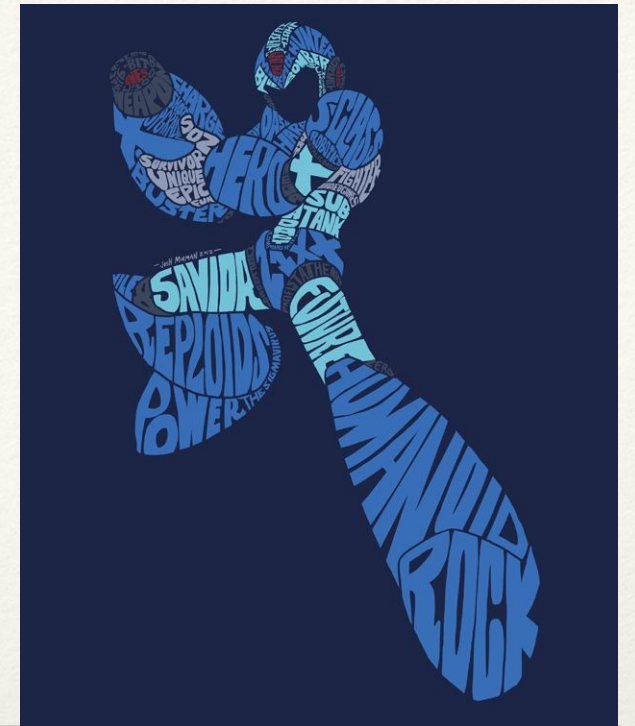


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Typography and Fonts

Elements of Graphics
CS324e

What is Typography?

- ❖ Visual composition of words
- ❖ Reinforcement of word meaning via appearance
- ❖ Design and aesthetics of written word
- ❖ More than just fonts

Glyphs

- ❖ Characters available in a given typeface
 - ❖ Note that a font is a specific form of a typeface family (e.g. Helvetica Regular and Helvetica Italic)
- ❖ Glyphs change based on the language the font depicts
- ❖ Also includes numbers and special characters

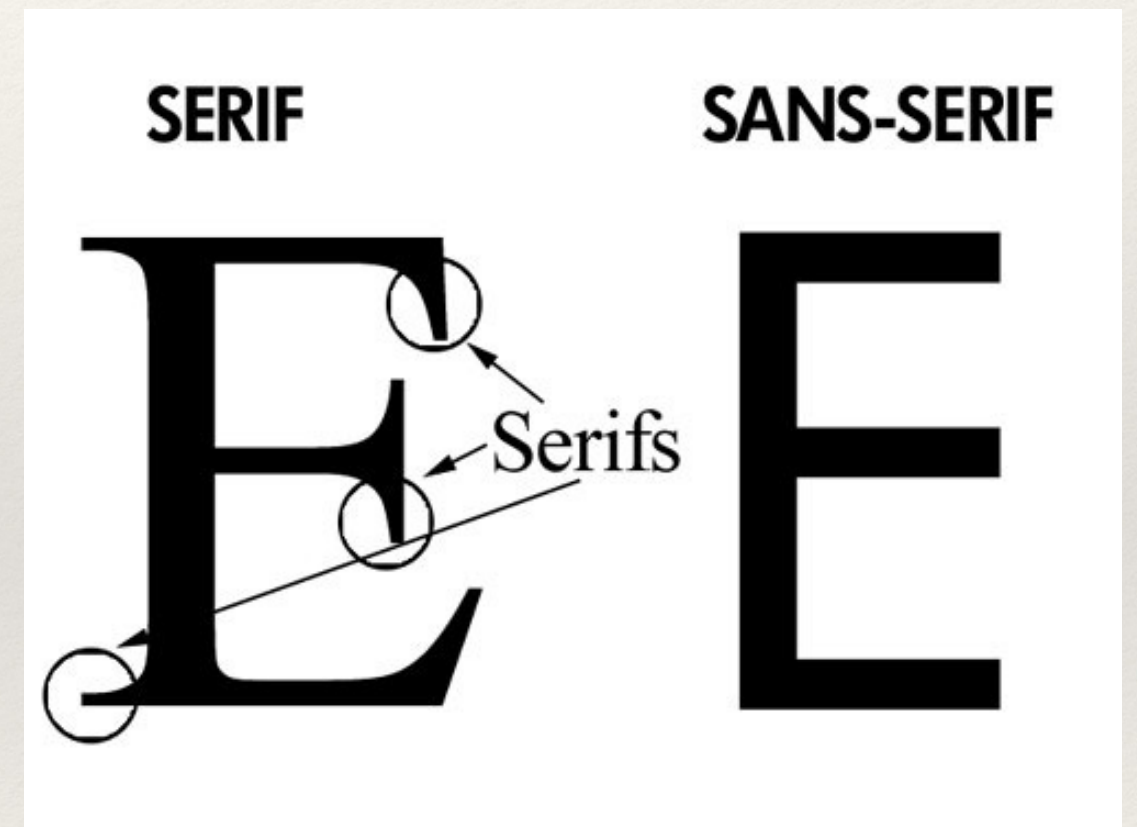
Serif vs Sans-Serif

- ❖ Serif

- ❖ Short finishing lines at the end of characters
- ❖ More readable in print
- ❖ Causes less eye strain for large bodies of text

- ❖ Sans-serif

- ❖ Lack finishing lines
- ❖ More readable on computer screens
- ❖ Adds emphasis
- ❖ More recognizable



(Kensington Design)

Kerning and Tracking

- ❖ Kerning is the adjustment of space between characters
- ❖ Kerning pairs allow for better spacing between specific characters
- ❖ Tracking is the adjustment of space between groups of characters



The image displays three instances of the word "WAR" in a bold, black, serif font, stacked vertically. The top instance shows the word with standard kerning. The middle instance shows the word with increased kerning, resulting in wider spacing between the letters. The bottom instance shows the word with decreased kerning, resulting in tighter spacing between the letters.

Three kerning distances (Wikipedia)

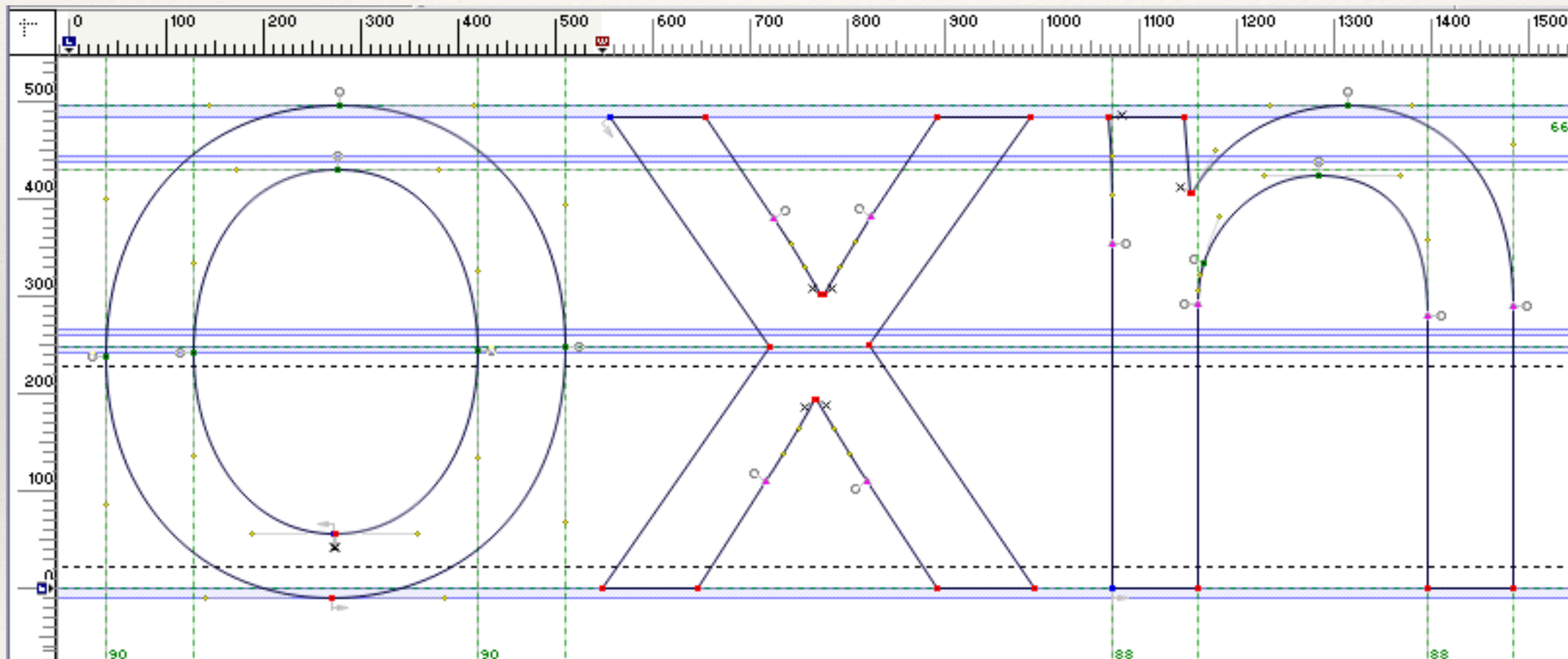
Alignment

- ❖ Align left used for left-to-right languages
- ❖ Align right used for right-to-left languages
- ❖ Justified aligns the ends of the text
 - ❖ Avoids paragraph rag
 - ❖ Can create spacing issues
- ❖ Centered aligns the text to the middle of the column
 - ❖ Useful for emphasizing titles
 - ❖ Hard to read, so otherwise avoid

Vector Fonts

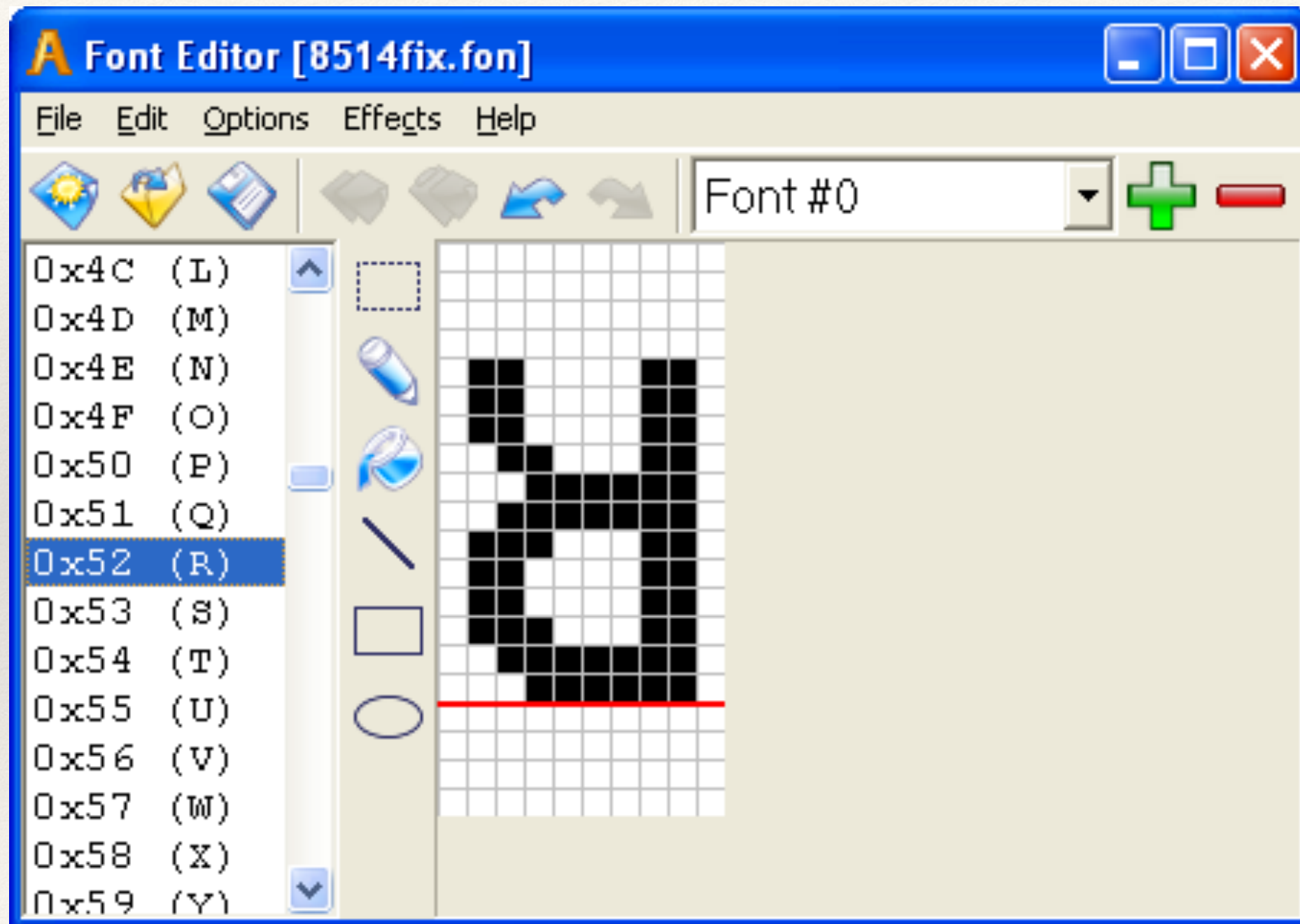
- ❖ Vector fonts are fonts made using vectors rather than bitmaps
- ❖ Vectors mathematically defined allowing for scaling
- ❖ TrueType (.ttf) is older font standard
- ❖ OpenType (.otf) is newer font standard with more glyphs and features
- ❖ Both are usable in Processing

Vector Font Example



(https://blog.typekit.com/2005/12/13/quality_in_type/)

Bitmap Font Example



(<http://www.sibcode.com/font-editor/>)

Question

- ❖ Which of these is vector and which is bitmap?

Text

Text

(a)

Text

Text

(b)

Initializing Fonts

- ❖ Display all available fonts on a machine:

```
String[] fontlist = PFont.list();  
printArray(fontlist);
```

- ❖ `createFont()` converts PFont to desired font
- ❖ `textFont()` sets the PFont as the text font type

Drawing Text in Processing

```
PFont courier;

void setup() {
  size(100, 100);
  courier = createFont("Courier", 32);
  textFont(courier);
}

void draw() {
  text("Hello", 0, 32);
}
```

Activity

- ❖ Run this code (or modify to include a font that you have)
- ❖ Make sure the text is actually displaying in the correct font (Processing is not the best tool for handling fonts!)

Text Attributes

- ❖ `textLeading()` sets spacing between lines of text
- ❖ `textAlign()` sets alignment based on parameters `LEFT`, `CENTER` and `RIGHT`
- ❖ `textSize()` sets text size
- ❖ `textWidth()` returns width of character or String

Hands-on: Displaying Text

❖ Today's activities:

1. Write some text to the sketch's screen then experiment with font-type, text size, spacing, etc
2. Once you are happy with the text's appearance, create a "typewriter" that will display characters to the screen as the user types
3. Bonus: add additional features (such as delete, carriage return, etc) if time is available