COLOR LOGIC FOR WEB SITE DESIGN

JILL MORTON
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Navigation

1. Use the triangle (arrow) buttons on the command bar to view the next page or the previous page. You can also return to "the previous view" or go to the first or last page.

2. The menu bar can be used to navigate. Choose View > Next Page or the destination of your choice.

3. Click on any bookmark in the navigation window (at the left). Click on the sideways triangle (right facing arrow) to open the bookmark header and to view other bookmarks in this category. You may also click on any thumbnail in the navigation window.

4. Custom red triangles (arrows) have been added to some of the pages. Click to link to related information and/or more pages.

How to Find Things

1. Click the find tool (binoculars) on the command bar, or choose Tools > Find on the Menu bar. A dialog box will appear. Enter the text to be found and click Find. When the program finds the text, the Find dialog box closes and the page containing the text is displayed with the text highlighted. This command will only locate one occurrence.

2. If you want to find out if there are more occurrences of the text, press Ctrl (Windows and UNIX) or Command (Macintosh) +G, or on the Menu bar, Tools> Find Again. You may also reopen the Find dialog box and click Find Again. With Windows, pressing F3 also finds the next occurrence.
Computer Colors

This publication was designed for electronic distribution and computer viewing. The layout, fonts and colors were chosen for this environment. Every effort has been made to reproduce colors accurately. All illustrations were prepared on a system with full gamma correction and color synchronization.

Note!
Colors may vary on different computer systems.
Anti-glare screens will cause color distortions.
16 - 24 bit color, a high quality monitor and fully corrected gamma deliver the best results.

Windows PCs do not have built-in color correction and typically require a video or graphic card for accurate color readings and full gamma correction.

About Color Printing

This publication was designed for on screen viewing using the RGB color model. Printers use the CMYK (cyan, magenta, yellow, black) color model. Therefore, colors on your computer monitor will appear different when printed with CMYK inks. Warning: Printing this publication will consume a large quantity of ink!
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INTRODUCTION

COLOR LOGIC

COLOR LOGIC AND WEB SITE DESIGN
Today we see more images in a day than our early civilized ancestors saw in a lifetime. Historically, the technology for printing and paper making began in the ninth century in China. By the fifteenth century, Europeans had developed print-making for the production of religious icons, playing cards and books. The technological advances of the nineteenth and twentieth centuries have provided us with unlimited tools for communicating visual form. Consequently, we are bombarded with images from books, magazines, newspapers, film, television, the Internet, and last but not least, art museums and galleries.

What we see and how it was designed is not happenstance. There is a theoretical history to visual art which equals the development of theories that have contributed to modern science and technology. Color theory is part of formal aesthetic principles which have evolved over 30,000 years of Western civilization. Beginning in the Paleolithic era, cave drawings are testimony to the first organization of visual form and color palettes. The art of the earliest civilizations of the three river valleys, the Tigris, Nile and Euphrates, contributed to the evolution of visual theories. Their legacy of mosaics, frescoes, sculptures, architecture and other forms continues to inspire the arts today.
The pivotal moment in the development of the arts in Western civilization occurred in Greece. From literature to architecture, the ancient Greeks provided the foundation for all the art that followed. Of interest with respect to color, is that the triumphant architectural monument, the Parthenon, was polychrome. Today only the raw stone surfaces linger as evidence.

The technical analysis of color began with Sir Isaac Newton’s discovery in 1666 that sunlight contains all the colors of the rainbow. He also developed the first color circle. Other early color pioneers were Goethe, Schopenhauer and Chevreul. In the early twentieth century, several members of the Bauhaus school of art and industrial design dedicated themselves to a formal analysis of color. The work of Johannes Itten and Josef Albers continues to form the foundation of most of color theory as we know it today.

This publication presents a pictorial guide to color design theory. The definitions and theories are intended to be departure points for successful color compositions and are not intended to be rigid absolutes. _Color Logic for Web Site Design_ is divided into three sections: color terminology, color harmony and color effects.
A web site is unlike any pre-existing visual form of communication. It is an interactive space through which the user navigates. The user’s choices determine what is seen and how long it is seen. In other two-dimensional art forms, the designer deals with set parameters. A magazine article, a business card, a painting or other traditional media exist as complete entities with a fixed size. With the exception of the home page, a web page typically does not exist in its entirety on a monitor screen. Users must scroll to see the rest of the page and other parts of the overall design. Monitor sizes and resolution, gamma differences, font sizes, pixel ratios and user options are all contributing at the same time to the instability of any given web page. Consequently the web designer is challenged to deliver a visual product for an extremely wide range of variables. An understanding of how color creates logical and engaging visual effects is essential to successful design for this flexible environment.
DEFINING COLOR

INTRODUCTION

HOW WE SEE COLOR

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COMPLEMENTARY COLORS
80% of the brain is dedicated to processing visual information. Color and form are the two basic elements in this communication. It is said that form affects the intellect and color affects the emotions. Another difference worth noting is that form refers to a tangible entity. We know that a rectangular shape has sharp edges. If an object is small, we can assume that it is light. Consequently, we can easily describe form with a wide range of precise terms such as geometric, curved, concave, convex, large, small, heavy and light. By contrast, we can’t put a color in our hands and feel it, weigh it, smell it or taste it. Color is purely visual.

An accurate definition is:

**Color is the visual effect that is caused by the spectral composition of the light emitted, transmitted, or reflected by objects.**

Fortunately, although color is intangible and perhaps more emotional, the English language does provide us with an adequate vocabulary to describe its properties and related theories. The author has used American English spelling and terminology and recognizes that certain terms may be different in other English speaking countries and that scientists may employ a different color vocabulary. For example, most artists in the United States use the term "saturation." This characteristic is also known as "chroma." When scientists analyze the color of light, saturation and chroma are not the same. Nevertheless, the terms are valid in the fine arts.

In conclusion, a basic understanding of color terminology is the first requirement of color theory. The analysis of color harmony and behavioral characteristics in subsequent parts of this publication will be built upon this foundation.
Color originates in light. Sunlight, as we perceive it, is colorless. In reality, a rainbow is testimony to the fact that all the colors of the spectrum are present in white light. Light goes from the source (the sun) to the object (the apple), and finally to the detector (the eye and brain).

1. All the invisible colors of sunlight shine on the apple.

2. The surface of a red apple absorbs all the colored light rays, except for those corresponding to red, and reflects this color to the human eye.

3. The eye receives the reflected red light and sends a message to the brain.
COLOR SYSTEMS

Surface Color 🍏 Subtractive Color

An indirect mixture of reflected light

The local color of tangible objects, such as lemons, leaves, fabrics, paint, human skin and hair, results from the light they reflect after their surfaces absorb (or subtract) light rays. The surface of all colored objects consists of organic or chemical pigments. Different pigments possess different sensitivities to light. Consequently, they absorb only some portions of the light and specifically reflect others.

All colors mix to yield black or a dark neutral color. The absence of color is white.

Light ☀ Additive Color

A direct mixture of light

In additive color systems, the eye receives the sum of the light energies, the colored light, that exists in one place. Sunlight is evidence of the purest form of this. Other examples can be found in the projected light that is emitted from a television screen, computer monitors and theatrical lighting.

All colors mix to yield white. The absence of color is black.
A color circle, based on red, yellow and blue, is traditional in the field of art. Sir Isaac Newton developed the first circular diagram of colors in 1666. Since then scientists and artists have studied and designed numerous variations of this concept. Differences of opinion about the validity of one format over another continue to provoke debate. In reality, any color circle or color wheel which presents a logically arranged sequence of pure hues has merit.
PRIMARY, SECONDARY & TERTIARY COLORS

**PRIMARY COLORS**  
Red, yellow and blue

**SECONDARY COLORS**  
Green, orange and purple

**TERTIARY COLORS**  
Yellow-orange, red-orange, red-purple, blue-purple, blue-green and yellow-green.

In traditional color theory, these are the 3 pigment colors that cannot be mixed or formed by any combination of other colors. All other colors are derived from these 3 hues.

Colors formed by mixing the primary colors.

Colors formed by mixing primary and secondary colors.
Scientists recognize the light primaries of red, green and blue. When combined, red and green light rays produce yellow, blue and green produce cyan, red and blue produce magenta. This color model is used in computer monitors, television sets, and theatre.

Print Colors

Printers depend on a different set of primaries: cyan, magenta, and yellow, the secondary colors of the additive system.
Colors can be classified as warm or cool.

Cool colors include greens, blue-greens and blues.

Warm colors include yellows, oranges and reds.

Purples can be either warm or cool.

The blue-purple on the left is a cool purple.

The red-purple on the right is a warm purple.

The central purple can shift to warm or cool.
Variations of warm & cool colors

Further temperature distinctions can be made for specific colors.

A range of blues, from a warm purple-based blue at the left to a cool green-based blue at the right.

*Compare the paint hues, Ultramarine Blue, a warm blue, and Pthalocyanine Blue, a cool blue*

A range of reds, from a warm yellow-based red at the left to a cool blue-based red at the right.

*Compare the paint hues, Cadmium Red Light, a warm red, and Alizarin Crimson, a cool red.*

A range of yellows, from a very warm yellow at the left to a cool yellow at the right.

*Compare the paint hues, Cadmium Yellow Medium, a warm yellow, and Cadmium Yellow Light, a cool yellow.*
More variations of warm & cool colors

Grays

Warm gray

Cool gray

These grays range from warm gray at the left to neutral gray in the middle to cool gray at the right. The neutral gray is "achromatic" and the warm or cool grays are "chromatic."

Interpretations of Black and White

Black absorbs all light rays and reflects none. Therefore, black can be considered warm.

White absorbs no light rays and reflects all. Therefore, white can be considered cool.

Consider the fact that a black shirt, worn on a hot summer day, absorbs the sun's rays and is warm. A white shirt reflects the sun's rays and is cool.
THREE BASIC ATTRIBUTES OF COLOR

Hue
The specific color, for example, red or blue.

Value (Brightness)
The degree of lightness or darkness of a color.
The illustration demonstrates the range of blue, from very light to very dark.

Saturation (Chroma or Intensity)
The degree of purity of a color.
The illustration demonstrates the range of red, from pure to very muted.
The degree of lightness and darkness of a color is reflected in the value scales above.
  A very light color has a high value; a very dark color, a low value.
  The different values in the blue scale at the left match the values in the gray scale at the right.
Comparing Values of Colors

The following pairs of colors illustrate comparative value relationships.

- The yellow is a lighter value than the red.
- The blue is a darker value than the orange.
- The green is a lighter value than the brown.
- The dark green is equal in value to the brown.

Compare the blue and red rectangles to the gray rectangles on either side of each color. Which gray is equal in value to the color? It may be helpful to stand at a distance and blur your eyes. If the edge between the two areas disappears, the values are equal.
Value Matching Tests

Equal value

Seeing the difference between two different colors is more difficult than seeing the difference between a color and neutral gray.

Blue and tan are the same value.

Red and green are the same value.

Compare the yellow rectangle to the gray rectangles on either side of it. The value of yellow is extremely high.

Color Voodoo #5 - Color Logic for Web Site Design
Why value matters

Seeing the relative differences in the lightness and darkness of colors is an absolute requirement for successful design. Value not only plays a pivotal role in creating color harmonies and spatial effects, but it also determines the readability of text.

These examples demonstrate the relationship of the values of colored forms to the values of two different backgrounds.

The white background creates sufficient contrast for all the colors except for yellow. The dark background creates sufficient contrast for all the colors except for brown and blue. View from a distance for the most accurate reading.
Why value and text matter

Using text as an example, these illustrations demonstrate visual failures.

How easy is it to read this text?
The blue background does not have enough value contrast to create readability.

How easy is it to read this text?
Software manuals frequently use this poor contrast between background and text.

When the issue is visibility, the answer is high value contrast. The Americans with Disabilities Act, legislation in effect in the United States, requires high contrasts between light and dark colors on all signage so that the visually disabled can see this information. Compare the differences in high and low contrast on the "Exit" signs below.
Web Site Value Contrasts - Page Analysis

Bad Value Contrasts

Multi-colored textured backgrounds can create problems for text and graphics.

Good Value Contrasts

Moving the background texture to the side bar, using larger contrasting buttons, and selecting a solid color background for the main text area solves the contrast problems.

Not enough contrast between banner text & background colors.

Not enough contrast between yellow text & background colors.

Not enough contrast between buttons & background colors.

Banner & body text are much darker than the solid background.

Dark text is used on light buttons on the textured side bar on the left side.
Web Site Value Contrasts - Backgrounds

Values are too close. Readability is poor

Value contrasts are sufficient for readability.

The larger scale background is less cluttered.
Web Site Value Contrasts - Buttons

The buttons below illustrate insufficient contrast between text and background.

Poor readability

- Mix and Match
- Marketing Support
- CLICK HERE
- Home

The buttons below illustrate sufficient contrast between text and background.

Good readability

- Mix and Match
- Marketing Support
- CLICK HERE
- Home
Web Site Value Contrasts - Banners

Insufficient contrast in the area where the black text overlaps the dark purple. The values are too close for readability.

Sufficient contrast between the black text and yellow.
More Banners
A range of contrasts between text and photographic imagery.

Insufficient contrast between text and background

Sufficient contrast between text and background
More Web Examples

A fade effect on the right side of the photograph creates sufficient contrast for the small text and buttons in this example of an image map.

Large text placed on a light area in the photograph creates a successful contrast.
Saturation defines the degree of purity of a color. The terms "chroma" and "intensity" also refer to this characteristic. The higher the proportion of pure chromatic color, the higher the saturation. The addition of black, white, or another color lowers the saturation.

In each of these examples, the highest saturation is on the left, a lower saturation on the right. The more intense "parent color" is on the left............... the "muted variation" is on the right.

**Chromatic and Achromatic Colors**

Although this grayish color is very low in saturation, it exhibits the presence of some color. It is "chromatic." This color is a neutral gray and has no recognizable color. It is "achromatic."
Saturation variations of a pure color, such as green, can be defined by several terms.

**TINT**  
A color mixed with white

**TONE**  
A color mixed with gray

**SHADE**  
A color mixed with black

Tints, tones and shades are examples of less pure, less saturated colors.

* Sometimes the term "shade" implies any variation of a color. For example, "What shade of red is the color?" could imply "What variation of red is the color?"
Fundamental complementary colors are colors which are opposite each other on the color wheel. When mixed together they create gray or a neutral hue.

Adding the complement to any color creates a wide range of complex muted hues.
Fundamental Complementary Colors

Fundamental complementaries correspond to the subtractive color system which artists use. They are based on visual relationships. In the judgement of the eye, they complete each other.

When complementary hues are adjacent to each other, they create harmonious relationships and incite each other to maximum brilliance. They are like two ends of a balancing scale, holding each other in equilibrium. Lowering their saturation lessens the contrast but maintains the balance.

In addition to being harmonious, these primary complementary pairs exhibit other characteristics:

- Red and green create a contrast of equal value
- Yellow and purple create a light and dark contrast.
- Blue and orange create a warm/cool contrast.
Generative Complementary Colors

Generative complements correspond to the additive color system which scientists use.

When combined these two colors produce white or gray. Examples of complementary pairs are red and blue-green, yellow and blue. These correspond to the physiological complements generated by the human eye, a phenomenon known as "simultaneous contrast." For any given color, the eye simultaneously requires the complementary color and creates it, even if the color is not physically present.

This phenomenon can be demonstrated by the "after image" tests below. Begin by looking at the red square at a very close distance. Cup your hands around your eyes to block out any distractions. Stare at the center of the red square for 30 seconds. Next, move your eyes to the center of the pure white square. Hold your eyes steady on the black dot. You will see the "after image" color. Repeat for the blue square.
COLOR HARMONY

HARMONY DEFINED

HARMONIES & NON-HARMONIES

HARMONY GUIDELINES

COLOR HARMONY DIAGRAMS

ANALOGOUS HARMONY

COMPLEMENTARY HARMONY

SPLIT COMPLEMENTARY HARMONY

TRIAD HARMONY

OTHER COLOR WHEEL HARMONIES

BLACK AND WHITE HARMONY
HARMONY DEFINED

The challenge of all designers can be summed up in one sentence:
We are faced with an inequality of shapes and colors.
The goal is to achieve balance -- not symmetry, but balance.

Balance exists as a mid-point between monotonous and chaotic design. The human brain will reject under-stimulating information. The visual task requires that we sustain visual interest. The human brain will also reject what it can not organize, what it can not understand. Color harmony delivers a sense of order.

In summary, extreme unity leads to under-stimulation, extreme complexity leads to over-stimulation. Harmony is a dynamic equilibrium. It implies connections with accents, not jolts.

Harmony can be defined as a pleasing arrangement of parts, whether it be music, poetry, color, or even an ice cream sundae.
HARMONIES & NON-HARMONIES

CHAOTIC
There are too many colors. Harmony requires a sense of order & balance.

MONOTONOUS
All the colors are muted, all the values are similar. Harmony requires contrast.

HARMONIOUS
Pure colors & strong value contrasts create a successful dynamic effect

HARMONIOUS
Muted and pure colors with close values create a more subdued, subtle harmony.
HARMONY GUIDELINES

While no color scheme holds universal appeal, some guidelines for success are worth noting:

1. A good color scheme uses only a few colors, properly selected and blended. Use restraint. Amateurs use too many colors.

2. A little bit of color goes a long way. Using one variation of a color in only one area is a surprise. Don’t repeat every color in the design.

3. Use an established harmonious color chord. A combination of warm and cool colors works best.

4. Experiment with dynamic and subtle color harmonies. Choose the best approach for your design. Dynamic harmonies with strong contrasts are attention-getting and energizing. Subtle harmonies with low contrasts are more fluid and low key. In some instances they are more sophisticated.
Guidelines for Dynamic Color Harmonies

1. Before you select any colors, create a thumbnail of the design in black, white and greys. Analyze the light and dark relationships and plan your areas of strongest value contrasts.

2. Use highly saturated colors and strong value contrasts, such as a very light background and darker shapes. If text is part of your design, readability depends on maximum value contrasts.

3. Stick to established color harmonies and don’t overdo it. Most beginners make the mistake of using too many colors. More is less. Less is more. The example at the right is confusing. Similar to bad music, it is "untuned."

4. For innovative color harmonies, find an example of a dynamic color scheme in nature, the fine arts, print media, textiles, or other design sources. Use this as a departure point and resist the temptation to add other colors.
Guidelines for Subtle Color Harmonies

1. Before you select any colors, create a thumbnail of the design in black, white and greys. The values of all large shapes and the background should be close. Design easy transitions between them.

2. Select muted colors in a medium to high value range for the large areas. The more colors you use, the closer the values should be. Place these hues in the dominant areas first.

3. Create accents with value contrasts. Small quantities of much darker or lighter colors break the monotony of the close values used on the large forms and create visual interest.

4. Create accents with a pure color. Include a small area of a highly saturated version of at least one of the muted colors. This contrast will enliven the design.
Guidelines for Web Site Color Harmonies

Home Page

Follow the same guidelines. Establish sufficient value contrasts for text.

Linked Pages

1. When pages include a large amount of text, begin by establishing the right background and text colors for readability.

2. Create a thumbnail of the layout and graphics for each page. Begin with black, white and grays.

3. Explore several ways to carry over the thematic color palette from the opening page:
   • Use one or more colors from the palette in the banner.
   • Design a side or top navigation bar which includes one or more colors from the palette. Experiment with light and dark variations of any of the colors. If the pages include colorful graphics, side navigation bars should be neutral or very muted.
   • Repeat thematic color(s) in buttons or icons.

Note: Fonts and patterns also create consistency in banners and side bars.
Graphic components and layouts vary from site to site and within any given web site. For example, e-commerce sites may include a large quantity of graphics; content sites may include only text. Some sites may have a graphic-rich "splash" (welcome) page, others may deliver the content immediately.

Graphic-intense sites benefit from web design components in subdued colors — bright dynamic colors may overpower or compete with the content. On the other hand, sites which deliver text benefit from more colorful design components.

This section includes a diverse assortment of harmonious color designs for splash and typical content pages with side or top navigation bars. Since the readability of text is a primary requirement for web site design, white or other light backgrounds can be substituted in any of the illustrations.

RGB and HEX formulas can be accessed by clicking on the red triangle beneath each design. These formulas are based on the 216 web-safe colors and include safe "hybrid" mixes of these colors.

Note: The scale of some of the web components has been exaggerated for the purpose of sufficiently illustrating the color harmonies.
COLOR HARMONY DIAGRAMS

**ANALOGOUS**
Any three colors which are side by side on a 12 part color wheel, such as yellow-green, yellow, and yellow-orange. Usually one of the three colors predominates.

**COMPLEMENTARY**
Any two colors which are directly opposite each other, such as red and green. Maximum contrast and maximum stability. Lowering the saturation lessens the contrast but maintains the balance.

**SPLIT COMPLEMENTARY**
One color plus the two colors on either side of its complement, such as yellow plus red-purple and blue-purple. This harmony softens the contrast of the complementary color scheme.

**TRIAD**
Any three colors which are equidistant from each other, such as yellow, red and blue. These colors form an equilateral triangle.

Examples

Color Voodoo #5 - Color Logic for Web Site Design
COLOR HARMONY DIAGRAMS

ANALOGOUS PLUS COMPLEMENT

Analogous colors and the complement of the central analogous hue, for example yellow-green, yellow, yellow-orange and purple.

TETRADS

Two pairs of complementary colors whose positions form either a square or a rectangle, such as yellow-green and red-purple, yellow-orange and blue-purple.

BLACK AND WHITE PLUS ONE COLOR

Any one color in combination with black, white and/or gray, such as red, white and black.

Examples

Examples

Examples
### ANALOGOUS HARMONY

Examples of possible combinations

<table>
<thead>
<tr>
<th>Color Wheel Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="color_wheel.png" alt="Color Wheel Diagram" /></td>
</tr>
</tbody>
</table>

**A dynamic harmony based on strong value contrasts and saturated colors.**

**A subtle harmony based on closer values and less saturated colors.**
Analogous Harmony - Web Design

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saevae memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque altae moenia Romae. Tum se ad Cajetae fecto fert litore portum. Ancora de prora jactur; stant litore puppes. Borto.

Bright blues and blue-greens combined with strong value contrasts create a dynamic harmony.

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saevae memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque altae moenia Romae. Tum se ad Cajetae fecto fert litore portum. Ancora de prora jactur; stant litore puppes. Borto.

Muted blues and blue-greens combined with close value relationships create a subtle harmony.
COMPLEMENTARY HARMONY

Examples of possible combinations

Color Wheel Diagram

A dynamic harmony based on strong value contrasts and saturated colors.

A subtle harmony based on closer values and less saturated colors.

Web Design Examples
Complementary Harmony - Web Design

Bright yellow-greens and red-purple combined with moderate value contrasts create a dynamic harmony.

Muted purples and yellow combined with moderate value relationships create a subtle harmony.
SPLIT COMPLEMENTARY HARMONY

Examples of possible combinations

A dynamic harmony based on strong value contrasts and saturated colors.

A subtle harmony based on closer values and less saturated colors.

Color Wheel Diagram

Web Design Examples
Split Complementary Harmony - Web Design

**#1**

Bright blue, yellow-orange and red-orange combined with strong value contrasts create a dynamic harmony.

**#2**

Muted blue, yellow-orange and red-orange combined with close value relationships create a subtle harmony.

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saeva memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque altae moenia Romae. Tum se ad Cajetae fecto fert litorum. Ancora de prora jacit; stant litorum puppes. Borto.
TRIAD HARMONY

Examples of possible combinations

Color Wheel Diagram

A dynamic harmony based on strong value contrasts and saturated colors.

A subtle harmony based on closer values and less saturated colors.

Web Design Examples
Bright orange, green and purple combined with strong value contrasts create a dynamic harmony.

Muted orange, green and purple combined with close value relationships create a subtle harmony.
**OTHER HARMONIES**

**ANALOGOUS PLUS COMPLEMENT**
Examples of possible combinations

A dynamic harmony based on highly saturated colors and value contrasts.

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**TETRAD**
Examples of possible combinations

A dynamic harmony based on highly saturated colors and value contrasts.
**Analogous + Complement - Web Design**

**#1**

Bright yellows, yellow-orange and purple on a white background create a dynamic harmony.

**HEX & RGB**

**#2**

Muted blues, purples and yellow on a muted purple background create a relatively subtle harmony.

**HEX & RGB**

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Color Voodoo #5 - Color Logic for Web Site Design
Color Voodoo #5 - Color Logic for Web Site Design

Tetrad Harmony - Web Design

Bright yellow-green, blue, orange, and red-purple on a black or white background create a dynamic harmony.

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saevae memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque

Bright yellow-green, blue, orange, and red-purple on a tan background create a subtle harmony.

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saevae memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque
BLACK & WHITE HARMONY

Black and white plus any one color create a harmony. Gray can also be used in this basic color harmony formula.

These harmonies are inherently dynamic due to the high contrasts between dark and light, chromatic color and achromatic color.
Black, white, grays and red create a dynamic harmony.

Grays and yellow-green create a subtle harmony.

Arma virumque cano, Trojae qui primus ab oris Italiam fato profugus Lavinaque venit litora — multum ille et terris jactatus et alto vi superum, saevae memorem Junonis ob iram, multa quoque et bello passus, dum conderet urbem inferretque deos Latio — genus unde Latinum Albaniquepares atque altae moenia Romae. Tum se ad Cajetae fecto fert litore portum. Ancora de prora jacitur; stant litore puppes. Borto.
COLOR EFFECTS

INTRODUCTION

SUBSTANCE & SURFACE

COLOR INTERACTION

AREA & QUANTITY

MOVEMENT
INTRODUCTION

When we experience color, it is always relative to its context. With the exception of the sky, the only unbounded form in our environment, color is part of a form, one which may be angular or curved, concave or convex, large or small. The surface of this form also has certain characteristics. It may be smooth and shiny or roughly textured. At the same time, this colored form is part of a spatial arrangement of other colored forms, each with its own specific characteristics. All these relationships will be interacting simultaneously and casting their influence on our perceptions. As a result, color creates paradoxes and ambiguities. It mutates, it moves, it changes everything around it. It is the most relative of all the elements of visual communication.
Color may exist as either light or pigment on a tangible surface. Pure colors are extremely luminous in the RGB color model used in computers. Others, such as the additive tertiary, orange, lack the vibrancy of the painter’s tube of Cadmium Orange. In paint and some print media, iridescence and metallic surfaces are possible. In digital media, these effects can only be achieved by illusion. Likewise, colors in paint and print can only mimic the pure glow of light. As a final comparison, the color resulting from the tangible texture of a real object can only be created by illusion in paint, print, and light.

In the world of surface color, the transparency or opacity of the material will play a role in our perception of color effects. Furthermore, the textural characteristics of the surface are influential. Shiny and smooth surfaces reflect more light and will appear lighter. Dull and textured surfaces diffuse light and will appear darker.
Texture and other surface effects can add a powerful dimension to graphic elements. Banners can become more professional and visually engaging. Also, a change of texture between buttons and the background can be extremely dynamic. In some situations, surface changes may be just as successful as a color change.

A word of caution - - don't overdo it. Choose only one surface characteristic for buttons and banners. If some buttons have rough stone-like surfaces and other buttons a reflective watery surface, the effect will be chaotic. The same applies to the relationship between banners and buttons. Be consistent.
A combination of a textured design and a plain background based on the same color

Photo-realism combined with a textured surface background
Too many textures and too many colors may create a clashing and chaotic effect.

Compatible textures and a limited number of colors create a dynamic and harmonious effect.
The relativity of color can be demonstrated by observing the effects colors have on each other. The relationship of values, saturations and the warmth or coolness of respective hues can cause noticeable differences in our perception of color.

During the past 150 years, several notable color theorists have studied these effects. This section will include information about the findings of Michel Chevreul, Wilhelm von Bezold, Josef Albers and Johannes Itten.

Note: An understanding of color interaction will help the web designer stabilize color selections and resolve unexpected color mutations. On the other hand, these color shifts may be desirable and can be used to an advantage in web design.
Chevreul's Theories

Chevreul (1786-1889), a chemist and director of a dye house in Paris, left a lasting impact on color theory. The following explains his principles of the visual effects of color:

1. Highly contrasting colors, used in sufficient quantities, will not change their optical hue and will make each other appear more brilliant. When present in small quantities, they will blend and create a duller new color. View this example at a distance to see the effect.

2. If colors are a little farther apart, not analogous and not complementary, one color will give the adjacent color a complementary tinge. In the example above, yellow next to a green gives the green a violet tinge.

3. Colors adjacent to each other on the wheel tend to blend into each other and optically mix to create a new color. View these examples at a distance to see the effect. Chevreul also noted that analogous color schemes work best when the key hue is a primary.

*This is a frequent cause of color mutations in web site design.*
The Bezold Effect

Wilhelm von Bezold, a nineteenth-century rug designer, found that changing only one color in a design alters its entire appearance.

![Examples of Bezold Effect](image)

The dominant background color is changed from a bright yellow to black. All other colors remain the same. As a result, different colors, forms and patterns become more or less predominant in each composition.

*Web designers can use the Bezold Effect to create a wider variety of design effects from one pattern and fewer colors.*
In these "Bezold Effect" examples, the three colored areas on each circular form remain the same. Only the color of the stripes changes from blue at the left to yellow on the right. Chevreul's theories explain these color effects.

View these from near and far.
The color theorist Josef Albers (1888-1976), a member of the Bauhaus school of art and industrial design, focused on the interaction and relativity of color. These studies were documented in his book, *Interaction of Color*.

The examples on the following pages demonstrate how the same color will evoke different readings of its perceived hue, a metamorphosis which is caused by its surroundings. Individual perceptions may vary.

Similar color contextual mutations can be created with colored paper such as "Color-aid" or in graphic software such as Adobe Photoshop®.
Notation about the color illustrations

1. All the colors used in the color mutations on the next four pages are derived from the 216 color palette which is used by both Macintosh and PC's running Windows 3.1, 95 and 98.

2. RGB values for these hues are supplied as reference.

3. Printing these pages may result in different color readings.

4. The examples should be viewed on a system with full gamma correction.
Different readings of the same color
3 colors look like 4

The small green rectangle on the left appears to have a slight bluish tinge when compared to the green on the right.

RGB Values:
Left: R: 153 G: 204 B: 000
Right: R: 204 G: 255 B: 153
Center: R: 051 G: 204 B: 102

The small gray rectangle on the left appears to have a yellow tinge when compared to the gray on the right.

RGB Values:
Left: R: 051 G: 153 B: 205
Right: R: 000 G: 102 B: 102
Center: R: 102 G: 153 B: 153

PROOF: Block out the middle portion to see the same effects as the larger examples.
Different readings of the same color
3 colors look like 4

The small purple rectangle on the left appears to have a red-purple tinge when compared to the purple on the right.

RGB Values:
Left: R: 102 G: 102 B: 204
Right: R: 153 G: 051 B: 153
Center: R: 153 G: 102 B: 204

These mutations can be explained by the "Vampire Effect." The small purple rectangle is a combination of blue and red. The large blue-purple square at the left sucks the blueness out of the purple and leaves behind a red-purple. The large red-purple square at the right sucks the red out of the purple and leaves behind a blue-purple.
Different readings of the same color

3 colors look like 2

This color mutation is also known as a "reverse ground" effect. The mutating color on one side of the diagonal line almost matches the background of the square on the opposite side. The "Vampire Effect" applies to these color shifts.

RGB Values:
Left: R: 051 G: 204 B: 255
Right: R: 000 G: 255 B: 204
Center: R: 102 G: 153 B: 153

RGB Values:
Left: R: 153 G: 051 B: 255
Right: R: 102 G: 102 B: 255
Center: R: 102 G: 051 B: 255
The same color mutations may occur in web site graphics. The banner, buttons and horizontal bar are the same purple. The buttons appear to have a red-purple tinge when compared to the purple banner and bar on the right.

**Itten & Color Contrasts**

Compare the contrast effects of different color backgrounds for the same red square.

Red appears more brilliant against a black background and somewhat duller against the white background. In contrast with orange, the red appears lifeless; in contrast with its generative complement, blue-green, it exhibits brilliance. Notice that the red square appears larger on black than on other background colors.
AREA & QUANTITY

Different effects occur when colors occupy different areas in a composition. When a specific color is placed in one area, its behavior is relative to the surrounding colors and forms. Changing its location changes the effects. As a rule, any configuration of colors will strive toward contrast or assimilation. Colors will cluster by their mutual characteristics. Those with similar values, saturations and temperatures will group together. Colors will oppose one another as clusters in spite of their actual location in space.

The quantity of the color also creates different effects. The design principle of emphasis and subordination are at work in all arrangements of colors and forms.

Note: Since a web page is not a static fixed space, these principles may only apply to pages intended to fill the screen, such as a home page, or to individual graphics or combinations of graphic elements in close proximity.
Area Distribution

The area a color occupies will alter the effects of a design. These examples are based on the same composition and the same four colors. Only the placement of the color changes.

Notice how similar values cluster and how different forms become dominant.

Web Design Examples
The same 5 colors are used in different areas in each web page layout. Varying degrees of success and failure are evident.
Concentration or Dispersion

The quantity of a color is influential. If a color is concentrated in one main area, the effect is quite different from being dispersed throughout the composition.

The red form is a powerful focal point. Red and its complement, green, occupy almost equal areas in the composition. The total effect is a dynamic equilibrium.

Red is scattered in small quantities and becomes extremely active. Placing another colored form in this field would alter the entire effect.
Orange is used in only one area — on the button for the critical task of booking a tour. Since the color is concentrated in only this location, it pulls the button apart from the rest of the page's components.

Orange is used in several areas on the web page. Since the color is dispersed, it no longer functions as a singular focal point. In this example, it functions as an integral part of the triad harmony on the web page.
Red is used as a background on this example of a home page. The heavy concentration of red reinforces its symbolism — in this case, good luck in China and dynamic energy.

Red is used in smaller quantities on the menu bar at the top and the horizontal bars on the page. It successfully conveys the thematic symbolism and site identity from the home page at the left.

Note: Large quantities of bright intense colors should be avoided on content pages where readability is critical.
Optics - the physiological basis for the movement of color

1. Red focuses behind the retina. Therefore, the lens grows more convex to pull it forward.
2. Blue is sharply refracted. This cause the lens to flatten out and pushes the blue image back. We perceive that blue areas are receding and smaller.

Tangency - the physical basis for the movement of color

Any form that overlaps another form is perceived to be in front of that form.

In spite of this physical placement, color possesses the ability to advance or recede, to vibrate or stabilize, collapse inward or bulge outward. The next nine pages cover a wide range of factors that create this phenomenal characteristic of color.
Knowledge of the principles of movement gives the web site designer control over the focal point. Advancing colors and forms catch the eye first. Receding colors and forms are less powerful. These behavioral characteristics result from a complex relationship between colors, the shape of forms, the placement and the dominant axes of the forms.

All of these principles apply to banners, buttons, photographs, drawings, and any other stationary graphic elements. Since a web page is not a static fixed space, most of these theories about movement will apply to self-contained graphic elements or a home page.
The Movement of Colors

When colors are isolated by gray, the following characteristics of movement can be defined.

- **Yellow**: The most visible and illuminating of all colors. It appears to be radiating from within. It moves outward and is difficult to contain.

- **Red**: Aggressive. Simultaneously it vibrates within the area it occupies and advances.

- **Blue**: Relatively stable and moves inward.

- **Green**: Tranquil and rotates towards the center.
Comparative Movement of Colors

When colors exist in equal relationships with other colors, the following characteristics apply:

- Warm colors advance. Cool colors recede.
- Warm colors advance, even when values are changed, as long as the values are close.
- Lighter values advance. Darker values recede.
- Colors with the highest saturation advance. Lower saturations recede.
- Colors with the highest saturation advance, even when they are warm & cool.
- The area of the highest contrast advances while other areas recede.
Comparative Movement of Colors - Web Design

The previous principles are applied to a series of web site buttons. The same effects will be noticed in any close grouping of images.

- Warm colors advance. Cool colors recede.
- Warm colors advance, even when values are changed, as long as the values are close.
- Lighter values advance. Darker values recede.
- Colors with the highest saturation advance. Lower saturations recede.
- Colors with the highest saturation advance, even when they are warm & cool.
- The area of the highest contrast advances while other areas recede.
All shapes advance.
Two-dimensional designs consist of a "figure-ground" relationship. Shapes are the figuration, the negative space or background is the ground.

Angular (geometric) forms advance the most and curved (organic) forms the least.

In spite of the fact that the background color is a very saturated warm hue and the foreground shapes are cool, a figure-ground relationship exists. Therefore, all forms advance, regardless of the colors involved. Varying degrees of ambiguity may occur when curved shapes are warm and bright and angular shapes are cool and less saturated.
Color and Shape

Concave and convex shapes embody specific characteristics of movement.

Concave shapes are passive and move inward.
Convex shapes are aggressive and push outward.
Concave/convex shapes combine these forces.

When the forms are muted blue and the background bright orange, the effects persist.

Web Design Examples
The concave shape of the navigation bar on the left is perceived as moving inward and yielding to the convexity of the lighter content area. The darker concave icons on top of the bar demonstrate similar characteristics.

The convex shape of the navigation bar on the left pushes outward and is more aggressive than the example on the left. It appears to overlap the concave content area. The darker convex icons on top of the bar demonstrate similar characteristics.
The illusion of transparency can be created by a third color derived from the two basic colors. The intersecting area communicates information about the spatial positioning of the two colors.

1. Yellow is in front of blue.
2. Yellow is in front of blue and closer to it than the first example.
3. Yellow and blue are on the same spatial plane.
Transparent effects can be used to create spatial illusions and to add visual interest to a wide variety of web components.
Movement & Placement of Color

The lower portion of a composition is perceived as "figure" or shape, while the upper portion is read as "ground" or background. The color which occupies the lower portion of the layout below will advance.

This effect stems from our visual experiences of the natural landscape. The receding sky exists in the upper area of our field of vision, land and advancing forms are low.

Warm and cool colors with equivalent values and saturation demonstrate this effect. Some ambiguity appears in the example on the right.
The darker purple area at the top is perceived as a recessive background and the lighter purple area at the bottom, as an advancing foreground. Values and saturation also influence this effect — the darker colors at the top are recessive, the more saturated lighter colors at the bottom are advancing.

The lighter purple area at the top is perceived as a recessive background and the darker purple area at the bottom, as an advancing foreground. Since values and saturation do not influence this effect, the importance of color placement is more evident. The atmospheric quality of the top design does play a role.

Note: Aside from the use of frames, this full-page effect of color placement would only be perceived on a home page on monitors with dimensions equal to those of the actual design. This effect can be used in smaller graphic designs on a page.
The primary axis of a form plays a role in its movement in space.

A horizontal axis is stable.  
A vertical axis contains potential for movement.  
A combination of horizontal & vertical is the most stable.  
A diagonal axis is the most dynamic.

Applying highly saturated warm hues to horizontal forms and cool muted hues to angular shapes may create varying degrees of ambiguous effects.

*Note: Since a web page is not a static fixed space, this effect applies to pages that are intended to fill the screen, such as the home page, or pages employing frames. It also applies to self-contained graphics.*
Movement and Axes - Web Design

Horizontal

A combination of horizontal and vertical

Vertical

Diagonal
Colors possess qualities of heaviness or lightness relative to other forms and the placement of those forms in a composition. Heaviness descends. Lightness stays fixed or ascends.

Dark colors are heavier than lighter colors.

If hues are the same intensity and value, warm will be heavier.

Light, less saturated colors are less dense.
The dark horizontal navigation bar and patterned design at the bottom are too weighty in comparison to the other areas on the page. The relationships are not successful.

The dark horizontal bar at the top creates a balanced relationship with the medium-dark patterned design at the bottom. Placing weightier colored areas at the top holds other dark areas in equilibrium.

*Note: Since a web page is not a static fixed space, this effect applies to pages that are intended to fill the screen, such as the home page, or pages employing frames. It also applies to self-contained graphics.*
Color creates reactions which affect our perception of time in visual space. Bright hues stop the eye and isolate themselves from the surroundings.

Yellow radiates within the space it occupies and attracts attention, especially against a dark background. Red is the most powerful. A light desaturated blue is the most passive.
The eye is drawn to the bright yellow-orange spatial area first. It proceeds to the darker blue area at the right and later to the areas below. The effects are both spatial and temporal.
TEN PRACTICAL TIPS
FOR
WEB SITE DESIGN
1. **Use the 216 web color palette.**
   Although each browser has a vocabulary of 256 colors, only 216 colors are common to both PCs and Macintosh computers. Using a web-safe palette ensures that the colors you select are standard on all computers and all Web browsers. This palette does not mean that the color you select will look exactly the same, on all computers. Colors are generated by the computer's operating system and monitor, not the palette. When you select colors outside of the 216 palette, the color may consist of speckles of colors. This effect is called dithering and can cause severe problems in background colors, text, and all link colors. (As previously, noted all colors in this publication are part of this safe palette.)

2. **Know the difference between a gif and jpeg.**
   For the best image results and lowest file sizes, use jpegs for photographs, gifs for line drawings with solid fills.

3. **Keep your graphic files under 35K.**
   Most web site visitors are accessing a web page at a speed of 3K-5K per second. It will take about 7-10 seconds for a 35K image to load. Wherever possible, use interlaced gifs. This file format delivers a rough version of the image immediately. After several seconds, the image evens out and comes into focus. Regular gifs and jpegs unfold from the top down, like pulling down a shade over a window. If a large image is essential for a web page, create a small thumbnail image with a link to a larger image and let the viewer know the file size. Use dimension (width and height) tags. This will help your images load faster. Also, always use the "alt" tag for a text description of your image. This supplies vital information for text browsers and the visually disabled.
4. Make sure your computer has good color vision. Foresee the variables on other computers.
Colors do not look exactly the same on all operating systems. Start by establishing the best color standard in your computer's operating system. If you're designing on a PC, correct your gamma by buying the best components and components that work well together. If you're designing on a Mac or SGI workstation, sufficient gamma correction is built into your system.

5. Use contrast to your advantage, not your disadvantage.
For text, use very light colors on dark backgrounds or use dark colors on light backgrounds.

Yellow is not legible on a light background. Yellow is legible on a dark background.

Blue is legible on a light background. Blue is not legible on a very dark background.

Red is legible on a light background. Not legible here! Red is legible on a dark background.

6. Create quality graphics: Anti-alias all images.
Do you remember how old dot matrix print-outs looked compared to laser print-outs? There's a similar comparison in Web graphics. For a truly professional web site, your graphics and graphic text must be anti-aliased. Anti-aliasing creates the illusion of smooth curves on a grid of rectangular pixels by smoothly varying the pixels' colors. Software such as Adobe Photoshop will do this.
7. Know your target audience: Preview your graphics at 8 bit (256 colors)
A small yet significant percentage of computers are limited to 8 bit (256) colors; a majority of others are 16 bit (64 thousand) colors. A marble background designed at 24 bit will look like a bolt of lightning hit it at 8 bit and less detailed at 16 bit. Know your audience and design accordingly.

8. Design for flexible monitor widths.
The quickest way to lose a web site visitor is to have the page extend off the screen. A significant minority of computers are limited to a width of 640 pixels. Test your page by contracting the document window to smaller dimensions. Learn how to create tables with flexible tags that expand and contract to accommodate multiple viewing conditions.

9. Learn the art of html.
Writing good html code is an art and a science. Don't rely completely on a WYSIWYG ("what you see is what you get") editor, such as those built into Web browsers. Make sure your html editor allows YOU to get in and edit the script to meet the most common standards of all browsers.

10. Include a DOCTYPE declaration at the beginning of your html script.
For example, <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">. Future browsers will always be able to read your html code with this reference in place. You can also submit the URL to a validator, such as the World Wide Web Consortium's services, to find out if there are any errors.
11. Expand your knowledge of visual communication.
A few years ago, people would say, "You can do ANYTHING on the Web!" This was never true but the Web was new and it was a little forgiving. Now, CHOICE rules the Web. A viewer will make up his or her mind about staying at your web site in 5 -10 seconds. And no one wants to stay at a site that blasts the eyes with a poorly orchestrated hodgepodge of busy background textures, font hysteria, irrelevant color, and slow loading graphics that deliver nothing of value.

If you are a trained artist:
1. Rethink all your past "rules" about creating images. A Web site is a space. It is not a plane. A painting, print ad, or television spot are linear. They have a beginning and an end. A Web site is interactive. Layout and navigation are critical.
2. All artists should learn or relearn the rules of perspective and shadow casting. The illusion of three-dimensional space and form is one of the most powerful tools you have.

If you have no art or design training:
1. Study the language of creating images. Explore the principles of image making, such as contrast, emphasis and subordination, and balance. New designers will benefit from a comprehensive and basic book such as "Artforms, An Introduction to the Visual Arts" by Duane and Sarah Preble (Harper and Row).
2. Check out award sites. Copy others. Don't steal other designers' graphics but imitate the look and layout of dynamic web sites.
3. When in doubt, throw out half your graphics. Keep your colors, font styles and sizes to a minimum. Picasso said "A good painting is a result of a series of destructions."
For all web site designers, some tools for creative excellence:

"Art and Visual Perception" by Rudolf Arnheim (University of California Press) is the Bible of visual communication in the Western world. Read and reread this book. All serious web site designers should study both Western and Eastern art history. How we create images in the Western world is based on 30,000 years of historical traditions and formal design constructs. Jansen's "History of Art" (Prentice-Hall) is an excellent resource. Eastern art has a unique history and complex language. "A History of Far Eastern Art" by Sherman Lee (Prentice-Hall) presents the many artistic dimensions of Eastern cultures.
IN CONCLUSION

Color is multi-dimensional. Intangible as it is, it affects everything around it and even turns on itself and mutates in endless ways.

This publication has presented criteria for evaluating the primary characteristics of color. The first section defined the basic terminology of color, the second explored harmonious chromatic relationships, and the final section presented the contextual relationships and three-dimensional effects of color. Knowledge of all these characteristics is a powerful tool for successful web site design. It is recommended that these concepts be used as exercises for each individual's mastery of color design.

A bibliography is provided for further exploration.
BIBLIOGRAPHY

Four essential books

1. Albers, Josef, THE INTERACTION OF COLOR, Yale University

2. Arnheim, Rudolf, ART AND VISUAL PERCEPTION, University of California Press

3. Itten, Johannes, THE ELEMENTS OF COLOR, Van Norstrand Reinhold

4. Swirnoff, Lois, DIMENSIONAL COLOR, Van Norstrand Reinhold
HEX and RGB Codes

Formulas for color harmony palettes from preceding pages are provided in this section.
Analogous Harmony - Web Design

HEX and RGB Codes

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Complementary Harmony - Web Design

HEX and RGB Codes

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Split Complementary Harmony - Web Design

HEX and RGB Codes

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Return
Triad Harmony - Web Design

HEX and RGB Codes

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Return
Analogous + Complement - Web Design

HEX and RGB Codes

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![Color Codes](image1)

#2

![Color Codes](image2)

Return
Tetrad Harmony - Web Design

HEX and RGB Codes

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</tr>
<tr>
<td></td>
<td>FF6600</td>
<td>R: 255, G: 102, B: 000</td>
</tr>
<tr>
<td></td>
<td>FF33FF</td>
<td>R: 255, G: 051, B: 255</td>
</tr>
<tr>
<td></td>
<td>333333</td>
<td>R: 051, G: 051, B: 051</td>
</tr>
</tbody>
</table>

#2

<table>
<thead>
<tr>
<th>Color</th>
<th>HEX</th>
<th>RGB</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>999933</td>
<td>R: 153, G: 153, B: 051</td>
</tr>
<tr>
<td></td>
<td>6699CC</td>
<td>R: 102, G: 153, B: 204</td>
</tr>
<tr>
<td></td>
<td>CC9966</td>
<td>R: 204, G: 153, B: 102</td>
</tr>
<tr>
<td></td>
<td>996699</td>
<td>R: 153, G: 102, B: 153</td>
</tr>
<tr>
<td></td>
<td>CCCC99</td>
<td>R: 204, G: 204, B: 153</td>
</tr>
</tbody>
</table>

Return

Color Voodoo #5 - Color Logic for Web Site Design
Black, White and/or Gray + One Color - Web Design

HEX and RGB Codes

#1

000000
R: 000
G: 000
B: 000

666666
R: 102
G: 102
B: 102

999999
R: 153
G: 153
B: 153

CCCCCC
R: 204
G: 204
B: 204

FF3333
R: 255
G: 051
B: 051

#2

666666
R: 102
G: 102
B: 102

999999
R: 153
G: 153
B: 153

E5E5E5
R: 229
G: 229
B: 229

B2CC33
R: 178
G: 204
B: 051

Return
About the author

Jill Morton is a color consultant whose clientele include industry giants Nokia and Kodak. Since 1995, she has also been actively involved in web site and user-interface design.

She received a Masters Degree in the Fine Arts and has served as faculty at the School of Architecture, University of Hawaii, Chaminade University and Matsuda Technology Center.

In addition to writing and illustrating Color Voodoo books, she also maintains an on-line resource for color information at Color Matters - http://www.colormatters.com/
Color Voodoo #1 - A Guide to Color Symbolism
Color Voodoo #3 - 50 Symbolic Color Schemes
Color Voodoo #4 - Color Logic
Color Voodoo #5 - Color Logic for Web Site Design
Color Voodoo #6 - Color Voodoo for the Office
Color Voodoo #7 - Color Voodoo for E-Commerce

http://www.colorvoodoo.com