The background image is an aerial photograph of a vast, rolling landscape covered in a dense carpet of orange poppy flowers. A single, dark, winding road cuts through the fields, creating a sense of depth and perspective. Several small, white figures of people are scattered across the fields, providing a clear sense of scale to the massive expanse of flowers.

# *Introduction to* Data Visualization

# What You Will Learn

Why visualize data  
How our brains work  
The origins of data visualization  
Some basic forms of data visualization  
How things can go wrong  
(and how not to be fooled)

## A FEW DEFINITIONS

The graphic design community mostly uses two terms for the visual displays of information: **infographics** and **information design**. In a nutshell, infographics stand for visual displays in which graphics (illustrations, symbols, maps, diagrams, etc) together with verbal language communicate information that would not be possible otherwise. Infographics can range from early scientific illustrations of the human body to modern representations of how the brain functions, from early route maps and train schedules to the emblematic London subway map. Journalism as well as technical and pedagogical books employ established practices that traditionally have used infographics to explain complex information and tell stories. From the familiar weather map to visual explanations of natural phenomena and recent facts, infographics help us better understand the news around us.

*Isabel Meirelles, “Design for Information”*

Why Visualize  
Data?

Visual displays of information can be considered cognitive artifacts, in that they can complement and strengthen our mental abilities.<sup>2</sup>

I examine the visualizations in relation to the cognitive principles underlying them, which can be a combination of the following:

- to record information;
- to convey meaning;
- to increase working memory;
- to facilitate search;
- to facilitate discovery;
- to support perceptual inference;
- to enhance detection and recognition;
- to provide models of actual and theoretical worlds;
- to provide manipulation of data.

*Isabel Meirelles, “Design for Information”*

“Effective analytic  
designs entail turning  
thinking principles into  
seeing principles.”

— *Edward Tufte*

# Exercise

Small groups, please.

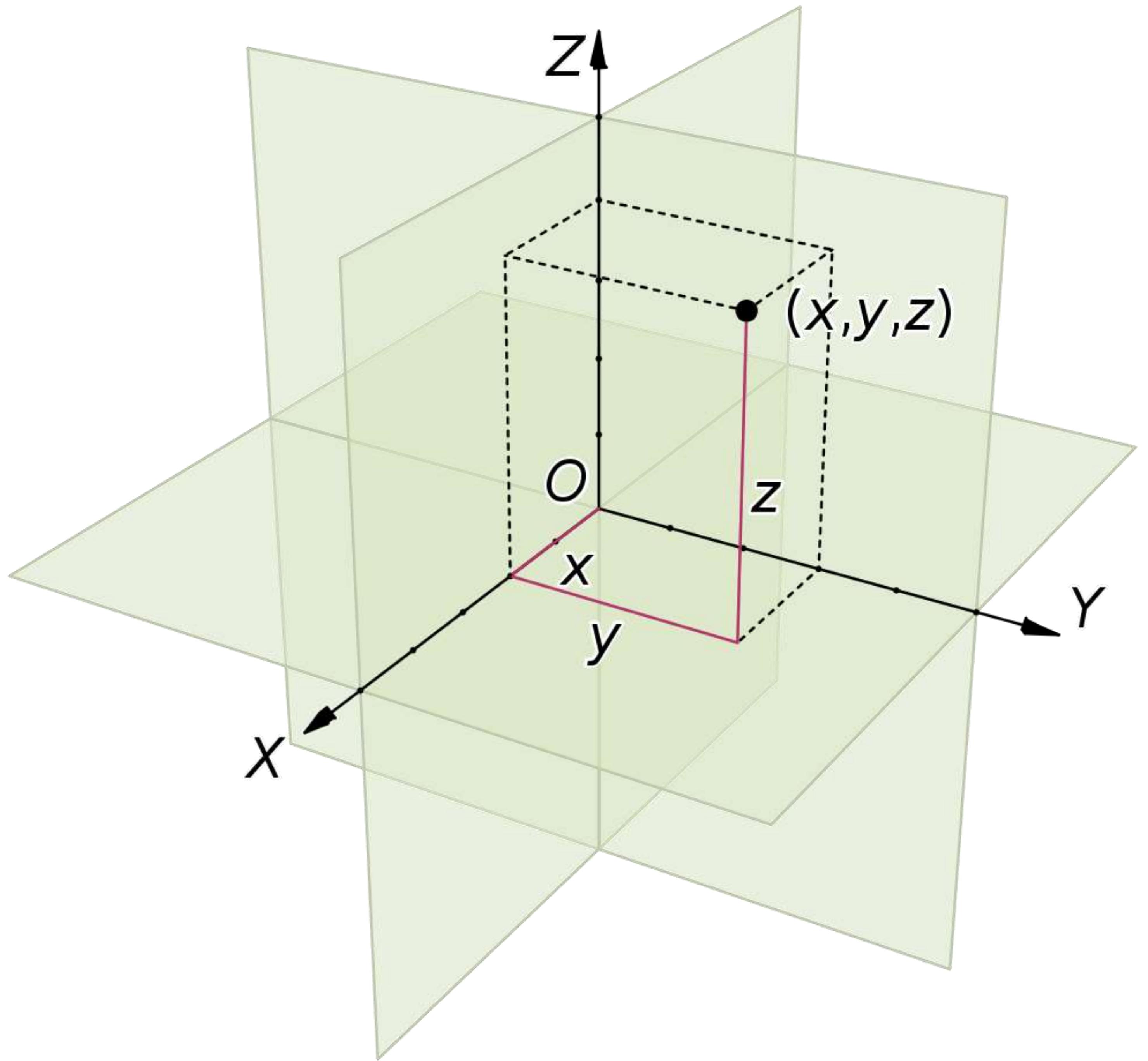
# Groups

Briefly analyze the graphic:  
What am I supposed to do with it?  
What story does it tell?  
Are there other better ways to display this data?

A *very* brief  
**History**  
*of Data Visualization*

Rene Descartes

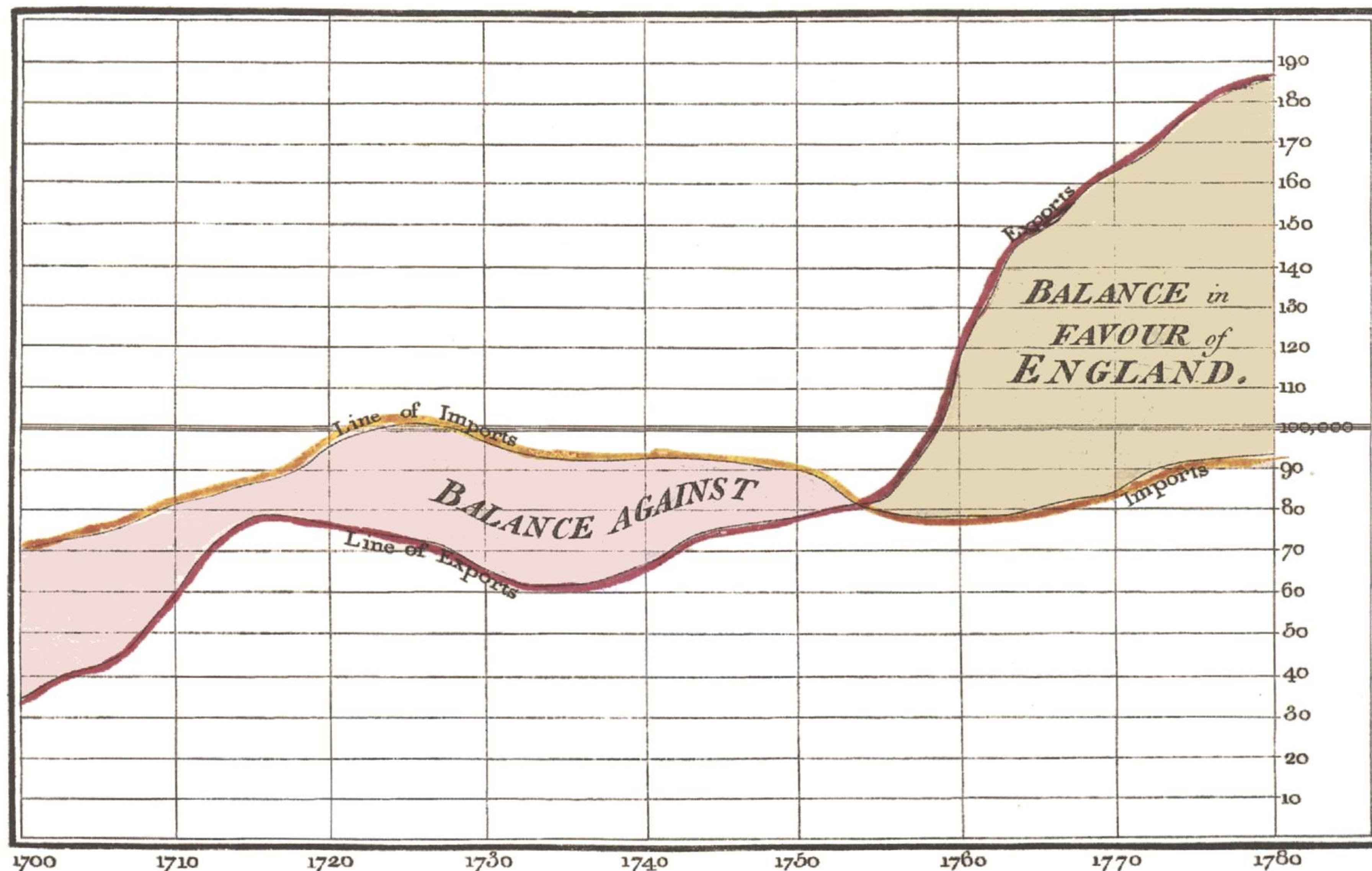
1596–1650



William Playfair

1759–1823

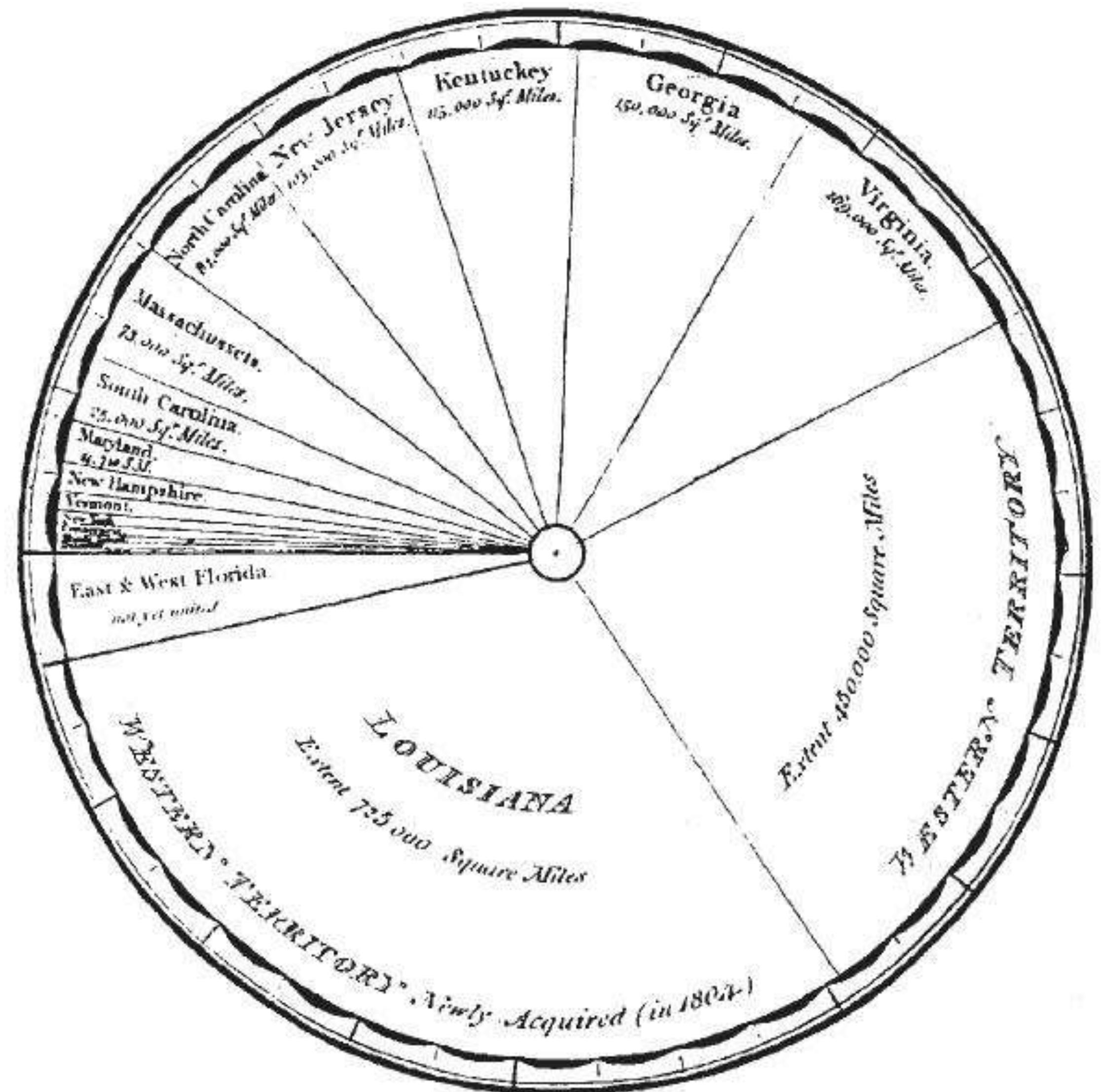
Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.



The Bottom line is divided into Years, the Right hand line into £10,000 each.

Published as the Act directs, 14<sup>th</sup> May 1786, by W<sup>m</sup> Playfair

Neale sculpt: 352, Strand, London.



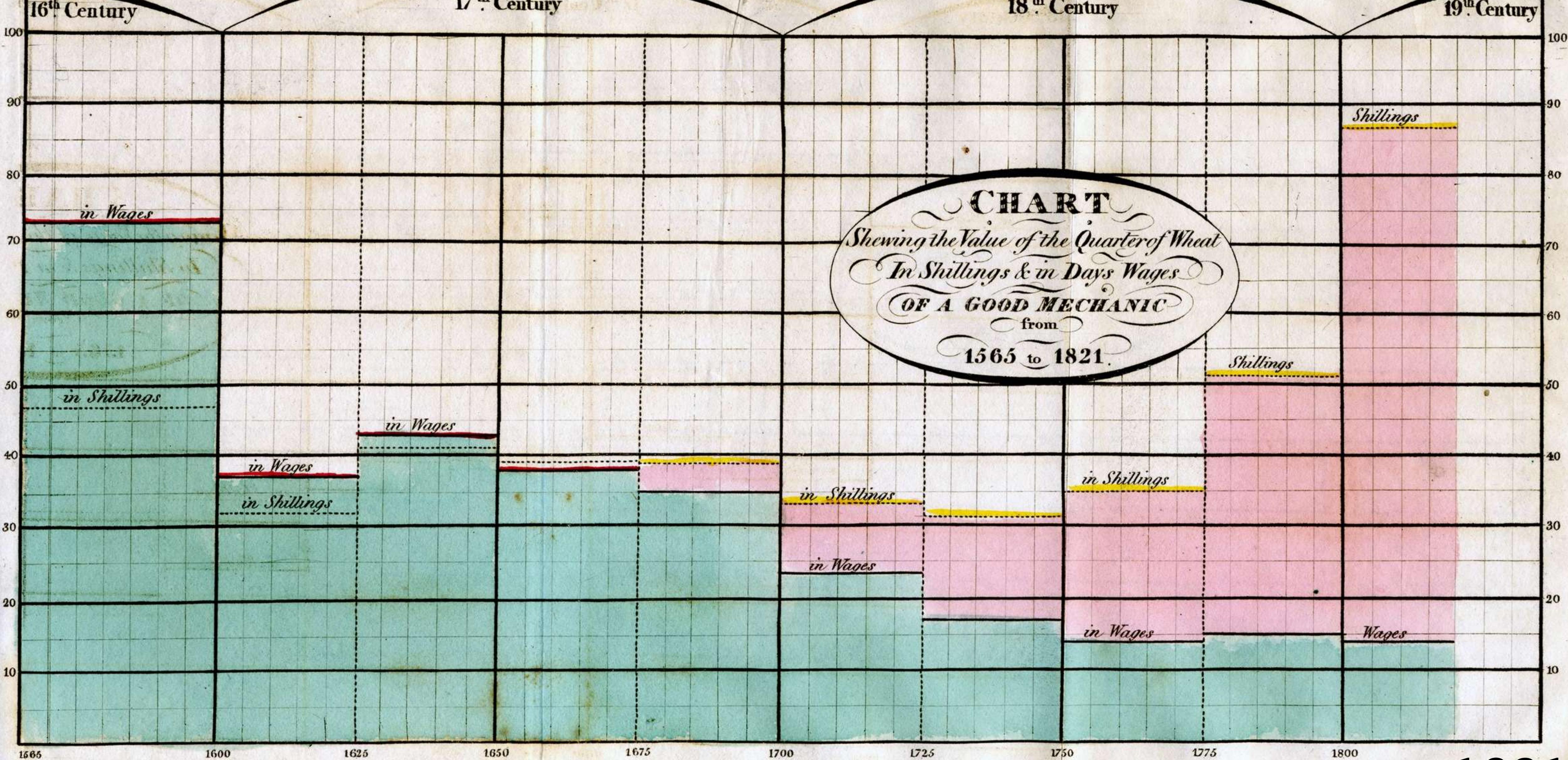
### STATISTICAL REPRESENTATION of the UNITED STATES of AMERICA.

J.W. PLAYFAIR

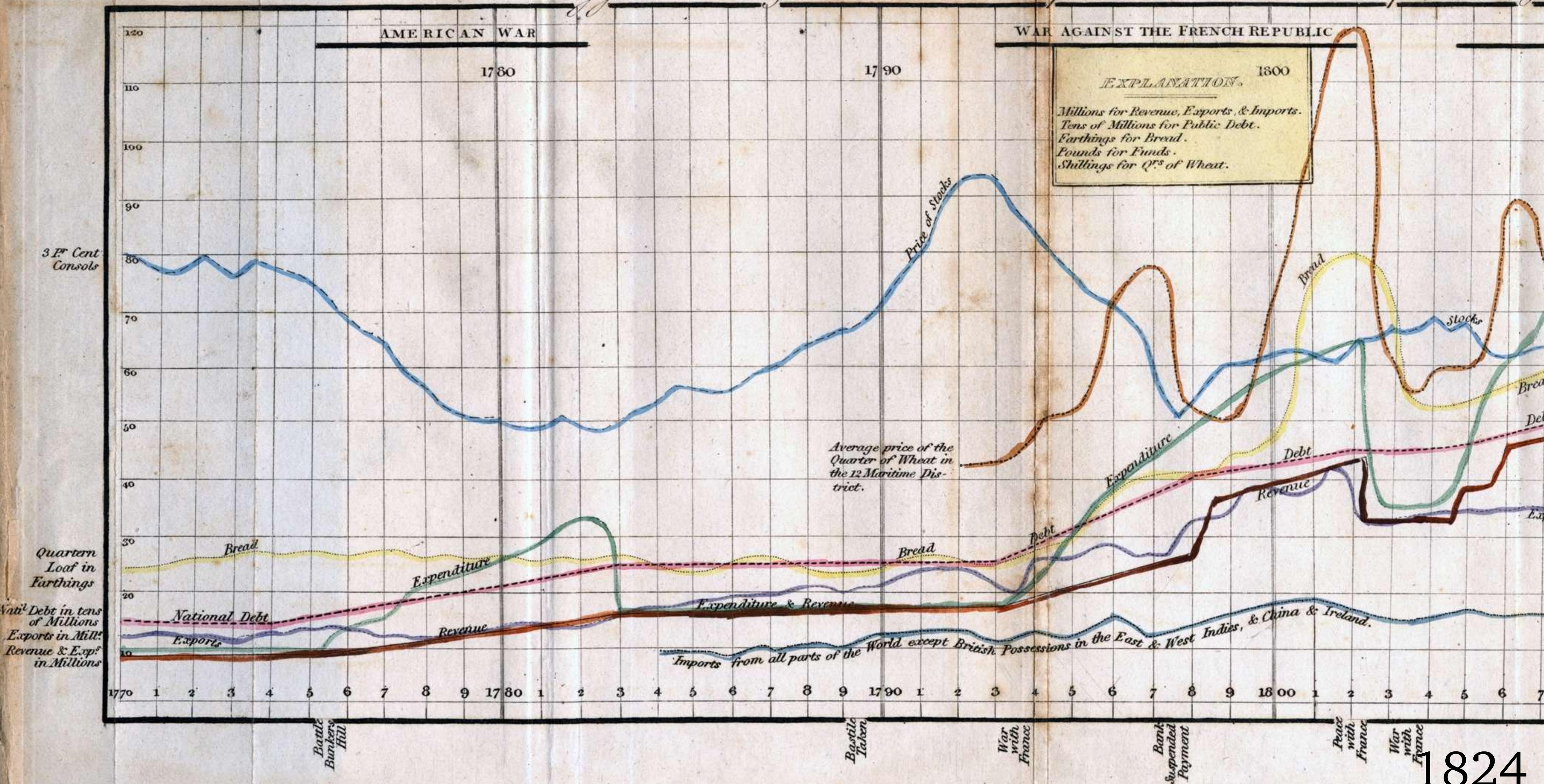
The Sunburst Method is intended to show the Proportions between the divisions in a striking manner.

Total Extent 1,224,000 Square Miles or 1224 Millions of Acres.

Nº3.



# Linear Chronology, Exhibiting the Revenues, Expenditure, Debt, Price of Stocks &



“It gives a simple, accurate, and permanent idea, by giving form and shape to a number of separate ideas, which are otherwise abstract and unconnected.”

“...making an appeal to the eye  
when proportion and  
magnitude are concerned, is  
the best and readiest method  
of conveying a distinct idea.”

“No one will ever believe that such methods can serve any useful purpose in the study of statistics.”

Jacques Peuchet, 1805

“Outside its use as a  
pedagogic means, it is only  
a plaything without  
importance.”

Carl Kneis, 1850

Charles Joseph Minard

1781–1870

# Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.

Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite

Paris, le 20 Novembre 1869.

Les nombres d'hommes présents sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes; ils sont de plus écrits en travers des zones. Le rouge désigne les hommes qui entrent en Russie, le noir ceux qui en sortent. — Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M. M. Chiers, de Ségur, de Fezensac, de Chambray et le journal inédit de Jacob, pharmacien de l'Armée depuis le 28 Octobre.

Pour mieux faire juger à l'œil la diminution de l'armée, j'ai supposé que les corps du Prince Jérôme et du Maréchal Davout, qui avaient été détachés sur Minsk et Mohilow et qui rejoignirent vers Orscha et Witebsk, avaient toujours marché avec l'armée.

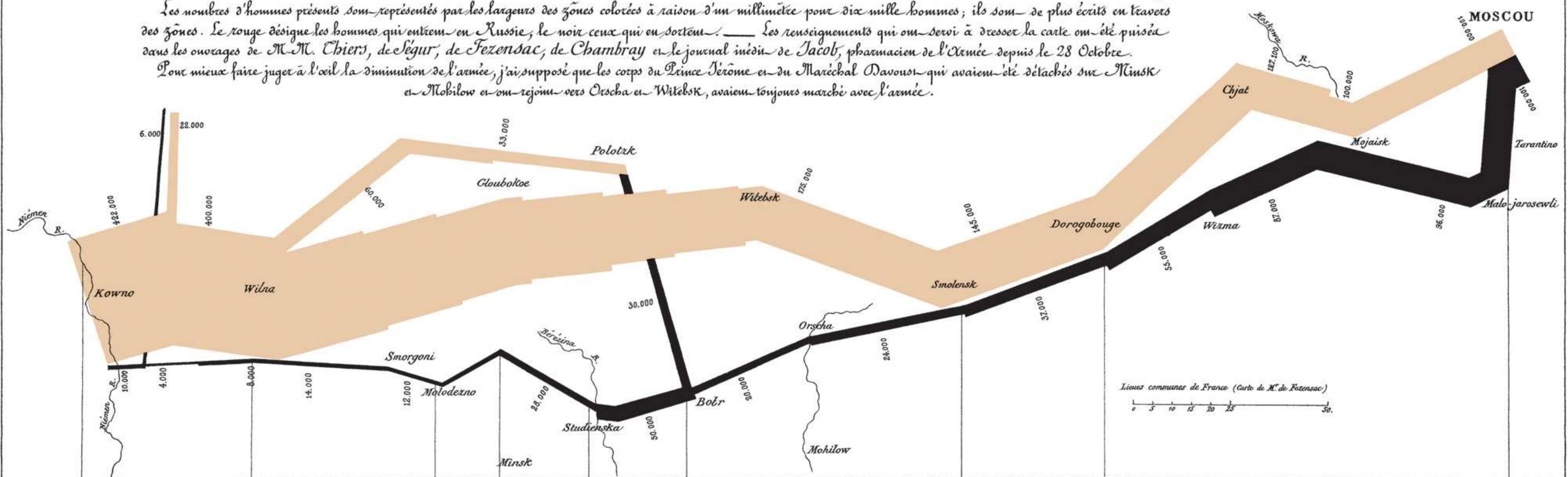
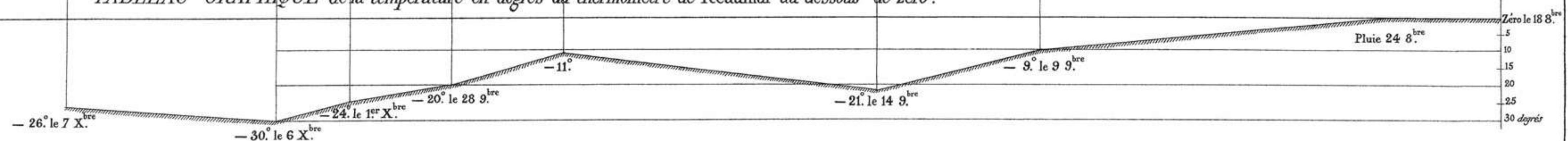


TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessous de zéro.

Les cosaques passent au galop  
le Niemen gelé.



John Snow

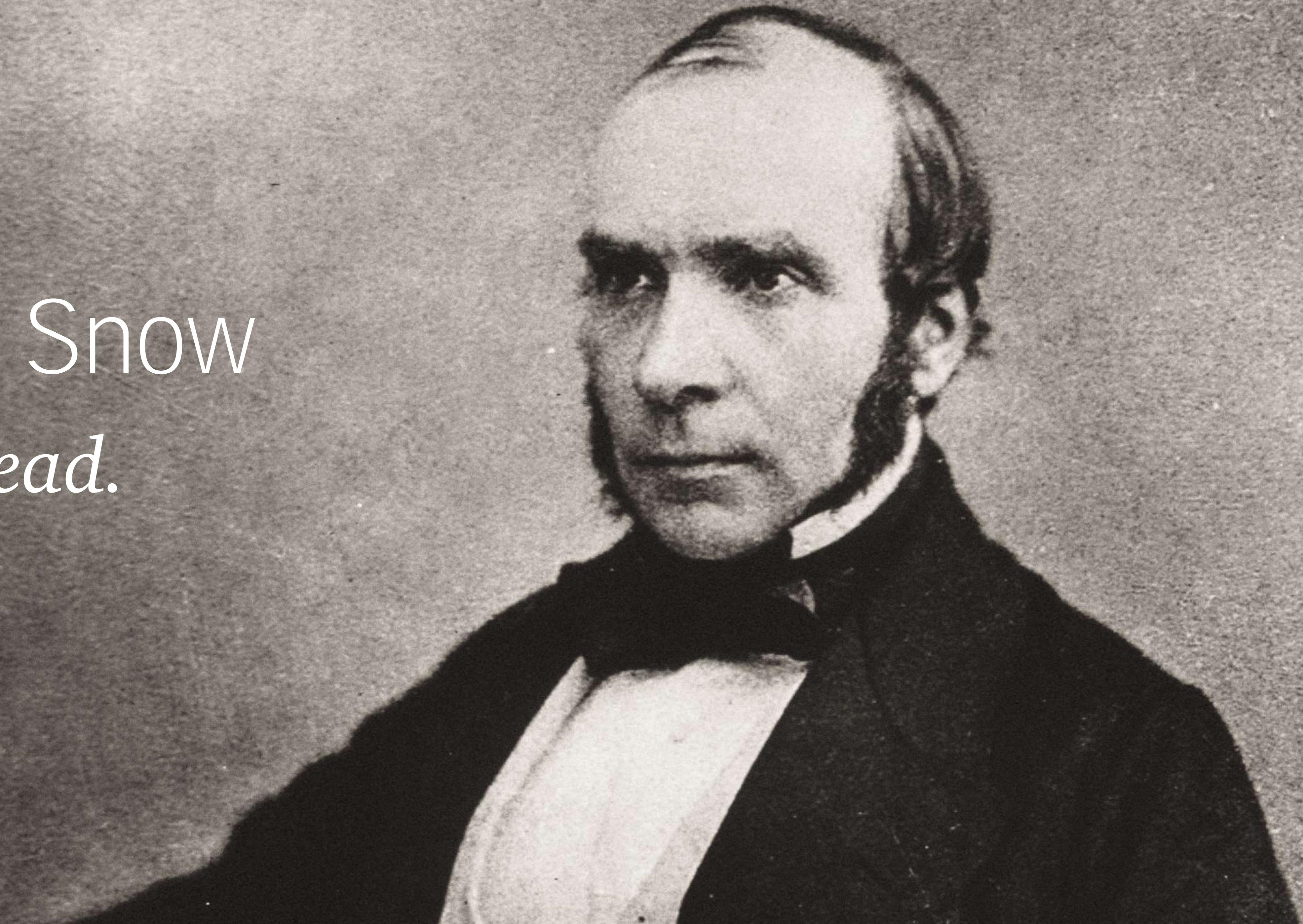
1813–1858



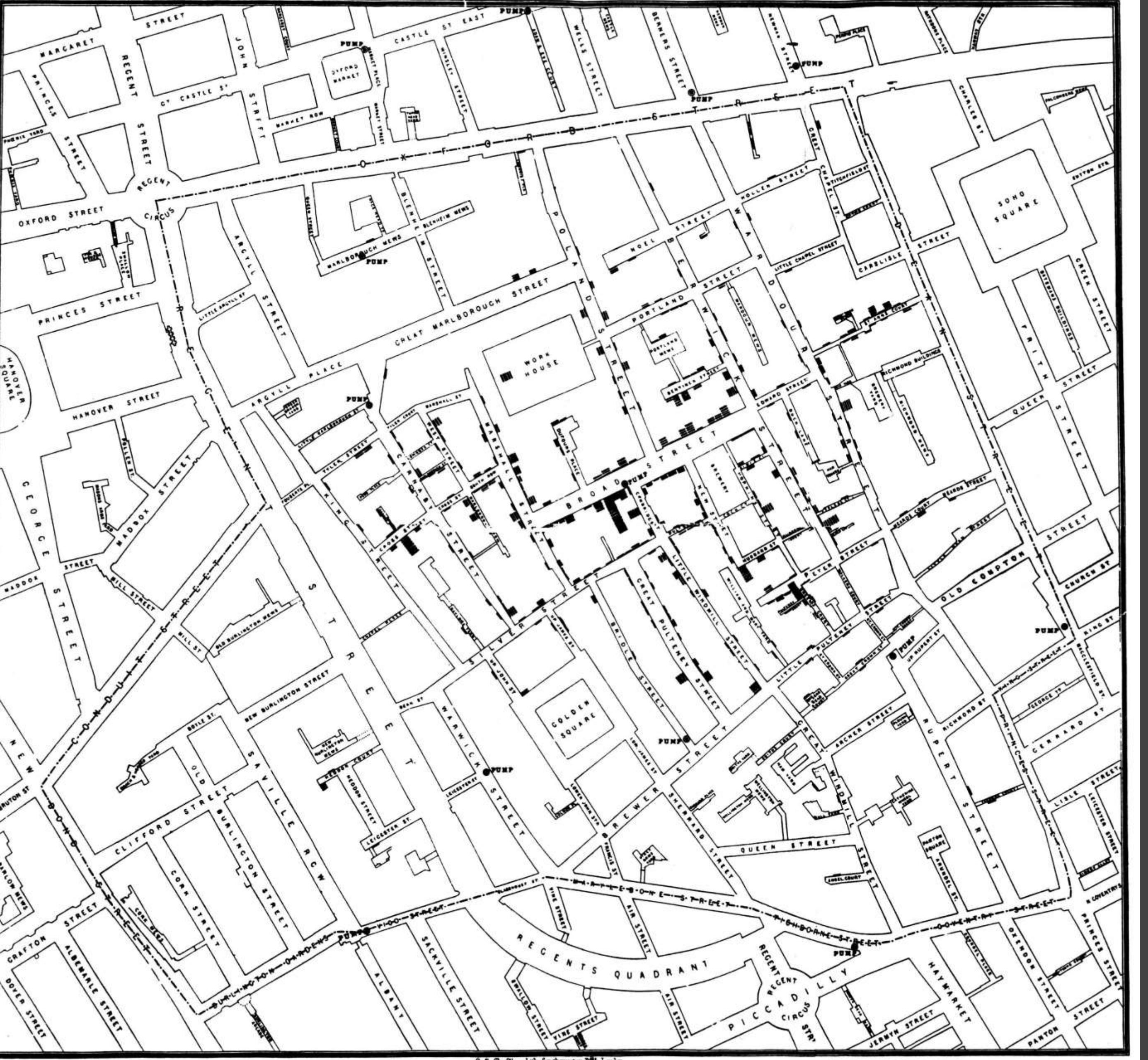
Jon Snow

*Used to be dead.*

John Snow  
*Still dead.*









Perception

# Preattentive vs. Attentive

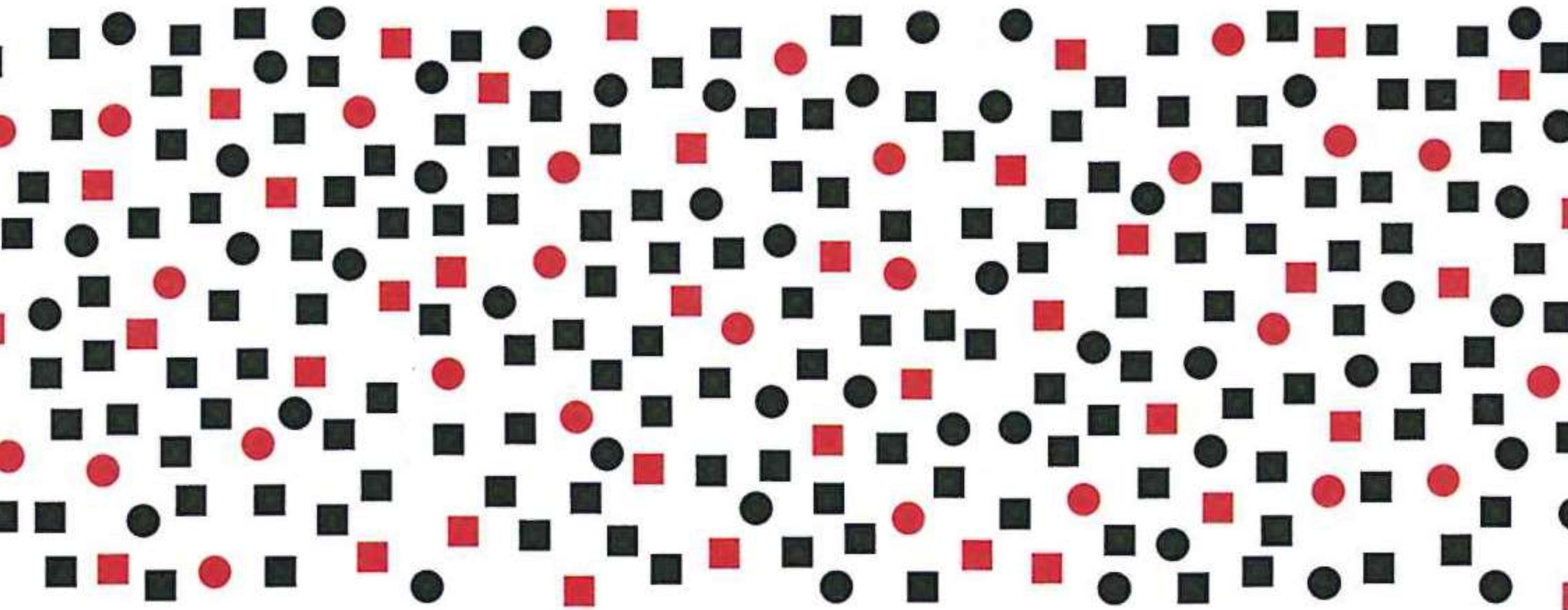
*Fast Brain*  
*vs. Slow Brain*

18596746321475030608030504090  
70502769843010215346748950213  
06057204020503090845064201040  
70204070835061305080239245798

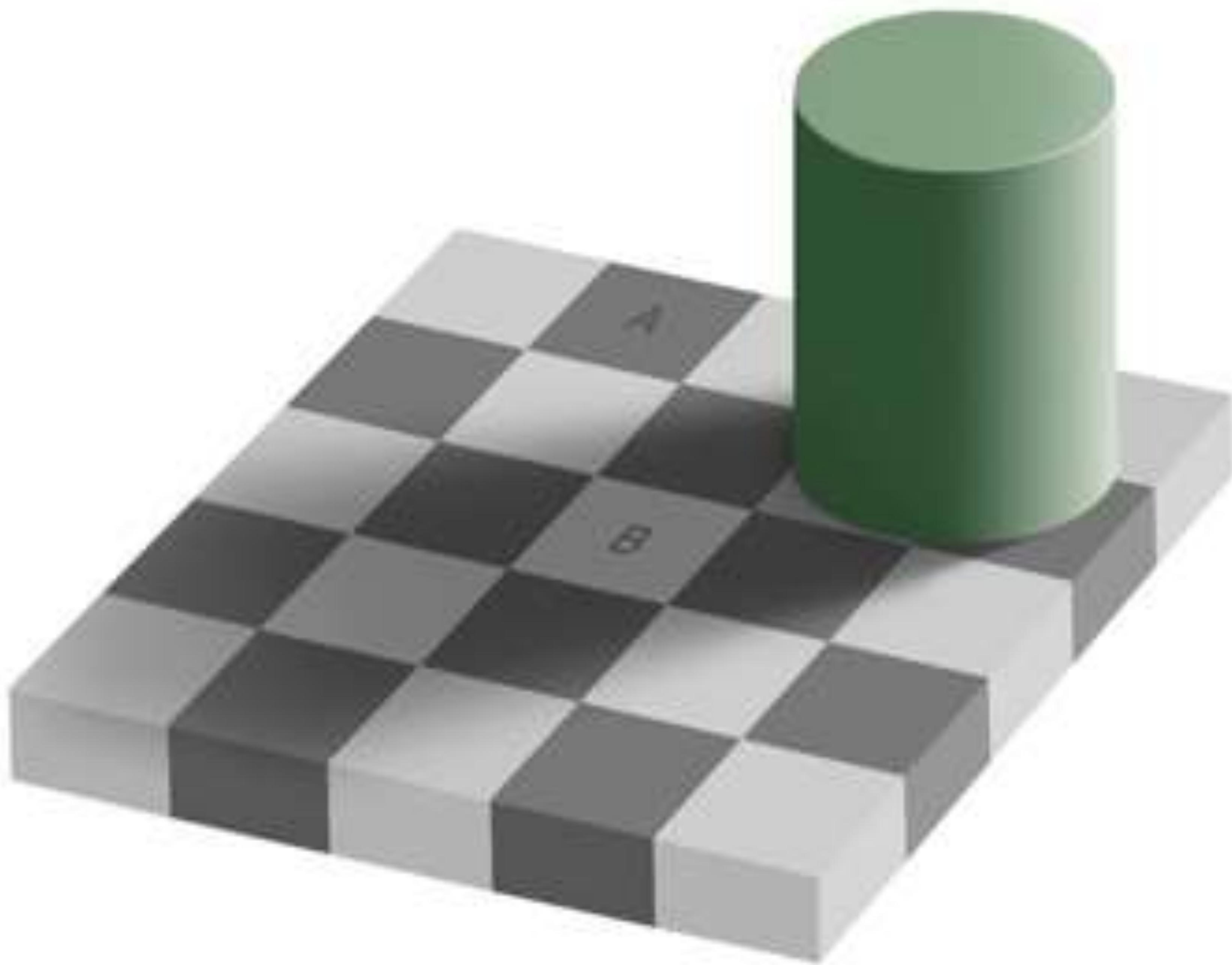
18596746321475030608030504090  
70502769843010215346748950213  
06057204020503090845064201040  
70204070835061305080239245798

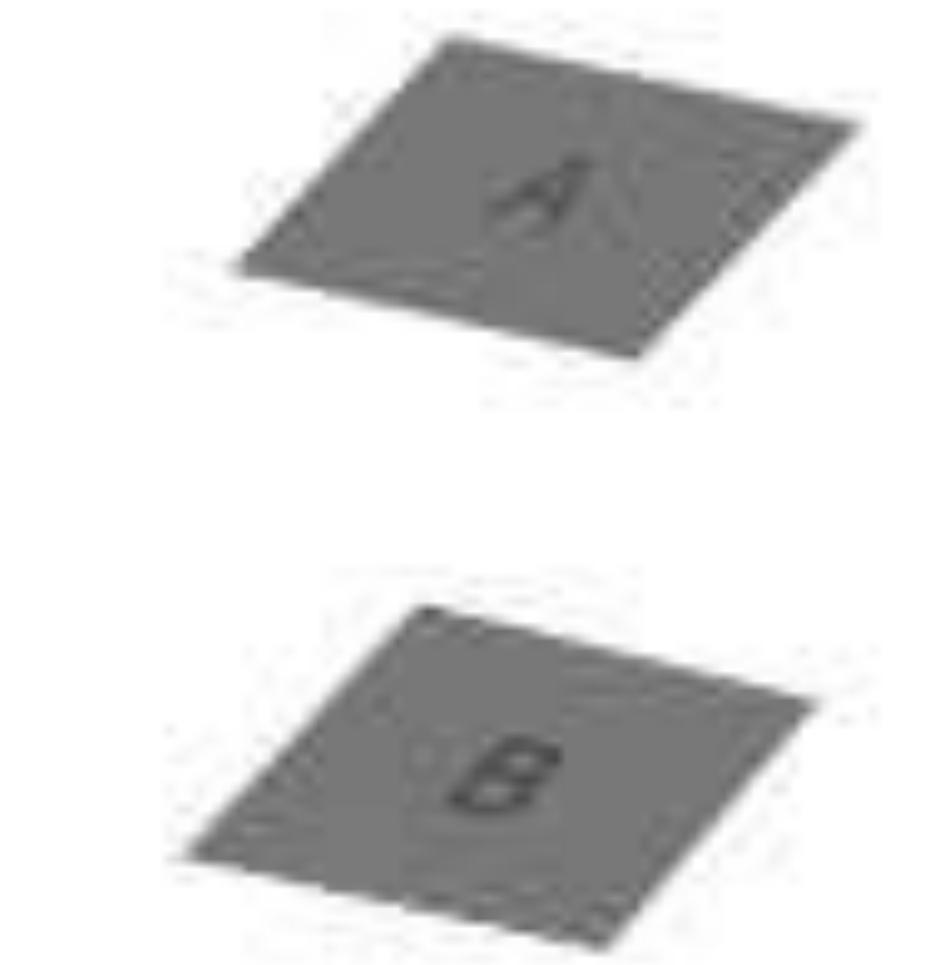
18596746321475030608030504090  
70502769843010215346748950213  
06057204020503090845064201040  
70204070835061305080239245798

18596746321475030608030504090  
70502769843010215346748950213  
06057204020503090845064201040  
70204070835061305080239245798

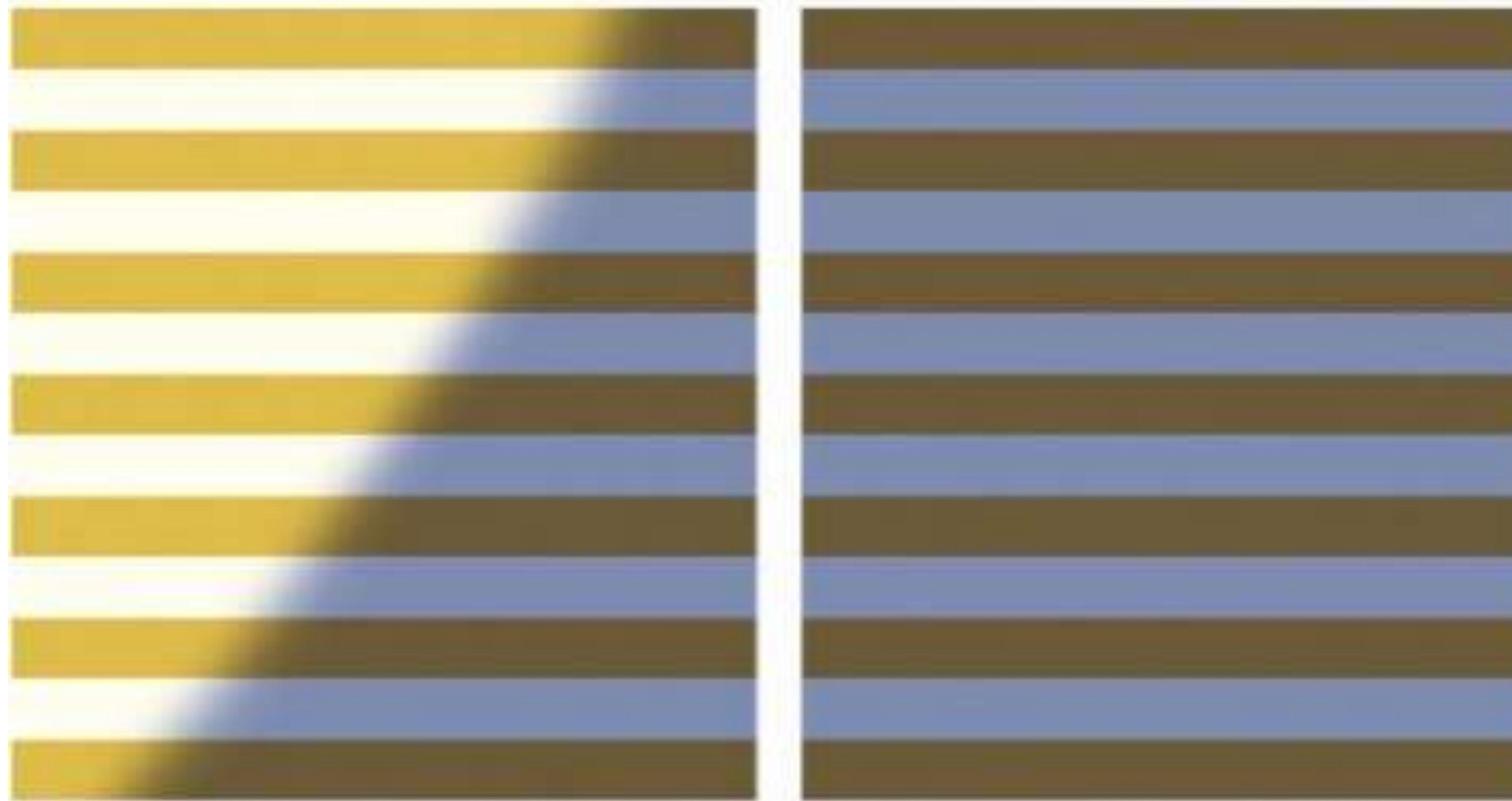


Mirielles, Ware

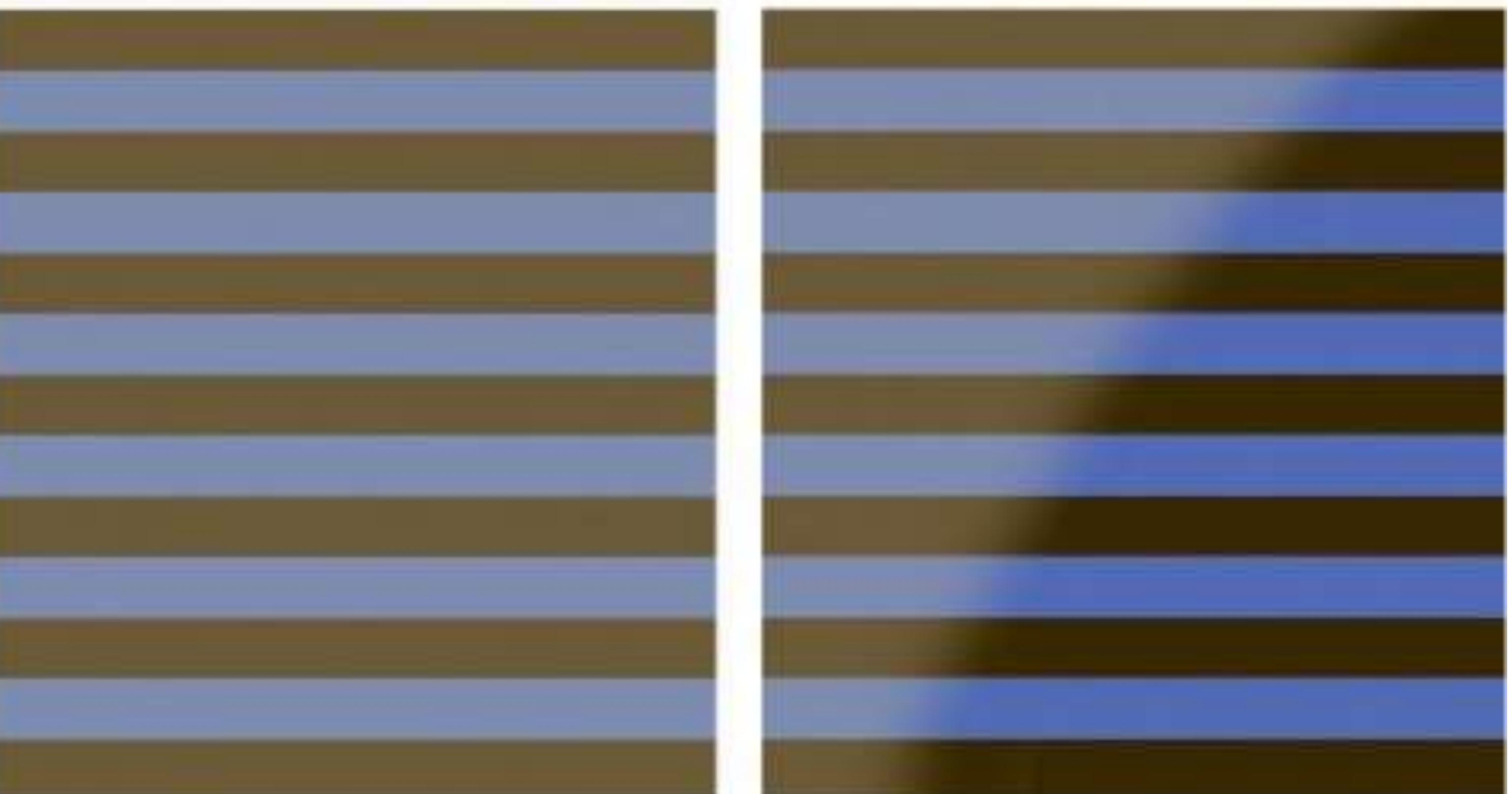




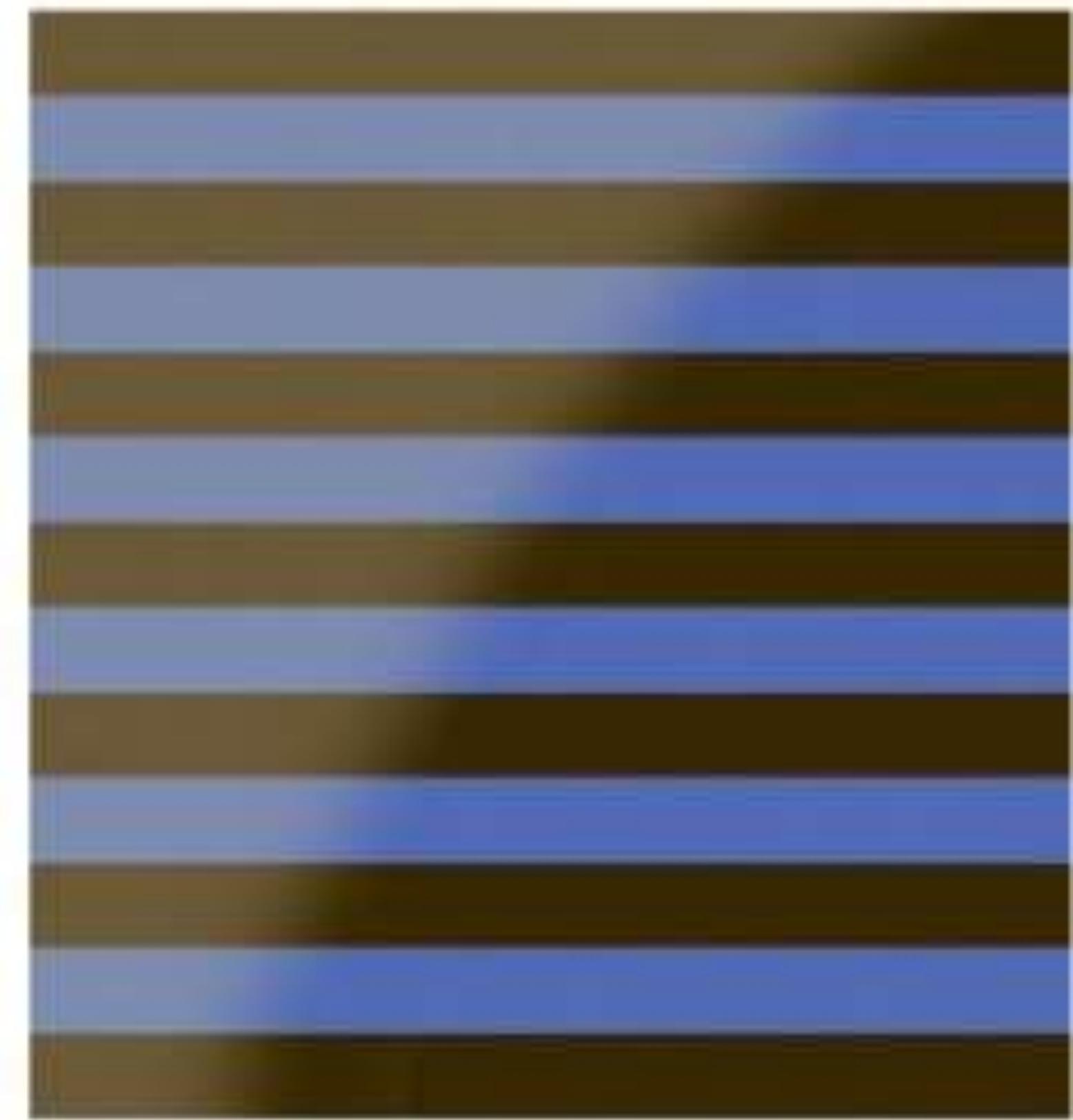
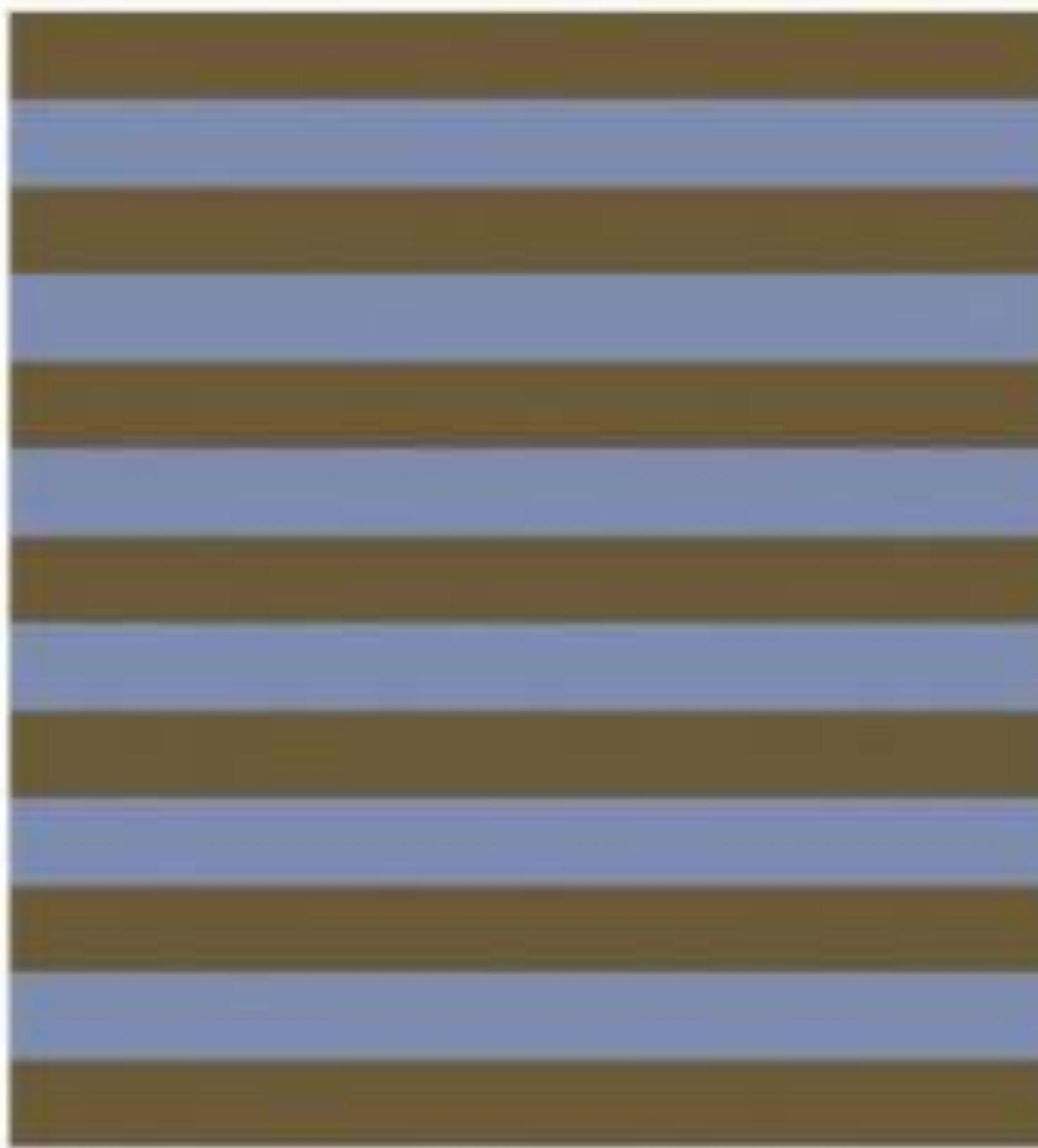
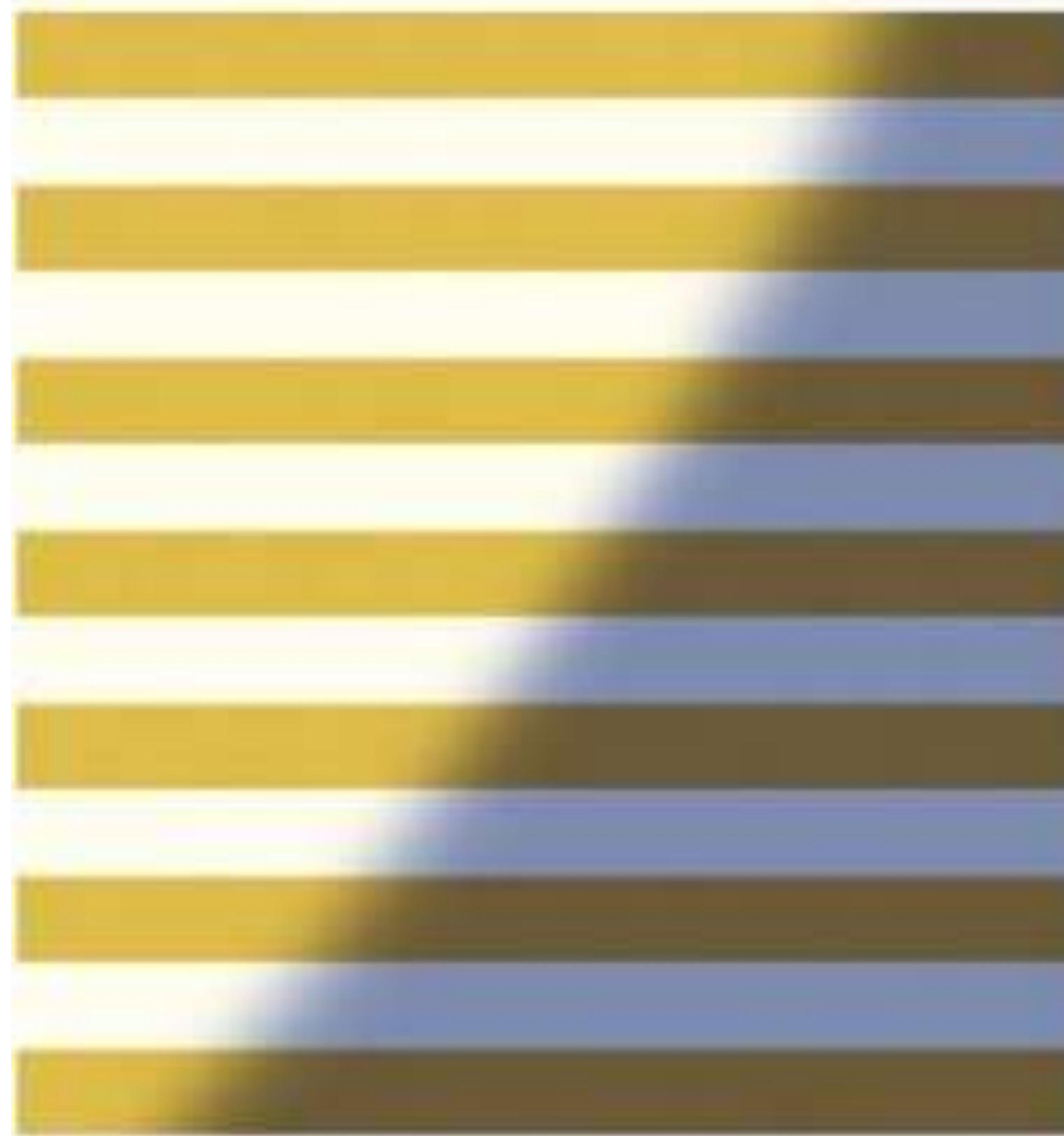




*Jonathan Corum, The New York Times*



*Jonathan Corum, The New York Times*



*Jonathan Corum, The New York Times*



## Royal-Blue Lace Detail Bodycon Dress

**£50.00**



Choose your Size:

SIZE  
GUIDE

**ADD TO BAG >**

This amazing lace dress will be your new favourite! Cut to flatter this dress is bang on trend with it's beautiful lace detail. Wear with your favourite heels and a clutch.

- Style: 70931
- Fabric: 68% Viscose 27% Polyamide 5% Elastane
- Care: Dry Clean Only
- Sleeve Length: Knee Length Dresses
- Length: N/A

# Vocabulary of Forms

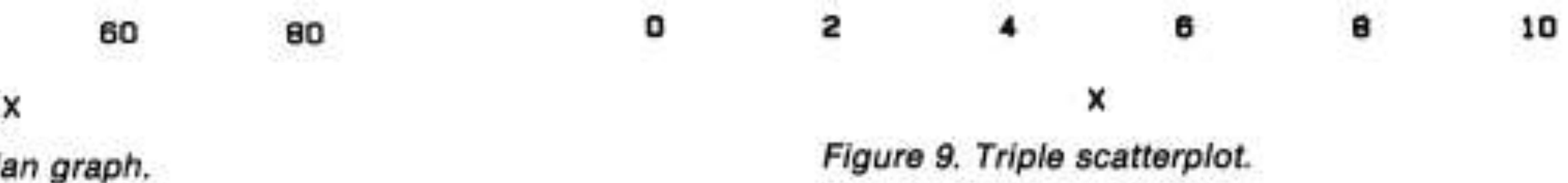


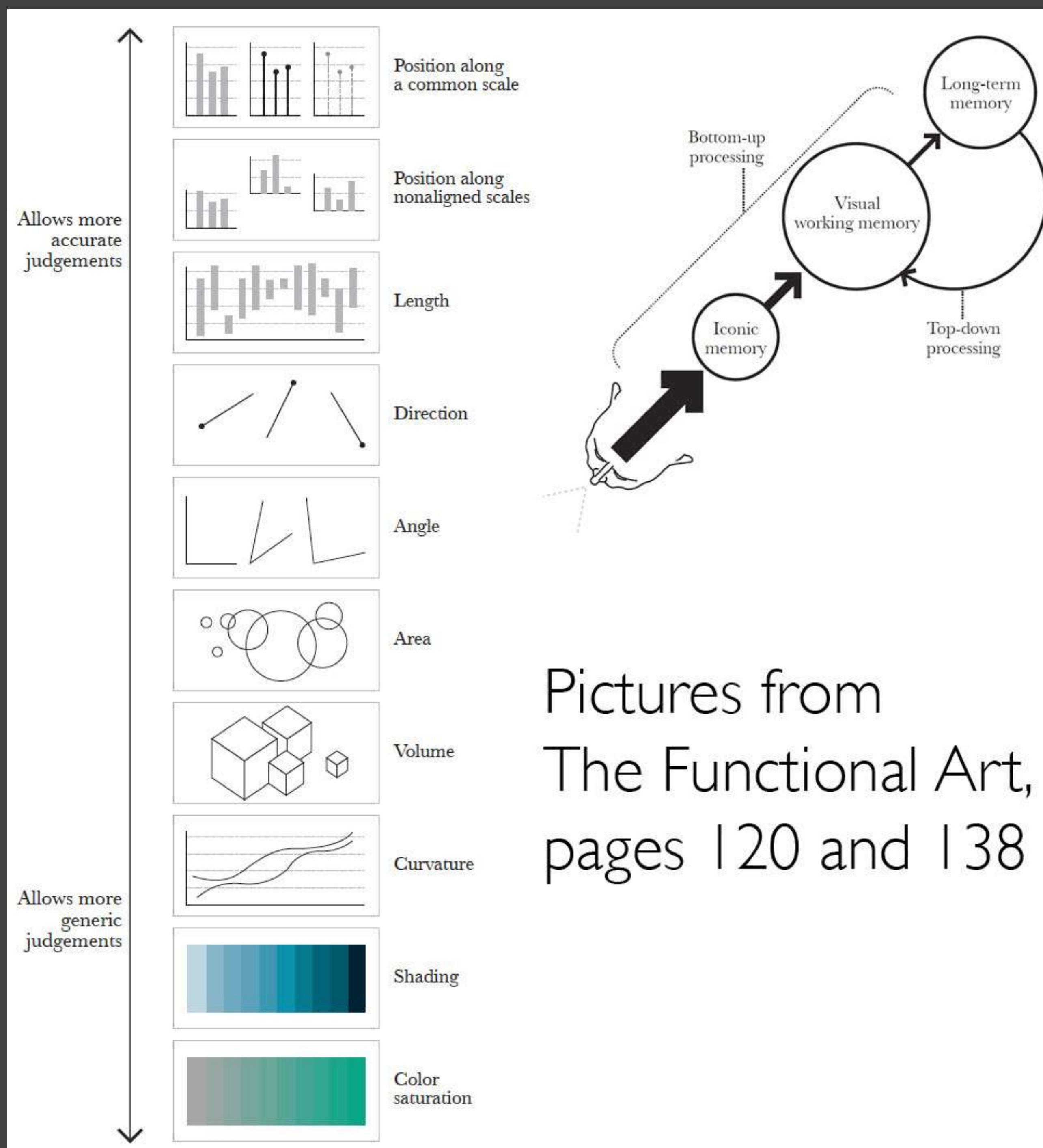
Figure 9. Triple scatterplot.

better organization and insect perception of patterns

of patterns emerging when  
e changed to increase the

The following are the 10 elementary tasks in Figure 1,  
ordered from most to least accurate:

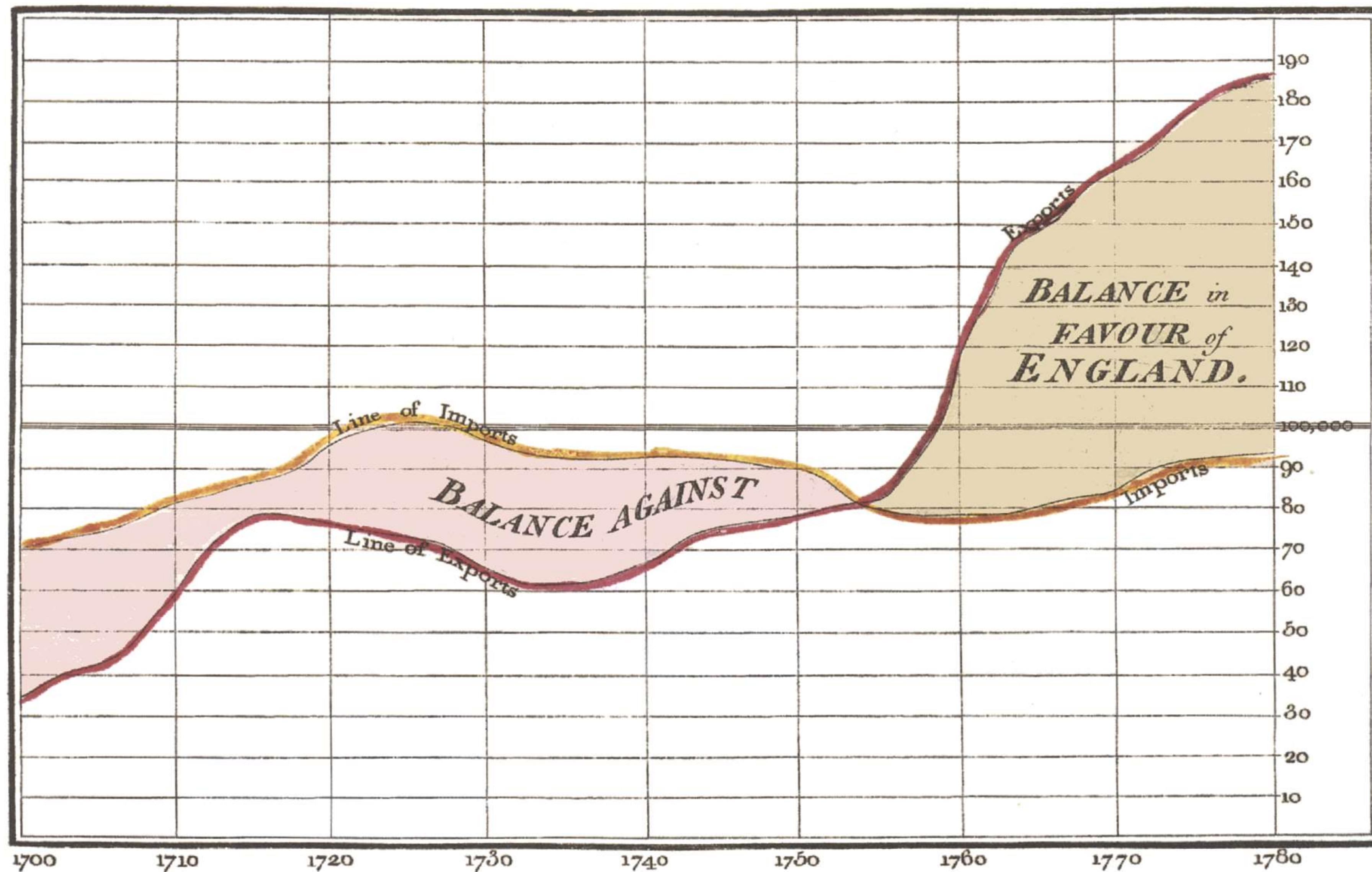
1. Position along a common scale
2. Positions along nonaligned scales
3. Length, direction, angle
4. Area
5. Volume, curvature
6. Shading, color saturation



Pictures from  
The Functional Art,  
pages 120 and 138

# Lines

Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.



The Bottom line is divided into Years, the Right hand line into £10,000 each.

Published as the Act directs, 14<sup>th</sup> May 1786, by W<sup>m</sup> Playfair

Neale sculpt: 352, Strand, London.

# The Long-term Future of Hits from 2013

## GROWTH, DECAY-RATE OF 2013-RELEASED TRACKS ON SPOTIFY

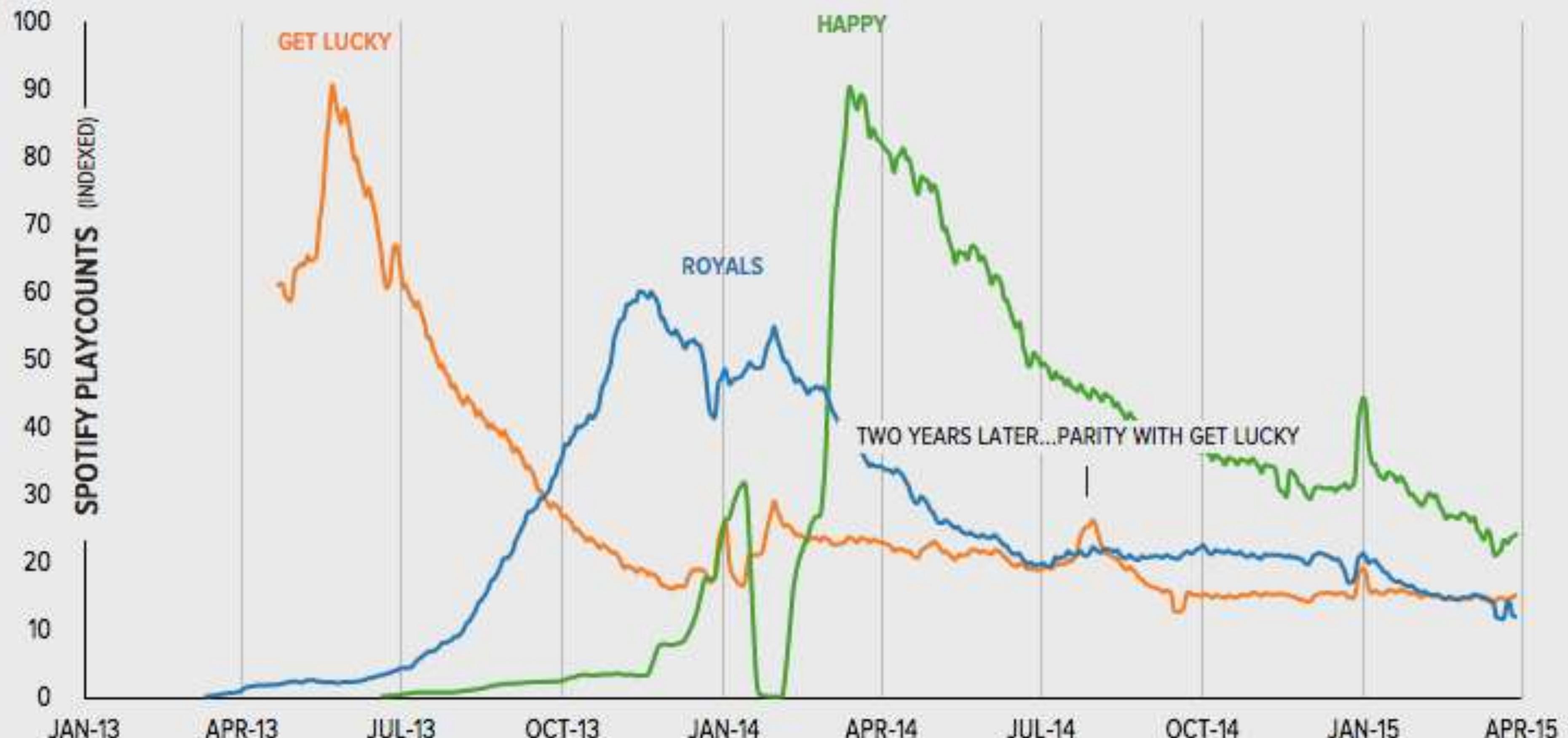
TRACKS WERE OFFICIALLY RELEASED IN 2013.

FIND A TRACK:

Find an artist or track...

Clear All

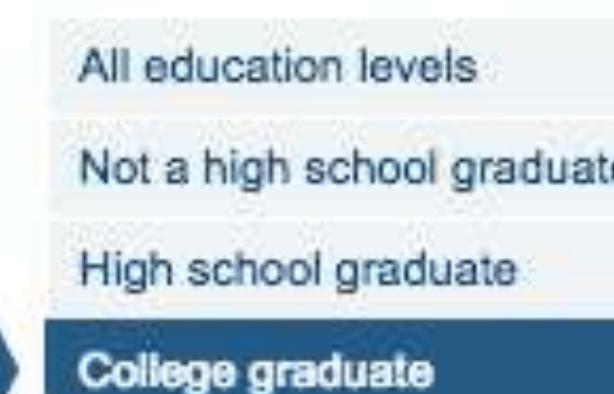
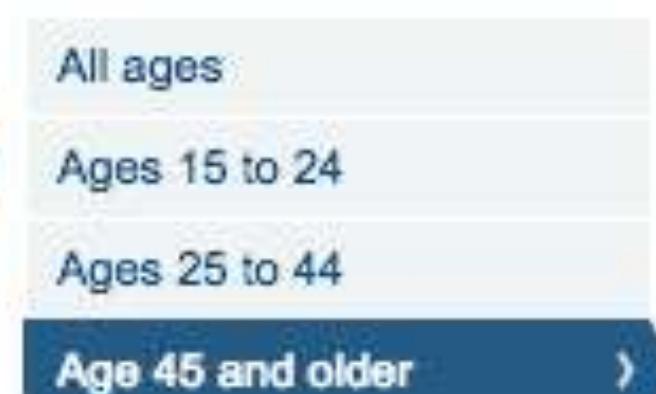
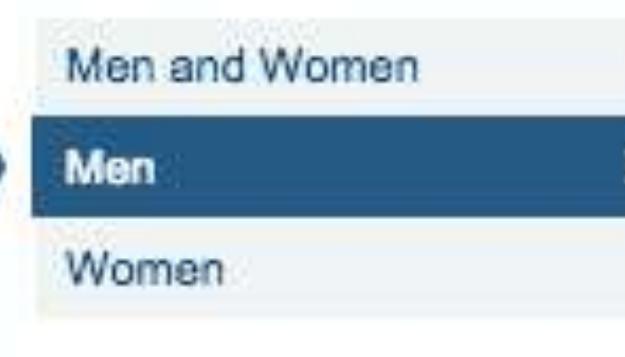
- Lorde - Royals
- Daft Punk - Get Lucky...
- OneRepublic - Counting...
- Lana Del Rey - Young a...
- Avicii - Wake me up...
- Robin Thicke - Blurred...
- Pink - Just Give Me a ...
- Calvin Harris - I Need...
- Justin Timberlake - Mi...
- Bastille - Pompeii...
- Bruno Mars - When I Wa...
- Miley Cyrus - We Can't...



Published: November 6, 2009

# The Jobless Rate for People Like You

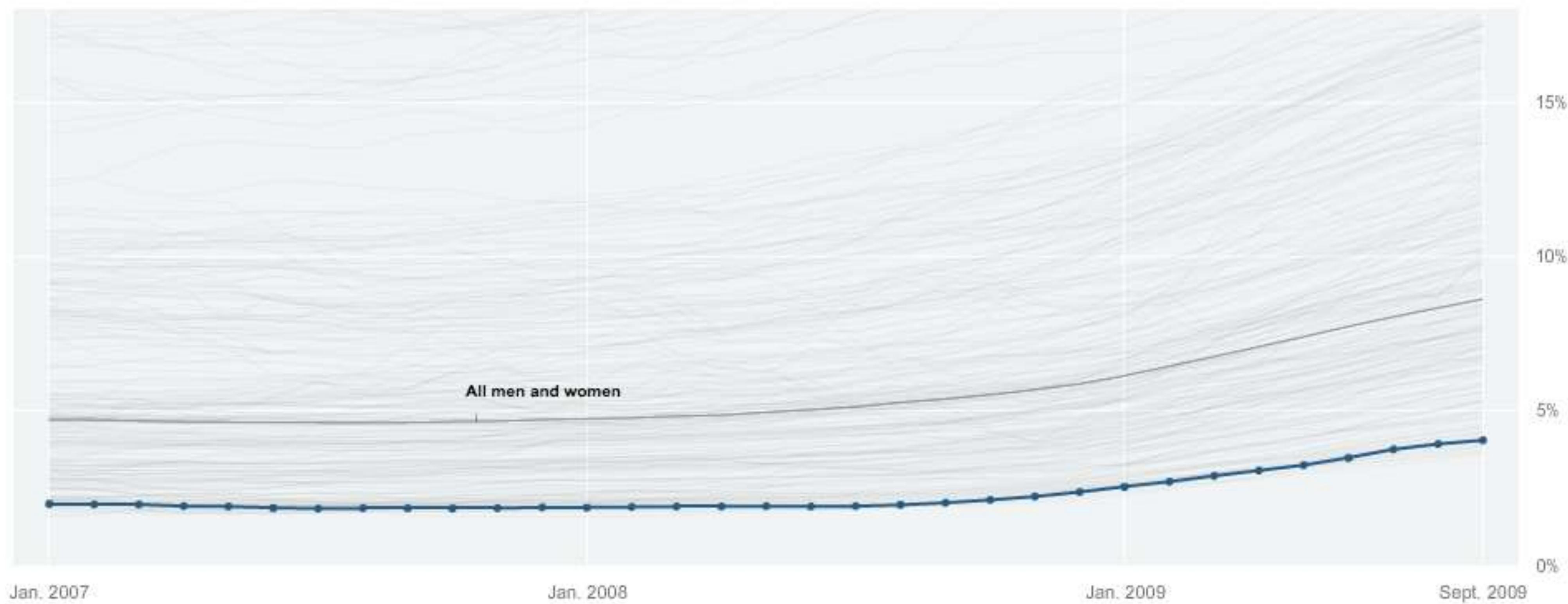
Not all groups have felt the recession equally.



UNEMPLOYMENT RATE,  
12 MONTH AVG. ENDING SEPT. '09

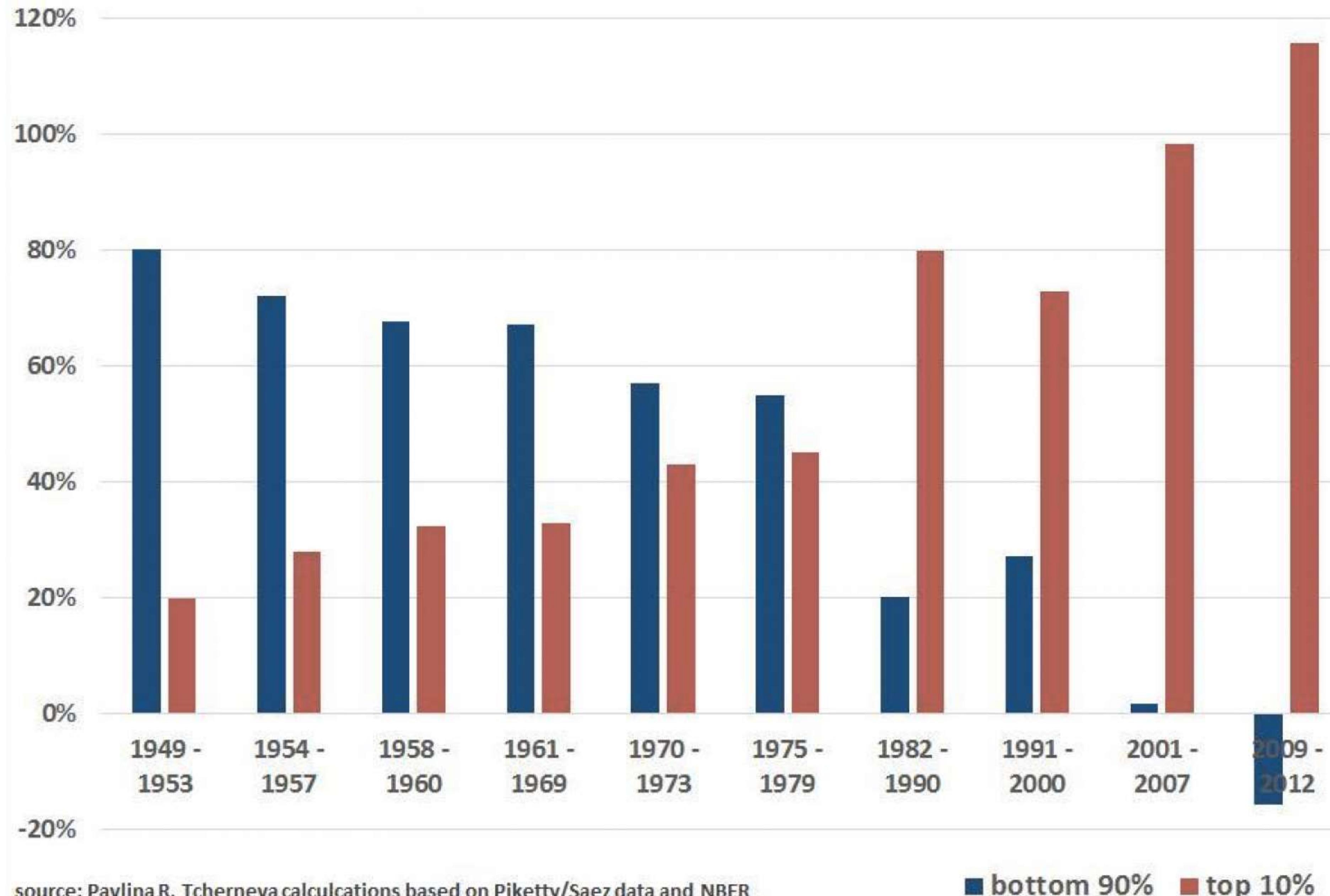
**4.1%**

For white men age 45 and older with  
a college degree



# Bars

## Distribution of Average Income Growth During Expansions







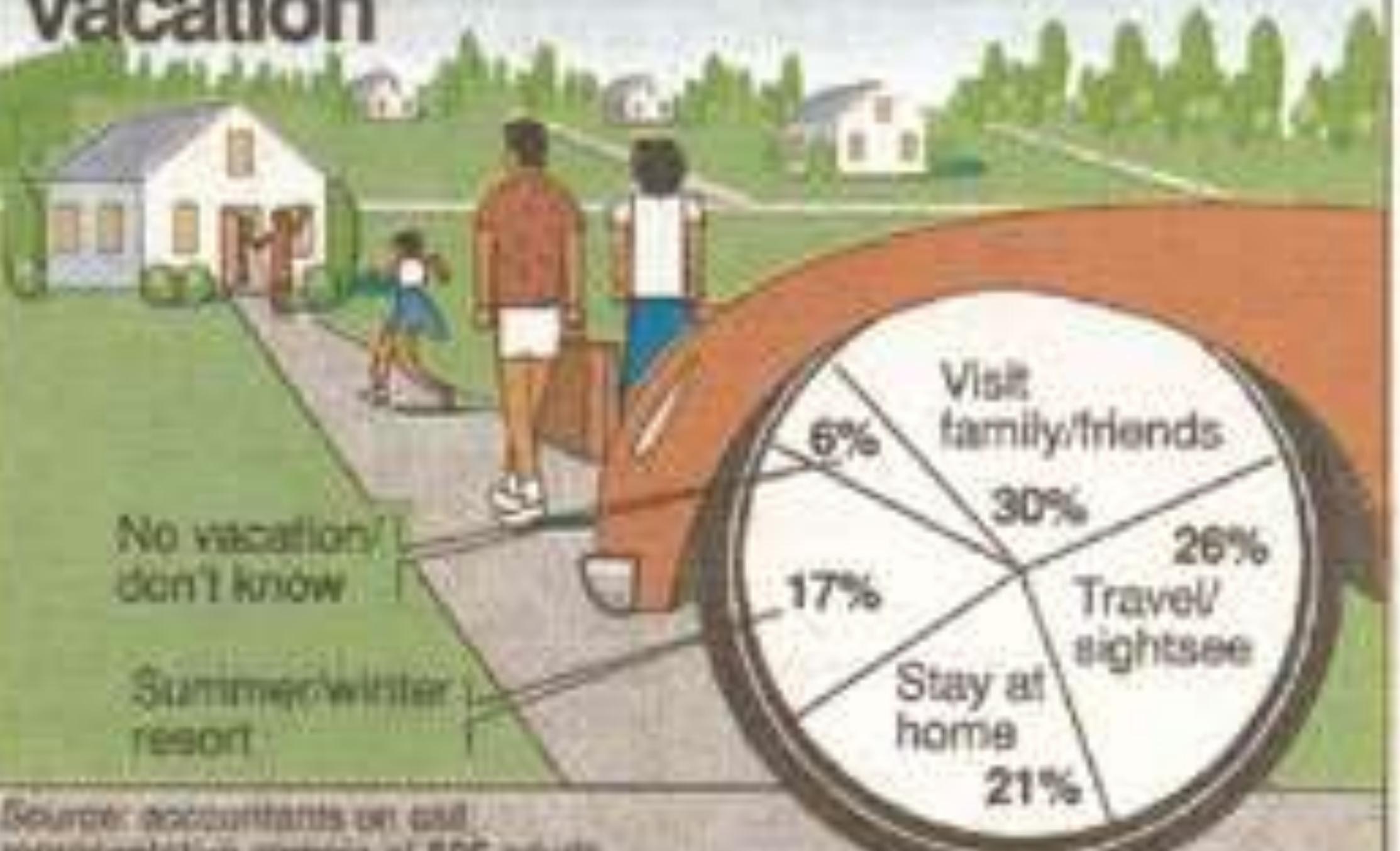
2007

Pies

## USA SNAPSHOTS®

A look at statistics that shape our lives

### How people spend their vacation

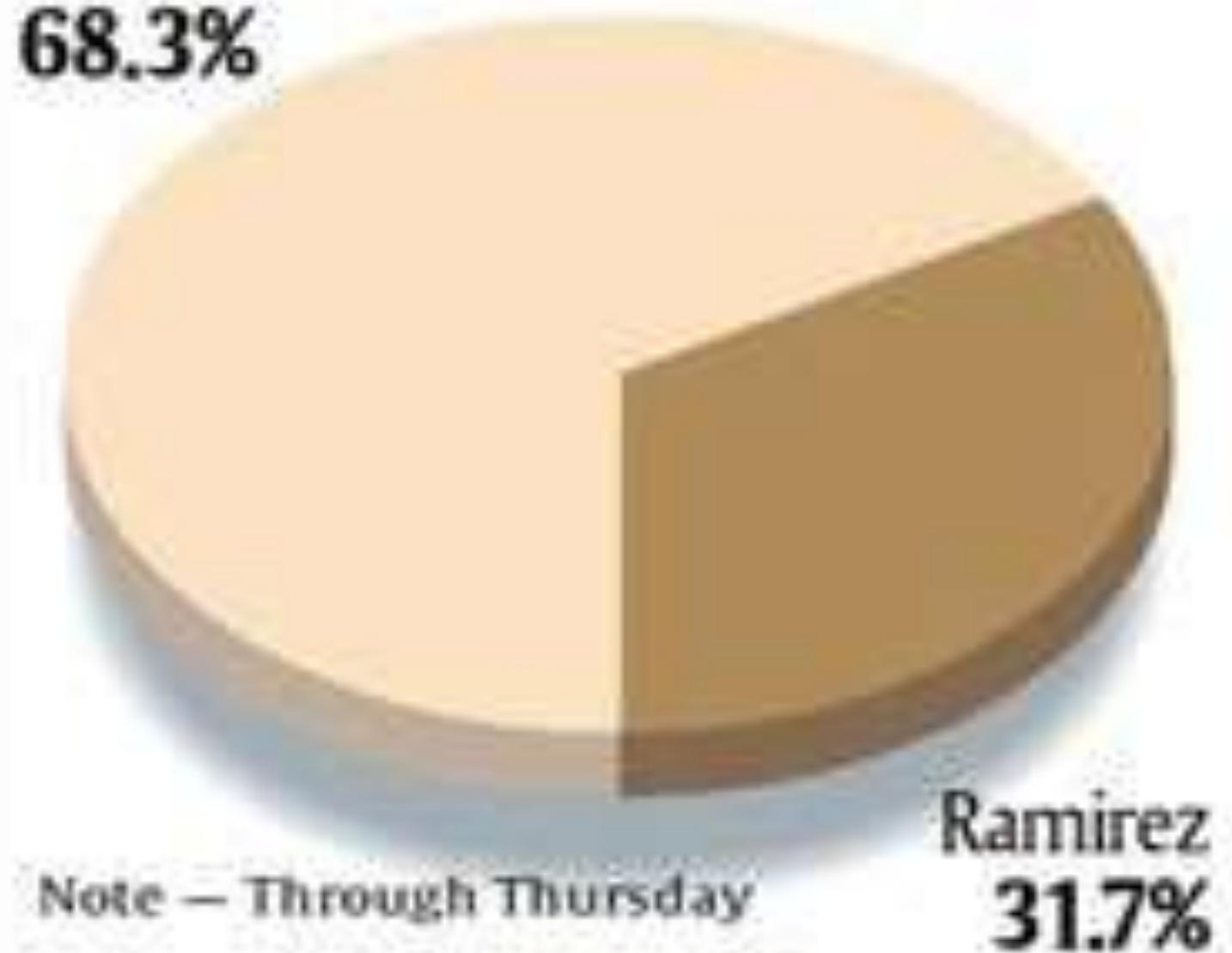


By James Bullock, USA TODAY

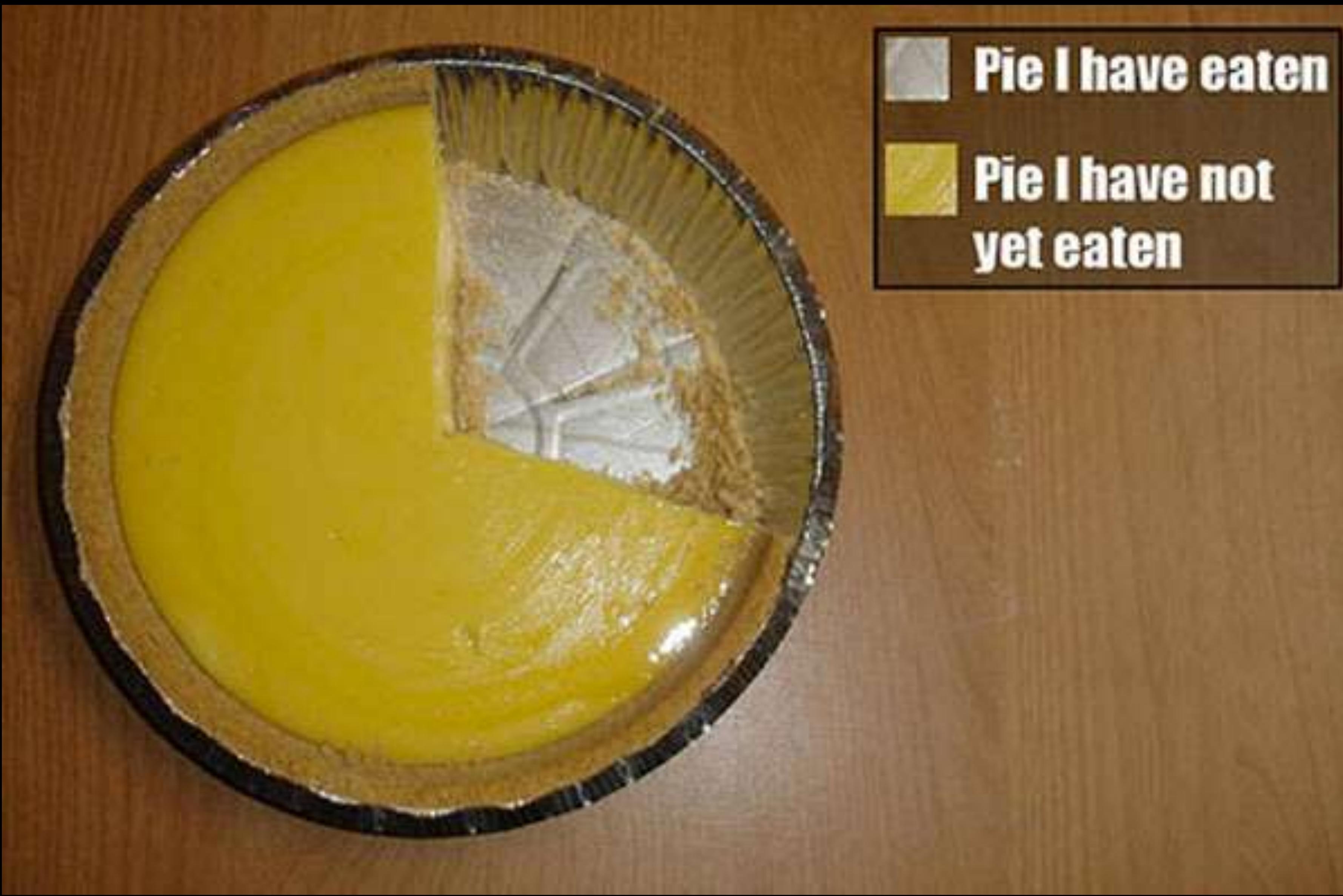
## Red-hot Ramirez

Manny Ramirez has accounted for nearly a third of the Red Sox runs this season. He has been involved in 65 of the 205 runs the Red Sox have scored.

Team  
**68.3%**



By Frank Pompa, USA TODAY



# Circles

# Four Ways to Slice Obama's 2013 Budget Proposal

HEALTH AND HUMAN SERVICES

Centers for Medicare and Medicaid Services

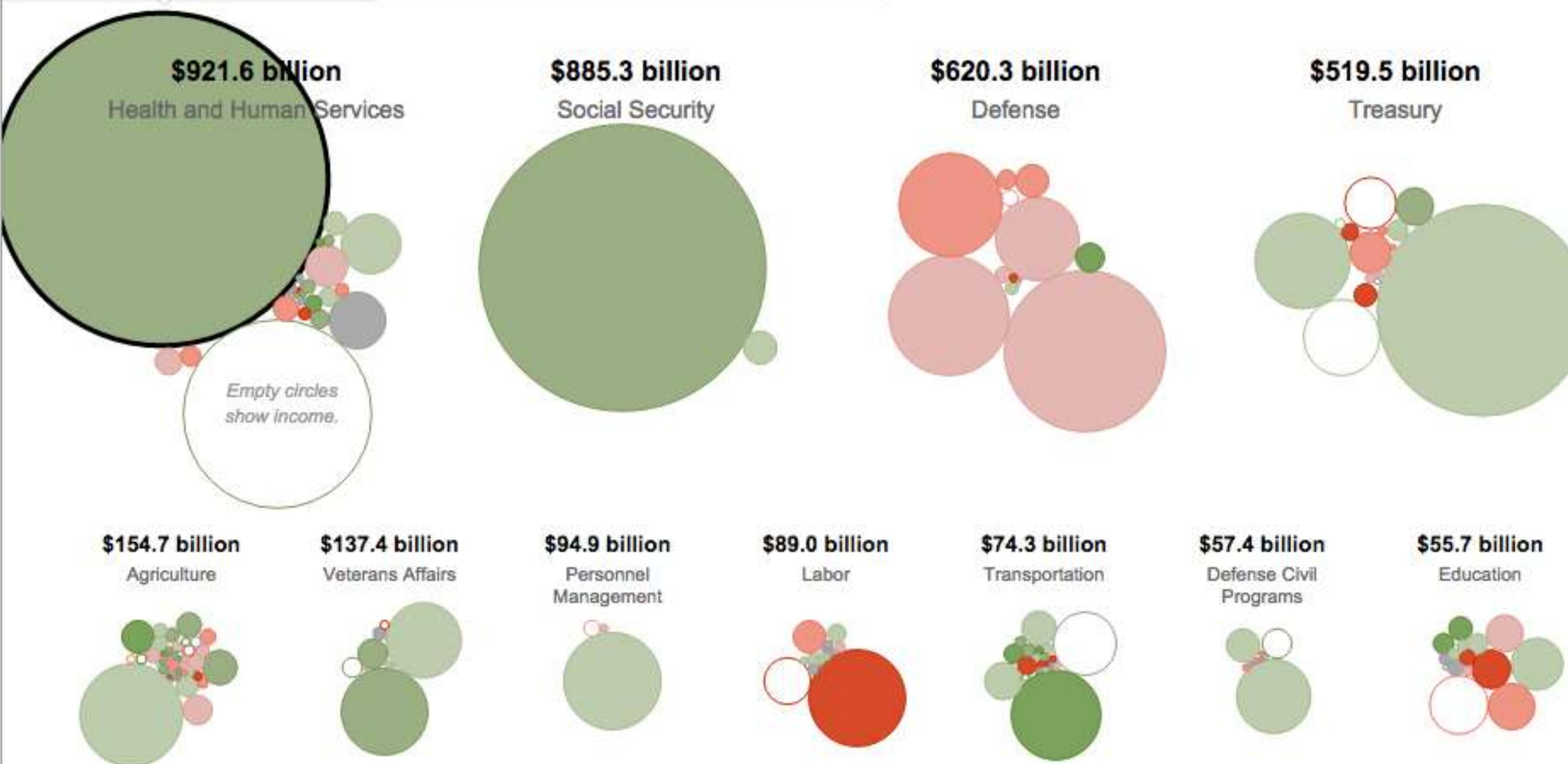
Mandatory spending

**\$1.18 trillion** **+8.4%**

of President Obama's federal budget proposal.

Changes

Department Totals



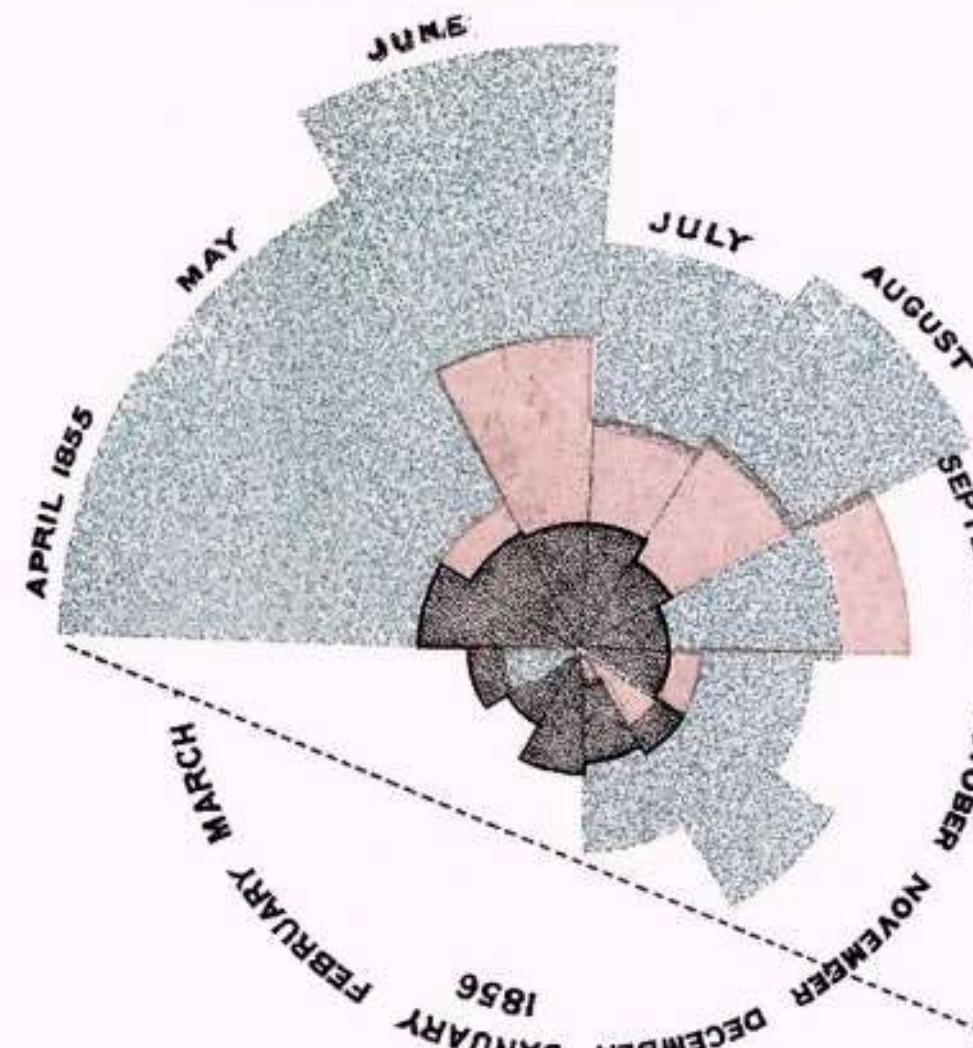
BBC FOUR



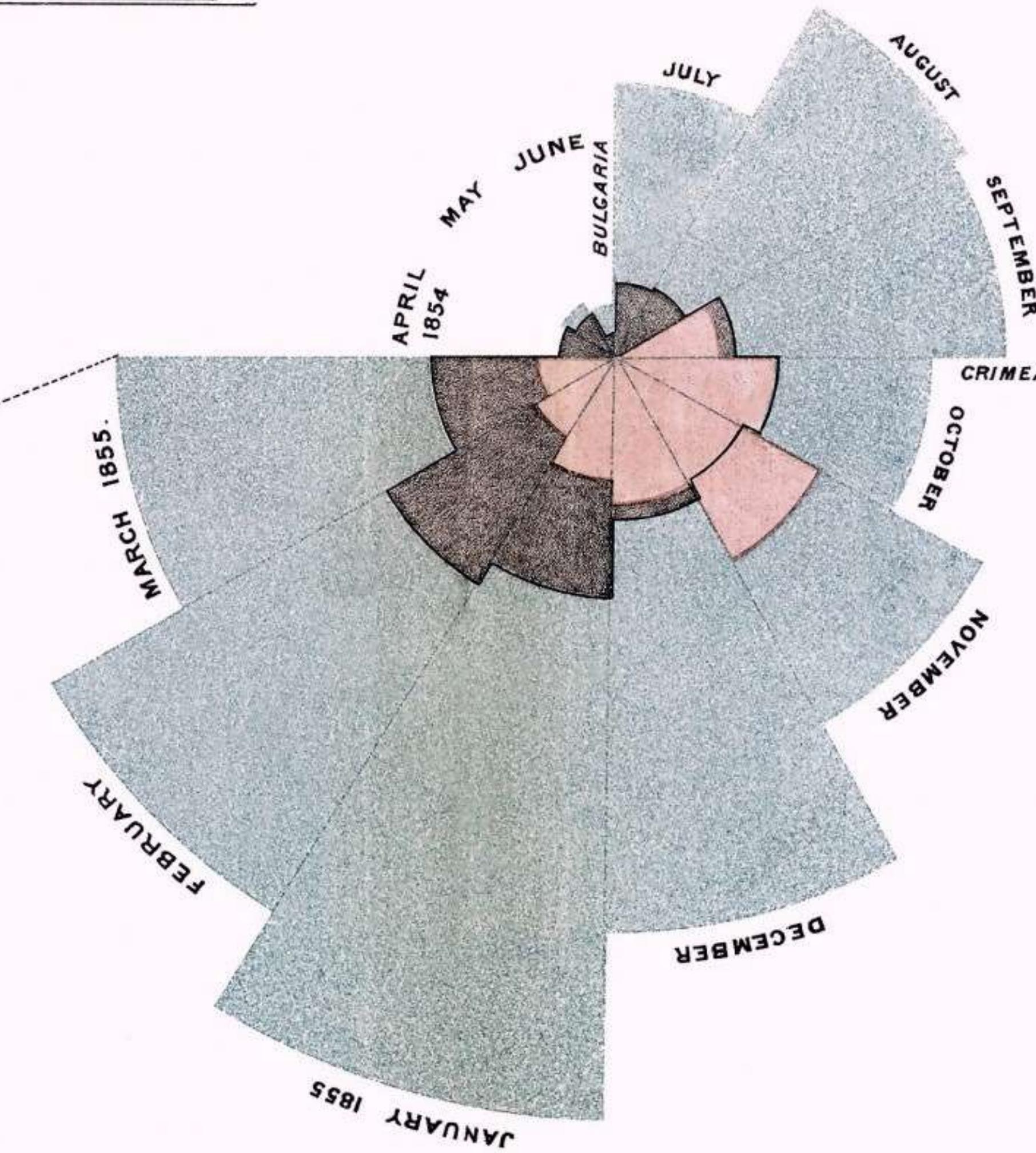
# Radials

DIAGRAM OF THE CAUSES OF MORTALITY  
IN THE ARMY IN THE EAST.

2.  
APRIL 1855 TO MARCH 1856.



1.  
APRIL 1854 TO MARCH 1855.



*The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.*

*The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes.*

*The black line across the red triangle in Nov. 1854 marks the boundary of the deaths from all other causes during the month.*

*In October 1854, & April 1855, the black area coincides with the red; in January & February 1856, the blue coincides with the black.*

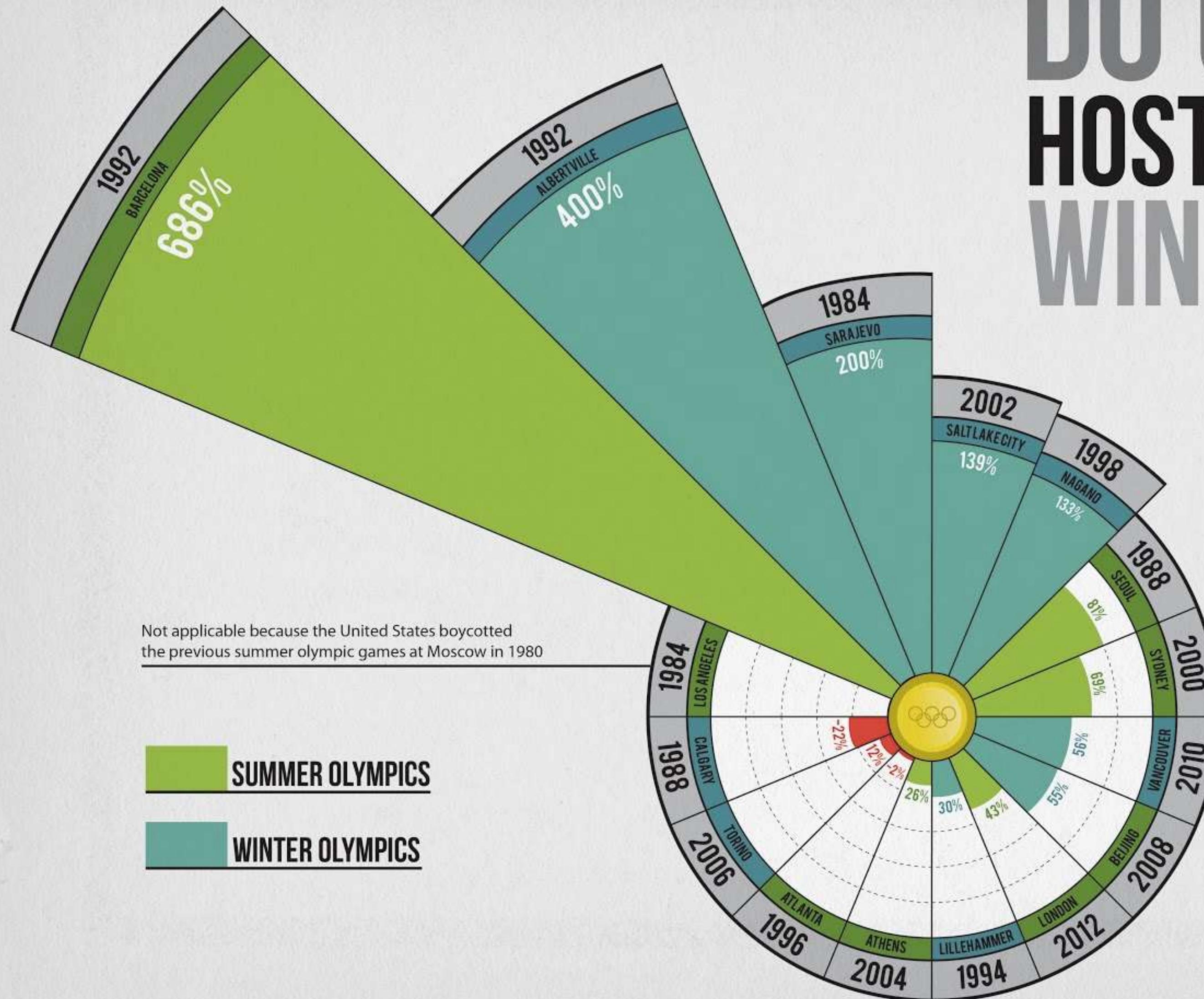
*The entire areas may be compared by following the blue, the red & the black lines enclosing them.*

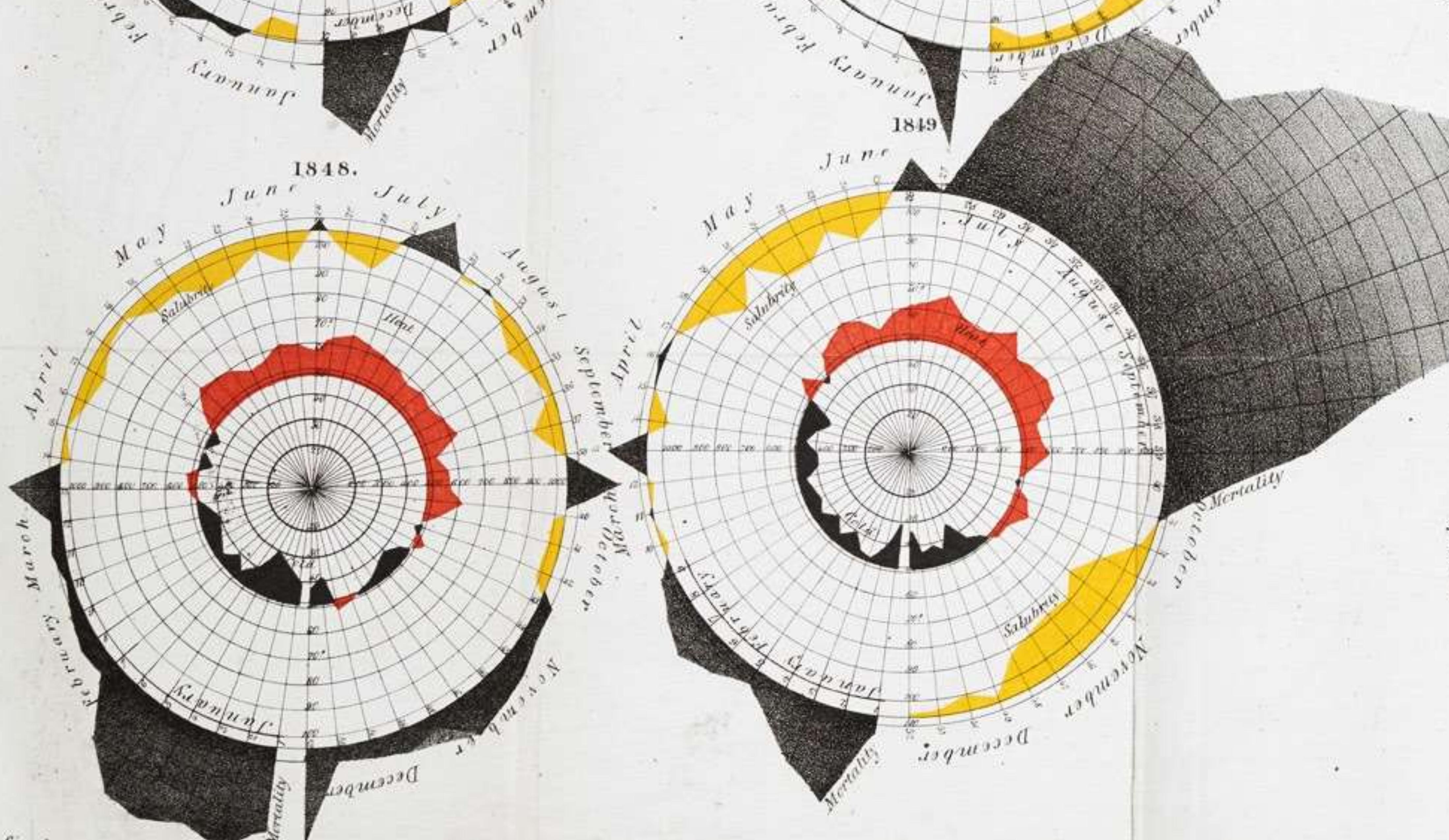
# DO OLYMPIC HOST COUNTRIES WIN MORE?



A look into percentages for medal growth/decline for all Olympic host countries from 1984 to 2012.

Percentages calculated by comparing medal point counts from countries host years and the olympics they participated in the years previously.



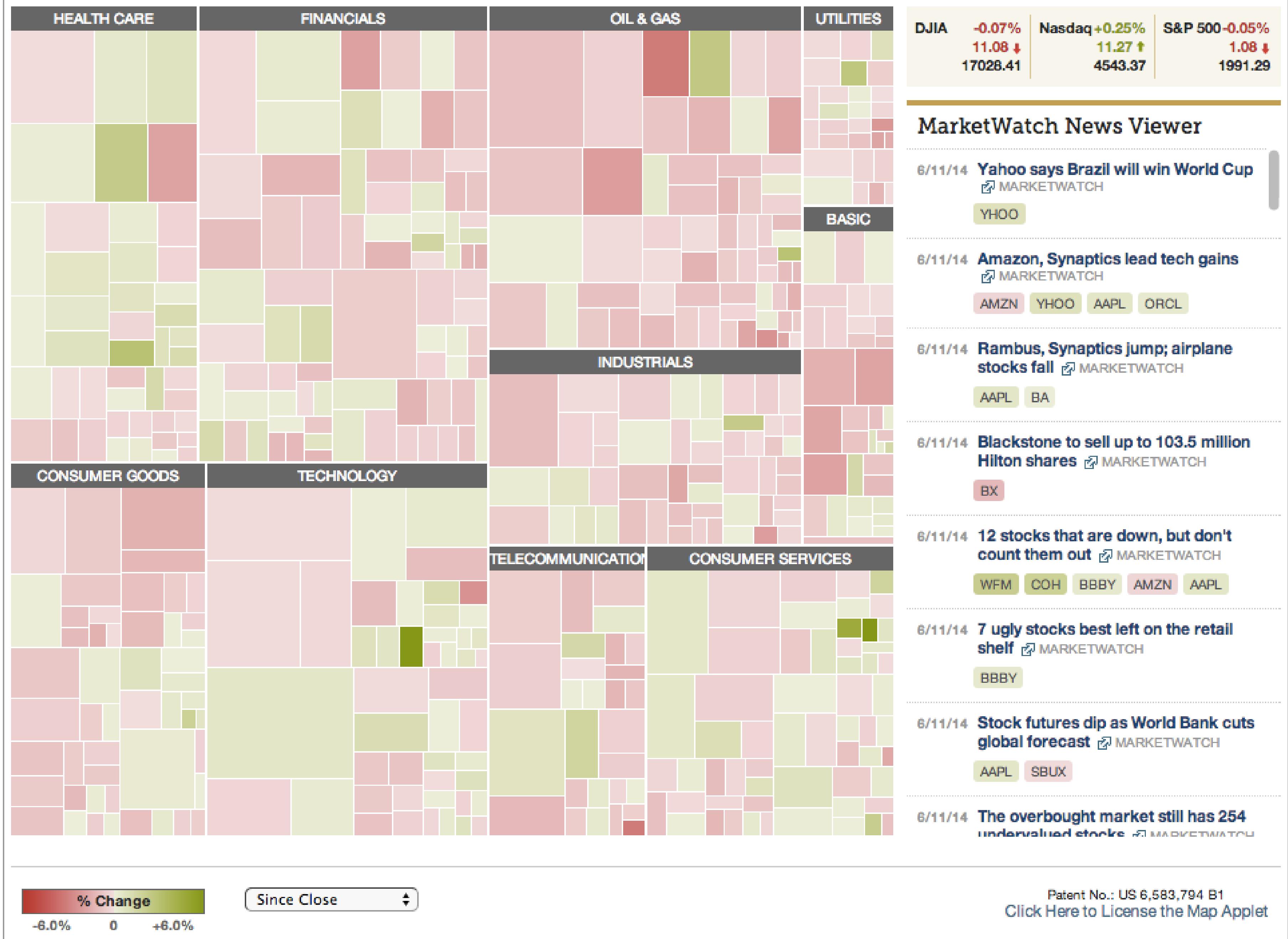


*Circular Diagrams showing the relative Mortality and the mean temperature in each week of the 11 Years 1840-50. The distance between each circle represents either 100 deaths or 10° of temperature; the radii represent the weeks of the year.*

*the blue and inside the red colour) represent respectively the average weekly deaths of the ten Years 1840-49 corrected for increase of Population, and the mean temperature (48.4°) of the 79 years 1771-1849.*

*deaths  
yellow  
deaths  
denote*

# Treemaps and Voronoi



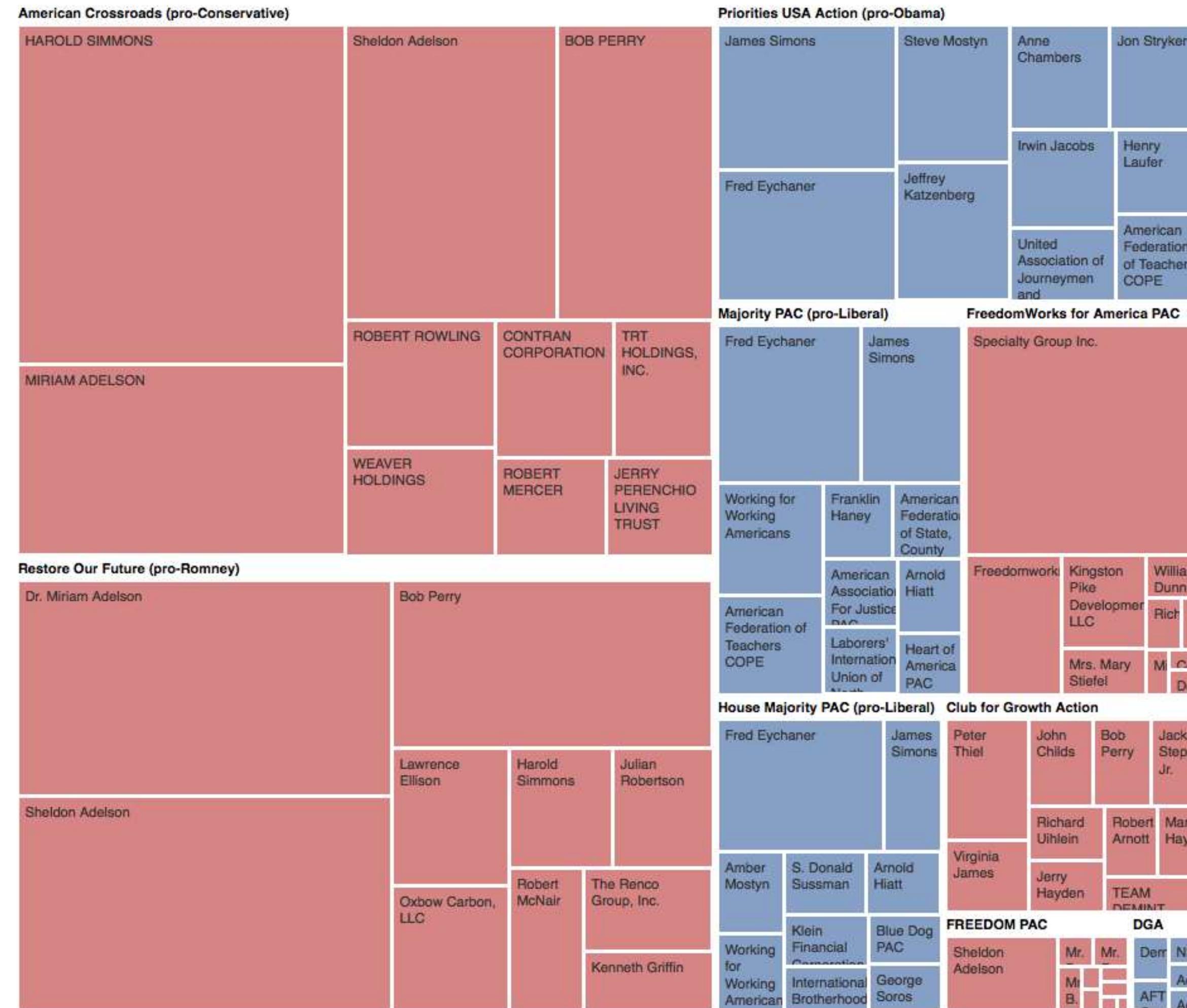
# Who are the Super PACs' Biggest Donors?

By Al Shaw, ProPublica. Updated December 7, 2012

This chart shows the share of all contributions given by the top ten donors to super PACs still active in the 2012 election, through November, 2012. Some corporations are affiliated with individual donors, such as the Contran Corporation, which is owned by Harold Simmons | [See all contributions at PAC Track »](#)

*Hover over each super PAC's name to see the total raised by its top ten donors, and hover over each donor to see how much they gave. Click a month to see top donors' contributions as of that month.*

« PREVIOUS Jan. Feb. March April May June July Aug. Sept. Oct. Nov. NEXT »



ZOOM IN

ZOOM OUT

### Food and beverages 15%

The high price of oil is a factor that has made food prices rise quickly.

### Miscellaneous 3%

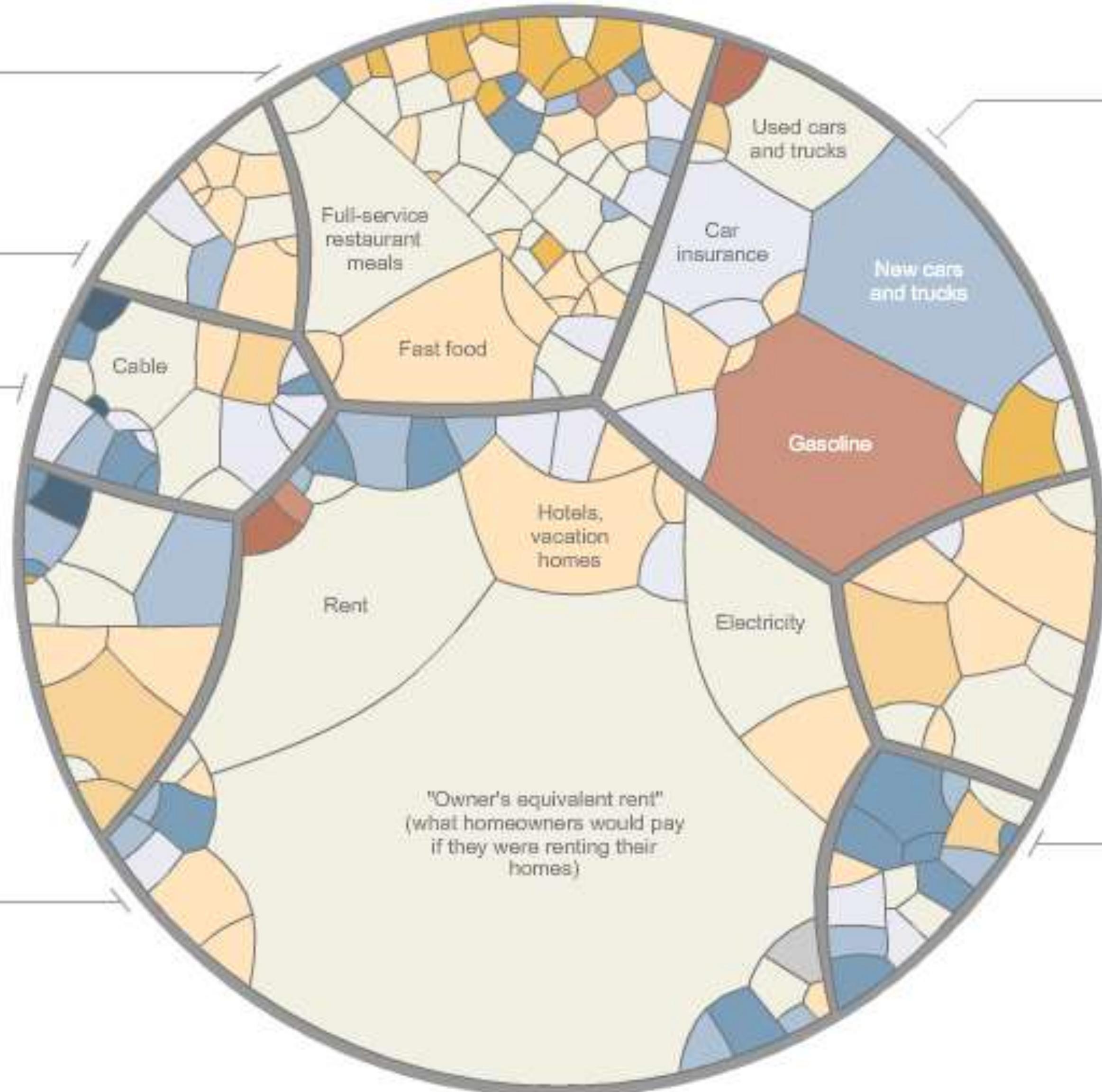
### Recreation 6%

### Education/Communication 6%

Cellphones were added to the index in 1997. Because the Consumer Price Index can be slow to add new goods, which are often cheaper, it may overstate parts of inflation.

### Housing 42%

In the C.P.I., home ownership costs track rent prices more closely than housing prices. This means inflation may have been understated when home prices were rising faster than rents.



### Transportation 18%

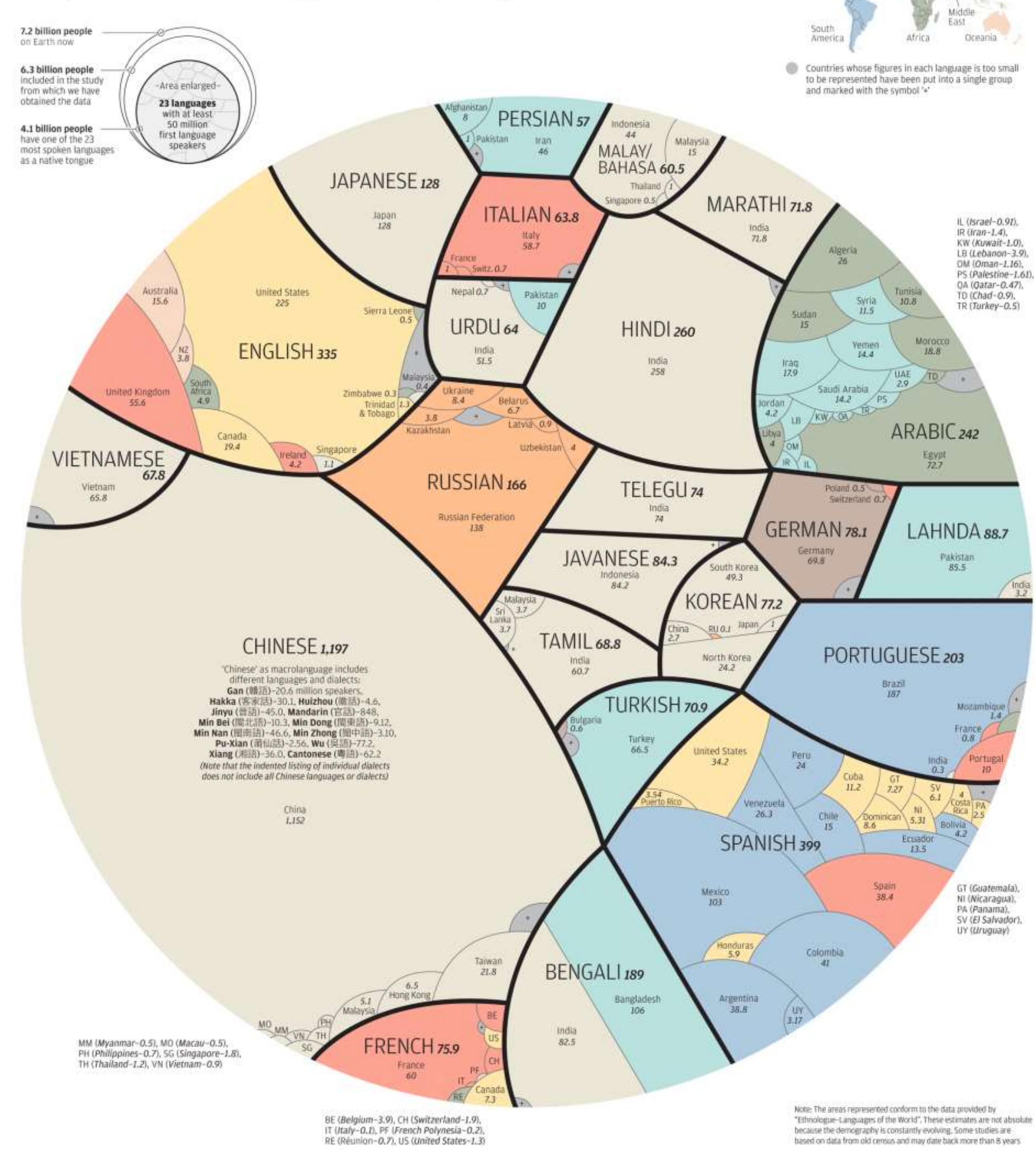
Gas is 5.2 percent of spending nationwide, but only 3.8 percent in the New York area.

### Health care 6%

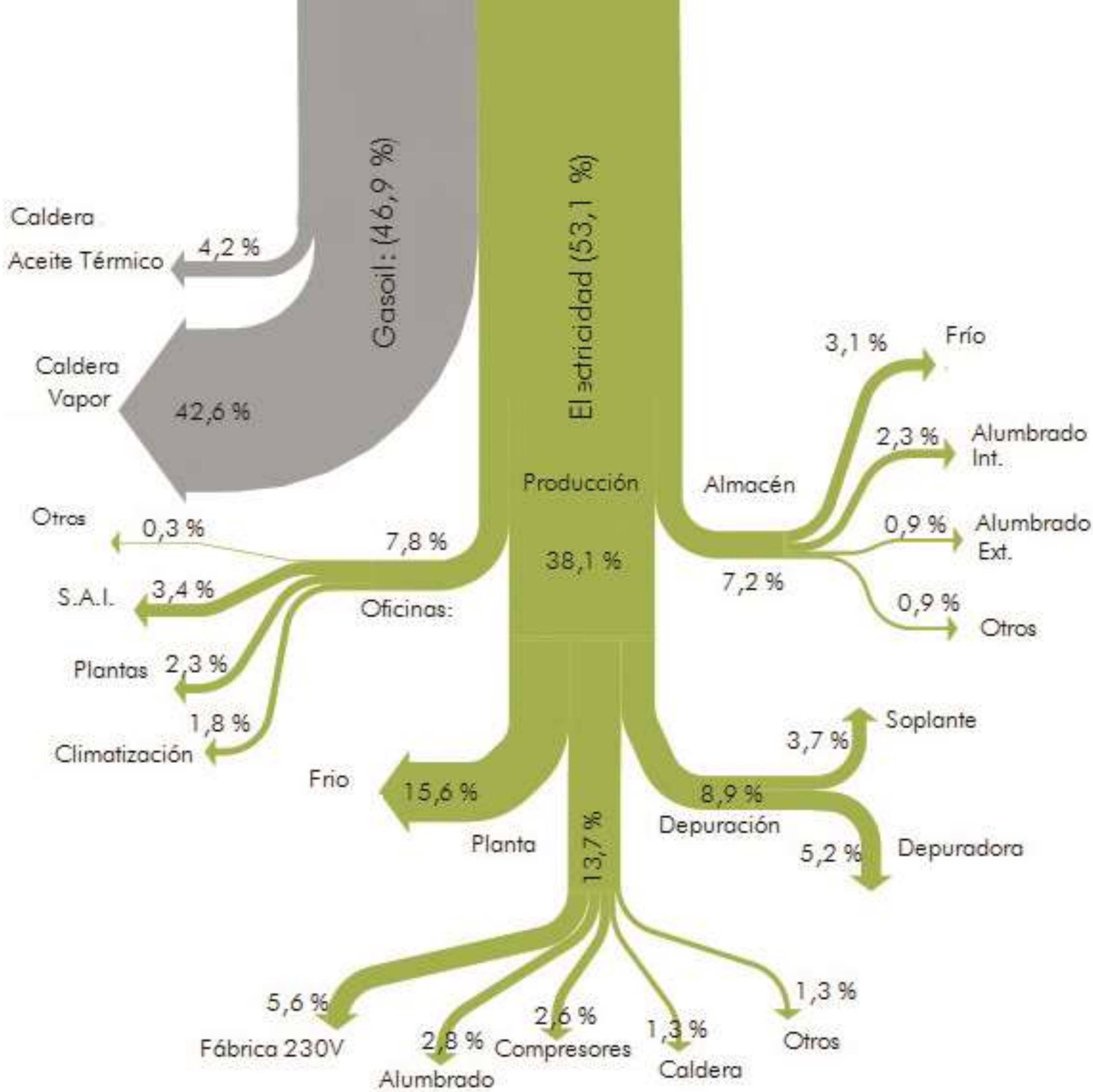
As a group, the elderly spend about twice as much of their budget on medical care.

### Apparel 4%

The ratio of spending on women's clothes to that on men's clothes is about 2 to 1.



# Sankey Diagrams



*Carte Figurative des pertes successives en hommes de l'Armée Française dans la Campagne de Russie 1812-1813.*

Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite

Paris, le 20 Novembre 1869.

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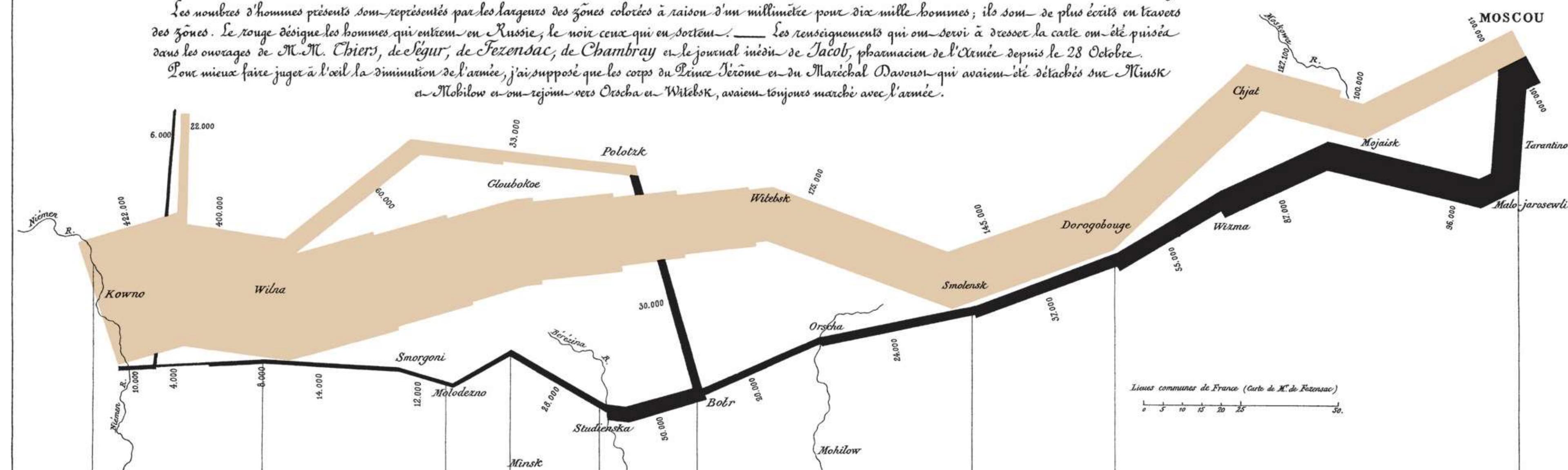
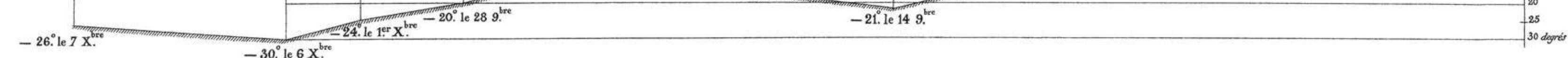


TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessous de zéro.

Les Cosaques passent au galop  
le Niémen gelé.



# 'Black budget' revealed

Top-secret summary details U.S. spy network's successes, failures and objectives

BY BARTON GELLMAN  
AND GREG MILLER

U.S. spy agencies have built an intelligence-gathering colossus since the attacks of Sept. 11, 2001, but remain unable to provide critical information to the president on a range of national security threats, according to the government's top-secret budget.

The \$52.6 billion "black budget" for fiscal 2013, obtained by The Washington Post from former intelligence contractor Edward Snowden, maps a bureaucratic and operational landscape that has never been subject to public scrutiny. Although the government has annually released its overall level of intelligence spending since 2007, it has not divulged how it uses the money or how it performs against the goals set by the president and Congress.

The 118-page budget summary for the National Intelligence Program details the successes, failures and objectives of the 16 spy agencies that make up the U.S. intelligence community, which has 107,035 employees.

The summary describes cutting-edge technologies, agent recruiting and ongoing operations. The Post is withholding some information after consultation with U.S. officials who expressed concerns about the risk to intelligence sources and methods. Sensitive details are so pervasive in the documents that The Post is publishing only summary tables and charts online.

"The United States has made a considerable investment in the Intelligence Community since the terror attacks of 9/11, a time which includes wars in Iraq and Afghanistan, the Arab Spring, the proliferation of weapons of mass destruction technology, and asymmetric threats in such areas as cyber-warfare," Director of National Intelligence James Clapper said in his introduction to the budget.

## Inside the \$52.6 billion 'black budget'

Three of the agencies under the National Intelligence Program are to receive nearly 69 percent of the \$52.6 billion top-secret budget that the White House requested for fiscal 2013.

69%

24%

7%

- \* The budget refers to the NSA Program as the Consolidated Cryptologic Program.
- \* The Defense Intelligence Program includes the Defense Intelligence Agency and other agencies, including the intelligence components of each military service.
- \* The CIA retrieval and declassification system, with more than \$510 million allocated this year, is not shown.

Total requested in 2013, in billions

\$14.7 Central Intelligence Agency Programs

\$10.8 National Security Agency Programs

Includes uniformed military personnel of the Central Security Service, also headquartered at Fort Meade.

\$10.3 National Reconnaissance Program

\$4.9 National Geospatial-Intelligence Program

\$4.4 General Defense Intelligence Program

\$1.7 Office of the Director of National Intelligence

\$1.1 Specialized Reconnaissance Programs

\$0.8 Foreign Counter-Intelligence Program

\$3.0 Justice Department

\$0.3 Homeland Security

\$0.3 Energy Department

\$0.07 State Department

\$0.03 Treasury Department

## Funding the program's five objectives

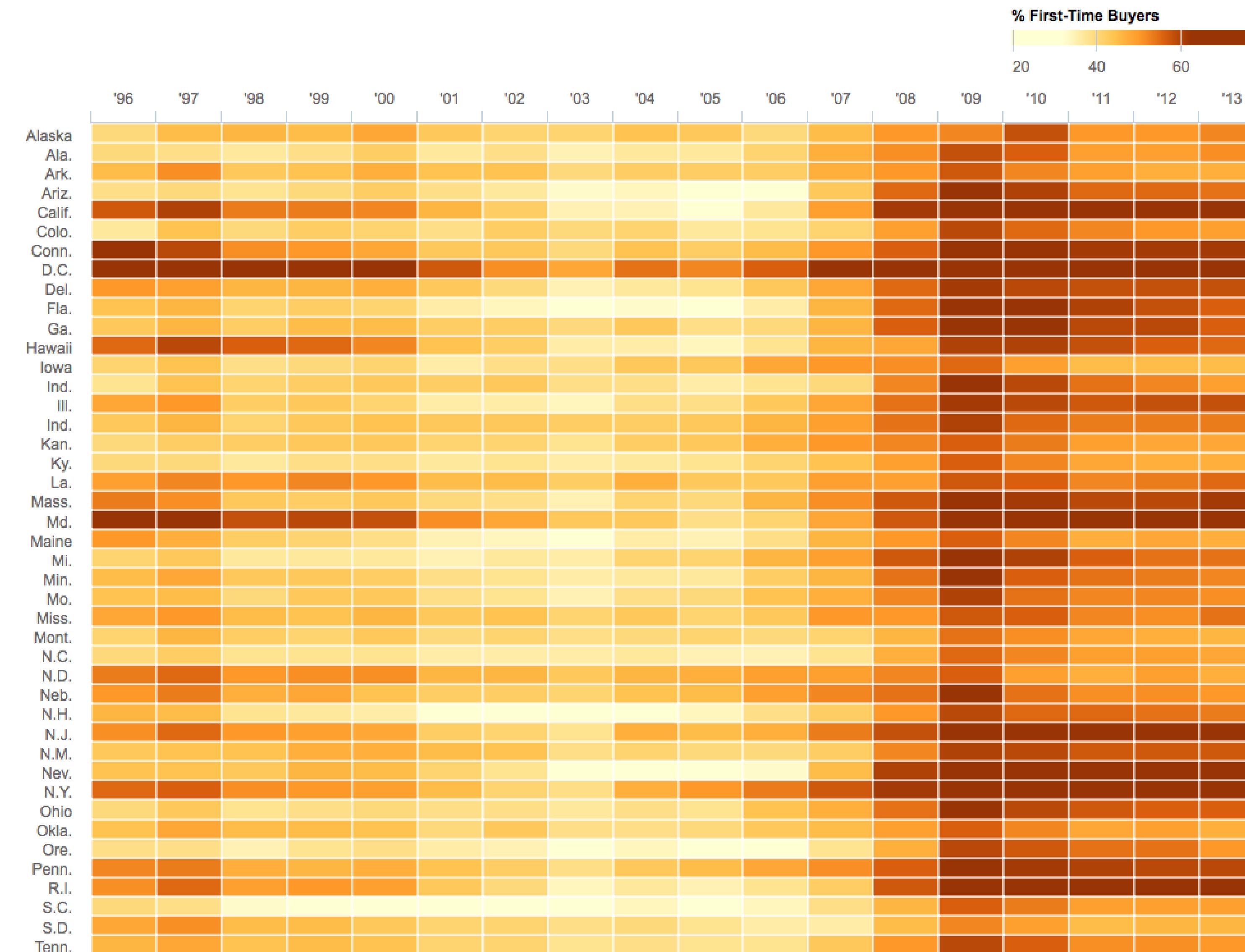
# Heatmaps

# First-Time Buyers, Over Time



By Matt Stiles and Nick Timiraos/WSJ

The percentage of first-time home purchases peaked in many states during 2009, when federal credits lured new buyers into the market. This heatmap shows the share of mortgages guaranteed by Fannie Mae, Freddie Mac and the Federal Housing Administration that went to first-time buyers. Darker shades represent higher shares of all mortgages. Read [related story](#).



Climate data for New York (Belvedere Castle, Central Park), 1981–2010 normals, extremes 1869–present <sup>[a]</sup>													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	72 (22)	75 (24)	86 (30)	96 (36)	99 (37)	101 (38)	106 (41)	104 (40)	102 (39)	94 (34)	84 (29)	75 (24)	106 (41)
Average high °F (°C)	38.3 (3.5)	41.6 (5.3)	49.7 (9.8)	61.2 (16.2)	70.8 (21.6)	79.3 (26.3)	84.1 (28.9)	82.6 (28.1)	75.2 (24)	63.8 (17.7)	53.8 (12.1)	43.0 (6.1)	62.0 (16.7)
Average low °F (°C)	26.9 (-2.8)	28.9 (-1.7)	35.2 (1.8)	44.8 (7.1)	54.0 (12.2)	63.6 (17.6)	68.8 (20.4)	67.8 (19.9)	60.8 (16)	50.0 (10)	41.6 (5.3)	32.0 (0)	47.9 (8.8)
Record low °F (°C)	-6 (-21)	-15 (-26)	3 (-16)	12 (-11)	32 (0)	44 (7)	52 (11)	50 (10)	39 (4)	28 (-2)	7 (-14)	-13 (-25)	-15 (-26)
Precipitation inches (mm)	3.65 (92.7)	3.09 (78.5)	4.36 (110.7)	4.50 (114.3)	4.19 (106.4)	4.41 (112)	4.60 (116.8)	4.44 (112.8)	4.28 (108.7)	4.40 (111.8)	4.02 (102.1)	4.00 (101.6)	49.94 (1,268.5)
Snowfall inches (cm)	7.0 (17.8)	9.2 (23.4)	3.9 (9.9)	0.6 (1.5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0.3 (0.8)	4.8 (12.2)	25.8 (65.5)
Avg. precipitation days (≥ 0.01 in)	10.4	9.2	10.9	11.5	11.1	11.2	10.4	9.5	8.7	8.9	9.6	10.6	122.0
Avg. snowy days (≥ 0.1 in)	4.0	2.8	1.8	0.3	0	0	0	0	0	0	0.2	2.3	11.4
% humidity	61.5	60.2	58.5	55.3	62.7	65.2	64.2	66.0	67.8	65.6	64.6	64.1	63.0
Mean monthly sunshine hours	162.7	163.1	212.5	225.6	256.6	257.3	268.2	268.2	219.3	211.2	151.0	139.0	2,534.7
Percent possible sunshine	54	55	57	57	57	57	59	63	59	61	51	48	57

Source: NOAA (relative humidity and sun 1961–1990)<sup>[166][162][160]</sup>

See Geography of New York City for additional climate information from the outer boroughs.

Climate data for Fairbanks Int'l, Alaska (1981–2010 normals, extremes 1904–present)													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	52 (11)	50 (10)	56 (13)	76 (24)	90 (32)	96 (36)	99 (37)	93 (34)	84 (29)	72 (22)	54 (12)	58 (14)	99 (37)
Average high °F (°C)	1.1 (-17.2)	10.0 (-12.2)	25.4 (-3.7)	44.5 (6.9)	61.0 (16.1)	71.6 (22)	72.7 (22.6)	65.9 (18.8)	54.6 (12.6)	31.9 (-0.1)	10.9 (-11.7)	4.8 (-15.1)	37.9 (3.3)
Average low °F (°C)	-16.9 (-27.2)	-12.7 (-24.8)	-2.5 (-19.2)	20.6 (-6.3)	37.8 (3.2)	49.3 (9.6)	52.3 (11.3)	46.4 (8)	35.1 (1.7)	16.5 (-8.6)	-5.7 (-20.9)	-12.9 (-24.9)	17.3 (-8.2)
Record low °F (°C)	-66 (-54)	-58 (-50)	-56 (-49)	-32 (-36)	-1 (-18)	27 (-3)	30 (-1)	19 (-7)	3 (-16)	-27 (-33)	-54 (-48)	-62 (-52)	-66 (-54)
Precipitation inches (mm)	0.58 (14.7)	0.42 (10.7)	0.25 (6.4)	0.31 (7.9)	0.60 (15.2)	1.37 (34.8)	2.16 (54.9)	1.88 (47.8)	1.10 (27.9)	0.83 (21.1)	0.67 (17)	0.64 (16.3)	10.81 (274.6)
Snowfall inches (cm)	10.3 (26.2)	8.1 (20.6)	4.9 (12.4)	2.9 (7.4)	0.9 (2.3)	0 (0)	0 (0)	trace	1.8 (4.6)	10.8 (27.4)	13.2 (33.5)	12.1 (30.7)	65.0 (165.1)
Avg. precipitation days (≥ 0.01 in)	8.5	6.6	4.8	3.6	7.1	10.9	12.9	13.3	10.4	11.2	10.3	9.0	108.6
Avg. snowy days (≥ 0.1 in)	10.1	7.9	5.9	2.8	0.8	0	0	0	1.4	10.2	11.9	10.8	61.8
% humidity	69.3	65.5	60.4	56.2	50.2	56.6	64.2	70.8	68.9	74.1	72.8	71.3	65.0

Source:<sup>[36][37]</sup> NOAA (relative humidity 1961–1990)<sup>[21][19]</sup> [38], Weather.com<sup>[39]</sup>

## Latest Washington Caucus Polls

UPDATED MARCH 2

Checkmarks indicate polls  
that meet New York Times  
methodological standards

TOP CANDIDATE

SHARE OF RESPONSE

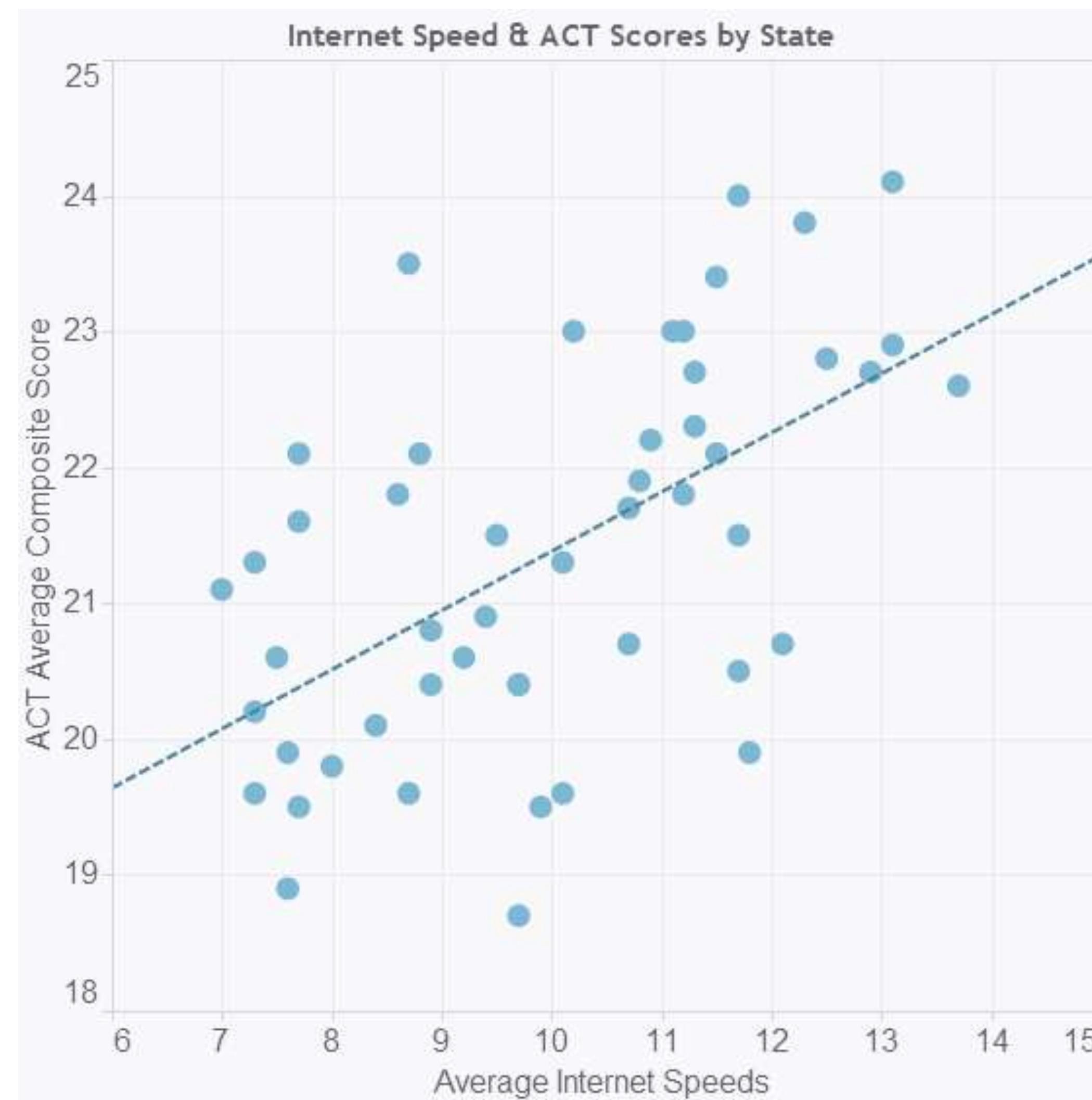


0% 10% 15% 20% 25%

[Show Polls That Meet Times Standards](#) | [Show All Polls](#)

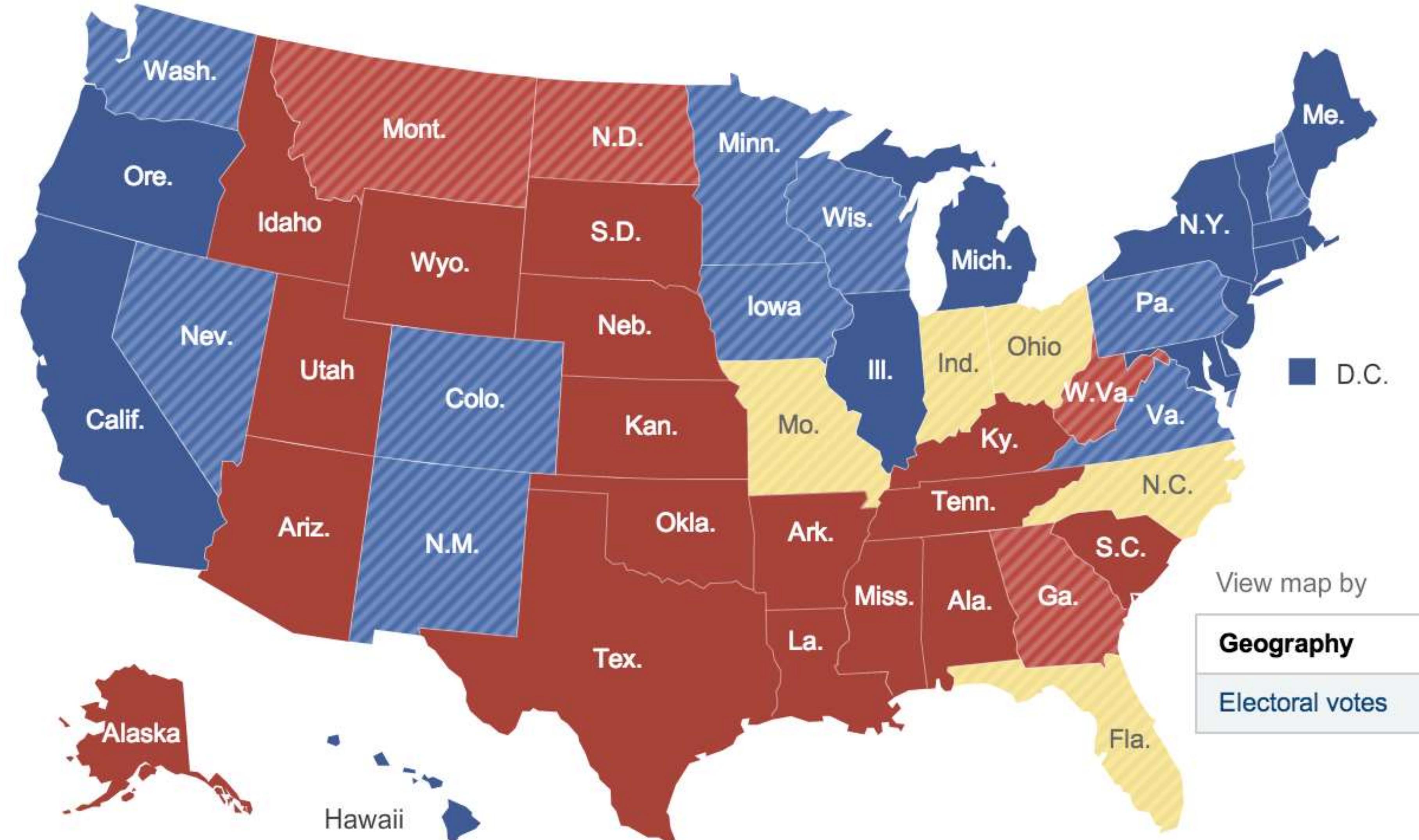
Date	Poll	Gingrich	Paul	Romney	Santorum	Other
Feb. 29- Mar. 1	<b>PPP</b> 447 likely voters	13%	16%	<b>37%</b>	32%	2%
Feb. 16-19	<b>PPP</b> 400 likely voters	12%	15%	27%	<b>38%</b>	8%
Jan. 12-16	<b>SurveyUSA</b> 169 registered voters	22%	7%	<b>26%</b>	19%	26%

# Scatterplots



# Maps & Cartograms

# Choropleth



# President Map

[FACEBOOK](#) [TWITTER](#)

[Map](#) | [Big Board](#) | [Scenarios](#) | [Exit Polls](#)

UPDATED NOV. 29

**332** Obama

62,611,250 votes

0  
undecided

270 to win

Romney **206**

59,134,475 votes



States



States



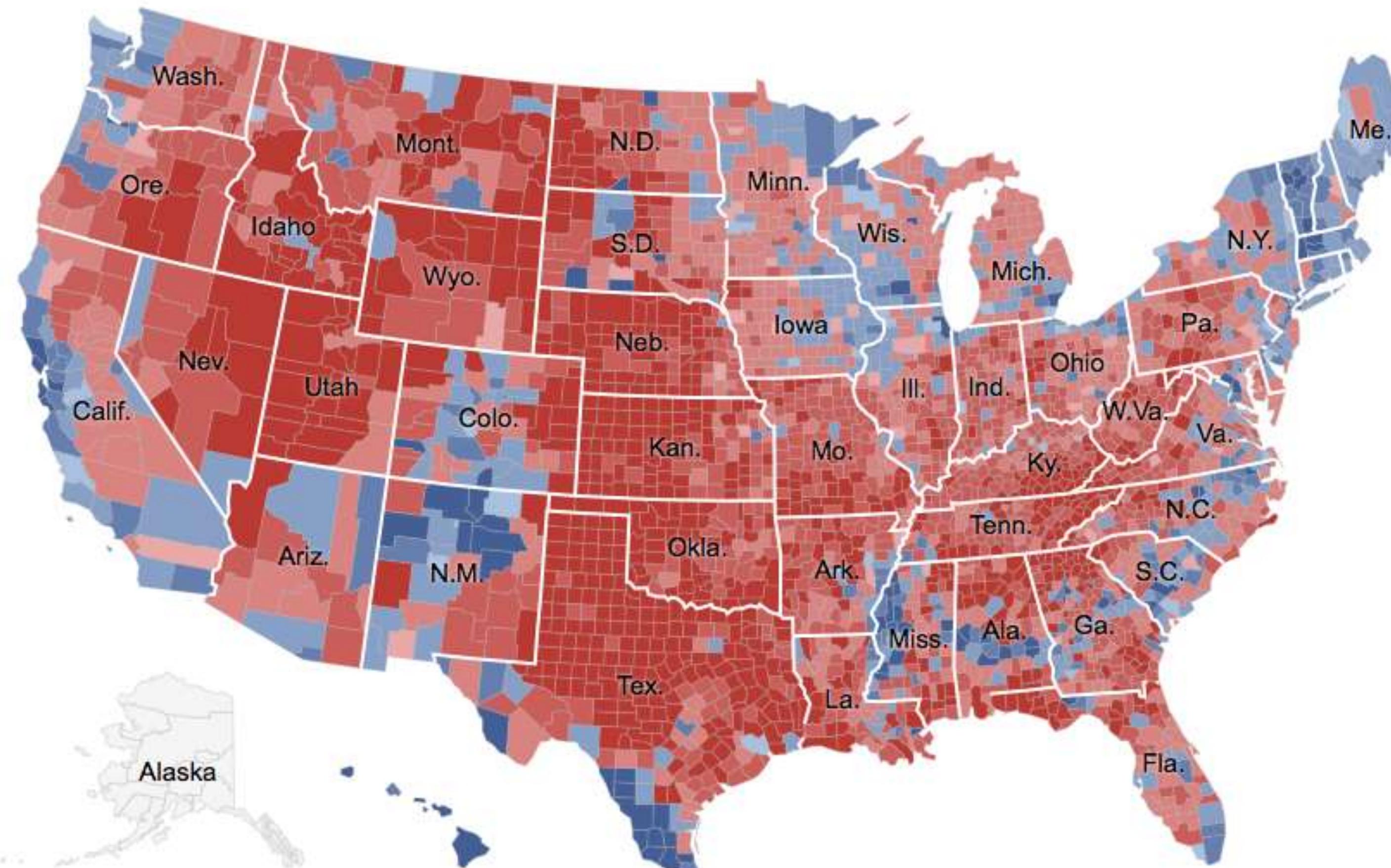
Counties



Size of lead



Shift from 2008



TOP CANDIDATE'S  
SHARE OF VOTE

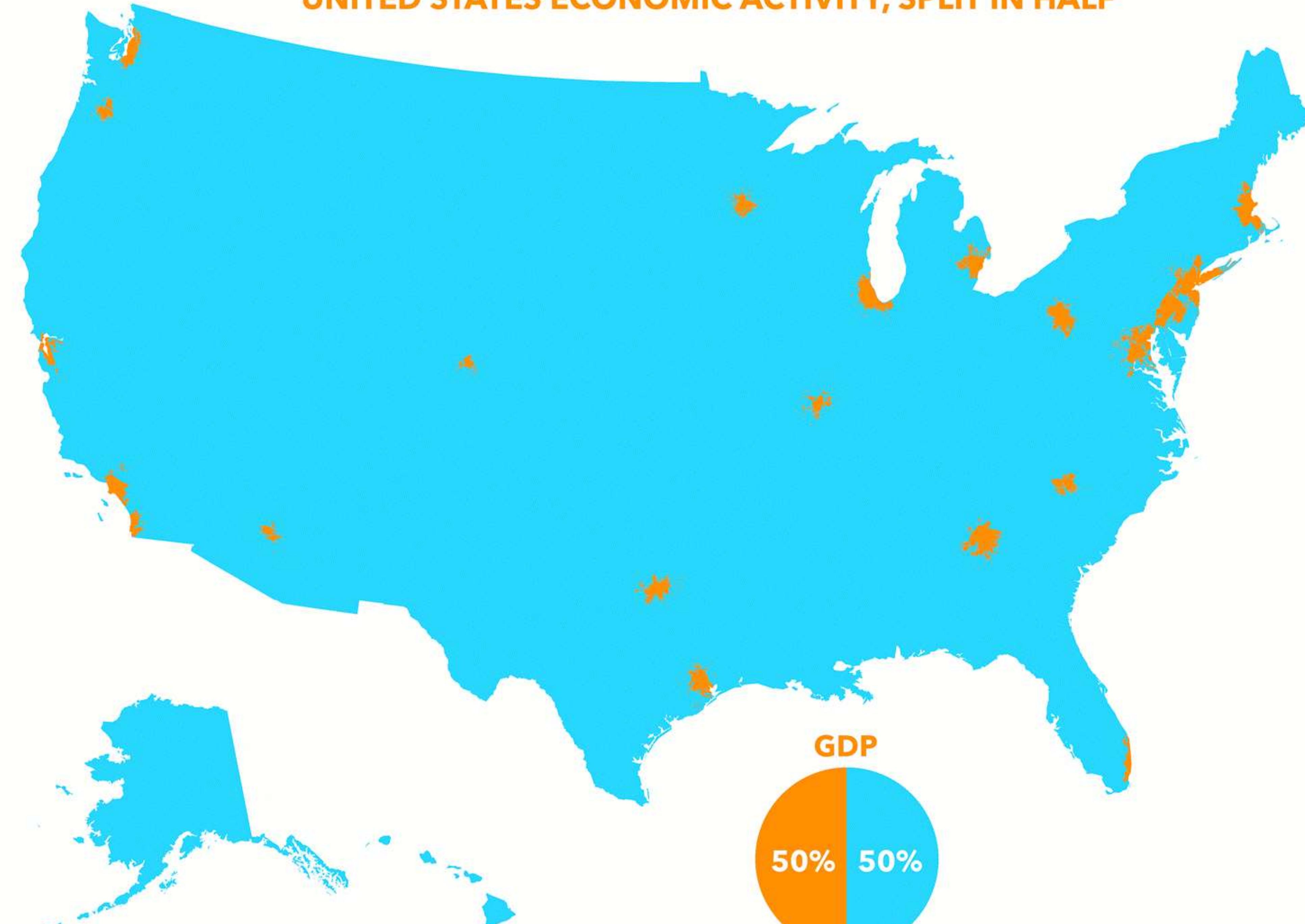
DEM. 40% 50% 60% 70%

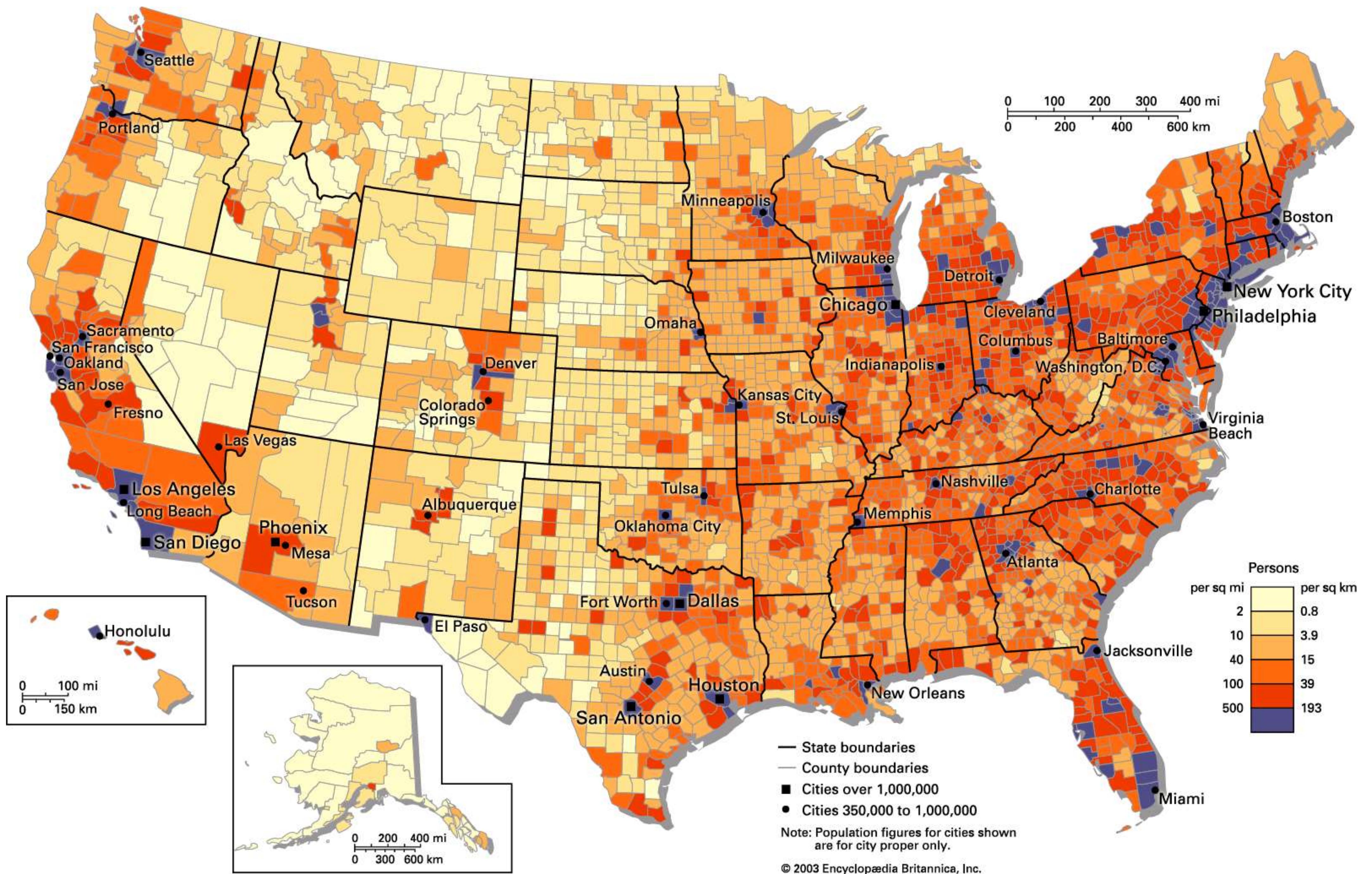
REP. 40% 50% 60% 70%

IND. 40% 50% 60% 70%

Battleground states are called by New York Times editors. Other states are by The Associated Press.

## UNITED STATES ECONOMIC ACTIVITY, SPLIT IN HALF





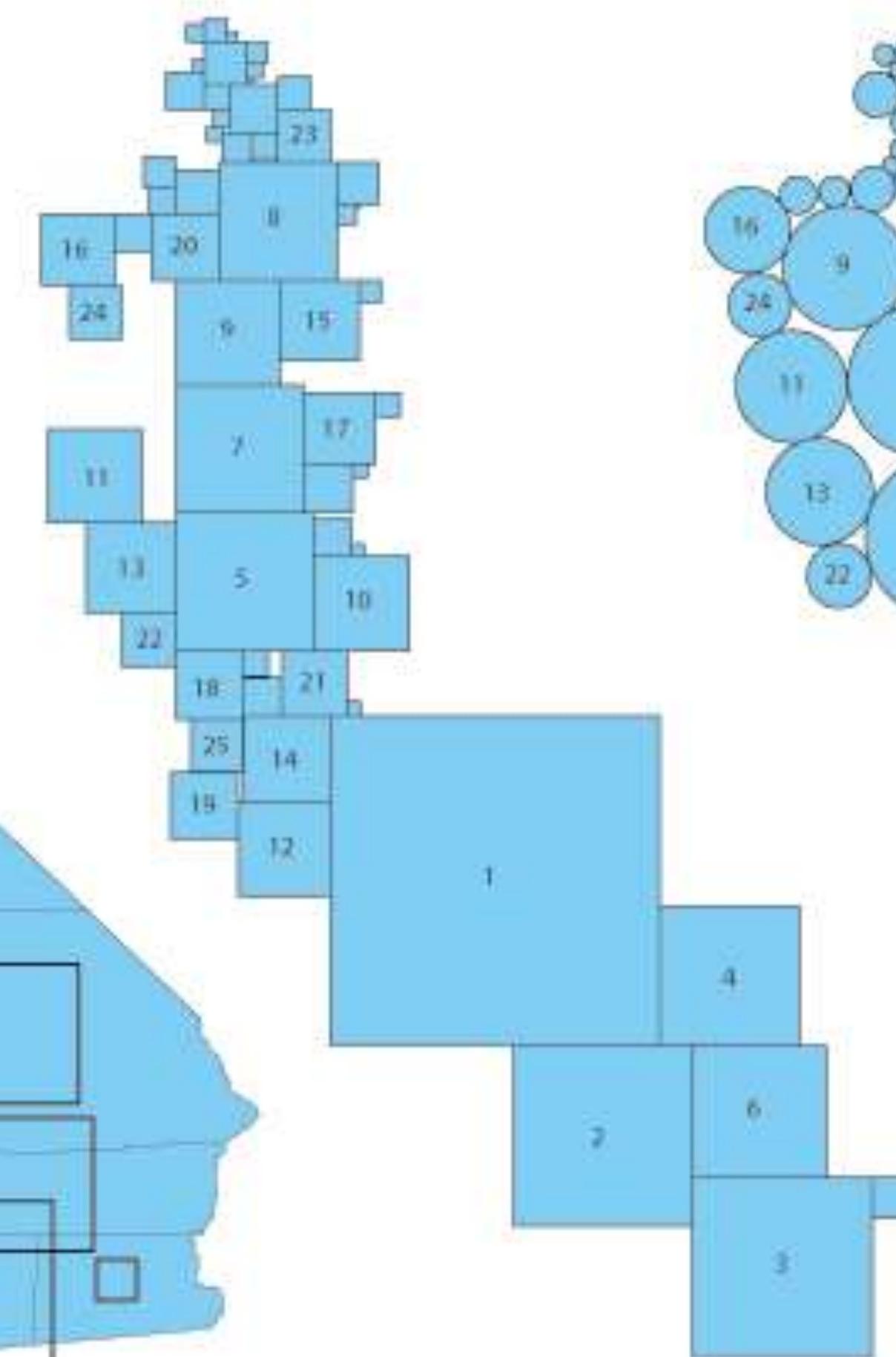
# Cartogram

# Dorling and Dorling-like Cartograms

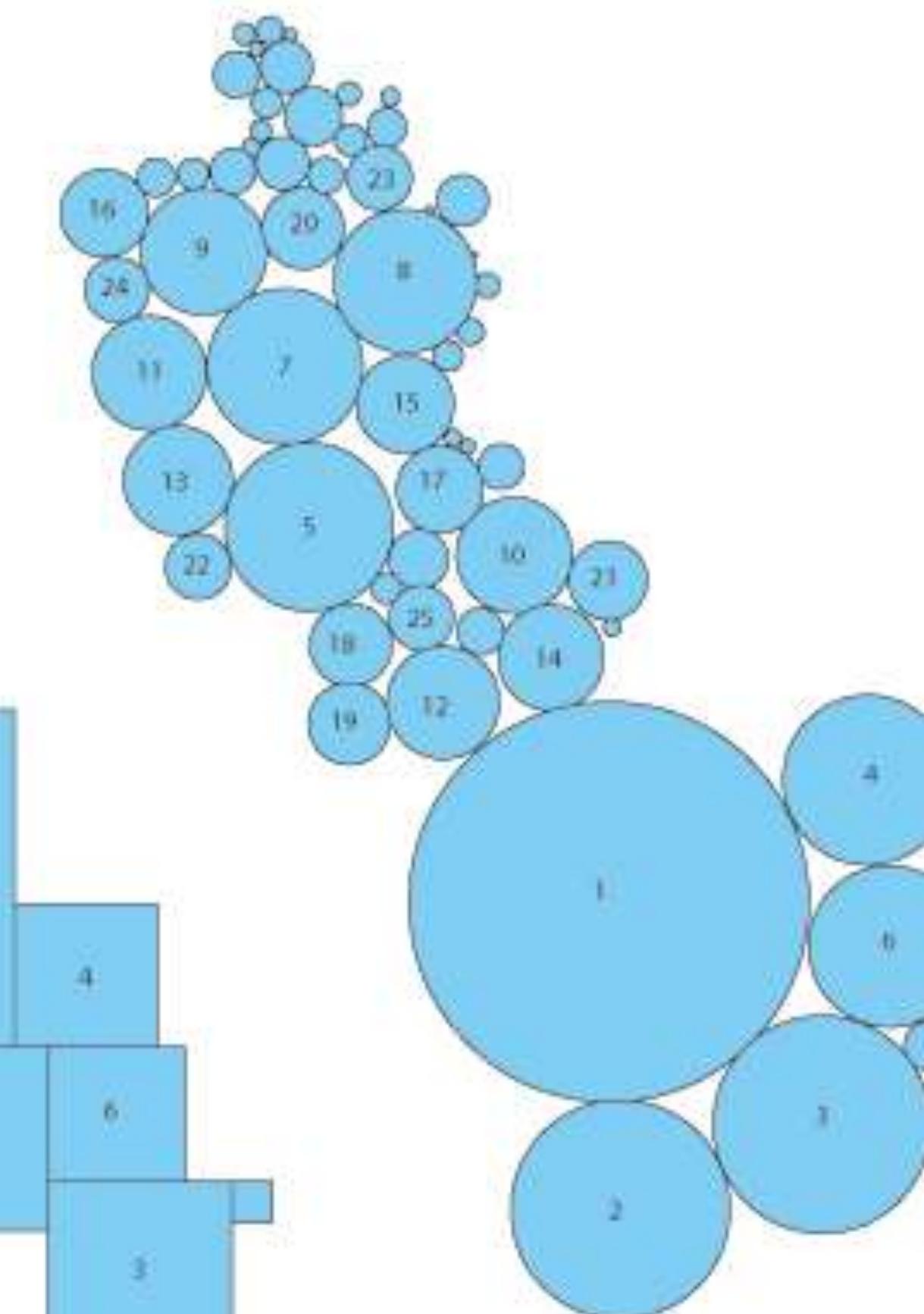
Graduated Symbol Map



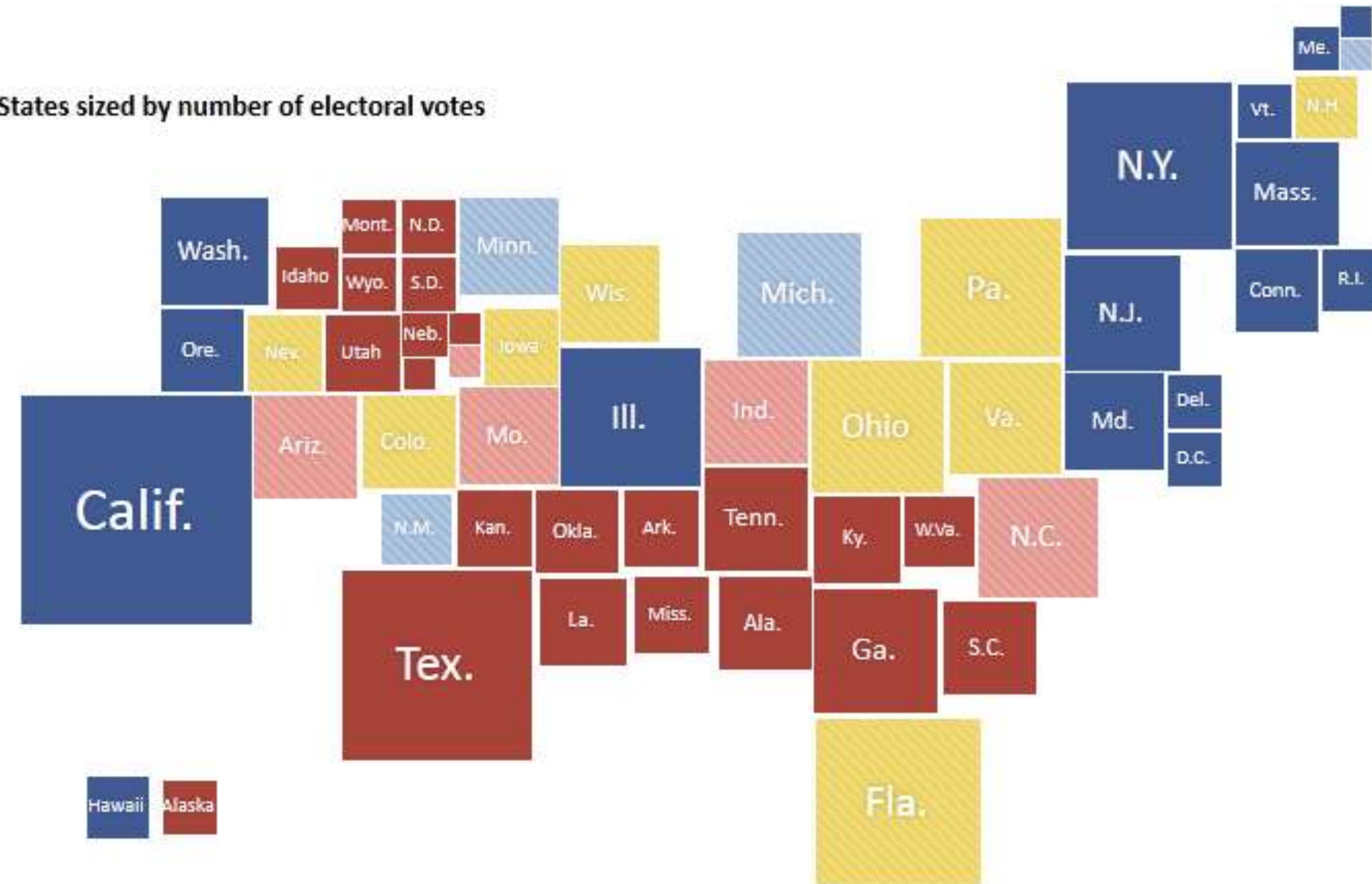
Demers Cartogram



Dorling Cartogram



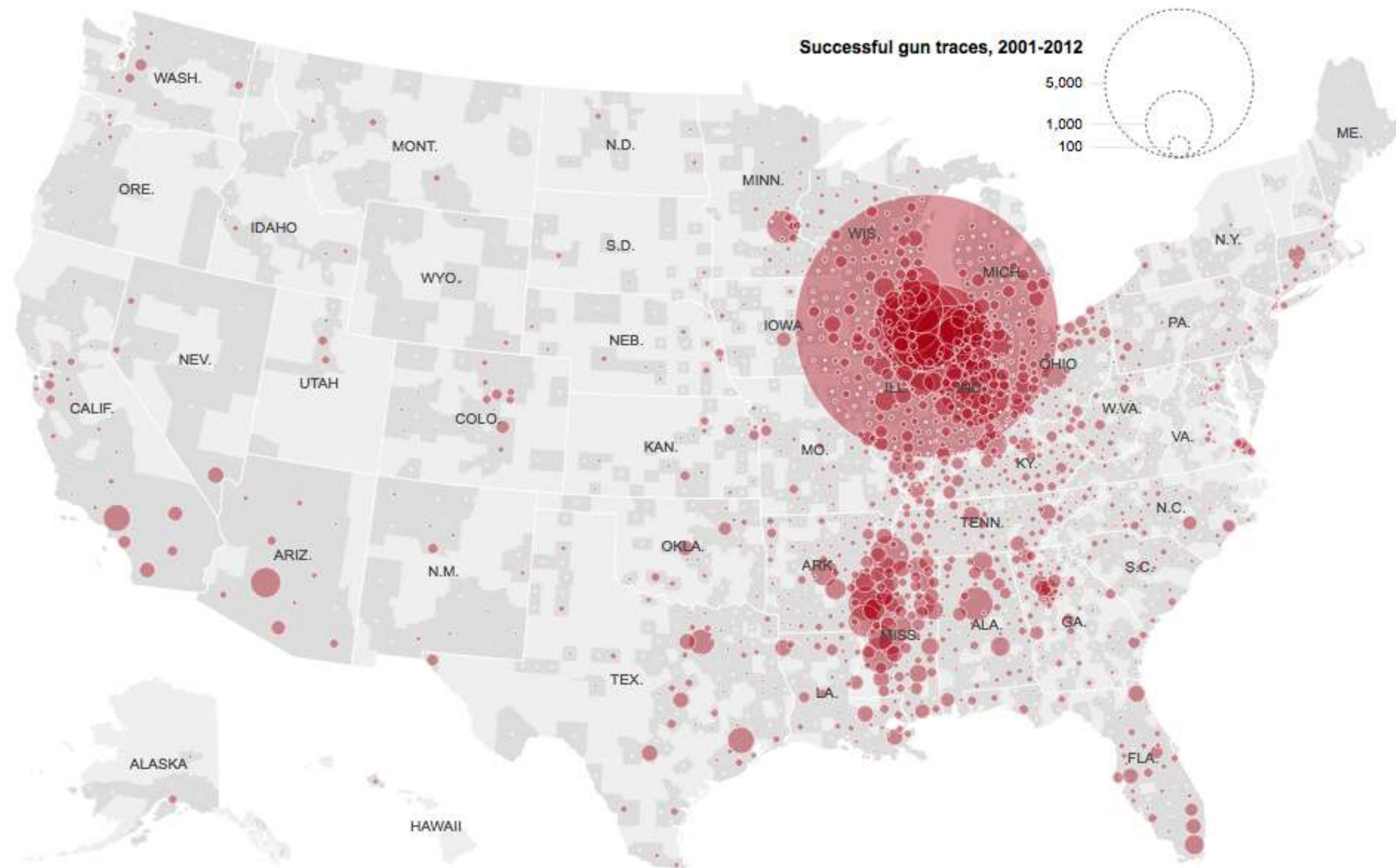
States sized by number of electoral votes



# Where 50,000 Guns Recovered in Chicago Came From

The Chicago Police Department traced the origins of about 50,000 guns that it recovered between 2001 and March 2012.

More than half of those guns came from outside the state. [Related Article »](#)



OBAMA



**269**

ELECTORAL VOTES

ROMNEY

**170**

ELECTORAL VOTES

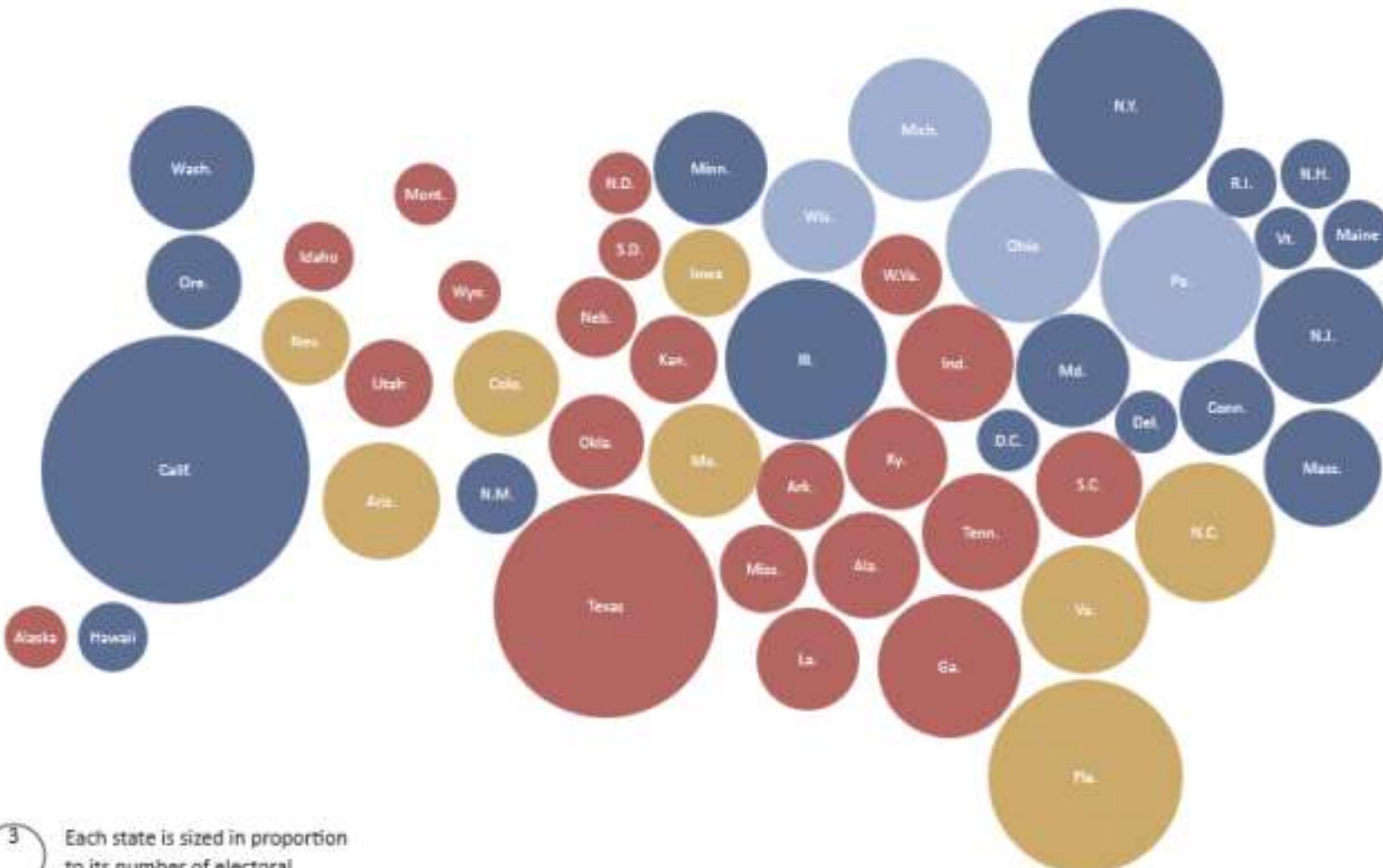
270 ELECTORAL VOTES NEEDED TO WIN



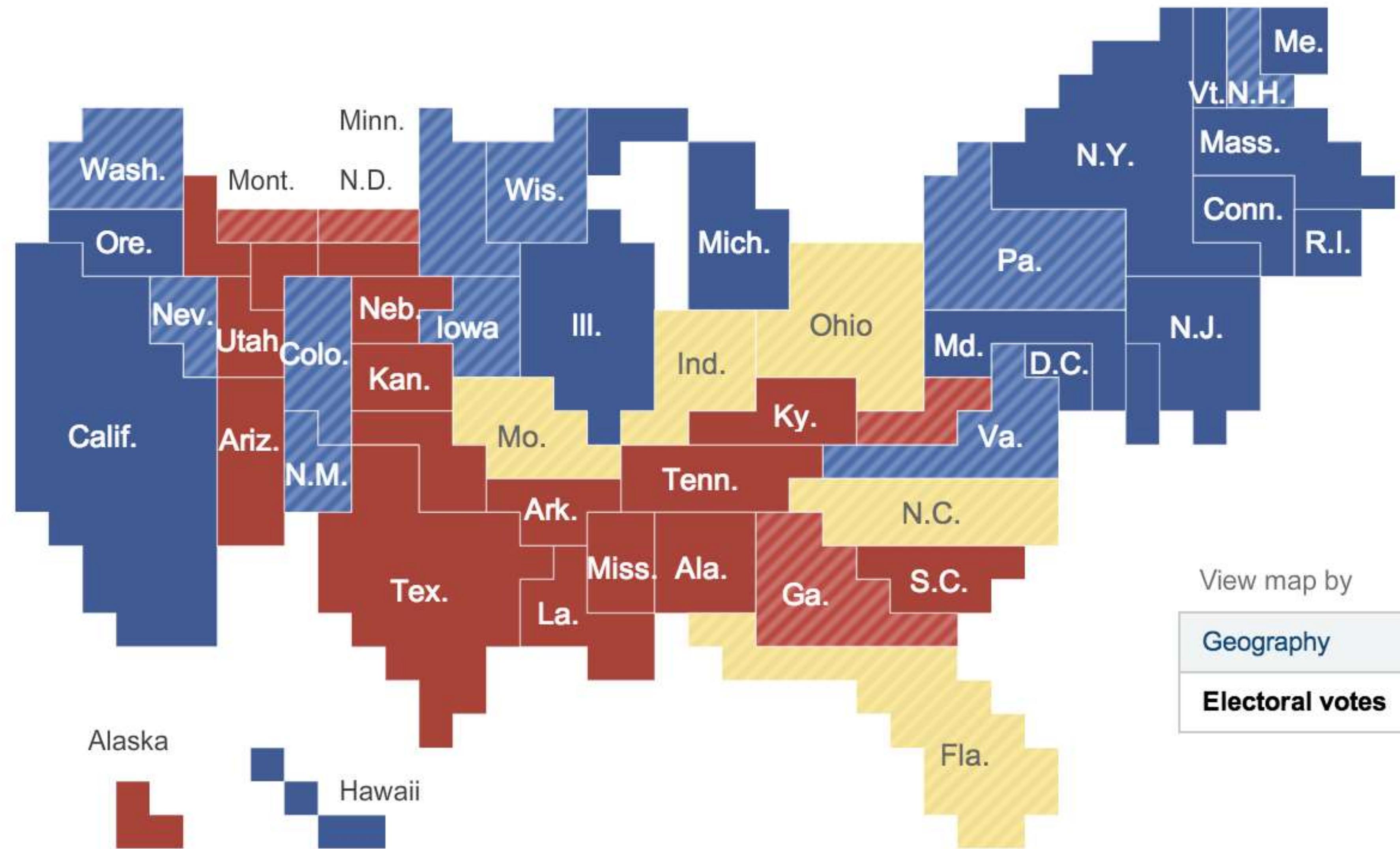
■ 205 Strong Obama ■ 64 Leans Obama ■ 99 Tossup ■ 0 Leans Romney ■ 170 Strong Romney

TRADITIONAL MAP

CARTOGRAM



Each state is sized in proportion  
to its number of electoral  
votes.



# Dot-Density Map

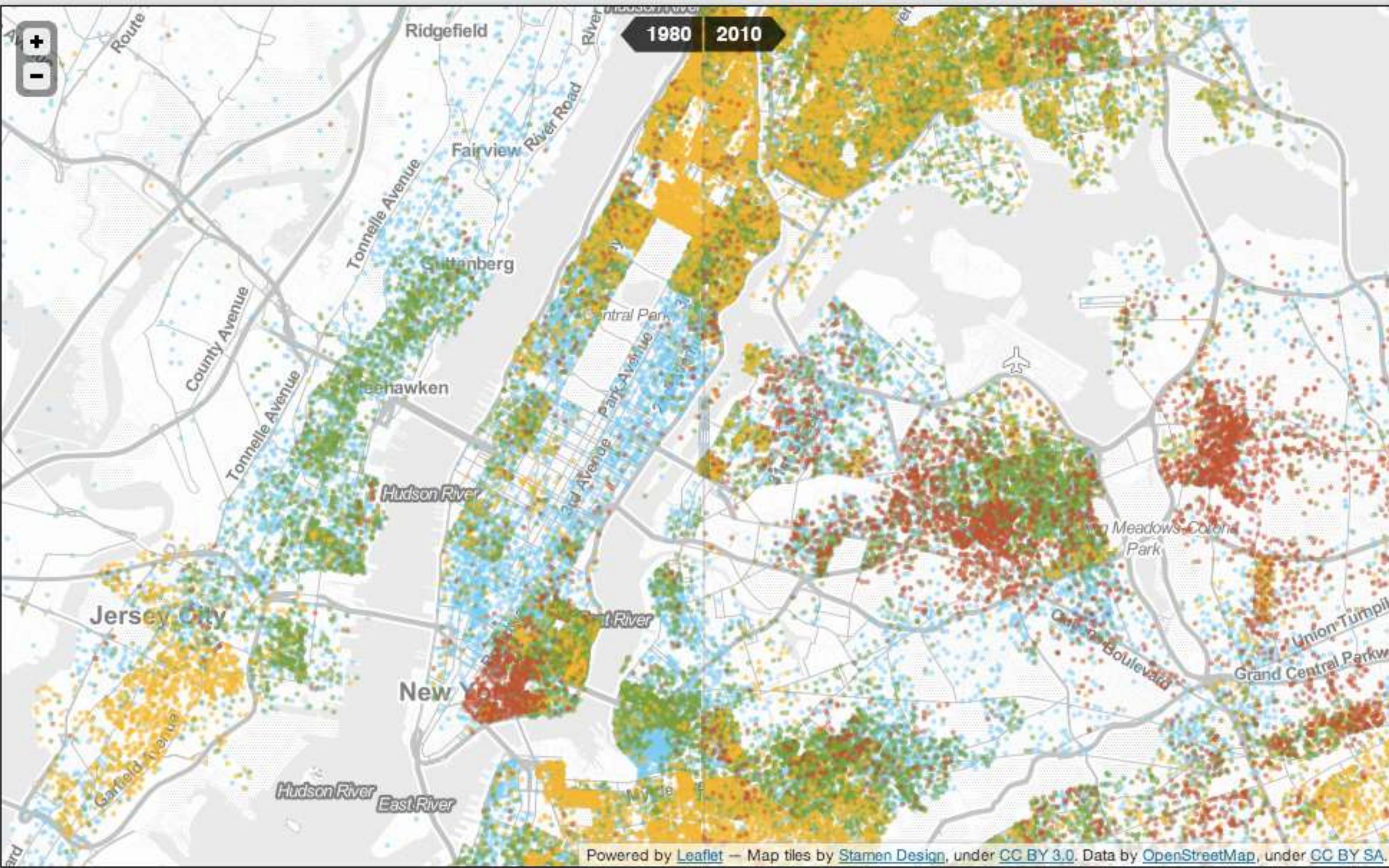
# Poverty and Race in America, Then and Now

New York, NY

Select Years: 1980 to 2010\*

One dot represents 20 people with income below the poverty line.

White Black Hispanic Asian/Pacific Islander

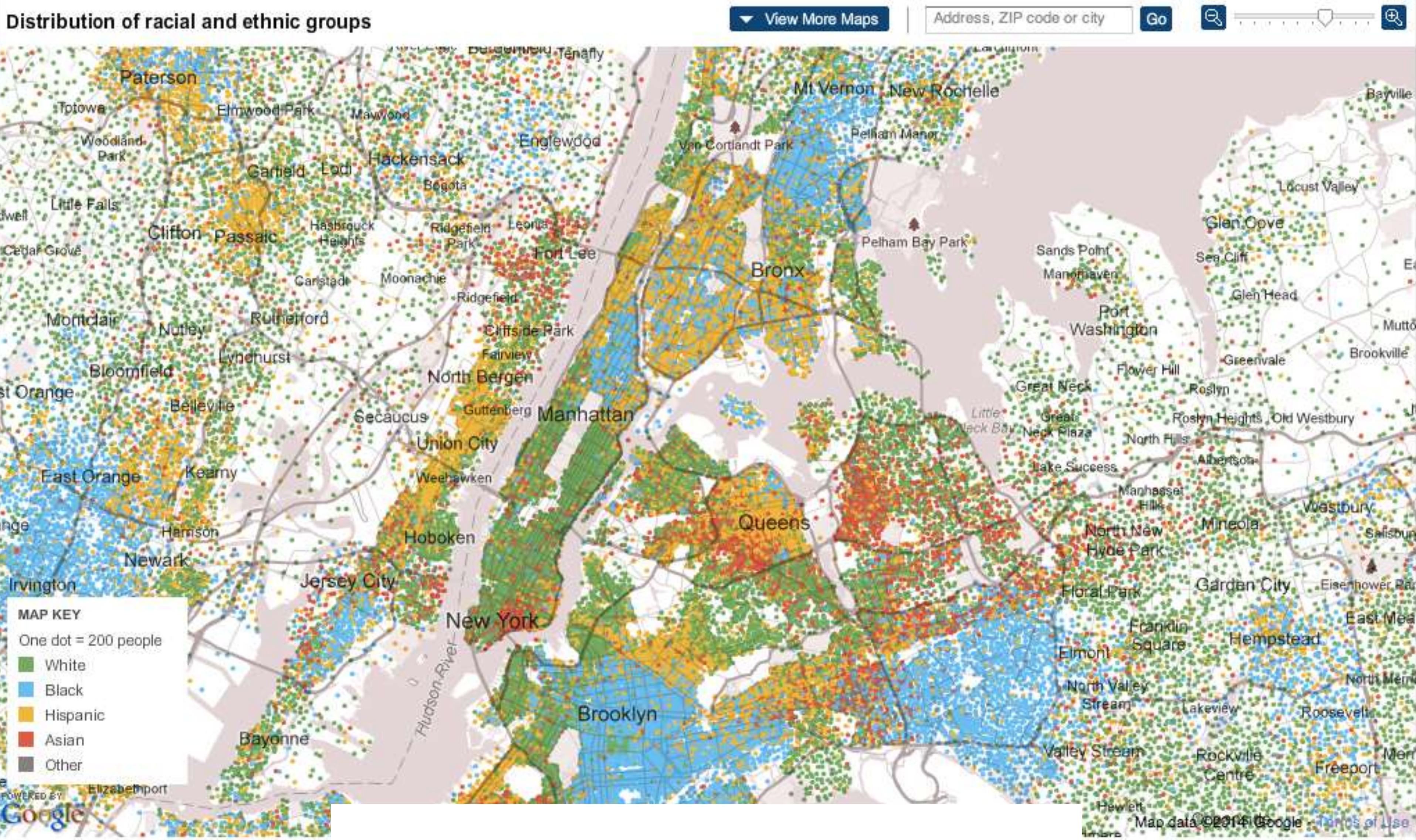


# Mapping America: Every City, Every Block

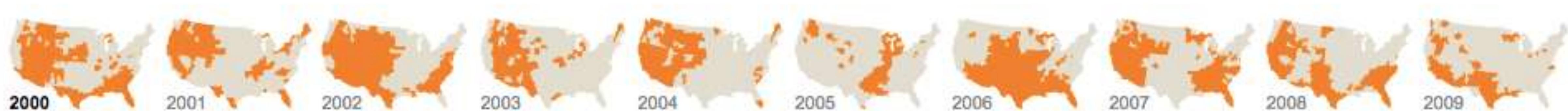
Find something interesting? Share this view on [Twitter](#) or [Facebook](#)

Browse local data from the Census Bureau's American Community Survey, based on samples from 2005 to 2009. Because these figures are based on [View Readers Maps \(49\)](#) samples, they are subject to a margin of error, particularly in places with a low population, and are best regarded as estimates.

## Distribution of racial and ethnic groups



# Small Multiples



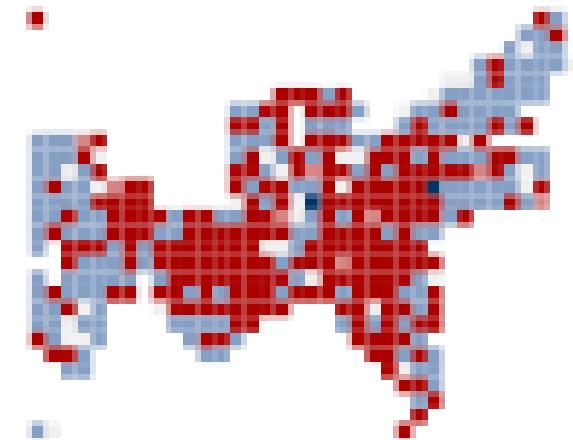


## Recently Voted On

---

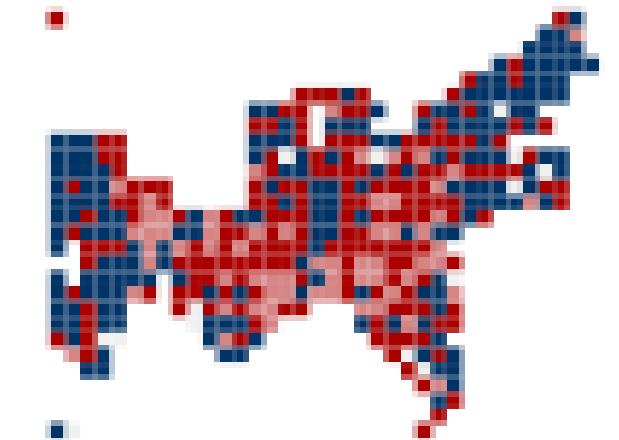
[H R 4901](#) •

Passed the House



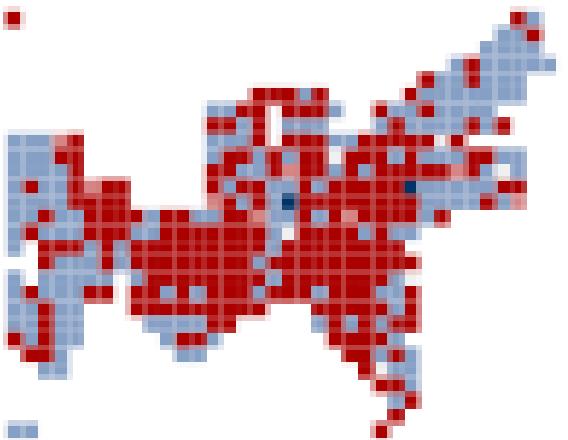
[S 1177](#) •

Passed the House



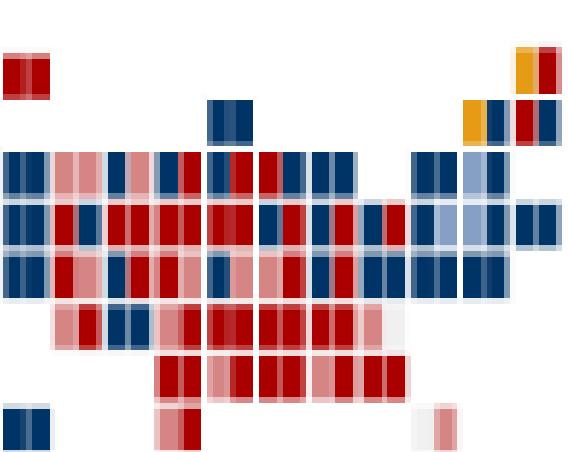
[HR 10](#) •

Passed the House



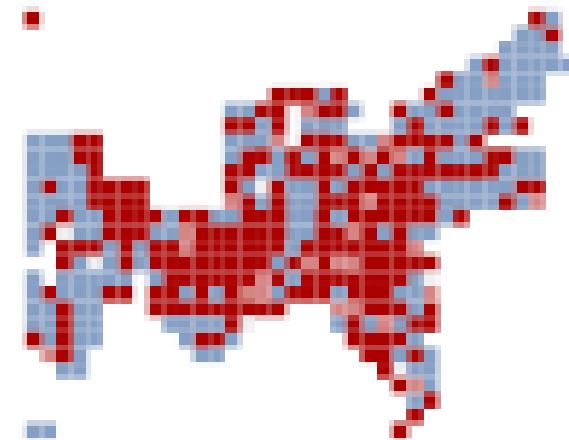
[S.1177](#) •

Bill Passed the Senate



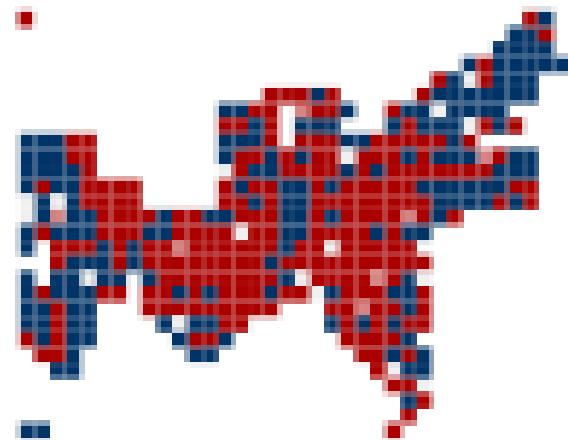
[HR 5](#) •

Passed the House



[HR 1020](#) •

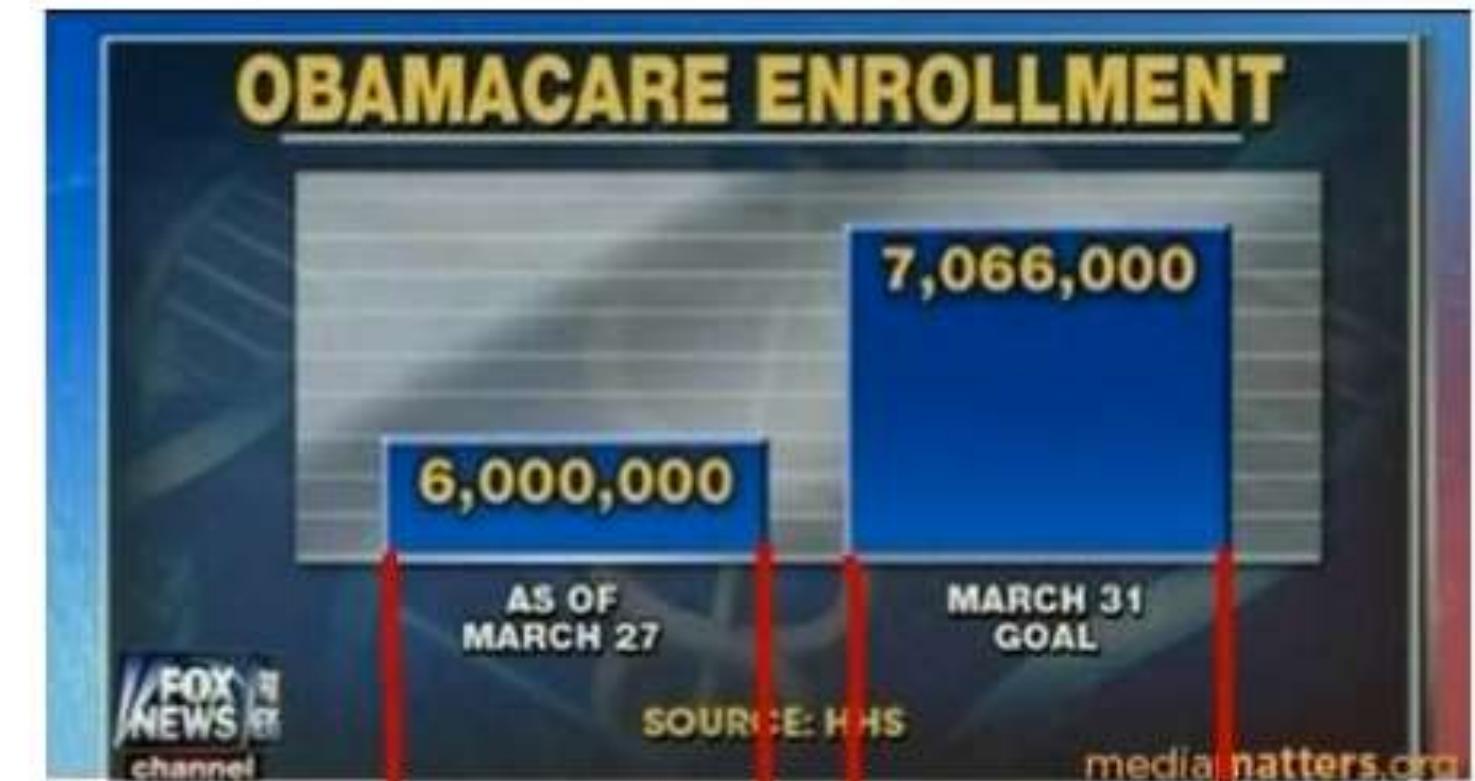
Passed the House



# Defense Against the Dark Arts









# UNEMPLOYMENT RATE

## UNDER PRESIDENT OBAMA



**FOX**  
**NEWS**  
radio

**2011**  
**SOURCE: BUREAU OF LABOR STATISTICS**

**YEAR WAR AND A TROOP WITHDRAWAL AT THE END NAS FUT 2,292.50**

# UNEMPLOYMENT RATE

## UNDER PRESIDENT OBAMA



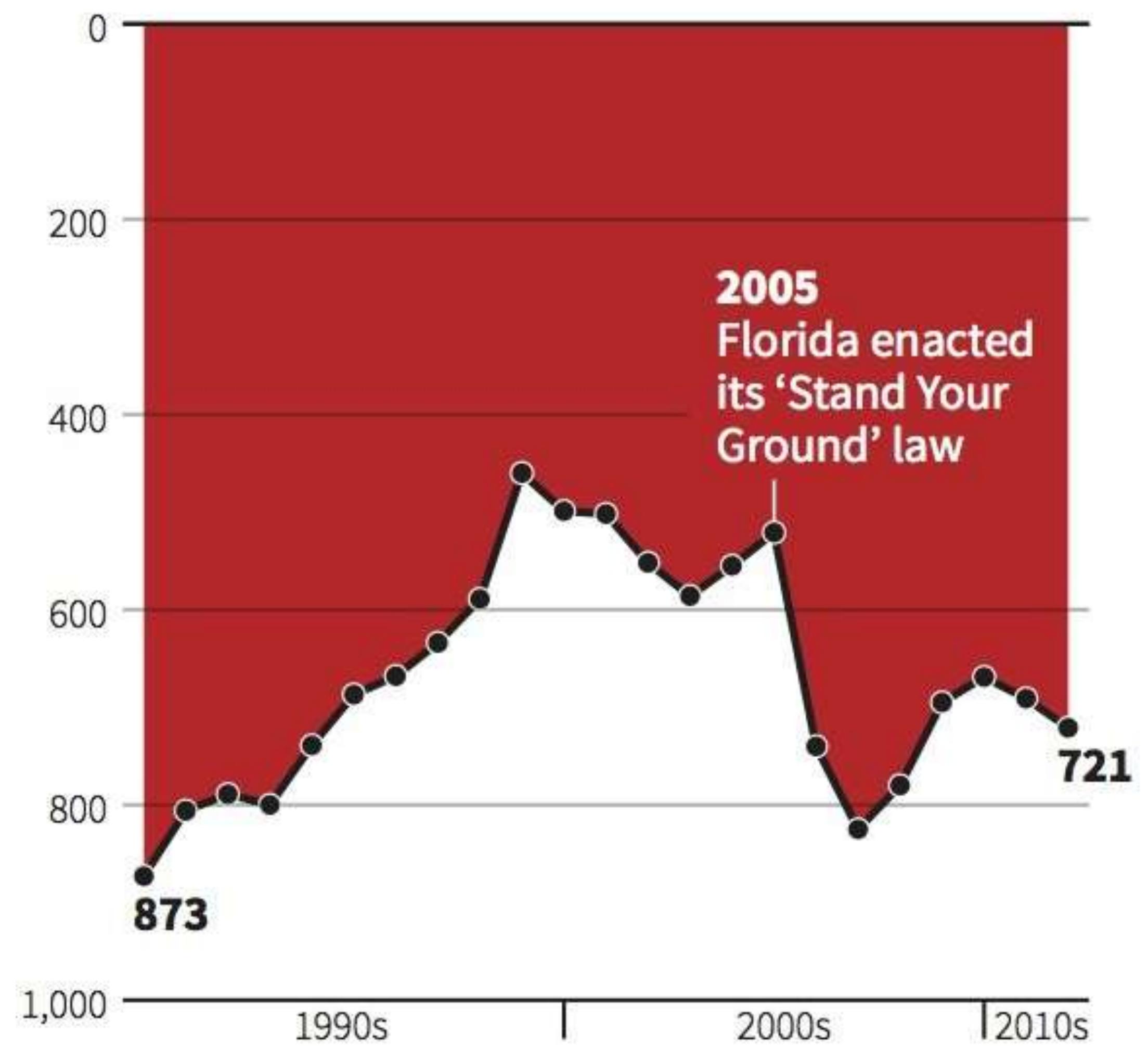
**FOX**  
NEWS  
radio

**2011**  
**SOURCE: BUREAU OF LABOR STATISTICS**

YEAR WAR AND A TROOP WITHDRAWAL AT THE END OF FUT 2,292.50

# Gun deaths in Florida

Number of murders committed using firearms



Source: Florida Department of Law Enforcement



**John Self** @john\_self · Apr 15

@ChristineHHChan Hi, just quick question about this chart from Feb 14:  
[graphics.thomsonreuters.com/14/02/US-FLORI...](http://graphics.thomsonreuters.com/14/02/US-FLORI...) Why invert the y-axis? Seems counterintuitive!

Reply Retweet Favorite More

C<sup>2</sup>

**Christine Chan**

@ChristineHHChan



Following

@john\_self Thanks for the feedback. I prefer to show deaths in negative terms (inverted). It's a preference really, can be shown either way.

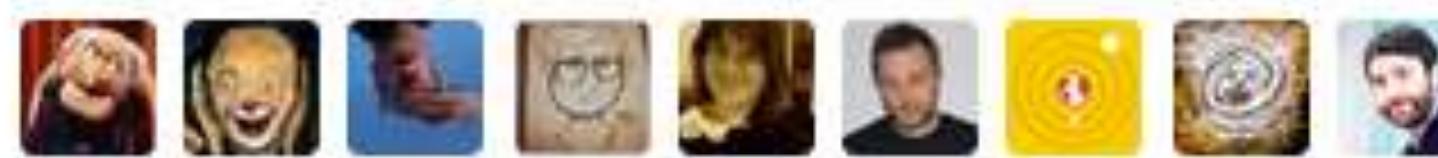
Reply Retweet Favorite More

RETWEETS

12

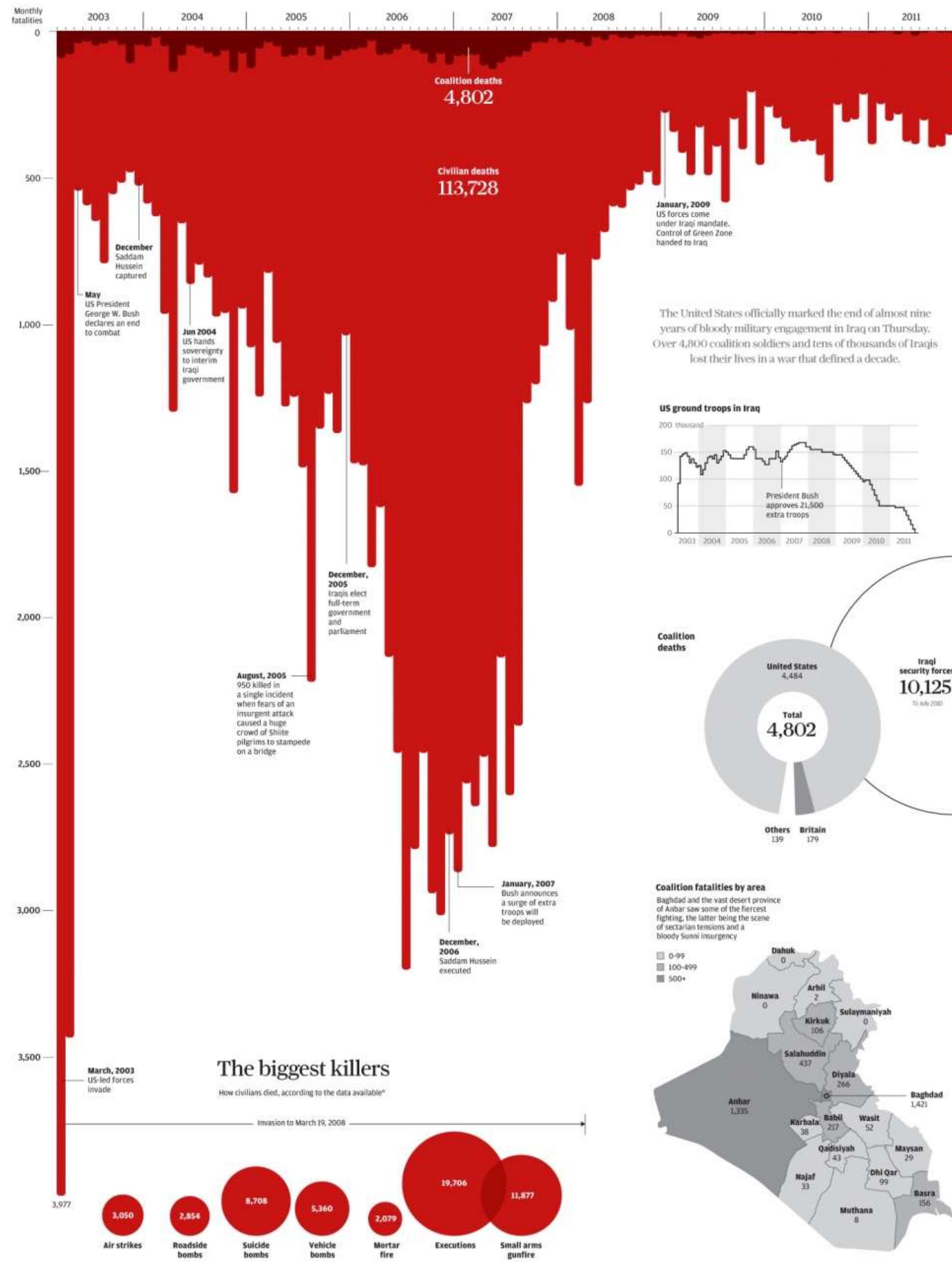
FAVORITES

6



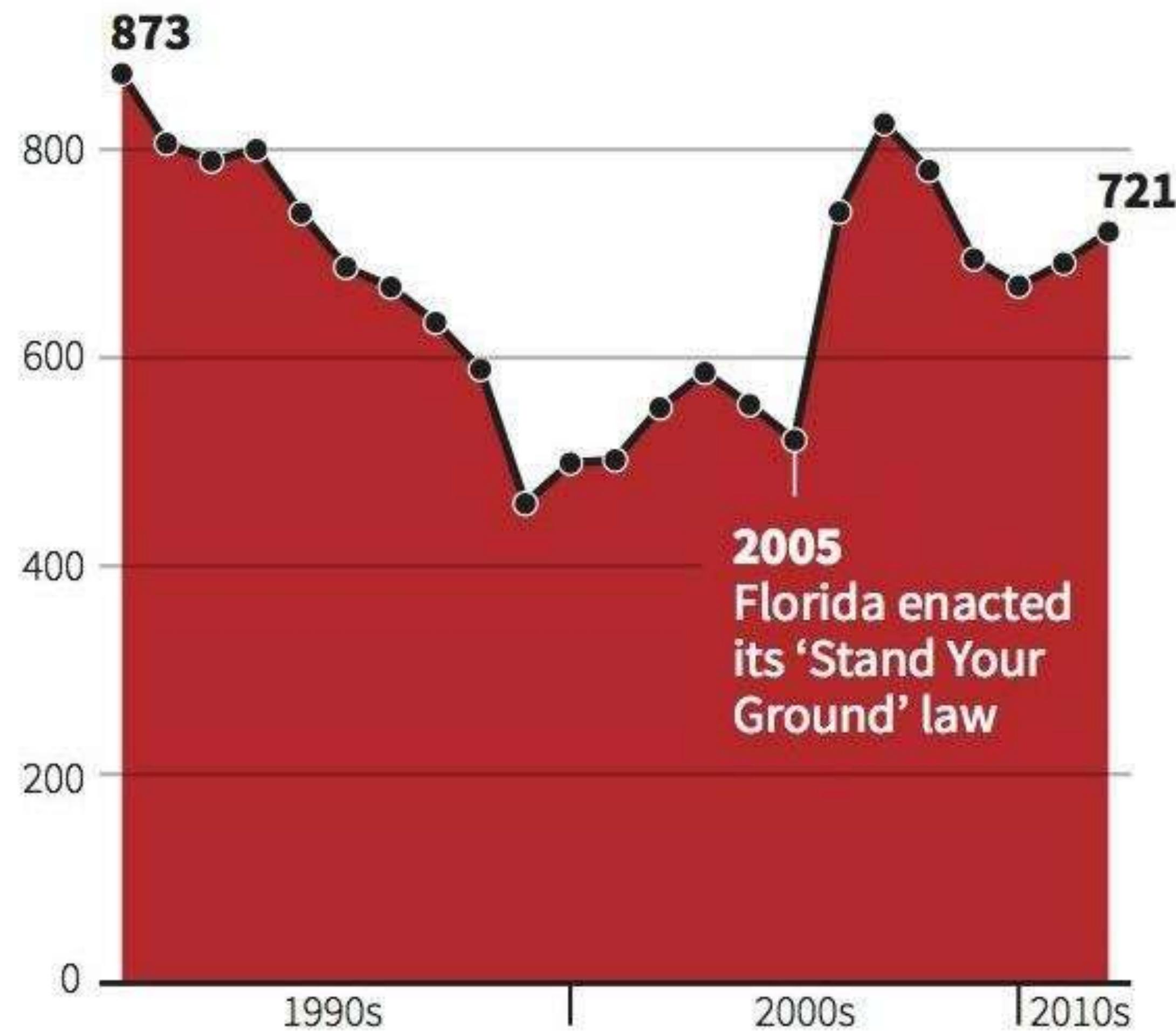
3:30 AM - 15 Apr 2014

# Iraq's bloody toll



# Gun deaths in Florida

Number of murders committed using firearms



Source: Florida Department of Law Enforcement

“Chartjunk”

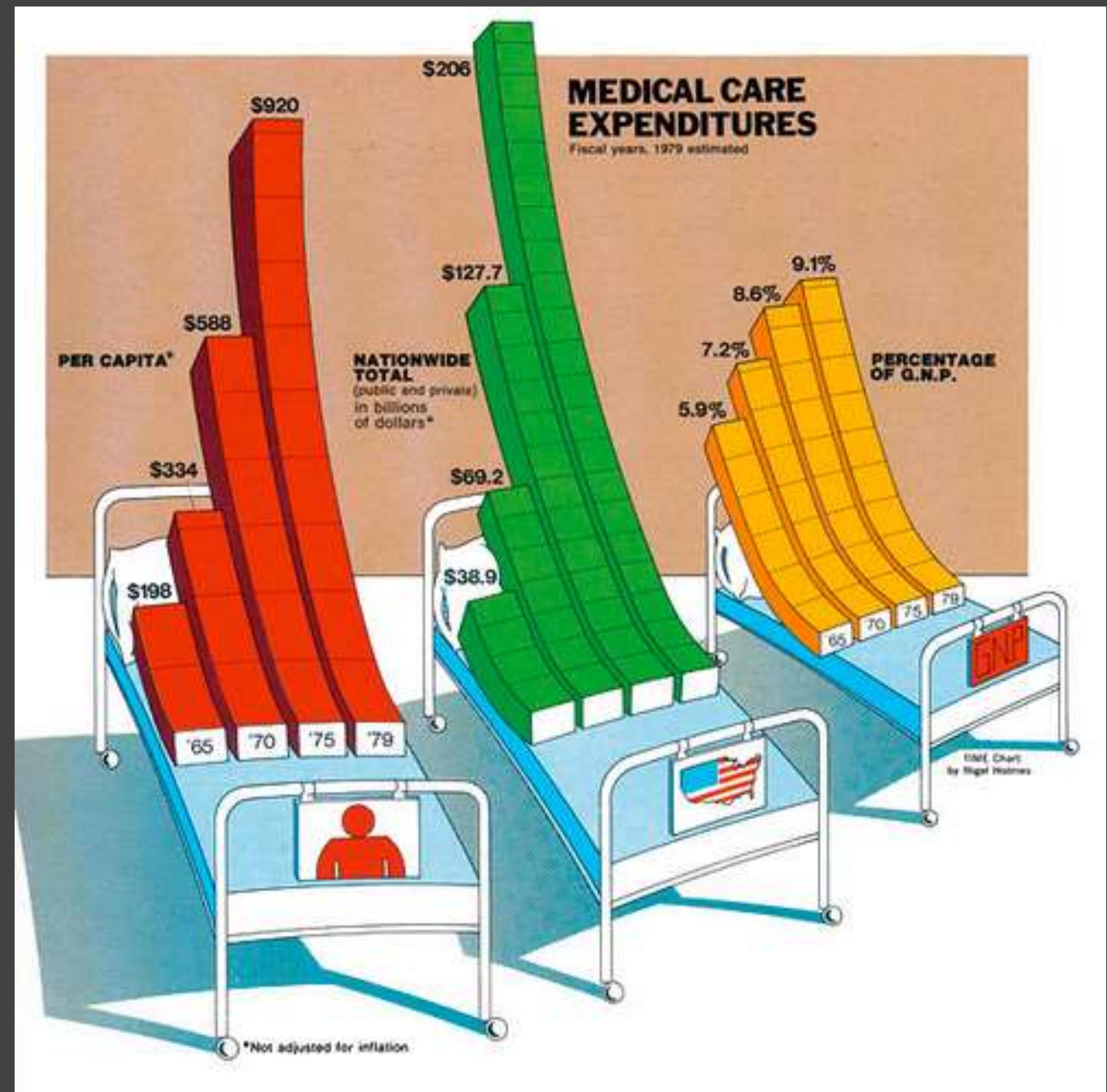
The interior decoration of graphics generates a lot of ink that **does not tell the viewer anything new**.

The purpose of decoration varies – to make the graphic appear more scientific and precise, to enliven the display, to give the designer an opportunity to exercise artistic skills. Regardless of its cause, it is all non-data-ink or redundant data-ink, and it is **often called chartjunk**.

Edward Tufte, 1983



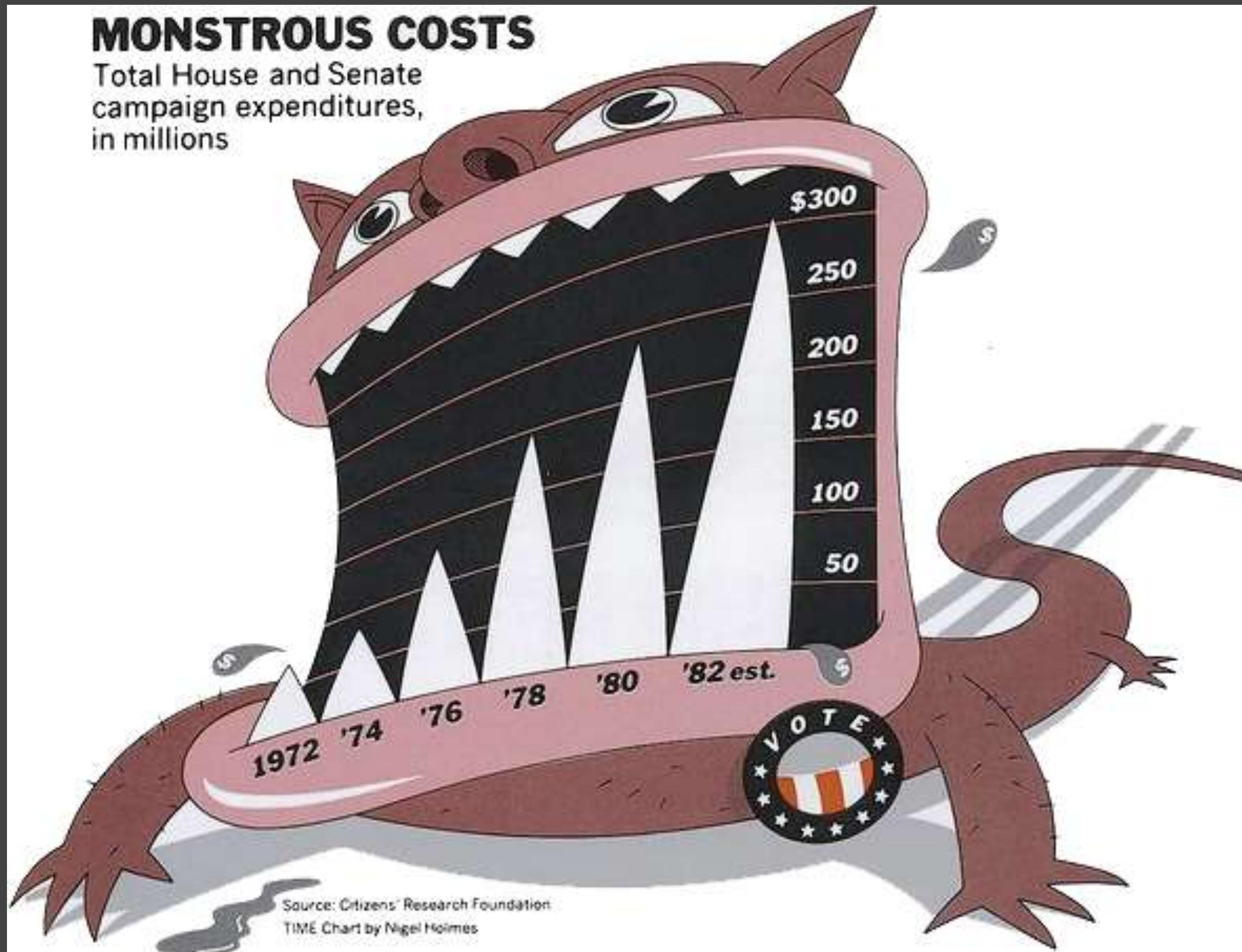
Nigel Holmes

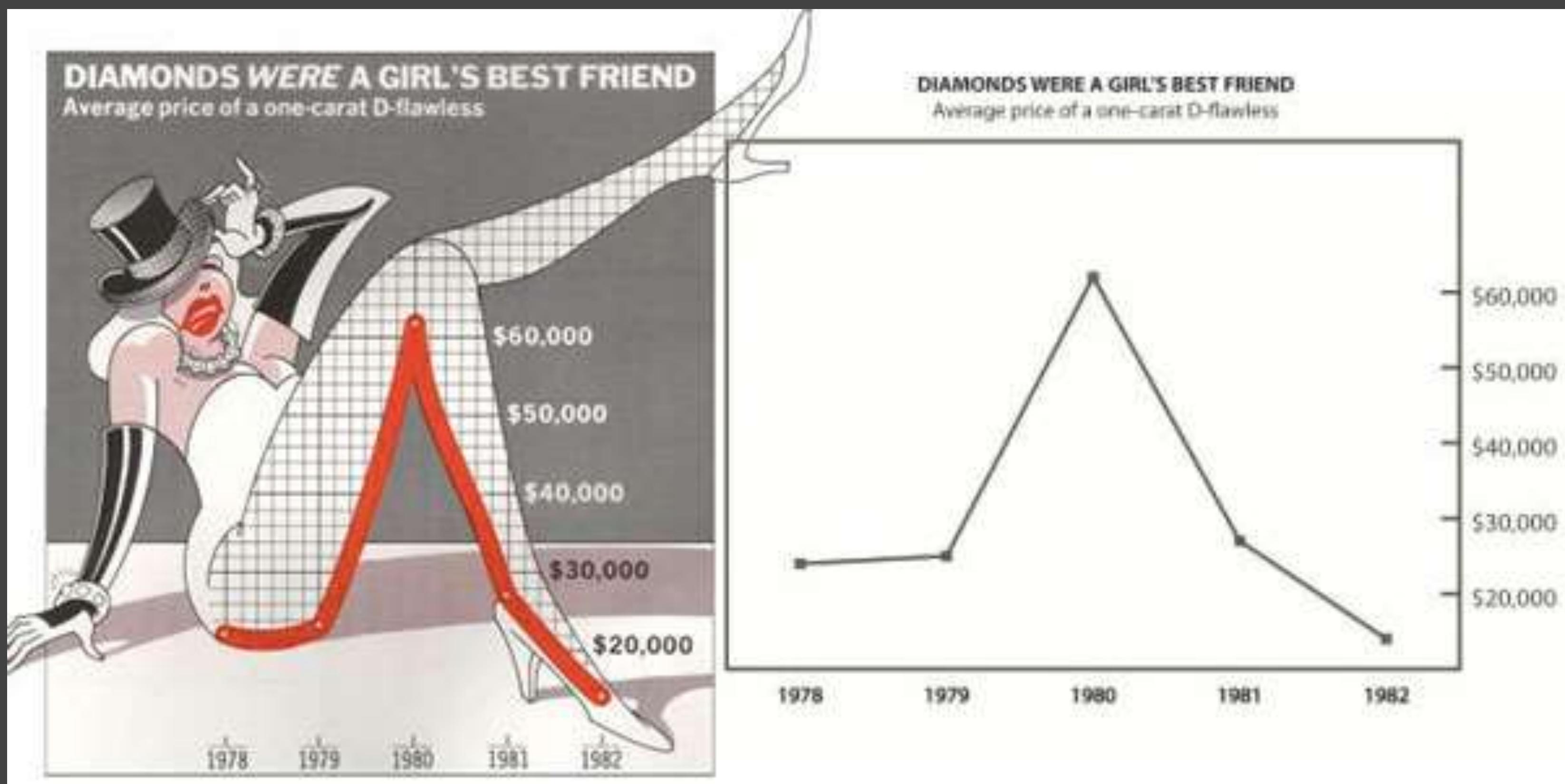


1979

## MONSTROUS COSTS

Total House and Senate campaign expenditures,  
in millions





# POLIZEILICHE EINSCHREITUNGEN IN WIEN IM FEBR. 1925

BEANSTÄNDUNGEN AN

SONNTAGEN 290

MONTAGEN 288

DIENSTAGEN 239

MITTWOCHEN 255

DONNERSTAGEN 294  
LOHNAUSZAHLUNGSTAG

FREITAGEN 264

SAMSTAGEN 406  
LOHNAUSZAHLUNGSTAG

DAVON UNTER EINWIRKUNG DES ALKOHOLS

OHNE EINW. D. ALKOH.

200 90

197 91

152 87

169 86

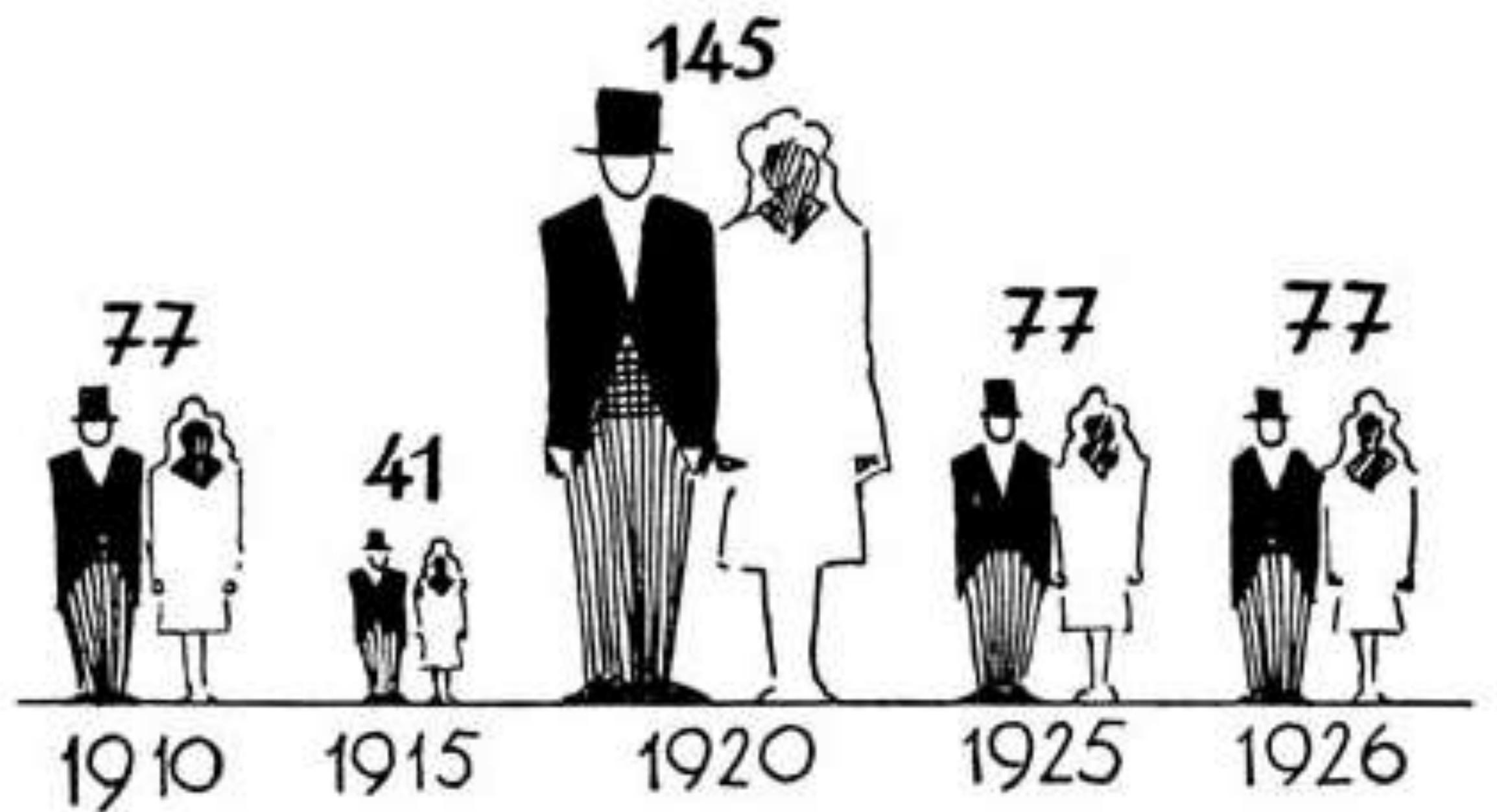
171 103

156 108

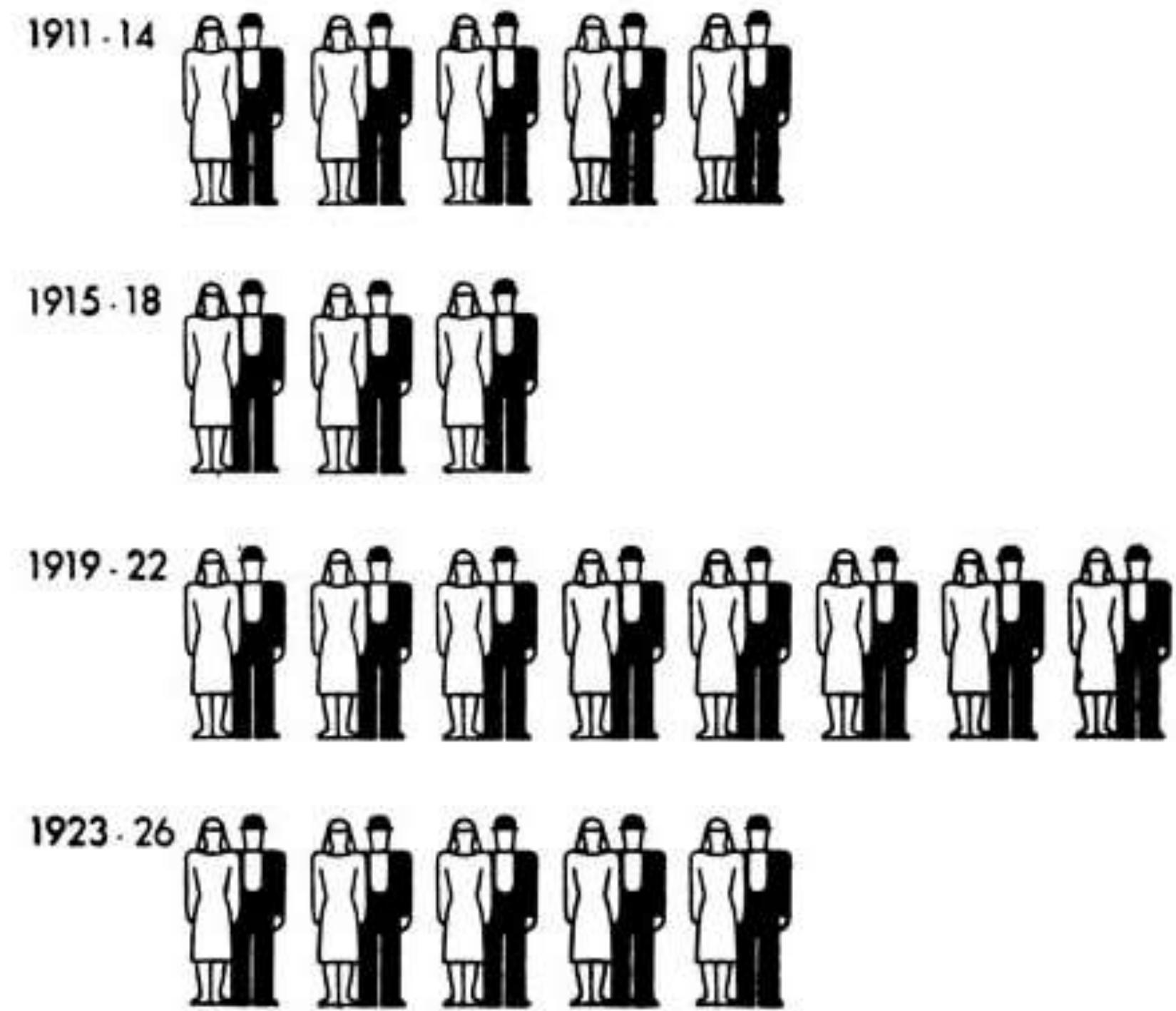


Example of bad system : signs of different sizes

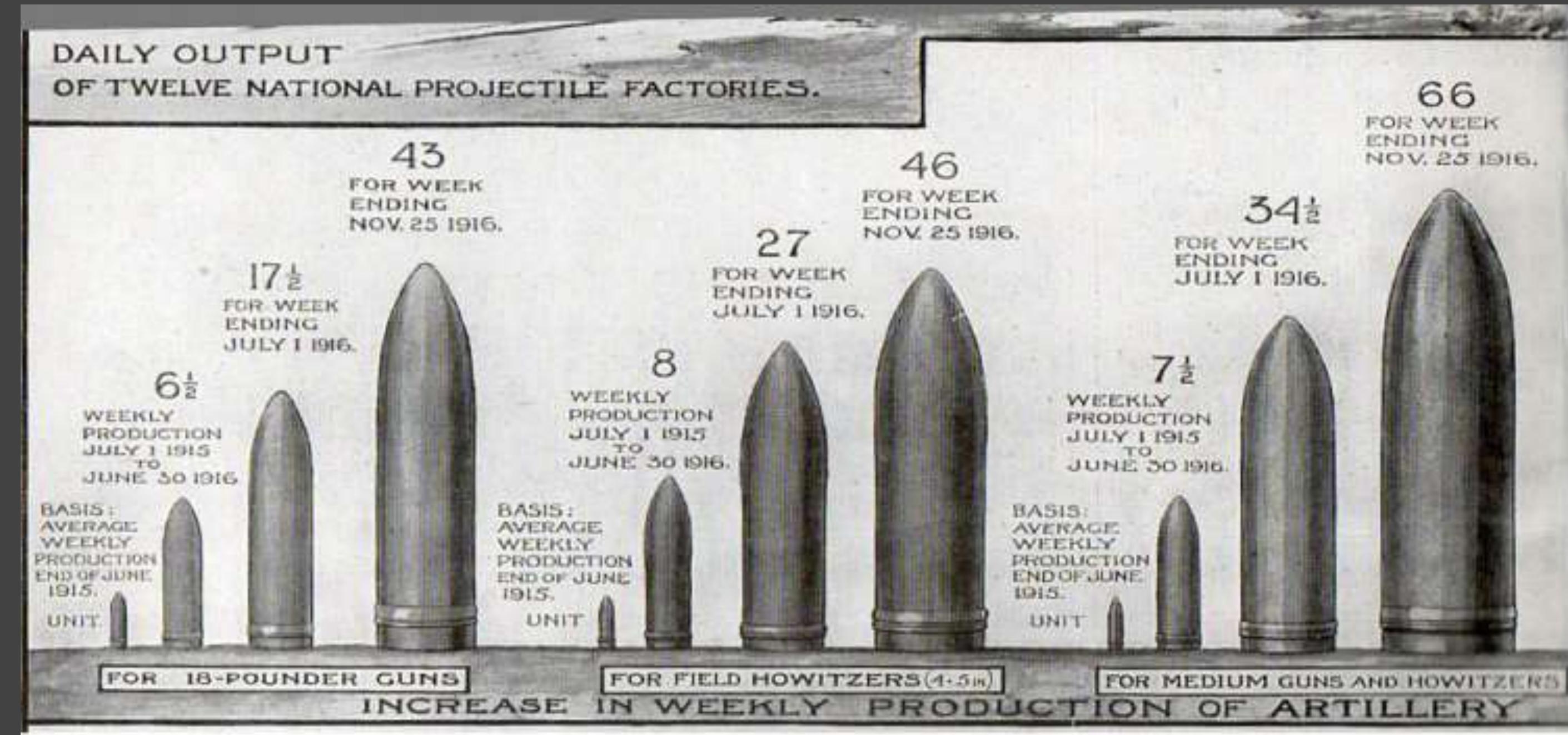
Number of men getting married in Germany out of every 10,000 persons



### Men Getting Married in Germany in a Year



1 sign for 100,000 a year



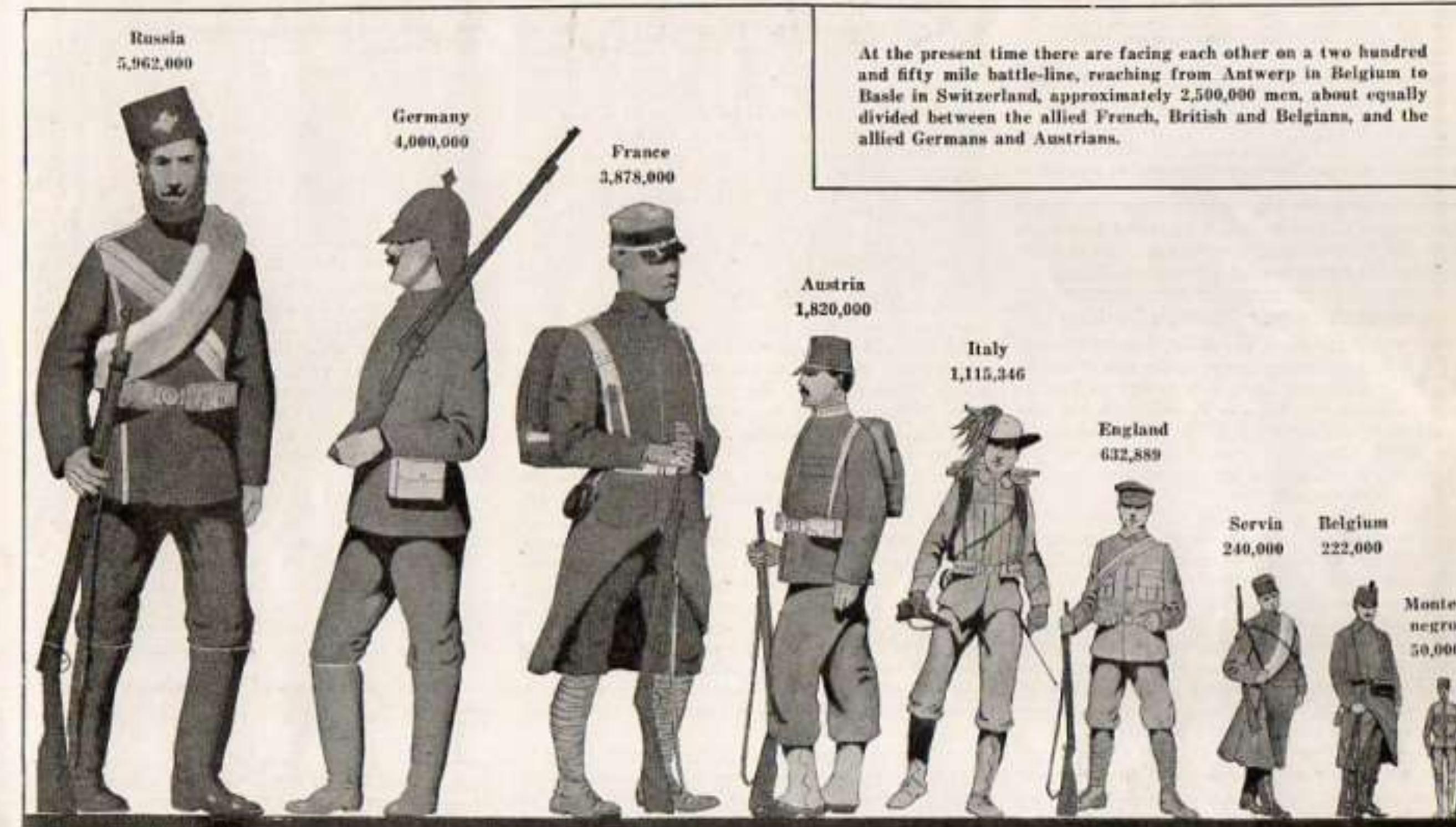
# SCIENTIFIC AMERICAN

THE WEEKLY JOURNAL OF PRACTICAL INFORMATION

VOLUME CXL.  
NUMBER 10.

NEW YORK, SEPTEMBER 5, 1914

25 CENTS A COPY  
\$3.00 A YEAR



RELATIVE STRENGTH IN TRAINED MEN OF THE ARMIES OF EUROPE

## Sixteen Million Men Under Arms

### Military Strength of the Triple Entente and the Dual Alliance

To appreciate the stupendous character of the War of the Nations which is now in full swing on the continent of Europe, we must bear in mind two facts:

### DUAL ALLIANCE

Nation.	Population.	Standing Army.	Trained Reserves.	Untrained Reserves.
Austria.....	48,000,000	472,716	1,347,284	2,700,000
Germany.....	64,925,903	800,000	3,300,000	3,000,000

A table is nearly always better than a dumb pie chart; the only worse design than a pie chart is several of them, for then the viewer is asked to compare quantities located in spatial disarray both within and between charts.

Given their low density and failure to order numbers along a visual dimension, pie charts should never be used.

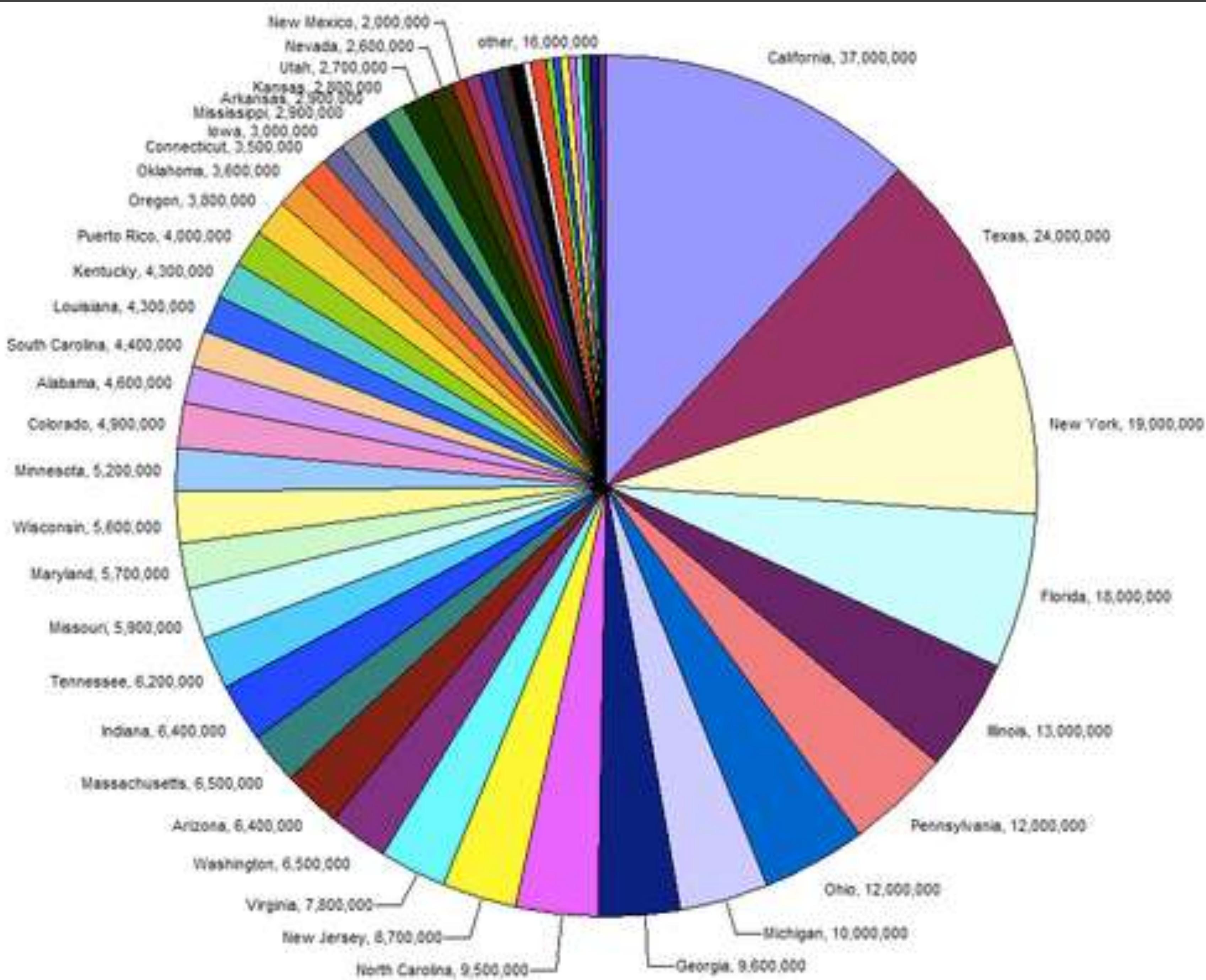
Tufte, 1983

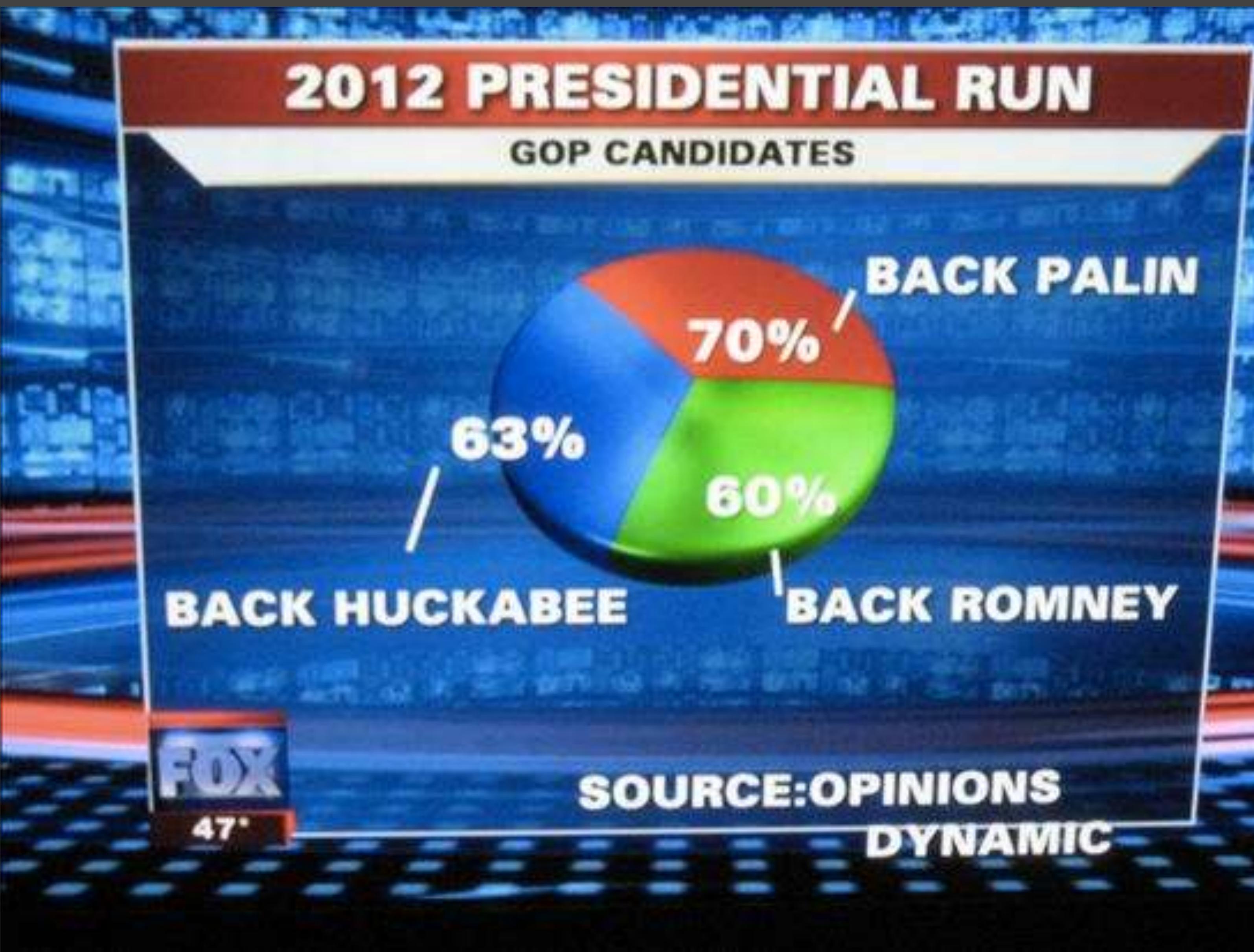
There seems to be little objective basis for a prejudice against the pie based on considerations of speed or accuracy of estimation – the pie chart does just as well, if not better, on simple tasks such as the estimation of a single proportion or the comparison of a small number of proportions.

Ian Spence, 2005

The simple bar chart does not provide an integrated representation of the whole, thus making **part-whole estimation** more difficult.

Spence, 2005







**66%**

Thinks it is unethical if judges go to work wearing an Islamic headscarf

**46%**

Thinks it is unethical if nurses and doctors go to work wearing an Islamic headscarf

**42,5%**

Thinks it is unethical if schoolteachers and educators go to work wearing an Islamic headscarf

**38%**

Thinks it is unethical if home carers go to work wearing an Islamic headscarf



“There’s a strand of the data viz world that argues that everything could be a bar chart. That’s possibly true but also possibly a world without joy.”

Amanda Cox



SUNDAY • 08.24.2014 • \$2.50 • FINAL EDITION

# OUT OF BALANCE

## FEW AREA POLICE FORCES REFLECT THE COMMUNITIES THEY SERVE

### PERCENT BLACK

Here is a look at 31 municipalities where at least 10 percent of the population is African-American, comparing the percentage of African-Americans in the communities and their police departments.

		BEL-NOR		BELL. NEIGHBORS		BERKELEY	
		46%	20%	73%	3%	81%	55%
population	police	population	police	population	police	population	police
BEVERLY HILLS	BRECKENRIDGE HILLS	CALVERTON PARK	CHARLACK	EDMUNDSON			
<b>96%</b> 64%	32% 8%	<b>41%</b> 0%	<b>35%</b> 20%	<b>26%</b> 9%			
population	police	population	police	population	police	population	police
FERGUSON	FLORDELL HILLS	FLORISSANT	HAZELWOOD	MAPLEWOOD			
<b>67%</b> 7%	91% 25%	<b>27%</b> 8%	<b>30%</b> 3%	<b>17%</b> 10%			
population	police	population	police	population	police	population	police
MARYLAND HEIGHTS	MOLINE ACRES	NORMANDY	NORTHWOODS	OLIVETTE			
<b>12%</b> 1%	92% 79%	<b>71%</b> 14%	<b>94%</b> 59%	<b>24%</b> 9%			
population	police	population	police	population	police	population	police
OVERLAND	PAGEDALE	PINE LAWN	RICHMOND HEIGHTS	RIVERVIEW			
<b>16%</b> 0%	93% 60%	<b>96%</b> 45%	<b>12%</b> 7%	<b>70%</b> 0%			
population	police	population	police	population	police	population	police
ROCK HILL	ST. ANN	ST. JOHN	ST. LOUIS	ST. LOUIS COUNTY			
<b>23%</b> 10%	22% 5%	<b>23%</b> 5%	<b>48%</b> 34%	<b>25%</b> 10%			
population	police	population	police	population	police	population	police
UNIVERSITY CITY	VELDA CITY	VINITA PARK	WELLSTON	WOODSON TERRACE			