Typesetting Coptic Liturgy in Bohairic

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Abstract

This paper describes what the authors have done in order to typeset some Coptic texts with LaTeX mainly in the Bohairic variant used in liturgy. This implied the creation of suitable fonts, the macros for typesetting special liturgical symbols, the hyphenation patterns necessary to typeset with the Coptic alphabet and the rules used by the Bohairic variant.

Sommario

In questo rapporto si espone quello che gli autori hanno fatto per poter comporre con LaTeX alcuni testi copti, specialmente nella variante bohairica usata nella liturgia. Questo ha comportato la creazione di font adatti allo scopo, le macro per comporre i simboli liturgici, i pattern di sillabazione necessari per usare i nuovi alfabeti e le regole della variante linguistica bohairica.

1 Introduction

Claudio Beccari (CB in the following) a few years ago developed a Coptic font on behalf of Cristiano Pulone, a philologist who was studying the Coptic courses written in a time span of several centuries from the IV century onwards.

The font was the one that many years earlier Karl Berry had used for testing a sort of tracing program in order to transform some outline fonts into METAFONT sources; Karl's sources were available on the net, and a certain font encoding was sort of crystallized within Karl's arrangement of the main glyphs; several other glyphs had to be designed in order to enrich the font facilities, and many macros had to be set up in order to typeset the philological notation of Coptic critical editions.

The font table is shown in figure 2. This particular version of the Coptic font was suitable for typesetting the alto medieval Sahidic variant of the language, although it also contained some glyphs suitable for other variants. More details may be read on the paper Beccari e Pulone (2006) that was published on TUGboat.

In 2008 George Kamel (GK in the following) wrote to CB in order to cooperate so as to set up another font suitable for typesetting liturgical Coptic.

The "modern" Coptic language (in all its variants) derives from the language spoken at the times of the Pharaohs, while its writing was done with hieroglyphs, or in a simplified form called hieratic, and eventually it was written in the demotic script; this script was very practical, but its signs did not have the elegance of hieroglyphs and was never used in formal inscriptions.

The Coptic Orthodox Church originated in the Hellenized area of northern area of Egypt, in the delta of the Nile river, the region of Alexandria, after the Apostle St. Mark announced the Evangel. Eventually, in the second century, a new script was developed by St. Pantaenus in order to transmit the "Good News" in the language of the local people but such as to be read by the missionaries, who had little experience with the demotic script; it had to be suitable also to represent the Hellenized words and personal names that appear in the Gospel. In practice the script was a slightly simplified version of the Greek alphabet, with a peculiar stylistic look, to which eight new glyphs were added to the twenty four Greek ones, so as to represent the sounds of the spoken language that were missing from the Greek language. The script of figure 2 is an example.

In northern Egypt the Bohairic variant of the Coptic language was used and this variant became the official language of the Coptic Church. Still today the Bible and other liturgical books are written in Bohairic Coptic, and even prayer books and icons are written with this variant of the language. The icon shown in figure 1, painted by Fadi Mikhail and reproduced with his permission, shows the name of the Apostle Mark written out in vertical; it reads: **ⲘⲀⲢⲔⲞⲤ ⲡⲓⲁⲡⲟⲥⲧⲟⲗⲟⲥ**, "Mark the apostle".

The spelling of the Bohairic liturgical texts is enriched with accents: the vowels may receive a grave accent for stress; the consonants, almost all of them, may receive a grave accent that indicates a vocalic indistinct utterance supporting the consonant (a schwa or an /e/) since very often the Bohairic words contain sequences of consonants that would be difficult to pronounce, at least for people not used to the Semitic languages where vowels are seldom written down.

GK desired a traditional looking font, not so old looking as the one represented in figure 2, but enriched with the necessary commands for accenting the Bohairic words without impairing the hyphenation algorithm and with some more symbols necessary for liturgical texts. He found a version of the Athanasius TrueType font that had the necessary look; he discovered also an extended version of the Athanasius TrueType font developed by the

Figure 1: An icon of St. Mark
(Courtesy of Fadi Mikhail, Fadi Mikhail (2008))

Coptic Standard Project, and Michael Sleman, one of the project leaders, kindly gave us permission to use and modify their font, Coptic Standard Project (2005).

Unfortunately, it was not possible to preserve the Coptic Standard Encoding provided by the Coptic Standard Project that Michael Sleman is leading; that encoding is oriented to the existing WYSIWYG word processors, while LaTeX, besides not being WYSIWYG, is a text processor with essentially 7-bit input characters; moreover there already existed a Coptic encoding for LaTeX, and it appeared reasonable to maintain that encoding. In order to facilitate the input of text already encoded with the Coptic Standard, a Python 2.x script was developed to convert text encoded in the Coptic Standard to the Coptic encoding for LaTeX. May be in the future, when LaTeX will become more UNICODE oriented, we will exploit the UNICODE encoding whose Coptic "page" came into existence very recently[1].

Since the *CS New Athanasius.ttf* has its own encoding and lacks the properties requested by GK, it was necessary to re-encode it and add some fifty glyphs in order to use the new font with pdfLaTeX and with all the LaTeX machinery for typesetting documents in two column bilingual texts. The final outcome of our efforts was the font represented in figure 3.

During the development of the work, we discovered the existence of a UNICODE encoded TrueType font that contained also the Coptic page, FreeSerifAvvaShenouda.ttf, WAZU JAPAN (2006); we decided that the Coptic page, adequately extracted and re-encoded, would have been a good lighter variant than the Athanasius font, and we decided to use both; the latter for boldface and the former for medium weight.

2 The Type 1 Athanasius and CBbohairicmedium fonts

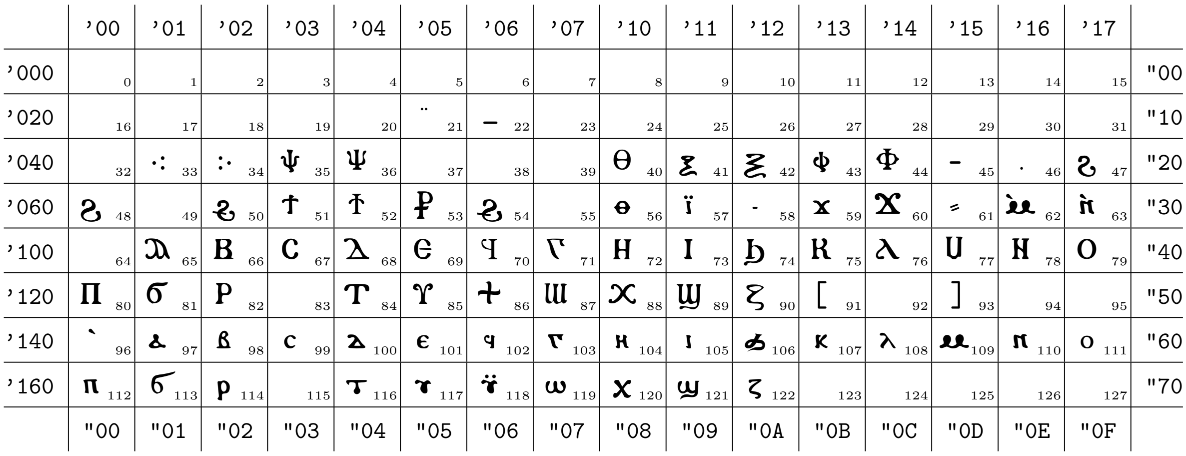
In order to transform the TrueType fonts, Athanasius.ttf and FreeSerifAvvaShenouda.ttf[2] we used the program FontForge, Williams (2008); this is a freeware program for creating and editing a variety of outline fonts; its performance is remarkable, although it's necessary to get experience with it.

The first step was to copy in the proper position the glyphs of the TrueType font into a new font we called `athanasius3`. We added the missing glyphs and in particular we added the accented ones, both upper and lower case, since all of them may take the grave accent; we decided to map the grave accent on the apostrophe, so we are sure that this sign is present on all Latin keyboards; in fact to our knowledge, there is not a standard Coptic keyboard, in spite of the efforts of the Coptic Standard Project. It is therefore necessary to input all characters by means of a Latin keyboard trying to maintain a certain association between the Coptic glyphs and the Latin ones, either by form or by sound; of course it's impossible to map the 26 letters of the Latin keyboard to the 32 or 34 Coptic letters. On our side there was the necessity to maintain the initial encoding established by the Coptic font developed for the Sahidic variant.

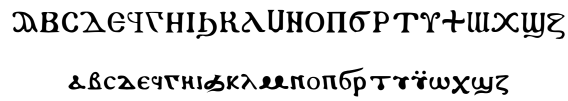
Some glyphs, we discovered, were originally made up of several superimposed strokes; these glyphs should have been classified as Type 3 fonts, but, evidently, TrueType fonts don't mind these inconsistencies. We had to patch such glyphs with single contour counterparts, and eventually we generated the Type 1 version of the font.

1. Although, the existing UNICODE Coptic page does not contain synthetic accented characters so that even with XeLaTeX (the pdfLaTeX version that can deal with scalable UNICODE fonts) the hyphenation process gets impaired.

2. Since the Type 1 version of the Athanasius font contains essentially the same glyphs as the original TrueType font, we decided to maintain the name with the addition of a digit; on the opposite the Type 1 version of the FreeSerifAvvaSenouda contains only a minimal part of the UNICODE encoded TrueType font, so we decided to change the name into CBbohairicmedium, so that this subset is easily distinguishable from the original complete set.



Font: copto.



Font parameters	
slant per pt	0.0pt
inter word space	3.99998pt
inter word stretch	1.99998pt
inter word shrink	1.99998pt
x-height	5.59999pt
quad width	10.0pt
extra space	1.0pt

Figure 2: The Coptic font suitable for typesetting the Sahidic variant of the language

Later on we had to change the file we were working on because there was an important mismatch between the declared design size and the real one; we therefore scaled the FontForge glyphs, corrected the `tfm` files and eventually we ended up with the Type 1 modified Athanasius font named `athanasius6.pfb` represented in figure 3.

We performed the same operations in the CB-bohairicmedium font, although there were fewer glyphs to correct; the most important one was the accent glyph, because it was too thin. We decided to add the specific liturgical symbols identical, even in weight, to those of the athanasius6 font; these symbols, in fact, according to our perception of the typesetting activity with Coptic liturgy, appear mostly either in normal text, or as isolated instances around pictures or in some versicle beginnings.

3 The encoding and the TEX metric files

FontForge is capable of outputting both the binary font files for the Type 1 fonts, and the `afm` and `tfm` files. Actually FontForge is capable of setting also the kerns and the ligatures, but CB preferred to work on the TEX side of the problem.

For what concerns the encoding it was not difficult to start with the one output by FontForge and to edit it in order to put the proper names for each glyph. Each Coptic glyph has a Coptic name that we extracted from the UNICODE page; it must be noticed that the Coptic page names are generally different from the ones in the "old" UNICODE where the Greek subset shared the same names as those of the Greek glyphs; the result is that FontForge very often is incapable of labelling correctly the various font boxes in the program's main view. Of course the accented glyph names exist only for the vowels with Greek names. The created encoding was forced onto the generated font so that this side of the problem was solved.

On the side of the `tfm` file, CB used the application `tftopl` to have a readable and editable ASCII file, and added ligatures and kerns "by hand"; after each group of modification he would control with a suitable test file the results and then interact with the property list `.pl` file in order to edit it again or to keep the modifications; at each test, of course, he would use the inverse application `pltotf` in order to create the corresponding TEX metric file so that LATEX could typeset the test file.

The resulting ligature table was very long because of the ligatures between the accent (the Latin

	'00	'01	'02	'03	'04	'05	'06	'07	'10	'11	'12	'13	'14	'15	'16	'17	
'000	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	"00
'020	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	"10
'040	32	! 33	34	ⲯ 35	Ⲯ 36	37	38	` 39	Ⲑ 40	ⲝ 41	Ⲝ 42	ⲫ 43	Ⲫ 44	- 45	· 46	ϩ 47	"20
'060	Ϩ 48	49	50	ϯ 51	Ϯ 52	53	ⲋ 54	Ⲋ 55	ⲑ 56	ⲟⲩ 57	: 58	ϫ 59	Ϫ 60	⸗ 61	* 62	? 63	"30
'100	☩ 64	Ⲁ 65	Ⲃ 66	Ⲥ 67	Ⲇ 68	Ⲉ 69	Ϥ 70	Ⲅ 71	Ⲏ 72	Ⲓ 73	Ϧ 74	Ⲕ 75	Ⲗ 76	Ⲙ 77	Ⲛ 78	Ⲟ 79	"40
'120	Ⲡ 80	Ϭ 81	Ⲣ 82	⳩ 83	Ⲧ 84	Ⲩ 85	✝ 86	Ⲱ 87	Ⲭ 88	Ϣ 89	Ⲍ 90	(91	92	) 93	Ī 94	95	"50
'140	✠ 96	ⲁ 97	ⲃ 98	ⲥ 99	ⲇ 100	ⲉ 101	ϥ 102	ⲅ 103	ⲏ 104	ⲓ 105	ϧ 106	ⲕ 107	ⲗ 108	ⲙ 109	ⲛ 110	ⲟ 111	"60
'160	ⲡ 112	ϭ 113	ⲣ 114	⳩ 115	ⲧ 116	ⲩ 117	✚ 118	ⲱ 119	ⲭ 120	ϣ 121	ⲍ 122	123	124	125	126	127	"70
'200	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	"80
'220	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	"90
'240	160	161	162	ⲯ̀ 163	Ⲯ̀ 164	165	166	167	Ⲑ̀ 168	ⲝ̀ 169	Ⲝ̀ 170	ⲫ̀ 171	Ⲫ̀ 172	173	174	ϩ̀ 175	"A0
'260	Ϩ̀ 176	177	178	179	180	181	182	183	ⲑ̀ 184	185	186	ϫ̀ 187	Ϫ̀ 188	189	190	191	"B0
'300	192	Ⲁ̀ 193	194	Ⲥ̀ 195	Ⲇ̀ 196	Ⲉ̀ 197	Ϥ̀ 198	Ⲅ̀ 199	Ⲏ̀ 200	Ⲓ̀ 201	Ϧ̀ 202	Ⲕ̀ 203	204	Ⲙ̀ 205	Ⲛ̀ 206	Ⲟ̀ 207	"C0
'320	Ⲡ̀ 208	Ϭ̀ 209	Ⲣ̀ 210	211	Ⲧ̀ 212	Ⲩ̀ 213	214	Ⲱ̀ 215	Ⲭ̀ 216	Ϣ̀ 217	Ⲍ̀ 218	219	220	221	222	223	"D0
'340	224	ⲁ̀ 225	226	ⲥ̀ 227	ⲇ̀ 228	ⲉ̀ 229	ϥ̀ 230	ⲅ̀ 231	ⲏ̀ 232	ⲓ̀ 233	ϧ̀ 234	ⲕ̀ 235	236	ⲙ̀ 237	ⲛ̀ 238	ⲟ̀ 239	"E0
'360	ⲡ̀ 240	ϭ̀ 241	ⲣ̀ 242	243	ⲧ̀ 244	ⲩ̀ 245	246	ⲱ̀ 247	ⲭ̀ 248	ϣ̀ 249	ⲍ̀ 250	251	252	253	254	255	"F0
	"00	"01	"02	"03	"04	"05	"06	"07	"08	"09	"0A	"0B	"0C	"0D	"0E	"0F	

Font: cbbohairicmedium.

ⲀⲂⲤⲆⲈϤⲄⲎⲒϦⲔⲖⲘⲚⲞⲠϬⲢ⳩ⲦⲨ✝ⲰⲬϢⲌ

ⲁⲃⲥⲇⲉϥⲅⲏⲓϧⲕⲗⲙⲛⲟⲡϭⲣ⳩ⲧⲩ✚ⲱⲭϣⲍ

Font parameters

slant per pt	0.0pt
inter word space	3.29999pt
inter word stretch	1.65pt
inter word shrink	1.09999pt
x-height	4.79999pt
quad width	10.0pt
extra space	1.09999pt

FIGURE 3: The Coptic font suitable for typesetting the Bohairic variant of the language

apostrophe) and almost all lower and upper case letters. Very few kerns had to be set; may be this question should be further examined and more kerns introduced.

4 The actual mapping of the Coptic fonts to the Latin keyboard

As previously mentioned, to our knowledge there does not exist a (hardware) Coptic keyboard. We had to attack this problem with a reasonable mapping to the Latin keys, either by shape or by pronunciation, and we had to make it up with the fact that the Latin letter keys are just 26, while the Bohairic letters are 34. We had to invade the other Latin keys and we chose the number keys and some punctuation keys so as to avoid conflicts with the keys that input TEX-related special textual symbols; we had to cope with both lower and upper case extra letters, so we needed 14 extra key strokes to access the seven couples of extra Bohairic letters.

We also needed some keys to be assigned to special liturgical symbols, even if these were also accessible through specific macros; we wanted to leave free the addresses from 0 to 31, as well as from 128 to 159 that are usually assigned to control codes; TEX does not care, but if the font is used outside the TEX system it's better if these codes remain available for the operating system.

Therefore, figure 3 shows a font table that is pretty full, with the exception of the first two rows and the corresponding rows in the second part of the 8-bit encoding.

Table 1 displays the mapping of the Latin keys to the Coptic glyphs corresponding to the first half of the font table. The second half contains only the accented glyphs; most of these glyphs may be obtained in one of the following ways:

1. just prefixing the letter to be accented with an apostrophe; the font ligature mechanism simply replaces the sequence of the apostrophe and the letter with the corresponding accented glyph;

2. by using the `\'` accent macro; this macro is redone in a similar way as when the T1 encoding is selected, so that the composite sequence `\'{`⟨*letter*⟩`}` (or simply `\'`⟨*letter*⟩) directly maps the result to the accented letter.

These methods are almost equivalent; where they show some differences is in hyphenation, in particular in the definition of the first or last syllable length; with the first method the ligature mechanism outputs one character, but the input word string contains two characters; with the second method there is one character both in input and output; therefore hyphen points may be different in a given text; at the same time the first input method is simpler than the second one. The choice of which to use is up to the compositor.

5 The hyphenation patterns

Of course, in order to typeset in a certain language it's best to have an efficient and correct hyphenation algorithm.

As everybody knows, the hyphenation algorithm used by all the TEX system typesetting programs is based on patterns. These are letter sequences that may be thought of as complete word building blocks, or as word fragments. Each pattern encodes the possibility of hyphenating between two given letters in the pattern sequence, and priorities are established by means of weights that indicate if hyphenation between those two letters is very important, or less important; there are five levels of importance that may override opposite weights; permission to hyphenate is given by an odd numbered weight in the range from 1 to 9, while prohibition to hyphenate is given by an even numbered weight in the range from 0 to 8. The same pair of letters may appear in different patterns with different weights; if two or more different patterns may be found as word fragments of a certain word, the highest weight between those two letters is the one that eventually applies to the final hyphenation of that word.

The mechanism is simple and very efficient, but the patterns of each language must be preliminarily loaded into the format file of the working version of TEX, so as to be easily processed at typesetting time. This format file also contains the macro definitions translated into the internal TEX language so that they can be processed and executed much faster at typesetting time.

For what concerns the patterns there are two distinct approaches that are applicable for their generation:

Table 1: Mapping of the Latin keys to the Coptic glyphs

Latin key(s)	Coptic glyph
a, A	ⲁ, Ⲁ
b, B	ⲃ, Ⲃ
c, C	ⲥ, Ⲥ
d, D	ⲇ, Ⲇ
e, E	ⲉ, Ⲉ
f, F	ⲫ, Ⲫ
g, G	ⲅ, Ⲅ
h, H	ⲏ, Ⲏ
i, I	ⲓ, Ⲓ
j or hj; J or HJ or Hj	ϫ, Ϫ
k, K	ⲕ, Ⲕ
l, L	ⲗ, Ⲗ
m, M	ⲙ, Ⲙ
n, N	ⲛ, Ⲛ
o, O	ⲟ, Ⲟ
p, P	ⲡ, Ⲡ
q, Q	ⲧ, Ⲧ’
r, R	ⲣ, Ⲣ
t, T	ⲧ, Ⲧ
u, U	ⲩ, Ⲩ
w, W	ⲱ, Ⲱ
x, X	ⲭ, Ⲭ
y, Y	ⲯ, Ⲯ
z, Z	ⲍ, Ⲍ
8; (or 81	ⲑ, Ⲑ
) or ks; * or KS or Ks	ⲝ, Ⲝ
+ or p1; , or P1	ϕ, Ⲫ
# or ps; $ or PS or Ps	ψ, Ⲯ
; or dj or d1; < or DJ or Dj or D1	ϧ, Ϧ
3 or tj; 4 or TJ or Tj	ϯ, Ϯ
/ or h1; 0 or H1	ⲋ, Ⲋ
6, 61	ⳁ, Ⳁ
[,]	(,)
`\Asterisk`, .	*, .
-, =	-, ⸗
9, `\chois`	ⲥ̄, ⲥ̄
`\estavros`, `\martyros`	⳨, ⳩
`\shortcross`, `\longcross`	✙, ✝
`\varshortcross`, `\varlongcross`	✙, ✝

1. precise and simple hyphenation rules established by the language grammar, or

2. hyphenated word extensive lists from which a suitable program, `patgen`, can create the patterns.

English patterns, for example, are generated through `patgen` (actually `patgen` was conceived for the very purpose of creating the English patterns), while Italian patterns are generated from grammar rules.

For the Sahidic variant of Coptic the patterns were generated by means of grammar rules; for the Bohairic variant of Coptic we followed the same approach, except that the process was much

more complicated due to the presence of accented consonants, to the agglutination of articles and pronouns, to the presence of "syllables" that do not follow the general grammatical rule, and the like. Nevertheless we proceeded by hand, since a hyphenated word list did not exist, and to create one was definitely too complicated and time consuming.

The file `bohahyph.tex` was eventually prepared; we are not satisfied yet, because although we could deal correctly with the accent-letter sequences, we could not attack in the proper way the single glyph patterns, when these were in the second part of the font page. The results are acceptable, but certainly better results might be achieved.

6 The font description file

In order to use (pdf)LaTeX in a proper way a font description file is also necessary; its name is made up with the agglutination of the font encoding (in lowercase letters) and the family name; the extension must be fd; in our case this file name is `lbohcoptic.fd`.

This file contains the declaration of the encoding and the family and the specification of which actual fonts must be loaded for each series, shape and size of every font belonging to that family. In our case, where we have available only scalable fonts, and these are pretty dark, we have only one size to load, two series, and two shapes. We have the upright shape and the slanted one that we used also for the italic declaration. We did not actually create a slanted font; since we plan to use only the pdfLaTeX typesetting program, we exploited its ability to perform some transformation on the fonts themselves; in the map file we need to configure the typesetting program, we declared both the upright and its slant font transformation, both of which actually load the same binary font file.

The only thing we had to create on purpose was the `tfm` file for the slanted version; starting from the property list file, it was pretty simple to edit the single line where the slant is specified and to create the tfm file from this edited property list file.

In practice, the single `athanasius6.pfb` file, that contains in binary form the data concerning the Type 1 scalable font athanasius6, is accompanied by two `.tfm` files, `athanasius6.tfm` and `athanasius6o.tfm`, and two entries into the map file. Similarly the single `cbbohairicmedium.pfb`, that contains in binary form the data concerning the Type 1 scalable font CBbohairicmedium, is accompanied by two `.tfm` files, `cbbohairicmedium.tfm` and `cbbohairicmediumo.tfm` and two entries in the map file.

7 The Bohairic extension package

We thought that it was not possible, at least in this early stages of the project development, to create a real language definition file, but that it was feasible to define some macros capable of switching alphabet and hyphenation rules, besides defining language or encoding specific macros.

We eventually produced the bohairic.sty file where all font encoding and language specific macros are defined; the results are acceptable and the tests we made until now exhibit pretty good typesetting quality.

8 The Bohairic Nicene Creed

As an example in figure 4 there is the trilingual Nicene Creed typeset in three columns with parallel paragraphs.

Those who can read Greek will find no difficulty in fetching the usual personal names that appear in the Creed; they will also recognize some common words of Greek etymology. The rest is understandable only by those who can read Coptic, of course, be they members of the Coptic Church or scholars dedicated to this particular language.

At the same time, from a typographical point of view, while the CMbohairicmedium is just a little darker than the medium Latin roman font, the Athanasius font is much darker; this is why we defined the Athanasius font as the boldface variant of the font. The design size turned out to be well tuned to the standard TeX fonts (here the Latin Modern are used), and the baseline skip, obviously with the same value in the three texts in order to get them in parallel, is well suited for both scripts.

The example of Coptic Bohairic text shown in figure 4 was completely done by accenting the various letters with the simple ligature mechanism of the apostrophe with the following letter; it may be easily recognized from the presence of one letter first syllables in several broken lines. This has been explained in the previous sections.

Definitely some more work must be done, but the start is encouraging; the purpose of this work is the typesetting of devotional writings; the purpose is elevated, let's hope it to be adequate for good work.

References

Beccari, C. e Pulone, C. (2006). «Facilities for typesetting Coptic texts». *TUGboat*, **22** (2), pp. 187–192.

Coptic Standard Project (2005). «CSAthansius.ttf font». `http://copticchurch.net/coptic_fonts/`.

Fadi Mikhail (2008). «St. Mark icon». `http://www.ukcopticicons.com/`.

The Nicene Creed in three columns

Crediamo in un solo Dio Padre, onnipotente, creatore del cielo e della terra, di tutti gli esseri visibili e invisibili.

E in un solo Signore Gesù Cristo, il Figlio di Dio, l'Unigenito, generato dal Padre prima di tutti i secoli, Luce da Luce, Dio vero da Dio vero, generato, non creato, consustanziale al Padre, per mezzo del quale sono state create tutte le cose.

Egli per noi, gli uomini, e per la nostra salvezza è disceso dai cieli, si è incarnato da Spirito Santo e Maria, la Vergine, e si è fatto uomo.

E fu crocifisso per noi sotto Ponzio Pilato, patì e fu sepolto, e risuscitò il terzo giorno secondo le Scritture, e ascese ai cieli, e siede alla destra del Padre, e di nuovo verrà con gloria a giudicare i vivi e i morti; del suo regno non ci sarà fine.

E nello Spirito, che è Santo, che è Signore, che dà la Vita, e procede dal Padre, è adorato e glorificato insieme con il Padre e il Figlio, ha parlato per mezzo dei profeti. In una sola Chiesa, santa, cattolica, apostolica. Confessiamo un solo battesimo in remissione dei peccati, attendiamo la risurrezione dei morti e la vita del tempo futuro. Amen.

We believe in One God, the Almighty God, the Father, maker of heaven and earth, of all things visible and invisible.

We believe in one Lord, Jesus Christ the only begotten Son of God, born of the Father before all ages; light out of light, true God out of true God, begotten not made; consubstantial with the Father, through whom all things came into being.

He descended from heaven for us and for our salvation, and was incarnated from the Holy Spirit and of the Virgin Mary, and became man.

He was crucified for us at the time of Pontius Pilate. He suffered and was buried; arose from the dead on the third day in accordance with the Scriptures; He ascended to the heavens and sat at the right hand of the Father; He shall also come in His glory to judge the living and the dead; of whose kingdom there will be no end.

Truly we believe in the Holy Spirit, the Life-giving Lord, who proceeds from the Father, we worship and glorify Him together with the Father and the Son, who spoke in the prophets. And in one, holy, universal and Apostolic Church. We acknowledge one baptism for the remission of sins. And we look for the resurrection of the dead and the life of the world to come. Amen.

Ⲓⲉⲛⲛⲁⲍⲧ ⲉⲟⲩⲛⲟⲩϯ ⲛ̀ⲟⲩⲱⲧ: Ⲫⲛⲟⲩϯ Ⲫⲓⲱⲧ ⲡⲓⲡⲁⲛⲧⲟⲕⲣⲁⲧⲱⲣ: ⲫⲏⲧⲁϥⲑⲁⲙⲓⲟ̀ ⲛ̀ⲧⲫⲉ ⲛⲉⲙ ⲛ̀ⲕⲁⲍⲓ: ⲛⲏⲧⲟⲩⲛⲁⲩ ⲉ̀ⲣⲱⲟⲩ ⲛⲉⲙ ⲛⲏⲧⲉ ⲛ̀ⲥⲉⲛⲁⲩ ⲉ̀ⲣⲱⲟⲩ ⲁⲛ.

Ⲓⲉⲛⲛⲁⲍⲧ ⲉⲟⲩⲃⲟⲓⲥ ⲛ̀ⲟⲩⲱⲧ Ⲓⲏⲥⲟⲩⲥ Ⲡⲓⲭ̀ⲣⲓⲥⲧⲟⲥ Ⲡ̀ϣⲏⲣⲓ ⲙ̀Ⲫⲛⲟⲩϯ ⲡⲓⲙⲟⲛⲟⲅⲉⲛⲏⲥ: ⲡⲓⲙⲓⲥⲓ ⲉⲃⲟⲗϩⲉⲛ Ⲫⲓⲱⲧ ϩⲁϫⲱⲟⲩ ⲛ̀ⲛⲓⲉ̀ⲱⲛ ⲑⲣⲟⲩ: ⲟⲩⲟⲩⲱⲓⲛⲓ ⲉⲃⲟⲗϩⲉⲛ ⲟⲩⲟⲩⲱⲓⲛⲓ: ⲟⲩⲛⲟⲩϯ ⲛ̀ⲧⲁⲫ̀ⲙⲏⲓ ⲉⲃⲟⲗϩⲉⲛ ⲟⲩⲛⲟⲩϯ ⲛ̀ⲧⲁⲫ̀ⲙⲏⲓ: ⲟⲩⲙⲓⲥⲓ ⲡⲉ ⲟⲩⲑⲁⲙⲓⲟ̀ ⲁⲛ ⲡⲉ: ⲟⲩⲙⲟⲟⲩⲥⲓⲟⲥ ⲡⲉ ⲛⲉⲙ Ⲫⲓⲱⲧ: ⲫⲏⲧⲁ ϩⲱⲃ ⲛⲓⲃⲉⲛ ⲱⲱⲡⲓ ⲉⲃⲟⲗϩⲓⲧⲟⲧⲥ.

Ⲫⲁⲓ ⲉ̀ⲧⲉ ⲉⲑⲃⲏⲧⲉⲛ ⲁ̀ⲛⲟⲛ ϩⲁ ⲛⲓⲣⲱⲙⲓ ⲛⲉⲙ ⲉⲑⲃⲉ ⲡⲉⲛⲟⲩϫⲁⲓ: ⲁⲥⲓ̀ ⲉ̀ⲡⲉⲥⲏⲧ ⲉⲃⲟⲗϩⲉⲛ ⲧ̀ⲫⲉ: ⲁⲥⲃⲓⲥⲁⲣⲝ ⲉ̀ⲃⲟⲗϩⲉⲛ Ⲡⲓⲡ̃ⲛⲉⲩⲙⲁ ⲉⲑⲟⲩⲁⲃ ⲛⲉⲙ ⲉ̀ⲃⲟⲗϩⲉⲛ Ⲙⲁⲣⲓⲁ̀ ⲧⲡⲁⲣⲑⲉⲛⲟⲥ ⲟⲩⲟⲩ ⲁⲥⲉⲣⲣⲱⲙⲓ.

Ⲟⲩⲟⲩ ⲁⲩⲉⲣⲥ̀ⲧⲁⲩⲣⲱⲛⲓⲛ ⲙ̀ⲙⲟⲥ ⲉ̀ⲃ̀ⲣⲏⲓ ⲉ̀ϫⲱⲛ ⲛⲁⲍⲣⲉⲛ Ⲡⲟⲛⲧⲓⲟⲥ Ⲡⲓⲗⲁⲧⲟⲥ: ⲁⲥϣⲉⲡⲉⲙⲕⲁⲩ ⲟⲩⲟⲩ ⲁⲩⲕⲟⲥⲥ. **Ⲟⲩⲟⲩ** ⲁⲥⲧⲱⲛⲥ ⲉⲃⲟⲗϩⲉⲛ ⲛⲏⲉⲑⲙⲱⲟⲩⲧ ϩⲉⲛ ⲡⲓⲉ̀ⲃⲟⲟⲩ ⲙ̀ⲙⲁⲍⲱⲟⲩⲧ ⲕⲁⲧⲁ ⲛⲓⲃ̀ⲣⲁⲫⲏ. Ⲁⲥϣⲉⲛⲁⲥ ⲉ̀ⲛ̃ϣⲱⲓ ⲉ̀ⲛⲓⲫⲏⲟⲩⲓ̀: ⲁⲥⲉⲓⲙⲓ ⲥⲁⲟⲩⲓ̀ⲛⲁⲙ ⲙ̀ⲡⲉϥⲓⲱⲧ. **Ⲕⲉ** ⲡⲁⲗⲓⲛ ϥⲛⲏⲟⲩ ϩⲉⲛ ⲡⲉϥⲱⲟⲩ ⲉ̀ⲧⲁⲓ ⲉⲛⲏⲉⲧⲟⲛϩ ⲛⲉⲙ ⲛⲏⲉⲑⲙⲱⲟⲩⲧ: ⲫⲏⲧⲉ ⲧⲉϥⲙⲉⲧⲟⲩⲣⲟ ⲟⲩⲁⲑⲙⲟⲩⲛⲕ ⲧⲉ.

Ⲥⲉ ⲧⲉⲛⲛⲁⲍⲧ ⲉ̀Ⲡⲓⲡ̃ⲛⲉⲩⲙⲁ ⲉⲑⲟⲩⲁⲃ: **Ⲡ̀**ⲃⲟⲓⲥ ⲛ̀ⲣⲉϥⲧ ⲙ̀ⲡ̃ⲱⲛϩ: ϕⲏⲉⲑⲛⲏⲟⲩ ⲉⲃⲟⲗϩⲉⲛ Ⲫⲓⲱⲧ: ⲥⲉⲟⲩⲱⲱⲧ ⲙ̀ⲙⲟⲥ ⲥⲉⲧ̀ⲱⲟⲩ ⲛⲁϥ ⲛⲉⲙ Ⲫⲓⲱⲧ ⲛⲉⲙ Ⲡ̀ϣⲏⲣⲓ: ϕⲏⲉⲧⲁϥⲥⲁϫⲓ ϩⲉⲛ ⲛⲓⲡ̀ⲣⲟⲫⲏⲧⲏⲥ. **Ⲉ**ⲟⲩⲓ̀ ⲛ̀ⲁⲓⲁ̀ ⲛ̀ⲕⲁⲑⲟⲗⲓⲕⲏ ⲛ̀ⲁⲡⲟⲥⲧⲟⲗⲓⲕⲏ ⲛⲉⲕⲕⲗⲏⲥⲓⲁ. Ⲓⲉⲛⲉⲣ̀ⲙⲟⲗⲟⲅⲓⲛ ⲛⲟⲩⲱⲙⲥ ⲛⲟⲩⲱⲧ ⲉ̀ⲛ̃ϫⲱ ⲉ̀ⲃⲟⲗ ⲛ̀ⲧⲉ ⲛⲓⲛⲟⲃⲓ. Ⲓⲉⲛϫⲟⲩⲱⲧ ⲉ̀ⲃⲟⲗ ϩⲁⲧ̀ϩⲏ ⲛ̀ⲧⲁ̀ⲛⲁⲥⲧⲁⲥⲓⲥ ⲛ̀ⲧⲉ ⲛⲓⲣⲉϥⲙⲱⲟⲩⲧ: ⲛⲉⲙ ⲡⲓⲱⲛϩ ⲛ̀ⲧⲉ ⲡⲓⲉ̀ⲱⲛ ⲉⲑⲛⲏⲟⲩ: ⲁ̀ⲙⲏⲛ.

Figure 4: The Nicene Creed typeset in Italian, in English and in Bohairic Coptic

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