

MassMutual DSDP 2019:

# GEOGRAPHIC VISUALIZATION

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June 26, 2019

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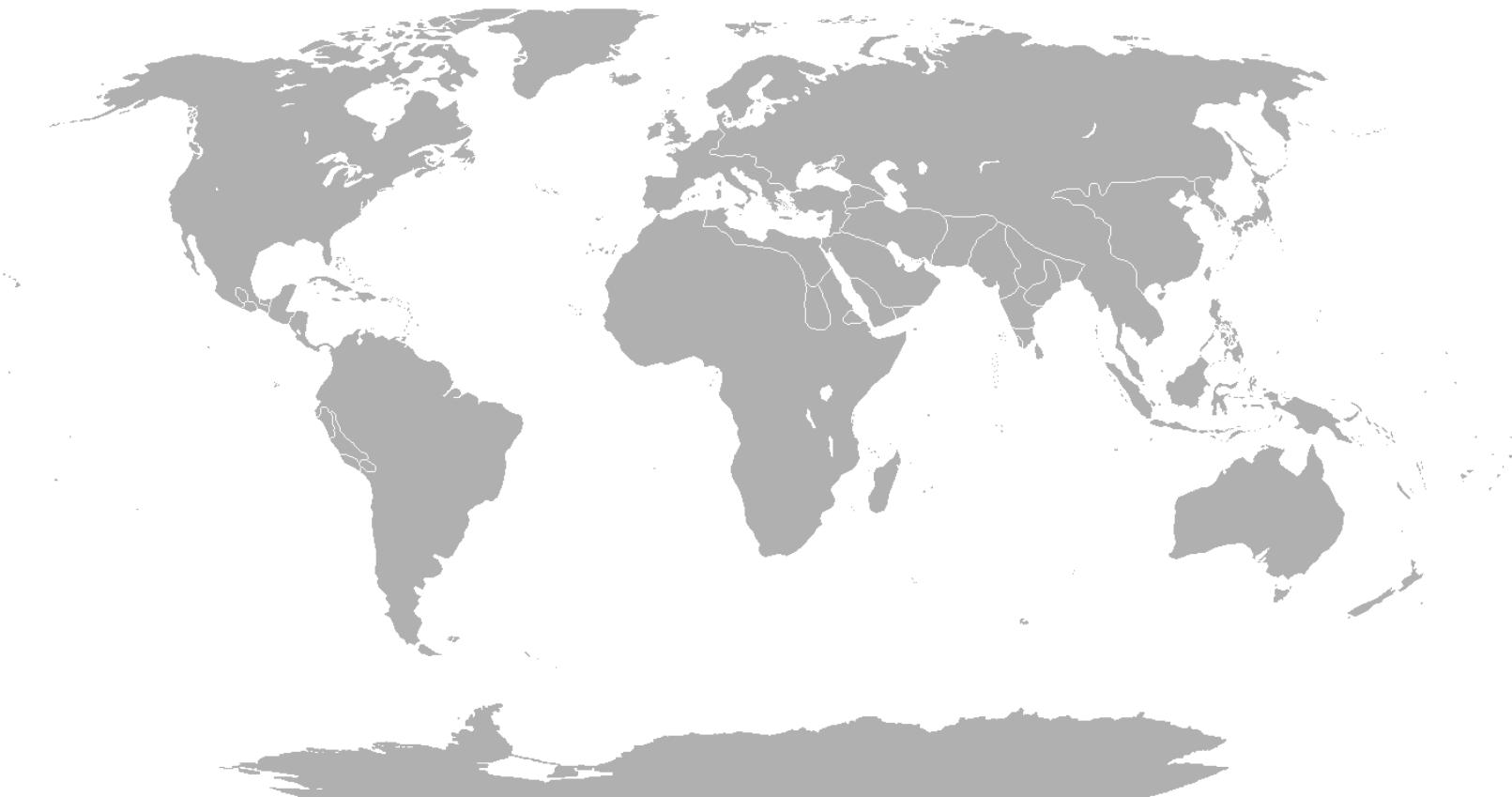
Smith College

# Outline

- Overview of geographic data
- Challenges
- Guidelines for making good geoviz

# Geographic visualization

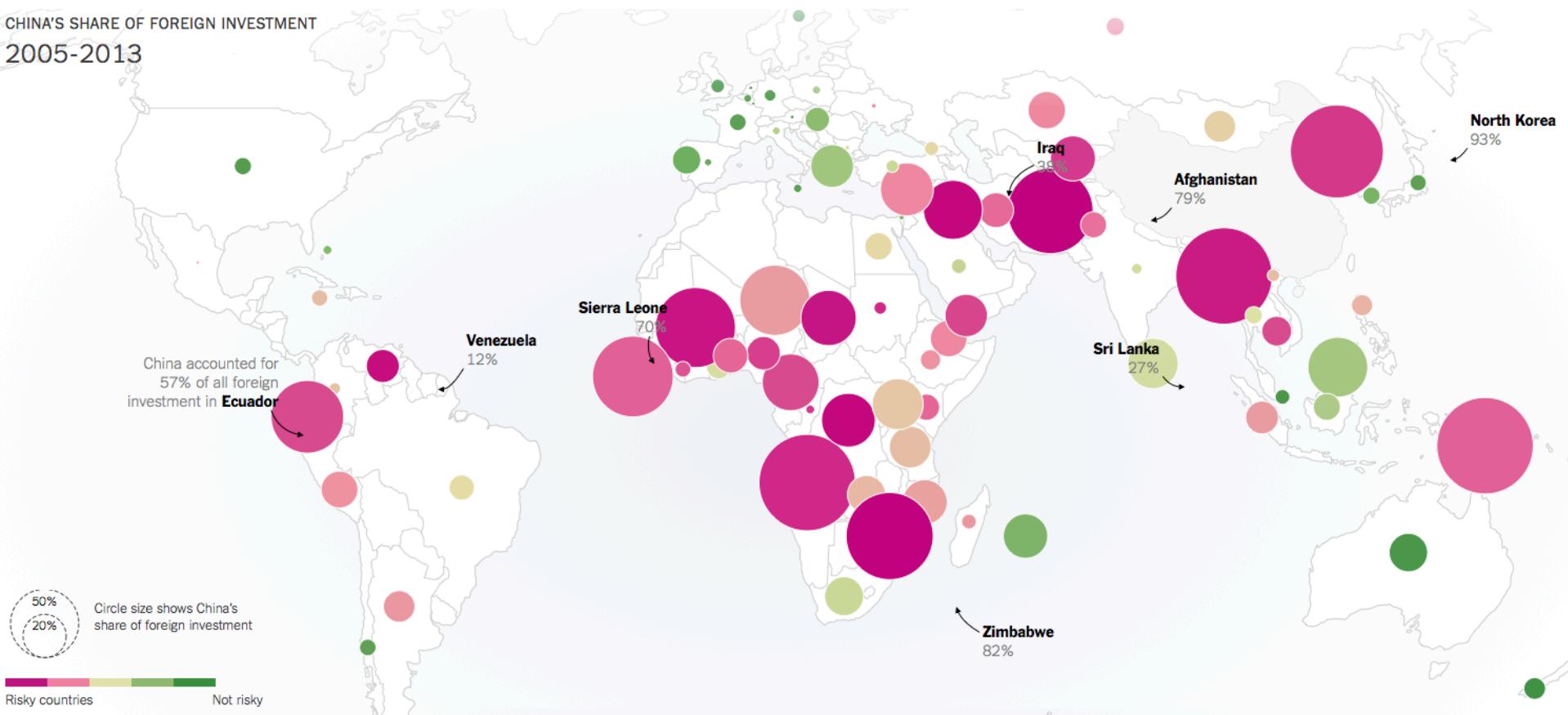
- Most common: maps
- Useful for making **geospatial** comparisons



# Geographic visualization: points

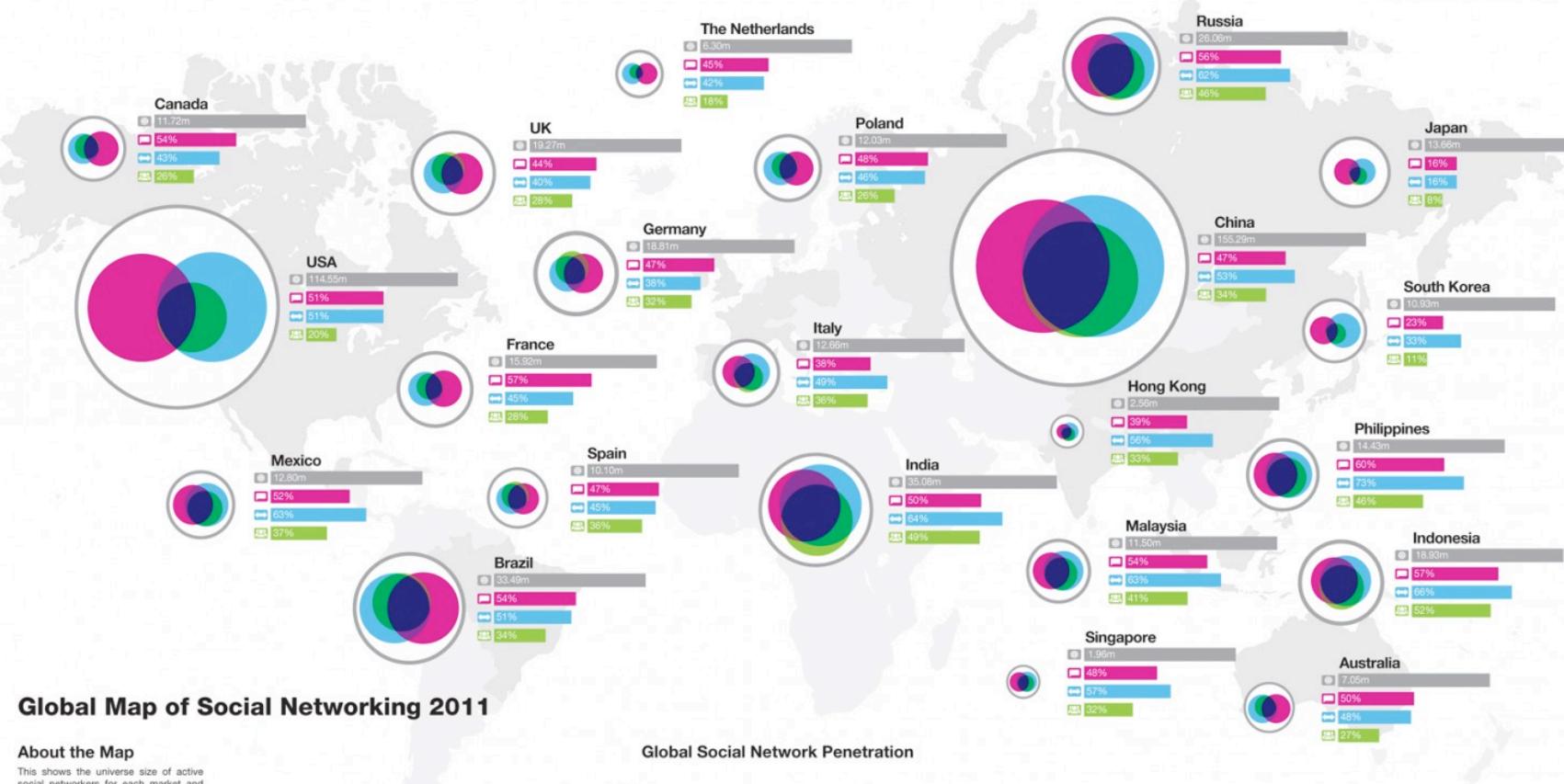
## The New York Times The World According to China

By GREGOR AISCH, JOSH KELLER and K.K. REBECCA LAI



# Geographic visualization: glyphs

designed by nikard.andresen@gmail.com



## Global Map of Social Networking 2011

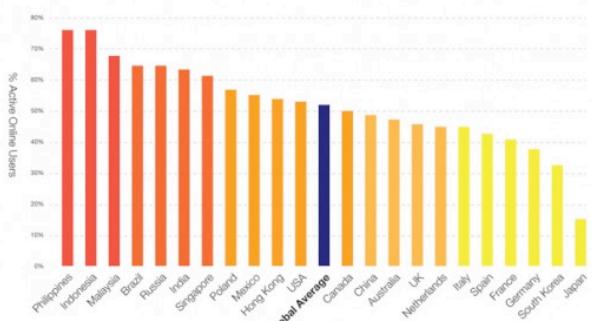
### About the Map

This shows the universe size of active social networkers for each market and then segments users into three behaviour types: Messengers, Groupers and Content Sharers. This behavioural data is based on a number of detailed questions we conduct into the way that consumers use social networks. Because social networking is now so big and touches every aspect of our internet experience, this detail is essential for effective planning and implementation of marketing activity across social networks. This data reveals that users across the world are very different in how they utilise their network, with more focus on messaging and less on content sharing in established markets like the US and UK but more focus on content and groups in fast growing markets like Indonesia and China.

### Behaviour Types:



### Global Social Network Penetration

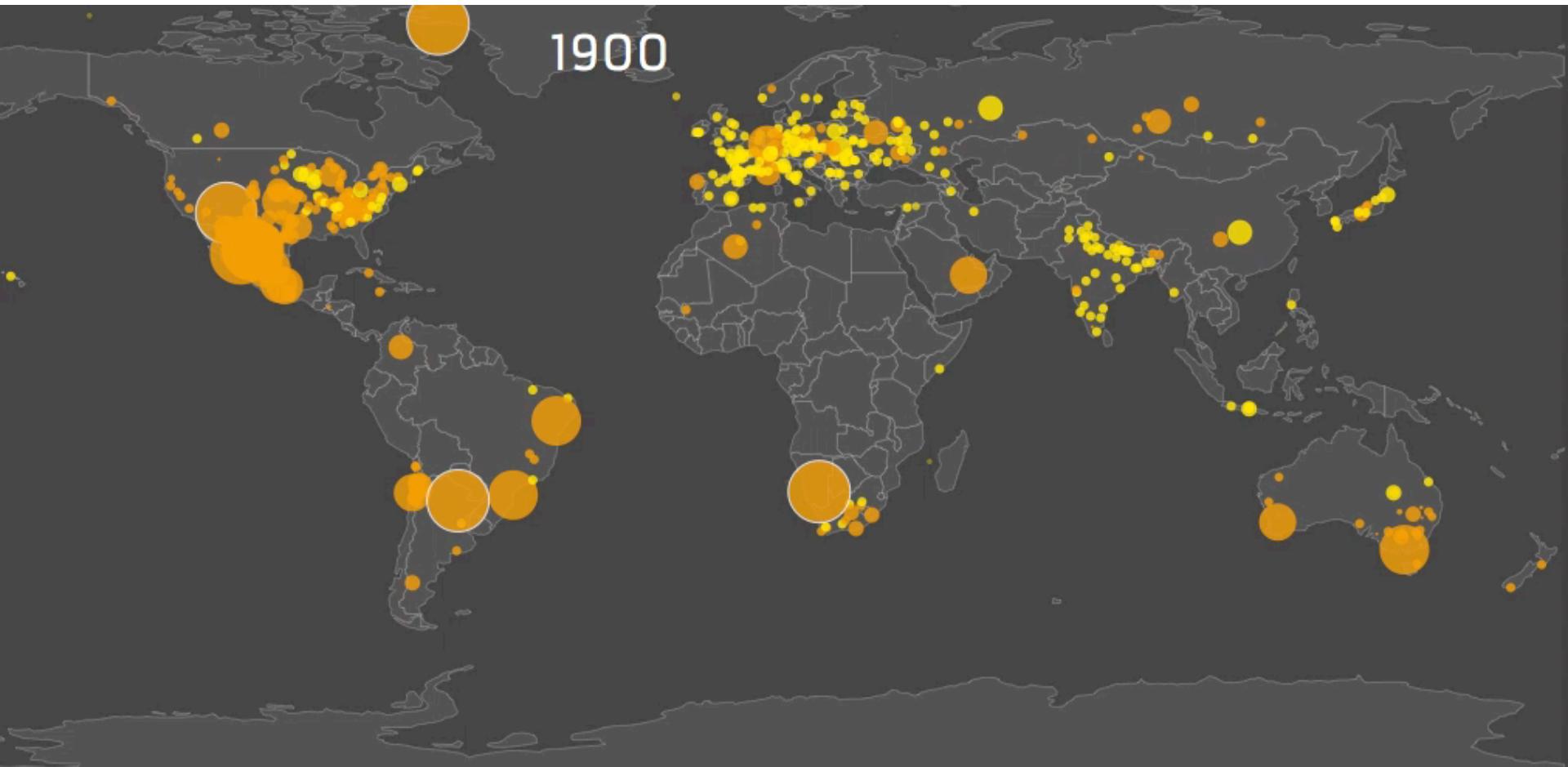


The most detailed study on the consumer adoption of the internet ever compiled:

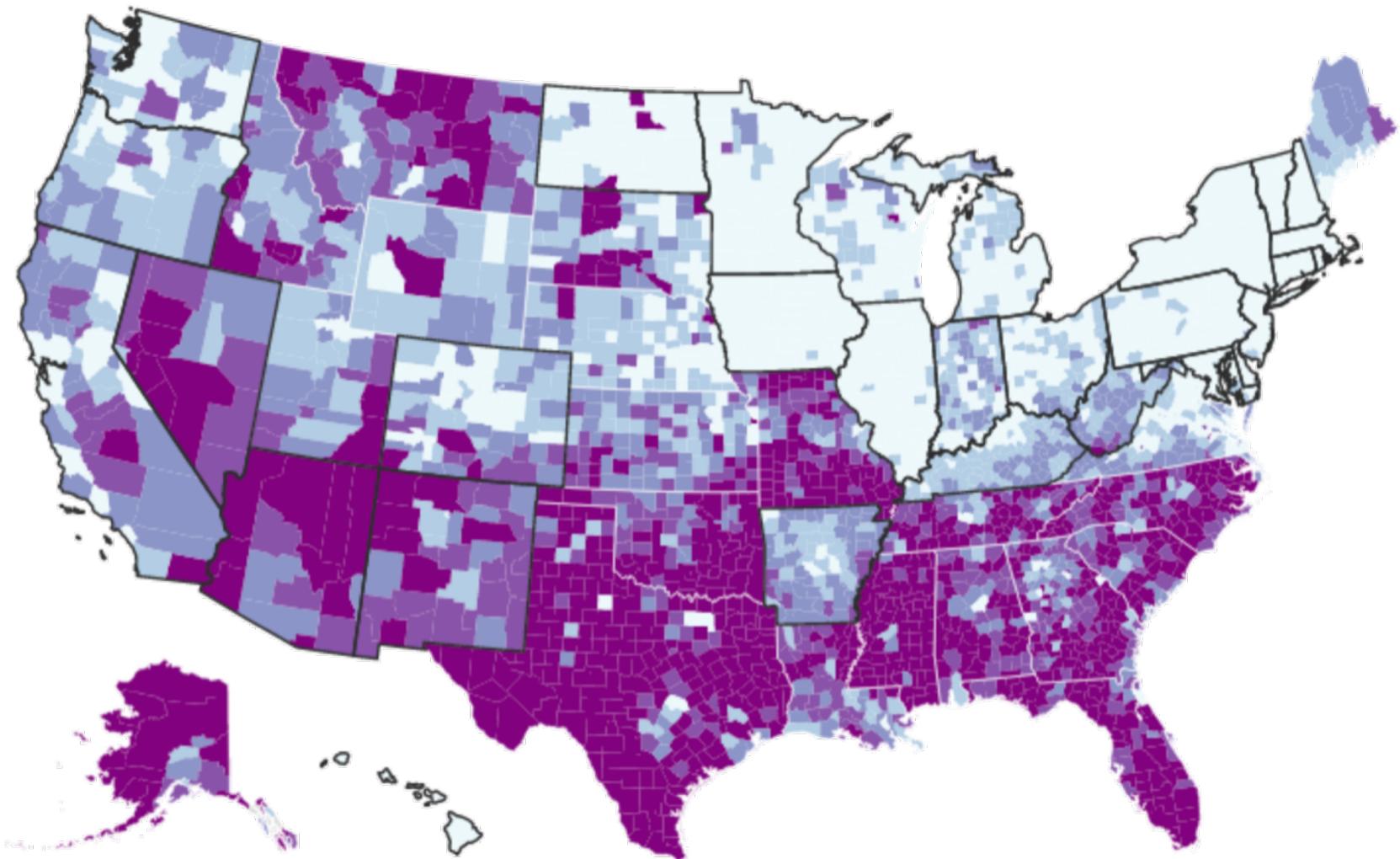
PC // Mobile // Tablets // TV sets // Gaming  
100K+ surveys a year // 3 waves a year // 36 markets

Find out more // [www.globalwebindex.net/](http://www.globalwebindex.net/)  
mail // [globalwebindex@trendstream.net](mailto:globalwebindex@trendstream.net)

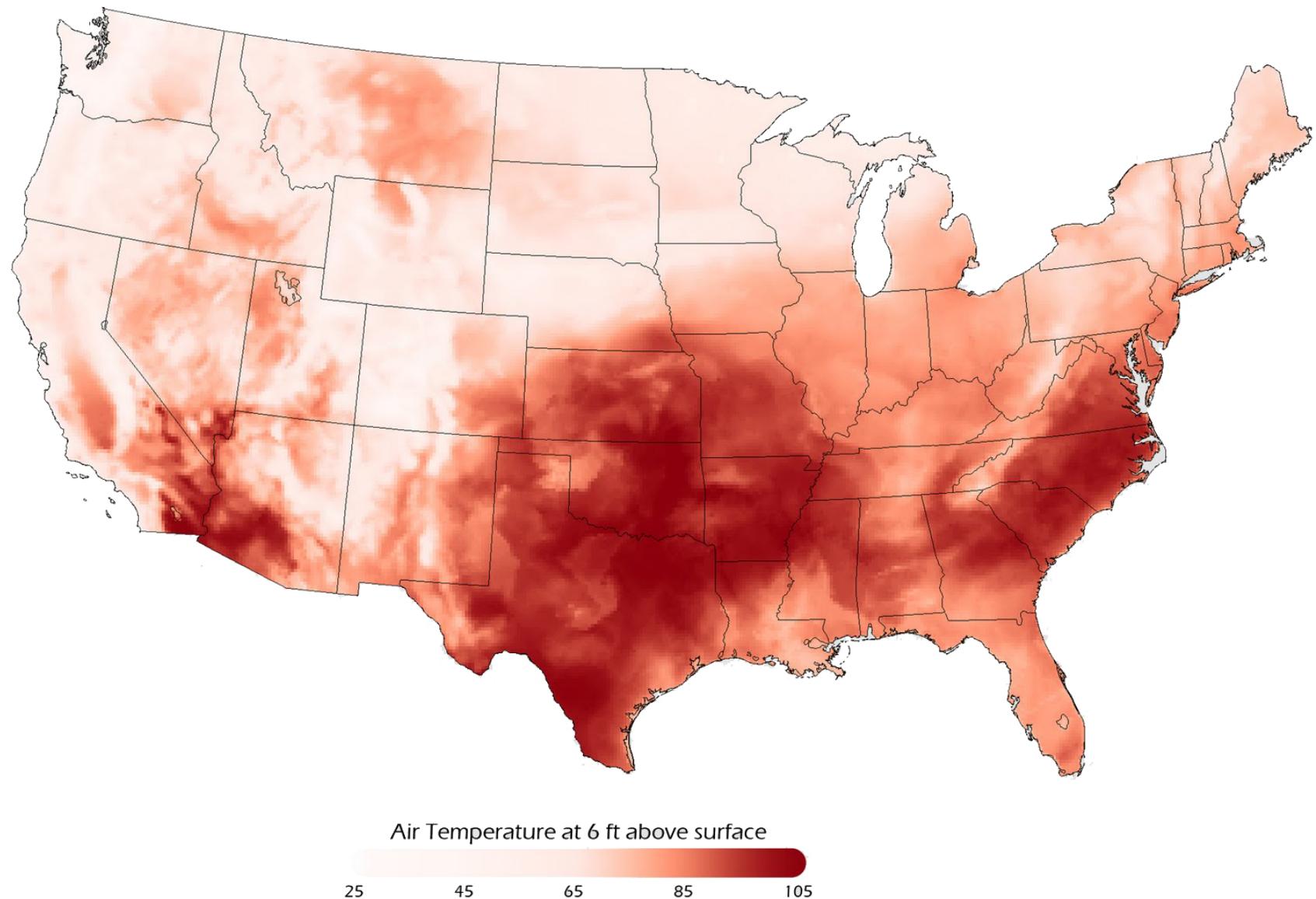
# Geographic visualization: over time



# Geographic visualization: filled regions



# Geographic visualization: heatmaps



# Geographic visualization: connections



# Examples: NYT maps

Google search results for "new york times map".

Search bar: new york times map

Navigation: All, Maps, **Images**, News, Shopping, More ▾, Search tools

Filters: SafeSearch ▾, Settings

Search terms (highlighted in blue): middle east, syria, kurdistan, ukraine, arab world, saudi arabia, immigration, crime, demographic, population, baseball, college football, nfl, isis

Image grid:

- New York Middle East Department Enrollment Map
- Born in America Transportation Density
- Second most popular baseball teams on Facebook
- Your Map
- 2009 NFL Velocity Index
- New York Times
- The Vote for Mayor In Each Assembly District
- SHARE OF VOTE 0% 40% 75% LEADER Demcratic Republinc No results
- Which Cities Are Most Walkable?
- Barack Obama's Campaign Finances
- Areas in New York City
- How Is Corporate Credit Issued
- Hillary Clinton's Campaign Finances
- Made in NY Digital Map
- Gulf of Mexico
- The vote in counties where population per square mile is between 0 and 57.172
- Obama 53% McCain 46%
- Extreme Oil Production
- Which Cities Have the Most Crime
- New cases for the week ended Oct. 21
- United States
- Demographic
- College Football
- NFL
- ISIS
- New York Times Interactive Map
- Map of the Gulf of Mexico
- Map of the United States
- Map of New York City

# Discussion

**Question:**

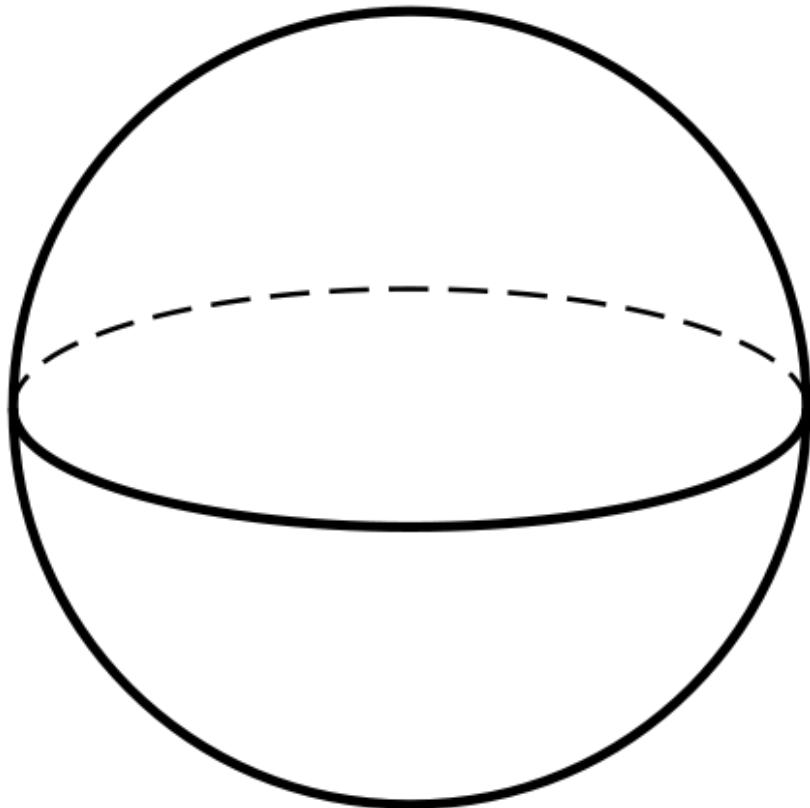
What makes geographic visualizations  
so compelling?



# Challenge 1: flat earth?



# Activity: spherical grumpy cat (5-7 min)



# Impact of map projections

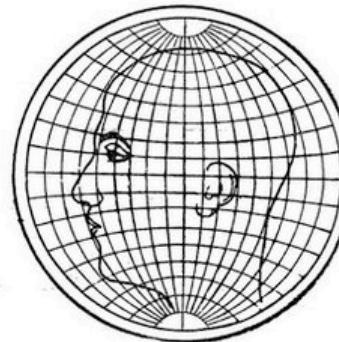
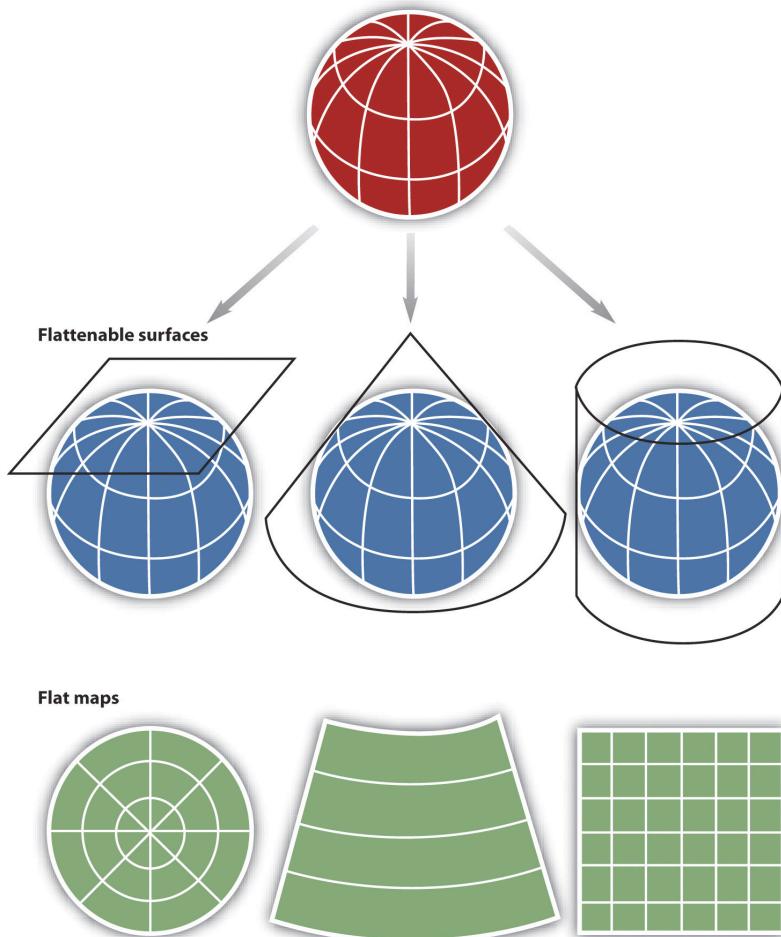


FIG. 42.—Man's head drawn on globular projection.

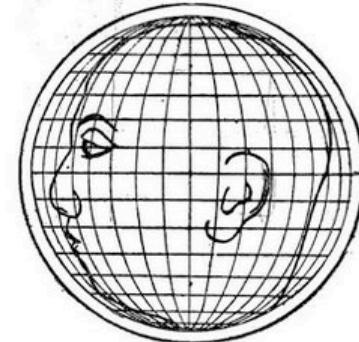


FIG. 43.—Man's head plotted on orthographic projection.

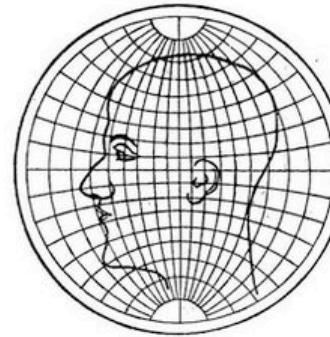


FIG. 44.—Man's head plotted on stereographic projection.

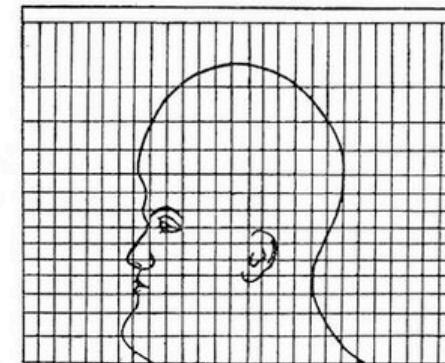


FIG. 45.—Man's head plotted on Mercator projection.

Campbell, J.E., & Shin, M. (2012). Geographic Information System Basics.

Deetz, C. H., & Adams, O. S. (1921). Elements of map projection with applications to map and chart construction.

# Challenge 2: granularity mismatch

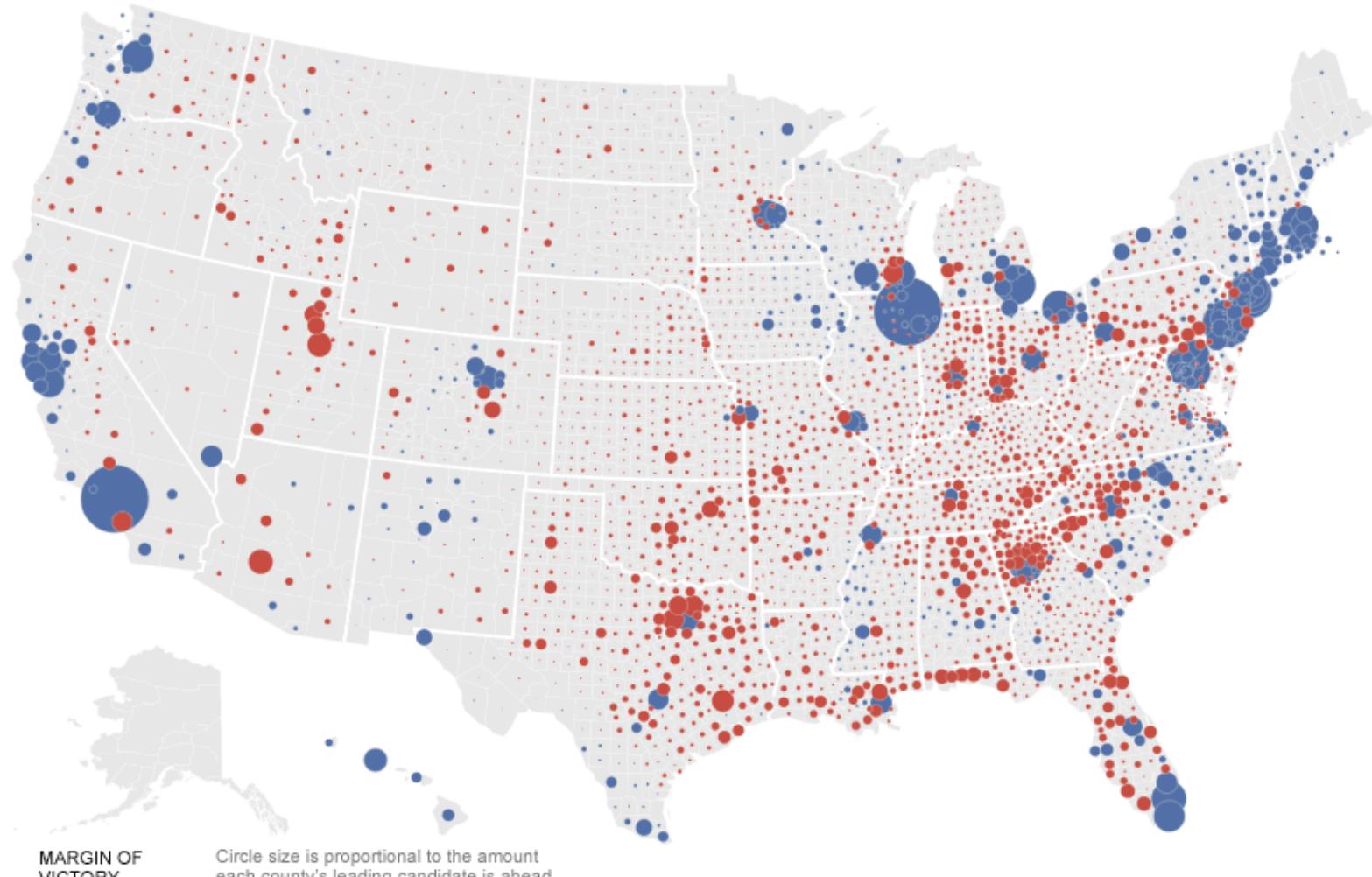
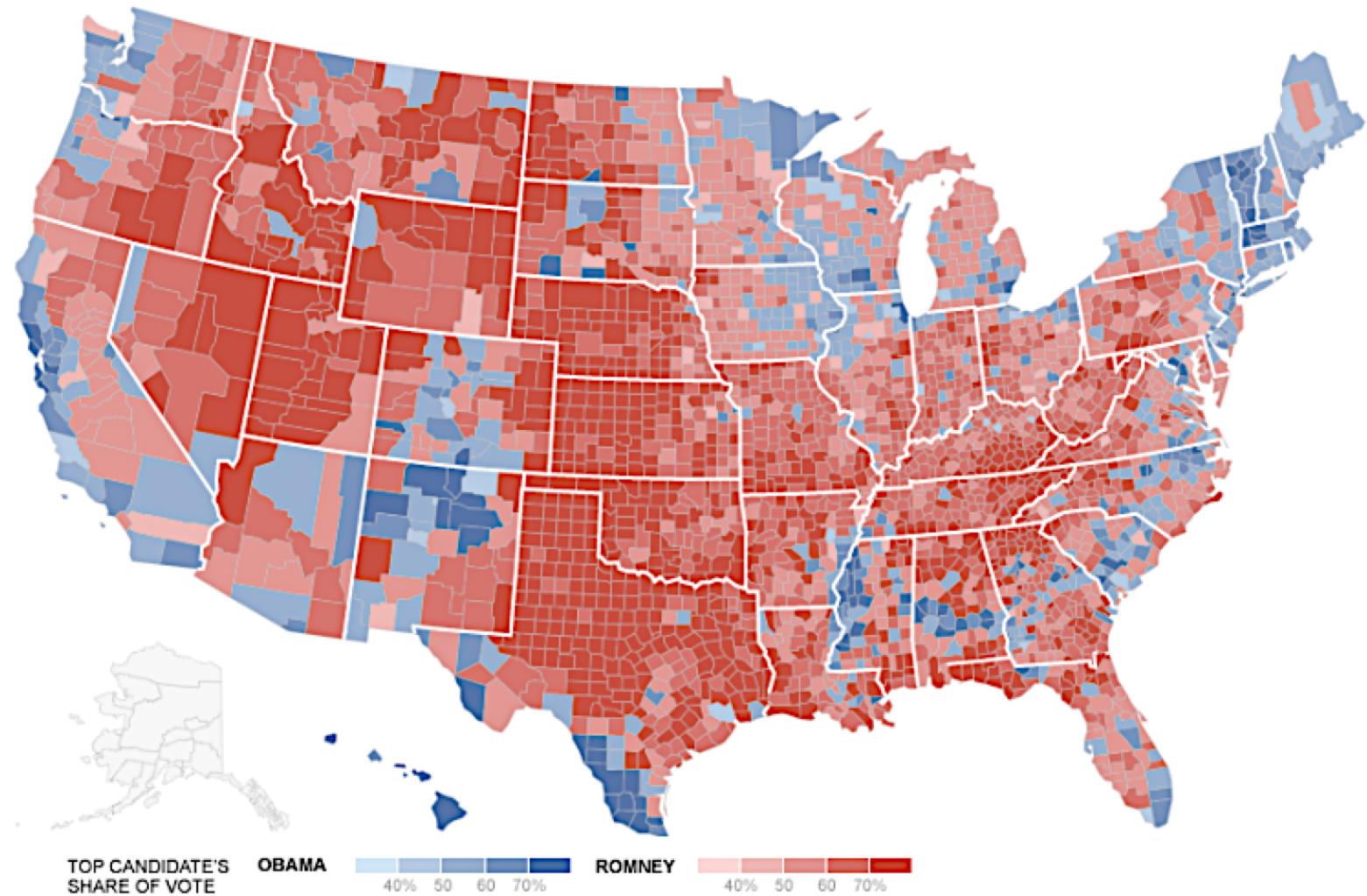
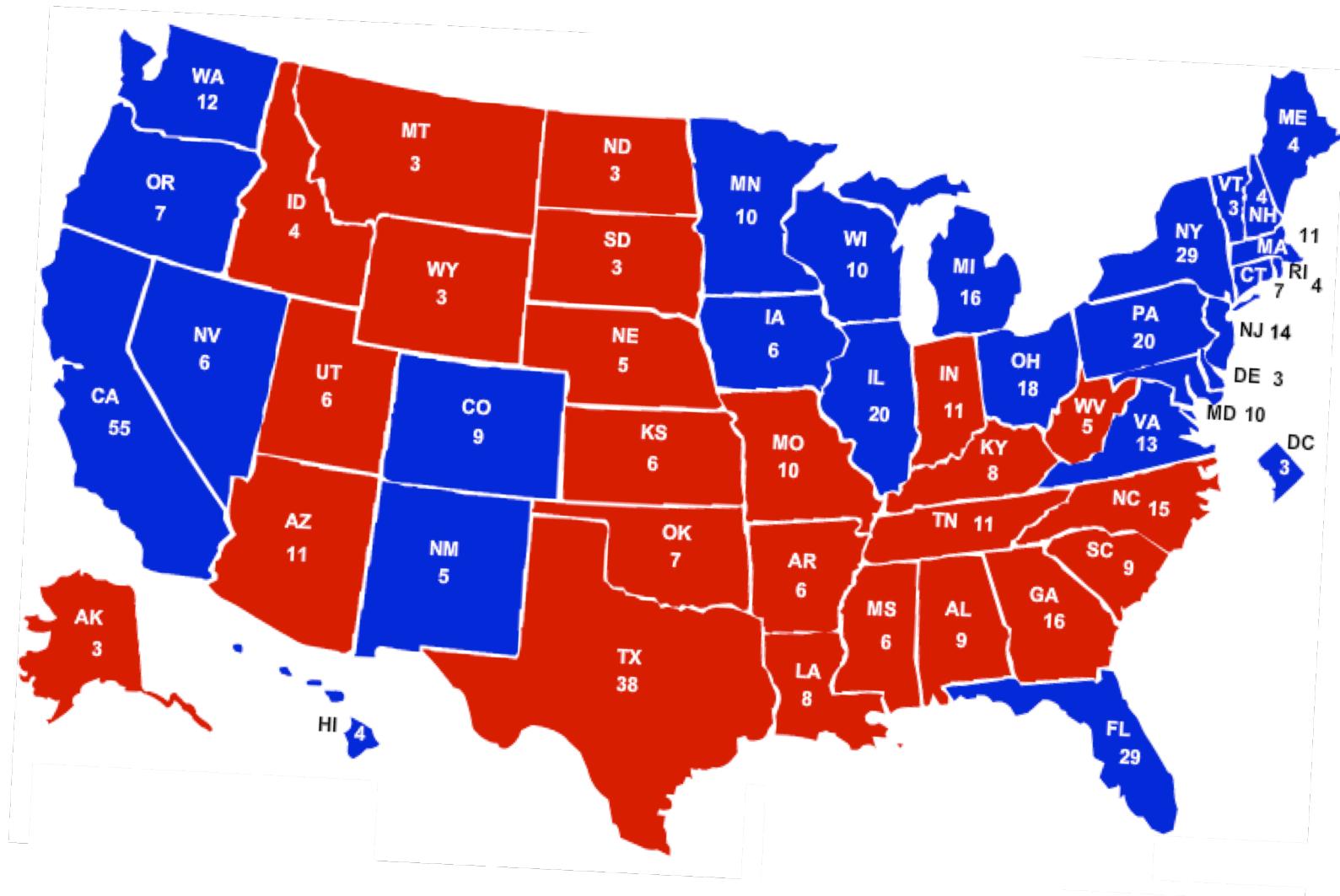


Image courtesy of politicalmaps.org

# Example: 2012 Presidential Election

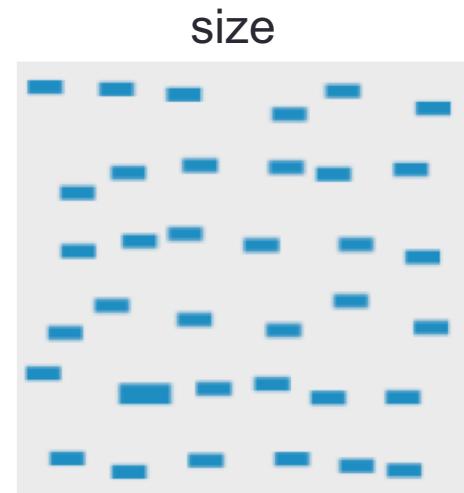
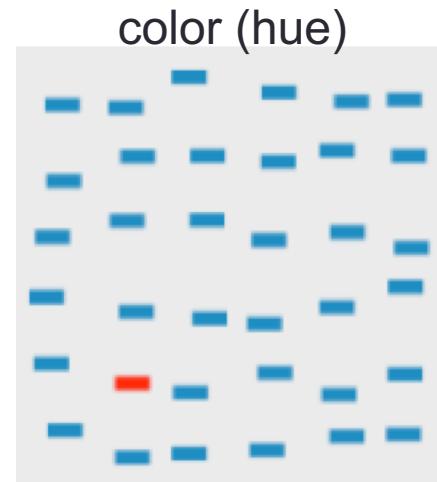
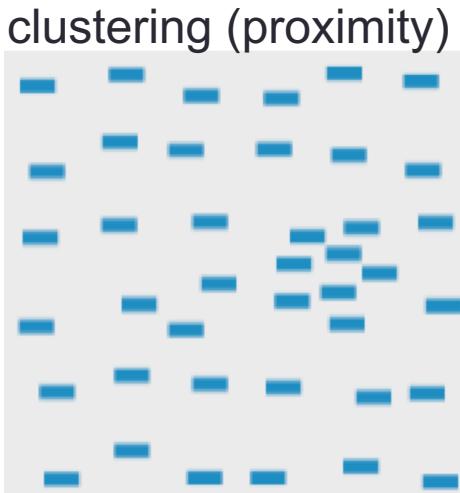


# Example: 2012 Presidential Election



# Challenge 3: perceptual trickery

- Flashback to when we talked about **perception**
- What **preattentive features** are at work in these maps?



# Example: 2012 Presidential Election

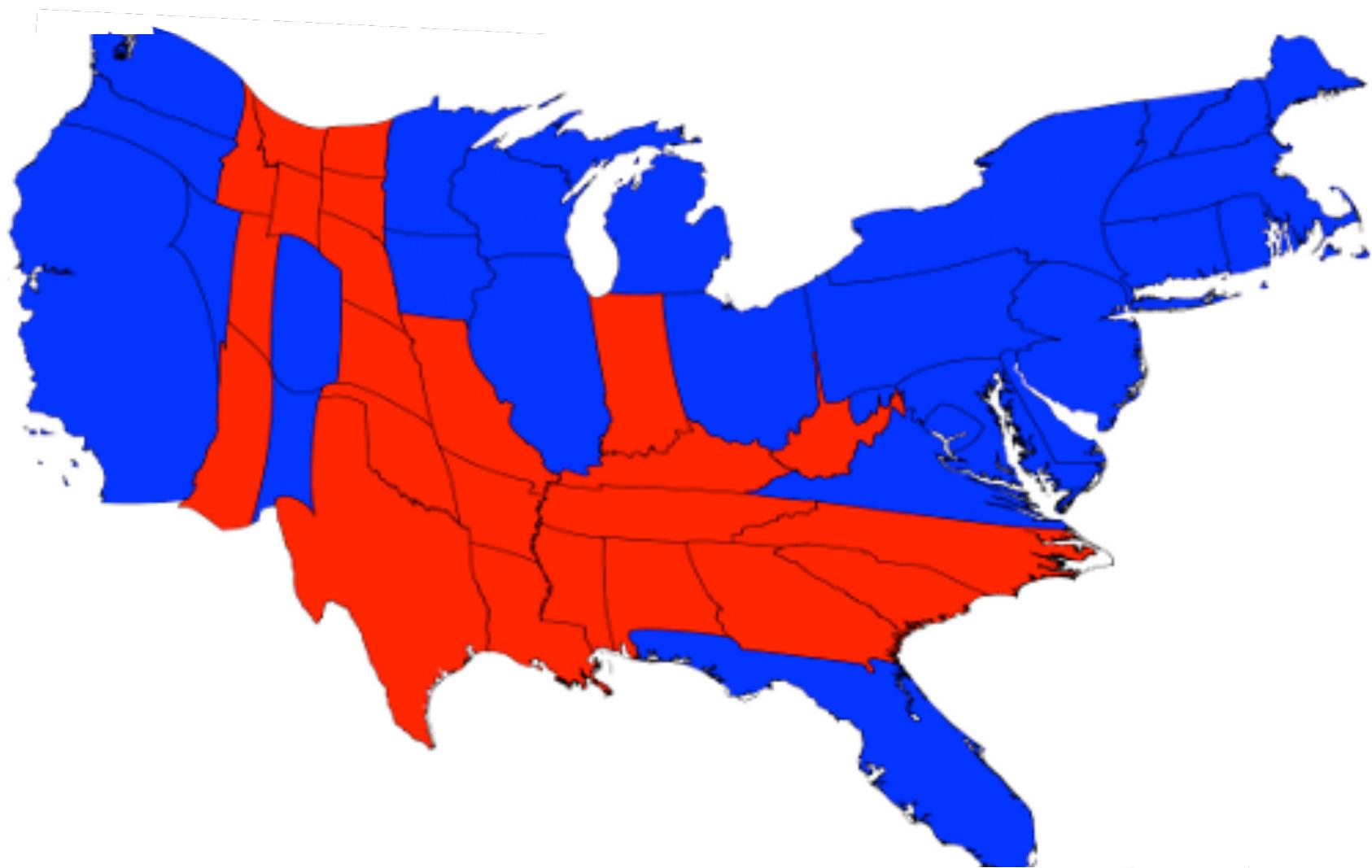
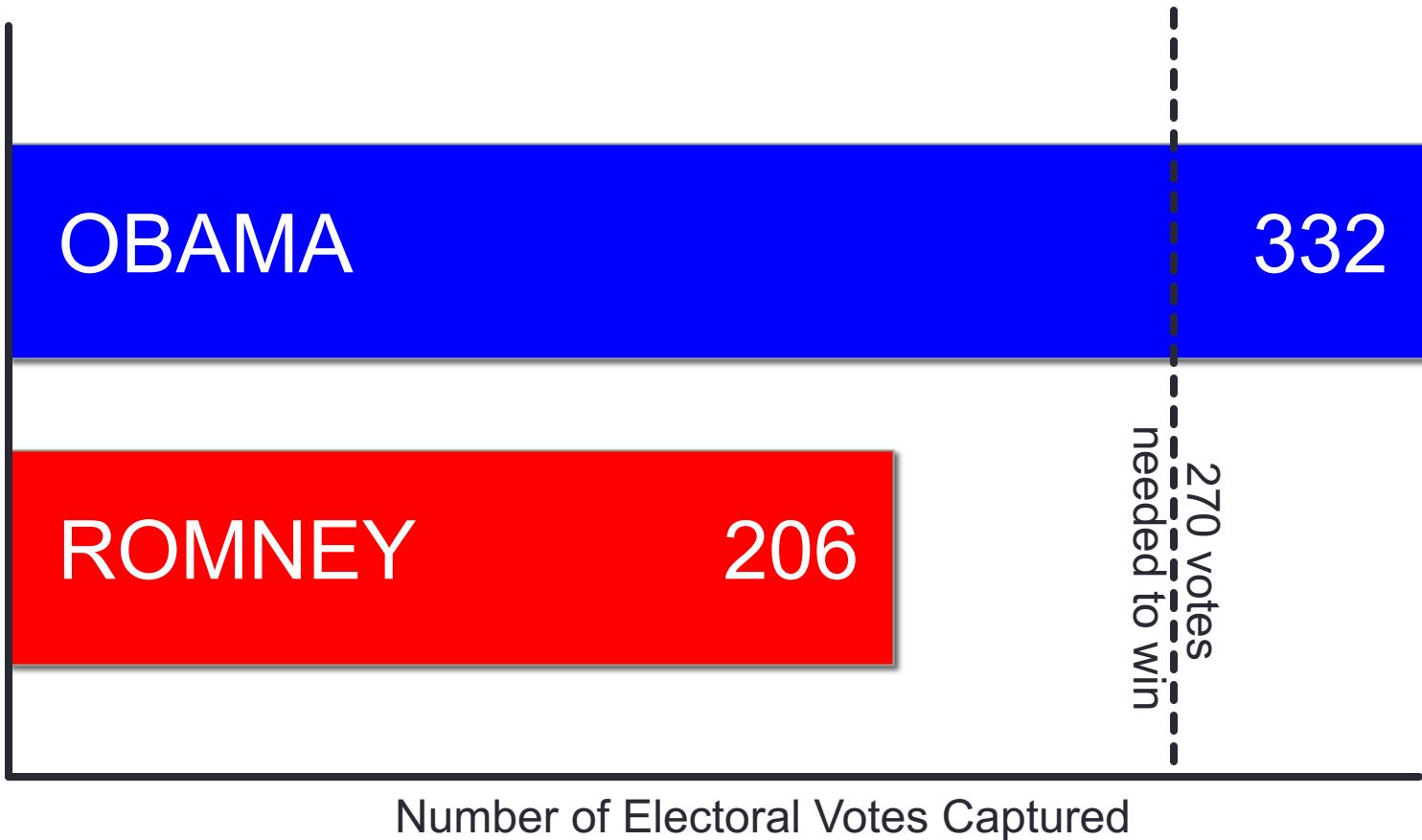
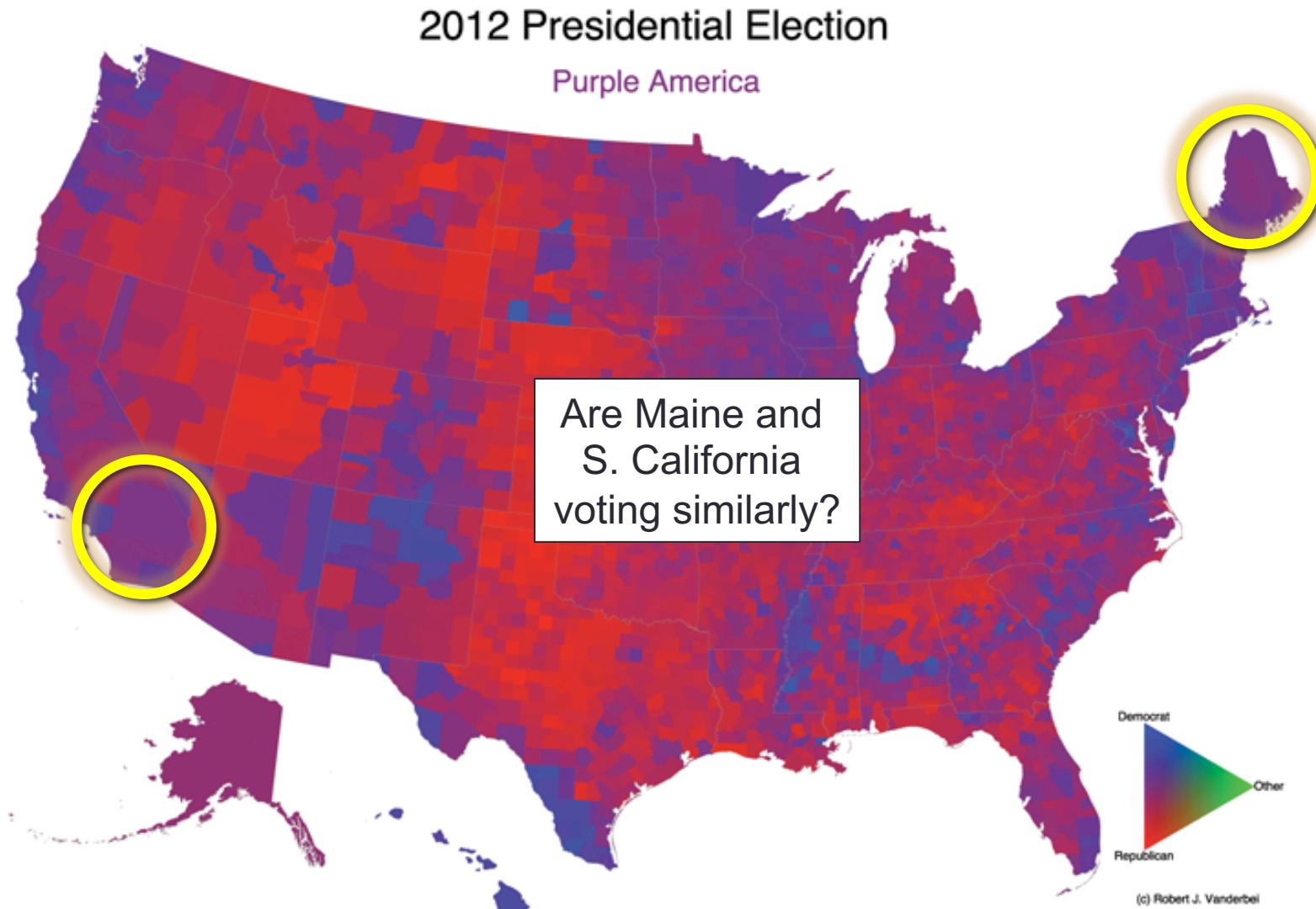


Image courtesy of <http://politicalmaps.org>

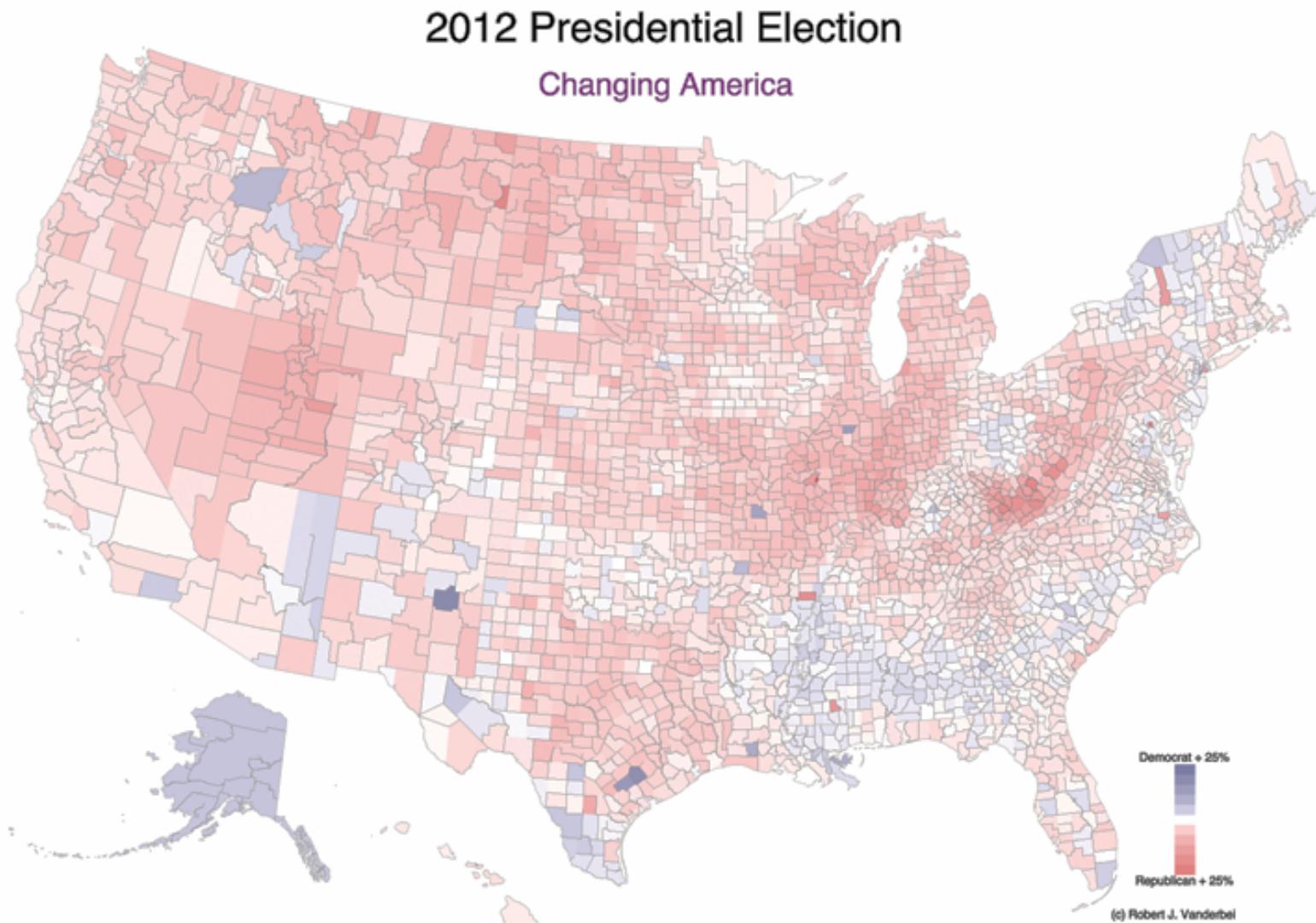
# Example: 2012 Presidential Election



# Challenge 4: non-adjacent comparison



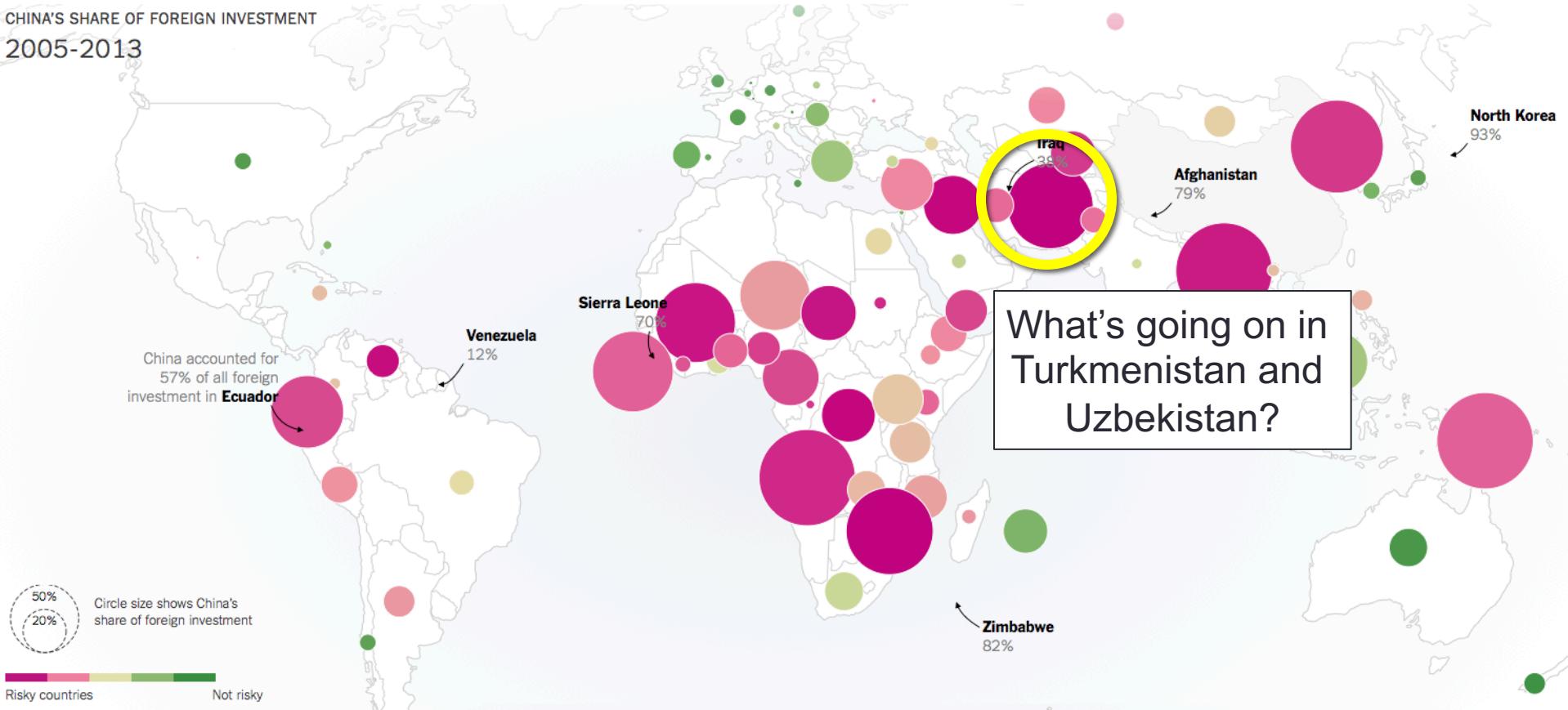
# Challenge 5: missing data



# Challenge 6: occlusion

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# Discussion: (rough) guidelines for maps

## **Question:**

What do we need to keep in mind  
to make good geographic visualizations?

