

# Building User Interfaces

# Visual Design

**Yuhang Zhao & Cole Nelson**

**Make a copy of today's ICA and share it with your group members!**

# Learning Objectives

1. Understand the elements and principles of design.
2. Understand the influence of color, type, and images.
3. Apply these concepts to the visual design of a webpage.

# Elements of Design

# Elements of Design

1. Space
2. Line
3. Shape
4. Size
5. Pattern
6. Texture
7. Value

# Space<sup>1</sup>

**Definition:** Space is the canvas on which visual elements are placed.

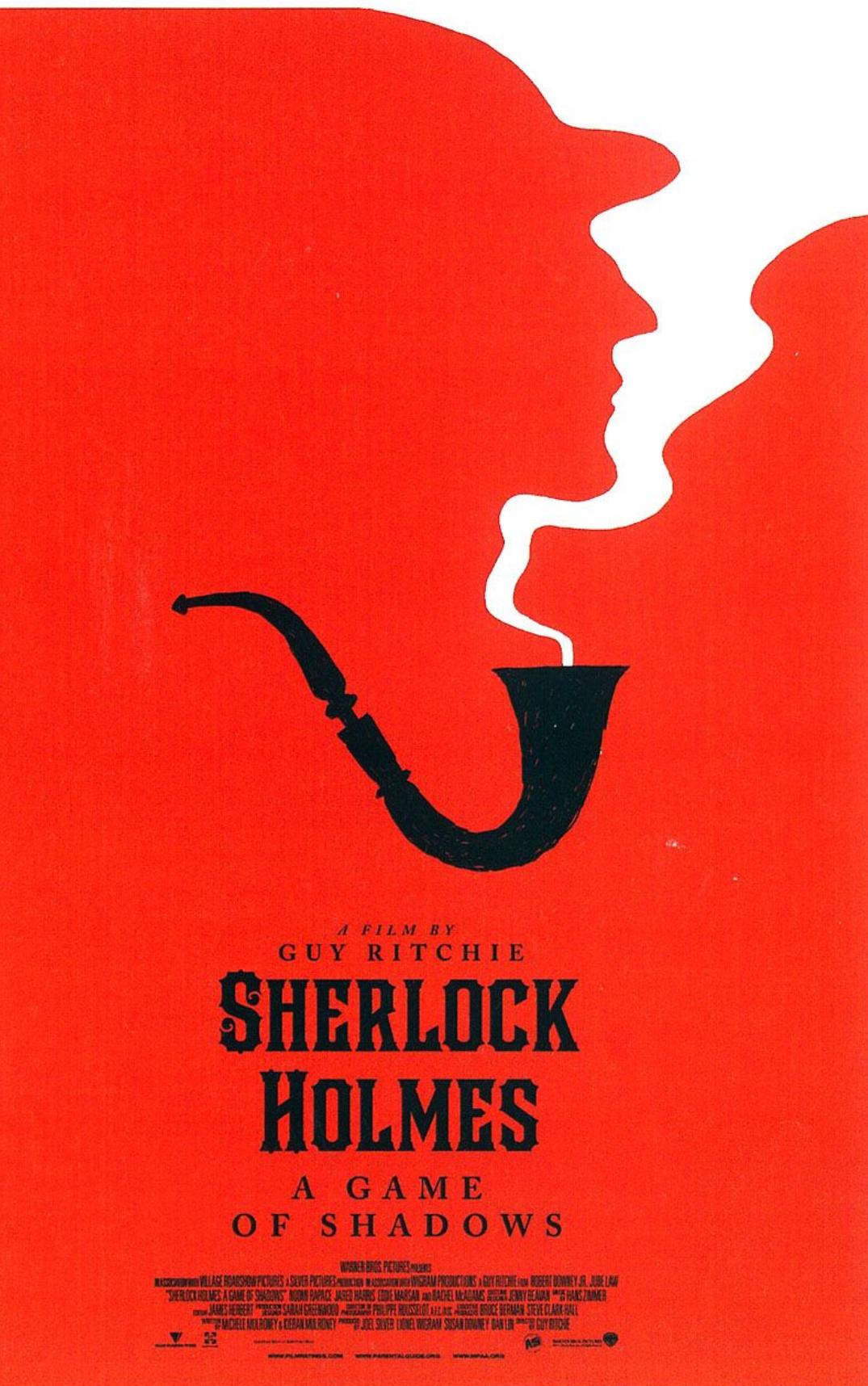
- Space can be *positive* or *negative*
- *Positive*: where the subject is positioned
- *Negative*: the space surrounding the subject
- Negative space can be used as positive



<sup>1</sup>Image sources: this slide, next slide: left, right

# Now data helps pinpoint more oil.

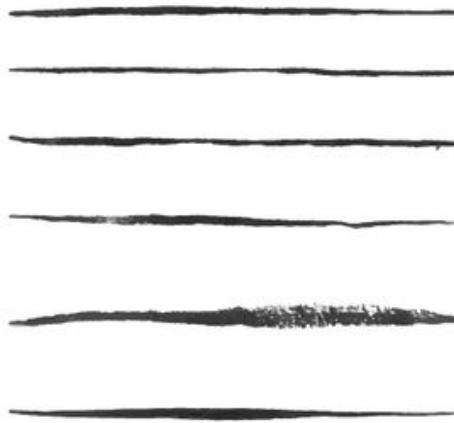
In Venezuela, IBM deep computing processes seismic data, helping Tricon Geophysics pinpoint new oil and gas using 40% less energy. [ibm.com/smarterplanet](http://ibm.com/smarterplanet)



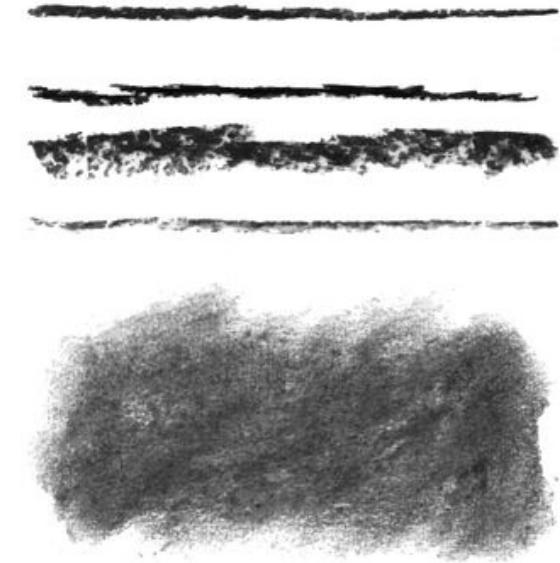
# Line<sup>2</sup>

**Definition:** The most primal design element that can divide space, call attention to, organize, and make up other elements.

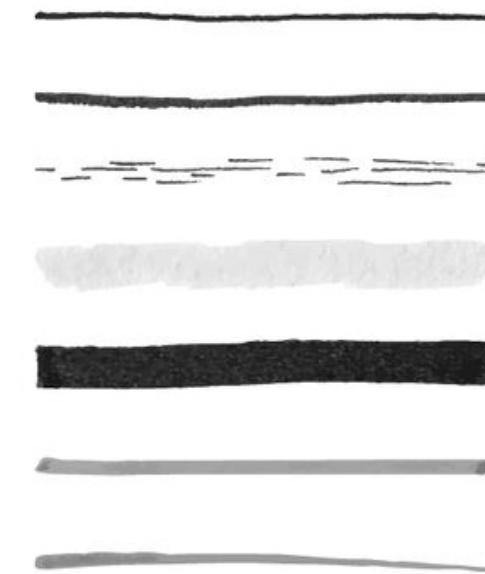
BRUSH PEN BRUSHES



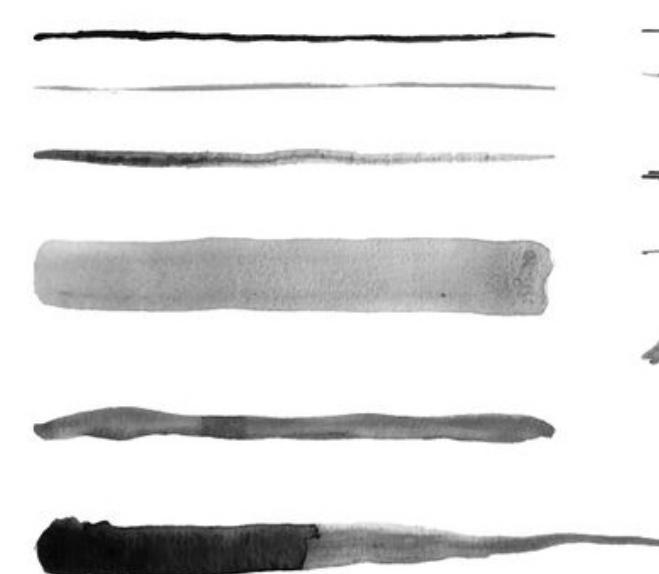
CHARCOAL BRUSHES



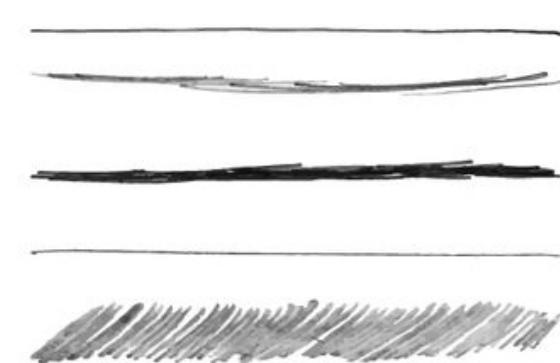
MARKER BRUSHES



WATERCOLOR BRUSHES



PENCIL BRUSHES



<sup>2</sup>Image source

# Shape<sup>3</sup>

**Definition:** Space outlined by a contour.

— *Organic* vs. *inorganic* shapes

Geometric



square



circle



triangle

Organic



leaves



flowers



ink splatters

Abstract



stick figures

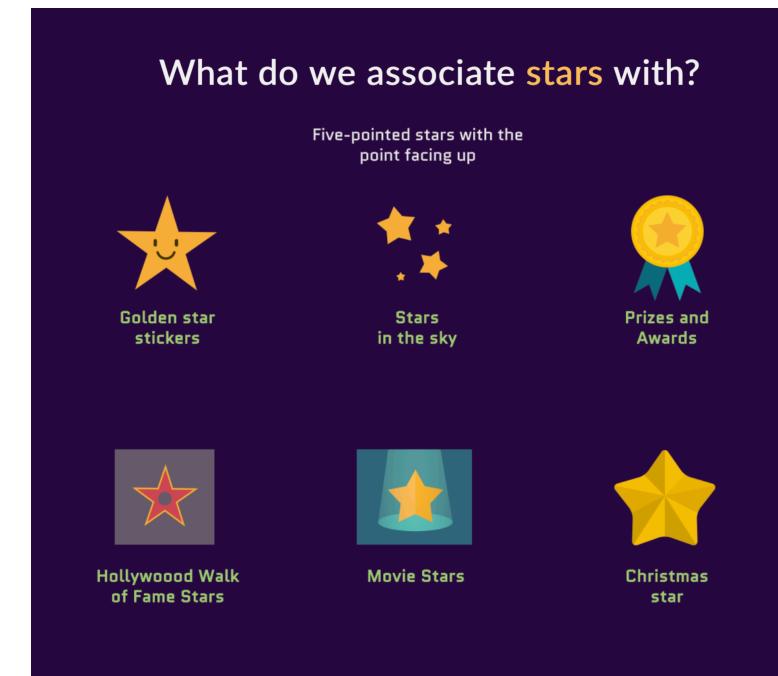
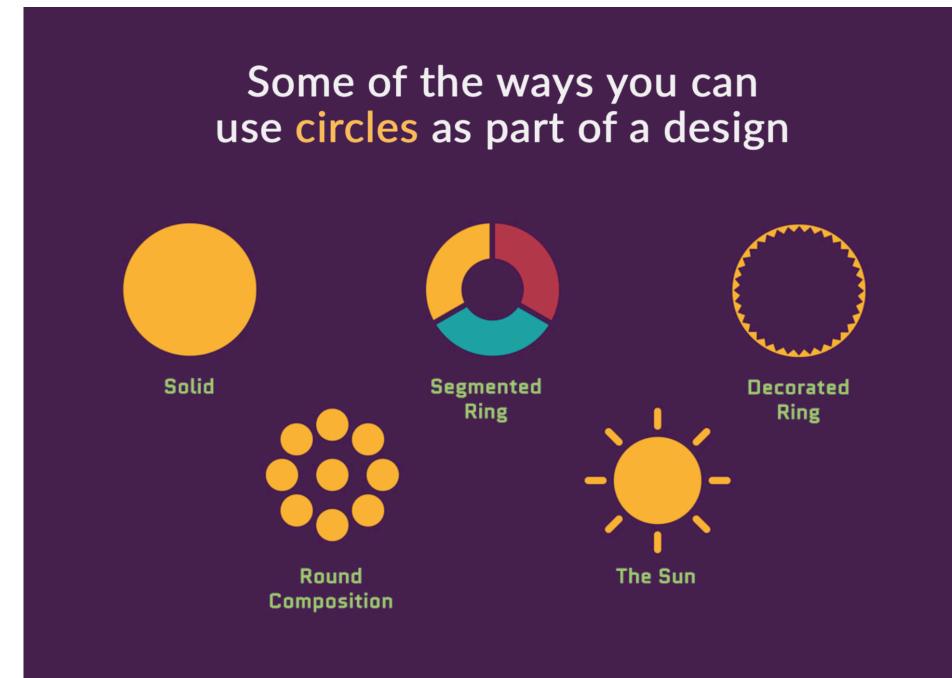
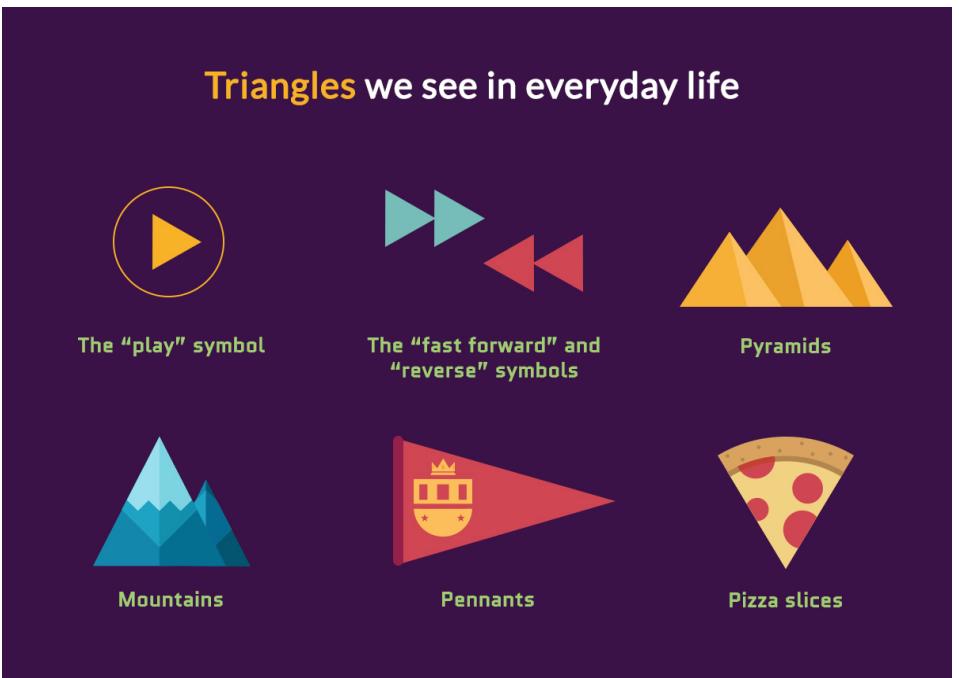


icons



symbols

<sup>3</sup> Image sources: this & next slides



# Size<sup>4</sup>

**Definition:** Size, or *scale*, is the relative extent of the design elements such as shapes and lines.



<sup>4</sup> Image source

# Pattern<sup>5</sup>

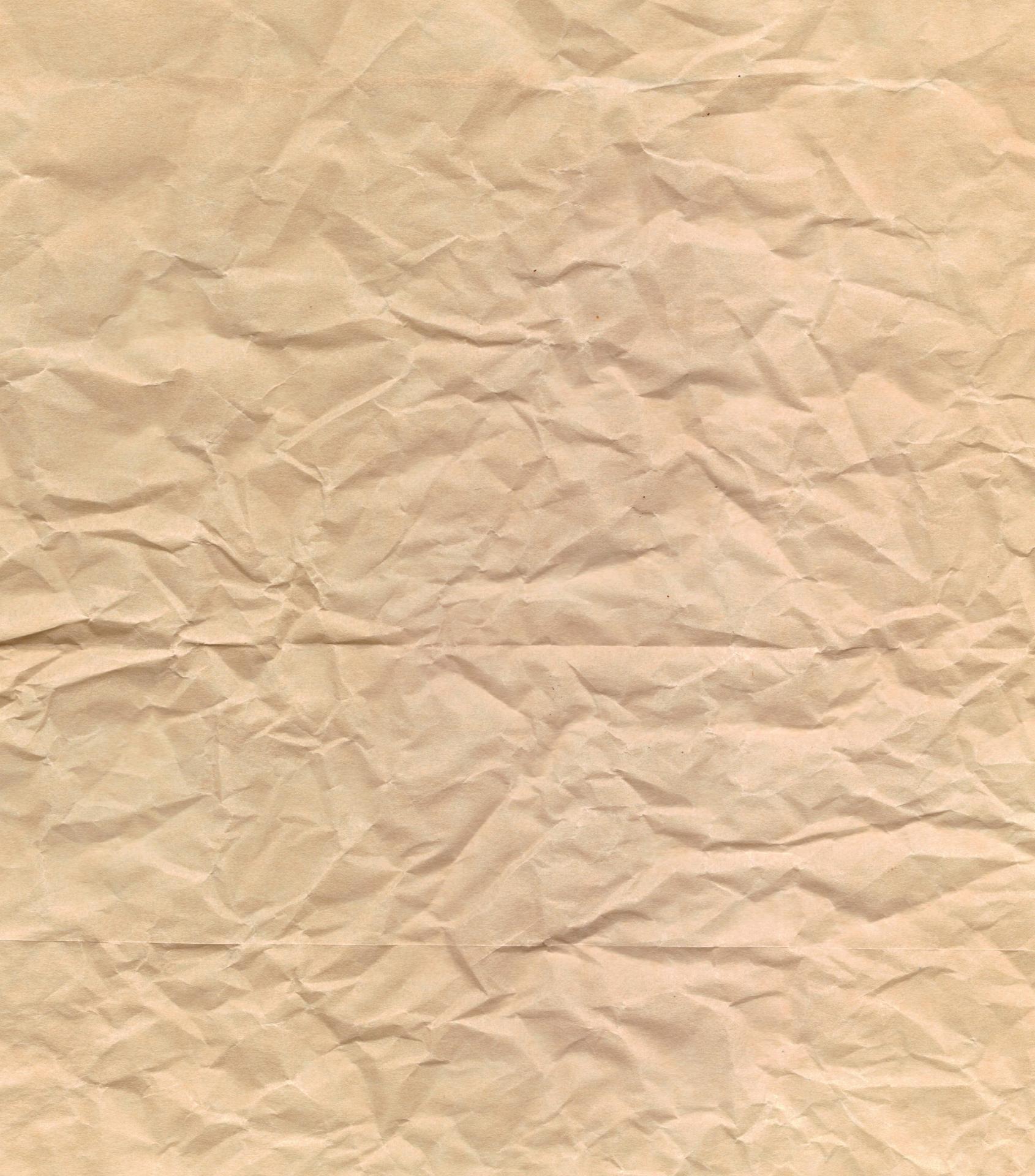
**Definition:** Pattern, or *repetition*, systematic duplication of other design elements such as shapes and lines.



<sup>5</sup>Image source

# Texture<sup>6</sup>

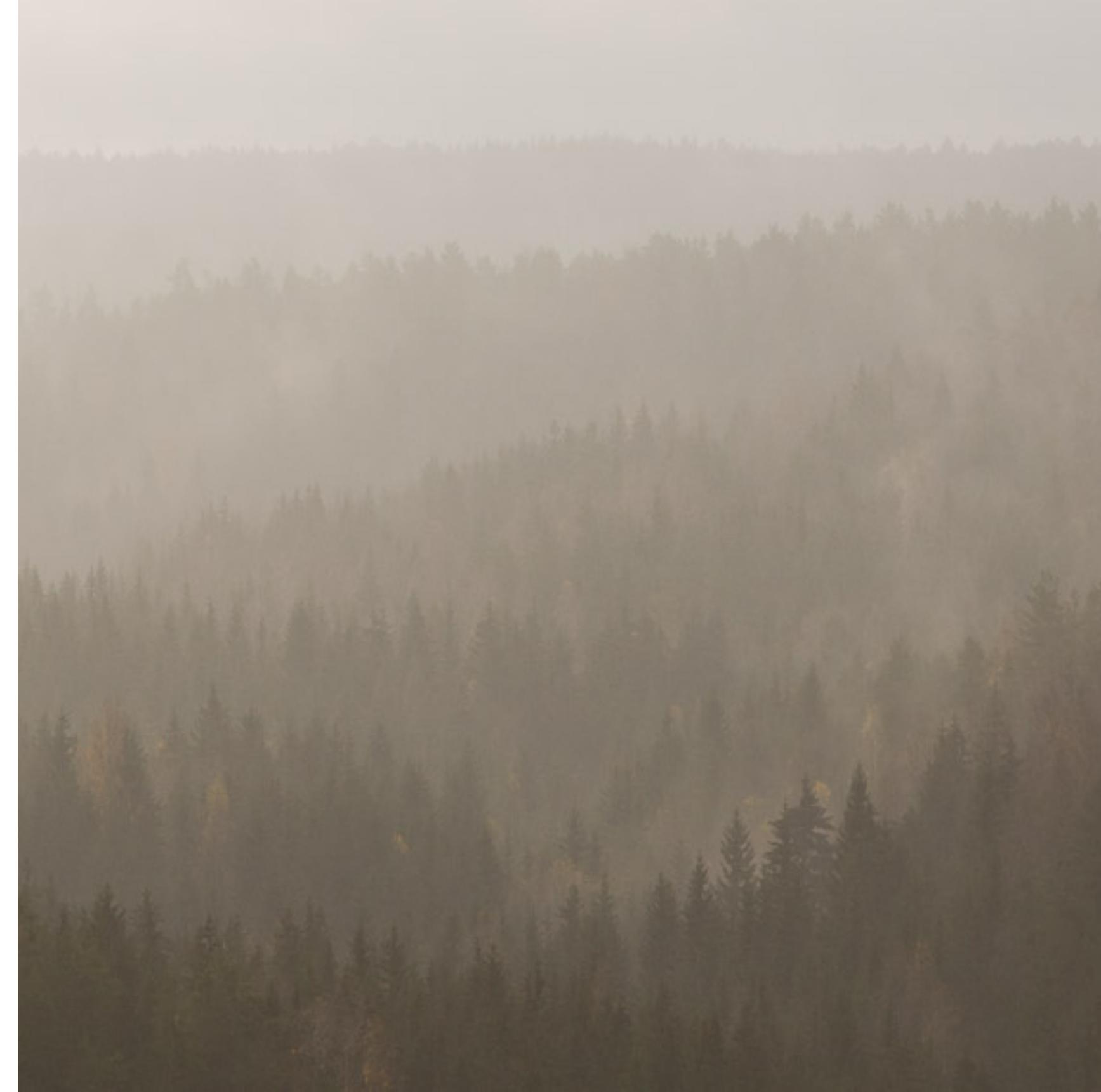
**Definition:** Tactile and visual quality of a shape or space made up of different colors, materials, and different structures.



<sup>6</sup> Image source

# Value<sup>7</sup>

**Definition:** The intensity in which a design element is expressed.



<sup>7</sup>Image source

# Principles of Design

# Principles of Design

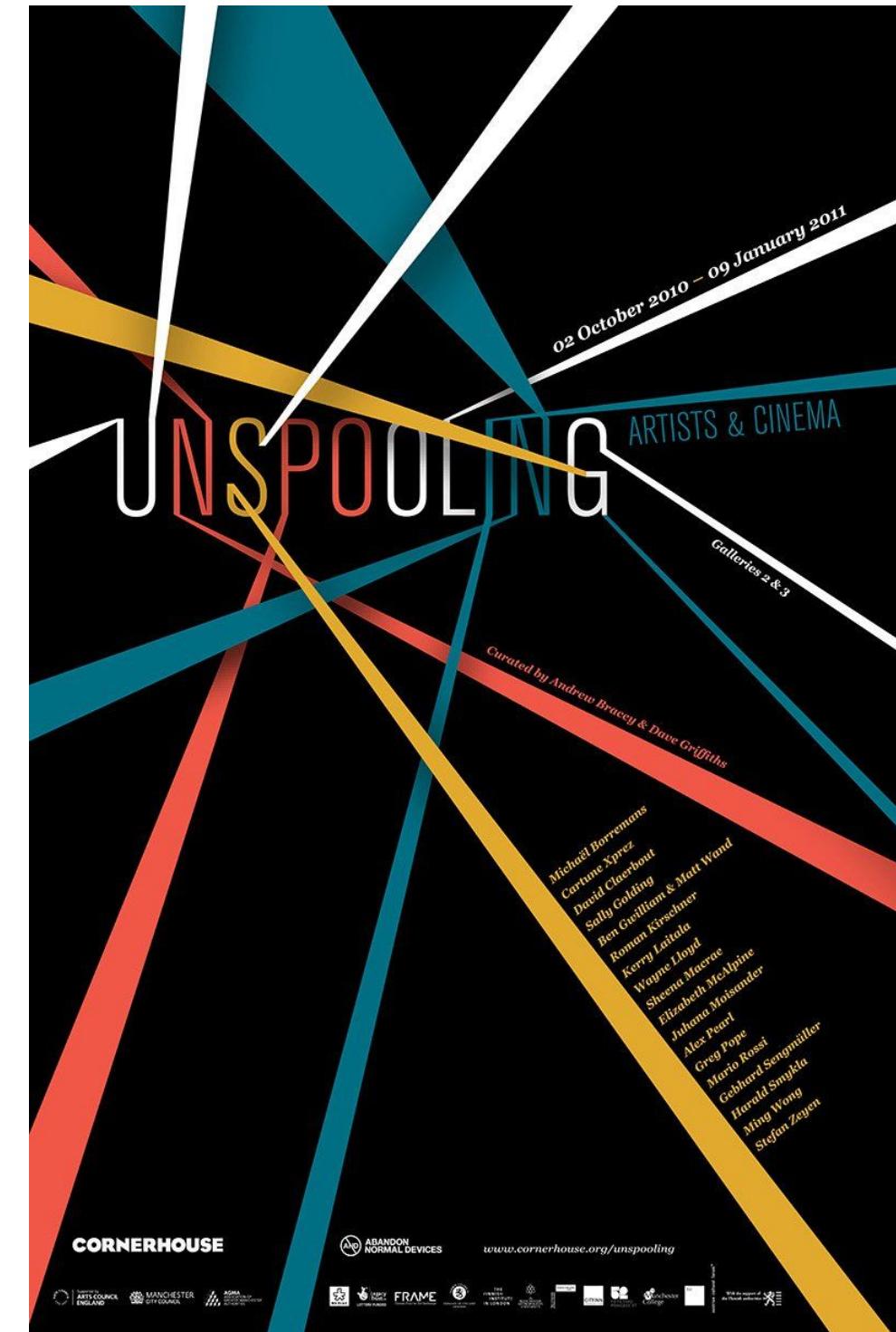
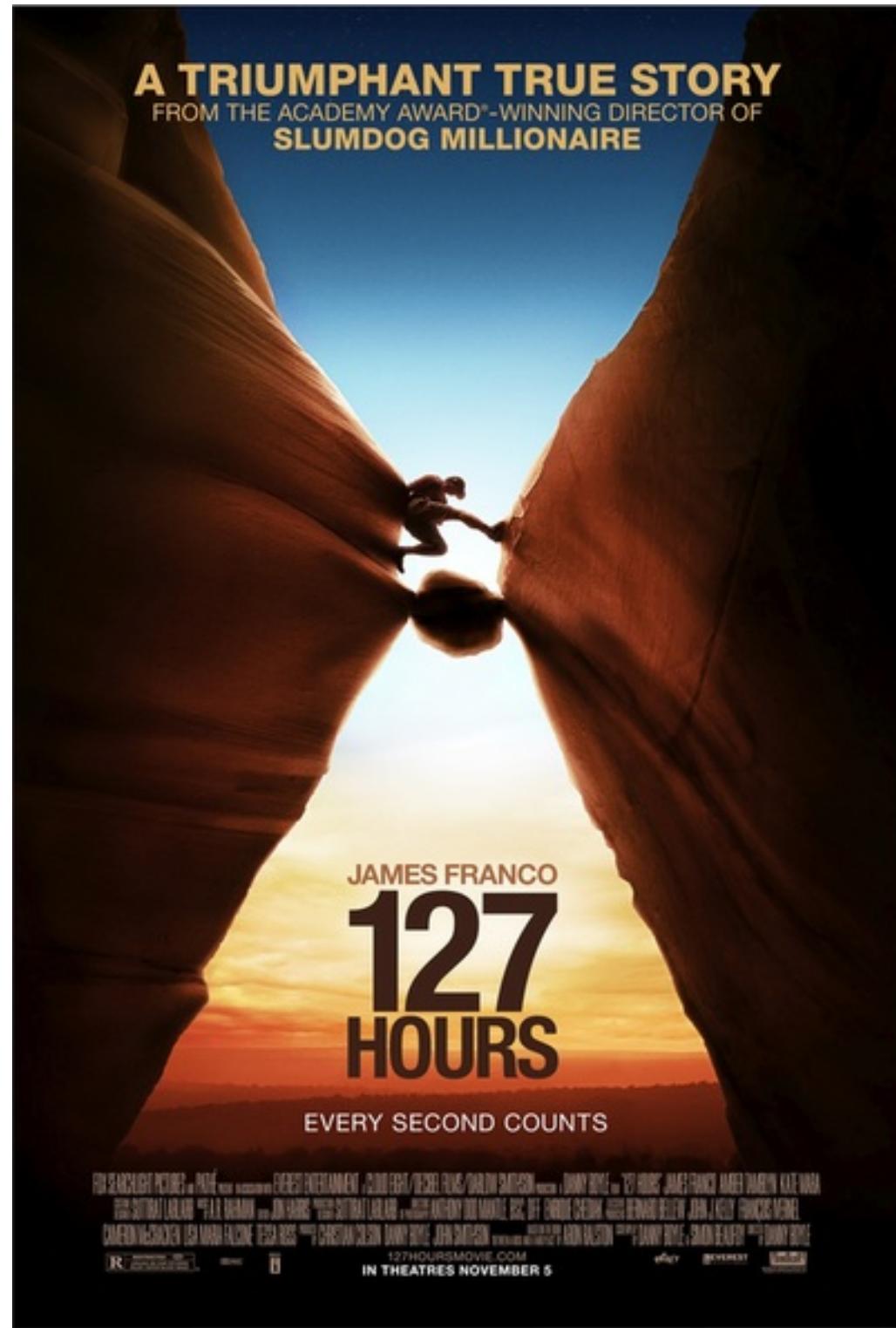
1. Focal Point
2. Contrast
3. Balance
4. Movement
5. Rhythm
6. Perspective
7. Unity

# Focal Point<sup>8</sup>

**Definition:** Focal point, or the area of visual interest, is where the design directs the attention of the viewer first.



<sup>8</sup> Images sources: this slide, next slide: left, right



# Contrast<sup>9</sup>

**Definition:** Contrast, is the juxtaposition of design elements that strikingly differ from each other to guide user attention and action.



<sup>9</sup> Image sources: this slide, next slide: left, right



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DJ Permutt



# Balance<sup>10</sup>

**Definition:** The organization of design elements on a canvas to provide a sense of visual balance or imbalance.

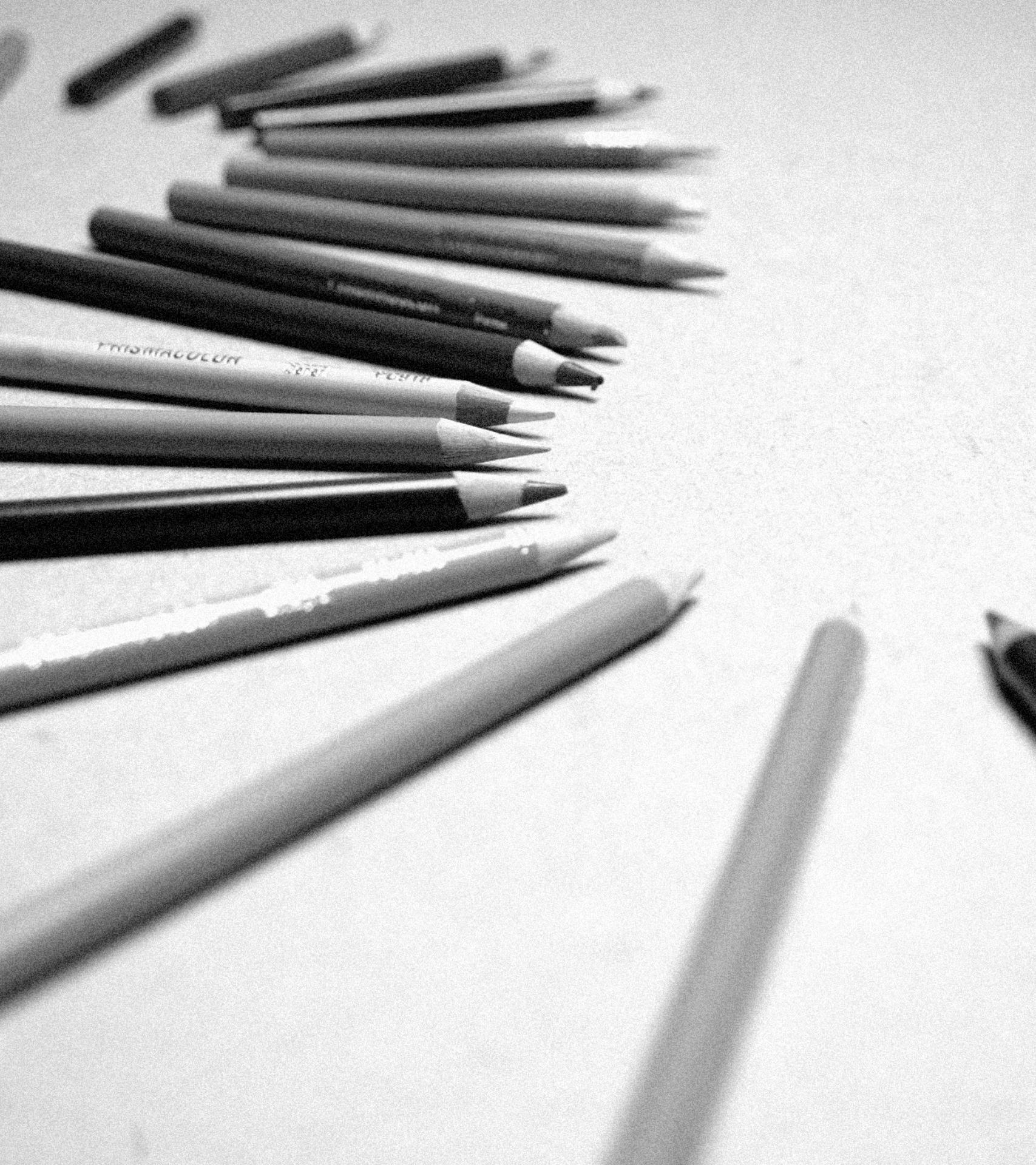
*Pro Tip:* Balance can be achieved through *symmetry* or *asymmetry*.

<sup>10</sup> Image source



# Movement<sup>11</sup>

**Definition:** The organization of design elements in a way that suggests a particular flow on the canvas to direct the user's attention.



<sup>11</sup> Image source

# Rhythm<sup>12</sup>

**Definition:** Patterned use of design elements in a way that communicates movement or order.

<sup>12</sup> Image source

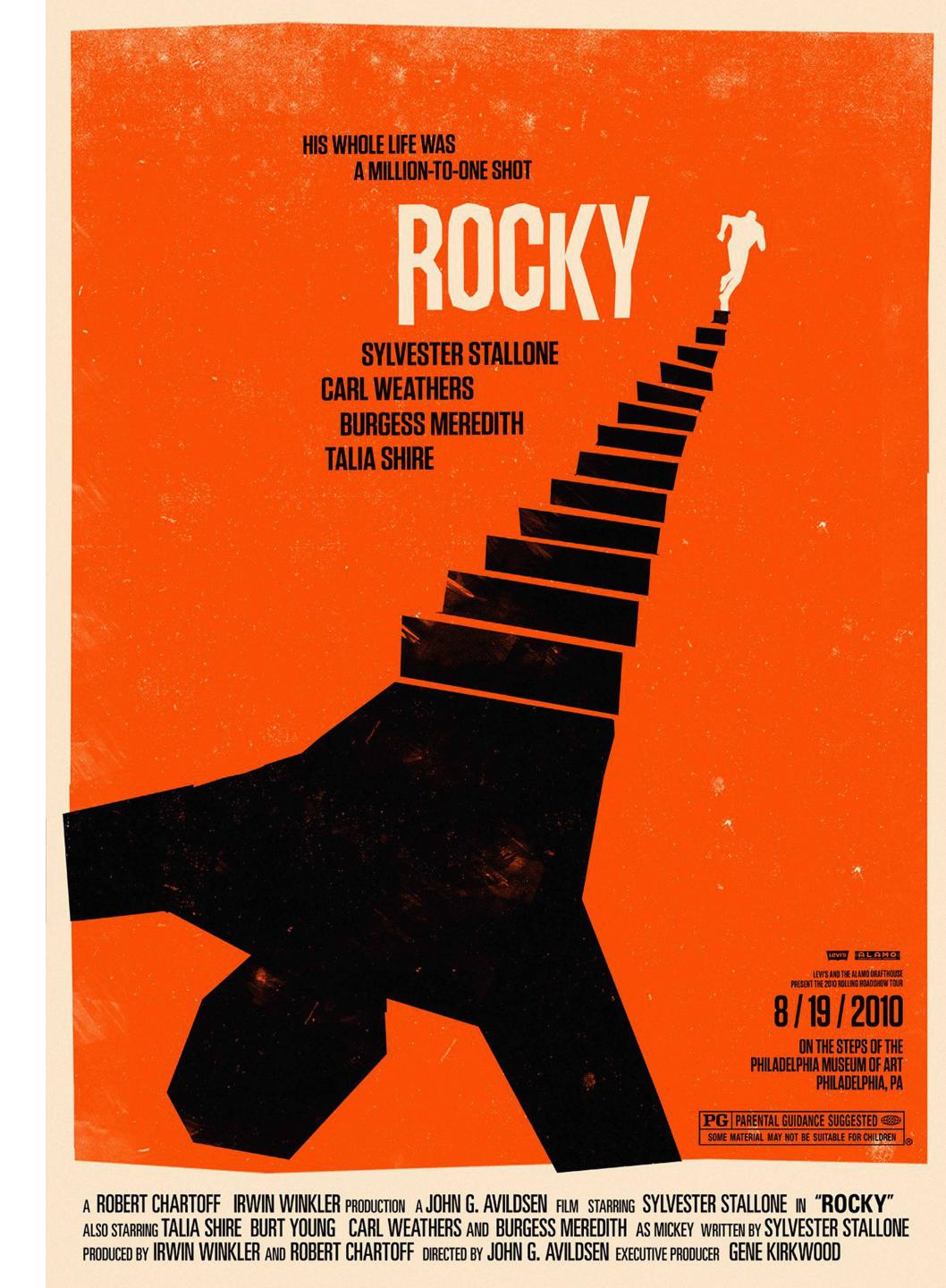


# Perspective<sup>13</sup>

**Definition:** Creating a sense of horizon and movement along the depth axis of canvas.

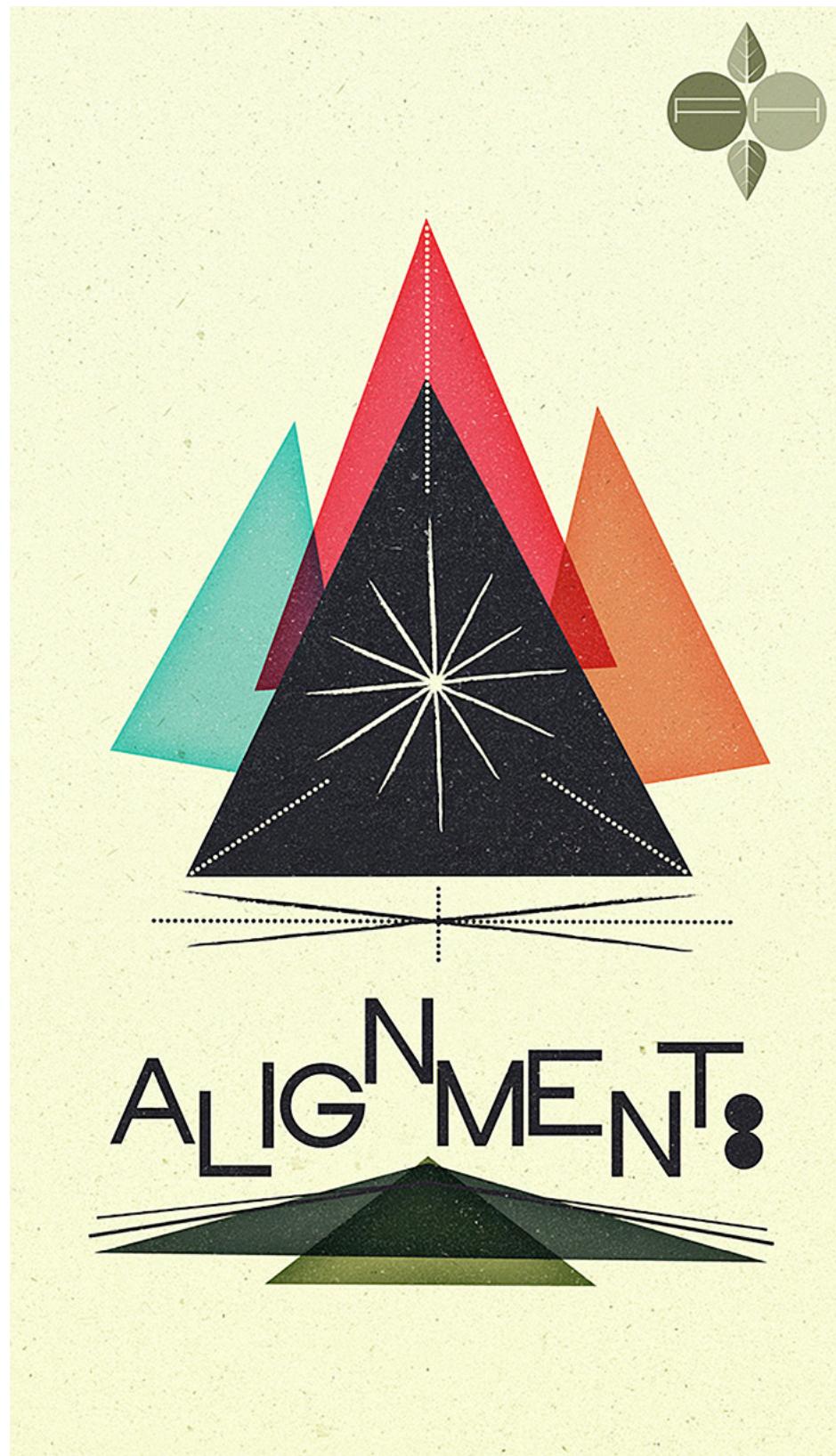


<sup>13</sup> Image sources: this slide, next slide: left, right



# Unity<sup>14</sup>

**Definition:** Unity reflects the holistic consistency in the use of design elements.



<sup>14</sup> Image sources: this slide, next slide: left, right



**This all sounds good. But  
how do we actually use  
these?**

# Some Strategies

- Create *cheat sheets*, and *checklists*
- Analyze existing designs using these tools to build visual analysis skills
- *Practice* designing using the principles
  - *Pro Tip:* Your canvas should have no elements that do not follow an overall principle

# ICA B: Visual Design

Analyze an existing page using the design elements and principles

- What elements can you see in use?
- What principles can you see in use?
- What problems do you see that can be addressed using design principles?

The screenshot shows the homepage of the Wisconsin State Journal. At the top, there's a navigation bar with links for News, Sports, Food & Fun, Opinion, Obituaries, Politics, and Buy & Sell. On the right, there are buttons for Log In and Become a Member. Below the navigation is a weather widget showing 65° Fair. The main header features the "WISCONSIN STATE JOURNAL" logo with a small capitol building icon. Below the header, there are several news snippets and advertisements. A prominent advertisement for Polo Ralph Lauren is centered, featuring a man and a woman in summer attire. Below the ad, a "JUST IN" section highlights a US COVID-19 vaccine plan. A "Breaking News" section announces the Big Ten's return to football. Other news items include local government updates about mask orders and UW-Madison's response to the COVID-19 outbreak. On the right side, there's a sidebar for "AloneTogether" with a call to action and a trending news section.

# **Key Components for UX Design**

# Key Components for UX Design

We will focus on *type*, *color*, and *images*.

# Type

Definition: Printed letters and characters of language.



# Associated Concepts

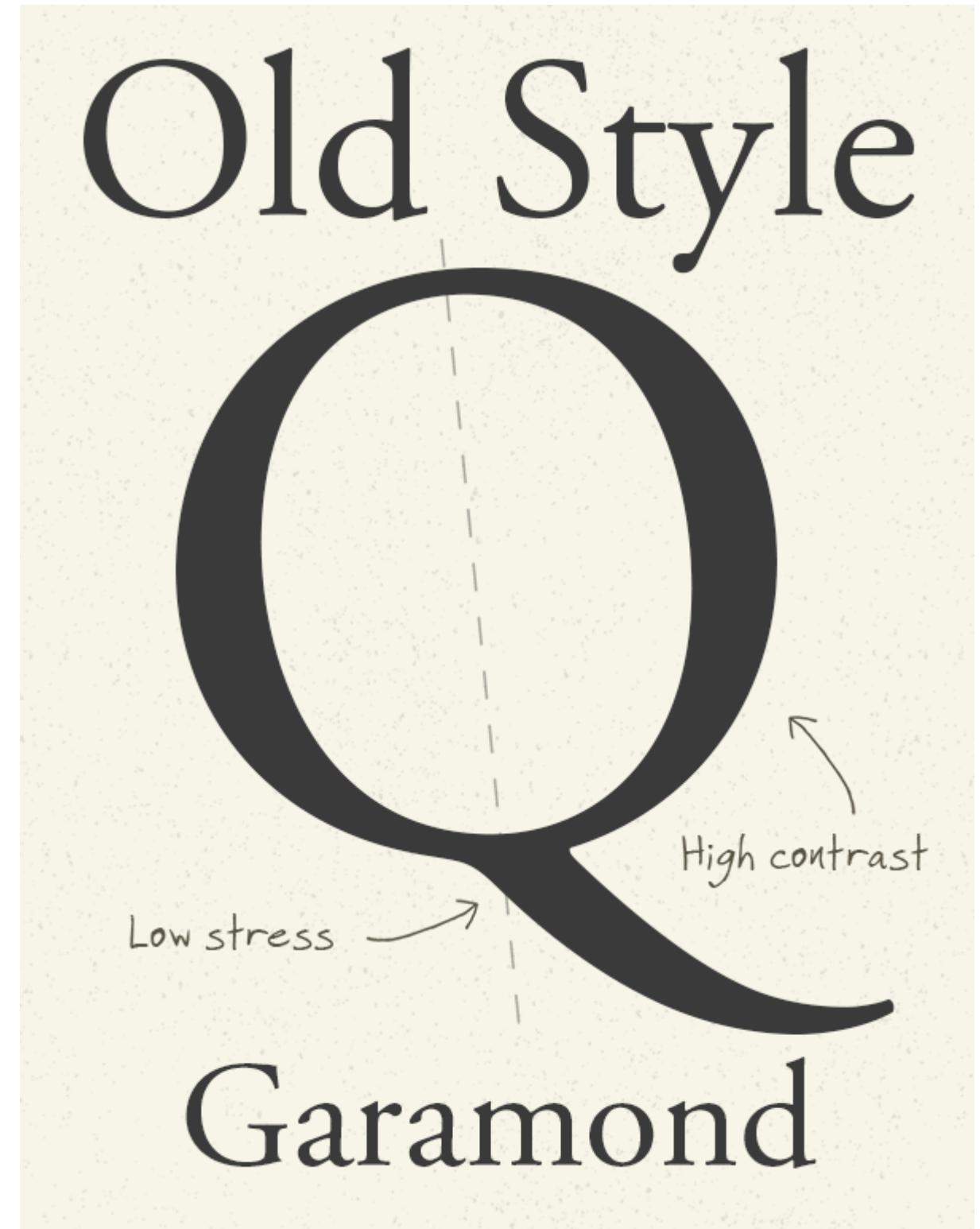
- A **font** is the style in which type is created.
- A **typeface** is a font family that includes fonts of different variations that follow the same style.
- A **glyph** is a particular character.

# Categories of Typefaces

1. Old style
2. Modern
3. Slab serif
4. Sans serif
5. Script
6. Decorative

# Old-style fonts

**Definition:** Old-style fonts have "serifs" at the tips of a glyph that taper closer to the tip.



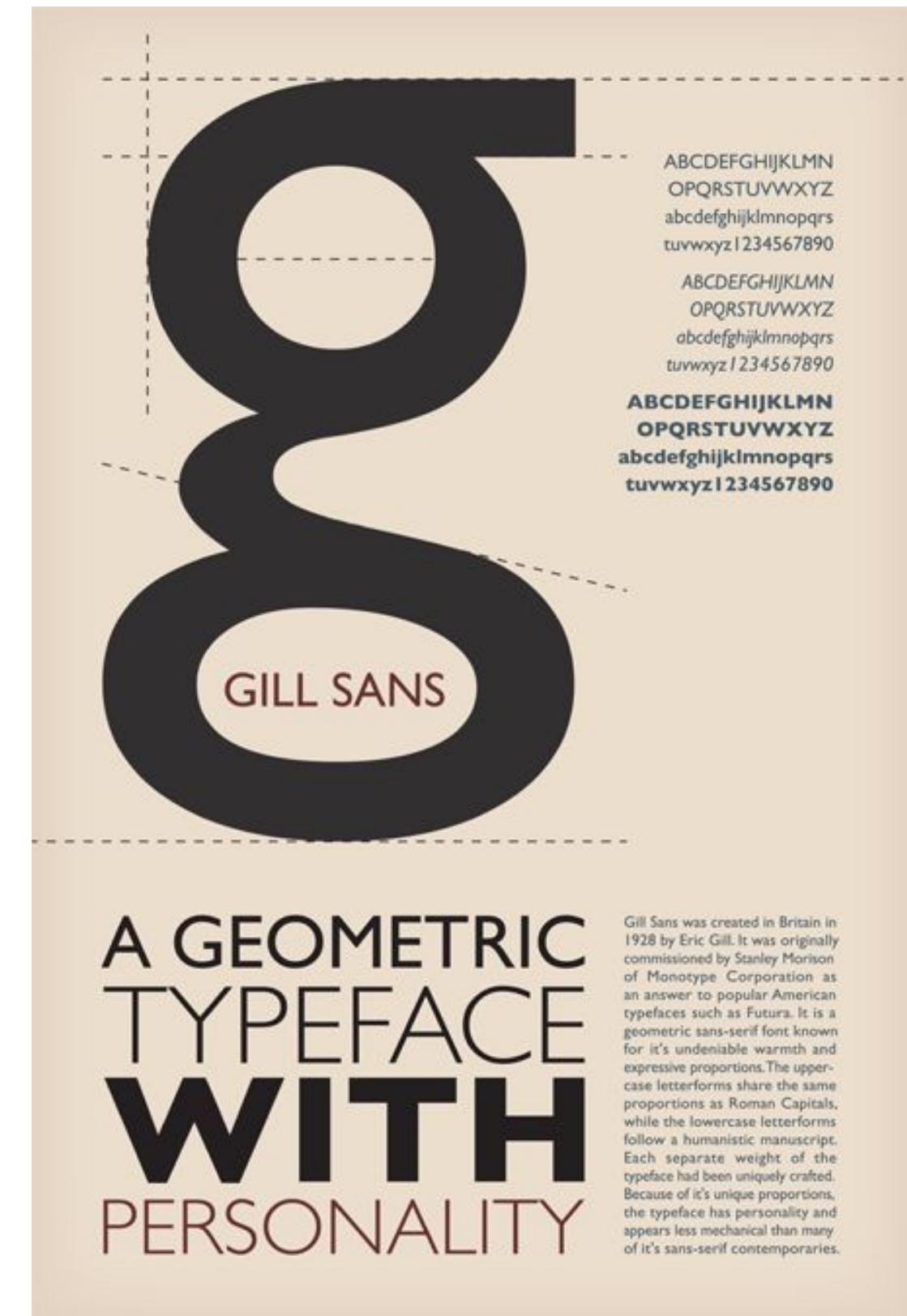
# Modern & slab-serif fonts

**Definition:** Modern and slab-serif fonts have very thin or very thick serifs.



# Sans-serif fonts

**Definition:** Sans-serif fonts lack the serif at the tips of the glyphs, and their strokes follow uniform weight.



# Script fonts

**Definition:** Script fonts simulate cursive writing where glyphs connect with each other at the downstroke.



# Decorative fonts

**Definition:** Decorative fonts are designed specifically to convey a particular context or elicit a particular feeling, e.g., "gothic."



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Galdino Otten

# Font parameters

- Style variations: bold, italic, oblique
- Caps: all caps, small caps
- Weight: extra light, light, medium, bold

Muller™ Styles Overview  
**Weights**

Hairline & Hairline Italic

Antimon

Thin & Thin Italic

Beryllium

UltraLight & UltraLight Italic

Californium

Light & Light Italic

Sauerstoff

Regular & Italic

Dysprosium

Medium & Medium Italic

Unununium

Bold & Bold Italic

Quecksilber

ExtraBold & ExtraBold Italic

Kohlenstoff

Black & Black Italic

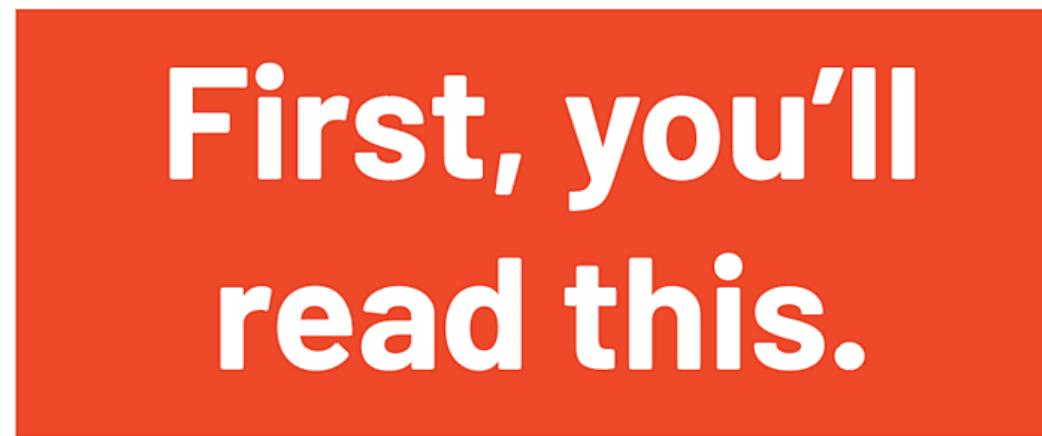
Wolfram

Heavy & Heavy Italic

Seaborgium

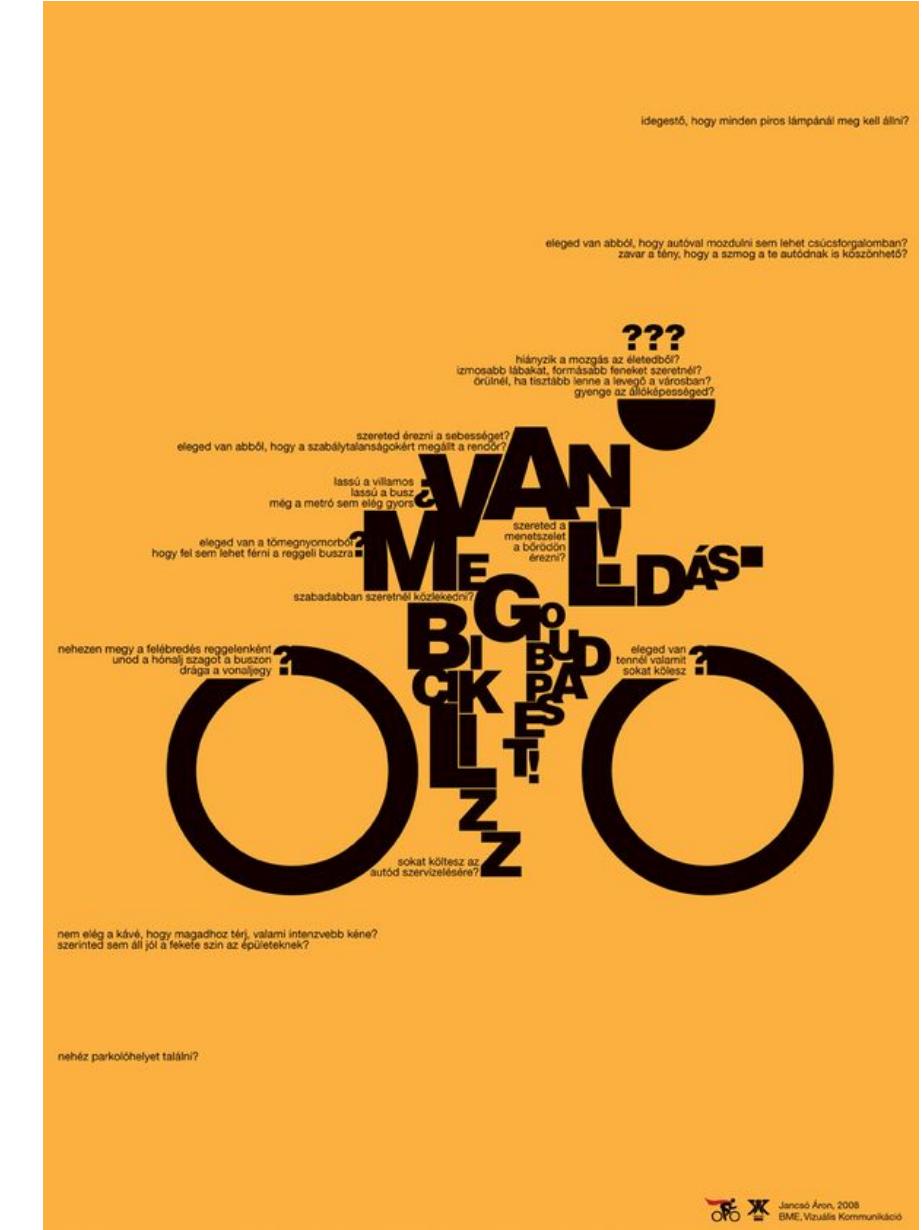
*Pro Tip:* Type alone can be used to achieve design principles, such as *hierarchy* and *movement*.

You'll probably see this last.



Then, you'll read this.

And then this.



*Pro tip:* For good typography, become familiar with *leading*, *tracking*, *kerning*, *widows*, *orphans*, *rags*, *rivers*.



kerning  
tracking  
leading  
point size  
typeface  
justification  
line width

what is typography?

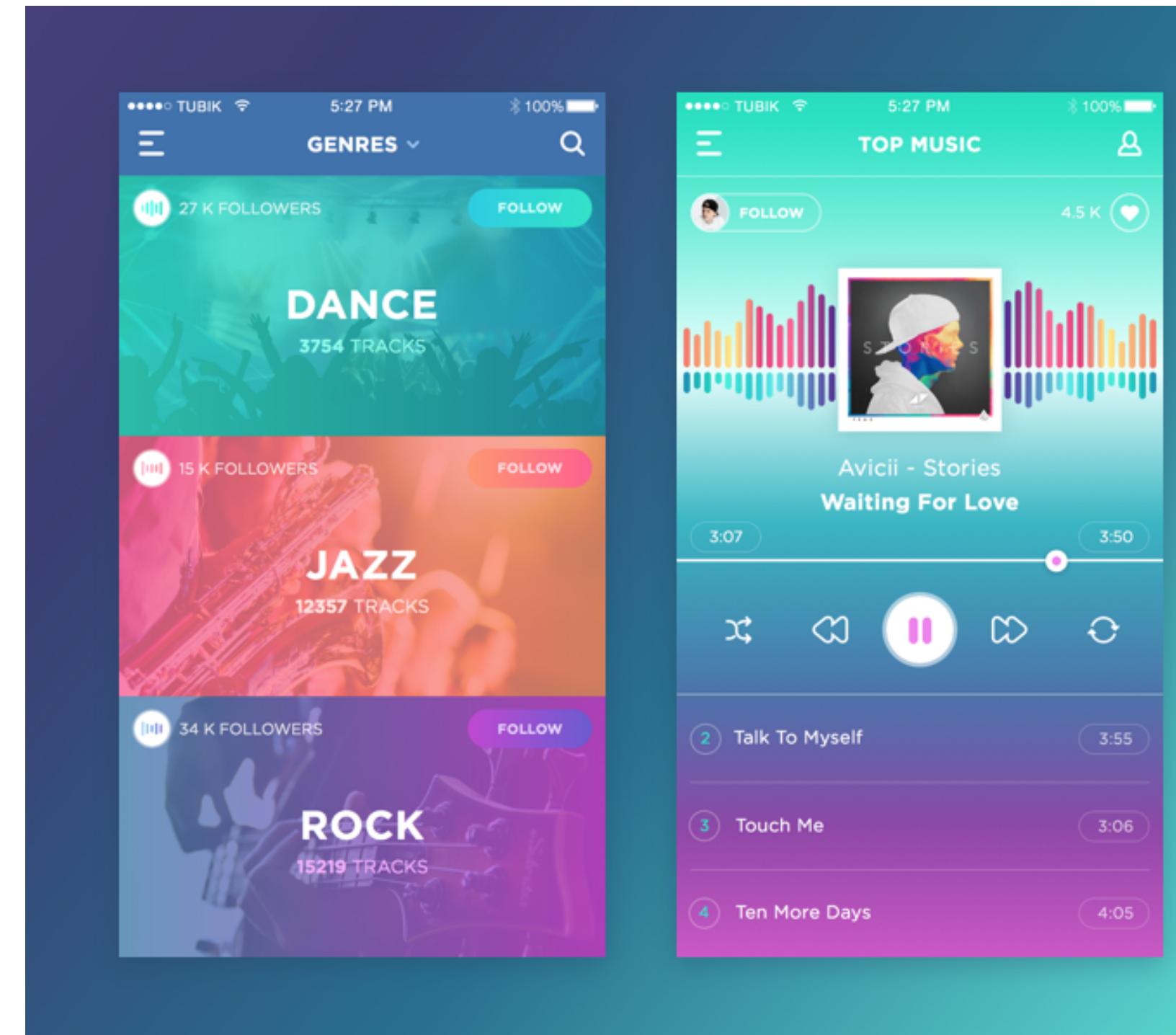
60pt. 125pt.

Baskerville, Helvetica, Futura, Caslon

# Color

**Definition:** Human visual perception of light reflecting from an object.

- Creates emphasis
- Organizes content
- Evokes emotion





# Marketing Proposal

Digital Content Team

Client: UNIVERSITY OF WATERLOO

Presented by: GEORGE ZANDER

“Don’t settle: Don’t finish crappy books. If you don’t like the menu, leave the restaurant. If you’re not on the right path, get off it.”

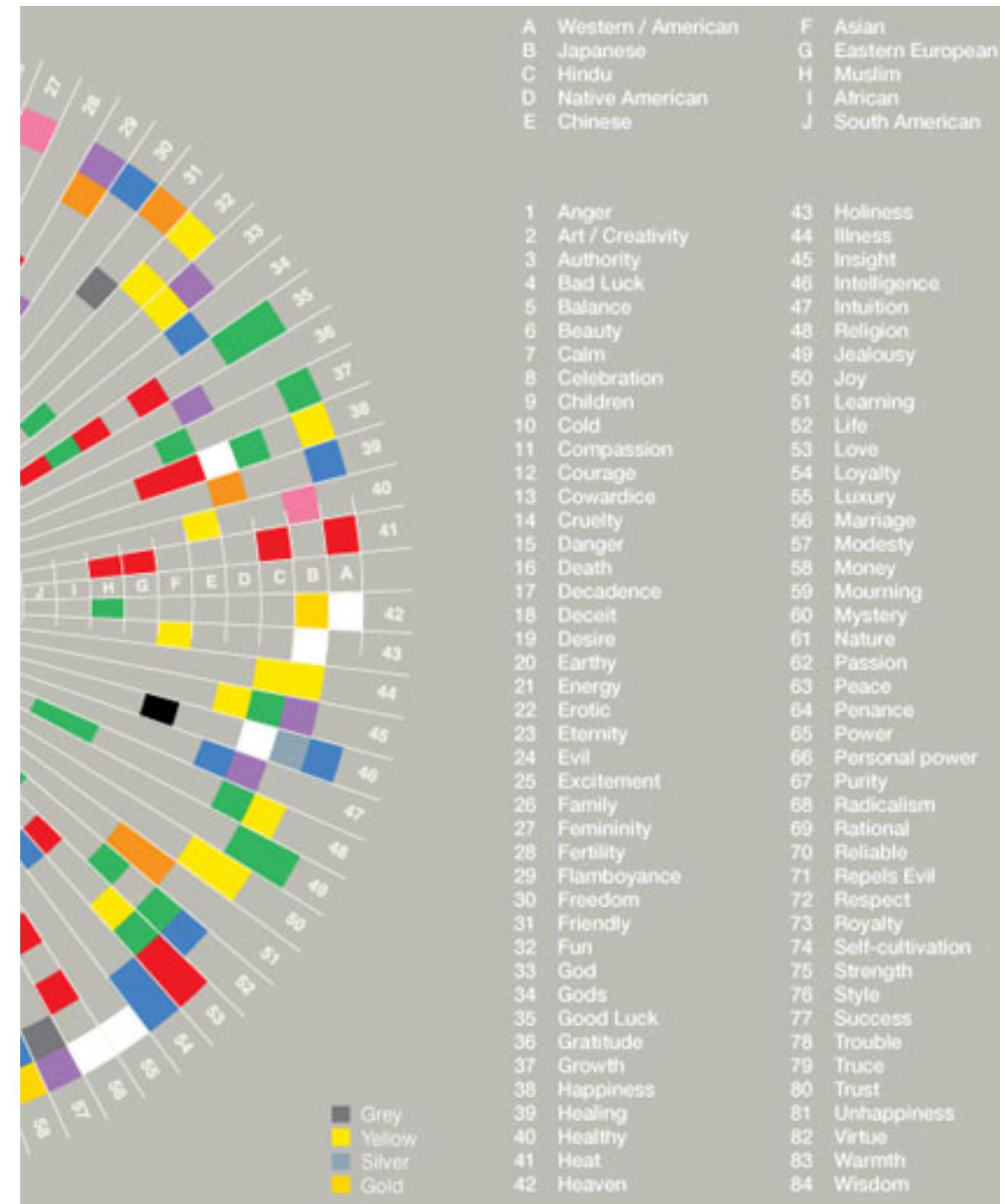
## Our Objectives

- To develop creative, high-impact executions that reach large groups of consumers and maximize viewership.
- To deliver cost effective business to consumer communications that builds a strong consumer relationship.

## Our Overview

Your marketing plan should start with an executive summary. The summary gives a quick overview of the main points of the plan.

Although the executive summary appears at the beginning of the plan, you should write it last. Writing the summary is a good opportunity to check that your plan makes sense and that you haven’t missed any important points.

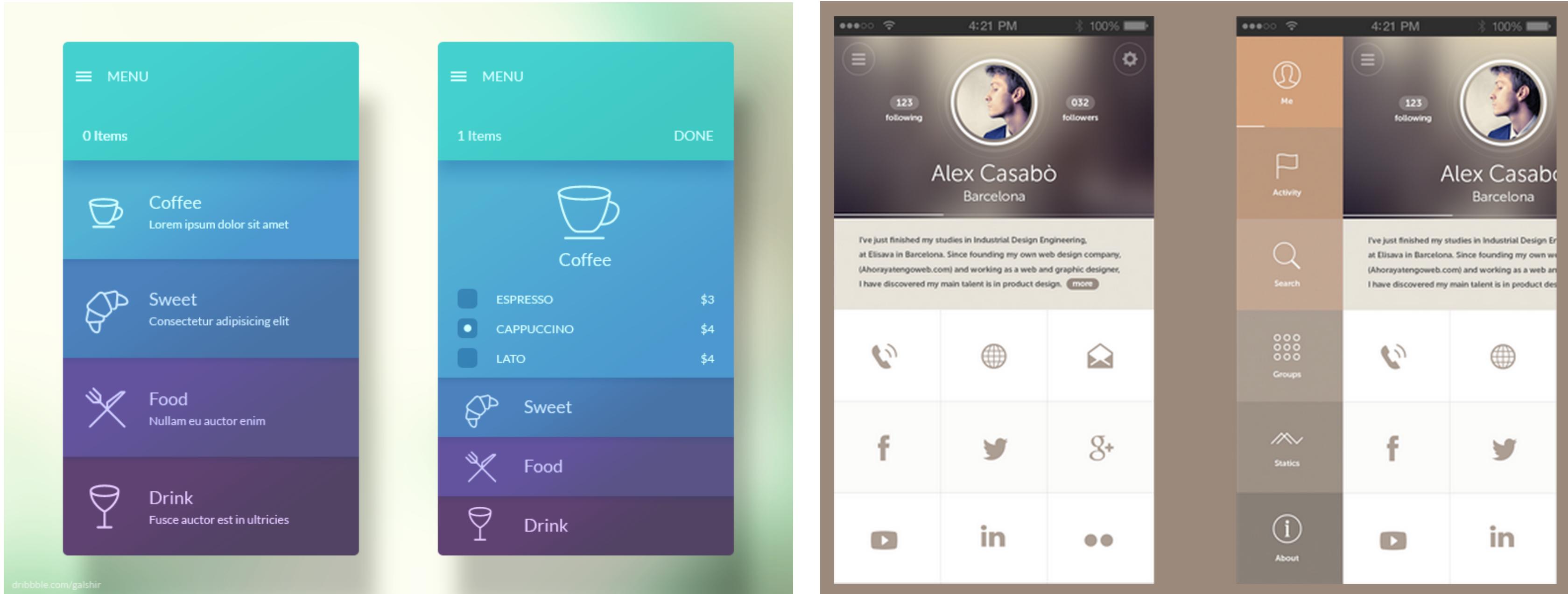


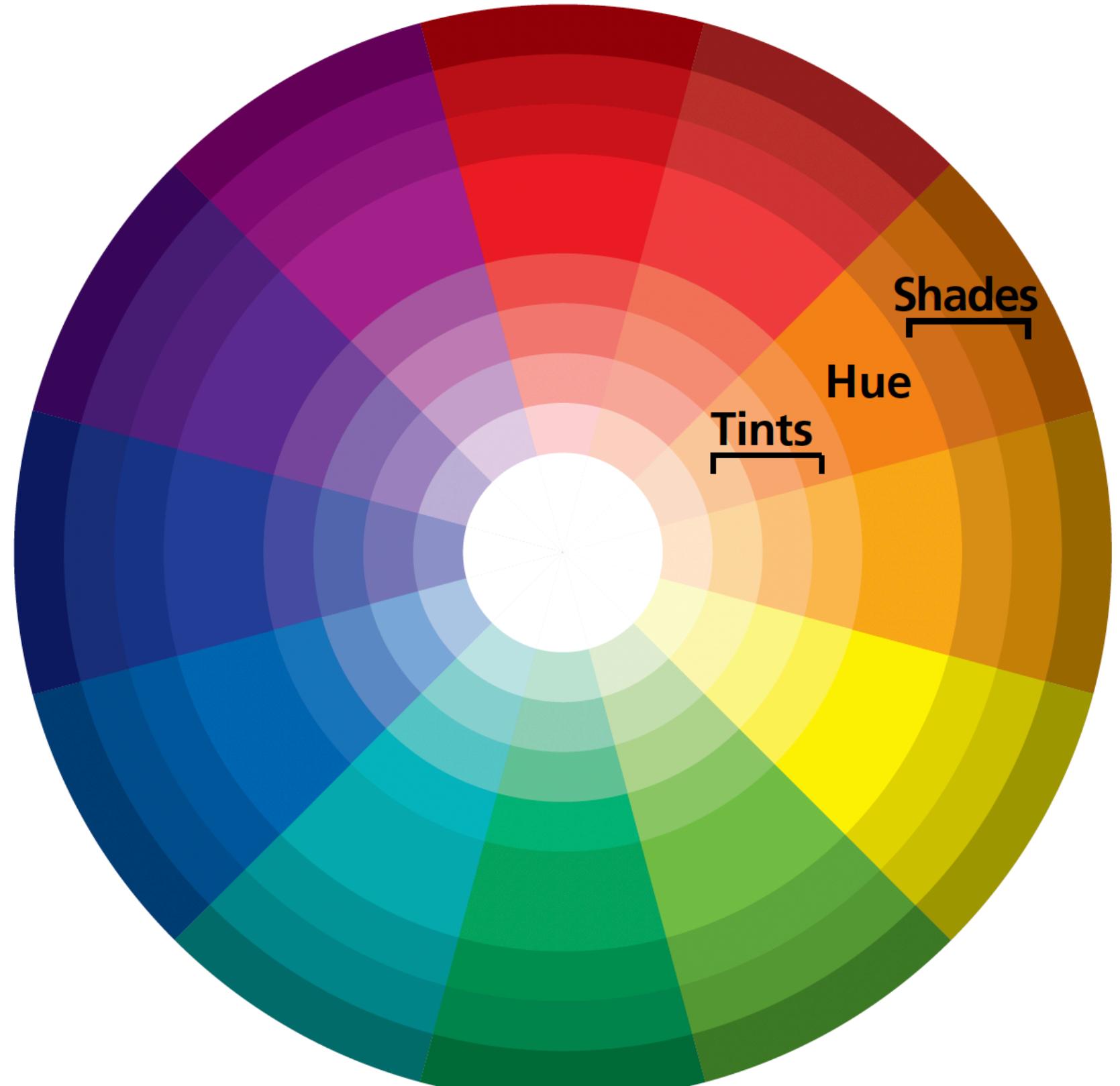
# The Color Wheel

- Primary, secondary, tertiary colors
- Tints, shades, tone
- Complementary colors
- Warm, cool colors

## The basic colors







Hue



Saturation



Value

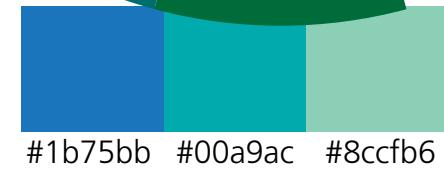
# Color Palettes

1. Analogous
2. Complementary
3. Split Complementary
4. Triadic
5. Monochromatic
6. Achromatic

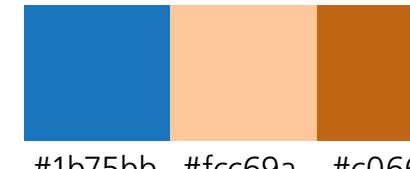
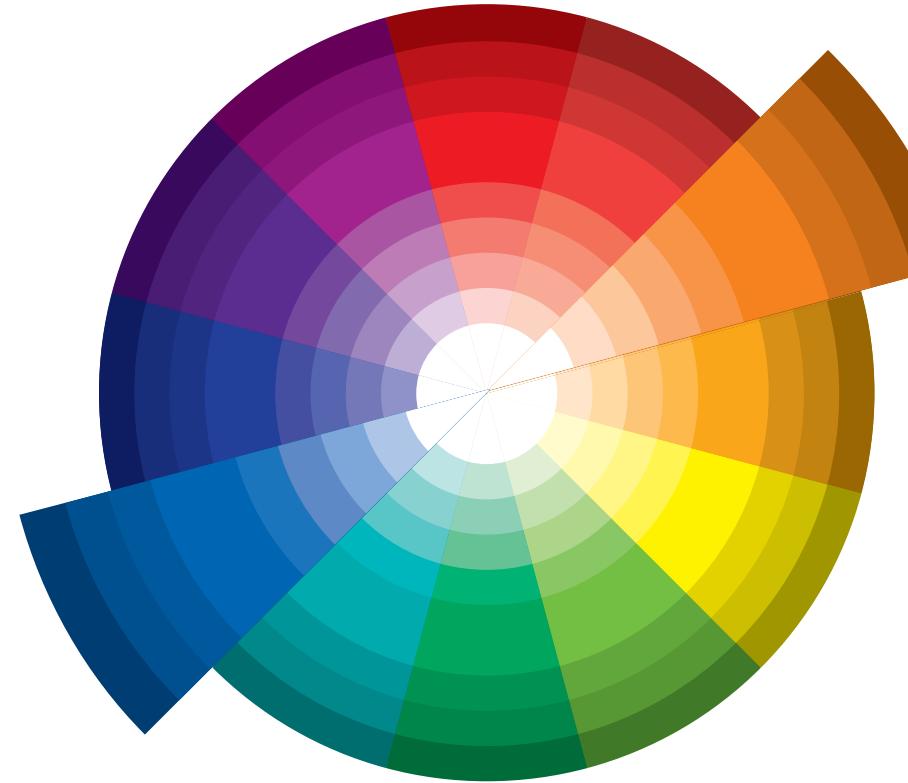
## UNDERSTANDING COLOR THEORY



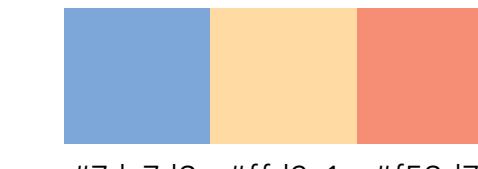
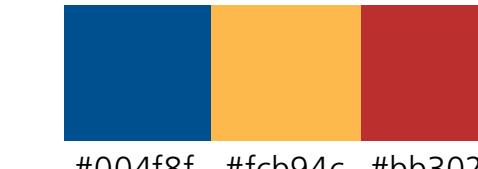
# ANALOGOUS



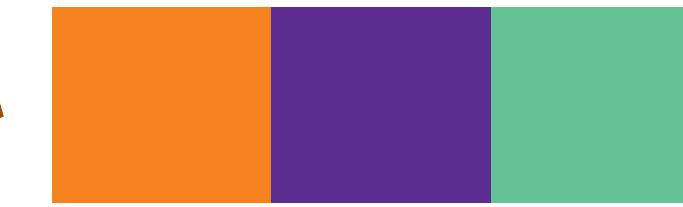
# COMPLEMENTARY



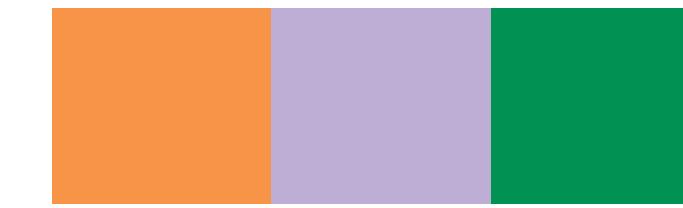
# SPLIT-COMPLEMENTARY



# TRIADIC



#f5821f #5c2d91 #65c194



#f79447 #bbaed5 #009252

# MONOCHROMATIC

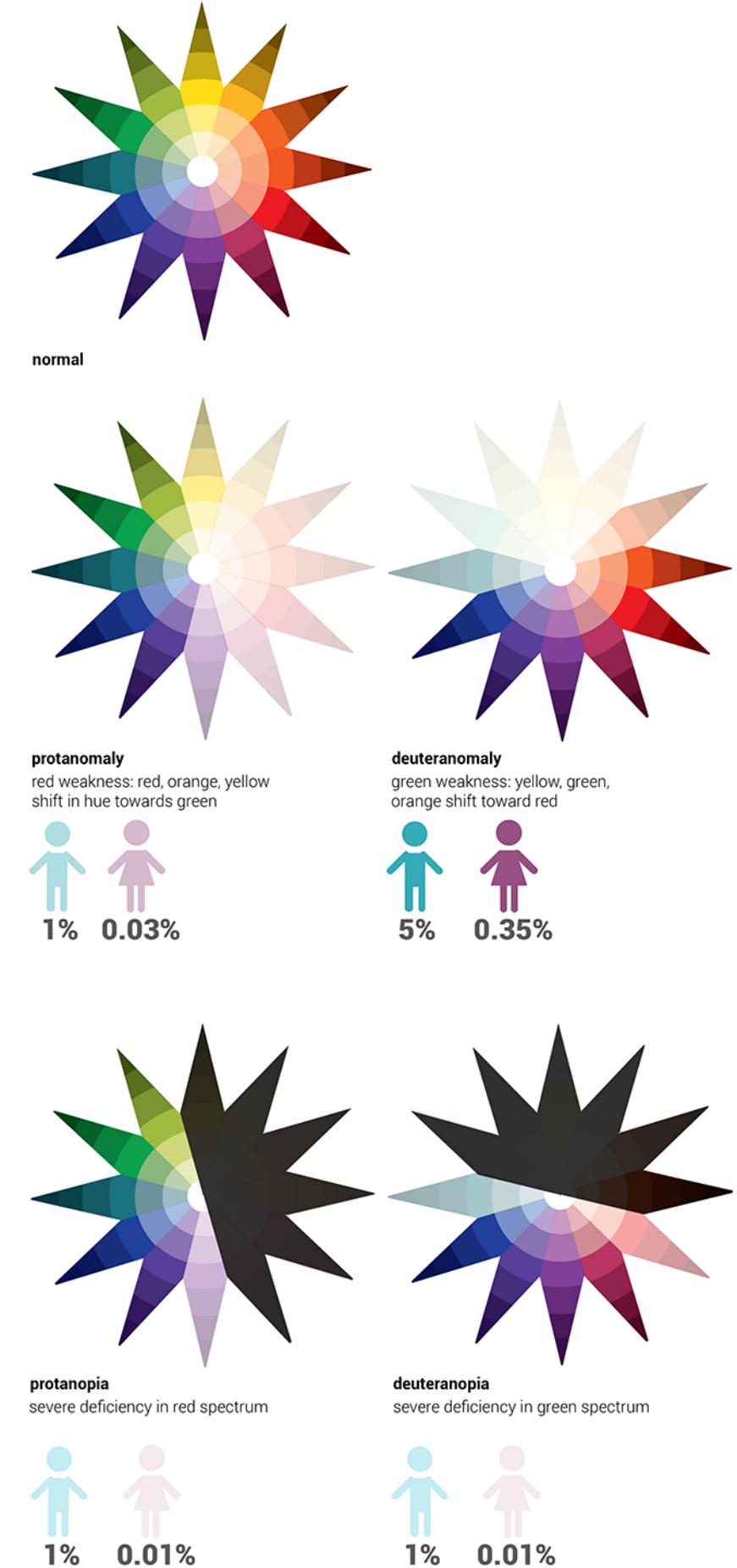


# ACHROMATIC



# Color Vision Deficiencies

- Affects 8% of males, 0.5% of females
- Consider alternatives
  - *Intensity* vs. *hue* for emphasis
  - *Size* of colored elements
  - *Proximity* of similar colors
- Use tools to check designs



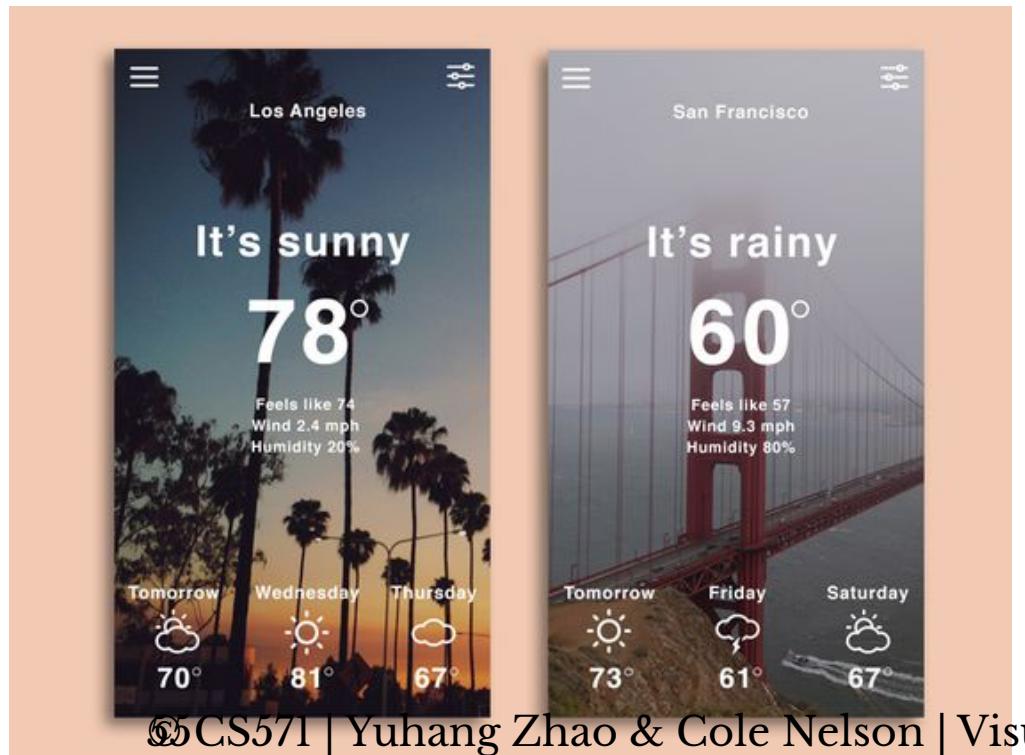
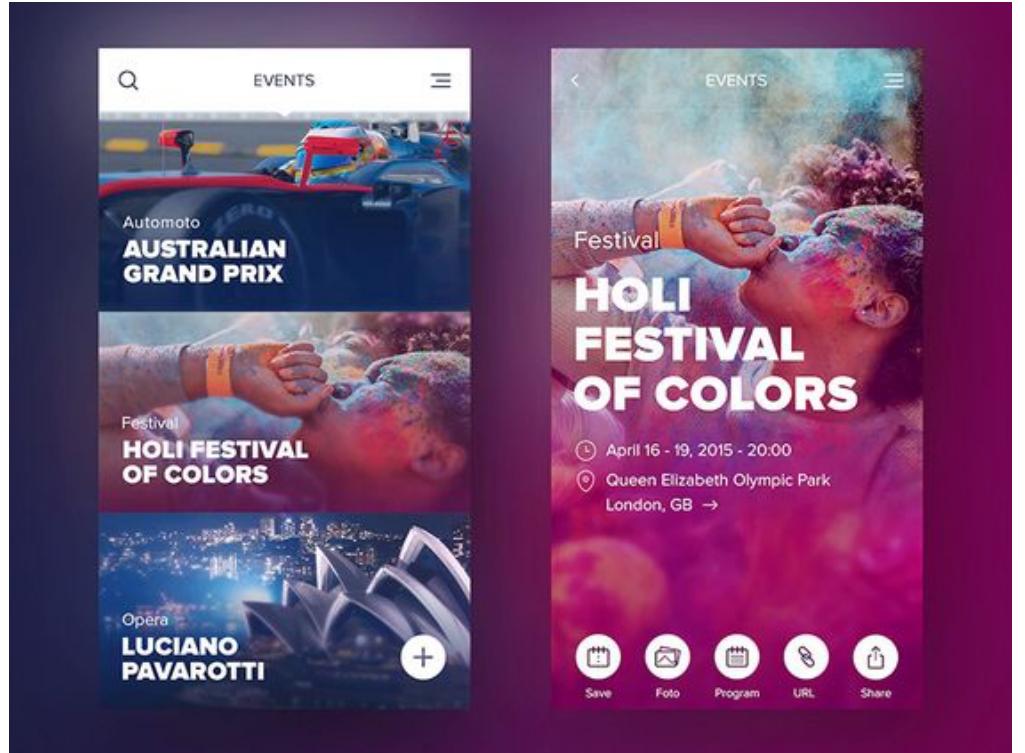
# Images

**Definition:** Photographs, illustrations, three-dimensional art, silhouettes, icons, dingbats, infographics, and simpler shapes that convey rich information or context.

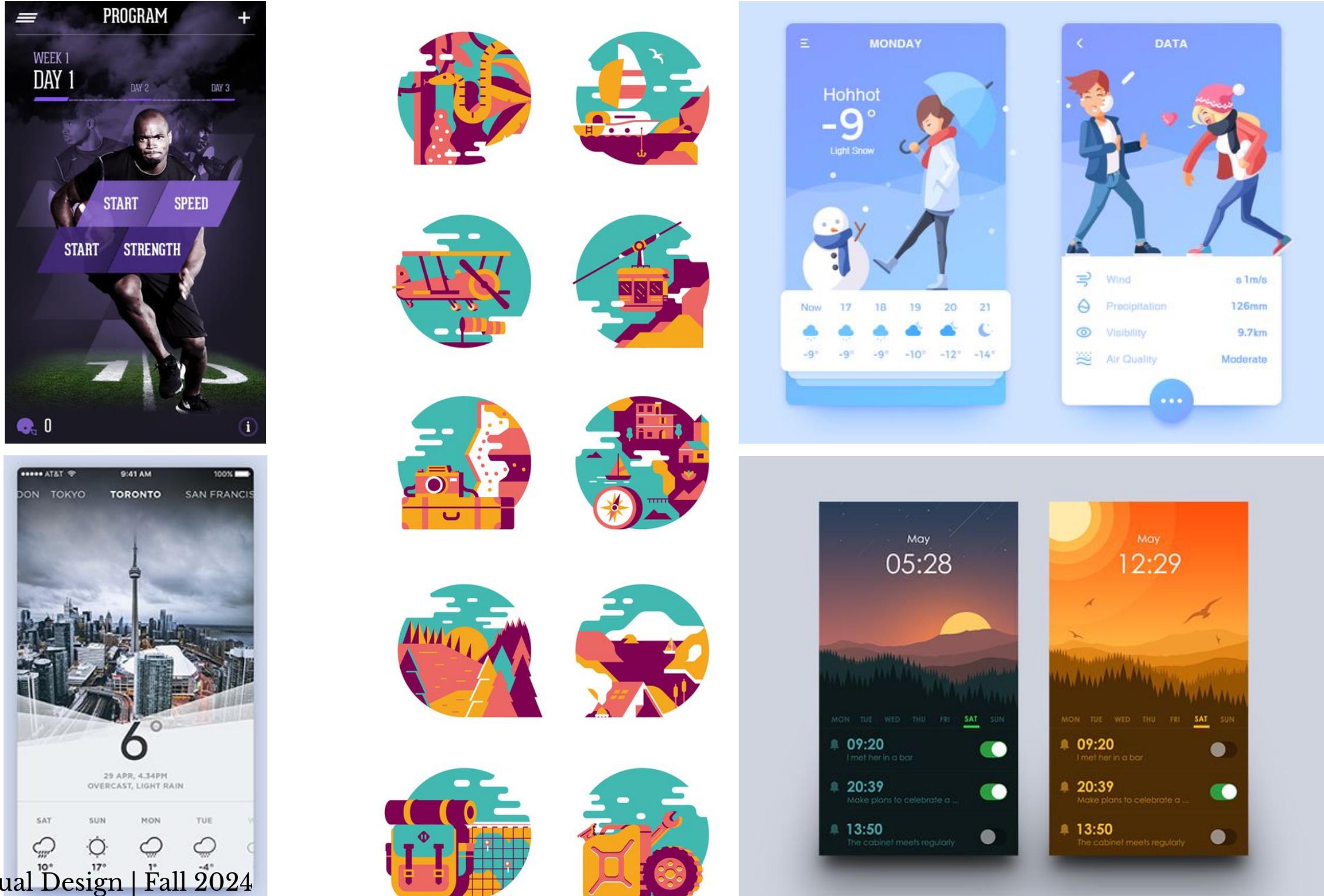
TABLE 5.1. Graphic types to use for varied goals.

Instructional or Communication Purpose	Consider These Graphic Types
Depict concrete objects	Photograph 3-D graphic Illustration Clip art (particularly in diagrams and as game elements)
Tell a story or provide a scenario	Sequence of photographs Sequence of illustrations Timeline
Persuade an audience	Sequence of photos or illustrations to tell a story Photographs that evoke emotions Visualization of statistics and data
Explain unfamiliar or complex concepts and theories	Visual metaphor Diagram showing connections
Demonstrate a procedure	Show the steps in a sequence of photos or illustrations Flow chart Series of screen captures for software simulation
Explain a process	Diagram the stages or operations of the process Icons or simple illustrations to represent each component
Point out something specific	Arrow or pointed shape Highlight Outline of a circle
Depict components of a system	Illustrated object with labels Diagram of the structure
Make comparisons	Bar graph Pictograph Line graph with multiple lines Table (when specific values are important)
Demonstrate trends in data	Line graph Scatter plot
Organization of information	Various chart types (hierarchical, radial, etc.) Concept map
Demonstrate motion without animation	Show object moving along a path Illustrations with motion lines Illustrations with arrows or dashed lines depicting movement
History or changes over time	Timeline (these don't have to be arrows) Sequence of photos or illustrations

# RASTER GRAPHICS



# VECTOR GRAPHICS





◀ More Realistic

Less Realistic ▶



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**SANDSTORM** -3 BEIJING

23.08 BEIJING DEC 31

**SUZHOU** 2 SUZHOU

23.08 SUZHOU DEC 31

wondr

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# ICA B: Visual Design

Analyze an existing page with an eye for color, type, and image.

- What can you see?
- What are their purposes (if any)?
- How could you improve the design?

# **ICA B: Visual Design**

Create your own webpage for a product!

# Questions?