Designing with color means controlling color interaction. We have looked at different varieties of color interaction in our presentation on color contrast, but how can effective combinations of colors be selected?
Color harmony implies an objective balance between the colors in the hue circle based on their geometric relationships. The geometric shapes (triangles, rectangles and squares) are tools for visualizing these contrasting color relationships.
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There are also color harmonies that do not have a geometric relationship, but are based instead on the similarities of the colors.
Monochromatic
A monochromatic use of color is called a diluted harmony - it is the arrangement of tints, shades and tones from a single hue (in this case red).

Various tints, shades, and tones of red.
**Analogous**

An analogous harmony uses three colors that sit next to each other on the hue circle. The three colors will share at least one of the primary colors and at most two primaries. Analogous colors have a low hue contrast.

Various tints, shades, and tones of red, orange & yellow
Dyad
Complementary
The most fundamental contrasting color harmony is the dyad. A Dyad is a color harmony made up of two complimentary hues. The colors in a complimentary dyad are diametrically opposite each other on the hue circle.

Various tints, shades, and tones of the complementary pair violet and yellow-green
Triad
A Triad is a color harmony using three hues more or less equally spaced on the hue circle.

Various tints, shades, and tones of green, red-orange & blue-violet
Triad - Split Complement
A split complement harmony uses a color (here blue-green) with the two colors that on either side of its complement.

Various tints, shades, and tones of blue-green, red-orange & magenta
**Tetrad**
A tetradic harmony consists of two sets of complements, four colors total. The relationship between the complements can be described by a square (see above) or a rectangle.

**Double Split Complement**
A double split complement is also a tetrad that uses two complementarily pairs, but their proximity on the hue circle creates a rectangle. An example is red, green, orange, and blue.
Hexad
A hexadic harmony consists of six hues equally spaced in the hue circle. One hue separates each member of the harmony. The harmony consists of three sets of complements.
In his book, Color Structure and Design, Richard G. Ellinger describes three methods for controlling color: Dominance, Contrast, and Repetition. Regardless of the hues used, a color composition can appear balanced and unified if the following occur:

1. Closely related hues dominate an area or the entire composition.
   (eg. Tints of pastel blues and blue-greens)

2. Closely related values and intensities dominate the area.
   (eg. Most of the values are darker and the colors are fairly intense)

3. The colors are repeated in various places in the composition.

   One of the greatest problems in color composition is using too many different contrasting hues, values, and intensities at once. This creates a chaotic effect. Using too many equal amounts of the colors can also add to the chaos. It is necessary to establish a dominant theme, with contrasting elements, or accents, peppered throughout the composition.
Monochromatic Color

Picasso

Andy Warhol
Analogous
yellow + yellow-green + green

Georges Braque
Complement: red-orange/cyan
Analogous: yellow-orange/red-orange
hoe wilt u wonen?
want er is

wonen
en
wonen

stedelijk museum a’dam

tot 30 september
binnen 50 cent
buiten gratis te zien

Complement: red/blue-green
Analogous: yellow/red-orange
Double Complement:
yellow-green/violet & red-orange/blue

Paul Signac
Tetrad

Richard Diebenkorn
Hexad:
primaries and secondaries
What is the dominant color relationship? What is a secondary relationship?
What is the dominant color interaction? What is the significance of color extension and proportion?
Which color relationship dominates?
Which supplies contrast?
Notice how Chuck Close uses optical color mixtures to achieve an illusion of a head in space. The range of values and the intense saturations of his colors activate the surface with absolute control.
Using repetition of color and juxtaposition of color complements in various value ranges, he orchestrates this jumble of strokes into a recognizable form.
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Georges Seurat
High hue and value contrast, complements.
Low value contrast, complements.

Susan Stillman
**TriADS: 3 Colors**

A Triad is a color harmony using three hues more or less equally spaced on the hue circle.

**Monochromatic:** Diluted Harmony, the arrangement of tints, shades and tones from a single hue (in this case red)

**Analogous:** three colors that sit next to each other on the hue circle. The three colors will share at least one of the primary colors.

**DYAD: complements**

A Dyad is a color harmony made up of two complimentary hues. The colors in a complimentary dyad are diametrically opposite each other on the hue circle.

**TriADS: Split Complement 3 Colors**

A split compliment harmony uses a color (here blue-green) with the two colors that on either side of its compliment.

**TETRADS: 4 colors**

Two sets of complements, four colors total. The relationship between the complements can be described by a square (see above) or a rectangle.

**TETRADS: Double Split Complement**

Two pairs of complements, one apart on the color wheel. An example is red, green, orange, and blue.

**Hexad: 6 colors**

Six hues equally spaced in the hue circle. One hue separates each member of the harmony. The harmony consists of three sets of complements.

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Colors are shifted in appearance by their proximity to other colors.

All colors seem lighter and more intense against black.

All colors seem darker and less intense against white.

Dark colors and dark values on a background of light colors and values look darker than on a background of dark colors and values.

Light colors and values on a background of dark colors and values look lighter than on a background of light colors and values.

Colors are influenced in hue by adjacent colors, each coloring its neighbor with its own complement.

If two complementary colors lie side by side, each seems more intense by contrast than it does by itself.

Dark colors on a dark background that is not complementary appear weaker or less intense than dark colors on a complementary background.

Light colors on a light background that is not complementary appear weaker or less intense than light colors on a complementary background.

An intense color against a dull or less intense color of the same hue further lessens the intensity of the dull color.

When an intense color is used against a less intense color, the contrast is strongest when the latter is complementary.

Light colors on a light background that is not complementary can be strengthened if bounded by narrow bands of black or of complementary colors. Dark colors on a dark background that is not complementary can be strengthened if bounded by narrow bands of white or of light complementary colors.

The strongest afterimage appears when figure and background (ground) colors have the same value and when the background is large in relation to the foreground figure.” Refer to these observations when you are working on your projects. How can you use them to alter the effect of your design.


“In the middle of the nineteenth century, Michel-Eugene Chevreul (1786-1889), a chemist held in high esteem by the French government, was appointed Director of Dyes at the Gobelins Tapestry Works in Paris. His main concerns were with the visual effects that seemed to occur when solid areas of color were juxtaposed in the course of weaving. Chevreul was to make some insightful observations about how colors interact when placed side by side. Considering that in the nineteenth century his ideas were new and foreshadowed the disciplines of psychology and neurophysiology, his work seems all the more remarkable. The text he wrote on the harmony and contrast of color was widely read during his lifetime, became the guiding technical force behind the Impressionist and Neoimpressionist movements, and is still in print today...

“In The Principles of Harmony and Contrast of Colors, Chevreul cites the following fourteen observations relating to contrast and afterimages: