

1. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 2. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 3. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 4. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 5. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 6. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 7. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 8. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 9. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 10. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ

11. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 12. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 13. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 14. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 15. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 16. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 17. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 18. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 19. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ
 20. ᠠᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ ᠨᠠᠭᠤ



MONGOLIAN SCRIPT IN UNICODE

SAN JOSE – 2018

Agenda

- **Improvement of Mongolian Script Description in Unicode**
 - Single control character instead of many
 - U1800 – Separation of the font matter and the Unicode matter
 - Adding one more character in Unicode table U1800
 - Unicode table should indicate only the basic principles of modern grammar
 - Certification of fonts
- **About Graphitic approach – Personal view and explanation**
 - What is the Graphitic method of rendering
 - Combining of true Unicode world with the Graphitic approach
- **Notes**
 - OS and Software problem
 - Notes on W3C

Current situation of U1800

- **Very difficult for end users – for dummies**
- **Difficult for font designers and application developers - for smart guys**

Goal: Make easier the using for end users and also make easy for font and application developers.

Improvement of Mongolian Script Description in Unicode

Single control character instead of many

**MVS,
FVS1,
FVS2,
FVS3**



FVS1

Improvement of Mongolian Script Description in Unicode

Single control character instead of many

MVS  **FVS1**

Implementation in OTF font – in 2 steps

1.
FVS1 will replace
final “a” or “e” into
spaced orhits

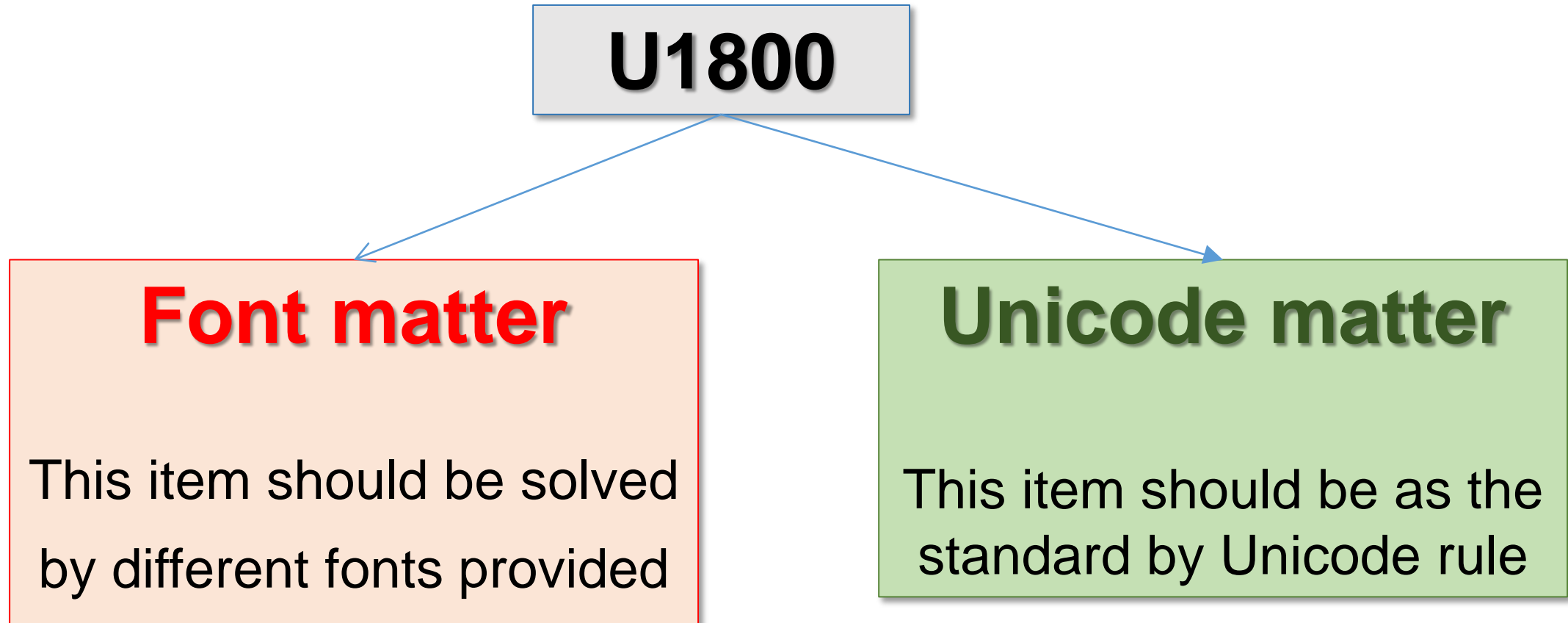


2.
“**orhits**” will replace
previous middle “n”
to the final “**n**”



Improvement of Mongolian Script Description in Unicode

U1800 – Separation of the font matter and the Unicode matter

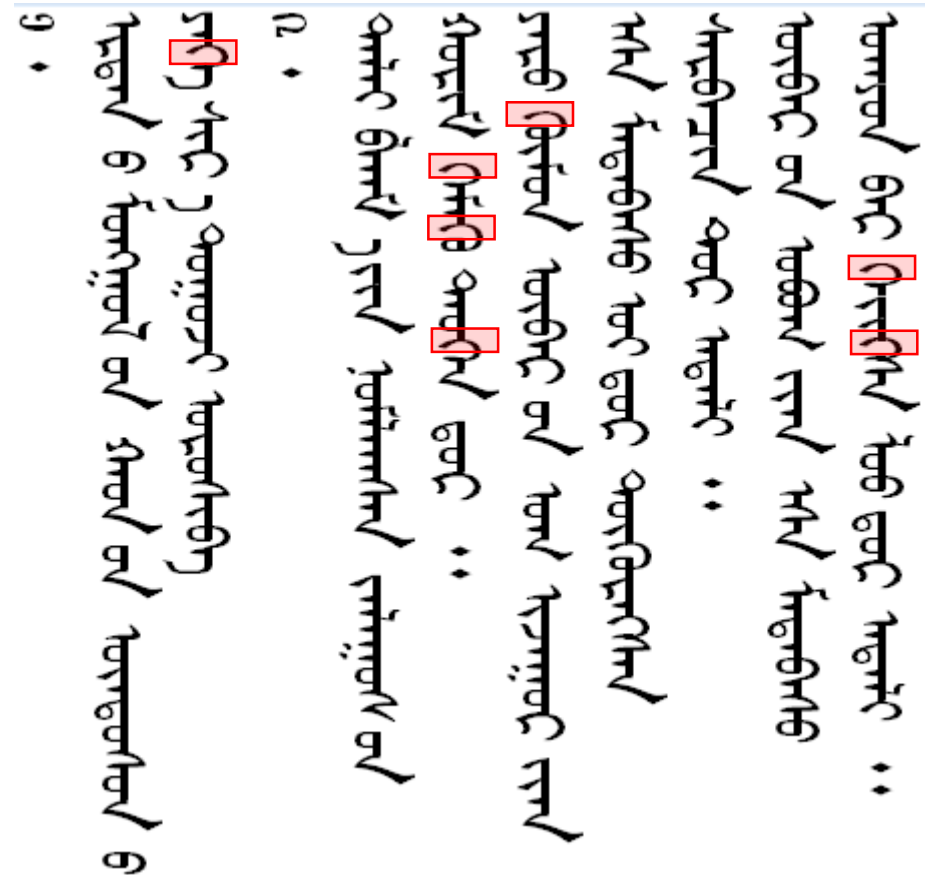


Improvement of Mongolian Script Description in Unicode

Adding one more character in Unicode table U1800

erten-ü mongyol-un qad-un
ündüsün-ü yeke sir-a tuyuji
orusiba ::

dalai blam-a-yin nomlaysan jalayus-
un qurim kemekü teükendür :
yerü kümün öber-ün uy ijayur-iyān
ese medebesü oi-dur tögüregsen
sarbačın-tur adali :
öber-ün obuy-iyān ese medebesü
oqyun-bar keyiksen luu-dur adali :



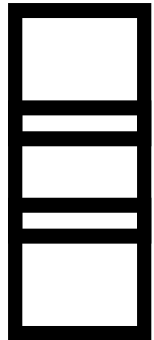
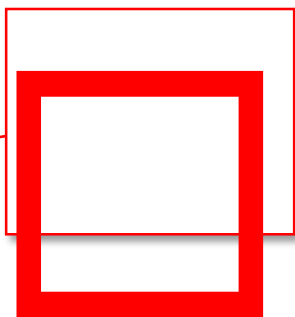
ᠡᠷᠲᠡᠨ ᠦ ᠮᠣᠩᠭᠣᠯ ᠤᠨ ᠠᠭᠠᠳ ᠤᠨ
ᠤᠨᠳᠦᠰᠦᠨ ᠦ ᠶᠡᠬᠡ ᠰᠢᠷ ᠠ ᠲᠤᠶᠤᠵᠢ
ᠣᠷᠤᠰᠢᠪᠠ ::

ᠳᠠᠯᠠᠢ ᠪᠯᠠᠮ ᠠ ᠶᠢᠨ ᠨᠣᠮᠯᠠᠶᠤᠰᠠᠨ ᠵᠠᠯᠠᠶᠤᠰ
ᠤᠨ ᠠᠷᠢᠮ ᠬᠡᠮᠡᠬᠦ ᠲᠡᠦᠬᠡᠨᠳᠦᠷ ᠦ ᠶᠡᠷᠦ
ᠬᠦᠮᠦᠨ ᠥᠪᠦᠷ ᠦᠨ ᠤᠶ ᠢᠵᠠᠶᠤᠷ ᠢᠶᠠᠨ
ᠡᠰᠡ ᠮᠡᠳᠡᠪᠡᠰᠦ ᠣᠢ ᠳᠤᠷ ᠲᠥᠭᠦᠷᠭᠡᠰᠡᠨ
ᠰᠠᠷᠪᠠᠴᠢᠨ ᠲᠤᠷ ᠠᠳᠠᠯᠢ ᠦ ᠳᠠᠯᠢ ᠶᠡᠷᠦ
ᠥᠪᠦᠷ ᠦᠨ ᠣᠪᠤᠶ ᠢᠶᠠᠨ ᠡᠰᠡ ᠮᠡᠳᠡᠪᠡᠰᠦ
ᠣᠴᠢᠶᠤᠨ ᠪᠠᠷ ᠬᠡᠶᠢᠬᠢᠰᠡᠨ ᠯᠤᠤ ᠳᠤᠷ ᠠᠳᠠᠯᠢ ᠦ

Mongolian

	180	181	182	183	184	185	186	187	188	189	18A
0	᠎ᠠ	᠎ᠡ	᠎ᠢ	᠎ᠣ	᠎ᠤ	᠎ᠥ	᠎ᠦ	᠎ᠨ	᠎ᠢ	᠎ᠣ	᠎ᠤ
1	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
2	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
3	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
4	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
5	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
6	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
7	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
8	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
9	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
A	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
B	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
C	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
D	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
E	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ
F	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ	᠎ᠠᠨ

Adding one more character in Unicode table U1800



Improvement of Mongolian Script Description in Unicode

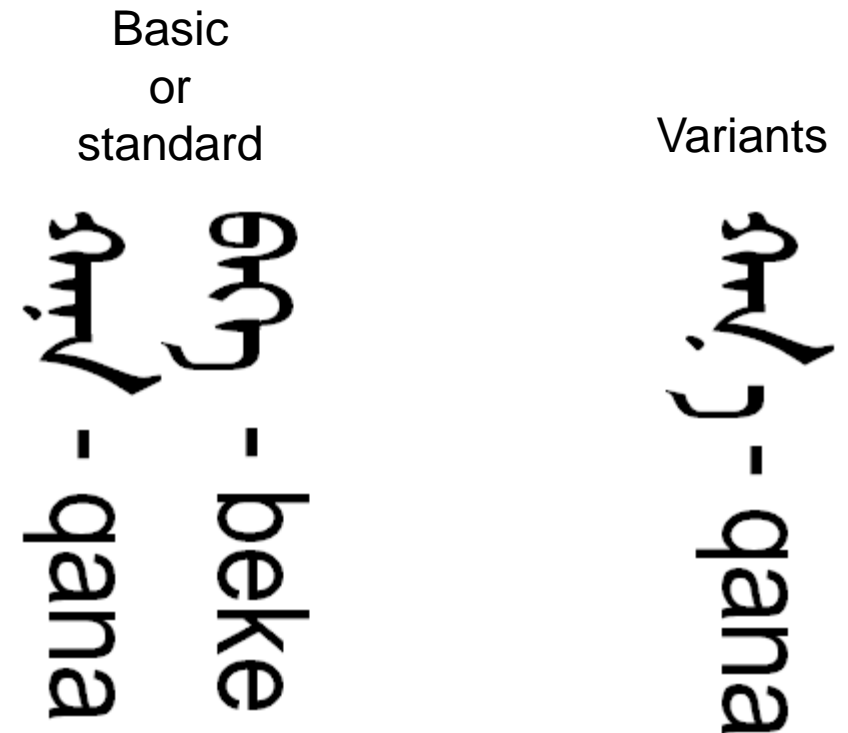
Unicode table should indicate only the basic principles of modern grammar

Main principle:

U1800 table should make clear the glyph shape variants based on only the modern grammar of Mongolian script.

For example:

Vowel “a” and “e” at the end of word



Notes to Unicode World

Proofing font

- *Mongolian special font with specific characters*
- *Latin or Cyrillic letters in table U1800*

Improvement of Mongolian Script Description in Unicode

Certification of fonts

- **Actually this is not a direct obligation of Unicode**
 - But it will be better some subject, i.e. some government institute or even enthusiasts, carry out the testing of any newly created fonts and then publish the result on some special web site.
 - Provide some text with its picture variant, which shall be used by font designers and/or software developers for judgment of their font or application whether are working correctly.

About Graphitic approach

Personal view and explanation

- Not acceptable!

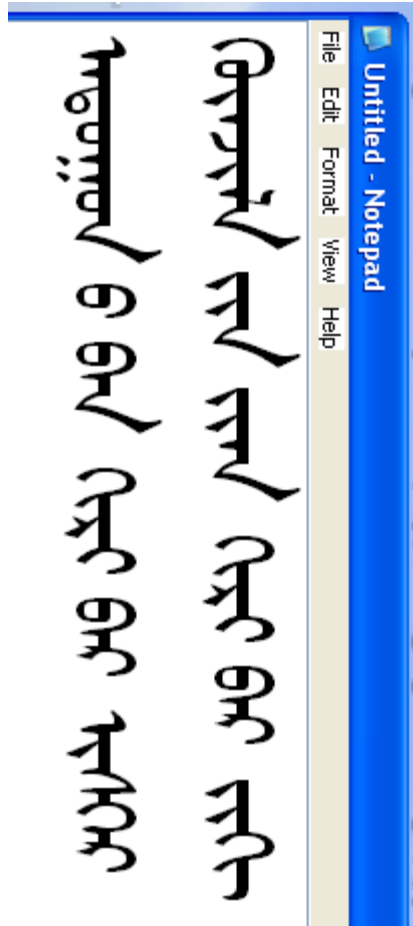
About Graphitic approach

Personal view and explanation

Using of some ideas of Graphitic method in the U1800 standard

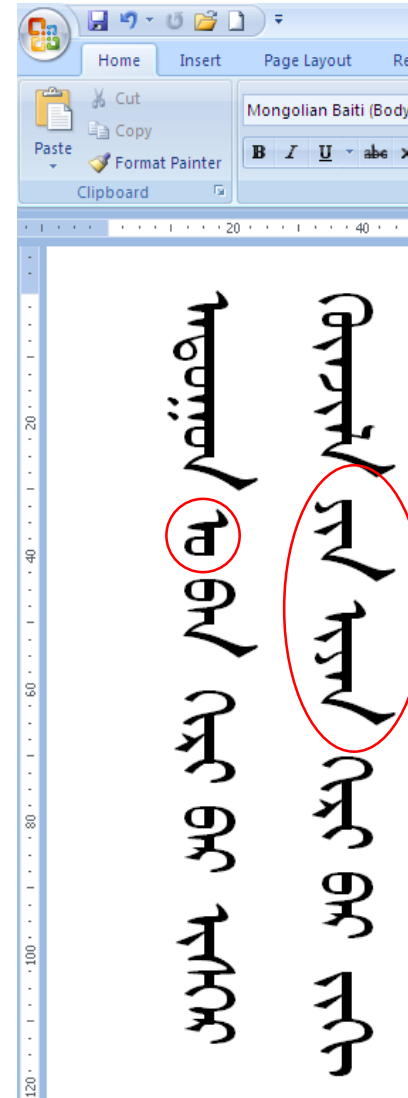
- U1800 is the main true standard.
- If it is used some idea from graphitic method then it will be only as supplementary tools useful for non-unicode area.
- But it should be also standardized.

OS and Software problem



Notepad

correct



MS Word

Not correct

W3C Notes

Page scroll – independent.

Textview scroll – different for horizontal and vertical text



وڤرئىكس ڤسقىو وڤ
ڤمقو ئىڤا وڤئىقو مەئىڤ ئىڤىڤ
ئىڤئىڤىڤ وڤئىڤىڤىڤ
ڤمقوئىڤىڤ ھەئىڤ ڤئىڤىڤىڤ وڤئىڤىڤىڤ ڤ
ڤئىڤىڤىڤ
مەڤمقوئىڤىڤ مەڤ ڤئىڤىڤىڤ ئىڤىڤ
ئىڤىڤىڤىڤ ئىڤىڤىڤىڤىڤ ڤمقوئىڤىڤ
ئىڤىڤىڤىڤ وڤ ئىڤىڤىڤىڤىڤ ڤمقوئىڤىڤىڤ

The lookup type will be automatically assigned based on the lookups that are entered.
Process Marks should be set to “ALL” if marks have an impact on shaping and to “NONE” if the marks should be ignored when doing substitutions. For example, the Arabic *lam alef* ligature should be formed correctly even if there is a mark above the *lam*.
The Text Flow setting only impacts the display of the substitutions. All substitutions are entered in logical order.
When making lookups for ligatures, you need to make sure you do the lookups for the larger lookups before the smaller ones. This is because the first match when searching through a lookup will terminate the search process. For example: “`uni02E5 uni02E7 uni02E9 -> uni02E502E9`” must come before “`uni02E5 uni02E7 -> uni02E502E7`” or you will never have the possibility of forming the `uni02E502E9` from the combination of `uni02E5 uni02E7 uni02E9`.



Thank you for your attention