STANFORD HCI GROUP

Video Prototyping in HCI

CS147 Tutorial
10/22/09
Abel Allison

Outline

- Why prototype?
- Tools & Techniques
- Demo – iMovie

What is a video prototype?

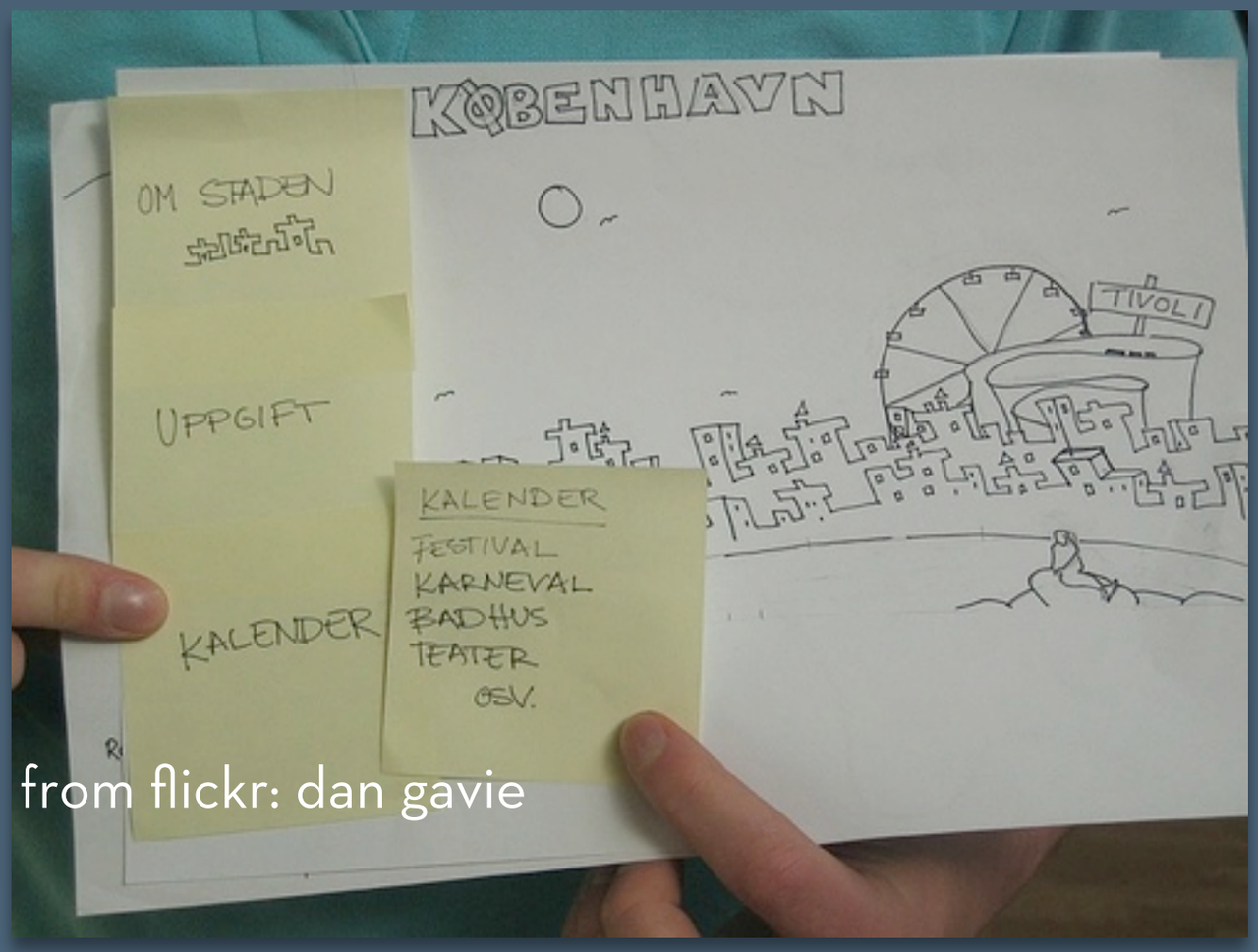
- shows your
- System
- in
- Context

Big budget not required

- (Show Lisa Seeman video)

System

- A paper prototype



from flickr: dan gavie

System

- A paper prototype
- A physical prototype

System

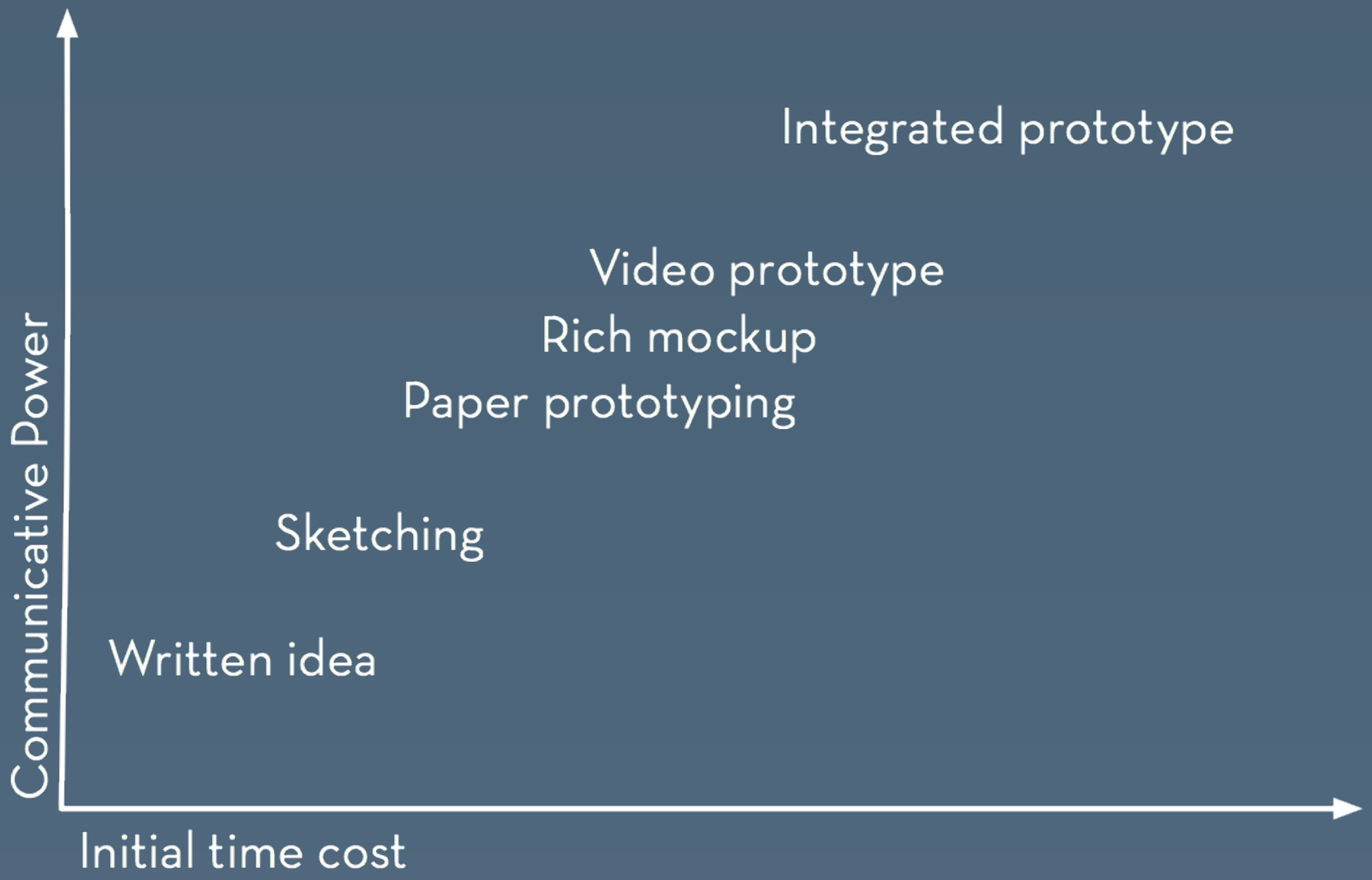
- A paper prototype
- A physical prototype
- An on-screen mockup

from flickr: jcraveiro

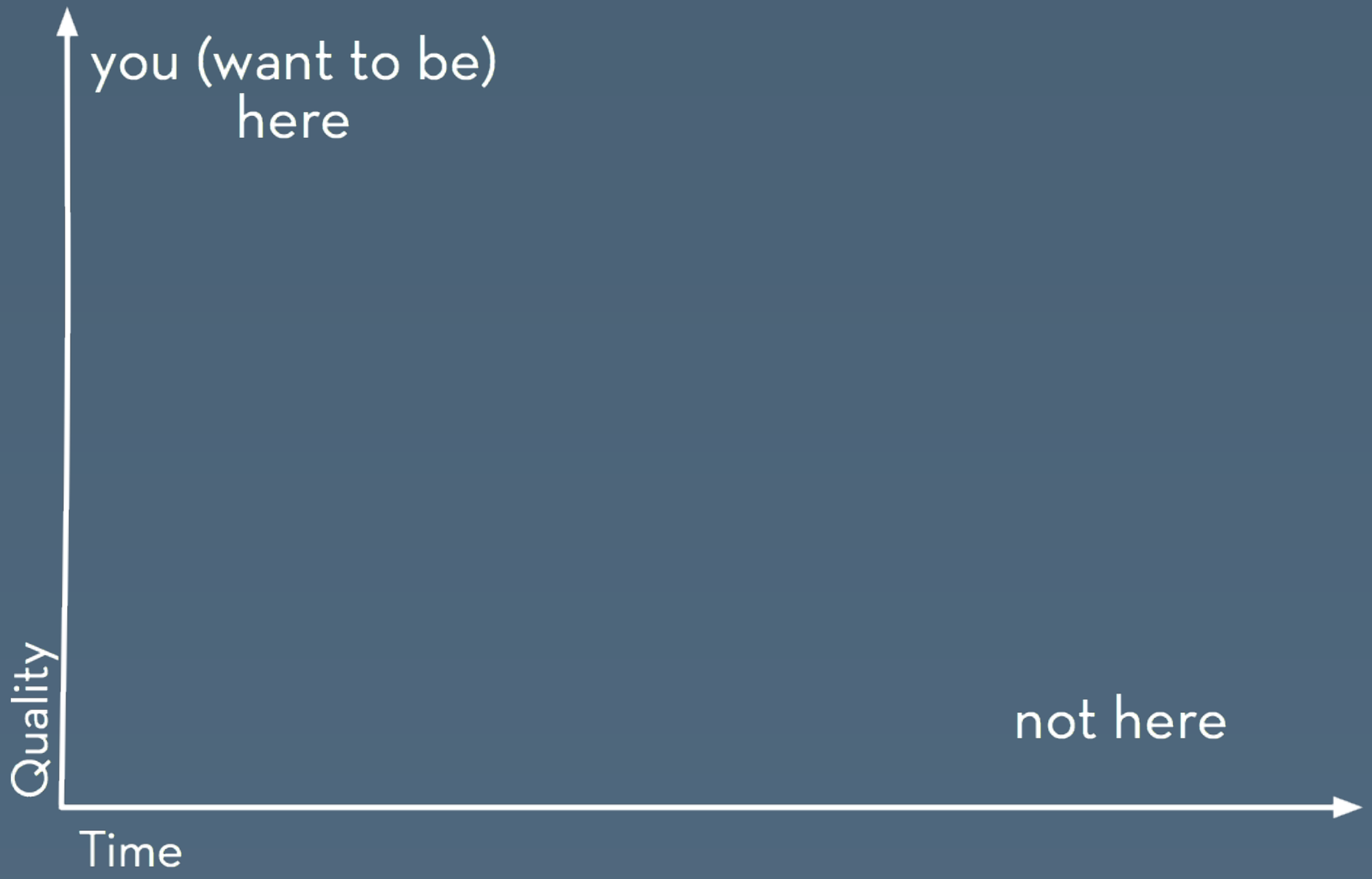
Context

- Who (is the user)?
- What (are they doing)?
- When (in their day does this fit in?)
- Where (are they sitting/standing/working/playing)?
- How (is your system helping them with their task)?

Tradeoffs


Communicative Power
Initial time cost
Integrated prototype
Video prototype
Rich mockup
Paper prototyping
Sketching
Written idea

In other words...



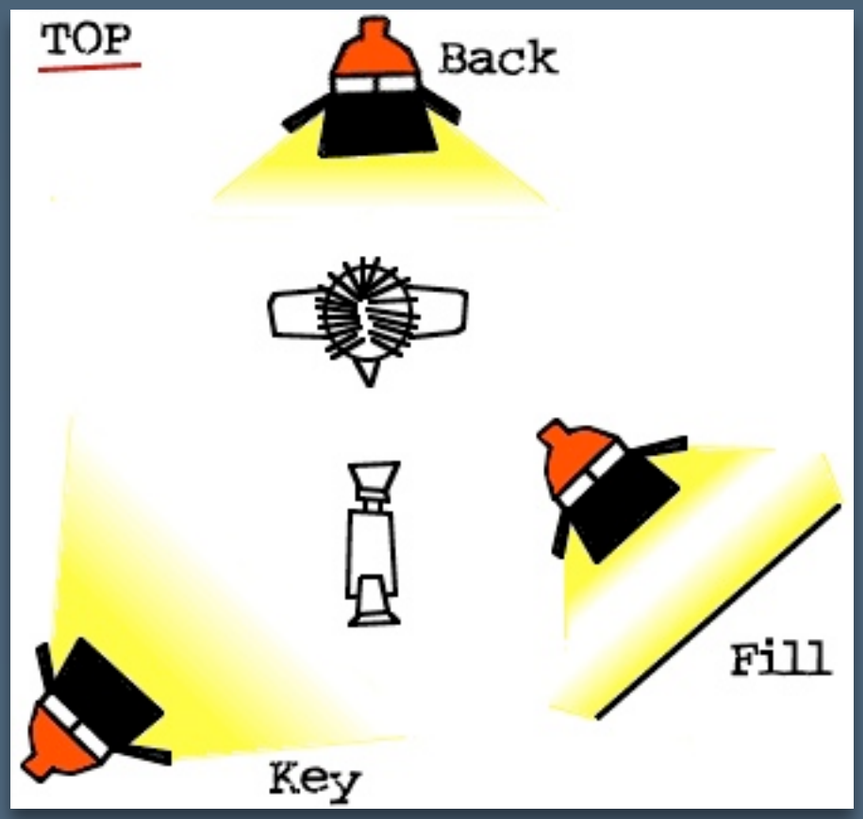
But...

- You should budget ~1 hour per minute of video
- It's easy to fiddle for a long time

Some Tips

How to light

- from http://www.exposure.co.uk/eejit/light/



How to light

- Fill lighting
  - Bounce off a surface (softens shadows)
- Key lighting
  - Main light, shine at angle on subject
- Back lighting
  - Optional, especially for video prototypes (helps separate from background)

Short version for you

- Light more than you think you need
- Use a room lamp to either shine on subject, or bounce off a white surface to help fill in shadows

Audio

- If possible, use an external microphone
  - Avoid tape noise!
  - Get closer to your subject
- Audio is make-or-break for communicative power

Which software? (Mac)

- iMovie ’06
  - Doesn’t support some newer video formats
  - Has some initial learning cost
  - But is really easy and relatively powerful
  - Just one video track + some overlays
- iMovie ’08
  - Slicker, but lacks some basic features
  - Better video format support
- Final Cut Express
  - Very powerful, non-linear, multi-track editing
  - Not easy to jump into

Which software? (Windows)

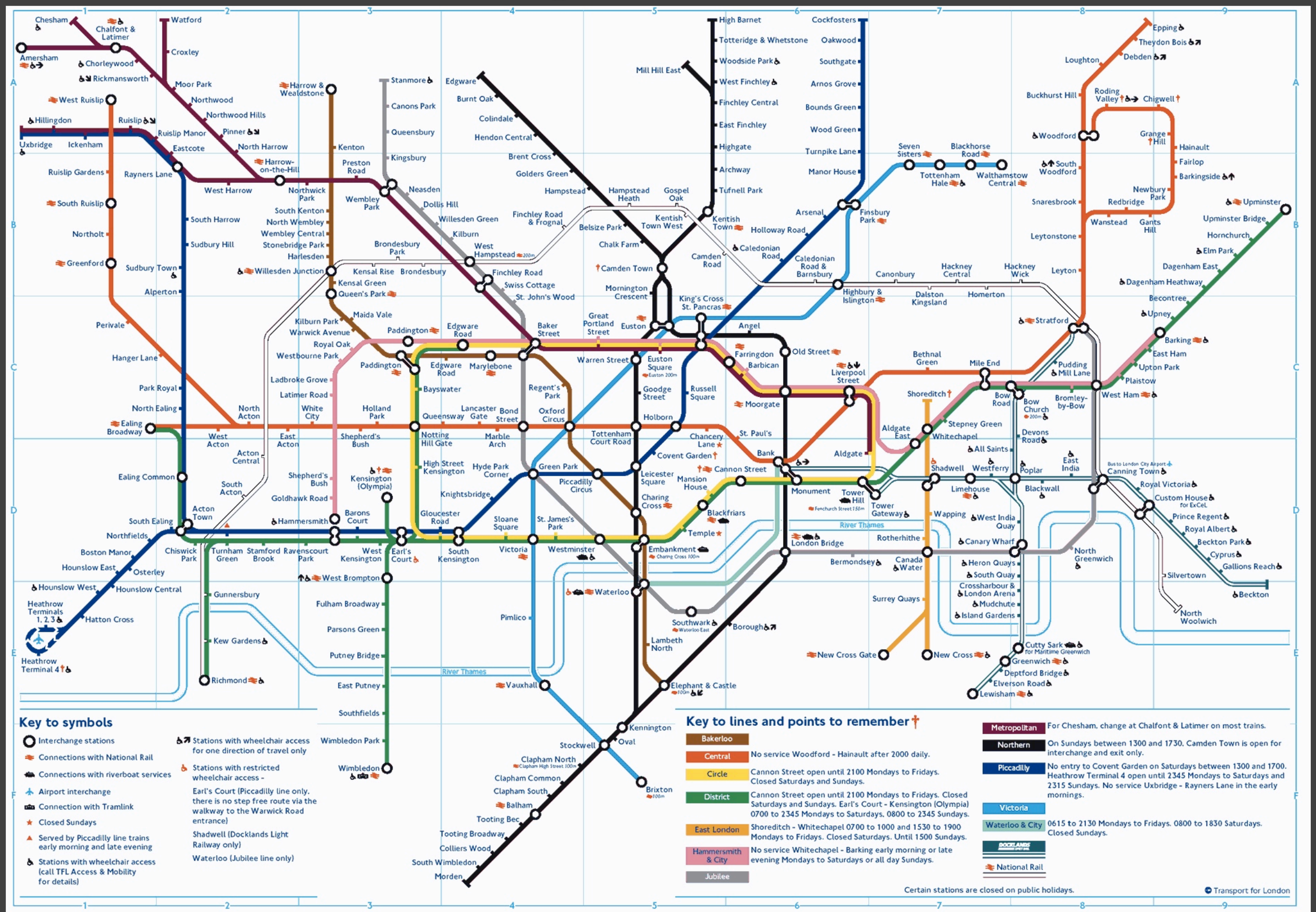
- Short answer — I'm not as familiar
- Windows Movie Maker
  - Highly frustrating (but reportedly better in latest version)
- Adobe Premiere Pro
  - Powerful, but again, learning curve

Information Design

Scott Klemmer

Autumn 2009

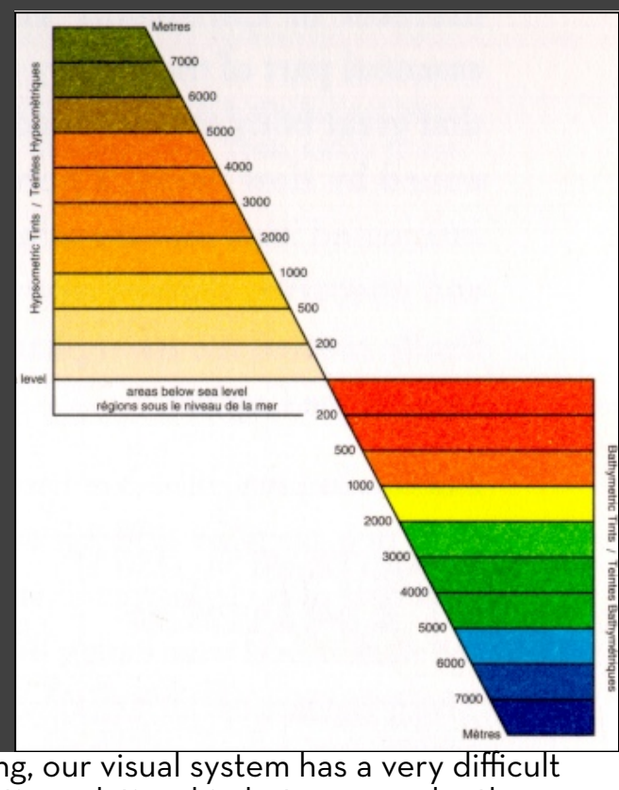
London Underground



Abstraction is key to design. This is one of the best examples. First subway map to notice that public transit map doesn't need to exactly follow the path that the trains/buses follow. What is important is the general direction & what are the stops. This makes is MUCH easier to read (you don't need to know all the little wiggles).

Color: Edward Tufte

IMAGE REMOVED



While it is certainly true that hues have a physical order via their wavelength, and that every kindergardner knows the rainbow ordering, our visual system has a very difficult time treating hue in an ordered way. As we see in this image, it is clear that each area is *different*, but none of the areas have an intuitive relationship between each other. Where is above ground? Where is below? What's the highest point? These questions are hard to answer. (Saturation as a cue is nearly impossible to handle.)

This is how most computer scientist would design a map.

This is supposed to convey height above sea level.

Color: Edward Tufte

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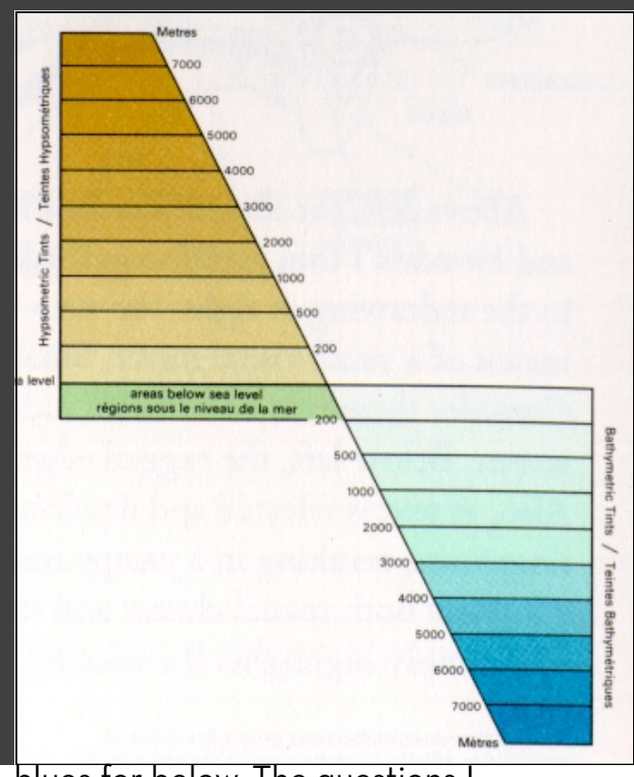
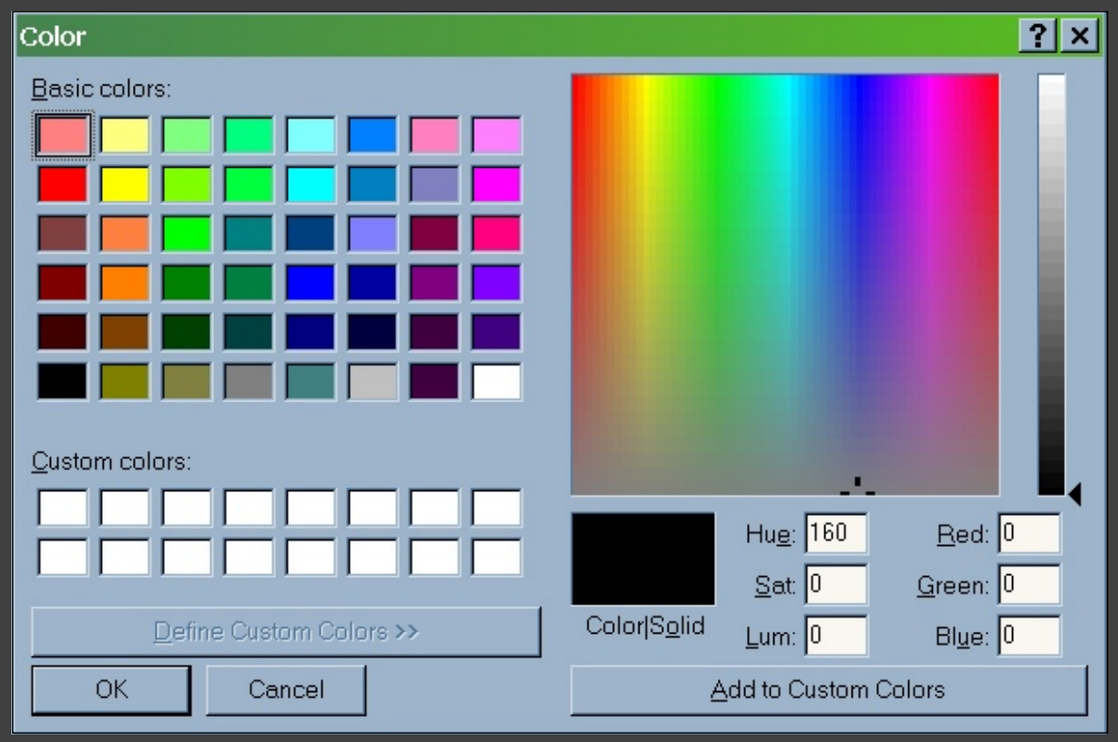


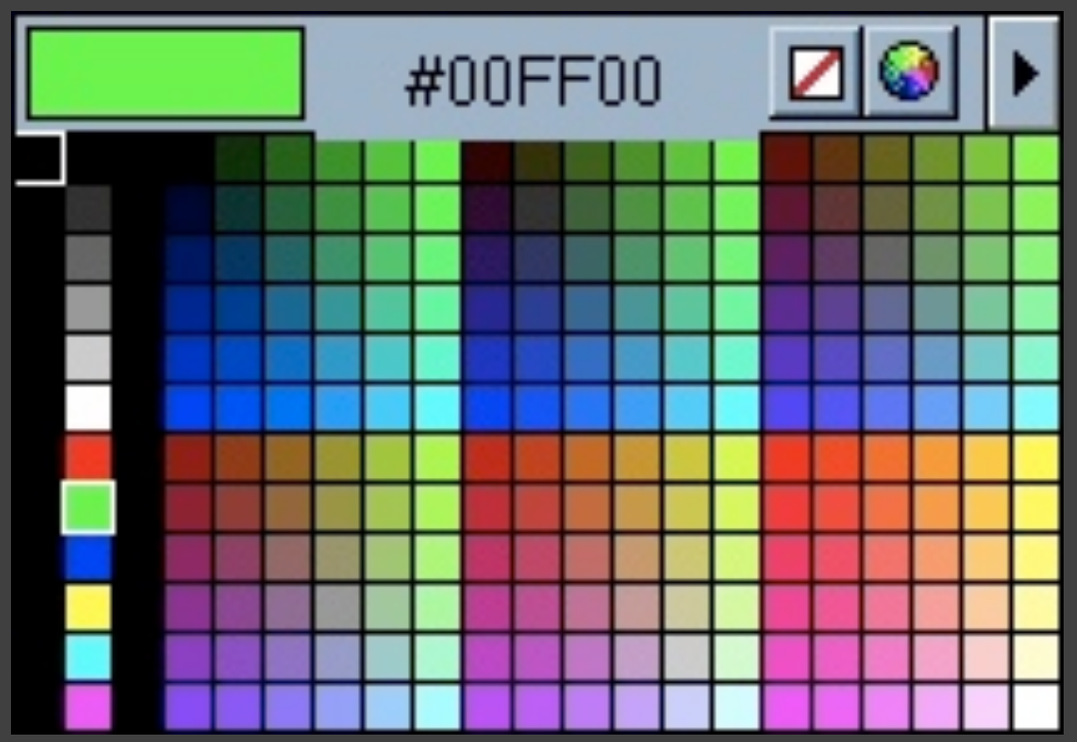
Color sets that vary primarily by luminance are much easier for us to order. This image uses two color sets: browns for above ground, blues for below. The questions I mentioned before are now much easier to answer. The much more muted colors also much easier to read the information.

Cartographers have been doing this for 2000 years.

The key is to know: under water or not under water? Then, how far for each case? I perception system can't use hue for how much! But, we can use intensity. As I go deeper, the color gets darker. Intensity is a great axis for presenting quantitative information.

Technology-Centered Colors

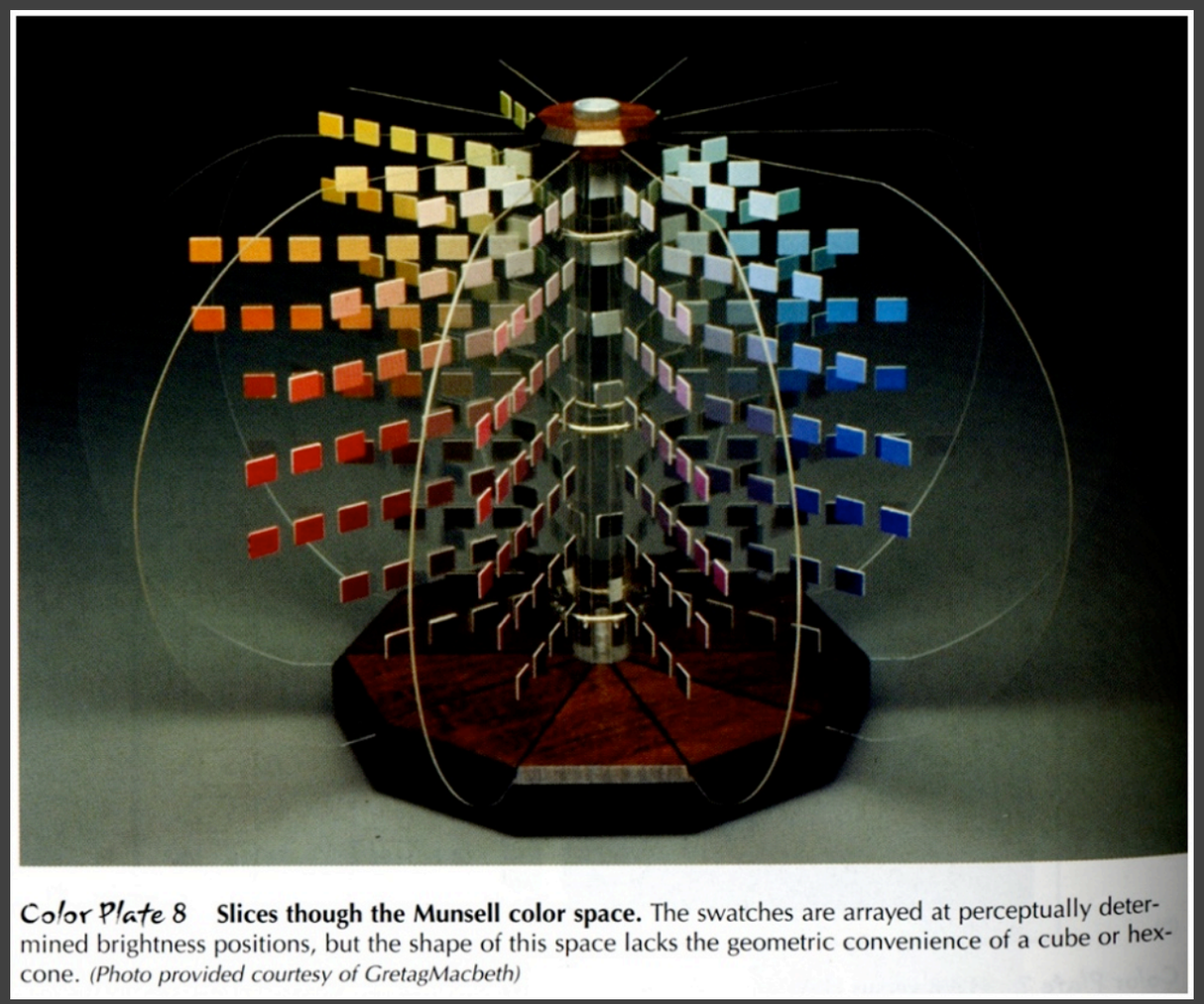




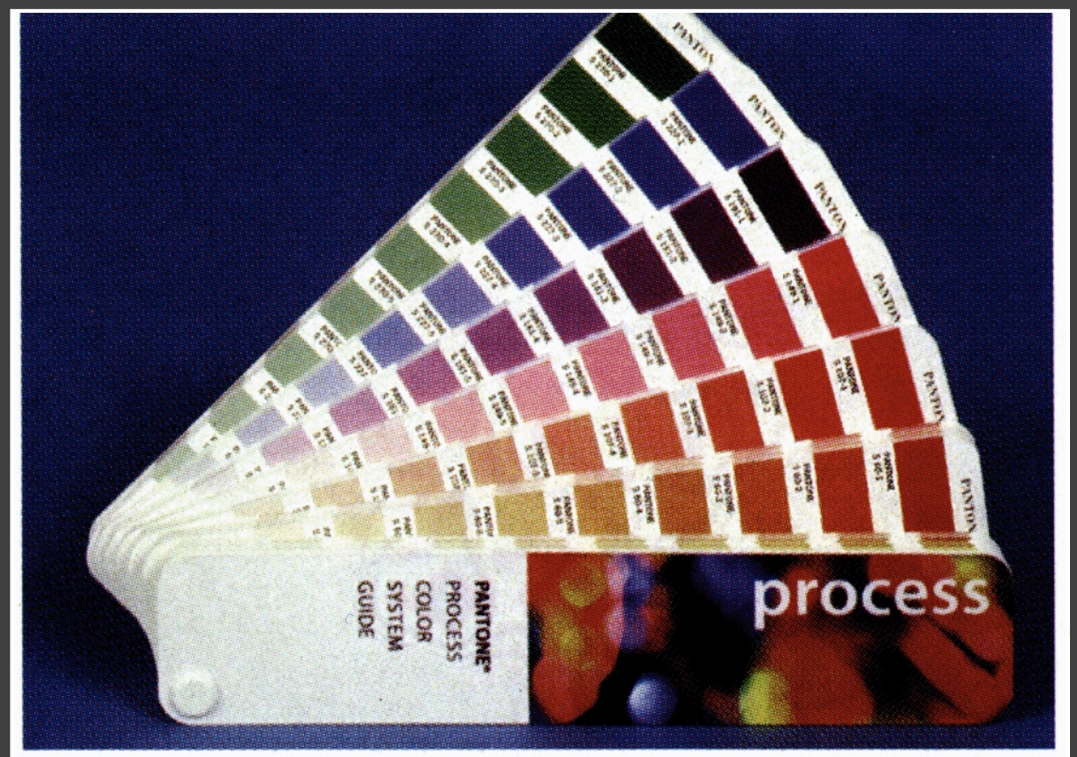
Use three sliders to pick colors with RGB, almost forces us to end up with bad colors. If you evenly space things in RGB, all of your colors are over-saturated.

Human-Centered Colors

- Munsell *(left)*: Perceptually based
- Pantone (right): Functionally based



Color Plate 8 Slices though the Munsell color space. The swatches are arrayed at perceptually determined brightness positions, but the shape of this space lacks the geometric convenience of a cube or hexcone. *(Photo provided courtesy of GretagMacbeth)*



Color Plate 3 Color-matching systems. Color naming and printed reference swatches ensure consistent color matching.

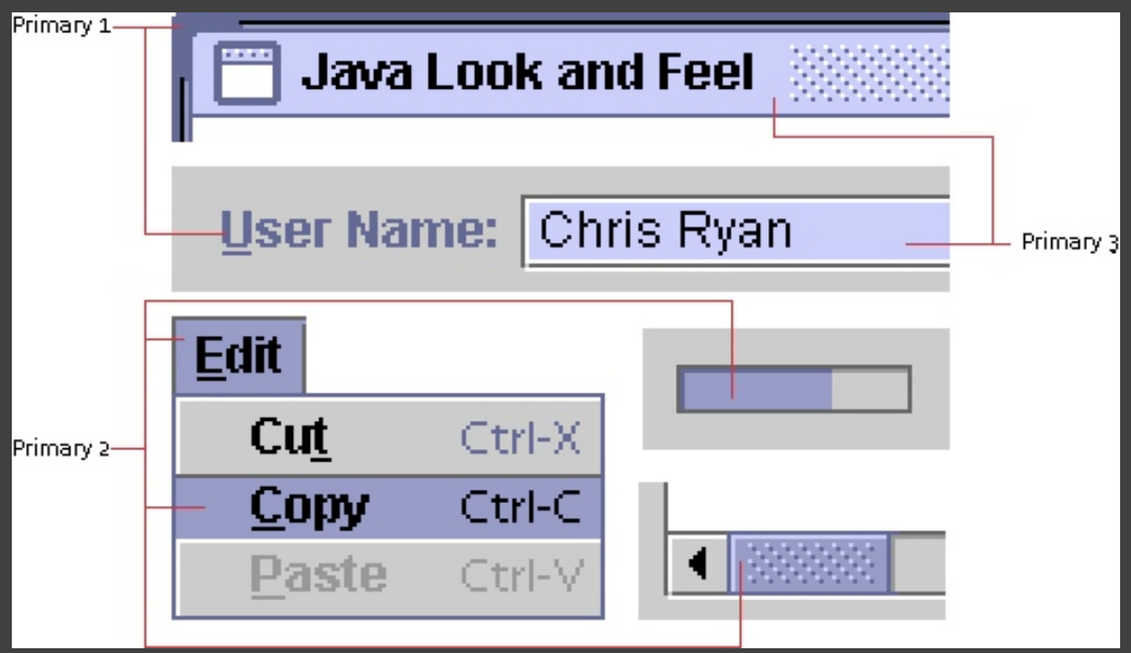
Anne Spalter, *The Computer in the Visual Arts*

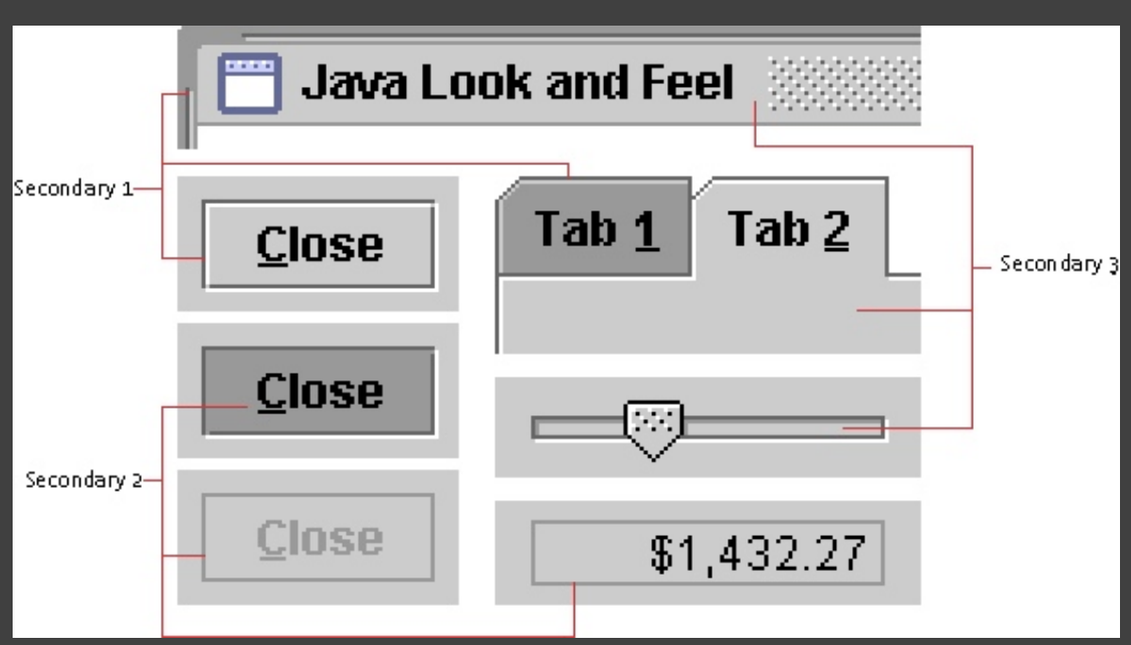
Munsell based on psychology experiments.

Pantone is especially useful for print design. They picked very reasonable colors.

Color (Java L&F)

- Six color semantic scheme
- Clean, consistent look
- Easy on eyes (mostly gray)





Same Java look & feel guidelines book

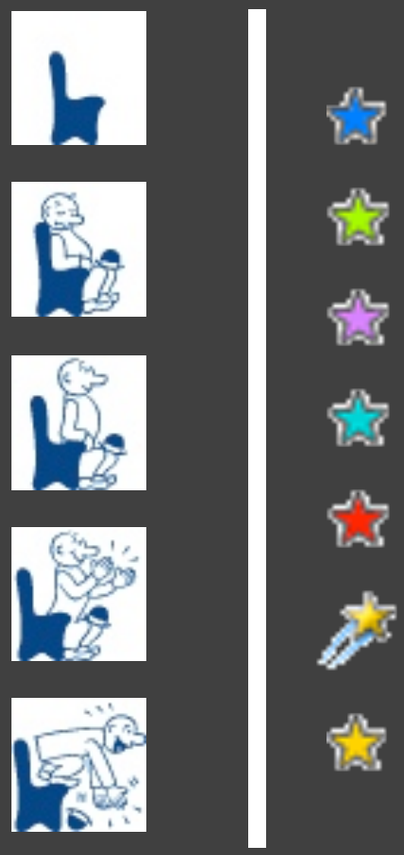
Everything in Java is from 6 colors

Primary colors are all purple and secondary colors are all gray.

When highlighted they have color when not highlighted they have gray.

How to get color right

- Design in grayscale first
- Keep luminance values from grayscale when moving to color



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'RESPIRO'

Drama. Starring Valeria Golino and Francesco Casisa. Directed by Emanuele Crialese. (PG-13. 90 minutes. In Italian and Sicilian with English subtitles. At Bay Area theaters.)

.

"Respiro" is partly of interest for what it doesn't do. It's set on an Italian island south of Sicily, but it doesn't try to imbue the setting with romance. It's about a sexy young wife and mother who doesn't fit in with her neighbors, but the movie is not an indictment of village provinciality. She may be the prettiest and liveliest person on her island, but she is also a bit crazy.

NEW FLICKS ROUNDUP

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Yep, dumb.

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"Manito"
Low-budget wonder.

"Respiro"
Haunting.

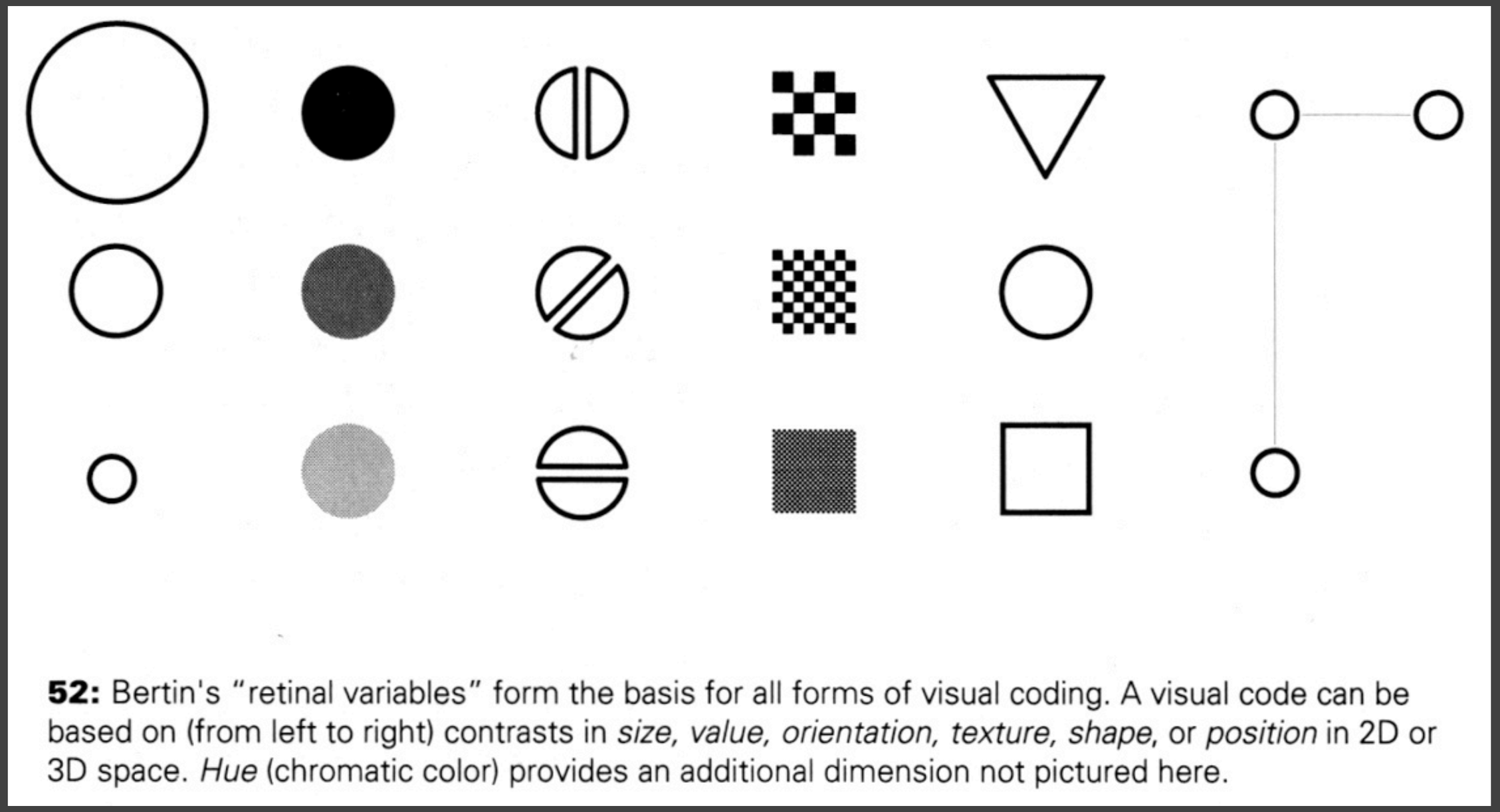
Set of Axis.

Chronicle film schema is cute, but can never remember how good this is. If you have the entire scale and they are ordered it makes sense.

E-bay's is even worse. Depending on how many items you have sold you get a different star. Can anybody tell me why the ordering? Totally random.

A more effective way is to have the entire scale with it partly filled in (3 stars filled in, 2 stars emptied). Stars superior to numbers since I can see this pre-attentively very quickly without having to read & think. If you gave me 1000 movie backgrounds, you could quickly see which ones were good.

Proportion and Scale



52: Bertin's "retinal variables" form the basis for all forms of visual coding. A visual code can be based on (from left to right) contrasts in *size, value, orientation, texture, shape*, or *position* in 2D or 3D space. *Hue* (chromatic color) provides an additional dimension not pictured here.

Kevin Mullet and Darrell Sano, *Designing Visual Interfaces*

Note that while size and other cues provide for quantitative comparison, color (even luminance) only provides for ordering.
If the goal is contrast along any of these axes, make it distinct!

Forms of visual coding. What can we notice very quickly:
size, intensity, orientation, texture, shape, position in space.

Take advantage of these variables to present information.