

Universal Multiple-Octet Coded Character Set
 International Organization for Standardization
 Organisation Internationale de Normalisation
 Международная организация по стандартизации

Doc Type: Working Group Document**Title: Considerations regarding a normalized Cypro-Minoan reference font****Source: Michael Everson****Status: Liaison Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2020-12-31**

1. Cypro-Minoan font glyphs. The standard modern glyphs for Linear B were first drawn by architect Michael Ventris, who had training in careful lettering and indeed whose ordinary handwriting was meticulously neat. Standard shapes for Linear B, and for Cypriot and for Linear A, follow the style which he set and are implemented in fonts with a crisp monoline and with regularity between related characters.

It appears that before now, no one has tried to apply such a technique to Cypro-Minoan. This is not surprising, since most work hitherto has been focused on discerning what signs are characters and what are glyph variants. Nevertheless, as I was making some requested changes to the code chart using a font provided by the late Jean-Pierre Olivier's, it became clear that some sort of typographic order had to be imposed if the script is to be encoded in an international Standard. Olivier's Cypro-Minoan fonts, it must be admitted, are not very clear, tending towards a representation of the rounded "blobbiness" of a stylus pressed into clay, but often failing to do this well in font outlines. Since the other Aegean scripts have a clear typographic form, it makes good sense now to apply typographic conventions to Cypro-Minoan. Here is an example of some of the glyphs in Olivier's font:



Earlier this year I prepared a simple monoline font on the basis of what I could glean from Olivier's chart font. This was reviewed by some of our Cypro-Minoanist colleagues. The more conservative preferred the glyphs they are used to, which is fair enough. It is not good enough for the Universal Character Set, however. My saying so is not an indictment of Olivier's work; not everyone is a font designer and font design was not Jean-Pierre's intent. (Nor were his glyphs intended to be displayed at 60 points.) I misread the ductus and strokes that I tried to glean from Olivier's glyphs, but if that font were to be used in the code charts, the errors which I made—and worse ones—could easily be made by other designers trying to follow the same model. It's simply unavoidable that we devise a typographically reasonable font for Cypro-Minoan. The charts below show Olivier's original font, my attempt at normalizing it, Maurizio Del Frio and Massimo Perna's hand-written chart, and my final font which I recommend for use in the standard.

2. Additional Cypro-Minoan character. As the glyph repertoire for Cypro-Minoan was being finalized it became clear that there was a character which had been missed out in previous studies. Earlier analyses had given CM075 with a glyph looking like a box with a cross in it, and unified that with a glyph looking like an empty box. In fact the most common form of CM075 is an empty box, and now some Cypro-Minoan experts have agreed that the box-with-cross character should be added to repertoire as CM075B, following the character to which it is related. The new character has been highlighted in Figure 4 below; it did not appear in Figures 1–3, and so while it looks as though a new empty-box character has been added, in fact the glyph for CM075 has had its cross removed, and the new character CM075B has the cross. In the corpus of Cypro-Minoan texts the CM075 is attested at least 56 times in 7 texts, and CM075B is attested 4 times in 3 texts (on clay balls only).

3. Unicode Character Properties

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12700;CYPRO-MINOAN SIGN CM001;Lo;0;L;;;;N;;;;;
12701;CYPRO-MINOAN SIGN CM002;Lo;0;L;;;;N;;;;;
12702;CYPRO-MINOAN SIGN CM004;Lo;0;L;;;;N;;;;;
12703;CYPRO-MINOAN SIGN CM005;Lo;0;L;;;;N;;;;;
12704;CYPRO-MINOAN SIGN CM006;Lo;0;L;;;;N;;;;;
12705;CYPRO-MINOAN SIGN CM007;Lo;0;L;;;;N;;;;;
12706;CYPRO-MINOAN SIGN CM008;Lo;0;L;;;;N;;;;;
12707;CYPRO-MINOAN SIGN CM009;Lo;0;L;;;;N;;;;;
12708;CYPRO-MINOAN SIGN CM010;Lo;0;L;;;;N;;;;;
12709;CYPRO-MINOAN SIGN CM011;Lo;0;L;;;;N;;;;;
1270A;CYPRO-MINOAN SIGN CM012;Lo;0;L;;;;N;;;;;
1270B;CYPRO-MINOAN SIGN CM012B;Lo;0;L;;;;N;;;;;
1270C;CYPRO-MINOAN SIGN CM013;Lo;0;L;;;;N;;;;;
1270D;CYPRO-MINOAN SIGN CM015;Lo;0;L;;;;N;;;;;
1270E;CYPRO-MINOAN SIGN CM017;Lo;0;L;;;;N;;;;;
1270F;CYPRO-MINOAN SIGN CM019;Lo;0;L;;;;N;;;;;
12710;CYPRO-MINOAN SIGN CM021;Lo;0;L;;;;N;;;;;
12711;CYPRO-MINOAN SIGN CM023;Lo;0;L;;;;N;;;;;
12712;CYPRO-MINOAN SIGN CM024;Lo;0;L;;;;N;;;;;
12713;CYPRO-MINOAN SIGN CM025;Lo;0;L;;;;N;;;;;
12714;CYPRO-MINOAN SIGN CM026;Lo;0;L;;;;N;;;;;
12715;CYPRO-MINOAN SIGN CM027;Lo;0;L;;;;N;;;;;
12716;CYPRO-MINOAN SIGN CM028;Lo;0;L;;;;N;;;;;
12717;CYPRO-MINOAN SIGN CM029;Lo;0;L;;;;N;;;;;
12718;CYPRO-MINOAN SIGN CM030;Lo;0;L;;;;N;;;;;
12719;CYPRO-MINOAN SIGN CM033;Lo;0;L;;;;N;;;;;
1271A;CYPRO-MINOAN SIGN CM034;Lo;0;L;;;;N;;;;;
1271B;CYPRO-MINOAN SIGN CM035;Lo;0;L;;;;N;;;;;
1271C;CYPRO-MINOAN SIGN CM036;Lo;0;L;;;;N;;;;;
1271D;CYPRO-MINOAN SIGN CM037;Lo;0;L;;;;N;;;;;
1271E;CYPRO-MINOAN SIGN CM038;Lo;0;L;;;;N;;;;;
1271F;CYPRO-MINOAN SIGN CM039;Lo;0;L;;;;N;;;;;
12720;CYPRO-MINOAN SIGN CM040;Lo;0;L;;;;N;;;;;
12721;CYPRO-MINOAN SIGN CM041;Lo;0;L;;;;N;;;;;
12722;CYPRO-MINOAN SIGN CM044;Lo;0;L;;;;N;;;;;
12723;CYPRO-MINOAN SIGN CM046;Lo;0;L;;;;N;;;;;
12724;CYPRO-MINOAN SIGN CM047;Lo;0;L;;;;N;;;;;
12725;CYPRO-MINOAN SIGN CM049;Lo;0;L;;;;N;;;;;
12726;CYPRO-MINOAN SIGN CM050;Lo;0;L;;;;N;;;;;
12727;CYPRO-MINOAN SIGN CM051;Lo;0;L;;;;N;;;;;
12728;CYPRO-MINOAN SIGN CM052;Lo;0;L;;;;N;;;;;
12729;CYPRO-MINOAN SIGN CM053;Lo;0;L;;;;N;;;;;
1272A;CYPRO-MINOAN SIGN CM054;Lo;0;L;;;;N;;;;;
1272B;CYPRO-MINOAN SIGN CM055;Lo;0;L;;;;N;;;;;
1272C;CYPRO-MINOAN SIGN CM056;Lo;0;L;;;;N;;;;;
1272D;CYPRO-MINOAN SIGN CM058;Lo;0;L;;;;N;;;;;
1272E;CYPRO-MINOAN SIGN CM059;Lo;0;L;;;;N;;;;;
1272F;CYPRO-MINOAN SIGN CM060;Lo;0;L;;;;N;;;;;
12730;CYPRO-MINOAN SIGN CM061;Lo;0;L;;;;N;;;;;
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12731;CYPRO-MINOAN SIGN CM062;Lo;0;L;;;;N;;;;;
12732;CYPRO-MINOAN SIGN CM063;Lo;0;L;;;;N;;;;;
12733;CYPRO-MINOAN SIGN CM064;Lo;0;L;;;;N;;;;;
12734;CYPRO-MINOAN SIGN CM066;Lo;0;L;;;;N;;;;;
12735;CYPRO-MINOAN SIGN CM067;Lo;0;L;;;;N;;;;;
12736;CYPRO-MINOAN SIGN CM068;Lo;0;L;;;;N;;;;;
12737;CYPRO-MINOAN SIGN CM069;Lo;0;L;;;;N;;;;;
12738;CYPRO-MINOAN SIGN CM070;Lo;0;L;;;;N;;;;;
12739;CYPRO-MINOAN SIGN CM071;Lo;0;L;;;;N;;;;;
1273A;CYPRO-MINOAN SIGN CM072;Lo;0;L;;;;N;;;;;
1273B;CYPRO-MINOAN SIGN CM073;Lo;0;L;;;;N;;;;;
1273C;CYPRO-MINOAN SIGN CM074;Lo;0;L;;;;N;;;;;
1273D;CYPRO-MINOAN SIGN CM075;Lo;0;L;;;;N;;;;;
1273E;CYPRO-MINOAN SIGN CM075B;Lo;0;L;;;;N;;;;;
1273F;CYPRO-MINOAN SIGN CM076;Lo;0;L;;;;N;;;;;
12740;CYPRO-MINOAN SIGN CM078;Lo;0;L;;;;N;;;;;
12741;CYPRO-MINOAN SIGN CM079;Lo;0;L;;;;N;;;;;
12742;CYPRO-MINOAN SIGN CM080;Lo;0;L;;;;N;;;;;
12743;CYPRO-MINOAN SIGN CM081;Lo;0;L;;;;N;;;;;
12744;CYPRO-MINOAN SIGN CM082;Lo;0;L;;;;N;;;;;
12745;CYPRO-MINOAN SIGN CM083;Lo;0;L;;;;N;;;;;
12746;CYPRO-MINOAN SIGN CM084;Lo;0;L;;;;N;;;;;
12747;CYPRO-MINOAN SIGN CM085;Lo;0;L;;;;N;;;;;
12748;CYPRO-MINOAN SIGN CM086;Lo;0;L;;;;N;;;;;
12749;CYPRO-MINOAN SIGN CM087;Lo;0;L;;;;N;;;;;
1274A;CYPRO-MINOAN SIGN CM088;Lo;0;L;;;;N;;;;;
1274B;CYPRO-MINOAN SIGN CM089;Lo;0;L;;;;N;;;;;
1274C;CYPRO-MINOAN SIGN CM090;Lo;0;L;;;;N;;;;;
1274D;CYPRO-MINOAN SIGN CM091;Lo;0;L;;;;N;;;;;
1274E;CYPRO-MINOAN SIGN CM092;Lo;0;L;;;;N;;;;;
1274F;CYPRO-MINOAN SIGN CM094;Lo;0;L;;;;N;;;;;
12750;CYPRO-MINOAN SIGN CM095;Lo;0;L;;;;N;;;;;
12751;CYPRO-MINOAN SIGN CM096;Lo;0;L;;;;N;;;;;
12752;CYPRO-MINOAN SIGN CM097;Lo;0;L;;;;N;;;;;
12753;CYPRO-MINOAN SIGN CM098;Lo;0;L;;;;N;;;;;
12754;CYPRO-MINOAN SIGN CM099;Lo;0;L;;;;N;;;;;
12755;CYPRO-MINOAN SIGN CM100;Lo;0;L;;;;N;;;;;
12756;CYPRO-MINOAN SIGN CM101;Lo;0;L;;;;N;;;;;
12757;CYPRO-MINOAN SIGN CM102;Lo;0;L;;;;N;;;;;
12758;CYPRO-MINOAN SIGN CM103;Lo;0;L;;;;N;;;;;
12759;CYPRO-MINOAN SIGN CM104;Lo;0;L;;;;N;;;;;
1275A;CYPRO-MINOAN SIGN CM105;Lo;0;L;;;;N;;;;;
1275B;CYPRO-MINOAN SIGN CM107;Lo;0;L;;;;N;;;;;
1275C;CYPRO-MINOAN SIGN CM108;Lo;0;L;;;;N;;;;;
1275D;CYPRO-MINOAN SIGN CM109;Lo;0;L;;;;N;;;;;
1275E;CYPRO-MINOAN SIGN CM110;Lo;0;L;;;;N;;;;;
1275F;CYPRO-MINOAN SIGN CM112;Lo;0;L;;;;N;;;;;
12760;CYPRO-MINOAN SIGN CM114;Lo;0;L;;;;N;;;;;
12761;CYPRO-MINOAN SIGN CM301;Po;0;L;;;;N;;;;;
12762;CYPRO-MINOAN SIGN CM302;Po;0;L;;;;N;;;;;
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	1270	1271	1272	1273	1274	1275	1276
0	 12700	 12710	 12720	 12730	 12740	 12750	 12760
1	 12701	 12711	 12721	 12731	 12741	 12751	 12761
2	 12702	 12712	 12722	 12732	 12742	 12752	
3	 12703	 12713	 12723	 12733	 12743	 12753	
4	 12704	 12714	 12724	 12734	 12744	 12754	
5	 12705	 12715	 12725	 12735	 12745	 12755	
6	 12706	 12716	 12726	 12736	 12746	 12756	
7	 12707	 12717	 12727	 12737	 12747	 12757	
8	 12708	 12718	 12728	 12738	 12748	 12758	
9	 12709	 12719	 12729	 12739	 12749	 12759	
A	 1270A	 1271A	 1272A	 1273A	 1274A	 1275A	
B	 1270B	 1271B	 1272B	 1273B	 1274B	 1275B	
C	 1270C	 1271C	 1272C	 1273C	 1274C	 1275C	
D	 1270D	 1271D	 1272D	 1273D	 1274D	 1275D	
E	 1270E	 1271E	 1272E	 1273E	 1274E	 1275E	
F	 1270F	 1271F	 1272F	 1273F	 1274F	 1275F	

Figure 1. Code chart using a font provided by Jean-Paul Olivier.

	1270	1271	1272	1273	1274	1275	1276
0	 12700	 12710	 12720	 12730	 12740	 12750	 12760
1	 12701	 12711	 12721	 12731	 12741	 12751	 12761
2	 12702	 12712	 12722	 12732	 12742	 12752	
3	 12703	 12713	 12723	 12733	 12743	 12753	
4	 12704	 12714	 12724	 12734	 12744	 12754	
5	 12705	 12715	 12725	 12735	 12745	 12755	
6	 12706	 12716	 12726	 12736	 12746	 12756	
7	 12707	 12717	 12727	 12737	 12747	 12757	
8	 12708	 12718	 12728	 12738	 12748	 12758	
9	 12709	 12719	 12729	 12739	 12749	 12759	
A	 1270A	 1271A	 1272A	 1273A	 1274A	 1275A	
B	 1270B	 1271B	 1272B	 1273B	 1274B	 1275B	
C	 1270C	 1271C	 1272C	 1273C	 1274C	 1275C	
D	 1270D	 1271D	 1272D	 1273D	 1274D	 1275D	
E	 1270E	 1271E	 1272E	 1273E	 1274E	 1275E	
F	 1270F	 1271F	 1272F	 1273F	 1274F	 1275F	

Figure 2. Code chart using a font by Michael Everson, attempting to follow the ductus used in Jean-Paul Olivier’s font as shown in Figure 1.

	1270	1271	1272	1273	1274	1275	1276
0	 12700	 12710	 12720	 12730	 12740	 12750	 12760
1	 12701	 12711	 12721	 12731	 12741	 12751	 12761
2	 12702	 12712	 12722	 12732	 12742	 12752	
3	 12703	 12713	 12723	 12733	 12743	 12753	
4	 12704	 12714	 12724	 12734	 12744	 12754	
5	 12705	 12715	 12725	 12735	 12745	 12755	
6	 12706	 12716	 12726	 12736	 12746	 12756	
7	 12707	 12717	 12727	 12737	 12747	 12757	
8	 12708	 12718	 12728	 12738	 12748	 12758	
9	 12709	 12719	 12729	 12739	 12749	 12759	
A	 1270A	 1271A	 1272A	 1273A	 1274A	 1275A	
B	 1270B	 1271B	 1272B	 1273B	 1274B	 1275B	
C	 1270C	 1271C	 1272C	 1273C	 1274C	 1275C	
D	 1270D	 1271D	 1272D	 1273D	 1274D	 1275D	
E	 1270E	 1271E	 1272E	 1273E	 1274E	 1275E	
F	 1270F	 1271F	 1272F	 1273F	 1274F	 1275F	

Figure 3. Code chart with glyphs drawn by hand by Maurizio Del Freo and Massimo Perna.

	1270	1271	1272	1273	1274	1275	1276
0	I 12700	^ 12710	⦿ 12720	⌞ 12730	∩ 12740	⌚ 12750	▽ 12760
1	⌚ 12701	^ 12711	^ 12721	⌞ 12731	∩ 12741	⌚ 12751	⌞ 12761
2	⌞ 12702	^ 12712	⌞ 12722	⌞ 12732	∩ 12742	⌚ 12752	⌞ 12762
3	⌞ 12703	^ 12713	⌞ 12723	⌞ 12733	∩ 12743	⌚ 12753	
4	⌞ 12704	^ 12714	⌞ 12724	⌞ 12734	∩ 12744	⌚ 12754	
5	⌞ 12705	^ 12715	⌞ 12725	⌞ 12735	∩ 12745	⌚ 12755	
6	⌞ 12706	^ 12716	⌞ 12726	⌞ 12736	∩ 12746	⌚ 12756	
7	⌞ 12707	^ 12717	⌞ 12727	⌞ 12737	∩ 12747	⌚ 12757	
8	⌞ 12708	^ 12718	⌞ 12728	⌞ 12738	∩ 12748	⌚ 12758	
9	⌞ 12709	^ 12719	⌞ 12729	⌞ 12739	∩ 12749	⌚ 12759	
A	⌞ 1270A	^ 1271A	⌞ 1272A	⌞ 1273A	∩ 1274A	⌚ 1275A	
B	⌞ 1270B	^ 1271B	⌞ 1272B	⌞ 1273B	∩ 1274B	⌚ 1275B	
C	⌞ 1270C	^ 1271C	⌞ 1272C	⌞ 1273C	∩ 1274C	⌚ 1275C	
D	⌞ 1270D	^ 1271D	⌞ 1272D	⌞ 1273D	∩ 1274D	⌚ 1275D	
E	⌞ 1270E	^ 1271E	⌞ 1272E	⌞ 1273E	∩ 1274E	⌚ 1275E	
F	⌞ 1270F	^ 1271F	⌞ 1272F	⌞ 1273F	∩ 1274F	⌚ 1275F	

Figure 4. Code chart using a font by Michael Everson, attempting to follow the ductus used by Maurizio Del Freo and Massimo Perna as shown in Figure 3.