

Title: Final Proposal to Encode Coptic Numbers in ISO/IEC 10646
Source: Script Encoding Initiative (SEI)
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1 Introduction

This is a proposal to encode in the Universal Character Set (UCS) a set of characters used for writing numbers in Coptic. It builds upon and replaces the following documents:

- N3786 L2/10-114 “Towards an Encoding for Coptic Numbers in the UCS” (April 2010)
- L2/09-163R “Proposal to Encode Coptic Numerals in ISO/IEC 10646” (September 2009)

Several changes to the original document have been made, including change of name of the script block from “Coptic Numerals” to “Coptic Numbers”; allocation of the block in the Supplementary Multilingual Plane (SMP); and the development of a font.

2 Background

The proposed characters are elements of a numeric notation system used in some Coptic manuscripts, which differ from the standard representation of numbers in Coptic using letters of the alphabet. A comparison of the two notation systems is given in Table 1. The Coptic numbers are regarded as ‘cursive’ forms of ordinary Coptic letters. In a table in *Grammaire Copte* (1956), Alexis Mallon illustrates the permutation of Coptic letters into distinct numbers, which he calls ‘chiffres coptes cursifs’ (‘cursive Coptic numbers’).

The numbers were developed in the 10th century by the Coptic-Arabic community for administrative purposes.¹ Coptic numbers were “extensively used in Bohairic, less in Fayyumic, and rarely in Sahidic”, in which numbers were generally expressed using words.² They were used primarily in Coptic-Arabic manuscripts, such as the astronomical text shown in Figure 2. The numbers also appear in accounting documents, fragments of which are held in the collection of the AHRC Rylands Cairo Genizah Project at the University of Manchester (see Figure 3).

The Coptic numbers appear in specimens included by Michael Everson in a document from 2003 titled “Revised proposal to add the Coptic alphabet to the BMP of the UCS” (N2636); ie. in Figure 14, of which an excerpt is given here in Figure 7. Everson did not propose the encoding of the Coptic numbers, but stated that “further study may indicate that some of the additional characters and symbols shown here should also be added to the Standard”. Indeed, additional research has shown that the ‘Signes de numération’ illustrated in the figure are described in several sources, such as by Antoine P. Pihan in *Exposé des signes de numération* (1860). The present proposal aims to contribute to Everson’s work on encoding Coptic in the UCS by further developing support for the script.

¹ Messiha 1994: 26.

² Magally 1991: 1822.

Considering that the Coptic Numbers are variations on the standard cursive forms of Coptic letters, it may be possible to unify them with existing Coptic letters. However, these numbers were generally used in specialized contexts, such as Coptic-Arabic manuscripts, in which the regular manner of writing numbers using letters of the alphabet was not practiced. Moreover, the depiction of these characters as unique elements of the Coptic script, as shown in Figure 5 and Figure 7, further indicates that these characters were considered sufficiently distinct from the original alphabetic sources to warrant representation using independent glyphs in sets of metal fonts. These factors strongly recommend the independent encoding for Coptic Numbers. An encoding for the Coptic Numbers will enhance the Coptic repertoire in the UCS by offering a means for representing characters used in the broader corpus of Coptic records.

3 Characters Proposed

The characters are proposed for encoding in a new script block to be named ‘Coptic Numbers’. The 29 characters are allocated in the SMP at the range U+102E0..U+102FF. The proposed code chart and names list are shown in Figure 1.

The names of the characters follow UCS naming conventions. Digits 1–9 are named DIGIT and all other numbers are named NUMBER.

4 The Notation System

4.1 Structure

Coptic Numbers represent units of a positional decimal system. It is an additive system; the value of a numeric sequence is the sum of each number that constitutes it. There is no character for zero; it is inherently represented in the distinct numbers of each decimal order. There are numbers for the primary, tens, and hundreds orders; the thousands are represented by means of a sublinear diacritic.

4.2 Directionality

Numbers are written left-to-right.

4.3 Orthography

Basic Notation The thousands are represented by writing a primary number and $\overset{\circ}{\text{THOUSANDS MARK}}$: E FIVE + $\overset{\circ}{\text{THOUSANDS MARK}}$ = E 5,000. The ten thousands are written using a tens number and the THOUSANDS MARK: V FIFTY + $\overset{\circ}{\text{THOUSANDS MARK}}$ = V 50,000. The hundred thousands are written with a number for the hundreds and the THOUSANDS MARK: Z FIVE HUNDRED + $\overset{\circ}{\text{THOUSANDS MARK}}$ = Z 500,000.

Large Numbers In theory, decimal orders larger than hundred thousand may be represented by writing the THOUSANDS MARK twice, eg. Z = 1,000; Z = 1,000,000. This practice mirrors the convention in Coptic of indicating higher decimal orders by duplicating diacritics, eg. overline $\overline{\text{O}}$ U+0305 COMBINING OVERLINE is doubled as $\overline{\overline{\text{O}}}$ U+033F COMBINING DOUBLE OVERLINE to indicate the thousands, eg. $\overline{\overline{\text{A}}}$ = 1; $\overline{\overline{\text{A}}}$ = 1,000.

Composite Numbers Composite numbers are produced by writing a primary number and a number from a larger decimal order. The larger number is written first, then the primary number: WE = 25 (TWENTY + FIVE); ZE = 205 (TWO HUNDRED + FIVE); ZV = 250 (TWO HUNDRED + FIFTY).

Number Mark Numbers in Coptic are often marked using a supralinear diacritic such as an $\bar{}$ overline, eg. $\bar{\text{N}} = 50$. As shown in Figure 4, the overline is also used with Coptic Numbers. Some sources, such as that shown in Figure 6, illustrate the use of a distinctive serpentine diacritic $\tilde{}$ for marking Coptic Numbers. Similar to the overline, this supralinear mark extends over the entire width of a single digit or a sequence of numbers: $\tilde{\text{E}} = 5$; $\tilde{\text{LE}} = 15$; $\tilde{\text{Ϡϣ}} = 550$; $\tilde{\text{EϠE}} = 5,505$. The serpentine mark has been proposed for encoding as \square COPTIC NUMBER MARK. This character is intended for use only when reproducing sources in which this distinctive mark is depicted. The Coptic Numbers should be marked, when necessary, using COMBINING OVERLINE, following the standard convention for writing numbers in Coptic, eg. $\overline{\text{D}} = 50$.

4.4 Variant Forms

Variant forms of Coptic numbers are attested, eg. the shapes of FIFTY, EIGHTY, SIX HUNDRED, etc. in Figure 4. These variant forms may be unified with the corresponding characters proposed here.

5 Character Properties

The characters of the Coptic Numbers block have the following properties:

```

102E0 COPTIC THOUSANDS MARK;Mn;0;NSM;;;1000;N;;;;;
102E1 COPTIC DIGIT ONE;No;0;L;;;1;N;;;;;
102E2 COPTIC DIGIT TWO;No;0;L;;;2;N;;;;;
102E3 COPTIC DIGIT THREE;No;0;L;;;3;N;;;;;
102E4 COPTIC DIGIT FOUR;No;0;L;;;4;N;;;;;
102E5 COPTIC DIGIT FIVE;No;0;L;;;5;N;;;;;
102E6 COPTIC DIGIT SIX;No;0;L;;;6;N;;;;;
102E7 COPTIC DIGIT SEVEN;No;0;L;;;7;N;;;;;
102E8 COPTIC DIGIT EIGHT;No;0;L;;;8;N;;;;;
102E9 COPTIC DIGIT NINE;No;0;L;;;9;N;;;;;
102EA COPTIC NUMBER TEN;No;0;L;;;10;N;;;;;
102EB COPTIC NUMBER TWENTY;No;0;L;;;20;N;;;;;
102EC COPTIC NUMBER THIRTY;No;0;L;;;30;N;;;;;
102ED COPTIC NUMBER FORTY;No;0;L;;;40;N;;;;;
102EE COPTIC NUMBER FIFTY;No;0;L;;;50;N;;;;;
102EF COPTIC NUMBER SIXTY;No;0;L;;;60;N;;;;;
102F0 COPTIC NUMBER SEVENTY;No;0;L;;;70;N;;;;;
102F1 COPTIC NUMBER EIGHTY;No;0;L;;;80;N;;;;;
102F2 COPTIC NUMBER NINETY;No;0;L;;;90;N;;;;;
102F3 COPTIC NUMBER ONE HUNDRED;No;0;L;;;100;N;;;;;
102F4 COPTIC NUMBER TWO HUNDRED;No;0;L;;;200;N;;;;;
102F5 COPTIC NUMBER THREE HUNDRED;No;0;L;;;300;N;;;;;
102F6 COPTIC NUMBER FOUR HUNDRED;No;0;L;;;400;N;;;;;
102F7 COPTIC NUMBER FIVE HUNDRED;No;0;L;;;500;N;;;;;
102F8 COPTIC NUMBER SIX HUNDRED;No;0;L;;;600;N;;;;;
102F9 COPTIC NUMBER SEVEN HUNDRED;No;0;L;;;700;N;;;;;
102FA COPTIC NUMBER EIGHT HUNDRED;No;0;L;;;800;N;;;;;
102FB COPTIC NUMBER NINE HUNDRED;No;0;L;;;900;N;;;;;
102FC COPTIC NUMBER MARK;Cf;0;L;;;N;;;;;

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6 References

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7 Acknowledgments

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










































	102E	102F	
0	 102E0	 102F0	Sign 102E0  COPTIC THOUSANDS MARK
1	 102E1	 102F1	Digits 102E1  COPTIC DIGIT ONE
2	 102E2	 102F2	102E2  COPTIC DIGIT TWO
3	 102E3	 102F3	102E3  COPTIC DIGIT THREE
4	 102E4	 102F4	102E4  COPTIC DIGIT FOUR
5	 102E5	 102F5	102E5  COPTIC DIGIT FIVE
6	 102E6	 102F6	102E6  COPTIC DIGIT SIX
7	 102E7	 102F7	102E7  COPTIC DIGIT SEVEN
8	 102E8	 102F8	102E8  COPTIC DIGIT EIGHT
9	 102E9	 102F9	102E9  COPTIC DIGIT NINE
A	 102EA	 102FA	Numbers 102EA  COPTIC NUMBER TEN
B	 102EB	 102FB	102EB  COPTIC NUMBER TWENTY
C	 102EC	 102FC	102EC  COPTIC NUMBER THIRTY
D	 102ED		102ED  COPTIC NUMBER FORTY
E	 102EE		102EE  COPTIC NUMBER FIFTY
F	 102EF		102EF  COPTIC NUMBER SIXTY

Figure 1: Proposed code chart and nameslist for Coptic Numbers

	1	2	3	4	5	6	7	8	9
1	ⲁ	Ⲃ	ⲃ	Ⲅ	ⲅ	Ⲇ	ⲇ	Ⲉ	ⲉ
	ⲁ̄	Ⲃ̄	ⲃ̄	Ⲅ̄	ⲅ̄	Ⲇ̄	ⲇ̄	Ⲉ̄	ⲉ̄
10	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ
	Ⲑ̄	ⲑ̄	Ⲓ̄	ⲓ̄	Ⲕ̄	ⲕ̄	Ⲍ̄	ⲍ̄	Ⲏ̄
100	Ⲛ	ⲛ	Ⲝ	ⲝ	Ⲟ	ⲟ	Ⲡ	ⲡ	Ⲣ
	Ⲛ̄	ⲛ̄	Ⲝ̄	ⲝ̄	Ⲟ̄	ⲟ̄	Ⲡ̄	ⲡ̄	Ⲣ̄
1,000	ⲛ̅	Ⲝ̅	ⲝ̅	Ⲟ̅	ⲟ̅	Ⲡ̅	ⲡ̅	Ⲣ̅	ⲣ̅
	ⲛ̅̄	Ⲝ̅̄	ⲝ̅̄	Ⲟ̅̄	ⲟ̅̄	Ⲡ̅̄	ⲡ̅̄	Ⲣ̅̄	ⲣ̅̄
10,000	ⲛ̅̅	Ⲝ̅̅	ⲝ̅̅	Ⲟ̅̅	ⲟ̅̅	Ⲡ̅̅	ⲡ̅̅	Ⲣ̅̅	ⲣ̅̅
	ⲛ̅̅̄	Ⲝ̅̅̄	ⲝ̅̅̄	Ⲟ̅̅̄	ⲟ̅̅̄	Ⲡ̅̅̄	ⲡ̅̅̄	Ⲣ̅̅̄	ⲣ̅̅̄
100,000	ⲛ̅̅̅	Ⲝ̅̅̅	ⲝ̅̅̅	Ⲟ̅̅̅	ⲟ̅̅̅	Ⲡ̅̅̅	ⲡ̅̅̅	Ⲣ̅̅̅	ⲣ̅̅̅
	ⲛ̅̅̅̄	Ⲝ̅̅̅̄	ⲝ̅̅̅̄	Ⲟ̅̅̅̄	ⲟ̅̅̅̄	Ⲡ̅̅̅̄	ⲡ̅̅̅̄	Ⲣ̅̅̅̄	ⲣ̅̅̅̄

Table 1: Numbers written using Coptic Numbers (top) and the alphabetic system (bottom).

هذا من البرهان الثالث على اوله في النجدي العالم في آخر الشهر في العالم في سنة ١١٨١

البطل الشمس	البطل الشمس	البطل الشمس	البطل الشمس
١	٢	٣	٤
٥	٦	٧	٨
٩	١٠	١١	١٢
١٣	١٤	١٥	١٦
١٧	١٨	١٩	٢٠
٢١	٢٢	٢٣	٢٤
٢٥	٢٦	٢٧	٢٨
٢٩	٣٠	٣١	٣٢
٣٣	٣٤	٣٥	٣٦
٣٧	٣٨	٣٩	٤٠
٤١	٤٢	٤٣	٤٤
٤٥	٤٦	٤٧	٤٨
٤٩	٥٠	٥١	٥٢
٥٣	٥٤	٥٥	٥٦
٥٧	٥٨	٥٩	٦٠
٦١	٦٢	٦٣	٦٤
٦٥	٦٦	٦٧	٦٨
٦٩	٧٠	٧١	٧٢
٧٣	٧٤	٧٥	٧٦
٧٧	٧٨	٧٩	٨٠
٨١	٨٢	٨٣	٨٤
٨٥	٨٦	٨٧	٨٨
٨٩	٩٠	٩١	٩٢
٩٣	٩٤	٩٥	٩٦
٩٧	٩٨	٩٩	١٠٠

Fig. C.6 Coptic numerals in a copy from ca. 1800 of a set of astronomical tables by the early-13th-century Coptic scholar Ibn 'Assal. This notation has separate, unrelated symbols for the units, tens and hundreds, etc., and for simple fractions. (From MS Cairo DM 910,1, fol. 81v, courtesy of the Egyptian National Library.)

Figure 2: Excerpt of an astronomical table showing the use of Coptic Numbers with the Arabic script (from King 2001: Appendix C, p. 299).

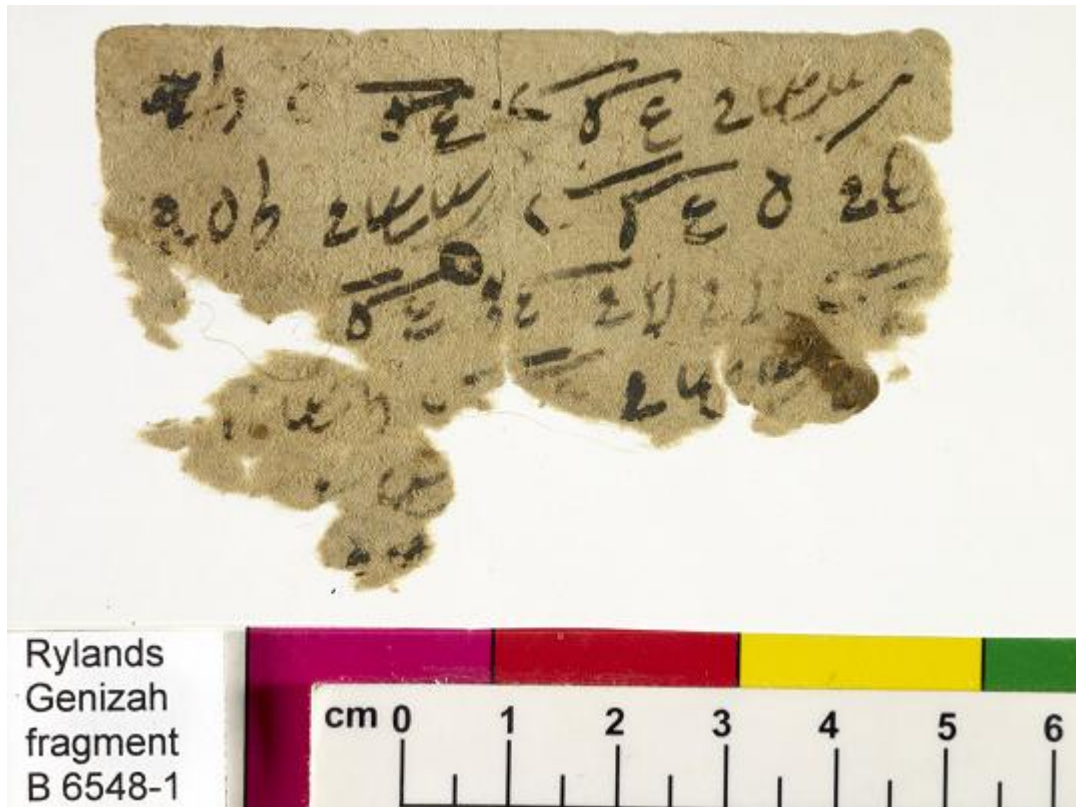


Figure 3: Coptic numbers in a manuscript fragment from the Rylands Genizah collection (AHRC Rylands Cairo Genizah Project fragment B 6548-1).

Coptic Letters	Coptic Cursive Letters	Latin Letters	Arabic Letters	European Letters	Coptic Letters	Coptic Cursive Letters	Latin Letters	Arabic Letters	European Letters
الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات	الأبجدات
Α	Ⲃ	I	Ⲁ	1	Ⲁ	Ⲃ	LX	٦.	60
Β	Ⲅ	II	ⲁ	2	ⲁ	ⲃ	LXX	٧.	70
Γ	Ⲇ	III	Ⲁ	3	Ⲁ	ⲃ	LXXX	٨.	80
Δ	Ⲅ	IV	ⲁ	4	ⲁ	ⲃ	XC	٩.	90
Ε	Ⲅ	V	ⲁ	5	ⲁ	ⲃ	C	١٠.	100
Ϛ	Ⲅ	VI	ⲁ	6	ⲁ	ⲃ	CC	٢٠.	200
ϛ	Ⲅ	VII	ⲁ	7	ⲁ	ⲃ	CCC	٣٠.	300
H	Ⲅ	VIII	ⲁ	8	ⲁ	ⲃ	CCD	٤٠.	400
Θ	Ⲅ	IX	ⲁ	9	ⲁ	ⲃ	CD	٥٠.	500
I	Ⲅ	X	ⲁ	10	ⲁ	ⲃ	DC	٦٠.	600
K	Ⲅ	XX	ⲁ	20	ⲁ	ⲃ	DCC	٧٠.	700
λ	Ⲅ	XXX	ⲁ	30	ⲁ	ⲃ	DCCC	٨٠.	800
M	Ⲅ	XL	ⲁ	40	ⲁ	ⲃ	CM	٩٠.	900
N	Ⲅ	L	ⲁ	50	ⲁ	ⲃ	M	١٠٠.	1000
(Examples)									
ⲀA	Ⲁ	XI	ⲁ	11	ⲁ	ⲃ	11	11	
ⲀB	Ⲁ	XII	ⲁ	12	ⲁ	ⲃ	12	12	
KC	Ⲁ	XXV	ⲁ	25	ⲁ	ⲃ	25	25	
KD	Ⲁ	XXVI	ⲁ	26	ⲁ	ⲃ	26	26	
ϚC	Ⲁ	XCIII	ⲁ	93	ⲁ	ⲃ	93	93	
PK	Ⲁ	CXX	ⲁ	120	ⲁ	ⲃ	120	120	
CMZ	Ⲁ	CXXLVII	ⲁ	247	ⲁ	ⲃ	247	247	
ⲀϚTTT	Ⲁ	MDLXXXVIII	ⲁ	1588	ⲁ	ⲃ	1588	1588	
ⲀϚTTT	Ⲁ	MMCLXXIX	ⲁ	2989	ⲁ	ⲃ	2989	2989	

Figure 4: Comparison of Coptic letters and ‘cursive letters’ (from Megally 1991: 1821). The ‘cursive letters’ represent Coptic Numbers. Note the use of COMBINING OVERLINE as a number mark in both notation systems. Also note the use of Ϛ THOUSANDS MARK in the regular alphabetic system.

UNITÉS.								
ⲁ	Ⲃ	ⲃ	Ⲅ	ⲅ	Ⲇ	ⲇ	Ⲉ	ⲉ
1	2	3	4	5	6	7	8	9
DIZAINES.								
Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ	Ⲏ
10	20	30	40	50	60	70	80	90
CENTAINES.								
ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ
100	200	300	400	500	600	700	800	900
MILLE.								
ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
DIZAINES DE MILLE.								
ⲏ	Ⲑ	ⲑ	Ⲓ	ⲓ	Ⲕ	ⲕ	Ⲍ	ⲍ
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000

Figure 5: Table showing the forms of Coptic Numbers (from Pihan 1860: 213).

EXEMPLES DE NOMBRES COMPOSÉS.

ⲓⲁ	ⲓⲁⲅ	ⲓⲁⲓⲥ	ⲓⲁⲓⲥⲏ	ⲓⲁⲓⲥⲏⲓⲁⲅ	ⲓⲁⲓⲥⲏⲓⲁⲅⲏⲓⲁⲅ
16	45	803	4,370	38,491	752,020

Figure 6: Table showing composite numbers written with Coptic Numbers (from Pihan 1860: 214). Note the use of the wavy COPTIC NUMBER MARK in place of COMBINING OVERLINE.

COPTE MEMPHITIQUE.

LETTRES ALPHABÉTIQUES.

MAJUSCULES.	MINUSCULES.
Ⲁ Ⲃ Ⲅ Ⲇ Ⲉ Ⲋ Ⲍ Ⲏ Ⲑ	ⲁ ⲃ ⲅ ⲇ ⲉ ⲋ ⲍ ⲏ ⲑ
Ⲓ Ⲕ Ⲗ Ⲙ Ⲛ Ⲝ Ⲟ Ⲡ	ⲓ ⲕ ⲗ ⲙ ⲛ ⲝ ⲟ ⲡ ⲣ
Ⲥ ⲧ ⲩ ⲫ ⲭ ⲯ ⲱ ⲳ	ⲥ Ⲧ Ⲩ Ⲭ Ⲯ Ⲱ Ⲳ Ⲵ Ⲷ
Ⲹ Ⲻ Ⲽ Ⲿ ⲿ	ⲇ ⲉ ⲋ ⲍ ⲏ ⲑ

SIGNES DE NUMÉRATION.

ⲁ ⲃ ⲅ ⲇ ⲉ ⲋ ⲍ ⲏ ⲑ ⲓ ⲕ ⲗ ⲙ ⲛ ⲝ ⲟ ⲡ ⲣ Ⲥ ⲧ ⲩ ⲫ ⲭ ⲯ ⲱ ⲳ ⲵ ⲷ ⲹ ⲻ ⲽ ⲿ

ⲁ ⲃ ⲅ ⲇ ⲉ ⲋ ⲍ ⲏ ⲑ

LETTRES ACCENTUÉES, LIGATURE ET SIGNES DIVERS.

ⲁ̄ ⲃ̄ ⲅ̄ ⲇ̄ ⲉ̄ ⲋ̄ ⲍ̄ ⲏ̄ ⲑ̄ ⲓ̄ ⲕ̄ ⲗ̄ ⲙ̄ ⲛ̄ ⲝ̄ ⲟ̄ ⲡ̄ ⲣ̄ Ⲥ̄ ⲧ̄ ⲩ̄ ⲫ̄ ⲭ̄ ⲯ̄ ⲱ̄ ⲳ̄ ⲵ̄ ⲷ̄ ⲹ̄ ⲻ̄ ⲽ̄ ⲿ̄

Figure 7: Coptic Numbers for the primary, tens, hundreds, and thousands shown in a specimen of Coptic type under the heading ‘Signes de numération’. Two length variants of the COPTIC NUMBER MARK are shown under the heading ‘Lettres accentuées...’ (from Geiss 1906; reproduced in Everson 2003: Figure 14).

ⲁ̄ = 1	ⲋ̄ = 20	ⲧ̄ = 300
ⲃ̄ = 2	ⲍ̄ = 30	ⲩ̄ = 400
ⲅ̄ = 3	ⲏ̄ = 40	ⲱ̄ = 500
ⲇ̄ = 4	ⲑ̄ = 50	ⲳ̄ = 600
ⲉ̄ = 5	ⲓ̄ = 60	ⲵ̄ = 700
ⲋ̄ = 6	ⲕ̄ = 70	ⲷ̄ = 800
ⲍ̄ = 7	ⲏ̄ = 80	ⲹ̄ = 900
ⲏ̄ = 8	ⲑ̄ = 90	ⲻ̄ = 1.000
ⲑ̄ = 9	ⲓ̄ = 100	ⲽ̄ = 2.000
ⲓ̄ = 10	ⲕ̄ = 200	ⲿ̄ = 10.000

Figure 8: The representation of numbers in Coptic using letters of the alphabet and horizontal overlines (reproduced from Everson 2003: Figure 12).

Chiffres coptes cursifs.

1	ā	Ⲁ Ⲁ Ⲁ Ⲁ	70	ō	Ⲑ ⲑ Ⲓ ⲓ
2	ḅ	Ⲕ ⲕ	80	ḥ	Ⲕ ⲕ Ⲍ
3	ḥ	Ⲗ ⲗ Ⲙ	90	ḏ	ⲙ Ⲏ ⲏ
4	ā	Ⲑ ⲑ Ⲓ	100	ḥ	ⲓ Ⲕ ⲕ
5	ē	ⲛ Ⲝ ⲝ	200	ḥ	ⲛ Ⲝ ⲝ
6	ē	Ⲟ ⲟ Ⲡ ⲡ	300	ḥ	ⲛ Ⲝ ⲝ
7	ḥ	Ⲣ ⲣ Ⲥ ⲥ	400	ḥ	ⲛ Ⲝ ⲝ
8	ḥ	ⲧ Ⲩ ⲩ Ⲫ	500	ḥ	ⲛ Ⲝ ⲝ
9	ō	ⲫ Ⲭ ⲭ Ⲯ	600	ḥ	ⲛ Ⲝ ⲝ
10	ī	ⲯ Ⲱ ⲱ Ⲳ	700	ḥ	ⲛ Ⲝ ⲝ
20	ḥ	ⲳ Ⲵ	800	ḥ	ⲛ Ⲝ ⲝ
30	ā	Ⲷ ⲷ Ⲹ ⲹ	900	ḥ	ⲛ Ⲝ ⲝ
40	ū	Ⲻ ⲻ Ⲽ ⲽ	1000	ā	ⲿ Ⲁ ⲁ
50	ḥ	Ⲿ ⲿ Ⲁ	2000	ḥ	ⲿ Ⲁ ⲁ
60	ḥ	Ⲃ ⲃ Ⲅ ⲅ	3000	ḥ	ⲿ Ⲁ ⲁ

Figure 9: Table showing the Coptic numbers (from Mallon 1956: 234).

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646³

Please fill all the sections A, B and C below. Please read Principles and Procedures Document (P & P) from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html> for guidelines and details before filling this form. Please ensure you are using the latest Form from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>. See also <http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html> for latest Roadmaps.

A. Administrative

1. Title: **Final Proposal to Encode Coptic Numbers in ISO/IEC 10646**
2. Requester's name: **University of California, Berkeley Script Encoding Initiative (Universal Scripts Project); author: Anshuman Pandey (pandey@umich.edu)**
3. Requester type (Member Body/Liaison/Individual contribution): **Liaison contribution**
4. Submission date: **2010-06-21**
5. Requester's reference (if applicable): **N/A**
6. Choose one of the following:
 - (a) This is a complete proposal: **Yes**
 - (b) or, More information will be provided later: **No**

B. Technical - General

1. Choose one of the following:
 - (a) This proposal is for a new script (set of characters): **Yes**
 - i. Proposed name of script: **Coptic Numbers**
 - (b) The proposal is for addition of character(s) to an existing block: **No**
 - i. Name of the existing block: **N/A**
2. Number of characters in proposal: **29**
3. Proposed category: **B.1 - Specialized (small collection)**
4. Is a repertoire including character names provided?: **Yes**
 - (a) If Yes, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?: **Yes**
 - (b) Are the character shapes attached in a legible form suitable for review?: **Yes**
5. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?: **Anshuman Pandey; True Type**
 - (a) If available now, identify source(s) for the font and indicate the tools used: **The font was designed by Anshuman Pandey using FontForge.**
6. References:
 - (a) Are references (to other character sets, dictionaries, descriptive texts etc.) provided?: **Yes**
 - (b) Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?: **Yes**
7. Special encoding issues:
 - (a) 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; see text of the proposal.**
8. Additional Information: 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 <http://www.unicode.org/Public/UNIDATA/UCD.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard. **Character properties are included.**

³ Form number: N3102-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?: **No**
2. 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**
 - (a) If Yes, with whom?: **Traianos Gagos and Terry Wilfong (University of Michigan)**
 - i. If Yes, available relevant documents: **N/A**
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? **Yes; see text of the proposal.**
 - (a) Reference: **N/A**
4. The context of use for the proposed characters (type of use; common or rare): **Common**
 - (a) Reference: **The characters were used in Coptic Arabic manuscripts.**
5. Are the proposed characters in current use by the user community?: **No.**
 - (a) If Yes, where? Reference: **N/A**
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?: **No**
 - (a) If Yes, is a rationale provided?: **N/A**
 - i. If Yes, reference: **N/A**
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)? **Yes; the characters belong to a set.**
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? **No**
 - (a) If Yes, is a rationale for its inclusion provided?: **N/A**
 - i. If Yes, reference: **N/A**
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? **No**
 - (a) If Yes, is a rationale provided?: **N/A**
 - i. If Yes, reference: **N/A**
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? **No**
 - (a) If Yes, is a rationale for its inclusion provided? **N/A**
 - i. If Yes, reference: **N/A**
11. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)? **No**
 - (a) If Yes, is a rationale for such use provided? **N/A**
 - i. If Yes, reference: **N/A**
 - (b) Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? **No**
 - i. If Yes, reference: **N/A**
12. Does the proposal contain characters with any special properties such as control function or similar semantics? **No**
 - (a) If Yes, describe in detail (include attachment if necessary): **N/A**
13. Does the proposal contain any Ideographic compatibility character(s)? **No**
 - (a) If Yes, is the equivalent corresponding unified ideographic character(s) identified? **N/A**
 - i. If Yes, reference: **N/A**