Fundamentals of Data Visualization

Chapter 4

April 25, 2023

Color as a tool to distinguish

- Discrete items that do not have an intrinsic order.
  - coutries on a map
  - manufacturere of a product
- A finite set of specific colors chosen to:
- look clearly distinct from each other, but
- not stand out from each other, and
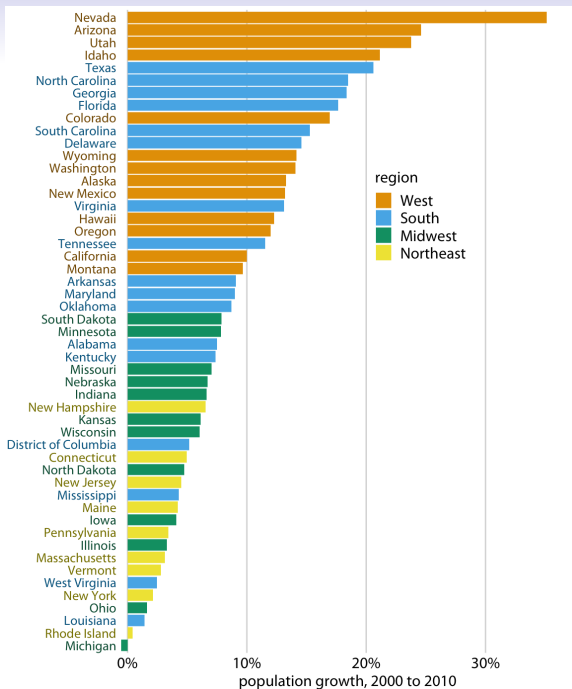- not create the impression of an order.

Okabe Ito

ColorBrewer Dark2

ggplot2 hue

population growth, 2000 to 2010

Color to represent data values

- Sequential color scale
- Which values are larger or smaller
- How distant the values are from each other
  - scale needs to be perceived to vary uniformly
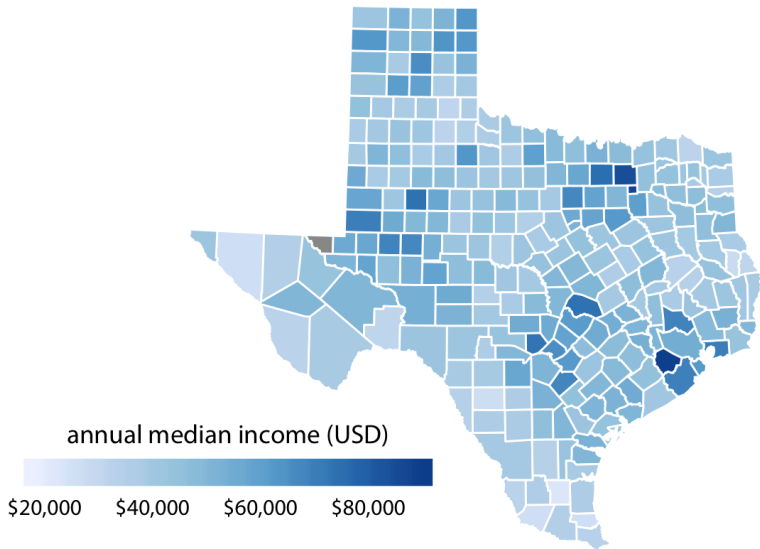- Can be based on single hue or multiple hues

ColorBrewer Blues

Heat

Viridis

annual median income (USD)
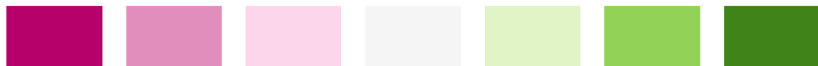
$20,000 $40,000 $60,000 $80,000

Color to represent deviation from norm

- Diverging color scale
- Neutral is usually a light color
- Two extremes are contrasting colors
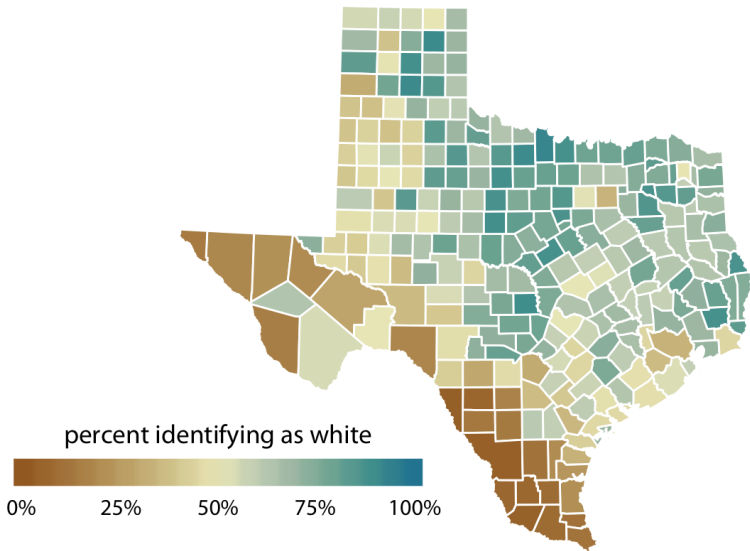- Extremes should be balanced in value

CARTO Earth

ColorBrewer PiYG

Blue-Red

percent identifying as white

0%   25%   50%   75%   100%

Color as a tool to highlight

- Some colors vividly stand out
- Accent color scales
    - a set of subdued colors
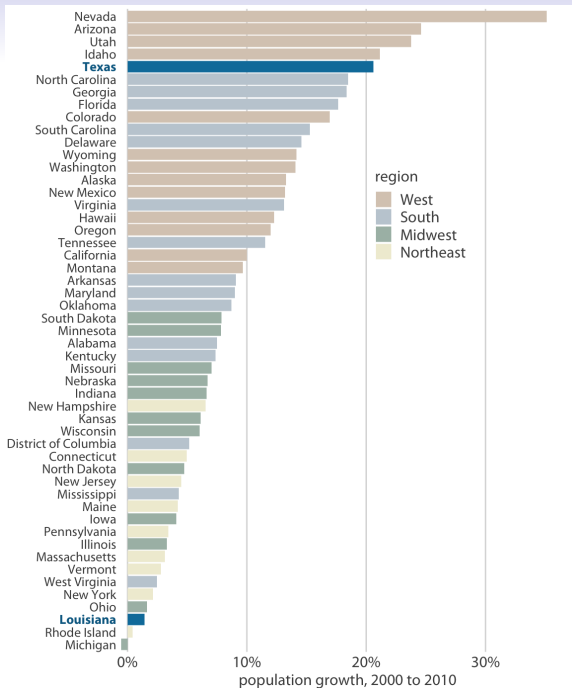   - a matching set of stronger, darker, more saturated colors

Okabe Ito Accent

Grays with accents

ColorBrewer Accent

region
West
South
Midwest
Northeast

population growth, 2000 to 2010

Baseline colors should not compete for attention

- Pick drab colors
- Pick no color