

Universal Multiple-Octet Coded Character Set
International Organization for Standardization
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Doc Type: Working Group Document**Title: Considerations regarding Cypro-Minoan and Aegean numbers****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: 2020-07-14**

1. Numbers (also called “Arithmograms” in Cypro-Minoan studies) are poorly attested in Cypro-Minoan texts. Although the Cypro-Minoan values are unclear, the vertical stroke, dot, and horizontal stroke may be identical to numbers common to the Aegean area (U+10107 ¹ AEGEAN NUMBER ONE, U+10110 ² AEGEAN NUMBER TEN and possibly to U+10119 ³ AEGEAN NUMBER ONE HUNDRED (for the last, the Cypro-Minoan examples have dots but Linear A has a circle). According to Markus Egetmeyer, the Cypro-Minoan system seems to be in between the Aegean model (with ONE, TEN, and HUNDRED) and the later Cypriot syllabary (where units and tens are known, but hundreds are lacking). Egetmeyer also notes the weakness of the available documentation: Cypro-Minoan only has artefacts with two types of numbers, not three (i.e., there is no example showing ONE, TEN, and HUNDRED in the same inscription), so it is not possible to clarify the overall system. See figures 1–8. Given the paucity of information and lack of clear consensus from scholars, separate encoding of Cypro-Minoan numbers remains under study.

In an earlier unpublished draft of the Cypro-Minoan proposal, three characters were proposed: a vertical bar for ‘1’ CYPRO-MINOAN NUMBER ONE, a horizontal line for ‘10’ CYPRO-MINOAN NUMBER TEN, and a dot, which was tentatively identified as either ‘10’ or ‘100’ CYPRO-MINOAN NUMERIC DOT. For the last, see Valerio’s interpretation for ##092 in figure 1, though Egetmeyer regards the dots in ##092 to be dividers (but notes the dots denote ‘hundreds’ in ##182). Unification with Aegean numbers is one possible way to interpret the signs, though, as noted above, in Linear A a circle is used for ‘100’, not a solid dot.

A usage issue appears to be one of the configuration and shapes of the elements. In figure 1 below the attested numbers are given. These are set out here in type:

• •	••	•	••••				• =-		
20 4 20	32 / 302	26 / 206	7	3	2	3	230	4	4 / 2

Using the standard Aegean numbers, these are the readings:

= =	≡	=					⊙ ≡		
	⊙ •	⊙ •							

Encoding a single CM | ‘1’ could permit the composition of |||| ‘4’ and ||||| ‘6’, but the existing U+10107 (¹) can do this already. CM || ‘2’ and ||| ‘3’ are identical to U+10108 (") and U+10109 ("). Whether CM •• ‘4’ and •••• ‘7’ are composed of dots or lines (••, ••••) is debatable, but if they are lines then U+1010A

(#) is the same and it would be hard to argue against U+1010D (𐀀) in favour of 𐀀); but in any case there is no mechanism proposed to compose these with a single CM | ‘1’. It is worth asking whether it is necessary to use dots as opposed to horizontal lines for CM • ‘20’ (Aegean U+10111 =), but again there is no mechanism to compose ‘20’ with a single CM • ‘NUMERIC DOT’. Composition is also not possible for • and =, whether the former means ‘30’ or ‘300’ even if the latter means ‘30’.

Figure 9 gives examples of Aegean numbers on a tablet in Linear B, showing that the configurations of lines, dots, and circles does not always match up with the reference glyphs in the encoded Standard. For instance, ° “200” in line 2 is represented vertically ° rather than horizontally. The same conventions should apply to Cypro-Minoan.

2. Bibliography

Olivier, Jean-Pierre. 2007. *Édition holistique des textes chypro-minoens*. Pisa-Rome. Known as “HoChyMin”.

Valério, Miguel. 2018. “Cypro-Minoan”, in *Paths into Script Formation in the Ancient Mediterranean*. Edited by Silvia Ferrara and Miguel Valério. (Studi Micenei ed Egeo-Anatolici. Nuova Serie: Supplemento 1). Roma : Edizioni Quasar, 103-128.

3. Acknowledgements

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Figures

'20 4 20' ⁽⁹⁾ ATHI Adis 001 ##092	'32' or '302' ENKO Aost 001 ##093	'26' or '206' ENKO Aost 001 ##093	'7' KALA Arou 004.04 ##101	'3' ⁽⁹⁾ KATY Avas 002 ##128
'2' KITI Avas 016 ##145	'3' KITI Avas 016 ##145	'230' ENKO Mvas 001 ##182	'4' RASH Atab 002.02 ##213	'4' or '2' PPAP Mvas 002 ADD##254

Table 1. Attested instances of Cypro-Minoan numbers.

Figure 1. Summary of Cypro-Minoan numbers from Valério 2018.

##092. ATHI Adis 001 (MetMus 74.51.2353)^f

Disque d'argile dont le pourtour est creusé d'une rainure (\varnothing ca 4,5 cm ; L. ca 3 et 2 cm ; h. signes de ca 1 à 1,3 cm). Gravé après cuisson.

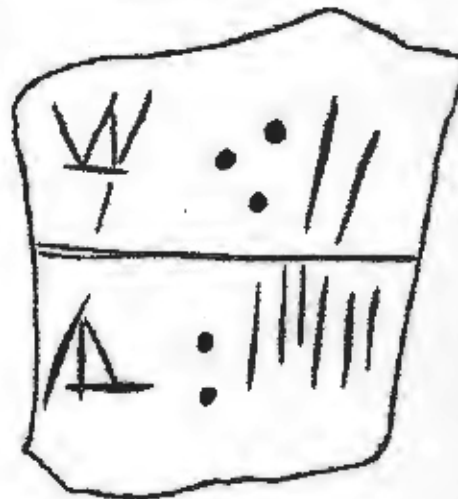


Dessin Palaima 1989b, p. 51, fig. 6 (corrige ; échelle ca 1 : 1).

Figure 2. Example of '20 4 20' from ##91 (Olivier 2007).

##093. ENKO Aost 001 (CypMus A 4025)

Ostracon d'argile¹ (ca 6 x 7 x 1,2 cm ; l. lignes ca 4,4 cm ; h. signes 1,4 cm). Gravé.



Dessin Masson É. 1974a, p. 22, fig. 8 (échelle ca 1 : 1).

Figure 3. Example of '32' or '302' and of '26' or '206' from ##93 (Olivier 2007).



Figure 4. Example of '7' from ##101 (Olivier 2007):.

##128. KATY Avas 002 (CypMus A 1493)

Cruche d'argile (h. 27,2 cm ; l. ligne *ca* 6,5 cm ; h. signes de *ca* 2,3 à 2,7 cm).
Gravé sur le flanc, probablement après cuisson.



Dessin Masson É. 1972a, p. 130, fig. 3 (échelle *ca* 1 : 1).

Figure 5. Example of '3' from ##128 (Olivier 2007)

##145. KITI Avas 016 (LarnDisMus 1125A)

Fragment de bord de pithos ([19 x 19 x 0,3] cm ; l. ligne *ca* 7,4 cm ; h. des
de *ca* 1 à 2,5 cm). Gravé sur le bord après cuisson.

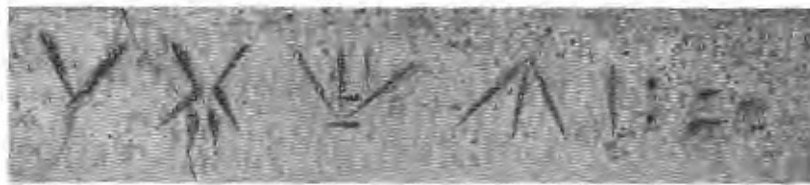


Masson É. 1985b, p. 283 (corrigé ; échelle *ca* 1 : 1).

Figure 6. Example of '2' and '3' from ##145 (Olivier 2007)

##182. ENKO Mvas 001 (CypMus 16.53)

Bol d'argent (\emptyset ca 15, h. ca 6,8 cm ; l. ligne ca 5,1 cm ; h. signes de ca 0,5 à 0,8 cm). Gravé à l'extérieur, près du rebord.

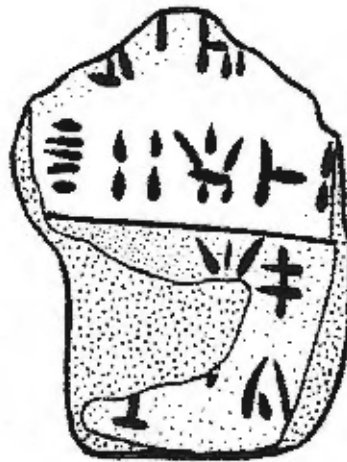


Dessin N. Hirschfeld in Palaima 1989b, fig. 2 (échelle ca 2 : 1).

Figure 7. Example of '230' from ##182 (Olivier 2007)

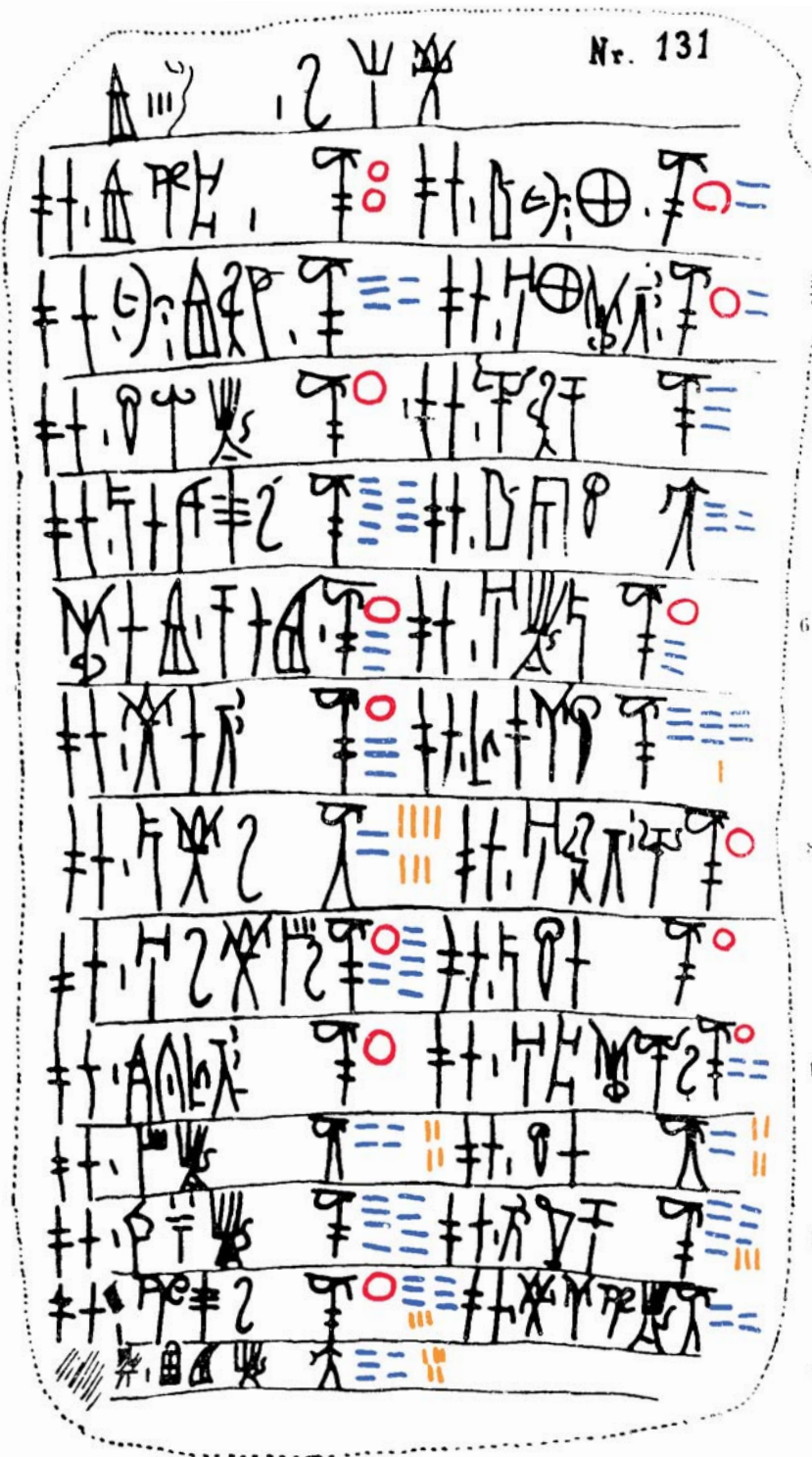
213. RASH Atab 002 (DamMus 0.49.88)

Tablette d'argile fragmentaire (ca [2 x 3 x 1] cm ; l. ligne ca [1,9] cm ; h. signes de ca 0,45 à 0,55 cm). Gravé.



Dessin Masson É. 1974a, fig. 9 (échelle ca 2 : 1).

Figure 8. Example of '4' from ##213 (Olivier 2007):



- 2 ◦ '200', ◦ = '120' (line 2)
- ≡≡ '50', ◦ = '120' (3)
- 4 ◦ '100', ≡≡ '30' (4)
- ≡≡≡ '90', ≡≡≡ '50' (5)
- 6 ◦ ≡≡ '130', ◦ ≡≡ '130' (6)
- ≡≡ '130', ≡≡≡ '91' (7)
- = ≡≡≡ '27', ◦ = '100' (8)
- 8 ◦ ≡≡≡ '170', ◦ = '100' (9)
- '100', ◦ =≡≡ '140' (10)
- 10 =≡≡≡ '44', =≡≡≡ '24' (11)
- ≡≡≡≡ '80', ≡≡≡≡≡≡ '73' (12)
- 12 ◦ ≡≡≡≡≡≡ '163', =≡≡≡≡ '40' (13)
- 14 ≡≡≡≡≡≡ '55' (14)

Figure 9. Aegean numbers from a tablet in Linear B, from Jensen 1969:120. Here the hundreds have been coloured red, the tens blue, and the units orange. In palaeographic terms, these do not match perfectly with the standardized Aegean numbers as encoded, but the identification and representation in plain text is clear.