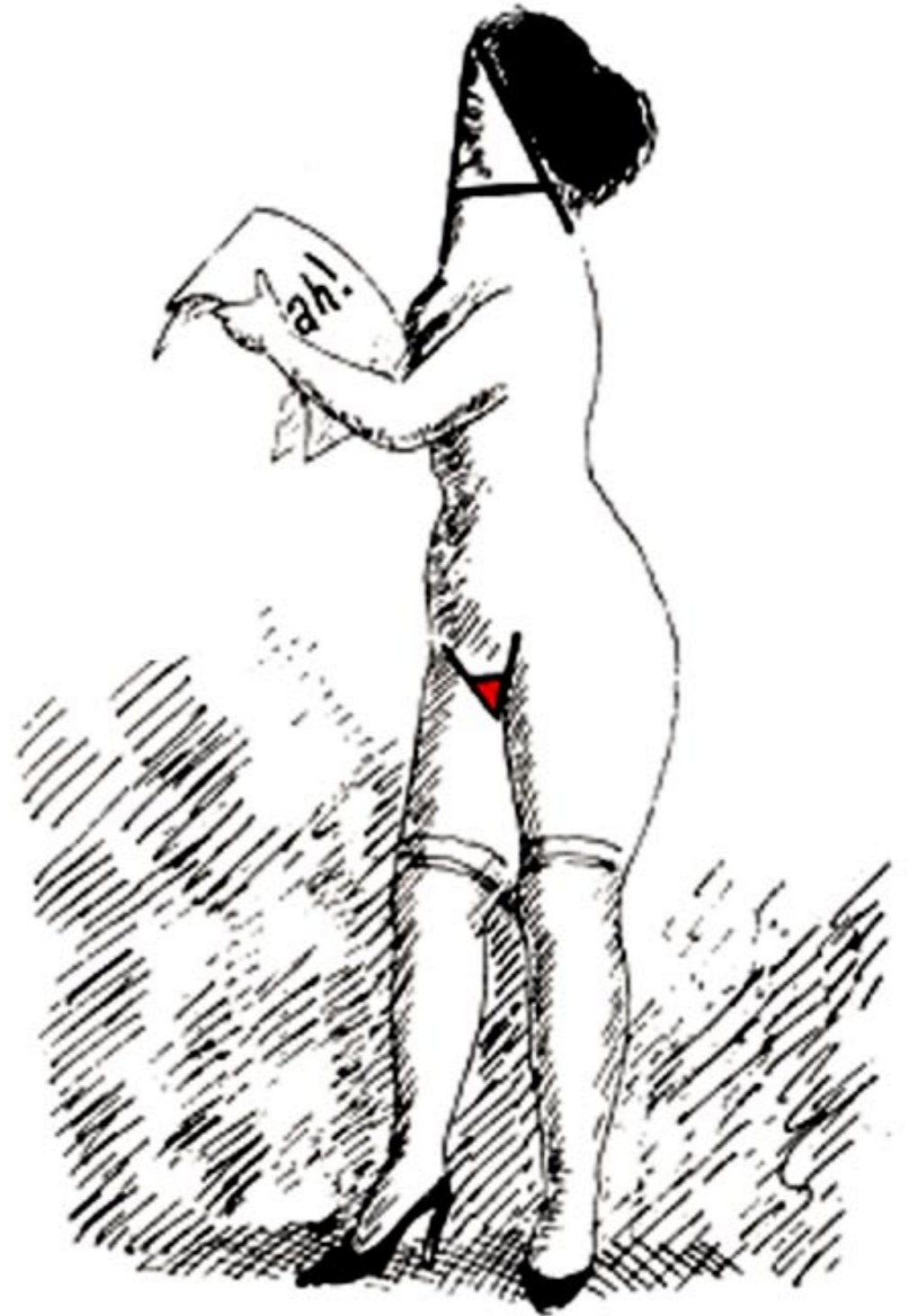


Indeed,
etymologically,
font is *female*,
from French “fonté,”
“melting” – hence
la font, la police, &c.

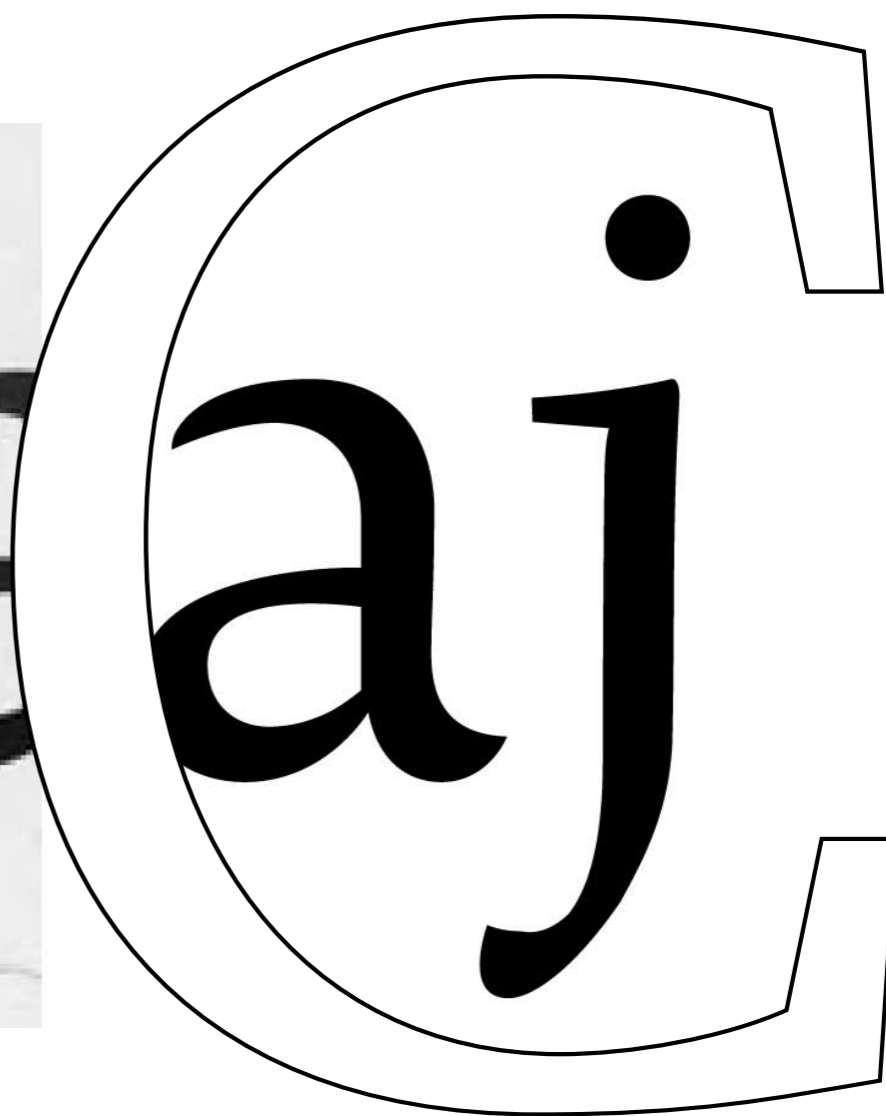


Types are:

1. the parts of the font
 2. executive drawings &/or design drawings
- in short “characters”
are drawn or inked,
“fonts” are licensed and used
(*i.e. sold, hence ethics, &c.*).

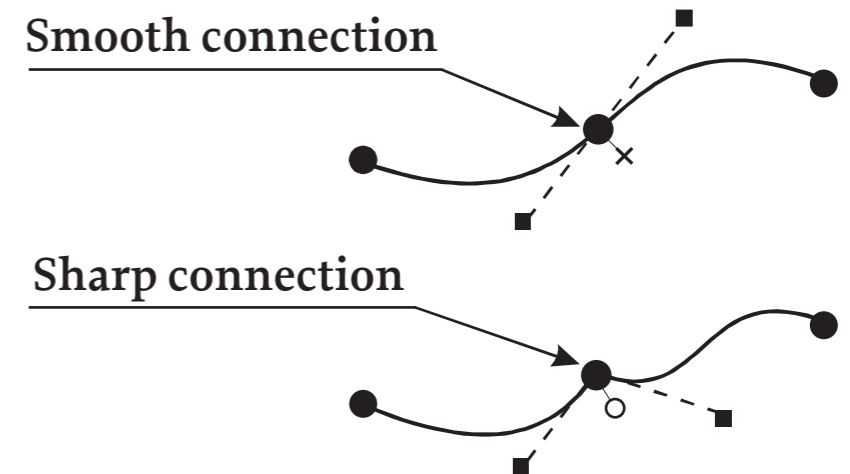
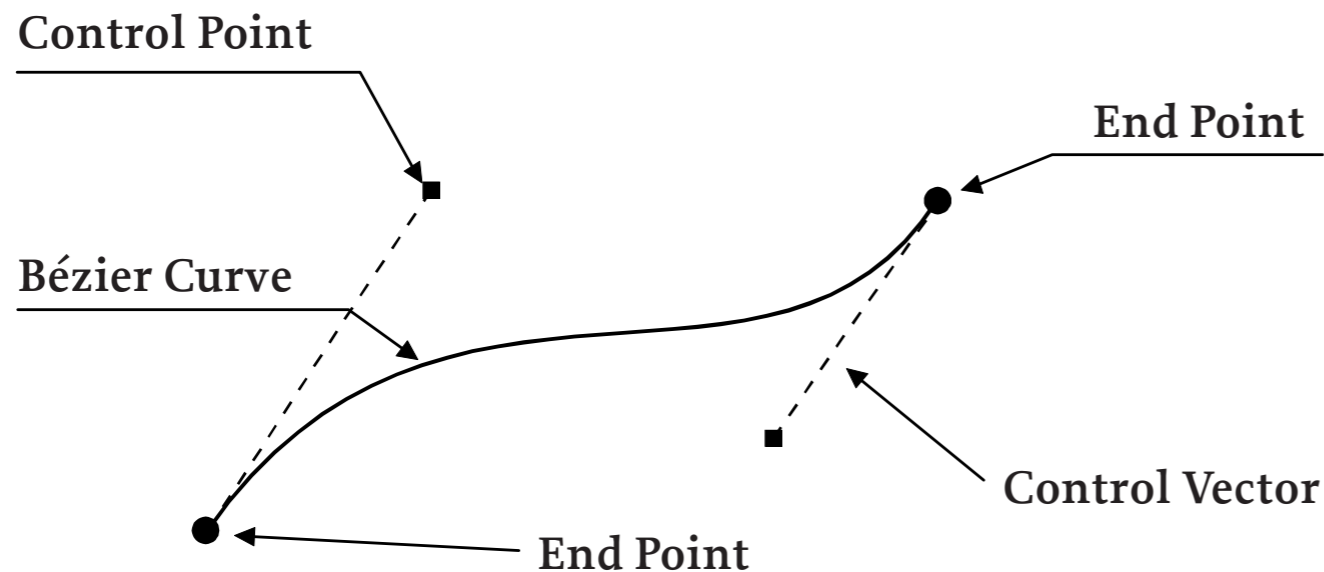
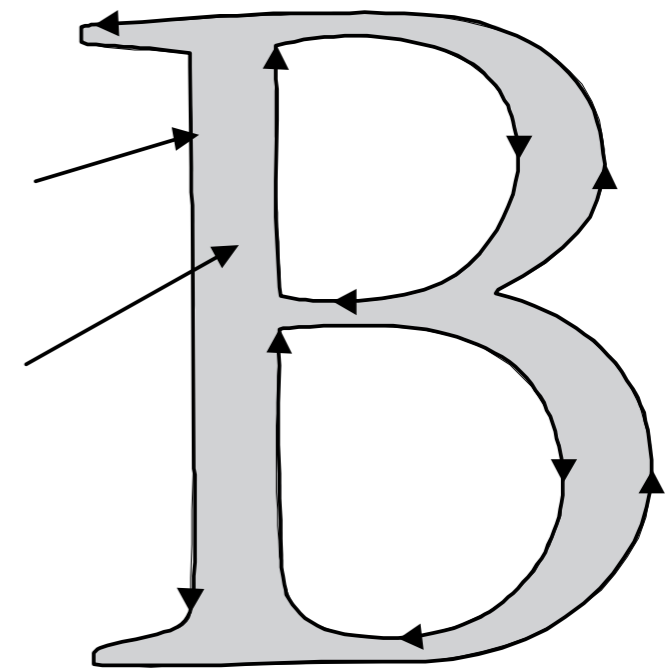


The most relevant Byte data {1 Byte = 8 Bit, *binary digits*} of a font are the outlines.



Contours (outlines) are of two kinds: white or black.
A contour is a closed path.

Directed contour
Filled interior zone



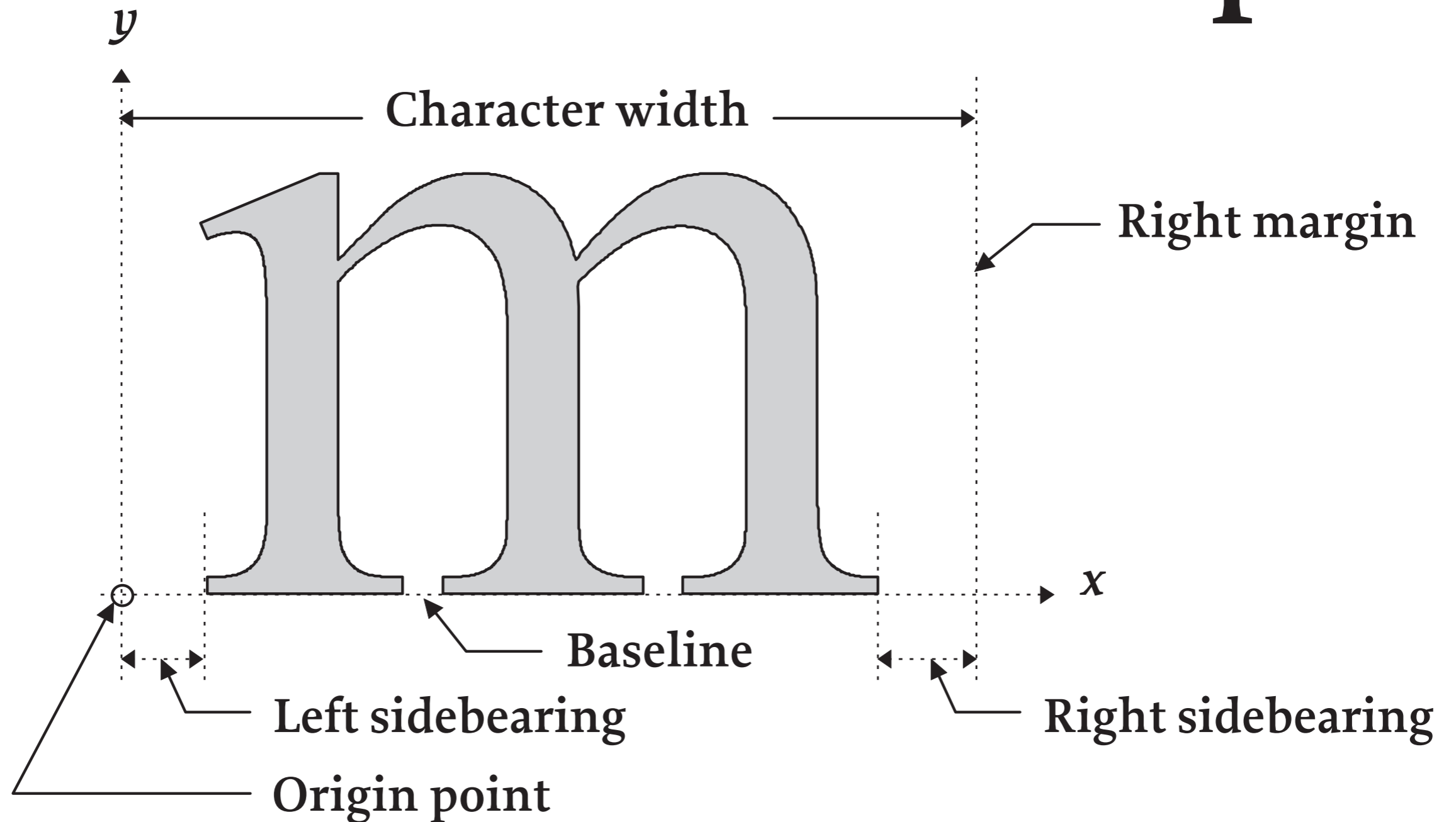
The Metric data of a glyph are Cartesian information (x - y).

.afm

Adobe Font Metrics,
ASCII text-based
font format.

For Windows systems
a .pfm file carries the
metrics.

.pfm

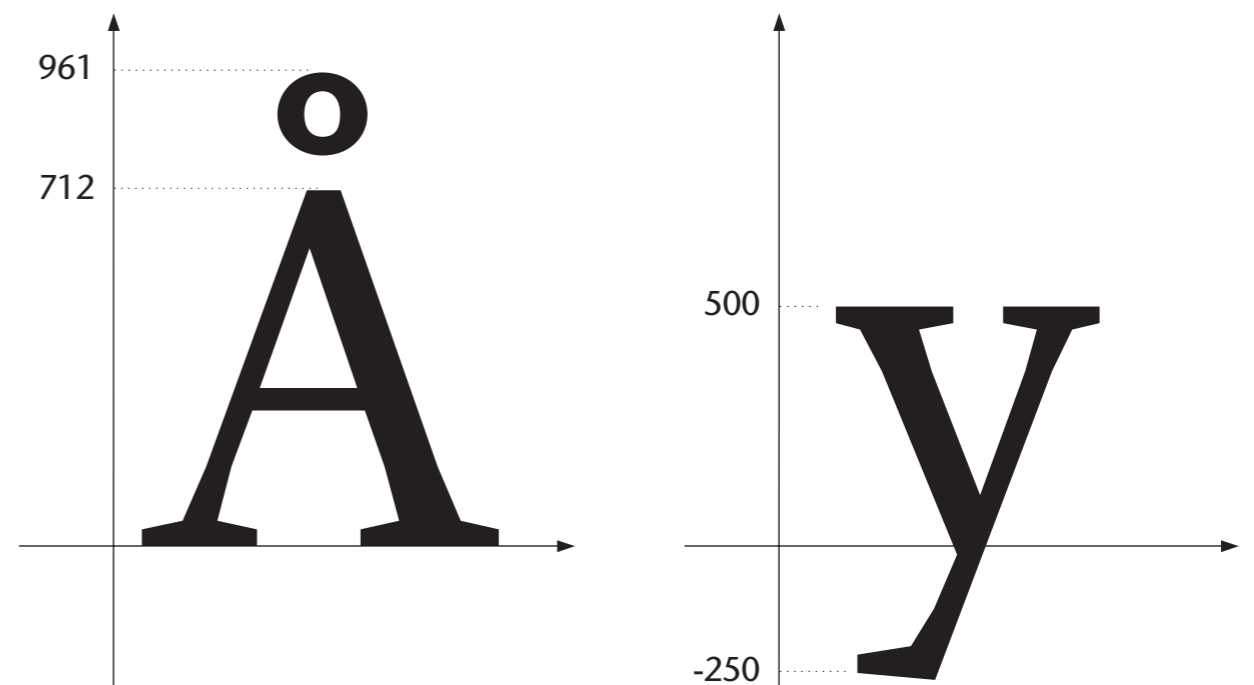


The coordinates of every object in a font are represented by a standard measurement system:

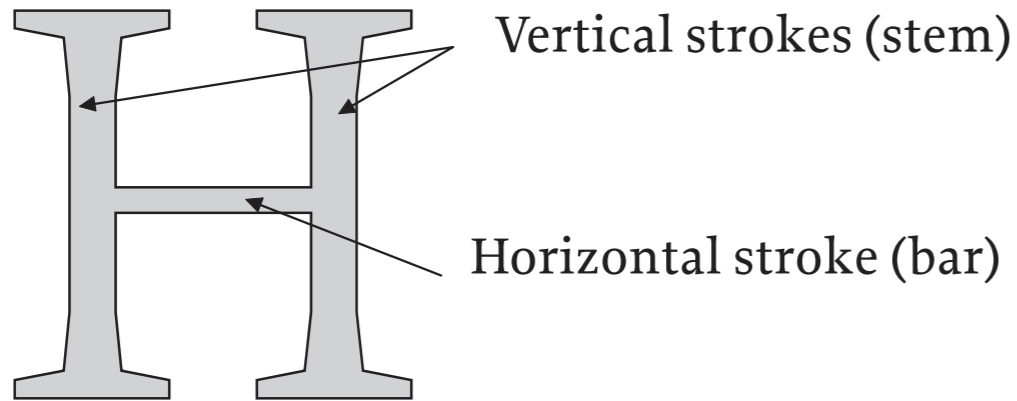
The font-unit is equal to 1/1000 of the height of the body of the font, i.e., the 'em' square.

fontbureau.com/blog/the-em

System of coordinates for characters



Usually, the height of a roman upper case is 700 units. *The height of the font is used as a value/parameter when scaling the types in the desired sizes.*

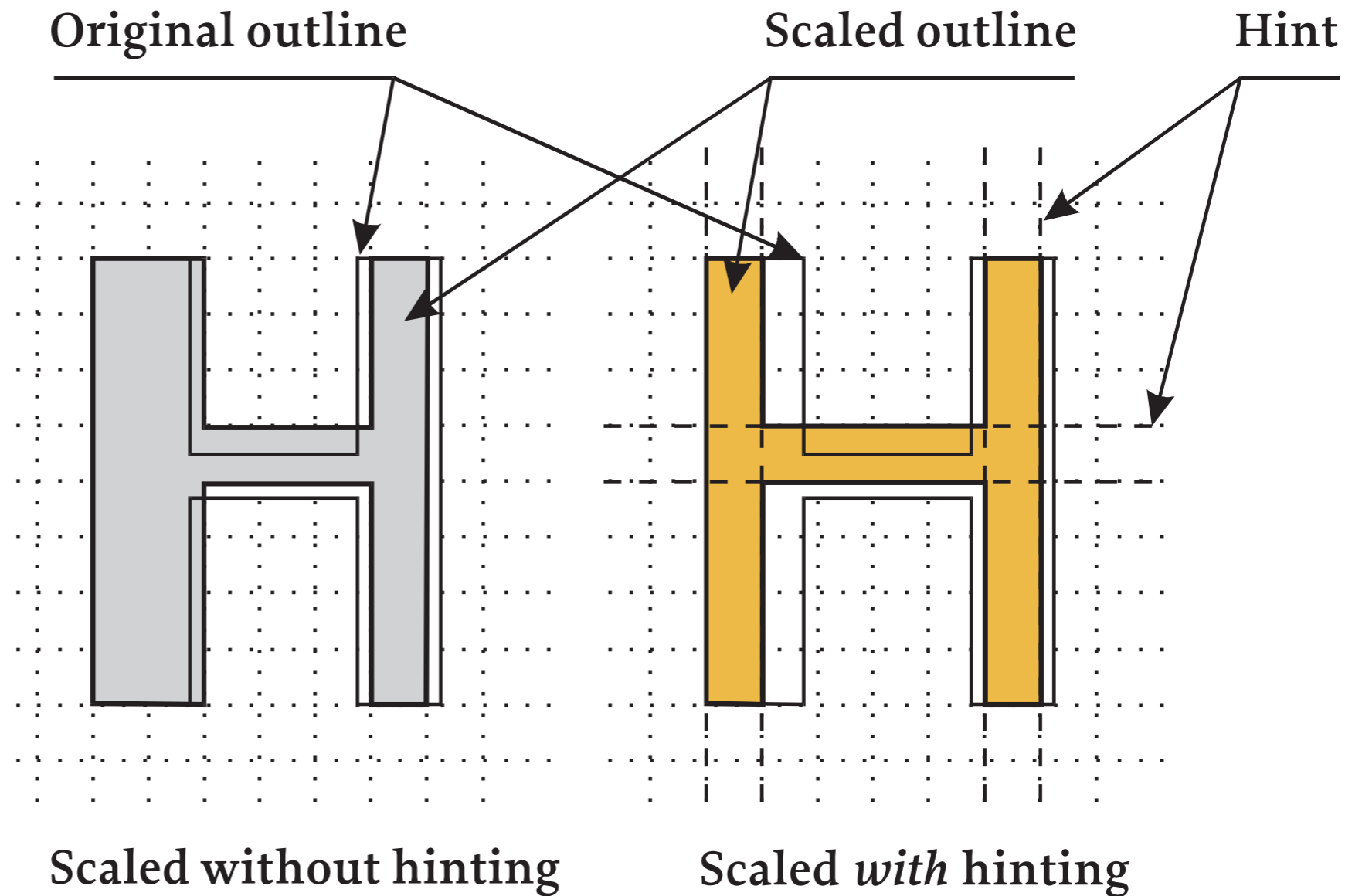


Hinting, more accurately called *instructing*, is a method of specifying how digital fonts display at small sizes on low-resolution devices, usually for on-screen usage.

This is accomplished by providing instructions in the font file that define which pixels are turned on when producing bitmap images.

All the structural strokes in a character (*glyph*) are declared by Hint instructions:

a pair of horizontal & vertical lines, plus the width of the Hint.



12 X 12

40 X 40

200 X 200

2048 X 2048

PostScript (PS)

page description language (PDL)

(1976) 1985 – John Warnock

1. Device-independent description: *high-level imaging model.*
2. Raster output device software (*interpret/render*)
 - Computer display, low resolution, from 50 to 216 pixels;
 - Dot-matrix printers, from 100 to 250 dots per inch;
 - Ink-jet and Laser printers, from 300 to 1400 dpi;
 - Photographic technologies, 2400 dpi and above.

1976	Bitmap .bmp	Dot-matrix – one file, one body (size).
1984	T1 .pfb PostScript	3° grade Bézier, PostScript interpreter.
1990	MM .mmf Multiple Master	Interpolation – weight, width, style, body.
1991	TT .ttf TrueType	Internal rasterizer, <i>Hinting potential</i> .
1996	OT .otf — .ttf OpenType	Unicode, 16 Bit (65,000 glyphs), +platform.
2009	Webfont .woff .otf — .ttf	Delivering on the fly; saved as a compressed container, supports licensing information, referenced within CSS by the <i>@font-face</i> rule.

1976 **Bitmap** Xerox On-screen visualization of printing types
.bmp

1984 **T1** Adobe (*ATM, Apple Laser Writer, PageMaker, DTP*)
.pfb PostScript

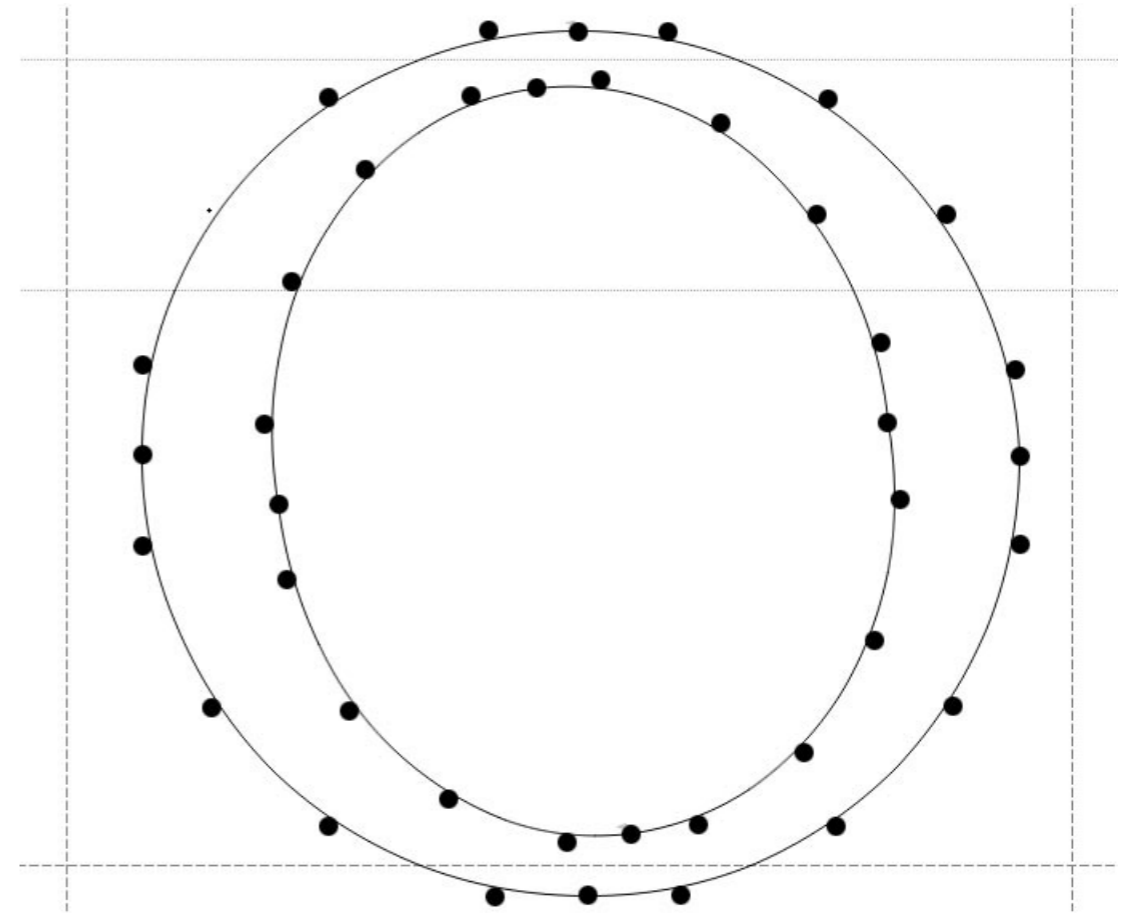
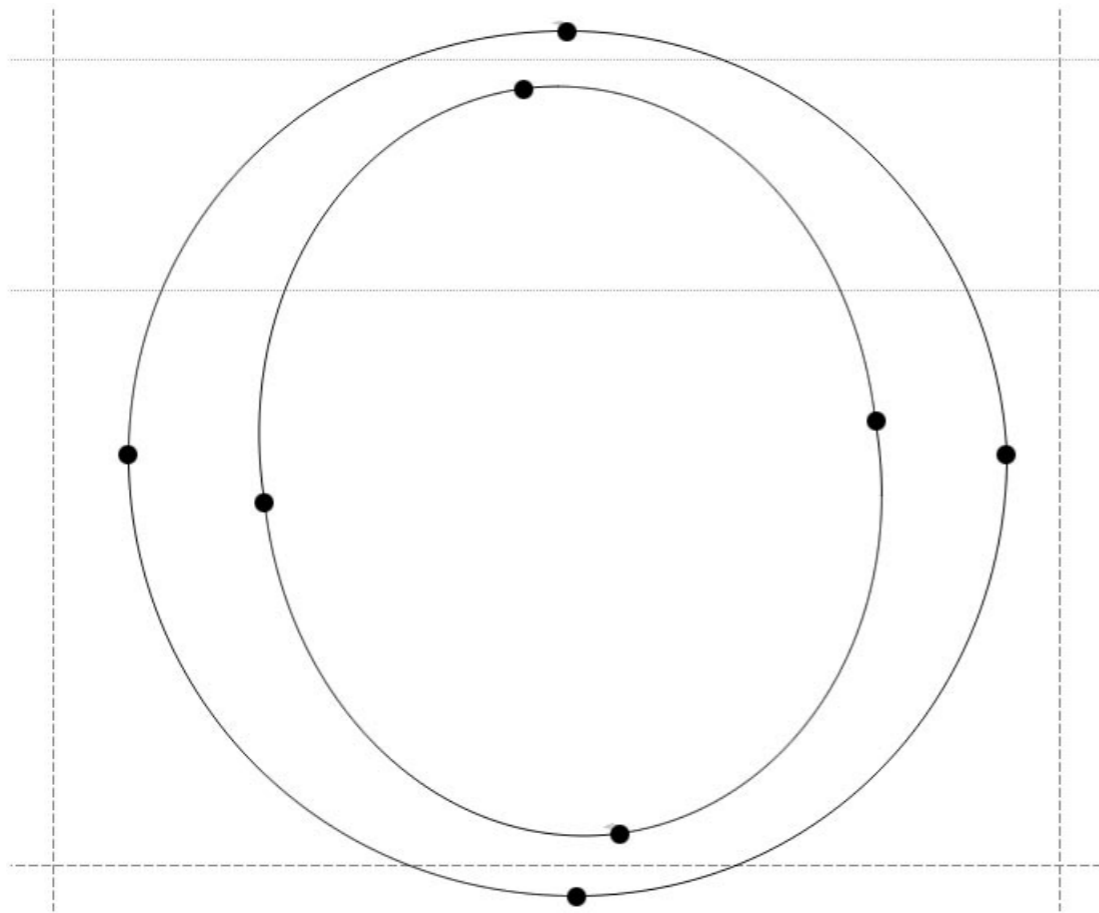
SCALING INTELLIGENCE SUPPORTED AT OPERATING SYSTEM LEVEL:

1990 **MM** Adobe T1+, weight/width/optical-size/style axes, &c.
.mmf Multiple Master

1991 **TT** Apple & Microsoft Standard, laser, no film-units.
.ttf TrueType

1996 **OT** Apple & Microsoft Multilingual, only one font file.
.ttf – .otf TT, PS/CFF

2009 **WOFF** WebFonts Working Group www.w3.org/Fonts/WG
.woff Embeddable



Uppercase Roman 'O' drawn by PostScript T1 splines...

and by TrueType curves.

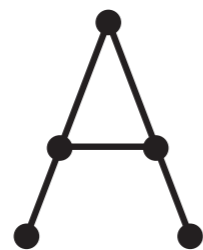
T1 = 3° grade Bézier curves

TT = subset, 2° grade equations

Impossible to convert from TT to T1 without accuracy loss.



Bitmapped



Vector



Outline

PostScript uses “dumb” fonts and a “smart” interpreter.

TrueType uses relatively smarter fonts and a dumber interpreter.

Most of the high-res output devices use PostScript as page description language; *PostScript fonts* can be sent directly to those devices.

PostScript hints tell the rasterizer what features ought to be controlled, and the rasterizer interprets these using its own “intelligence.”

TrueType fonts are downloaded as bitmap or they require the rasterizer to be downloaded as a PostScript program, with a consequent slow down of the printing process. TrueType puts very specific instructions into the font to control how it will appear.

Unicode Revision 6.0, 2011

multi-bit character encoding

Unicode consists of a repertoire of more than 109,000 characters covering 93 scripts; a set of code charts for visual reference, an encoding methodology and set of standard character encodings, an enumeration of character properties.

One number, one character—language, application and platform independent.

unicode.org
decodeunicode.org
diacritics.typo.cz
wikipedia.org/unicode
ascendercorp.com/wgl.html

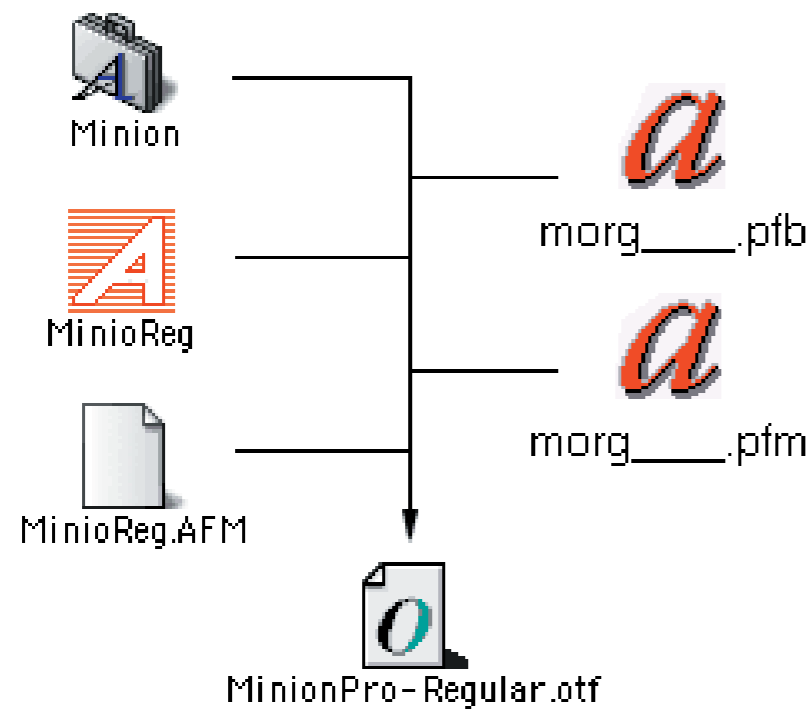
Unicode	Shape	Glyph name	Unicode Name	Unicode Block
00A3	£	sterling	pound sign	Latin-1 Supplement
00A4	¤	currency	currency sign	Latin-1 Supplement
00A5	¥	yen	yen sign	Latin-1 Supplement
00A6	¦	brokenbar	broken bar	Latin-1 Supplement
00A7	§	section	section sign	Latin-1 Supplement
00A8	¨	dieresis	diaeresis	Latin-1 Supplement
00A9	©	copyright	copyright sign	Latin-1 Supplement
00AA	ª	ordfeminine	feminine ordinal indicator	Latin-1 Supplement
00AB	«	guillemotleft	left-pointing double angle quotation mark	Latin-1 Supplement
00AC	¬	logicalnot	not sign	Latin-1 Supplement
00AD		uni00AD	soft hyphen	Latin-1 Supplement
00AE	®	registered	registered sign	Latin-1 Supplement
00AF	—	macron	macron	Latin-1 Supplement
00B0	°	degree	degree sign	Latin-1 Supplement
00B1	±	plusminus	plus-minus sign	Latin-1 Supplement
00B2	²	uni00B2	superscript two	Latin-1 Supplement
00B3	³	uni00B3	superscript three	Latin-1 Supplement
00B4	´	acute	acute accent	Latin-1 Supplement
00B5	µ	mu	micro sign	Latin-1 Supplement
00B6	¶	paragraph	pilcrow sign	Latin-1 Supplement
00B7	·	periodcentered	middle dot	Latin-1 Supplement
00B8	¸	cedilla	cedilla	Latin-1 Supplement
00B9	¹	uni00B9	superscript one	Latin-1 Supplement
00BA	º	ordmasculine	masculine ordinal indicator	Latin-1 Supplement
00BB	»	guillemotright	right-pointing double angle quotation mark	Latin-1 Supplement
00BC	¼	onequarter	vulgar fraction one quarter	Latin-1 Supplement
00BD	½	onehalf	vulgar fraction one half	Latin-1 Supplement
00BE	¾	threequarters	vulgar fraction three quarters	Latin-1 Supplement
00BF	¿	questiondown	inverted question mark	Latin-1 Supplement
00C0	À	Agrave	latin capital letter a with grave	Latin-1 Supplement
00C1	Á	Aacute	latin capital letter a with acute	Latin-1 Supplement
00C2	Â	Acircumflex	latin capital letter a with circumflex	Latin-1 Supplement
00C3	Ã	Atilde	latin capital letter a with tilde	Latin-1 Supplement
00C4	Ä	Adieresis	latin capital letter a with diaeresis	Latin-1 Supplement
00C5	Å	Aring	latin capital letter a with ring above	Latin-1 Supplement

OpenType

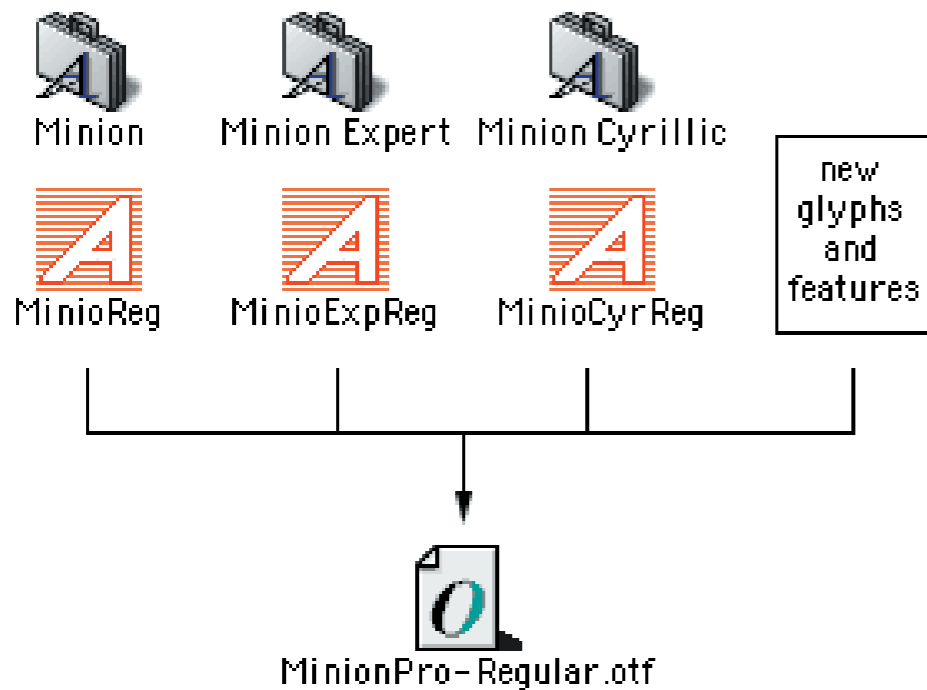
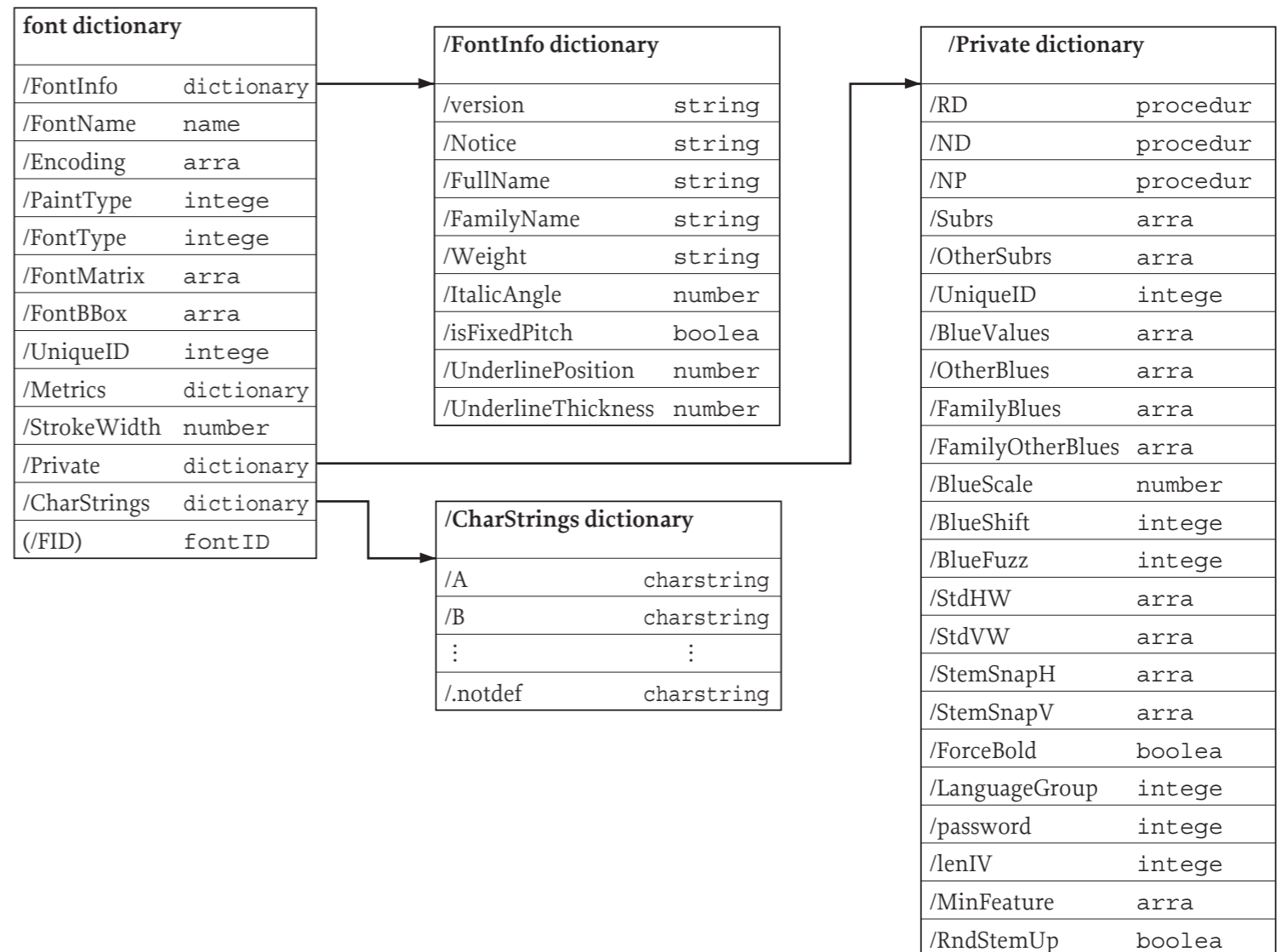
16-bit cross platform font format

OpenType is a cross platform format for scalable computer fonts originally built on its predecessor TrueType, retaining the 8-bit TrueType's basic structure and adding many intricate data structures for prescribing typographic behaviors that enhance the font's typographic and language support capabilities.

The extended support via Unicode allows OpenType fonts to have up to 65,536 glyphs and cover all languages and scripts admitted.



Typical dictionary of the structure of a PostScript font program:



Font Browsers

Ergonis PopChar — MAC, PC

ergonis.com

Lemke FontBook — MAC

lemkesoft.de

Neuber Typograf — PC

neuber.com

AMP Font Viewer — PC

ampsoft.net

Wordmark.it — ONLINE

wordmark.it

Font Managers

Insider FontAgent — MAC

fontagent.com

Linotype FontExplorerX — MAC, PC

fontexplorerx.com

Extensis Suitcase — MAC, PC

extensis.com

Proxima FontExpert — PC

proximasoftware.com

High-Logic MainType — PC

high-logic.com

Font Editors

FontLab, Fontographer — MAC, PC

fontlab.com

FontForge — MAC, PC, LINUX

fontforge.net

Glyphs — MAC

glyphsapp.com

Fontstruct — ONLINE

fontstruct.com

Low Quality *means*:

1. Incomplete set of characters.
2. Inconsistency in the weight of the stems.
3. Irregular and/or improper outline construction.
4. An excess of points to describe a glyph.
5. Unsuitable and/or inaccurate hinting.
6. Inconsistently designed metric.
7. Poor, excessive, or inexistent kerning.
8. Other editing/legibility factors.

High Quality *means that...*

the essential elements of style have more to do with the goals typographers set for themselves than with the mutable eccentricity of their tools. ¶ In other words, typography itself is far more device-independent than PostScript – the computer language used to render these particular constructed letters, and the design of these pages, into typographic code.

Writing systems vary, *but a good page is not hard to learn to recognize*, whether it comes from Táng Dynasty China, the Egyptian New Kingdom or Renaissance Italy. Typography is the craft of establishing human language with a durable form.

download .pdf: www.as8.it/type/font-formats.pdf

Article

Graphicus N° 1015

March 2005

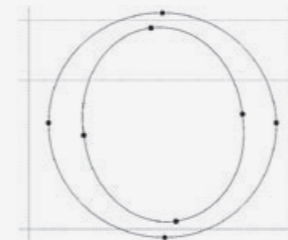
CARATTERI

TT, T1, OT ...

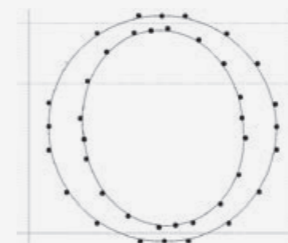
Conoscere le font: terminologia, origine, situazione attuale e sviluppi prevedibili

Alessandro Segalini

Non tutti sanno tutto sulle font (che una volta si chiamavano "polizze caratteri"), c'è anche molta confusione persino tra gli addetti ai lavori. Per questa ragione abbiamo deciso, nell'ambito della rubrica dedicata al carattere che ha suscitato notevole interesse tra i nostri lettori, di affrontare l'argomento con l'aiuto di esperti. Iniziamo con questo articolo introduttivo, cui farà seguito una serie di approfondimenti, esaminando a fondo OpenType, il nuovo standard che si sta affermando.



'O' maiuscola romana descritta da curve PostScript Type 1



'O' maiuscola romana descritta da curve TrueType.

Una premessa sulla terminologia è necessaria: il carattere è quello che si disegna, la font è quella che si vende, si compra o si trova già installata - e si usa. La font - che per delicatezza ed etimologia sarebbe più corretto usare al femminile - è quel sistema di lettere che si utilizza per scrivere, ora un file codificato, un software a tutti gli effetti. Vedete, se il nostro campo è "avanzare", noi dobbiamo - senza rimuovere creatività ed estetica - accertarci che la nostra terminologia sia chiara.

TrueType (TT), **PostScript Type 1** (T1) e **OpenType** (OT) sono

standard multi-piattaforma di resa/codifica del contorno (*outline*) delle font. Dicendo "multi-piattaforma" intendiamo la possibilità di utilizzare su diversi sistemi operativi informatici le tipologie di font. "Outline font" significa la descrizione della forma delle lettere (glifi) per mezzo di punti, che a loro volta definiscono linee e curve. Questo tipo di rappresentazione matematica del segno è indipendente dalla risoluzione (output), così che i contorni per loro stessa natura possano essere scalati ad arbitrio in ogni misura (corpo).

Inconsistenze

Il contorno di una font deve essere rappresentato dai punti del dispositivo di uscita, quale che sia, schermo (pixel), ink-jet, laser, offset. Il processo di conversione dei contorni della font in modelli di punti sul retino del dispositivo è chiamato "rasterizzazione". Quando non ci sono abbastanza punti a definire i glifi (così come accade a piccoli corpi o a bassa risoluzione), ci possono essere inconsistenze nella rappresentazione dei tratti o fattezze di certe lettere a una singola misura; questo è dovuto al diverso arrotondamento derivante da come il contorno si adagia sulla griglia. Un caso tipico è la larghezza delle aste delle lettere che varia quando non dovrebbe, e, peggio, quando le caratteristiche salienti dei glifi a piccoli corpi scompaiono. Comunque, sia Type 1, TrueType e OpenType font si avvalgono di un procedimento per gestire queste inconsistenze chiamato "hinting" che consiste in informazioni addizionali compilate e aggiunte alla font per aiutarla a prevenire questi problemi.

End

More info at as8.it

