

Date: 2019 Oct 4 (revised Oct 7)

To: UTC & CLDR

From: Apple Localization Engineering, transmitted/edited by Peter Edberg

Subj: Comments on proposed kMandarin changes per 3 UTC actions & documents

This document consolidates proposed changes to the Unihan kMandarin field per the following UTC actions (with associated CLDR bugs and UTC documents), and provides comments on the proposed changes from Apple Localization Engineering (this Oct 7 revision also includes updates in response to [L2/19-361](#)):

UTC action	CLDR bug	UTC document	UTC document link
151-A36a	CLDR-10251	L2/17-109	https://www.unicode.org/L2/L2017/17109-unihan-db-corr.pdf
		Some of the changes in the above were also proposed by Persson in the following:	
		L2/15-036R3	https://www.unicode.org/L2/L2015/15036r3-unified-readings.pdf
155-A40a	CLDR-11101	L2/18-117	https://www.unicode.org/review/pri361/feedback.html , see Mar 13 item
159-A47	CLDR-13144	L2/19-161	https://www.unicode.org/L2/L2019/19161-kmandarin-148.pdf

The Unihan [kMandarin](#) field is described in [UAX #38](#) as follows:

- “The most customary pinyin reading for this character. When there are two values, then the first is preferred for zh-Hans (CN) and the second is preferred for zh-Hant (TW). When there is only one value, it is appropriate for both.
- “This field is targeted specifically for use by CLDR collation and transliteration. As such, it is subject to considerations that help keep pinyin-based Han collation (and its tailorings) and transliteration reasonably stable. The values may not in all cases track the preferred use in some dictionaries.”

Additionally, the kMandarin field should match the expectations of users of CLDR/ICU Chinese collations and transliteration; in many cases this means matching the readings in dictionaries that such users are most likely to consult.

The Apple Localization Engineering team consulted the following online dictionaries for the feedback here:

- <http://chardb.iis.sinica.edu.tw>
- <https://ctext.org/dictionary.pl?if=gb>
- <https://zidian.911cha.com>
- <https://www.cns11643.gov.tw> (for some Oct 7 updates)

The attached spreadsheet consolidates input from the proposals listed at the top, and provides comments from Apple Localization Engineering. Suggested resolutions based on Apple comments:

- **AGREE** (172): **use proposed value.**
- **COMBINE** (3): **use suggested value** that combines proposed value (for CN) with current or other value (for TW).
- **BOTH** (27): current and proposed are both valid; **keep current** for stability.
- **MULTIPLE including proposed** (16): proposed and another value are both valid; **use proposed.**
- **MULTIPLE including current** (10): proposal removes reading, but current and another value are both valid; **keep current.**
- **MULTIPLE, comment omits proposed or changes current** (4): needs further study, **keep current** for now.
- **DISAGREE** (4): needs further study, **keep current** for now.

2019 Oct 7 rev: Proposed kMandarin changes per 3 UTC actions & documents, with comments from Apple Loc. Eng.

character	code	kMandarin current; if two values, first is for CN/Hans, second for TW/Hant	kMandarin in proposal	proposal	Apple Loc. Eng. comments: AGREE with proposal; COMBINE proposed with current or other as CN/TW entries; BOTH – found references for both current & proposed, not a CN/TW difference; MULTIPLE – references suggest other multiple readings; DISAGREE with proposal.	corresponding traditional character (same readings apply)	corresponding traditional character code	corresponding traditional character kMandarin current
捺	U+3D0E	---	nài	17-109	AGREE			
燻	U+3E06	---	kào	19-161	AGREE			
葶	U+44EC	---	zhuó	19-161	AGREE			
駁	U+4B78	bǎo	fù	17-109	AGREE			
嫫	U+5A47	cāi	cǎi	17-109, also 15-036R3	AGREE			
悞	U+60B7	sàn	lì	17-109, also 15-036R3	AGREE			
樋	U+6A0B	tǒng	tōng	17-109, also 15-036R3	AGREE			
欄	U+6ADA	lú	lú	17-109, also 15-036R3	AGREE			
珞	U+73D6	guàng	guāng	17-109, also 15-036R3	AGREE			
瞞	U+77A1	guǐ	guī	17-109, also 15-036R3	AGREE			
腓	U+815C	měi	méi	17-109, also 15-036R3	AGREE			
腓	U+816C	ròu	róu	17-109, also 15-036R3	AGREE			
脛	U+8192	óu	ōu	17-109, also 15-036R3	AGREE			
蔴	U+8491	yìn	yīn	17-109, also 15-036R3	AGREE			

訊	U+8A09	fān	fàn	17-109, also 15-036R3	AGREE			
郢	U+90D8	lú	lǚ	17-109, also 15-036R3	AGREE			
終	U+9D24	dōng	zhōng	17-109, also 15-036R3	AGREE			
鷓	U+9E00	chǔ	shǔ	17-109, also 15-036R3	AGREE			
惠	U+20164	---	xí	19-161	AGREE			
	U+208E1	fèng	---	17-109	AGREE			
	U+21B15	---	lóng	17-109	AGREE			
	U+22741	---	hōng	17-109	AGREE			
	U+2588F	---	diàn	17-109	AGREE			
	U+2589F	hù	---	17-109	AGREE			
	U+258F9	ràn	---	17-109	AGREE			
	U+258FA	---	ràn	17-109	AGREE			
	U+25C1F	gǎn	yuán	17-109	AGREE			
肱	U+26676	---	gǔ	19-161	AGREE			
蕲	U+26C21	---	nà	19-161	AGREE			
	U+272D5	kǔn	kùn	17-109	AGREE			
	U+2757A	shuàng	shuāng	17-109	AGREE			
	U+27956	lì	lí	17-109	AGREE			
	U+280A2	jì	jí	17-109	AGREE			
	U+2824B	tuó	tuō	17-109	AGREE			
	U+284A8	nài	hài	17-109	AGREE			
	U+287B3	qú	---	17-109	AGREE			

	U+28ABF	---	liú	17-109	AGREE			
	U+28DED	chǎn	chán	17-109	AGREE			
阨	U+28E30	jù	jú	17-109	AGREE			
	U+293CF	wěi	wéi	17-109	AGREE			
	U+295F5	zhěng	zhēng	17-109	AGREE			
	U+29B5D	wō	wǒ	17-109	AGREE			
	U+2A008	yuān	---	17-109	AGREE			
楼	U+2A8FB	---	lóu	19-161	AGREE	樓	U+587F	lǒu
廖	U+2A917	---	liào	19-161	AGREE			
岫	U+2AA30	---	qū	19-161	AGREE			
峯	U+2AA36	---	shē	19-161	AGREE	峯	U+8F0B	shē
巘	U+2AA58	---	yǎn	19-161	AGREE	巘	U+5DD8	yǎn
缜	U+2B127	---	yán	19-161	AGREE	縝	U+7D96	yán
縢	U+2B137	---	yì	19-161	AGREE	縢	U+7E76	yì
茈	U+2B1ED	---	wěi	19-161	AGREE	蔞	U+848D	wěi
诌	U+2B363	---	tóng	19-161	AGREE	詭	U+8A77	tóng
诚	U+2B36F	---	xián	19-161	AGREE	誠	U+8AF4	xián
還	U+2B37D	---	xuān	19-161	AGREE	還	U+8B5E	xuān
郾	U+2B461	---	méng	19-161	AGREE	鄆	U+9133	méng
铊	U+2B4EF	---	jī	19-161	AGREE	銻	U+9288	jī
铊	U+2B4F6	---	xuān	19-161	AGREE	鎇	U+92D7	xuān
棋	U+2B4F9	---	jī	19-161	AGREE	棋	U+9324	jī

鐻	U+2B50D	---	fán	19-161	AGREE	鐻	U+9407	fán
闐	U+2B536	---	niè	19-161	AGREE	闐	U+95D1	niè
顛	U+2B5AE	---	yǐ	19-161	AGREE	顛	U+9857	yǐ
頰	U+2B5AF	---	fǔ	19-161	AGREE	頰	U+982B	fǔ
駁	U+2B61C	---	wén	19-161	AGREE	駁	U+99BC	wén
駒	U+2B626	---	táo	19-161	AGREE	駒	U+9A0A	táo
駱	U+2B627	---	lù	19-161	AGREE	駱	U+9A04	lù
駮	U+2B62A	---	yuán	19-161	AGREE	駮	U+9A35	yuán
騾	U+2B62C	---	xí	19-161	AGREE	騾	U+9A31	xí
鯊	U+2B696	---	cǐ	19-161	AGREE	鯊	U+9B86	cǐ
鱘	U+2B6AD	---	liè	19-161	AGREE	鱘	U+9C72	liè
鴛	U+2B6ED	---	kuáng	19-161	AGREE	鴛	U+9D5F	kuáng
璫	U+2B7A9	---	mén	19-161	AGREE	璫	U+748A	mén
綜	U+2B7C5	---	liáng	19-161	AGREE	綜	U+7DA1	liáng
辮	U+2B7E6	---	suì	19-161	AGREE	辮	U+4875	suì
鉸	U+2B7F7	---	lì	19-161	AGREE	鉸	U+925D	lì
鉞	U+2B7F9	---	hóng	19-161	AGREE	鉞	U+9277	hóng
鈹	U+2B7FC	---	dá	19-161	AGREE	鈹	U+943D	dá
頰	U+2B806	---	kuǐ	19-161	AGREE	頰	U+980D	kuǐ
駮	U+2B80A	---	xuán	19-161	AGREE	駮	U+4B84	xuán
齷	U+2B81C	---	ní	19-161	AGREE	齷	U+9F6F	ní

倅	U+2B8B8	---	dàn	19-161	AGREE	儻	U+50E4	dàn
堰	U+2BB5F	---	ōu	19-161	AGREE	堰	U+5878	ōu
垠	U+2BB62	---	lǔn	19-161	AGREE	垠	U+57E8	lǔn
塆	U+2BB7C	---	láo	19-161	AGREE	?	U+2144D	láo
埤	U+2BB83	---	shàn	19-161	AGREE	埤	U+58A0	shàn
姪	U+2BC1B	---	xíng	19-161	AGREE	姪	U+5A19	xíng
岍	U+2BD77	---	lì	19-161	AGREE	岍	U+3823	lì
廡	U+2BDF7	---	xīn	19-161	AGREE	廡	U+5EDE	xīn
驱	U+2BE29	---	kōu	19-161	AGREE	驱	U+5F44	kōu
晷	U+2C029	---	wěi	19-161	AGREE	晷	U+6690	wěi
睨	U+2C02A	---	xiàn	19-161	AGREE	睨	U+665B	xiàn
挟	U+2C0A9	---	jiā	19-161	AGREE	挟	U+689C	jiā
楨	U+2C0CA	---	zhì	19-161	AGREE	楨	U+6ACD	zhì
沔	U+2C1D5	---	wàn	19-161	AGREE	沔	U+6FAB	wàn
涸	U+2C1F9	---	guó	19-161	AGREE	涸	U+6F0D	guó
焯	U+2C288	---	xún	19-161	AGREE	焯	U+71D6	xún
骀	U+2C317	---	hé	19-161	AGREE			
砾	U+2C35B	---	lì	19-161	AGREE	砾	U+74C5	lì
塋	U+2C361	---	dàng	19-161	AGREE	塋	U+7497	dàng
琇	U+2C364	---	xún	19-161	AGREE	琇	U+7495	xún
硝	U+2C494	---	gěng	19-161	AGREE			

磙	U+2C497	---	lán	19-161	AGREE	礪	U+255FD	---
箐	U+2C542	---	lǒng	19-161	AGREE	簣	U+7BE2	lǒng
紉	U+2C613	---	xún	19-161	AGREE	紉	U+7D03	xún
紉	U+2C618	---	dǎn	19-161	AGREE	紉	U+7D1E	dǎn
紈	U+2C621	---	yīn	19-161	AGREE	紈	U+7D6A	yīn
縊	U+2C629	---	tīng	19-161	AGREE	縊	U+7D8E	tīng
縊	U+2C62C	---	qiàn	19-161	AGREE	縊	U+7DAA	qiàn
縊	U+2C62F	---	zhǔn	19-161	AGREE	縊	U+7DA7	zhǔn
縊	U+2C64A	---	mò	19-161	AGREE	縊	U+7E86	mò
縊	U+2C64B	---	xiāng	19-161	AGREE	縊	U+7E95	rǎng
苧	U+2C72C	---	màn	19-161	AGREE	苧	U+8504	màn
苧	U+2C72F	---	liǎng	19-161	AGREE	苧	U+44E3	liǎng
蘋	U+2C79F	---	pín	19-161	AGREE	蘋	U+860B	píng
蔞	U+2C7C1	---	yì	19-161	AGREE	蔞	U+8649	yì
訃	U+2C8D9	---	xū	19-161	AGREE	訃	U+8A0F	xū
讎	U+2C8DE	---	zhǔ	19-161	AGREE	讎	U+8A5D	zhǔ
讎	U+2C8E1	---	jiàn	19-161	AGREE	讎	U+8AD3	jiàn
讎	U+2C8F3	---	hěn	19-161	AGREE	讎	U+8A6A	hěn
諶	U+2C907	---	yīn	19-161	AGREE	諶	U+8AF2	yīn
諶	U+2C90A	---	shì	19-161	AGREE	諶	U+8ADF	shì
諶	U+2C91D	---	huì	19-161	AGREE	諶	U+8B53	huì

軋	U+2CA02	---	qí	19-161	AGREE	軋	U+8EDD	qí
轆	U+2CA0E	---	yóu	19-161	AGREE	輜	U+8F36	yóu
郇	U+2CA7D	---	xún	19-161	AGREE	郇	U+9129	xún
醜	U+2CAA9	---	nóng	19-161	AGREE	醜	U+91B2	nóng
钇	U+2CB29	---	yì	19-161	AGREE	鈺	U+91F4	yì
钊	U+2CB2D	---	lún	19-161	AGREE	鎗	U+9300	lún
钋	U+2CB2E	---	chǎng	19-161	AGREE	鋹	U+92F9	chǎng
铈	U+2CB31	---	jīn	19-161	AGREE	釕	U+91FF	jīn
铉	U+2CB38	---	shù	19-161	AGREE	銻	U+9265	shù
铊	U+2CB39	---	shén	19-161	AGREE	鉈	U+926E	huán
铋	U+2CB3B	---	lú	19-161	AGREE	鑪	U+946A	lú
铌	U+2CB3F	---	zhāo	19-161	AGREE	鋇	U+924A	zhāo
铍	U+2CB41	---	mǔ	19-161	AGREE	鉬	U+9267	mǔ
铊	U+2CB4A	---	dù	19-161	AGREE	鉳	U+289C0	---
铋	U+2CB4E	---	hóng	19-161	AGREE	鉍	U+92D0	hóng
铋	U+2CB5B	---	bō	19-161	AGREE	鉞	U+28A0F	---
铋	U+2CB64	---	hóu	19-161	AGREE	鉞	U+936D	hóu
铋	U+2CB69	---	wēng	19-161	AGREE	鎘	U+9393	wēng
铋	U+2CB6C	---	huì	19-161	AGREE	鎘	U+93CF	wèi
铋	U+2CB6F	---	piě	19-161	AGREE	鎘	U+4955	piě
铋	U+2CB73	---	xǐ	19-161	AGREE	鎘	U+28B4E	---

鏢	U+2CB76	---	hēi	19-161	AGREE	鏢	U+28B46	hēi
鏘	U+2CB78	---	lín	19-161	AGREE	鏘	U+93FB	lín
鏘	U+2CB7C	---	suì	19-161	AGREE	鏘	U+9429	suì
閏	U+2CBB1	---	yīn	19-161	AGREE	閏	U+95C9	yīn
濟	U+2CBC0	---	jī	19-161	AGREE	濟	U+96AE	jī
頤	U+2CC56	---	dí	19-161	AGREE	頤	U+9814	dí
頤	U+2CC5F	---	wěi	19-161	AGREE	頤	U+9820	wěi
駉	U+2CCF5	---	pī	19-161	AGREE	駉	U+99D3	pī
駟	U+2CCF6	---	jiōng	19-161	AGREE	駟	U+99C9	jiōng
駟	U+2CCFD	---	shēn	19-161	AGREE	駟	U+99EA	shēn
駟	U+2CCFF	---	tú	19-161	AGREE	駟	U+99FC	tú
駟	U+2CD02	---	fēi	19-161	AGREE	駟	U+9A11	fēi
駟	U+2CD03	---	huō	19-161	AGREE	駟	U+9A1E	huō
駟	U+2CD0A	---	lín	19-161	AGREE	駟	U+9A4E	lín
鮠	U+2CD8B	---	jū	19-161	AGREE	鮠	U+9B88	jū
鮠	U+2CD8D	---	tuó	19-161	AGREE	鮠	U+9B80	tuó
鮠	U+2CD8F	---	wéi	19-161	AGREE	鮠	U+9BA0	wéi
鮠	U+2CD90	---	zhào	19-161	AGREE	鮠	U+9BA1	zhào
鯪	U+2CD9F	---	là	19-161	AGREE	鯪	U+9BFB	là
鯪	U+2CDA0	---	liàn	19-161	AGREE	鯪	U+9C0A	liàn
鯪	U+2CDA8	---	jì	19-161	AGREE	鯪	U+9C40	jì

鰲	U+2CDAD	---	jì	19-161	AGREE	鰲	U+9C36	jì
鯨	U+2CDAE	---	xǐ	19-161	AGREE	鯨	U+9C5A	xǐ
鷗	U+2CE18	---	yǎn	19-161	AGREE	鷗	U+9DA0	yǎn
鸞	U+2CE1A	---	yuè	19-161	AGREE	鸞	U+9E11	yuè
鸞	U+2CE26	---	zhuó	19-161	AGREE	鸞	U+9DDF	zhuó
鵠	U+2CE2A	---	fán	19-161	AGREE	鵠	U+9DED	fán
齧	U+2CE7C	---	xiè	19-161	AGREE	齧	U+9F58	xiè
齧	U+2CE88	---	yǐ	19-161	AGREE	齧	U+9F6E	yǐ
齧	U+2CE93	---	chǔ	19-161	AGREE	齧	U+9F7C	chǔ
諷	U+8BBD	fèng	fěng	18-117	COMBINE: fěng fèng	諷	U+8AF7	fěng fèng
識	U+8BC6	shì	shí	18-117	COMBINE: shí shì	識	U+8B58	shí shì
勸	U+2A7DD	---	jì	19-161	COMBINE: jì jī	勸	U+52E3	jī
慮	U+389C	kàng	kāng	17-109	BOTH			
穉	U+417F	huáng	huá	17-109	BOTH			
訃	U+46BE	nín	rén	17-109	BOTH			
駢	U+4B7B	fù	fēn	17-109	BOTH			
鴿	U+4CC9	dàn	dōng	17-109	BOTH			
贍	U+4D7B	gǔ	huì	17-109	BOTH			
媿	U+5A4F	fàn	fù	17-109, also 15-036R3	BOTH			
媿	U+5A64	chōu	zhōu	17-109, also 15-036R3	BOTH			
嬖	U+5B45	qiān	xiān	17-109, also 15-036R3	BOTH			

滇	U+6E5E	chēng	zhēn	17-109, also 15-036R3	BOTH			
潭	U+6F6C	shàn	tān	17-109, also 15-036R3	BOTH			
璚	U+74BE	zī	jì	17-109, also 15-036R3	BOTH			
塘	U+2141D	fù	fú	17-109	BOTH			
𪛗	U+21594	nuǒ	nuó	17-109	BOTH			
𪛘	U+2199D	xiáo	xiāo	17-109	BOTH			
	U+21B0D	lóng	mí	17-109	BOTH			
	U+21B10	mí	yí	17-109	BOTH			
	U+2243F	rǒng	rǎng	17-109	BOTH			
	U+2273D	kuǐ	kuí	17-109	BOTH			
	U+22A10	jī	jí	17-109	BOTH			
	U+245ED	xiā	xià	17-109	BOTH			
	U+24704	huài	huái	17-109	BOTH			
	U+247AE	zhāi	zhài	17-109	BOTH			
	U+24856	yān	yán	17-109	BOTH			
	U+248B5	ài	lài	17-109	BOTH			
	U+2546B	kǎn	kān	17-109	BOTH			
	U+2588D	sui	hù	17-109	BOTH			
					MULTIPLE including proposed:			
影	U+5F6F	piǎo	piāo	17-109, also 15-036R3	MULTIPLE: piāo (proposed), piào			
𪛙	U+65FD	tùn	tūn	17-109, also 15-036R3	MULTIPLE: tūn (proposed), zhùn			
𪛚	U+282EE	---	hōng	17-109	MULTIPLE: hōng (proposed), chūn			

頽	U+2B5B3	---	yūn	19-161	MULTIPLE: yūn (proposed), jūn (per e.g. https://en.wiktionary.org/wiki/頽#Chinese)	頽	U+9835	yūn
噁	U+2BAC7	---	è	19-161	MULTIPLE: è (proposed), ě	噁	U+5641	ě
滯	U+2BD87	---	dié	19-161	MULTIPLE: dié (proposed), dì	滯	U+5D7D	dié
汨	U+2C1D9	---	bèi	19-161	MULTIPLE: bèi (proposed), pèi	汨	U+6D7F	pèi
焮	U+2C27C	---	ǒu	19-161	MULTIPLE: ǒu (proposed), ōu	焮	U+71B0	ōu
焯	U+2C2A4	---	chǎn	19-161	MULTIPLE: chǎn (proposed), dǎn	焯	U+71C0	chǎn
岩	U+2C488	---	què	19-161	MULTIPLE: què (proposed), hú	巖	U+7910	què
紈	U+2C62B	---	huán	19-161	MULTIPLE: huán (proposed), huǎn	紈	U+7D84	huán
縝	U+2C642	---	yǎn	19-161	MULTIPLE: yǎn (proposed), yǐn	縝	U+7E2F	yǎn
蝻	U+2C7FD	---	dōng	19-161	MULTIPLE: dōng (proposed), dòng	蝻	U+8740	dōng
錞	U+2CB5A	---	chún	19-161	MULTIPLE: chún (proposed), duì	錞	U+931E	chún
隄	U+2CBBF	---	gài	19-161	MULTIPLE: gài (proposed), qí	隄	U+9691	gài
鵠	U+2CDD5	---	bǔ	19-161	MULTIPLE: bǔ (proposed), bū	鵠	U+9D4F	bǔ
					MULTIPLE including current (no proposed)			
寢	U+21B13	yí	---	17-109	MULTIPLE: yí (current), qǐn			
穹	U+226D9	wǎn	---	17-109	MULTIPLE: wǎn (current), qióng			
愒	U+2277B	hōng	---	17-109	MULTIPLE: hōng (current), hū			
	U+258AE	huá	---	17-109	MULTIPLE: huá (current), qín			
	U+27977	rén	---	17-109	MULTIPLE: rén (current), qì			
	U+28301	hōng	---	17-109	MULTIPLE: hōng (current), kān			
	U+28718	méi	---	17-109	MULTIPLE: méi (current), yǎn			
	U+28A95	liú	---	17-109	MULTIPLE: liú (current), yì			

	U+29888	fēn	---	17-109	MULTIPLE: fēn (current), bǎo			
	U+29FE5	qú	---	17-109	MULTIPLE: qú (current), mí			
					MULTIPLE, comment omits proposed or changes current			
訃	U+46C2	yāo	---	17-109	MULTIPLE: chí, chǐ			
璫	U+249EB	jìn	jīn	17-109	MULTIPLE: jìn (current), duī; do not use jīn (proposed) - less common			
鷓	U+2A048	zhuàng	zhuāng	17-109	MULTIPLE: zhuàng (current), chūn; do not use zhuāng (proposed)			
鷓	U+2A249	zhuàng	zhuāng	17-109	MULTIPLE: zhuàng (current), chūn; do not use zhuāng (proposed)			
備	U+2031A	ròng	nòng	17-109	DISAGREE, only found references for current reading			
粹	U+22892	sù	sū	17-109	DISAGREE, keep current, found no references for proposed reading			
嶸	U+275C8	n	nú	17-109	DISAGREE, suggest nù (per https://www.cns11643.gov.tw/wordView.jsp?ID=350242)			
麩	U+2A2A2	shǐ	shí	17-109	DISAGREE, keep current, found no references for proposed reading			