Omnivex®

ACCESSIBILITY & DIGITAL SIGNS

Designing Digital Signage for Everyone

PART 1: Color in Design

There's a lot to think about when it comes to creating accessible digital designs. If part of our design isn't clear or visible to part of our audience, then why is it there? Part of designing with color is using color correctly so that the key message is clearly legible to everyone. Setting proper contrast between elements in your design helps, so let's take a look at a few tips on how you can use color to help make your design accessible.

CONTRAST RATIO

CONSIDER CONTRAST WHEN USING COLOR

Contrast is the difference in perceived brightness (or "luminance") between two colors. When dealing with multiple objects, such as letters on a background, it is expressed as a ratio, and ranges from 1:1 to 21:1. The ratio helps you determine how legible your text is. This is a standard used extensively in website design, and can easily be applied to digital signs.

1:1 Contrast Ratio

A **1:1 contrast ratio** - ***white text on a white background*** - would look something like this.
Can you tell what the text says? No, you can't because the perceived brightness between text and background is equal.

21:1 Contrast Ratio

A **21:1 contrast ratio** is ***black text on a white background*** - like this.
This is how contrast can affect readability.

This is a contrast ratio of 21:1

A contrast ratio of **4.5:1** is a good ratio for ensuring accessibility.

4.5:1 4.5:1 4.5:1

Larger text can have a lower contrast ratio, but should have a contrast ratio of at least **3:1.**

Large Text can have a contrast ratio minimum of 3:1

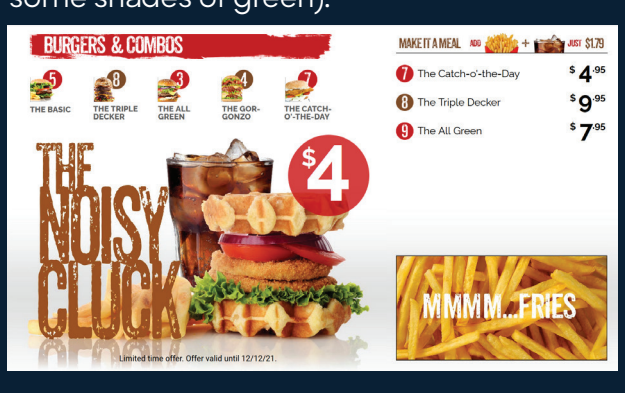
While smaller text should have have a minimum contrast ratio of 4.5:1

DESIGNING FOR COLOR BLINDNESS

HOW CAN CONTRAST HELP

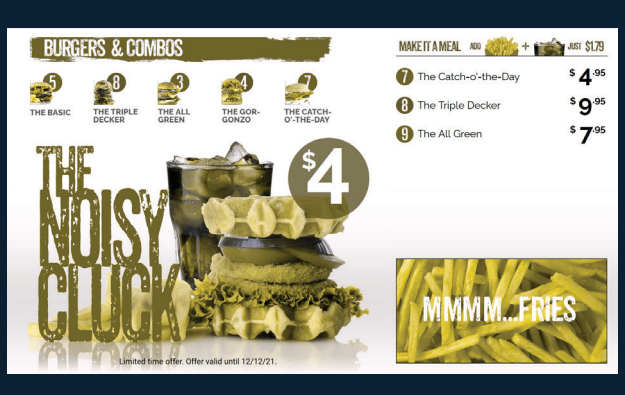
There are three main types of color blindness - red-green, blue-yellow, and monochromacy.

Red-green color blindness is the most common, and falls into different categories: **Protanopia** (people can see no shades of red), **Protanomaly** (people can see some shades of red), **Deuteranopia** (people can see no shades of green), and **Deuteranomaly** (people can see some shades of green).

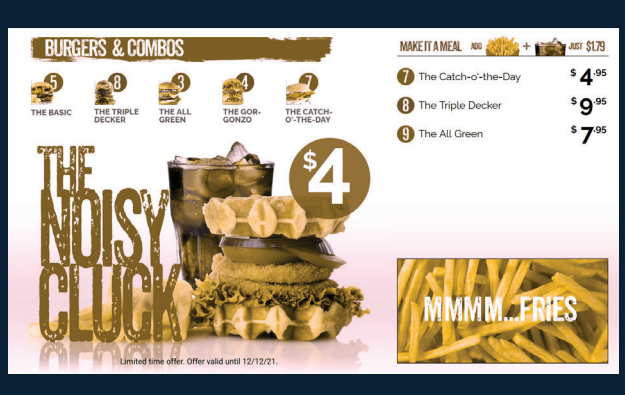


Let's take a look at the digital menu design on the left. The contrast values all look fine - everything has a nice strong contrast ratio for the most part, making the visuals and text stand out.

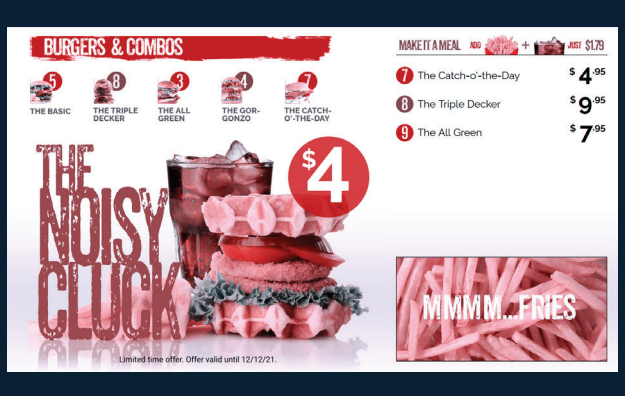
But how would someone with color blindness see this? Would the design be as effective to someone who sees color differently?



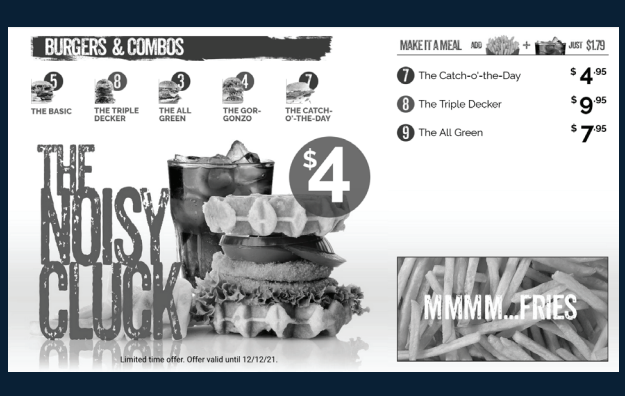
This image gives us a rough idea of how someone with **Protanopia** would view the design. Without being able to see shades of red, the design takes on a different look all together. Contrast is still high, but it's hard to distinguish the red and brown circles.



We can also see how someone with **Deuteranopia** sees the design. Again, contrast between foreground/background is good, everything is legible, but the red and brown circles are hard to distinguish a difference.



When we look at this digital menu through the eyes of someone with **Tritanopia**, or someone who cannot distinguish between blue and yellow, the design holds up well. Colors appear less saturated but you can still distinguish between reds and browns.



People with **Monochromacy** see the world in black and white. Using proper contrast in your design ensures people with monochromacy will be able to read your design.

As you can see in the examples, setting proper contrast between the elements in your design goes a long way towards creating an accessible design.

SELECTING COLOR

SOME TIPS FOR SELECTING COLORS IN YOUR DESIGN

Focus on your contrast ratio - make sure your design meets the 4.5:1 ratio

Think of everyone when creating your design - avoid color combinations such as green and red, green and brown - think of the different types of color blindness and how your color combinations may be seen by someone with color blindness.

Check your design against a color blindness simulator to see if parts are murky or hard to distinguish between one another.

ONLINE RESOURCES

TOOLS TO HELP YOU WITH ACCESSIBLE DESIGN

CONTRAST CHECKERS

All of these work the same way - just enter your background color, then enter your foreground color to determine your contrast ratio.

Colorable
https://colorable.jxnblk.com/

WebAIM
https://webaim.org/resources/contrastchecker/

Color Contrast Checker
https://colourcontrast.cc/

COLOR BLINDNESS SIMULATORS
Simply upload an image of your design and select the color blindness option to view.

Coblis
https://www.color-blindness.com/coblis-color-blindness-simulator/

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