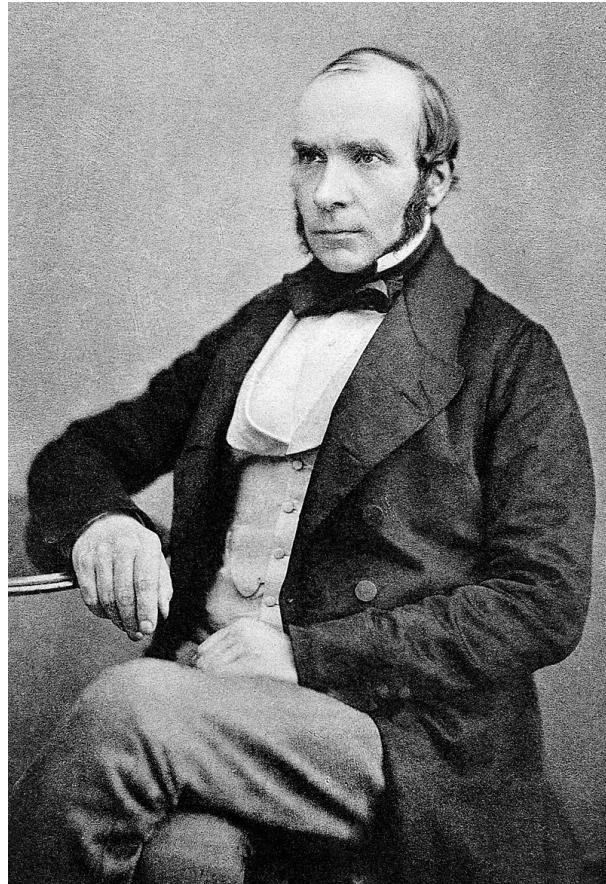


Maps, truth, and data

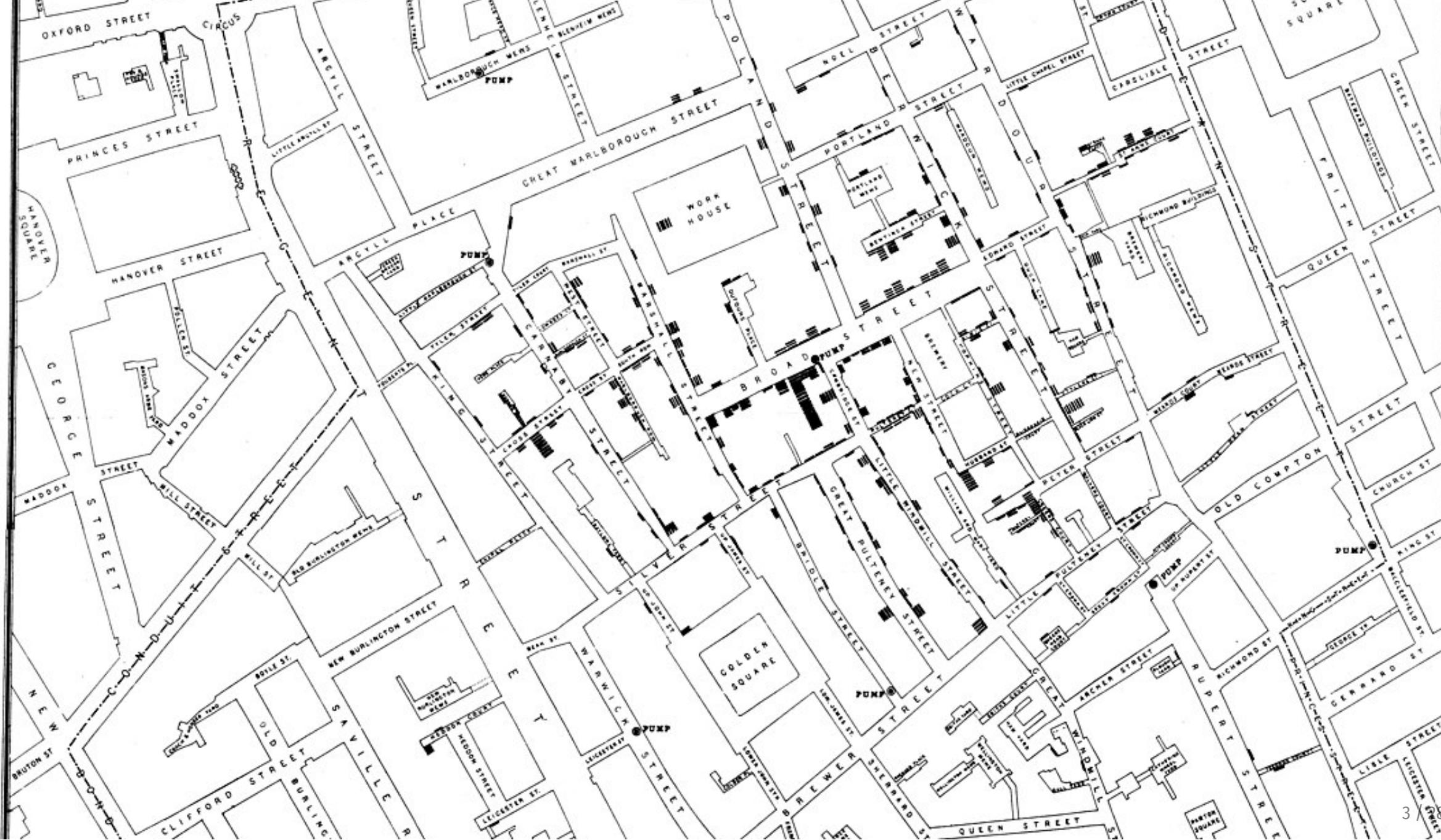
John Snow and 1854 cholera epidemic



This Jo(h)n Snow knows things

10% of the population of Soho died in a week (!!)

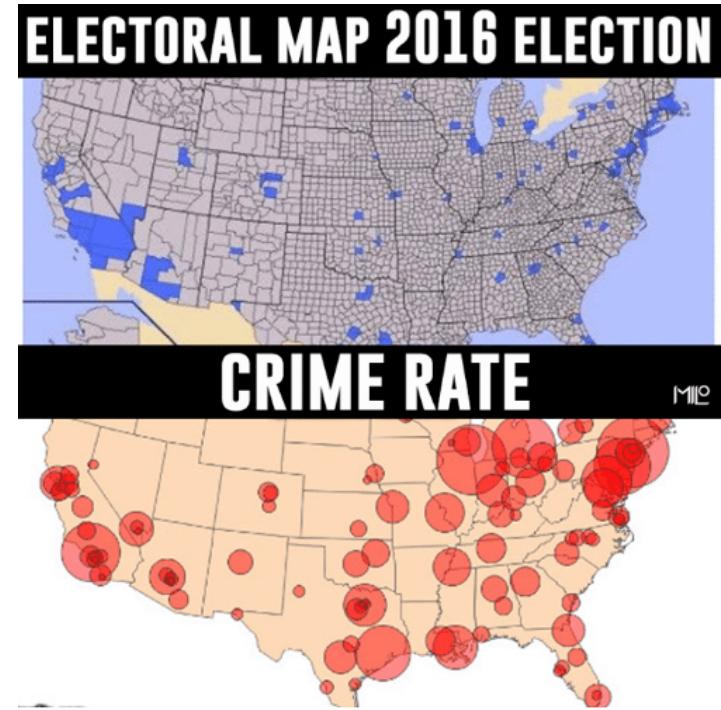
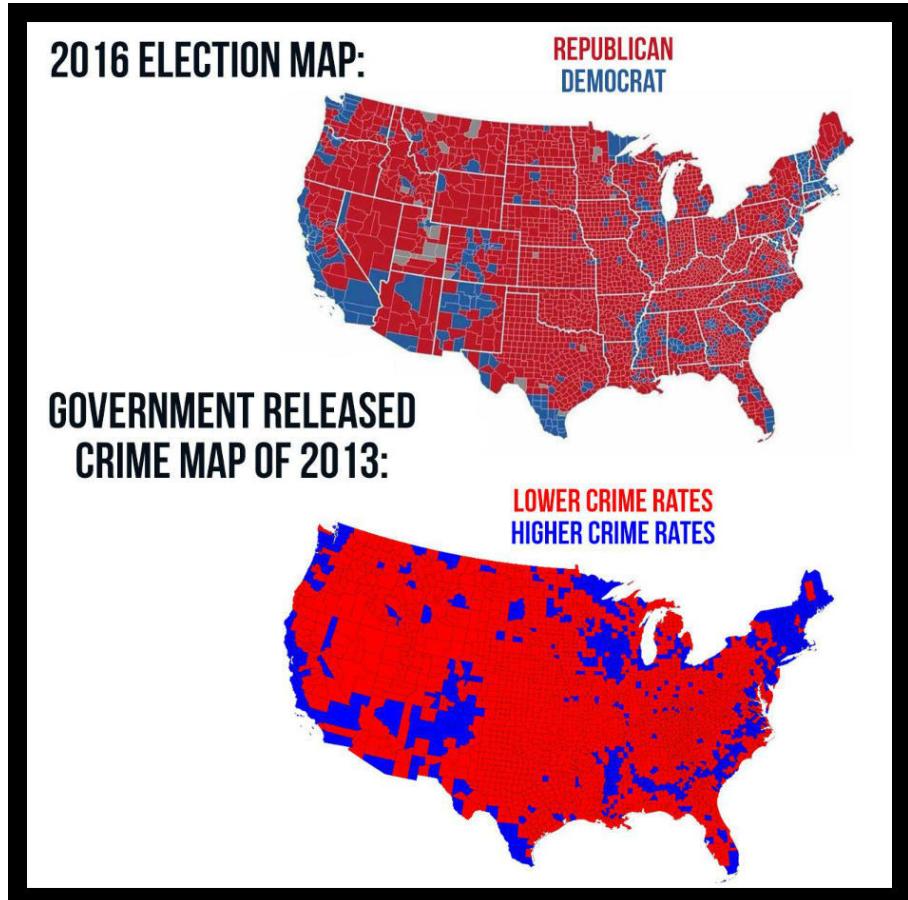
Miasma theory said it was because the air was bad



The Broad Street pump



Outright lies



Democrats are as consistent in voting as they are in crime I guess...

Fake maps and junk maps

FAST COMPANY

09-05-18

The next great fake news threat? Bot-designed maps

A new study reveals how maps go viral—and why they've become the perfect tool for misinformation.

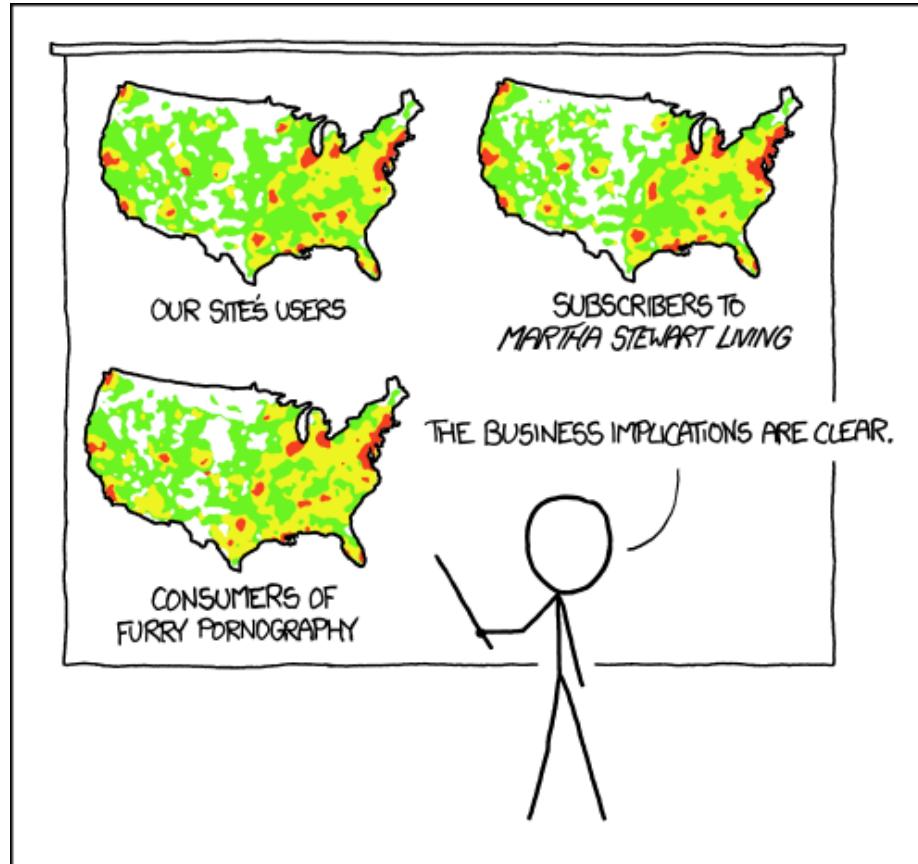


"The next great fake news threat? Bot-designed maps"

AMERICA'S FAVORITE CANDY BY STATE



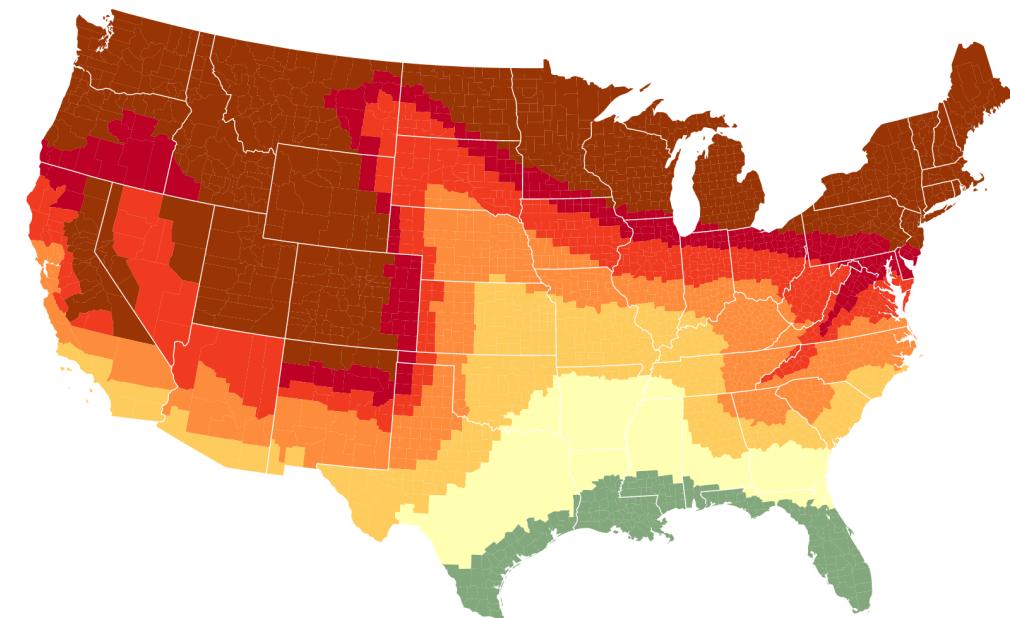
Points can be useless



PET PEEVE #208:
GEOGRAPHIC PROFILE MAPS WHICH ARE
BASICALLY JUST POPULATION MAPS

Choropleths can be great

THE 2019
Fall Foliage Prediction Map



Sept 7th Sept 14th Sept 21st Sept 28th Oct 5th Oct 12th Oct 19th Oct 26th Nov 2nd Nov 9th Nov 16th Nov 23rd Nov 30th

Smoky Mountains 2019 Fall Foliage Prediction Map

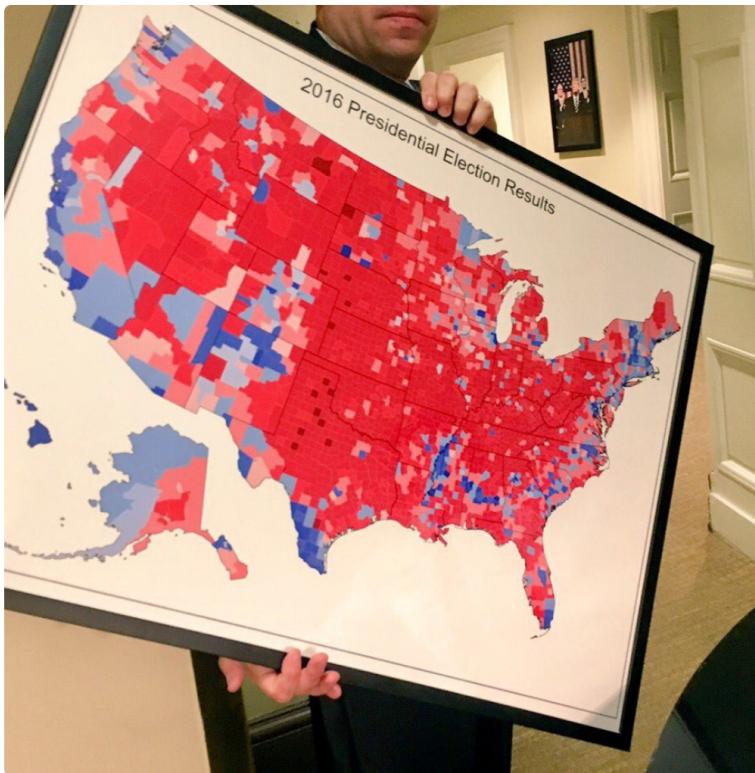
Choropleths can distort



Trey Yingst @TreyYingst



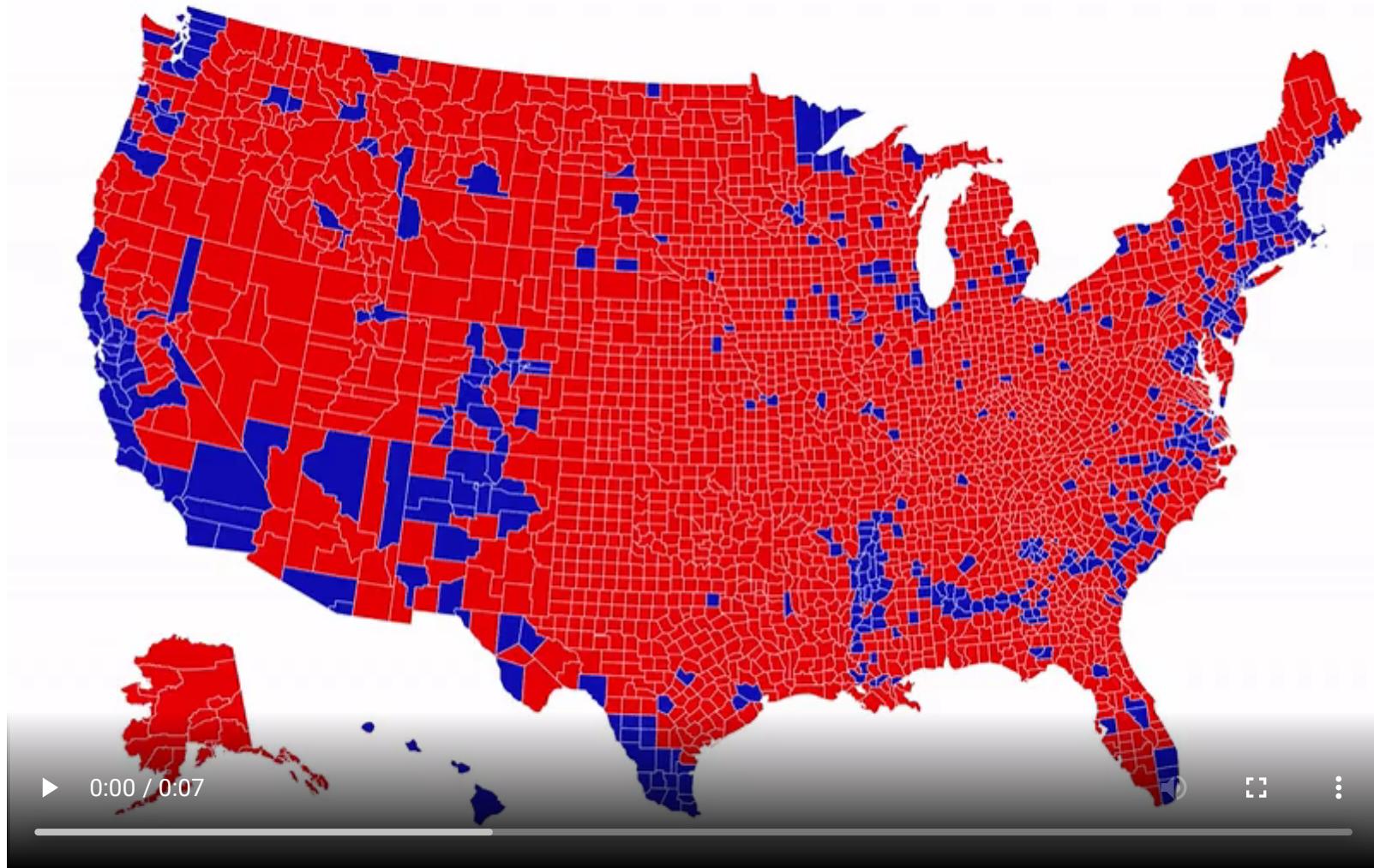
Spotted: A map to be hung somewhere in the West Wing



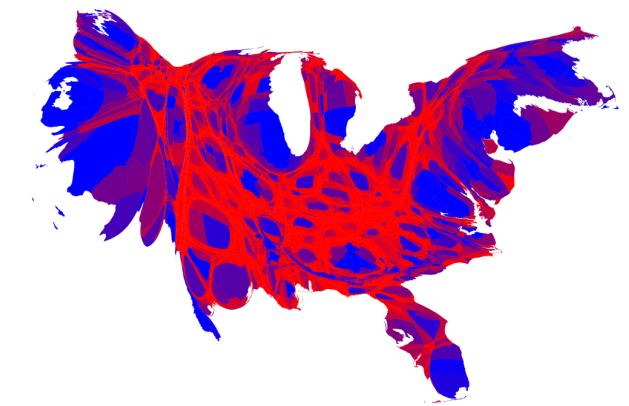
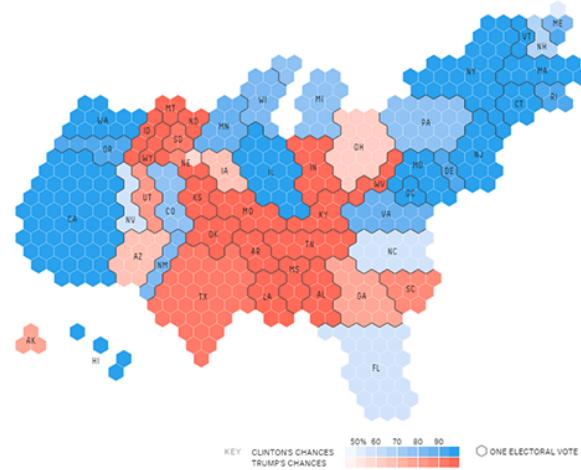
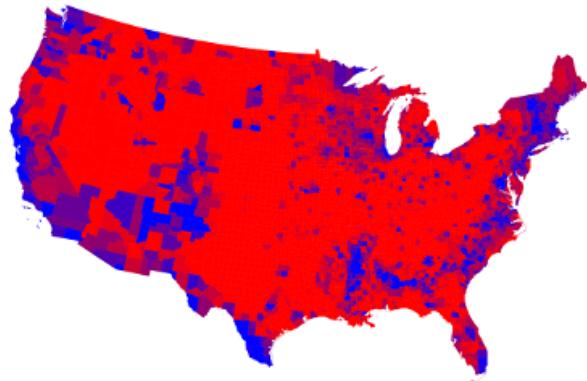
♡ 7,929 10:03 AM - May 11, 2017



Land doesn't vote

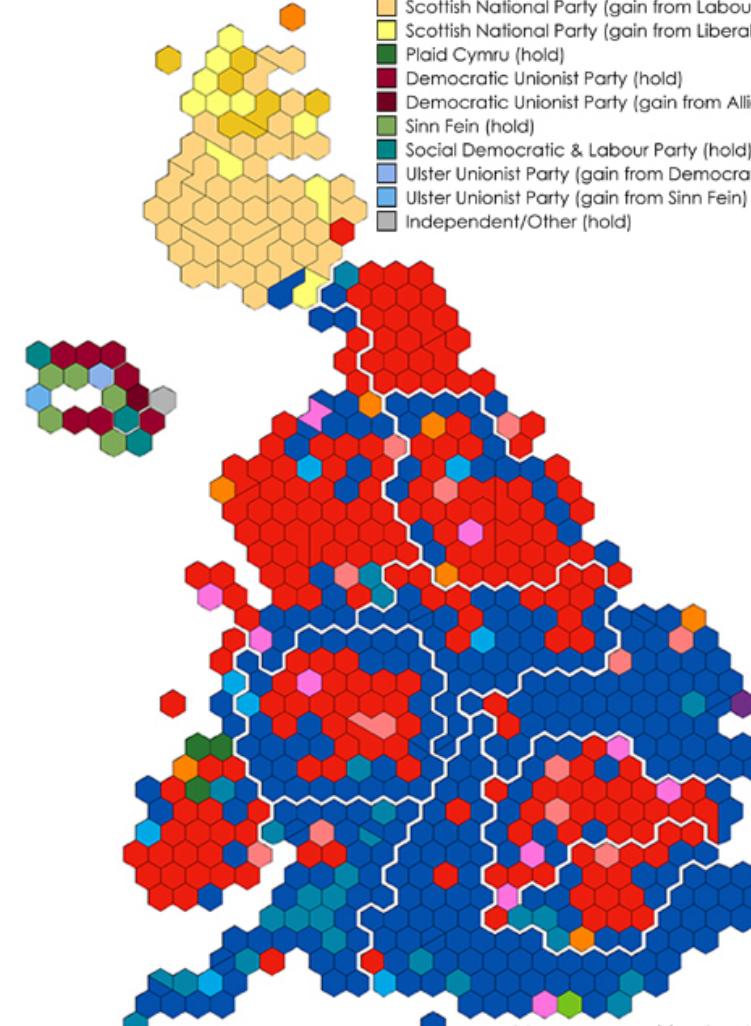
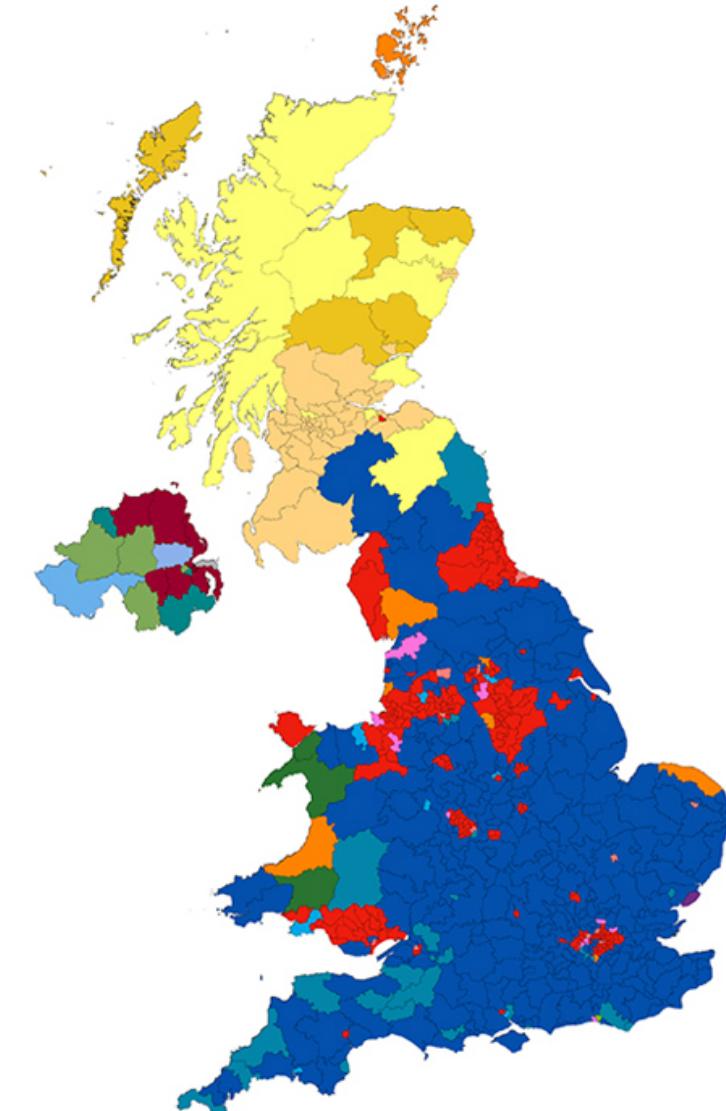


Cartograms



Electoral Doctrine

Mapping the
2015 UK General Election



- Winning party (change since 2010)
- Conservative (hold)
 - Conservative (gain from Labour)
 - Conservative (gain from Liberal Democrat)
 - Labour (hold)
 - Labour (gain from Conservative)
 - Labour (gain from Liberal Democrat)
 - Liberal Democrat (hold)
 - Green (hold)
 - UKIP (win from Conservative)
 - Scottish National Party (hold)
 - Scottish National Party (gain from Labour)
 - Scottish National Party (gain from Liberal Democrat)
 - Plaid Cymru (hold)
 - Democratic Unionist Party (hold)
 - Democratic Unionist Party (gain from Alliance Party)
 - Sinn Fein (hold)
 - Social Democratic & Labour Party (hold)
 - Ulster Unionist Party (gain from Democratic Unionist Party)
 - Ulster Unionist Party (gain from Sinn Fein)
 - Independent/Other (hold)

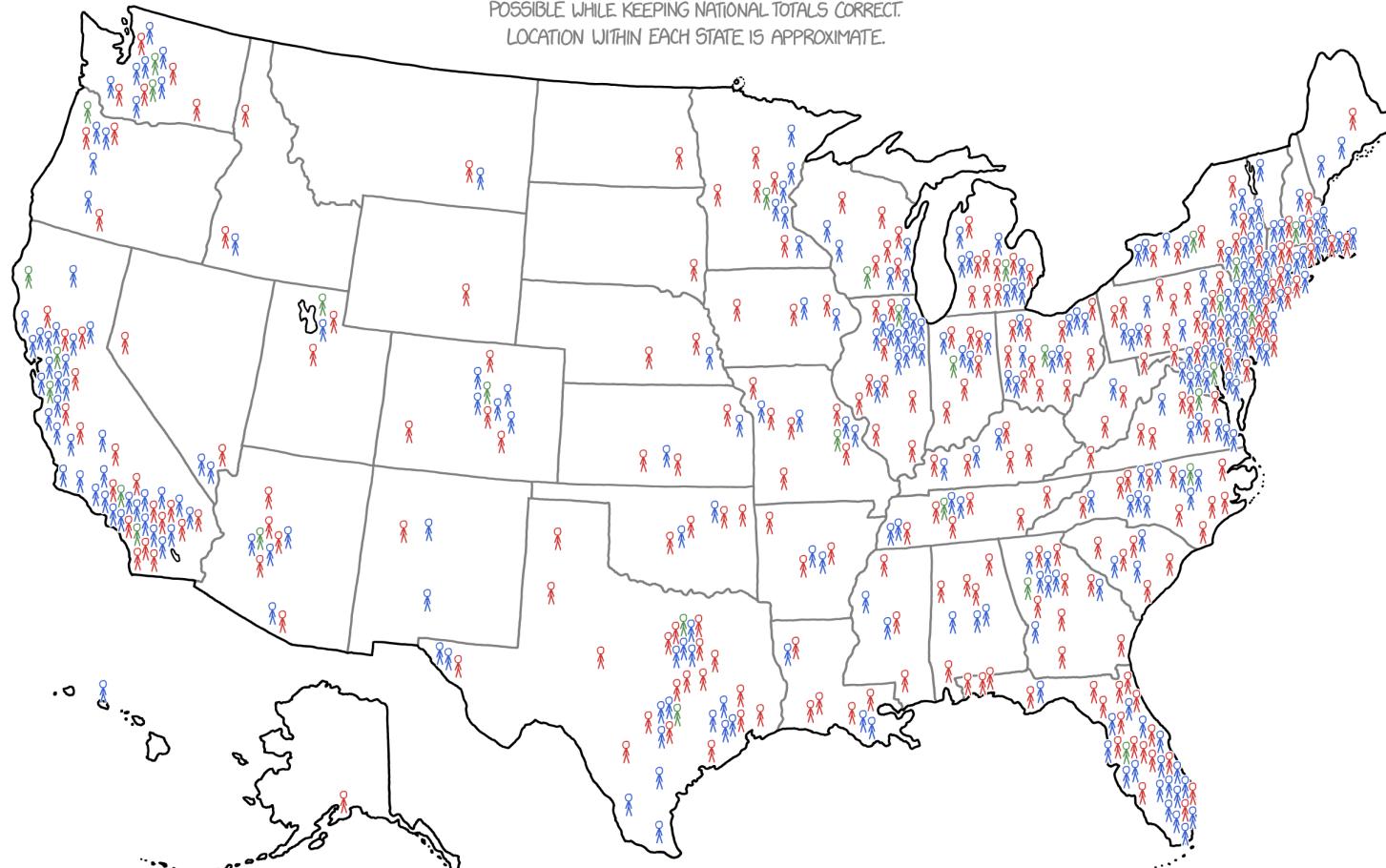
2016 ELECTION MAP

EACH FIGURE REPRESENTS 250,000 VOTES

TRUMP CLINTON OTHER

VOTES ARE DISTRIBUTED BY STATE AS ACCURATELY AS
POSSIBLE WHILE KEEPING NATIONAL TOTALS CORRECT.

LOCATION WITHIN EACH STATE IS APPROXIMATE.



Projections

Animated world projections

World projections

Longitude-latitude



crs = "+proj=longlat +ellps=WGS84"

Mercator



crs = "+proj=merc"

Gall-Peters



crs = "ESRI:54002"

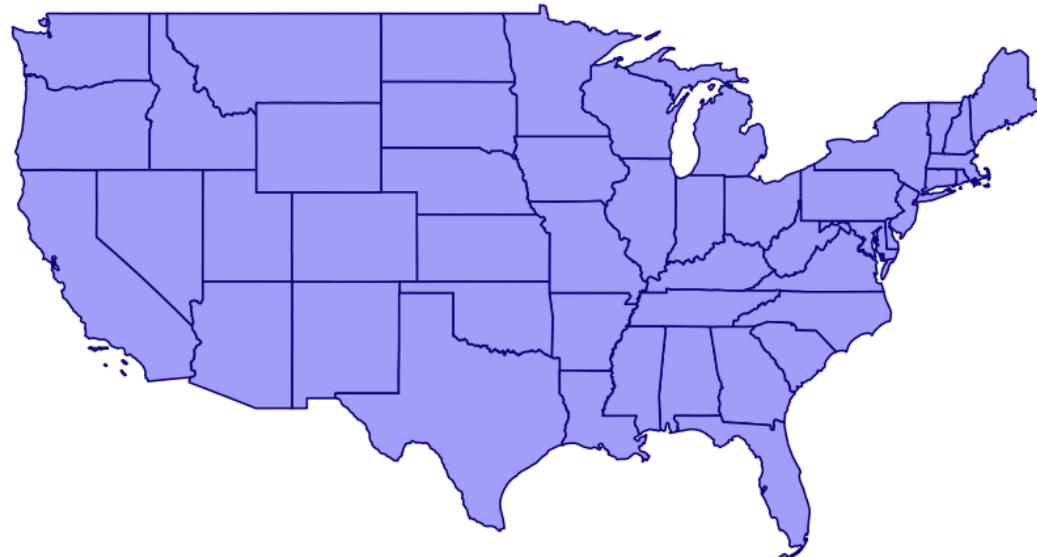
Robinson



crs = "+proj=robin"

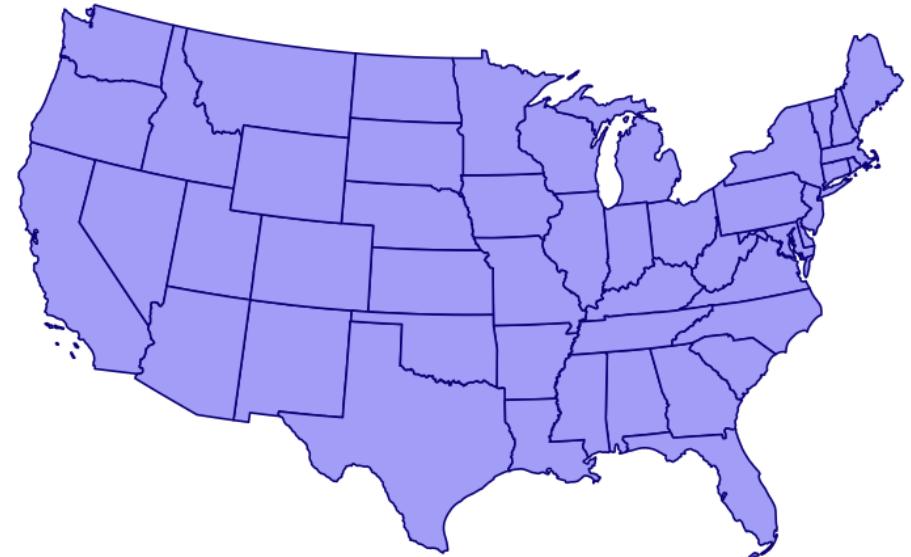
US projections

NAD83



crs = "EPSG:4269"

Albers



crs = "ESRI:102003"

Finding projection codes

epsg.io

proj.org

**Most common ones listed on the
workshop website**

This is an excellent overview of how this all works

And this is a really really helpful overview of all these moving parts

Which projection is best?

None of them

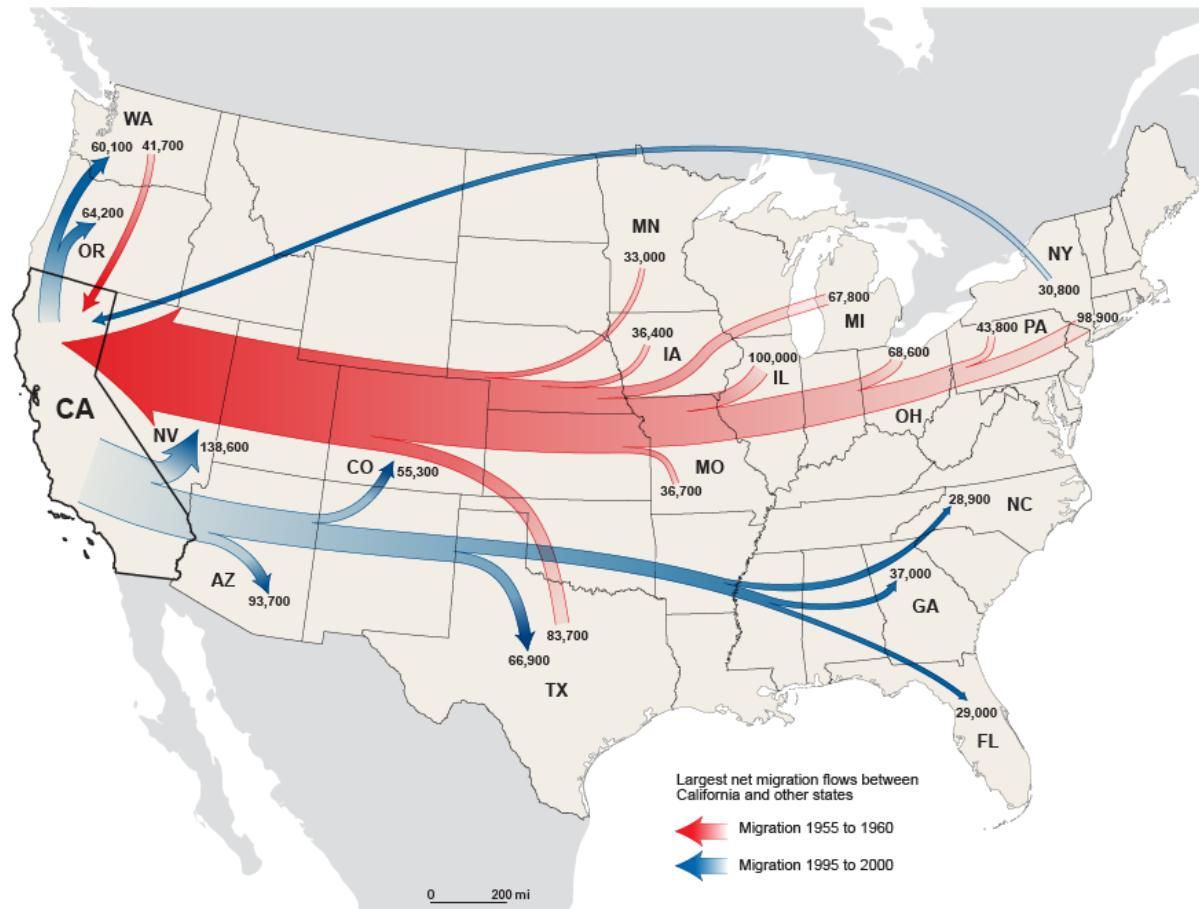
There are no good or bad projections

There are appropriate and
inappropriate projections

(but also ew mercator)

Putting data on maps

Maps with lines



US Census Bureau: Net migration between California and other states

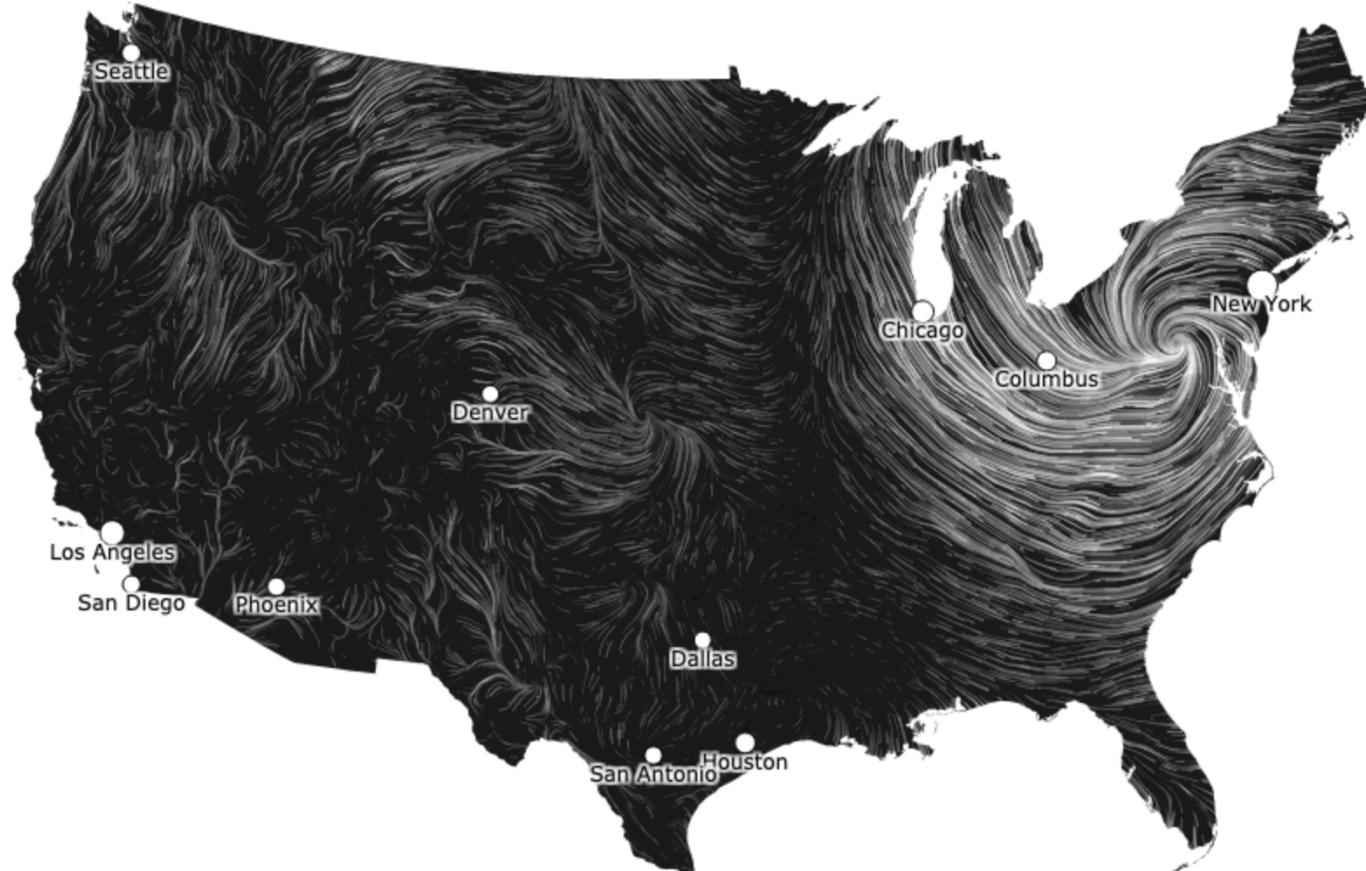
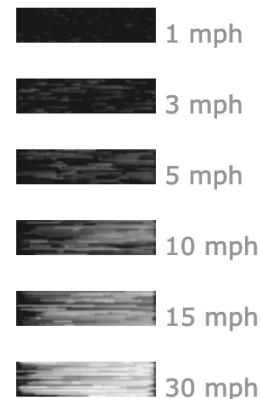
Maps with lines

October 30, 2012

6:59 am EST

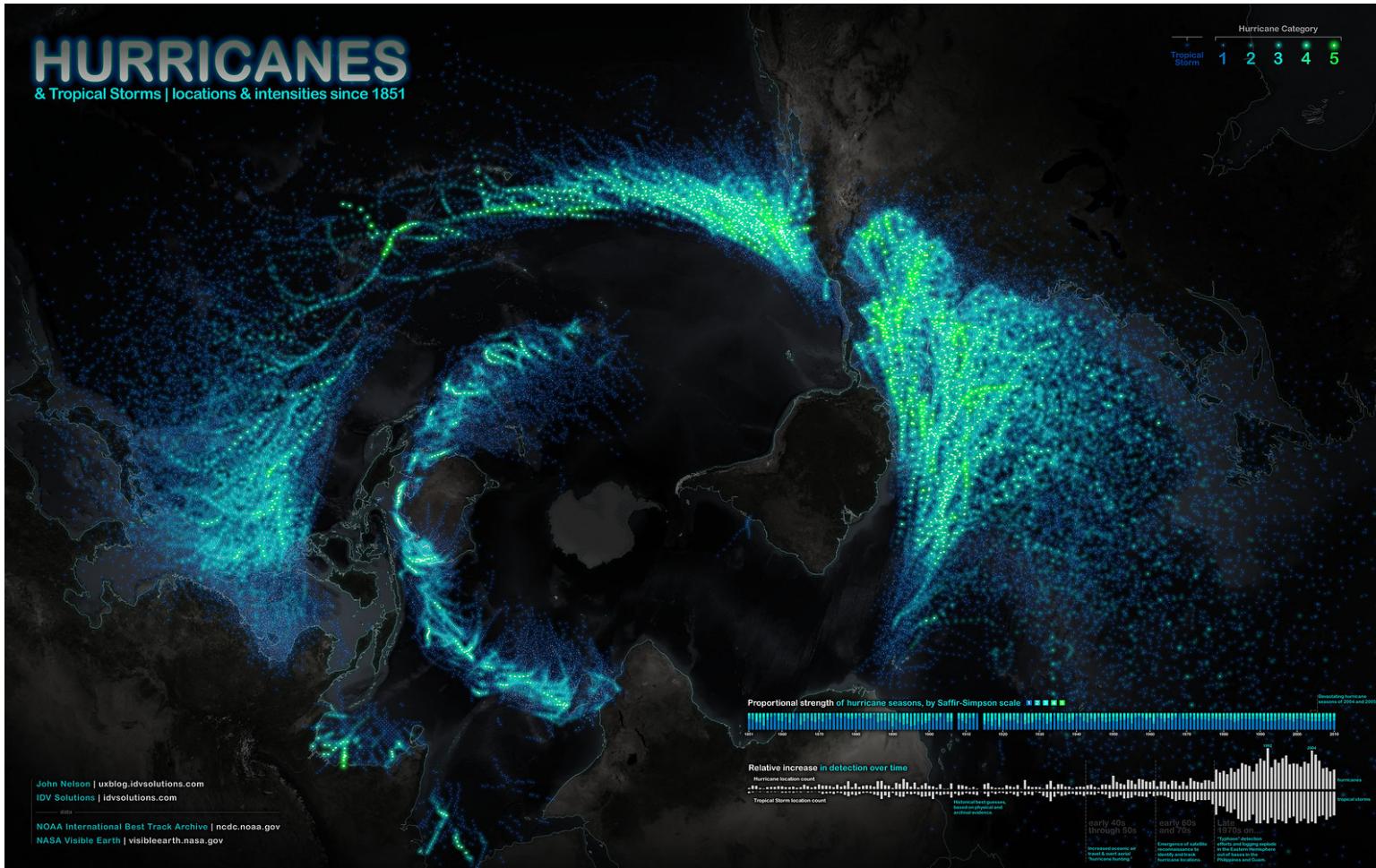
(time of forecast download)

top speed: **39.7 mph**
average: **8.4 mph**



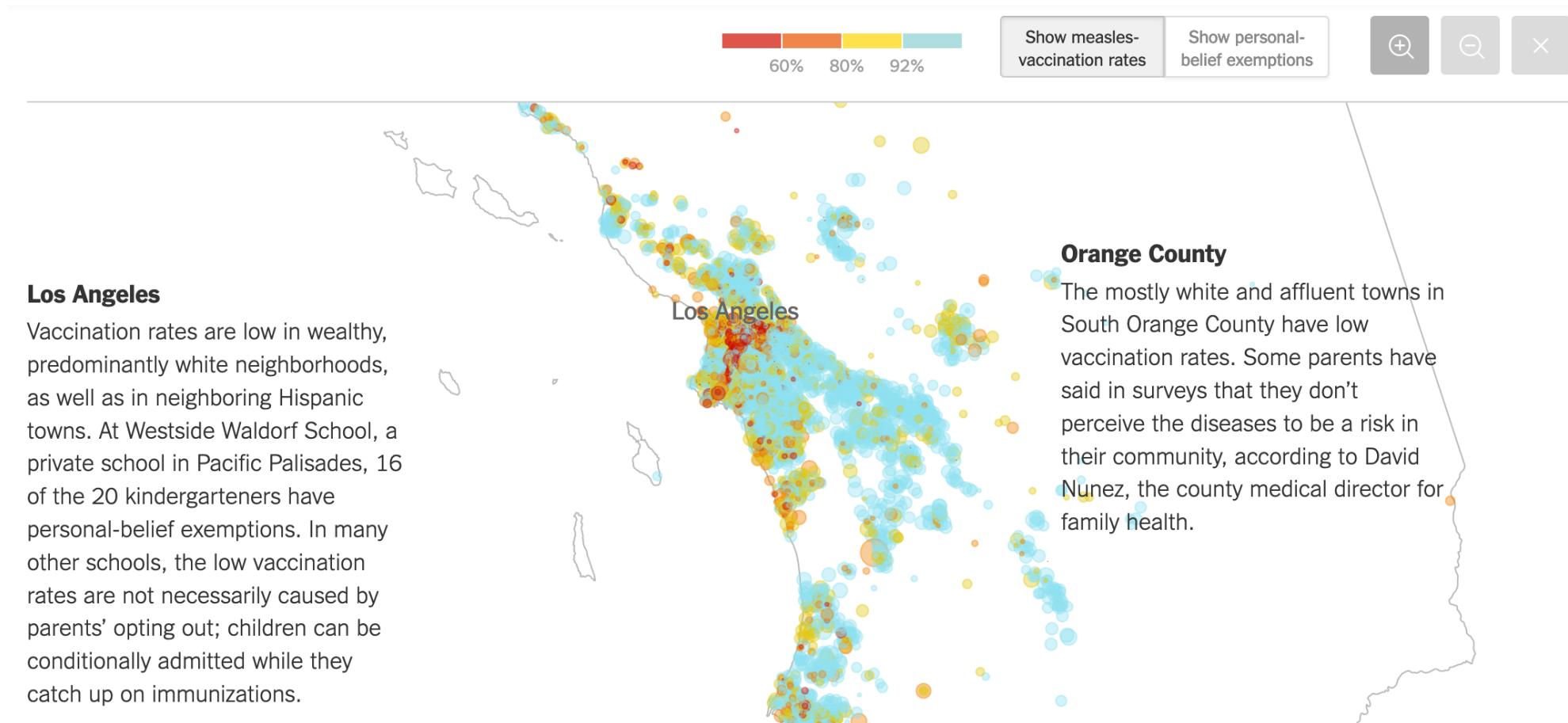


Maps with points



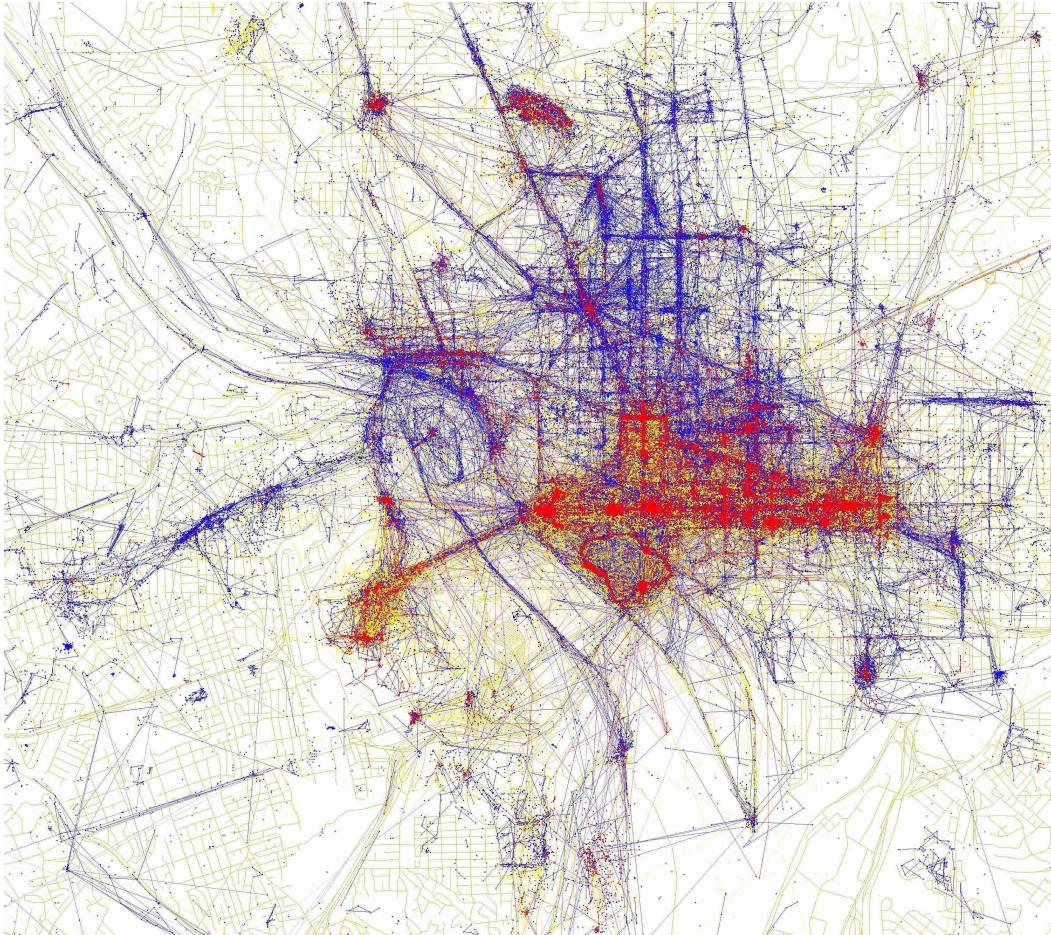
Every hurricane since 1851, by IDV solutions

Maps with points



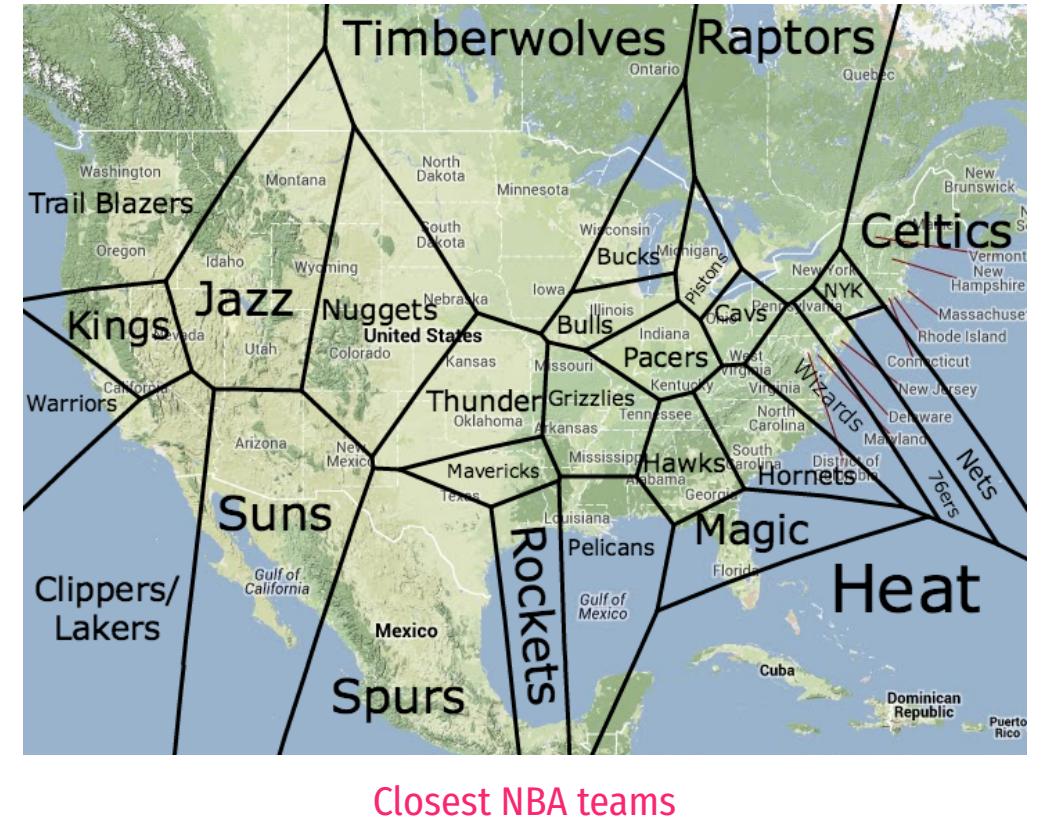
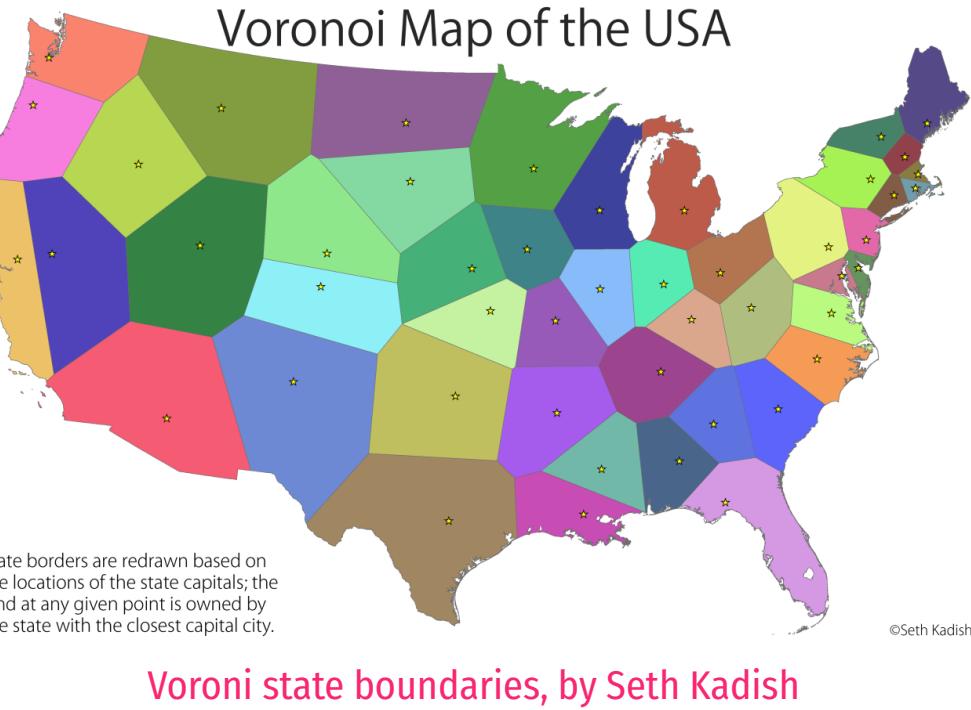
The New York Times, "Vaccination Rates for Every Kindergarten in California"

Maps with points



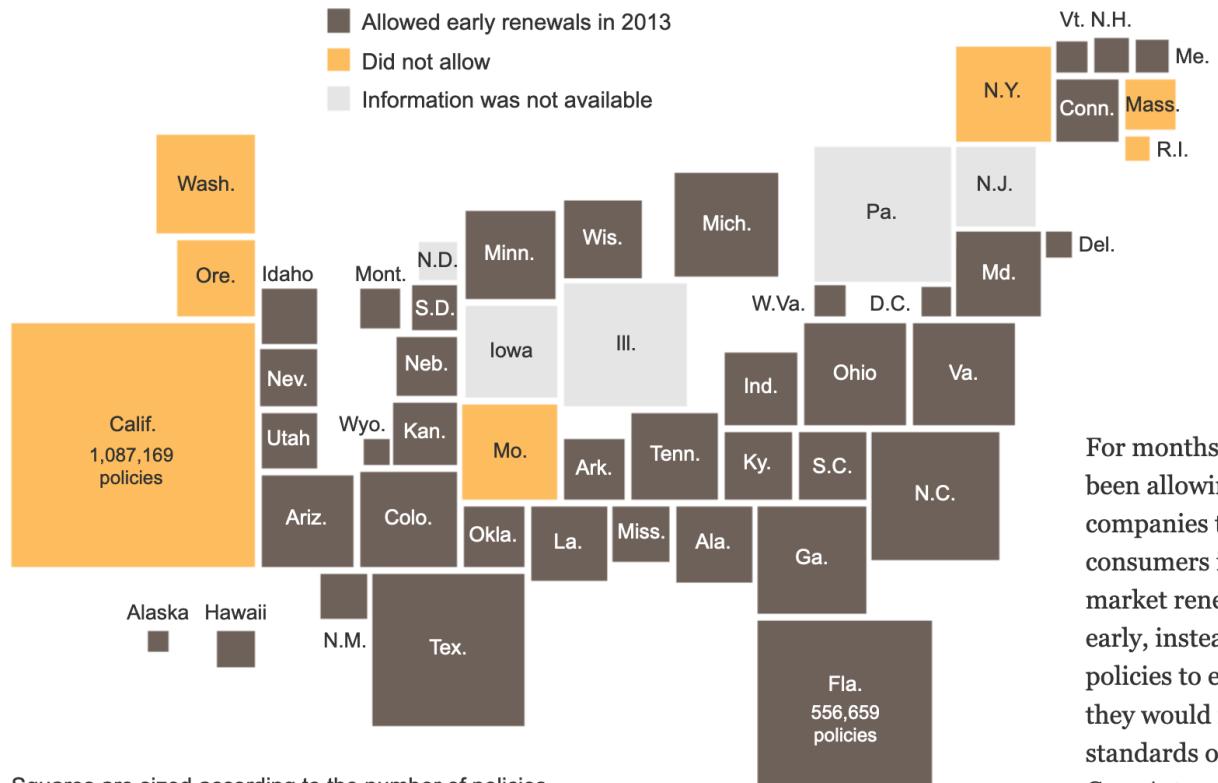
Locals vs. tourists in DC (blue = locals; red = tourists; yellow = unknown)

Voronoi maps



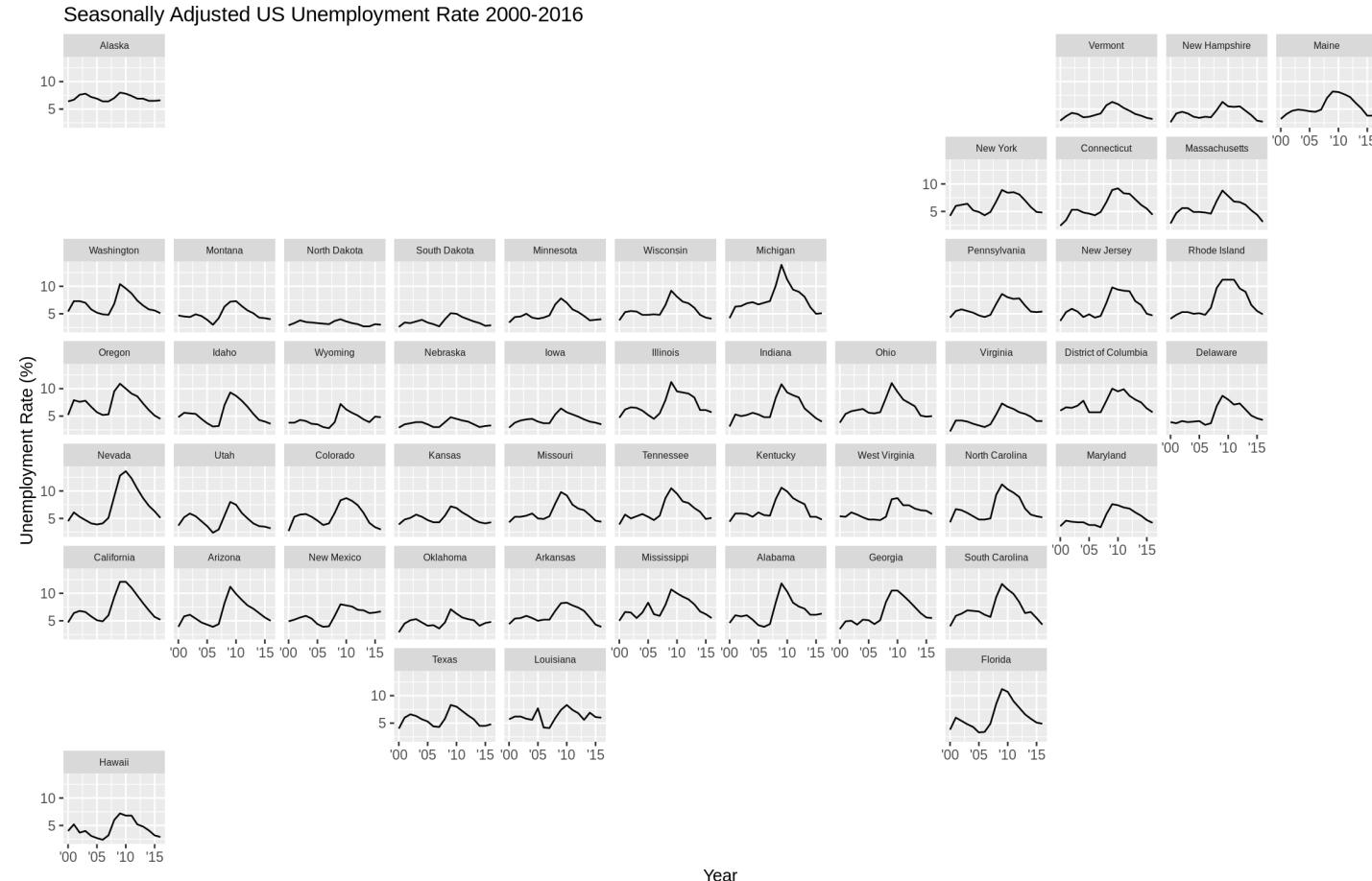
Maps with shapes

States Where Insured Could Renew Plans Before Change by Obama



For months, many states have been allowing insurance companies the option of letting consumers in the individual market renew their policies early, instead of waiting for the policies to expire in 2014, when they would not meet the standards of the Affordable Care Act. [Related Article »](#)

Small multiples that look like maps



facet_geo() in the **geofacet** package