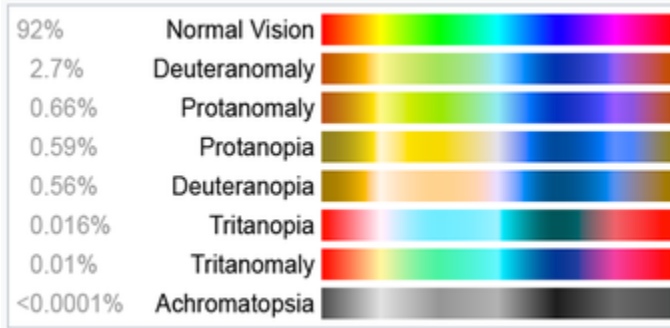


Accessibility: Colors

Codecov uses different colors to show hit/miss or increase/decrease in code coverage. We want every user that uses Codecov to be able to distinguish between these colors and contrasts.

We started looking into our three main colors, green used for: increase, red used for: decrease and grey used for: not affected files.

Color blindness: Percentages / Classification / Chart



Current Codecov Colors: Red Green and Grey

Current



Anomalous Trichromacy: Red-Weak/Protanomaly



Dichromatic view: Red-Blind/Protanopia



Monochromatic view: Monochromacy/Achromatopsia



Anomalous Trichromacy: Green-Weak/Deuteranomaly



Dichromatic view: Green-Blind/Deuternopia



Monochromatic view: Blue Cone Monochromacy



Anomalous Trichromacy: Blue-Weak/Tritanomaly



Dichromatic view: Green-Blind/Tritanopia



When we take a look at the results above we can see there are almost no contrast differences (even with these big squares we are using above) on the following views:

- Dichromatic view: Red-Blind/Protanopia
- Dichromatic view: Green-Blind/Deuternopia
- Monochromatic view: Monochromacy/Achromatopsia

Testing new colors

Now that we know which views are lacking contrast for the colors we are using we can test different shades of green and red to increase the contrast for those colors:

Current (old) v1



Dichromatic view: Red-Blind/Protanopia



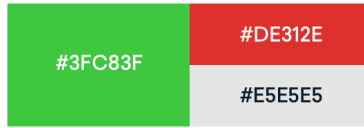
Dichromatic view: Green-Blind/Deuteropia



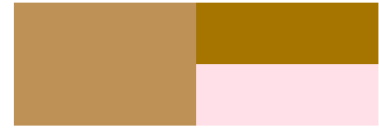
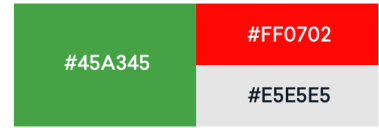
Monochromatic view: Monochromacy/Achromatopsia



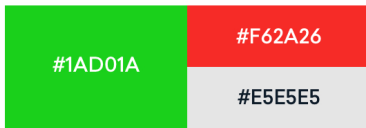
New v2



New v3



New v4



Dichromatic view: Red-Blind/Protanopia



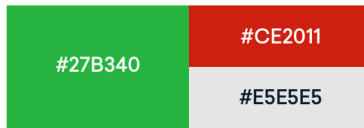
Dichromatic view: Green-Blind/Deuteropia



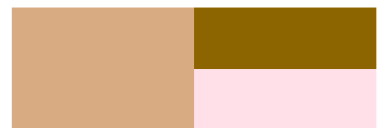
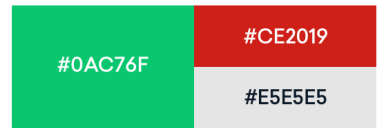
Monochromatic view: Monochromacy/Achromatopsia



New v5



New v6



The results above show us that we can distinguish the colors a lot better with the new versions, listed from good to bad:

- V4
- V2
- V6 / v5
- V3
- V1 Current colors

Below the color versions placed in the coverage reach to get a feeling on how it looks for the 92% that isn't colorblind.



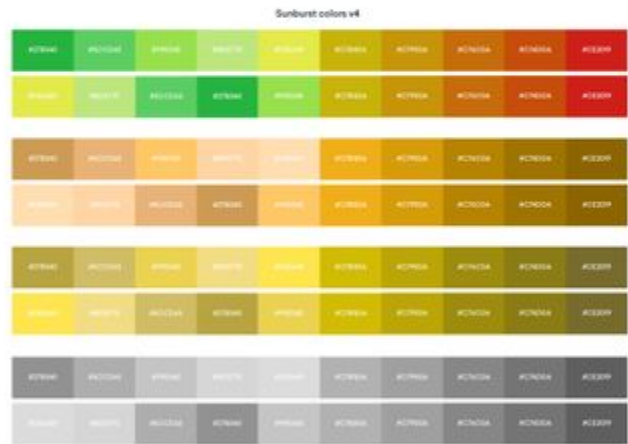
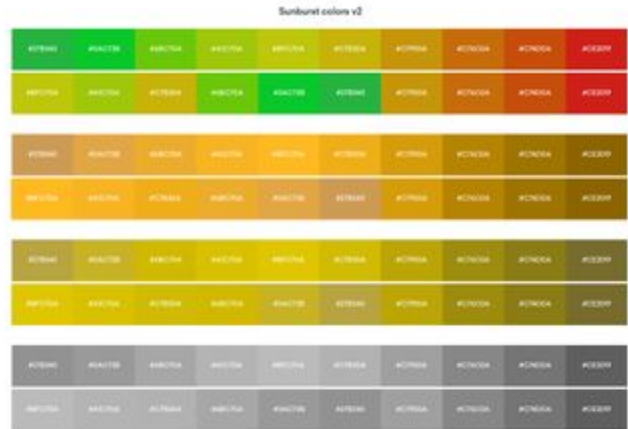
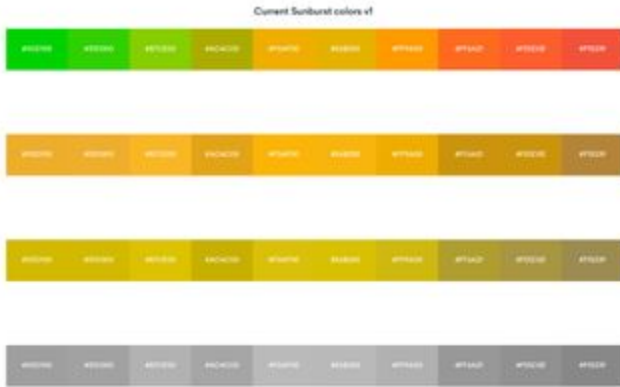
Sunburst colors

We have a sunburst chart with a variety of colors from red to green, below my experiments for the right colors to distinguish a difference between every color (indicating the coverage percentage).

With the current v1 version we see that there is little to no (contrast) difference between 2/3 of the left side of the color range. When creating a new version v2/v3 we tried to pick colors between dark green and dark red which increased the contrast but it showed us that the dark green and red were having the same contrast/saturation/brightness, that's why I created a second row below the first row which indicated the order which our colorblind users would likely assume the coverage would be from high <-> low. This would be a problem since the order for the other users would be different than that for our color blind users. On v4 I tried to increase the contrast some more which started to look a lot better in terms of contrast but the order was still different. v4 showed me green should be the lightest green and red should be the darkest in terms of contrast, so I created a v5 doing this. V5 has accomplished the coverage from high to low for our users and our colorblind users.

Takeaway: It's possible to create a set of colors ranging from green to red for our colorblind users as long as you go from light to dark in terms of brightness/contrast.

Question: Are we willing to change our colors to v5 for ~1.5% of our users to get an equal experience to all of our users?



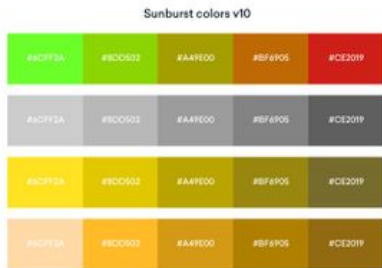
Team review outcome

Looking at the primary red, green and grey we landed on v5 or v6 but v5 had the most votes:

- Red: #CE2011
- Green: #27B340
- Grey: #E5E5E5

Reviewing the sunburst:

We landed on v5 as well but instead of taking 10 colors (10% per coverage indication: meaning color 1 is 10% and color 10 is 100% coverage) , we want to experiment with using less than 10 colors to increase contrast to the colors and to create less overlap between colors that are close to eachother



Reviewing the sunburst:

We were considering between v6 & v7, so we still would have enough coverage indication colors. We landed on v6.



