

COLOR CORRECTION I

INTRO TO COLOR CORRECTION

UNDERSTANDING COLOR

- Qualities of Color --
Color plays important role in human life. Many colors have special qualities associated with them

QUALITIES OF COLOR

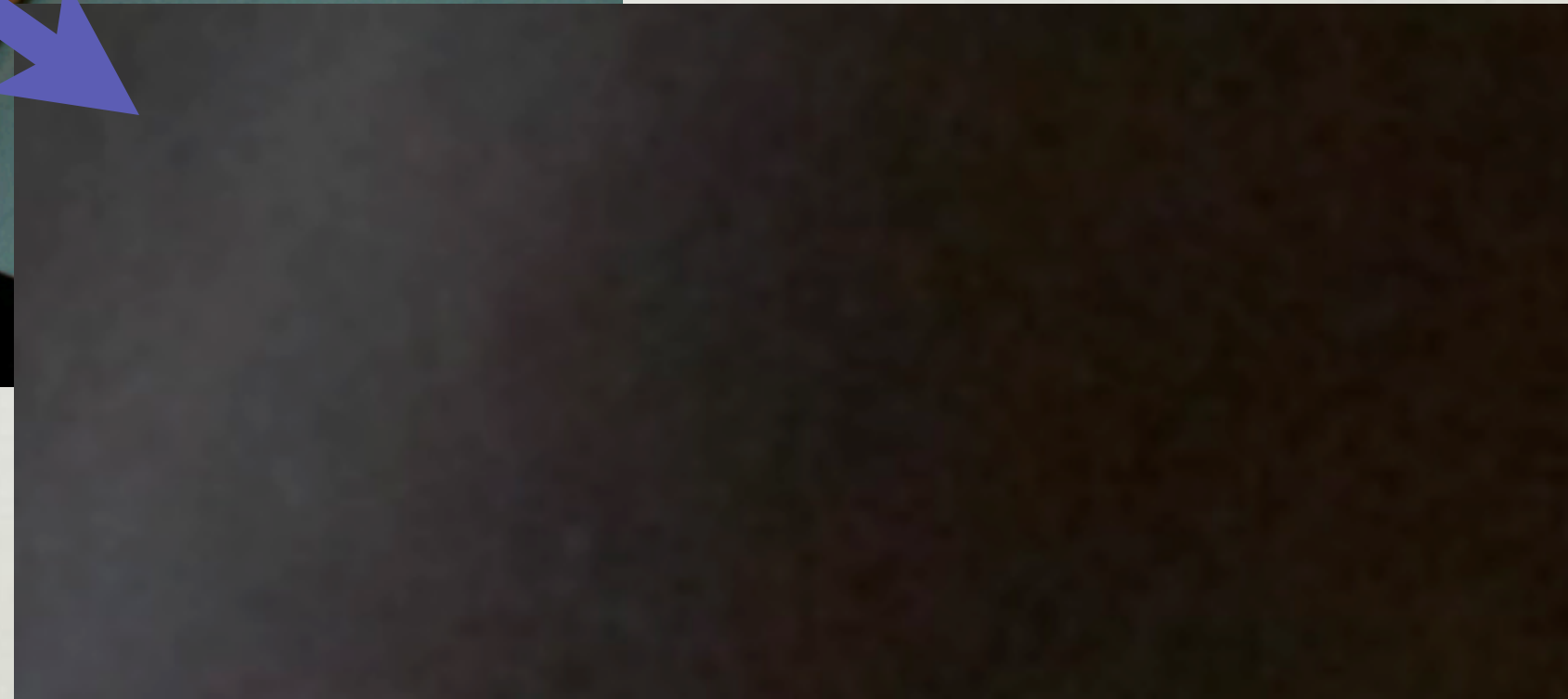
- **Red** = Danger (blood)
- **Green** = Festive & calm (greenery)
- **Yellow** = Welcome, sunny feeling
- **Blue** = Calming, restive, safe
- **White** = Purity (innocence)
not in China (death)
- **Black** = Sophistication / power

MEMORY COLORS



Is his head really skin colored?

MEMORY COLORS



MEMORY COLORS



MEMORY COLORS

- People are pink/orange (a color I like to call porange)
- Grass and summer trees are green
- Water and skies are blue
- Fire engines, stop signs, and blood are red

MEMORY COLORS



- The good colorist first picks the memory colors important to the scene, and then ensures that they stay consistent, often combating adverse factors to do so

MEMORY COLORS



MEMORY COLORS



Before

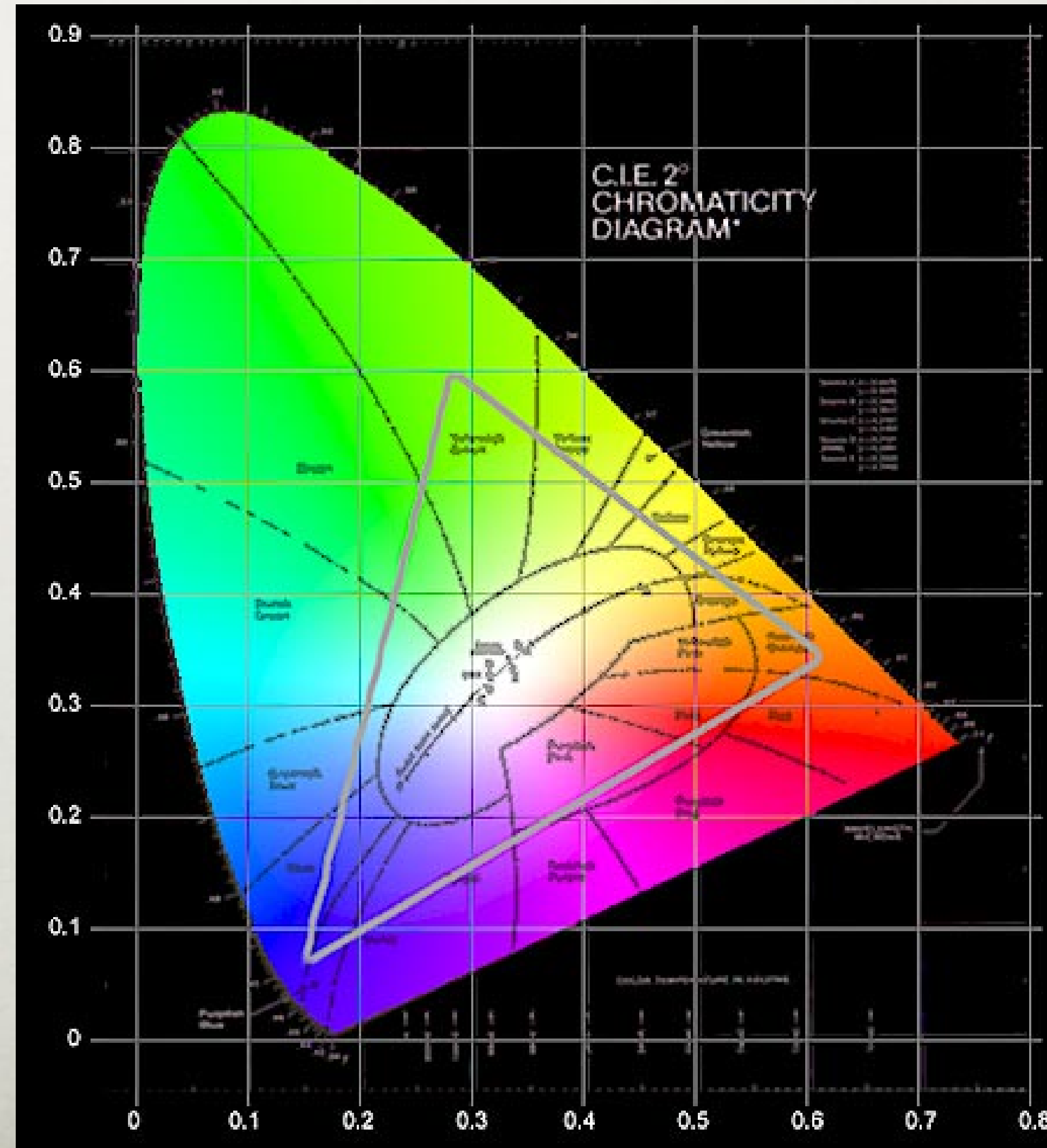
MEMORY COLORS



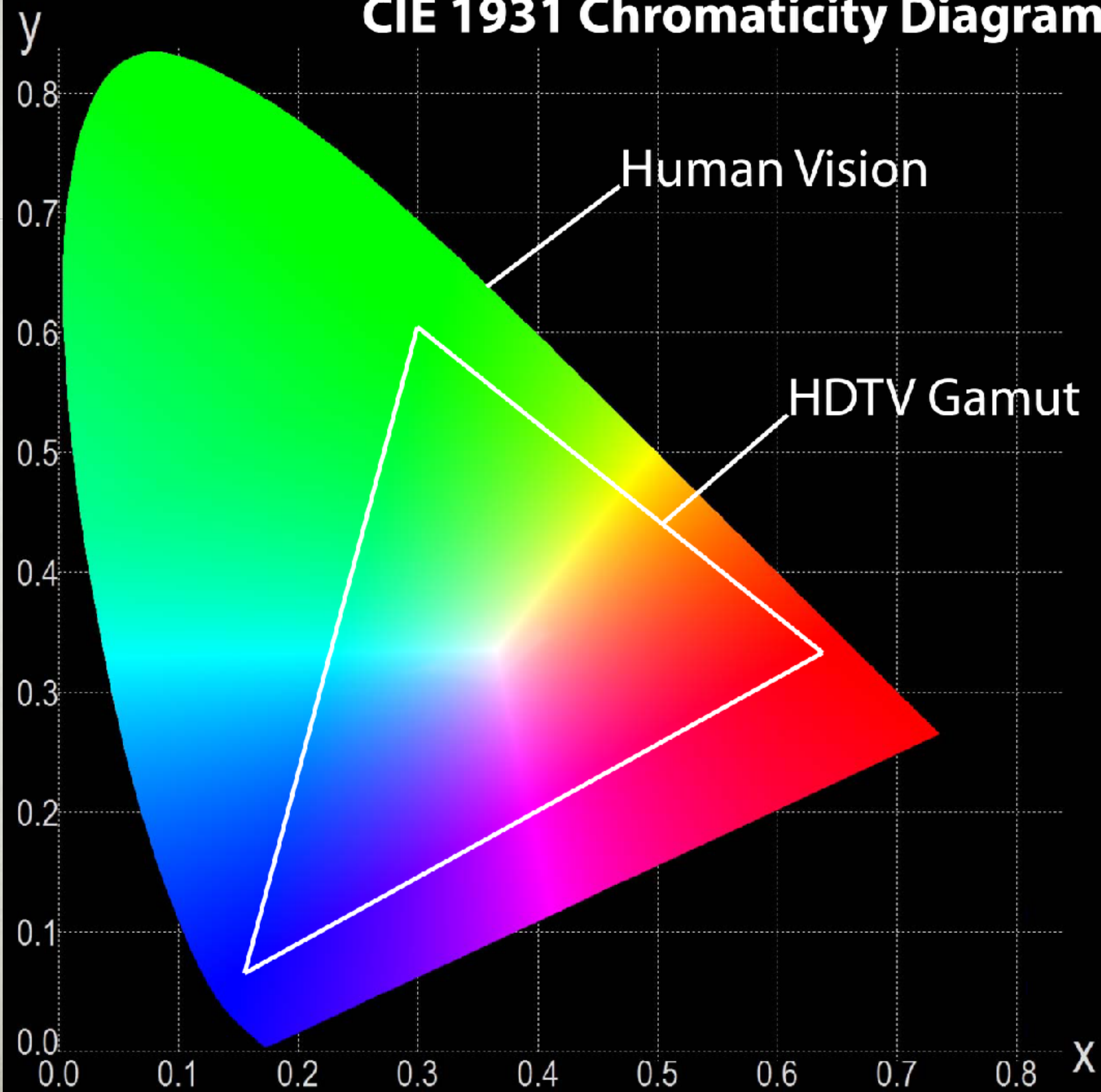
After

COLOR SPACE

- Series of number that describe many colors

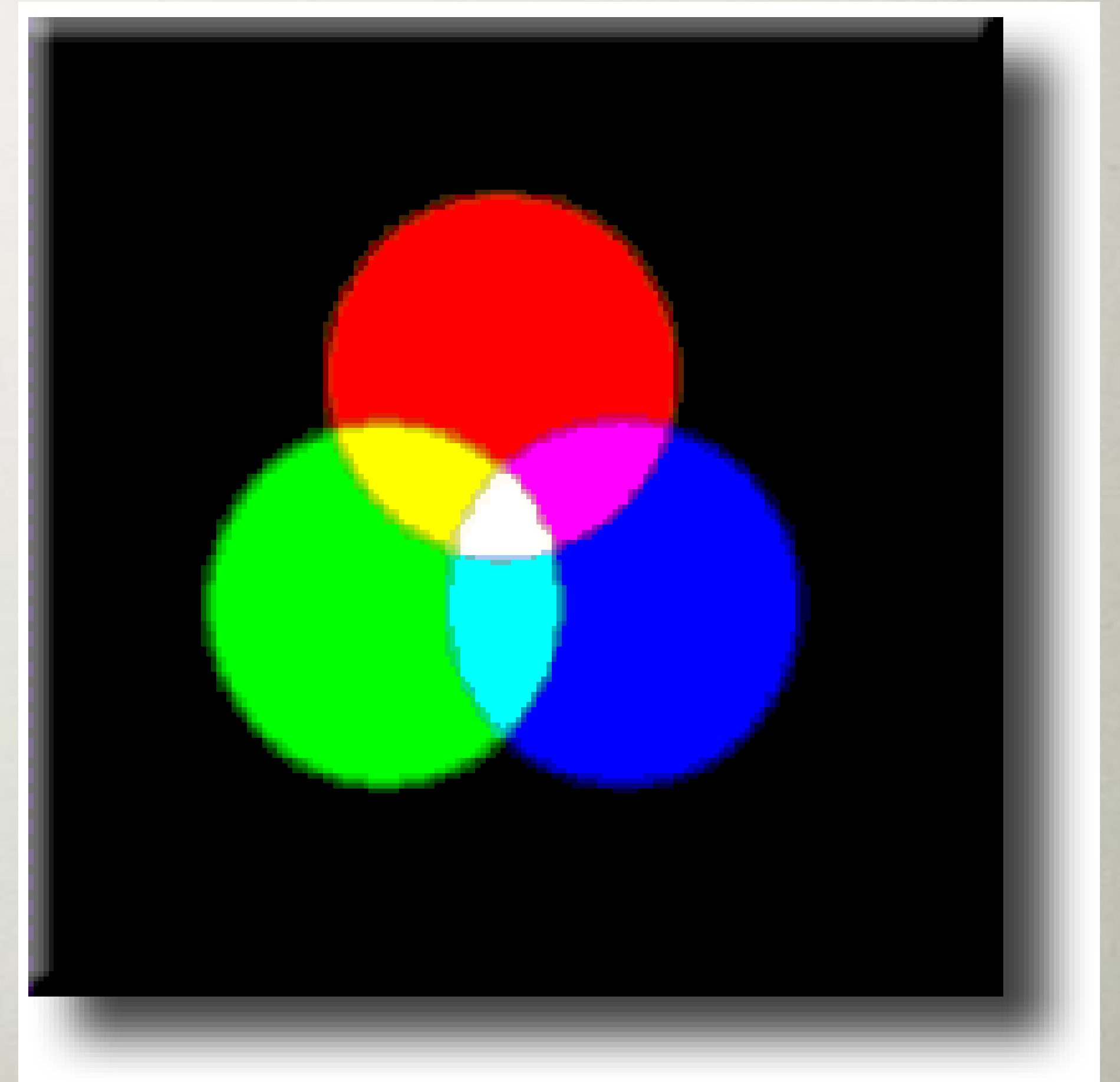


CIE 1931 Chromaticity Diagram



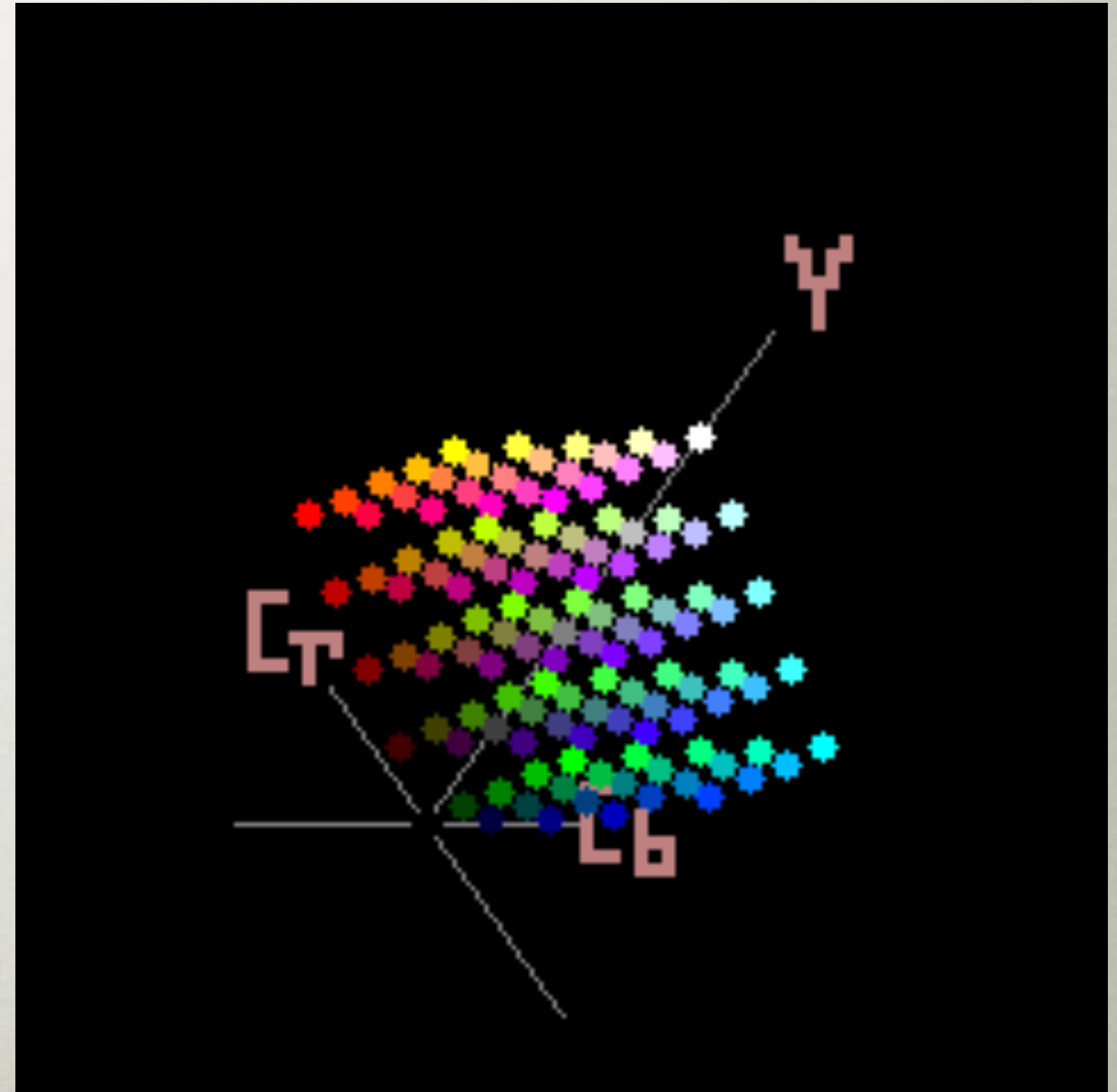
RGB COLOR SPACE

- Used in digital imaging and computer graphics.
- Additive. Colors can be derived by adding RGB in various combinations.
- Luminance encoded in each channel. Difficult to process colors w/out affecting image brightness.



YUV COLOR SPACE

- Used mostly for video capture and processing.
- Separates the luminance and chrominance information.
- Smaller bandwidth = limited range of colors.
- $YUV = YCrCb$ (component)



COLOR SPACE STANDARDS

<p>Rec. 601</p>	<p>CCIR 601 (ITU) 1982 Standard Definition color space YCbCr 4:2:2 RGB\leftrightarrow 601 matrix \leftrightarrow YCbCr \leftrightarrow 601 matrix \leftrightarrow</p>
<p>Rec. 709</p>	<p>BT. 709 (ITU) 1990 High Definition (1080) color space Similar to Rec. 601 and sRGB but gamma 2.4! RGB\leftrightarrow 709 matrix \leftrightarrow YCbCr \leftrightarrow 709 matrix \leftrightarrow</p>
<p>Rec. 2020 (the future)</p>	<p>BT. 2020 (ITU) 2012 Standards for UHD (4K), SDR, and Wide Color Gamut Larger color space than Rec. 709</p>
<p>sRGB</p>	<p>Similar to BT. 709 (ITU) 1990 Display color standard for computer monitors Gamma 2.2</p>

WHEN TO USE COLOR SPACE STANDARDS

Rec. 601	Use when editing SD
Rec. 709	Use when editing HD/UHD at SDR
Rec. 2020 (the future)	When shooting for HDR or Wide Gamut at UHD or greater.
sRGB	For Web/Device or Photoshop output

LUMINANCE

- Brightness from black, through greys, and into the brightest white.
- Doesn't take into account the color of an image.
- Measured by FCP in 0-100%, Resolve in 0-1023

0%

100%

109%



Black

White

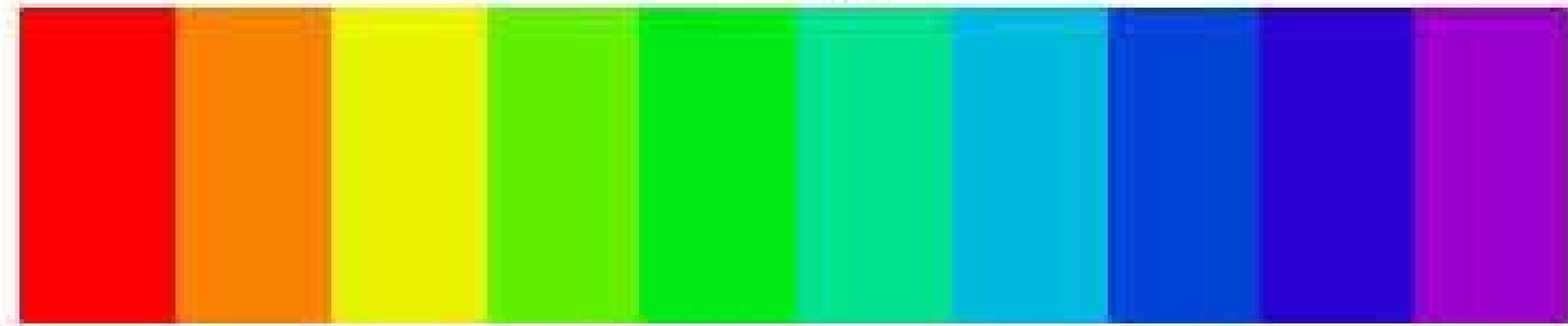
Superwhite

CHROMINANCE

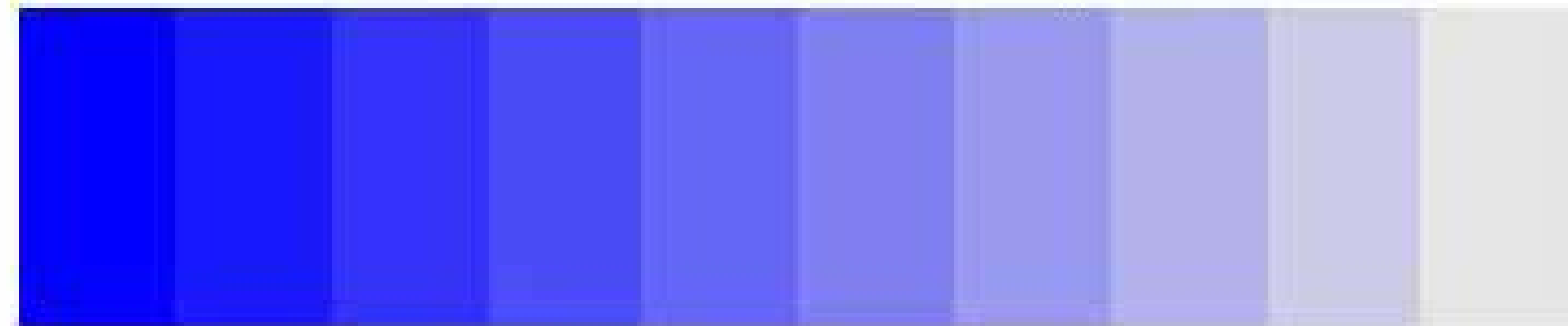
- Display of the various colors in your video.
- Different color spaces display colors with variations. Certain colors in the RGB color space have no equivalents in the YUV color space.
- Hue and Saturation

CHROMINANCE

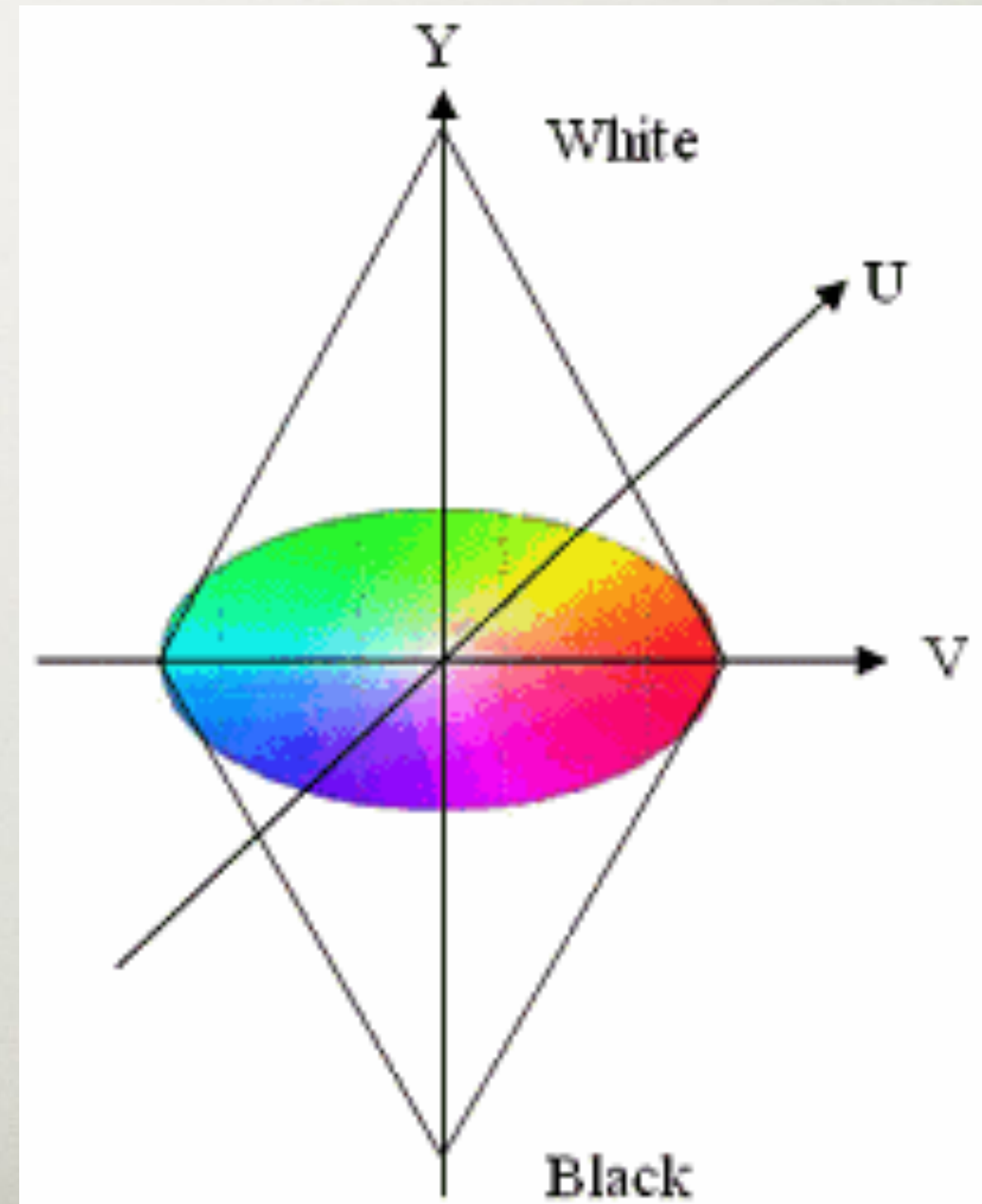
Hue Changes



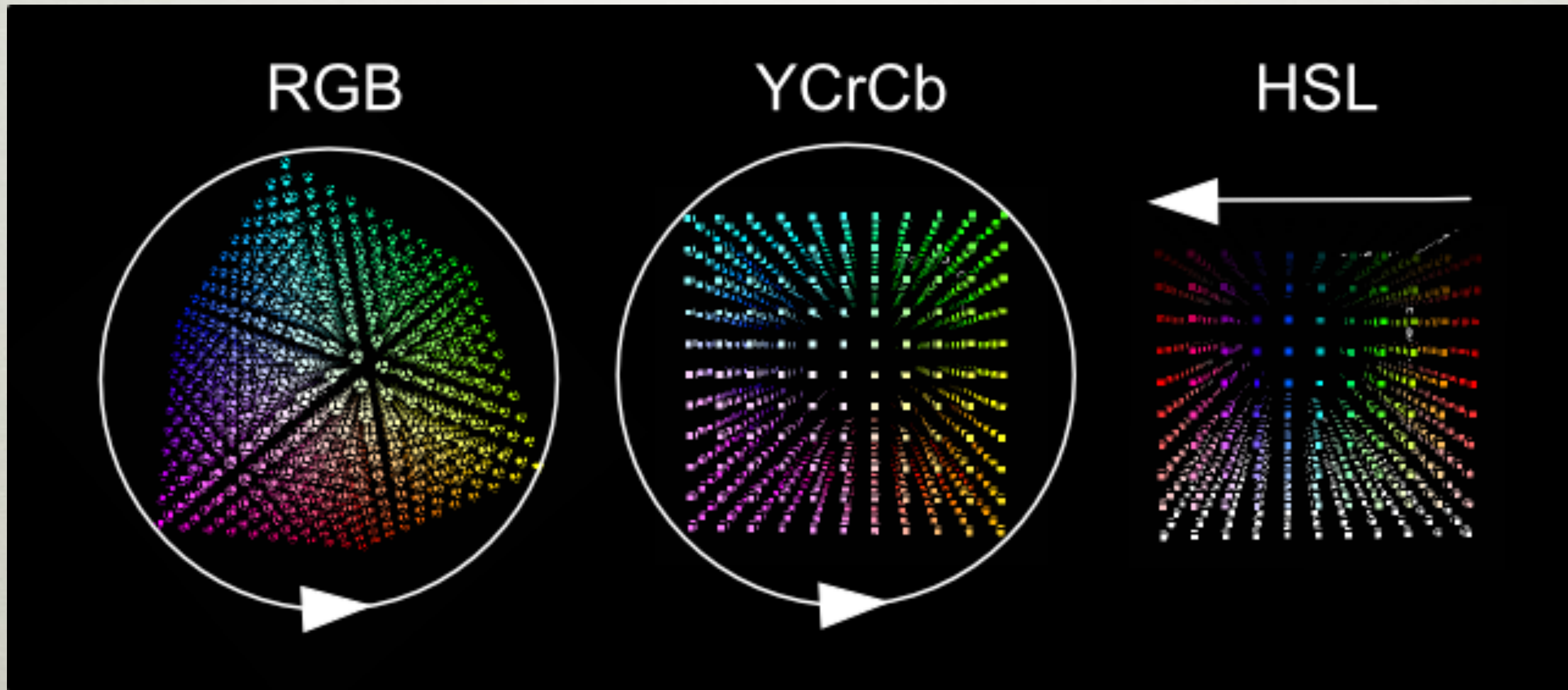
Saturation Changes



Brightness Changes



RGB vs YUV vs HSL



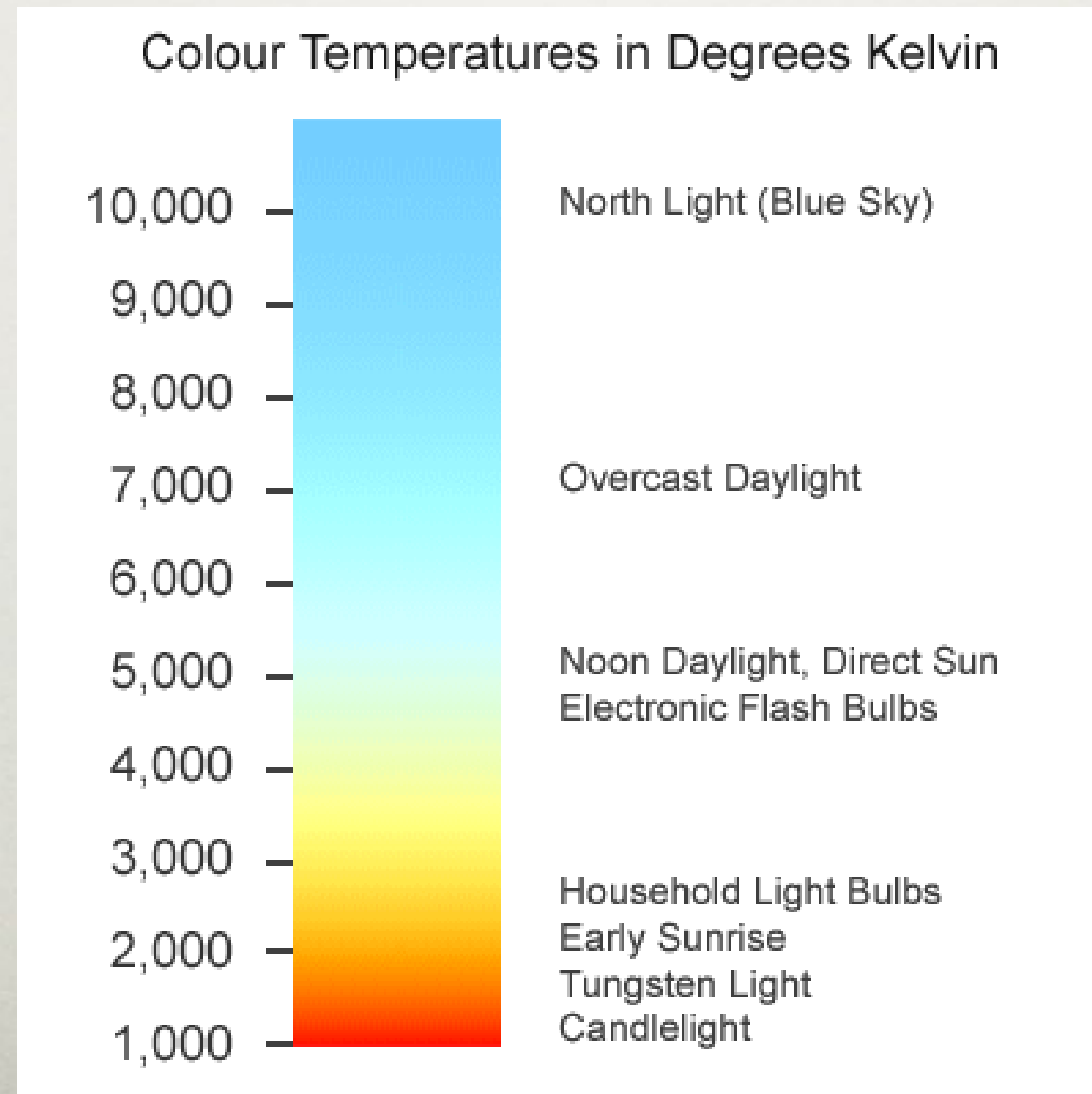
COLOR TEMPERATURE

- Important for colorist to understand.
- Color temperature of the lighting in any scene changes the viewer's perception of colors and whites.

COLOR TEMPERATURE

- Each light source that illuminates the scene has its own particular color temperature.

COLOR TEMPERATURE



GOALS OF COLOR CORRECTION

- Optimize the source material
- Creating a “look”
- Preparing material for different media (web vs. dvd vs. DI)
- Creating focus on key elements
- White balance / exposure correction
- Creating special effects

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