

对现行音码方案的最小化修订方案

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1. 引言

《GB 25914-2010 信息技术 传统蒙古文名义字符、变形显现字符和控制字符使用规则》（下面简称《转换规则》）发布已经过去七年多的时间。在这七年之间，以蒙古文标准编码为基础做了很多的研究和开发，也推出不少的成果。但是，由于《转换规则》中存在一些问题，以及对《转换规则》和蒙古文语法现象的理解上的差异，名义字符到变形显现字符的转换还是没有完全统一。

本方案以眼前最急需解决的问题为出发点，并结合《转换规则》和修订编辑错误和位置失配后的 Unicode 10（下面简称《U10》）为基础，提出了将修订内容缩减到最小程度的修订方案。

2. 修订内容

2.1. 制定统一变体序列（完善现行字符变体序列）

为了统一连写位置模型和词里位置模型的分歧，本方案在位置变体的分类问题上，直接采用了连写位置模型的分类方法。通过分配相同 FVS 的技术方法来统一了它们的分歧。这样将分歧仅仅停留在文档层面上，最终用户是感觉不到它们区别的。这是解决目前分歧的唯一方法，并且证明是可行的。

完善变体序列时主要修订内容包括如下五个方面：

(1) 补充被认为古代变体而并非完全是古代变体的位置变体

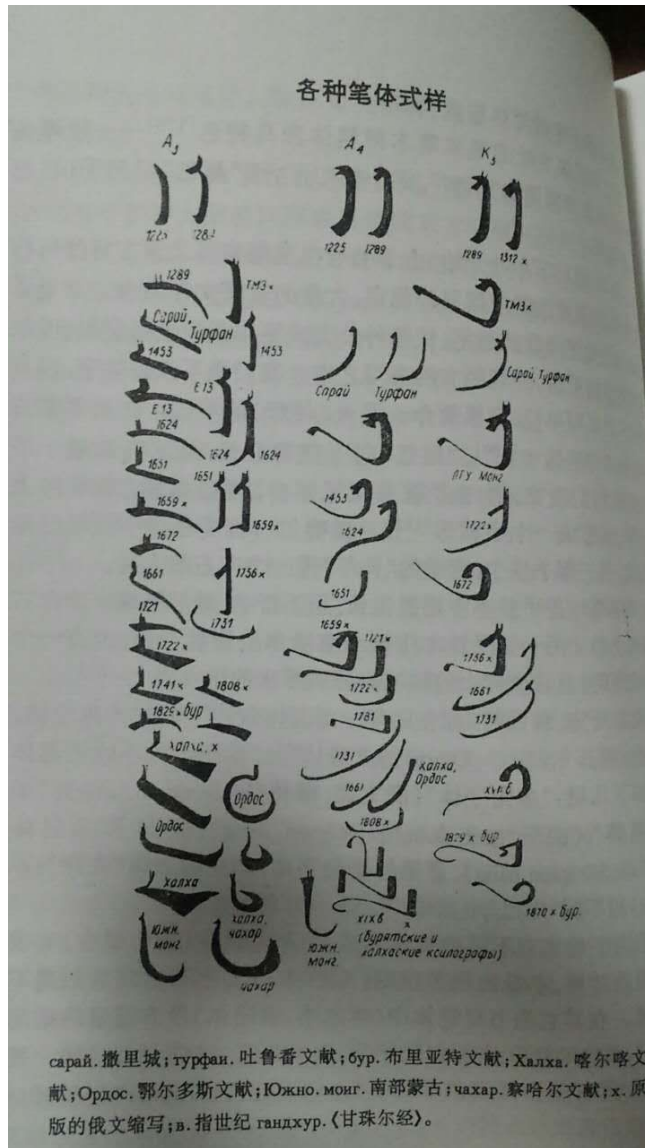
一说给 HA (182C)、GA (182D) 增加近现代的位置变体，有一部分人会跟古文献数字化绑定在一起。在目前已经发现的古文献里能够称得上位置变体的只有这几个。也就是说如果这些位置变体的码位制定后，古文献数字化码位问题也基本得到解决。剩下的只是制作各种风格的古文献专用字体的事情了。

风格变体：

风格变体就是仅仅在书写风格上的不同。在正字法认同上它仅仅是一个字母同一个位置变体的不同书写风格，即风格变体。

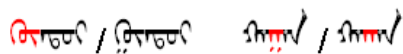
这种区别完全可以对同一个编码序列切换不同字体（如古今）来现代和古代之间切换。在古代和现代的时间跨度上它仅仅是因为人、时间、材质的不同而造成的不同书写风格。但是没有语言学的位置变体互补关系。如：





位置变体: positional variant

在正字法认同上它是同一个字符的不同位置变体。在古代和现代的时间跨度上它完全是相互对立的和相互互补的独立变体。如:



虽然描述不太精确，但是基本可以通过如下方式判定是否为风格变体:

- 语言学上是否有合理的解释。每种变体都有合理的蒙古文正字法解释。
- 两个变体之间是否有连续的过度。如果连续过度并有无穷的变化可能性，那么它就是风格变体。不能用 FVS, VS 等来字形变换，而需要通过切换不同风格字体来达到显示目的。根据上述方式，应该增加了几个位置变体。

如:

	No.	Form	25914	U10	diff	FVS
ISOL	1	𑌒	𑌒	+	☆	
	2	𑌒	+	+	☆	1
	3	𑌑	𑌑	+	☆	2
	4	𑌑	𑌑	+	☆	3
INIT	1	𑌒	𑌒	𑌒		4
	2	𑌒	𑌒	+	●	1
	3	𑌑	+	𑌑	●	2
	4	𑌑	+	+	●	3
MEDI	1	𑌒	𑌒	𑌒		4
	2	𑌒	𑌒	+	●	1
	3	𑌑	+	𑌑	●	2
	4	𑌑	+	+	●	3
	5	𑌒	𑌒	-	★	MVS
	6	𑌒	𑌒	𑌒		1+MVS
FINA	1	𑌒	+	𑌒	★	
	2	𑌒	+	+	●	1

(2) 统一由于连写位置模型和词里位置模型不同造成的分歧

由于连写位置模型和词里位置模型不同造成的分歧只是理论上，或者文档层面上的。我们可以通过技术手段完全屏蔽这种分歧。已经证明这在技术上完全可行的，并且对最终用户是透明的，他们看不出这两种理论理解的分歧。如：

𑌒𑌒𑌒 𑌒𑌒𑌒𑌒𑌒

	No.	Form	25914	U10	diff	FVS
ISOL	1	𑌒	𑌒	𑌒		3
	2	𑌑	𑌑	𑌑		1
	3	𑌑 ^[3]	+	𑌑 ^[3]	★	2
INIT	1	𑌒	𑌒	𑌒		2
	2	𑌒	+	𑌒	★	1
MEDI	1	𑌒	𑌒	𑌒		
	2	𑌒	𑌒	𑌒		1
		-	𑌒	-	★	
FINA	1	𑌒 ^[1]	𑌒 ^[1]	𑌒 ^[1]		1
	2	𑌒 ^[2]	𑌒 ^[2]	+	★	MVS

(3) 统一蒙古文格附加成分首字母位置属性不同而造成的分歧

蒙古文格附加成分的首字母是“词首”，“词中”，“词末”还是“独立”？这些只是位置属性的不同带来的分歧。在实现技术上不存在任何问题。只要按照一种理论或观点统一起来就可以。如：



	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠠ	ᠠ	ᠠ		3
	2	ᠡ	ᠡ	ᠡ		1
	3	ᠢ ^[3]	+	ᠢ ^[3]	★	2
INIT	1	ᠢ	ᠢ	ᠢ		2
	2	ᠣ	+	ᠣ	★	1
MEDI	1	ᠣ	ᠣ	ᠣ		
	2	ᠣ	ᠣ	ᠣ		1
		-	ᠣ	-	★	
FINA	1	ᠣ ^[1]	ᠣ ^[1]	ᠣ ^[1]		1
	2	ᠣ ^[2]	ᠣ ^[2]	+	★	MVS

(4) 统一是否设立字符的独立变体的问题

统一对辅音字母是否设立“独立变体”的问题，从应用角度来说应该设置辅音的独立变体形。至于在 Unicode 内部是用别的变体代替，还是独立设置变体。表格上应当体现出独立字形。因为独立变体主要表现的是不在词里（上下也没有 ZWJ 的情况）情况下的变体显示字形。如：

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠠ	ᠠ	+	☆	
INIT	1	ᠠ	ᠠ	ᠠ		
MEDI	1	ᠠ	ᠠ	ᠠ		
FINA	1	ᠠ	ᠠ	ᠠ		

(5) 设置 FVS 跟上下文无关

能够按照“语法上下文”变形以外，应该给每个变形明确分配一个 FVS。这样可以转换每个字母的任何一种变形应用。现行音码设计时设立了默认字形的概念，并且没有给他分配 FVS。这种只考虑位置默认字形而没有考虑语法上下文默认字形的方式，当有从其他语法上下文默认变体（非第一变体）请求第一个变体的需求发生时，就会出现未定 FVS 的情况。如：

具体解释为，英文 abc 属英文语种；nnbsp 属通用语种；蒙古文 a 属蒙古文语种，由于 nnbsp 对于英文语种字符变形，对于蒙古文 a 要求词末形式，所以显示为之前的形式，这符合 Unicode 规范。

在 Linux 下，Pango 的处理方式是将一个字符串按不同语种切分为若干不同的语种片段，每个语种片段调用相应的引擎处理。当遇到通用语种时，通用语种的字符划到之前的语种中一起处理。这就造成了蒙古文 a 单独作为一个语种处理。此后，蒙古文引擎只看到一个单独的蒙古文 a，所以作为独立式处理，这不符合 Unicode 规范。

以下是各种情况下的变形测试。其中的情况 4, 5 和 6，由于开头并没有其他语种字符，则和蒙古文 a 合并处理，所以是正确的，其他都不正确。

```

1 a1820 ㄹ (a1820+nnbsp+u1820)
2 abc ㄹ (abc+nnbsp+u1820)
3 蒙古文 ㄹ (+nnbsp+u1820)
4 ) (sp+sp+sp+sp+sp+nnbsp+u1820)
5 ) (nnbsp+u1820)
6 ᠠᠨᠢᠨᠠᠨ) (u1820u182Au1833u1820u1837+nnbsp+u1820)
7 abc123 ㄹ (abc123+nnbsp+u1820)
8
9 Let's see that replace the u1820 with u1836u1822u1828
10
11 a1820 ㄹ abc ㄹ 蒙古文 ㄹ ㄹ ㄹ ᠠᠨᠢᠨᠠᠨ ㄹ abc123 ㄹ
12

```

在当前音码方案的前提下，需要一个具备如下特征的控制符。现行的 NNBS (202F) 也解决了部分需求，但是一直没有完好地解决，或者没有被完好地支持。所以也一直没能很好地用起来。所以申请新增一个属于 1800 区块的蒙古文专用 MSC。目前的问题根本是给 NNBS 增加了本不该由它来承担的一些功能。应该在 1800 区块独立设置一个码位，如 0x180F 等。

解决此问题的方式有两种：





方法一：在蒙古文编码区域 (0x18xx) 重新定义一个具有蒙古文附加成分连接符特征的控制符。如 Monglian Suffix Connector。它具有不断词&前后变形控制等特征。

方法二：明确规定现有 NNBS 不参与蒙古文变形规则，它只起到不断词作用。

2.3. 新增自由变体选择符

由于在设计现行编码方案时，只考虑了位置默认变体，没有考虑上下文默认变体。所以当变体数超过三个（如四个，H, G）时，就不能解决从别的变体请求第一个位置变体的问题。

如：如果没有红色 FVS4，那么我们无法输入下边 Request 的字形。

- Default:  -> HAGAN (182C+1820+182D+1820+1828)
- Request:  -> HAGAN (182C+1820+182D+FVS4+1820+1828)
- Default:  -> MOGAI (182E+1823+182D+1820+1822)
- Request:  -> MOGAI (182E+1823+182D+FVS4+1820+1822)

2.4. 新增蒙古文多词根词词根分界符

目前没有这个也能通过别的间接方法解决问题,但是会事情变得非常复杂。如果有此分界符,当前编码体系会变得非常完善。

需求样例:

(1) 多词根词阴阳性判断。目前阴阳混合情况非常普遍。

蒙古文举例: 

在这里需要根据单词的阴阳性来确定 g 的字形。biligbatv 和 wyvnbilig 里的 g 默认情况下是阳性,因为这个单词是阳性。但是恰恰 g 在这里阴性是正确的。因为这两个词是两个词组成的单词。如果把这两个单词写成 bilig/batv 和 wyvn/bilig (/—表示词根分界符),那么 g 到词根分界符后不继续判断词的阴阳性,就自动确定 g 的阴阳性。

(2) 阻止自动合体(即使是新形码方案,也需要阻止自动合体的机制)

汉字拼音为例: xian = xi' an = xi an。这就是典型的拼音文字。汉字拼音 xi an 可以用空格分开。当有将其连写需求的时候(当然汉语拼音没有这个需求,但是蒙古文有),就无法区分到底是 xi' an 还是 xian 了。蒙古文是拼音文字,只是具备字符在不同词里位置上有多种变特征的拼音文字。

蒙古文举例为: hexig' undur



蒙古文跟拉丁文不同,需要此功能,但是不能用逗号之类的标点符号。普通 FVS 又不能解决问题。中间用 zwj (u200D), nirugu (u180A) 等特殊方式也能解决,但是有这么好的完善和严谨的方法不用,为什么那么凑乎呢。难道 1800 区块不够用吗? 蒙古文人名等里用 ZWJ 是个最为没办法的办法。

2.5. 修改 MVS 的属性

从 Unicode 的定义(下面的图)来看, MVS (u180E) 是一种空格,有空格的属性。但是目前字体厂家实现来看,他已经失去了空格属性,而是起到了不可见控制符属性。

Table 6-2. Unicode Space Characters

Code	Name
U+0020	SPACE
U+00A0	NO-BREAK SPACE
U+1680	OGHAM SPACE MARK
U+180E	MONGOLIAN VOWEL SEPARATOR
U+2000	EN QUAD
U+2001	EM QUAD
U+2002	EN SPACE
U+2003	EM SPACE
U+2004	THREE-PER-EM SPACE
U+2005	FOUR-PER-EM SPACE
U+2006	SIX-PER-EM SPACE
U+2007	FIGURE SPACE
U+2008	PUNCTUATION SPACE
U+2009	THIN SPACE
U+200A	HAIR SPACE
U+202F	NARROW NO-BREAK SPACE
U+205F	MEDIUM MATHEMATICAL SPACE
U+3000	IDEOGRAPHIC SPACE

其实，最初设计初中来考虑，MVS 应当具备如下属性：

(1) 空白区域

MVS 不是空格，而只是 1/6 的空白区域。有别于空格，他不是单词的边界，不具有断词作用。

(2) 一个普通蒙古文字母

MVS 是一个普通的蒙古文字母，它不应该有控制符属性。

3. 总结

从现在的《转换规则》和 U10 的比对，以及实现和测试过程中发现的问题来看，如果能够解决和统一这五个方面的问题，可以在时间、经济、技术等方面以最小的代价和改动来实现统一。

附表：最小化蒙古文字符变体调整表

Appendix: Minimum Adjustment Table For Mongolian Variant Form





























the description of column:

25914	The variant form of National Standards GB25914-2010
U10	The variant form of Unicode 10 after Revised editorial errors & positional mismatches.
Form	The variant form of this minimum revision approach
diff	● indicates substantial differences.
	★ This difference comes mainly from the different interpretations of the following two theories. It is not a fundamentally opposed difference. it can be digested by technical means. (1) The understanding differences of isolate, initial, medial, final between the position of in-word model and the position of cursive joining model. (2) the difference of positional property for first char of Mongolian suffix.
	☆ The difference comes mainly from whether standalone letters are classified as isolate variants. It is not a fundamentally opposed difference. it can be digested by technical means.

the description of row:























ISOL	the isolate form of the cursive joining model.
INIT	the initial form of the cursive joining model.
MEDI	the medial form of the cursive joining model.
FINA	the final form of the cursive joining model.

1820  MONGOLIAN LETTER A

	No.	Form	25914	U10	diff	FVS
ISOL	1					3
	2					1
	3				★	2
INIT	1					2
	2				★	1
MEDI	1					
	2					1
			-		-	★
FINA	1					1
	2				★	MVS




























[1]orhicha, [2]oragshilig, [3]tsatslag

1821  MONGOLIAN LETTER E



















	No.	Form	25914	U10	diff	FVS
ISOL	1					2
	2				★	1
INIT	1					
	2				●	1
MEDI	1					
FINA	1					2
	2				★	1
	3		mvs			MVS

[1]orhicha, [2]oragshilig, [3]tsatslag




























1822  MONGOLIAN LETTER I

	No.	Form	25914	U10	diff	FVS
ISOL	1					3
	2				★	1
	3				●	2
INIT	1					2
	2				★	1
MEDI	1					3
	2					1
	3				●	2
FINA	1					




























1823  MONGOLIAN LETTER O

	No.	Form	25914	U10	diff	FVS
ISOL	1					
INIT	1					
MEDI	1					
	2					1
FINA	1					2
	2					1

1824  MONGOLIAN LETTER U

	No.	Form	25914	U10	diff	FVS
ISOL	1					3
	2				★	1
	3				●	2
INIT	1					2
	2				★	1
MEDI	1					
	2					1
FINA	1					2
	2				●	1

1825  MONGOLIAN LETTER OE

	No.	Form	25914	U10	diff	FVS
ISOL	1					
	2				●	1
INIT	1					
MEDI	1					3
	2					1
	3					2
FINA	1					3
	2					1
	3				●	2

1826 **ᠠ** MONGOLIAN LETTER UE

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠠ	ᠠ	ᠠ		
	2	ᠡ	ᠡ	ᠡ		1
	3	ᠢ	+	ᠢ	★	2
	4	ᠣ	+	+	●	3
INIT	1	ᠠᠢ	ᠠᠢ	ᠠᠢ		2
	2	ᠣ	+	ᠣ	★	1
MEDI	1	ᠣ	ᠣ	ᠣ		3
	2	ᠣᠢ	ᠣᠢ	ᠣᠢ		1
	3	ᠣᠢ	ᠣᠢ	ᠣᠢ		2
FINA	1	ᠢ	ᠢ	ᠢ		3
	2	ᠣ	ᠣ	ᠣ		1
	3	ᠣ	+	+	●	2

1829 **ᠨ** MONGOLIAN LETTER ANG

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠨ	+	+	☆	
INIT	1	ᠨ	+	+	☆	
MEDI	1	ᠨ	ᠨ	ᠨ		
FINA	1	ᠨ	ᠨ	ᠨ		

182A **ᠪ** MONGOLIAN LETTER BA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠪ	ᠪ	+	☆	
INIT	1	ᠪ	ᠪ	ᠪ		
MEDI	1	ᠪ	ᠪ	ᠪ		
FINA	1	ᠪ	ᠪ	ᠪ		

1827 **ᠬ** MONGOLIAN LETTER EE

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠬ	ᠬ	ᠬ		
INIT	1	ᠬ	ᠬ	ᠬ		
MEDI	1	ᠬ	ᠬ	ᠬ		
FINA	1	ᠬ	ᠬ	ᠬ		
































182B **ᠯ** MONGOLIAN LETTER PA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠯ	ᠯ	+	☆	
INIT	1	ᠯ	ᠯ	ᠯ		
MEDI	1	ᠯ	ᠯ	ᠯ		
FINA	1	ᠯ	ᠯ	ᠯ		






































1828 **ᠨᠠ** MONGOLIAN LETTER NA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠨᠠ	ᠨᠠ	+	☆	
	2	ᠨᠠ	+	+	☆	1
INIT	1	ᠨᠠ	ᠨᠠ	ᠨᠠ		
	2	ᠨᠠ	ᠨᠠ	+	●	1
MEDI	1	ᠨᠠ	ᠨᠠ	ᠨᠠ		2
	2	ᠨᠠ	ᠨᠠ	ᠨᠠ		1
	3	ᠨᠠ	ᠨᠠ	-	★	(1+)MVS
	4	ᠨᠠ	+	-	★	2+MVS
FINA	1	ᠨᠠ	ᠨᠠ	ᠨᠠ	★	2
	2	ᠨᠠ	+	ᠨᠠ	★	1















182C  MONGOLIAN LETTER QA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
	2		+	+	☆	1
	3			+	☆	2
	4			+	☆	3
INIT	1					4
	2			+	●	1
	3		+		●	2
	4		+	+	●	3
MEDI	1					4
	2			+	●	1
	3		+		●	2
	4		+	+	●	3
	5			-	★	MVS
	6					1+MVS
FINA	1		+		★	
	2		+	+	●	1













182D  MONGOLIAN LETTER GA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
	2		+	+	☆	1
	3			+	☆	2
	4			+	☆	3
INIT	1					4
	2			+	●	1
	3		+		●	2
	4		+	+	●	3
MEDI	1					4
	2					1
	3					2
	4		+	+	●	3
	5			-	★	(3+)MVS
	6			-		1+MVS
FINA	1					1
	2					2
	3		+		★	3













182E  MONGOLIAN LETTER MA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
INIT	1					
MEDI	1					
	2					MVS
FINA	1					
















182F  MONGOLIAN LETTER LA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
INIT	1					
MEDI	1					
	2		+	-		MVS
FINA	1					

1830  MONGOLIAN LETTER SA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
INIT	1					
MEDI	1					
	2		+	-		MVS
FINA	1					

1831  MONGOLIAN LETTER SHA

	No.	Form	25914	U10	diff	FVS
ISOL	1			+	☆	
	2		+	+	☆	1
INIT	1					2
	2		+	+	●	1
MEDI	1					2
	2		+	+	●	1
	3		+	-		MVS
FINA	1					

1832 ᠠ MONGOLIAN LETTER TA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠠ	ᠠ	+	☆	
INIT	1	ᠠ	ᠠ	ᠠ		
MEDI	1	ᠠ	ᠠ	ᠠ		
	2	ᠠ	ᠠ	ᠠ		1
FINA	1	ᠠ	ᠠ	ᠠ		

1833 ᠡ MONGOLIAN LETTER DA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠡ	ᠡ	+	☆	
	2	ᠡ	+	+	☆	1
INIT	1	ᠡ	ᠡ	ᠡ		2
	2	ᠡ	ᠡ	ᠡ		1
MEDI	1	ᠡ	ᠡ	ᠡ		2
	2	ᠡ	ᠡ	ᠡ		1
FINA	1	ᠡ	ᠡ	ᠡ		
	2	ᠡ	ᠡ	ᠡ		1

1834 ᠢ MONGOLIAN LETTER CHA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠢ	ᠢ	+	☆	
INIT	1	ᠢ	ᠢ	ᠢ		
MEDI	1	ᠢ	ᠢ	ᠢ		
FINA	1	ᠢ	ᠢ	ᠢ		

1835 ᠣ MONGOLIAN LETTER JA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠣ	ᠣ	+	☆	
INIT	1	ᠣ	ᠣ	ᠣ		
	2	ᠣ	+	ᠣ	★	MVS
MEDI	1	ᠣ	ᠣ	ᠣ		
	2	ᠣ	ᠣ	-	★	MVS
FINA	1	ᠣ	ᠣ	ᠣ		

1836 ᠤ MONGOLIAN LETTER YA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠤ	ᠤ	+	☆	
	2	ᠤ	+	+	☆	1
INIT	1	ᠤ	ᠤ	ᠤ		2
	2	ᠤ	ᠤ	ᠤ		1
MEDI	1	ᠤ	ᠤ	ᠤ		3
	2	ᠤ	ᠤ	ᠤ		1
	3	ᠤ	+	+	●	2
	4	-	ᠤ	-	★	MVS
FINA	1	ᠤ	+	ᠤ	★	

1837 ᠬ MONGOLIAN LETTER RA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠬ	ᠬ	+	☆	
INIT	1	ᠬ	ᠬ	ᠬ		
MEDI	1	ᠬ	ᠬ	ᠬ		
	2	ᠬ	+	-	●	MVS
FINA	1	ᠬ	ᠬ	ᠬ		













1838 ᠬ MONGOLIAN LETTER WA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠬ	ᠬ	+	☆	
INIT	1	ᠬ	ᠬ	ᠬ		
MEDI	1	ᠬ	ᠬ	ᠬ		
	2	ᠬ	ᠬ	+	●	1
	3	ᠬ	+	-		MVS(1)
FINA	1	ᠬ	ᠬ	ᠬ		
	2	ᠬ	ᠬ	ᠬ		1













1839 ᠭ MONGOLIAN LETTER FA

	No.	Form	25914	U10	diff	FVS
ISOL	1	ᠭ	ᠭ	+	☆	
INIT	1	ᠭ	ᠭ	ᠭ		
MEDI	1	ᠭ	ᠭ	ᠭ		
FINA	1	ᠭ	ᠭ	ᠭ		













183A  MONGOLIAN LETTER KA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1					













183B  MONGOLIAN LETTER KHA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1					













183C  MONGOLIAN LETTER TSA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1					













183D  MONGOLIAN LETTER ZA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1					













183E  MONGOLIAN LETTER HAA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1					













183F  MONGOLIAN LETTER ZRA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1				☆	
FINA	1				☆	













1840  MONGOLIAN LETTER LHA

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1					
FINA	1				☆	

1841  MONGOLIAN LETTER ZHI

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1				☆	
FINA	1				☆	

1842  MONGOLIAN LETTER CHI

	No.	Form	25914	U10	diff	FVS
ISOL	1				☆	
INIT	1					
MEDI	1				☆	
FINA	1				☆	