

MassMutual DSDP 2021:

GEOGRAPHIC VISUALIZATION

June 30, 2021

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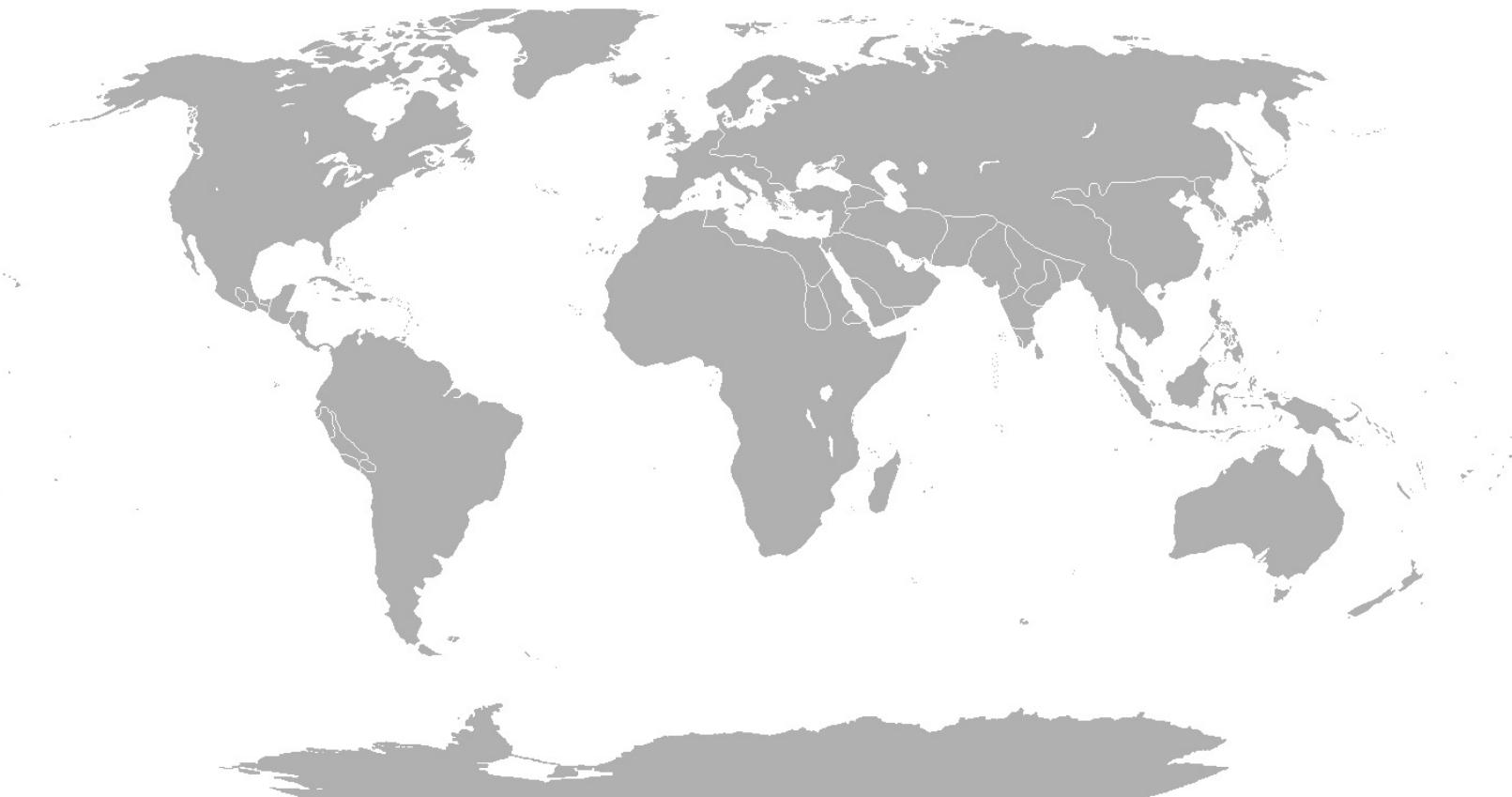
Smith College

Outline

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

Geographic visualization

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

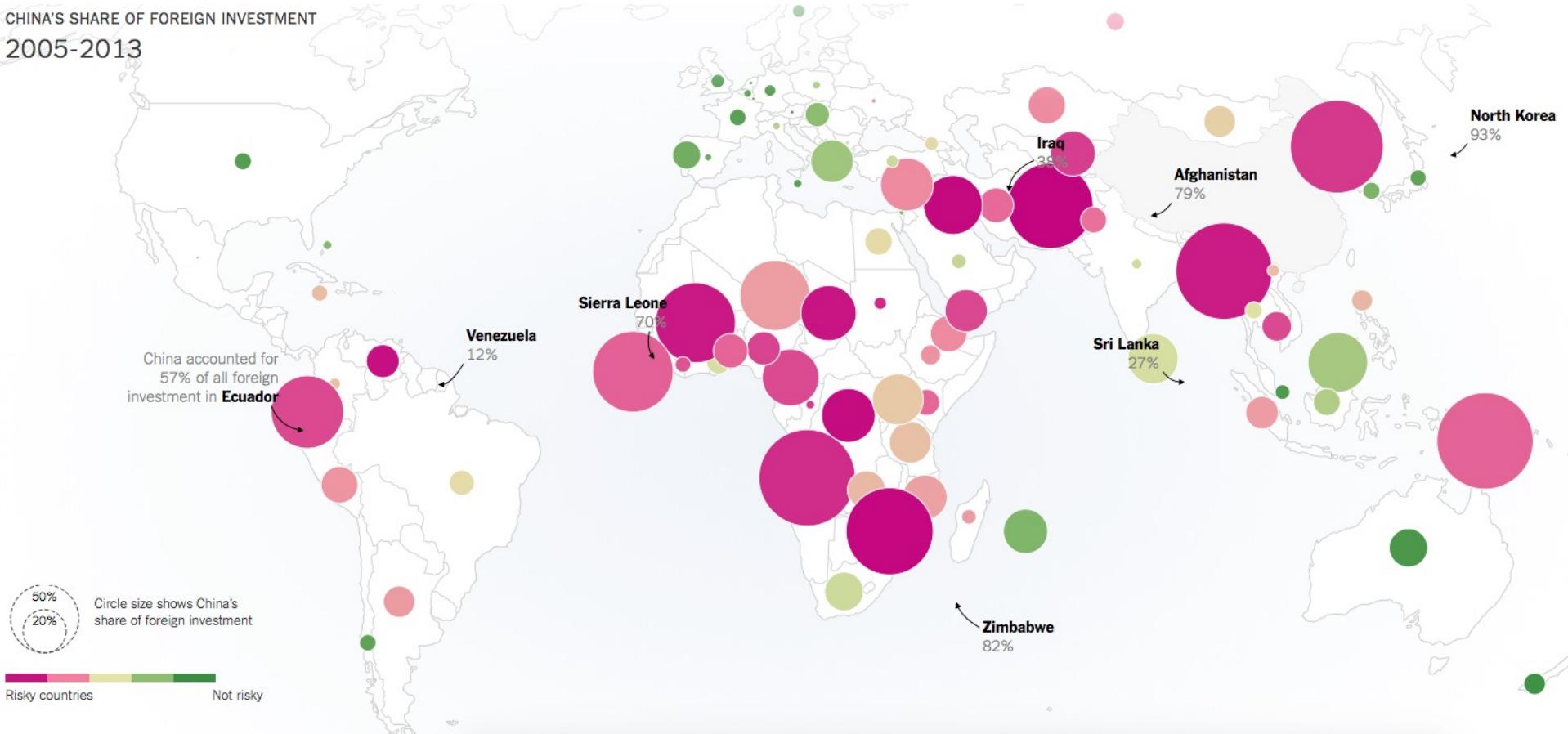


Geographic visualization: points

The New York Times

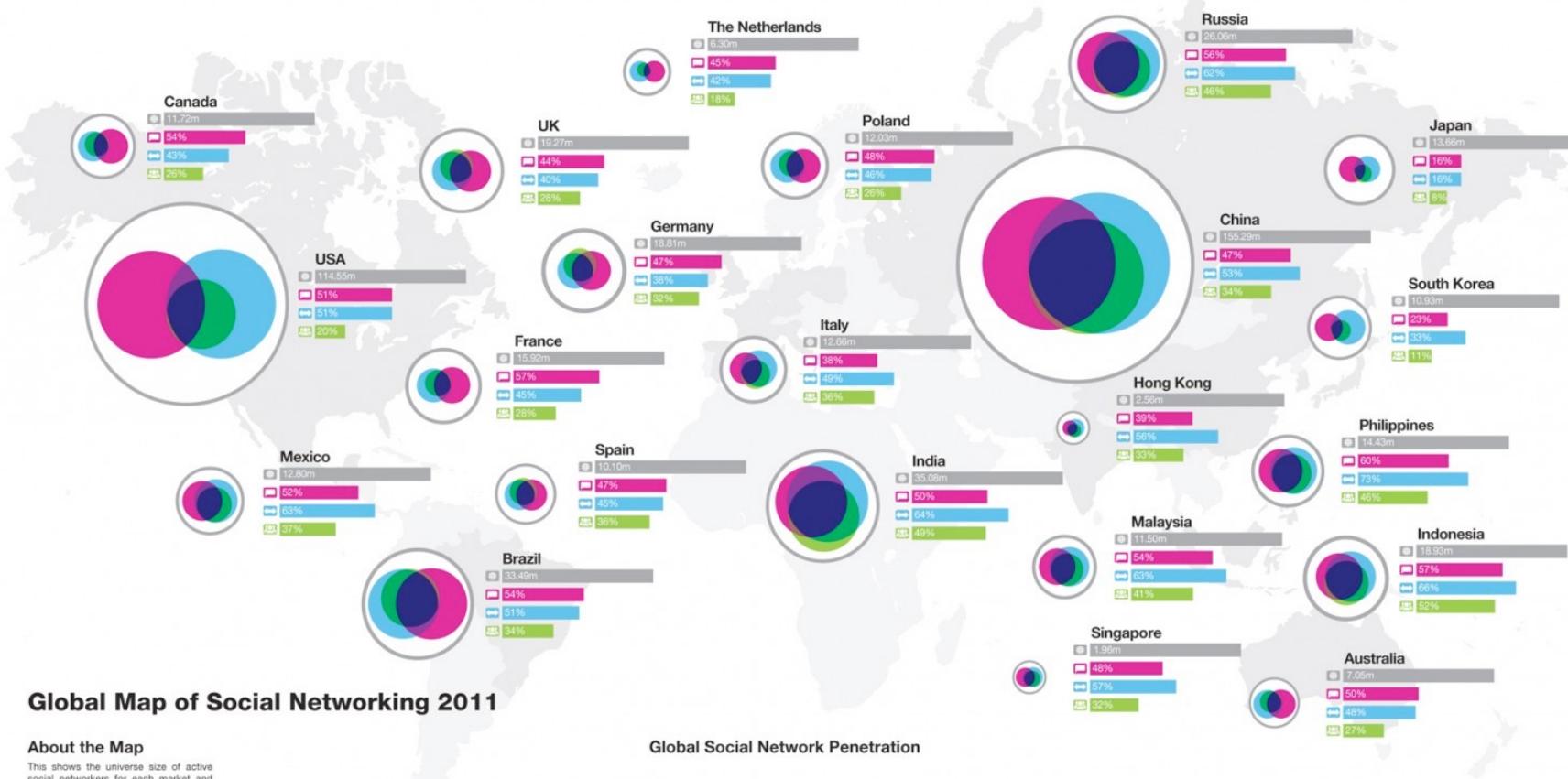
The World According to China

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



Geographic visualization: glyphs

designed by nikard.andresen@gmail.com

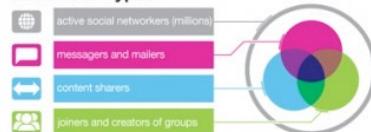


Global Map of Social Networking 2011

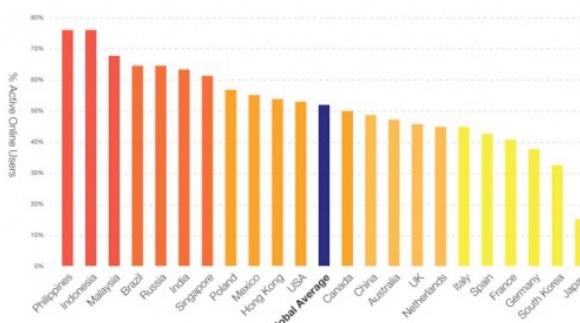
About the Map

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

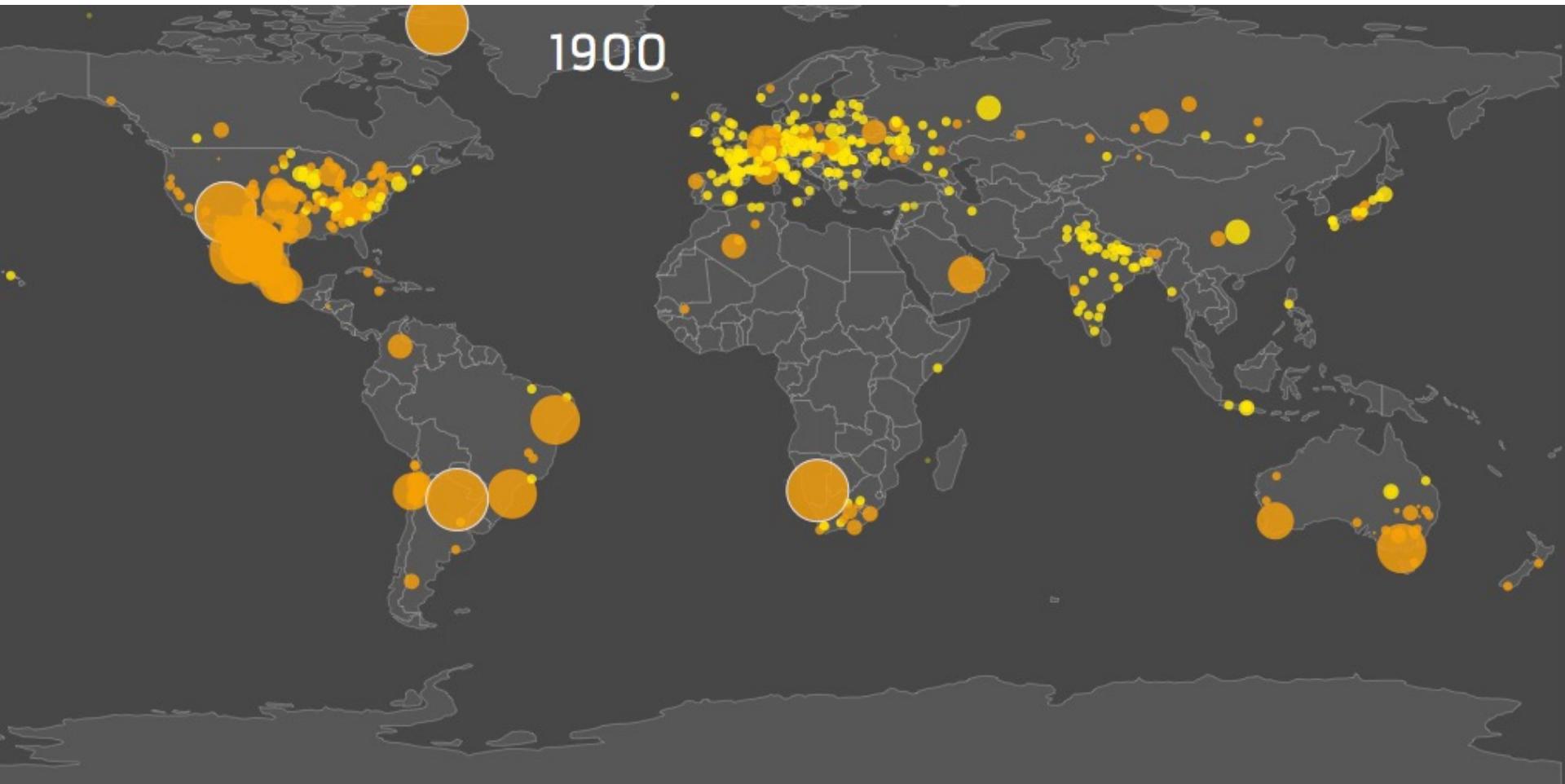


The most detailed study on the consumer adoption of the internet ever compiled:

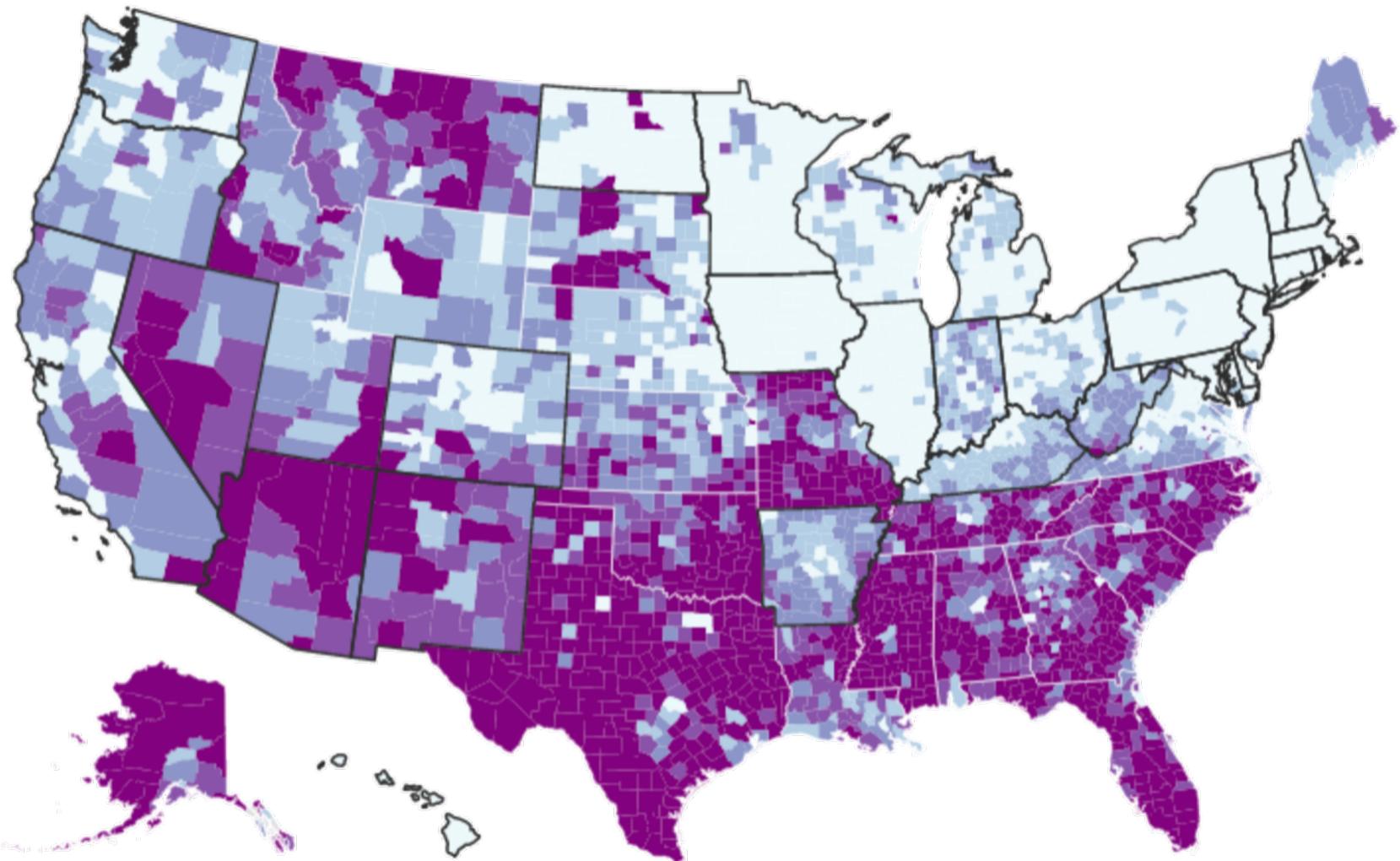
PC // Mobile // Tablets // TV sets // Gaming
100K+ surveys a year // 3 waves a year // 36 markets

Find out more // www.globalwebindex.net/
mail // globalwebindex@trendstream.net

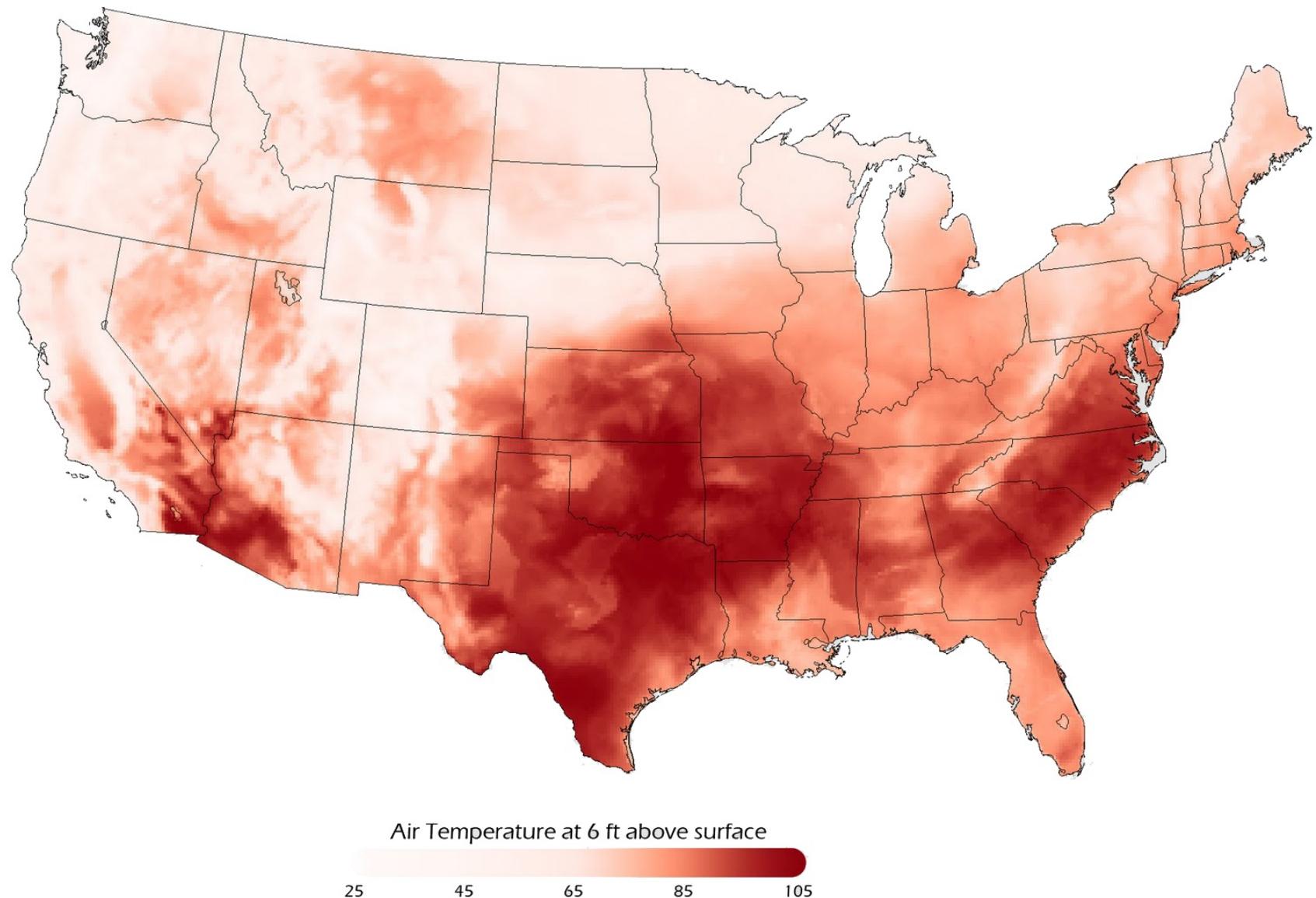
Geographic visualization: over time



Geographic visualization: filled regions



Geographic visualization: heatmaps



Geographic visualization: connections



Examples: NYT maps

Google search results for "new york times map".

Search terms: new york times map

Filter: Images

Results:

- middle east
- syria
- kurdistan
- ukraine
- arab world
- saudi arabia
- immigration
- crime
- demographic
- population
- baseball
- college football
- nfl
- isis

Map thumbnails include:
- State Health Department Enrollment Ratings Map
- Daily Revenue in America
- Second most popular baseball teams on Facebook
- Your Map
- 2009 NFL Velocity Engine
- New York Times 2009
- The Vote for Mayor In Each Assembly District
- Share of Vote
- Barack Obama's Campaign Finances
- Areas in New York City
- Hillary Clinton's Campaign Finances
- Made in NY Digital Map
- Gulf of Mexico
- Obama 53% vs McCain 46%
- Syria Civil War
- Syria's Oil and Gas Industry
- Syria's Oil and Gas Industry

Discussion

Question:

What makes geographic visualizations
so compelling?



Challenge 1: flat earth?



Impact of map projections

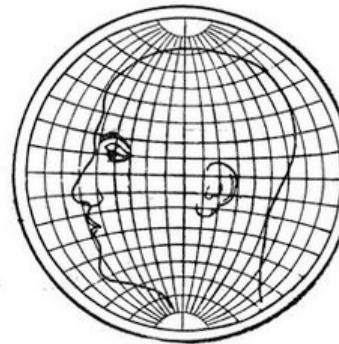
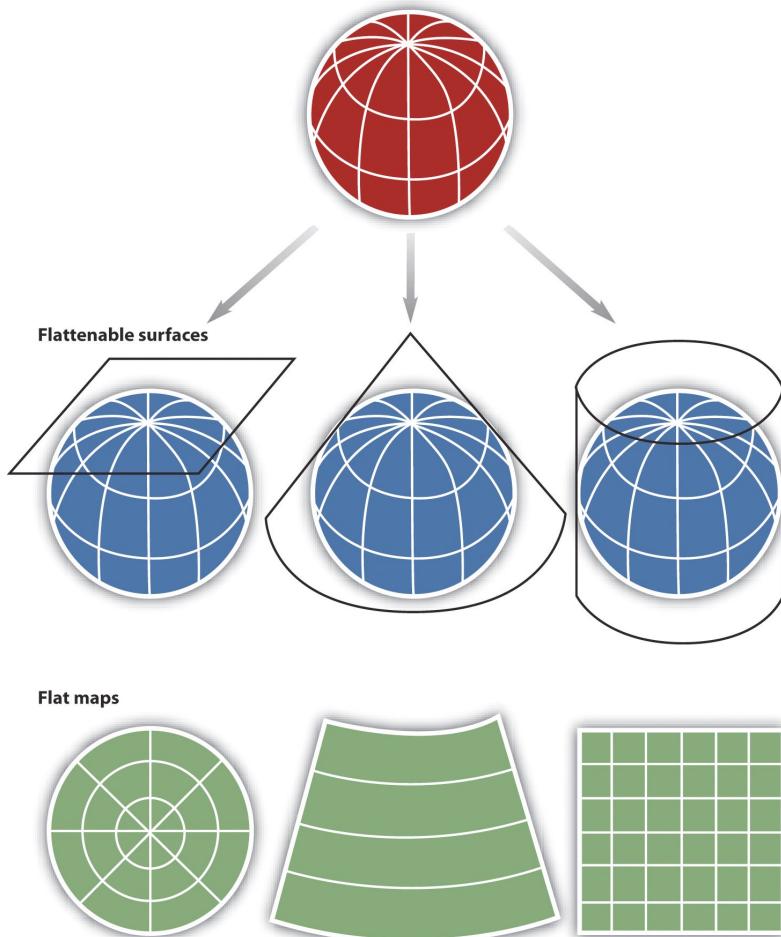


FIG. 42.—Man's head drawn on globular projection.

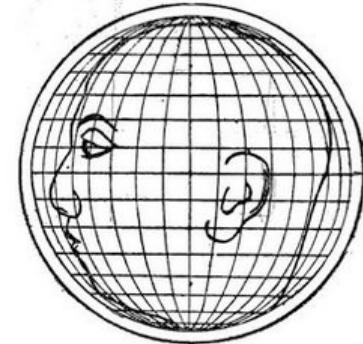


FIG. 43.—Man's head plotted on orthographic projection.

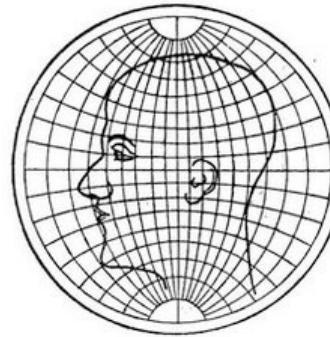


FIG. 44.—Man's head plotted on stereographic projection.

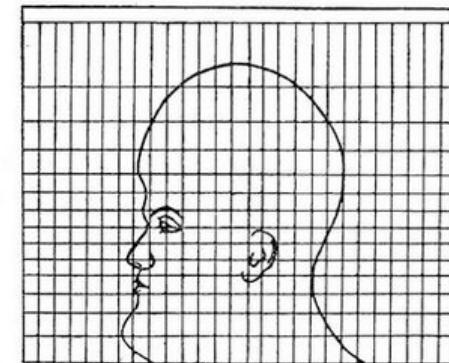


FIG. 45.—Man's head plotted on Mercator projection.

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

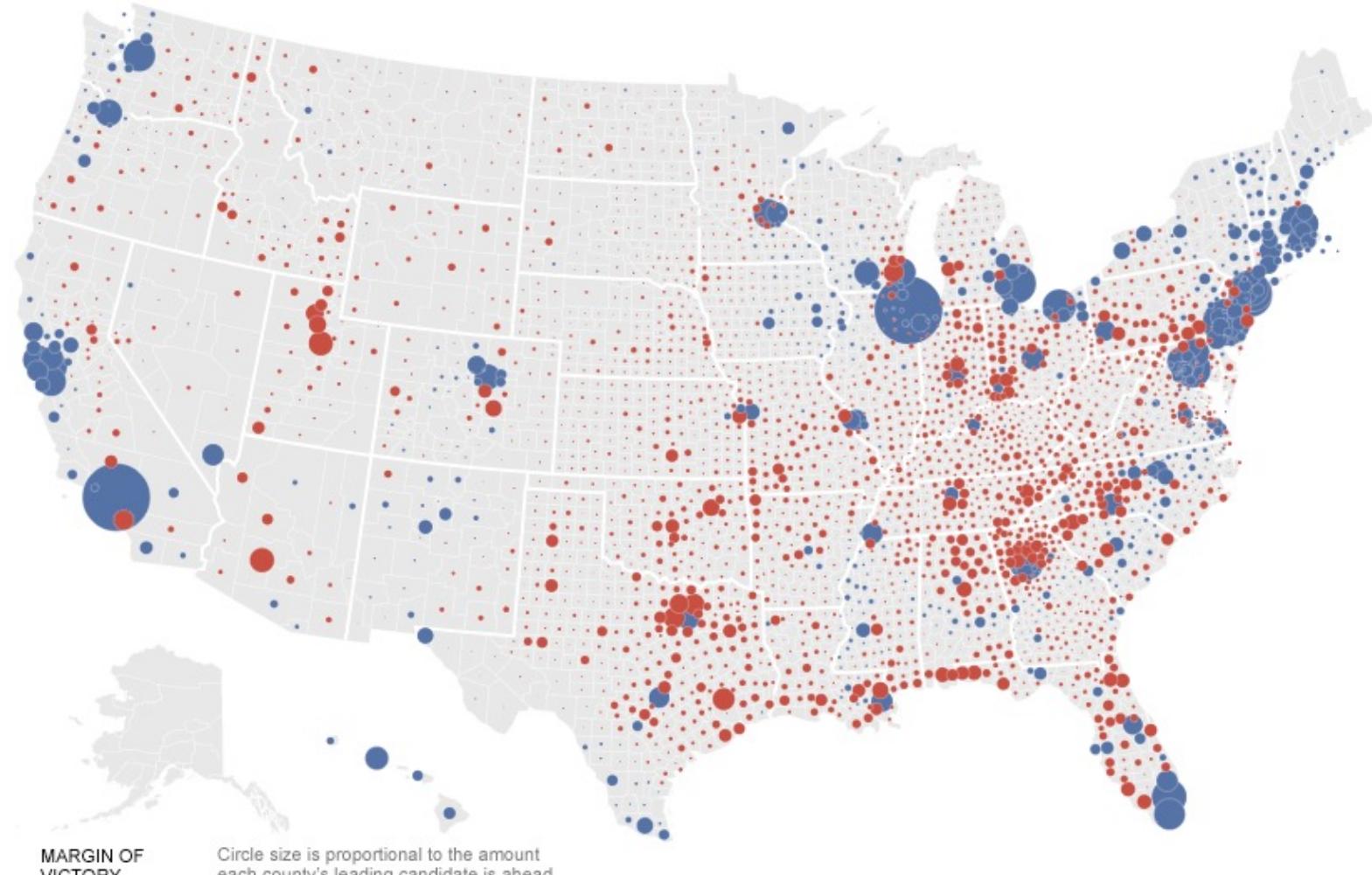
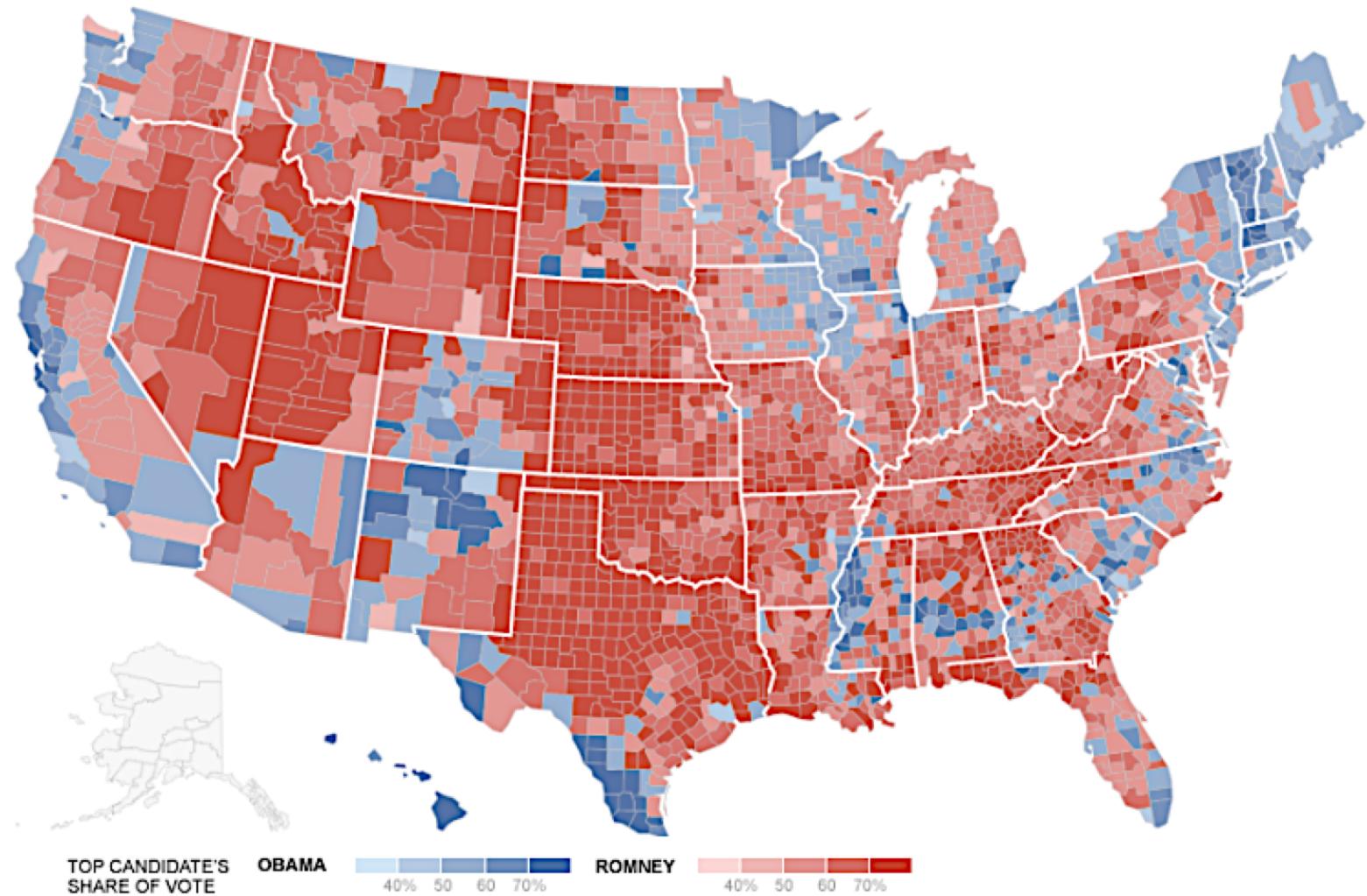
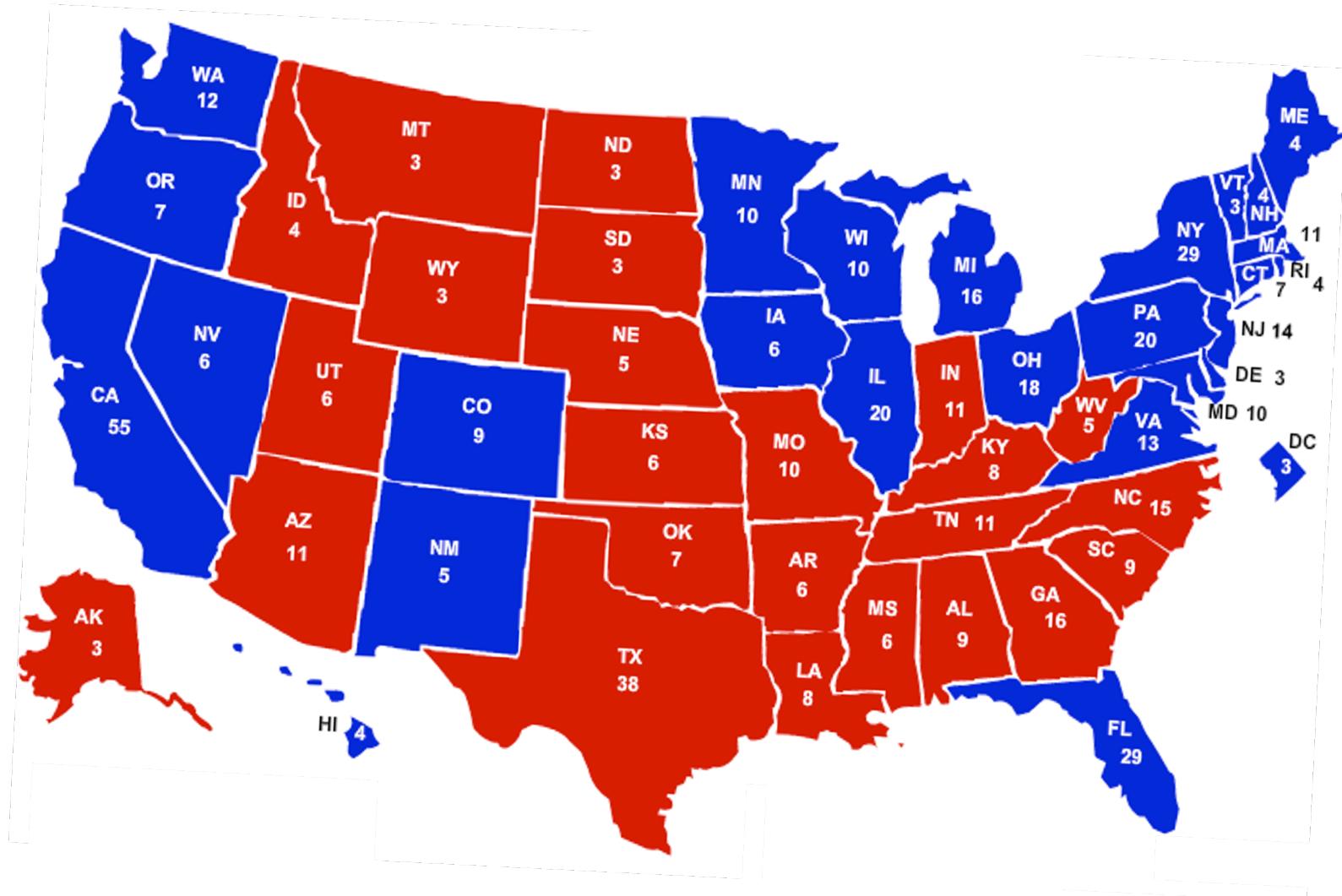


Image courtesy of politicalmaps.org

Example: 2012 Presidential Election

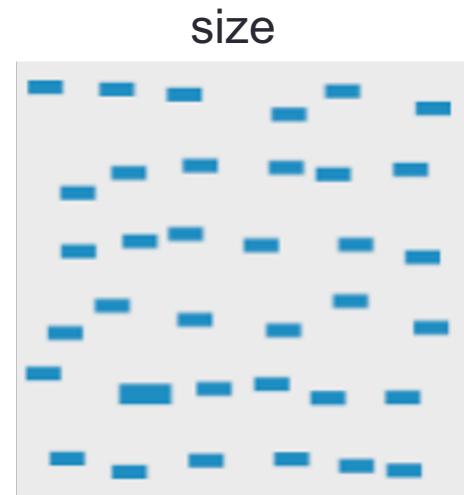
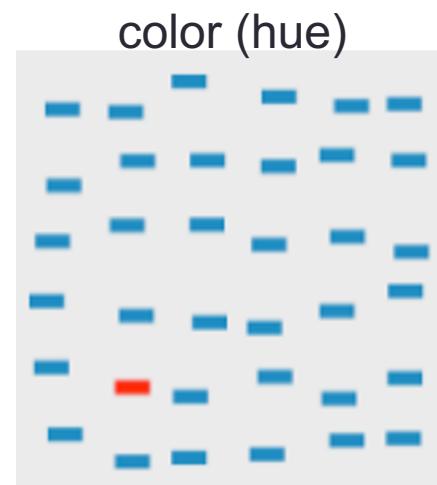
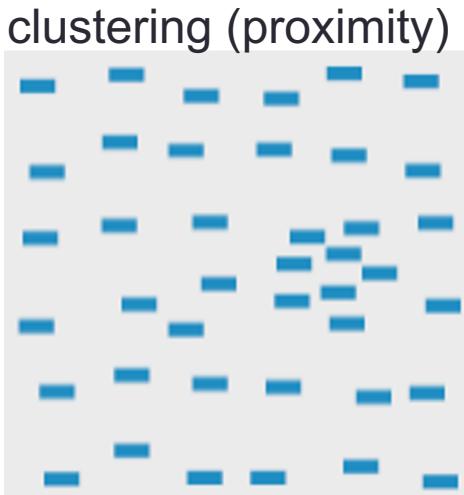


Example: 2012 Presidential Election

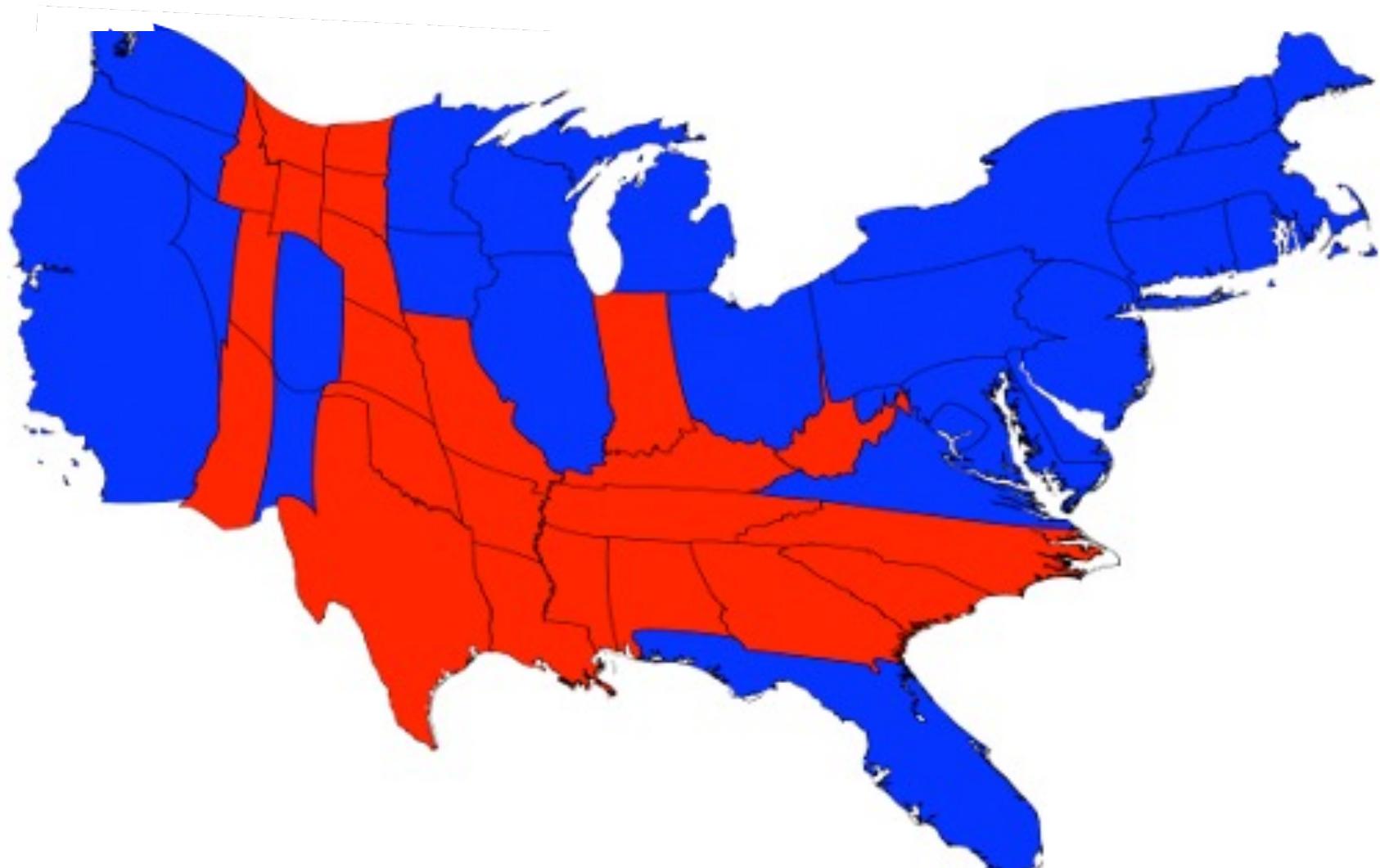


Challenge 3: perceptual trickery

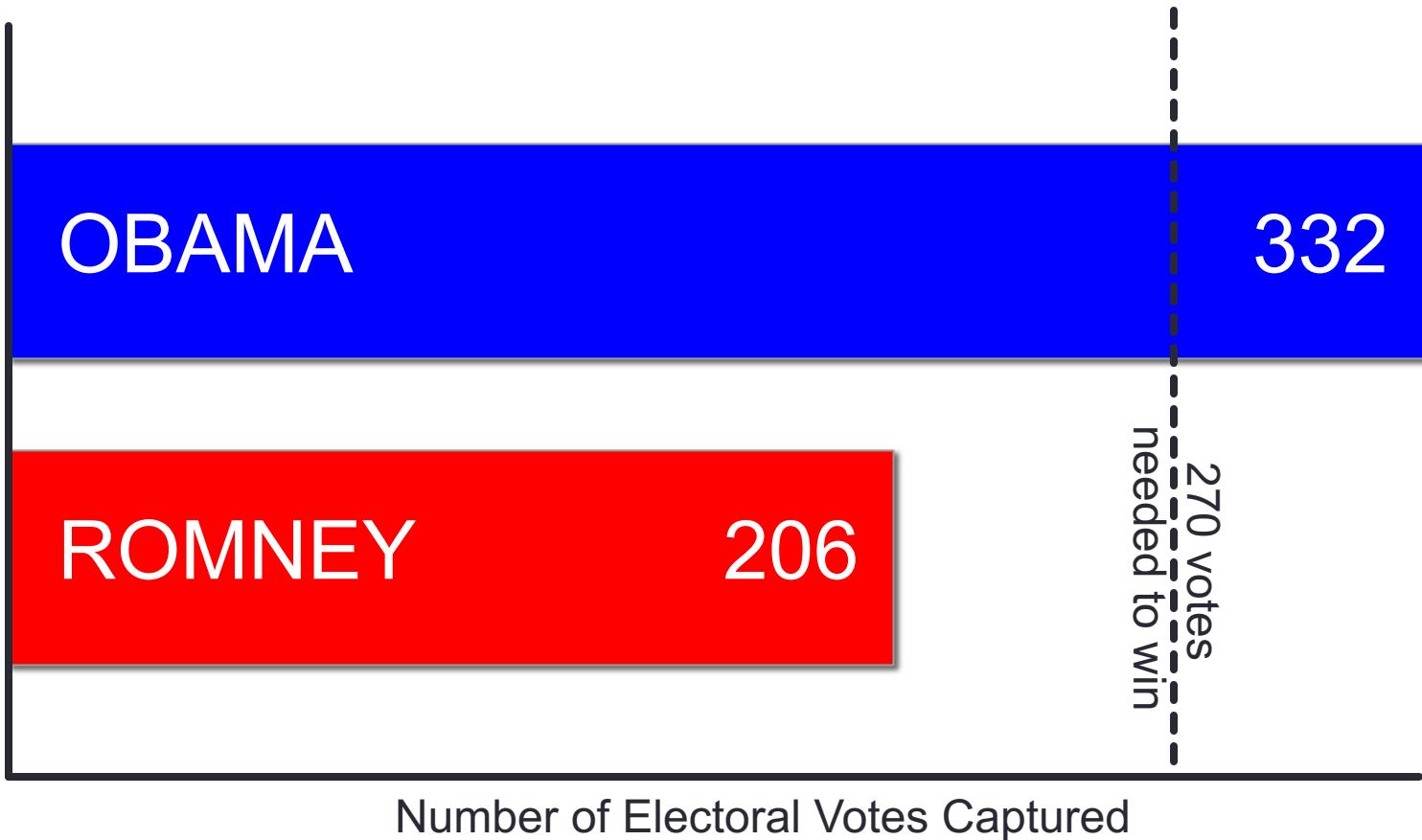
- Flashback to when we talked about **perception**
- What **preattentive features** are at work in these maps?



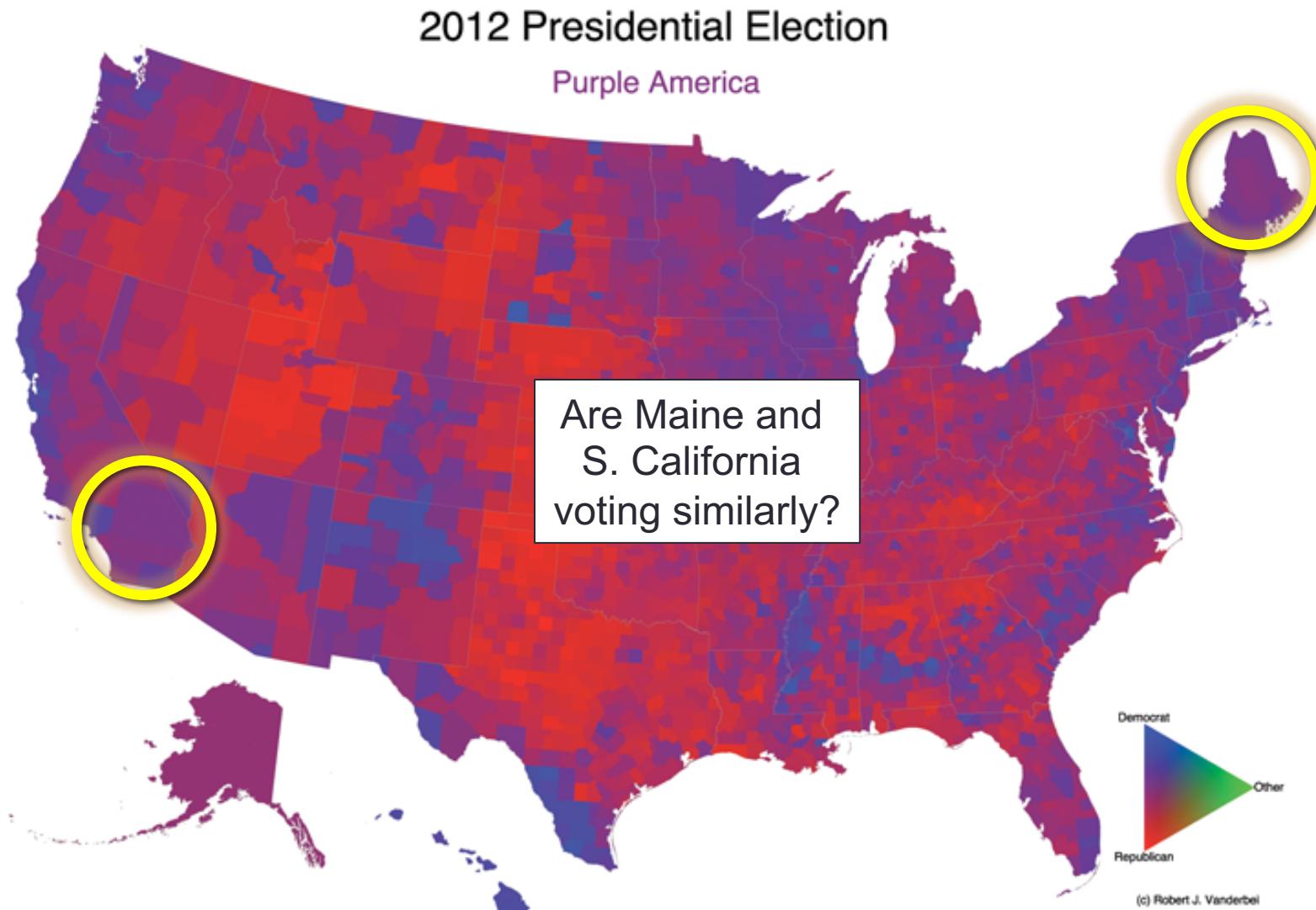
Example: 2012 Presidential Election



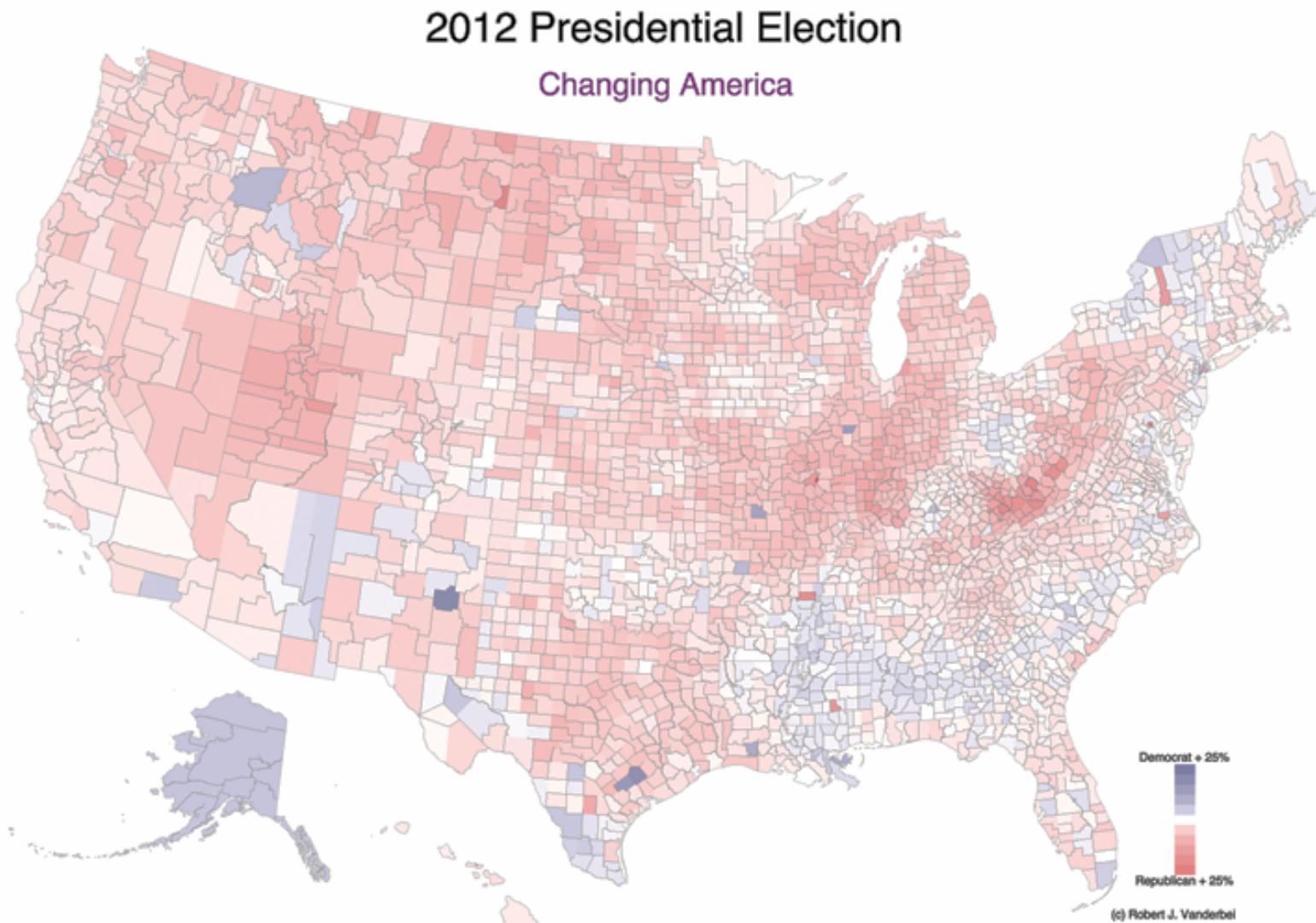
Example: 2012 Presidential Election



Challenge 4: non-adjacent comparison



Challenge 5: missing data

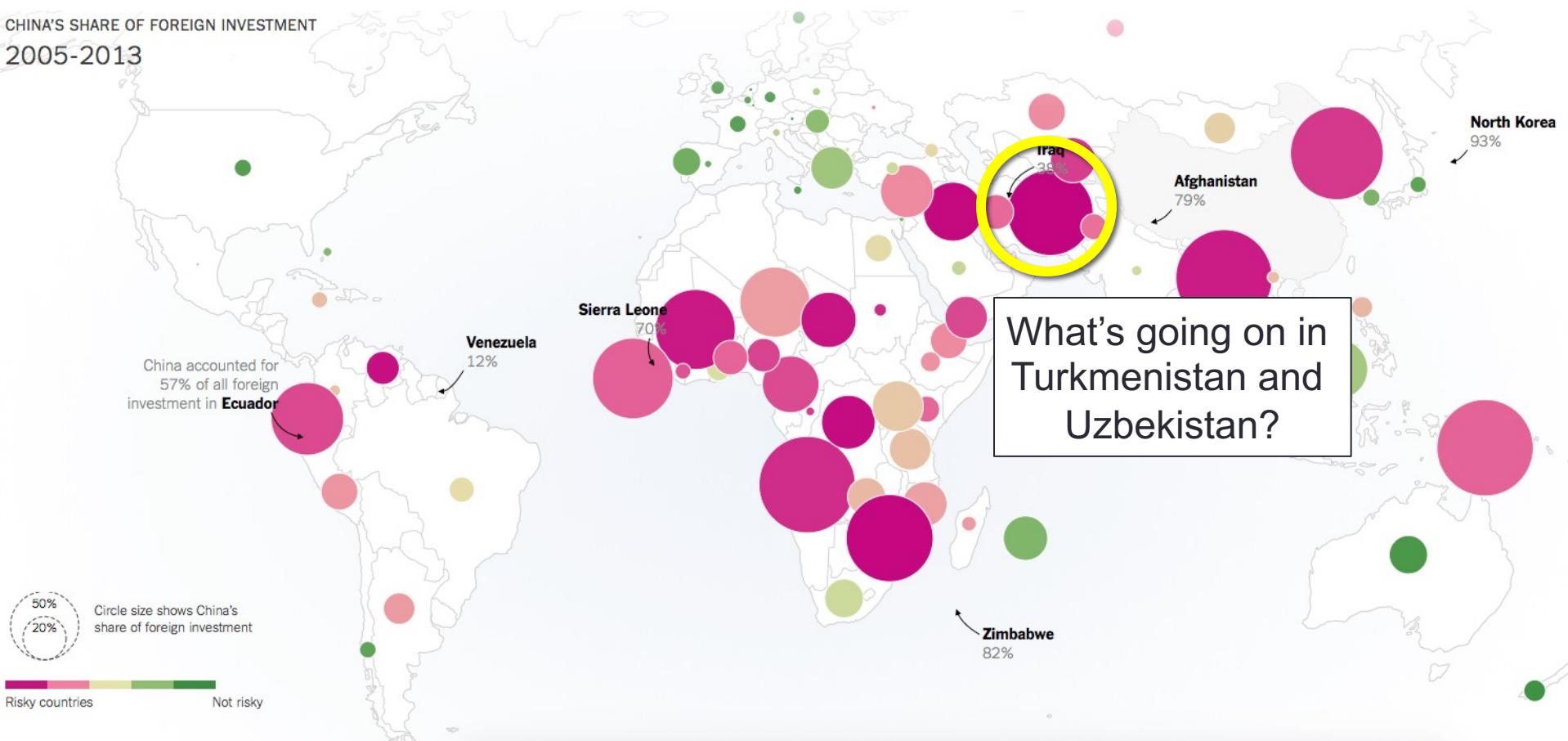


Challenge 6: occlusion

The New York Times The World According to China

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

CHINA'S SHARE OF FOREIGN INVESTMENT
2005-2013



Discussion: (rough) guidelines for maps

Question:

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

