Additional Variation Selectors
as Substitutes for Legacy v5.2–v15 Hieroglyphs

Daniel A. Werning,
with contributions by
Peter Dils, Jorke Grotenhuis, Svenja Gülden, and Stéphane Polis

Revised June 28, 2024 (by D. Anderson)

Executive Summary
This document requests the addition of ten new sequences for Ancient Egyptian hieroglyphs to be included in StandardizedVariants.txt in Unicode version 16.0 and for one sequence to be commented out for Unicode version 16.0.

Background documents

- [L2/22-012R](#) is an earlier proposal for the registration of rotations for Ancient Egyptian hieroglyphs

- [L2/21-248](#) is an earlier proposal that defined the usage of VS1–VS3 for Ancient Egyptian hieroglyphs and suggested to reserve VS4–VS7 for non-90° rotations.

- [L2/22-012](#) is the earlier proposal, for which this proposal is a follow-up/update.

Introduction and proposed changes

In Unicode v5.2 certain rotated variants of hieroglyphs were introduced that do not justify a separate codepoint because these rotated variants have the same function as the unrotated base characters, e.g. U+133DC EGYPTIAN HIEROGLYPH Y001A (vertical form of Y1) (𓏜) as a variant of the more common U+133DB EGYPTIAN HIEROGLYPH Y001 (papyrus rolled up, tied, and sealed) (𓏛).

In a proposal for Unicode v16 this case and other nine other similar cases of codepoints of rotated variants are given the status of "legacy" codepoints, which future fonts are not expected to support anymore.

At the same time, there is a clear demand from Egyptologists to encode these very common cases of rotations in hieroglyphic strings.

In general, it was decided to implement non-meaningful rotations of Ancient Egyptian hieroglyphs in Unicode via Variation Selectors (see [L2/21-248](#)).

Moreover, the addition of rotation variants that were part of Unicode v5.2–15, but will be given "legacy" status in v16 in the form of VS variants will allow for a full representation of the complete v5.2–15 shapes even with future fonts that no longer support the "legacy" characters.

Both the demand of Egyptologists and the goal to be able to produce v5.2–15 shapes with future fonts are the rationale for this proposal.

One sequence is asked to be commented out, since it can be represented by a newly proposed sequence.

Use of Variation Selectors in the Newly Requested Variation Sequences

Variation Selectors VS1–VS3 have already been defined to represent cases of 90°, 180° and 270° clockwise (if LTR) rotation of hieroglyphs. In accordance with the original proposal L2/21-248, we will be requesting additional VSes for 'odd' angles in the four quarters.

This proposal only requests VS4 (FE03) and VS7 (FE06) to support the two newly proposed sequences for 13338. A full proposal for the other VSes will be made in the near future.

Variation selectors	Code	Usage (LTR)	State
VS1	FE00	90° (clockwise)	v15.1
VS2	FE01	180° (clockwise)	v15.1
VS3	FE02	270° (clockwise)	v15.1
VS4	FE03	15–75° (clockwise)	**New**
(VS5)	FE04	105–165° (clockwise)	
(VS6)	FE05	195–255° (clockwise)	
VS7	FE06	285–345° (clockwise)	**New**

Table 1 | Usage of variation selectors

Sequence to be commented out

1333B FE00 (𖌻): This rotation is now considered to be too similar to the rotation as found in the already included character version 𖌹 (legacy codepoint 13339, now substituted in this proposal by 13338 FE03). The latter rotation 13338 FE03 shall be used in the future.

Code point	UniPUA font	Rotation	VS	Rotated	Occurrences in DBs	State	Comment
1333B	⇜	90°	FE00	𝐴	≥5	v15.1	Use similar 13338 FE03 instead.

Table 2 | VS sequences proposed to be commented out

Newly Proposed Sequences

The tables below enumerates the ten newly proposed cases of VS (marked by "**new**").

Code point	UniPUA font	Rotation	VS	Rotated	Occurrences in DBs	State	Comment
13132	⬤	180°	FE01	⬤	≥450	New	Substitute for legacy 13133, 13135.
13139	◟	180°	FE01	◞	≥50	New	Substitute for legacy 1313C.
131E0	⸝⸝⸝	90° = 270°	FE00	⫽	≥20	New	Substitute for legacy 131E1 (mirr.).
1327B	⟜	90°	FE00	⎜	≥1.000	New	Substitute for legacy 1327C.
13338	✎	30°	FE03	𖌹	≥5	New	Substitute for legacy 13339, 1333A.
13338	✎	320° (horizontal)	FE06	⇜	≥3.500	New	Substitute for legacy 1333B.
133DB	⟝	270°	FE02	⎪	≥400	New	Substitute for legacy 133DC.
133E5	⊪	90° = 270°	FE00	⁝	≥20.000	New	Substitute for legacy 133EB.
133E7	∴	90° = 270°	FE00	⸪	≥200	New	Substitute for legacy 133EC.
133E8	⦙	180°	FE01	⦙	≥100	New	Substitute for legacy 133E9.

Table 3 | Overview of proposed variant rotations

Changes to StandardizedVariants.txt

Commented out

```
# The following sequence was removed as unrequired.
#1333B FE00; rotated 90 degrees; # EGYPTIAN HIEROGLYPH U007
```

Additions

```
13132 FE01; rotated 180 degrees; # EGYPTIAN HIEROGLYPH F046
13139 FE01; rotated 180 degrees; # EGYPTIAN HIEROGLYPH F051
131E0 FE00; rotated 90 degrees (= 270 degrees); # EGYPTIAN HIEROGLYPH M033
1327B FE00; rotated 90 degrees; # EGYPTIAN HIEROGLYPH O029
13338 FE03; rotated approximately 30 degrees; # EGYPTIAN HIEROGLYPH U006
13338 FE06; rotated approximately 320 degrees (horizontal); # EGYPTIAN HIEROGLYPH U006
133DB FE02; rotated 270 degrees; # EGYPTIAN HIEROGLYPH Y001
133E5 FE00; rotated 90 degrees (= 270 degrees); # EGYPTIAN HIEROGLYPH Z002
133E7 FE00; rotated 90 degrees (= 270 degrees); # EGYPTIAN HIEROGLYPH Z002B
133E8 FE01; rotated 180 degrees; # EGYPTIAN HIEROGLYPH Z002C
```

Selected Evidence for New Rotation Variants

Code point	VS code	Rotation (approx.)	Rotated form	Comment / Selected evidence
13132	FE01	180°		Substitute for legacy 13133/131335; https://thotsignlist.org/mysign?id=3094.
13139	FE01	180°		Substitute for legacy 1313C; *Hieroglyphica* atomic F51A; https://thesaurus-linguae-aegyptiae.de/sentence/token/IBgAdR6x5gHHykO9mTWHP3RRW64; http://thotsignlist.org/mytkclass?id=3106&cl=04.
131E0	FE00	90°		Substitute for legacy 131E1 (mirrored).
1327B	FE00	90°		Substitute for legacy 1327C; *Hieroglyphica* atomic O29v; http://thotsignlist.org/mytkclass?id=4692&cl=01.
13338	FE03	30°		Substitute for legacy 13339/1333A; http://thotsignlist.org/mytkclass?id=6224&cl=00; https://thesaurus-linguae-aegyptiae.de/sentence/token/IBUBd1C76MWv40RerjiAW6KM6iI, https://thesaurus-linguae-aegyptiae.de/sentence/token/IBUBd6MHkkP5FE5Fo4D2qJhhq54, https://thesaurus-linguae-aegyptiae.de/sentence/token/IBUBd2C3o5dw2E8BiSQG73Zte8A.
13338	FE06	320°		Substitute for legacy 1333B; *Hieroglyphica* atomic U7; http://thotsignlist.org/mytkclass?id=6224&cl=01.
133DB	FE02	270°		Substitute for legacy 133DC; *Hieroglyphica* atomic Y1v; http://thotsignlist.org/mytkclass?id=6712&cl=01.
133E5	FE00	90°		Substitute for legacy 133EB; plural; not to be confused with numerical 133FC FE02; cf. *Hieroglyphica* atomic Z3A; https://thotsignlist.org/mysign?id=6810.
133E7	FE00	90°		Substitute for legacy 133EC; *Hieroglyphica* atomic N33Av; http://thotsignlist.org/mytkclass?id=4252&cl=02.
133E8	FE01	180°		Substitute for legacy 133E9; *Hieroglyphica* atomic Z2B; http://thotsignlist.org/mytkclass?id=6781&cl=01.

Table 4 | Selected evidence for rotations in databases and images

*Hieroglyphic*a = N. Grimal, J. Hallof, D. van der Plas, *Hieroglyphica: Sign List*, PIREI 1, Utrecht / Paris, 2000