

lecture 15: interactivity, iteration, animation

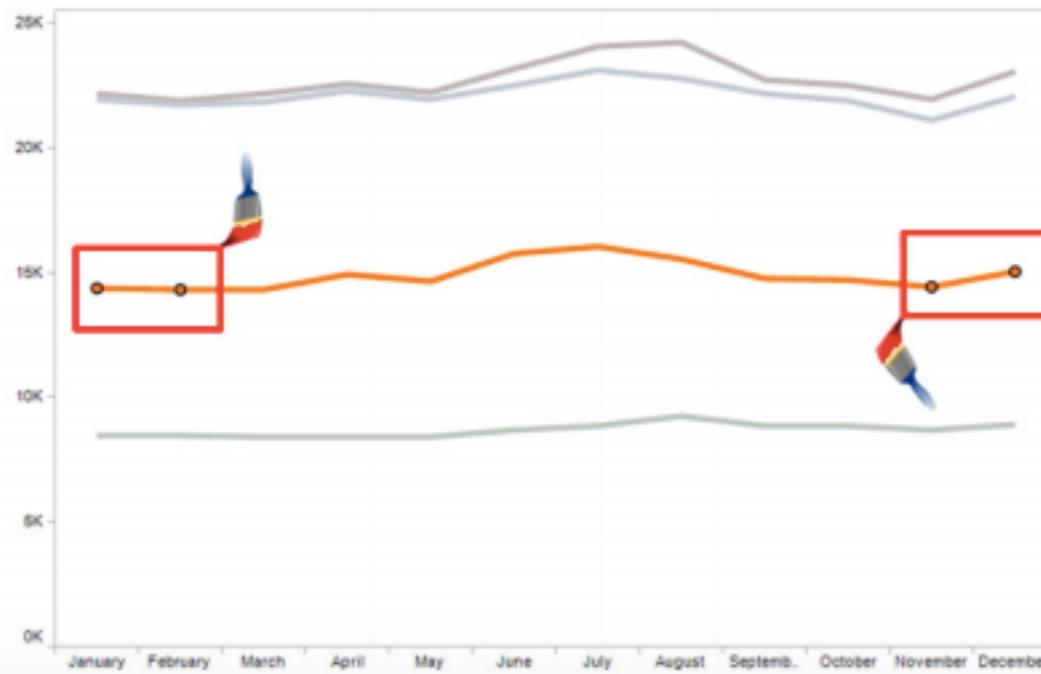
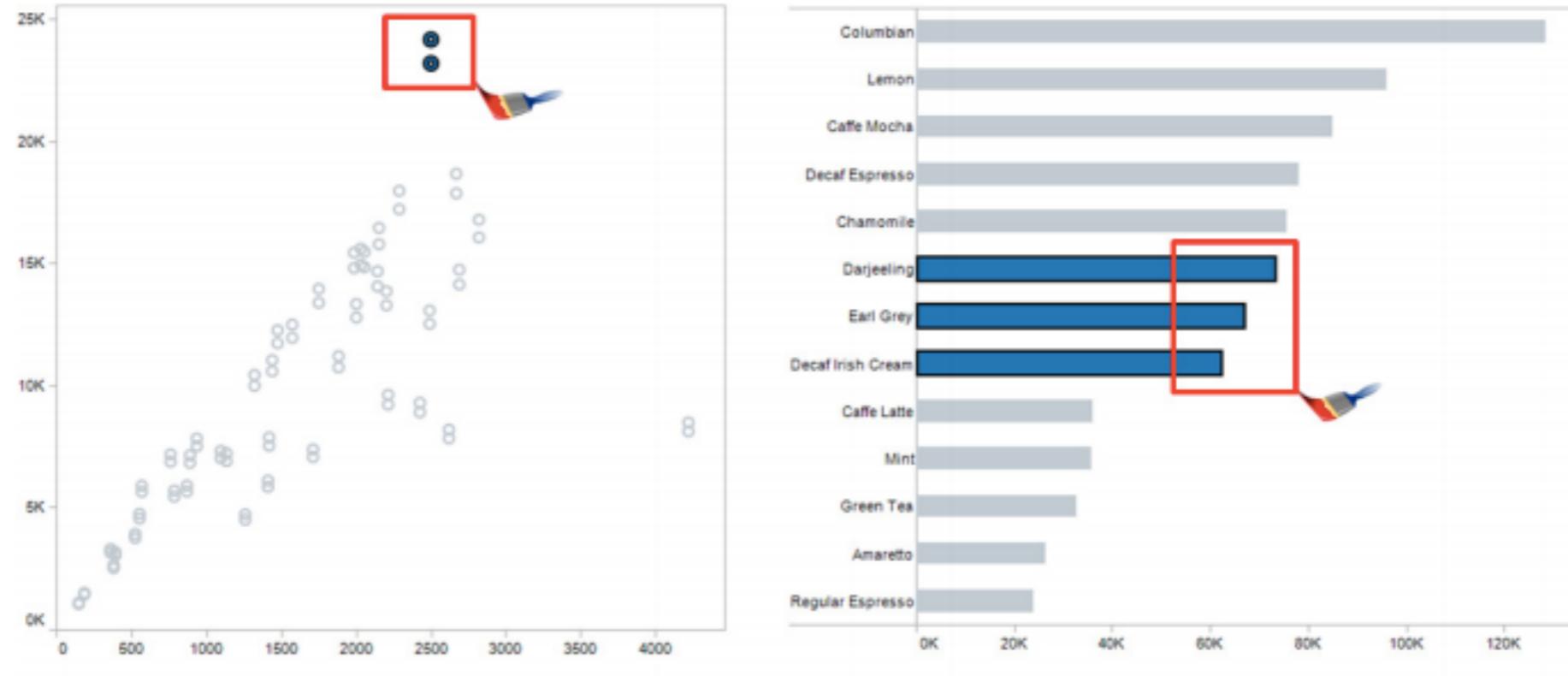
November 29, 2017

Interactivity

Types of interaction

- **Select**: mark something as interesting
- **Explore**: show me something else
- **Reconfigure**: show me a different arrangement
- **Encode**: show me a different representation
- **Abstract/Elaborate**: show me more or less detail
- **Filter**: show me something conditionally
- **Connect**: show me related items

Select: mark something as interesting

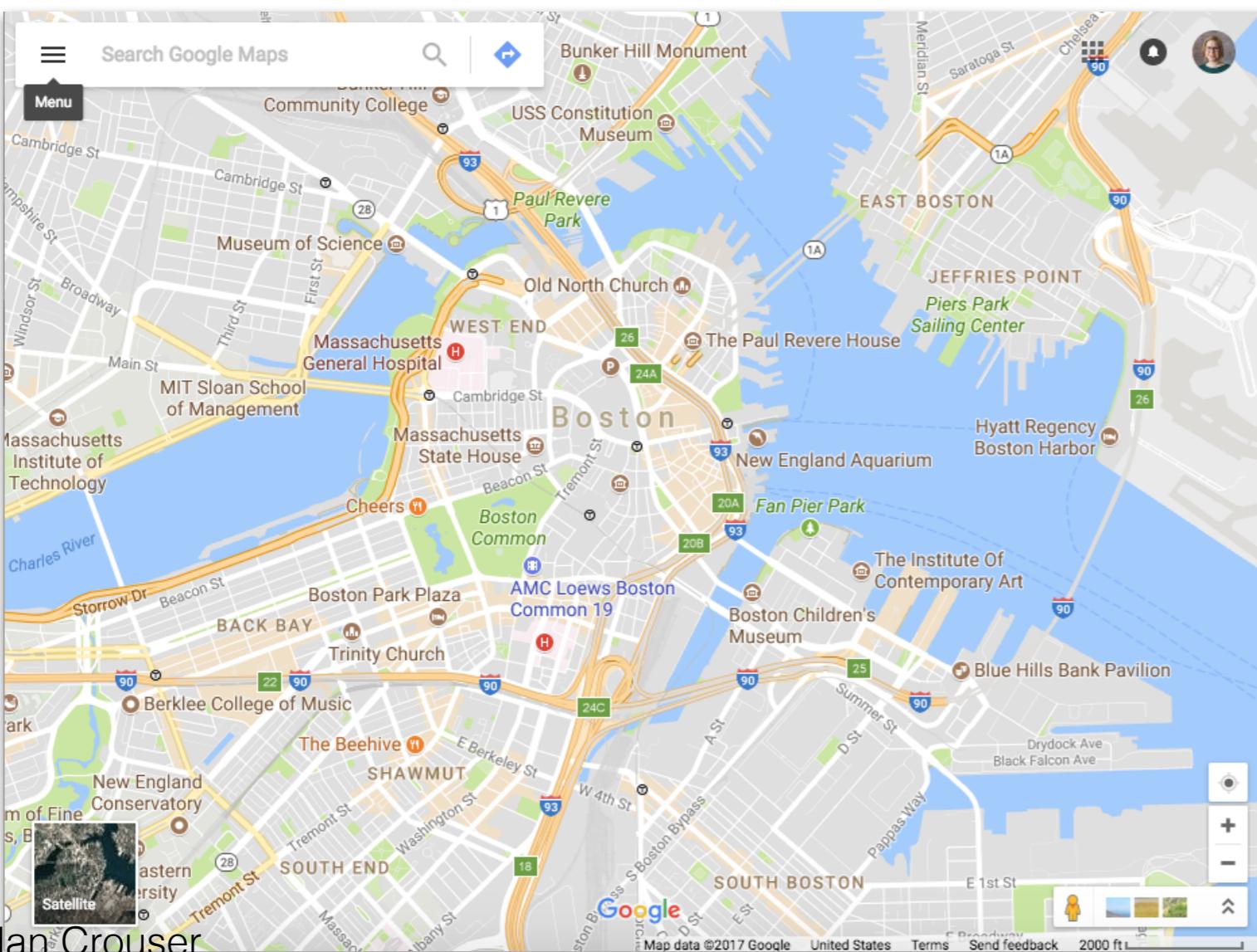


Stephen Few. (2010). Coordinated highlighting in context.

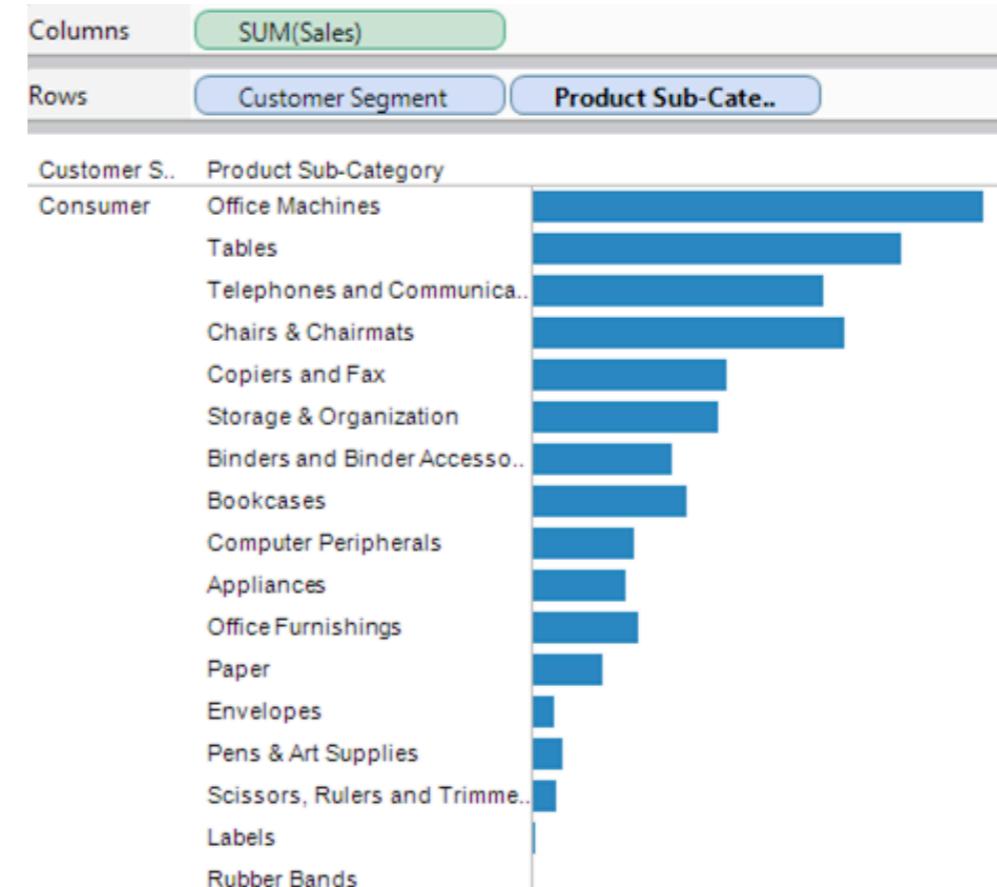
https://www.perceptualedge.com/articles/visual_business_intelligence/coordinated_highlighting_in_context.pdf

Explore: show me something else

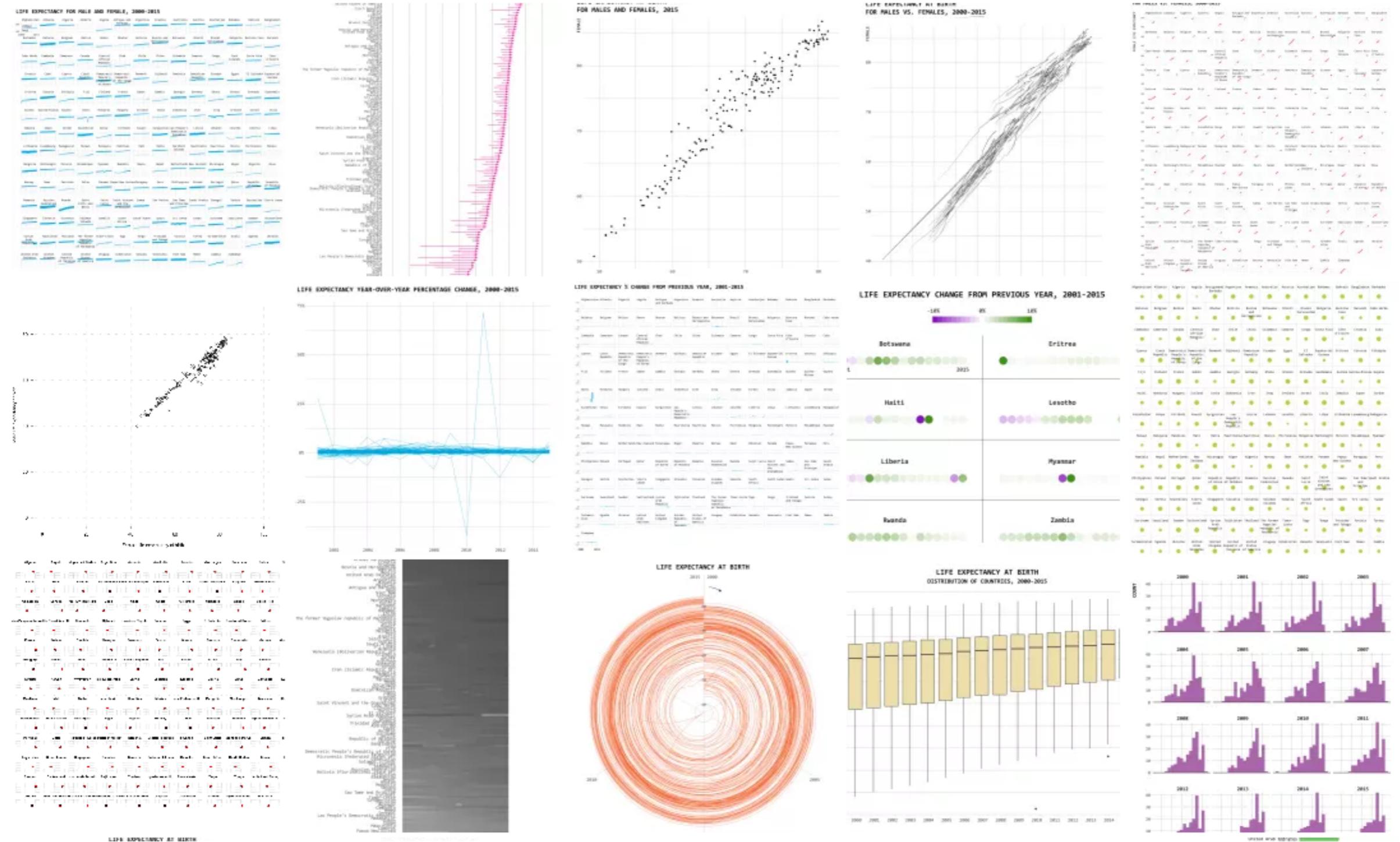
- Scroll bars (scrollytelling)
- Panning
- Steppers
- Direct walk (e.g. hyperlink travel)



Reconfigure: show me a different arrangement



Encode: show me a different representation

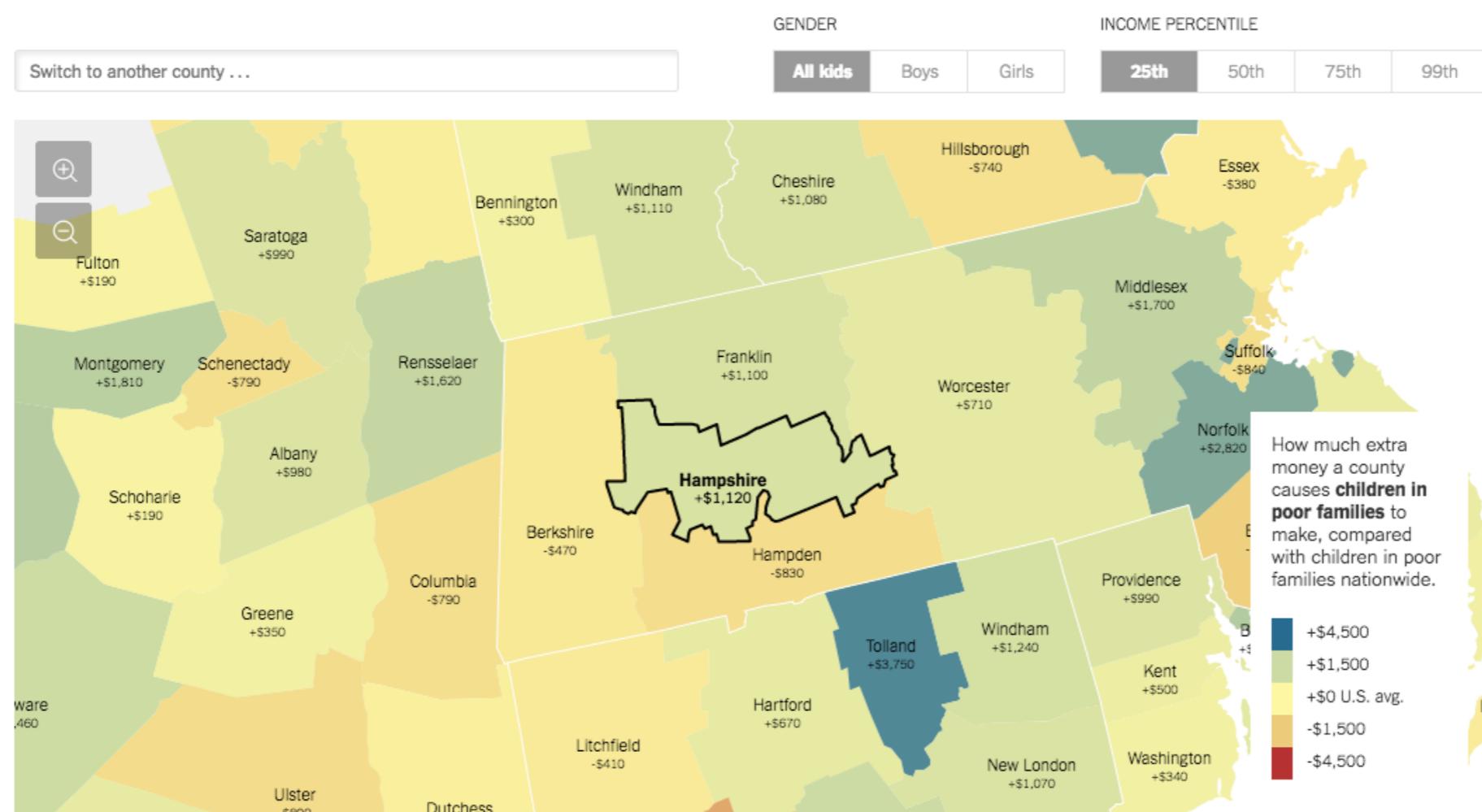


Abstract/Elaborate: show me more or less detail

The Best and Worst Places to Grow Up: How Your Area Compares

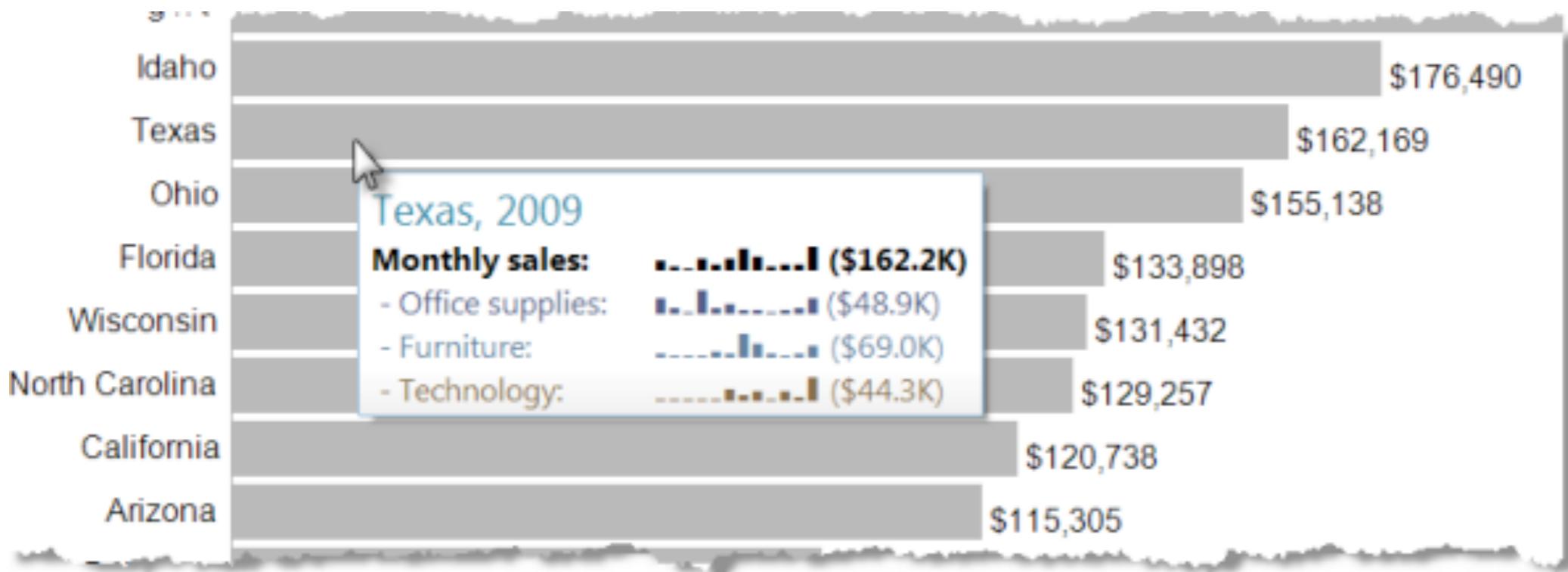
MAY 4, 2015

Children who grow up in some places go on to earn much more than they would if they grew up elsewhere. [RELATED ARTICLE](#)

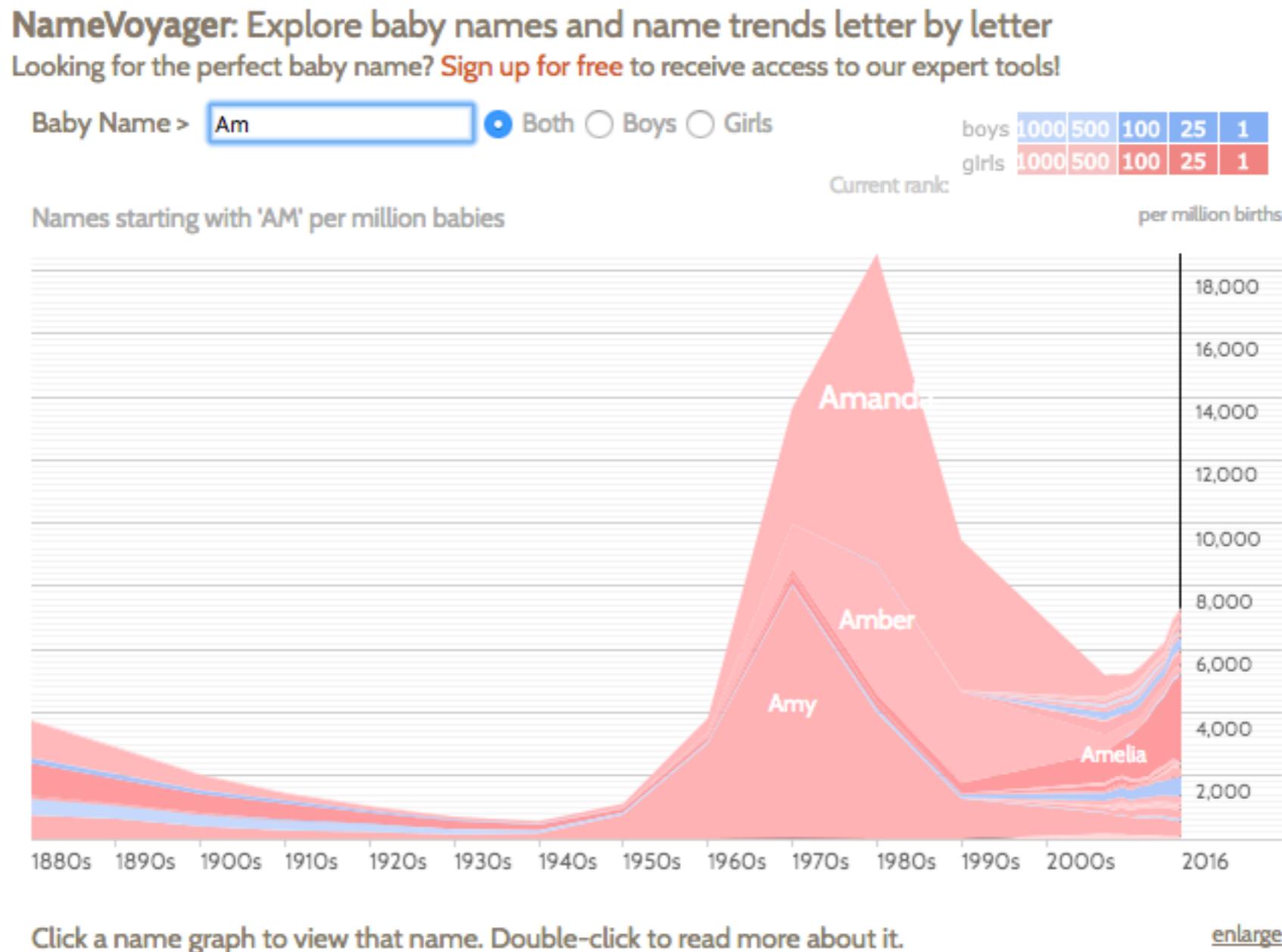


Hampshire County is about average for income mobility for children in poor families. It is better than about 57 percent of counties.

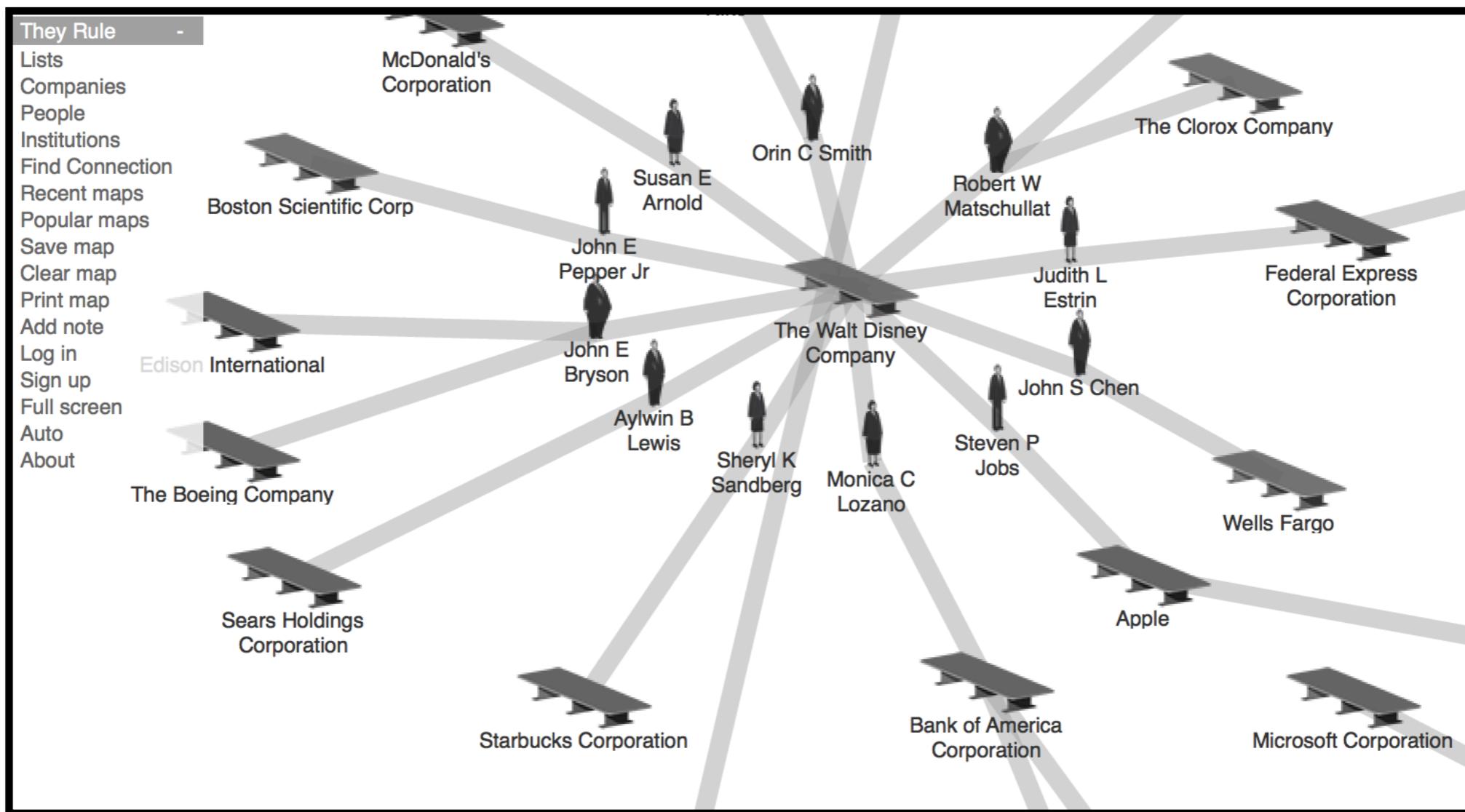
Abstract/Elaborate: show me more or less detail



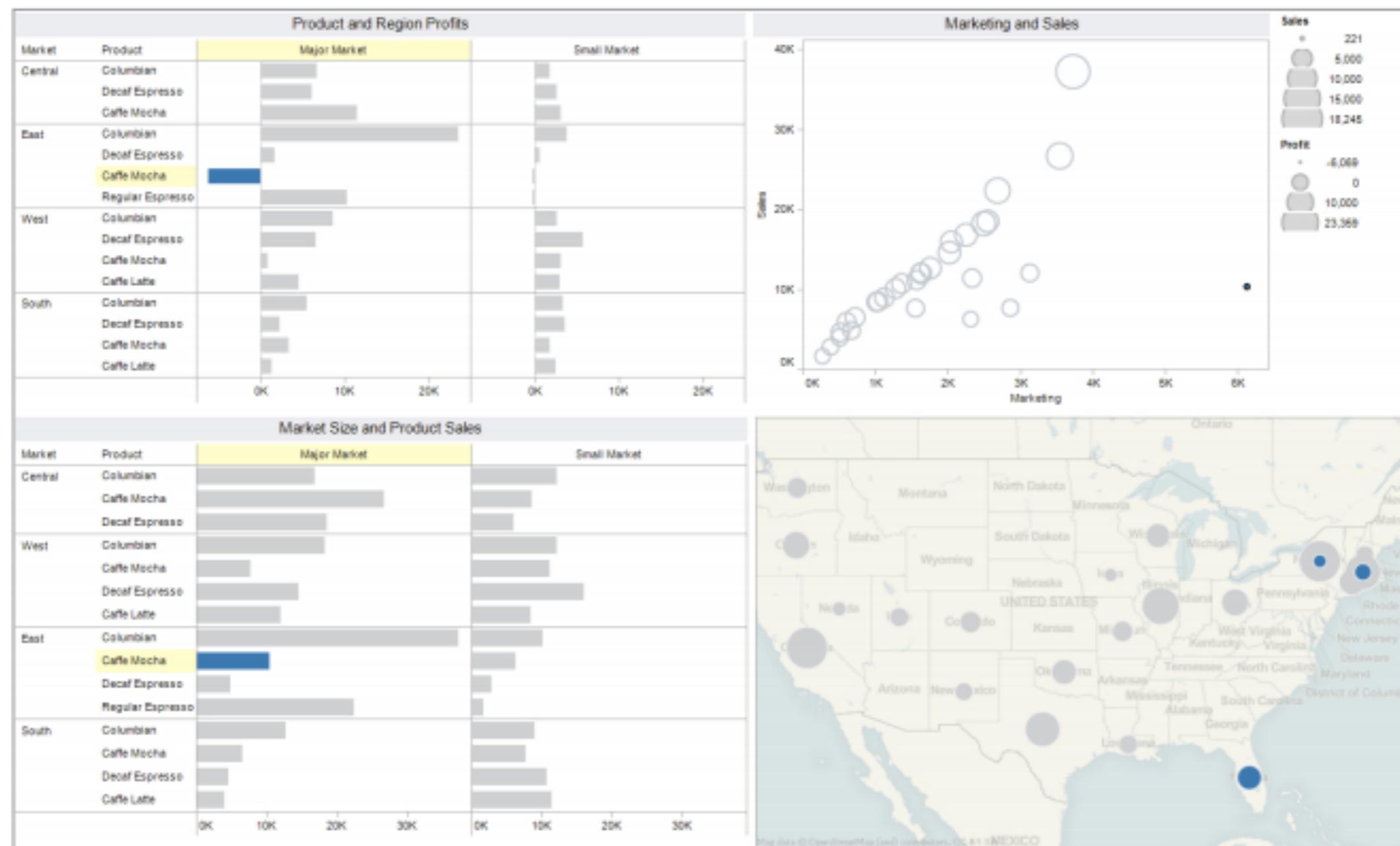
Filter: show me something conditionally



Connect: show me related items



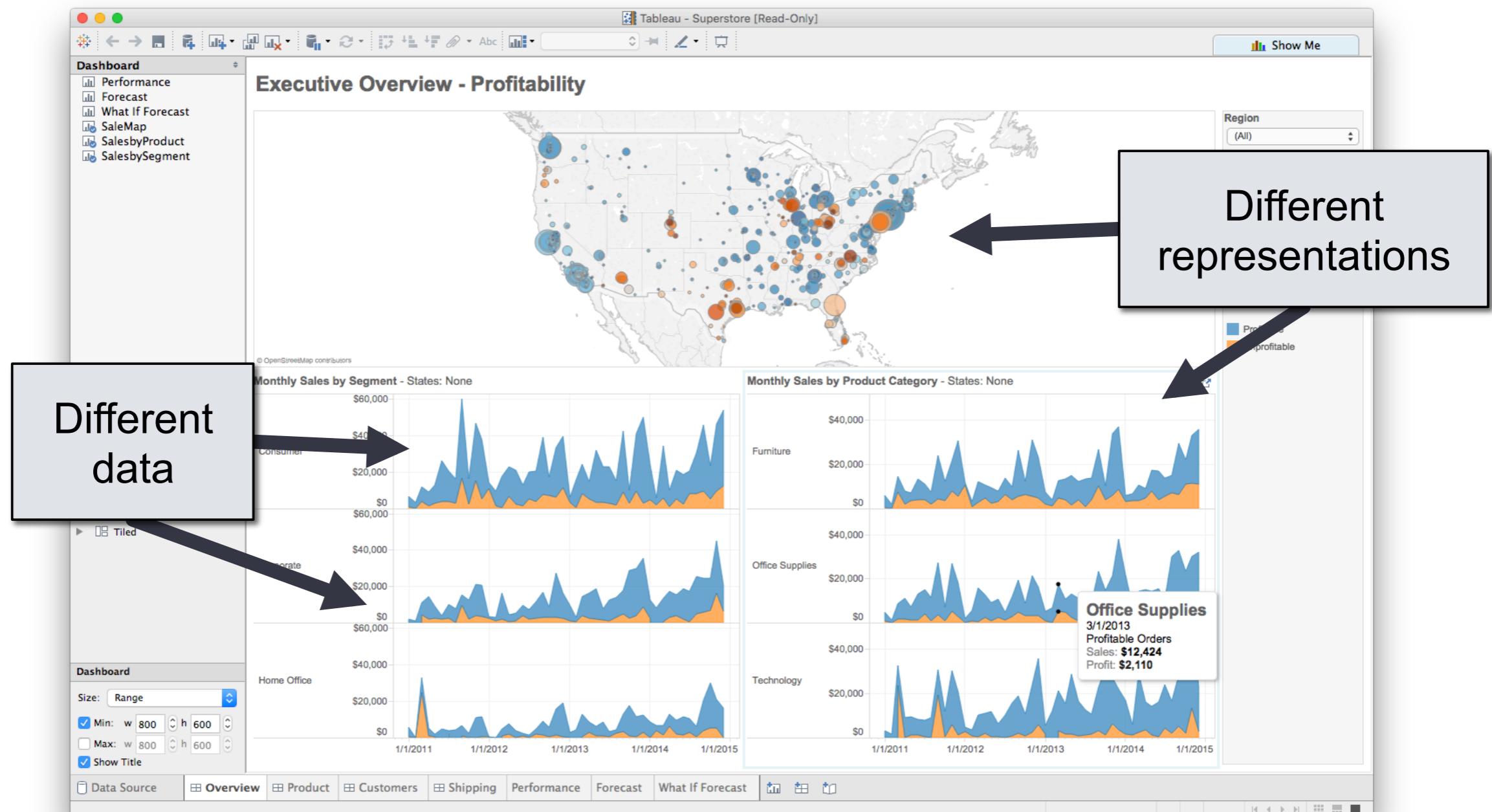
Connect: show me related items



Stephen Few. (2010). Coordinated highlighting in context.

https://www.perceptualedge.com/articles/visual_business_intelligence/coordinated_highlighting_in_context.pdf

Multiple views



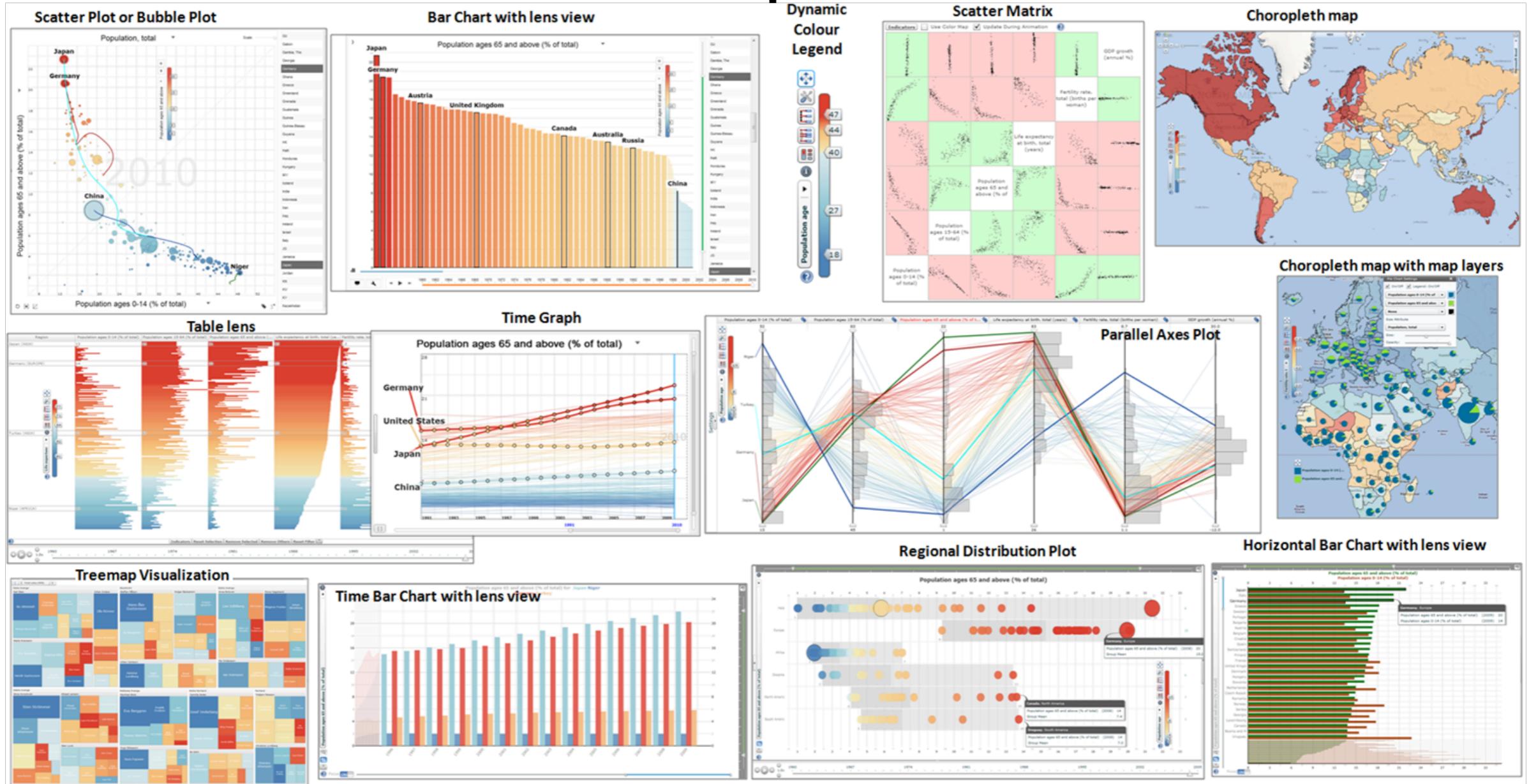
Systems that use **two or more distinct views**

to support the exploration of a single concept or domain

Why use multiple views?

- The data is too big
 - Lots of attributes
 - Lots of observations
- The data is too complicated
 - Lots of data sources
 - Lots of data types
- The data has several interesting parts, but no one visualization highlights them all

Problems with multiple views-resource optimization



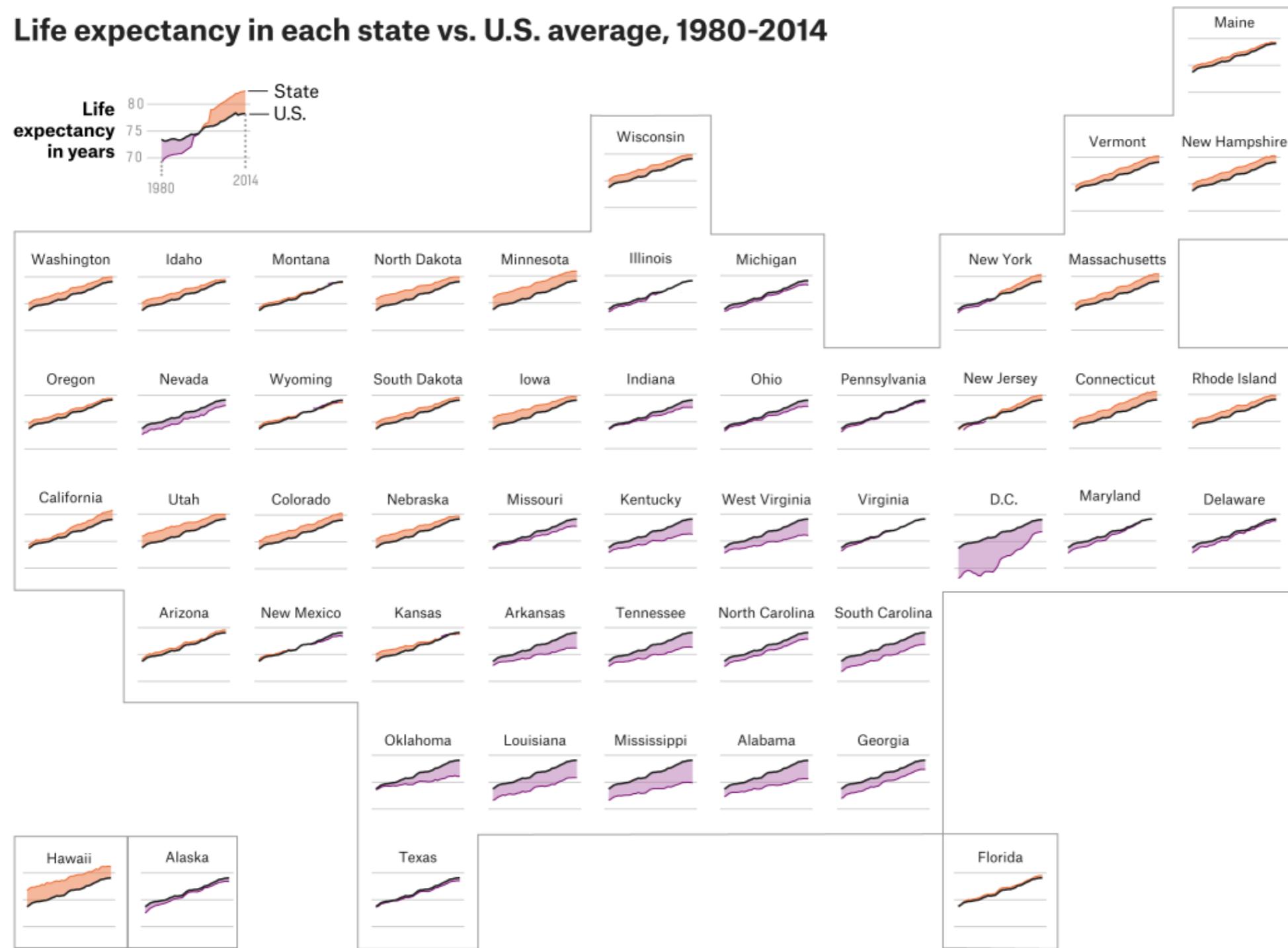
Guidelines for multiple views

- Balance the **costs** of presenting multiple views with the **benefits** of using the views
- Split complex data into multiple views to create **manageable chunks**
- Use views that are complimentary, bringing out **correlations and/or disparities**
- Use **perceptual cues** to:
 - make relationships more apparent to the reader
 - focus the reader's attention on the right view at the right time

Iteration

Small multiples

Life expectancy in each state vs. U.S. average, 1980-2014



FiveThirtyEight

SOURCE: INSTITUTE FOR HEALTH METRICS AND EVALUATION

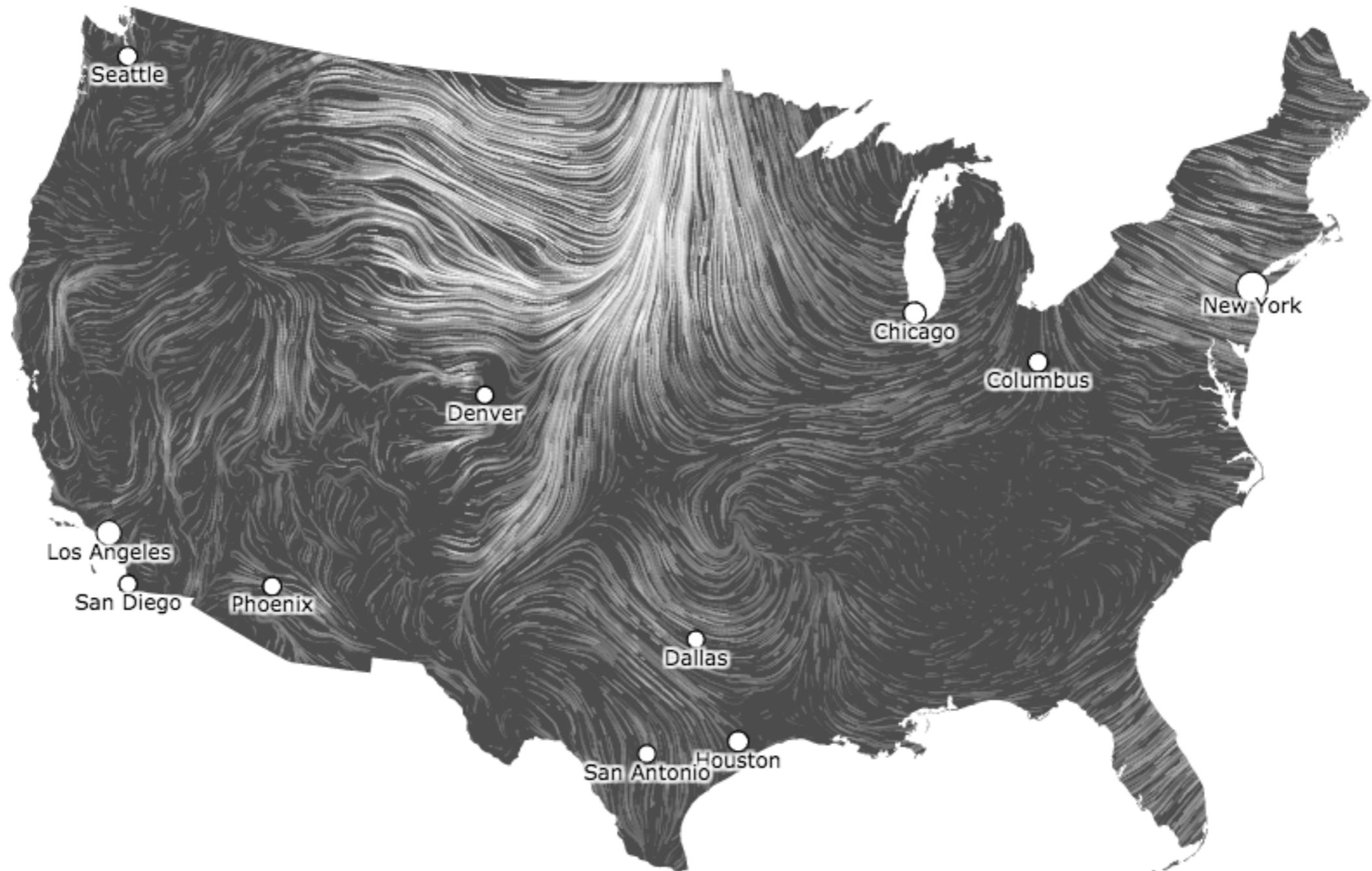
Small things



Lena Groeger on small things (5 min) <https://vimeo.com/91429794>
(25 min) <https://www.youtube.com/watch?v=ZPAp3Fxx7TE>

Animation

As encoding

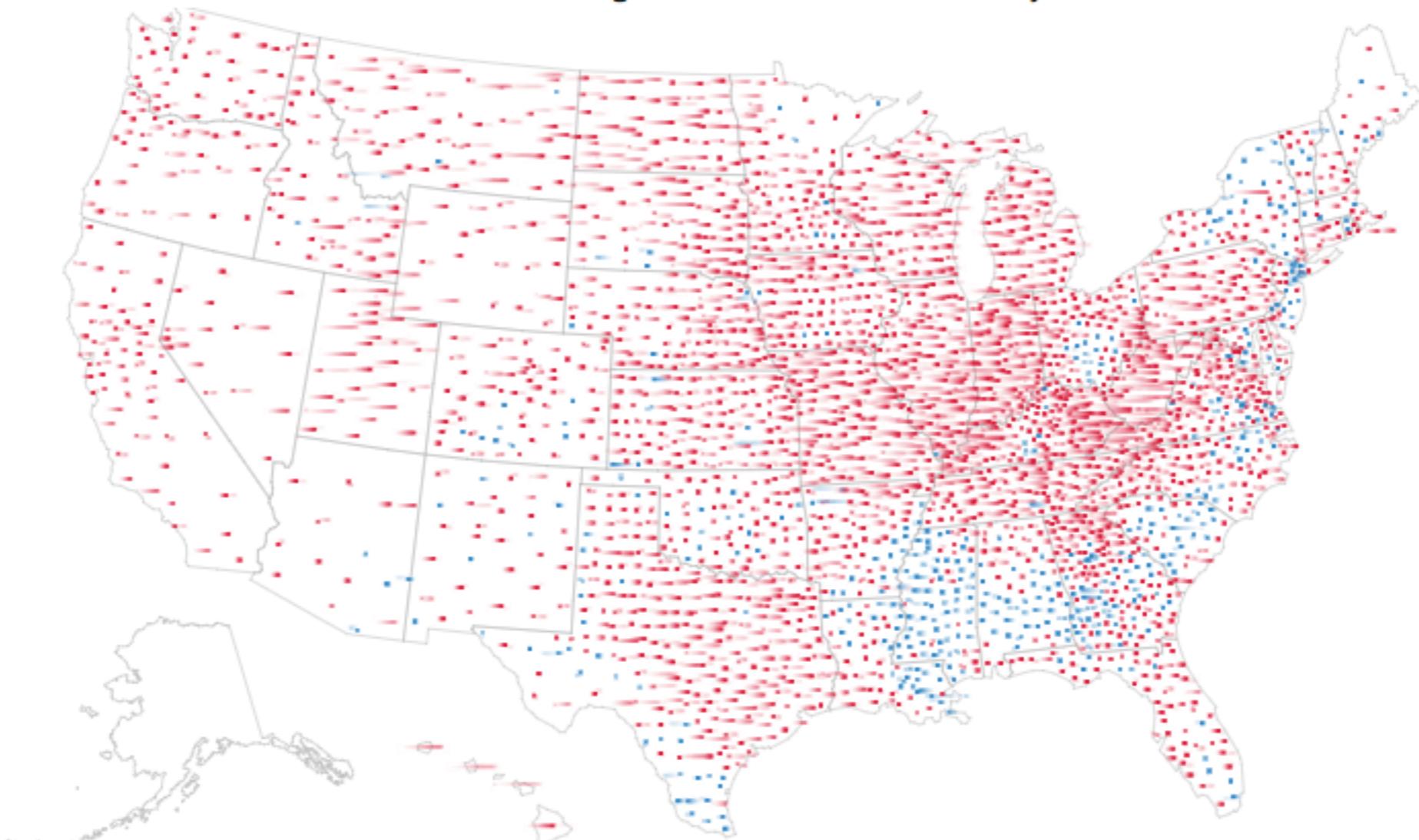


Romney's Shift Wasn't Enough

2008

2012

Most of the nation shifted to the right in Tuesday's vote,
but not far enough to secure a win for Mitt Romney.



Became more: — Democratic — Republican

Presidential Election Results: Donald J. Trump Wins

AUG. 9, 2017, 9:00 AM ET

Donald J. Trump won [the Electoral College](#) with 304 votes compared to 227 votes for Hillary Clinton. Seven electors voted for someone other than their party's candidate.

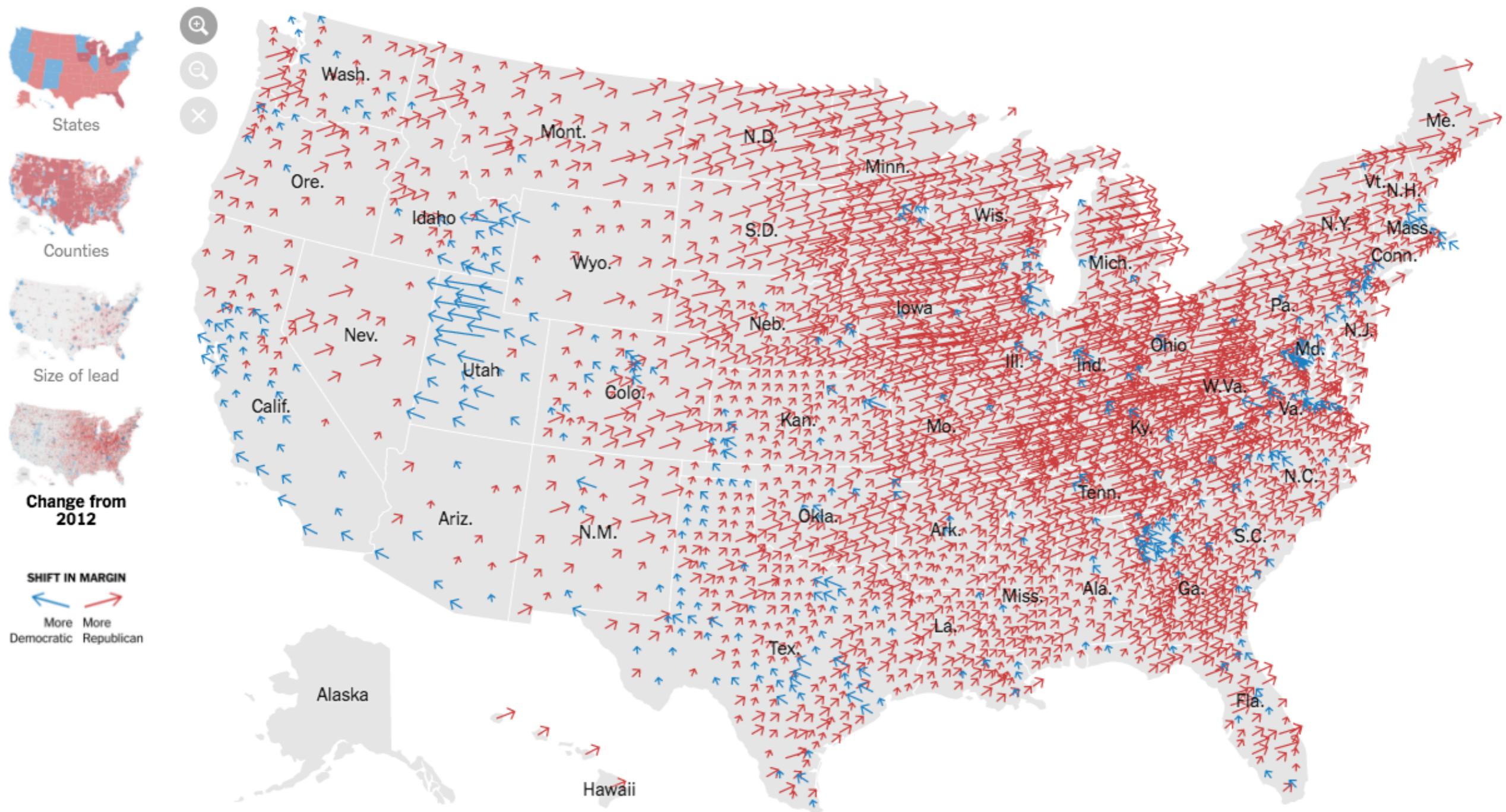
232 Hillary Clinton

65,853,625 votes (48.0%)

270 to win

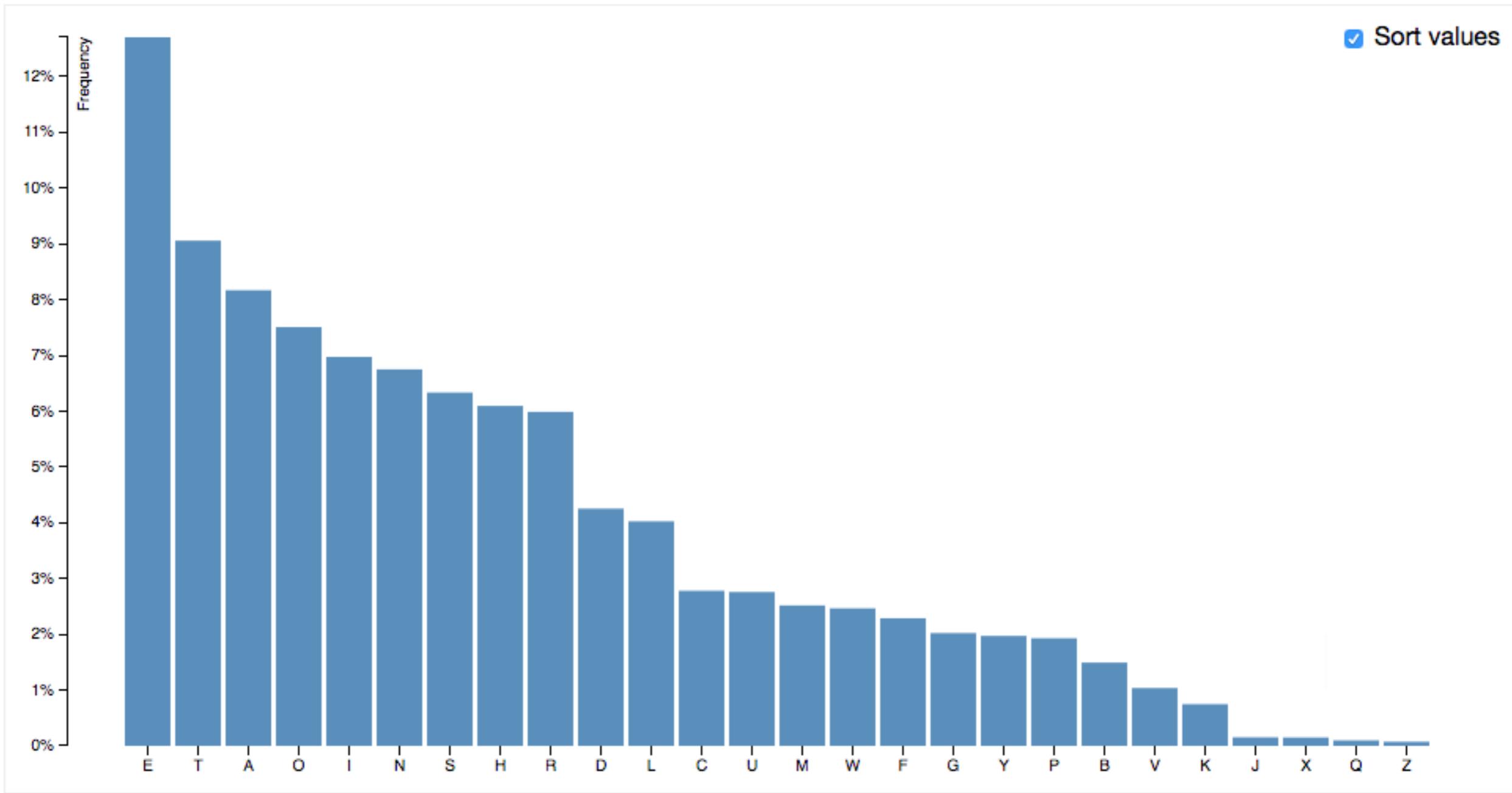
✓ Donald J. Trump 306

62,985,106 votes (45.9%)



As transition

Sortable Bar Chart



Four Ways to Slice Obama's 2013 Budget Proposal

Explore every nook and cranny of President Obama's federal budget proposal.

[All Spending](#)[Types of Spending](#)[Changes](#)[Department Totals](#)

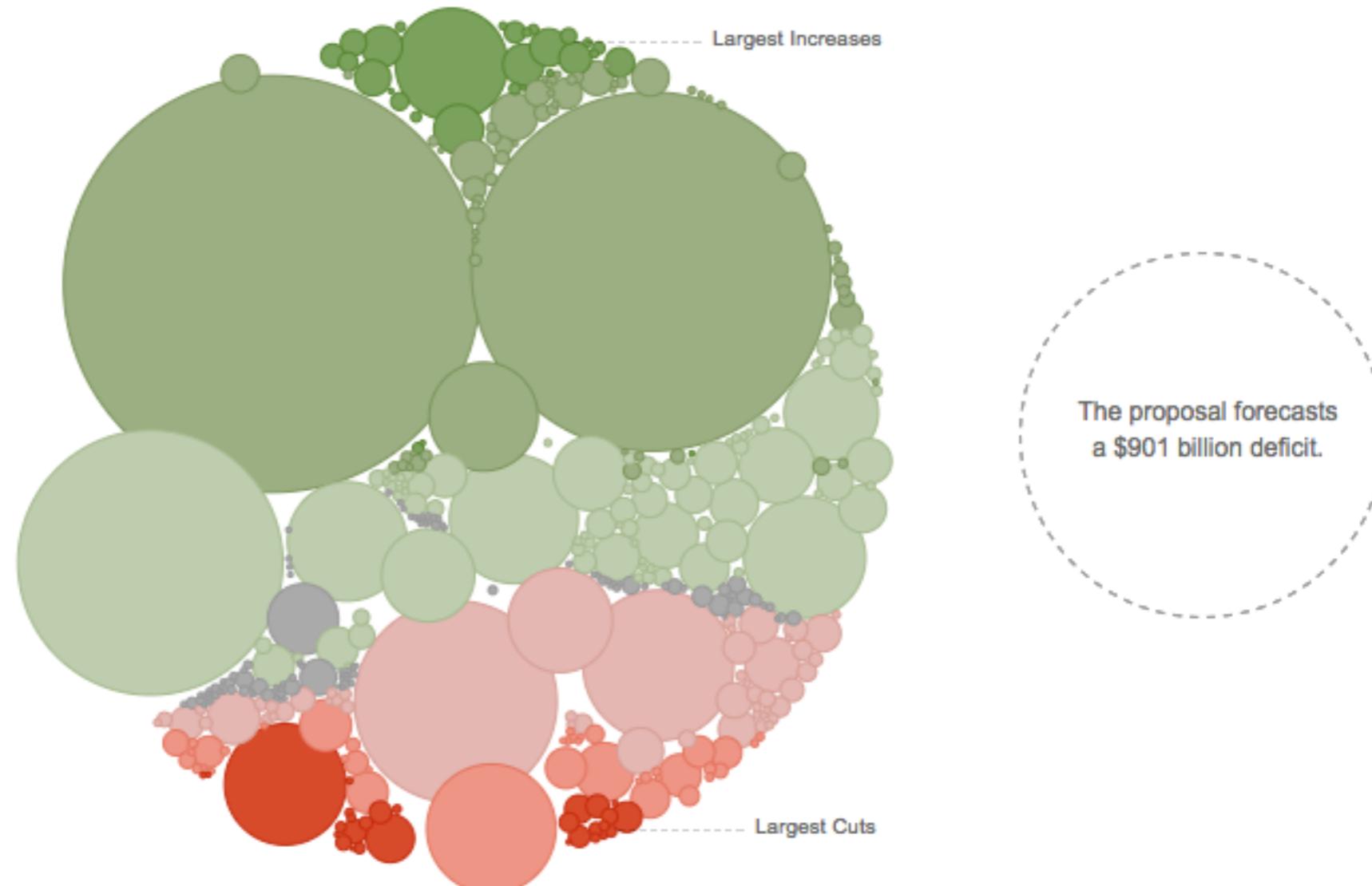
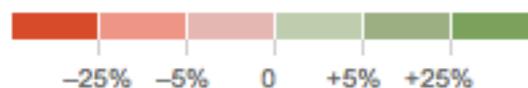
How \$3.7 Trillion Is Spent

Mr. Obama's budget proposal includes \$3.7 trillion in spending in 2013, and forecasts a \$901 billion deficit.

Circles are sized according to the proposed spending.



Color shows amount of cut or increase from 2012.



Lab: dashboards

- Create a dashboard with at least two plots
- Enable cross filter
- Add some text and styling
- Share on #lab8, with a link and screenshot

Plotly Community Feed

Search charts by Plotly users

Type to search



Handpicked

Chart Type



Loading plots...

DEVELOPERS

Python
R & Shiny
MATLAB
JavaScript
REST API

COMPANY

About
Industries
Blog
Modern Data
PLOTCON

RESOURCES

Developer Support
Community Support
Terms
Privacy

DATA SCIENCE

Dash
Plotly.js
Plotly for R & Shiny
Plotly for Python

BUSINESS INTELLIGENCE

Charts
Dashboards
Slide Decks
Database Connectors

Dashboard



This dashboard is empty.

Get started by adding a:

[Plot](#) [Text](#) [Webpage](#)

+ Plot

+ Text

+ Webpage

Share

Save

Dashboard



Enter a title...

Save Remove

Add a Plot

URL Your Files

Select a Plot



accept



Accept and Top



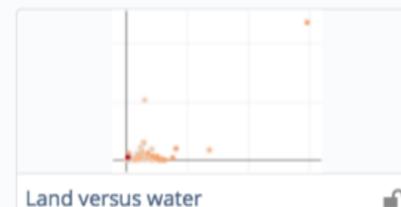
spm



barchart



HouseholdVChildren



Land versus water

< 1 > of 1



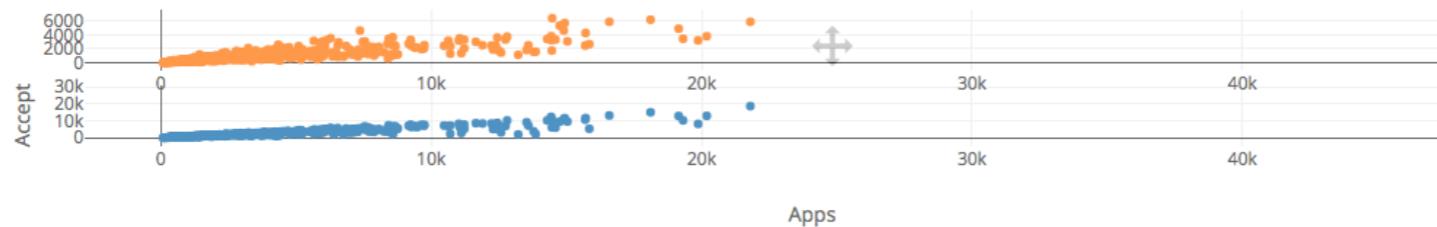
Search Bar Show Hide**Crossfilter** Enable Disable

Dashboard

Enter a title...



Enter a title...



Enter a title...

[+ Plot](#)[+ Text](#)[+ Webpage](#)