Topics

Types of fonts
Font properties
Font metrics
Layout
Unicode
References
Types of Type

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

Oldstyle (Renaissance)

- Diagonal stress
- Serif (pronounced "hair" not "serif")
- Serifs on lowercase letters are slanted
- Moderate thick/thin transition in the strokes

Oldstyle

Goudy, Palatino, Times, Baskerville, Garamond
Modern

- Vertical stress
- Serifs on lowercase letters are thin and horizontal
- Radical thick/thin transition in the strokes

**Bodoni**
**Times Bold**
**Onyx**

Fenice, **Ultra** Walbaum
Childhood

I was born of very humble heritage. My mother and father had no degrees. Strange as it may seem, they only followed good common sense in rearing their family. My mother’s maiden name carried a Von before it and I believe this was a sign of some royal ancestor.

My grandfather Klinger had a grocery store and saloon, quite an enterprise in the 1800’s. My mother, with the rest of her family, arose early each morning to count and bag potatoes and from that I probably inherited the ability to count and bag coins at the dairy.
Sans Serif

No serifs anywhere
No thick/thin transition in the strokes

Sans serif

Antique Olive  Formata
Folio  Franklin Gothic
Futura, Condensed  Syntax

Franklin Gothic
**Others**

**Scripts**

- Arid
- Shelley Volante
- Legacy
- Cascade
- Linoscript
- Zapf Chancery

**Decorative**

- Party
- Potrzebie
- Improv
- Pious Henry
- JUNIPER
- Juice
- FAJITA
- SCARLETT

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**Other Languages**

- 龍 龍

**Calligraphy**

**Font**
Properties

Size

Units
- Points (pt)
  - Traditional: 72 pt = 0.996 in
  - Adobe: 72 pt = 1 in
- Picas (pc)
  - 12 pt = 1 pc
- Em (ps x 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

Stretch
Condensed
Regular
Expanded
Font Metrics

CapHeight (H)       Ascender (d)
X-Height (x)        Descender (p)

Handy Camper

Font size ~ Ascender + Descender

Different x-heights

Times Caslon
Leading

The distance from the baseline of one line of type to the baseline of the line above it is called leading. Kerning is the adjustment made to the horizontal separation between letters. The default setting in most layout and imaging software is slightly greater than the cap height of the letters. Expanding the distance between letters makes text look lighter, more open. As the line spacing increases, the lines of type become less expansive and the spacing between lines and parts of an overall texture increases.

This is called "set solid." When lines are set this closely together, the ascenders and descenders begin to touch, an uncomfortable effect.

Kerning

HAWAII

HAWAII

As the spacing between letters increases, the block of text begins to read as separate lines rather than a single block.
Glyph Metrics

Freetype Glyph Metrics
Anatomy of a Glyph

Ligatures

ff fi fl ffi ffl

ff fi fl ffi ffl
Unicode [unicode.org]

“Unicode provides a unique number for every character, no matter what the platform, no matter what the program, not matter what the language”

- Organized as 256 code pages
  - [http://unicode.org/charts](http://unicode.org/charts)
- Initial version encodes 65K (16-bit) characters
- 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 contain bitmap and outline fonts
Freetype.org is an open source implementation

Rasterization

Scaled Outline

Raster Image

(from Apple TrueType Reference Manual)
Representing Bitmaps

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

Note: Rows have 1 byte alignment

glPixelStorei(GL_UNPACK_ALIGNMENT, 1);

Drawing Bitmaps

Syntax

    glBitmap( w, h, xoff, yoff, xinc, yinc, data );

Example:

    glRasterPos2i( 20, 20 );
    glBitmap( 10, 12, 0.0, 0.0, 11.0, 0.0, rasters );
Anti-Aliasing & ClearType

Anti-Aliased Rendering

Microsoft ClearType

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
Things to Remember

Typography

- Types of type
- Style, weight, stretch
- Character encoding is different than glyph index
- Font metrics
- Layout, box and glue model
- Glyph outlines are modeled using splines