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Proposals from the Script Encoding Initiative

Title

Proposal for encoding the Nabataean script in the SMP of the UCS

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Universal Multiple-Octet Coded Character Set
International Organization for Standardization
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Doc Type: Working Group Document**Title: Proposal for encoding the Nabataean script in the SMP of the UCS****Source: UC Berkeley Script Encoding Initiative (Universal Scripts Project)****Author: Michael Everson****Status: Liaison Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2010-12-09****1. Introduction.**

The Nabataean Kingdom was at first limited to the territories surrounding the city of Petra, north of the Red Sea, but eventually annexed the Transjordan to Damascus and spread south to Hijâz (to Hegra, modern Madâin Sâlih). They spoke either Aramaic or Arabic—scholars are still divided on the question—but developed a cursive Aramaic script now known as Nabataean, which became widely used, from the second century BCE to the fourth century CE, when the Roman province of Arabia was formed. The script was still used, with small developments, in the third century in Sinai.

The glyphs of the Nabataean script are more ornate than other Aramaic scripts, with circles, loops, and flourishes found in some inscriptions. As the script developed, a range of ligatures and final forms was introduced, evidently as an aid to faster letter writing, ideal for business transactions.

Nabataean is generally considered to be the immediate parent of the Arabic script. An inscription found at An-Namâra, Syria, dating from the fourth century CE, is believed to be one of the oldest Arabic texts; its letterforms show that the Arabic script is derived from the Nabataean prototype.

2. Processing. Nabataean is written from right to left horizontally. Nabataean language inscriptions usually have no space (or extremely narrow space) between words; modern editors tend to insert U+0020 SPACE. Nine final letters exist; these are used commonly in texts but are not obligatory. The letter NABATAEAN LETTER FINAL NUN is to be treated in the same way as HEBREW LETTER FINAL NUN is, and the same goes for the other final letters. (Presumably this would be the case for keyboard input as well.) The letters and their finals are as follows:

𐤀	FINAL ALEPH	𐤀	ALEPH
𐤁	FINAL BETH	𐤁	BETH
𐤂	FINAL HE	𐤂	HE
𐤃	FINAL YODH	𐤃	YODH
𐤄	FINAL KAPH	𐤄	KAPH
𐤅	FINAL LAMEDH	𐤅	LAMEDH
𐤆	FINAL MEM	𐤆	MEM
𐤇	FINAL NUN	𐤇	NUN
𐤈	FINAL SHIN	𐤈	SHIN

The final letters are encoded separately because it is not possible to predict their occurrence. In figure 5, for example, at the end of line 2 a FINAL YODH appears, as would be expected, but in line 3, a YODH

appears before a space in the sixth word. Scholars need to be able to type the forms that appear in texts. Relying on a context-shaping model would require use of ZWJ and ZWNJ, which would interfere with analysis of the text.

3. Glyphs. Although Nabataean inscriptions show many ligatures, in fact the standardization of such ligatures is very erratic, and so it is not possible to treat Nabataean as though it were Arabic, with cursive classes and regular joinings, final forms, etc. In fact even comprehensive treatises on the Nabataean script like Yardeni 2000 do not give such charts. Accordingly only the base characters are proposed for encoding, and no particular ligation or shaping behaviour is defined, as it cannot be mandated. The reference glyphs in the code chart were drawn by Laïla Nehmé and digitized by Michael Everson. The glyphs were selected based on the fact they were widespread, were used in the first century CE, and would be recognizable to scholars.

4. Sorting. The final consonants are treated as variants of the main consonants:

א ALEPH <<< א ALEPH^f < ב BETH <<< ב BETH^f < ג GIMEL < ד DALETH <
 ה HE <<< ה HE^f < ו WAW < ז ZAYIN < ח HETH < ט TETH < י YODH <<< י YODH^f <
 כ KAPH < כ KAPH^f < ל LAMEDH <<< ל LAMEDH^f < מ MEM <<< מ MEM^f < נ NUN <<< נ NUN^f <
 ס SAMEKH < ע AYIN < פ PE < צ SADHE < ק QOPH < ר RESH < ש SHIN <<< ש SHIN^f < ת TAW

5. Character names. The names used for the characters here are based on those used for Imperial Aramaic. Other West Semitic names may have some currency.

6. Numerals. Nabataean numerals are built up out of 1, 2, 3, 4, 5, 10, 20, and 100. The numbers 2 𐤁 and 3 𐤂 and 4 𐤃 are composed of multiples of 1 𐤀, but because in practice the numbers are clumped together as units separate from one another they are encoded as individual characters; divided forms 𐤁, 𐤂, 𐤃 are also found. A CRUCIFORM NUMBER FOUR X also exists; in sorting it is handled as a third-level distinction from the ordinary NUMBER FOUR 𐤃. Nabataean also has numbers for 5 𐤄, 10 𐤅, 20 𐤆, and 100 𐤇. The numbers have right-to-left directionality. In the chart below, the third and sixth columns are displayed in visual order.

1	𐤀	1 ←	11	𐤁𐤀 (also 𐤁𐤀)	1 + 10 ←
2	𐤁	2 ←	12	𐤂𐤀	2 + 10 ←
3	𐤂	3 ←	13	𐤃𐤀	3 + 10 ←
4	𐤃, X	4 ←	14	𐤄𐤀, X𐤀	4 + 10 ←
5	𐤄	5 ←	15	𐤅𐤀	5 + 10 ←
6	𐤆 (also 𐤆)	1 + 5 ←	16	𐤇𐤀	1 + 5 + 10 ←
7	𐤁𐤄	2 + 5 ←	17	𐤂𐤄	2 + 5 + 10 ←
8	𐤂𐤄	3 + 5 ←	18	𐤃𐤄	3 + 5 + 10 ←
9	𐤃𐤄, X𐤄	4 + 5 ←	19	𐤄𐤄, X𐤄	4 + 5 + 10 ←
10	𐤅	10 ←	100	𐤇	100 + 1 ←
20	𐤆 (21 𐤆 or 𐤆)	20 ←	200	𐤇𐤁	100 + 2 ←
30	𐤅𐤆	10 + 20 ←	300	𐤇𐤂	100 + 3 ←
40	𐤅𐤃	20 + 20 ←	400	𐤇𐤃, 𐤇X	100 + 4 ←
50	𐤅𐤄	10 + 20 + 20 ←	500	𐤇𐤄	100 + 5 ←
60	𐤅𐤃𐤃	20 + 20 + 20 ←	600	𐤇𐤄	100 + 1 + 5 ←
70	𐤅𐤃𐤃𐤃	10 + 20 + 20 + 20 ←	700	𐤇𐤄	100 + 2 + 5 ←
80	𐤅𐤃𐤃𐤃	20 + 20 + 20 + 20 ←	800	𐤇𐤄	100 + 3 + 5 ←
90	𐤅𐤃𐤃𐤃𐤃	10 + 20 + 20 + 20 + 20 ←	900	𐤇𐤄	100 + 4 + 5 ←

7. Unicode Character Properties

10880;NABATAEAN LETTER FINAL ALEPH;Lo;0;R;;;;;N;;;;;
10881;NABATAEAN LETTER ALEPH;Lo;0;R;;;;;N;;;;;
10882;NABATAEAN LETTER FINAL BETH;Lo;0;R;;;;;N;;;;;
10883;NABATAEAN LETTER BETH;Lo;0;R;;;;;N;;;;;
10884;NABATAEAN LETTER GIMEL;Lo;0;R;;;;;N;;;;;
10885;NABATAEAN LETTER DALETH;Lo;0;R;;;;;N;;;;;
10886;NABATAEAN LETTER FINAL HE;Lo;0;R;;;;;N;;;;;
10887;NABATAEAN LETTER HE;Lo;0;R;;;;;N;;;;;
10888;NABATAEAN LETTER WAW;Lo;0;R;;;;;N;;;;;
10889;NABATAEAN LETTER ZAYIN;Lo;0;R;;;;;N;;;;;
1088A;NABATAEAN LETTER HETH;Lo;0;R;;;;;N;;;;;
1088B;NABATAEAN LETTER TETH;Lo;0;R;;;;;N;;;;;
1088C;NABATAEAN LETTER FINAL YODH;Lo;0;R;;;;;N;;;;;
1088D;NABATAEAN LETTER YODH;Lo;0;R;;;;;N;;;;;
1088E;NABATAEAN LETTER FINAL KAPH;Lo;0;R;;;;;N;;;;;
1088F;NABATAEAN LETTER KAPH;Lo;0;R;;;;;N;;;;;
10890;NABATAEAN LETTER FINAL LAMEDH;Lo;0;R;;;;;N;;;;;
10891;NABATAEAN LETTER LAMEDH;Lo;0;R;;;;;N;;;;;
10892;NABATAEAN LETTER FINAL MEM;Lo;0;R;;;;;N;;;;;
10893;NABATAEAN LETTER MEM;Lo;0;R;;;;;N;;;;;
10894;NABATAEAN LETTER FINAL NUN;Lo;0;R;;;;;N;;;;;
10895;NABATAEAN LETTER NUN;Lo;0;R;;;;;N;;;;;
10896;NABATAEAN LETTER SAMEKH;Lo;0;R;;;;;N;;;;;
10897;NABATAEAN LETTER AYIN;Lo;0;R;;;;;N;;;;;
10898;NABATAEAN LETTER PE;Lo;0;R;;;;;N;;;;;
10899;NABATAEAN LETTER SADHE;Lo;0;R;;;;;N;;;;;
1089A;NABATAEAN LETTER QOPH;Lo;0;R;;;;;N;;;;;
1089B;NABATAEAN LETTER RESH;Lo;0;R;;;;;N;;;;;
1089C;NABATAEAN LETTER FINAL SHIN;Lo;0;R;;;;;N;;;;;
1089D;NABATAEAN LETTER SHIN;Lo;0;R;;;;;N;;;;;
1089E;NABATAEAN LETTER TAW;Lo;0;R;;;;;N;;;;;
108A7;NABATAEAN NUMBER ONE;No;0;R;;;1;N;;;;;
108A8;NABATAEAN NUMBER TWO;No;0;R;;;2;N;;;;;
108A9;NABATAEAN NUMBER THREE;No;0;R;;;3;N;;;;;
108AA;NABATAEAN NUMBER FOUR;No;0;R;;;4;N;;;;;
108AB;NABATAEAN CRUCIFORM NUMBER FOUR;No;0;R;;;4;N;;;;;
108AC;NABATAEAN NUMBER FIVE;No;0;R;;;5;N;;;;;
108AD;NABATAEAN NUMBER TEN;No;0;R;;;10;N;;;;;
108AE;NABATAEAN NUMBER TWENTY;No;0;R;;;20;N;;;;;
108AF;NABATAEAN NUMBER ONE HUNDRED;No;0;R;;;100;N;;;;;

8. Punctuation. Script-specific punctuation for Nabataean is not known.

9. Bibliography

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	1088	1089	108A
0	𐤀 10880	𐤁 10890	
1	𐤂 10881	𐤃 10891	
2	𐤄 10882	𐤅 10892	
3	𐤆 10883	𐤇 10893	
4	𐤈 10884	𐤉 10894	
5	𐤊 10885	𐤋 10895	
6	𐤌 10886	𐤍 10896	
7	𐤎 10887	𐤏 10897	𐤐 108A7
8	𐤑 10888	𐤒 10898	𐤓 108A8
9	𐤔 10889	𐤕 10899	𐤖 108A9
A	𐤗 1088A	𐤘 1089A	𐤙 108AA
B	𐤚 1088B	𐤛 1089B	𐤜 108AB
C	𐤝 1088C	𐤞 1089C	𐤟 108AC
D	𐤠 1088D	𐤡 1089D	𐤢 108AD
E	𐤣 1088E	𐤤 1089E	𐤥 108AE
F	𐤦 1088F		𐤧 108AF

Letters

10880	𐤀	NABATAEAN LETTER FINAL ALEPH
10881	𐤂	NABATAEAN LETTER ALEPH
10882	𐤄	NABATAEAN LETTER FINAL BETH
10883	𐤆	NABATAEAN LETTER BETH
10884	𐤈	NABATAEAN LETTER GIMEL
10885	𐤊	NABATAEAN LETTER DALETH
10886	𐤌	NABATAEAN LETTER FINAL HE
10887	𐤎	NABATAEAN LETTER HE
10888	𐤐	NABATAEAN LETTER WAW
10889	𐤒	NABATAEAN LETTER ZAYIN
1088A	𐤔	NABATAEAN LETTER HETH
1088B	𐤚	NABATAEAN LETTER TETH
1088C	𐤞	NABATAEAN LETTER FINAL YODH
1088D	𐤠	NABATAEAN LETTER YODH
1088E	𐤣	NABATAEAN LETTER FINAL KAPH
1088F	𐤦	NABATAEAN LETTER KAPH
10890	𐤧	NABATAEAN LETTER FINAL LAMEDH
10891	𐤩	NABATAEAN LETTER LAMEDH
10892	𐤫	NABATAEAN LETTER FINAL MEM
10893	𐤭	NABATAEAN LETTER MEM
10894	𐤯	NABATAEAN LETTER FINAL NUN
10895	𐤱	NABATAEAN LETTER NUN
10896	𐤳	NABATAEAN LETTER SAMEKH
10897	𐤵	NABATAEAN LETTER AYIN
10898	𐤷	NABATAEAN LETTER PE
10899	𐤹	NABATAEAN LETTER SADHE
1089A	𐤻	NABATAEAN LETTER QOPH
1089B	𐤽	NABATAEAN LETTER RESH
1089C	𐤿	NABATAEAN LETTER FINAL SHIN
1089D	𐥀	NABATAEAN LETTER SHIN
1089E	𐥁	NABATAEAN LETTER TAW

Numbers

108A7	𐤐	NABATAEAN NUMBER ONE
108A8	𐤓	NABATAEAN NUMBER TWO
108A9	𐤖	NABATAEAN NUMBER THREE
108AA	𐤙	NABATAEAN NUMBER FOUR
108AB	𐤜	NABATAEAN CRUCIFORM NUMBER FOUR
108AC	𐤟	NABATAEAN NUMBER FIVE
108AD	𐤢	NABATAEAN NUMBER TEN
108AE	𐤥	NABATAEAN NUMBER TWENTY
108AF	𐤧	NABATAEAN NUMBER ONE HUNDRED

(184) Das Verhältnis der mandäischen und nabatäischen Schrift zum aramäischen Konsonantenalphabet

Lautwert	Aram.	Nabatäisch	Sinaitisch	Mandäisch	Lautwert	Aram.	Nabatäisch	Sinaitisch	Mandäisch
·	𐤀	𐤁	𐤂	𐤃	i	𐤄	𐤅	𐤆	𐤇
b	𐤈	𐤉	𐤊	𐤋	m	𐤌	𐤍	𐤎	𐤏
g, ġ (arab.)	𐤐	𐤑	𐤒	𐤓	n	𐤔	𐤕	𐤖	𐤗
d	𐤘	𐤙	𐤚	𐤛	s	𐤜	𐤝	𐤞	𐤟
h	𐤠	𐤡	𐤢	𐤣	·	𐤤	𐤥	𐤦	𐤧
w	𐤨	𐤩	𐤪	𐤫	p; f (arab.)	𐤬	𐤭	𐤮	𐤯
z	𐤰	𐤱	𐤲	𐤳	ʃ	𐤴	𐤵	𐤶	𐤷
ḥ	𐤸	𐤹	𐤺	𐤻	q	𐤼	𐤽	𐤾	𐤿
t	𐤽	𐤾	𐤿	𐥀	r	𐥁	𐥂	𐥃	𐥄
j	𐥅	𐥆	𐥇	𐥈	š	𐥉	𐥊	𐥋	𐥌
k	𐥍	𐥎	𐥏	𐥐	t	𐥑	𐥒	𐥓	𐥔

Figure 2. Chart of Semitic scripts from Haarmann 1990, showing Nabataean. In Haarmann's original table the characters are all upside-down; this has been corrected here.

TABLE 5.5: *Scripts Derived from Aramaic Script (Garbini 1979, fig. 7)^a*

	XVII	XVIII	XIX	XX
ʾ	Ⲁ ⲁ	Ⲃ ⲃ	Ⲅ ⲅ Ⲇ ⲇ	Ⲉ
b	ⲉ Ⲋ ⲋ	Ⲍ ⲍ	Ⲏ ⲏ Ⲑ ⲑ Ⲓ	ⲓ
g	Ⲕ	ⲕ Ⲗ	ⲗ Ⲙ ⲙ	Ⲛ
d	ⲛ Ⲝ	ⲝ Ⲟ	ⲟ Ⲡ	ⲡ
h	Ⲣ	ⲣ Ⲥ	ⲥ Ⲧ ⲧ Ⲩ	ⲩ Ⲫ
w	Ⲭ ⲭ	Ⲯ ⲯ	Ⲱ ⲱ Ⲳ	ⲳ
z	Ⲵ	ⲵ Ⲷ	ⲷ Ⲹ	ⲹ
ḥ	Ⲩ ⲩ	Ⲫ ⲫ	Ⲭ ⲭ Ⲯ	ⲯ
t	ⲱ	Ⲳ ⲳ	Ⲵ ⲵ	Ⲷ
y	Ⲹ ⲹ	Ⲻ ⲻ	Ⲽ ⲽ Ⲿ ⲿ	ⲿ ⲏ
k	ⲟ Ⲡ	ⲡ Ⲣ	ⲣ Ⲥ ⲥ Ⲧ ⲧ Ⲩ	ⲩ Ⲫ
l	Ⲭ	ⲭ Ⲯ	ⲯ Ⲱ ⲱ	Ⲳ
m	ⲳ Ⲵ	ⲵ Ⲷ	ⲷ Ⲹ ⲹ Ⲻ	ⲻ
n	ⲛ Ⲝ	ⲝ Ⲟ	ⲟ Ⲡ ⲡ	Ⲣ
s	ⲣ Ⲥ	ⲥ Ⲧ	ⲧ Ⲩ ⲩ	
ʿ	Ⲱ	ⲱ Ⲳ	ⲳ Ⲵ ⲵ Ⲷ ⲷ	Ⲹ
p	ⲟ Ⲡ	ⲡ Ⲣ	ⲣ Ⲥ ⲥ	Ⲧ
ṣ	Ⲱ	ⲱ	Ⲳ ⲳ	Ⲵ
q	Ⲣ ⲣ	Ⲥ ⲥ	Ⲧ ⲧ Ⲩ ⲩ	Ⲫ
r	ⲛ	Ⲝ ⲝ	Ⲟ ⲟ Ⲡ	ⲡ
š	Ⲣ ⲣ	Ⲥ ⲥ	Ⲧ ⲧ Ⲩ	ⲩ
t	ⲛ Ⲝ	ⲝ Ⲟ	ⲟ Ⲡ ⲡ Ⲣ ⲣ	Ⲥ

a. Col. XVII, Hebrew square script; col. XVIII, Palmyrene script; col. XIX, Nabataean script; col. XX, Ancient Arabic script

Figure 3. Chart of Semitic scripts from Haarmann 1990, showing Nabataean.

ALPHABETS ARAMÉENS COMPARÉS.

(ARAMÉEN ANCIEN, PALMYRÉNIEN, NABATÉEN.)

VALEUR.	ARAMÉEN ANCIEN.			PALMYRÉNIEN.	NABATÉEN.
	VIII ^e SIÈCLE.	VI ^e SIÈCLE.	IV ^e SIÈCLE.		
ʾ	𐤀	𐤀	𐤀	𐤁	𐤁 𐤂 𐤃
b	𐤁	𐤂	𐤂	𐤂	𐤄 𐤅
g	𐤂	𐤃	𐤃	𐤃	𐤆
d	𐤃	𐤄	𐤄	𐤄	𐤇
h	𐤄	𐤅	𐤅	𐤅	𐤈 𐤉
w	𐤅	𐤆	𐤆	𐤆	𐤊 𐤋
z	𐤆	𐤇	𐤇	𐤆	𐤌
ḥ	𐤇	𐤈	𐤈	𐤇	𐤍 𐤎
t	𐤈	𐤉	𐤉	𐤈	𐤏
y	𐤉	𐤊	𐤊	𐤉	𐤐 𐤑
k	𐤊	𐤋	𐤋	𐤊	𐤒 𐤓
l	𐤋	𐤌	𐤌	𐤋	𐤔 𐤕
m	𐤌	𐤍	𐤍	𐤌	𐤖 𐤗
n	𐤍	𐤎	𐤎	𐤍	𐤘 𐤙
s	𐤎	𐤏	𐤏	𐤍	𐤚
ʿ	𐤏	𐤐	𐤐	𐤎	𐤛
f	𐤐	𐤑	𐤑	𐤎	𐤜 𐤝
g	𐤑	𐤒	𐤒	𐤏	𐤞 𐤟
k	𐤒	𐤓	𐤓	𐤏	𐤠
r	𐤓	𐤔	𐤔	𐤐	𐤡
š	𐤔	𐤕	𐤕	𐤐	𐤢
t	𐤕	𐤖	𐤖	𐤑	𐤣 𐤤

Figure 4. Chart of "Aramaic alphabets" from Ballhorn 1864, showing Nabataean.

TEXTE NABATÉEN.

ÉPITAPHE DE L'AN 26 DE NOTRE ÈRE,
 À MEDAÏN-SALEH (HEDJRA).

𐤀𐤏𐤓𐤌 𐤏𐤋𐤁𐤍 𐤕 𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤕𐤕 𐤁𐤁 𐤕𐤏𐤕 𐤀𐤓𐤌𐤀𐤔 𐤀𐤏𐤓𐤌
h š pml nlaw rb a y s a nl h k db^c yd a r b k̄ hnd
 pour lui-même , de Waalan fils , le médecin Kahlan a fait que le tombeau Ceci est

𐤏𐤓𐤌𐤀𐤔 𐤀𐤏𐤓𐤌 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍
y t y a w ml^c d^c k̄ d š a b k̄ d š a hr h̄ a w h d l y w
 et est ; toujours jusque en héritier d'héritier et sa postérité et pour ses enfants

𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤁𐤍 𐤕 𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
a r š w d l mr h̄ m yd a m r h̄ t k̄ y l h̄ k mr h̄ hnd a r b k̄
 à Dusarès consacré qui est du sanctuaire à la façon un sanctuaire ce tombeau

𐤀𐤓𐤌𐤀𐤔 𐤕 𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
a l yd t r y w k̄ d š a š w n a l k l^c w m l š w w t b n b
 ne que et héritier parent homme tout Pour .et chez les Salamiens en Nabatène

𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
kl m t t r h̄ l š m h̄ w n y t l t t n š r y a h̄ r y b hnd a r b k̄ n b z y
 roi , d'Harétat et cinq trente de l'an Iyar Au mois .ce tombeau il vende

𐤀𐤓𐤌𐤀𐤔
w t b n
 .de Nabatène

R. DUSSAUD, 1927.
 (J. FÉVRIER, 1948.)

Figure 5. Sample text in Nabataean from Fossey 1948. Transcribed with blue letters and red final letters, and given again below without colouring. There has been some difference of opinion as to the 𐤀 LAMEDH and 𐤁 FINAL LAMEDH characters, but as this text shows considerable distinction between them, both are proposed for encoding. It is interesting to compare them to the Arabic 𐤀 LAM and Hebrew 𐤁 LAMED.

𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤁𐤍 𐤕 𐤀𐤓𐤌𐤀𐤔 𐤏𐤋𐤁𐤍 𐤏𐤋𐤁𐤍 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔
 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔 𐤀𐤓𐤌𐤀𐤔

לוח ב: תעודות בכתב רהוט CHART B: DOCUMENTS IN CURSIVE SCRIPT

	<p>B/1 +60 כ/1 סמטריק/כ"ח 36 נתל חבר/הבר N. Hever</p>
	<p>B/2 +93 כ/2 NH 1/1 נתל חבר/הבר N. Hever</p>
	<p>B/3 +99 כ/3 NH 3/3 נתל חבר/הבר N. Hever</p>
	<p>B/4 +130 כ/4 NH 22/22 נתל חבר/הבר N. Hever</p>
	<p>B/6 +125 כ/5 NH 17/17 נתל חבר/הבר N. Hever</p>
	<p>B/6 +147 כ/6 NH 3/3 בזבל רמם Gebel Ramm</p>
	<p>B/7 +119 כ/7 NH 6/6 נתל חבר/הבר N. Hever</p>
	<p>B/8 +122 כ/8 NH 9/9 נתל חבר/הבר N. Hever</p>

Figure 8. Table of Nabataean documents in cursive script from Yardeni 2000.

לוח ג: כתובות עם תאריך משוער CHART C: INSCRIPTIONS WITH CONJECTURAL DATING

<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/17-100 1/2 אבן רחוק/מזרחית Kl. Raqqi/קרק</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/2-1-25 2/3 CIS 162 האורן/Hebron</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/3+25-1 3/3 CIS 164 האורן/Hebron</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/4+40-9 4/3 Negev, SE/11 'Avdat/עבדא</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/5+40-9 5/3 Negev, SE/11 'Avdat/עבדא</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/6+70-40 6/3 CIS 219 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/7+50-25 7/3 CIS 216 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/8+50-25 8/3 CIS 228 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/9+139-16 9/2 CIS 217 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/10+48 10/3 CIS 200 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/11+70-40 11/3 Star & Strag_RB 73 Petrā/ספורה</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/12+64 12/3 Savignac 38 הגדירה/Hegra</p>
<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/13+75-50 13/2 Star & Strag_RB 73 Petrā/ספורה</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/14 175-50 14/2 CIS 350 Petrā/ספורה</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/15+100-75 15/2 Savignac 2 הגדירה/Hegra</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/16+150-100 16/2 Rotenberg/רוטנברג W. Firda/פירדא</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/17+125-106 17/2 CIS 173 האורן/Hebron</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>C/18+150 18/2 CIS 340 בבל מישור/ G.Mishma</p>	<p>אבן רחוק/מזרחית Kl. Raqqi/קרק</p> <p>Nissanah/ניסנא 1+300-100</p>					

Figure 9. Table of Nabataean inscriptions with conjectural dating from Yardeni 2000.

לוח ד: חרותות מסיני (מאות 2-3 לסה"ג) CHART D: GRAFFITI FROM SINAI (2ND-3RD CENTURIES CE)

ו נכנרעפ	פ	ו	א א א	א א א	א א א	א א א	D/1 ר/1 CIS 516c
א א	א	א	א א א	א א א	א א א	א א א	D/2 ר/2 CIS 638 (נילום בודיות)
א א	א	א	א א א	א א א	א א א	א א א	D/3 ר/3 CIS 665
א א	א	א	א א א	א א א	א א א	א א א	D/4 ר/4 CIS 686
א א	א	א	א א א	א א א	א א א	א א א	D/5 ר/5 CIS 687
א א	א	א	א א א	א א א	א א א	א א א	D/6 ר/6 CIS 689
א א	א	א	א א א	א א א	א א א	א א א	D/7 ר/7 CIS 690 (נילום בודיות)
א א	א	א	א א א	א א א	א א א	א א א	D/8 ר/8 CIS 778
א א	א	א	א א א	א א א	א א א	א א א	D/9 ר/9 CIS 780
א א	א	א	א א א	א א א	א א א	א א א	D/10 ר/10 CIS 781
א א	א	א	א א א	א א א	א א א	א א א	D/11 ר/11 CIS 790
א א	א	א	א א א	א א א	א א א	א א א	D/12 ר/12 CIS 792a
א א	א	א	א א א	א א א	א א א	א א א	D/13 ר/13 CIS 793
א א	א	א	א א א	א א א	א א א	א א א	D/14 ר/14 CIS 794
א א	א	א	א א א	א א א	א א א	א א א	D/15 ר/15 CIS 795
א א	א	א	א א א	א א א	א א א	א א א	D/16 ר/16 CIS 797
א א	א	א	א א א	א א א	א א א	א א א	D/17 ר/17 CIS 798
א א	א	א	א א א	א א א	א א א	א א א	D/18 ר/18 CIS 799
א א	א	א	א א א	א א א	א א א	א א א	D/19 ר/19 CIS 800
א א	א	א	א א א	א א א	א א א	א א א	D/20 ר/20 CIS 801
א א	א	א	א א א	א א א	א א א	א א א	D/21 ר/21 CIS 802
א א	א	א	א א א	א א א	א א א	א א א	D/22 ר/22 CIS 803
א א	א	א	א א א	א א א	א א א	א א א	D/23 ר/23 CIS 809
א א	א	א	א א א	א א א	א א א	א א א	D/24 ר/24 CIS 816
א א	א	א	א א א	א א א	א א א	א א א	D/25 ר/25 CIS 817
א א	א	א	א א א	א א א	א א א	א א א	D/26 ר/26 CIS 823 (נילום בודיות)
א א	א	א	א א א	א א א	א א א	א א א	D/27 ר/27 CIS 824 (נילום בודיות)
א א	א	א	א א א	א א א	א א א	א א א	D/28 ר/28 CIS 825 (נילום בודיות)
א א	א	א	א א א	א א א	א א א	א א א	D/29 ר/29 CIS 833
א א	א	א	א א א	א א א	א א א	א א א	D/30 ר/30 CIS 834

Figure 10a. Table of Nabataean graffiti from Yardeni 2000.

כ	י	ל	ס	199	כ	D/31 31/7 CIS 848
כ	י	ל	ס	199	כ	D/32 32/7 CIS 851
כ	י	ל	ס	199	כ	D/33 33/7 CIS 852
כ	י	ל	ס	199	כ	D/34 34/7 CIS 855
כ	י	ל	ס	199	כ	D/35 35/7 CIS 856
כ	י	ל	ס	199	כ	D/36 36/7 CIS 867
כ	י	ל	ס	199	כ	D/37 37/7 CIS 883
כ	י	ל	ס	199	כ	D/38 38/7 CIS 885
כ	י	ל	ס	199	כ	D/39 39/7 CIS 890b
כ	י	ל	ס	199	כ	D/40 40/7 CIS 896
כ	י	ל	ס	199	כ	D/41 41/7 CIS 914b
כ	י	ל	ס	199	כ	D/42 42/7 CIS 932b
כ	י	ל	ס	199	כ	D/43 43/7 CIS 934b
כ	י	ל	ס	199	כ	D/44 44/7 CIS 1044c

כ	י	ל	ס	199	כ	D/45 45/7 CIS 1065
כ	י	ל	ס	199	כ	D/46 46/7 CIS 1104
כ	י	ל	ס	199	כ	D/47 47/7 CIS 1105
כ	י	ל	ס	199	כ	D/48 48/7 CIS 1108
כ	י	ל	ס	199	כ	D/49 49/7 CIS 1109
כ	י	ל	ס	199	כ	D/50 50/7 CIS 1110
כ	י	ל	ס	199	כ	D/51 51/7 CIS 1111
כ	י	ל	ס	199	כ	D/52 52/7 CIS 1112
כ	י	ל	ס	199	כ	D/53 53/7 CIS 1113
כ	י	ל	ס	199	כ	D/54 54/7 CIS 1114
כ	י	ל	ס	199	כ	D/55 55/7 CIS 1137 (נפילת ביהמ"ד)
כ	י	ל	ס	199	כ	D/56 56/7 CIS 1138a (נפילת ביהמ"ד)
כ	י	ל	ס	199	כ	D/57 57/7 CIS 1295b

Figure 10b. Table of Nabataean graffiti from Yardeni 2000.

A. Administrative

1. Title

Proposal for encoding the Nabataean script in the SMP of the UCS

2. Requester's name

UC Berkeley Script Encoding Initiative (Universal Scripts Project)

3. Requester type (Member body/Liaison/Individual contribution)

Liaison contribution.

4. Submission date

2010-12-09

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

No.

6b. More information will be provided later

Yes.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

Yes.

1b. Proposed name of script

Nabataean.

1c. The proposal is for addition of character(s) to an existing block

No.

1d. Name of the existing block

2. Number of characters in proposal

40.

3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)

Category E.

4a. Is a repertoire including character names provided?

Yes.

4b. If YES, are the names in accordance with the “character naming guidelines” in Annex L of P&P document?

Yes.

4c. Are the character shapes attached in a legible form suitable for review?

Yes.

5a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?

Michael Everson.

5b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.).

Michael Everson.

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes.

8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see UAX #44 <http://www.unicode.org/reports/tr44/> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

See above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

No.

2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

Yes.

2b. If YES, with whom?

Laïla Nehmé, John Healey.

2c. If YES, available relevant documents

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Reference:

See above.

4a. The context of use for the proposed characters (type of use; common or rare)

To write the Aramaic language.

4b. Reference

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where? Reference:

In scholarly publications.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

No.

6b. If YES, is a rationale provided?

6c. If YES, reference

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

Yes.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

No.

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences?

No.

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

11e. If YES, reference

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

No.

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified? If YES, reference