

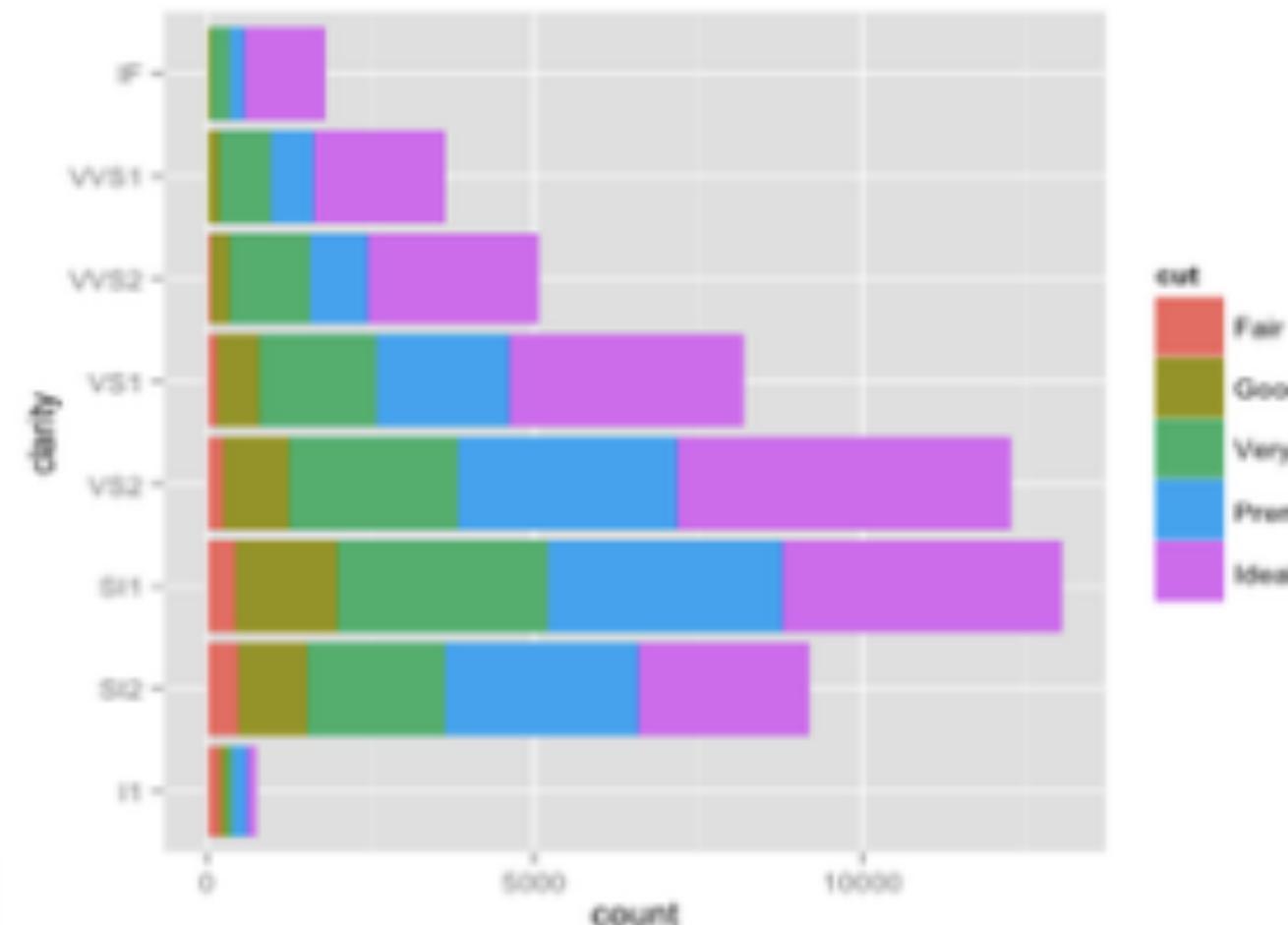
Color



Myfanwy
@Voovarb



guys. GUYS. I'm diving in Palau this week and I've found the
[#ggplot2](#) fish. [#rstats](#)



9:26 AM · Mar 25, 2015

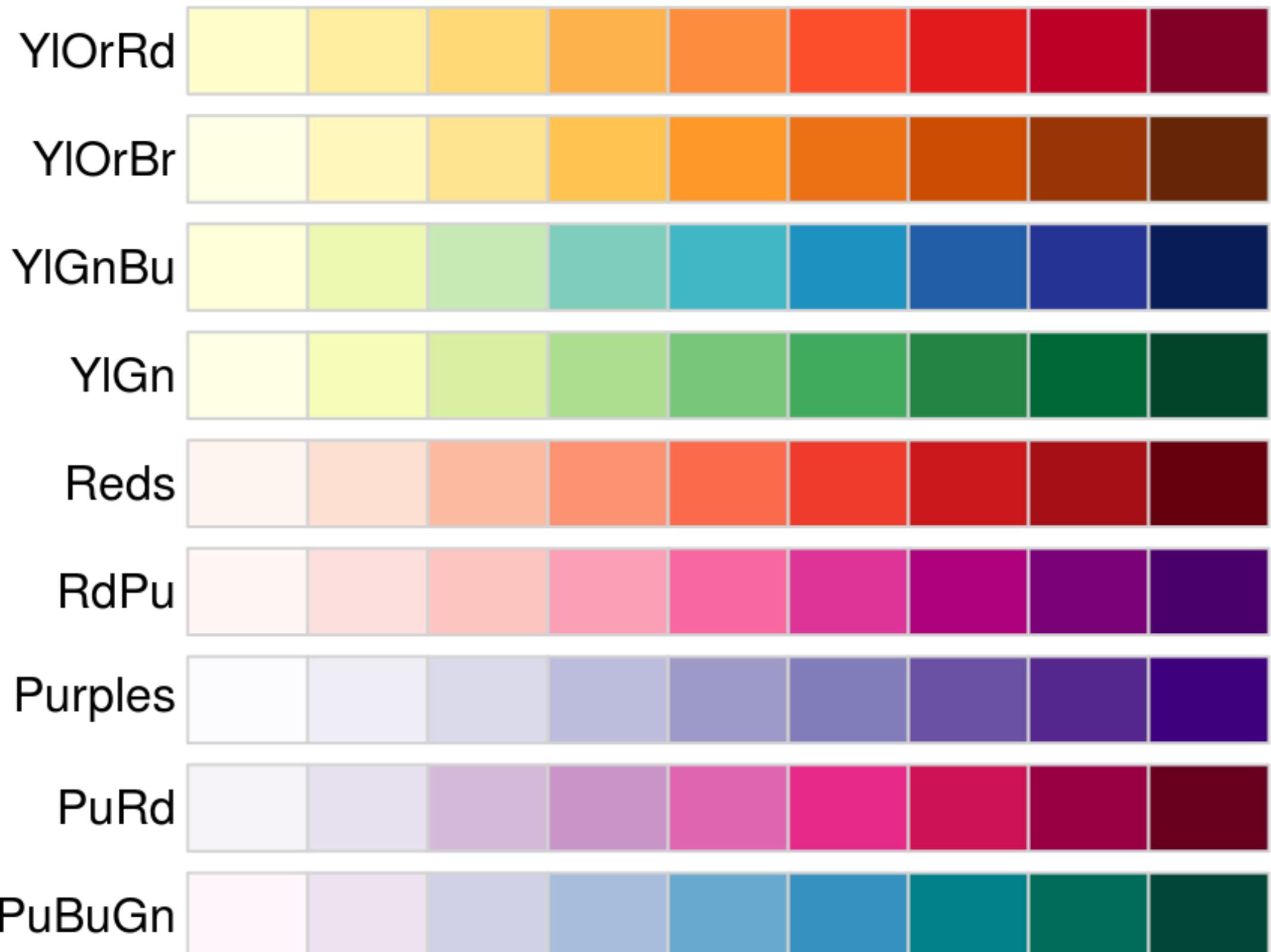
112 RETWEETS

237 LIKES

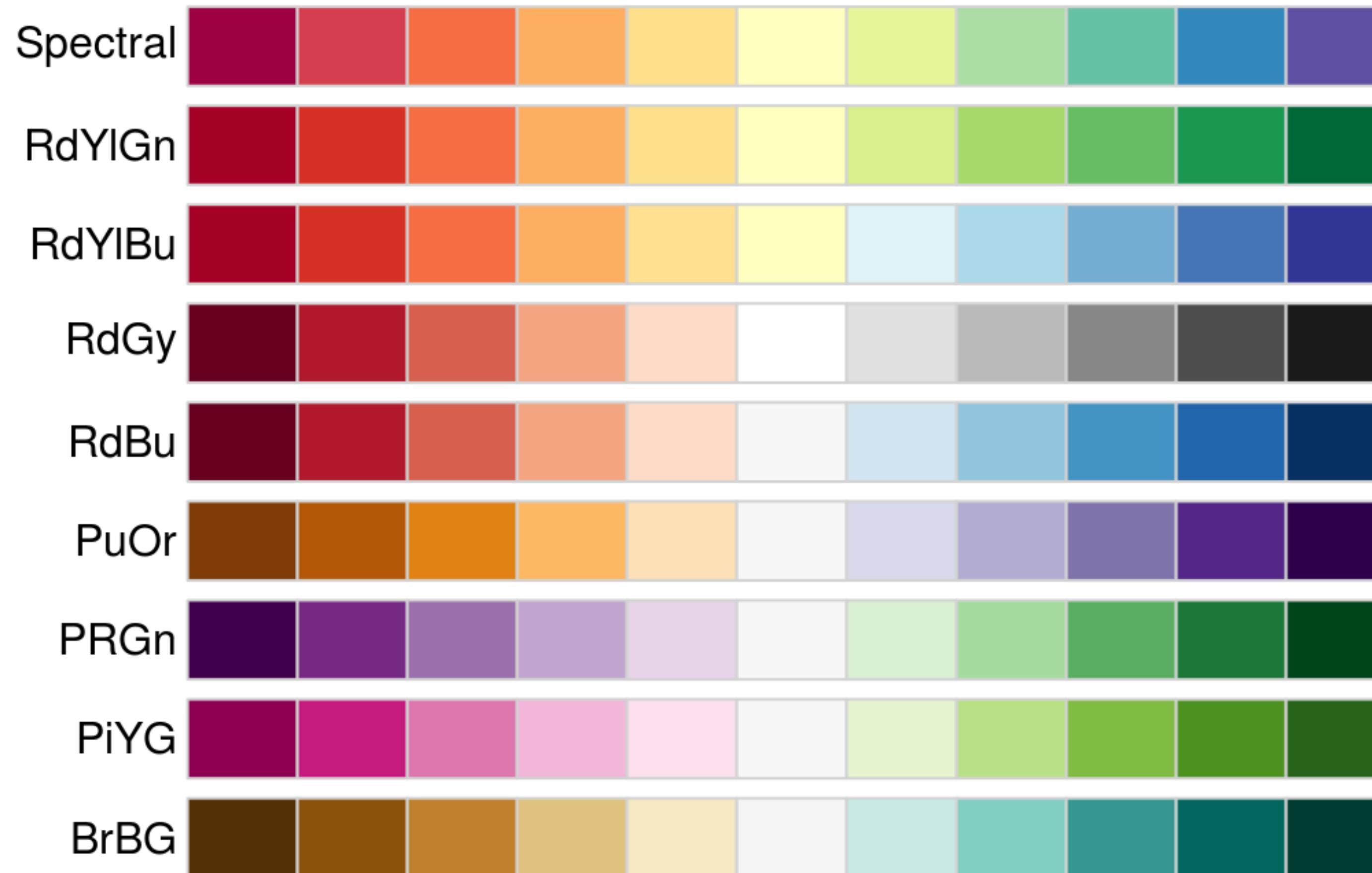
Color

1. link between data and color palette
2. color vision deficiency
3. aesthetics

Sequential Color Schemes (RColorBrewer)

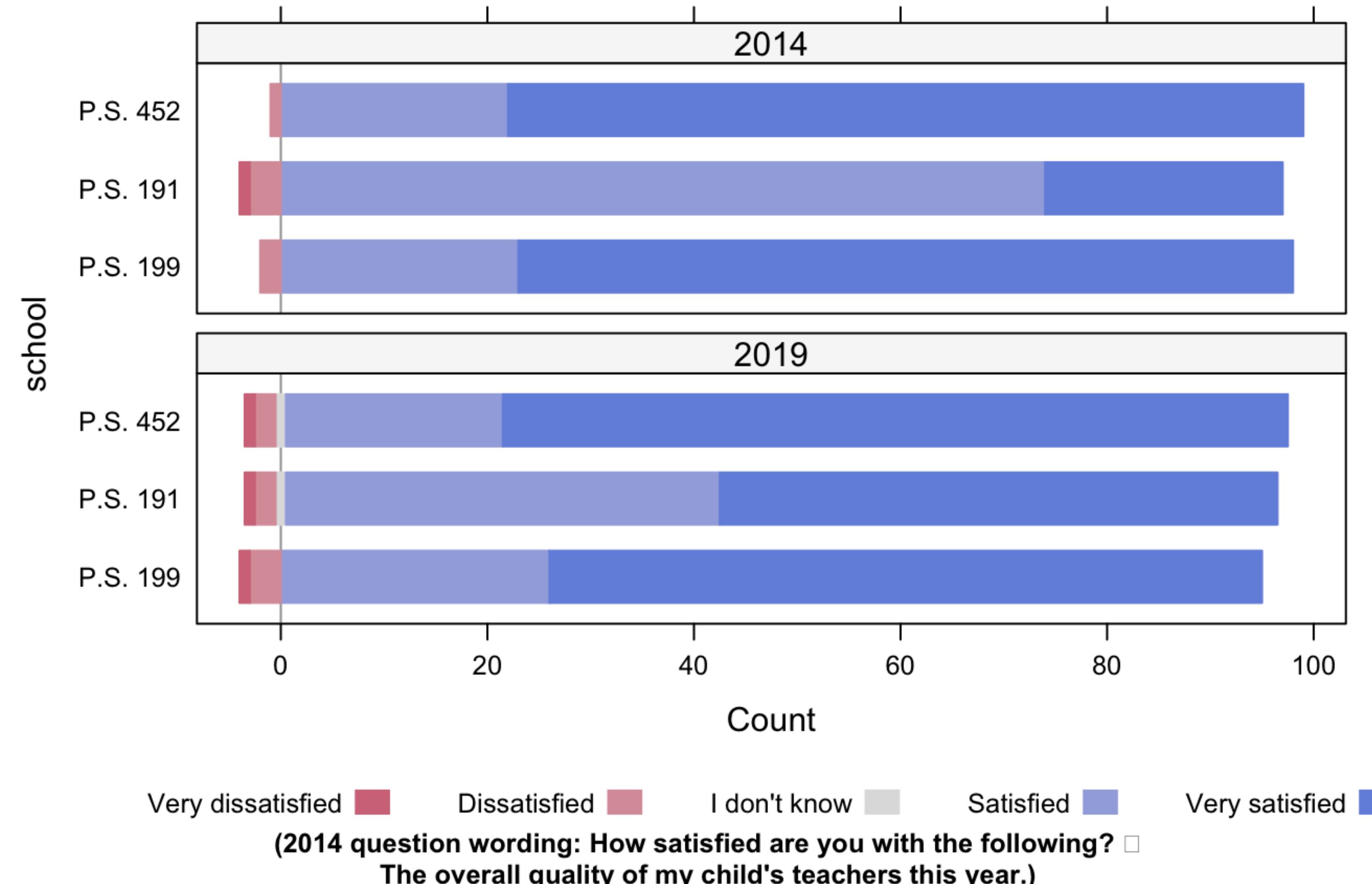


Diverging Color Schemes (RColorBrewer)



Diverging

The overall quality of my child's teachers this year.

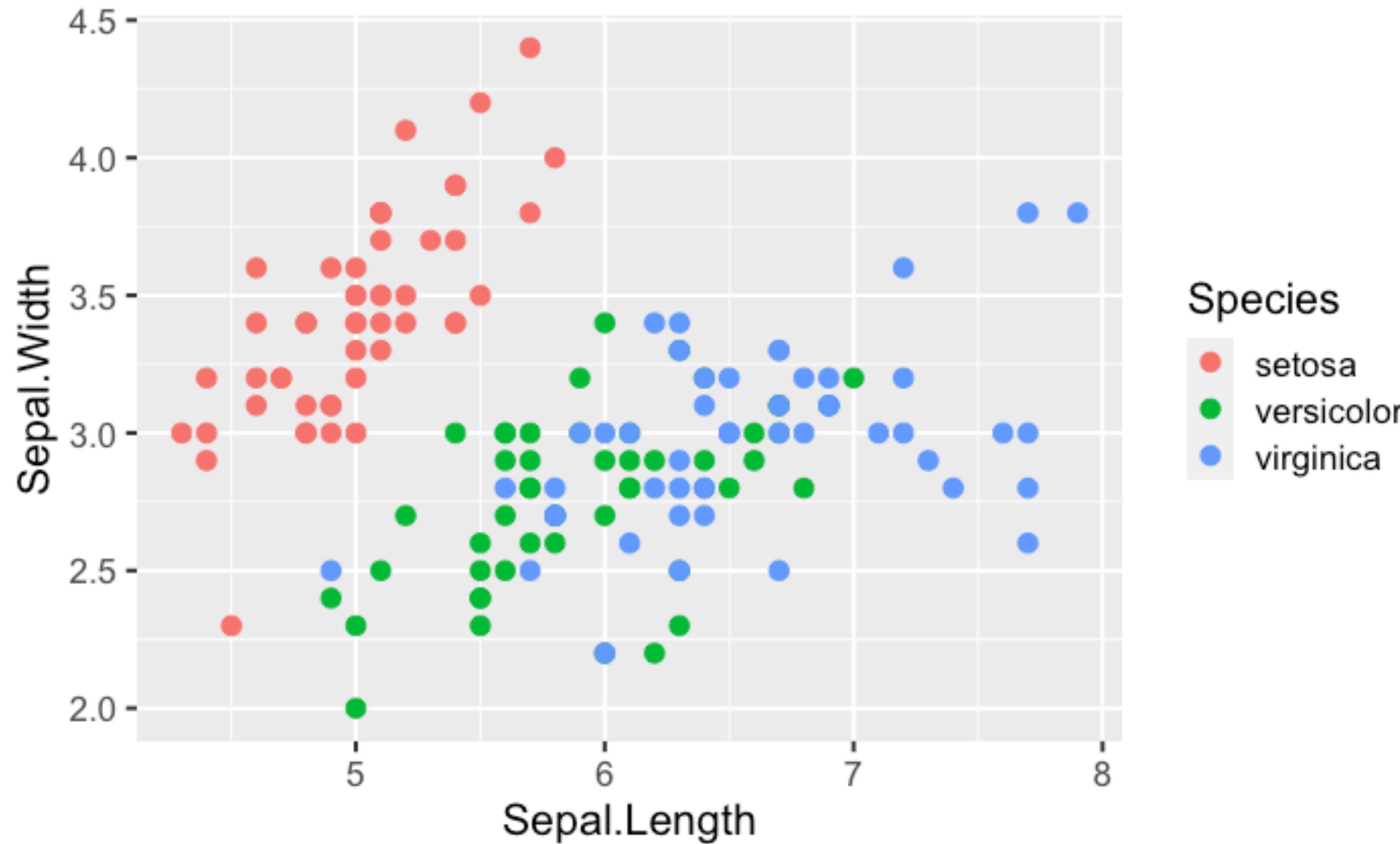


Qualitative Color Schemes (RColorBrewer)

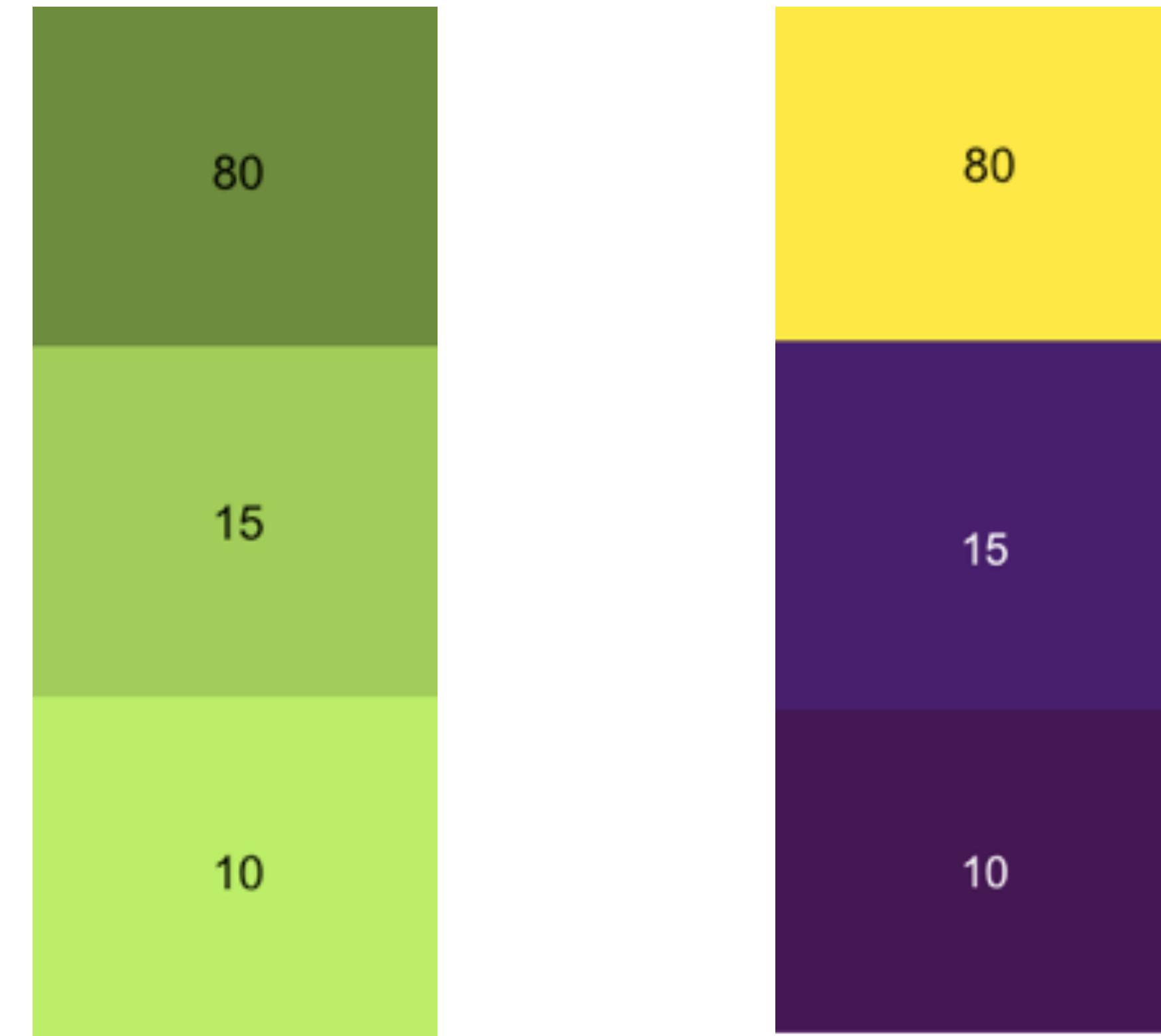
qualitative (for nominal data)



Qualitative



Perceptually uniform color scales



Perceived differences are proportional to scalar differences

Perceptually uniform color scales

viridis



magma



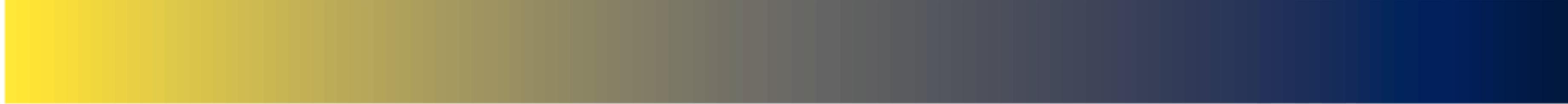
plasma



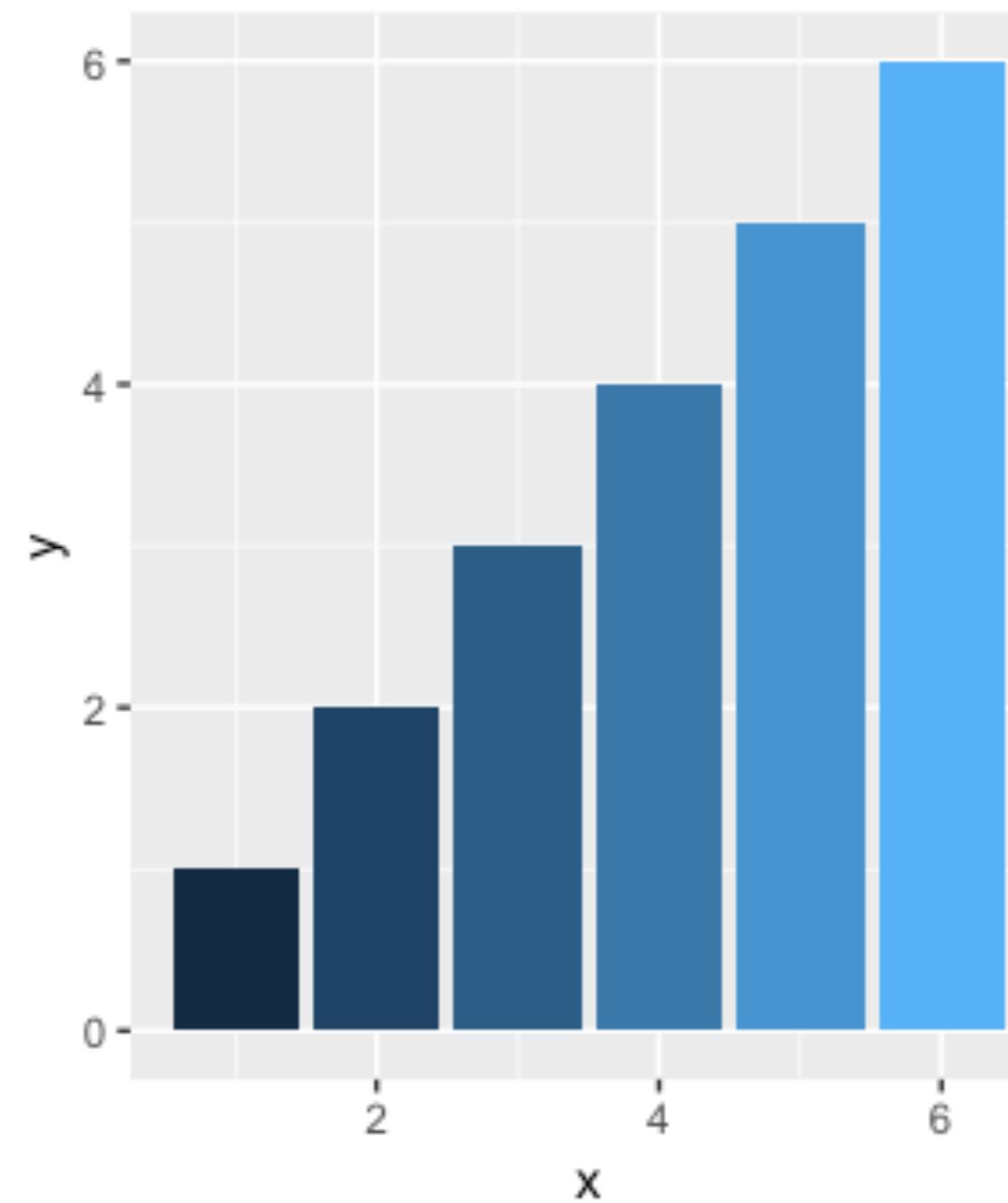
inferno



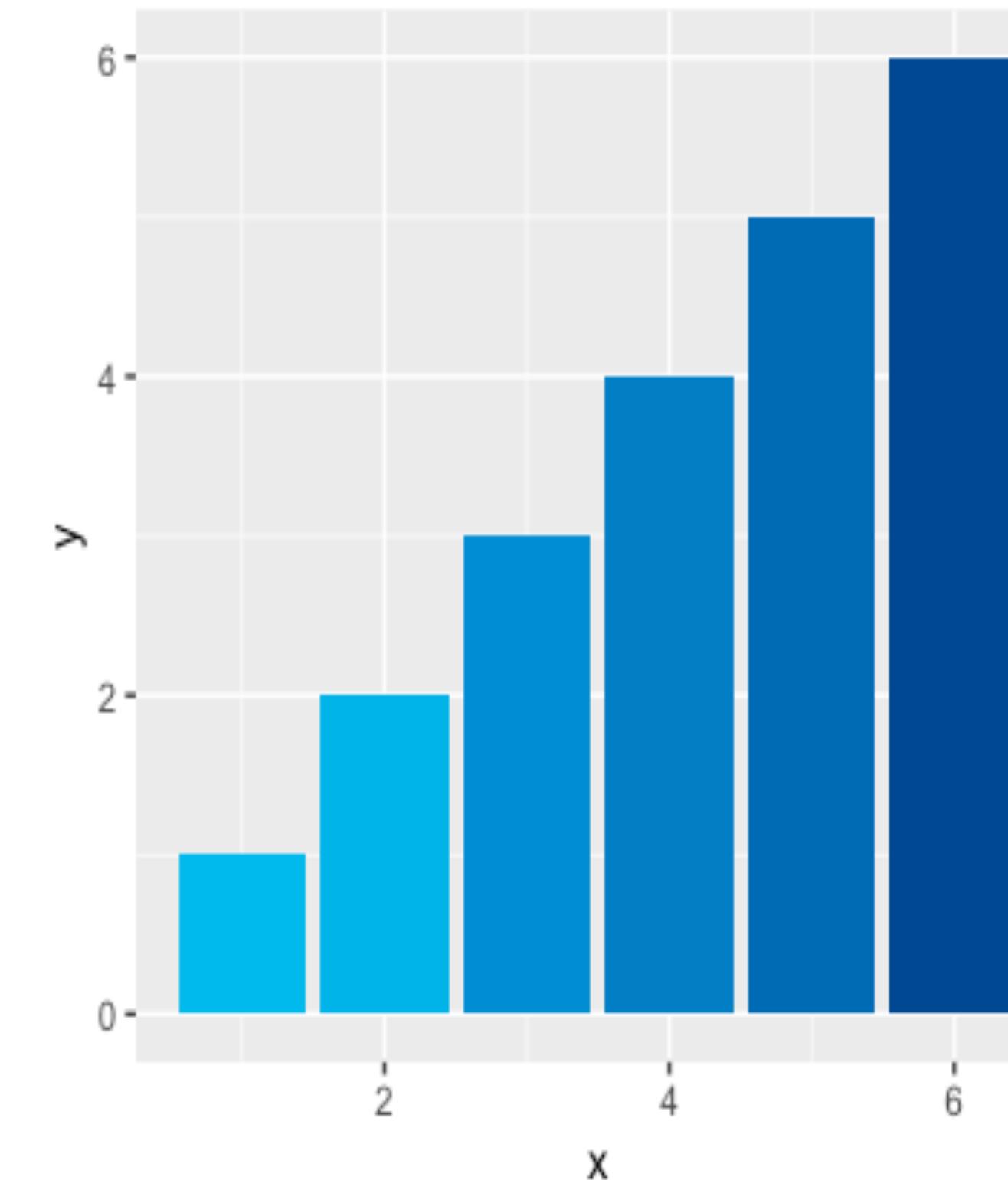
cividis



Compare



perceptually uniform



not perceptually uniform

Not perceptually uniform (rainbow palette)

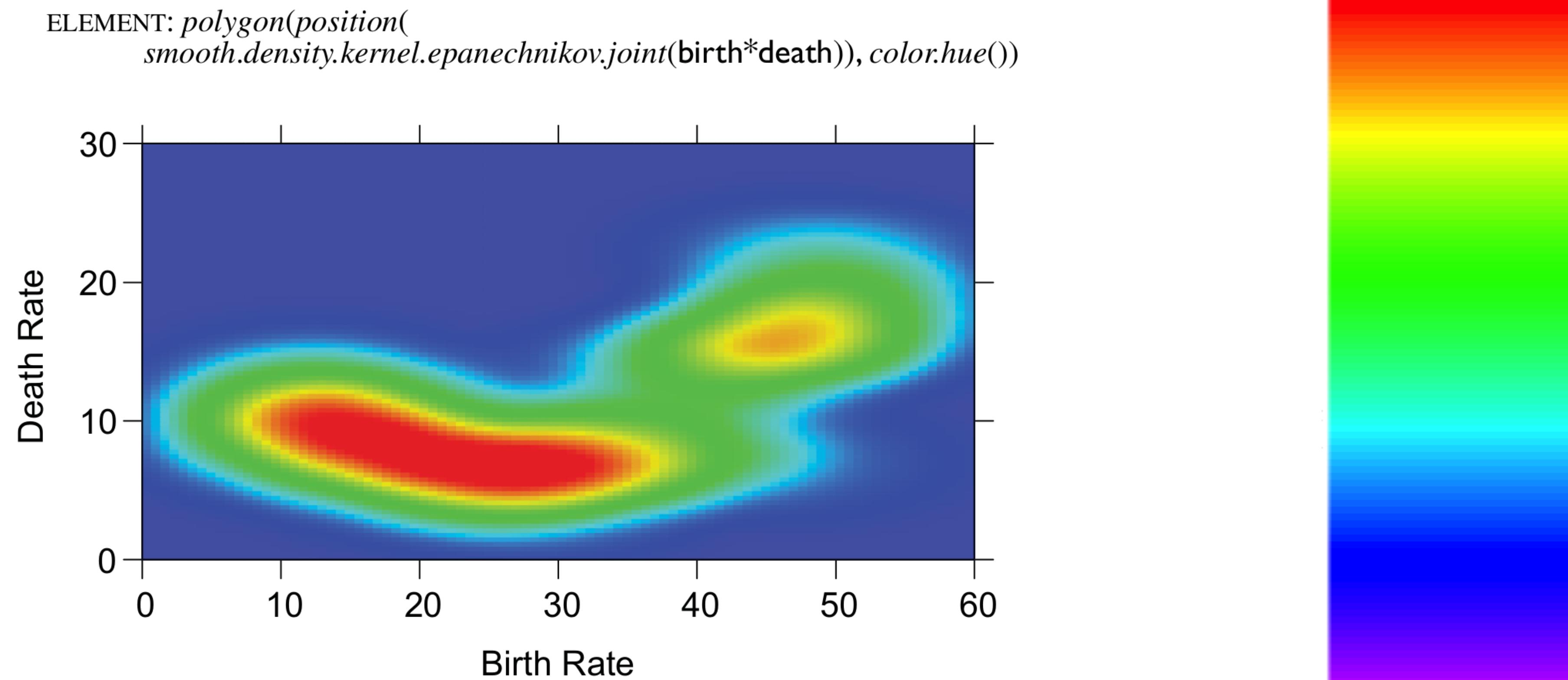
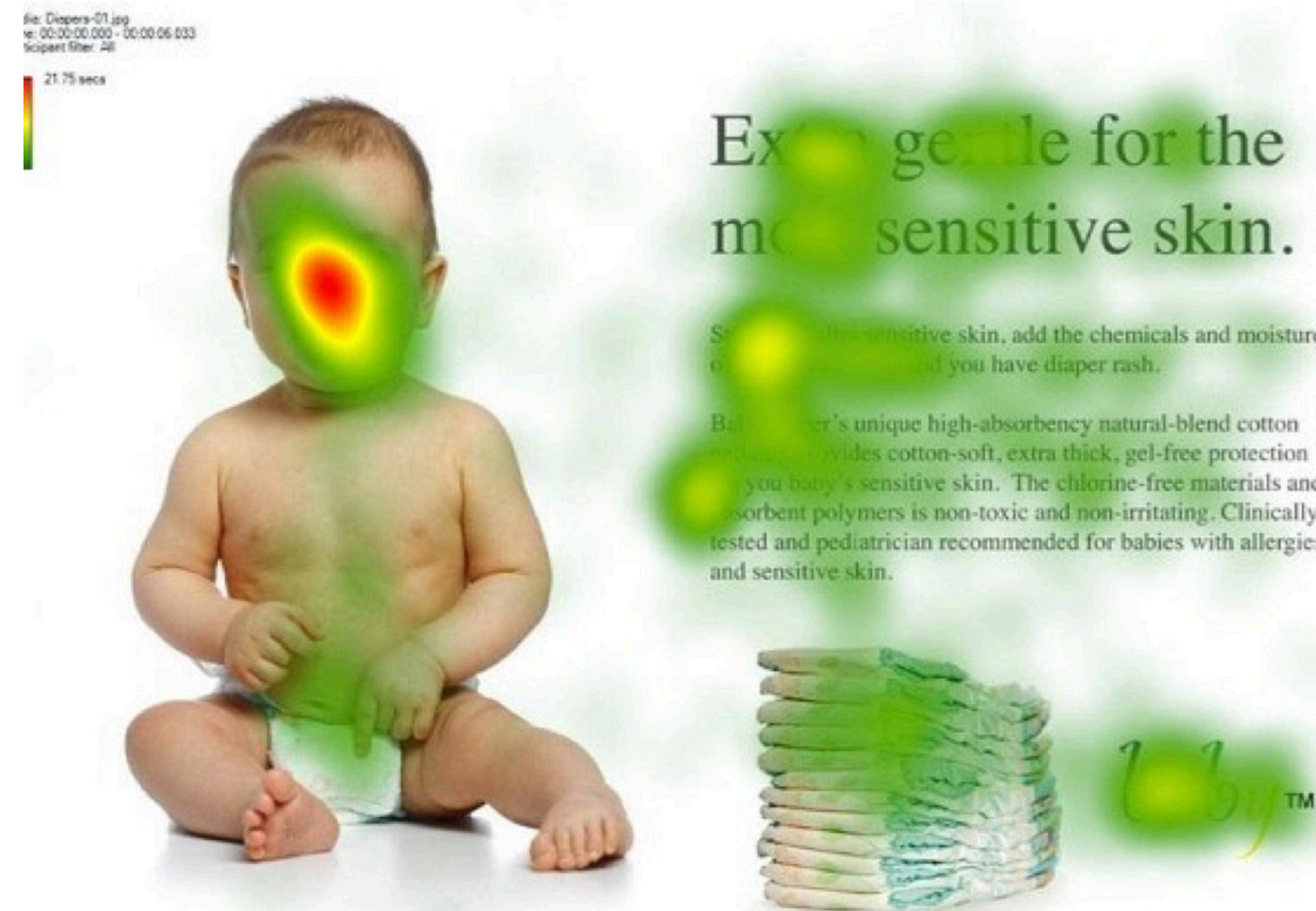


Figure 1.3 Kernel density of death and birth rates

<https://colorspace.r-forge.r-project.org/articles/endrainbow.html>

Not perceptually uniform



If you are not satisfied with the baby leakage protection, you will get your money back. Read more about our leakfree guarantee at www.baby.com

Perceptual range

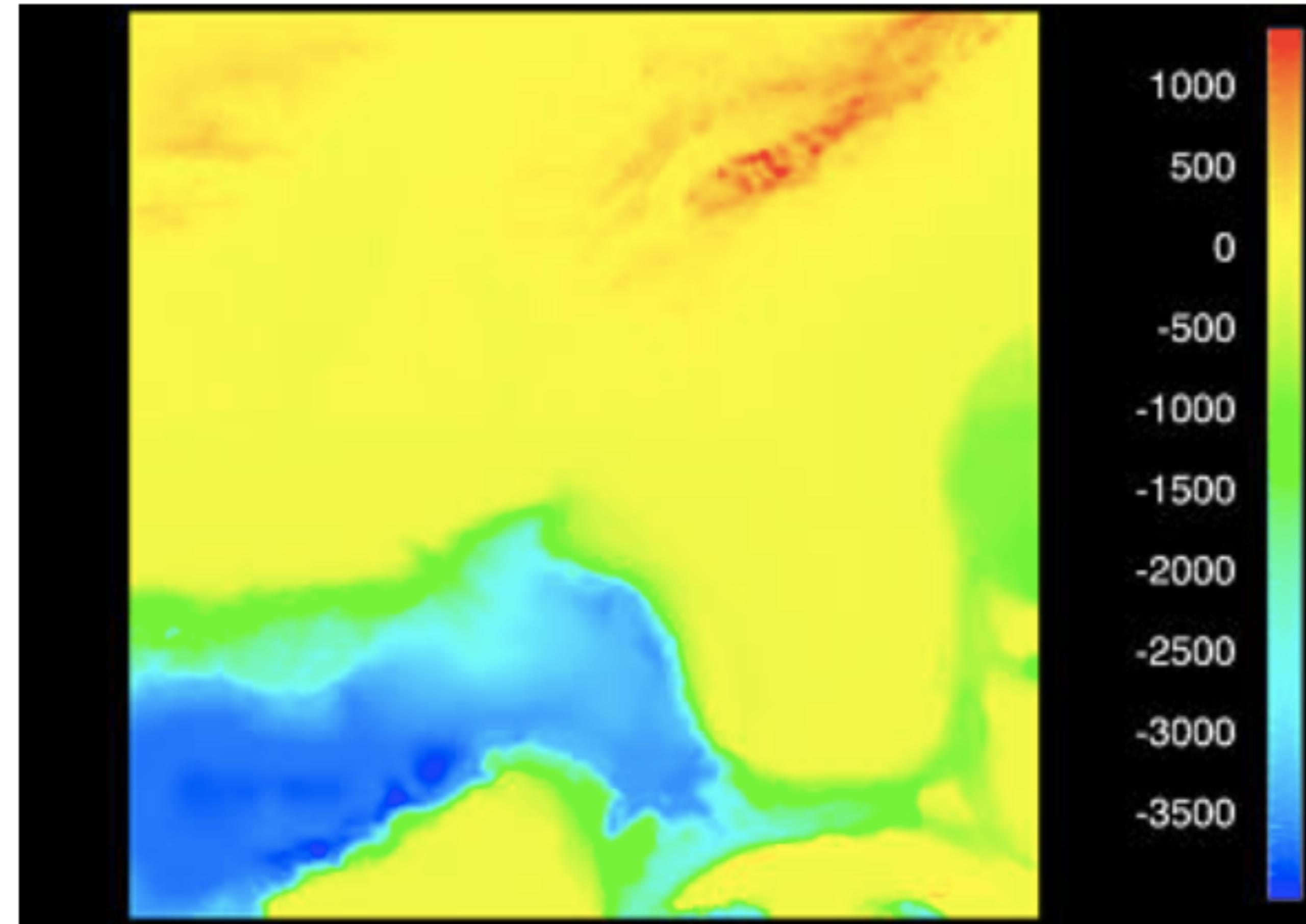
small



large

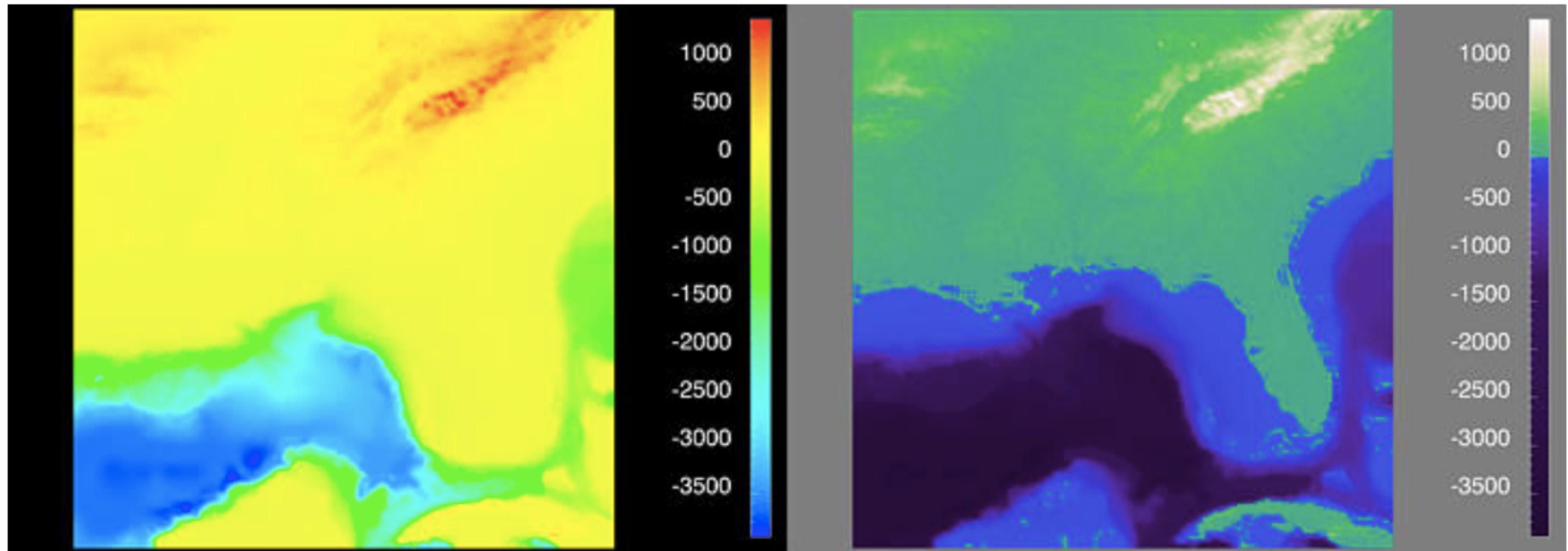


Distinguish important thresholds



Source: Krysten Thyng, "Custom Colormaps for Your Field"

Distinguish important thresholds



Source: Krysten Thyng, "Custom Colormaps for Your Field"

ggplot2 defaults

continuous data -- numeric -- sequential or diverging

```
scale_color_gradient(low = "#132B43", high = "#56B1F7", na.value = "grey50")
```

discrete data -- character or factor -- qualitative



discrete data -- ordered factors -- sequential or diverging



Changing defaults -- sequential / diverging

create your own sequential:

- + `scale_color_gradient(low = , high =)`

create your own diverging:

- + `scale_color_gradient2(low = , mid = , high =)`

RColorBrewer:

- + `scale_color_distiller(palette = "Reds")`

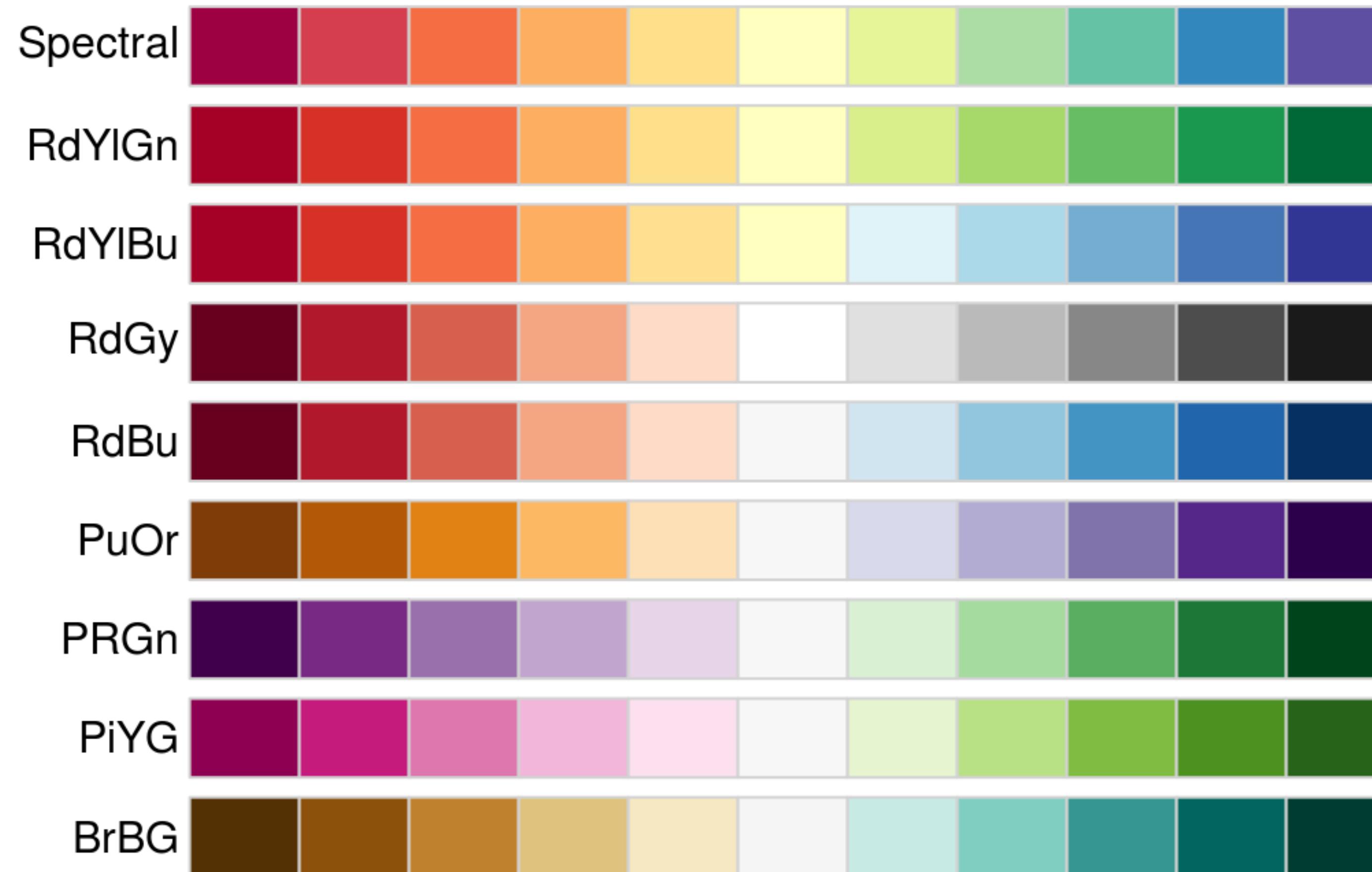
RColorBrewer, reverse order with:

- + `scale_color_distiller(palette = "Reds", direction = 1)`

Sequential Color Schemes (RColorBrewer)



Diverging Color Schemes (RColorBrewer)

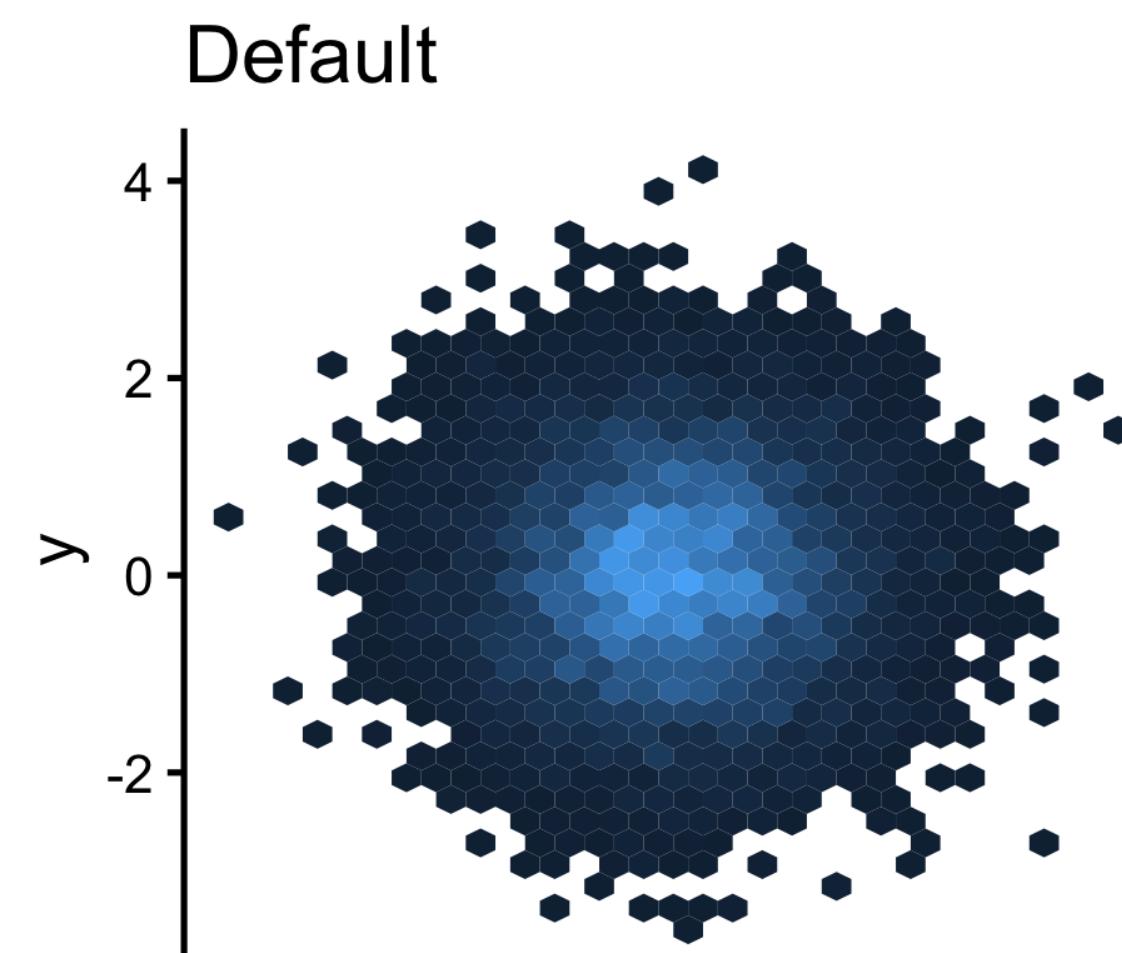


colorspace package

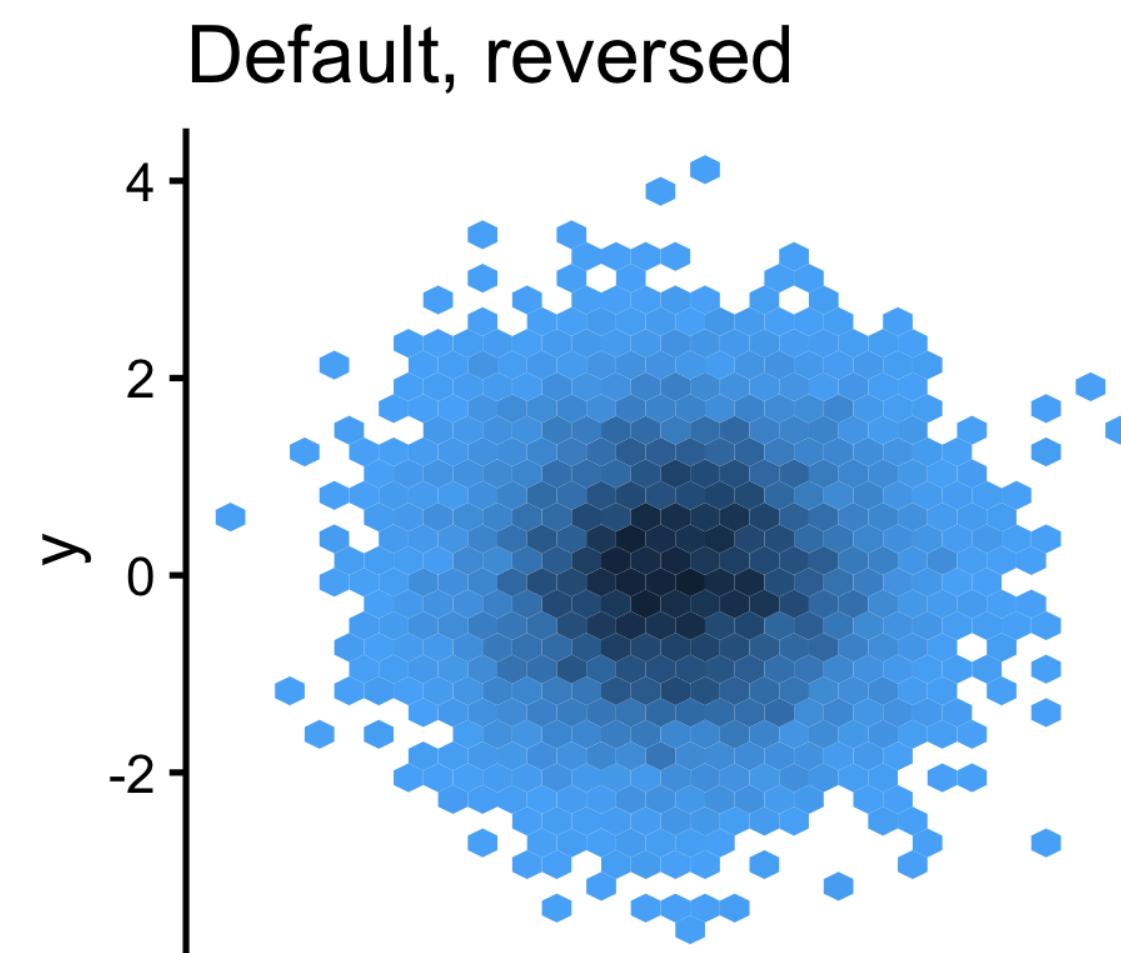


<https://colorspace.r-forge.r-project.org/articles/colorspace.html>

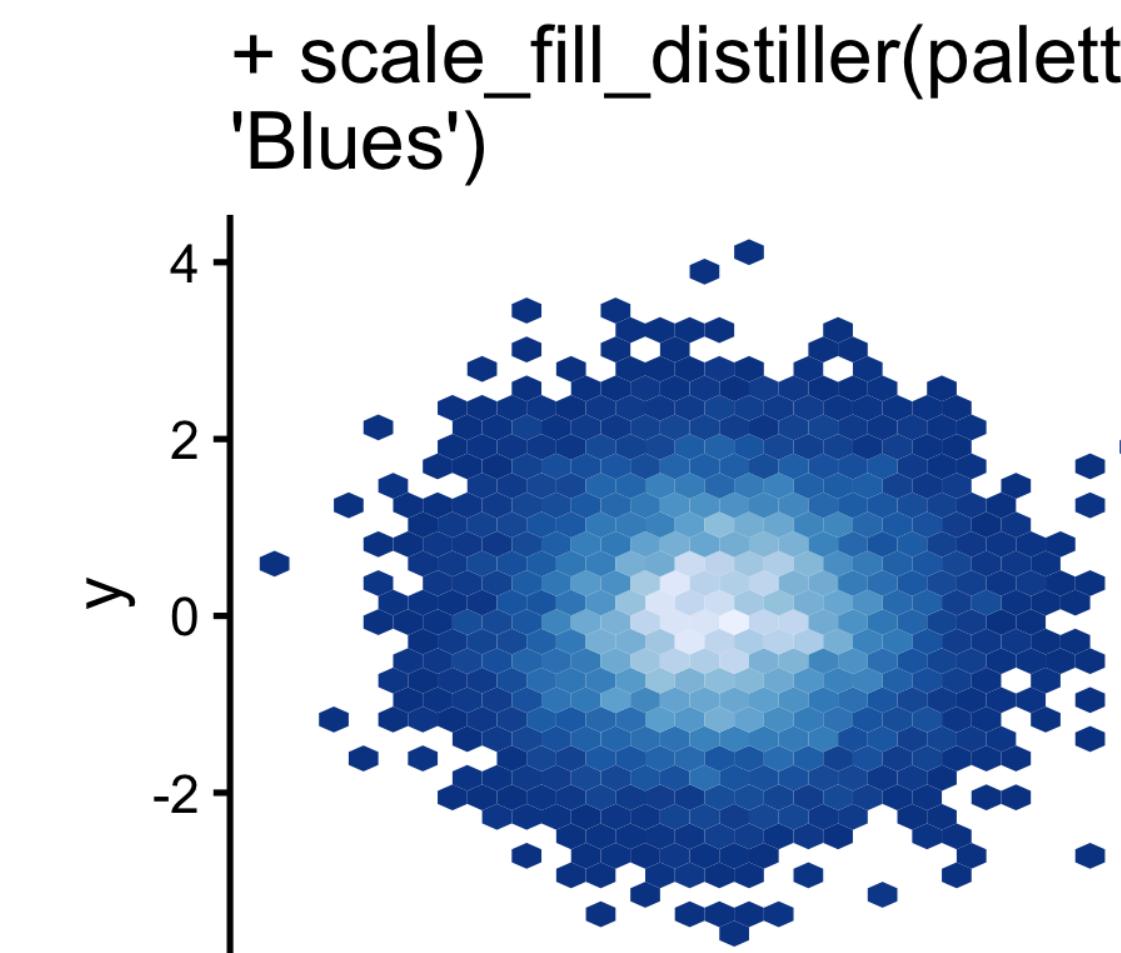
Default continuous vs RColorBrewer "Blues"



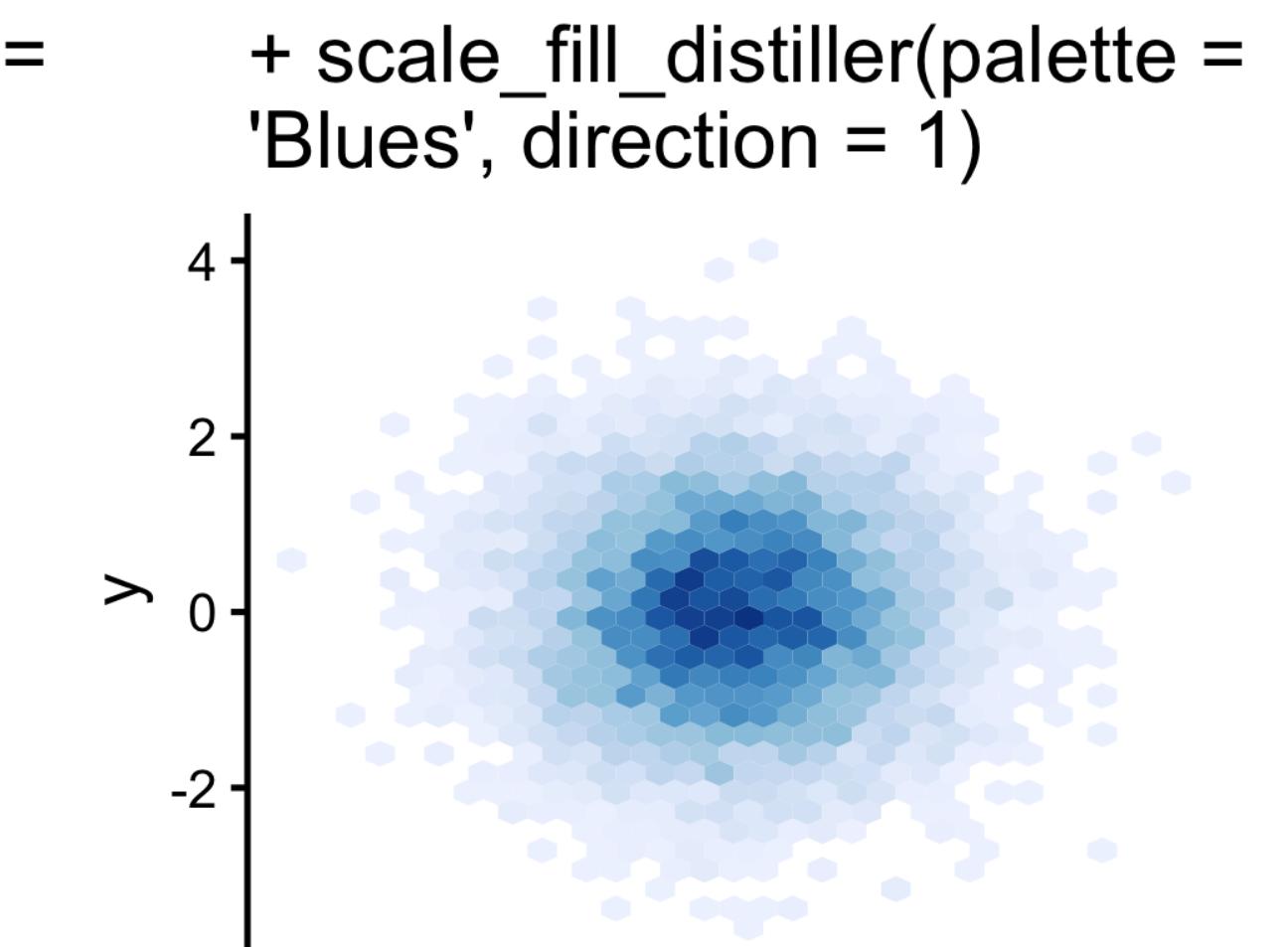
count
25 50 75 100



count
25 50 75 100



count
25 50 75 100



count
25 50 75 100

Discrete data-- character or factor -- qualitative



RColorBrewer



Discrete data -- qualitative (nominal)

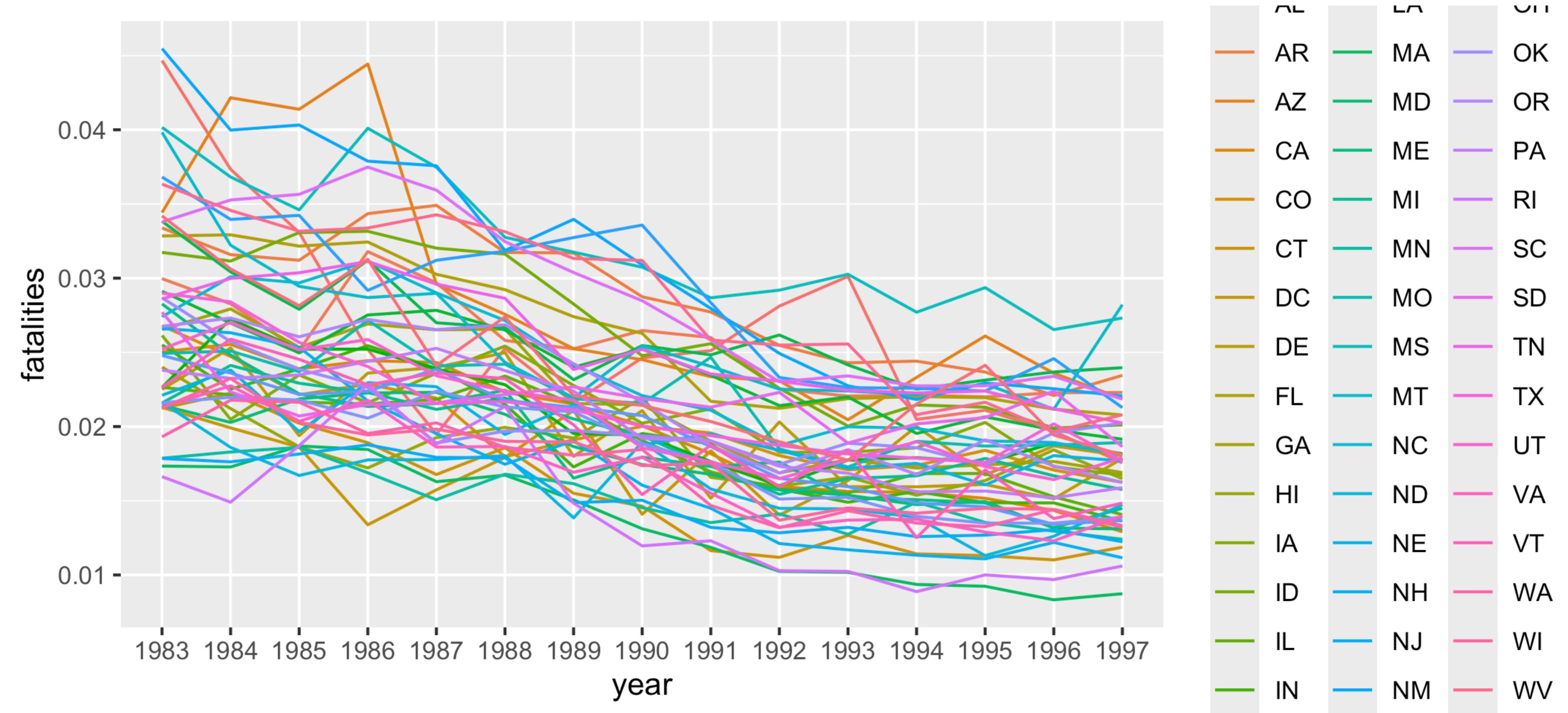
RColorBrewer:

- + `scale_color_brewer(palette = "Set2")`

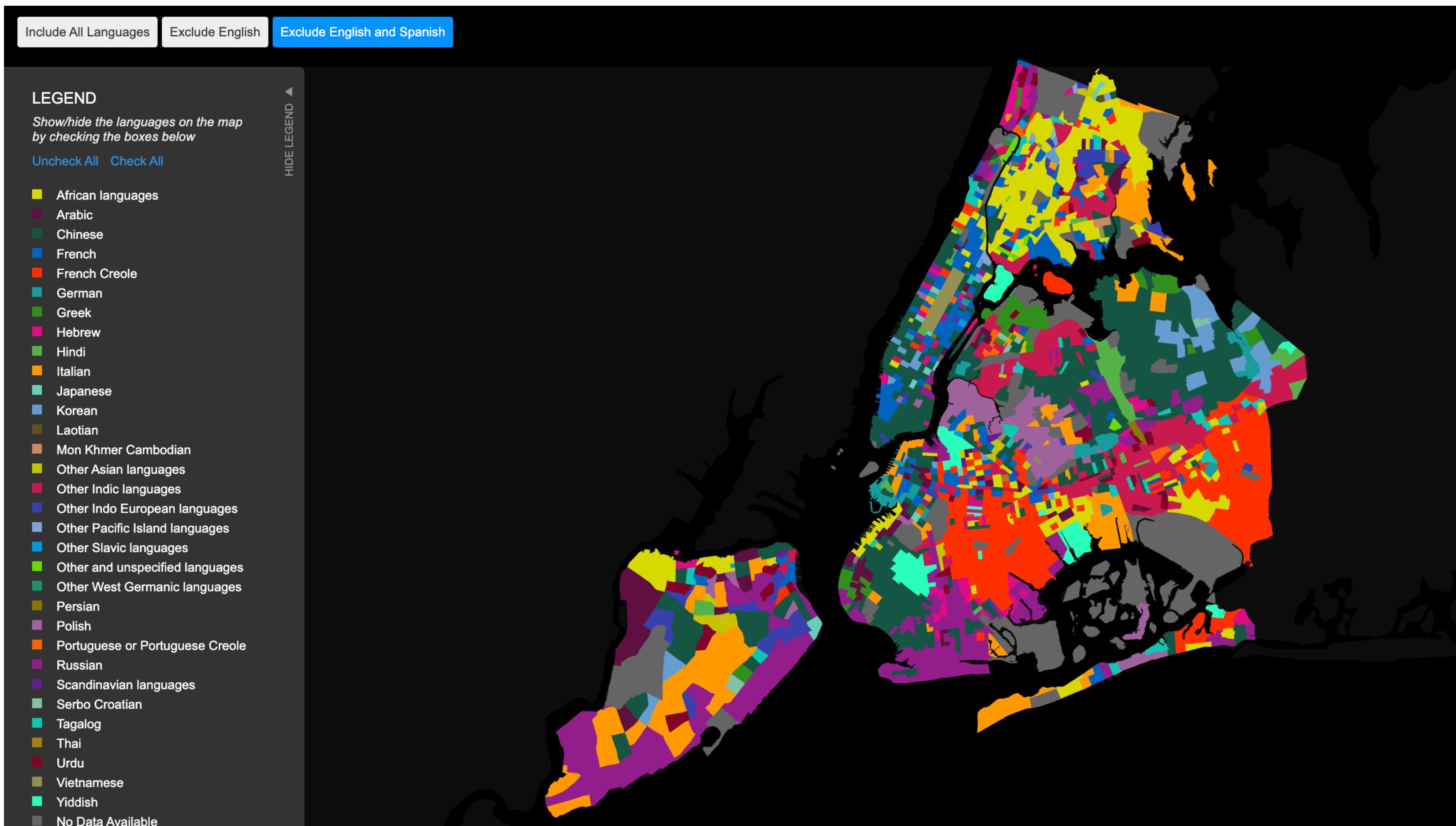
create your own:

- + `scale_color_manual(values = c("red", "yellow"))`

Too many colors!



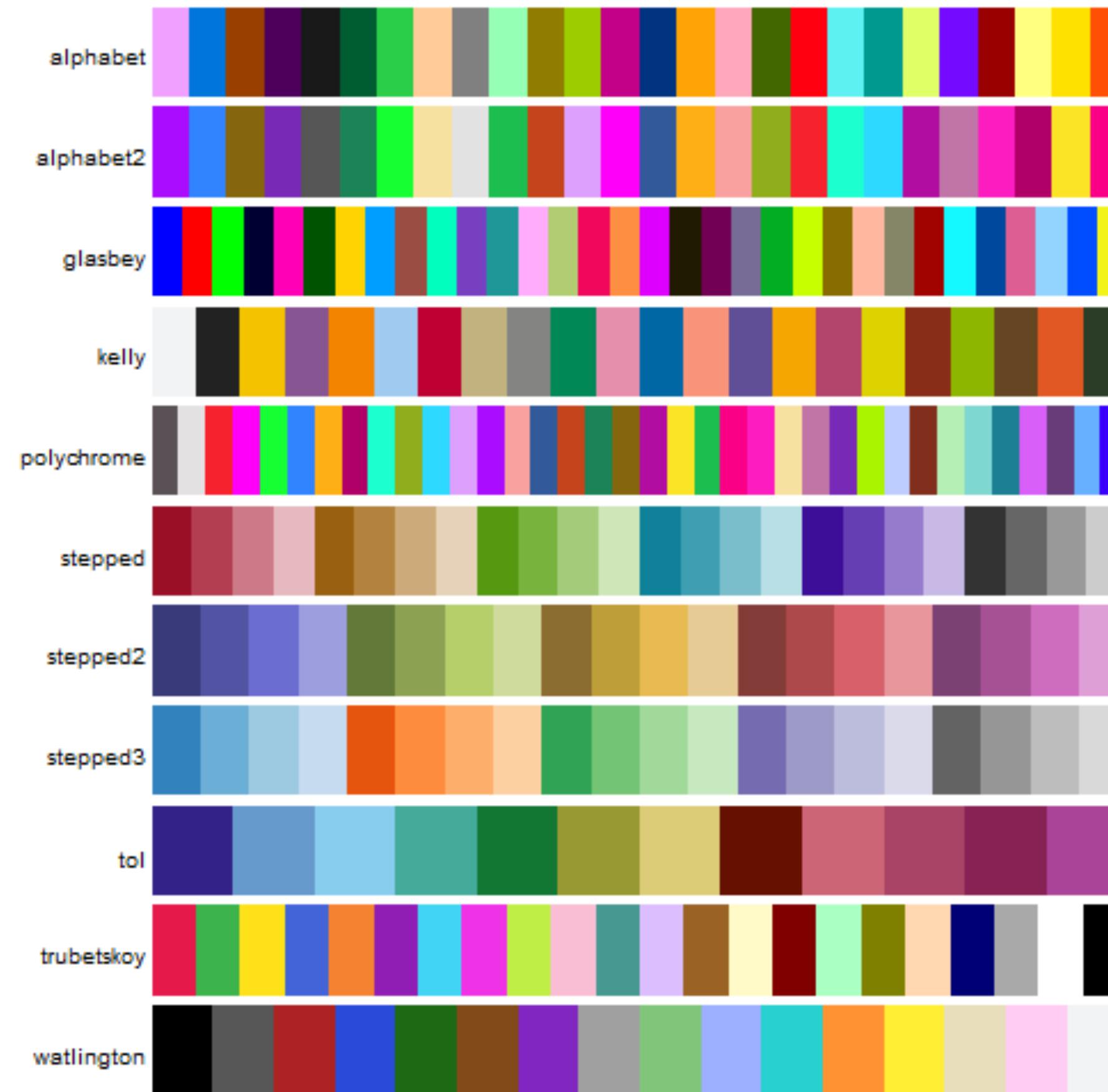
Languages spoken in NYC



<https://www.jillhubley.com/project/nyclanguages/>

Discrete data -- character or factor -- qualitative

pals package



https://cran.r-project.org/web/packages/pals/vignettes/pals_examples.html

Discrete data -- qualitative (ordinal)

RColorBrewer (use a sequential palette):

```
+ scale_color_brewer(palette = "Reds")
```

create your own:

```
fills5 <- RColorBrewer::brewer.pal(7, "Blues")[3:7]
```

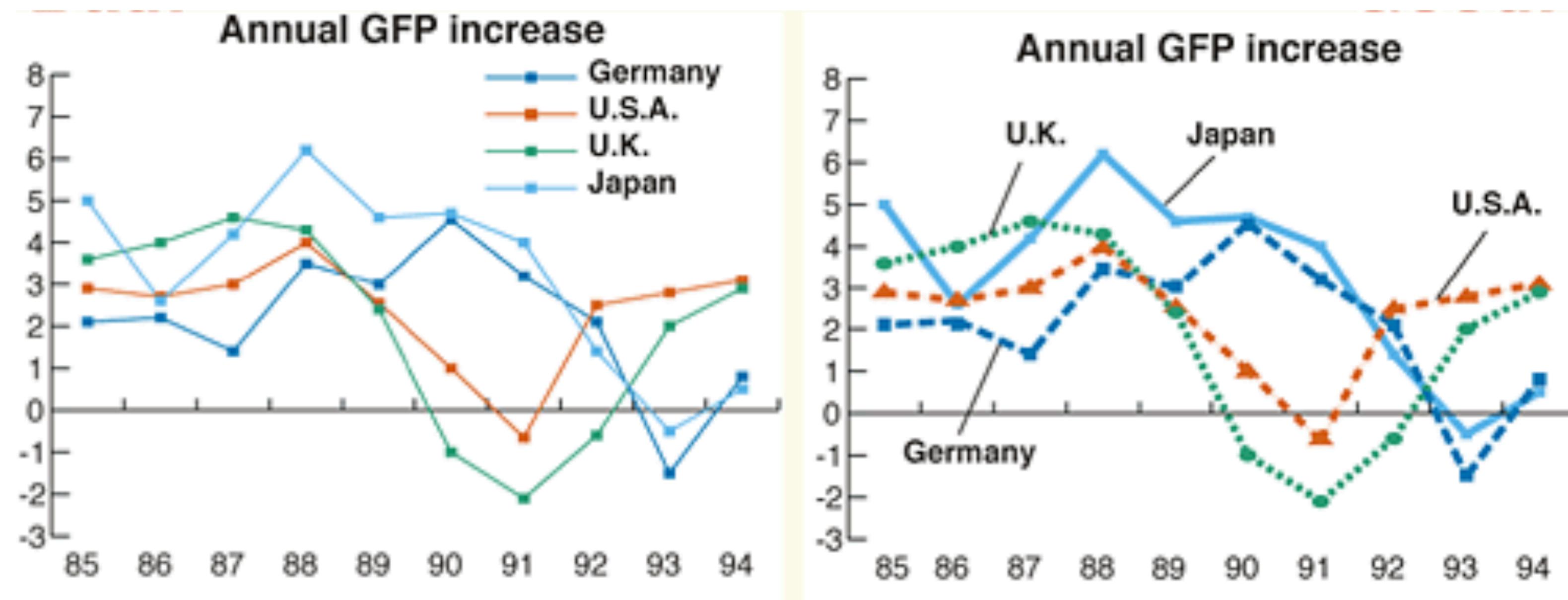
```
+ scale_color_manual(values = fills5)
```

```
"#EFF3FF" "#C6DBEF" "#9ECAE1" "#6BAED6" "#4292C6" "#2171B5" "#084594"
```

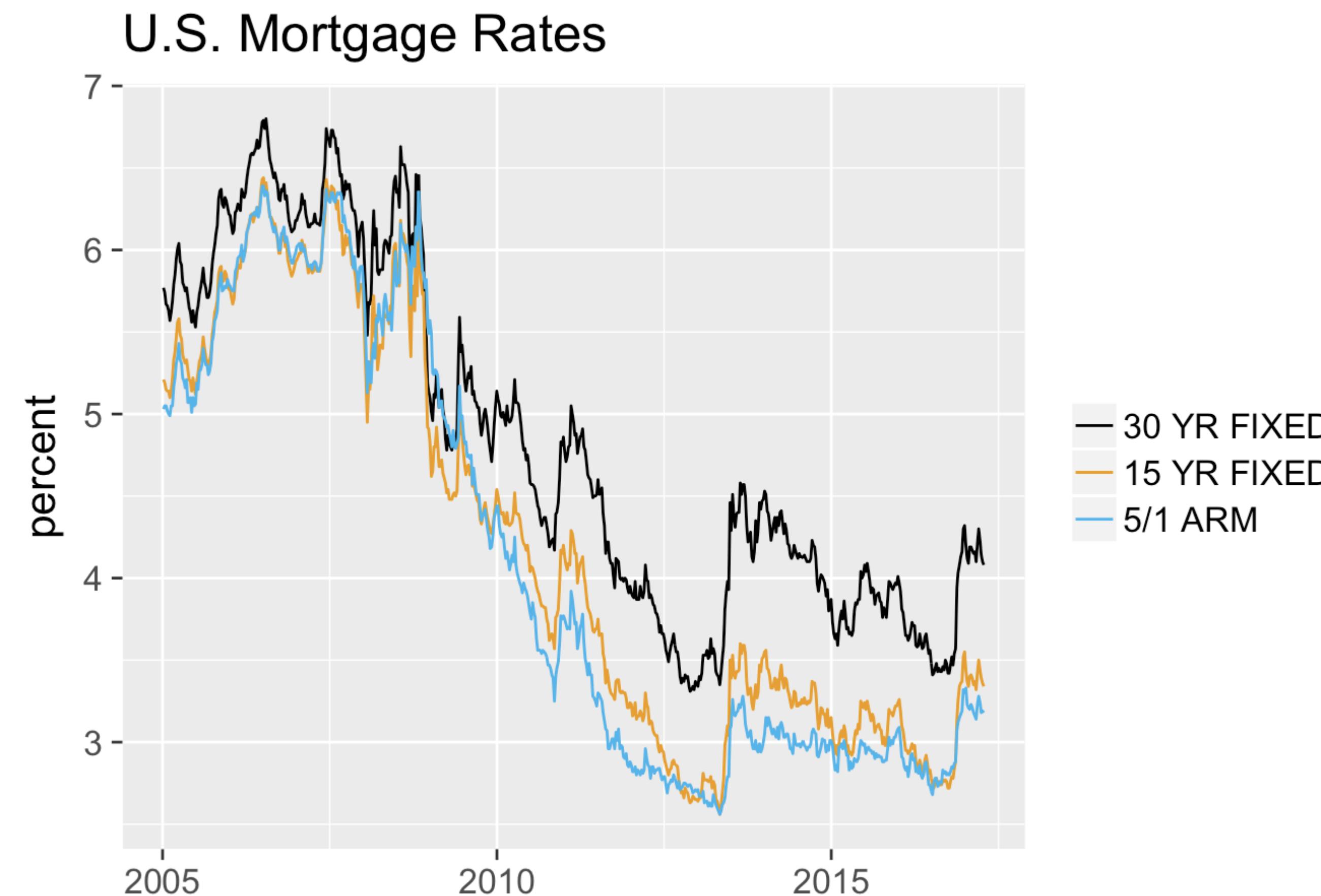
Color vision deficiency

- Use palettes that have already been tested
 - `ggthemes::scale_color_colorblind()`
(Okabe-Ito palette)
 - + `scale_color_viridis_d()`
- Use high contrast (sequential scales)
- Use a color vision deficiency simulator (such as hclwizard.org)
- Label elements directly (instead of a legend)

Labels instead of legends



```
+ scale_color_colorblind()
```



Be consistent across plots

