

**Title: Presentation of vertical scripts**

**Source: Project Editor**

**Distribution: WG2 members and liaison organizations**

The following document describes a proposed change to the way scripts laid out vertically are presented in the code charts of the standard.

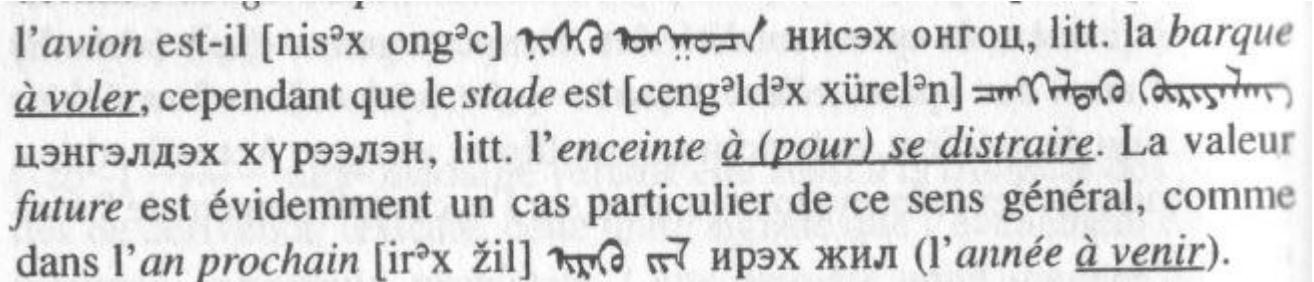
**Background:**

The document WG2 N4434 about “Math characters and variation sequences” mentions the following issue:

*Based on the current design of the charts, there is no easy solution to display the representation of variation sequences for scripts which are typically represented vertically (such as Mongolian and Phags-pa). The main reason is that commercial/production fonts that represent these characters are designed with characters laid in horizontal flow, not vertical. These commercial fonts contain these variants and it would be easier to use them accordingly for these representations.*

While not always the case, the fonts used for chart productions are very similar to fonts in real use. In many cases, such commercial or open source based fonts are used for chart purposes. In addition, font designers use the published charts as a source of inspiration, or at least as a reference point for their own design.

In that aspect, the presentation of the scripts laid out vertically is misleading because all ‘real use’ fonts are designed in horizontal flow and rotated vertically if the script is typically laid out that way. This has the added benefit of allowing easy horizontal layout when the script is rendered in that fashion. Although not usual, Mongolian is sometimes rendered horizontally:



(Example found in the Unicode Technical Report #50 mentioned below)

Finally, a Unicode Technical report “Unicode Vertical Text Layout” is being worked on and is available at (<http://www.unicode.org/reports/tr50/>) which “describes a Unicode character property which can serve as a stable default orientation of characters for reliable document interchange.” One of the reference points for the establishment of that property is the way characters are shown in the code charts. This is again a situation where the difference between actual implementation and code chart display is misleading.

## Proposed solution

The solution is to display these scripts in their horizontal layout in the code charts to be consistent with actual implementation of these scripts in fonts used to display them.

The major benefit for chart production is that it becomes very easy to produce the variation sequences associated with these scripts because every 'real use' font has them.

If this was adopted, two scripts representations would need to be updated: Mongolian and Phags-pa. It would also impact future representation in the code charts of similar vertical scripts not yet encoded.

The following pages shows the Mongolian block, first in vertical mode (as currently shown in the standard), and then in horizontal mode. The horizontal block version shows all the variation sequences demonstrating the benefit of that presentation because these were available in the implemented font. The horizontal version was done using the "Mongolian Baiti" font included in Microsoft Windows 7.

There is some urgency to take a position on this matter as it affects important works on vertical layout implementation guided by UTR#50. For example, the W3C Cascading Style Sheet (CSS) Working Group is eager to get a stable definition for script vertical property.

And again, adopting the change would make very easy to show the variation sequences associated with these scripts.

## Possible errata








Comparing the representation of these standardized variation sequences and the glyphs described by Unicode in <http://www.unicode.org/Public/UNIDATA/StandardizedVariants.html> notable differences were found for the following sequences:

- 1825 180B medial
- 1826 180B medial
- 1874 180D medial (difference is minor)
- 1887 180B final
- 1887 180D final

While ISO/IEC 10646 does not document yet these representations, this clearly demonstrates the benefit of using a 'real use' font to validate data exposed by the standard.

In addition, the 'real use' fonts has many more variant glyphs, so it is possible that the list of Mongolian standardized variations should also be expanded.

	180	181	182	183	184	185	186	187	188	189	18A
0	 1800	 1810	 1820	 1830	 1840	 1850	 1860	 1870	 1880	 1890	 18A0
1	 1801	 1811	 1821	 1831	 1841	 1851	 1861	 1871	 1881	 1891	 18A1
2	 1802	 1812	 1822	 1832	 1842	 1852	 1862	 1872	 1882	 1892	 18A2
3	 1803	 1813	 1823	 1833	 1843	 1853	 1863	 1873	 1883	 1893	 18A3
4	 1804	 1814	 1824	 1834	 1844	 1854	 1864	 1874	 1884	 1894	 18A4
5	 1805	 1815	 1825	 1835	 1845	 1855	 1865	 1875	 1885	 1895	 18A5
6	 1806	 1816	 1826	 1836	 1846	 1856	 1866	 1876	 1886	 1896	 18A6
7	 1807	 1817	 1827	 1837	 1847	 1857	 1867	 1877	 1887	 1897	 18A7
8	 1808	 1818	 1828	 1838	 1848	 1858	 1868		 1888	 1898	 18A8
9	 1809	 1819	 1829	 1839	 1849	 1859	 1869		 1889	 1899	 18A9
A	 180A		 182A	 183A	 184A	 185A	 186A		 188A	 189A	 18AA
B	 180B		 182B	 183B	 184B	 185B	 186B		 188B	 189B	
C	 180C		 182C	 183C	 184C	 185C	 186C		 188C	 189C	
D	 180D		 182D	 183D	 184D	 185D	 186D		 188D	 189D	
E	 180E		 182E	 183E	 184E	 185E	 186E		 188E	 189E	
F			 182F	 183F	 184F	 185F	 186F		 188F	 189F	

	180	181	182	183	184	185	186	187	188	189	18A
0	 1800	 1810	 1820	 1830	 1840	 1850	 1860	 1870	 1880	 1890	 18A0
1	 1801	 1811	 1821	 1831	 1841	 1851	 1861	 1871	 1881	 1891	 18A1
2	 1802	 1812	 1822	 1832	 1842	 1852	 1862	 1872	 1882	 1892	 18A2
3	 1803	 1813	 1823	 1833	 1843	 1853	 1863	 1873	 1883	 1893	 18A3
4	 1804	 1814	 1824	 1834	 1844	 1854	 1864	 1874	 1884	 1894	 18A4
5	 1805	 1815	 1825	 1835	 1845	 1855	 1865	 1875	 1885	 1895	 18A5
6	 1806	 1816	 1826	 1836	 1846	 1856	 1866	 1876	 1886	 1896	 18A6
7	 1807	 1817	 1827	 1837	 1847	 1857	 1867	 1877	 1887	 1897	 18A7
8	 1808	 1818	 1828	 1838	 1848	 1858	 1868		 1888	 1898	 18A8
9	 1809	 1819	 1829	 1839	 1849	 1859	 1869		 1889	 1899	 18A9
A	 180A		 182A	 183A	 184A	 185A	 186A		 188A	 189A	 18AA
B	 180B		 182B	 183B	 184B	 185B	 186B		 188B	 189B	
C	 180C		 182C	 183C	 184C	 185C	 186C		 188C	 189C	
D	 180D		 182D	 183D	 184D	 185D	 186D		 188D	 189D	
E	 180E		 182E	 183E	 184E	 185E	 186E		 188E	 189E	
F			 182F	 183F	 184F	 185F	 186F		 188F	 189F	

**Punctuation**

- 1800 ʔ MONGOLIAN BIRGA  
→ 0F04 ཅ tibetan mark initial yig mgo mdun ma
- 1801 ---- MONGOLIAN ELLIPSIS
- 1802 ʹ MONGOLIAN COMMA
- 1803 ʹʹ MONGOLIAN FULL STOP
- 1804 : MONGOLIAN COLON
- 1805 ❖ MONGOLIAN FOUR DOTS  
• marks the end of a chapter
- 1806 - MONGOLIAN TODO SOFT HYPHEN  
• not a format control character, but simply a hyphen for Todo  
→ 00AD <sup>SHY</sup> soft hyphen
- 1807 ʼ MONGOLIAN SIBE SYLLABLE BOUNDARY MARKER
- 1808 › MONGOLIAN MANCHU COMMA
- 1809 ›› MONGOLIAN MANCHU FULL STOP
- 180A - MONGOLIAN NIRUGU

**Format controls**

- 180B <sup>FVS1</sup> MONGOLIAN FREE VARIATION SELECTOR ONE  
• abbreviated FVS1
- 180C <sup>FVS2</sup> MONGOLIAN FREE VARIATION SELECTOR TWO  
• abbreviated FVS2
- 180D <sup>FVS3</sup> MONGOLIAN FREE VARIATION SELECTOR THREE  
• abbreviated FVS3
- 180E <sup>MVS</sup> MONGOLIAN VOWEL SEPARATOR  
• abbreviated MVS

**Digits**

- 1810 0 MONGOLIAN DIGIT ZERO
- 1811 1 MONGOLIAN DIGIT ONE
- 1812 2 MONGOLIAN DIGIT TWO
- 1813 3 MONGOLIAN DIGIT THREE
- 1814 4 MONGOLIAN DIGIT FOUR
- 1815 5 MONGOLIAN DIGIT FIVE
- 1816 6 MONGOLIAN DIGIT SIX
- 1817 7 MONGOLIAN DIGIT SEVEN
- 1818 8 MONGOLIAN DIGIT EIGHT
- 1819 9 MONGOLIAN DIGIT NINE

**Basic letters**

- 1820 ᠠ MONGOLIAN LETTER A  
→ 0430 а cyrillic small letter a  
~ 1820 180B ᠡ second form (isolate)  
~ 1820 180B ᠢ second form (medial)  
~ 1820 180B ᠣ second form (final)  
~ 1820 180C ᠤ third form (medial)
- 1821 ᠡ MONGOLIAN LETTER E  
→ 044D э cyrillic small letter e  
~ 1821 180B ᠢ second form (initial)  
~ 1821 180B ᠣ second form (final)
- 1822 ᠢ MONGOLIAN LETTER I  
→ 0438 и cyrillic small letter i  
~ 1822 180B ᠢ second form (medial)
- 1823 ᠣ MONGOLIAN LETTER O  
→ 043E о cyrillic small letter o  
~ 1823 180B ᠢ second form (medial)  
~ 1823 180B ᠣ second form (final)
- 1824 ᠤ MONGOLIAN LETTER U  
→ 0443 у cyrillic small letter u  
~ 1824 180B ᠢ second form (medial)

- 1825 ᠥ MONGOLIAN LETTER OE  
→ 04E9 ө cyrillic small letter barred o  
~ 1825 180B ᠢ second form (medial)  
~ 1825 180B ᠣ second form (final)  
~ 1825 180C ᠤ third form (medial)
- 1826 ᠦ MONGOLIAN LETTER UE  
→ 04AF ү cyrillic small letter straight u  
~ 1826 180B ᠢ second form (isolate)  
~ 1826 180B ᠣ second form (medial)  
~ 1826 180B ᠣ second form (final)  
~ 1826 180C ᠤ third form (medial)
- 1827 ᠦ MONGOLIAN LETTER EE
- 1828 ᠨ MONGOLIAN LETTER NA  
→ 043D н cyrillic small letter en  
~ 1828 180B ᠨ second form (initial)  
~ 1828 180B ᠨ second form (medial)  
~ 1828 180C ᠨ third form (medial)  
~ 1828 180D ᠨ separate form (medial)
- 1829 ᠬ MONGOLIAN LETTER ANG
- 182A ᠪ MONGOLIAN LETTER BA  
→ 0431 б cyrillic small letter be  
~ 182A 180B ᠪ alternative form (final)
- 182B ᠯ MONGOLIAN LETTER PA  
→ 043F л cyrillic small letter pe
- 182C ᠬᠠ MONGOLIAN LETTER QA  
→ 0445 х cyrillic small letter ha  
~ 182C 180B ᠬᠠ second form (initial)  
~ 182C 180B ᠬᠠ second form (medial)  
~ 182C 180B ᠬᠠ feminine second form (isolate)  
~ 182C 180C ᠬᠠ third form (medial)  
~ 182C 180D ᠬᠠ fourth form (medial)
- 182D ᠬᠡ MONGOLIAN LETTER GA  
→ 0433 г cyrillic small letter ghe  
~ 182D 180B ᠬᠡ second form (initial)  
~ 182D 180B ᠬᠡ second form (medial)  
~ 182D 180B ᠬᠡ feminine form (final)  
~ 182D 180C ᠬᠡ third form (medial)  
~ 182D 180D ᠬᠡ feminine form (medial)
- 182E ᠮ MONGOLIAN LETTER MA  
→ 043C м cyrillic small letter em
- 182F ᠯᠠ MONGOLIAN LETTER LA  
→ 043B л cyrillic small letter el
- 1830 ᠰ MONGOLIAN LETTER SA  
→ 0441 с cyrillic small letter es  
~ 1830 180B ᠰ second form (final)  
~ 1830 180C ᠰ third form (final)
- 1831 ᠰᠠ MONGOLIAN LETTER SHA  
→ 0448 ш cyrillic small letter sha
- 1832 ᠲ MONGOLIAN LETTER TA  
→ 0442 т cyrillic small letter te  
~ 1832 180B ᠲ second form (medial)
- 1833 ᠳᠠ MONGOLIAN LETTER DA  
→ 0434 д cyrillic small letter de  
~ 1833 180B ᠳ second form (initial)  
~ 1833 180B ᠳ second form (medial)  
~ 1833 180B ᠳ second form (final)
- 1834 ᠴ MONGOLIAN LETTER CHA  
→ 0447 ч cyrillic small letter che
- 1835 ᠵ MONGOLIAN LETTER JA  
→ 0436 ж cyrillic small letter zhe  
~ 1835 180B ᠵ second form (medial)

- 1836 ᠢ MONGOLIAN LETTER YA  
→ 0439 й cyrillic small letter short i  
~ 1836 180B ᠢ second form (initial)  
~ 1836 180B ᠢ second form (medial)  
~ 1836 180C ᠢ third form (medial)
- 1837 ᠢ MONGOLIAN LETTER RA  
→ 0440 р cyrillic small letter er
- 1838 ᠣ MONGOLIAN LETTER WA  
→ 0432 в cyrillic small letter ve  
~ 1838 180B ᠣ second form (final)
- 1839 Ө MONGOLIAN LETTER FA  
→ 0444 ф cyrillic small letter ef
- 183A ᠬ MONGOLIAN LETTER KA  
→ 0445 х cyrillic small letter ha
- 183B Ө MONGOLIAN LETTER KHA  
→ 043A к cyrillic small letter ka
- 183C ᠮ MONGOLIAN LETTER TSA  
→ 0446 и cyrillic small letter tse
- 183D ᠮ MONGOLIAN LETTER ZA  
→ 0437 з cyrillic small letter ze
- 183E ᠮ MONGOLIAN LETTER HAA  
→ 0445 х cyrillic small letter ha
- 183F ᠮ MONGOLIAN LETTER ZRA  
→ 0436 ж cyrillic small letter zhe
- 1840 ᠯ MONGOLIAN LETTER LHA
- 1841 ᠮ MONGOLIAN LETTER ZHI
- 1842 ᠮ MONGOLIAN LETTER CHI
- Todo letters**
- 1843 ᠠ MONGOLIAN LETTER TODO LONG VOWEL SIGN
- 1844 ᠡ MONGOLIAN LETTER TODO E  
~ 1844 180B ᠡ second form (medial)
- 1845 ᠢ MONGOLIAN LETTER TODO I  
~ 1845 180B ᠢ second form (medial)
- 1846 ᠣ MONGOLIAN LETTER TODO O  
~ 1846 180B ᠣ second form (medial)
- 1847 ᠤ MONGOLIAN LETTER TODO U  
~ 1847 180B ᠤ second form (isolate)  
~ 1847 180B ᠤ second form (medial)  
~ 1847 180B ᠤ second form (final)  
~ 1847 180C ᠤ third form (medial)
- 1848 ᠥ MONGOLIAN LETTER TODO OE  
~ 1848 180B ᠥ second form (medial)
- 1849 ᠦ MONGOLIAN LETTER TODO UE  
~ 1849 180B ᠦ second form (isolate)  
~ 1849 180B ᠦ second form (medial)
- 184A ᠮ MONGOLIAN LETTER TODO ANG
- 184B ᠮ MONGOLIAN LETTER TODO BA
- 184C ᠮ MONGOLIAN LETTER TODO PA
- 184D ᠮ MONGOLIAN LETTER TODO QA  
~ 184D 180B ᠮ feminine form (initial)  
~ 184D 180B ᠮ feminine form (medial)
- 184E ᠮ MONGOLIAN LETTER TODO GA  
~ 184E 180B ᠮ second form (medial)
- 184F ᠮ MONGOLIAN LETTER TODO MA
- 1850 ᠮ MONGOLIAN LETTER TODO TA
- 1851 ᠮ MONGOLIAN LETTER TODO DA
- 1852 ᠮ MONGOLIAN LETTER TODO CHA
- 1853 ᠮ MONGOLIAN LETTER TODO JA
- 1854 ᠮ MONGOLIAN LETTER TODO TSA
- 1855 ᠮ MONGOLIAN LETTER TODO YA
- 1856 ᠮ MONGOLIAN LETTER TODO WA

- 1857 ᠮ MONGOLIAN LETTER TODO KA
- 1858 ᠮ MONGOLIAN LETTER TODO GAA
- 1859 ᠮ MONGOLIAN LETTER TODO HAA
- 185A ᠮ MONGOLIAN LETTER TODO JIA
- 185B ᠮ MONGOLIAN LETTER TODO NIA
- 185C ᠮ MONGOLIAN LETTER TODO DZA

**Sibe letters**

- 185D ᠮ MONGOLIAN LETTER SIBE E  
~ 185D 180B ᠮ second form (medial)  
~ 185D 180B ᠮ second form (final)
- 185E ᠮ MONGOLIAN LETTER SIBE I  
~ 185E 180B ᠮ second form (medial)  
~ 185E 180B ᠮ second form (final)  
~ 185E 180C ᠮ third form (medial)  
~ 185E 180C ᠮ third form (final)
- 185F ᠮ MONGOLIAN LETTER SIBE IY
- 1860 ᠮ MONGOLIAN LETTER SIBE UE  
~ 1860 180B ᠮ second form (medial)  
~ 1860 180B ᠮ second form (final)
- 1861 ᠮ MONGOLIAN LETTER SIBE U
- 1862 ᠮ MONGOLIAN LETTER SIBE ANG
- 1863 ᠮ MONGOLIAN LETTER SIBE KA  
~ 1863 180B ᠮ second form (medial)
- 1864 ᠮ MONGOLIAN LETTER SIBE GA
- 1865 ᠮ MONGOLIAN LETTER SIBE HA
- 1866 ᠮ MONGOLIAN LETTER SIBE PA
- 1867 ᠮ MONGOLIAN LETTER SIBE SHA
- 1868 ᠮ MONGOLIAN LETTER SIBE TA  
~ 1868 180B ᠮ second form (initial)  
~ 1868 180B ᠮ second form (medial)  
~ 1868 180C ᠮ third form (medial)
- 1869 ᠮ MONGOLIAN LETTER SIBE DA  
~ 1869 180B ᠮ second form (initial)  
~ 1869 180B ᠮ second form (medial)
- 186A ᠮ MONGOLIAN LETTER SIBE JA
- 186B ᠮ MONGOLIAN LETTER SIBE FA
- 186C ᠮ MONGOLIAN LETTER SIBE GAA
- 186D ᠮ MONGOLIAN LETTER SIBE HAA
- 186E ᠮ MONGOLIAN LETTER SIBE TSA
- 186F ᠮ MONGOLIAN LETTER SIBE ZA  
~ 186F 180B ᠮ second form (initial)  
~ 186F 180B ᠮ second form (medial)
- 1870 ᠮ MONGOLIAN LETTER SIBE RAA
- 1871 ᠮ MONGOLIAN LETTER SIBE CHA
- 1872 ᠮ MONGOLIAN LETTER SIBE ZHA

**Manchu letters**
































- 1873 ᠮ MONGOLIAN LETTER MANCHU I  
~ 1873 180B ᠮ second form (medial)  
~ 1873 180B ᠮ second form (final)  
~ 1873 180C ᠮ third form (medial)  
~ 1873 180C ᠮ third form (final)  
~ 1873 180D ᠮ fourth form (medial)
- 1874 ᠮ MONGOLIAN LETTER MANCHU KA  
~ 1874 180B ᠮ second form (medial)  
~ 1874 180B ᠮ feminine first final form (final)  
~ 1874 180C ᠮ feminine first medial form (medial)  
~ 1874 180C ᠮ feminine second final form (final)  
~ 1874 180D ᠮ feminine second medial form (medial)
- 1875 ᠮ MONGOLIAN LETTER MANCHU RA

- 1876 𐎢 MONGOLIAN LETTER MANCHU FA  
 ~ 1876 180B 𐎢 second form (initial)  
 ~ 1876 180B 𐎢 second form (medial)
- 1877 𐎣 MONGOLIAN LETTER MANCHU ZHA




































18AA 𐎣 MONGOLIAN LETTER MANCHU ALI GALI LHA




































#### Extensions for Sanskrit and Tibetan

































- 1880 𐎤 MONGOLIAN LETTER ALI GALI ANUSVARA ONE  
 → 0F83 𐎤 tibetan sign sna ldan  
 ~ 1880 180B 𐎤 second form
- 1881 𐎥 MONGOLIAN LETTER ALI GALI VISARGA ONE  
 → 0F7F 𐎥 tibetan sign rnam bcaḍ  
 ~ 1881 180B 𐎥 second form
- 1882 𐎦 MONGOLIAN LETTER ALI GALI DAMARU  
 → 0F88 𐎦 tibetan sign lce tsa can
- 1883 𐎧 MONGOLIAN LETTER ALI GALI UBADAMA
- 1884 𐎨 MONGOLIAN LETTER ALI GALI INVERTED  
 UBADAMA  
 → 0F89 𐎨 tibetan sign mchu can
- 1885 𐎩 MONGOLIAN LETTER ALI GALI BALUDA  
 → 0F85 𐎩 tibetan mark paluta
- 1886 𐎪 MONGOLIAN LETTER ALI GALI THREE BALUDA
- 1887 𐎫 MONGOLIAN LETTER ALI GALI A  
 ~ 1887 180B 𐎫 second form (isolate)  
 ~ 1887 180B 𐎫 second form (final)  
 ~ 1887 180C 𐎫 third form (final)  
 ~ 1887 180D 𐎫 fourth form (final)
- 1888 𐎬 MONGOLIAN LETTER ALI GALI I  
 ~ 1888 180B 𐎬 second form (final)
- 1889 𐎭 MONGOLIAN LETTER ALI GALI KA
- 188A 𐎮 MONGOLIAN LETTER ALI GALI NGA  
 ~ 188A 180B 𐎮 second form (initial)  
 ~ 188A 180B 𐎮 second form (medial)
- 188B 𐎯 MONGOLIAN LETTER ALI GALI CA
- 188C 𐎰 MONGOLIAN LETTER ALI GALI TTA
- 188D 𐎱 MONGOLIAN LETTER ALI GALI TTHA
- 188E 𐎲 MONGOLIAN LETTER ALI GALI DDA
- 188F 𐎳 MONGOLIAN LETTER ALI GALI NNA
- 1890 𐎴 MONGOLIAN LETTER ALI GALI TA
- 1891 𐎵 MONGOLIAN LETTER ALI GALI DA
- 1892 𐎶 MONGOLIAN LETTER ALI GALI PA
- 1893 𐎷 MONGOLIAN LETTER ALI GALI PHA
- 1894 𐎸 MONGOLIAN LETTER ALI GALI SSA
- 1895 𐎹 MONGOLIAN LETTER ALI GALI ZHA
- 1896 𐎺 MONGOLIAN LETTER ALI GALI ZA
- 1897 𐎻 MONGOLIAN LETTER ALI GALI AH
- 1898 𐎼 MONGOLIAN LETTER TODO ALI GALI TA
- 1899 𐎽 MONGOLIAN LETTER TODO ALI GALI ZHA
- 189A 𐎿 MONGOLIAN LETTER MANCHU ALI GALI GHA
- 189B 𐏀 MONGOLIAN LETTER MANCHU ALI GALI NGA
- 189C 𐏁 MONGOLIAN LETTER MANCHU ALI GALI CA
- 189D 𐏂 MONGOLIAN LETTER MANCHU ALI GALI JHA
- 189E 𐏃 MONGOLIAN LETTER MANCHU ALI GALI TTA
- 189F 𐏄 MONGOLIAN LETTER MANCHU ALI GALI DDHA
- 18A0 𐏅 MONGOLIAN LETTER MANCHU ALI GALI TA
- 18A1 𐏆 MONGOLIAN LETTER MANCHU ALI GALI DHA
- 18A2 𐏇 MONGOLIAN LETTER MANCHU ALI GALI SSA
- 18A3 𐏈 MONGOLIAN LETTER MANCHU ALI GALI CYA
- 18A4 𐏉 MONGOLIAN LETTER MANCHU ALI GALI ZHA
- 18A5 𐏊 MONGOLIAN LETTER MANCHU ALI GALI ZA
- 18A6 𐏋 MONGOLIAN LETTER ALI GALI HALF U
- 18A7 𐏌 MONGOLIAN LETTER ALI GALI HALF YA
- 18A8 𐏍 MONGOLIAN LETTER MANCHU ALI GALI BHA
- 18A9 𐏎 MONGOLIAN LETTER ALI GALI DAGALGA

<b>Standardized Variation Sequences</b>			
<i>Unlike other blocks, these variation sequences use the script-specific variation selectors for Mongolian.</i>			
1820	 MONGOLIAN LETTER A	1825	 MONGOLIAN LETTER OE
	<small>1820</small>		<small>1825</small>
	 second form (isolate)		 second form (medial)
	<small>1820 180B</small>		<small>1825 180B</small>
	 second form (medial)		 second form (final)
	<small>1820 180B</small>		<small>1825 180B</small>
	 second form (final)		 third form (medial)
	<small>1820 180B</small>		<small>1825 180C</small>
	 third form (medial)	1826	 MONGOLIAN LETTER UE
	<small>1820 180C</small>		<small>1826</small>
1821	 MONGOLIAN LETTER E		 second form (isolate)
	<small>1821</small>		<small>1826 180B</small>
	 second form (initial)		 second form (medial)
	<small>1821 180B</small>		<small>1826 180B</small>
	 second form (final)		 second form (final)
	<small>1821 180B</small>		<small>1826 180B</small>
1822	 MONGOLIAN LETTER I		 third form (medial)
	<small>1822</small>		<small>1826 180C</small>
	 second form (medial)	1828	 MONGOLIAN LETTER NA
	<small>1822 180B</small>		<small>1828</small>
1823	 MONGOLIAN LETTER O		 second form (initial)
	<small>1823</small>		<small>1828 180B</small>
	 second form (medial)		 second form (medial)
	<small>1823 180B</small>		<small>1828 180B</small>
	 second form (final)		 third form (medial)
	<small>1823 180B</small>		<small>1828 180C</small>
1824	 MONGOLIAN LETTER U		 separate form (medial)
	<small>1824</small>		<small>1828 180D</small>
	 second form (medial)	182A	 MONGOLIAN LETTER BA
	<small>1824 180B</small>		<small>182A</small>
			 alternative form (final)
			<small>182A 180B</small>



182C		MONGOLIAN LETTER QA	1833		MONGOLIAN LETTER DA
	182C			1833	
		second form (initial)			second form (initial)
	182C 180B			1833 180B	
		second form (medial)			second form (medial)
	182C 180B			1833 180B	
		feminine second form (isolate)			second form (final)
	182C 180B			1833 180B	
		third form (medial)	1835		MONGOLIAN LETTER JA
	182C 180C			1835	
		fourth form (medial)			second form (medial)
	182C 180D			1835 180B	
182D		MONGOLIAN LETTER GA	1836		MONGOLIAN LETTER YA
	182D			1836	
		second form (initial)			second form (initial)
	182D 180B			1836 180B	
		second form (medial)			second form (medial)
	182D 180B			1836 180B	
		feminine form (final)			third form (medial)
	182D 180B			1836 180C	
		third form (medial)	1838		MONGOLIAN LETTER WA
	182D 180C			1838	
		feminine form (medial)			second form (final)
	182D 180D			1838 180B	
1830		MONGOLIAN LETTER SA	1844		MONGOLIAN LETTER TODO E
	1830			1844	
		second form (final)			second form (medial)
	1830 180B			1844 180B	
		third form (final)	1845		MONGOLIAN LETTER TODO I
	1830 180C			1845	
1832		MONGOLIAN LETTER TA			second form (medial)
	1832			1845 180B	
		second form (medial)	1846		MONGOLIAN LETTER TODO O
	1832 180B			1846	
					second form (medial)
				1846 180B	

1847		MONGOLIAN LETTER TODO U	185E		MONGOLIAN LETTER SIBE I
	1847			185E	
		second form (isolate)			second form (medial)
	1847 180B			185E 180B	
		second form (medial)			second form (final)
	1847 180B			185E 180B	
		second form (final)			third form (medial)
	1847 180B			185E 180C	
		third form (medial)			third form (final)
	1847 180C			185E 180C	
1848		MONGOLIAN LETTER TODO OE	1860		MONGOLIAN LETTER SIBE UE
	1848			1860	
		second form (medial)			second form (medial)
	1848 180B			1860 180B	
1849		MONGOLIAN LETTER TODO UE			second form (final)
	1849			1860 180B	
		second form (isolate)	1863		MONGOLIAN LETTER SIBE KA
	1849 180B			1863	
		second form (medial)			second form (medial)
	1849 180B			1863 180B	
184D		MONGOLIAN LETTER TODO QA	1868		MONGOLIAN LETTER SIBE TA
	184D			1868	
		feminine form (initial)			second form (initial)
	184D 180B			1868 180B	
		feminine form (medial)			second form (medial)
	184D 180B			1868 180B	
184E		MONGOLIAN LETTER TODO GA			third form (medial)
	184E			1868 180C	
		second form (medial)	1869		MONGOLIAN LETTER SIBE DA
	184E 180B			1869	
185D		MONGOLIAN LETTER SIBE E			second form (initial)
	185D			1869 180B	
		second form (medial)			second form (medial)
	185D 180B			1869 180B	
		second form (final)			
	185D 180B				

186F	 MONGOLIAN LETTER SIBE ZA	1880	 MONGOLIAN LETTER ALI GALI ANUSVARA ONE
	186F  second form (initial)		1880  second form
	186F 180B  second form (medial)	1880 180B	
1873	 MONGOLIAN LETTER MANCHU I	1881	 MONGOLIAN LETTER ALI GALI VISARGA ONE
	1873  second form (medial)		1881  second form
	1873 180B  second form (final)	1881 180B	
	1873 180B  third form (medial)	1887	 MONGOLIAN LETTER ALI GALI A
	1873 180C  third form (final)		1887  second form (isolate)
	1873 180C  fourth form (medial)	1887 180B	 second form (final)
1874	 MONGOLIAN LETTER MANCHU KA	1887 180B	 third form (final)
	1874  second form (medial)	1887 180C	 fourth form (final)
	1874 180B  feminine first final form (final)	1887 180D	
	1874 180B  feminine first medial form (medial)	1888	 MONGOLIAN LETTER ALI GALI I
	1874 180C  feminine second final form (final)		1888  second form (final)
	1874 180C  feminine second medial form (medial)	1888 180B	
1876	 MONGOLIAN LETTER MANCHU FA	188A	 MONGOLIAN LETTER ALI GALI NGA
	1876  second form (initial)		188A  second form (initial)
	1876 180B  second form (medial)	188A 180B	 second form (medial)
	1876 180B		