Typography and Fonts

Elements of Graphics
CS324e
Fall 2020
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

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

(Bitmap Font Editor Image)

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

❖ Which of these is vector and which is bitmap?
Display all available fonts on a machine:

```java
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
Instapoll Question: Vectors vs Bitmaps

- Vector fonts have the following advantage over bitmap fonts:
  - More portable
  - Usable in Processing
  - Mathematically scalable
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