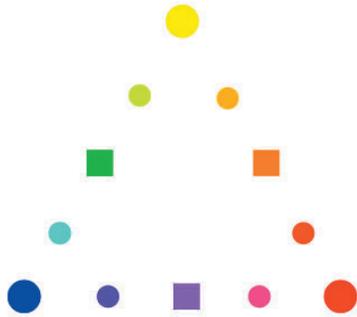


Miller, Mary C.; *Color for Interior Architecture*; 1997

### HARMONIC RELATIONSHIPS OF HUES

... 'Good' interior color depends not only on individual color quality but also on how colors relate to one another harmonically...



#### Color Geometry

Traditional color schemes are based on the geometry of the fundamental hue triangle. Fundamental hues include the visually 'pure', single-ingredient primaries (red, yellow, blue) and the visually balanced 'pure' secondaries (green, orange, purple).

#### Formula Color Schemes

[A basic first step is to consider the following:]

- Monochromatic color schemes. These are drawn from shades, tints, and tones of one hue. They are the safest, most conservative of color combinations, and are widely used as backgrounds in interiors.
- Complementary color schemes. These are based on colors diametrically opposite one another on the hue triangle. When skillfully fine-tuned they can be quite agreeable.
- Contrasting color schemes. Combinations of either 2 or 3 hues taken from any triad relationship on the color triangle.

Adjacent color schemes. Taken from a small arc on the hue triangle. They are

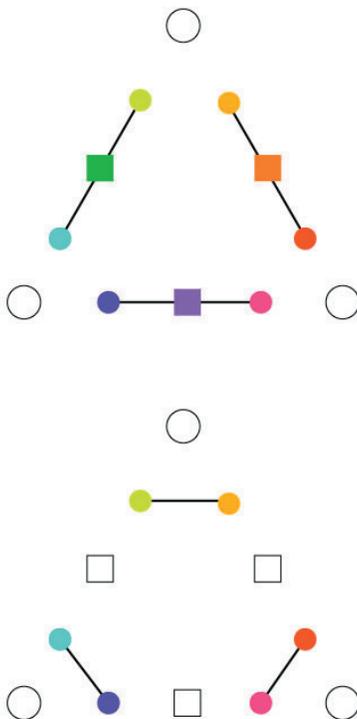
inherently complex relationships (sometimes clashing, others blending smoothly).

#### Consonance, Dissonance, and Discord

Where 2 or more hues appear together, a harmonic relationship exists. This relationship can be consonant, dissonant, or discordant.

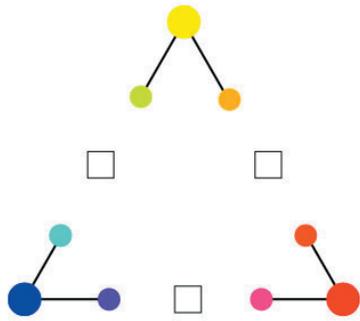
- Consonance implies agreeable colors, colors that attract or enhance one another, colors that blend.
- Dissonance implies sour notes, unexpected/ jarring colors that inject an element of surprise or that provide relief from blandness.
- Discord implies disagreeable conflict, harsh-grating color combinations.

There are 6 primary relationships that include different types of adjacent, complementary, and contrasting colors, + the 3 basic relationships of primaries and secondaries.

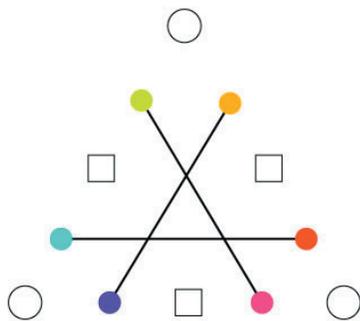


- Structural Inversion: Here 2 hues lie on the same scale (side of the triangle). In this kind of symmetrical relationship, the colors are generally experienced as blending or consonant.

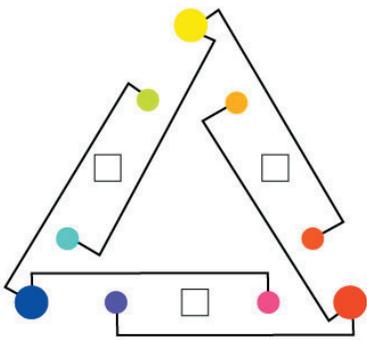
- Similarity of the Dominant: Here adjacent hues lie on either side of a primary. In both of these hues, the same primary is the dominant element. The dominant hue is torn in 2 different directions. Although the effect seems to be jarring, this is a popular use of dissonance.



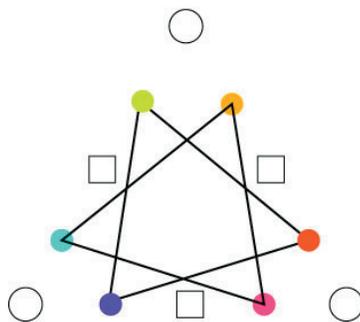
• Fundamental Primary Blended with Subordinate Hue: Here the adjacent hues consist of a primary and a hue in which that same primary is the dominant element. These hues clash more strongly than do hues in structural inversion.



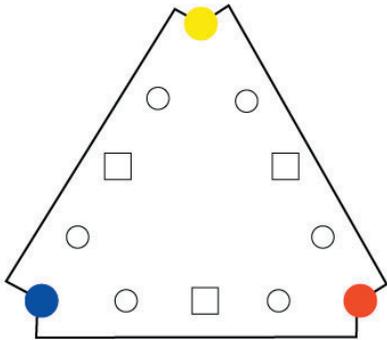
• Similarity of the Subordinate: Hues in this relationship... share a third hue as the subordinate element. The shared subordinate hue serves as a common denominator, making this combination harmonious.



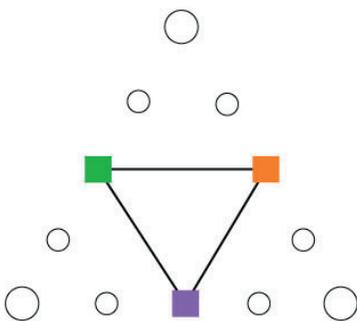
• Fundamental Primary Blended with Leading Hue: In this relationship a polar primary is paired with a hue mixture in which that same primary is the subordinate element. This combination seems to be even more discordant than 'Fundamental Primary Blended with Subordinate Hue'.



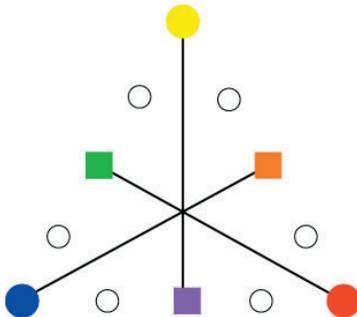
• Structural Contradiction: A primary hue is the dominant element in one hue and the subordinate in the other. The effect is dissonance.



- Primary Triad: All that primaries have in common with each other is that they are primaries; their separation from one another is absolute.



- Secondary Triad: A secondary hue is more complex than a primary because it is a visually balanced intermixture of 2 primaries. Each secondary comes from a different scale, making 2-hue combinations more dissonant than combinations of primaries.



- Primary-Secondary Complementaries: A primary hue and an opposite secondary hue are complementaries.

### Hue, Value, Saturation

Shared hues, values, or saturation levels can affect the ways that colors relate to one another.

A common hue: A hue family is a group of colors that share a common hue. A hue family makes a stronger statement than does an individual color, but 2 different hue families... can clash with each other and be a source of disunity...

Common values and saturation levels: When hues are toned down,... potency is diminished, and hues' ability to clash is mitigated... Extreme differences in saturation can be a source of discord... The 'natural order of hue values' is important. Normally, on a scale of 1 to 10, the natural intensity of colors is perceived as follows: yellow= 9, orange= 8, magenta and green= 6, cyan= 4, violet= 3, blue= 2. We are so used to this, that any use of colors that maintain this scale will be perceived as more consonant than if the normal value relationships are reversed.

### SURFACE COLOR AND LIGHT

#### Color Harmony and the Interior

Colors work the same way at interior scale than they do... in small-scale color studies... In an interior, however,... colors relate to one another even when located across a room from each other or in different parts of a building (they stay in the mind's eye as you divert your glance or move from one place to another; interior color is experienced sequentially in space and time as you change your orientation or move through the building)...

#### Hue in Light

Light primaries are green, orange-red, and violet-blue... Color is considered additive because the light primaries combine to create white light, and white light is considered complete... Secondary spectral hues are cyan, yellow, and magenta...

#### Surface Hue

Primary hues in pigment are magenta, cyan, and yellow... Secondary pigment hues are green, violet-blue, and orange-red... Color surfaces in the

environment are visible because they selectively reflect certain wavelengths of light and absorb all others (the reflected hue is what you see)... If all light wavelengths are absorbed and none are reflected, black is what you see. If no light wavelengths are absorbed and all are reflected, white is what you see.

### **Characteristics of Colors**

- **Reds:** Reds are generally regarded as stimulating and exciting... Orange-red, the hottest color, is like glowing embers... Although highly advancing when highly saturated, lower-saturation tints of orange-red can bring a glow of warmth to an interior, yet recede... In some low-saturation tones, it can be depressing as an interior background color...
- **Blues:** Blues are considered calming, restful, serene, cool, comfortable, sober, and contemplative... (at medium or low saturation)... Some blues, however, can also be considered frightening, depressive, melancholy, and cold. Although blue is generally regarded as receding, a high-saturation 'electric' blue can advance quite strongly...
- **Greens:** Green is both warm and cool; it contains both the calming presence of blueness and the energy of yellowness... Low saturation greens can serve as a transition between architecture and nature...
- **Yellows:** Yellows are considered sunny, cheerful, and high-spirited... Yellow is expansive; it appears to spread out as well as to advance...
- **Purples and Violets:** Purple, a mixture of red and blue, can evoke delicacy and richness or appear unsettling and degenerate... Violet-blue, normally the darkest of all hues, has great richness and depth... At higher values and medium to low saturation, it is the most ephemeral and least tangible of all colors...
- **Whites and Off-Whites:** Pure white is white at its maximum strength, uncontaminated with any other color. With no transition or gradient to soften its impact or to relate it to other colors, to people, or to the environment, it is neutral, bold, assertive, and inclined toward coldness... White may be softened by the addition of a toner... An earth toner gives it warmth, a dash of black imparts a cool grayness, and complementary hues and earth colors increase its complexity. A complex white picks up hues reflected from other surfaces more readily and is also more responsive to differences in spectral light...
- **Grays:** Gray backgrounds can be regarded as conservative, sophisticated, calming, or depressing... They permit attention to be focused on other colors, although they do little to enhance these...
- **Blacks:** Pure black walls are more likely to be seen in the media and in furniture showrooms than in residential settings... Black surfaces close in on you like the night. They can suggest intimacy, enclosure, mystery, seduction, or may be considered threatening...

### **ILLUMINATION**

Each interior is unique because of variability in both the light conditions and the reflective qualities of materials...

#### **Differential Illumination**

If all interior surfaces received the same amount of light, they would be indistinguishable from one another... The architectural interior is actually a light modulator, where the amount/ intensity of daylight falls on interior surfaces in the following order, from most to least:

- Floor
- Wall facing the light source
- Wall perpendicular to one facing the light source
- Ceiling
- Wall with its back to the light

The Illuminating Engineering Society of North America recommends the following light reflections for various locations and uses:

- **General use:** ceilings= 70-90%, walls= 40-60%, floors= 0-50%
- **Offices:** ceilings= 80-90%, walls= 50-70%, floors= 20-40%
- **Residences:** ceilings= 60-90%, walls= 35-60%, floors= 15-35%
- **Schools:** ceilings= 70-90%, walls= 40-60%, floors= 30-50%
- **Industry:** ceilings= 80-90%, walls= 40-60%, floors= 20+%

#### **Daylight Hues**

The orientation of a room to the sun profoundly affects interior colors.

- North light is cool and steady, with few shifting shadows.
- South light is warm and constantly shifting.
- East light at sunrise is initially tinged with red-orange, and progresses to neutral at noon.
- West light may be very warm and rich, particularly in the late afternoon.

#### **Ambient Light**

Ambient light carries color from one surface to another. As colors reflect into each other, each interior surface assumes attributes of the surface facing it...

#### **Electric Light Sources**

Each electric light source approximates sunlight, but differs from sunlight, biased either toward longer or shorter wavelengths. The most commonly used light sources:

- **Tungsten filament.** These warm lights are the most widely used form of incandescent lighting. The light they emit emphasizes warm reds and oranges, flattering to human complexion.
- **Tungsten halogen.** A brighter refinement of the incandescent Tungsten lamp. Their light is closer to daylight (intermediate in its color range). They make colors appear crisp and sharp.
- **Fluorescent.** These are relatively flat and bland. Never quite as good as Tungsten. They can be cool or warm, and of better or worse lighting quality, depending on the exact mix of phosphor powders coating the inside of the tube.