D379..1D37D from the CD of 6 th edition, based on the feedback in document N5071, pending a revised contribution.	
c.	<i>M68.03 (Yezidi script):</i> WG2 recommends that the Project Editor add the encoding of the Yezidi script proposed in document N5053, in a new block named Yezidi in the range 10E80..10EBF, and populate it with 47 characters at 10E80..10EA9, 10EAB..10EAD and 10EB0..10EB1, with their names and glyphs shown in document N5100.	
d.	<p><i>M68.04 (Tangut character additions):</i> WG2 recommends that the Project Editor add the following characters with their glyphs, source references and radical counts, as shown in document N5100 for encoding in the standard, based on the proposal in document N5064, and suggested modifications in document N5095:</p> <ul style="list-style-type: none"> a. 9 new Tangut ideographs at 18D00..18D08 in a new block named Tangut Supplement in the range 18D00..18D7F, and b. 6 new Tangut components at 18AFA..18AFF in the Tangut Components block. 	
e.	<p><i>M68.05 (Latin character additions):</i> WG2 recommends that the Project Editor add the following characters with their glyphs as shown in document N5100 for encoding in the standard:</p> <ul style="list-style-type: none"> a. A7C7 LATIN CAPITAL LETTER D WITH SHORT STROKE OVERLAY A7C8 LATIN SMALL LETTER D WITH SHORT STROKE OVERLAY A7C9 LATIN CAPITAL LETTER S WITH SHORT STROKE OVERLAY A7CA LATIN SMALL LETTER S WITH SHORT STROKE OVERLAY. in Latin Extended-D block, based on the proposal in document N5044, and suggested modifications in document N5095. b. 2E52 TIRONIAN SIGN CAPITAL ET in Supplemental Punctuation block, based on the proposal in document N5042, and suggested modifications in document N5095. c. A7F5 LATIN CAPITAL LETTER REVERSED HALF H A7F6 LATIN SMALL LETTER REVERSED HALF H in Latin Extended-D block, based on the proposal in document N5039. d. 1ABF COMBINING LATIN SMALL LETTER W BELOW 	

	<p>1AC0 COMBINING LATIN SMALL LETTER TURNED W BELOW in Combining Diacritical Marks Extended block, and, AB68 LATIN SMALL LETTER TURNED R WITH MIDDLE TILDE AB69 MODIFIER LETTER SMALL TURNED W AB6A MODIFIER LETTER LEFT TACK AB6B MODIFIER LETTER RIGHT TACK in Latin Extended-E block, based on the proposal in document N5036.</p>	
f.	<p><i>M68.06 (CJK Extension G Updates)</i>: WG2 recommends that the Project Editor incorporate the additions, disunifications, source reference corrections, radical corrections and glyph corrections arising out of the review of CJK Extension G (30000..3134F) in CD-2 of the standard, summarized in document N5065. The following additions and deletions are to be noted: Additions to CJK Ext-G: UK-01969(30C5D), GZ-4511301(30DD9), GZ-0722601(307BF) Deletions due to Unifications: UK-02790(formerly at 3050C), GZ-1861301(formerly at 309C9) (New CJK Ext. G range is 30000..3134A.)</p>	
g.	<p><i>M68.07 (CJK Extension A Additions)</i>: WG2 recommends that the Project Editor add ten (10) characters 4DB6..4DBF to CJK Extension A (3400..4DBF) that resulted from disunifications that are summarized in document N5068, with background information in documents N5080 (4), N5081 (1), N5083 (4), and N5094 (1).</p>	
h.	<p><i>M68.08 (China and TCA UNCs)</i>: WG2 recommends that the Project Editor add thirteen (13) characters at 9FF0..9FFC in the CJK Unified Ideographs block (4E00..9FFF), with their glyphs, source references and radical stroke information as shown in document N5100 for encoding in the standard, based on the proposal in documents N5072 and N5107.</p>	
i.	<p><i>M68.09 (Miscellaneous CJK updates)</i>: WG2 recommends that the Project Editor incorporate the changes to glyphs, source references, horizontal extensions and radical stroke information from document N5068 for inclusion in the standard.</p>	
j.	<p><i>M68.10 (Miscellaneous additions)</i>: WG2 recommends that the Project Editor add the following characters with their glyphs as shown in document N5100 for encoding in the standard:</p> <ul style="list-style-type: none"> a. 2E50 CROSS PATTY WITH RIGHT CROSSBAR, and 2E51 CROSS PATTY WITH LEFT CROSSBAR in the Supplemental Punctuation block, based on the proposal in document N5037. b. 1019C ASCIA SYMBOL in Ancient Symbols block, based on the proposal in document N5038. c. 11147 CHAKMA LETTER VAA in Chakma block, based on the proposal in document N5055. d. 31BC BOPOMOFO LETTER GW 31BD BOPOMOFO LETTER KW 31BE BOPOMOFO LETTER OE, and 31BF BOPOMOFO LETTER AH in Bopomofo Extended block, based on the proposal in document N5052. e. 08C5 ARABIC LETTER JEEM WITH THREE DOTS ABOVE, and 08C6 ARABIC LETTER JEEM WITH THREE DOTS BELOW in Arabic Extended A block, based on the proposal in document N5049. f. 08C7 ARABIC LETTER LAM WITH SMALL ARABIC LETTER TAH ABOVE in Arabic Extended-A block, based on the proposal in document N5048. 	
k.	<p><i>M68.11 (Adlam font)</i>: WG2 recommends that the Project Editor replace the font with the new font proposed in document N5076 for the code chart for Adlam script (1E900..1E95F) in the standard, based on the rationale provided in that document.</p>	
l.	<p><i>M68.12 (Font for CJK Radicals supplement and Kangxi Radical blocks)</i>: WG2 recommends that the Project Editor replace the font with the new font proposed in document N5069 for the code chart for CJK Radicals Supplement block (2E80..2EFF) and Kangxi Radicals block (2F00..2FDF) in the standard, based on the rationale provided in that document.</p>	
m.	<p><i>M68.13 (Consideration for attachments and references in the next edition)</i>: WG2 recommends that the Project Editor create two separate clauses separating the lists of references in the standard: one with the list of data files that would have been attached to the standard, and the other a list of</p>	

	normative references to items common with the Unicode Standard. Further, WG2 recommends that the project editor adopt the proposed changes from CD-2 disposition of comments for TE.1 from Japan, on page 11 in document N5106. Also, WG2 requests that SC2 endorses this recommendation for preparation of the 6th edition of the standard.	
n.	<p>Missed item from recommendations: (From document N5056 on <i>Emoji input</i>) The 55 characters that were accepted for inclusion in the standard, are listed below:</p> <p>4 characters in Transport and Map Symbols block: 1F6D6 HUT, 1F6D7 ELEVATOR, 1F6FB PICKUP TRUCK, and 1F6FC ROLLER SKATE</p> <p>10 characters in Supplemental Symbols and Pictographs block: 1F90C PINCHED FINGERS, 1F972 SMILING FACE WITH TEAR, 1F977 NINJA, 1F978 DISGUISED FACE, 1F9A3 MAMMOTH, 1F9A4 DODO, 1F9AB BEAVER, 1F9AC BISON, 1F9AD SEAL, and 1F9CB BUBBLE TEA</p> <p>41 characters in Symbols and Pictographs Extended-A block: 1FA74 THONG SANDAL, 1FA83 BOOMERANG, 1FA84 MAGIC WAND, 1FA85 PINATA, 1FA86 NESTING DOLLS, 1FA96 MILITARY HELMET, 1FA97 ACCORDION, 1FA98 LONG DRUM, 1FA99 COIN, 1FA9A CARPENTRY SAW, 1FA9B SCREWDRIVER, 1FA9C LADDER, 1FA9D HOOK, 1FA9E MIRROR, 1FA9F WINDOW, 1FAA0 PLUNGER, 1FAA1 SEWING NEEDLE, 1FAA2 KNOT, 1FAA3 BUCKET, 1FAA4 MOUSE TRAP, 1FAA5 TOOTHBRUSH, 1FAA6 HEADSTONE, 1FAA7 PLACARD, 1FAA8 ROCK, 1FAB0 FLY, 1FAB1 WORM, 1FAB2 BEETLE, 1FAB3 COCKROACH, 1FAB4 POTTED PLANT, 1FAB5 WOOD, 1FAB6 FEATHER, 1FAC0 HEART, 1FAC1 LUNGS, 1FAC2 PEOPLE HUGGING, 1FAD0 BLUEBERRIES, 1FAD1 BELL PEPPER, 1FAD2 OLIVE, 1FAD3 FLATBREAD, 1FAD4 TAMALE, 1FAD5 FONDUE, and 1FAD6 TEAPOT.</p>	
o.	M68.14 (Progression of CD): WG2 recommends that the Project Editor prepare the final text of CD of the 6th edition of the standard, which will include the changes arising from recommendation M68.01 through M68.13 above, along with the final disposition of comments (document N5106 http://www.unicode.org/wg2/docs/n4952R-dam1DOC.pdf), and forward it to the SC2 secretariat for processing as an CD-3 ballot. The draft code charts are in document N5100. The target starting dates are modified to CD-3 2019-08, DIS 2019-11, FDIS 2020-07.	
AI-68-4	IRG Rapporteur and IRG Editor (Dr. Lu Qin)	
	To take note of and act upon the following item:	
a.	<i>Recommendation M68.17 (IRG Name Change):</i> WG2 recommends that SC2 change the name of IRG from 'Ideographic Rapporteur Group' to 'Ideographic Research Group', and make the IRG an ad hoc group reporting to WG2, continuing with its current mission of reviewing contributions on encoding of Unified Ideograph characters in support of East Asian languages, assisting WG2 in the continued development and maintenance of ISO/IEC 10646.	
AI-68-5	Ad hoc group on roadmap (Dr. Umamaheswaran)	
a.	To update the Roadmaps with the results from this meeting.	Completed. See latest roadmaps.
AI-68-6	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:	
a.	<i>Recommendation M68.15 (Small Seal script):</i> WG2 recommends that SC2 notes the progress made by the experts in document N5089, and encourages the experts to continue the work towards a contribution for encoding the script, taking into account the feedback documents and discussion at this meeting (document N5108). WG2 notes that another ad hoc meeting of experts is planned to be held from 2019-09-30 to 2019-10-01 at Tatung University, Taipei, and invites all the interested experts to take note towards planning to attend the meeting (see document N5109).	
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.	
AI-68-8	Experts from TCA (Selena Wei), and other experts interested in Bopomofo.	
	To take note of and act on the following item:	
a.	<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.	

AI-68-9	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:	
a.	<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.	
AI-68-10	Experts from China (Chen Zhuang), UK (Andrew West), Japan (Toshiya Suzuki), Ireland (Mr. Michael Everson). TCA (Lin Mei Wei), Experts from Mongolia, and other experts interested in Mongolian script.	
	To take note of and act on the following item:	
a.	<i>Recommendation M68.16 (Mongolian):</i> WG2 accepts the report of the Unicode Mongolian working group at this meeting, and recommends that SC2 note the different action items in N5103. WG2 endorses the creation of the Unicode Technical Report UTR#54 to document the Mongolian variants information and implementation guidelines, towards simplification of the Mongolian names list and referencing from ISO 10646. WG2 further encourages the experts to continue the work on open items identified in the report. WG2 also notes that a WG2 ad hoc Mongolian meeting will take place from 2020-04-01/03 at Adobe, San Jose, CA, USA (tentative location) (Michel Suignard as the convener), and invites all the interested experts to take note towards planning to attend the meeting.	
AI-68-11	Experts from all national bodies and liaison organizations	
	To take note of and provide feedback on the following items.	
a.	<i>Recommendation M68.21 (Future meetings):</i> WG2 endorses the following schedule for future meetings: WG2 Meeting 69 – 2020-06-15/19 – (Japan, Location to be announced), Scotland, UK <i>backup</i> (Co-located with SC2 plenary meeting 25) WG2 Meeting 70 – 2021-06 (Dundee, Scotland, UK), Canada <i>backup</i> IRG Meeting 54 Los Gatos, CA, USA 2020-05-18/22 (Unicode/Netflix) IRG Meeting 55 New Haven, CT, USA, 2020-10-19/23 (Yale University) Ad Hoc meeting on Small Seal, 2019-09-30 to 2019-10-01, Tatung University, Taipei, Taiwan, Host: TCA (see document N5109 for details). Ad Hoc meeting on Mongolian, 2020-04-01/03, Host: Adobe, San Jose, CA, USA (tentative location).	
b.	To provide feedback to the author(s) of document N4749 on Circled Numbers, document N5040 on Three Christian Symbols, document N5041 on Jianzi Musical Notation and Format Controls, document N5043 on proposal for ten characters for Middle English, document N5045 on proposal for two characters for Middle Scots, document N5063 on Egyptian Hieroglyphs Extension, document N5092 on Tamga symbols, document N5098 on Western Cham script, and document N5101 on proposal on Komi letters. (All these documents were discussed at this meeting).	
c.	Script proposals carried from previous meetings (with updated references): Afáka (N4292), Bagam (N4293), Balti ‘B’ (N4016), Balti scripts (N3842), Bété (N4876), Bima (L2/16-119), Brusha (L2/17-183), Buginese extensions (L2/16-159), Chinese Chess Symbols (N3910), Cypro-Minoan (N4733), Diwani Siyaq Numbers (L2/15-066R), Egyptian Hieroglyphs Extended-A (N5063), Egyptian Hieroglyphs Extended-B (N4944), Eebee Hmong (N4668), Garay (N4709), Jurchen (N4795), Kawi (N4266), Kerinci (L2/16-074), Khambu Rai (N4018), Khatt-i Baburi (N4130), Khitan Large (N4631, N4642), Khotanese (L2/15-022), Kpelle (N3762), Kulitan (L2/15-232), Lampung (L2/16-073), Landa (N3768), Leke (N4438), 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 (N4687), Palaeohispanic Northern (L2/19-332), Palaeohispanic Southern (L2/19-333), Pau Cin Hau Syllabary (L2/16-014), Persian Siyaq (L2/15-112R), Proto-Cuneiform (N4797), Pungchen (L2/17-181), Pyu (N3874), Ranjana (N4515, L2/16-015), Southwest China Hieroglyphs (N4856, N4901), Sumbawa (L2/16-096), Tigarali (L2/17-378), Tocharian (L2/15-236), Tolong Siki (N3811), Vexillology symbols (L2/17-089), Vithkuqi (N4854), Western Cham to (N5098), Woleai (N4146), and Zou (N3864).	

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