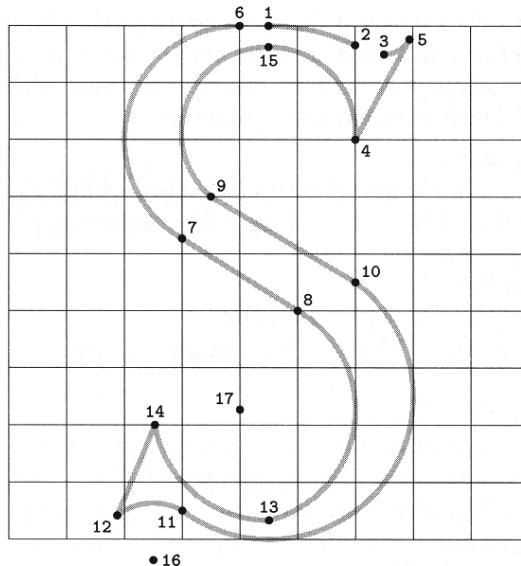
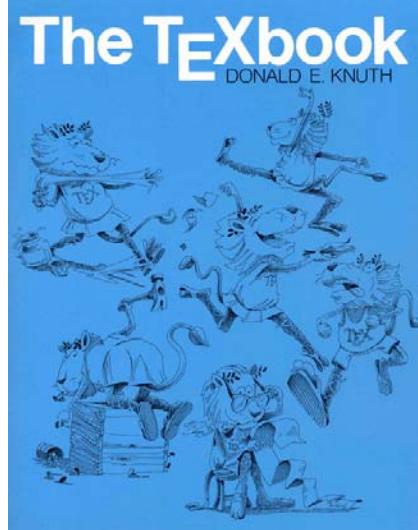


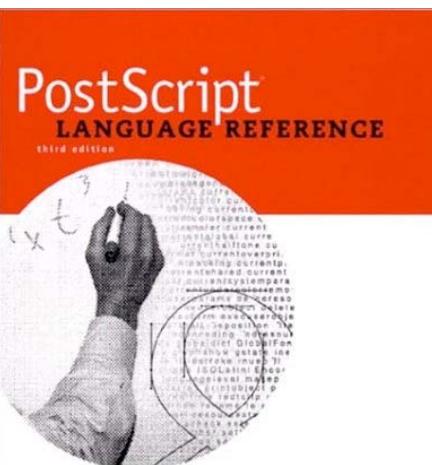
# Typography



## References

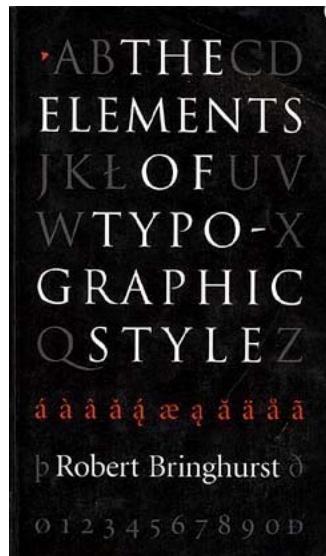


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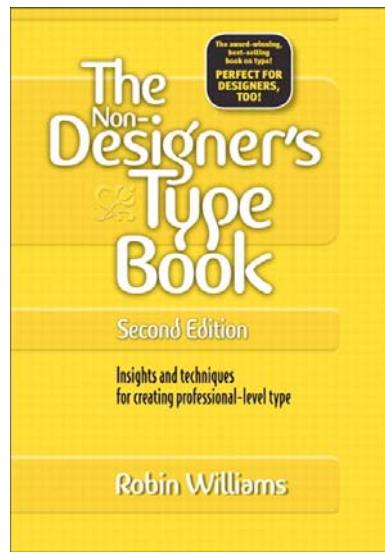


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## References



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## Types of Type

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

## Oldstyle (Renaissance)

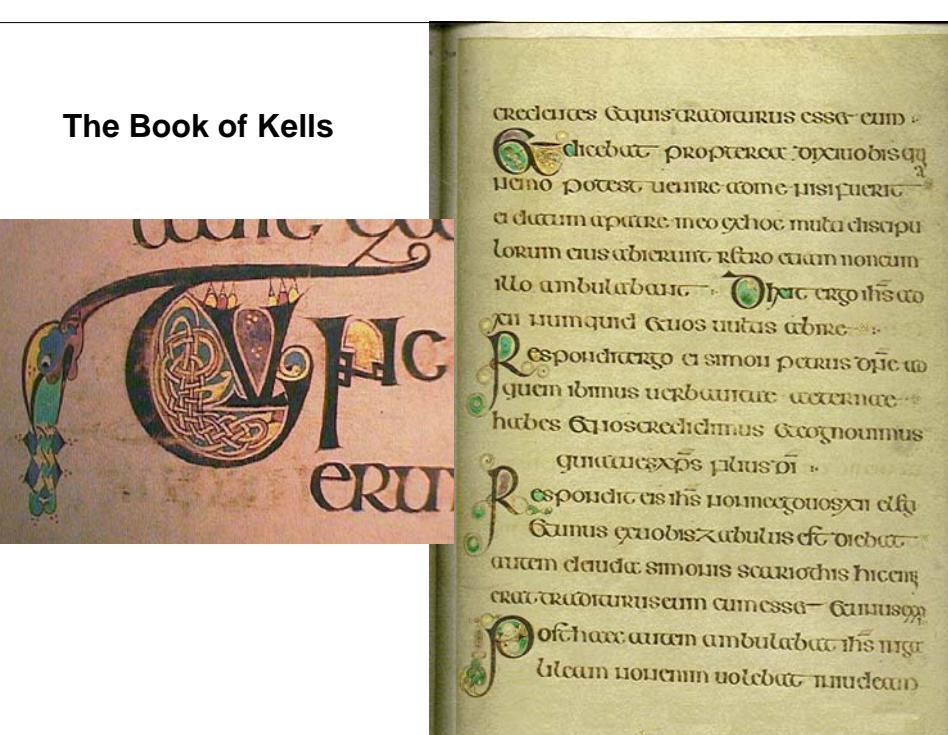


Goudy Palatino Times  
Baskerville Garamond

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### The Book of Kells



## Modern

Vertical stress

Serifs on lowercase letters  
are thin and horizontal



**Modern**

Bodoni Poster Compressed

Radical thick/thin transition  
in the strokes

**Bodoni Times Bold Onyx**

**Fenice, Ultra Walbaum**

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## Slab serif

Serifs on lowercase letters are  
horizontal and thick (slabs)

Vertical stress



**Slab serif**

Clarendon

Very little or no thick/thin  
transition, or contrast, in the strokes

**Clarendon Memphis**

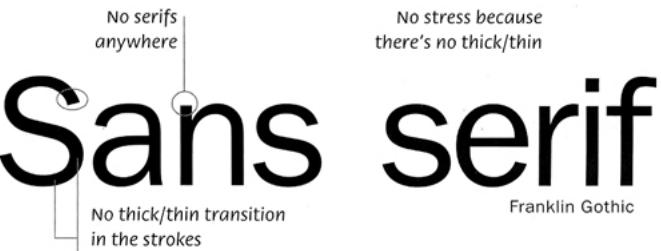
**Memphis Extra Bold**

**New Century Schoolbook**

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## Sans serif



Antique Olive **Formata**  
Folio **Franklin Gothic**  
Futura, Condensed **Syntax**

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## Others

### Scripts

*Arid Shelley Volante Legacy*

**Cascade** Linoscript Zapf Chancery

### Decorative

Party Potrzebie **Improv**

Pious Henry **JUNIPER** Juice

**FAJITA** SCARLETT

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# Properties

## Size

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### Units

#### Points (pt)

Traditional: 72pt = 0.996in (0.013837in)

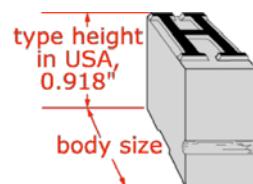
Adobe: 72pt = 1in

#### Picas (pc)

12 pt = 1 pc

#### Em (ps × ps)

#### En (M/2)



### Standard sizes and names

<http://www.sizes.com/tools/type.htm>

## Styles

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Roman

*Italic*

*Oblique*

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## Weights

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Light

Regular

Semibold

**Bold**

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**Stretch**

---

**Condensed**

**Regular**

**Expanded**

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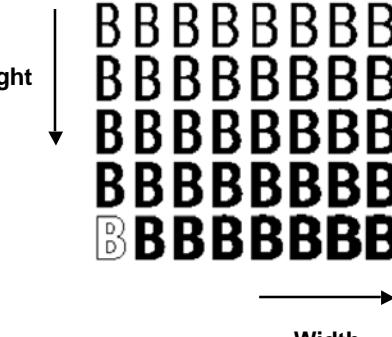
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## **Adobe Multiple Master Fonts**

---

**Myriad MM**

B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B  
B B B B B B B B B B B B B



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## Font Metrics

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The diagram illustrates the vertical structure of the word "Handy Camper". It features four horizontal red lines: the top line is labeled "CapHeight (H)", the second line from the top is labeled "X-Height (x)", the third line is labeled "Ascender (d)", and the bottom line is labeled "Descender (p)". The letters "H" and "a" in "Handy" extend above the X-Height line up to the Ascender line. The letters "c", "a", and "p" in "Camper" extend below the X-Height line down to the Descender line.

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

Font size ~ Ascender + Descender

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## Different x-heights

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The diagram compares two words, "Times" and "Caslon", side-by-side. Both words are written in a serif font style. The word "Times" has a higher x-height than the word "Caslon". The x-height is indicated by a horizontal red line that passes through the middle of the lowercase letters in both words.

Times      Caslon

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# 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. Expanding this distance creates a text block with a lighter, more open color. As line spacing increases further, the lines of type become independent linear elements rather than parts of an overall texture.

10/10 SCALA  
10-PX TYPE WITH  
10 PX LINE SPACING

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

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. Expanding this distance creates a text block with a lighter, more open color. As line spacing increases further, the lines of type become independent linear elements rather than parts of an overall texture.

10/12 SCALA  
AUTO SPACING, 10-PX TYPE  
WITH 12 PX LINE SPACING

*In most page layout programs, the default line spacing (leading) is 120%, or slightly greater than the cap height.*

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. Expanding this distance creates a text block with a lighter, more open color. As line spacing increases further, the lines of type become independent linear elements rather than parts of an overall texture.

10/14 SCALA  
10-PX TYPE WITH  
14 PX LINE SPACING

*This column is set with wider line spacing (leading) than the standard default.*

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. Expanding this distance creates a text block with a lighter, more open color. As line spacing increases further, the lines of type become independent linear elements rather than parts of an overall texture.

10/16 SCALA  
10-PX TYPE WITH  
16 PX LINE SPACING

*As the spacing becomes more extreme, the block of text begins to read as separate lines rather than a shade of gray.*

[http://papress.com/thinkingwithtype/text/line\\_spacing.htm](http://papress.com/thinkingwithtype/text/line_spacing.htm)

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# Kerning

HAWAII

HAWAII

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# Ligatures

## 5 classic ligatures

ff fi fl ffi ffl  
ff fi fl ffi ffl

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# Combining Marks

<b>á</b>	<b>à</b>	<b>ã</b>	<b>ā</b>	<b>ă</b>	<b>â</b>
acute	grave	tilde	macron	breve	cicumflex

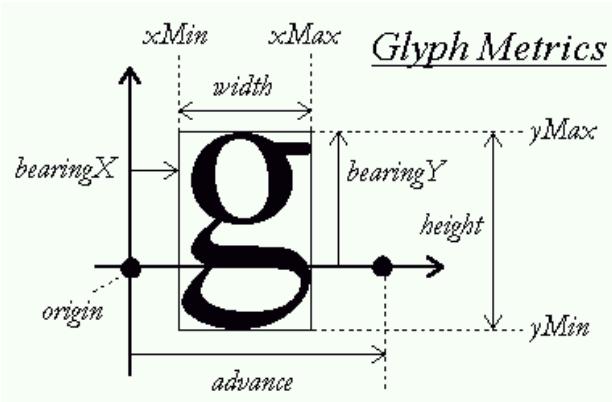
á á å á á  
overdot diaresis ring double caron  
umlaut acute

**a**      **ą**  
cedilla      ogonek

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## Glyph Metrics



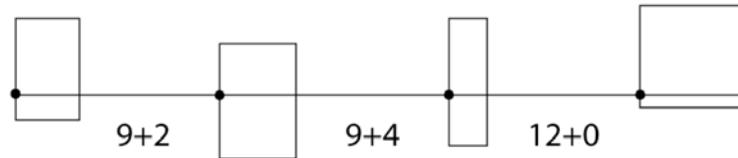
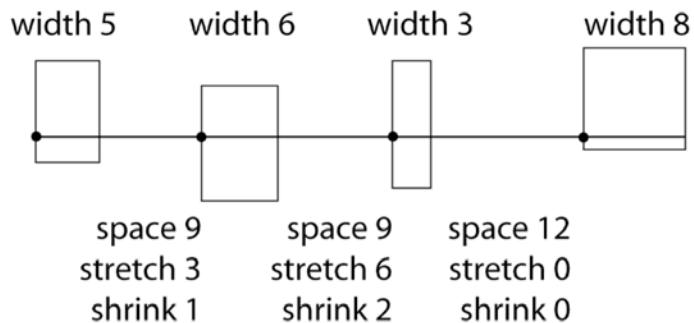
### Freetype Glyph Metrics

<http://freetype.sourceforge.net/freetype2/docs/glyphs/glyphs-3.html>

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## Box and Glue Model (Knuth)



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## Unicode [unicode.org]

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“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/>
- 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" ?>`

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## OpenType [Adobe, Apple, Microsoft]

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Encoding

Character map: encoding -> glyph

Glyphs

Glyph metrics

May contain multiple character maps

May contain multiple fonts

May also contain bitmap and outline fonts

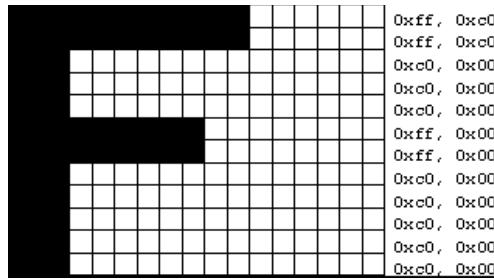
Freetype.org is an open source implementation

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## Representing Bitmaps

```
GLubyte rasters[24] = {  
    0xc0, 0x00,  
    0xc0, 0x00,  
    0xc0, 0x00,  
    0xc0, 0x00,  
    0xc0, 0x00,  
    0xc0, 0x00,  
    0xff, 0x00,  
    0xff, 0x00,  
    0xc0, 0x00  
};  
  
Note: Rows have 1 byte alignment  
  
glPixelStore(GL_UNPACK_ALIGNMENT,1)
```



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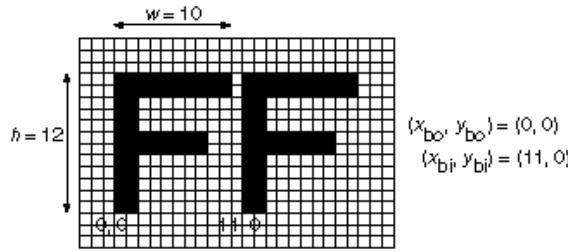
## Drawing Bitmaps

### Syntax

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

### Example:

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

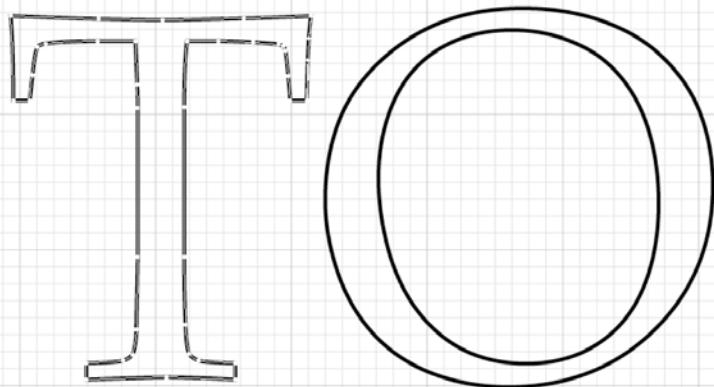


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## Glyph Outlines

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