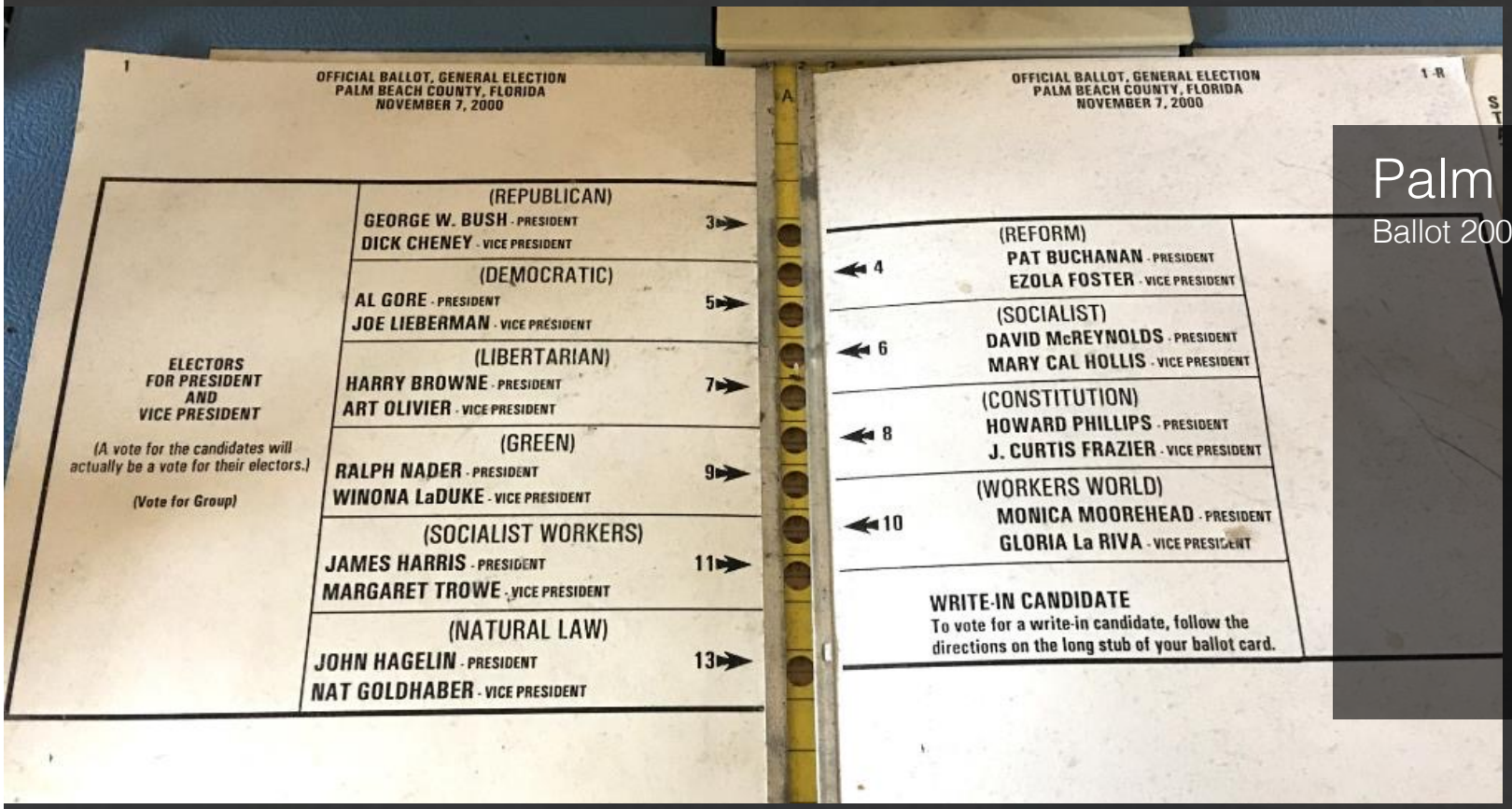
Visual Information Design

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2026
October 19, 2026

* Based on slides by Luke Vink, Scott Klemmer, and James Landay

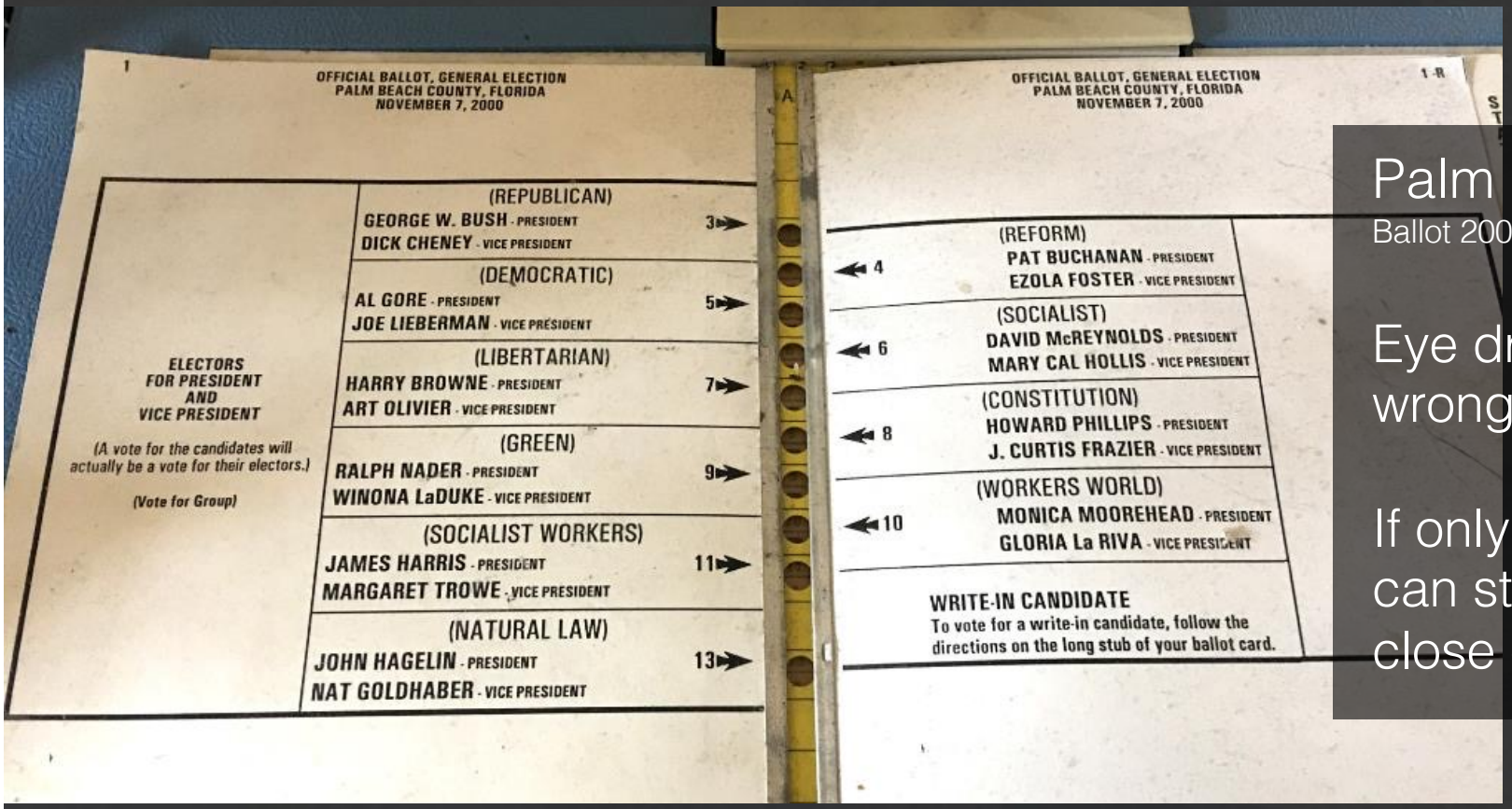
Hall of Fame or Shame?



Palm Beach, Florida

Ballot 2000

Hall of Shame!



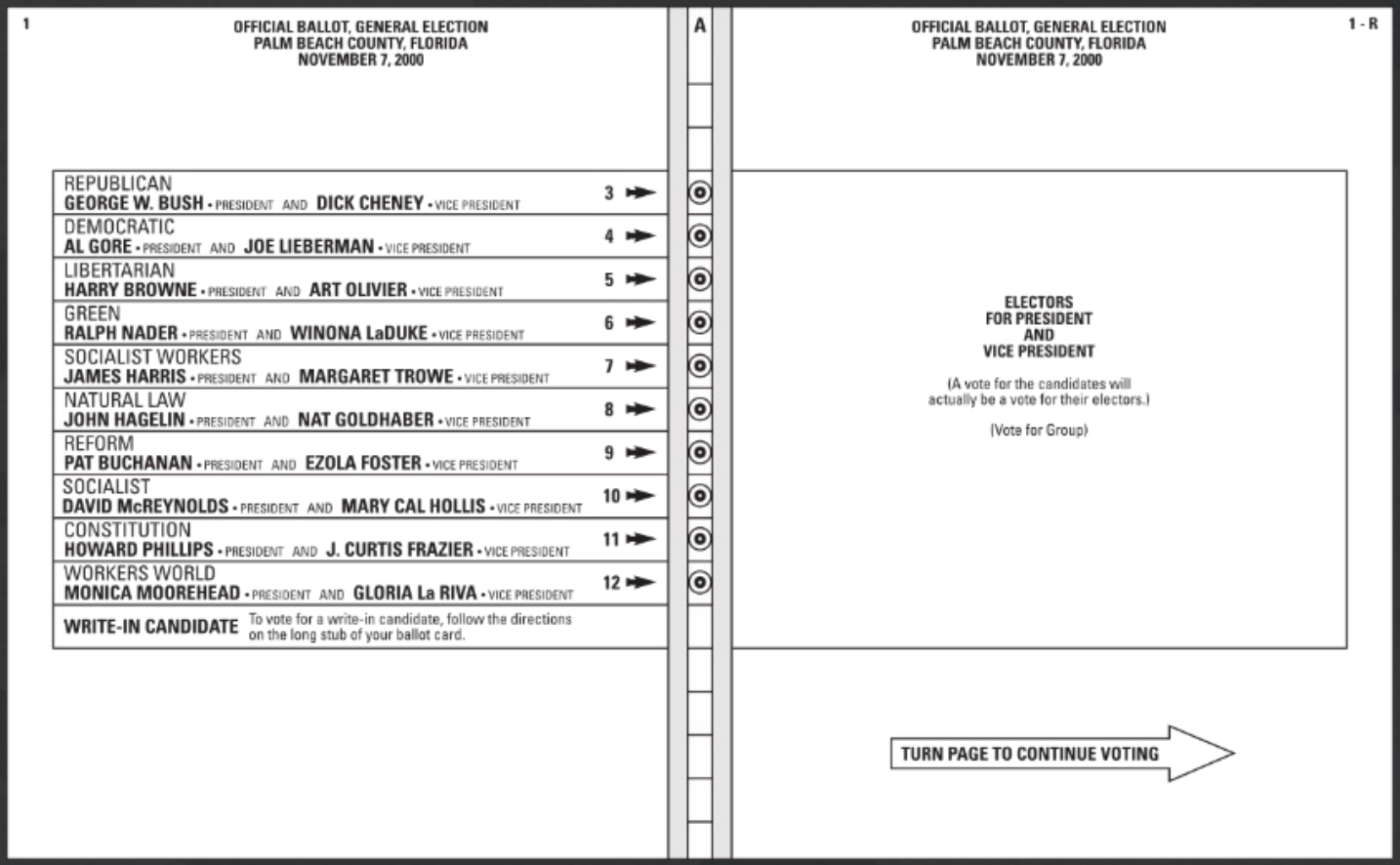
Palm Beach, Florida

Ballot 2000

Eye drawn to the wrong holes

If only 1% error rate, can still change a close election

One Possible Redesign



1

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

REPUBLICAN **GEORGE W. BUSH** • PRESIDENT AND **DICK CHENEY** • VICE PRESIDENT	3 ➡	◎
DEMOCRATIC **AL GORE** • PRESIDENT AND **JOE LIEBERMAN** • VICE PRESIDENT	4 ➡	◎
LIBERTARIAN **HARRY BROWNE** • PRESIDENT AND **ART OLIVIER** • VICE PRESIDENT	5 ➡	◎
GREEN **RALPH NADER** • PRESIDENT AND **WINONA LaDUKE** • VICE PRESIDENT	6 ➡	◎
SOCIALIST WORKERS **JAMES HARRIS** • PRESIDENT AND **MARGARET TROWE** • VICE PRESIDENT	7 ➡	◎
NATURAL LAW **JOHN HAGELIN** • PRESIDENT AND **NAT GOLDHABER** • VICE PRESIDENT	8 ➡	◎
REFORM **PAT BUCHANAN** • PRESIDENT AND **EZOLA FOSTER** • VICE PRESIDENT	9 ➡	◎
SOCIALIST **DAVID McREYNOLDS** • PRESIDENT AND **MARY CAL HOLLIS** • VICE PRESIDENT	10 ➡	◎
CONSTITUTION **HOWARD PHILLIPS** • PRESIDENT AND **J. CURTIS FRAZIER** • VICE PRESIDENT	11 ➡	◎
WORKERS WORLD **MONICA MOOREHEAD** • PRESIDENT AND **GLORIA La RIVA** • VICE PRESIDENT	12 ➡	◎
WRITE-IN CANDIDATE	To vote for a write-in candidate, follow the directions on the long stub of your ballot card.	

A

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

1 - R

**ELECTORS
FOR PRESIDENT
AND
VICE PRESIDENT**

(A vote for the candidates will actually be a vote for their electors.)

(Vote for Group)

TURN PAGE TO CONTINUE VOTING

William Lidwell, Kritina Holden, and Jill Butler *Universal Principles of Design*

Visual Information Design

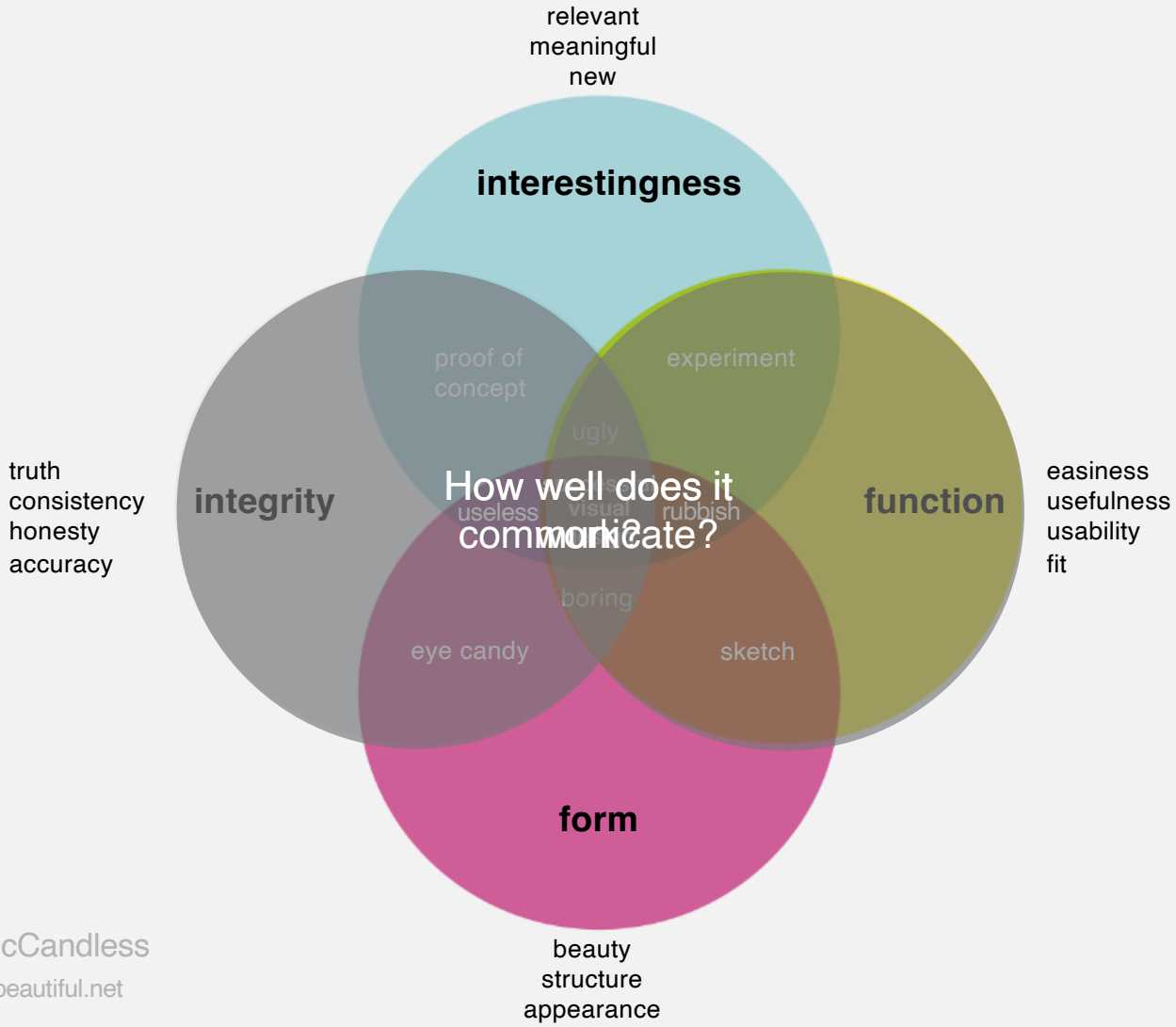
Prof. James A. Landay
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* Based on slides by Luke Vink, Scott Klemmer, and James Landay

Outline

- Good Form
  - visual hierarchy, layout, proximity, small multiples & space
  - typography, grids & icons
- Team Break
- Color
- Group mood board exercise
- “Interesting Design”



Based on David McCandless

http://www.informationisbeautiful.net

The Art of Balance

Promotion & demotion of important objects

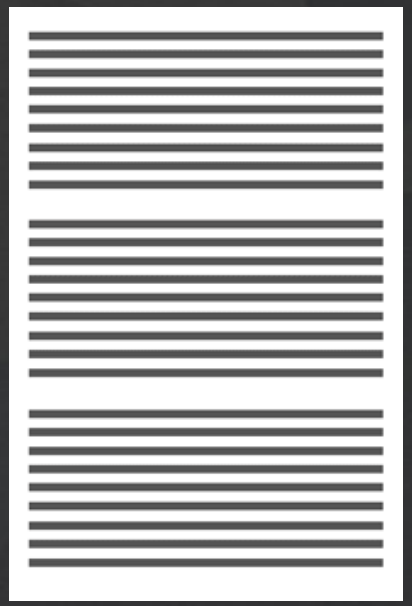
First Question for any design

- What are the most important things?

Information should be prioritized based on its importance to the user

Visual Hierarchy and Reading Order
First Read

Weak visual hierarchies provide little or no guidance on what is important.





Strong visual hierarchies guide visual & logical progression by showing what is important.

Strong visual hierarchies create a sense of order and balance


NETFLIX
Browse
Kids
DVD
Search
2
Jenny
NETFLIX ORIGINAL
KONG
KING OF THE APES
Watch Season 1 Now
He's the biggest hero the world has ever seen. But even Kong will need help to stop this army of high-tech beasts!
PLAY
+ MY LIST
Continue Watching for Jenny
EXPEDITION UNKNOWN
ANTHONY BOURDAIN PARTS UNKNOWN
NEW EPISODES
Parks and Recreation
MIDSOMER MURDERS
SLUGTERRA
THE MIND of a CHEF
NARRATED BY ANTHONY BOURDAIN

The First Read: Reading order pillars



1. size
2. color
3. layout
4. spacing
5. style

source: http://thenextweb.com/dd/2015/04/30/the-5-pillars-of-visual-hierarchy-in-web-design/#gref

Gestalt Psychology in Information Design

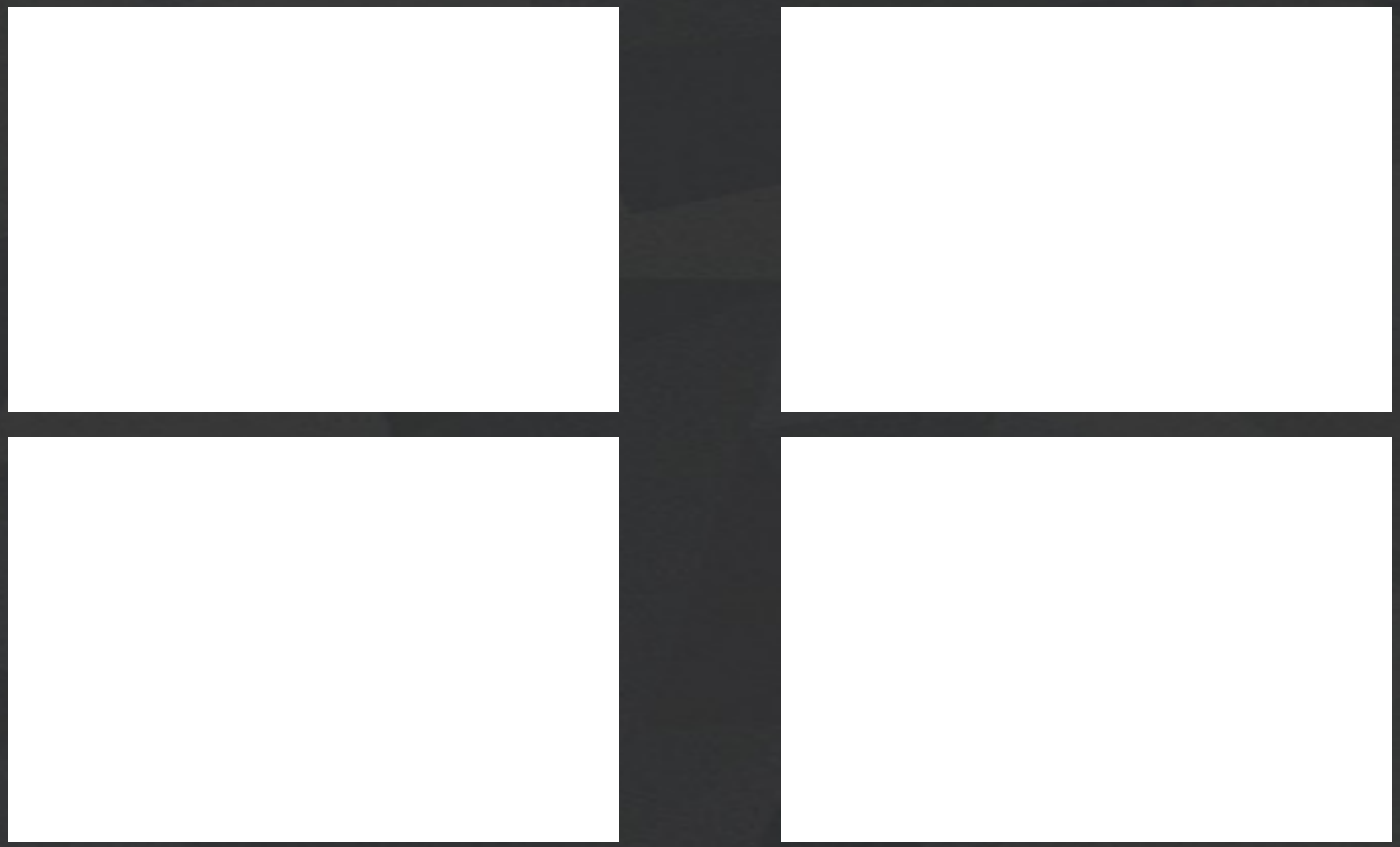
Using Proximity to Indicate Relationships

Information blocks should be grouped together if related, but unrelated elements should be located at some distance from each other.

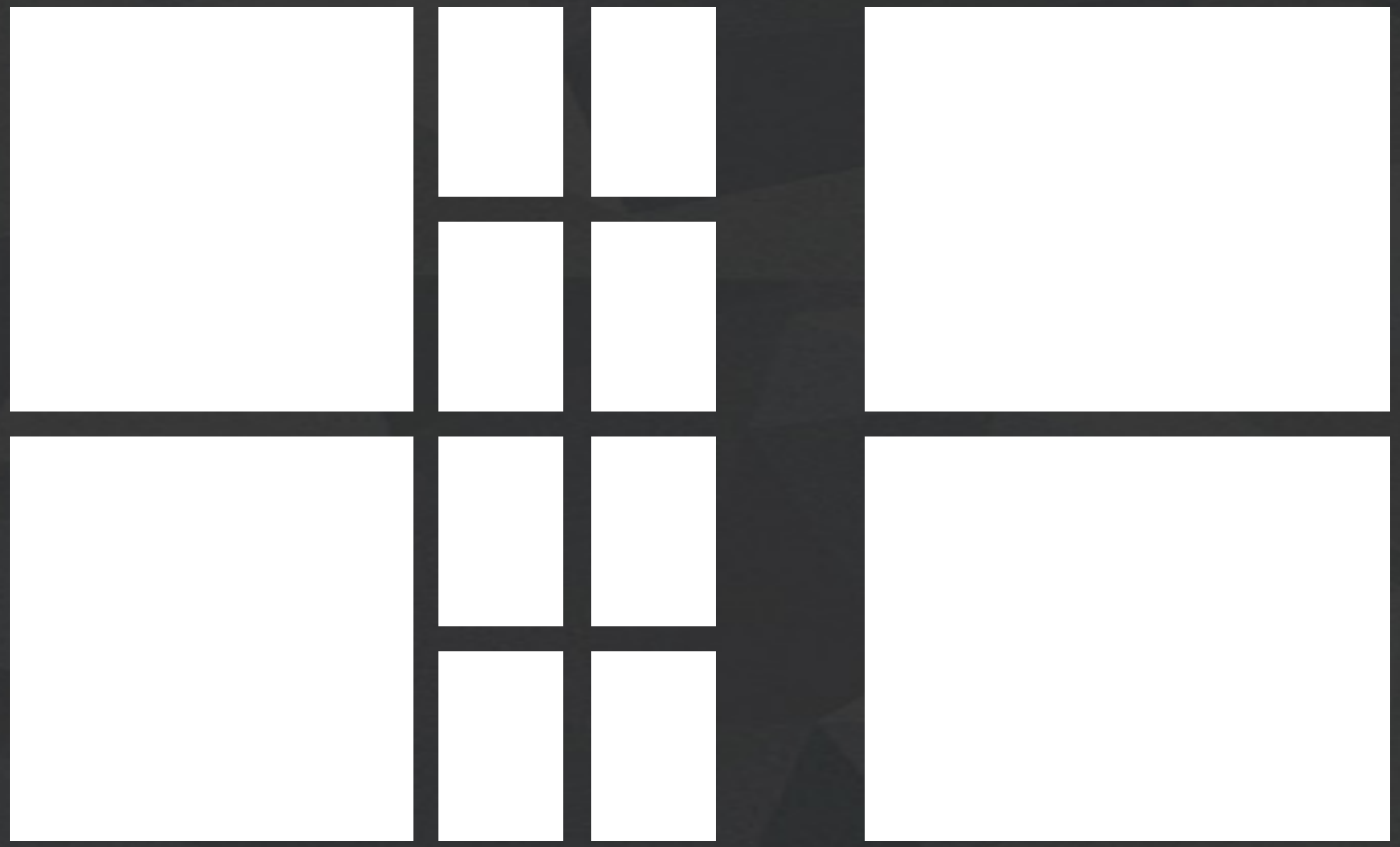
Using **Proximity** to Indicate Relationships



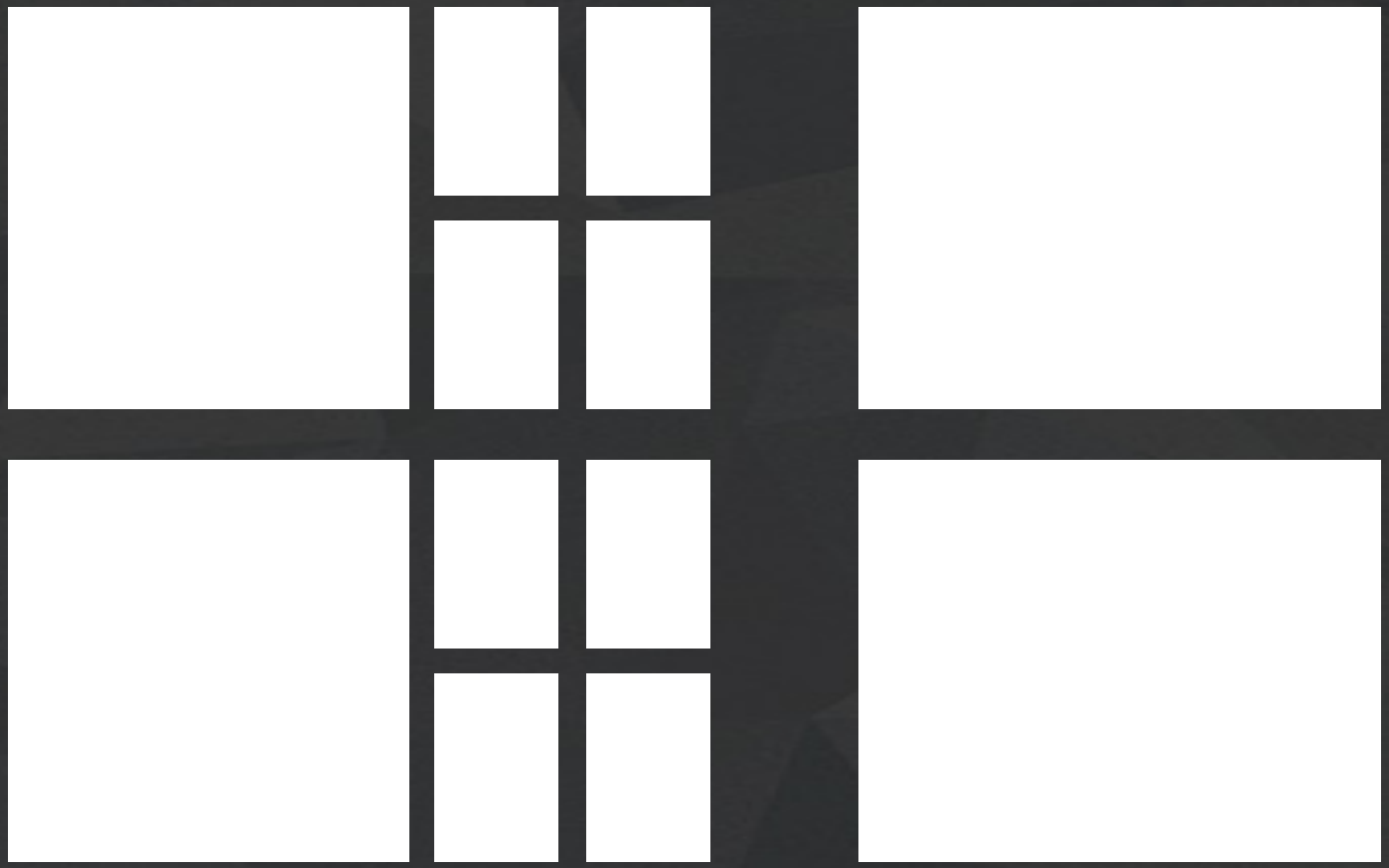
Using **Proximity** to Indicate Relationships



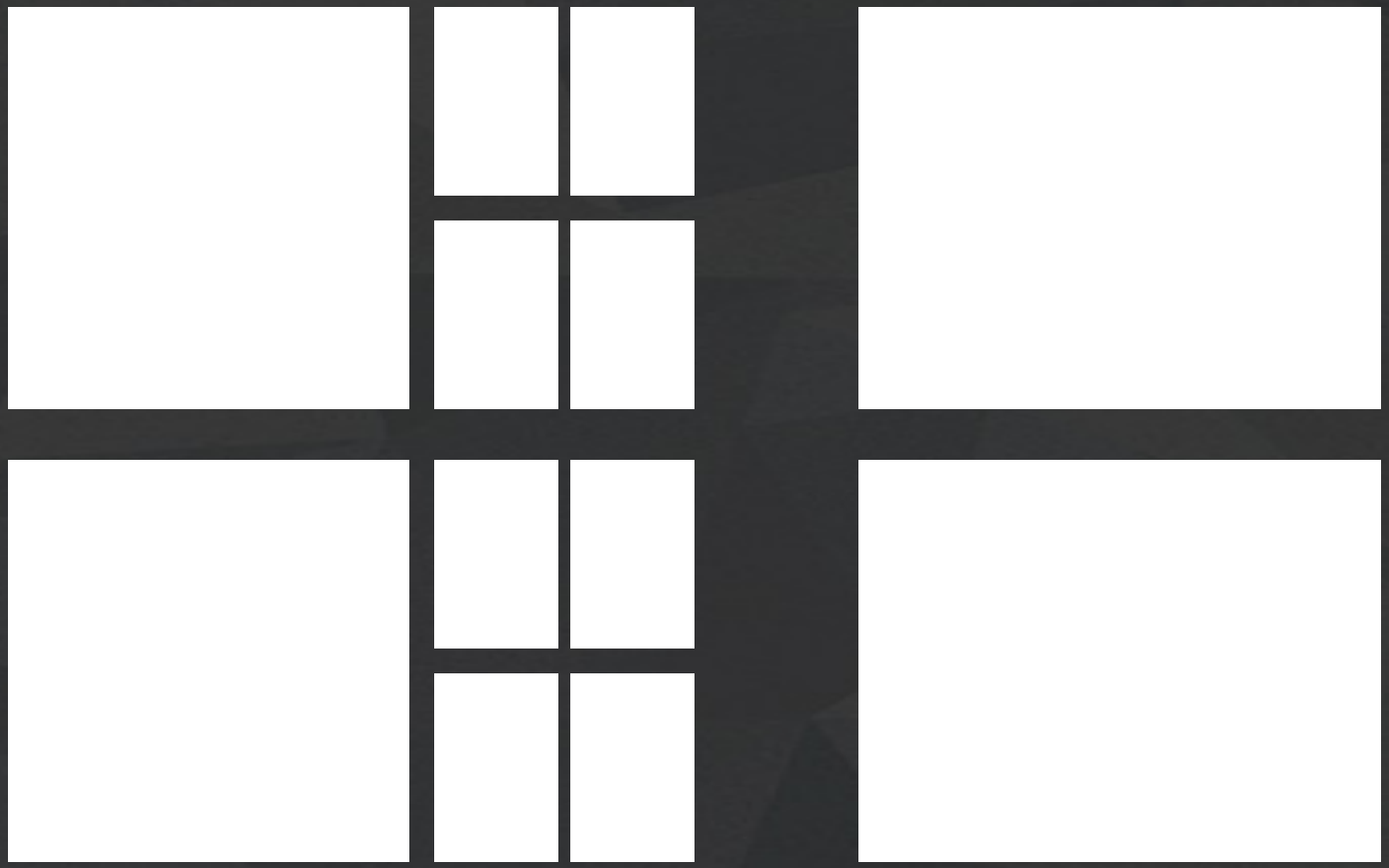
Using **Proximity** to Indicate Relationships



Using **Proximity** to Indicate Relationships



Using **Proximity** to Indicate Relationships



Using **Proximity** to Indicate Relationships



Only add color as a last resort

Only make things **different when** you are trying to call **attention** to the **difference**

Small Multiples

- Economy of line
- Similarities enable us to notice differences

IMAGE REMOVED DUE TO EDWARD TUFTE'S UNCLEAR UNDERSTANDING OF FAIR USE

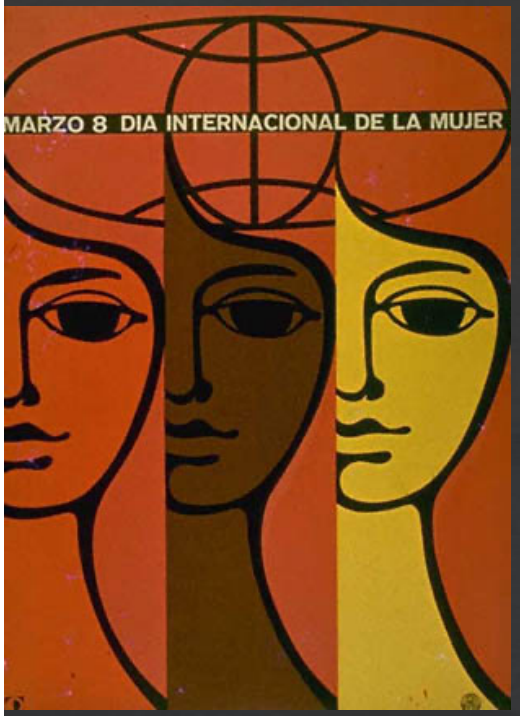
Image 1:
Japanese book for children on t-shirt colors that match
The shirts are all the same. The only difference is the colors! The difference that matters here.

Image 2:]
Person holding semaphores to guide in a plane to the gate.
The person is gray… just enough to tell us there is a person. The important thing is that they are holding lights and what they are doing with the lights (the important information is bright – red & yellow)

Images from Edward Tufte's *Envisioning Information*

International Women's Day

SMALL MULTIPLES



Echeverria, Heriberto 1971
March 8 - International Women's Day



Diaz, Estela 1974
March 8 - International Women's Day

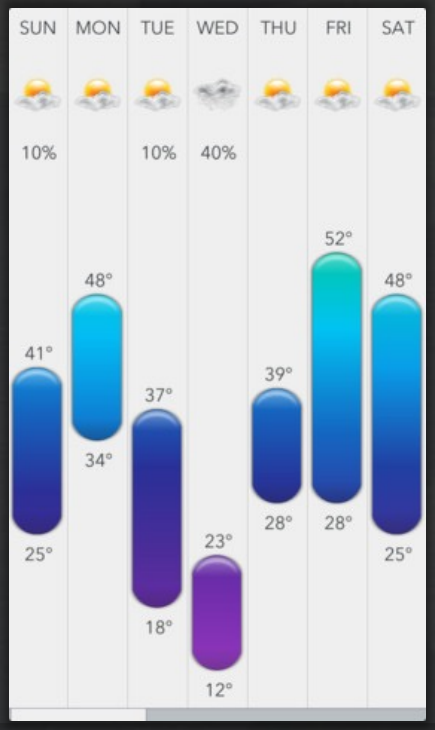
Revolucion!: Cuban Poster Art by Lincoln Cushing
http://www.amazon.com/Revolucion-Cuban-Poster-Lincoln-Cushing/dp/0811835820

Proximity & Small Multiples in Use

Today Weather

iOS App





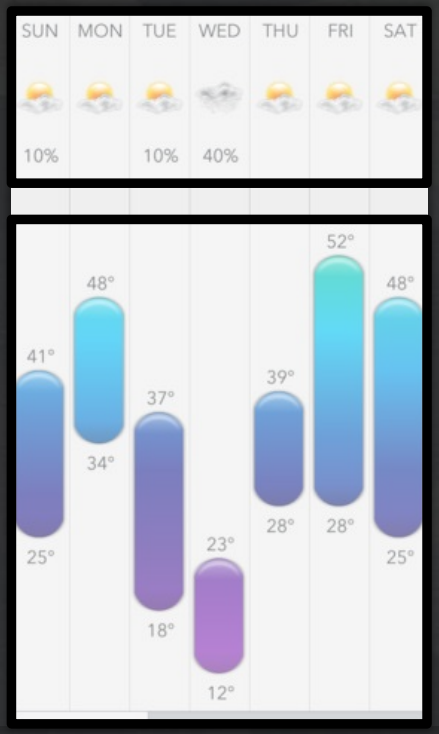


Proximity & Small Multiples in Use

Today Weather

iOS App



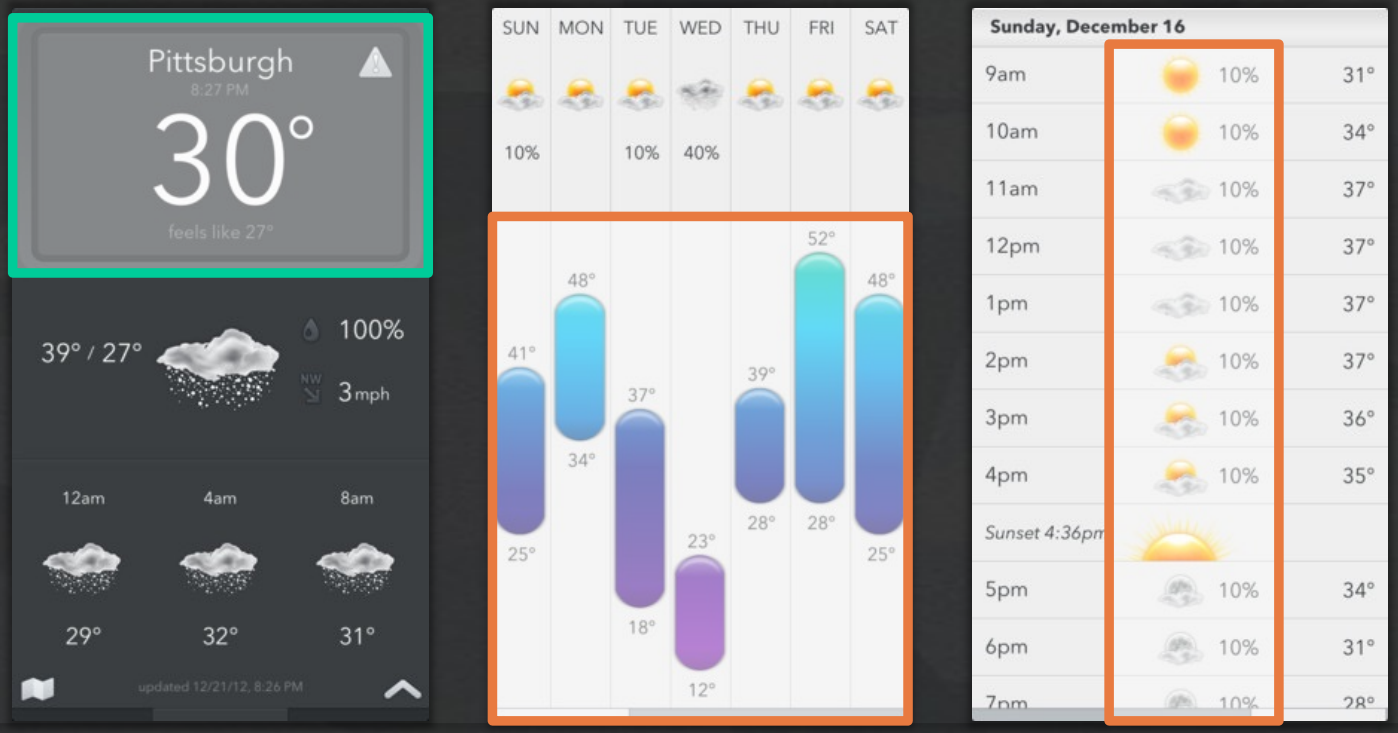




Proximity & Small Multiples in Use

Today Weather

iOS App



Using Blank / White Space as an Object

- White space can be used to suggest importance or prestige
- The more space around a group, the more valuable it should be for the user
- Think of whitespace as an “element” – consider its position

http://builtbybuffalo.com/

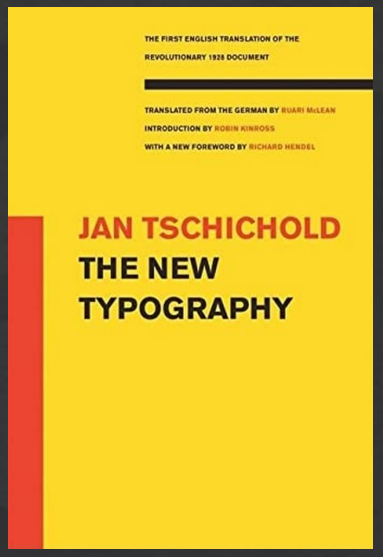


What Are The Important Things Here?



Jan Tschichold's Revolution

Champion of Modernist Typography



Die Neue Typographie
Berlin, 1928

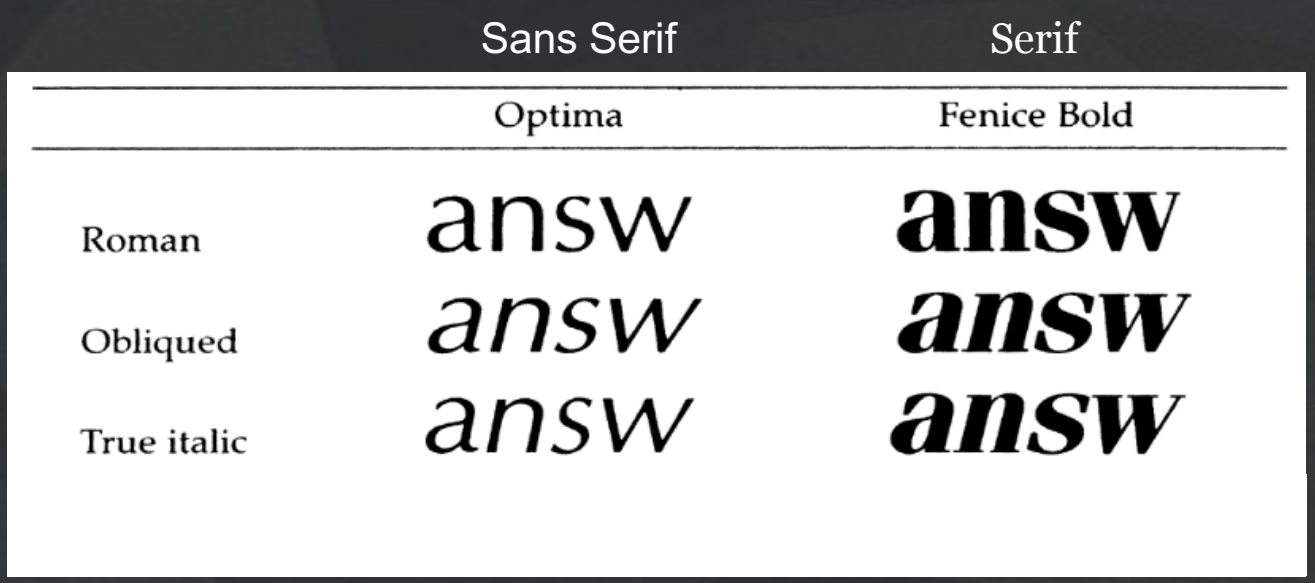


Bauhaus school
Dessau, 1925-26

Type Classifications

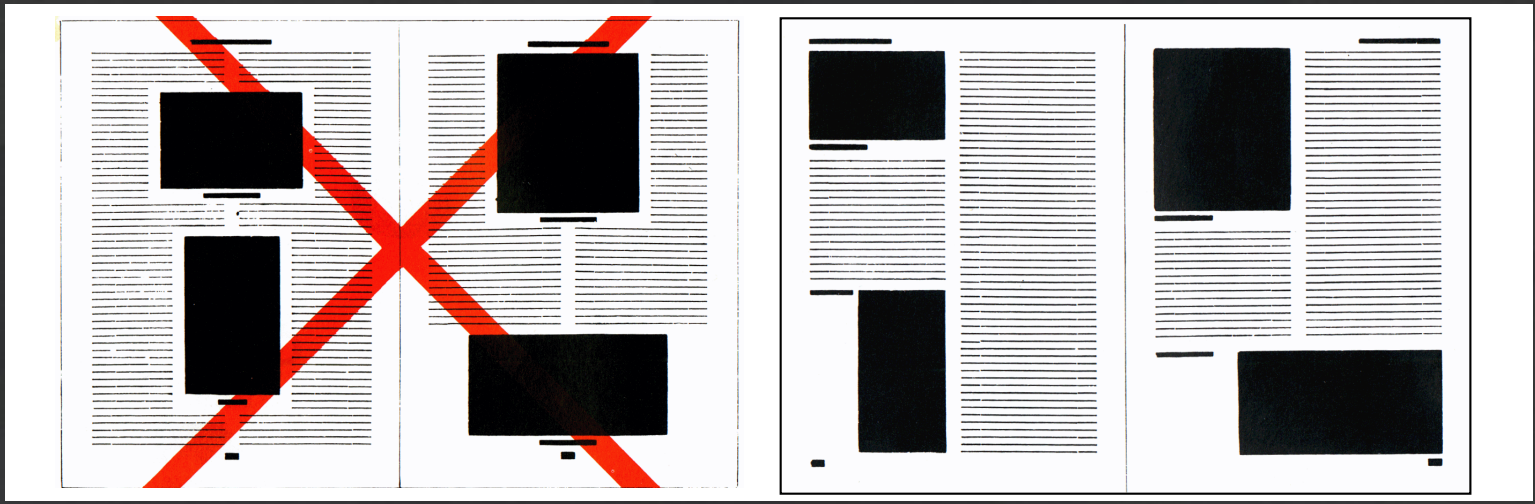
Typeface (Arial) vs **Font** (Arial Bold 12pt)
Design of letterform vs Instantiation of that design with weight, style, & size

Serifs: Structural details in letters that (may) help the reader connect them



Asymmetric Typography

JAN TSCHICHOLD

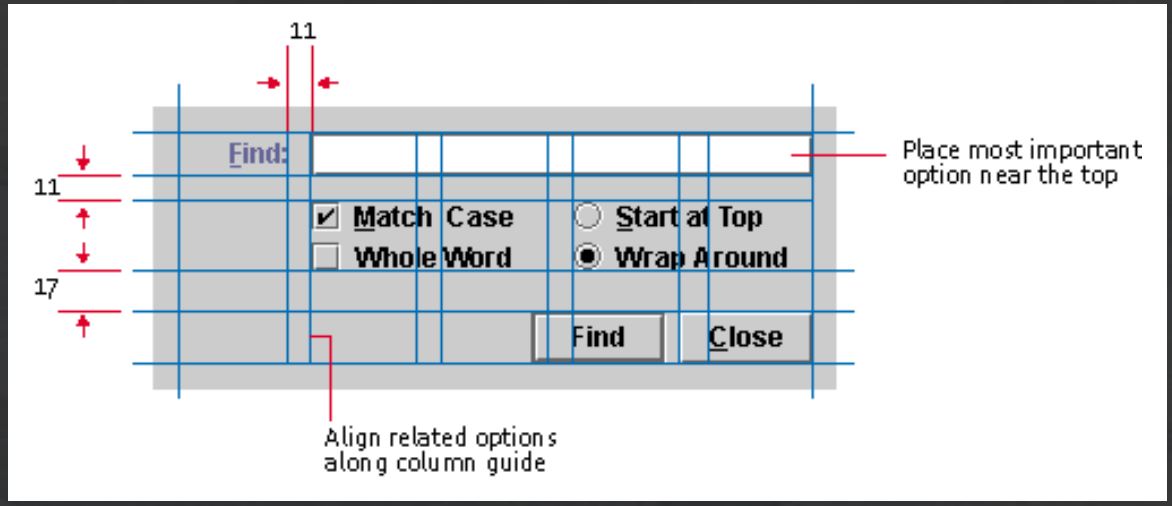


How blocks used to be arranged in magazines. Schematic, thoughtless centering of blocks
(= ugly).

The same blocks, correctly arranged in the same type-area. Constructive, meaningful, and economical
(= beautiful).

Grid Systems

- A key pattern for implementing rationality, modernism, asymmetry
- Note that no elements are “centered”



Java Look and Feel Design Guidelines

Iconography
Differences that Make a Difference

icon — a **visual shorthand** to the **meaning** of an **object** so users do **not have to read** words (“recognition over recall”)



www.jensondesign.com/1+1=3.pdf

Administrivia

- Website
  - must be on web site by studio next week or grade will be docked
  - problem getting a web site up, talk to your CA now
- Design Systems Workshop, Monday Oct. 26th
  - answer poll on time in #announce slack channel to RSVP for Pizza
  - It will help you for A6
- CS 194H
  - follow-on to CS147
  - ~~offered this Winter~~

Not offered this academic year

Good A4 Examples



SIMPLE

TIME APPROXIMATION

0:26–0:40, 0:53–1:05

THE TASK

Feel my friend is with me at the moment I need them.

WHY IT'S SIMPLE

The receiver only has to open a message at the right moment. There is one message, one sender, and no decision about content, so the effort is low even though the feeling is strong.

WHAT THE VIDEO SHOWS

First day of moving in, the mover opens a voice message left for exactly that moment and feels the Friend is there (0:26).

The mover similarly opens a message containing an encouraging text when she feels nerves on the first day of school (0:53). Lastly, the mover opens a message containing a reminiscent video when she feels stress from a rough quarter (0:58).

Open When

Good A4 Examples

THE
CATALYST

How might cultural habits change how your product is used? And how might your product change cultural habits?

What context would an alien from outer space need to use or understand your product?

What social norms, etiquette, or traditions could change because of your product?

Ethical implication 1 — Cultural voyeurism
Gamification could turn cultural stories into content that users passively consume rather than experiences they engage with respectfully.

Ethical implication 2 — Wrong incentives
Rewards could encourage users to collect cultural experiences for points rather than genuinely learning from people.

Underlying tension
Engagement vs. authentic cultural exchange

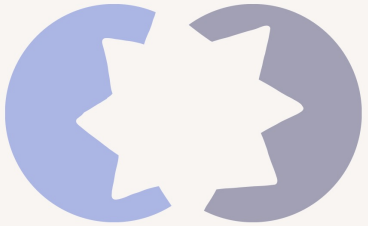
Reflection
By quantifying cultural exploration, we risk teaching users that understanding a culture is something to complete rather than a relationship to build. This can grant users unearned authority to speak on traditions they have not lived themselves.

Response
Encourage active learning and interaction rather than pure consumption, and seek guidance from people with expertise in cultural connection, fetishization, and appropriation.

Sonderly

VALUE CONFLICTS

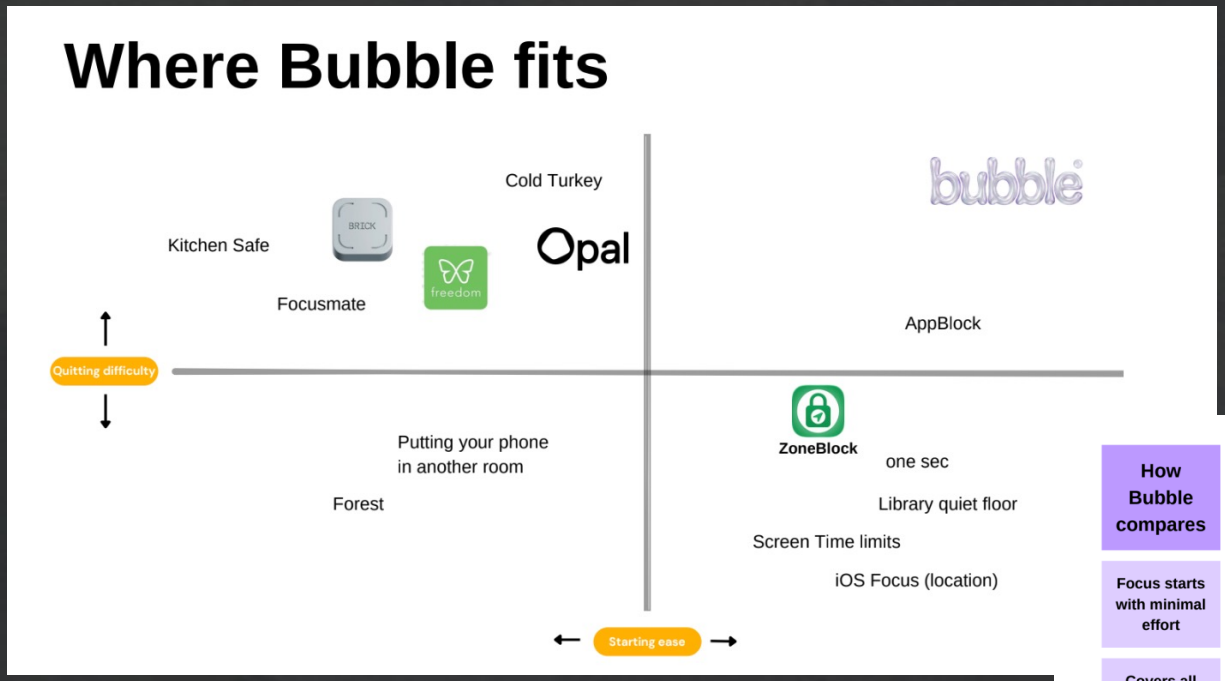
Cultural Awareness



Exploration

Unchecked curiosity can become cultural voyeurism, turning lived experiences into exhibits through insensitive questions. Our solution will encourage cultural exchange grounded in mutual respect.

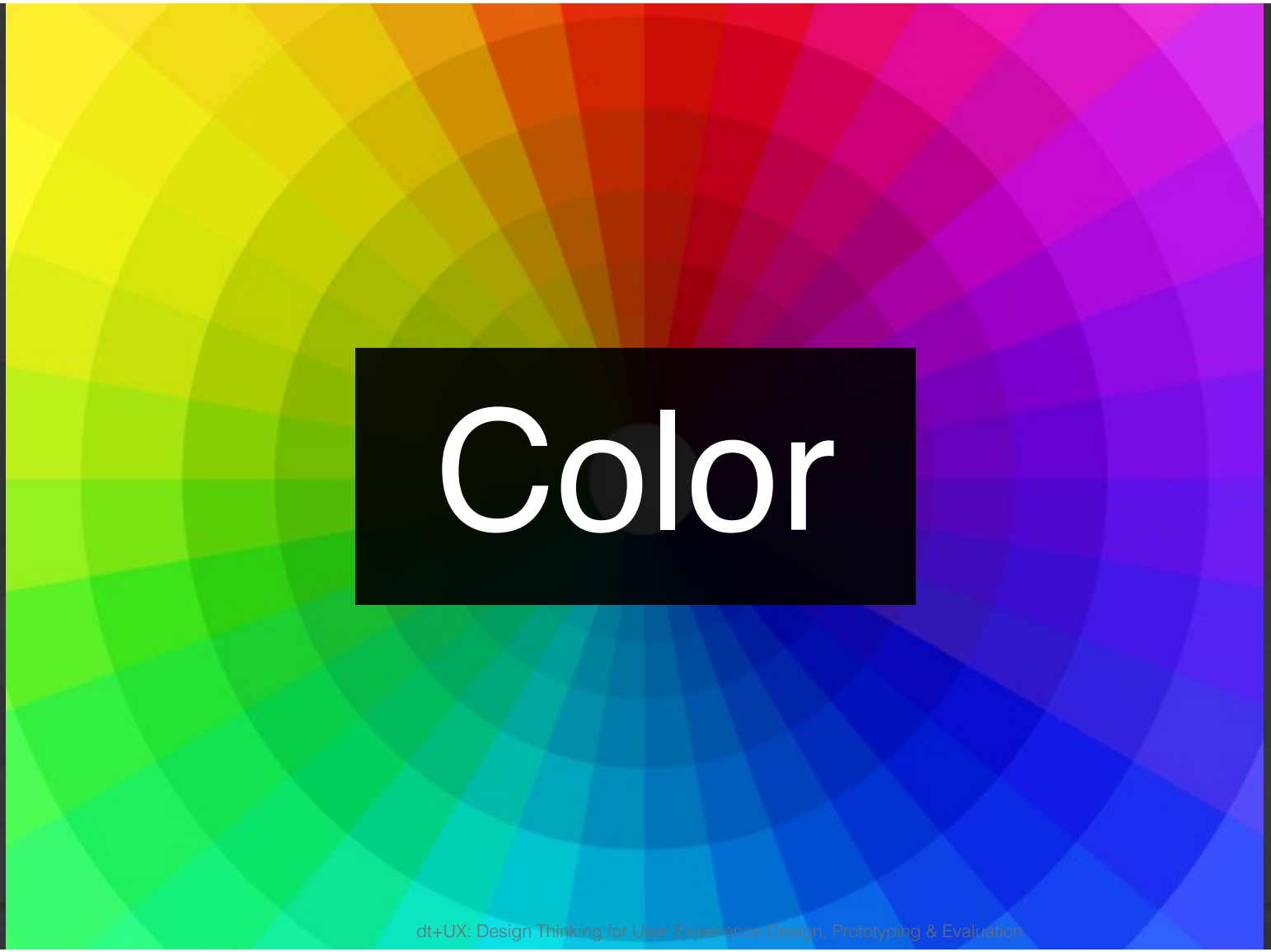
Good A4 Examples



Bubble

How Bubble compares	Opal	BRICK	ZoneBlock	freedom	bubble
Focus starts with minimal effort	✗	✗	✓	✗	✓
Covers all devices in one go	✗	✗	✗	✓	✓
Important people can still reach you	✗	✗	✗	✗	✓
You choose what gets blocked	✓	✓	✓	✓	✓

TEAM BREAK
(WORK ON A5 - LOW-FI PROTOTYPE)


Color

Color Definitions (digital)

- **Hue** is **gradation** of color (i.e., name: “yellow”)
- **Saturation** is **purity** of the hue (vividness)
  - how much **gray** is **mixed** in
- **Luminance** is the **brightness** in an image

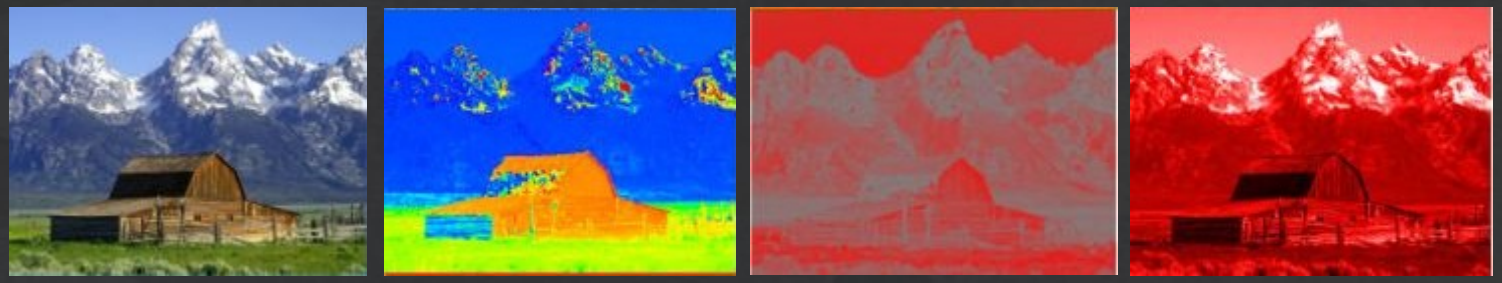


Photo Hue Saturation Luminance

Color: Edward Tufte – by hue

IMAGE REMOVED DUE TO EDWARD TUFTE'S UNCLEAR UNDERSTANDING OF FAIR USE

Color sets that vary primarily by luminance are much easier for us to order. This image uses two color sets: browns for height above the land, blues for depth below the ocean. The questions I mentioned before are now much easier to answer. The much more muted colors also much easier to read the information.
[Eastern Sea, not Japan Sea]
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?
Our 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 info.

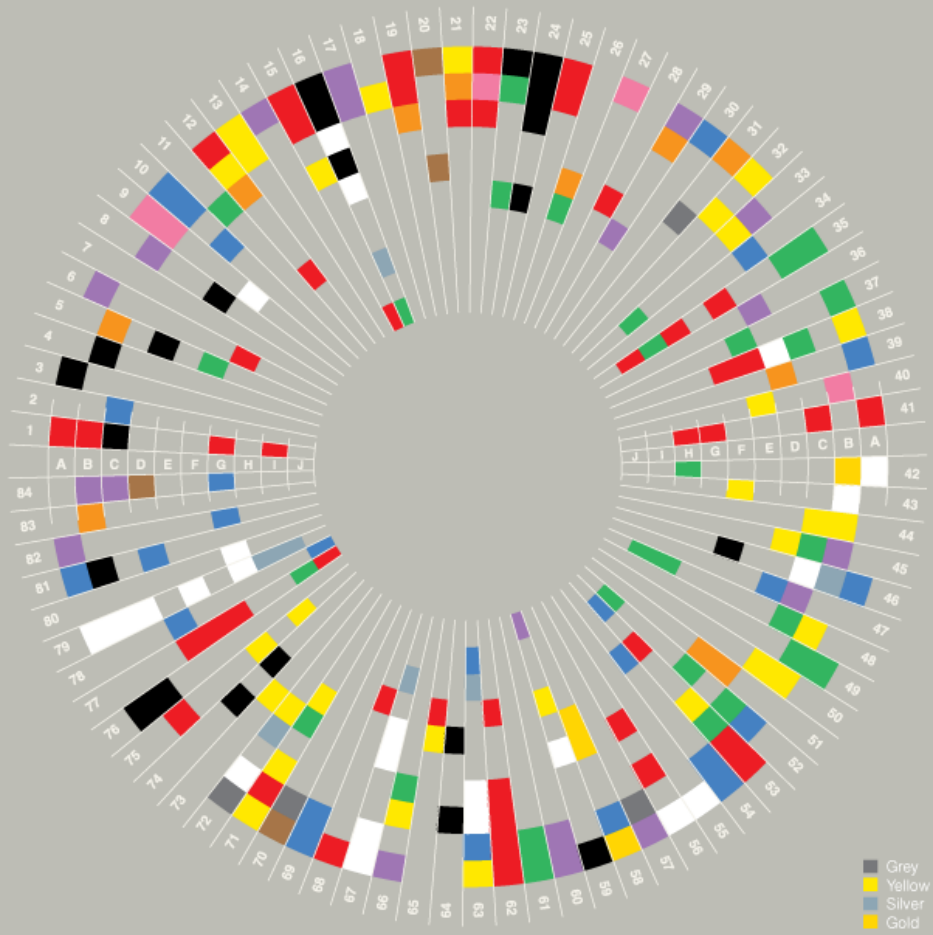
Color: Edward Tufte – by luminance

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Colours In Culture

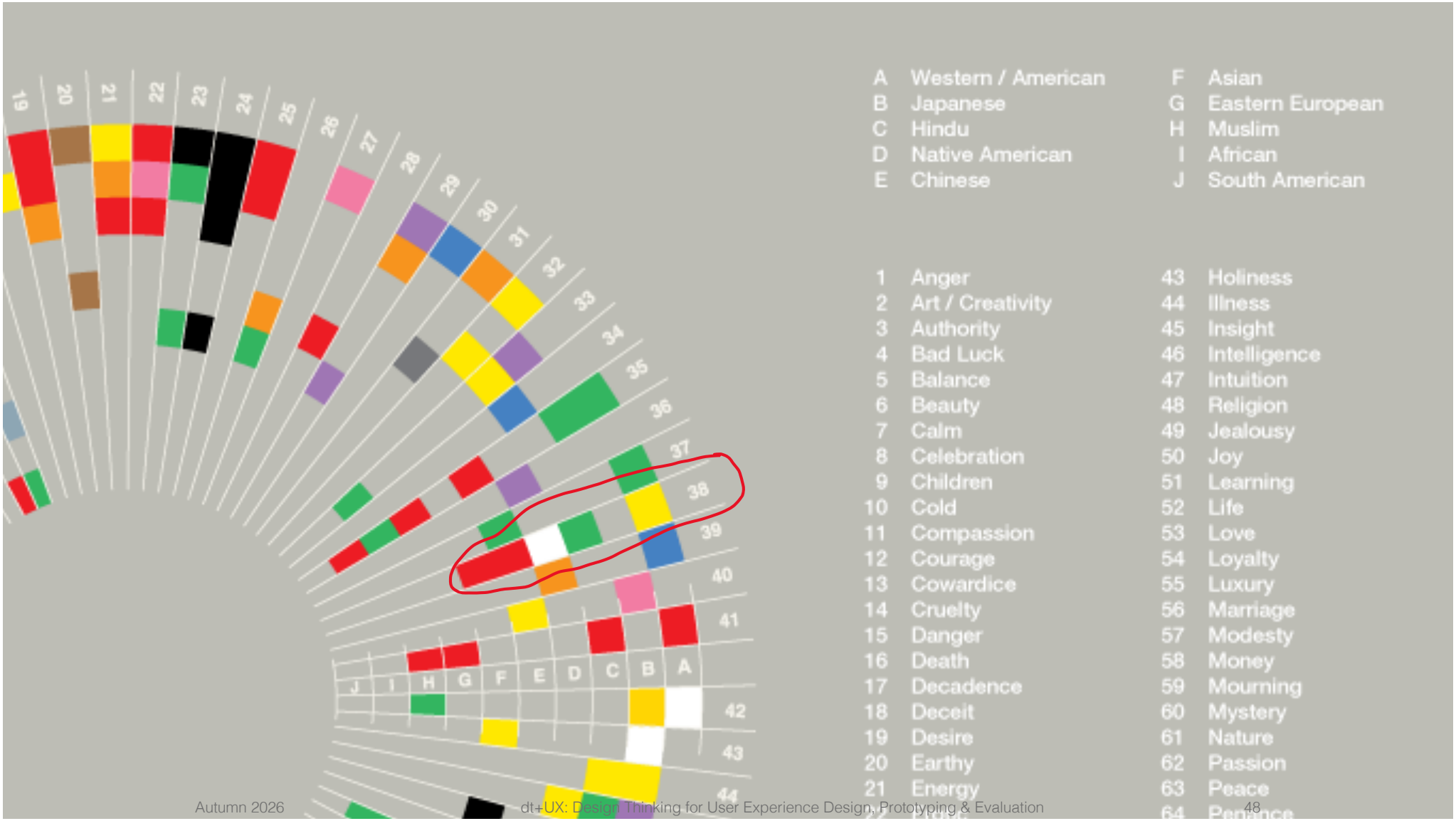


A	Western / American
B	Japanese
C	Hindu
D	Native American
E	Chinese
F	Asian
G	Eastern European
H	Muslim
I	African
J	South American

1	Anger
2	Art / Creativity
3	Authority
4	Bad Luck
5	Balance
6	Beauty
7	Calm
8	Celebration
9	Children
10	Cold
11	Compassion
12	Courage
13	Cowardice
14	Cruelty
15	Danger
16	Death
17	Decadence
18	Deceit
19	Desire
20	Earthy
21	Energy
22	Erotic
23	Eternity
24	Evil
25	Excitement
26	Family
27	Femininity
28	Fertility
29	Flamboyance
30	Freedom
31	Friendly
32	Fun
33	God
34	Gods
35	Good Luck
36	Gratitude
37	Growth
38	Happiness
39	Healing
40	Healthy
41	Heat
42	Heaven
43	Holiness
44	Illness
45	Insight
46	Intelligence
47	Intuition
48	Religion
49	Jealousy
50	Joy
51	Learning
52	Life
53	Love
54	Loyalty
55	Luxury
56	Marriage
57	Modesty
58	Money
59	Mourning
60	Mystery
61	Nature
62	Passion
63	Peace
64	Penance
65	Power
66	Personal power
67	Purity
68	Radicalism
69	Rational
70	Reliable
71	Repels Evil
72	Respect
73	Royalty
74	Self-cultivation
75	Strength
76	Style
77	Success
78	Trouble
79	Truce
80	Trust
81	Unhappiness
82	Virtue
83	Warmth
84	Wisdom

David McCandless & AlwaysWithHonor.com // v1.0 // Apr 09 // InformationIsBeautiful.net

source: Pantone, ColorMatters & web sources


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C
B
A
A Western / American
B Japanese
C Hindu
D Native American
E Chinese
F Asian
G Eastern European
H Muslim
I African
J South American
1 Anger
2 Art / Creativity
3 Authority
4 Bad Luck
5 Balance
6 Beauty
7 Calm
8 Celebration
9 Children
10 Cold
11 Compassion
12 Courage
13 Cowardice
14 Cruelty
15 Danger
16 Death
17 Decadence
18 Deceit
19 Desire
20 Earthy
21 Energy
43 Holiness
44 Illness
45 Insight
46 Intelligence
47 Intuition
48 Religion
49 Jealousy
50 Joy
51 Learning
52 Life
53 Love
54 Loyalty
55 Luxury
56 Marriage
57 Modesty
58 Money
59 Mourning
60 Mystery
61 Nature
62 Passion
63 Peace

The Basics of the Color Wheel

WARM

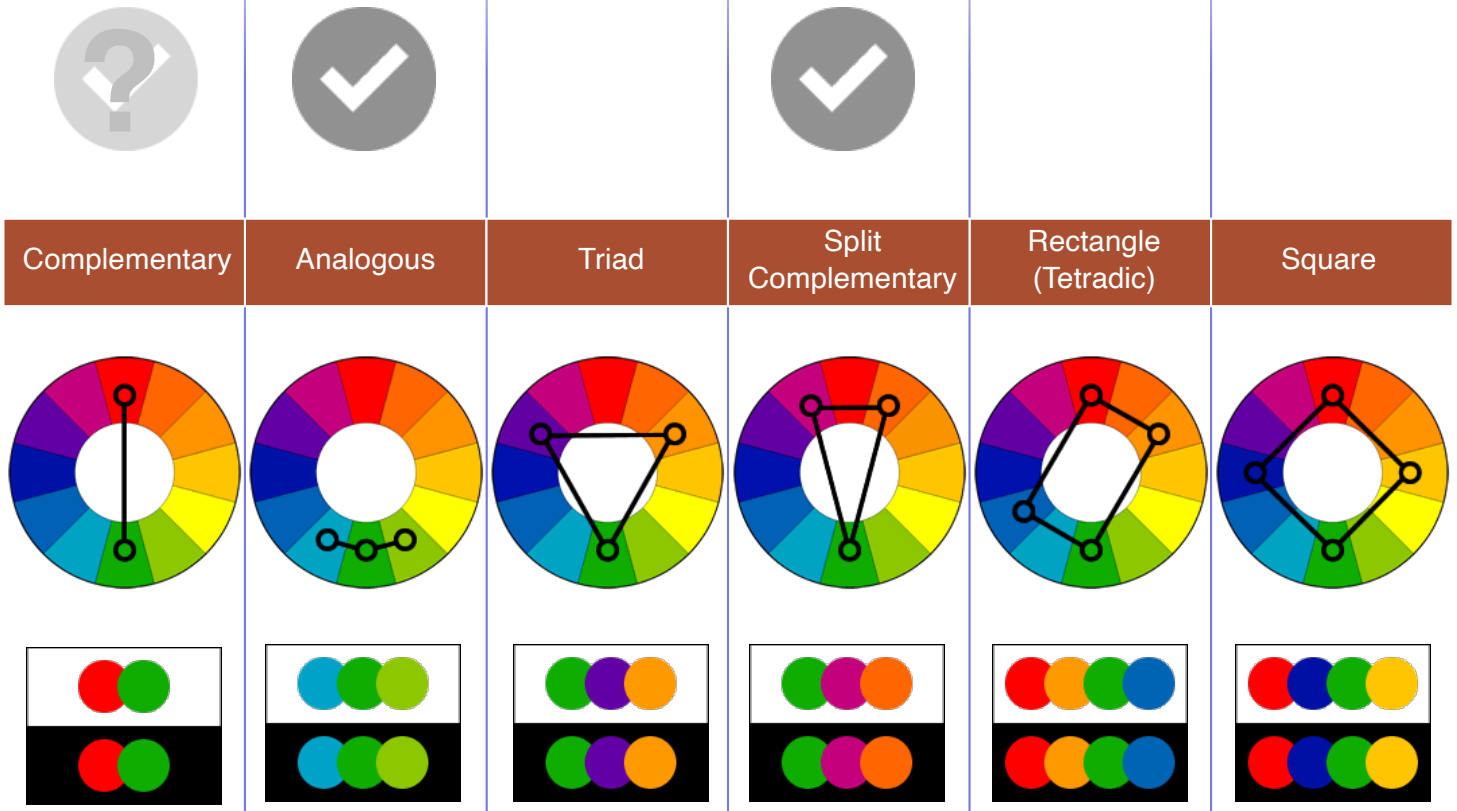


COOL

Color *Harmonies*

"A pleasing arrangement of parts, whether it be music, poetry, color, or an ice cream sundae."

Using Appropriate Color “Harmonies”



Complimentary

Not so good for text

Christmas..maybe
Everyday use...

Not so much!

Hard on the eyes



This color scheme must be managed well so it is not jarring. Bad with Text!!

Analogous



Always easy on the eyes, this type of color scheme always looks “natural”

Analogous (e.g., Beyond Oil)

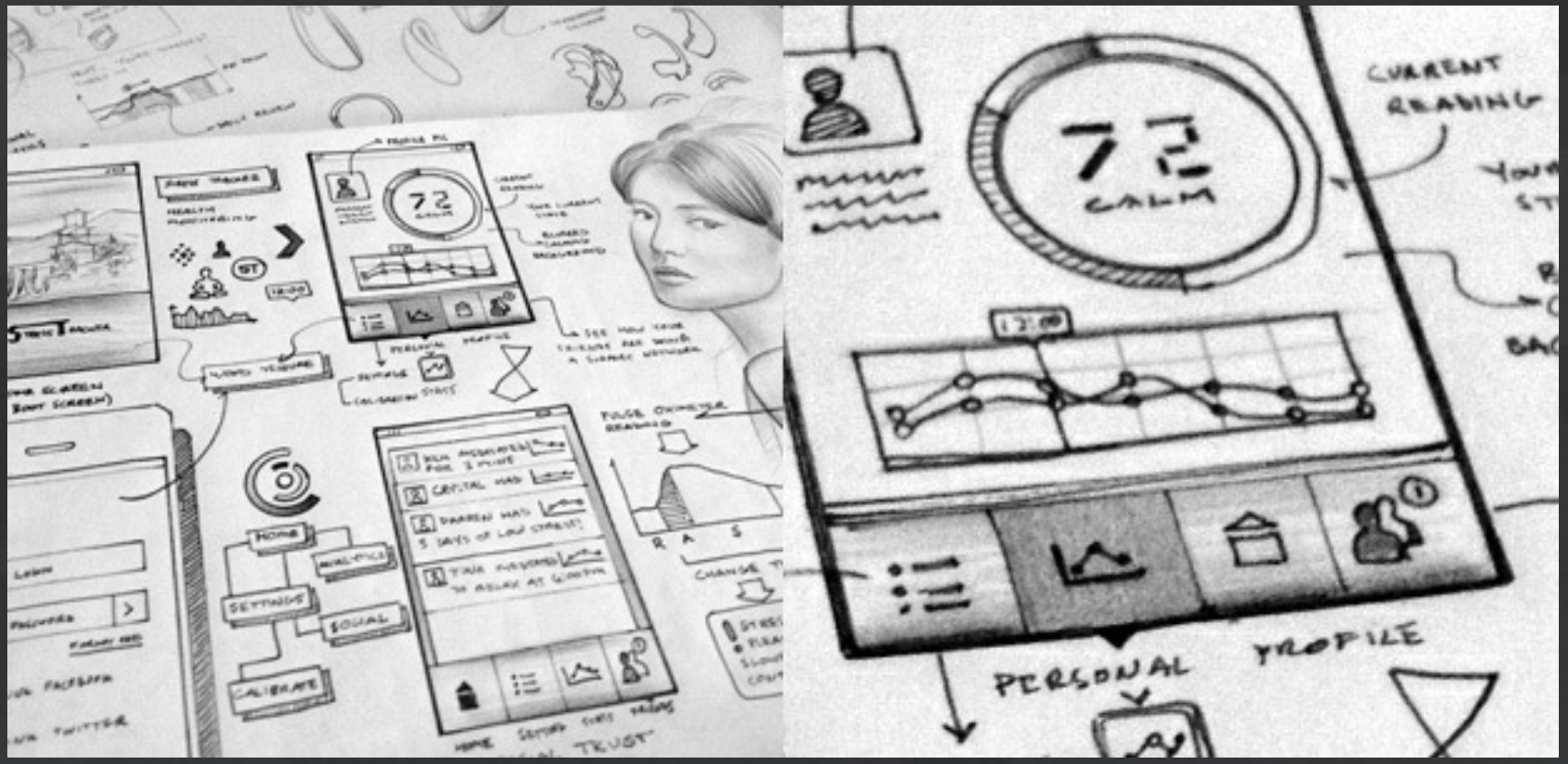


Split Complimentary

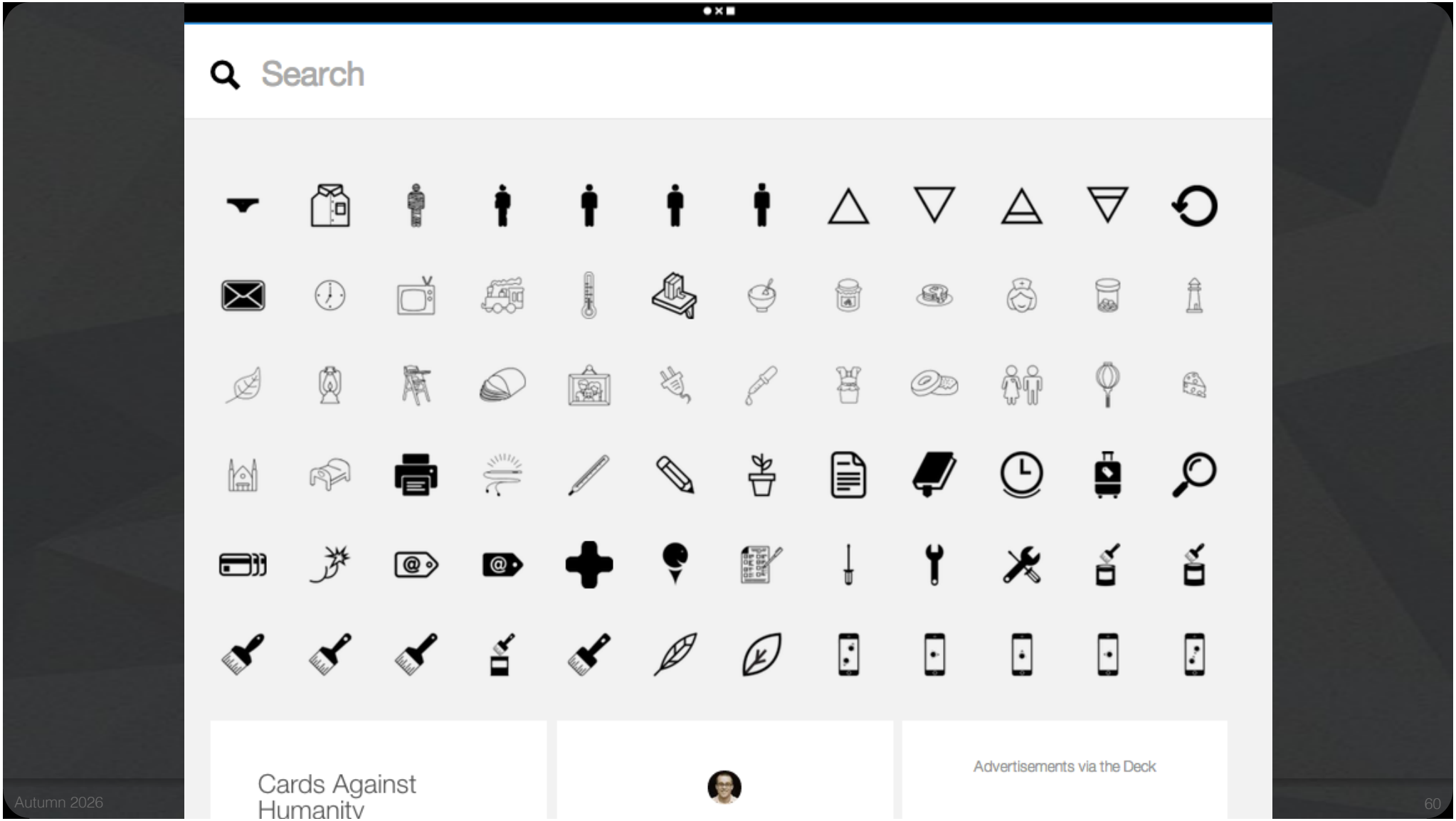


Often a good choice for beginners, because it is difficult to mess up.

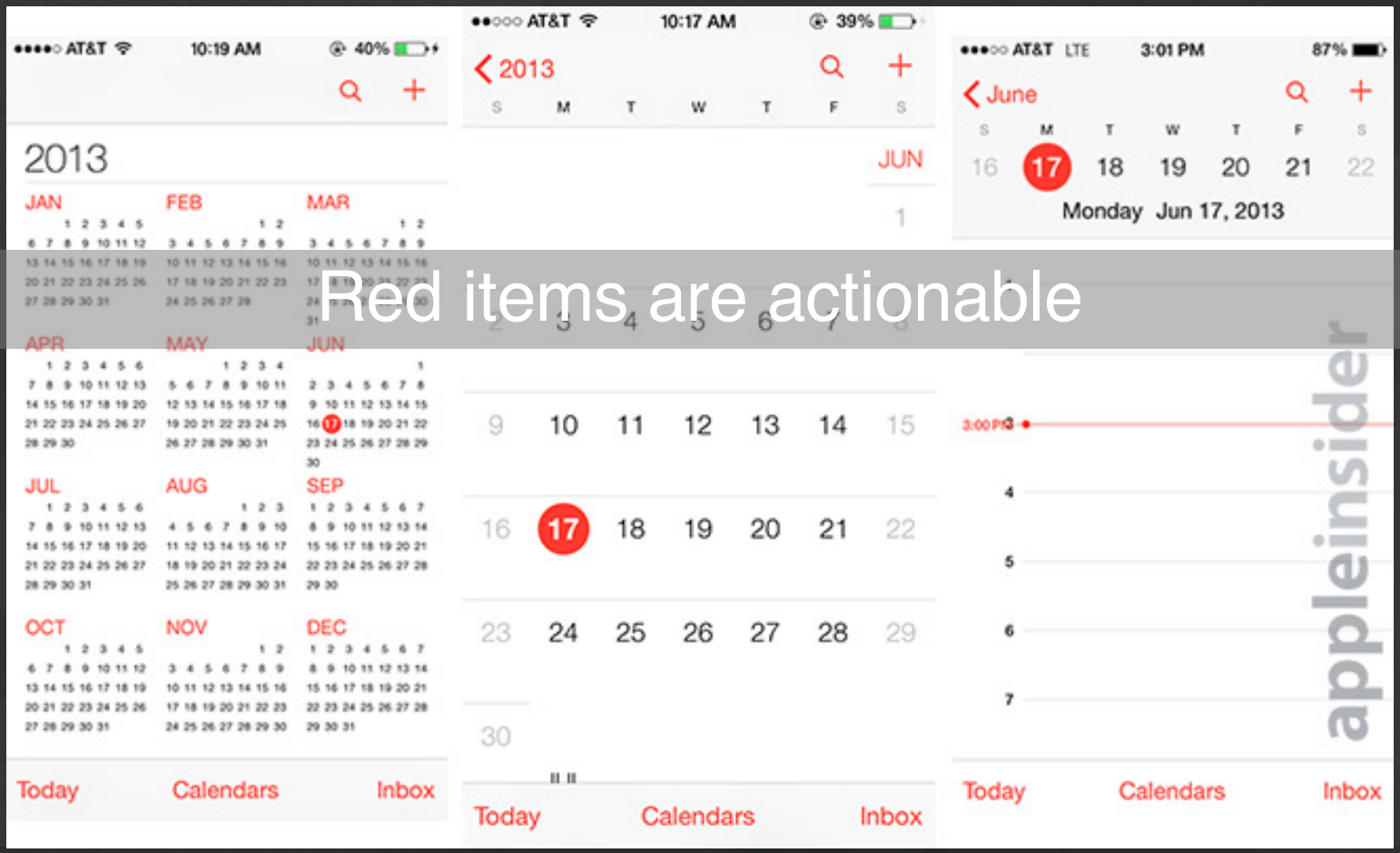
Start with Greyscale



… then *accent* or *enhance* with color

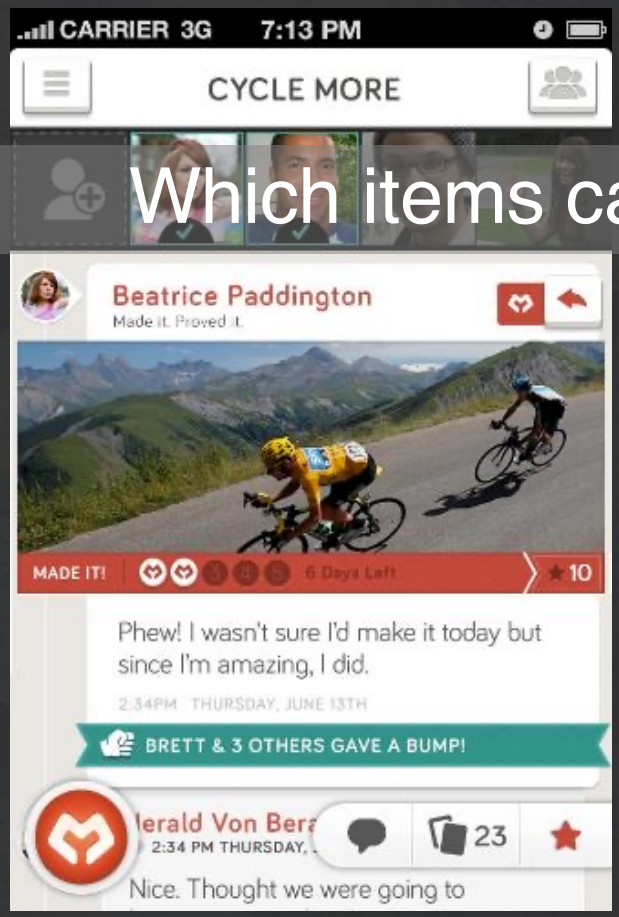

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Cards Against Humanity
Advertisements via the Deck

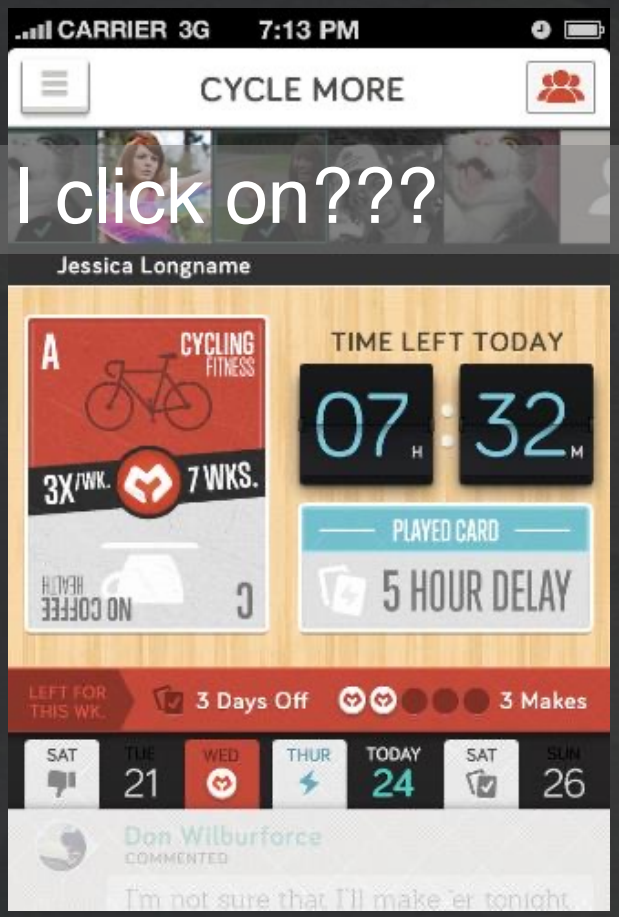
Action + Passive Colors



Red items are actionable

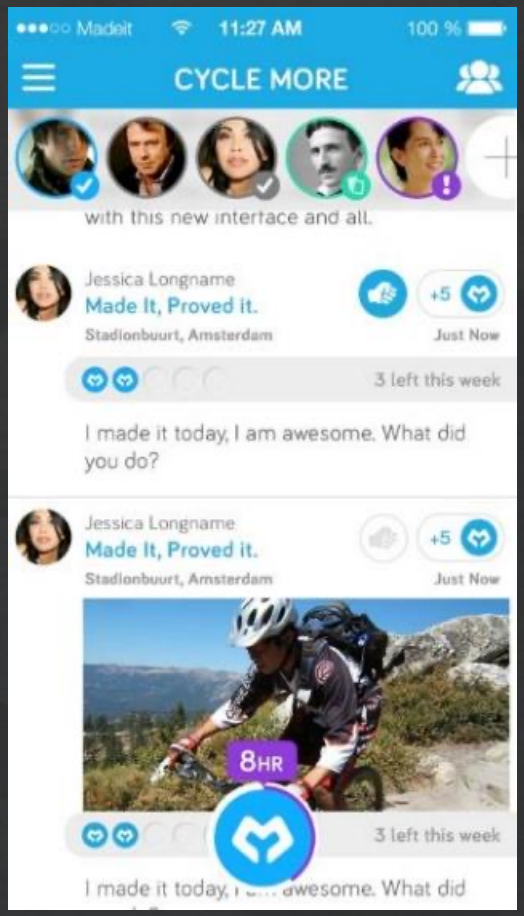
Poor Use of Color

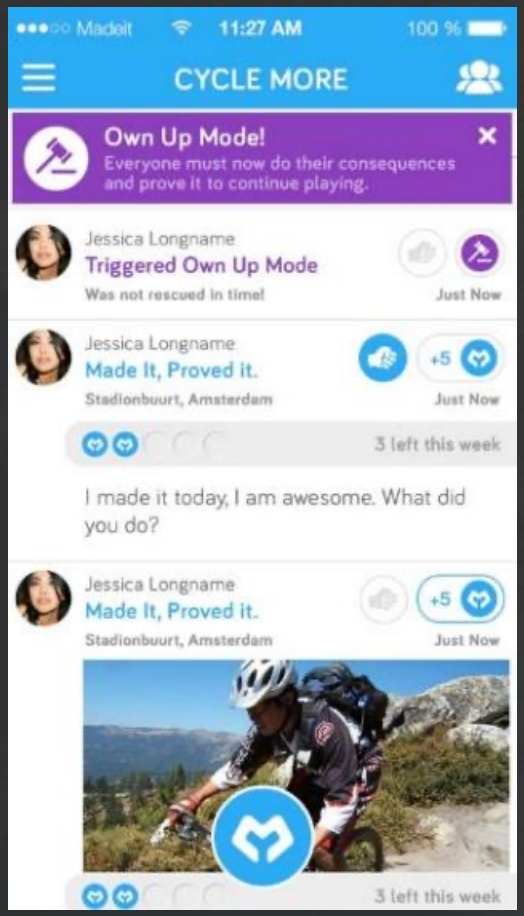




Which items can I click on???

Redesigned to Use 3 Actionable Colors



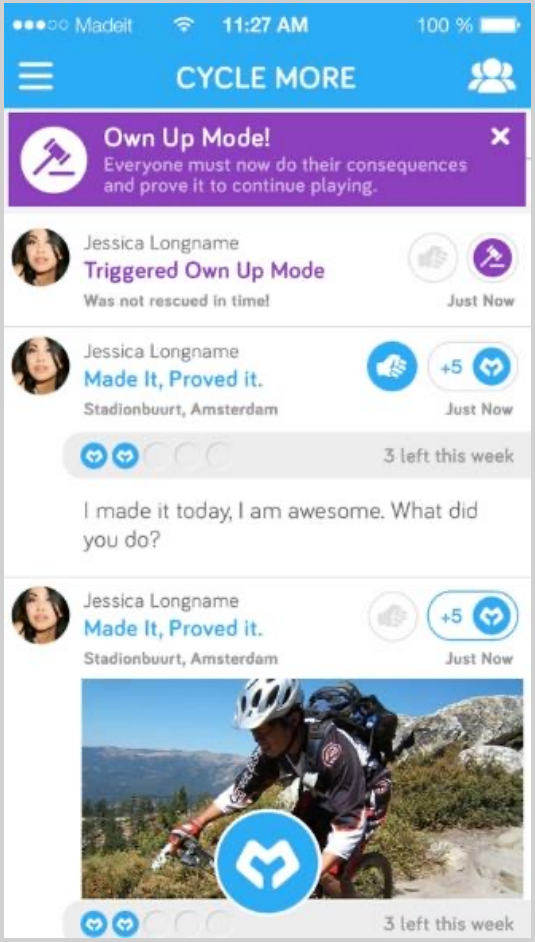


Action

Immediate



Analogous



Tools that help with color selection

https://coolors.co/

https://color.adobe.com/

https://www.colourlovers.com

https://paletton.com/

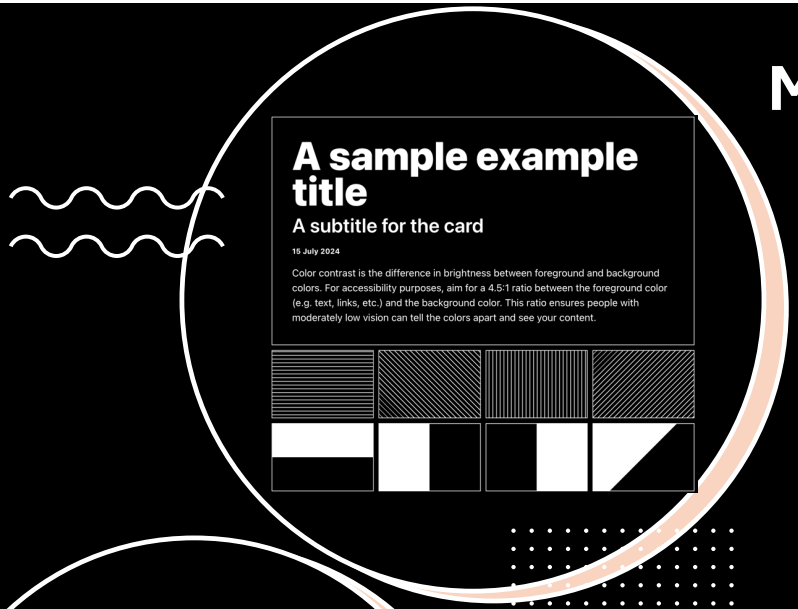
Mood Boards



Mood Boards


there
is hope


LOREM IPSUM
DOLOR SIT AMET
AN EST NIBH ILLUM
CONCLUDATURQUE
STŌK
COLD
BREW
COFFEE



Mood Boards – Team Exercise (8 min)

- **Define the Vibe**: Brainstorm **3-5 adjectives** that describe your design's feel (e.g., playful, modern) and write them down
- **Search for Visuals**: Each team member finds images that reflect these adjectives using
  - **Unsplash in Figma**
  - Optionally, try **Cosmos** for AI moodboards
  - Use **WhatFont** to identify fonts on websites
- **Build the Moodboard**: Combine images onto a single **team slide (see examples below)**
- **Pick Colors**: Choose **primary** and **secondary colors** for your prototype from the moodboard images
  - Use **Randoma11y** for high-contrast color combos
- **Save & Share**: Copy your completed slide to the team folder: hci.st/cs147-26au-mood-boards

Visual Design that is

Interesting

[the wow factor]

Non Conventional Layouts

- Hard to get right & easy to overdo!
- Try new shapes
  - circular charts
  - hexagonal objects
- Like all techniques (color, etc) – restrict unconventional layouts to the most important information

Wilfred Castillo: Tide Prediction: http://www.wilfredcastillo.com/Tide-Prediction



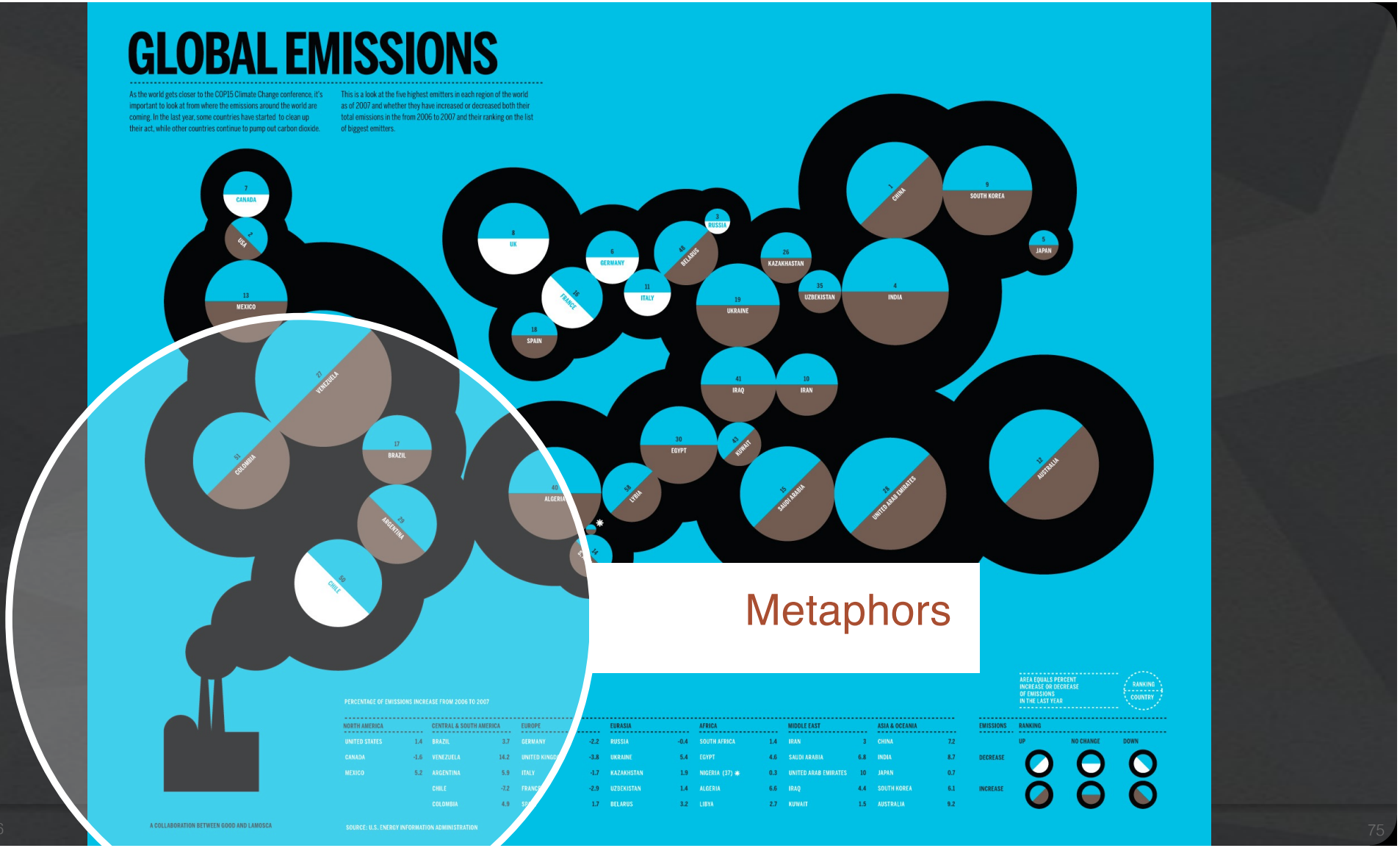
Dynamic Movement / Animation

- Hard to get right & easy to overdo!
- Animation is best used to connect information & create “flow”
- Like size, color & unusual shapes, animation draws attention to the eye & suggests importance

Metaphors (using the real world to describe info)

- Hard to get right & easy to overdo!
- Very useful to provide meaning and connect information to logic
- The more direct or specific a metaphor, the more contextually relevant it is to a generation or time




GLOBAL EMISSIONS
As the world gets closer to the COP15 Climate Change conference, it's important to look at from where the emissions around the world are coming. In the last year, some countries have started to clean up their act, while other countries continue to pump out carbon dioxide.
This is a look at the five highest emitters in each region of the world as of 2007 and whether they have increased or decreased both their total emissions in the from 2006 to 2007 and their ranking on the list of biggest emitters.
7 CANADA
2 USA
13 MEXICO
27 VENEZUELA
51 COLOMBIA
17 BRAZIL
23 ARGENTINA
59 CHILE
8 UK
6 GERMANY
16 FRANCE
18 SPAIN
11 ITALY
3 RUSSIA
46 BELARUS
19 UKRAINE
40 ALGERIA
58 LIBYA
30 EGYPT
41 IRAQ
10 IRAN
43 KUWAIT
15 SAUDI ARABIA
26 KAZAKHSTAN
35 UZBEKISTAN
1 CHINA
4 INDIA
9 SOUTH KOREA
5 JAPAN
28 UNITED ARAB EMIRATES
12 AUSTRALIA
Metaphors
AREA EQUALS PERCENT INCREASE OR DECREASE OF EMISSIONS IN THE LAST YEAR
RANKING
COUNTRY
PERCENTAGE OF EMISSIONS INCREASE FROM 2006 TO 2007
NORTH AMERICA
UNITED STATES 1.4
CANADA -1.6
MEXICO 5.2
CENTRAL & SOUTH AMERICA
BRAZIL 3.7
VENEZUELA 14.2
ARGENTINA 5.9
CHILE -7.2
COLOMBIA 4.9
EUROPE
GERMANY -2.2
UNITED KINGD -3.8
ITALY -1.7
FRANC -2.9
1.7
EURASIA
RUSSIA -0.4
UKRAINE 5.4
KAZAKHSTAN 1.9
UZBEKISTAN 1.4
BELARUS 3.2
AFRICA
SOUTH AFRICA 1.4
EGYPT 4.6
NIGERIA (37) * 0.3
ALGERIA 6.6
LIBYA 2.7
MIDDLE EAST
IRAN 3
SAUDI ARABIA 6.8
UNITED ARAB EMIRATES 10
IRAQ 4.4
KUWAIT 1.5
ASIA & OCEANIA
CHINA 7.2
INDIA 8.7
JAPAN 0.7
SOUTH KOREA 6.1
AUSTRALIA 9.2
EMISSIONS
RANKING
UP
NO CHANGE
DOWN
DECREASE
INCREASE
A COLLABORATION BETWEEN GOOD AND LAMOSCA
SOURCE: U.S. ENERGY INFORMATION ADMINISTRATION

The best designs **balance** the techniques you have seen

and

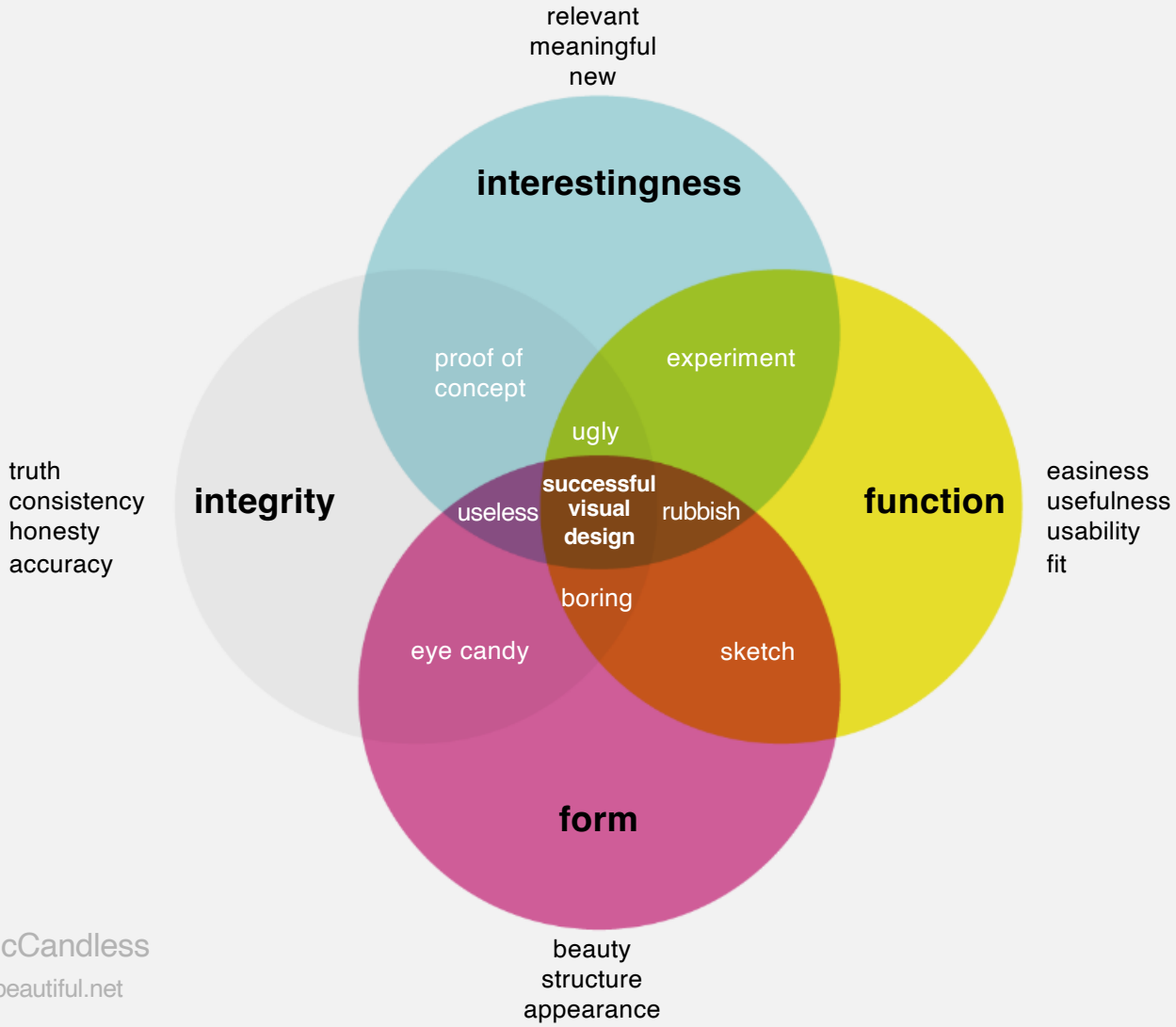
The **less** techniques used,
the easier it is to balance them

Overwhelming Use of Different Techniques



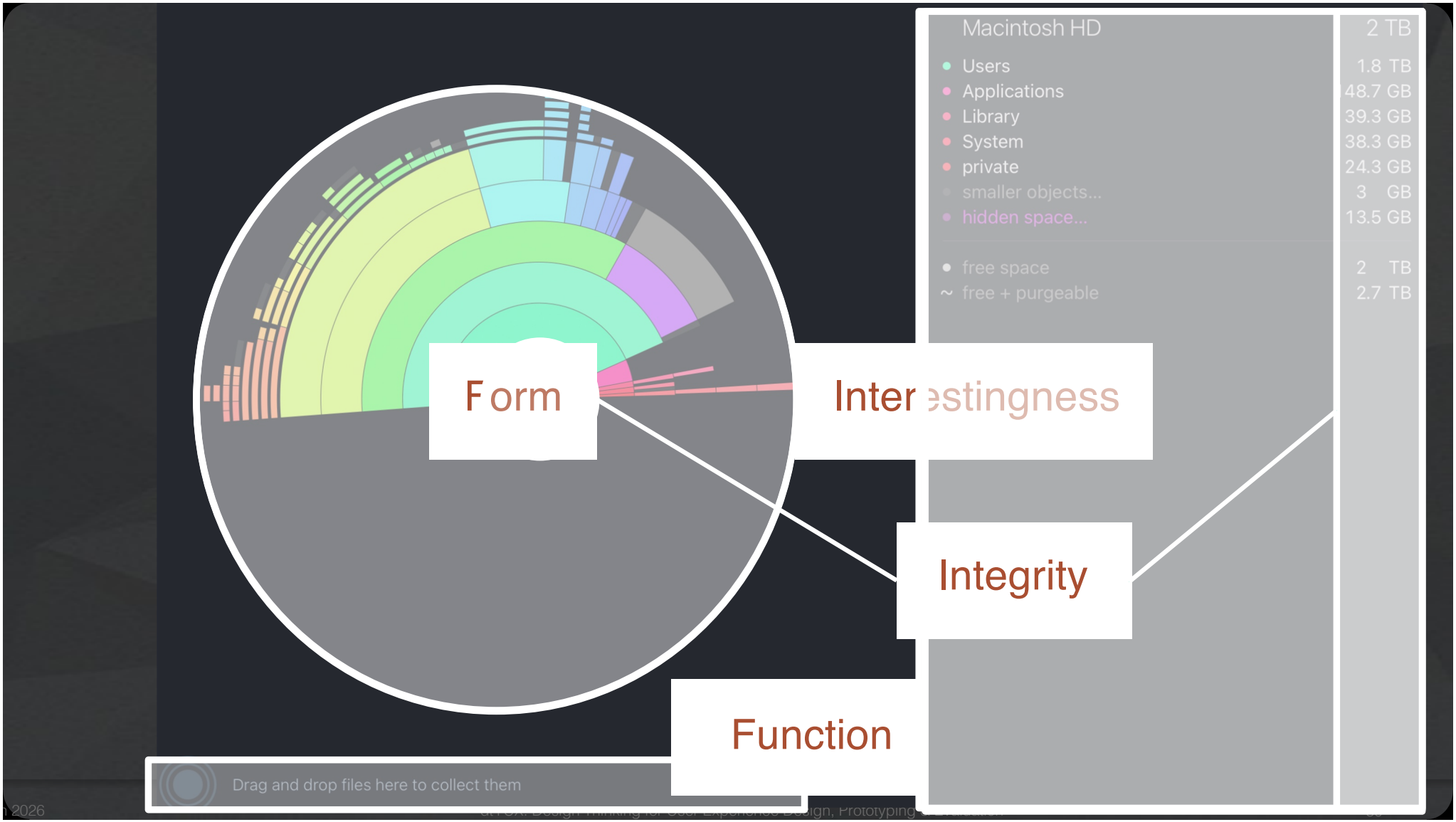
In other words,

Keep it Focused



Based on David McCandless

http://www.informationisbeautiful.net


Macintosh HD
2 TB
Users
1.8 TB
Applications
48.7 GB
Library
39.3 GB
System
38.3 GB
private
24.3 GB
smaller objects...
3 GB
hidden space...
13.5 GB
free space
2 TB
free + purgeable
2.7 TB
Form
Interestingness
Integrity
Function
Drag and drop files here to collect them

Summary

- Start with context – what is the nature of the information? What is the most important?
- Design first in grayscale to focus on hierarchy
- Small changes help us see key differences
  - e.g., small multiples
- Avoid clutter, focus on the essence of your tasks
- Use color properly – not for ordering!
- Only use 1-2 colors at a time, unless absolutely necessary

Further Reading/Resources

- Kevin Mullet and Darrell Sano, *Designing Visual Interfaces*
- Edward Tufte's books and course
- Robin Williams, *The Non-Designer's Design Book*
- Typography
  - Jan Tschichold, *The New Typography*
  - Robert Bringhurst, *The Elements of Typographic Style*
- Typography on the web
  - https://www.adobe.com/type/
  - https://www.microsoft.com/typography/
  - https://fonts.google.com/
- Elizabeth Lin's Art of Visual Design (online) course
  - https://www.artofvisualdesign.com/

Next Time

- Studio on Friday
  - present low-fi prototype/user study results – *key things learned*
  - work on sketching out new designs

- Wed
  - CS147 Film Festival
  - No reading. Just come and watch the best videos from our 5 studios!
  - Lots of time for group work!

Exit Ticket

hci.st/cs147-26au-exit-5-813

