

Book Review: Fonts & Encodings

by Yannis Haralambous

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Yannis Haralambous is well known in the international $\text{T}_{\text{E}}\text{X}$ community, not only as a co-founder of the Omega project, but also for his numerous contributions as a developer of fonts for various languages. It only seems fitting that Yannis has undertaken the job of writing a comprehensive book on the topic of fonts and encodings.

The original edition, entitled *Fontes & Codages*, appeared in 2004, but only in French. Now, a long-awaited English translation as *Fonts & Encodings*, prepared by P. Scott Horne, has recently become available published by O'Reilly Media Inc.

Contents

Amounting to a little bit more than 1000 pages the book matches the size of *The $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ Companion, 2nd edition*. It appears quite impressive, not only regarding its sheer size, but also regarding the broad range of topics covered as well as the depth of the coverage and the level of detail. In some cases the author has spent dozens of pages documenting some arcane details of font formats, which have so far been lacking a comprehensive or accessible documentation from other sources.

The book consists of a main body of 14 chapters of some 600 pages, followed by an appendix of 7 chapters amounting to another 400 pages.

As the author makes clear in the introduction, various groups of readers may benefit from different parts of the book without having to read all of it: Some chapters are mostly encoding-specific, dealing with characters on the input side, some are mostly font-specific dealing with glyphs on the output side, while other chapters find themselves in the middle ground, having to deal with font and encoding topics simultaneously. Some chapters are accessible to end users interested in installing and using fonts, while others are only of interest to font designers or developers of font-related software.

The first part of the book starts with encoding-specific topics. Chapter 1 provides an overview of the history of encodings before Unicode, ranging from 7-bit ASCII and various 8-bit ISO encodings to 16-bit

East-Asian encodings. Chapters 2–4 cover the Unicode standard, starting with an overview of the symbols and scripts included in the standard and moving on towards more and more complex implementation details. Chapter 5 completes this part with a presentation of some useful tools for using Unicode input on various system platforms.

The second part covers the topic of font management on various system platforms and operates somewhere in the gray area between fonts and encodings. Chapters 6–8 each cover similar topics for the Macintosh, Windows and Unix/X11 platforms. While the description of the Macintosh platform is rather detailed in discussing the differences of font handling between MacOS 9 and MacOS X, the description of the Unix/X11 platform only covers some very basic and old-fashioned X11 tools. Here, one could have wished for some more extensive coverage of font management in modern Linux desktop environments such as KDE or Gnome.

The following two chapters discuss platform-independent usage of fonts in $\text{T}_{\text{E}}\text{X}$ /Omega systems and on the Web. Chapter 9 starts with an overview of high-level font selection in $\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}/\text{NFSS}2$, followed by a detailed description of low-level font installation for dvips. The remainder of the chapter then discusses numerous examples of creating virtual fonts using fontinst to implement specific effects needed in various scripts. Chapter 10 concludes this part with a coverage of fonts on the Web using either (X)HTML/CSS or alternatively SVG.

The final part of the book covers font-specific topics. Chapter 11 covers various classifications of Latin typefaces and simultaneously provides a nicely-illustrated overview of the history of the most important typeface designs. Chapters 12–13 then discuss creating, editing and optimizing PostScript, TrueType, and OpenType fonts using tools such as FontLab or FontForge. Chapter 14 finally introduces the concepts of advanced typographic features provided in OpenType or AAT fonts and discusses ways of enriching fonts using these facilities.

The appendix of the book mostly consists of the detailed descriptions of font formats. Starting from bitmap fonts and $\text{T}_{\text{E}}\text{X}$ -related font formats and moving on to PostScript, TrueType, OpenType and AAT fonts,

practically all relevant font formats are covered in detail in Appendix A–E.

Finally, Appendix F discusses the principles of font design in MF and derived systems such as MP, MetaFog and MetaType 1.

Commentary

Considering the size of the book, it is understandable that several years have passed from the time of writing the manuscript to the publication of the English translation. Unfortunately, because of this, some chapters of the book are in risk of becoming out-of-date rather quickly. For most of the material, we have to assume that the English edition of 2007 only represents the state of the art of 2003.

For many chapters serving as a reference, such a delay is not much of a problem, as the descriptions of encodings or font file formats remain unchanged and permanently valid. On the other hand, however, it is regrettable that especially the chapter about \TeX has completely missed or overlooked some very important developments of the last few years.

As one example, when describing the details of font installation, the author only covers \TeX /Omega with dvips, while $\text{PDF}\TeX$ isn't mentioned in this context, even though most of the description would be applicable to both systems in \TeX Live systems. (In fact, $\text{PDF}\TeX$ isn't mentioned anywhere at all in the book, perhaps because it didn't support Omega at that time and was therefore seen as line of development that was irrelevant to the author.)

As another example, Hàn Thế Thành, author of $\text{PDF}\TeX$ is only mentioned once in the context of Vietnamese fonts, while his significant achievements regarding the implementation of micro-typographic features of $\text{PDF}\TeX$ have been neglected completely. This is even more surprising as the author spends some pages discussing an example where the effect of *margin kerning*, which would have been accessible in $\text{PDF}\TeX$, is simulated in a rather cumbersome way using virtual fonts created by fontinst.

Regarding examples of extensions of Computer Modern fonts, the author suggests the CM-Super fonts, while the (by now) much more popular Latin Modern fonts are only mentioned in passing as an example of a MetaType 1 application.

Finally, when it comes to discussing ways of using advanced typographic features of OpenType or AAT fonts in \TeX , the author only offers some hints about his own research work in the Omega 2 project (which hasn't progressed beyond the prototype stage), while the (by now) readily-available newcomer $\text{Xe}\TeX$ remains unmentioned.

To be fair, one has to admit that the success and importance of these recent developments in the \TeX world could not have been foreseen at the time of writing in 2003. Nevertheless, it could have been possible to include some additions and/or revisions by the time of the English translation of 2007.

It is rather unfortunate that the opportunity for updates was missed here, which would have made the book much more useful and valuable for \TeX users interested in making use of the very latest of developments in font technology.

Despite these shortcomings, the book remains a valuable resource for \TeX users and software developers, who are deeply interested in font technology and encodings. There is no other book providing a similar coverage in the broad range of topics and the deep level of detail in a single volume. To get anywhere near it, one would have to collect dozens of references from a variety sources and one would still be left with some gaps to fill.

In summary, this book is certainly recommendable. Nevertheless, some additions and/or revisions would be very desirable for future editions.

As a final remark, the reviewer would like to mention a little curiosity: Like some other modern textbooks, this book also features a separate index of persons besides the usual general-purpose index. However, unlike other books, the author seems to have been rather liberal as to which kinds of persons are referenced in the index.

This way, authors of font software and tools not only find themselves in the glorious company of some of the most famous font designers of history, but also in the vicinity of rather questionable political figures (e. g. Lenin, Hitler, Mao) as well as some fictional or literary characters (e. g. Sherlock Holmes, James Bond, James T. Kirk), which are only mentioned in passing in some light-hearted comments.

While the reviewer (who at one time was also contributor of fontinst) wishes to express thanks for the opportunity of being included in this rather unique selection of people, he also wishes to express serious doubts, whether it is really helpful to the reader to include fictional characters in the person index in the same way as technical people. This practice is certainly debatable and probably should be reconsidered for future works of this kind.

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