Typography

References

The TeXbook

PostScript Language Reference

Pat Hanrahan, Winter 2007
References

Types of Type

(From R. Williams, Non-Designers Design Book)
Oldstyle (Renaissance)

Oldstyle

Goudy  Palatino  Times
Baskerville  Garamond

The Book of Kells
Modern

- Vertical stress
- Serifs on lowercase letters are thin and horizontal
- Bodoni
- Times Bold
- Onyx
- Fenice, Ultra
- Walbaum

Slab serif

- Vertical stress
- Serifs on lowercase letters are horizontal and thick (slabs)
- Very little or no thick/thin transition, or contrast, in the strokes
- Clarendon
- Memphis
- Memphis Extra Bold
- New Century Schoolbook
Properties

Size

Units

Points (pt)

Traditional: 72pt = 0.996in (0.013837in)
Adobe: 72pt = 1in

Picas (pc)

12 pt = 1 pc

Em (ps \times ps)

En (M/2)

Standard sizes and names

http://www.sizes.com/tools/type.htm
Styles

Roman
Italic
Oblique

Weights

Light
Regular
Semibold
Bold
Adobe Multiple Master Fonts

Myriad MM

Weight

Width
Font Metrics

CapHeight (H)
X-Height (x)

Ascender (d)
Descender (p)

Font size ~ Ascender + Descender

Different x-heights

Times Caslon
Leading

The distance from the baseline of one line of type to another is called line spacing. It is also called leading in reference to the strips of lead used to separate lines of metal type. The default setting in most layout and imaging software is slightly greater than the cap height of the letters. Depending on the application, the distance creates a text block with a lighter, more open look. As line spacing increases further, the lines of type become independent, less connected to one another than parts of an overall letter.

In most page layout programs, the default line spacing (leading) is 105%, or slightly greater than the cap height.

Kerning

Kerning is the adjustment of the spacing between pairs of letters, where a small amount of horizontal space is removed to correct the imperfect fit of some letter combinations. This is especially visible in thin fonts where letters are more open. As spacing becomes more extreme, the block of text begins to read as separate lines rather than a smooth flow.
Ligatures

5 classic ligatures

ff fi fl ffi ffl

ff fi fl ffi ffl

Combining Marks

á acute    à grave    ã tilde    ã macron    ã breve    ã circumflex

á overdot    ä diacritical    å ring    á double acute    â caron

â cedilla    ç ogonek
Glyph Metrics

Freetype Glyph Metrics

Box and Glue Model (Knuth)

width 5  width 6  width 3  width 8

space 9  space 9  space 12
stretch 3  stretch 6  stretch 0
shrink 1  shrink 2  shrink 0

9+2  9+4  12+0
Unicode [unicode.org]

“Unicode provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language.”

- Organized as 256 code pages
  - [http://unicode.org/charts/](http://unicode.org/charts/)
- Initial version encodes 65K (16-bit) characters, now 32-bit
- Characters distinguished by charcodes
- Encodings represent charcodes as numbers
  - ASCII, UTF-8, UTF-16, ISO-8859-1, ...
  - `<?xml version="1.0" encoding="utf-8" ?>`

OpenType [Adobe, Apple, Microsoft]

Encoding
Character map: encoding -> glyph
Glyphs
Glyph metrics

May contain multiple character maps
May contain multiple fonts
May also contain bitmap and outline fonts
Freetype.org is an open source implementation
Representing Bitmaps

GLubyte rasters[24] = {
    0xc0, 0x00,
    0xc0, 0x00,
    0xc0, 0x00,
    0xc0, 0x00,
    0xc0, 0x00,
    0xff, 0x00,
    0xff, 0x00,
    0xc0, 0x00,
    0xc0, 0x00,
    0xc0, 0x00,
    0xff, 0xc0,
    0xff, 0xc0
};

Note: Rows have 1 byte alignment

```
glPixelStore(GL_UNPACK_ALIGNMENT,1)
```

Drawing Bitmaps

Syntax

```
glBitmap (w, h, xoff, yoff, xincr, yincr, dara);
```

Example:

```
glRasterPos2i (20, 20);
glBitmap (10, 12, 0.0, 0.0, 11.0, 0.0, rasters);
```
Glyph Outlines