

Chapter 23

Balance the data and the context

Fundamentals of Data Visualization

May 6, 2023

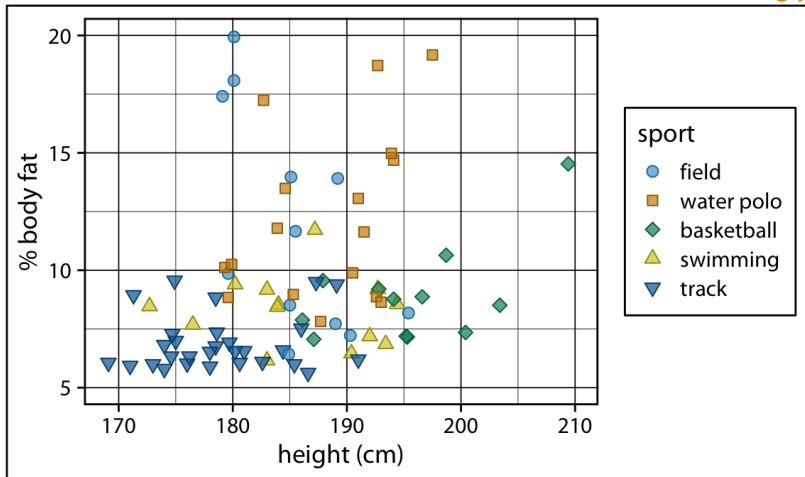
Two parts of a graph

- Parts that represent data
 - bars
 - dots
 - lines
 - shaded areas
- Parts that don't
 - axes
 - titles
 - labels
 - legends
 - annotations

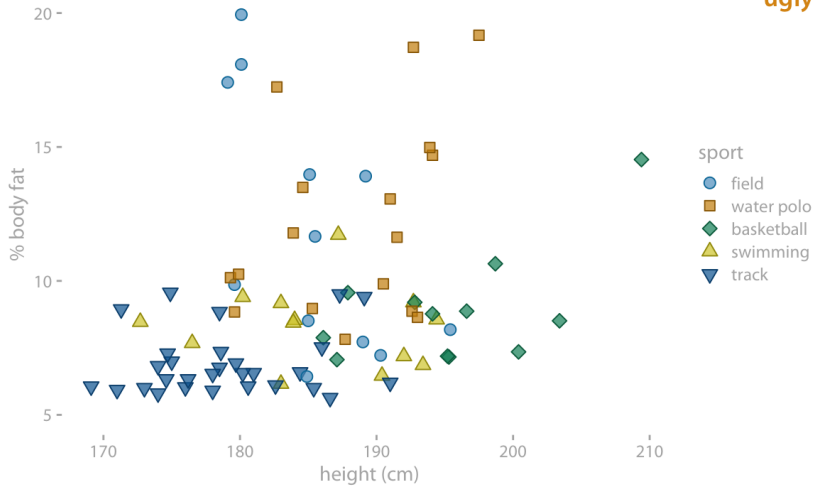
Maximize the data–ink ratio, within reason.

Too much non-data ink

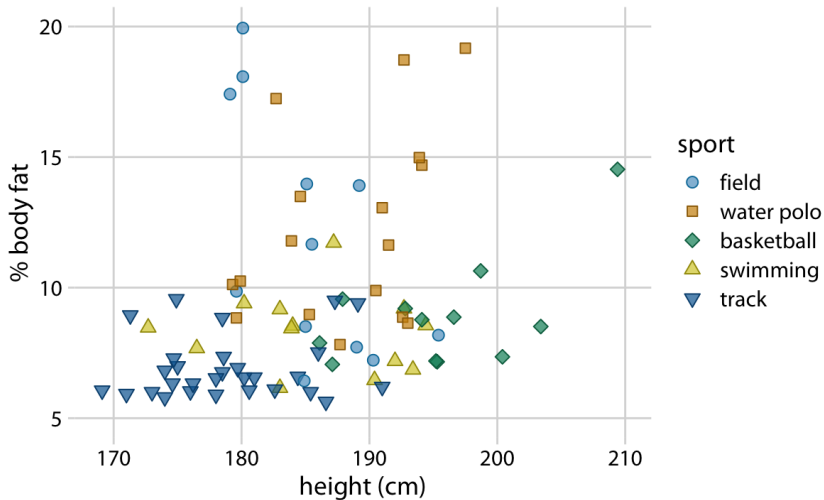
ugly



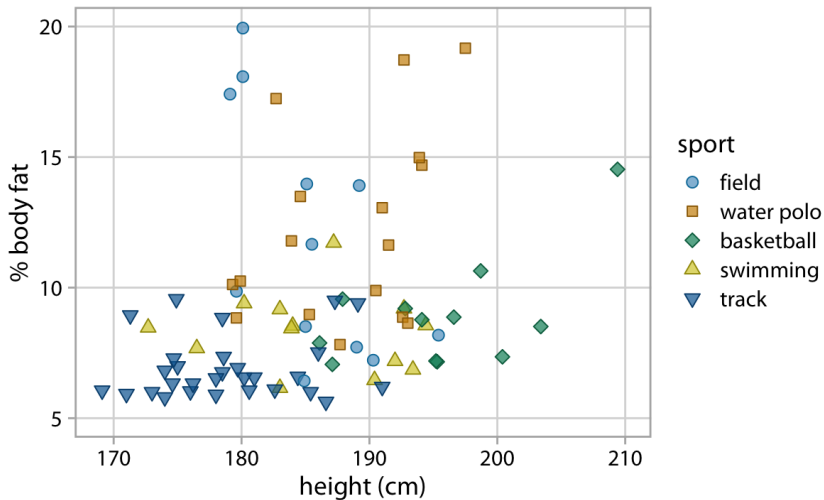
Too little non-data ink



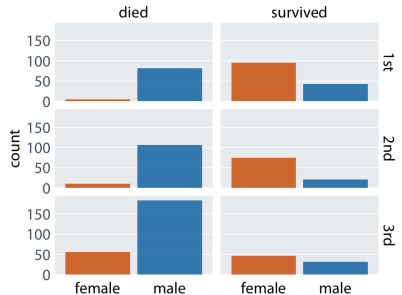
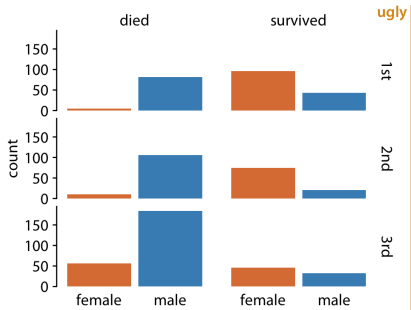
Goldilocks non-data ink



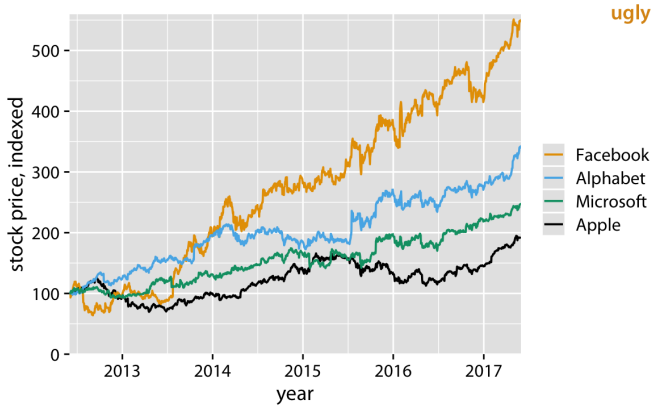
Frame is optional



Background grids

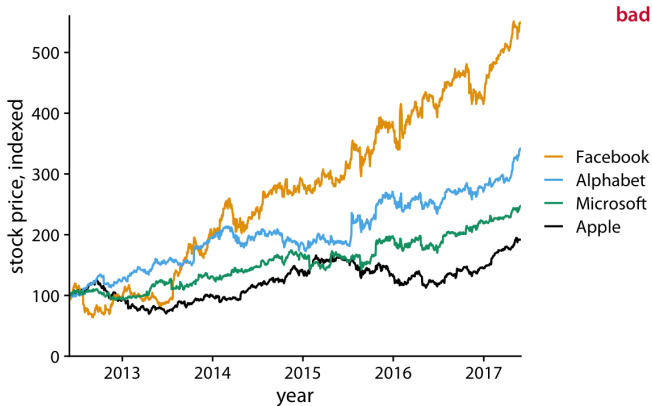


Background grids



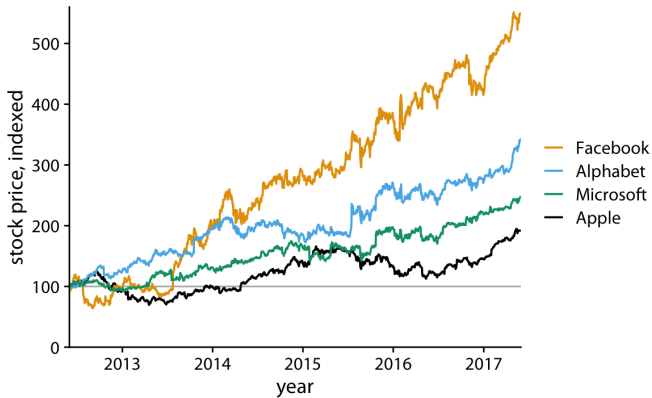
- a little busy and distracting
- helps the plot to be perceived as a single visual entity
- prevents the plot to appear as a white box in surrounding dark text
- really depends on the formatting of the text and the design of the figure

Background grids

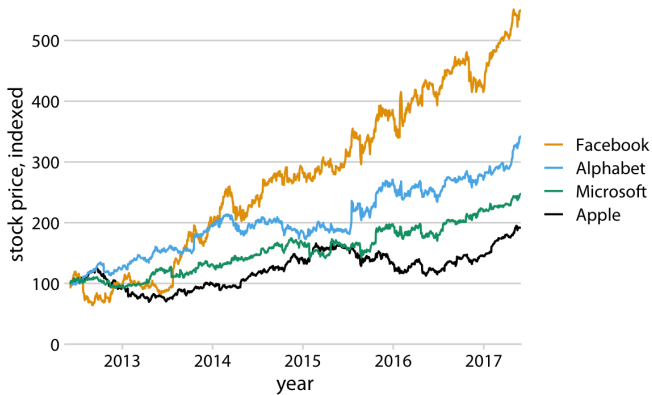


- data lines not sufficiently anchored

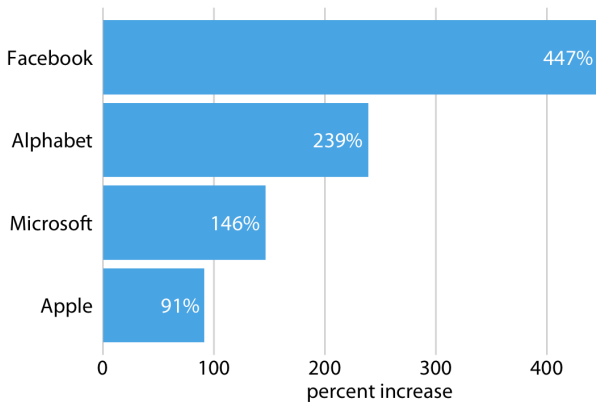
Data normalized to $y = 100$



Better set of reference lines

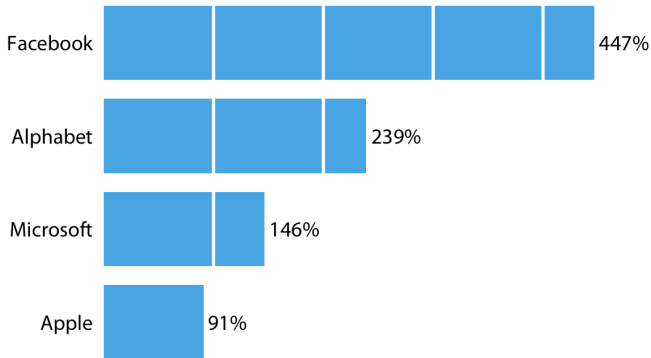


Reference lines perpendicular to data



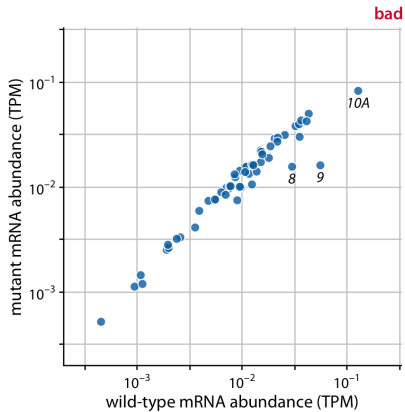
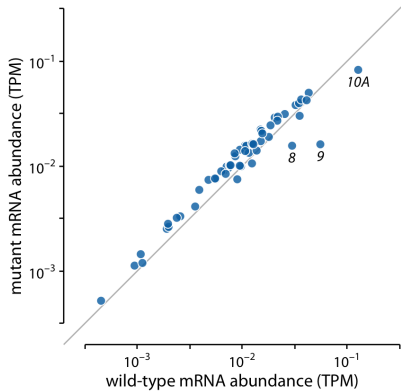
- Grid lines that run perpendicular to the key variable of interest tend to be the most useful.

Grid lines on the bars



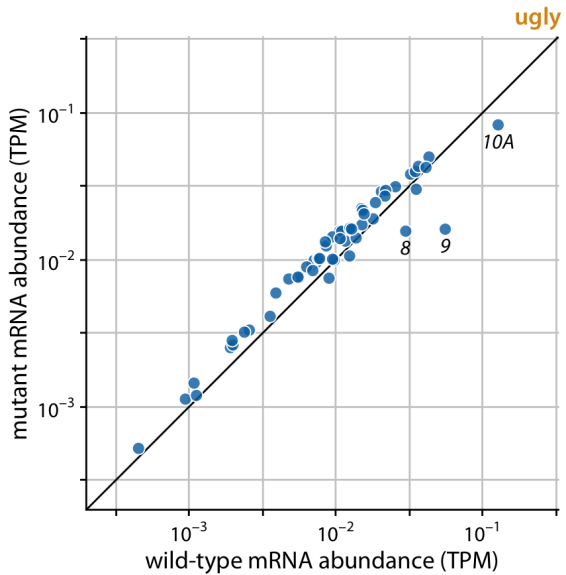
- helps the reader to perceive bar lengths
- the bars look like they are falling apart and don't form a clear visual unit
- have to move the percentage values outside the bars

Paired data



45° line better than grid

Paired data



Too busy?

The right amount of context

- Both overloading a figure with non-data ink and excessively erasing non-data ink can result in poor figure design.
- We need to find a healthy medium:
 - the data points are the main emphasis of the figure
 - sufficient context is provided about what data is shown

Background grids

- Think carefully about which specific grid or guide lines are most informative for the plot you are making, and then only show those.
- Minimal, light grids on a white background recommended
- A shaded background can help the plot appear as a single visual entity