

# Plotting and Visualization with R

<https://r4ds.had.co.nz/data-visualisation.html>

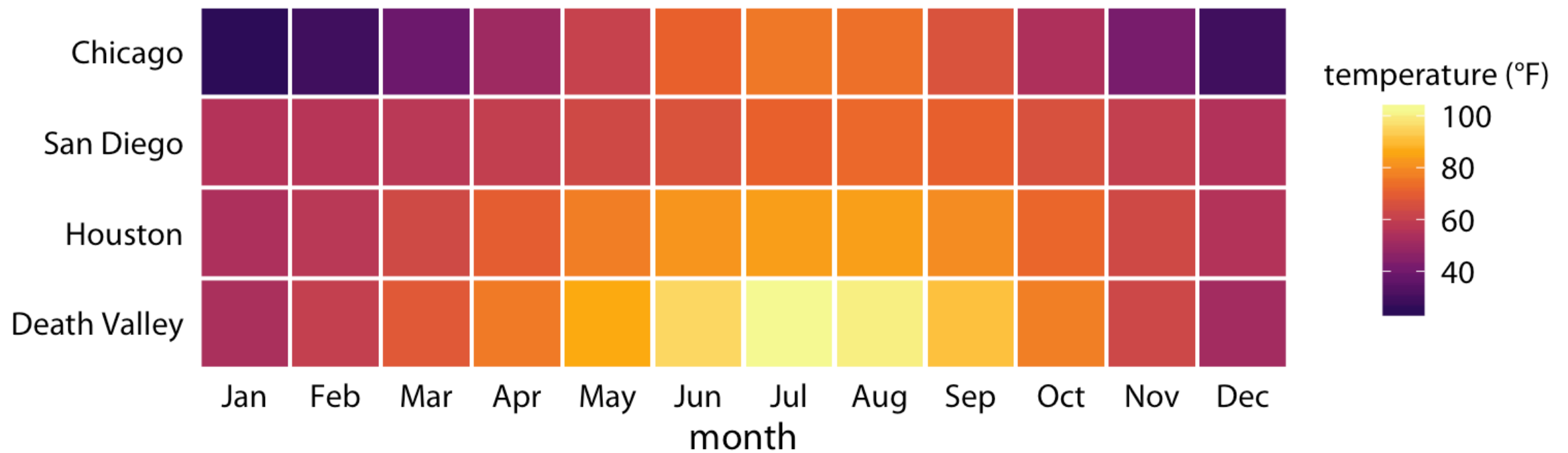
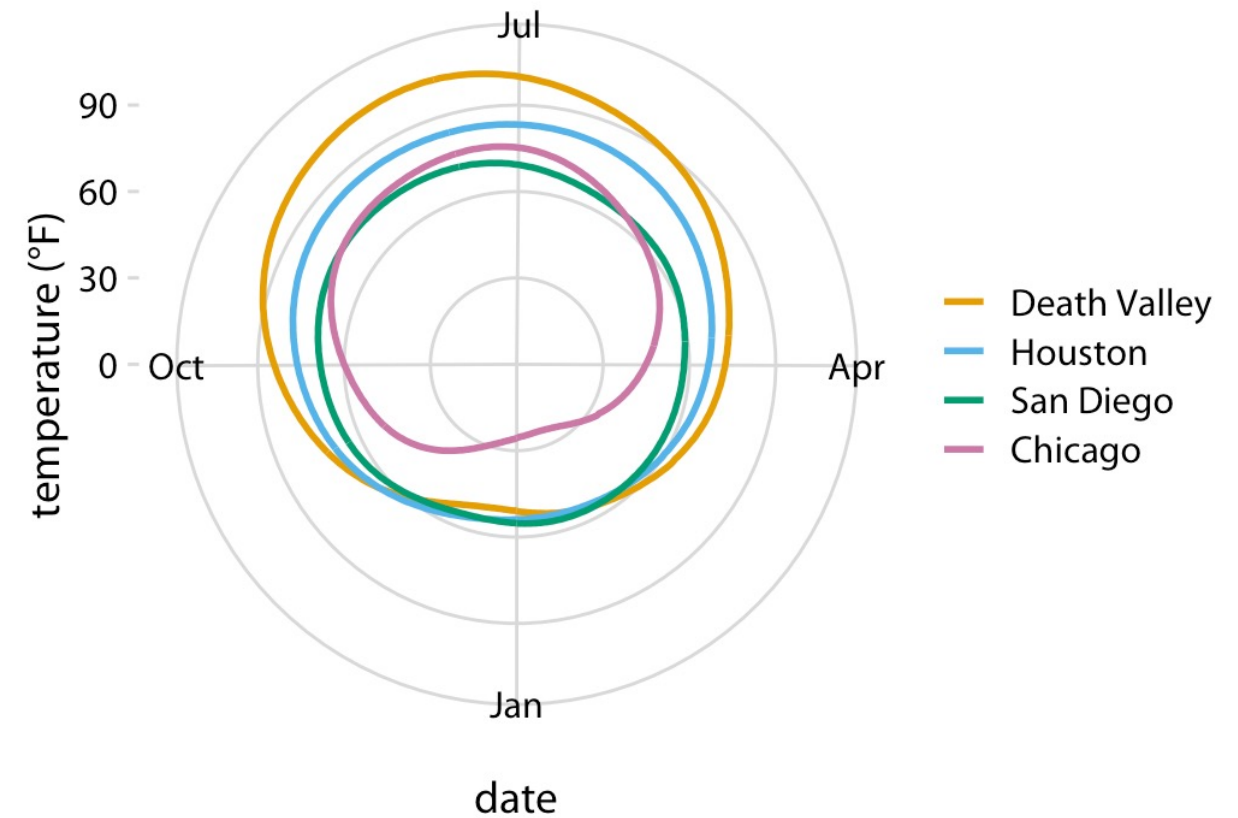
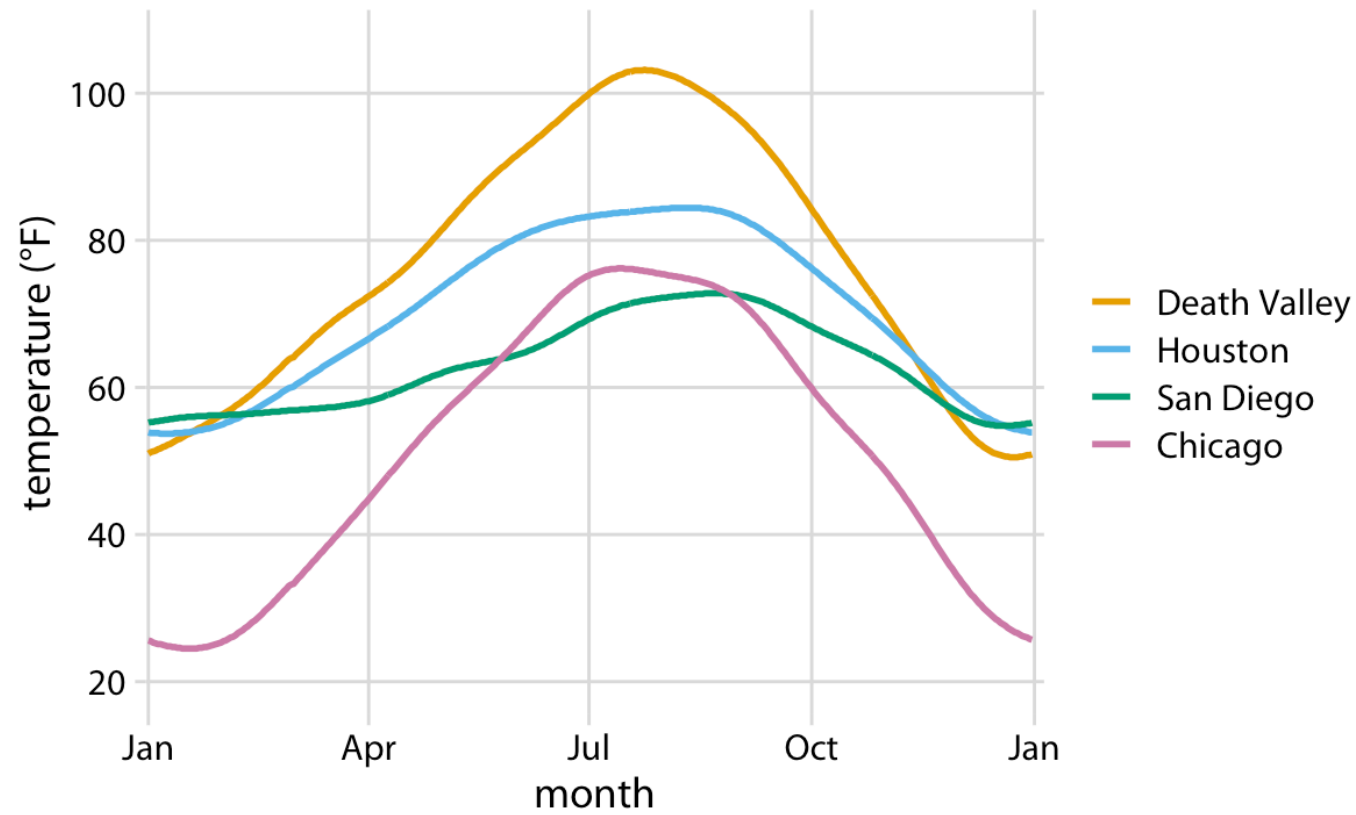
<https://is.gd/ggplot>

# Fundamentals of Data visualization

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

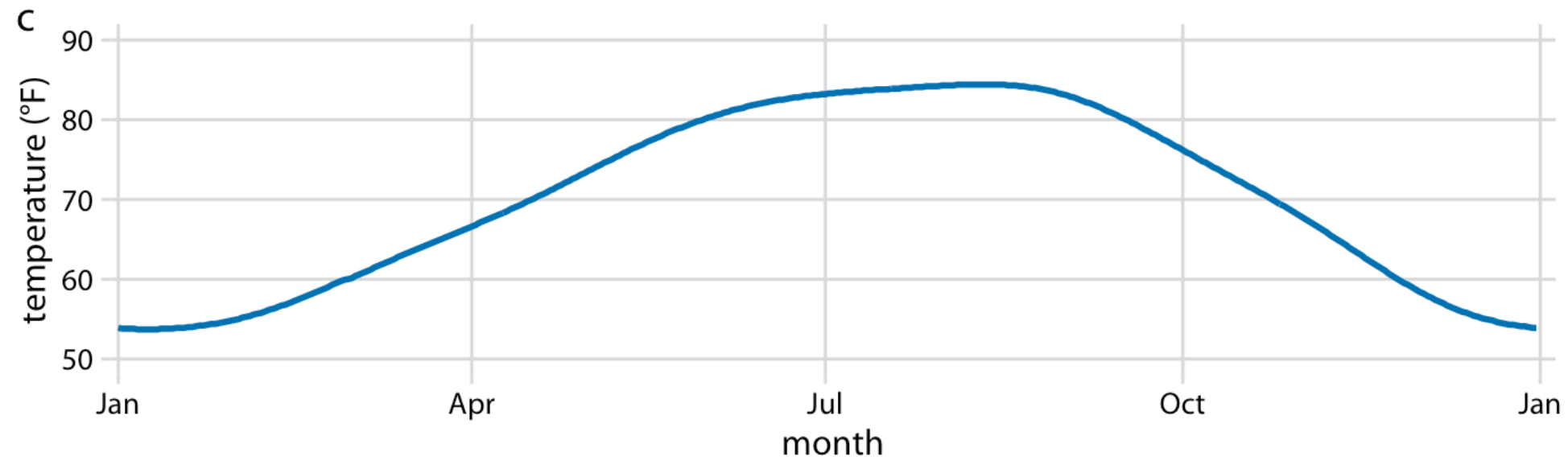
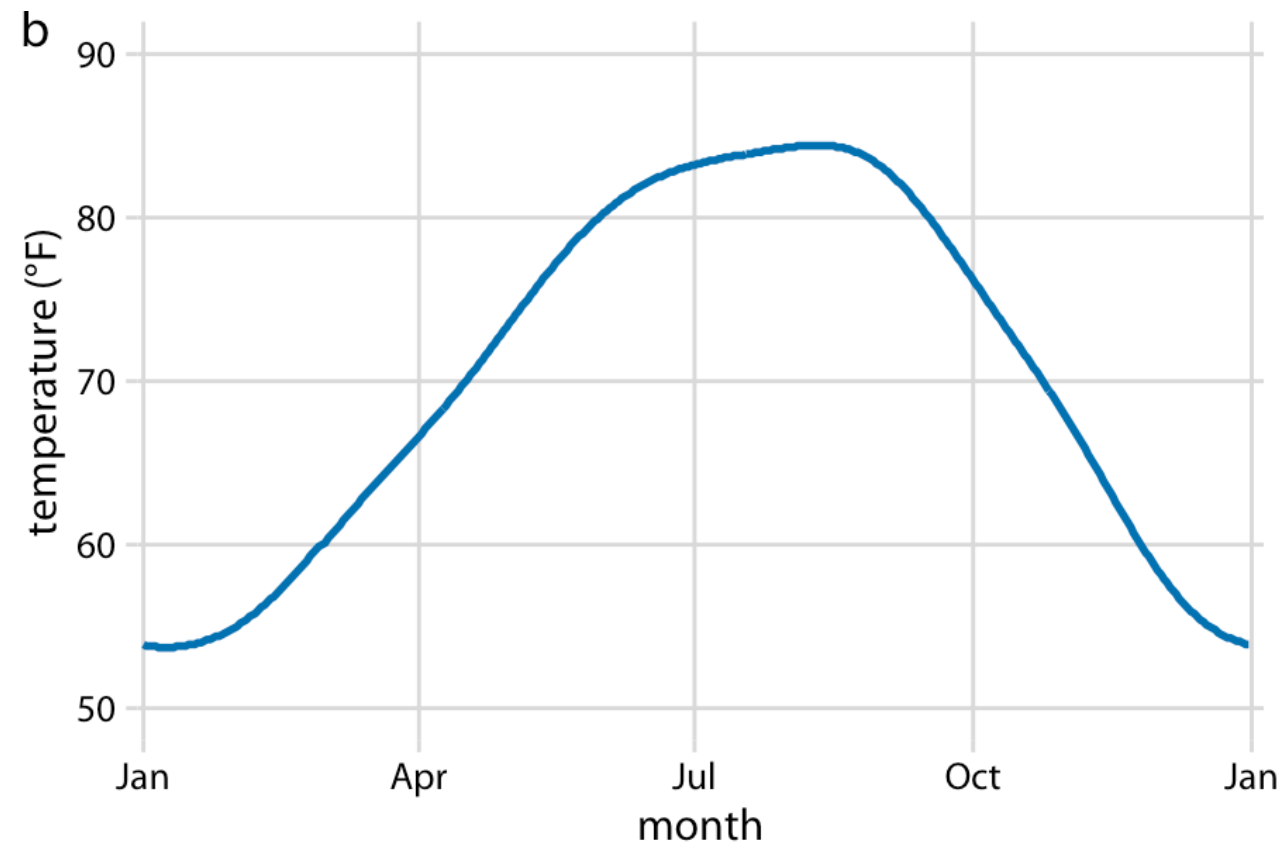
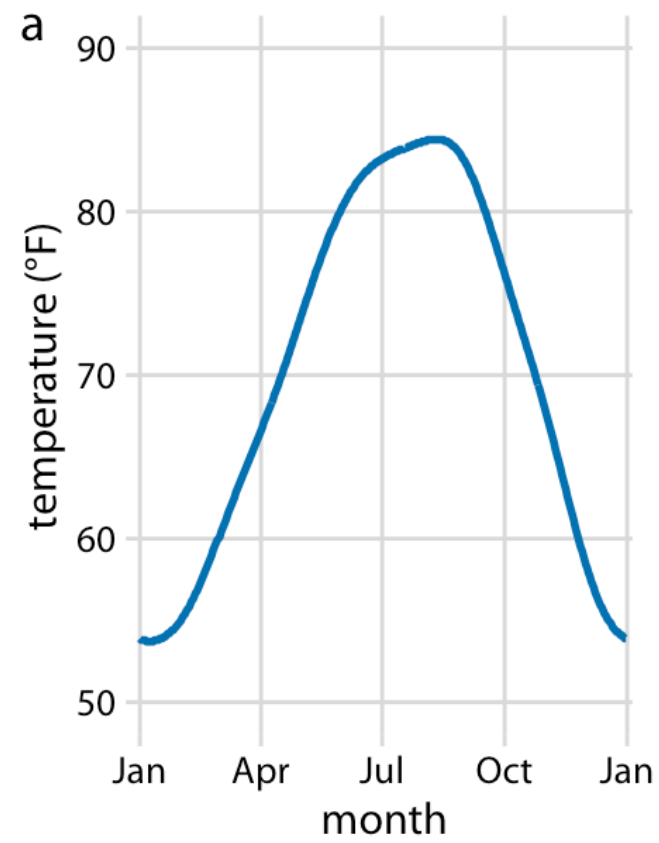


# Alternative representations



# Aspect ratio

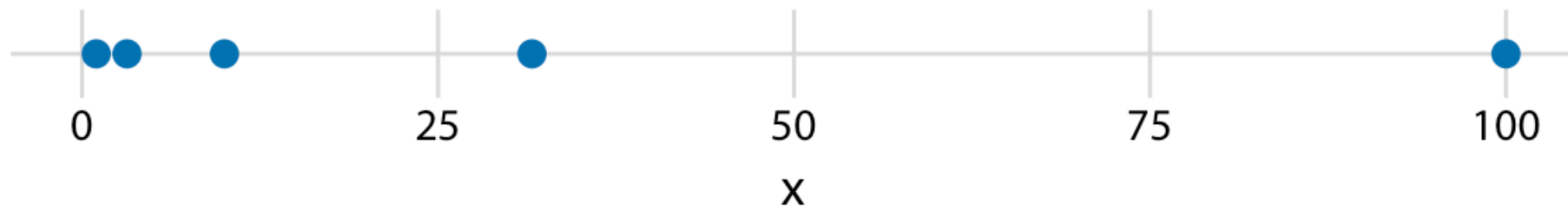
---



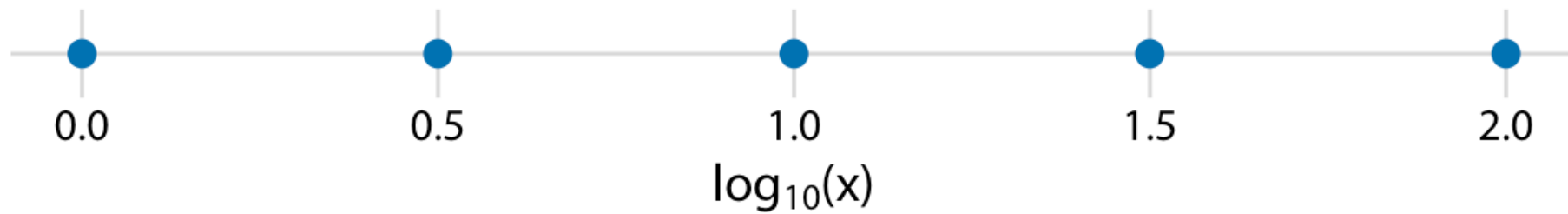
# Scaling axes

---

original data, linear scale

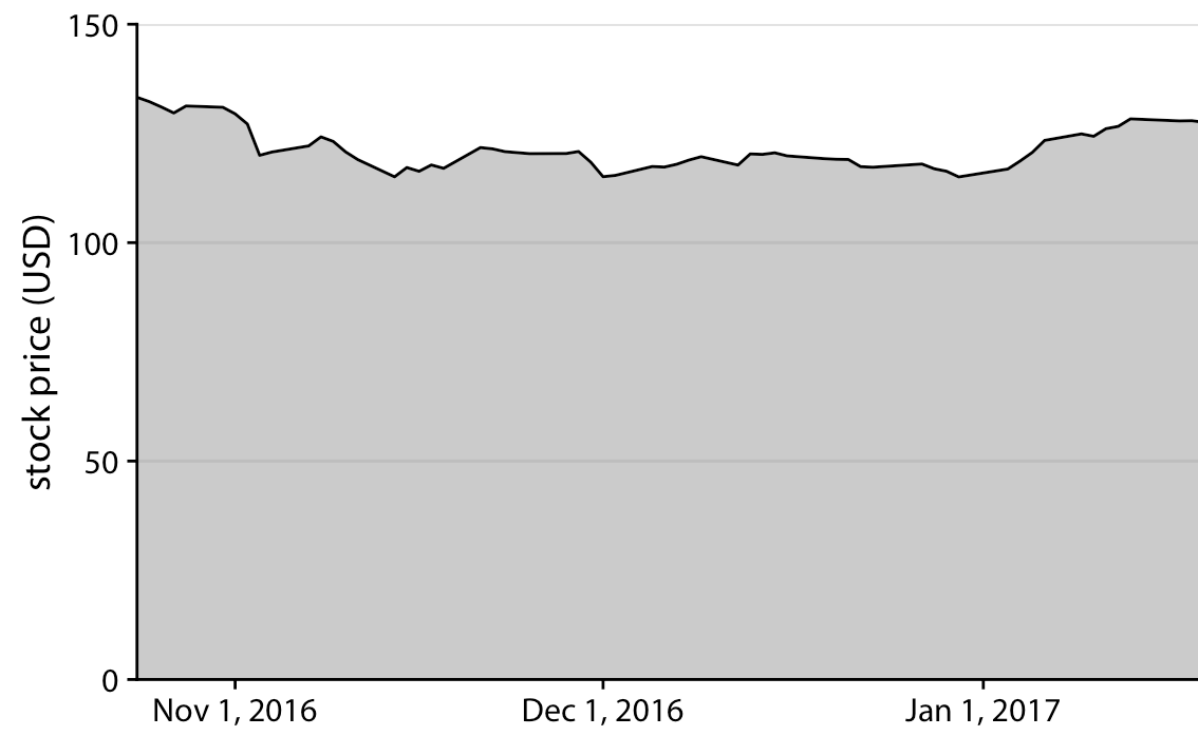
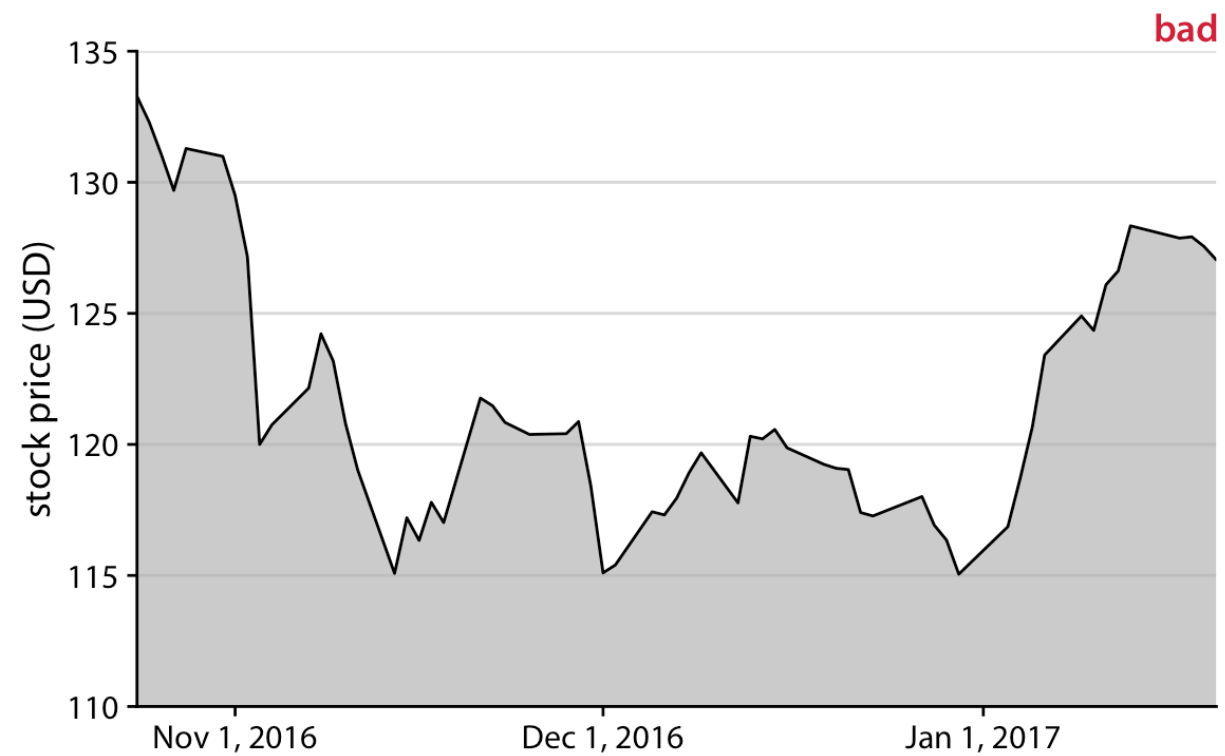


log-transformed data, linear scale



# Scaling axes

---

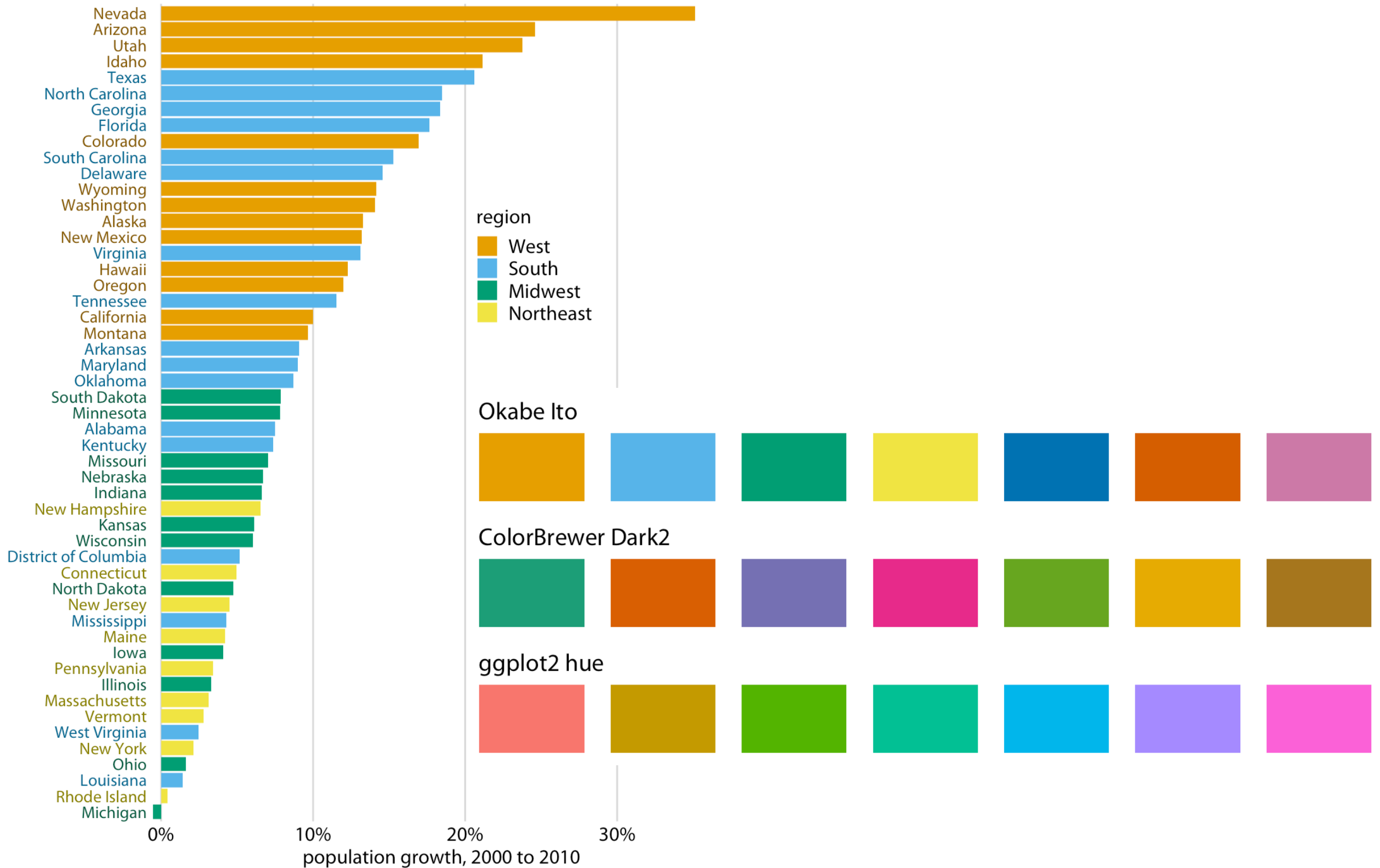


# Color scales – three uses

---

- 1) To distinguish between groups
- 2) To represent data values
- 3) To highlight

# Color to distinguish





# Color to represent data values

---

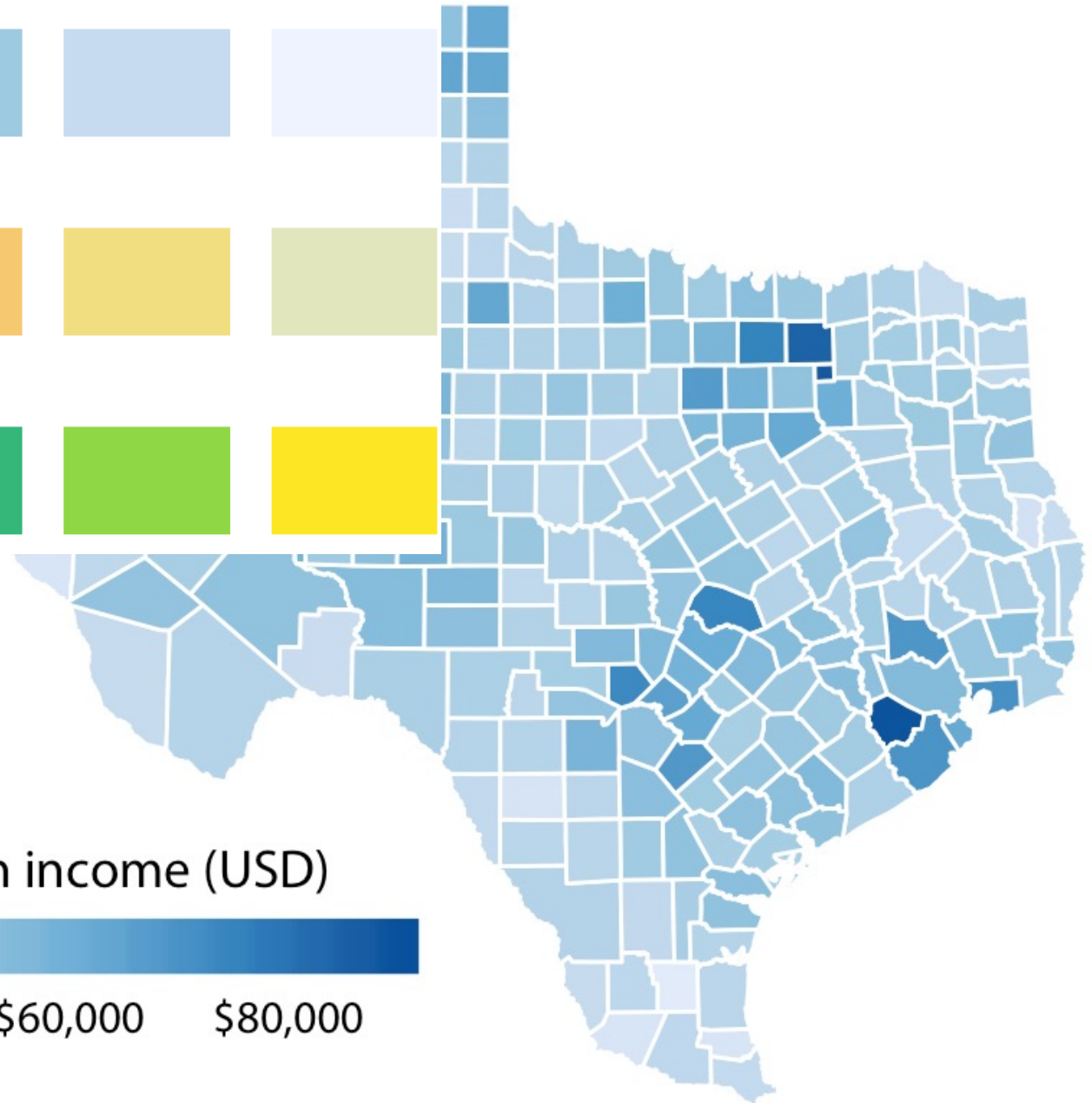
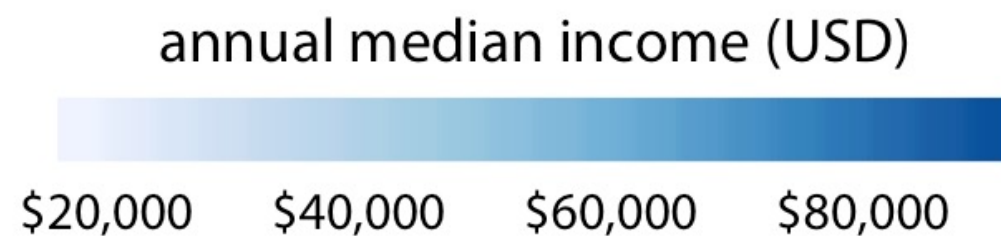
ColorBrewer Blues



Heat



Viridis

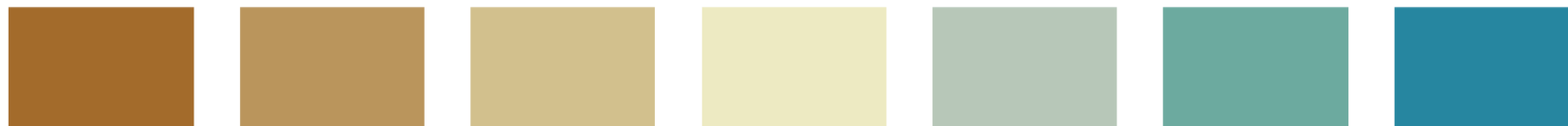


# Color to represent data values

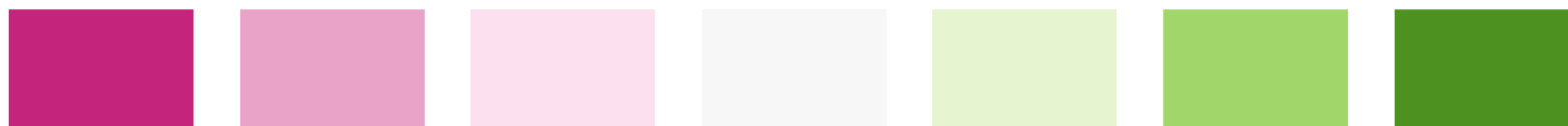
---

Color Key

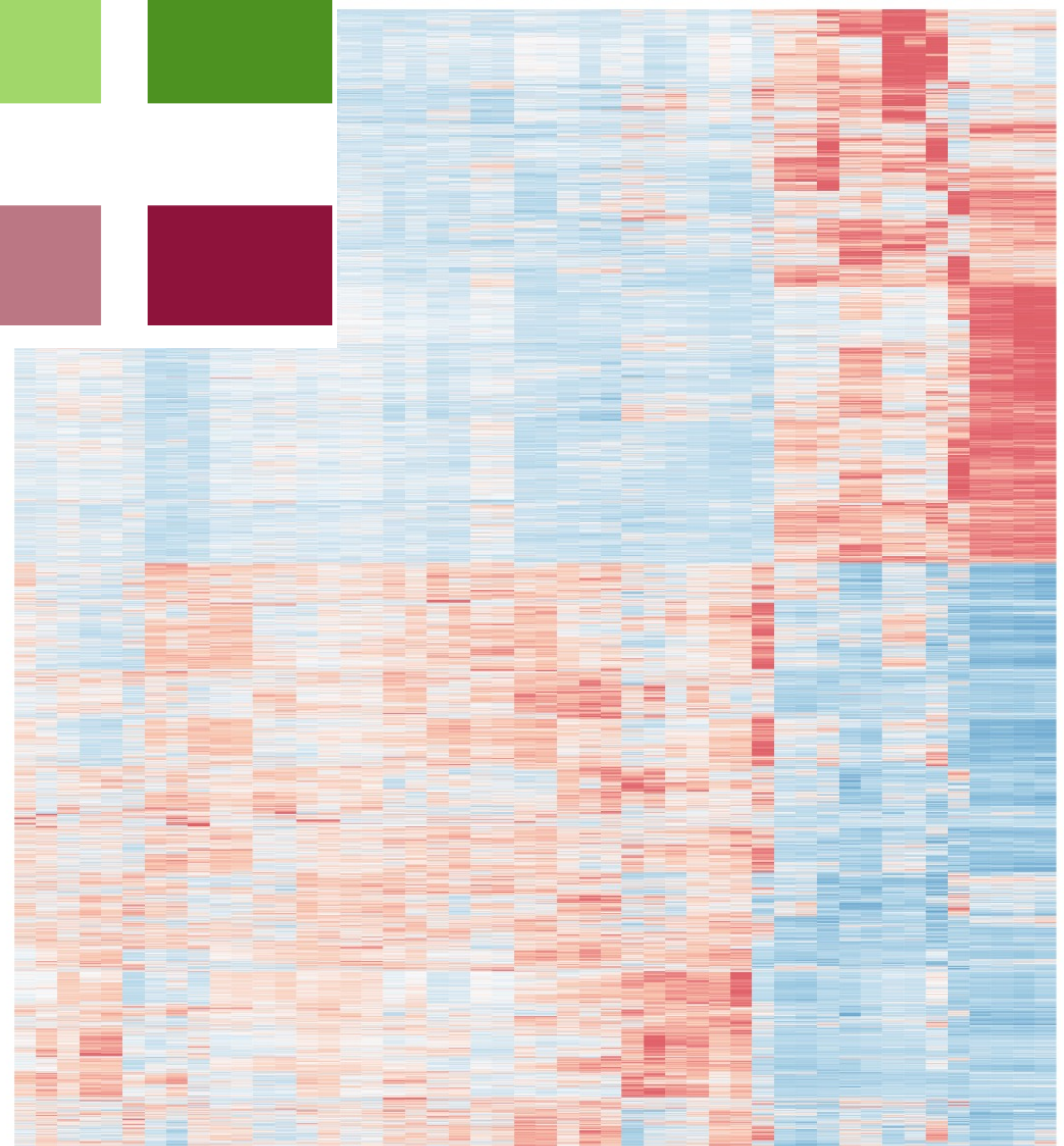
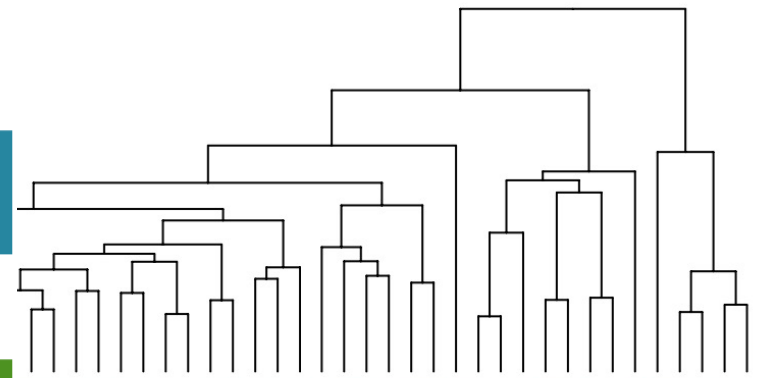
CARTO Earth



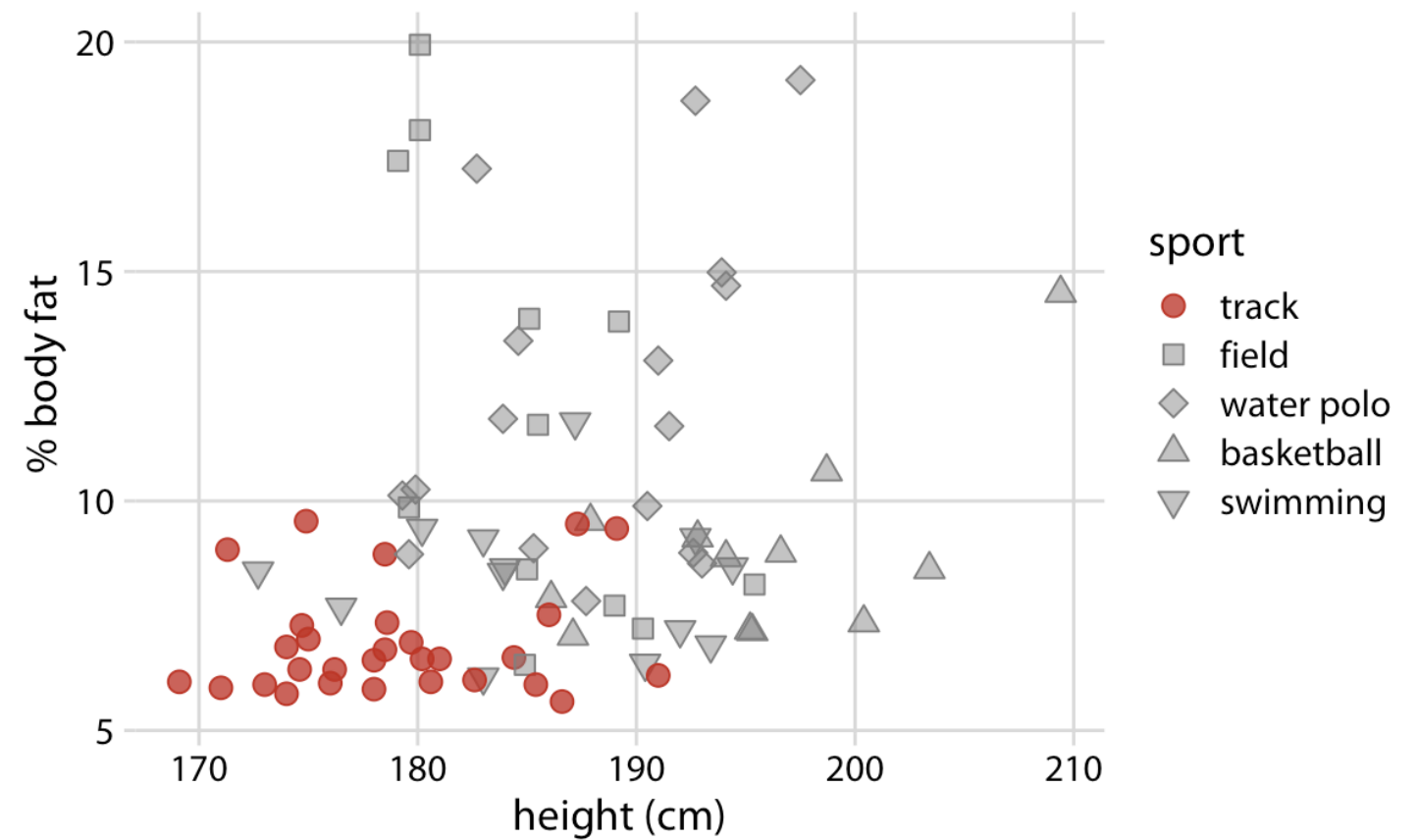
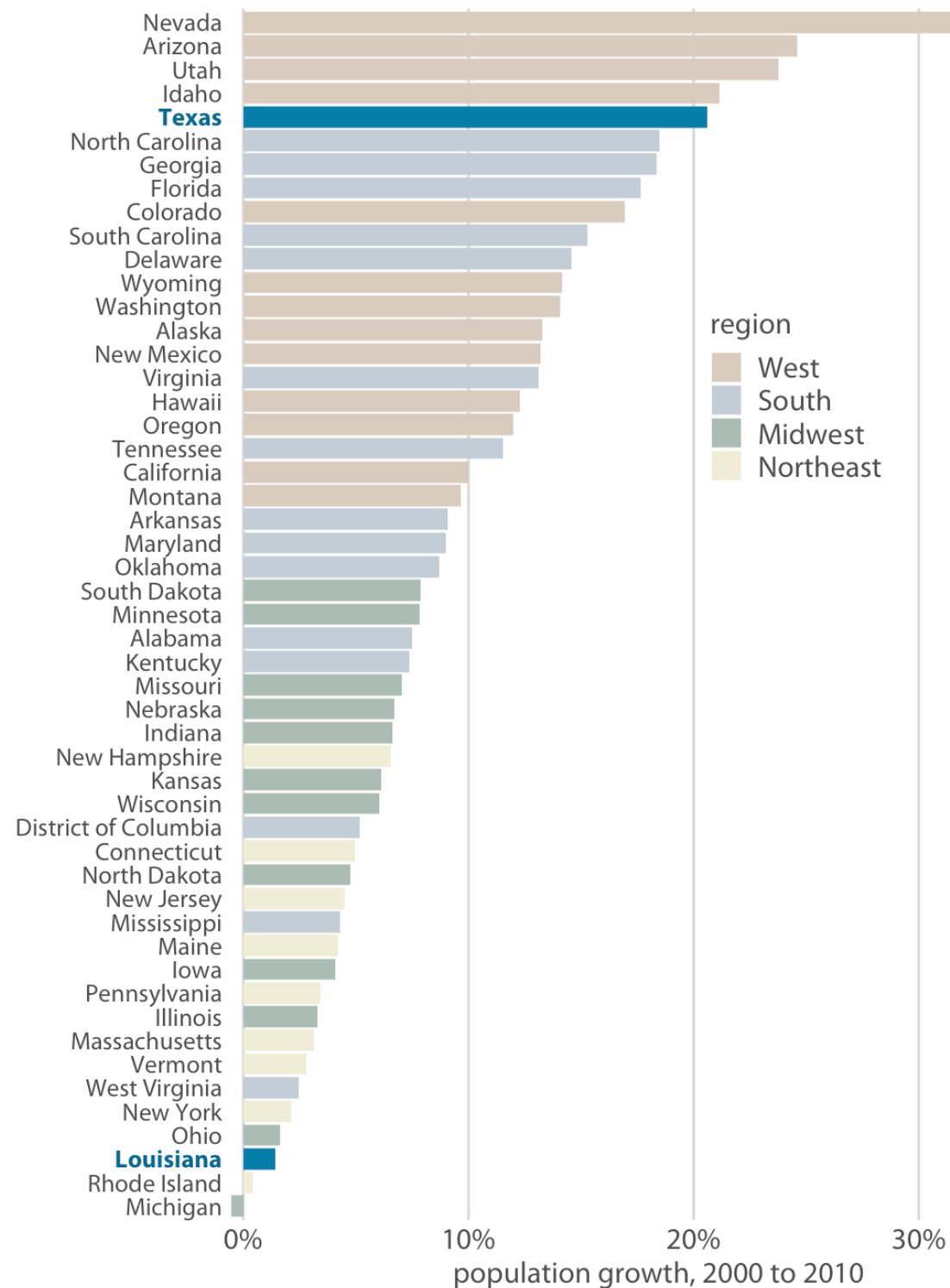
ColorBrewer PiYG



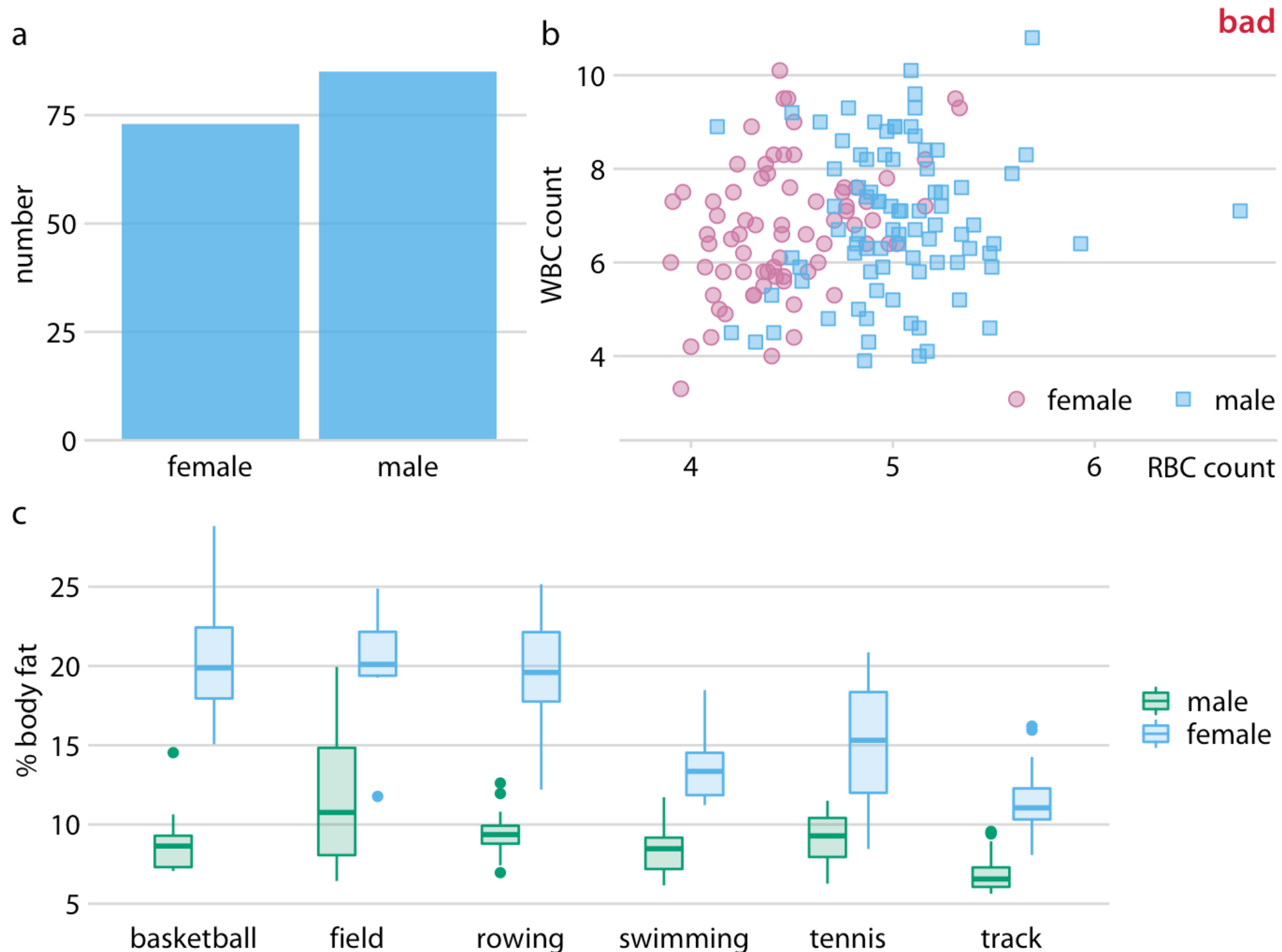
Blue-Red



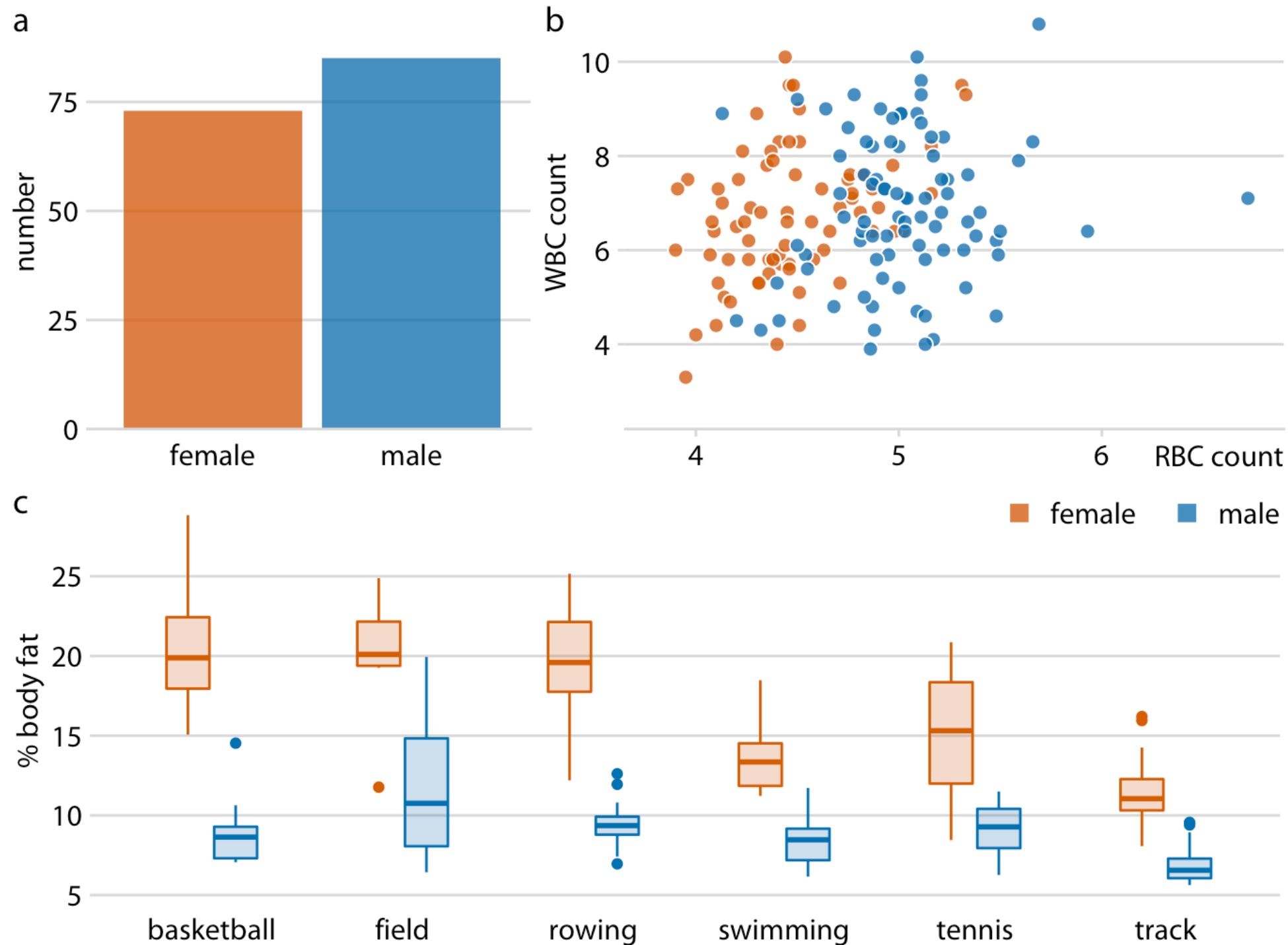
# Color to highlight



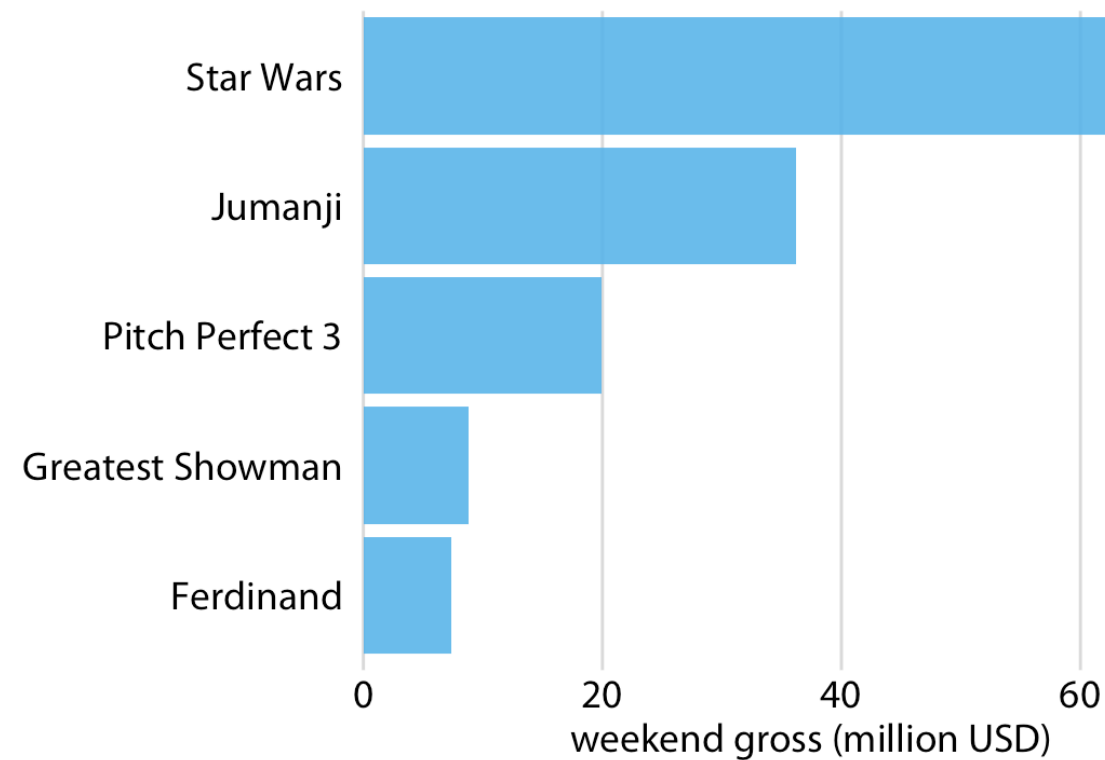
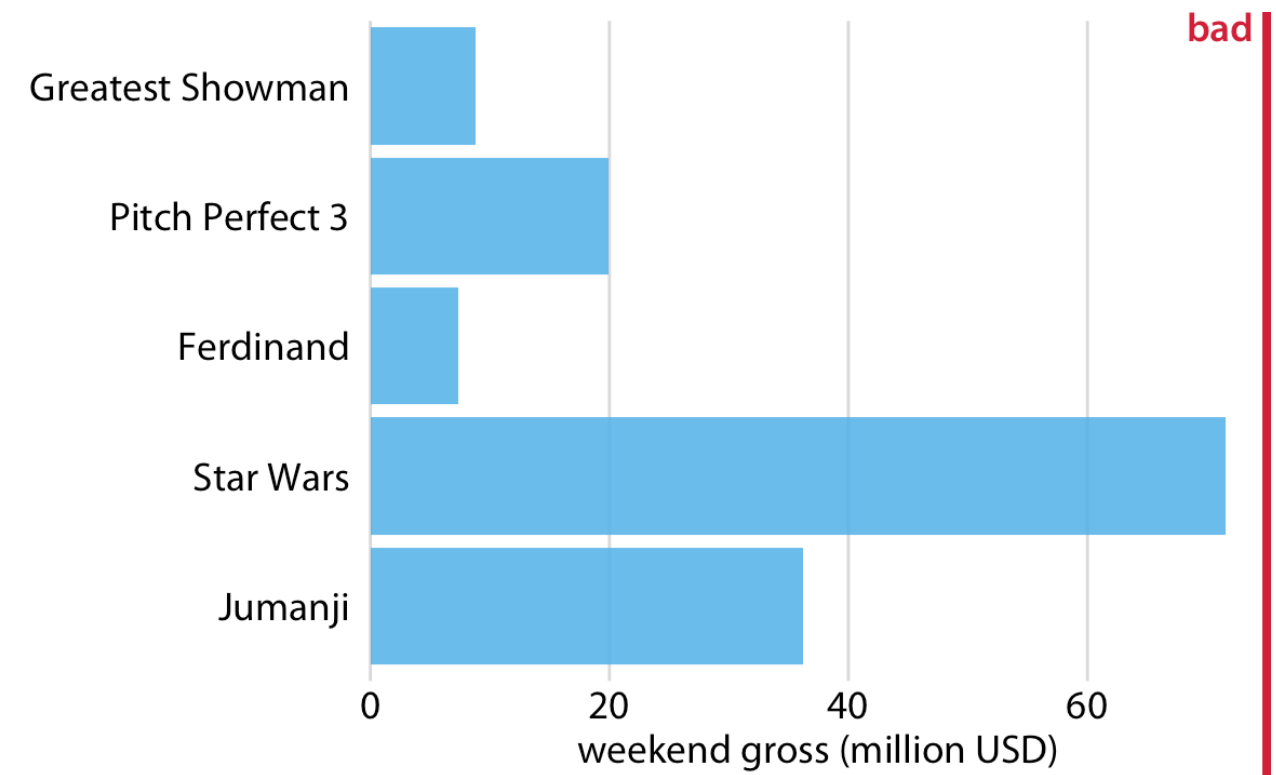
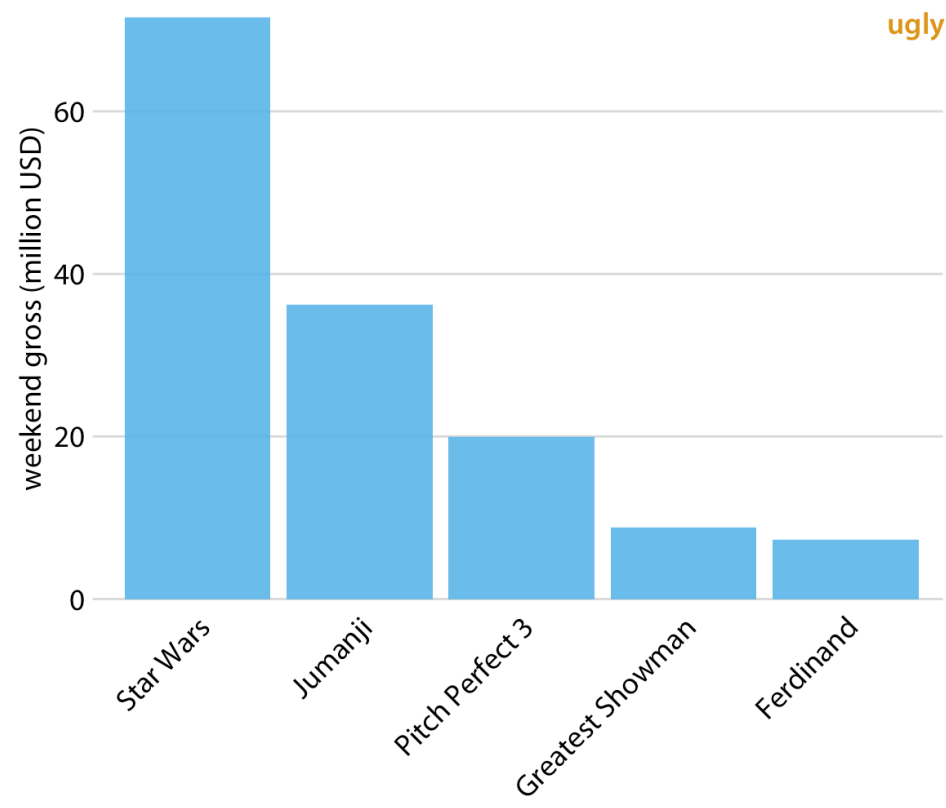
# Be consistent across panels and figures



# Be consistent across panels and figures

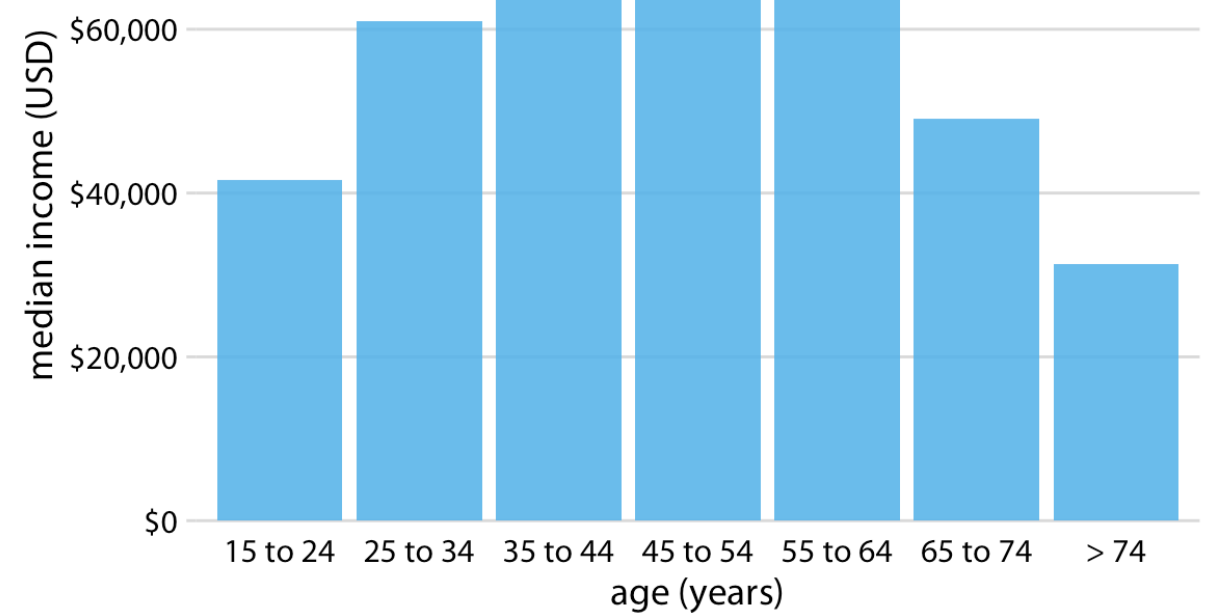
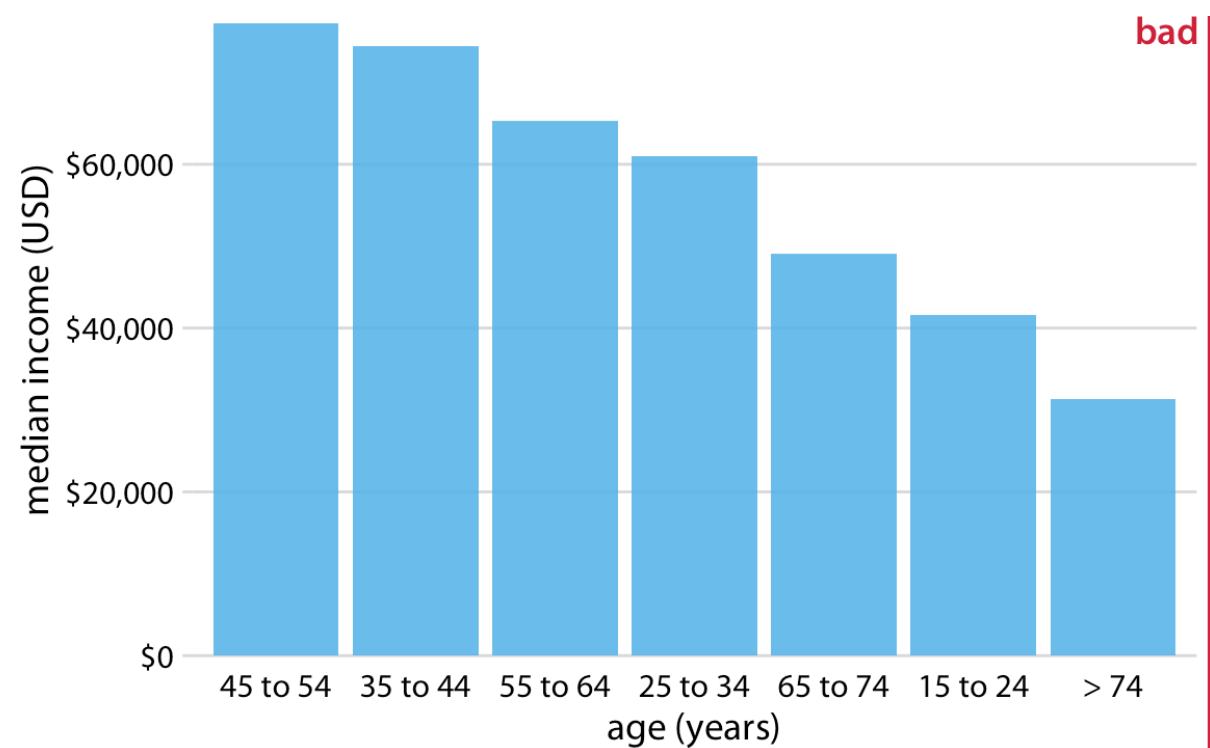


# Bar plots

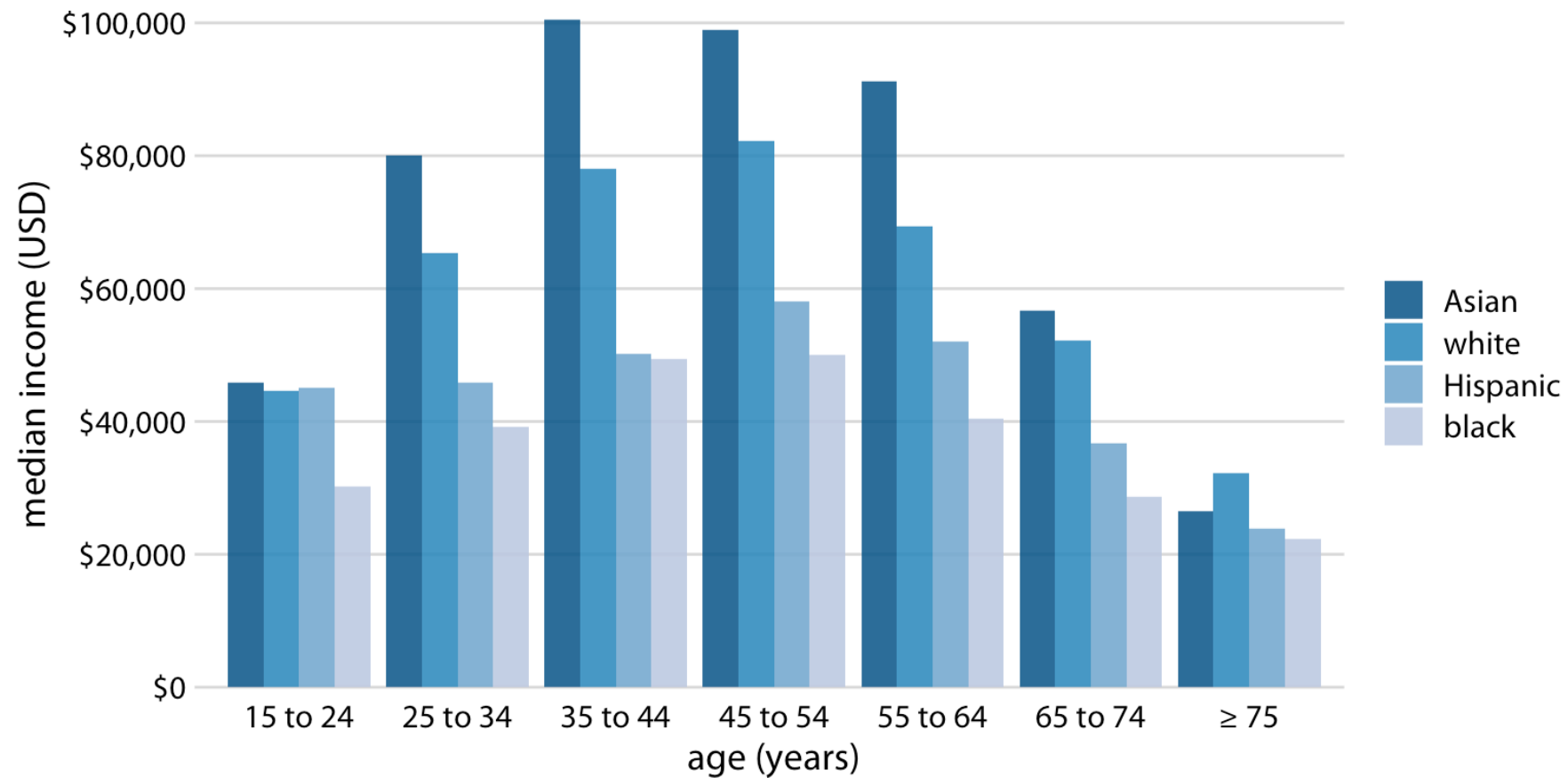
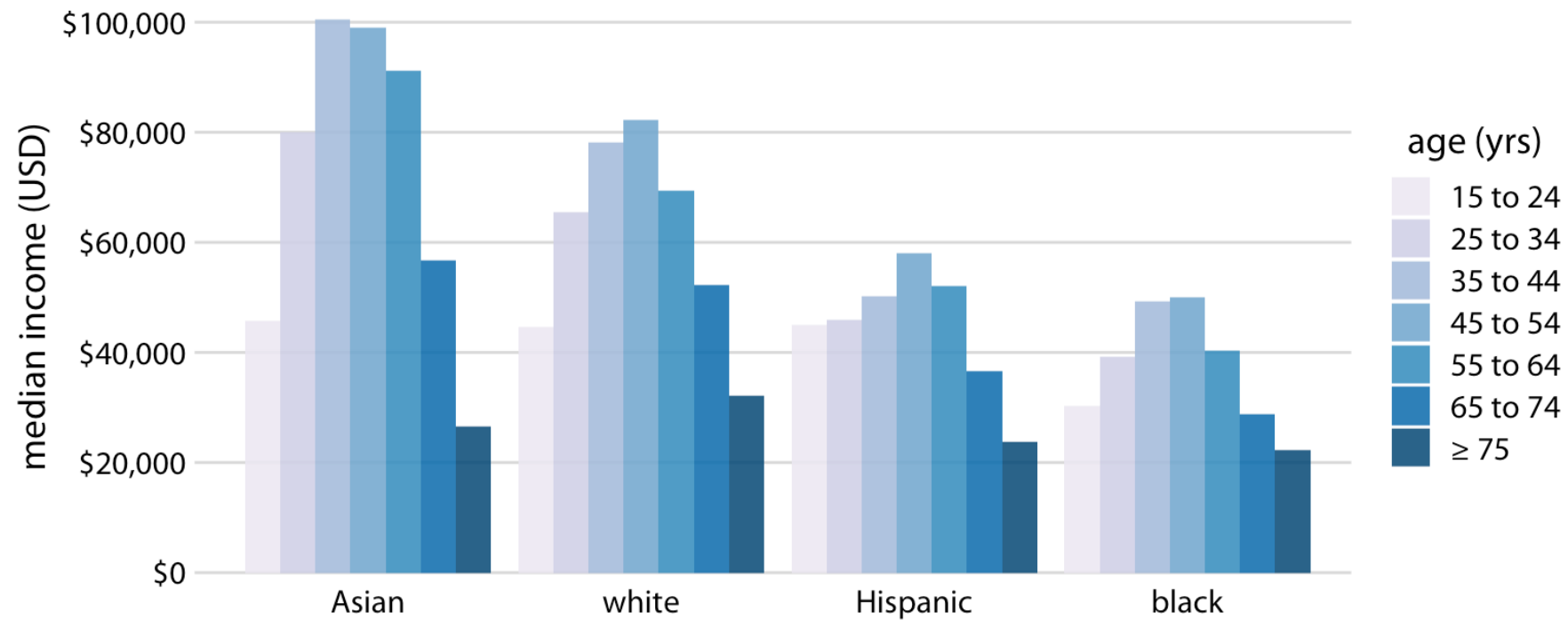


# Bar plots

---



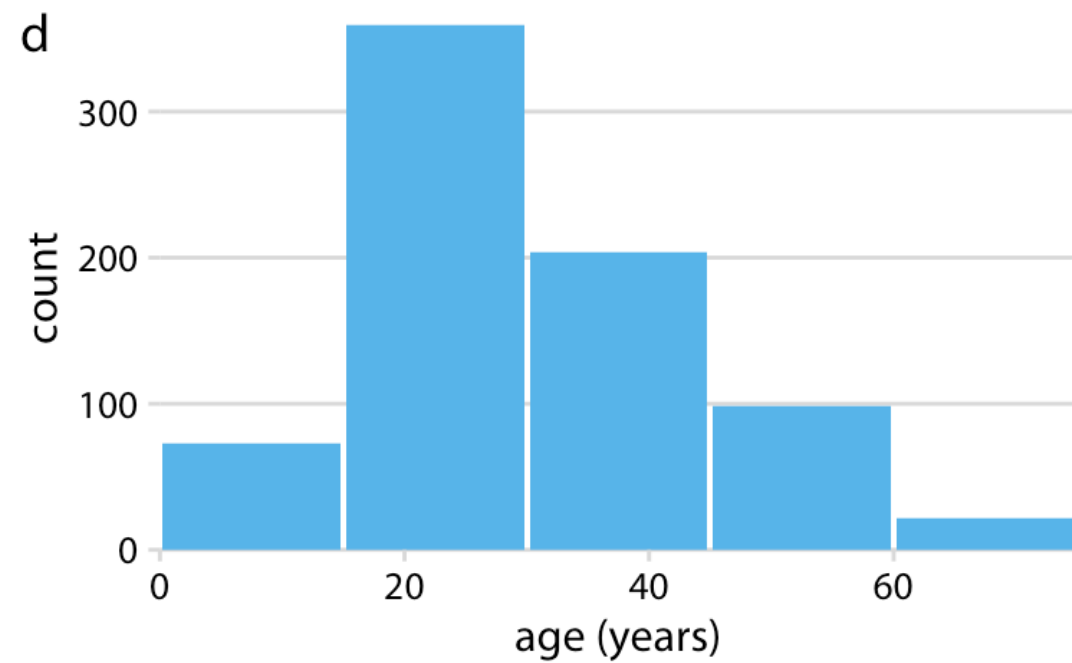
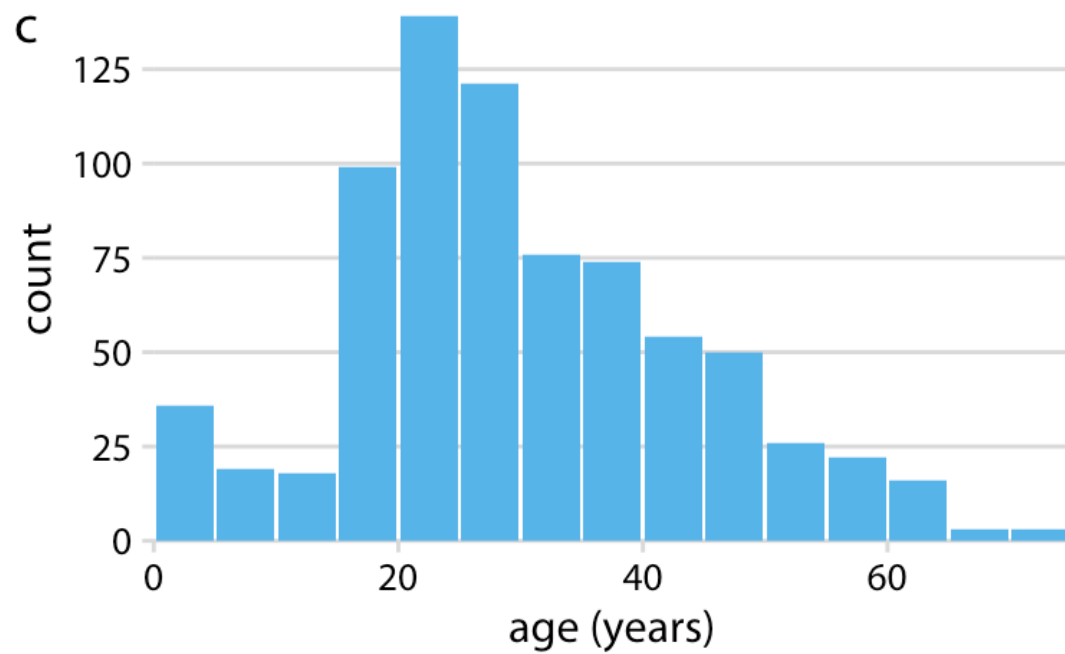
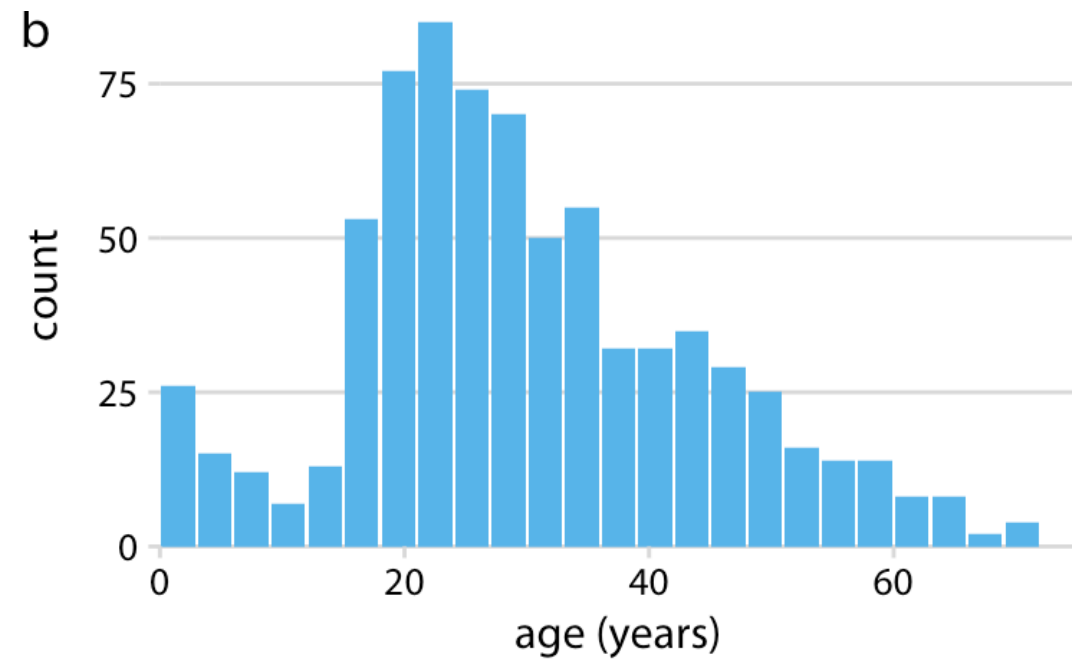
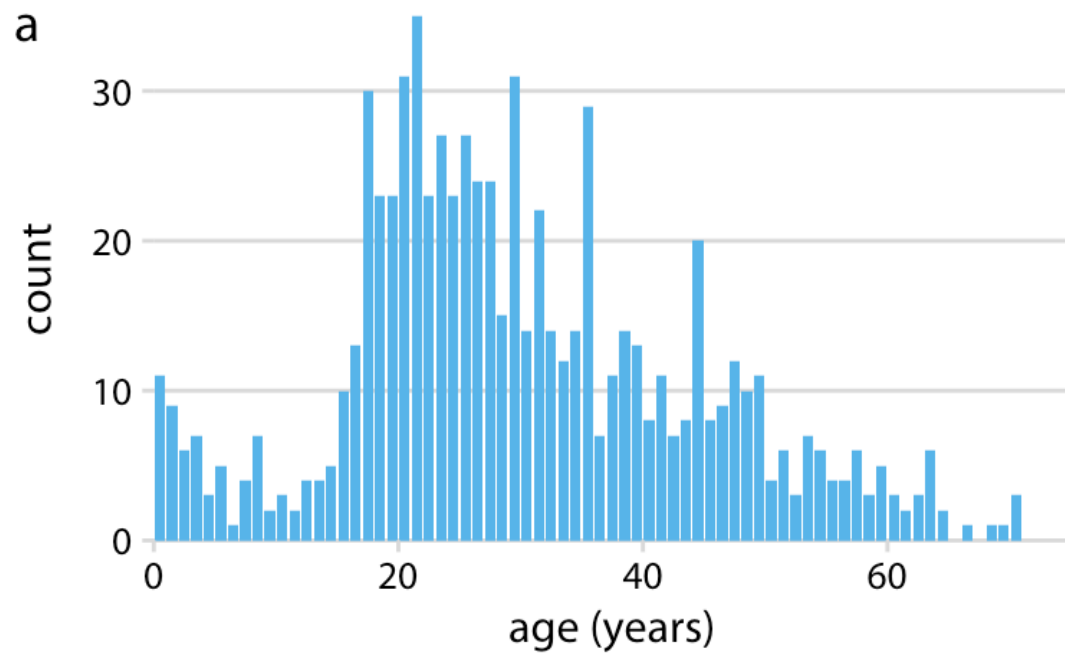
# Grouped Bar Plots



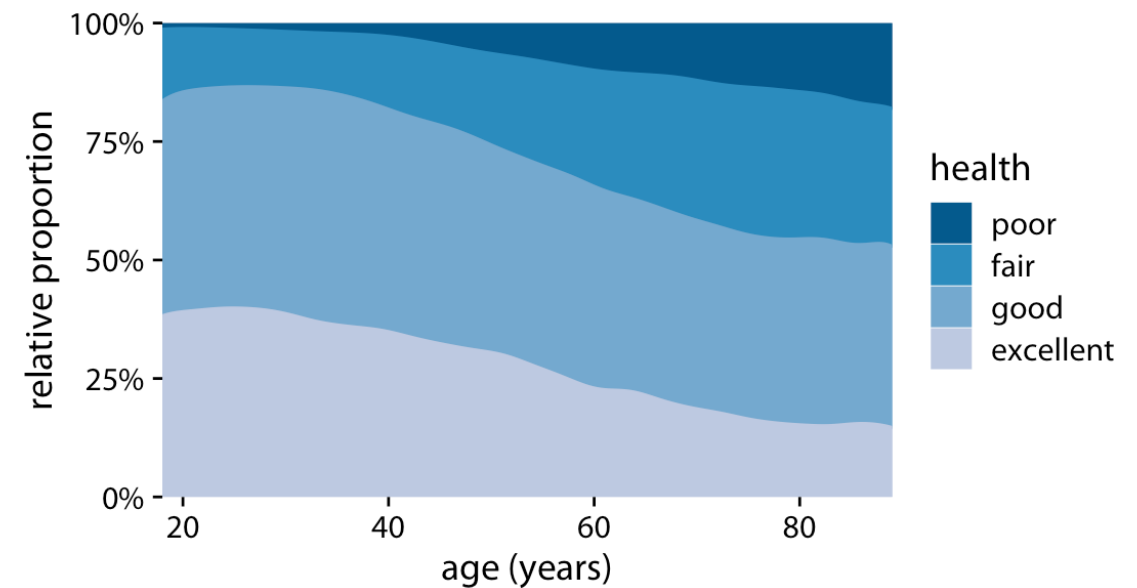
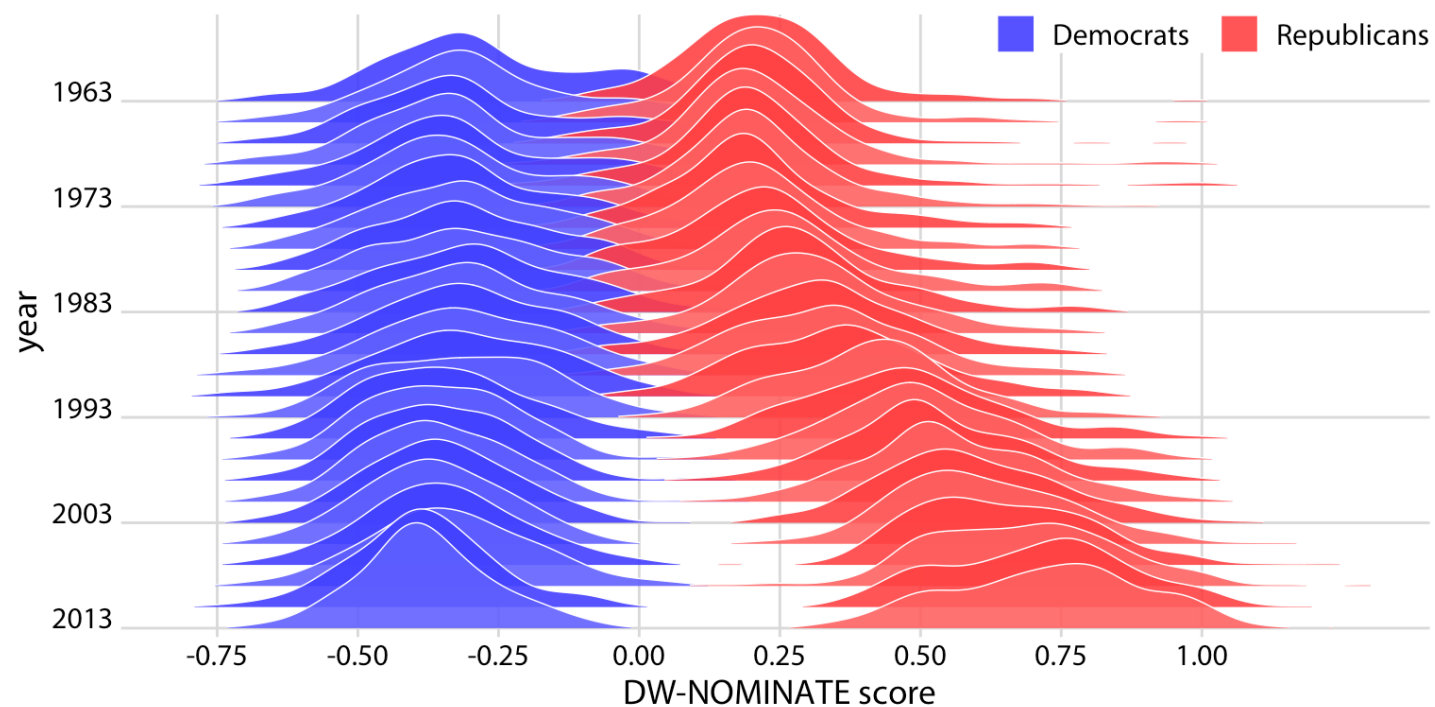
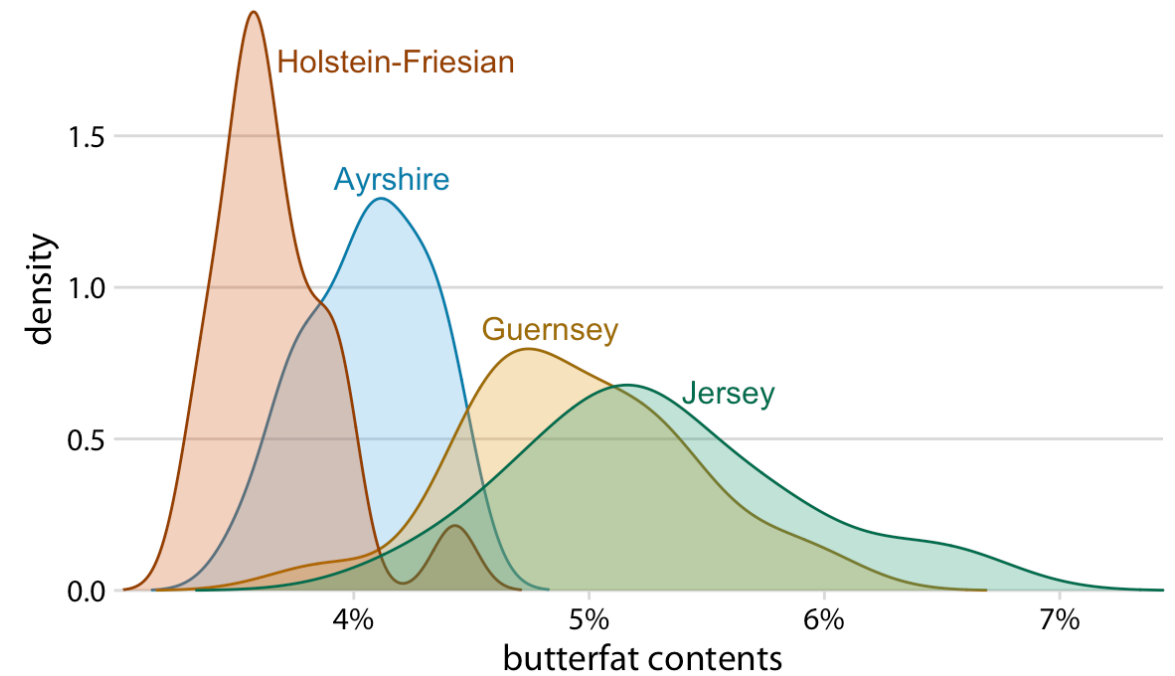
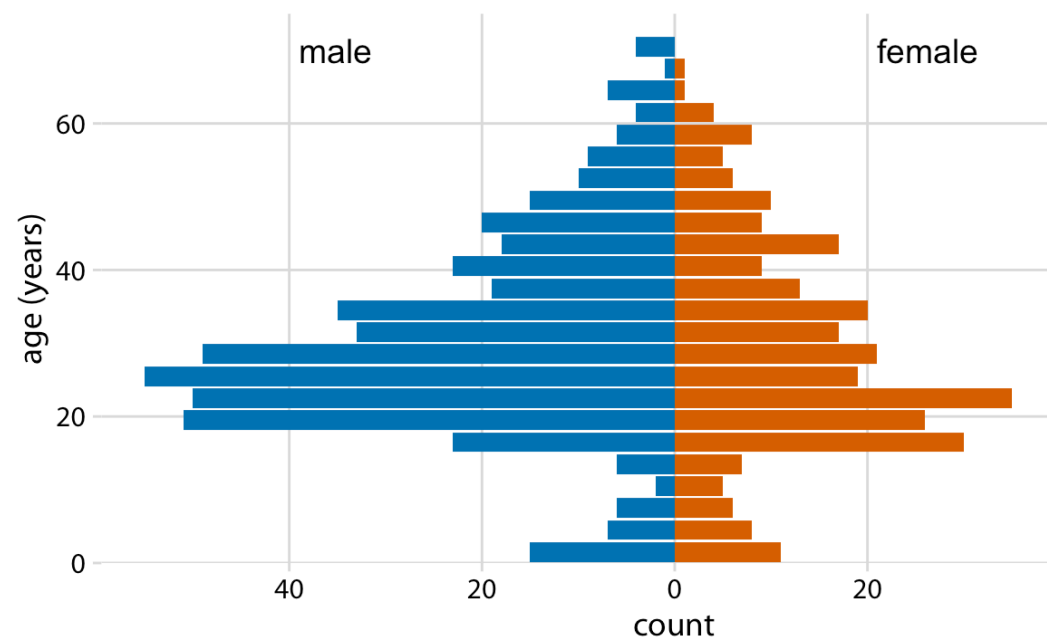


# Granularity of your data

---



# Expose yourself to lots of ideas!



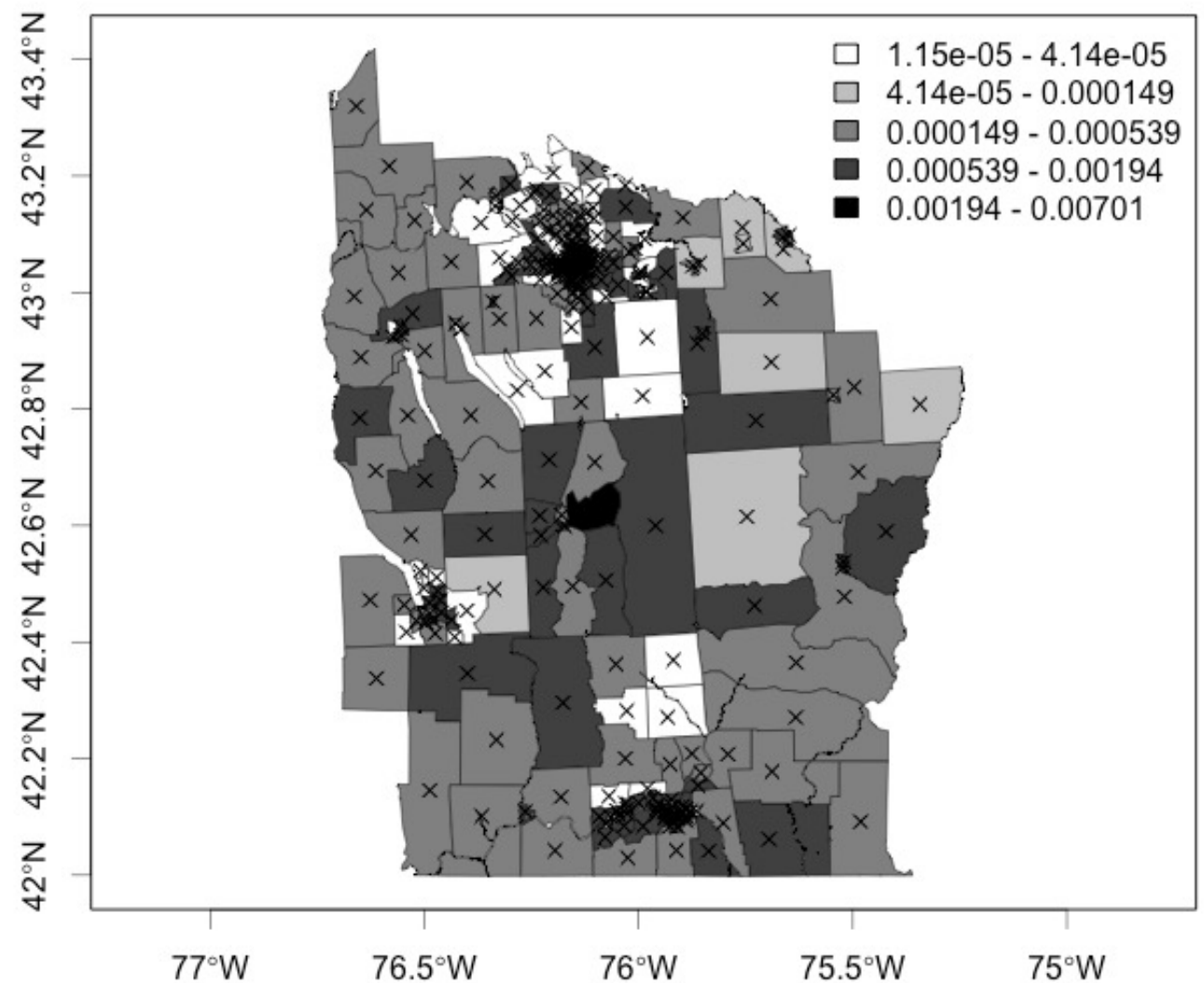
# Advanced and Other Applications in R

# 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

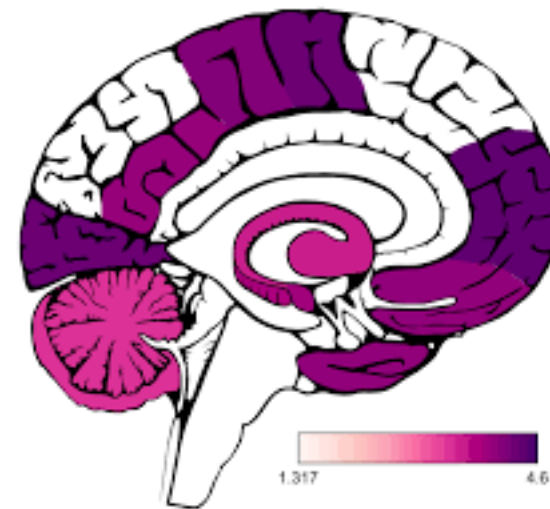
plotmap(cases/population, sp.obj, log=TRUE, nclr=5)
points(grid2latlong(centroids), pch=4)
```



# Anatomical Mapping

## CerebroViz

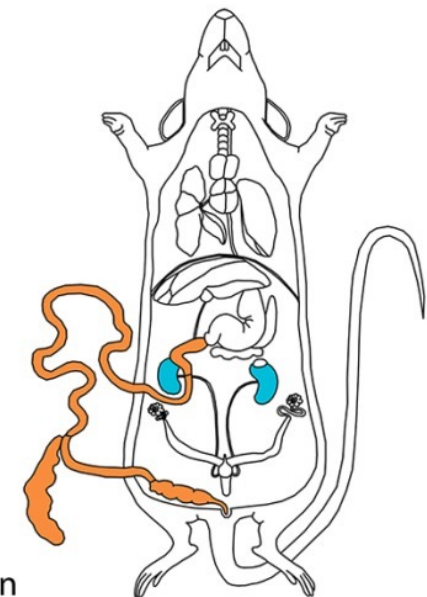
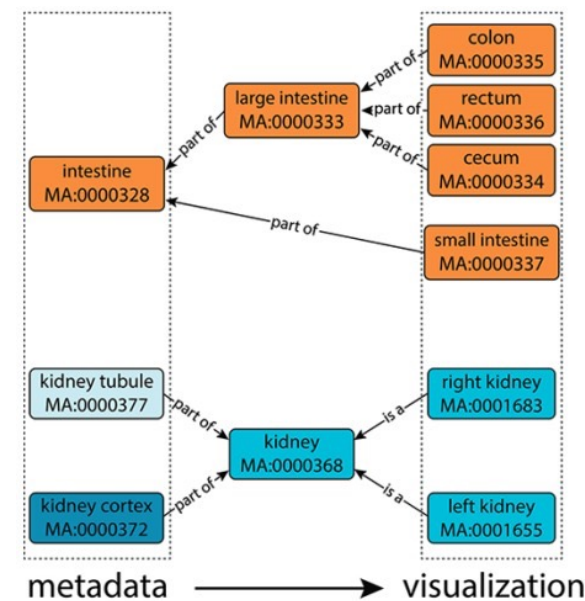
<https://github.com/ethanbahl/cerebroViz>



```
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

