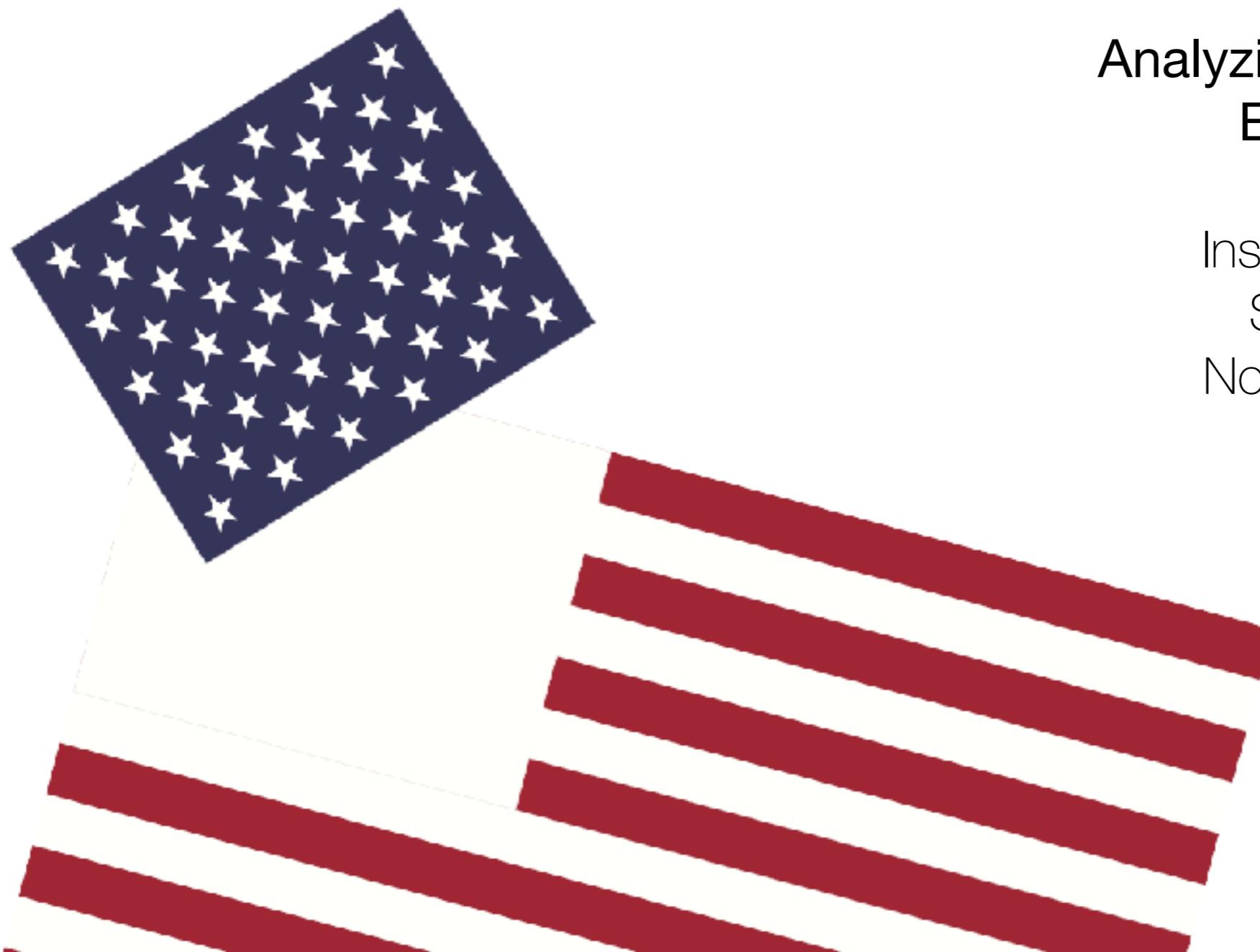


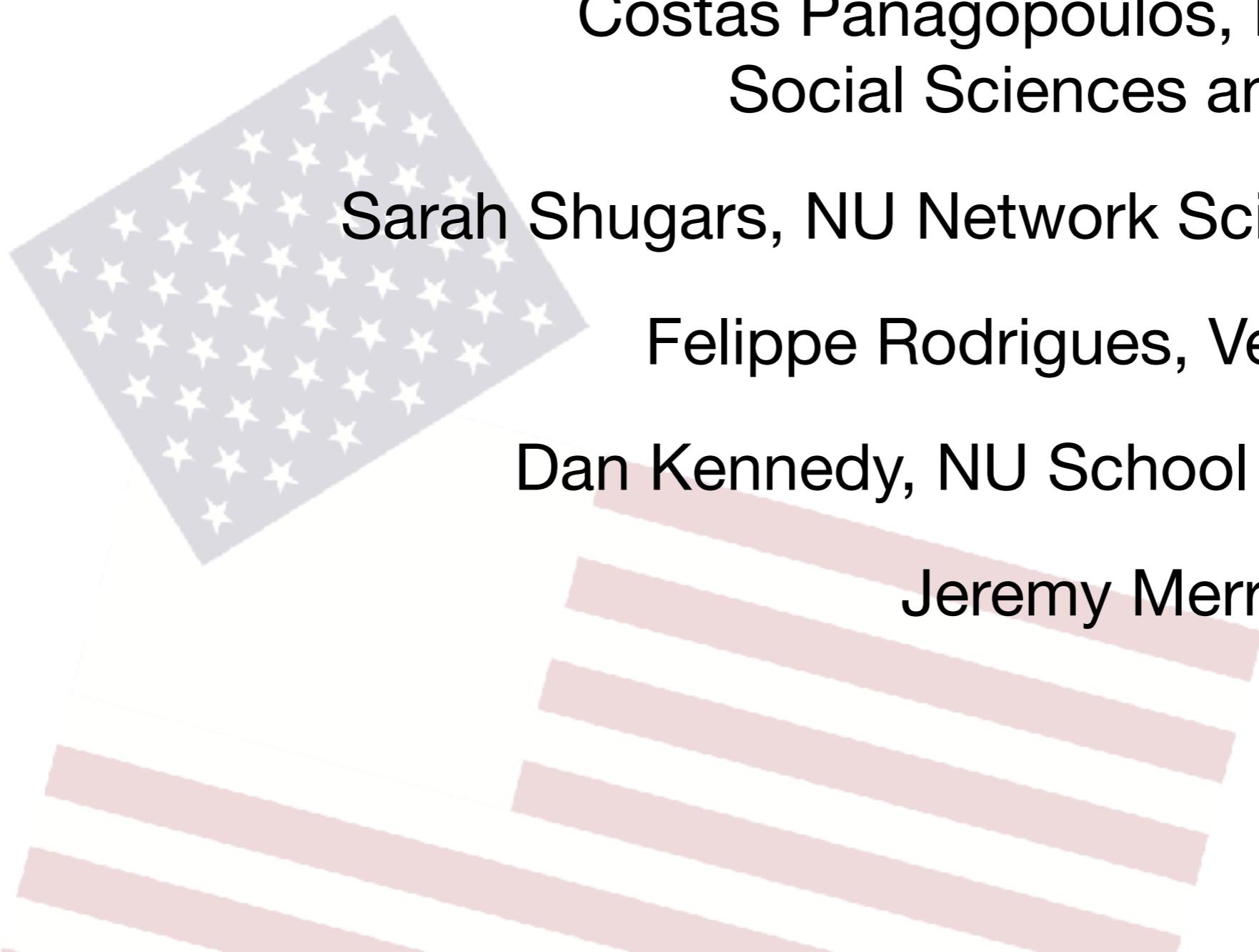
Midterm Mayhem

Analyzing and Visualizing
Elections with Data

Instructor: Aleszu Bajak
School of Journalism
Northeastern University



Midterm Mayhem



Costas Panagopoulos, NU College of
Social Sciences and Humanities

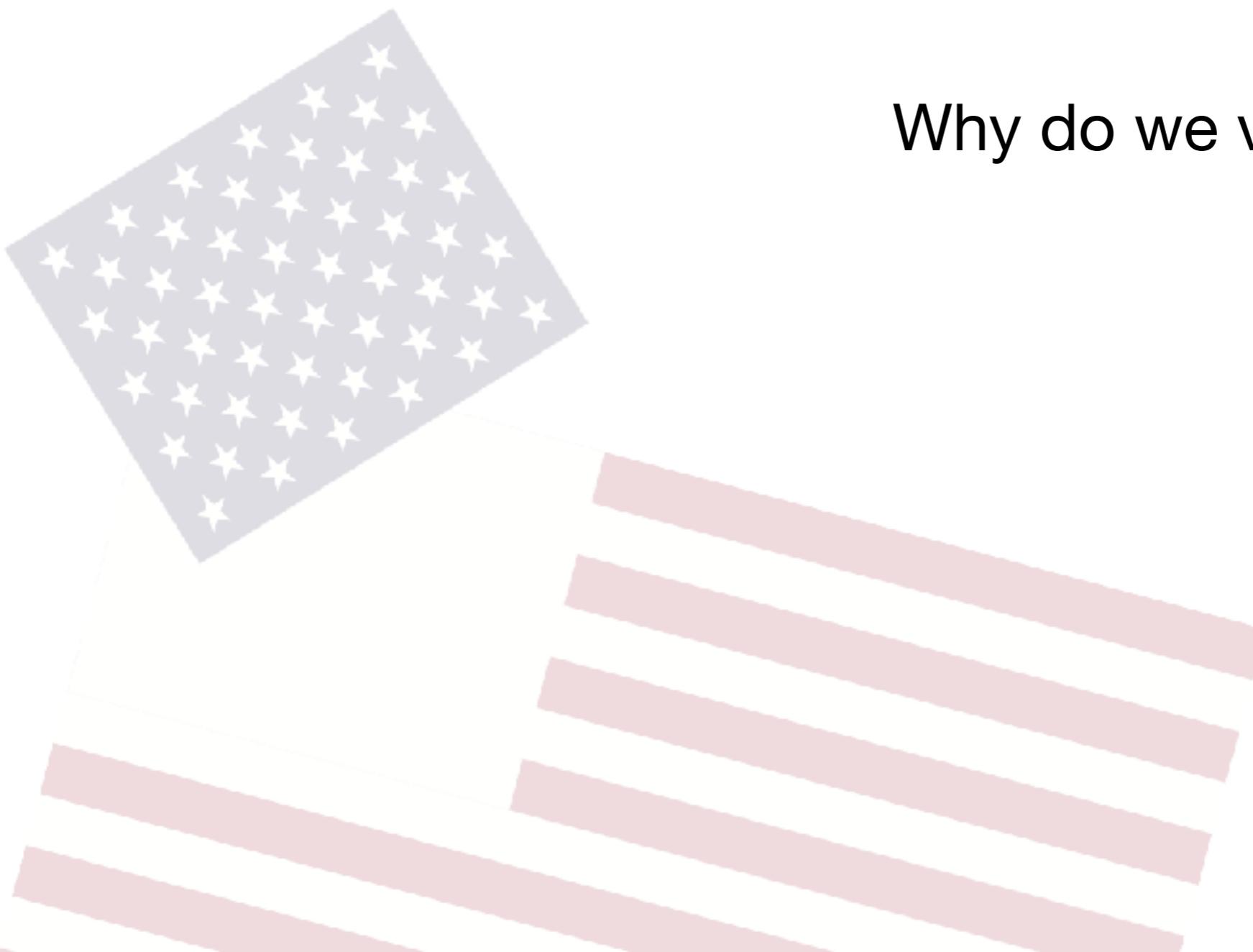
Sarah Shugars, NU Network Science Institute

Felippe Rodrigues, Vermont Digger

Dan Kennedy, NU School of Journalism

Jeremy Merrill, ProPublica

Midterm Mayhem

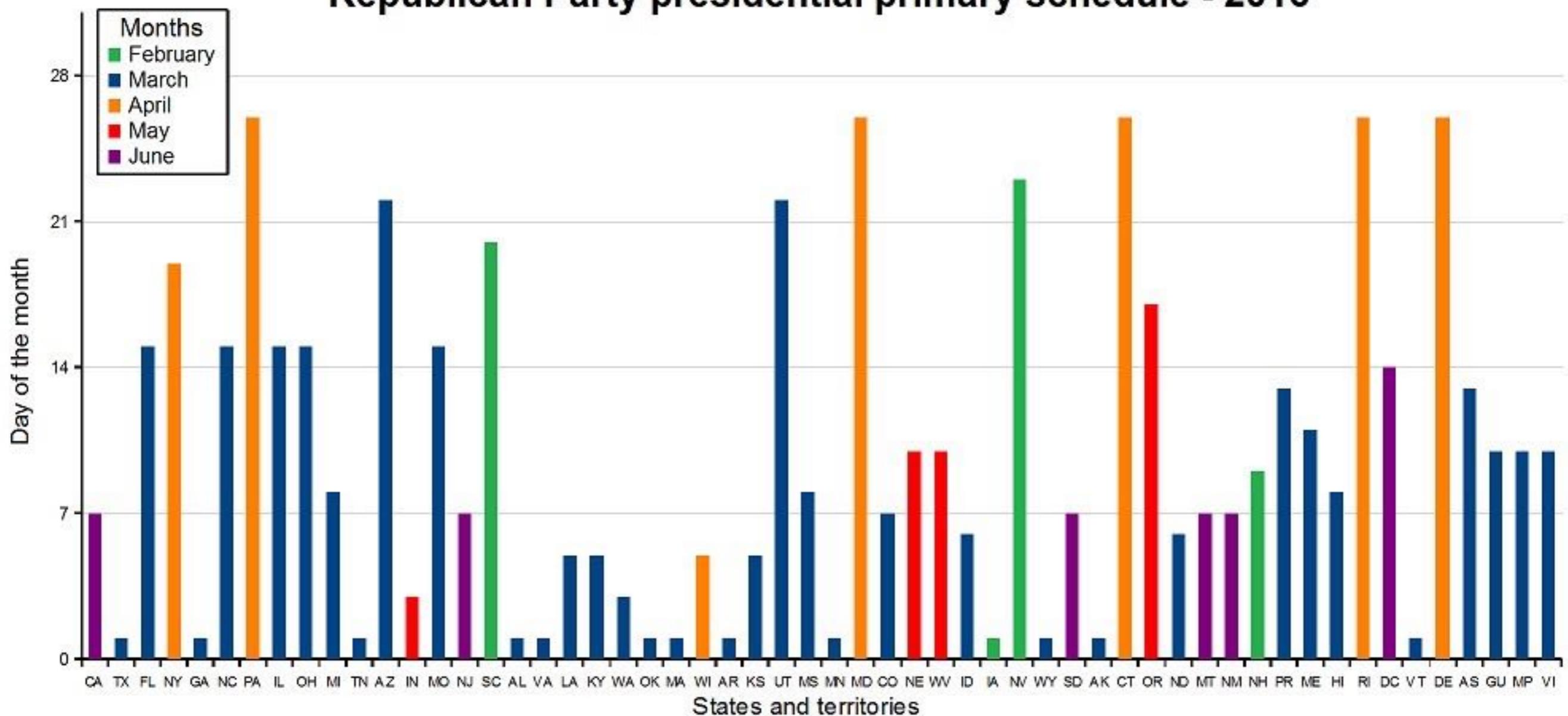


Why do we visualize data?

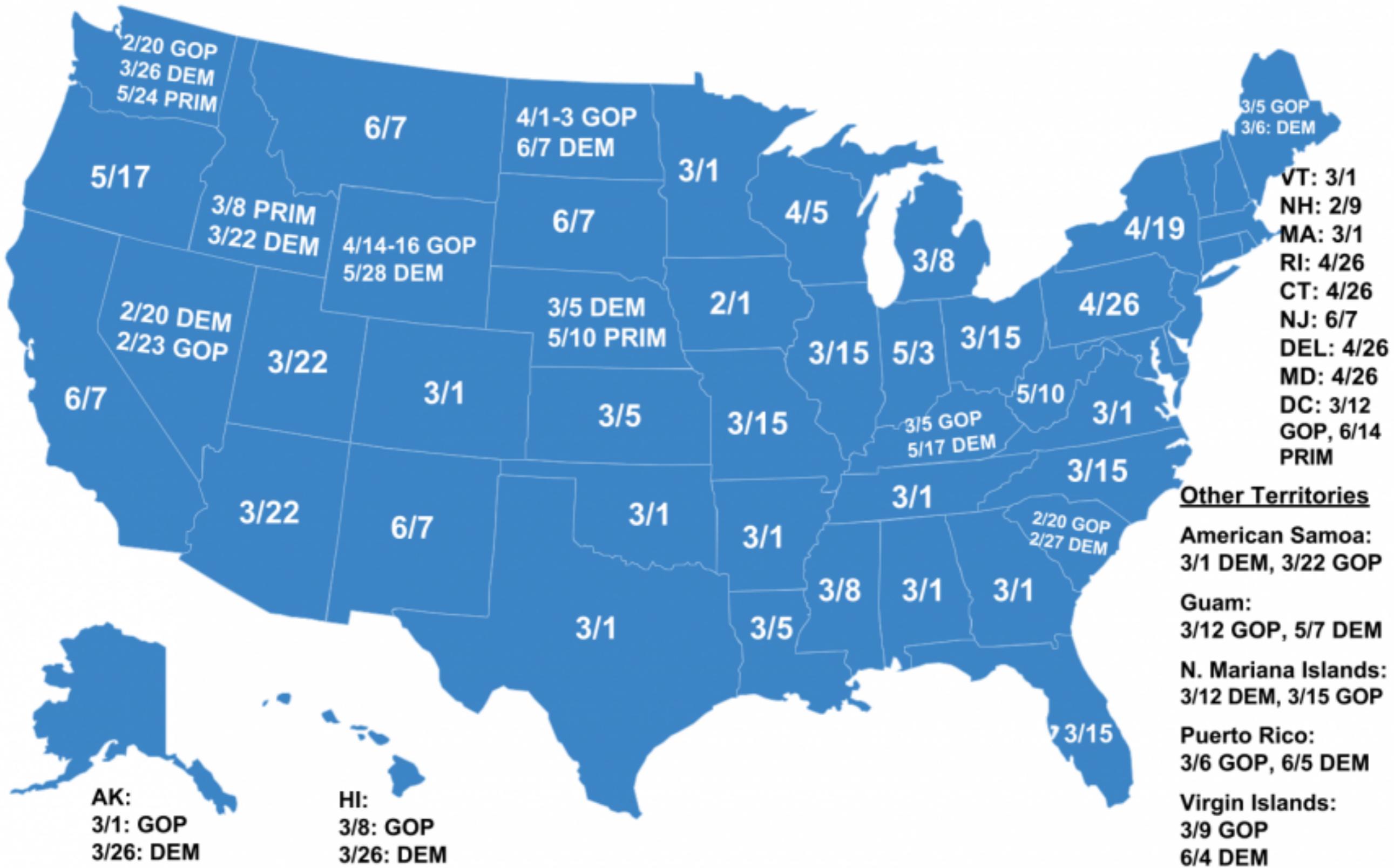
Best practices

Workshop

Republican Party presidential primary schedule - 2016



2016 Presidential Primary Dates By State



Source: Federal Election Commission

Republican Primary Dates

Doug Sosnik

Source: RNC; Winner-Take-All*

DATE	STATE	NUMBER OF PLEDGED DELEGATES AT STAKE	RUNNING TOTAL	% OF PLEDGED DELEGATES ALLOCATED AS OF THIS DATE
2/1/16	IOWA	30	30	1.21%
2/9/16	NEW HAMPSHIRE	23	53	2.14%
2/20/16	SOUTH CAROLINA	50	103	4.17%
2/23/16	NEVADA	30	133	5.38%
	ALABAMA			
	ALASKA			
	ARKANSAS			
	COLORADO			
	GEORGIA			
	MASSACHUSETTS			
	MINNESOTA			
	OKLAHOMA			
	TENNESSEE			
	TEXAS			
	VERMONT			
	VIRGINIA			
	WYOMING			
	NORTH DAKOTA			
	KANSAS			
	KENTUCKY			
	LOUISIANA			
	MAINE			
3/1/16	PUERTO RICO	689	822	33.25%
3/5/16		155	977	39.52
3/6/16		23	1000	40%

DATA



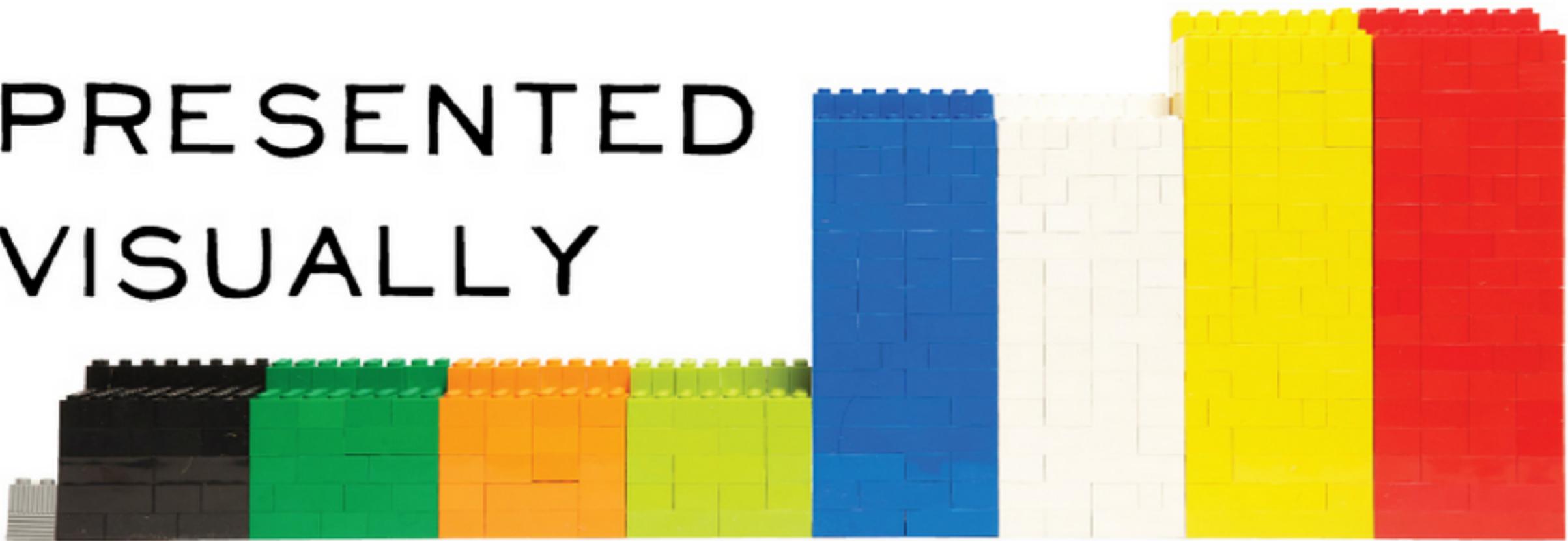
SORTED



ARRANGED

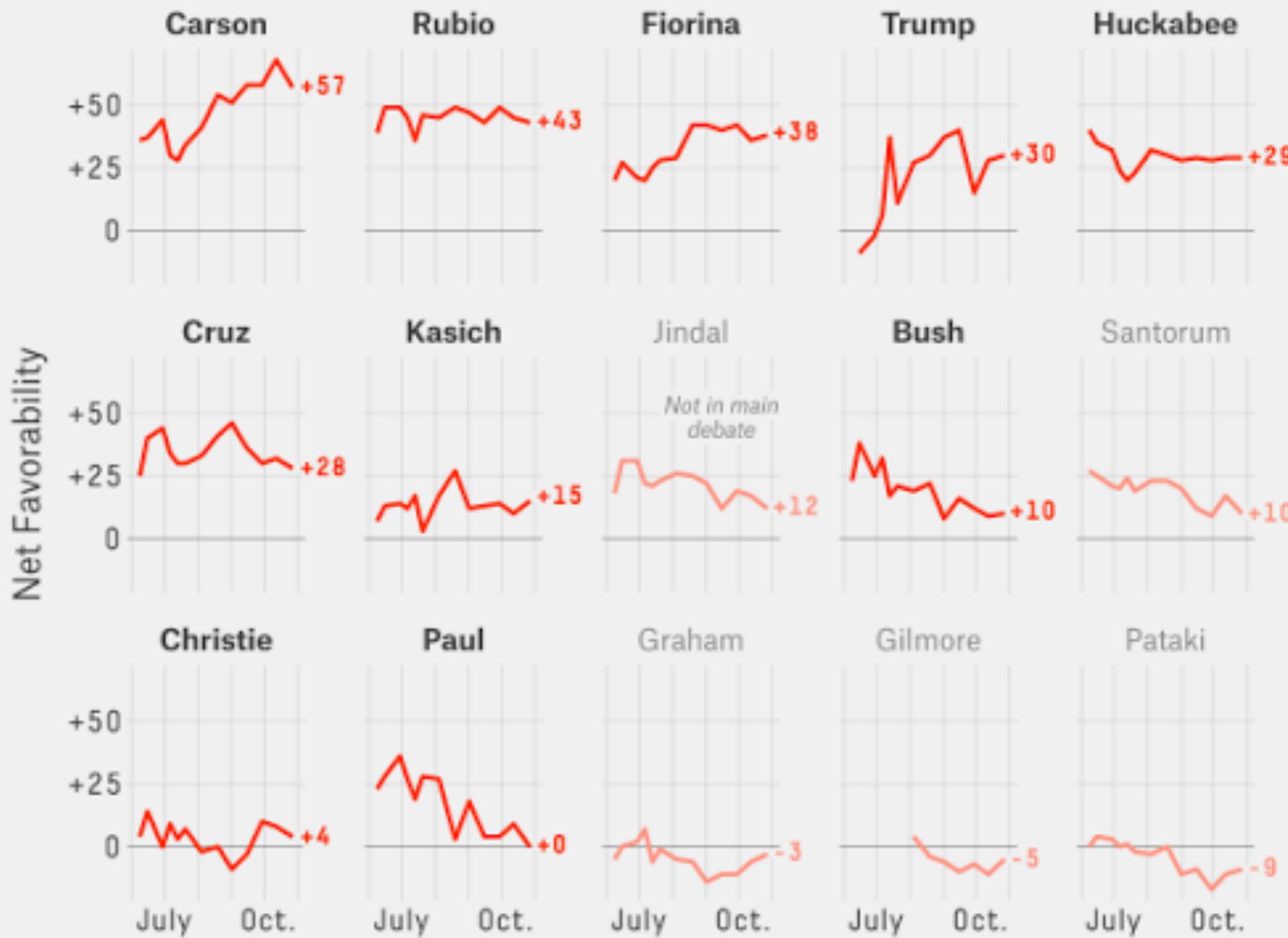


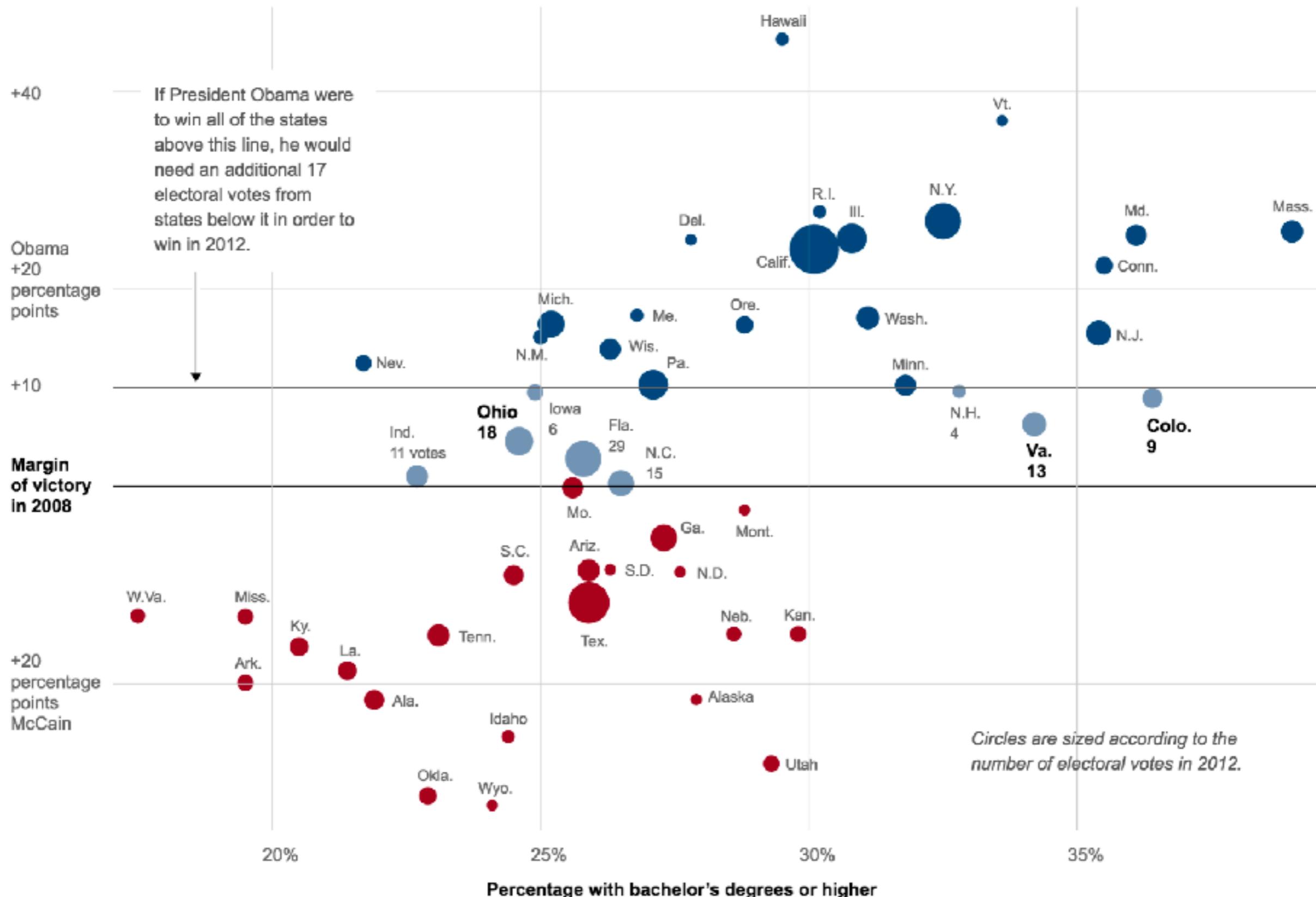
PRESENTED
VISUALLY



Net Favorability Of Republican Candidates

Among Republicans; YouGov polls, June 8 to Oct. 28, 2015

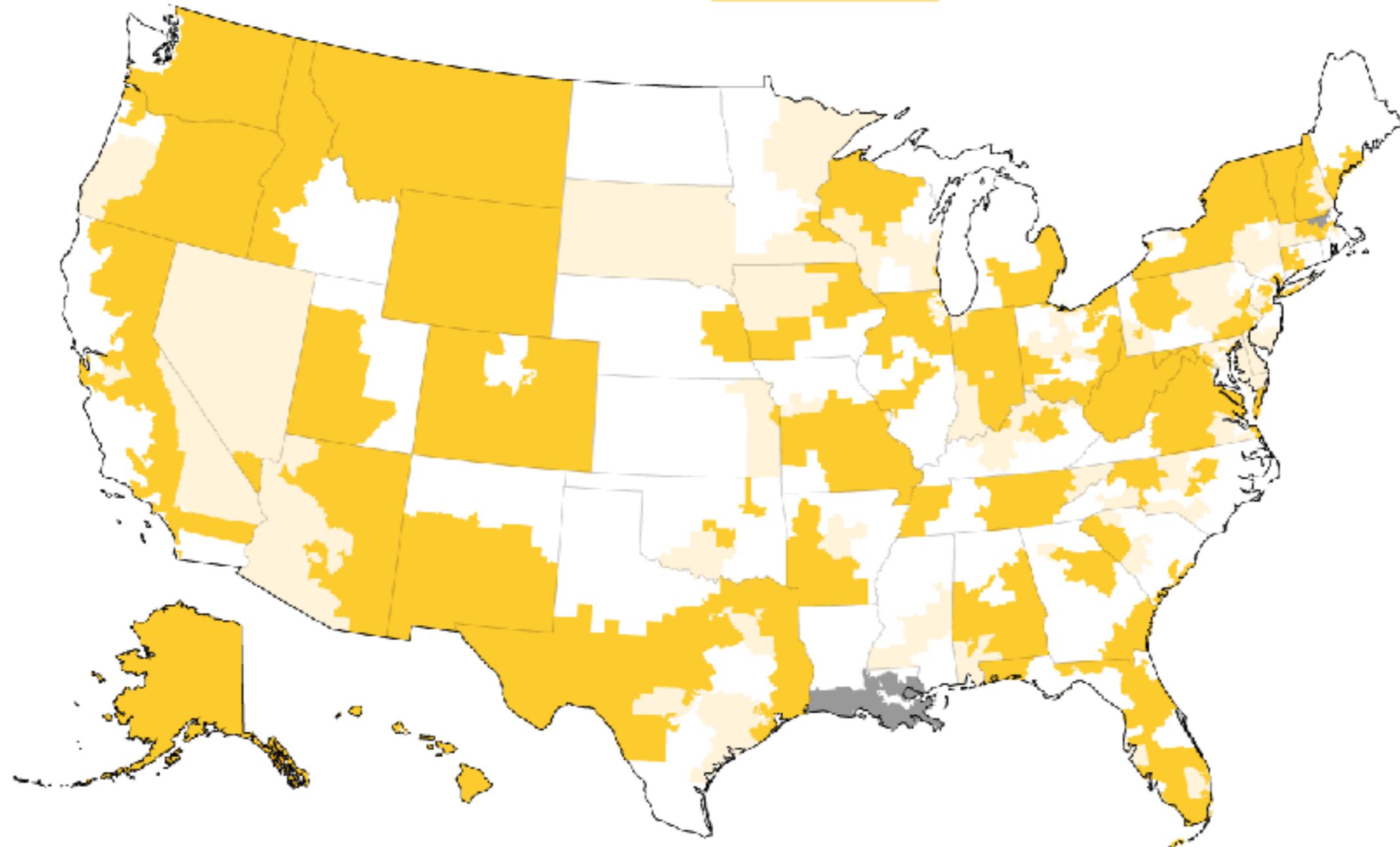




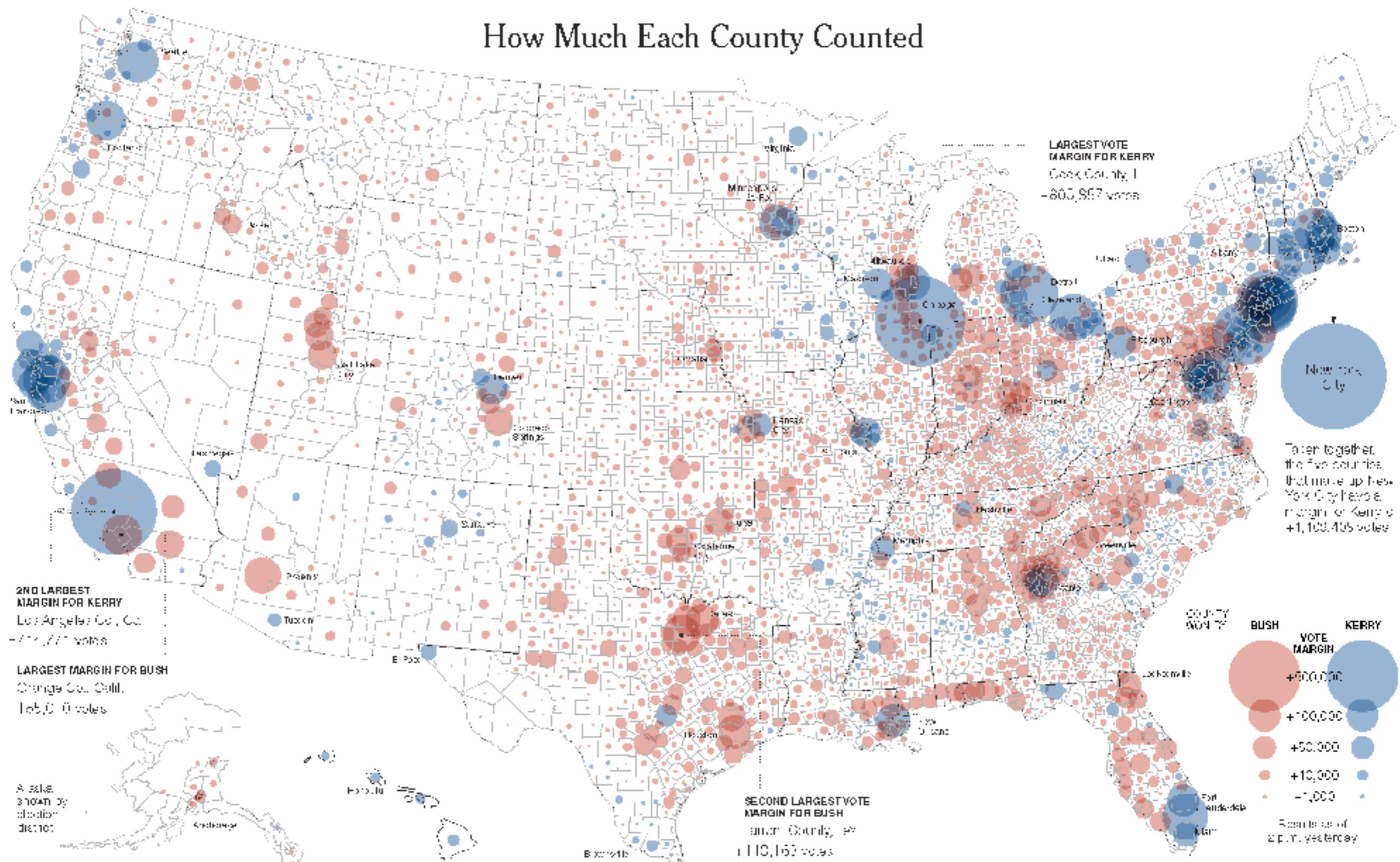
Where Women Will Appear on November Ballots

■ At least one woman won a primary ■ No women won ■ Results pending □ No women ran

House races 200 districts



How Much Each County Counted



By Electoral Weight

STATE
WON BY ...

PCT. OF VOTE
KERRY **BUSH**

Undecided

WASH. 11

ORE. 7

IDAHO 4

MONT. 3

N.D. 3

WYO. 3

S.D. 3

KAN. 6

IOWA 7

ILL. 21

MICH. 10

MINN. 10

WIS. 17

CALIF. 55

ARIZ. 10

UTAH 5

COLO. 9

OKLA. 7

ARK. 6

TENN. 11

MISS. 6

ALA. 9

LA. 9

G.A. 15

FLA. 27

S.C. 8

HAWAII 4

ALASKA 3

NEW HAMPSHIRE 4

VERMONT 3

NEW YORK 31

CONNECTICUT 7

PENNSYLVANIA 21

MASSACHUSETTS 12

NEW JERSEY 15

Rhode Island 4

DELAWARE 3

MISSOURI 11

MISSISSIPPI 6

LOUISIANA 9

TEXAS 34

GEORGIA 15

ALABAMA 9

MISSOURI 11

LOUISIANA 9

MISSISSIPPI 6

LOUISIANA 9

MISSISSIPPI 6

LOUISIANA 9

MISSISSIPPI 6

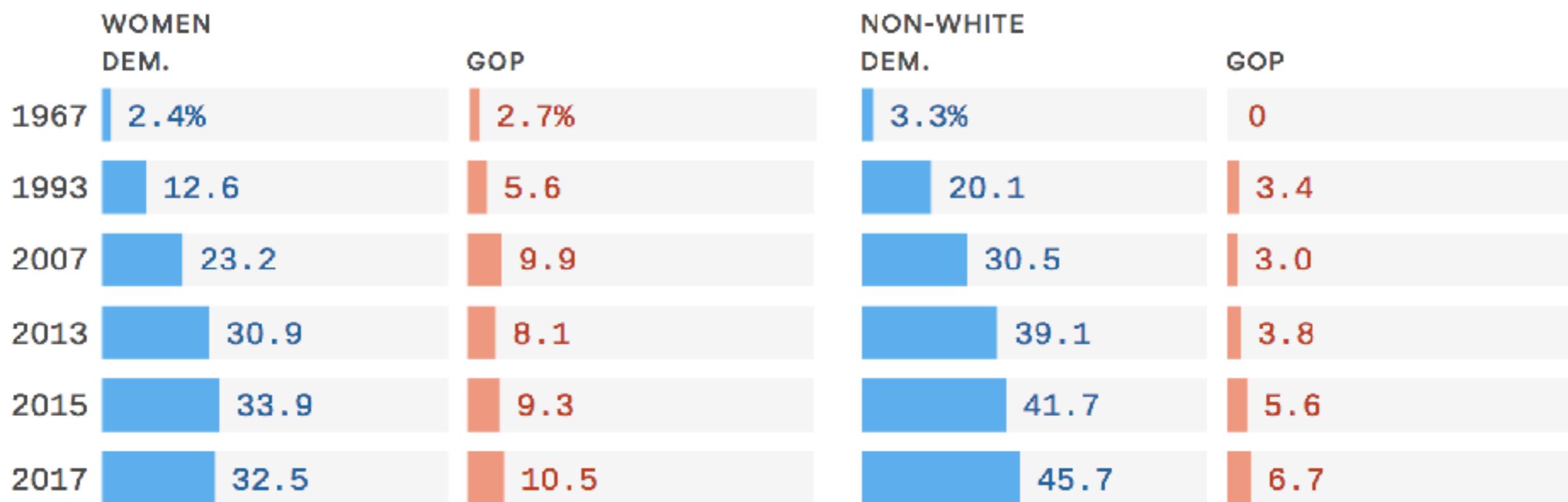
LOUISIANA 9

LOUISIANA 9

FLORIDA 27

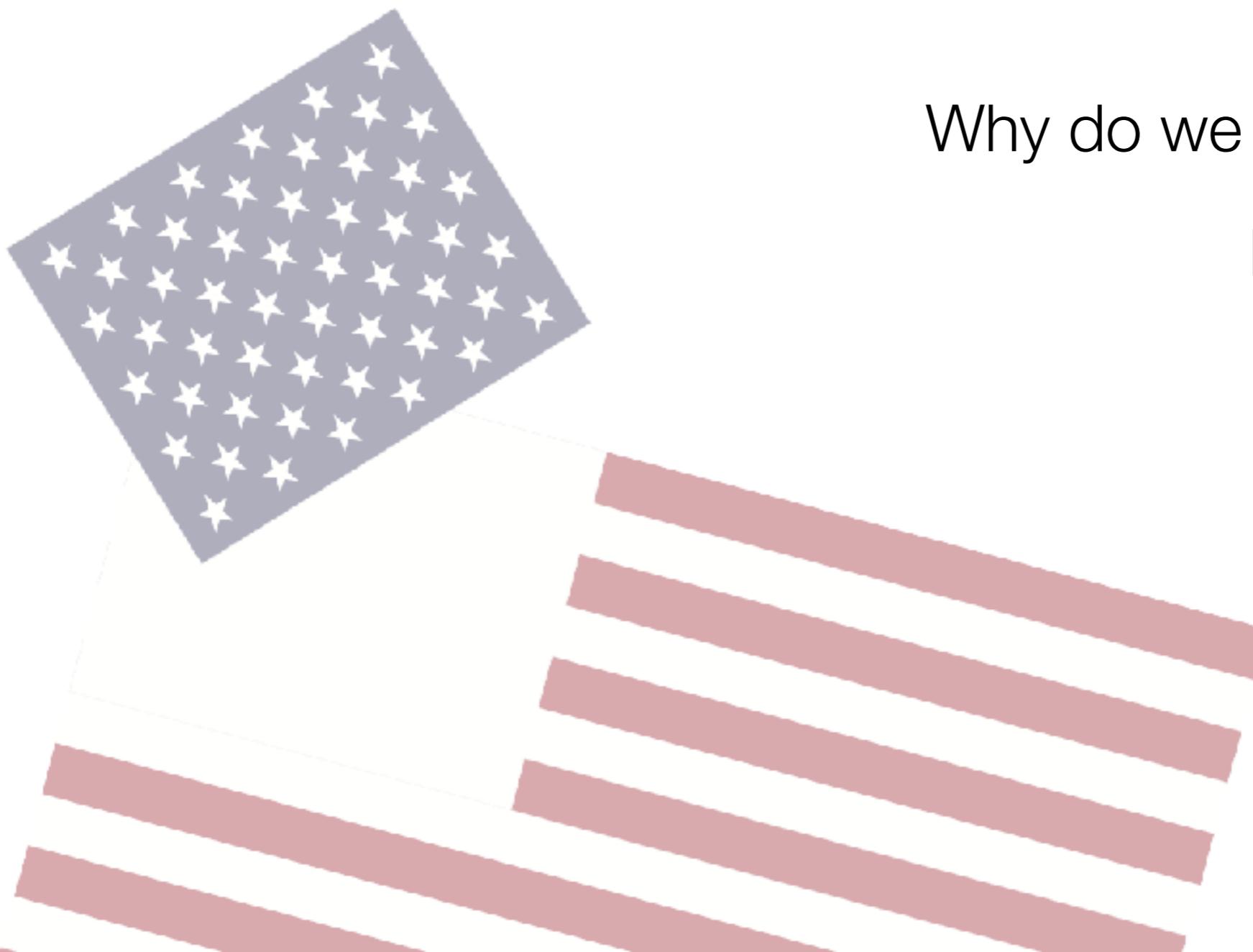
MISSISSIPPI 6

Share of women and minorities in the U.S. House of Representatives



Data: [United by Interest](#); Chart: Chris Canipe/Axios

Midterm Mayhem



Why do we visualize data?

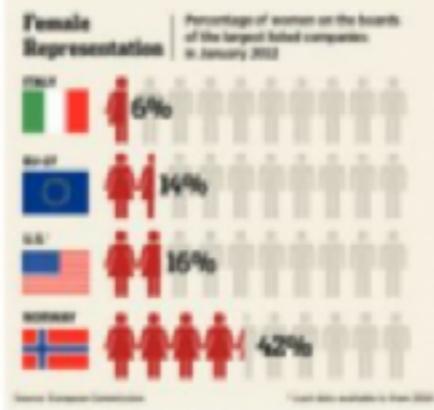
Best practices

Workshop

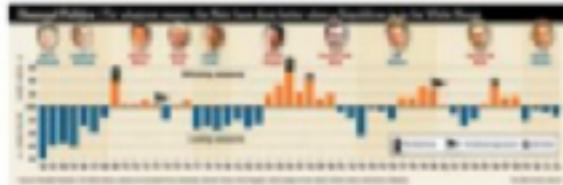
NEWS MEDIA

GOOD RECOGNITION & RECALL

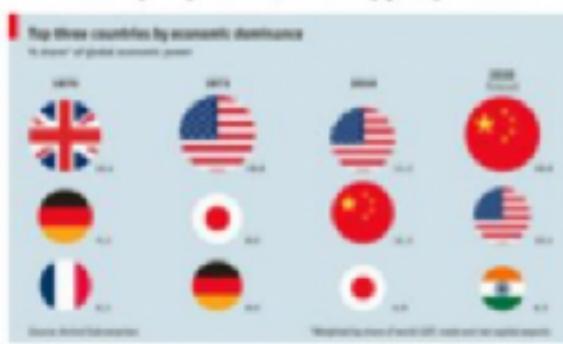
mean(HR)=0.74, mean(qual)=2.69



mean(HR)=0.80, mean(qual)=3.00



mean(HR)=0.71, mean(qual)=2.56

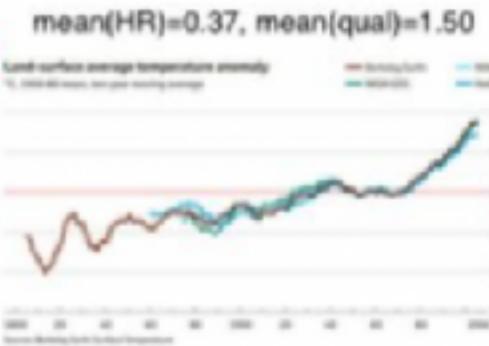
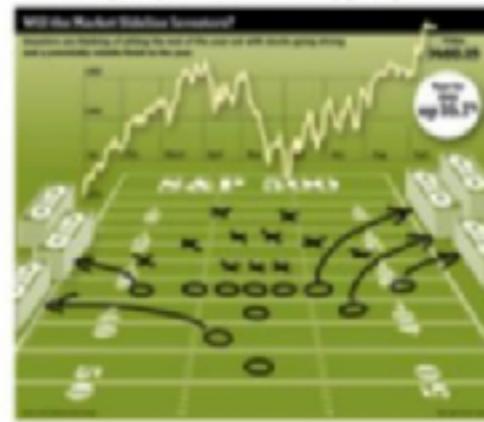


mean(HR)=0.71, mean(qual)=2.43

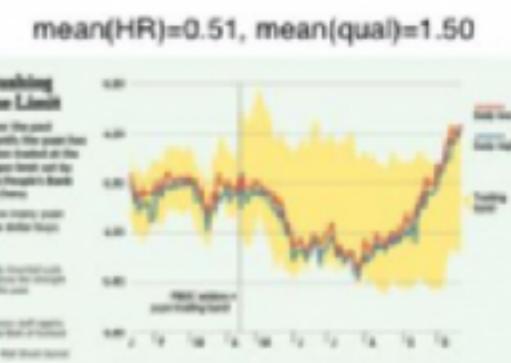
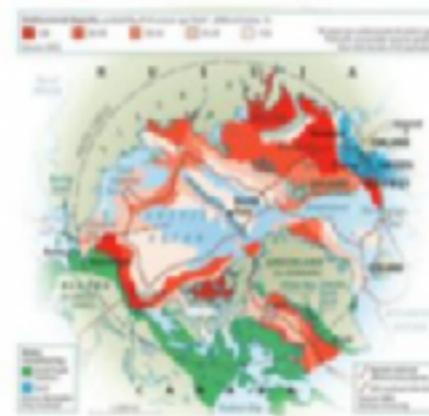


BAD RECOGNITION & RECALL

mean(HR)=0.49, mean(qual)=1.54



mean(HR)=0.54, mean(qual)=1.50



Michelle Borkin et al. 2,000+ visualizations across science, news, gov't

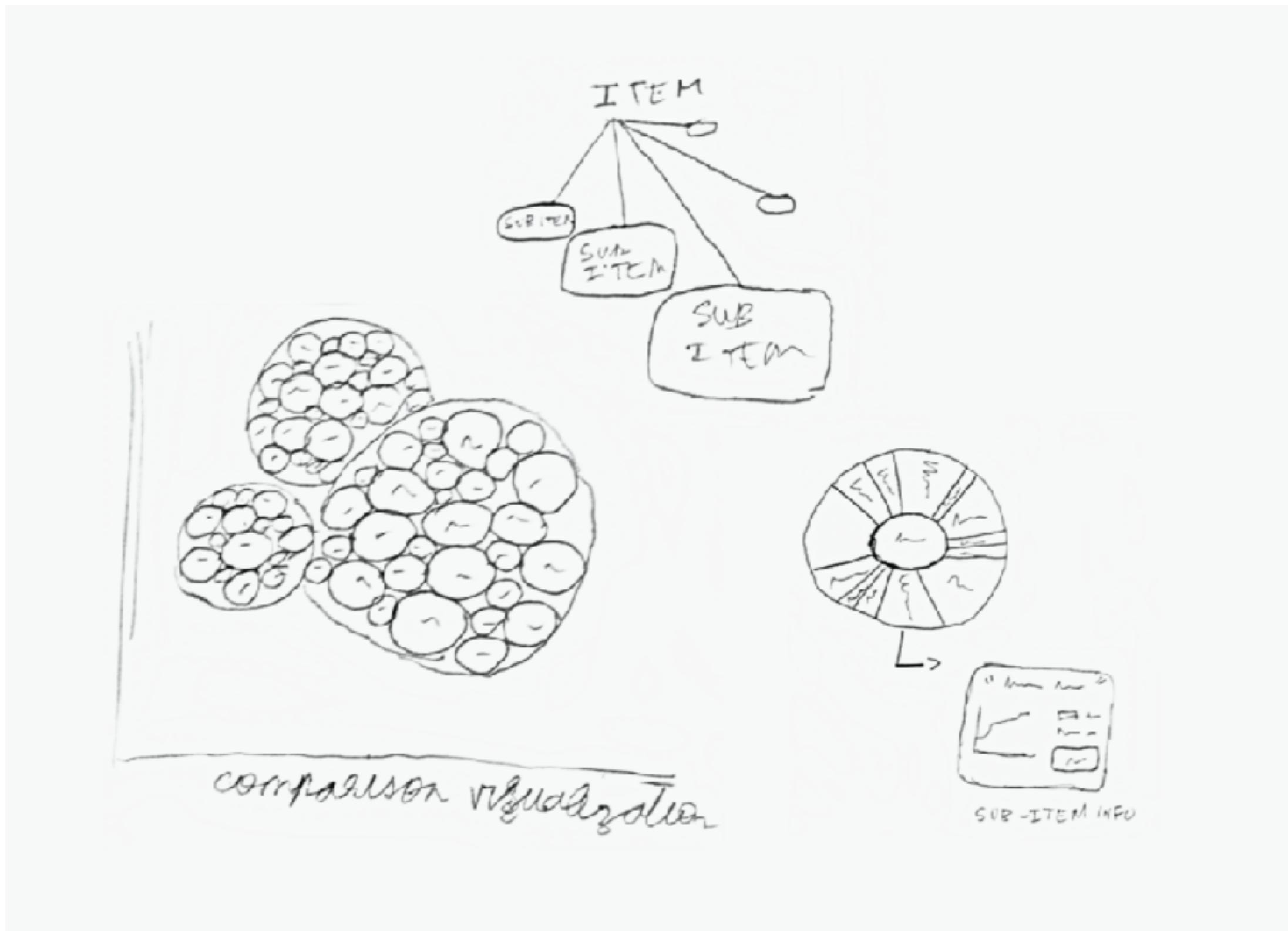
- There is something instant, enduring and intrinsically powerful about memorable graphics

- Titles and text are very important for accurate comprehension and retention

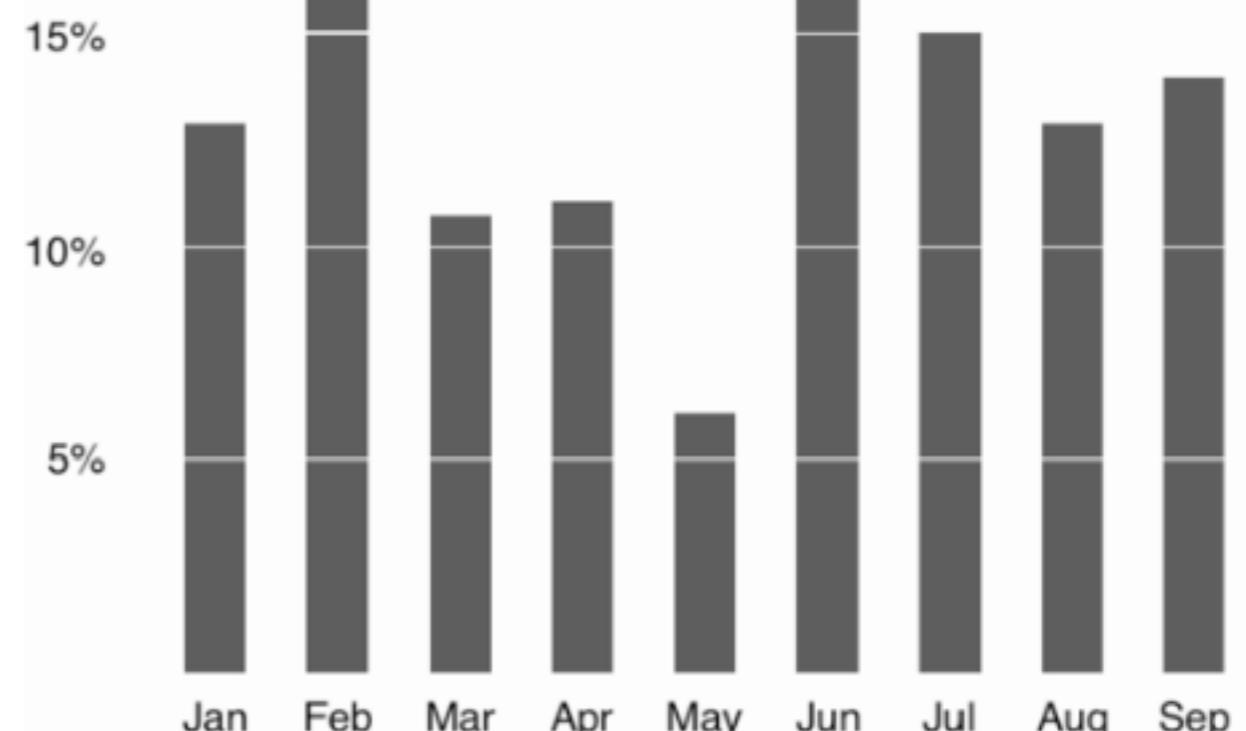
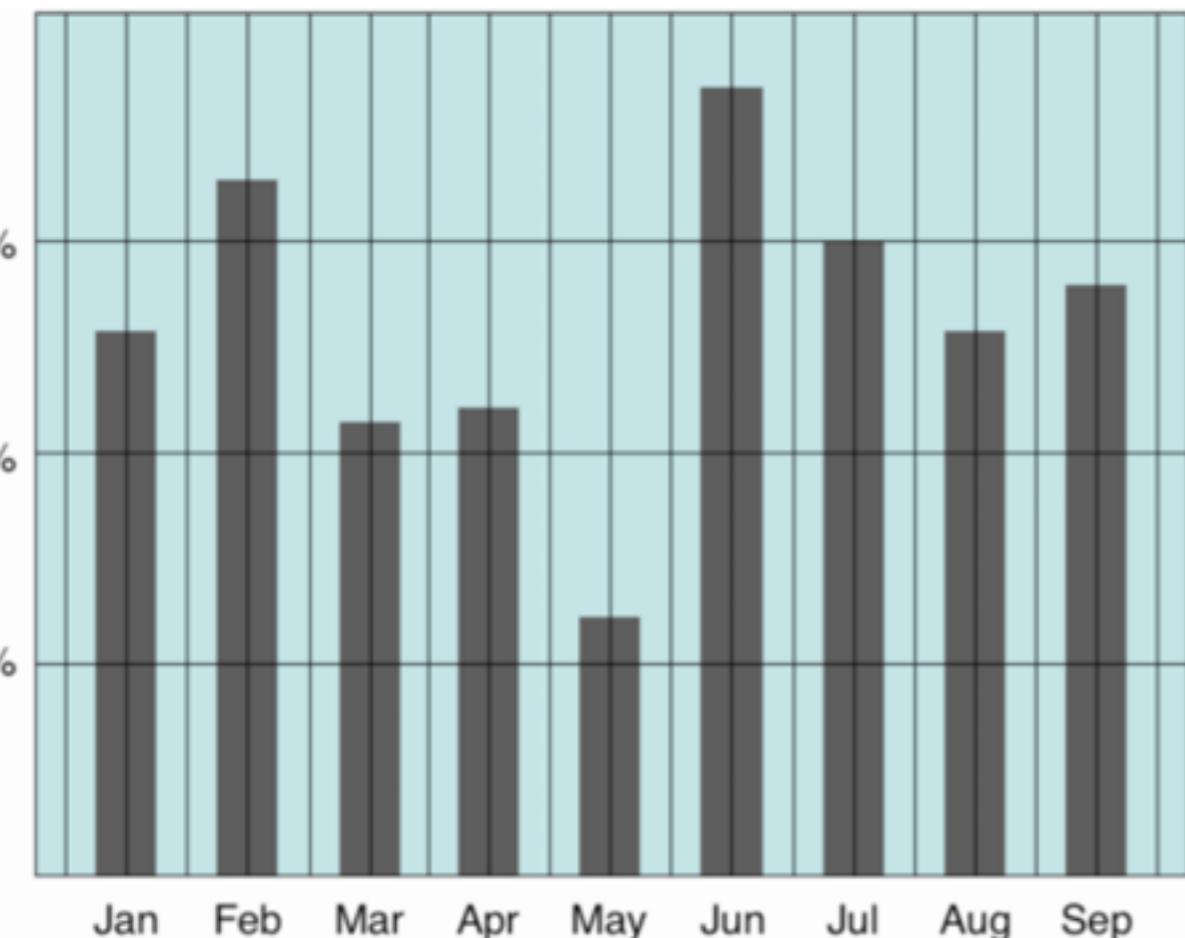
- Pictograms are easy to remember

- Dataviz that made sense in first second were most memorable

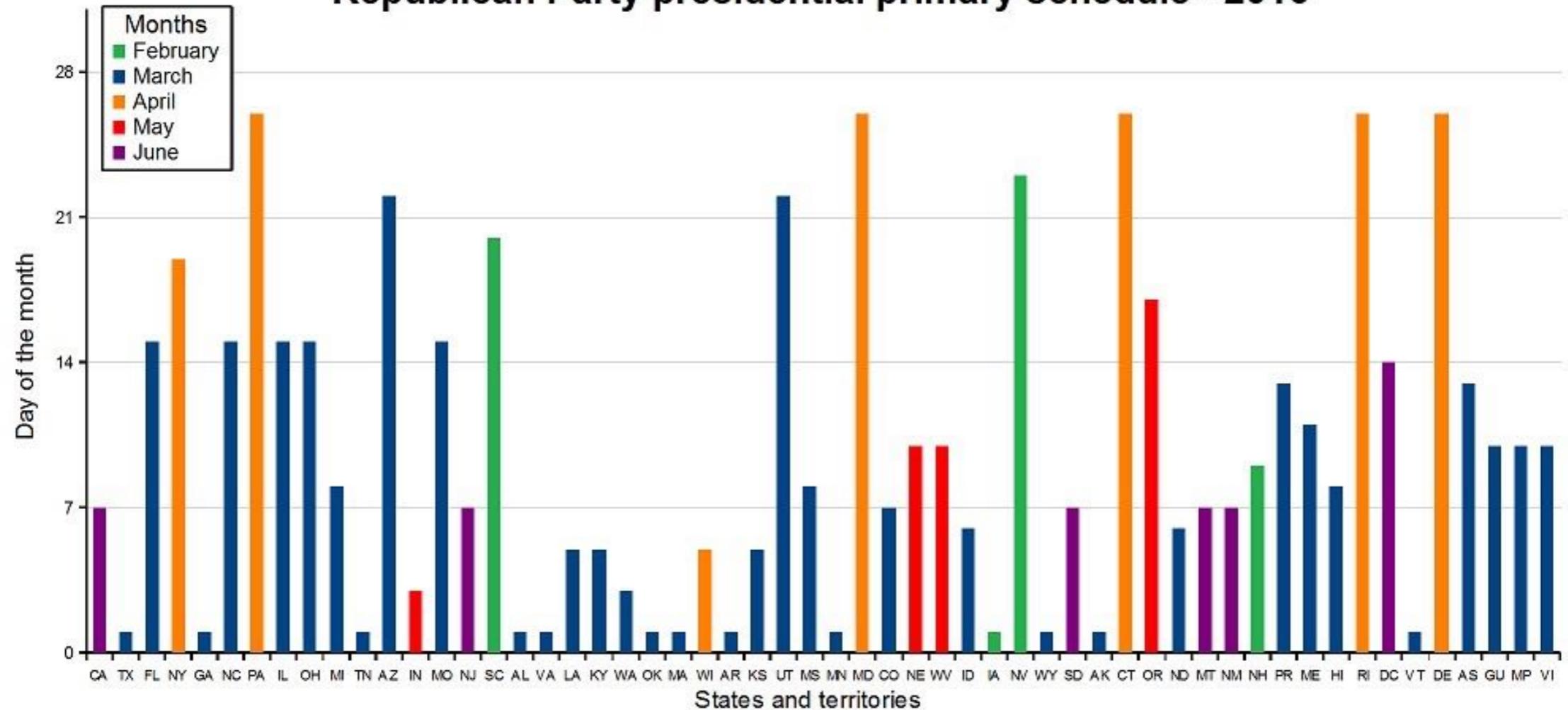
Sketch out ideas first



Work in grayscale and avoid chart junk



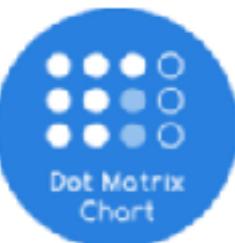
Republican Party presidential primary schedule - 2016



- Don't let function follow form
- Let the data speak for itself.
- Does it want to be a map, does it want to be a chart?



Donut Chart



Dot Matrix Chart



Flow Map



Histogram



Population Pyramid



Proportional Area Chart



Radial Bar Chart



Sankey Diagram



Scatterplot



Span Chart

Best practices

Sketch your ideas out on paper first

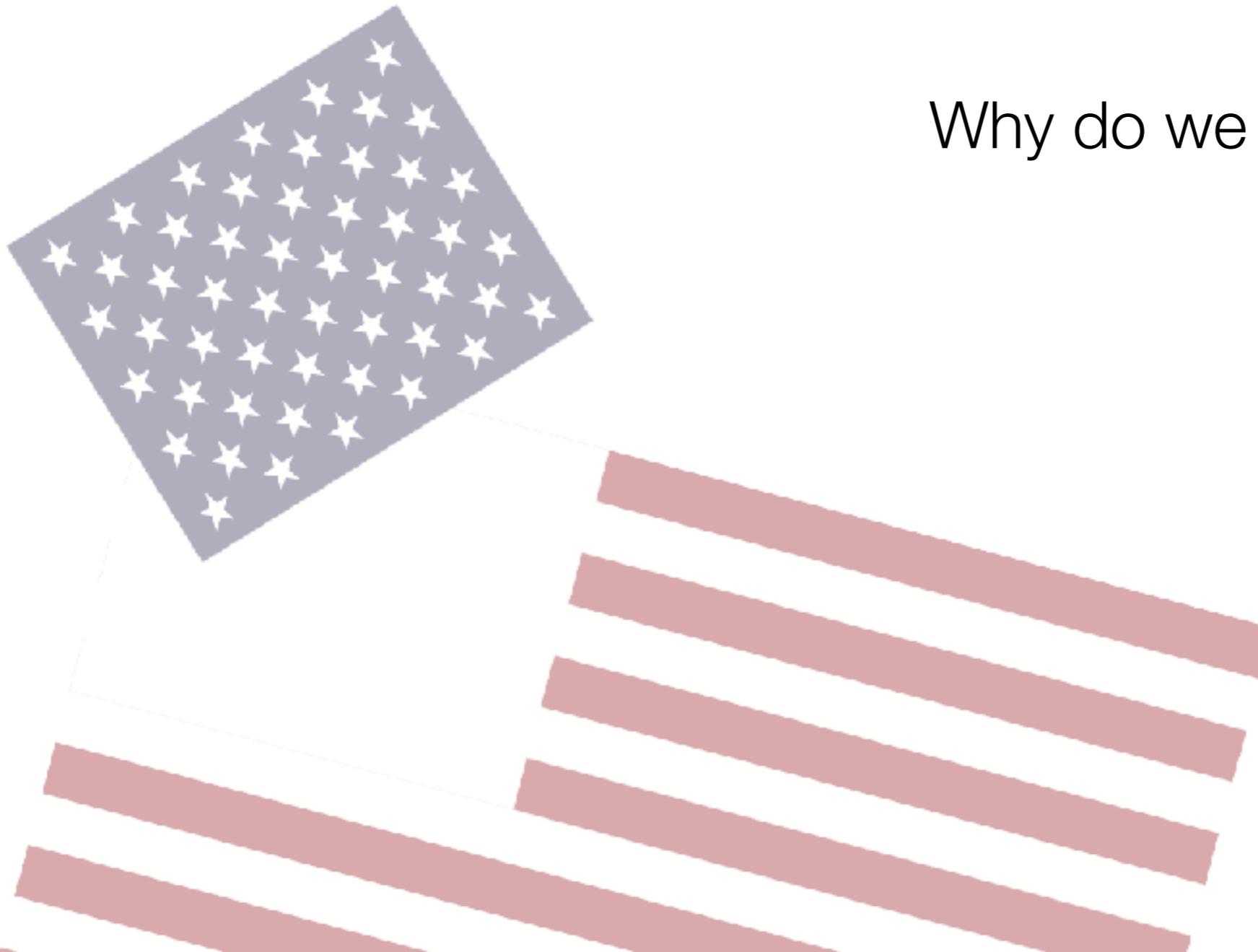
Work in grayscale

Avoid chart junk

Don't let function follow form

Think about comprehension, annotation, legends

Mayhem Midterm



Why do we visualize data?

Best practices

Workshop

Enrich your stories with charts, in seconds.



De prijsstijging in de eerste jaarhelft is in elk geval opmerkelijk. De vastgoedprijzen gaan sinds 2010 in stijgende lijn, maar wel geleidelijker. 'Dergelijke prijsstijging bij woonhuizen hebben we de jongste tien jaar nog niet gezien', bevestigt men bij de FOD Economie. En niet alleen klassieke woonhuizen werden flink duurder, ook villa's (+5,3 procent) en in mindere mate appartementen (+1,7 procent). Bij deze categorieën hebben we de jongste jaren wel sterke prijsstijgingen gezien, maar voor villa's is het toch weer een grote sprong; geleden van 2010, zegt de FOD Economie. Een verklaring heeft men niet.

Evolutie vastgoedprijzen



CREATE A CHART

CREATE A MAP

was a snowstorm in the Northeast and Midwest during the week that the BLS does its survey, which kept some workers at home. Additionally, the "retail apocalypse" of announced store closings meant that more jobs than normal the economy during the month. This month, the disappointing March number was revised down from 98,000 to 79,000. But the April jobs report provides a bounce back in part because of warmer weather and fewer layoffs. The Labor Department reported gains in hospitality, mining, healthcare, and finance. Including the revisions for the February and March reports, an average of 174,000 jobs were added per month over the last three months.

Monthly Changes in U.S. Employment (Non-Farm), 2006-2017



Source: Bureau of Labor Statistics | Get The Data | Embed

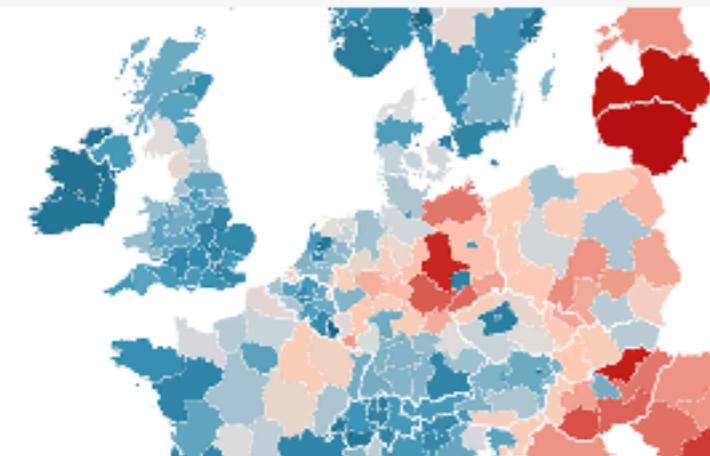
3. An interest-rate hike in June now looks more likely.

datawrapper.de

<http://bit.ly/NUmidterms>

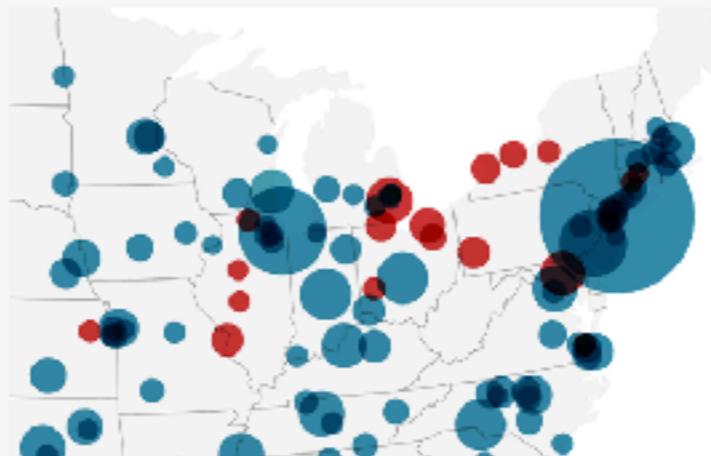
Hi! What type of map do you want to create?

Choose the map type that will show your data best:



Choropleth map

Color regions to show data like unemployment rates or election results on a map. Upload your own map or use any of our more than 600 maps. The resulting map is responsive & interactive.



Symbol map

Create symbols sized and colored according to your data. Works great for specific locations (like cities). Upload your own map or use any of our more than 600 maps. The resulting map is responsive & interactive.



Locator map

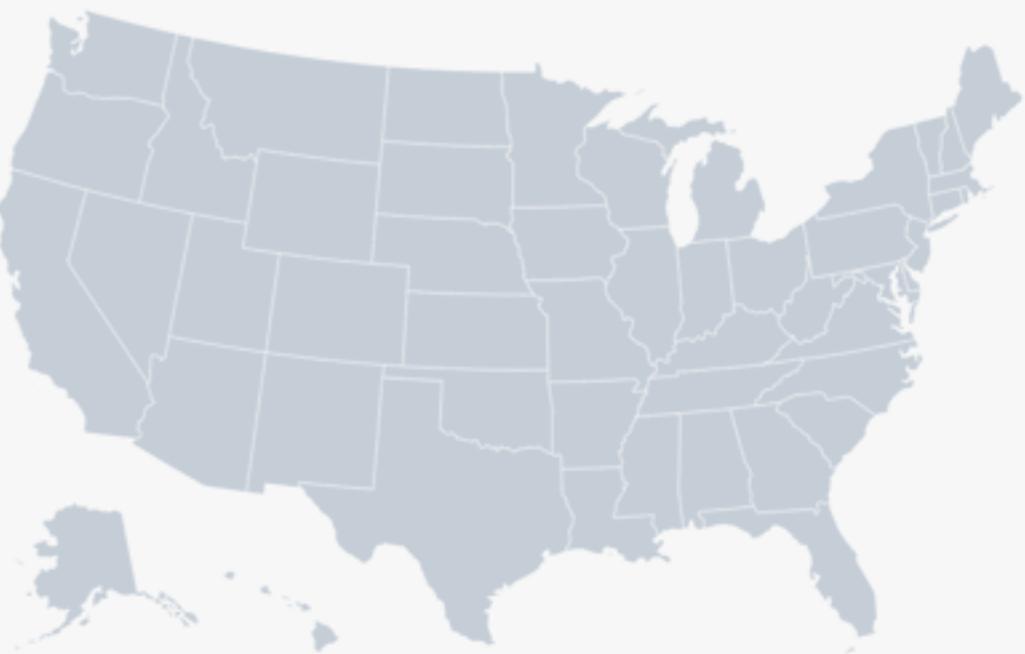
Add makers to a map to show where something is located or happened, e.g. events within a city. Perfect for showing readers the places you mention in an article. The resulting map is responsive and static.

[!\[\]\(d87fcf216ede41f5a615d58c30a15d22_img.jpg\) Choropleth map](#)[» Next](#)

What type of map do you want to create?

 US[!\[\]\(e33149aa5dfd0c44da8a965ac6e384f7_img.jpg\) or Upload Map](#)

- USA » Texas » District Courts
- USA » Texas » Congressional Districts
- USA » Texas » State Legislative Districts Lower
- USA » Texas » State Legislative Districts Upper
- USA » Counties
- USA » Congressional Districts (2018)
- USA » Congressional Districts (2016)
- USA » States
- USA » Utah » Counties
- USA » Utah » District Courts
- USA » Utah » Congressional Districts
- USA » Utah » State Legislative Districts Lower
- USA » Utah » State Legislative Districts Upper



Data viz tools

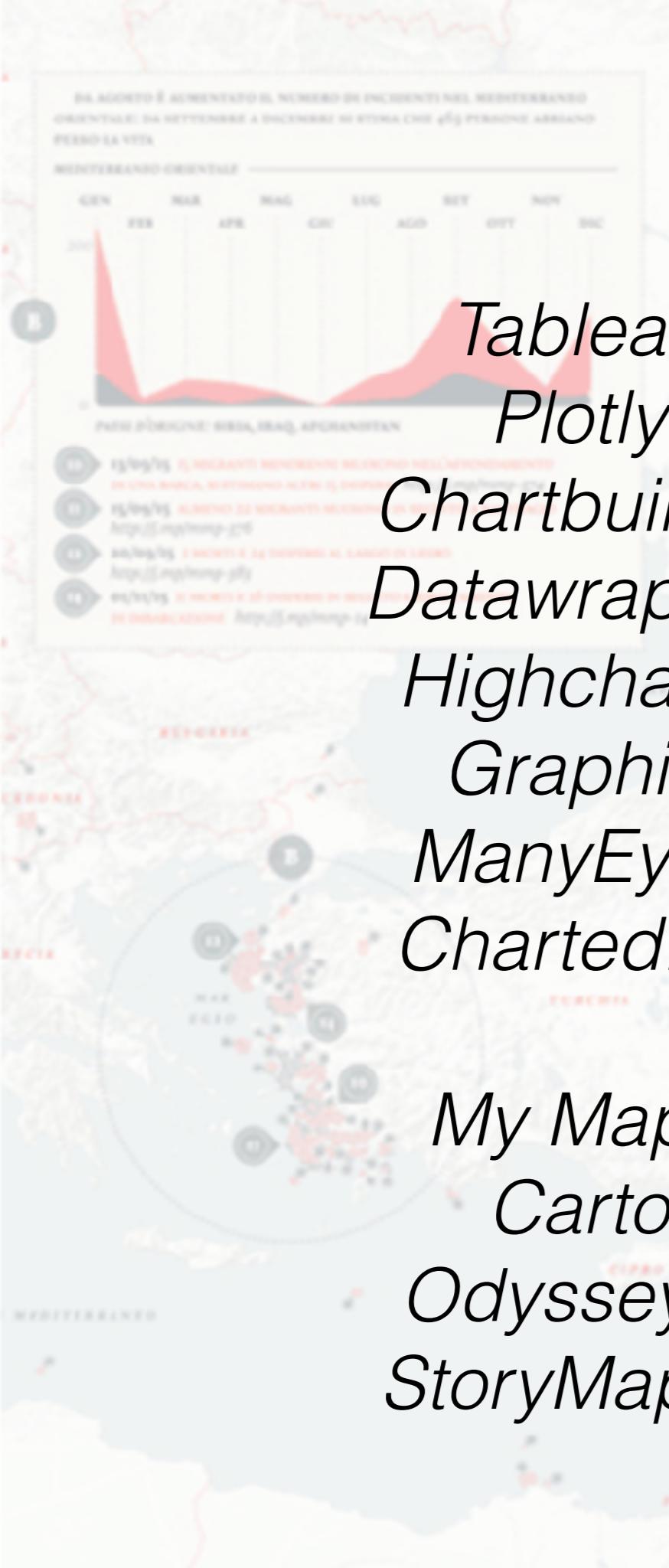
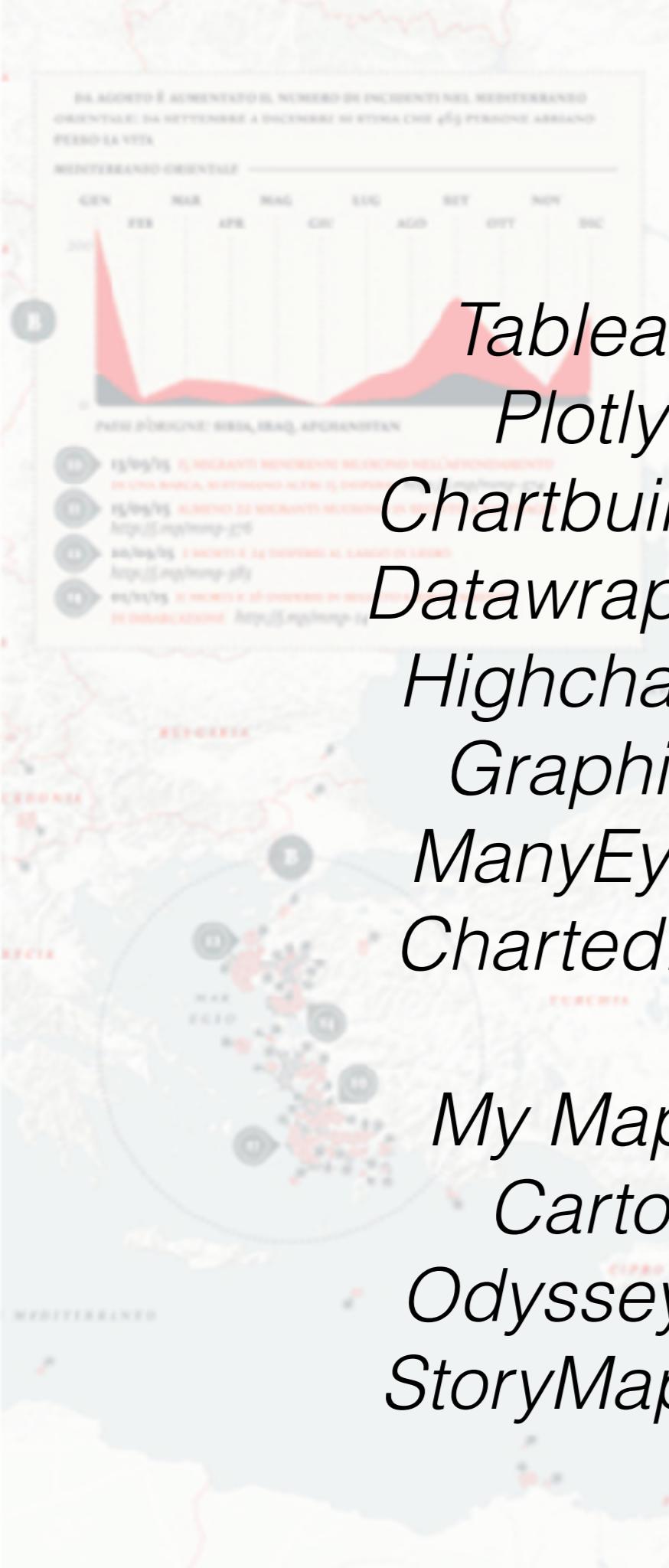
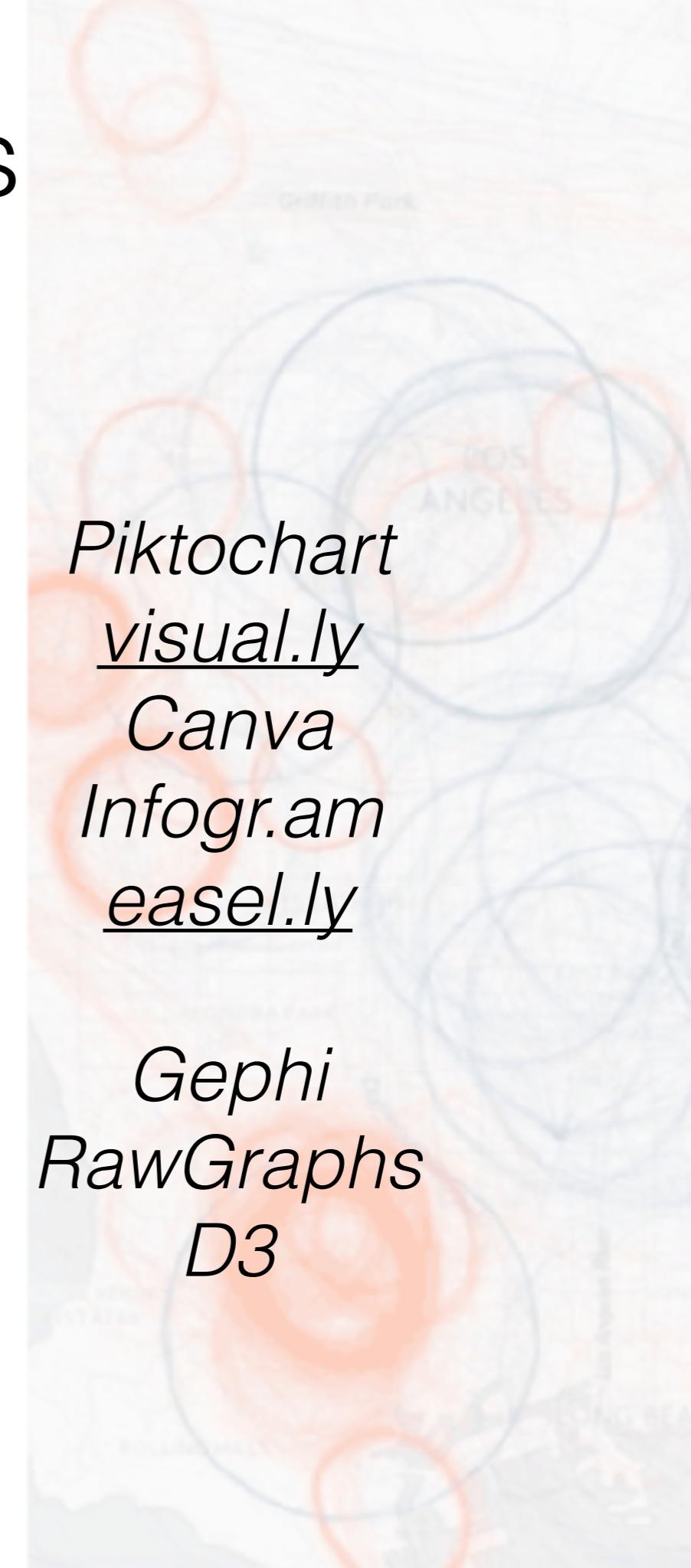


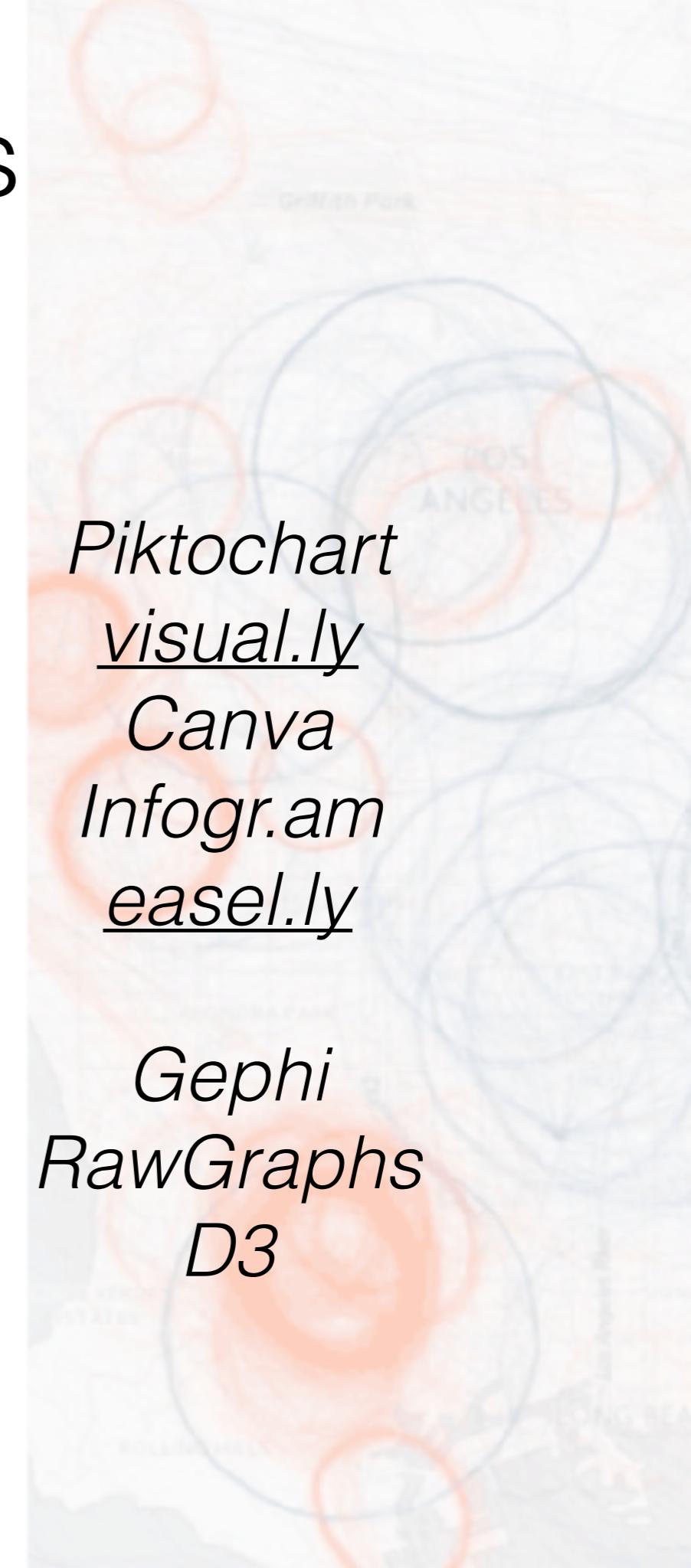
Tableau
Plotly
Chartbuilder
Datawrapper
Highcharts
Graphiq
ManyEyes
Charted.co



My Maps
Carto
Odyssey.js
StoryMapJS



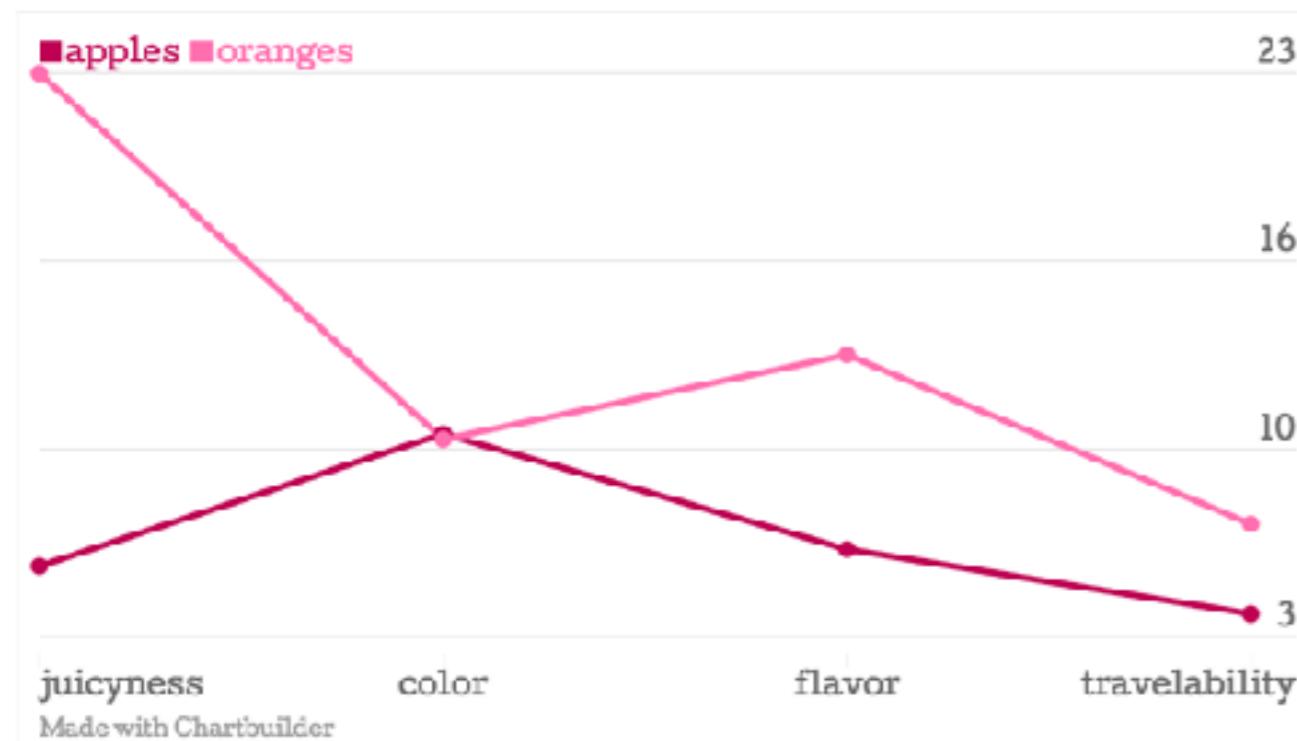
Piktochart
visual.ly
Canva
Infogr.am
easel.ly



Gephi
RawGraphs
D3

Workshop!

bit.ly/NUdataviz



ChartBuilder

1. Input your data

names	apples	oranges
juiciness	5.5	23
color	18.2	18
flavor	6.1	13
travelability	3.8	7

Check the format of your data

names	apples	oranges
juiciness	5.5	23
color	18.2	18
flavor	6.1	13
travelability	3.8	7

2. Series Options

apples	<input checked="" type="checkbox"/>	Line	<input type="checkbox"/>
oranges	<input checked="" type="checkbox"/>	Line	<input type="checkbox"/>

3. Chart Options

Title

Credit
Made with Chartbuilder

Source

Something like "Data: Bureau of Labor Statistics" or "Data compiled by Factual"

4. Right Axis Options

Right Axis Prefix

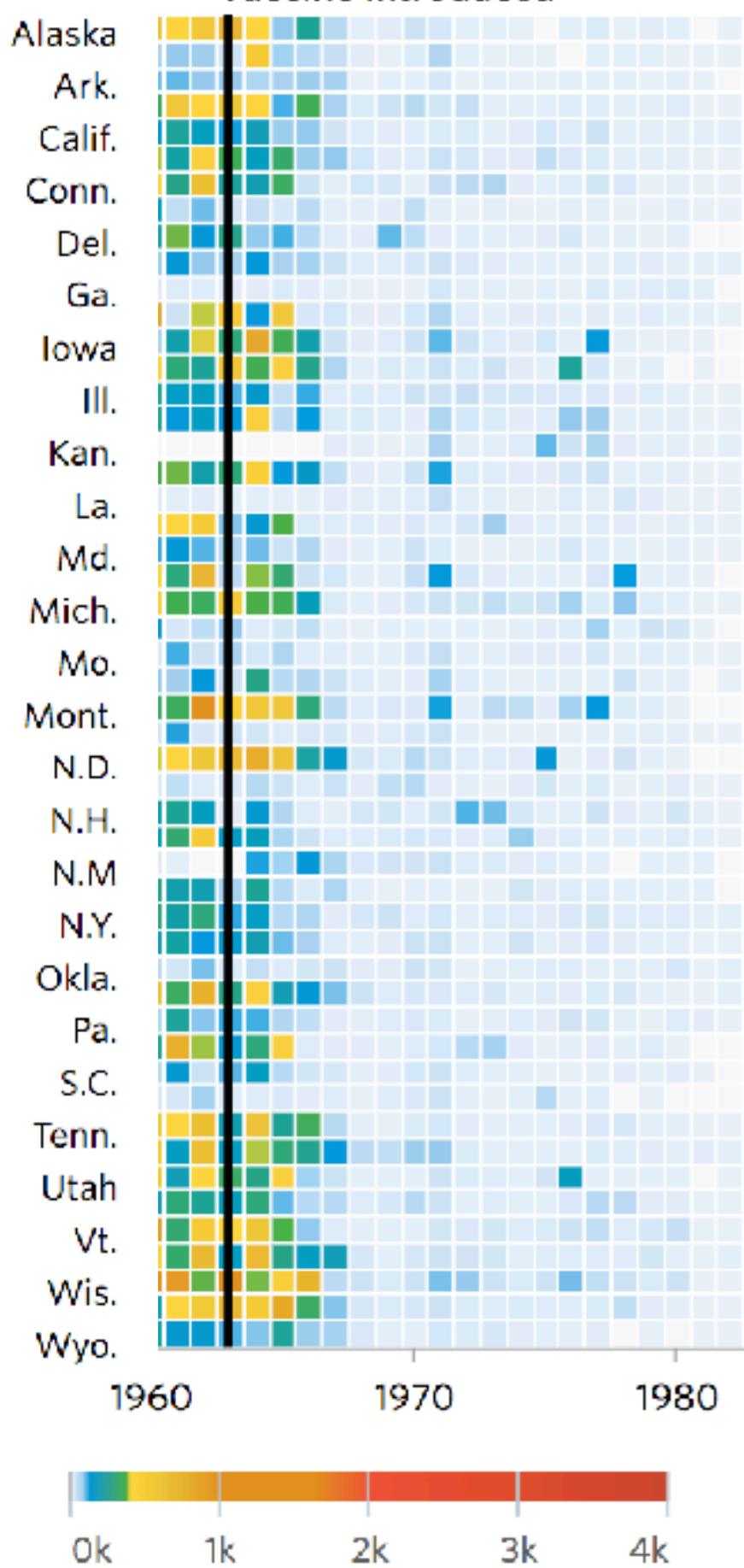
Right Axis Suffix

Number of Y Axis Ticks
4

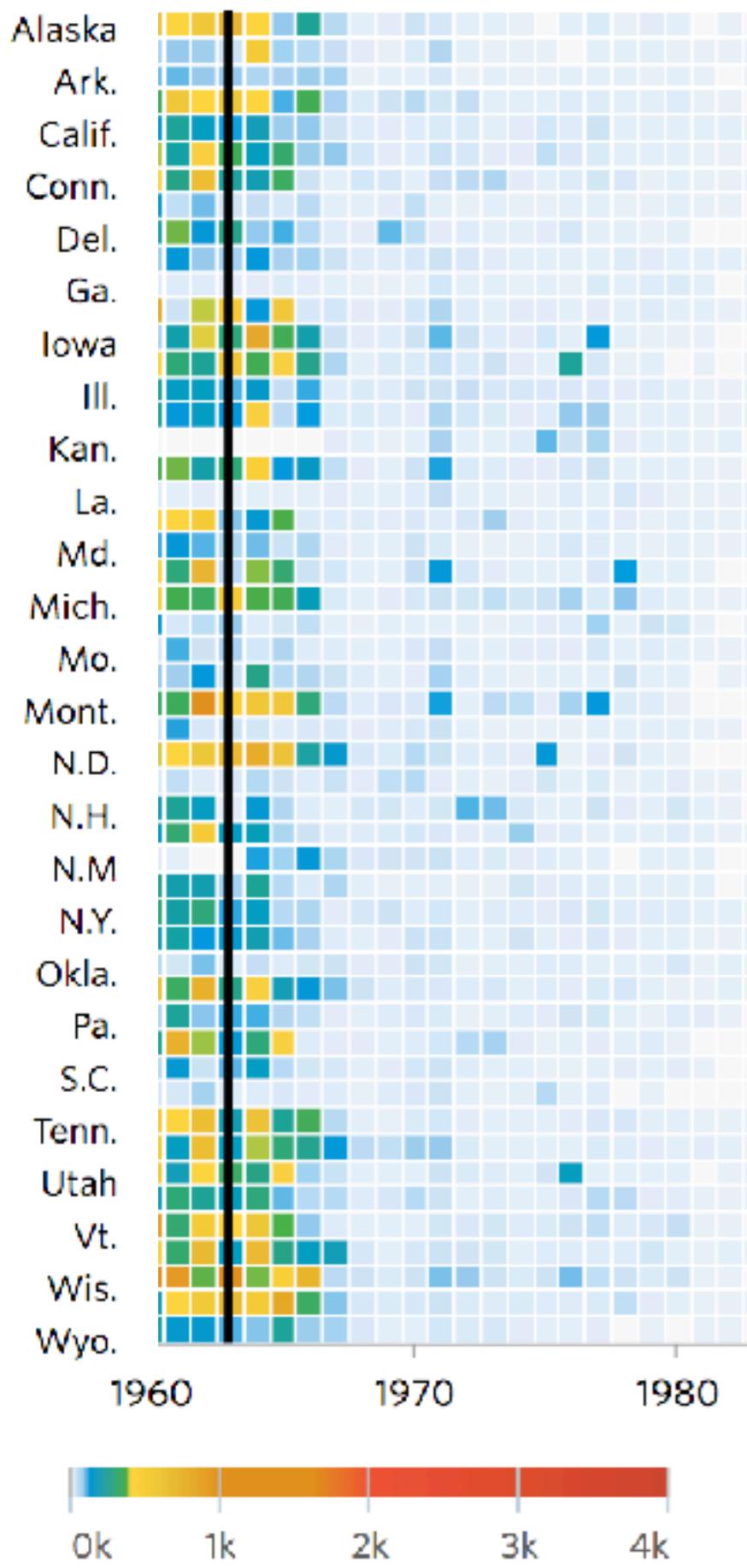
Right Axis Max

Right Axis Min

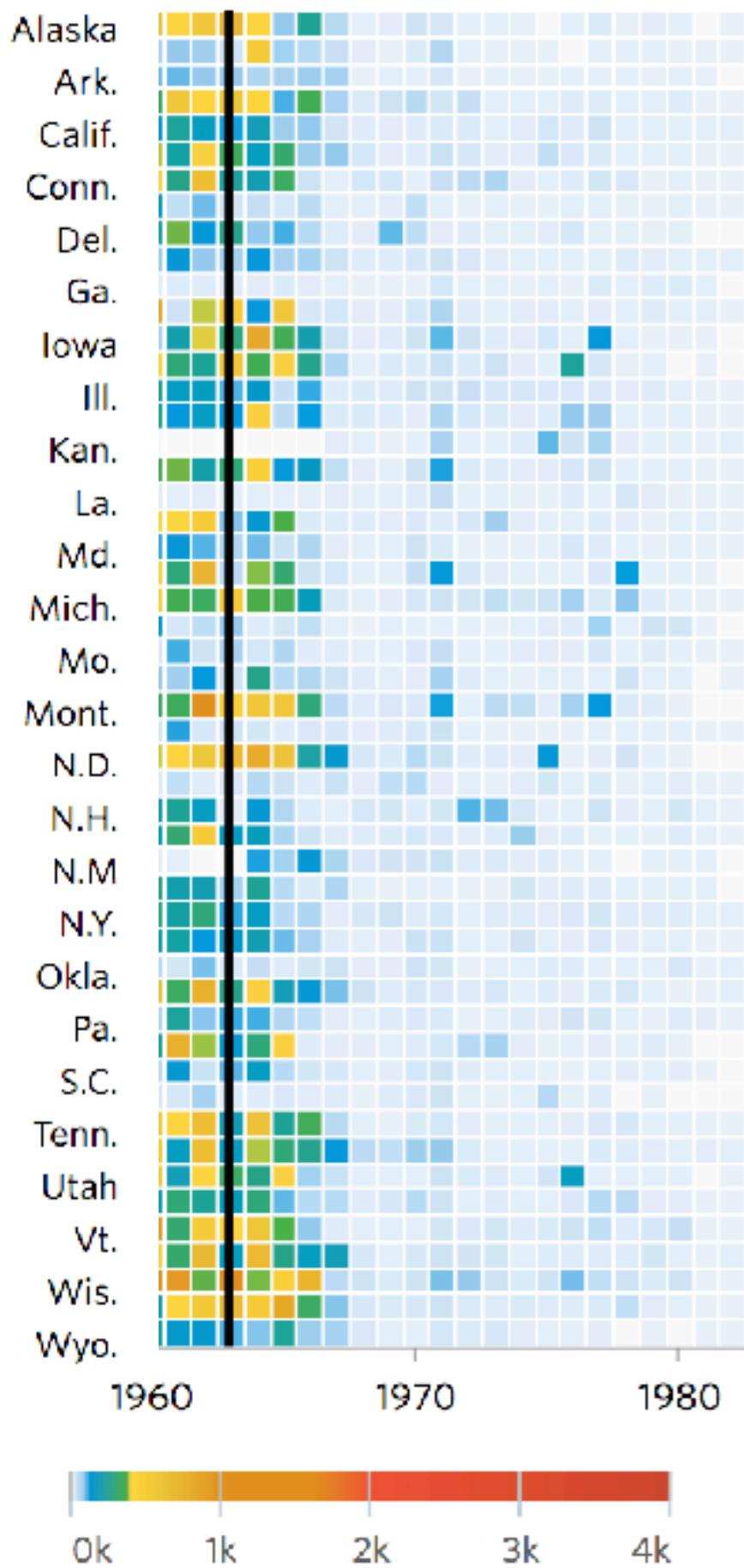
Vaccine introduced



Vaccine introduced



Vaccine introduced



COST OF GAS

NATIONAL AVERAGE

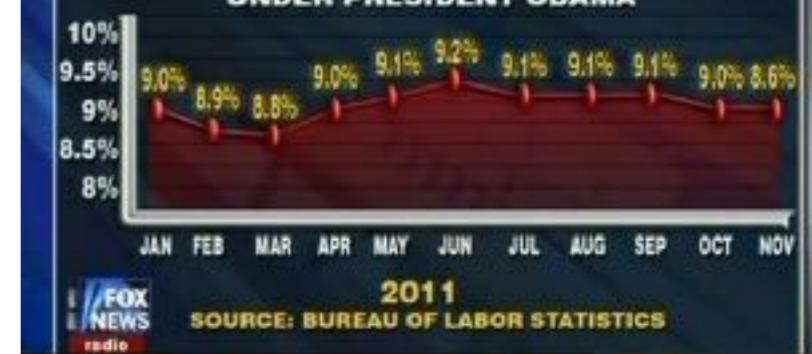


FOX NEWS channel
PAY... THE STRIKE, WHICH BEGAN LAST WEEK, IS DOW ▲ 45.79

OBAMACARE ENROLLMENT

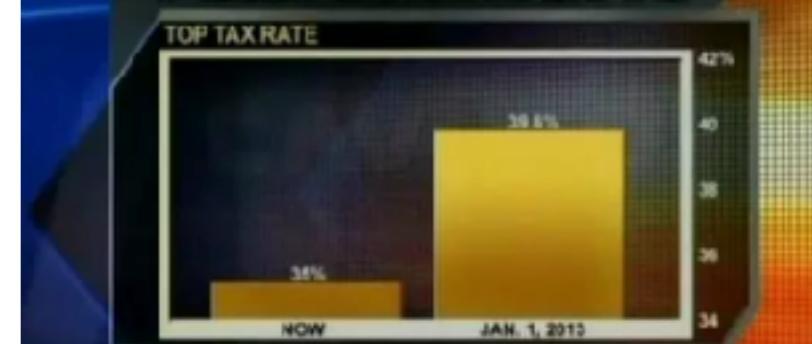


UNEMPLOYMENT RATE UNDER PRESIDENT OBAMA



2011 SOURCE: BUREAU OF LABOR STATISTICS

IF BUSH TAX CUTS EXPIRE



8:01 p ET FOX BUSINESS TOP STORIES TECHNOLOGY CONSUMER
WITH THE JUSTICE DEPARTMENT AND ACQUIRES FULL 1
DOW 13008.68 +64.33 S&P 1379.32 +5.98 NASDAQ 2939.52 +6.32



A gas field in Wyoming.

Bruce Gordon/EcoFlight

Abundant natural gas may do little to reduce U.S. emissions, study suggests

By Aleszu Bajak | Sep. 24, 2014, 1:45 PM

Natural gas is being touted as the climate-friendlier fuel that the United States can use to wean itself off coal, which releases twice the amount of carbon dioxide as natural gas when burned. But the surge of cheap natural gas may not do much to reduce long-term U.S. emissions of carbon dioxide, a new study suggests, because it could delay the deployment of cleaner renewable energy sources such as solar and wind.

"If you have lots of cheap natural gas available, ultimately it's not fighting only against coal but renewables, too," says Steven Davis, an energy scientist at the University of California, Irvine, and co-author of the study, [published online today](#) in *Environmental Research Letters*.

For their analysis, the authors developed scenarios of what the future mix of energy sources might look like in the United States based on factors including cost and technology availability. In part, they drew on forecasts of future U.S. natural gas supplies developed by 23 experts in academia, industry, and finance; the forecasts ran the gamut from bullish to bearish. The researchers next ran those numbers through an [optimization model](#) that produced a likely energy mix.

The results suggest that abundant natural gas will make little difference in lowering U.S. greenhouse gas emissions through 2055, because it will compete with and displace renewable energy sources. (This held true even if no methane were to escape from the natural gas infrastructure, an important issue because methane is a warming gas that is 120 times as potent as carbon dioxide.)

"This is straightforward analysis that quantitatively shows what many have been very concerned about—that abundant natural gas will tend to suppress renewables," says Andrew Rosenberg, director of the Center for Science and Democracy at the Union of Concerned Scientists in Cambridge, Massachusetts, who was not involved in the study.

UNDARK
Truth, Beauty, Science.

WATER IS LIFE NO DAPL TALKING MORE

VARIABLES / News & Features

Oil and Water

The Dakota Access pipeline fight has once again put the nation's oil pipeline infrastructure in the spotlight. It's old, new, safe, and worrisome.

12.09.2016 / BY ALESZU BAJAK

3 COMMENTS ▾

JOIN THE DISCUSSION ▾ SHARE ▾

IN WHAT HAS been described as one of the largest gatherings of tribal representatives in history, thousands of supporters have joined local members of the Standing Rock Sioux and hundreds of other Native American nations over the last several months in an attempt to block the Dakota Access Pipeline. The \$3.7 billion conduit would transport crude oil from North Dakota's booming Bakken shale-oil region, through South Dakota and Iowa, and onward to Illinois, where it would connect with existing pipelines.

NET GALLONS OF CRUDE SPILLED SINCE 2010

7.86 619348

© OpenStreetMap contributors, © CARTO

Map created by [Vox](#)

The developing world is awash in pesticides. There may be a better way.

Updated by Aleszu Bajak | Jul 3, 2016, 9:00am EDT

TWEET

SHARE

In today's globalized world, it is not inconceivable that one might drink coffee from Colombia in the morning, munch cashews from Vietnam for lunch, and gobble grains from Ethiopia for dinner. That we can enjoy these products is thanks, in large part, to expanded pesticide use across the developing world.

Every year, some **3.5 billion kilograms** (7.7 billion pounds) of pesticides — a catchall term for the herbicides, insecticides, and fungicides applied to crops from seed to harvest — are used to preserve the quality and quantity of fruits, vegetables, and grains. Herbicides, such as Monsanto's weed killer glyphosate, make up the bulk of the pesticides applied worldwide.

ANNUAL PESTICIDE CONSUMPTION WORLDWIDE

LATEST DATA (2007–12)

