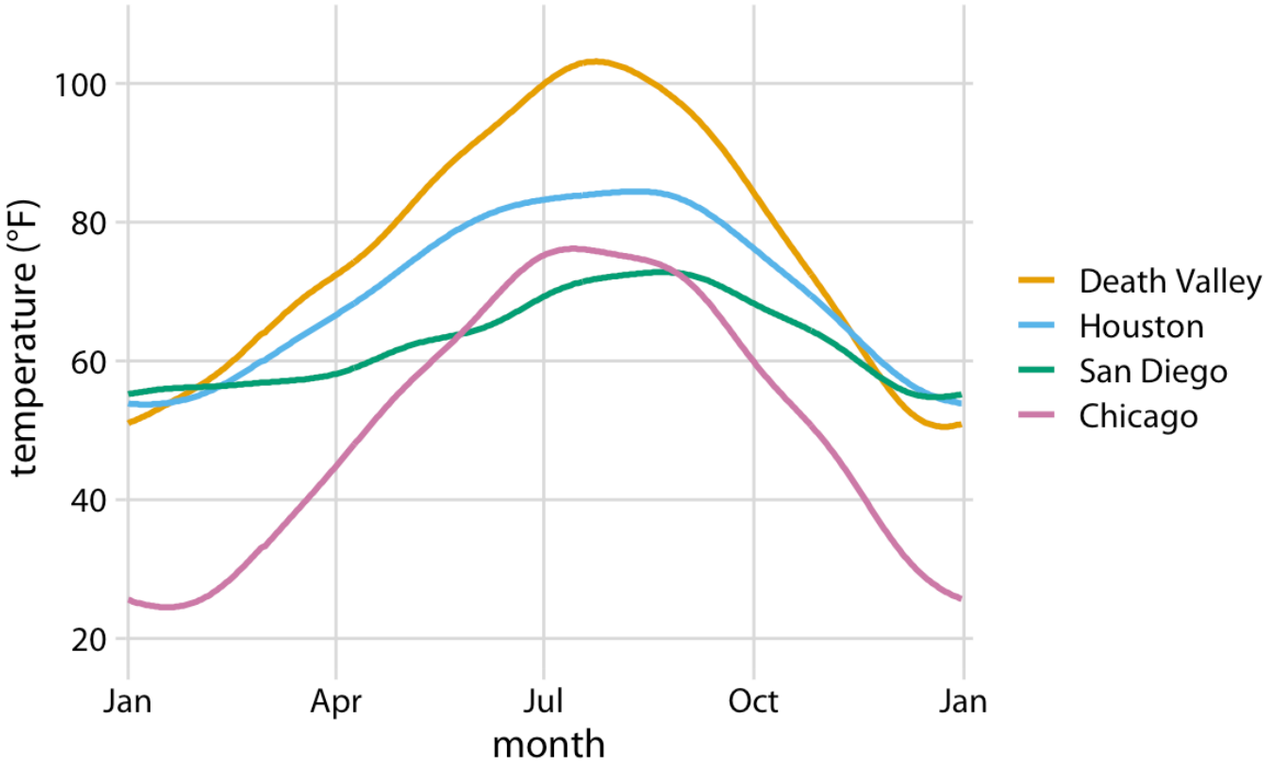
Plotting and Visualization with R

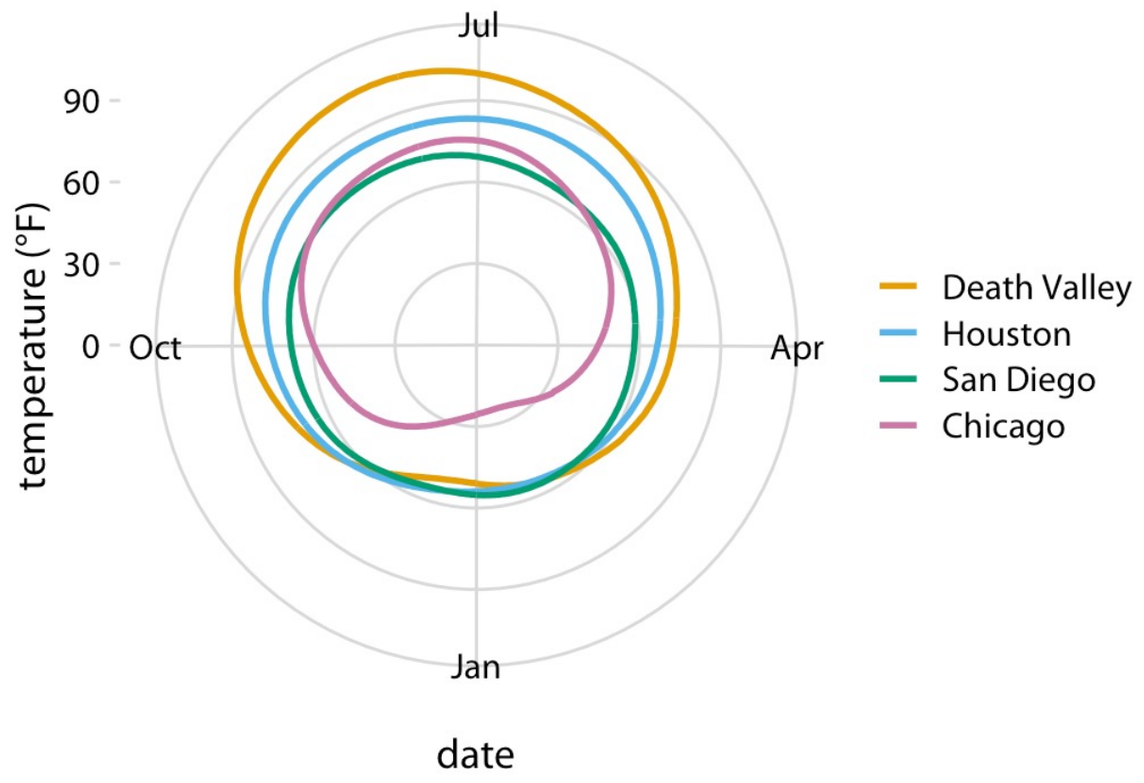
https://r4ds.had.co.nz/data-visualisation.html
https://is.gd/ggplot

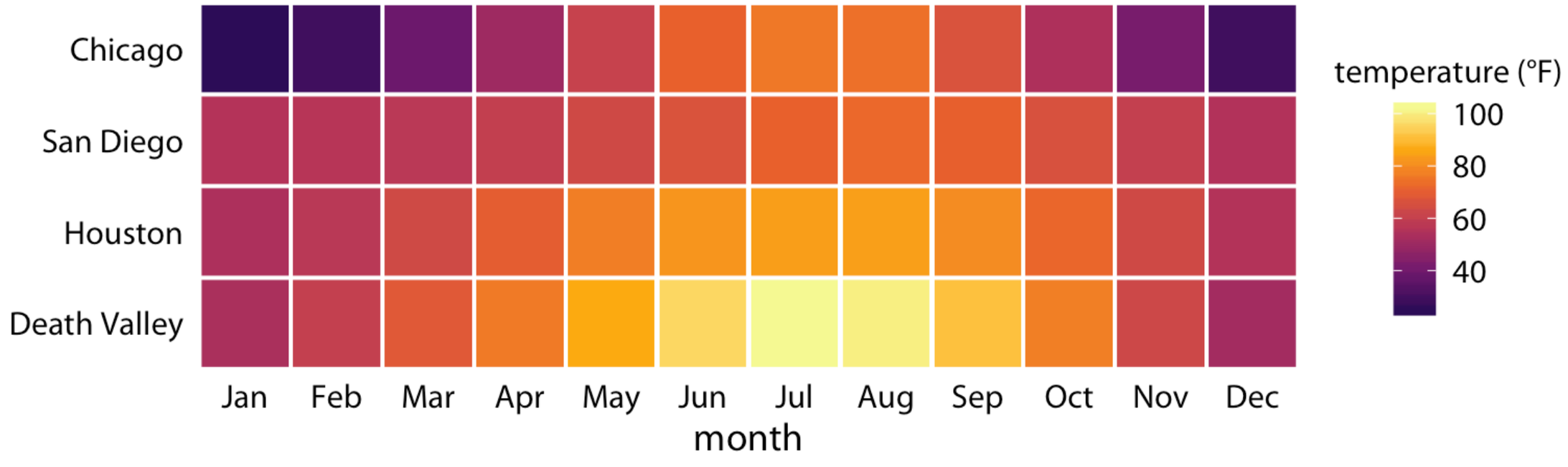
Fundamentals of Data visualization

Adapted from https://clauswilke.com/dataviz/

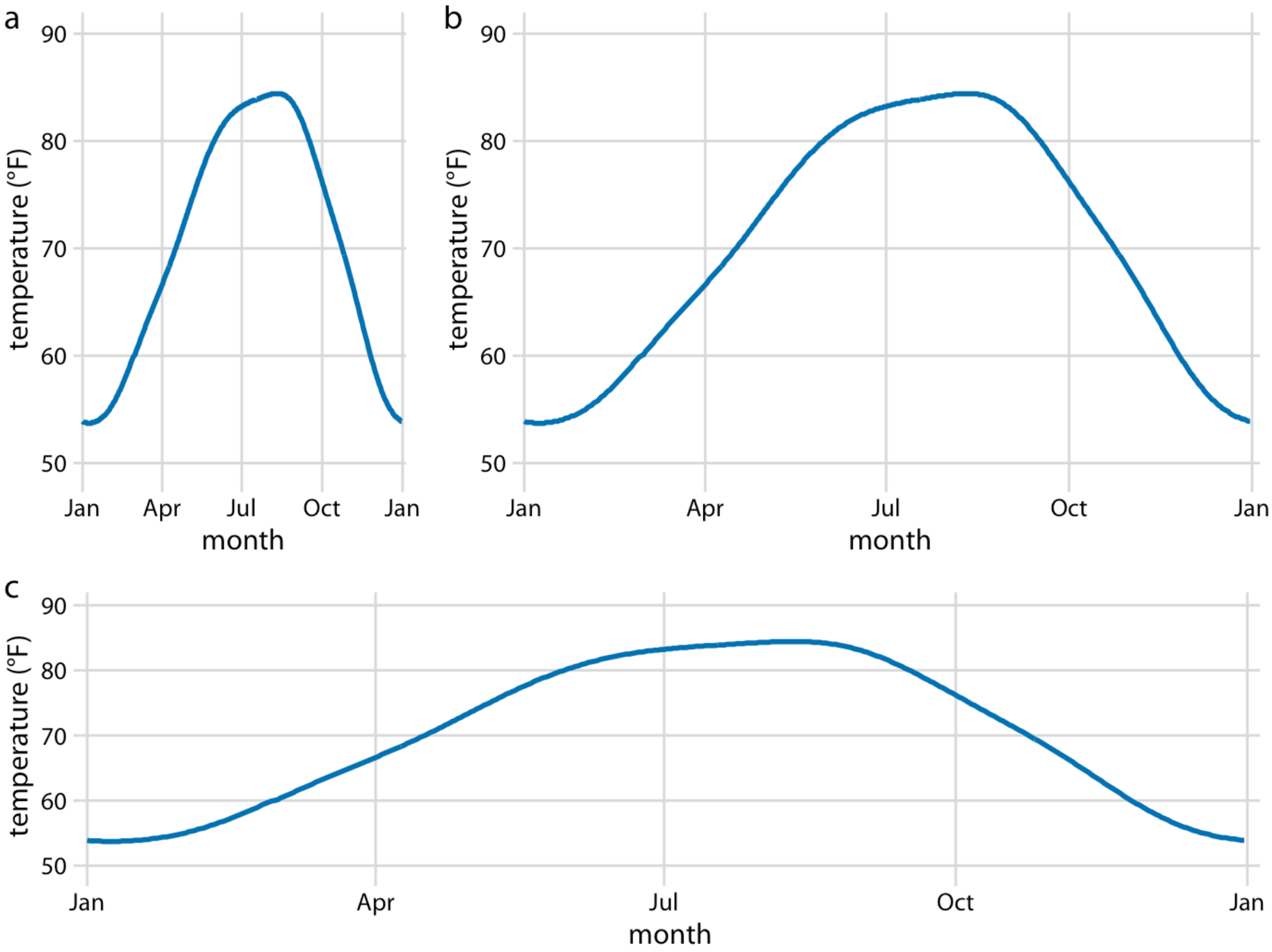
Alternative representations



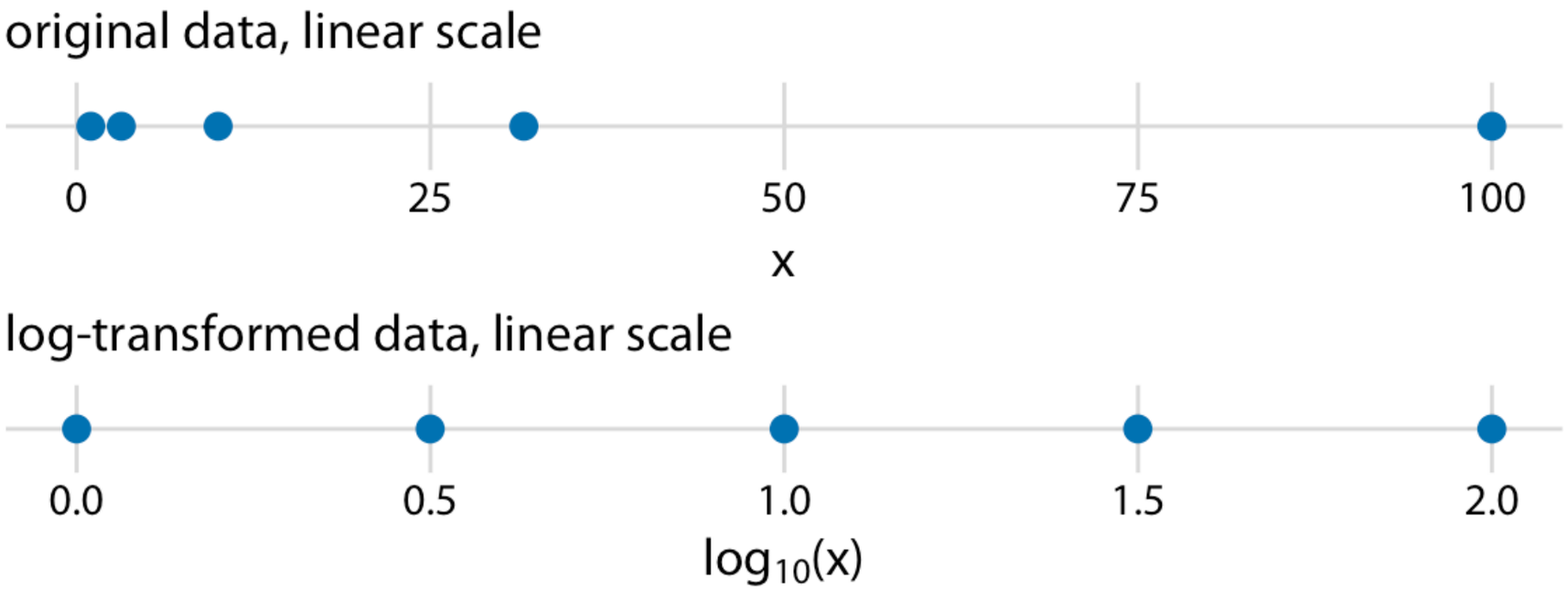




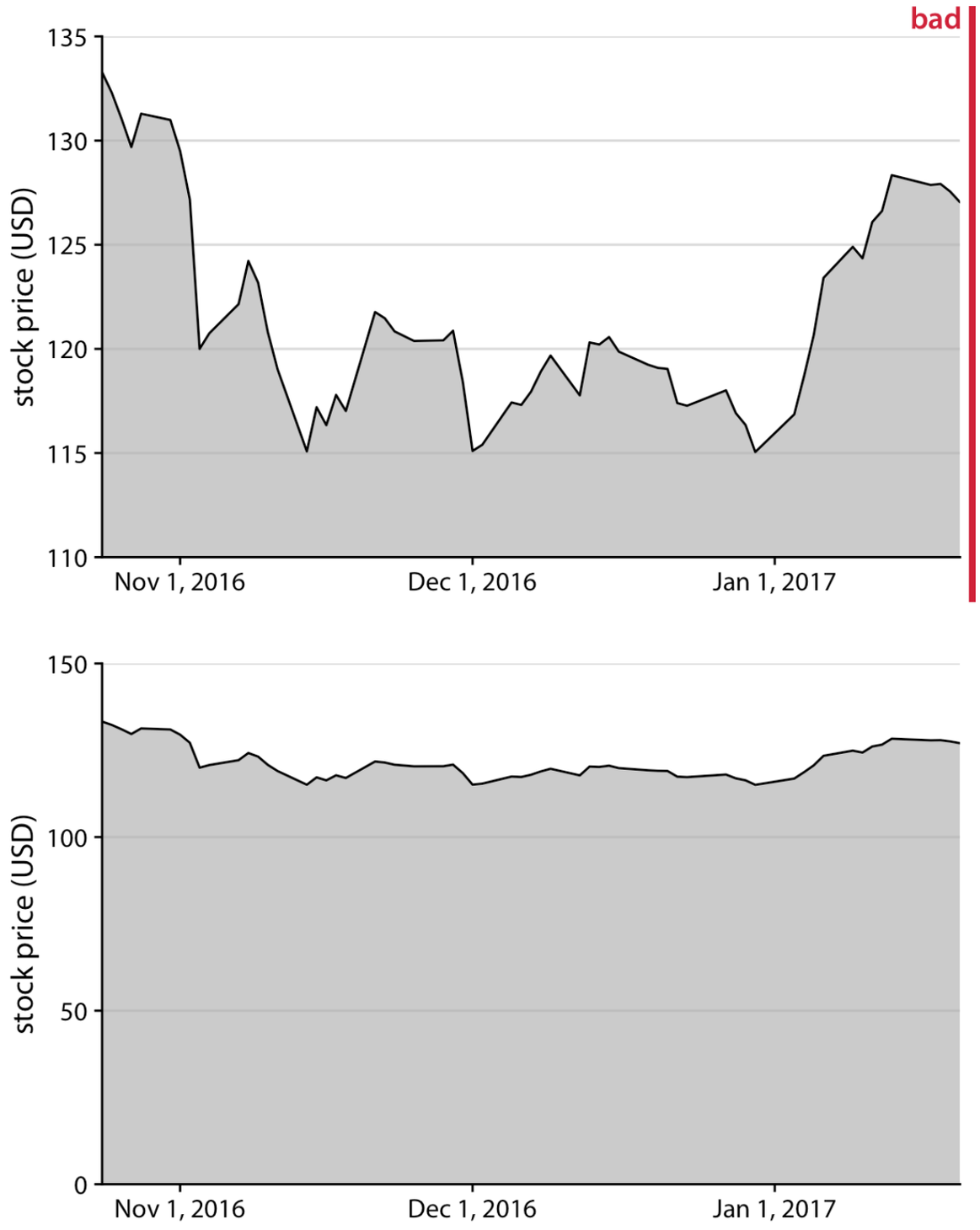
Aspect ratio



Scaling axes



Scaling axes



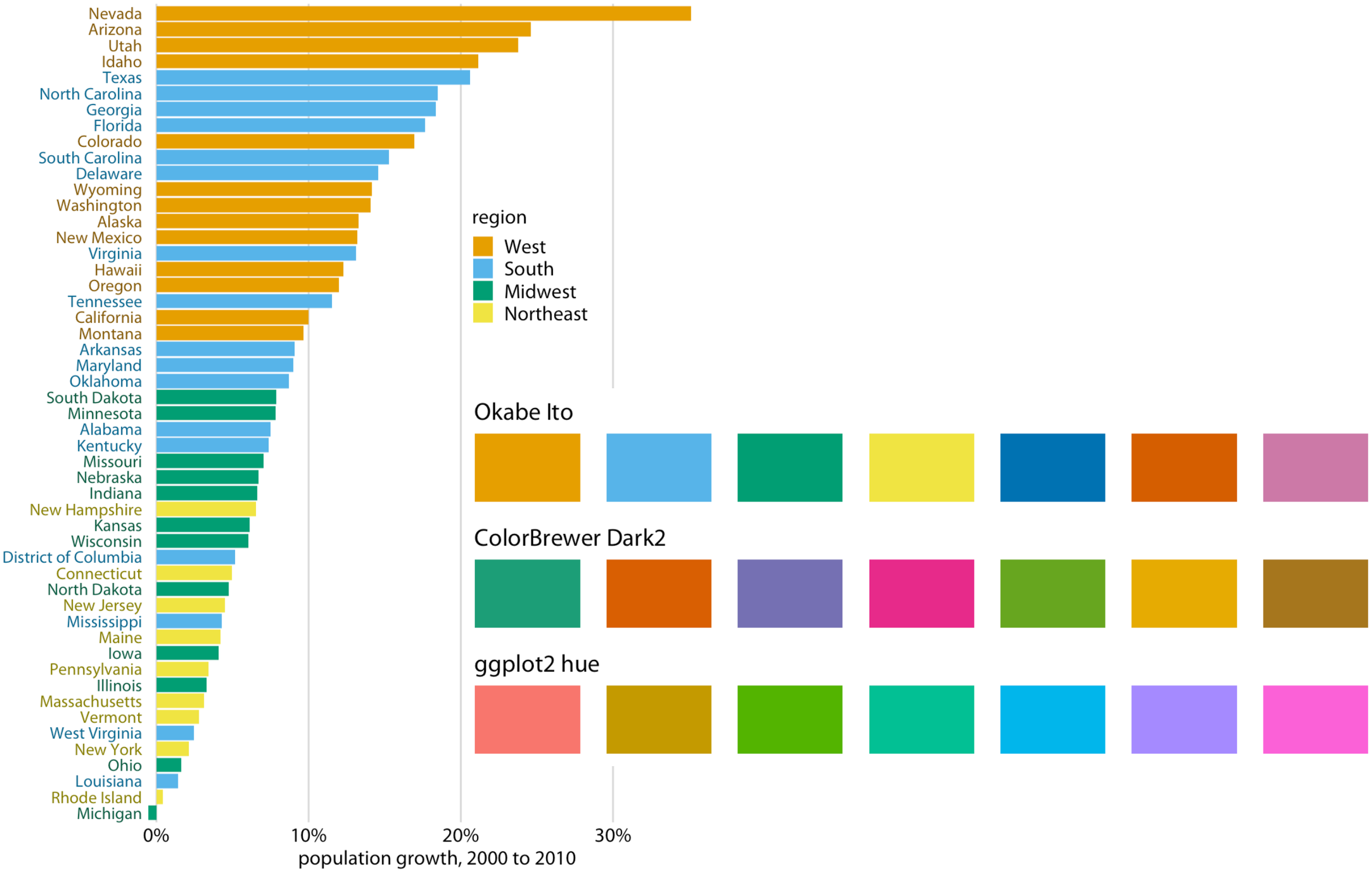
Color scales – three uses

1) To distinguish between groups

2) To represent data values

3) To highlight

Color to distinguish

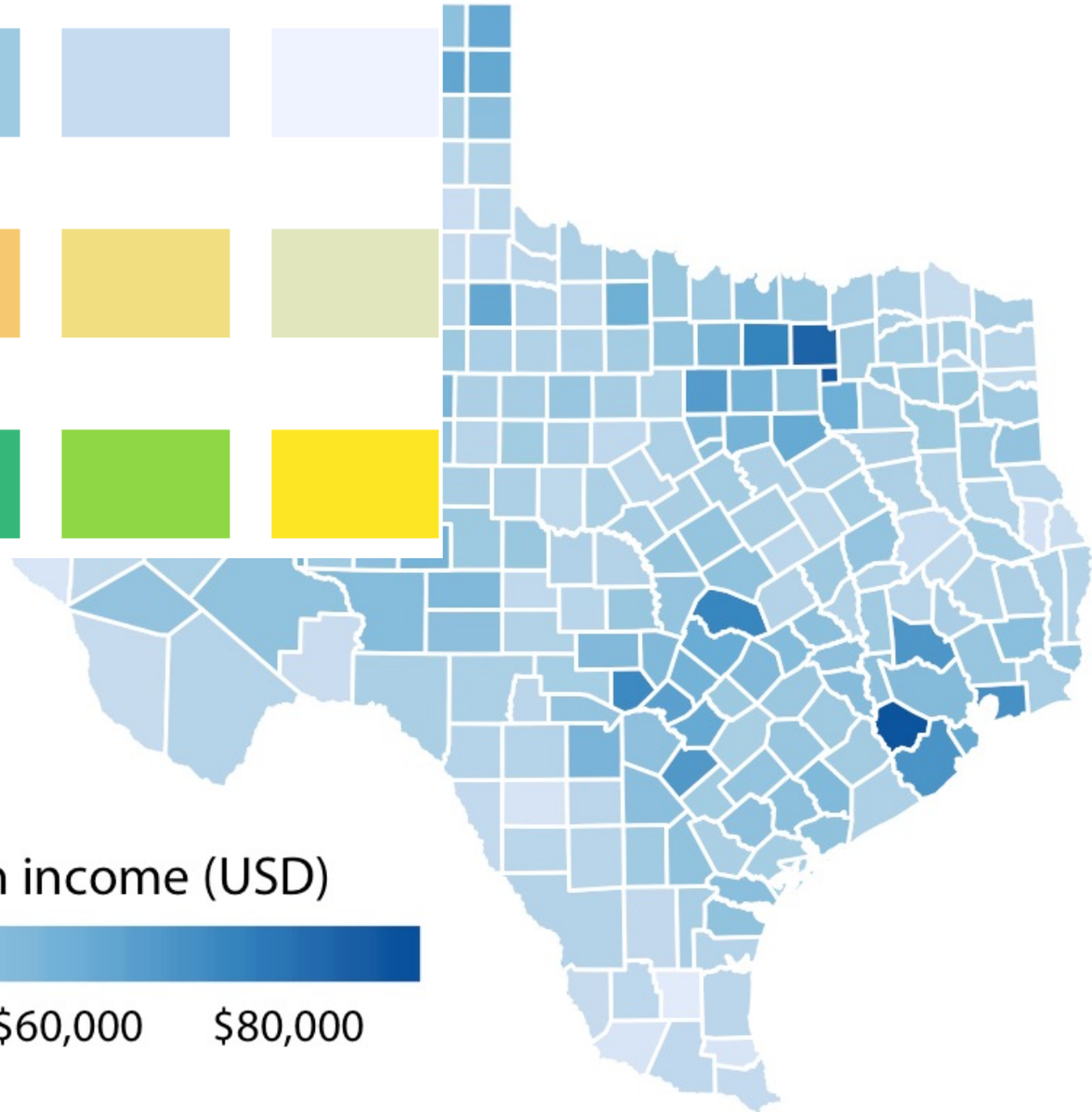


Color to represent data values

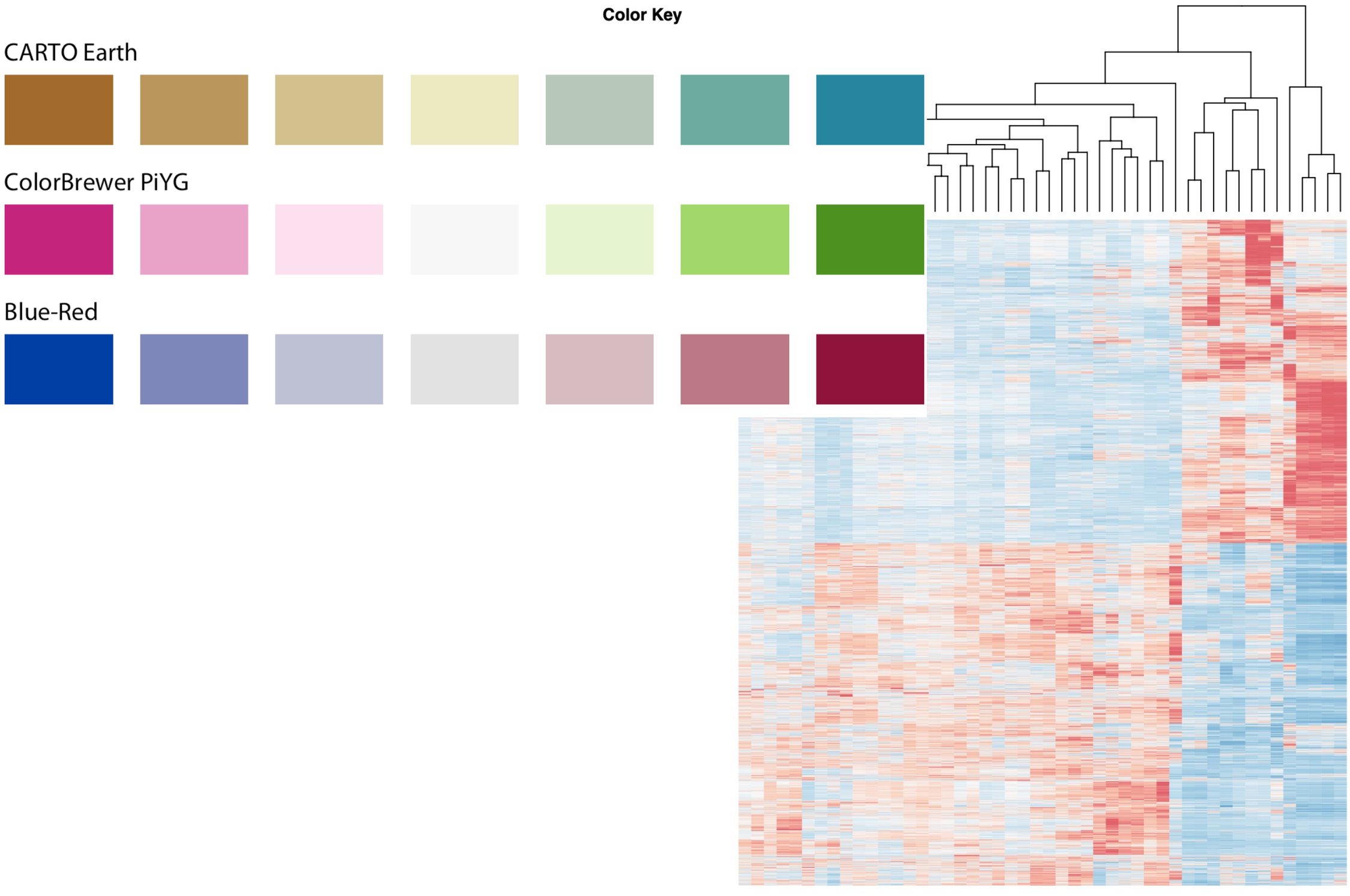
ColorBrewer Blues

Heat

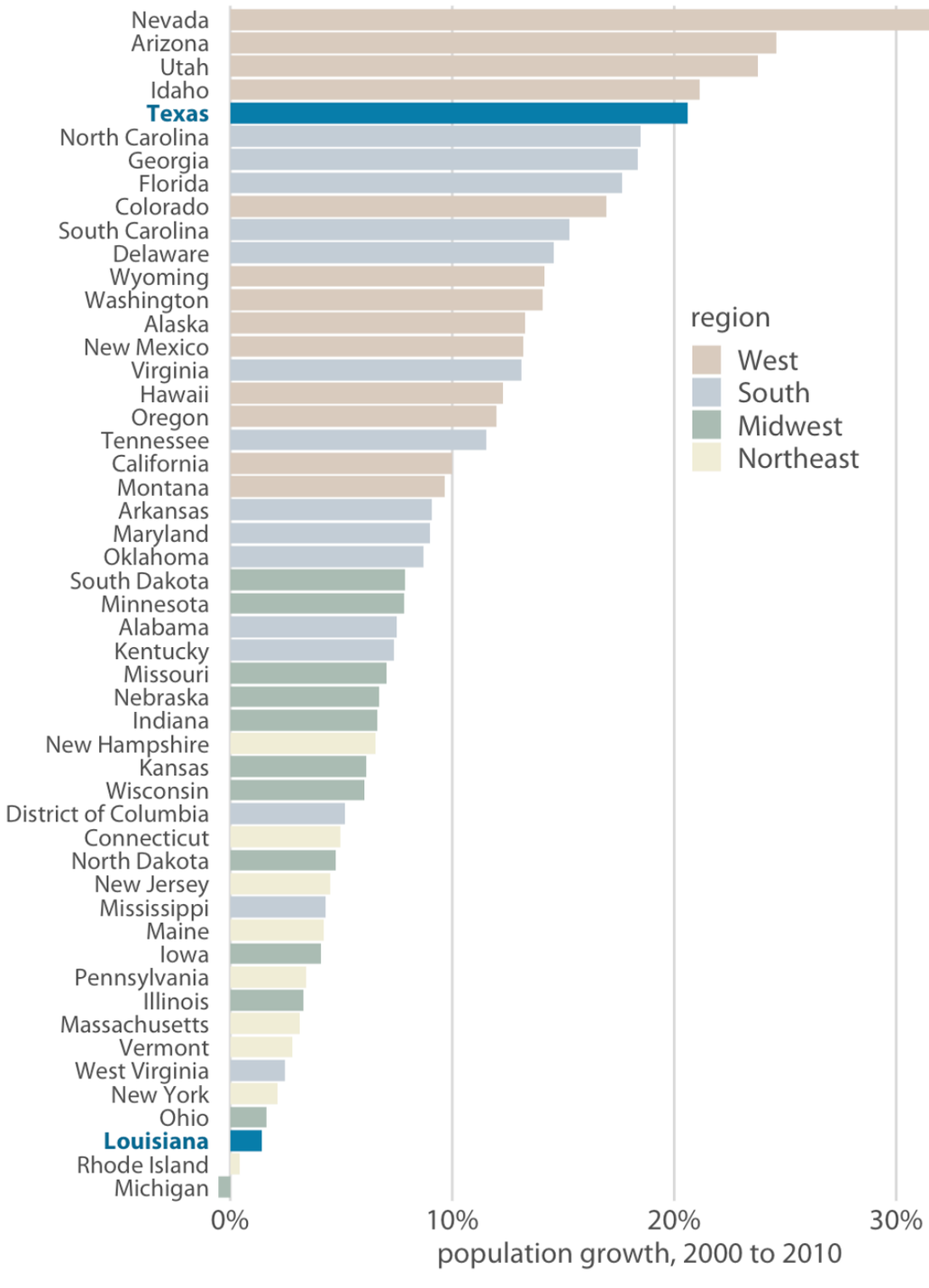
Viridis

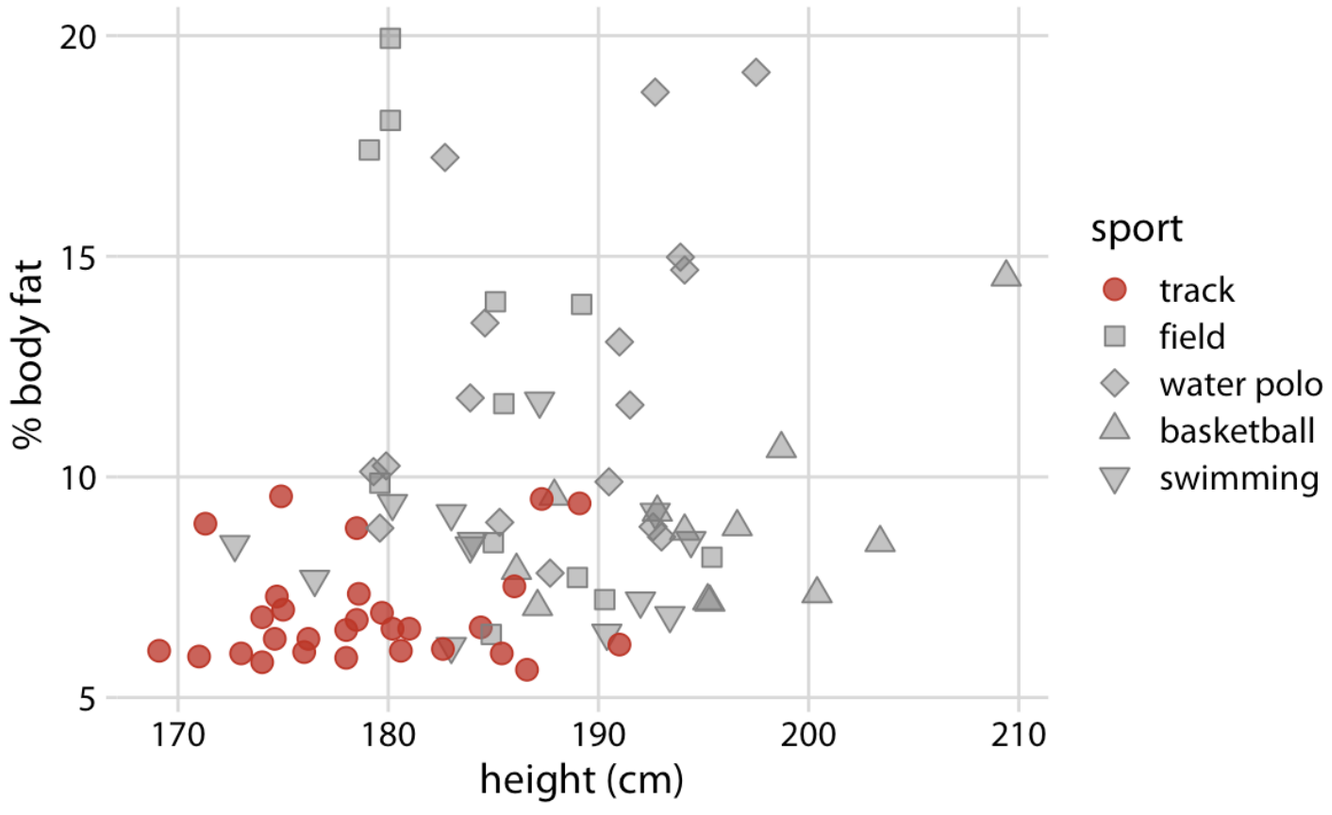


Color to represent data values

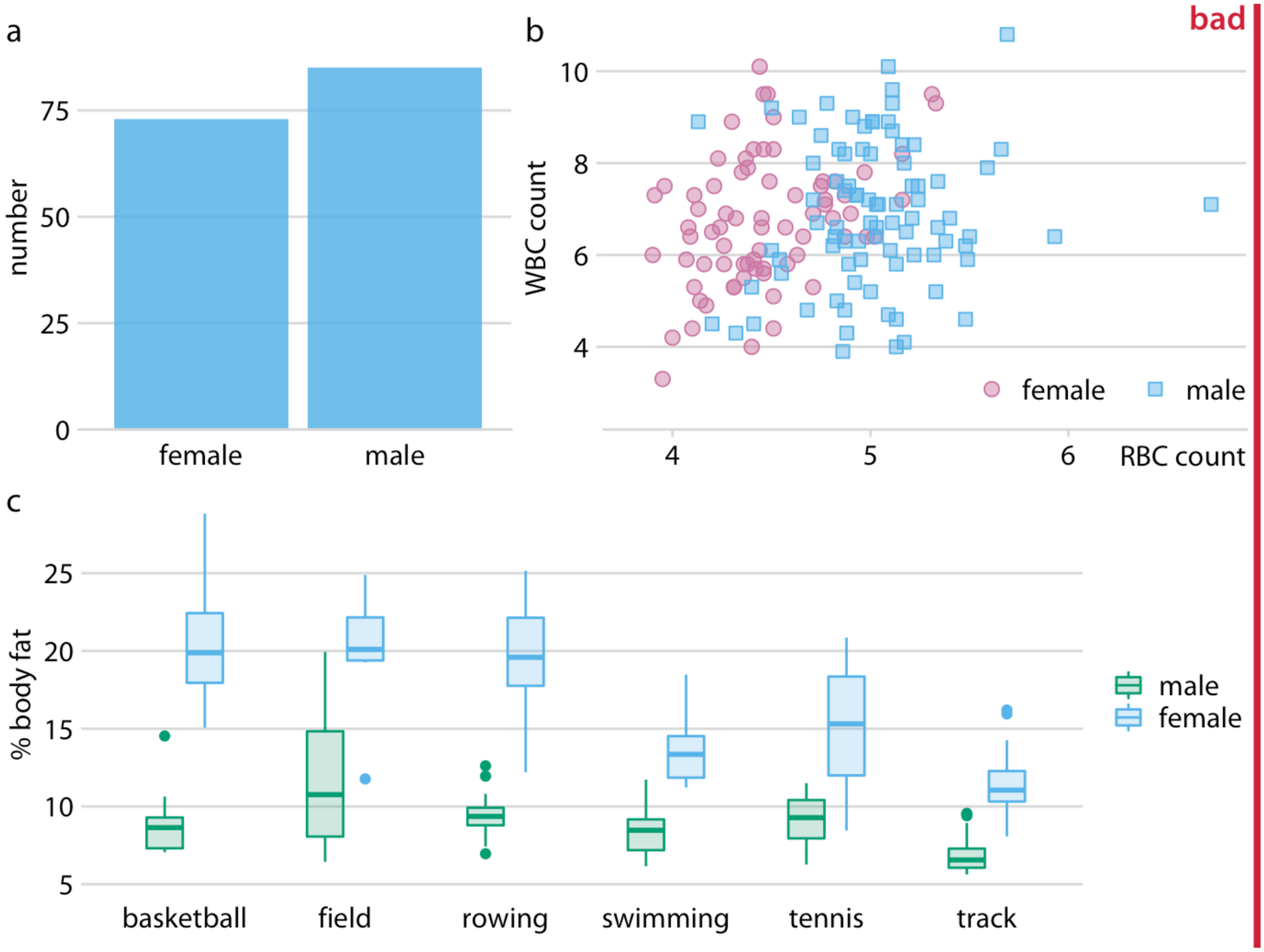


Color to highlight

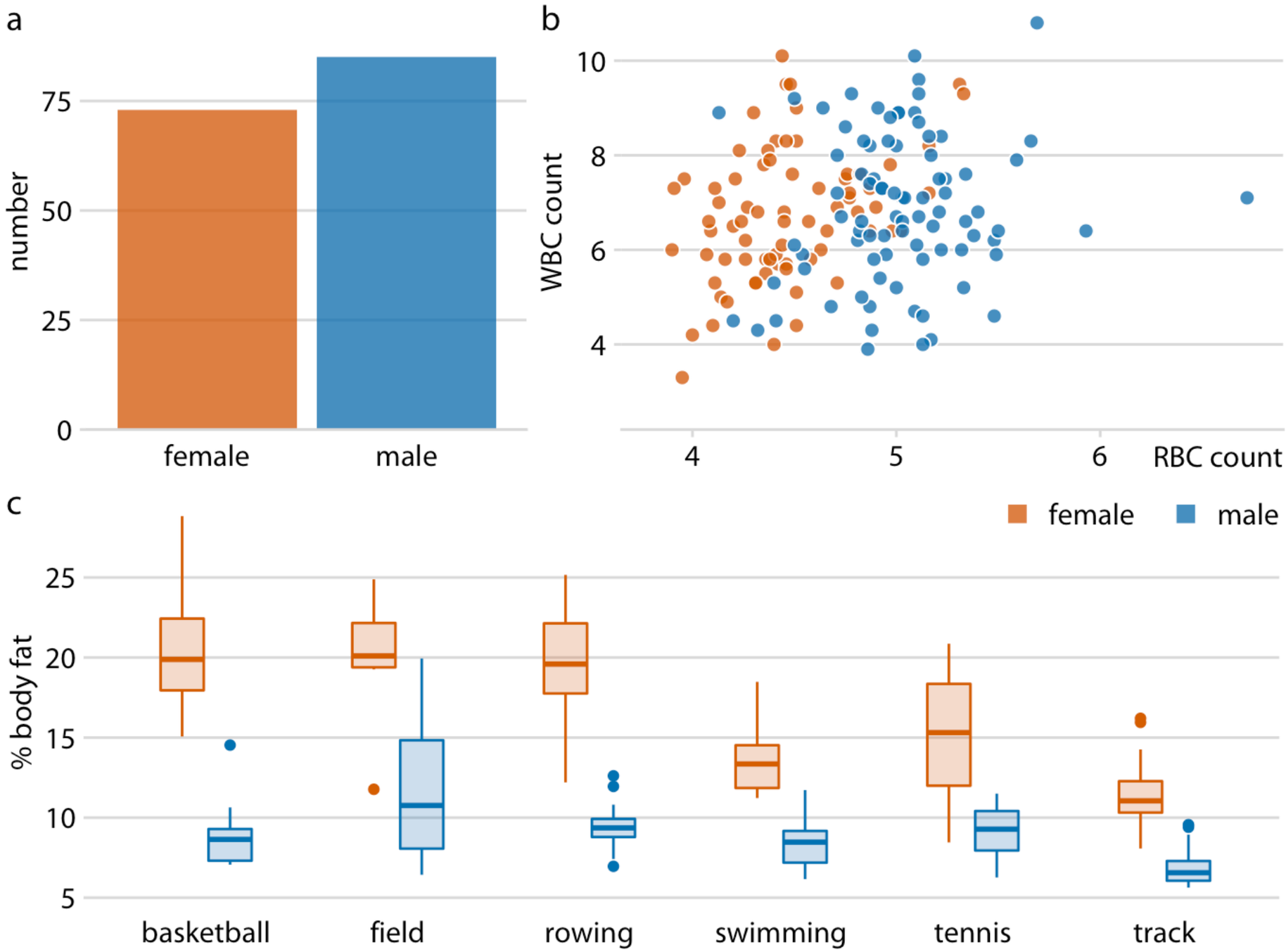




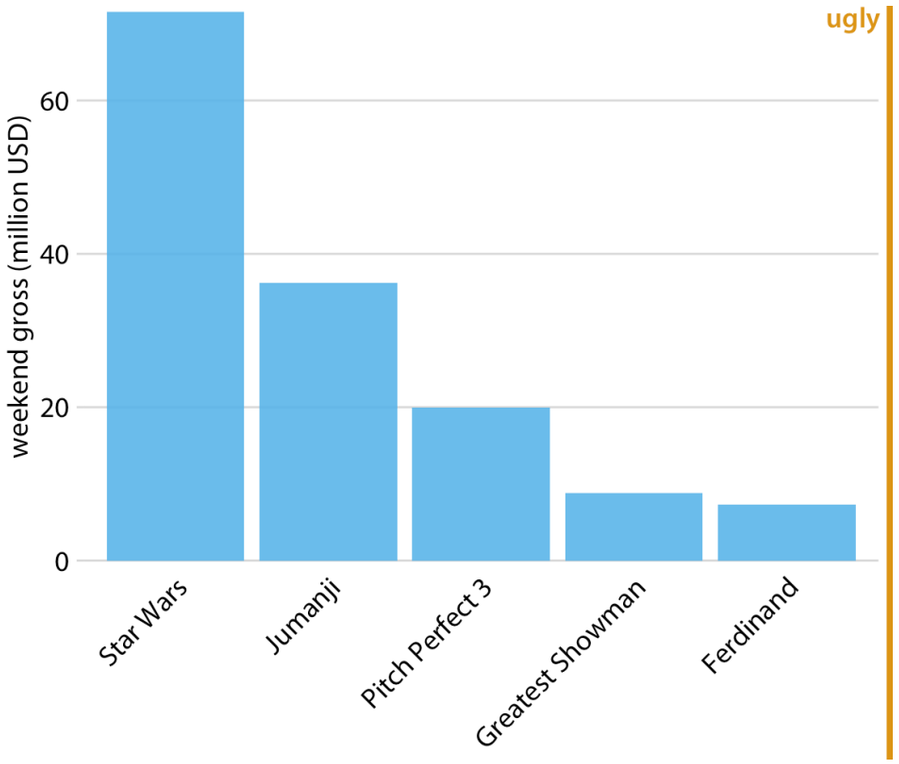
Be consistent across panels and figures

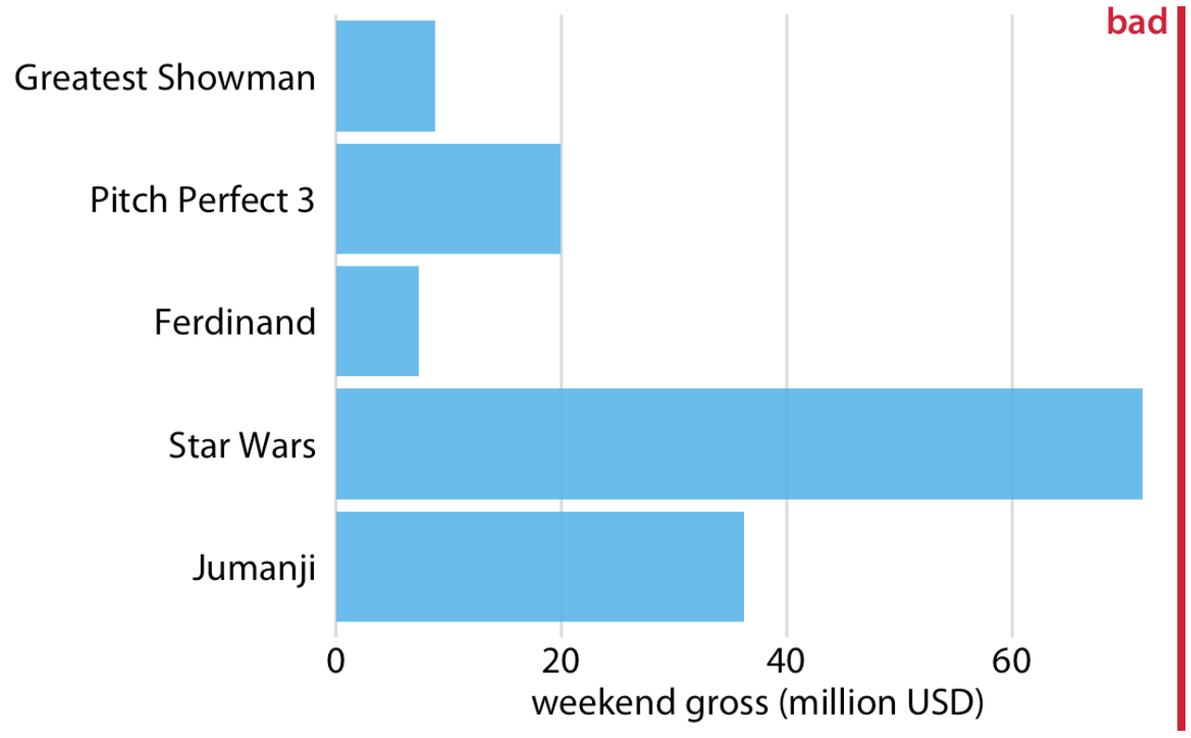


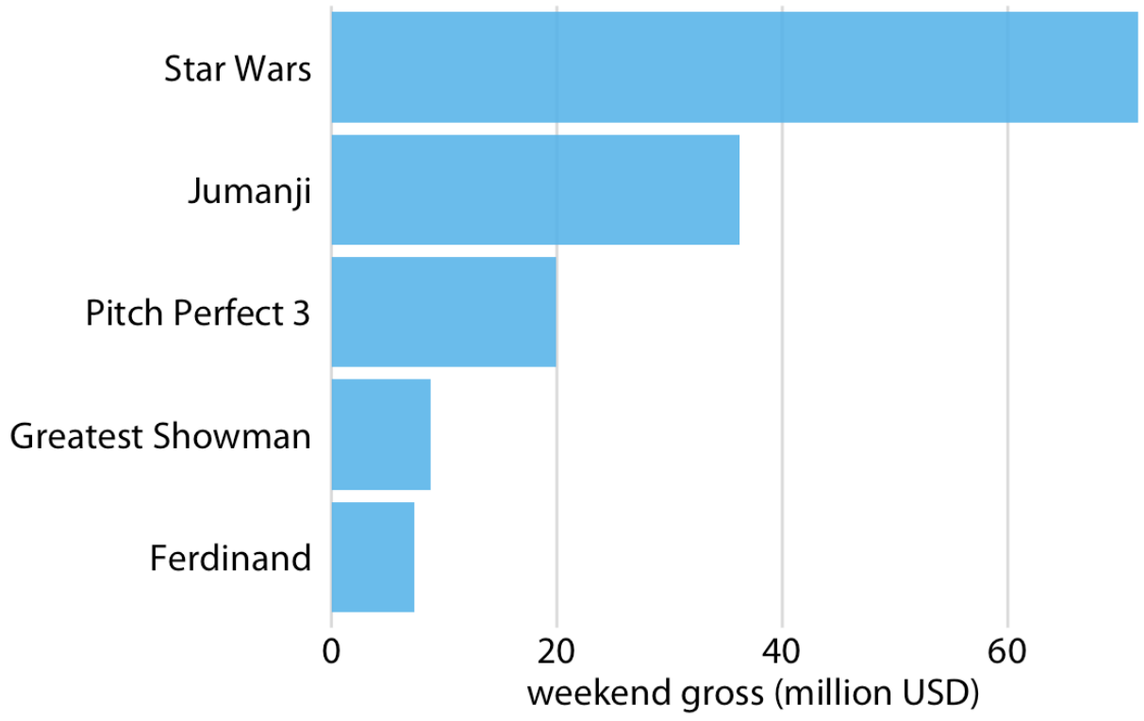
Be consistent across panels and figures



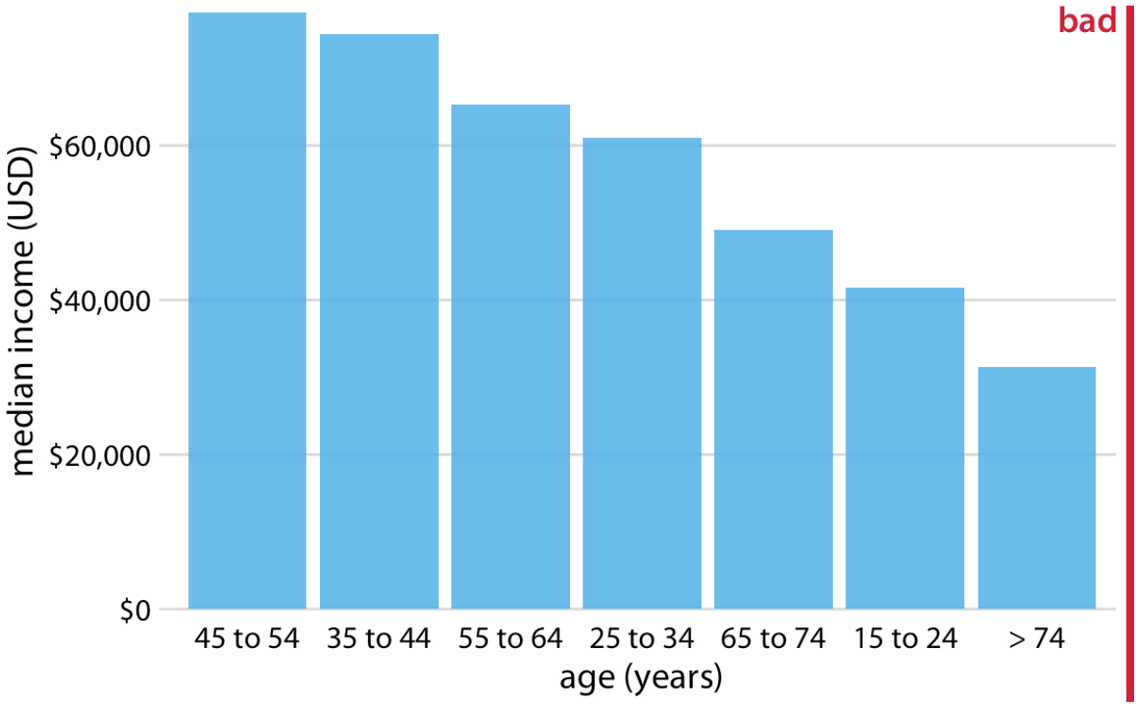
Bar plots

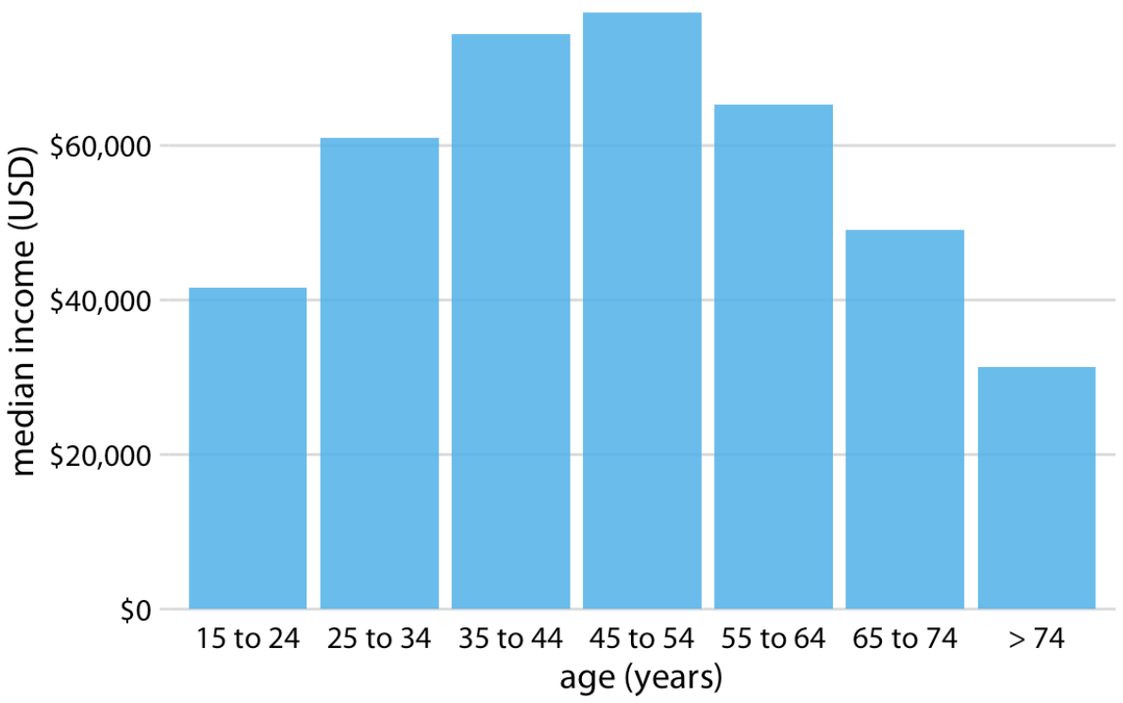

ugly
weekend gross (million USD)
60
40
20
0
Star Wars
Jumanji
Pitch Perfect 3
Greatest Showman
Ferdinand


bad
Greatest Showman
Pitch Perfect 3
Ferdinand
Star Wars
Jumanji
0
20
40
60
weekend gross (million USD)

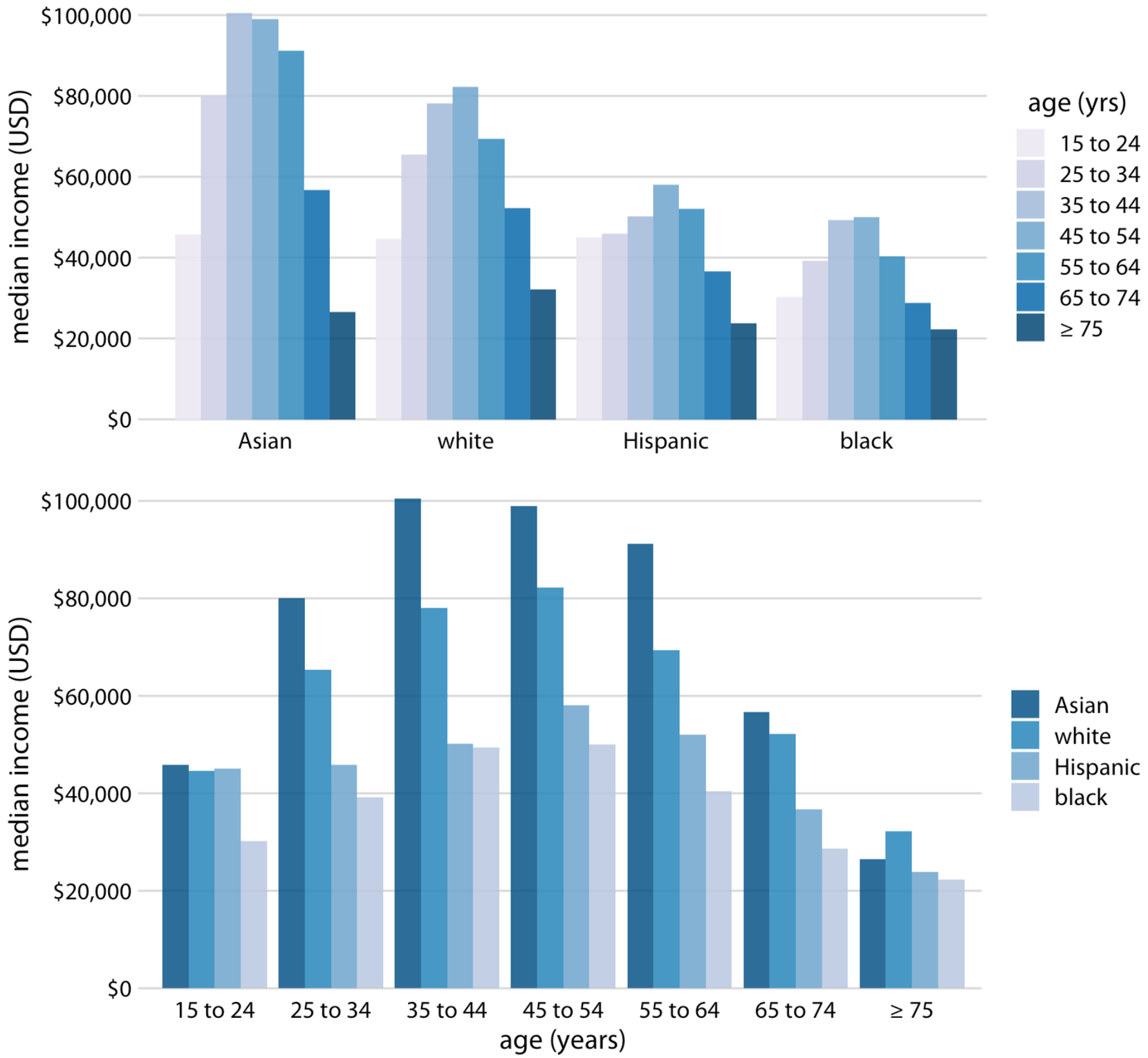

Star Wars
Jumanji
Pitch Perfect 3
Greatest Showman
Ferdinand
0
20
40
60
weekend gross (million USD)

Bar plots

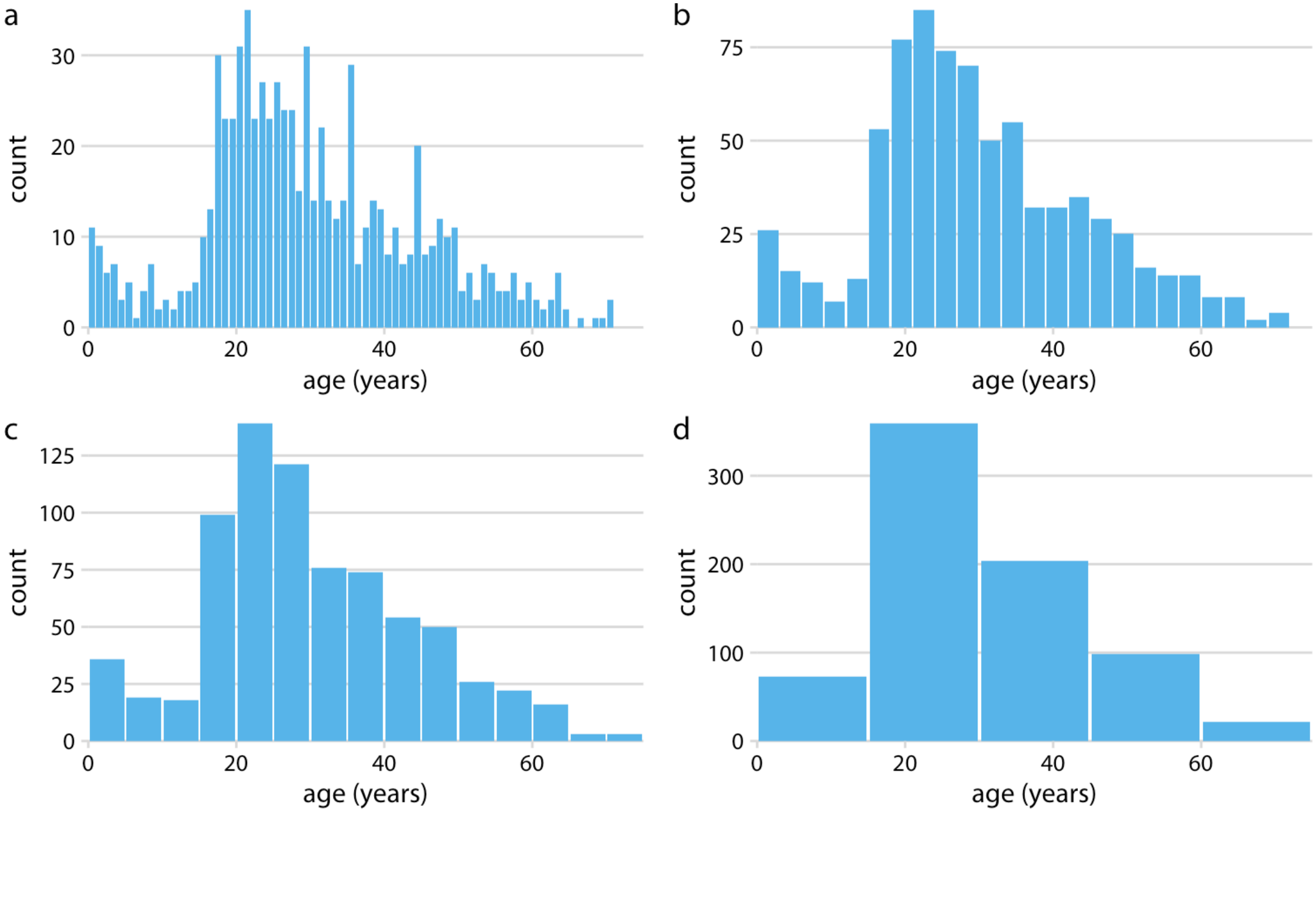

bad
median income (USD)
$60,000
$40,000
$20,000
$0
45 to 54
35 to 44
55 to 64
25 to 34
65 to 74
15 to 24
> 74
age (years)


median income (USD)
$60,000
$40,000
$20,000
$0
15 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 to 74
> 74
age (years)

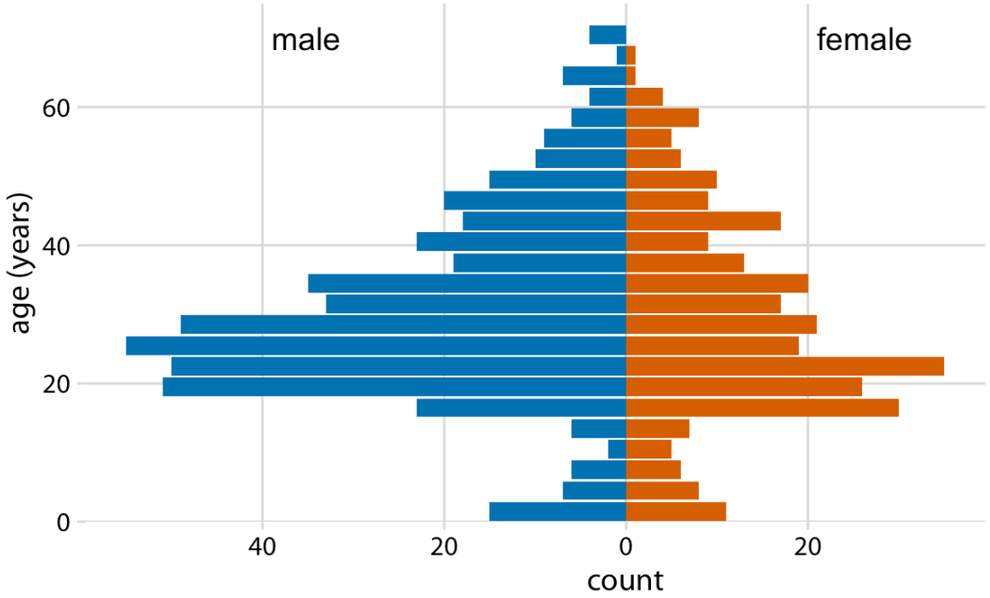
Grouped Bar Plots

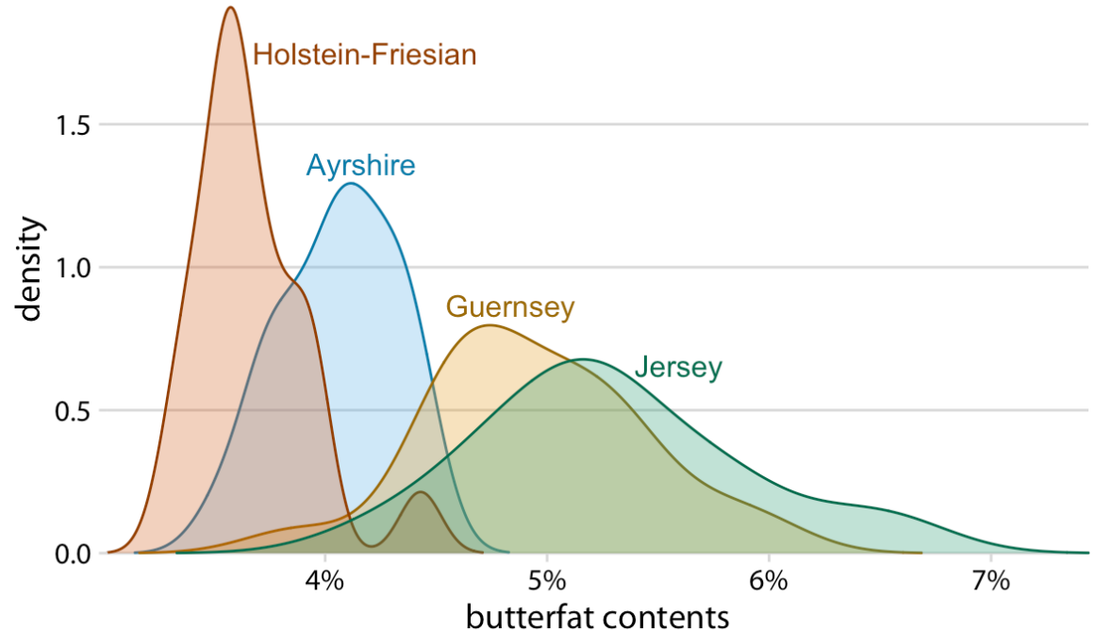


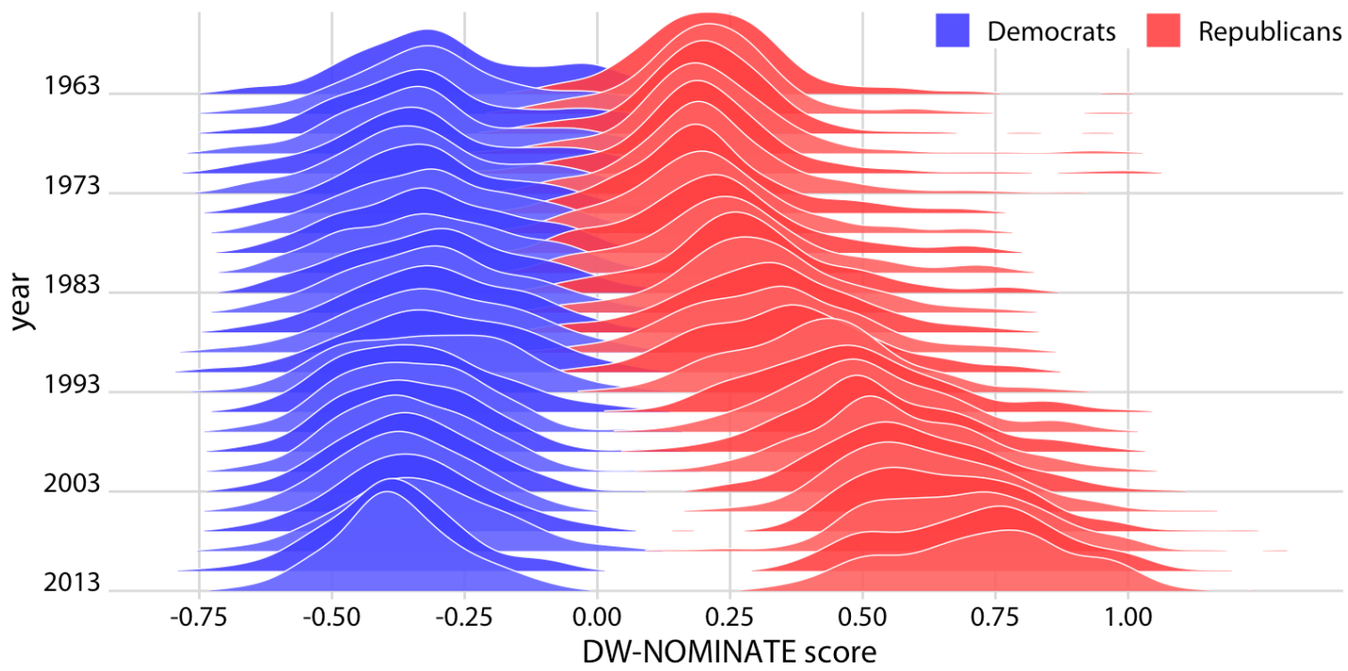
Granularity of your data

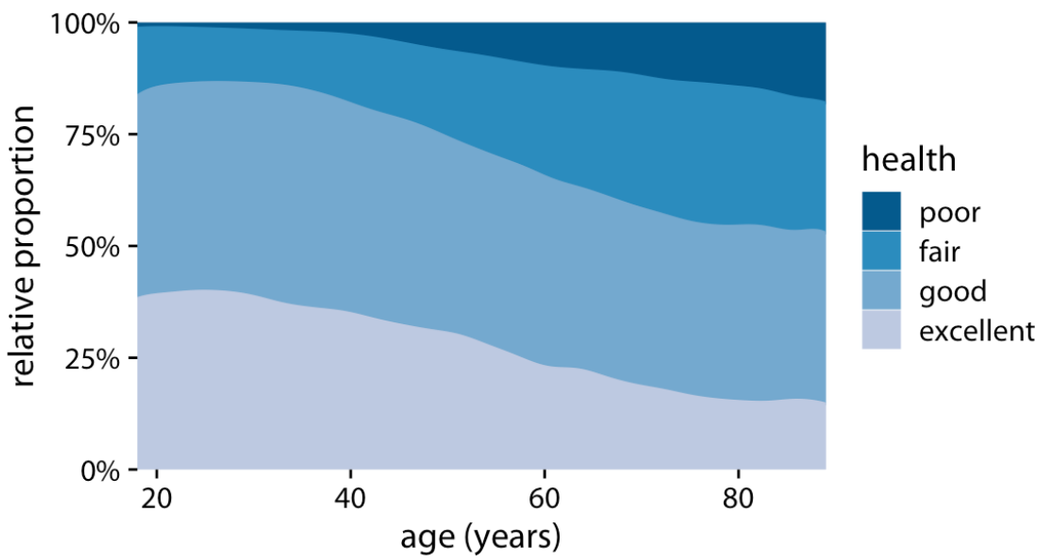


Expose yourself to lots of ideas!





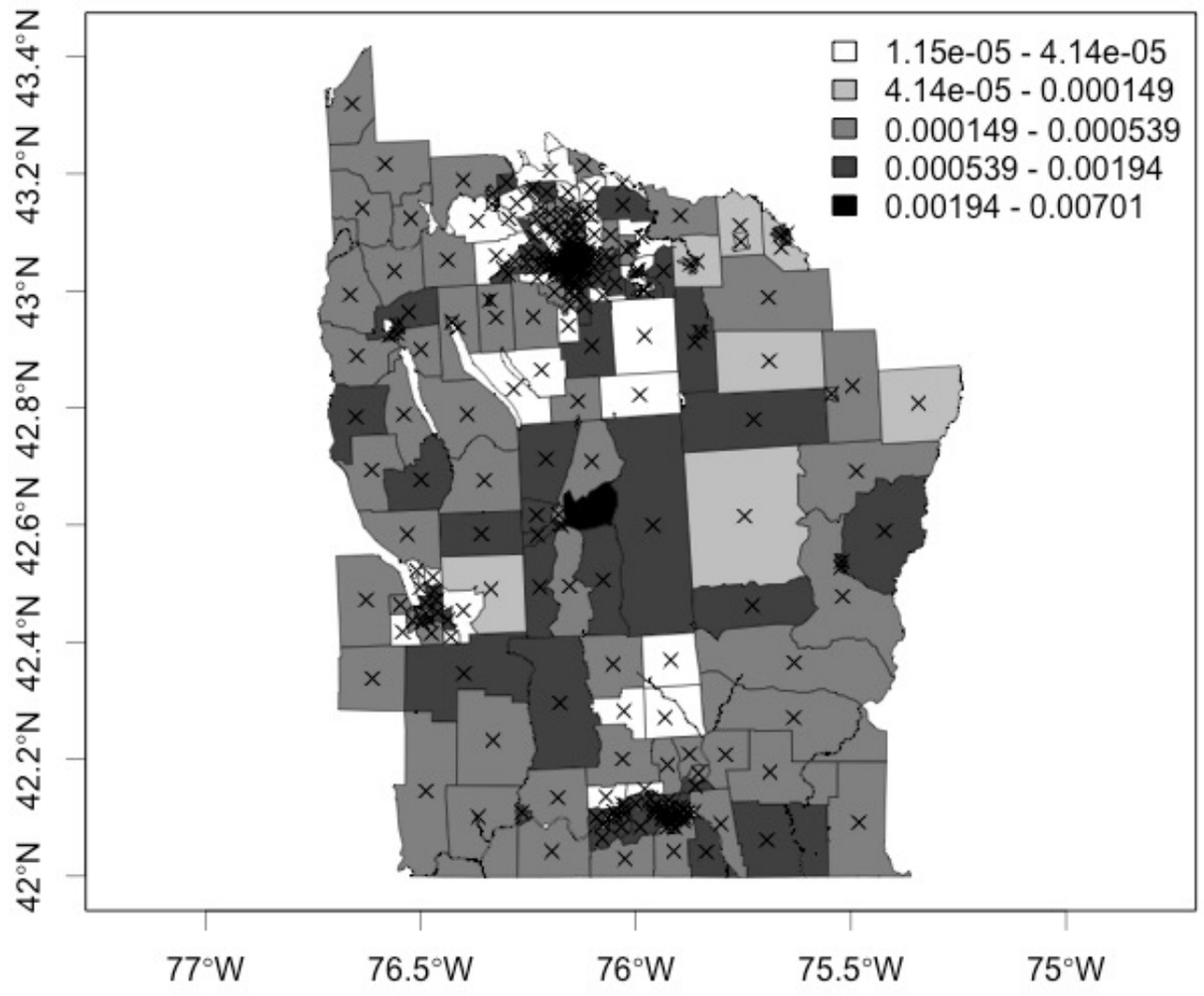




Advanced and Other Applications in R

Spatial Epidemiology and Maps

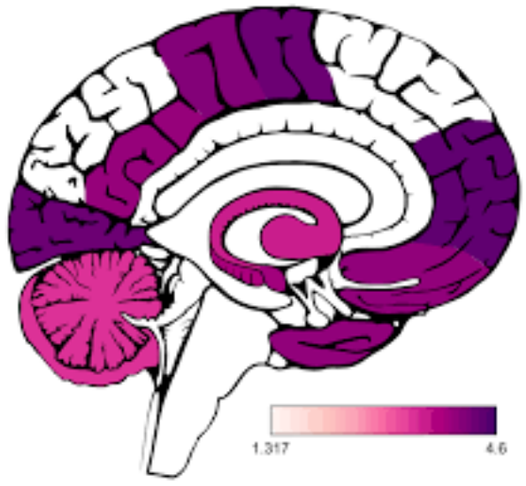
```
library(SpatialEpi)

data(NYleukemia)
sp.obj <- NYleukemia$spatial.polygon
centroids <- latlong2grid(NYleukemia$geo[, 2:3])
population <- NYleukemia$data$population
cases <- NYleukemia$data$cases

plotmap(cases/population, sp.obj, log=TRUE, nclr=5)
points(grid2latlong(centroids), pch=4)
```



Anatomical Mapping

CerebroViz

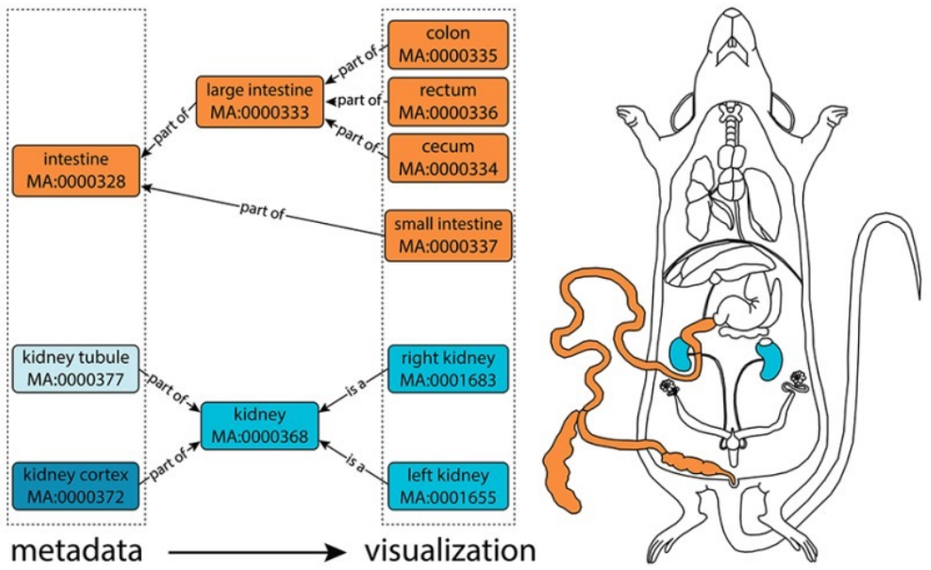
https://github.com/ethanbahl/cerebroViz




```
library("cerebroViz")
data(cerebroEx)
head(cerebroEx)[, c(1:7)]
```

COMICS

https://github.com/y-popov/COMICS



Animation / Interactivity

Indicator Name	2011	2012	2013	2014	2015	2016	Average	Improvement
Prevalence of Obesity	19.1	23.6	23.3	20.5	24.0	23.2	22.28	-21.47
Prevalence of Tobacco Use	17.4	15.0	15.3	12.2	16.6	16.7	15.53	4.02
Prevalence of Cardiovascular Disease	5.0	4.9	1.5	4.4	4.9	6.2	4.48	-24.00
Prevalence of Diabetes	8.0	7.2	9.3	7.2	7.5	10.4	8.27	-30.00