



The School of Visual Communication  
OHIO UNIVERSITY

# Words

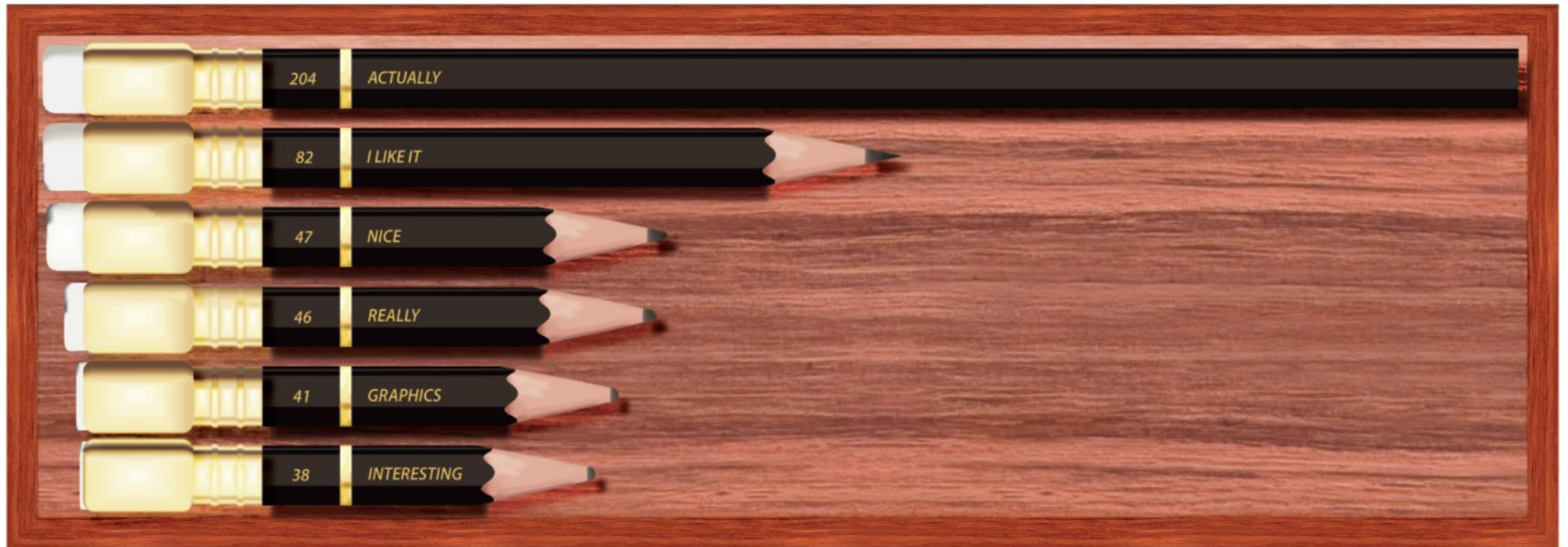


# Actually

**I like it** **Infographics**  
**Freaking** **Worries me** **I get it**  
Manhattan  
**VisCom**  
**Clever** **Really** **Nice** **Good idea**  
**Kroger** **David** **Graphics** Expresso  
**Useful** **Interesting** Not good **Shocking** **Wrong**  
**Know what I mean** Works Market research for **Athens** ..  
**I don't know** **New York**

In the words of John Grimwade...

**“Actually, I like it.”**



Data collected from 11 classes over a period of four weeks. In one class, Grimwade said “Actually” 58 times. The pencil is the Palomino Blackwing 602 (his favorite).

In the words of John Grimwade:  
“Actually, I like it.”



Data collected during 11 classes over a 4 week period and is shown using John's favorite, and oft mentioned, pencil, the Palomino Blackwing 602. John is astonished that he managed to fit in "actually" 58 times in a 55 minute class.



# Infographics for the People



A computer monitor with a black bezel and a silver stand. The screen is filled with a solid light blue color. In the center of the screen, the URL "johngrimwade.com/blog" is displayed in a black, sans-serif font. The monitor is centered against a white background.

[johngrimwade.com/blog](http://johngrimwade.com/blog)

# DNA







1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20



21



22



X/Y







**\$3398**

**10MB**

# THE HARD DISK

**YOU'VE BEEN  
WAITING FOR**

**XCOMP** introduces a complete micro-size disk subsystem with more...

- MORE STORAGE
- MORE SPEED
- MORE VALUE
- MORE SUPPORT

S100 users... The XCOMP subsystem is now available with 10 megabytes of storage, 5 megabytes of storage, or even 8-inch floppy disks. Price is \$2,898.00. Compare the price and value of other hard disk subsystems.

#### MORE SOFTWARE

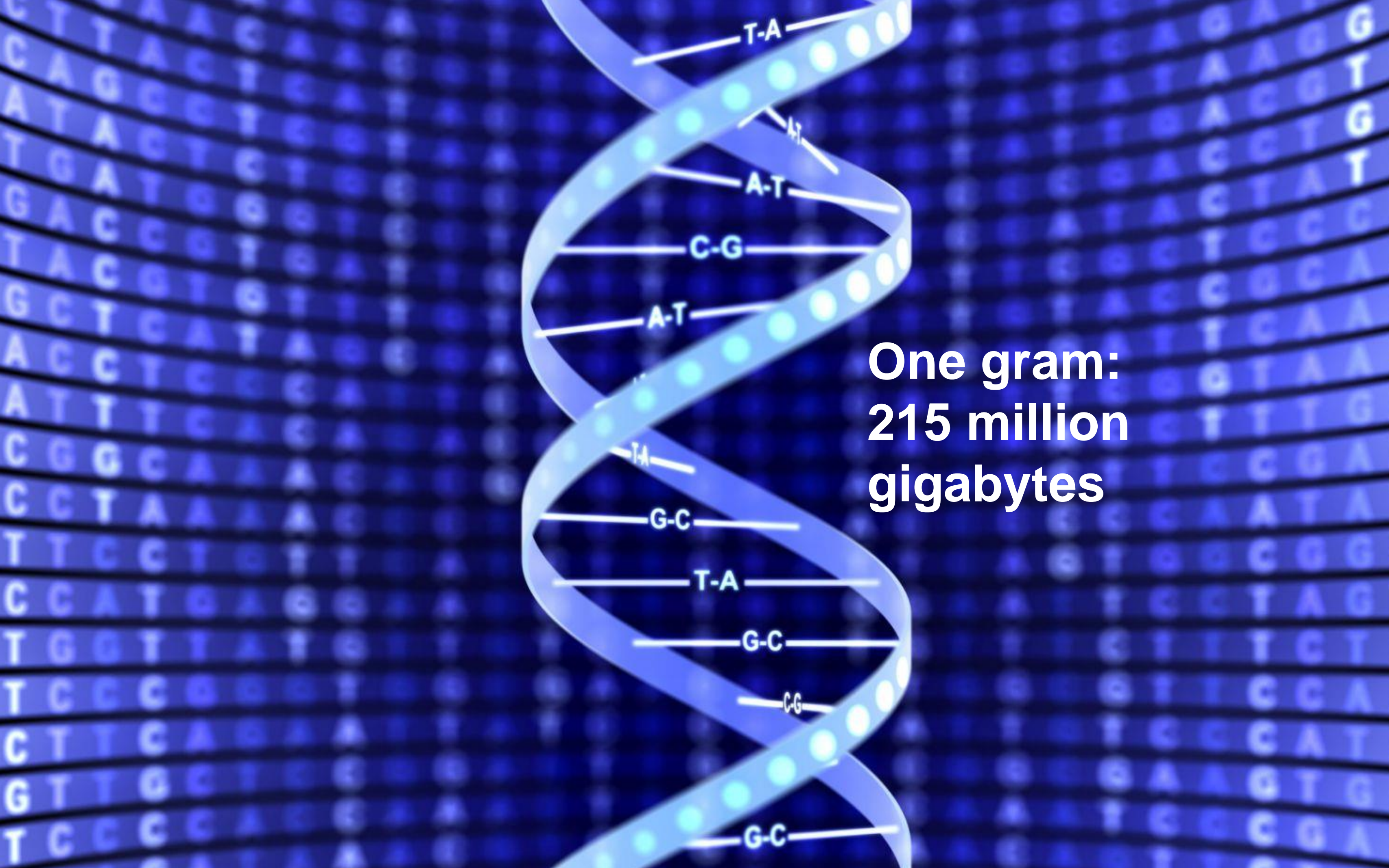
Included with the system is software for testing, formatting, I/O drivers for CP/M<sup>®</sup>, plus an automatic CP/M driver attach program. Support software and sophisticated formatting program are also available. The formatting program assigns alternate sectors for any weak sectors detected during formatting, assuring the lowest possible error rate — at least ten times better than floppies.

#### WARRANTY

The system has a full one-year warranty on parts and workmanship.

AVAILABLE FROM XCOMP

**\$10,000**



**One gram:  
215 million  
gigabytes**

T-A

A-T

C-G

A-T

G-C

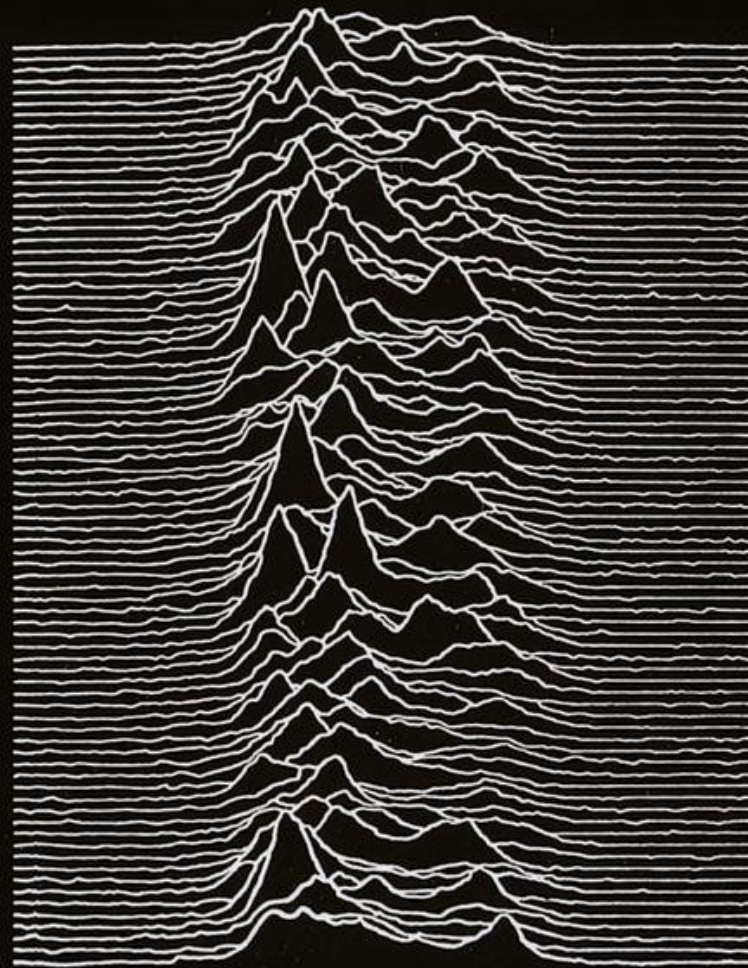
T-A

G-C

C-G

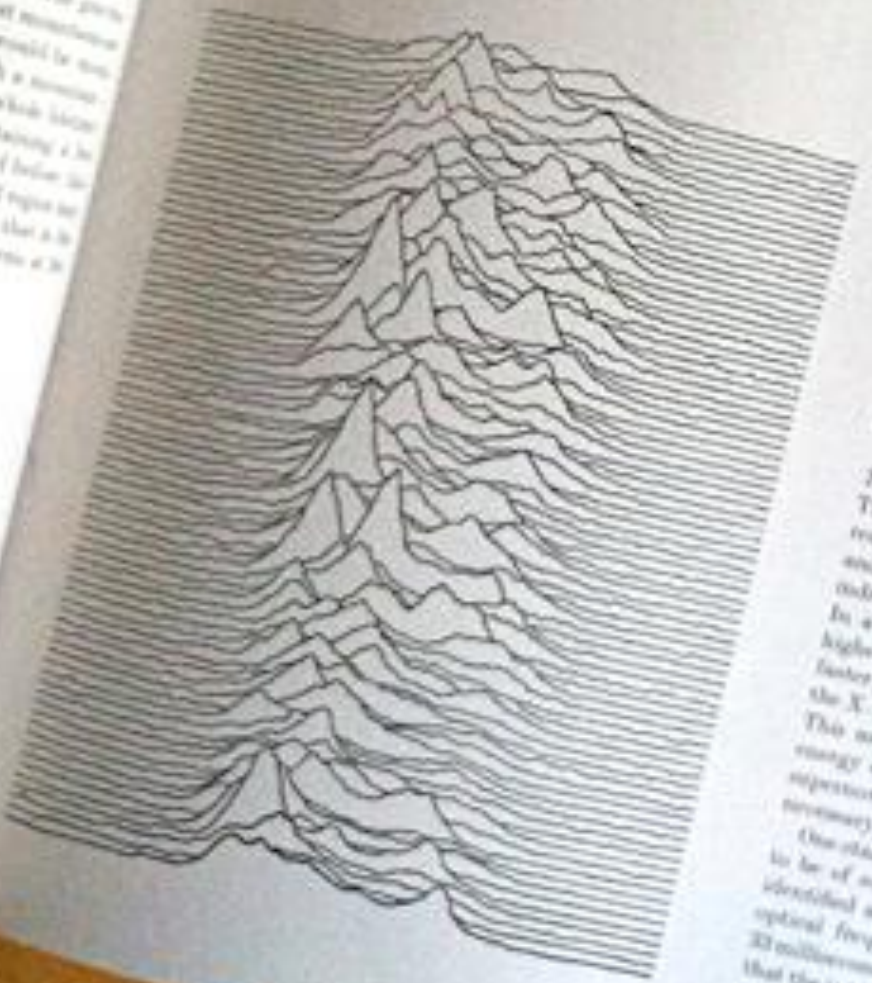
G-C

# Quasars and t-shirts



...between the particles...  
...degeneracy pressure...  
...density...  
...neutron star...  
...radius...  
...mass...  
...structure...  
...surface...  
...crust...  
...core...  
...neutron fluid...  
...superfluid...  
...crystalline core...

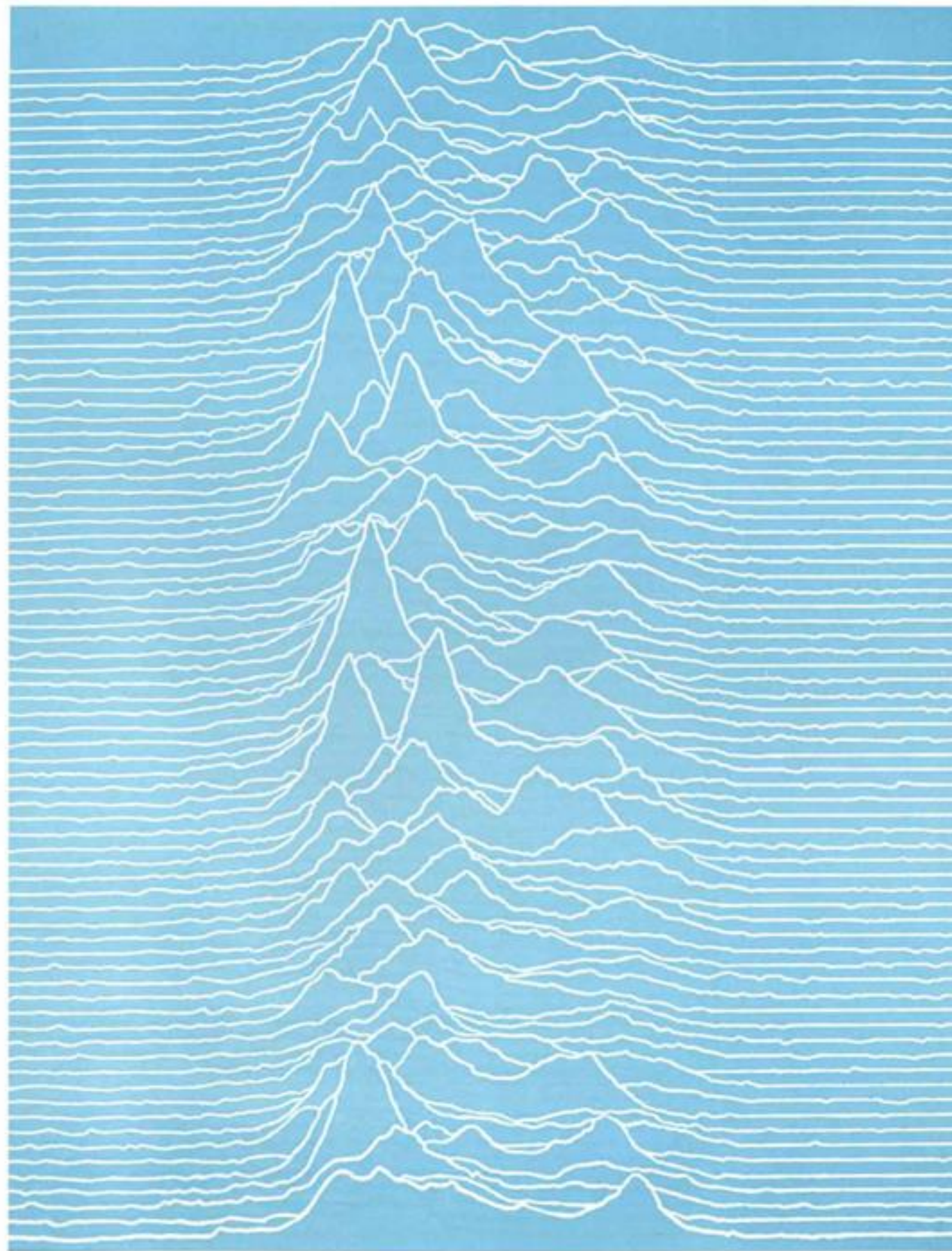
47: Successive pulses from the first pulsar discovered, CP 1919, are here superimposed normally. The pulses occur every 1.337 seconds. They are caused by a rapidly spinning neutron star.



**Pulsars**  
*Discovery*  
The possibility that the degeneracy pressure of neutrons might stabilize a self-gravitating object was first noted in the 1930s by L.D. Landau and F. Zwicky. W. Baade and F. Zwicky speculated that they might exist as the stellar remnant of a supernova explosion. Interest in neutron stars was aroused by the discovery of X-ray stars in 1962. Because a neutron star is so small (radius of 10 km), in order to radiate energy at a rate comparable to the Sun, it needs to have a much higher surface temperature, namely several million degrees. Radiation emitted by material at such a high temperature is X-radiation. It was thought at the time that since the variable luminosity of these stars might be hot, cooling neutron stars. However, the variable luminosity of these stars made this hypothesis unconvincing.

The situation changed dramatically with the discovery of pulsars (pulsing radio sources) in late 1967 by astronomers at the Cavendish Laboratory, Cambridge. The first pulsar to be discovered, CP 1919 (an abbreviation for Cambridge pulsar at 19h 19m, right ascension), is a radio source which flashes regularly every 1.33730 seconds. In fact, the flashes are so regular that the pulsar could be used as a clock that is accurate to one part in a hundred million. Since then many more pulsars (about 200) have been discovered, with periods ranging from four seconds down to the pulsar in the Crab Nebula which has a period of 33 milliseconds. This last-mentioned pulsar is of special importance, since it proved beyond all reasonable doubt that pulsars are magnetized neutron stars; the regularity of the pulsed radio signal is provided by the rapid rotation of such stars and only a neutron star can rotate that rapidly (figure 6.7).

*The Crab pulsar*  
The supernova that created the Crab Nebula was observed and recorded by oriental astronomers in 1054 AD. The radio, optical and X-ray emission from the nebula itself is highly polarized, indicating that the radiation is emitted by the synchronous process. In a given magnetic field, the more energetic an electron, the higher the frequency of the synchrotron radiation it emits and the faster it loses its energy. The high energy electrons that give rise to the X-radiation from the nebula, lose their energy within 10 years. This means that there must be in the nebula a source of high energy electrons that is still operative some 1000 years after the supernova explosion. It is this source of energy which provides the necessary 10<sup>31</sup> watts to keep the nebula alight.  
One star in the remnant, known as Baade's star and long thought to be of some significance in account of its odd spectrum, was identified as the pulsar in 1969. The star is also seen to pulse at optical frequencies and X-ray energies at the same period of 33 milliseconds. The period is slowly getting longer at a rate that the interval between successive pulses is greater than the preceding one.

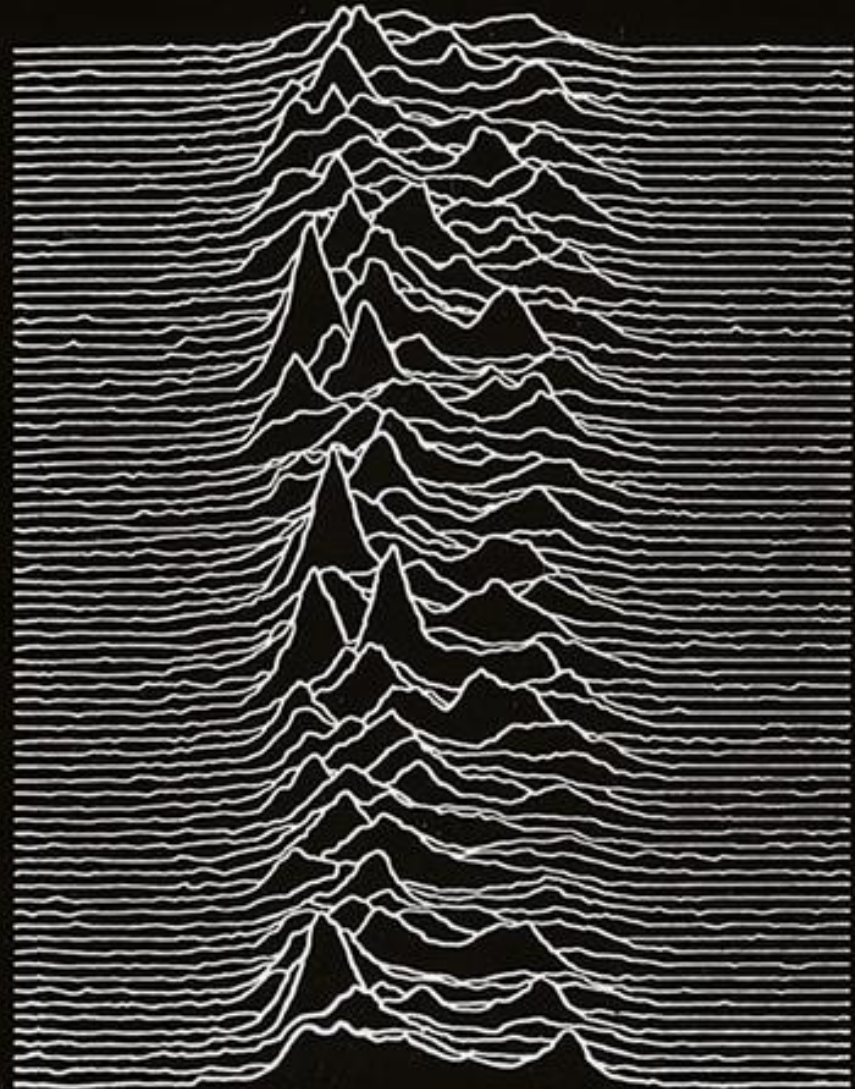


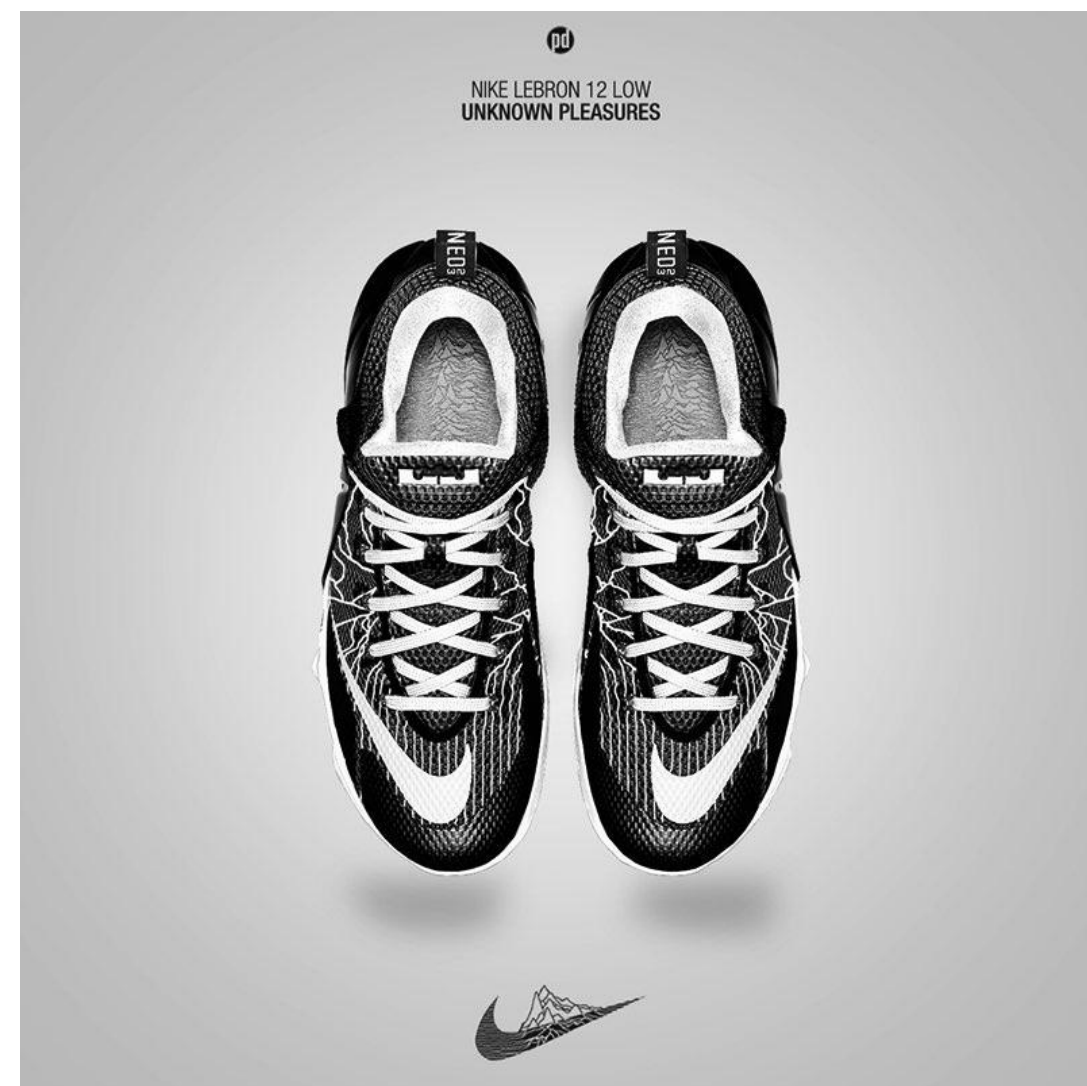
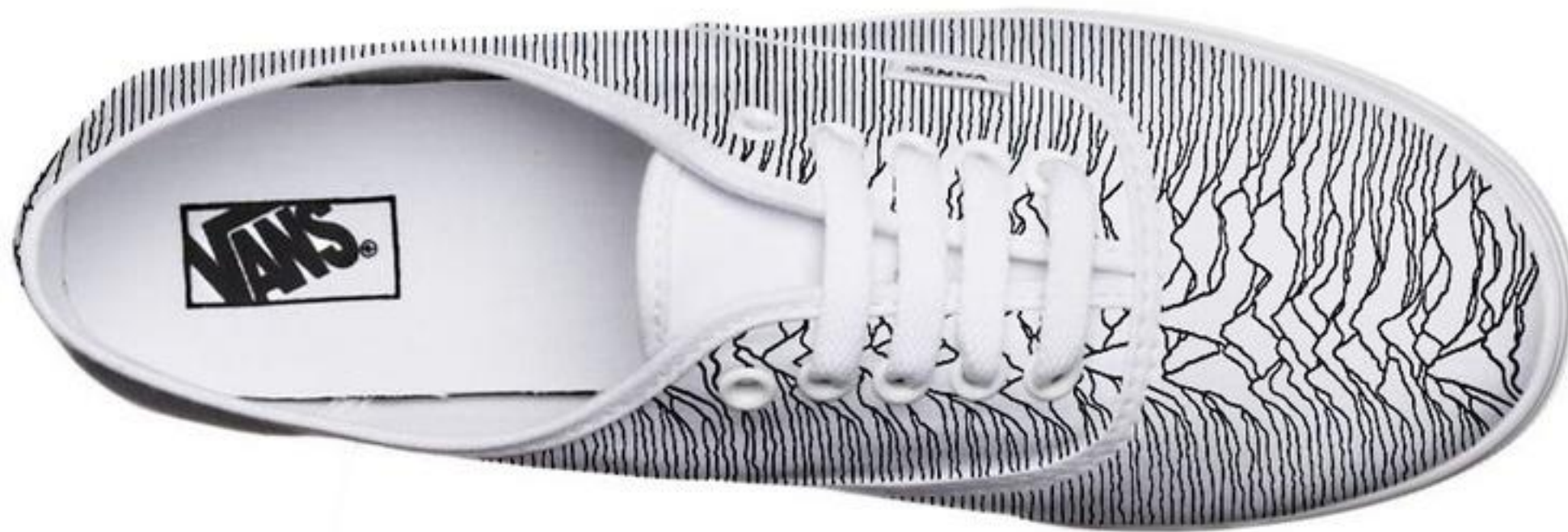
EIGHTY SUCCESSIVE PERIODS of the first pulsar observed, CP1919 (Cambridge pulsar at 19 hours 19 minutes right ascension), are stacked on top of one another using the average period of 1.33730 seconds in this computer-generated illustration produced at the Arecibo Radio Observatory in Puerto Rico. Although the lead-

ing edges of the radio pulses occur within a few thousandths of a second of the predicted times, the shape of the pulses is quite irregular. Some of this irregularity in radio reception is caused by the effects of transmission through the interstellar medium. The average pulse width is less than 50 thousandths of a second.







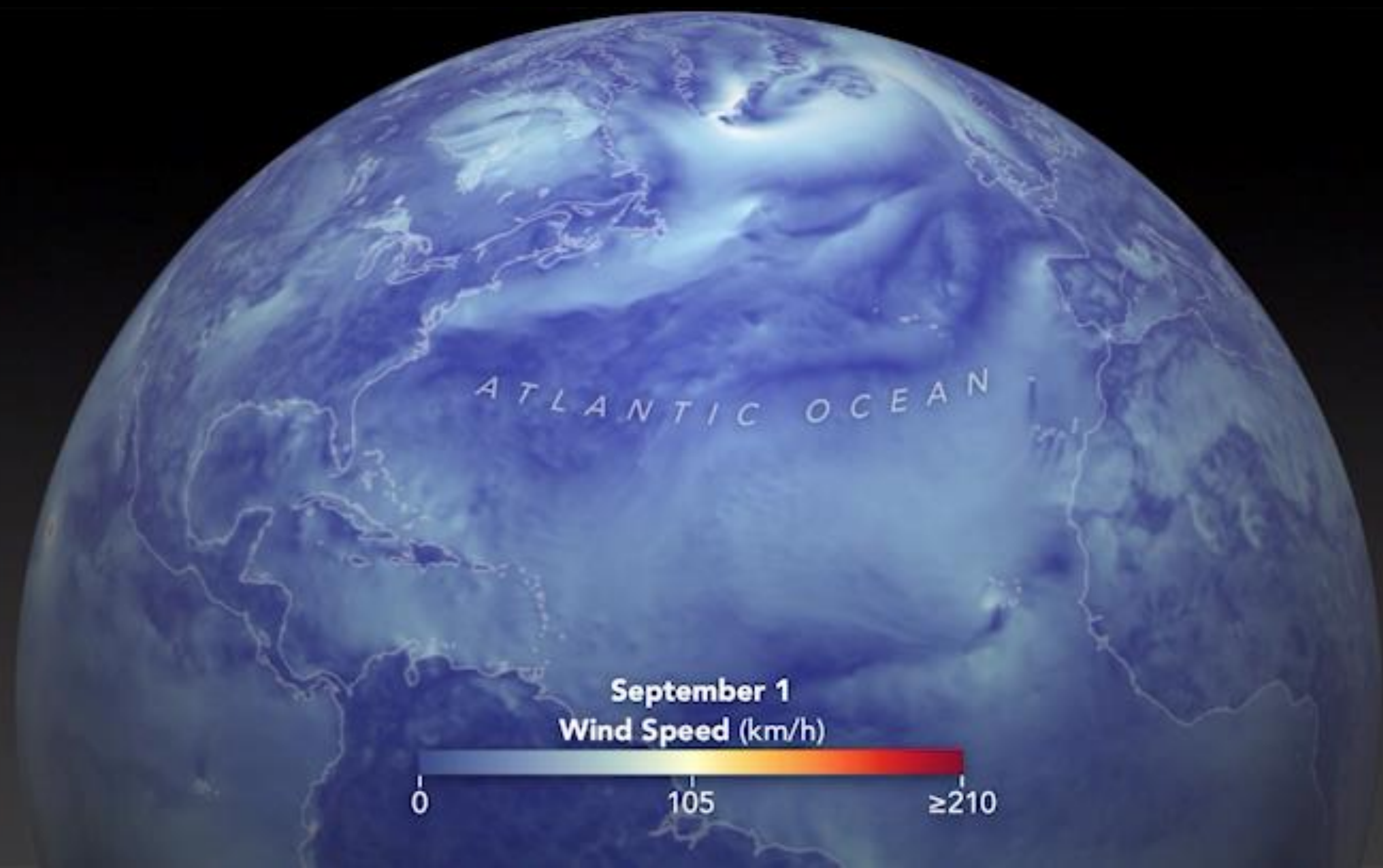






# Data mapping



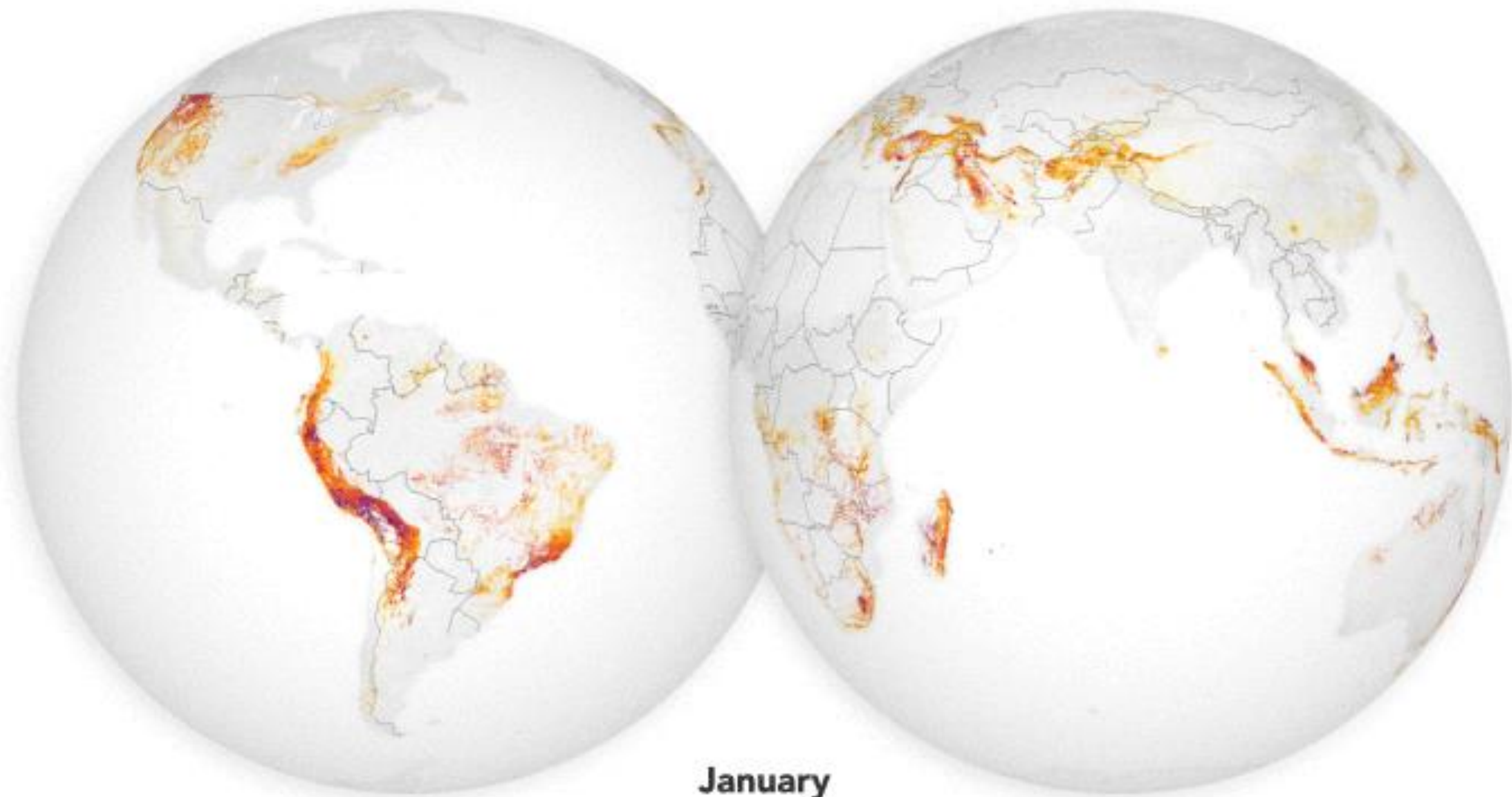




**Clear Skies on June 27**







January

Potential Landslide Activity



# Knitted data visualization

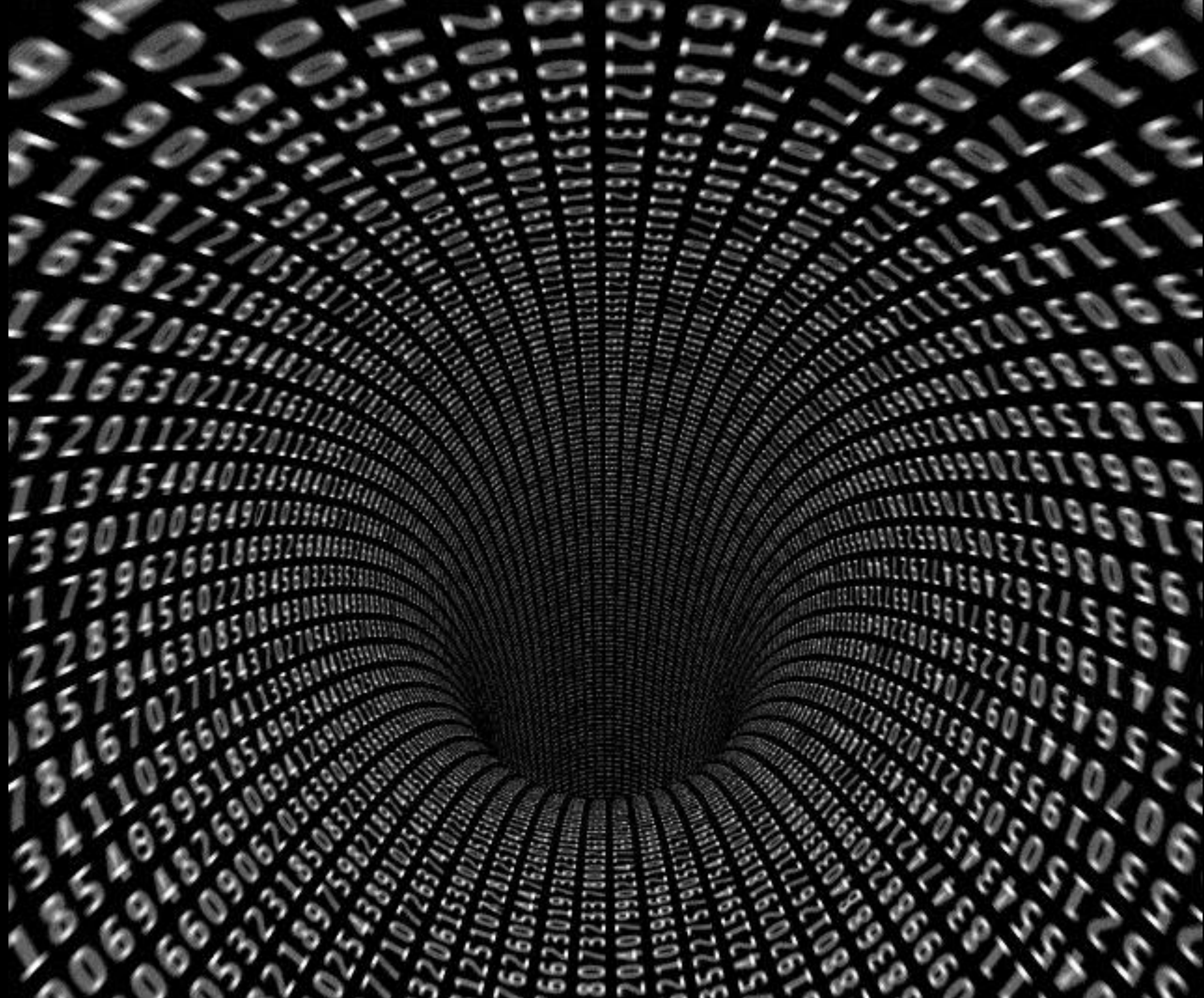






# Data Visualization Secrets







**2,838,335,911**  
Internet Users in the world



**740,443,093**  
Total number of Websites



**107,319,493,823**  
Emails sent [today](#)



**2,123,736,900**  
Google searches [today](#)



**1,932,180**  
Blog posts written [today](#)



**309,974,267**  
Tweets sent [today](#)



**3,820,174,337**  
Videos viewed [today](#)  
on YouTube



**36,688,072**  
Photos uploaded [today](#)  
on Instagram



**53,856,042**  
Tumblr posts [today](#)



**1,172,932,842**  
Facebook active users



**300,700,061**  
Google+ active users



**233,496,541**  
Twitter active users



**26,929,842**  
Pinterest active users

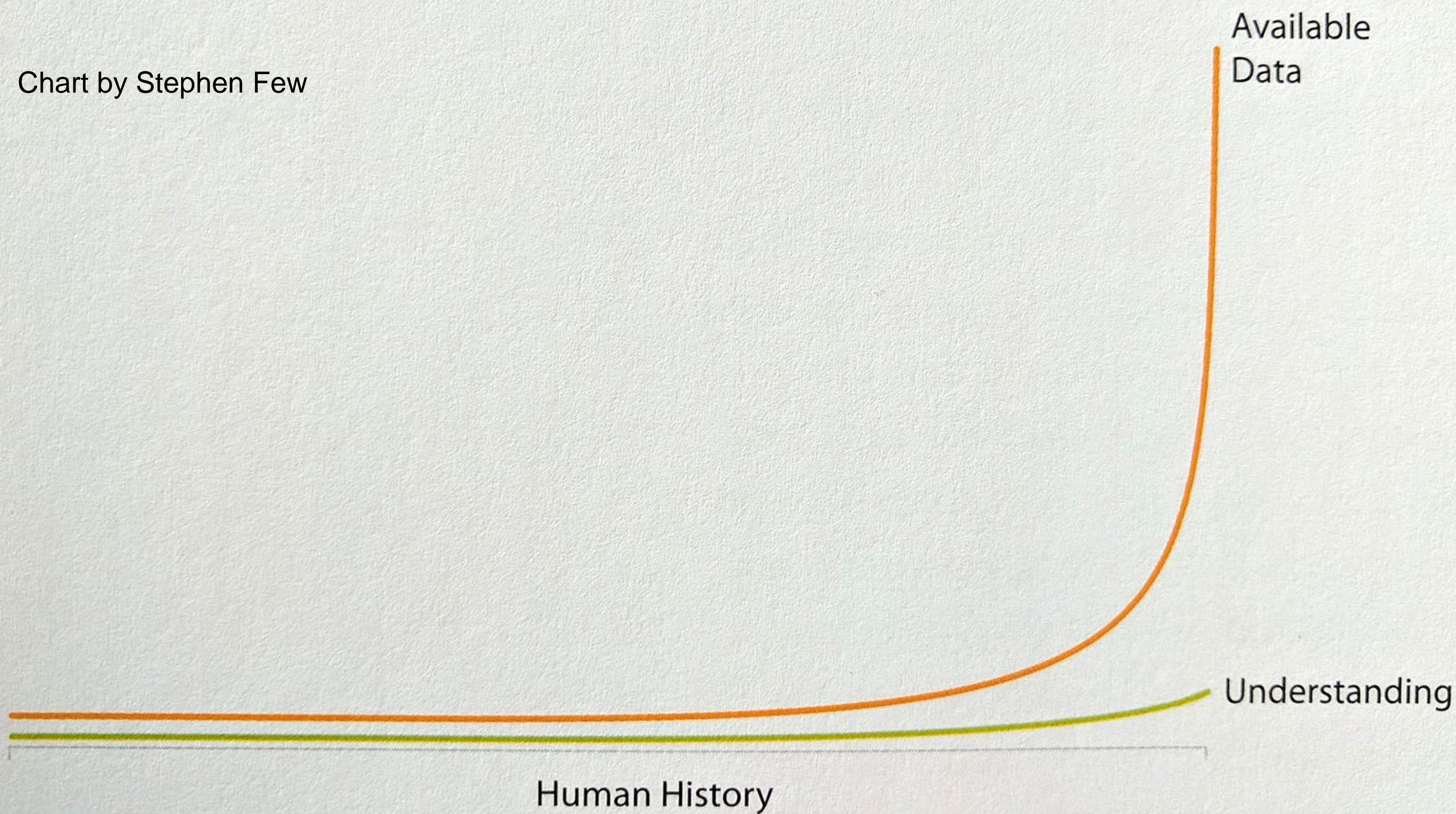


**66,343,891**  
Skype calls [today](#)



**21,392**  
Websites hacked [today](#)

Chart by Stephen Few



Available  
Data

Understanding

Human History



**CLARITY**



**CONFUSION**

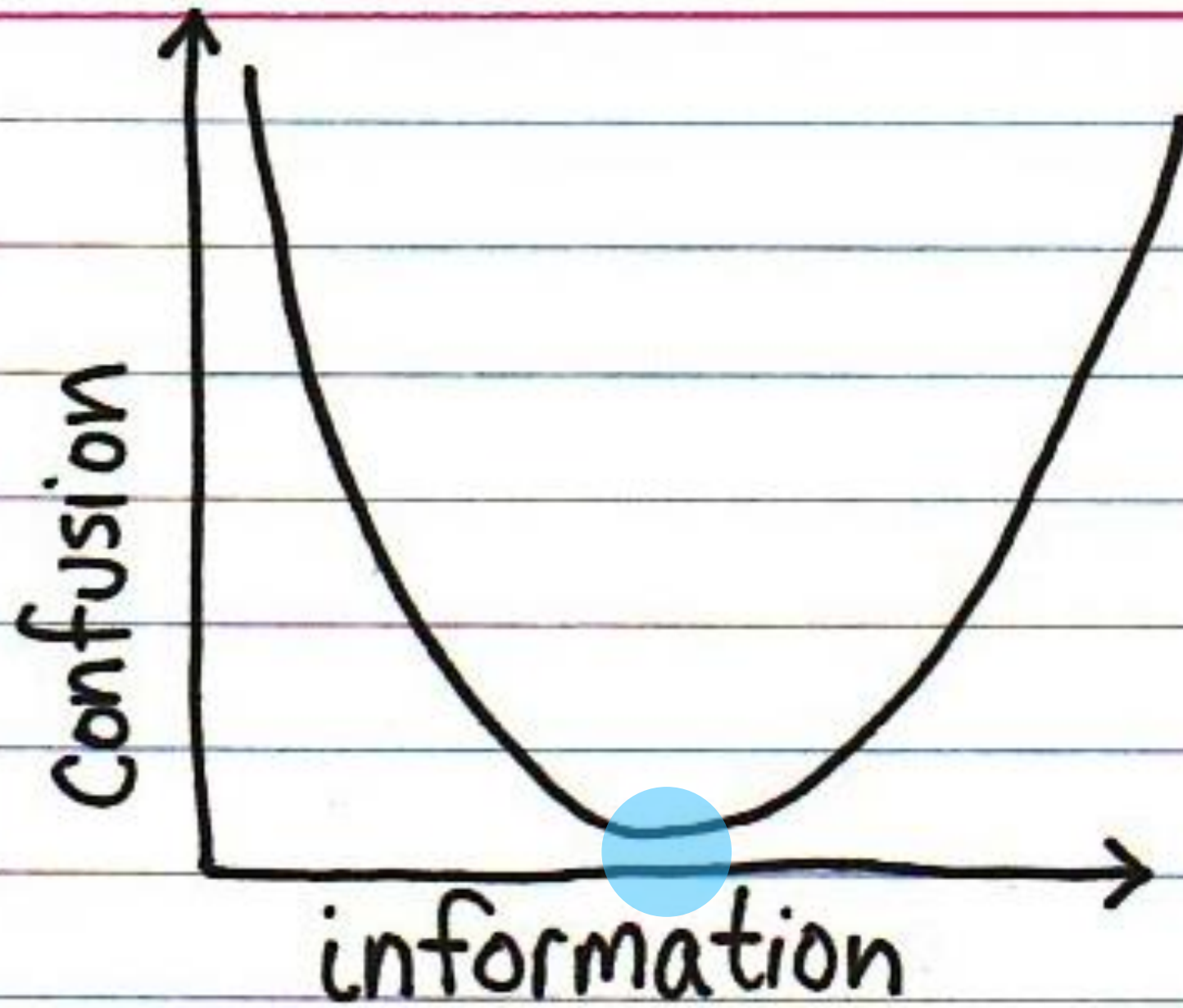
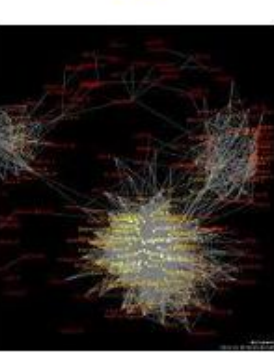
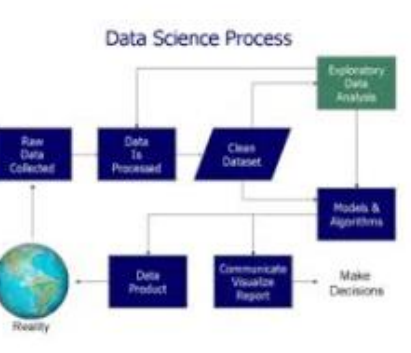
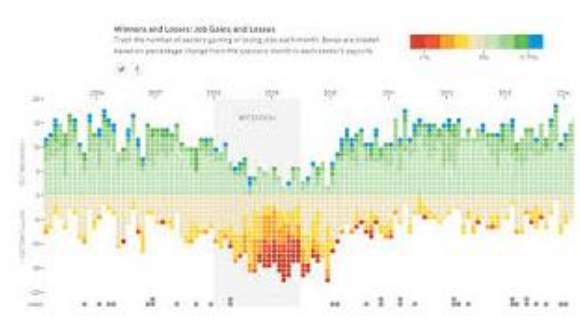
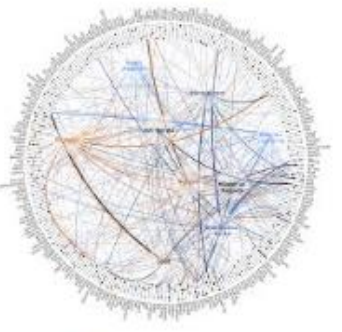
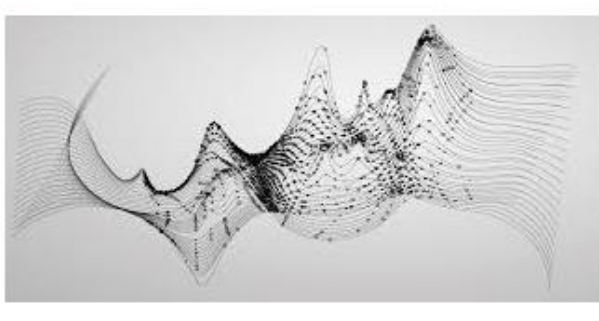
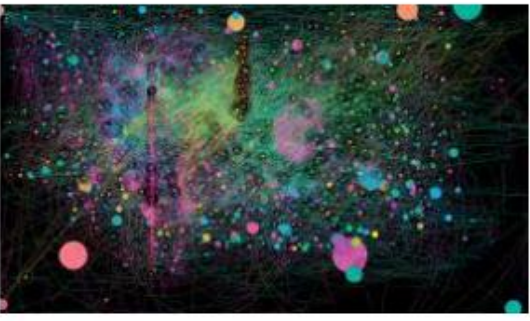
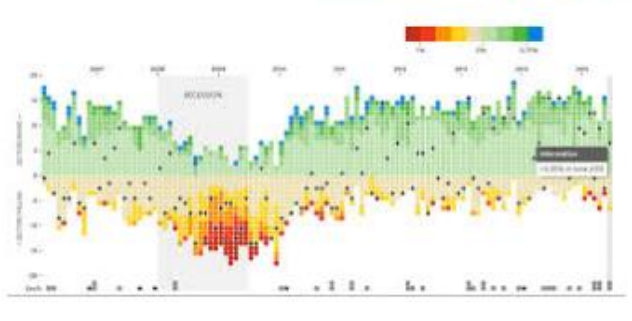
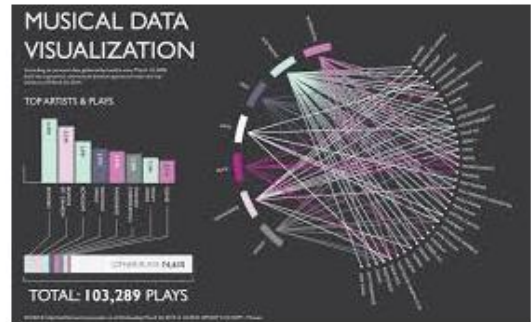
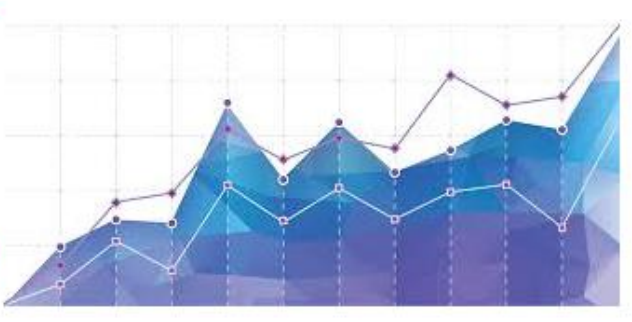
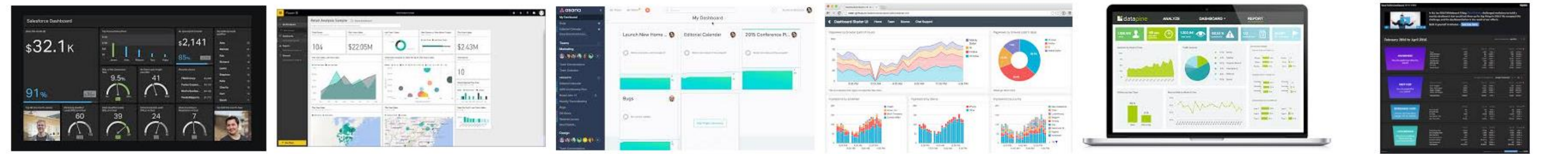


Chart by Jessica Hagy

business intelligence complex funny bad multivariate simple real time heat map treemap interesting graphic design science art animated sound song fancy creative high dimensional



data visualization | web analytic | social | scrum | sample | key performance indicator | metric | profile | status | statistics | data quality | graphic | infographic | map | material design | project management | risk management



# YOU vs. JOHN PAULSON

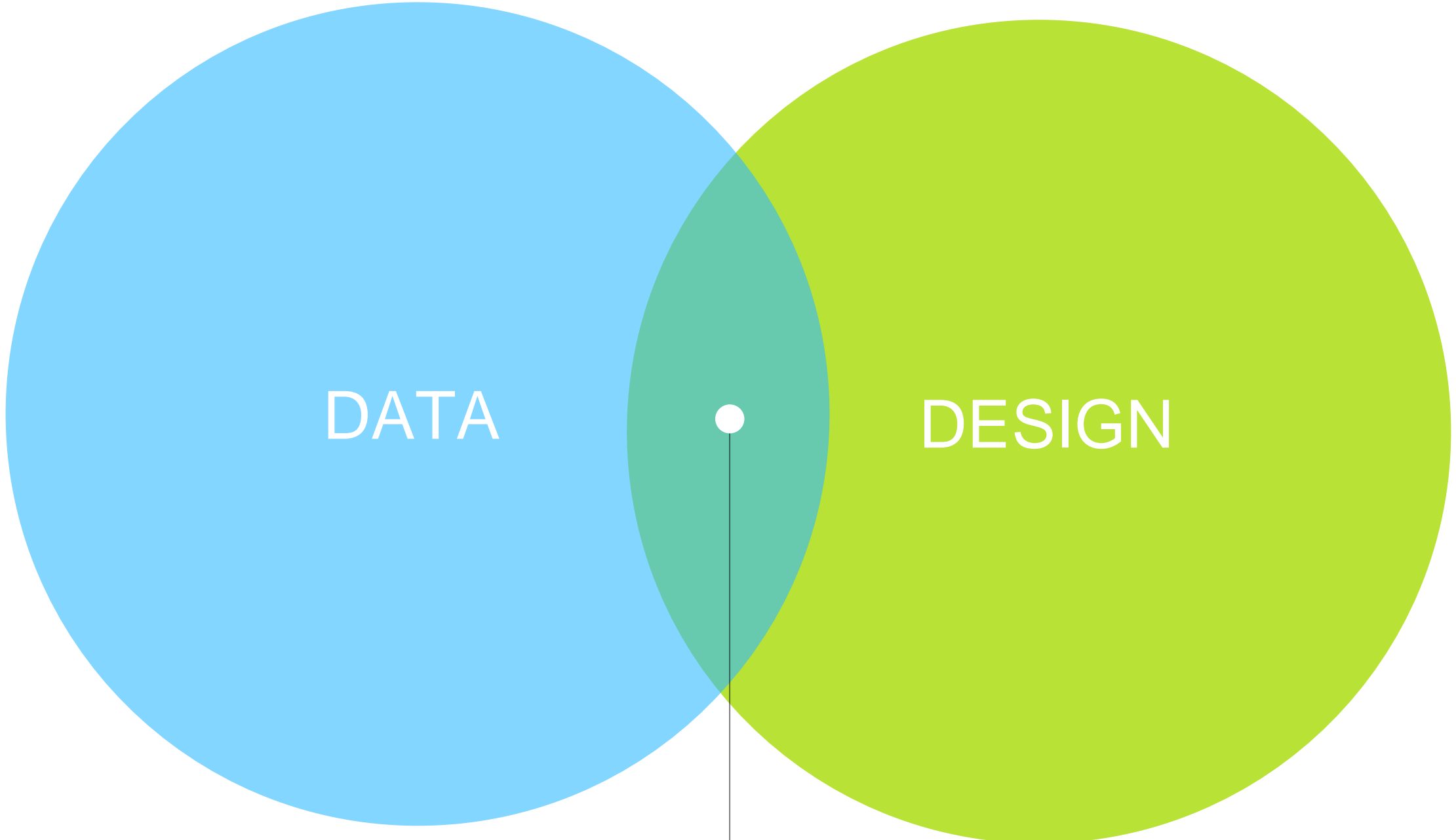
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How long does it take super-trader John Paulson to  
earn your annual income?

\$

Your Salary



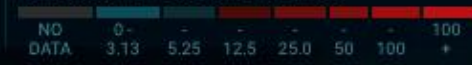


**DATA VISUALIZATION**

# Homicide Monitor

Exploring the distribution, dimensions and dynamics of intentional homicide around the world.

HOMICIDES PER 100,000 POPULATION



Homicides around the World

## Homicides around the World

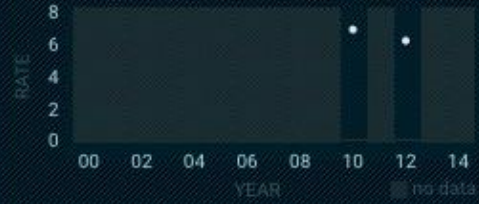
DATA SOURCE ⓘ

YEAR

UNODC Global Study on Homicide 2013

2012

### HOMICIDE RATE EVOLUTION



HOMICIDE COUNT ⓘ

437,000

RATE PER 100,000 INHABITANTS ⓘ

6.2

POPULATION

7,048,387,097



WEAPON

Other: 59%

MORE



VICTIM GENDER

Male: 78%

MORE

Countries



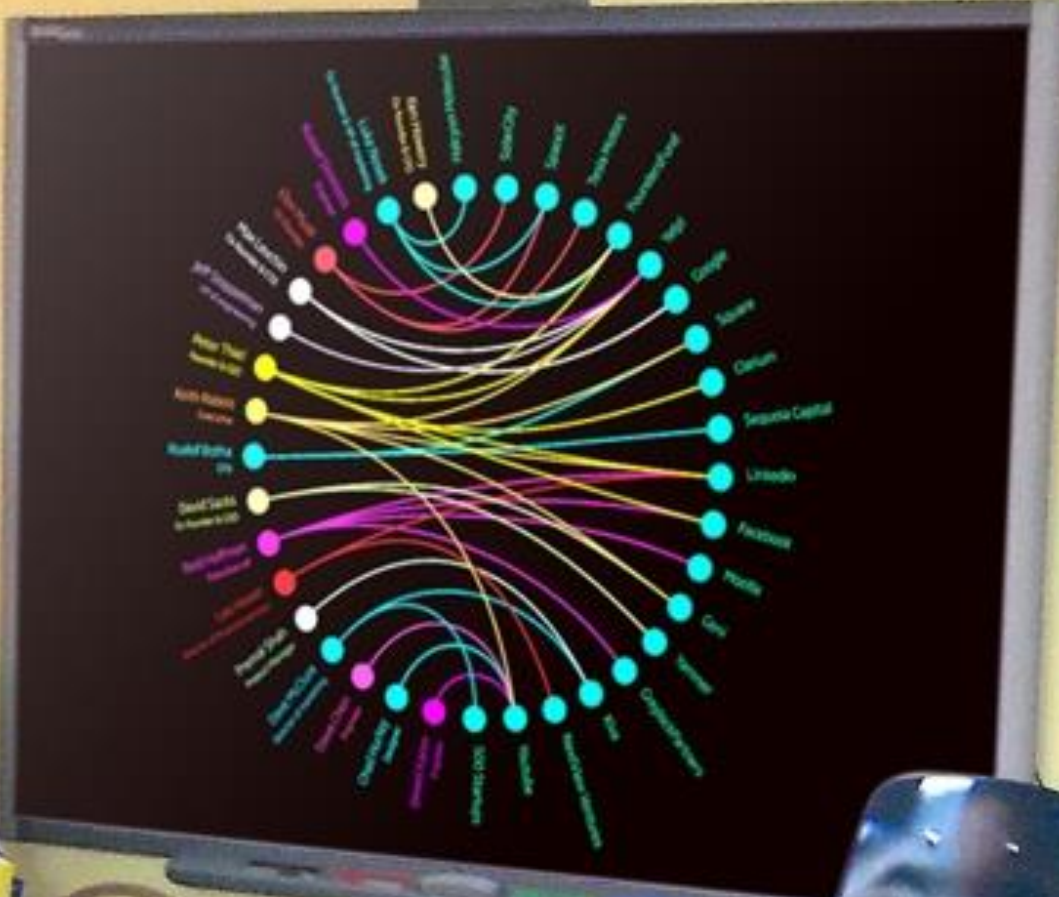
Download Data



42



**BIG DATA**







# Making charts

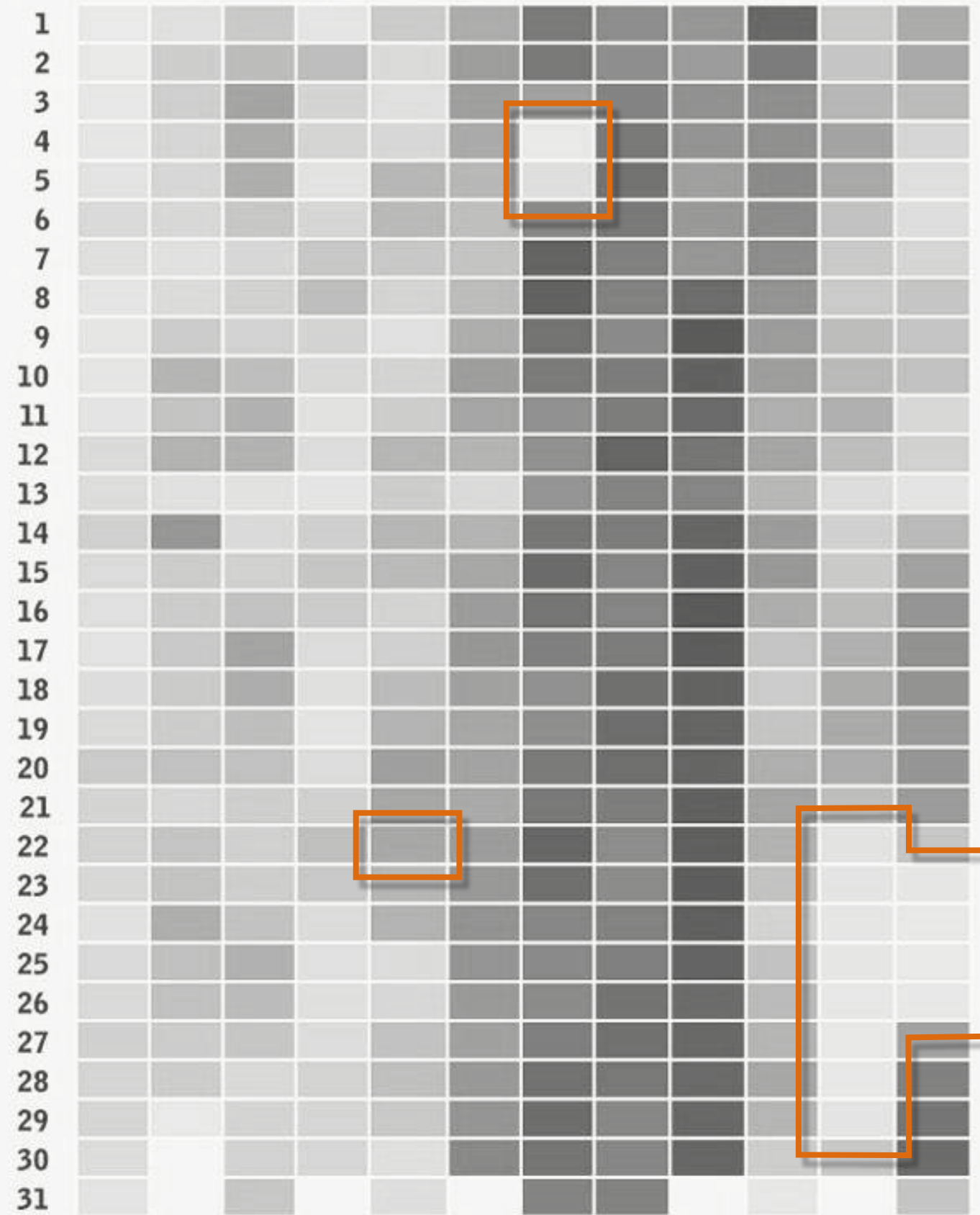


“The graph on the wall,  
Tells the story of it all.”

*Depeche Mode: Everything Counts*

# Which Birth Dates Are Most Common?

DAY JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

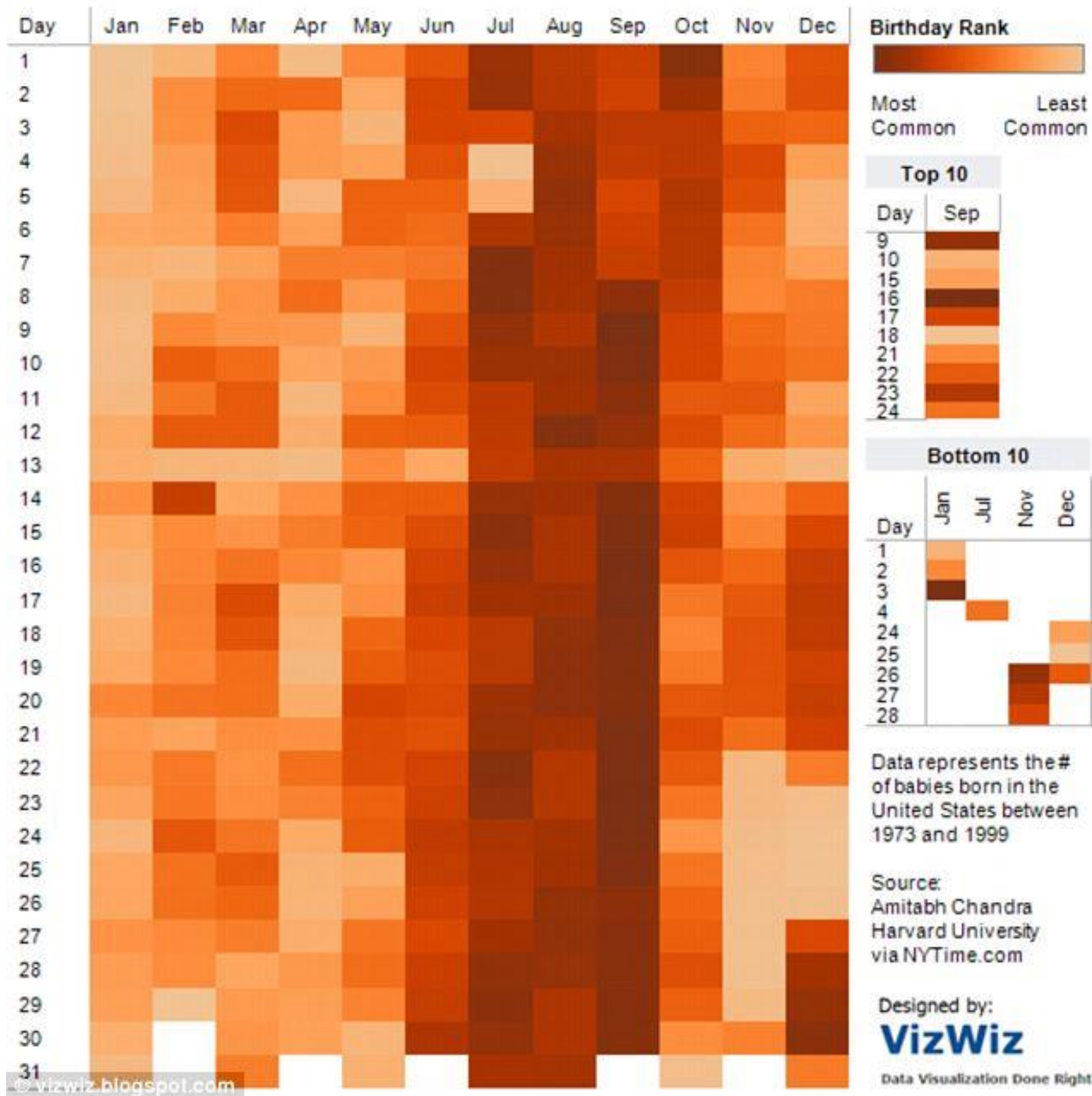


BIRTHDAY RANK

Less common



More common



Most common  
1 to 10

Least common  
1 to 10



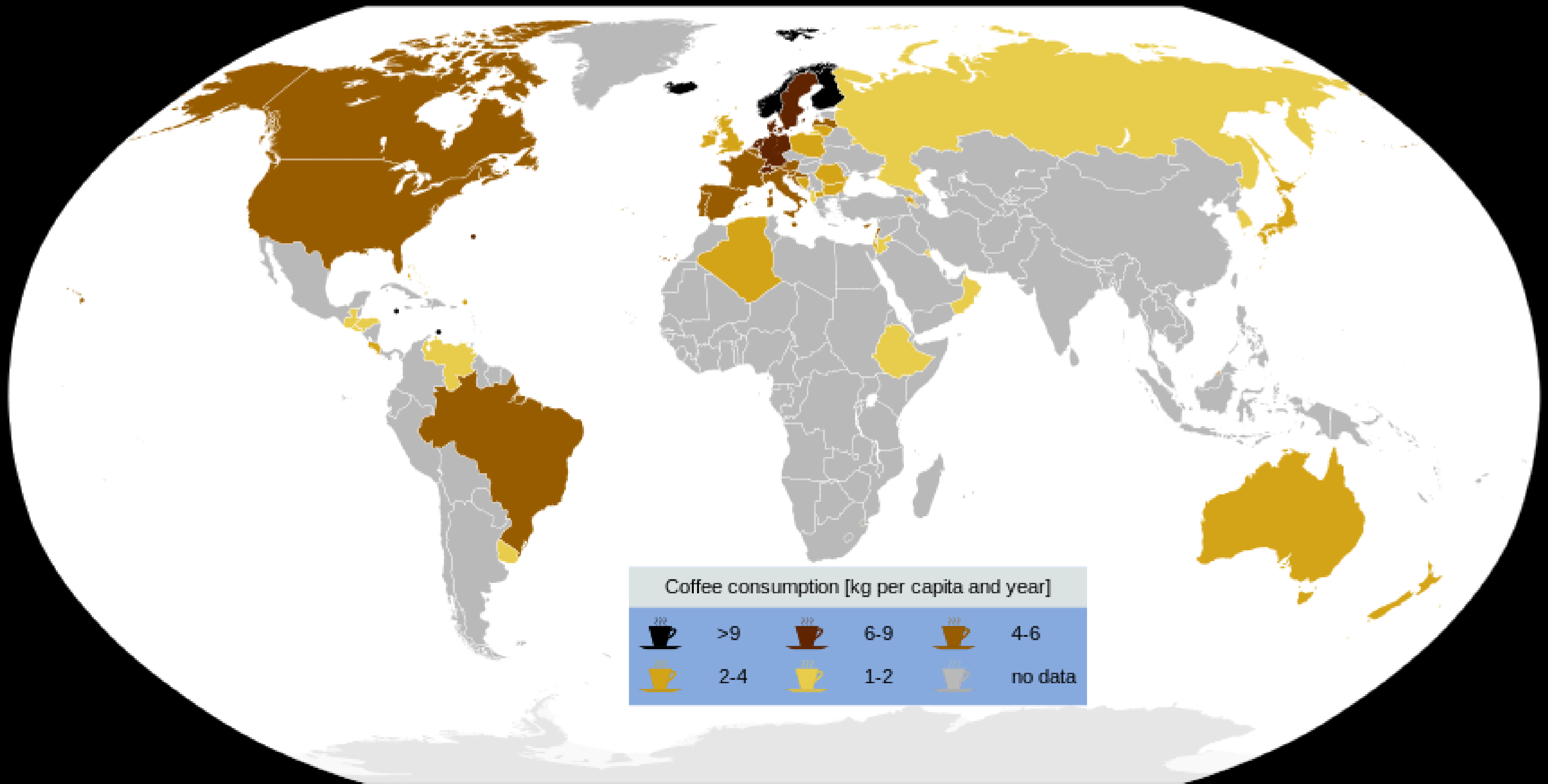
Understand your data

Is the data sound?



“Garbage in,  
garbage out.”







Is that a story,  
or a flaw in the data?



## Mackinac Island ranked fifth most violent city in Michigan in statistical anomaly

Updated on September 27, 2017 at 12:27 PM, Posted on September 26, 2017 at 1:47 PM



Mackinac Island, or Michigan's go-to destination for fudge and vacation relaxation was the fifth most violent city in the state, ahead of Flint, according to the FBI's 2016 crime statistics released earlier this month.(MLive file photo)

With only eight incidents of violent crime -- six aggravated assaults and two sexual assaults -- reported on the island in 2016, Mackinac Island would rank 343 if the island population is adjusted for tourists, according to the data.

The island ranked 75 in 2015 with only one aggravated assault and one sexual assault, making the crime rate 4.09 per 1,000 residents, according to the FBI's 2015 crime statistics.

In 2014, the island was ranked 13 with five incidents of sexual assault, making the crime rate 10.2 per 1,000 residents.

The FBI itself discourages ranking cities based on violent crime statistics, stating that any comparisons of crime among different locales should take into consideration numerous other factors besides the areas' crime statistics, [according to the FBI website.](#)

Don't assume that data will  
be available



# DATAWORLD



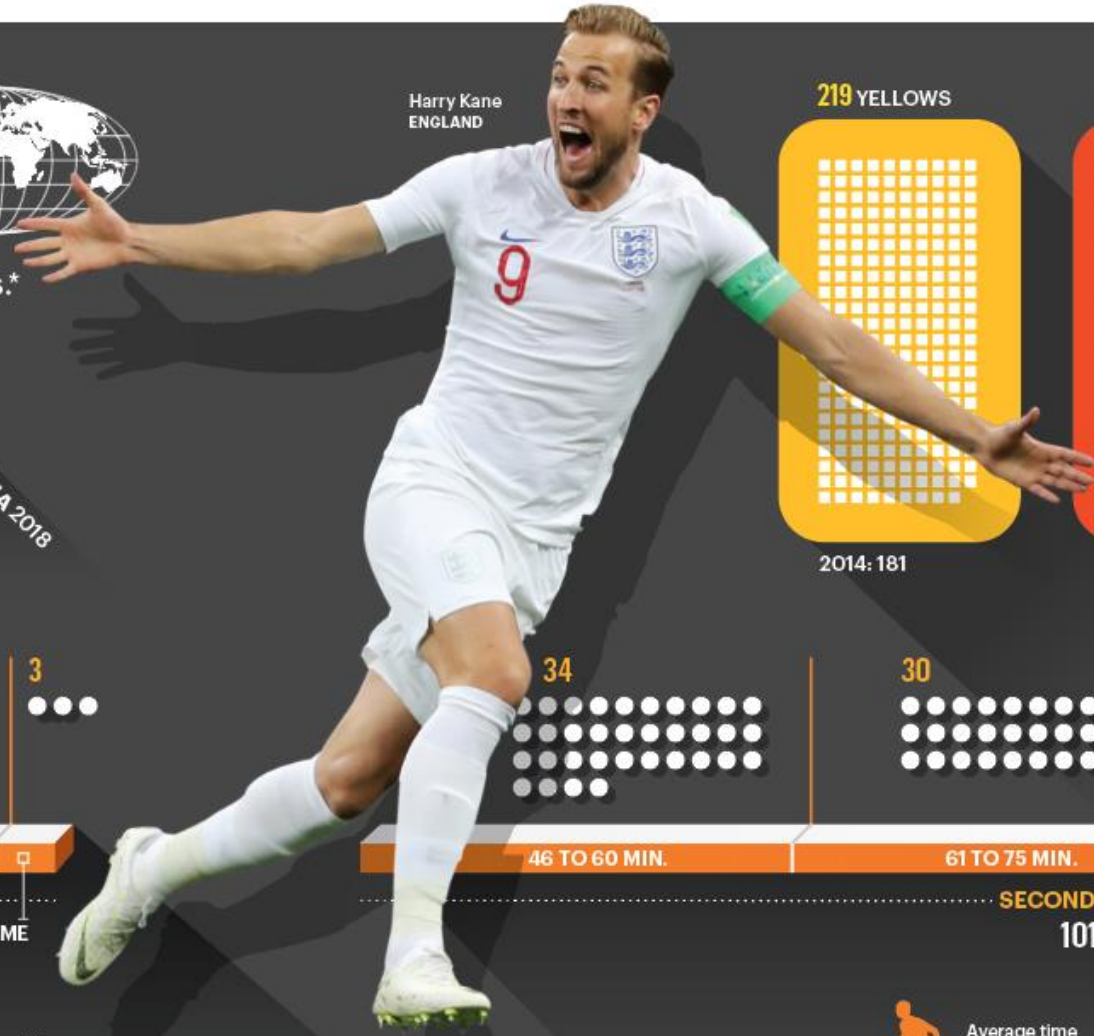
We hacked into the top-secret FIFA servers to reveal the official 2018 World Cup statistics.\*

\*Not really, but it sounds good. Our source is the 2018 FIFA World Cup Technical Report, which was published on October 16.

**169 goals** An average of 2.64 goals per game.

## WHEN THEY WERE SCORED

Dramatic late strikes with time running out were a feature of the tournament.



Harry Kane  
ENGLAND



## Discipline

Well, the Video Assistant Referee was watching.

## VAR

Some people don't love it, but the calls were correct.



Antoine Griezmann  
FRANCE

## TYPE OF PLAY

Record numbers of own goals, penalties, and set pieces.



**The VAR effect**  
There were only 13 penalties awarded in 2014

## WHERE FROM?

145 scored from inside the 18-yard box.



## WHO SCORED THEM?

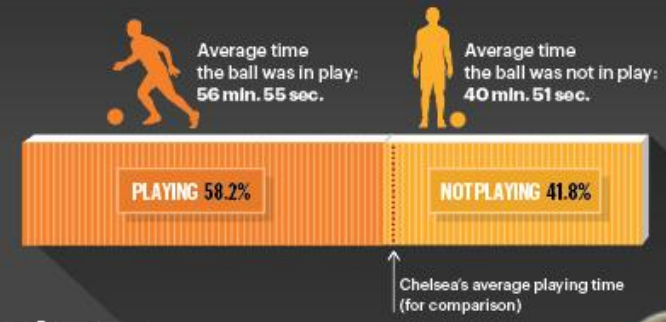
Leading from the front.



## Playing time

How much action did we see?

Chelsea were the best team in the Premier League last season, as far as minutes actually played: **58 min. 31 sec.**



Romelu Lukaku  
BELGIUM

## Record breakers

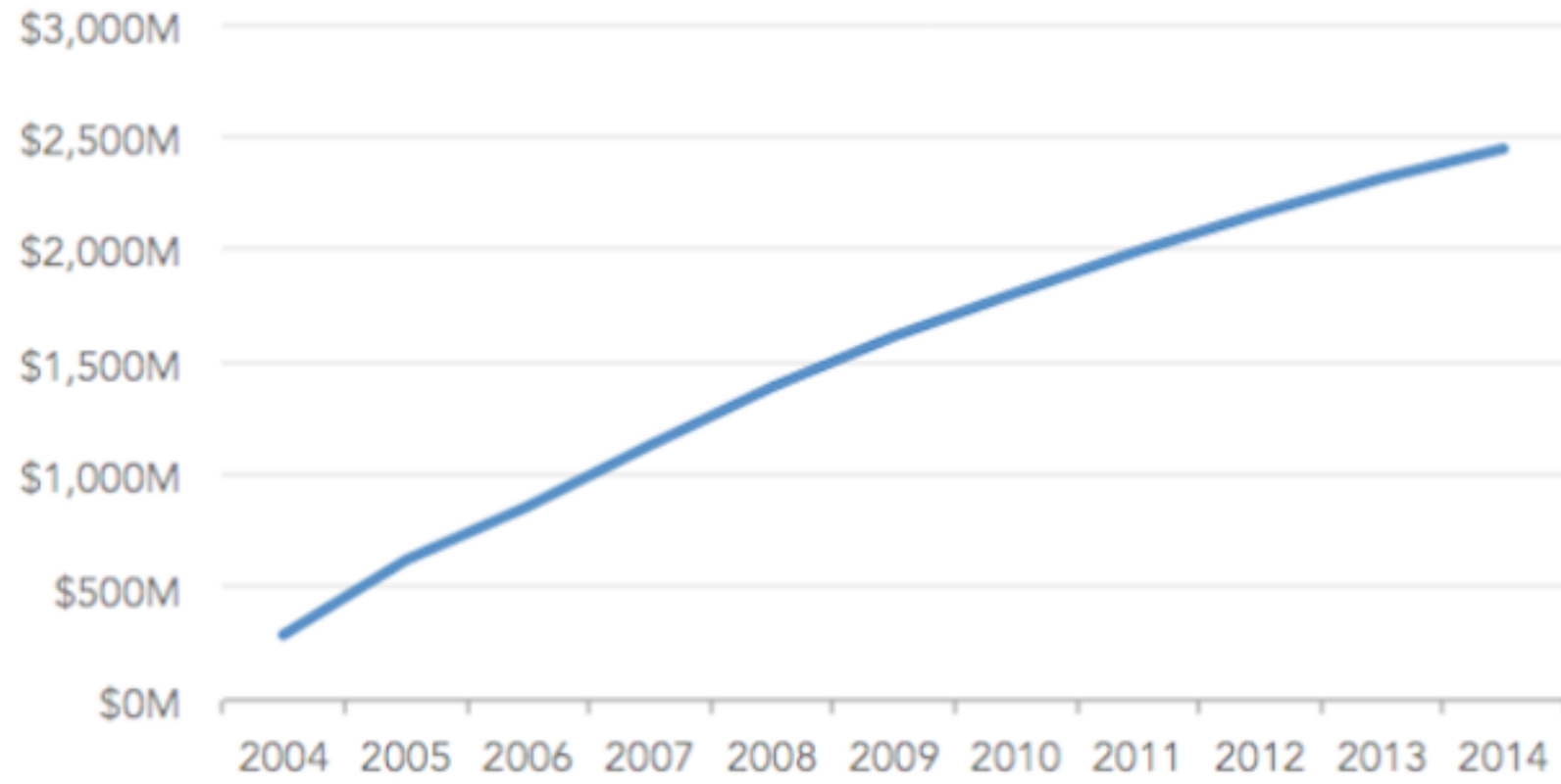
In a World Cup of upsets, the record book was rewritten.

- PASS-O-RAMA**  
Spain made **770** passes against Russia before extra time and lost. It was the most ever in a World Cup game, and **1,114 total** is the most in any game for an international side. Russia's total for the game: 202.
- FASTEST CAUTION**  
A yellow card just **13 seconds** into the game for Jesús Gallardo, Mexico vs. Sweden. (Fastest red card ever: **56 seconds**. José Batista, Uruguay vs. Scotland, 1986.)
- THE RACE TO GET LEVEL**  
Fastest to reach a **1-1** score: **3 minutes 40 seconds**, Denmark vs. Croatia. The game went on for another 125 minutes without a goal, then Croatia won in a penalty shoot-out.
- CHAMPIONS' CURSE**  
Four of the last five champions have gone out in the group stage. And all of the last three have **failed to advance** to the last 16: Germany, Spain, and Italy.
- UNDERDOGS**  
Russia are the lowest-ranked team to reach the World Cup quarterfinals. Their FIFA pre-tournament ranking was **70**. It's now **48**. (in the November 29 list).

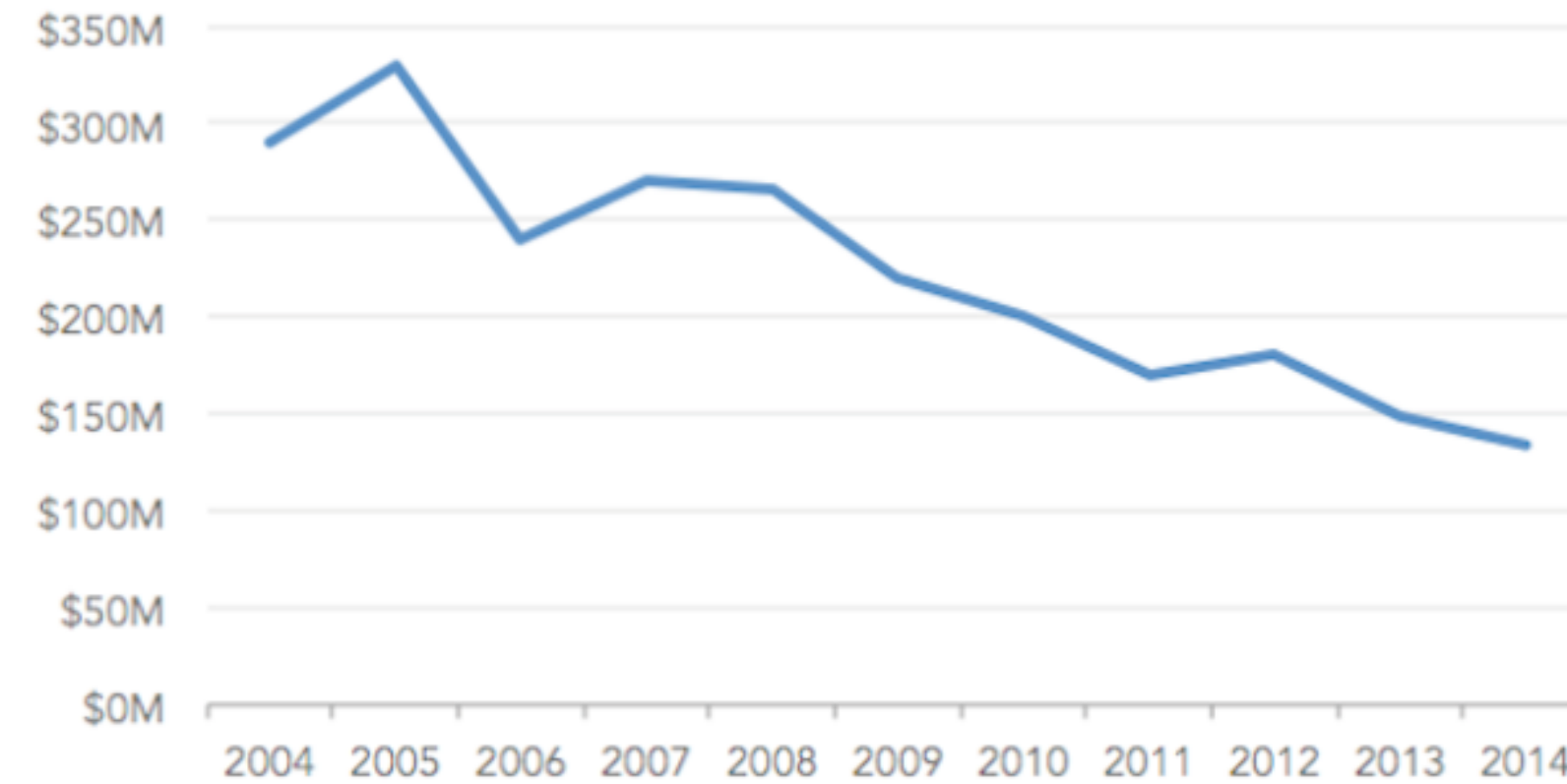
# Data ethics



### Cumulative Annual Revenue



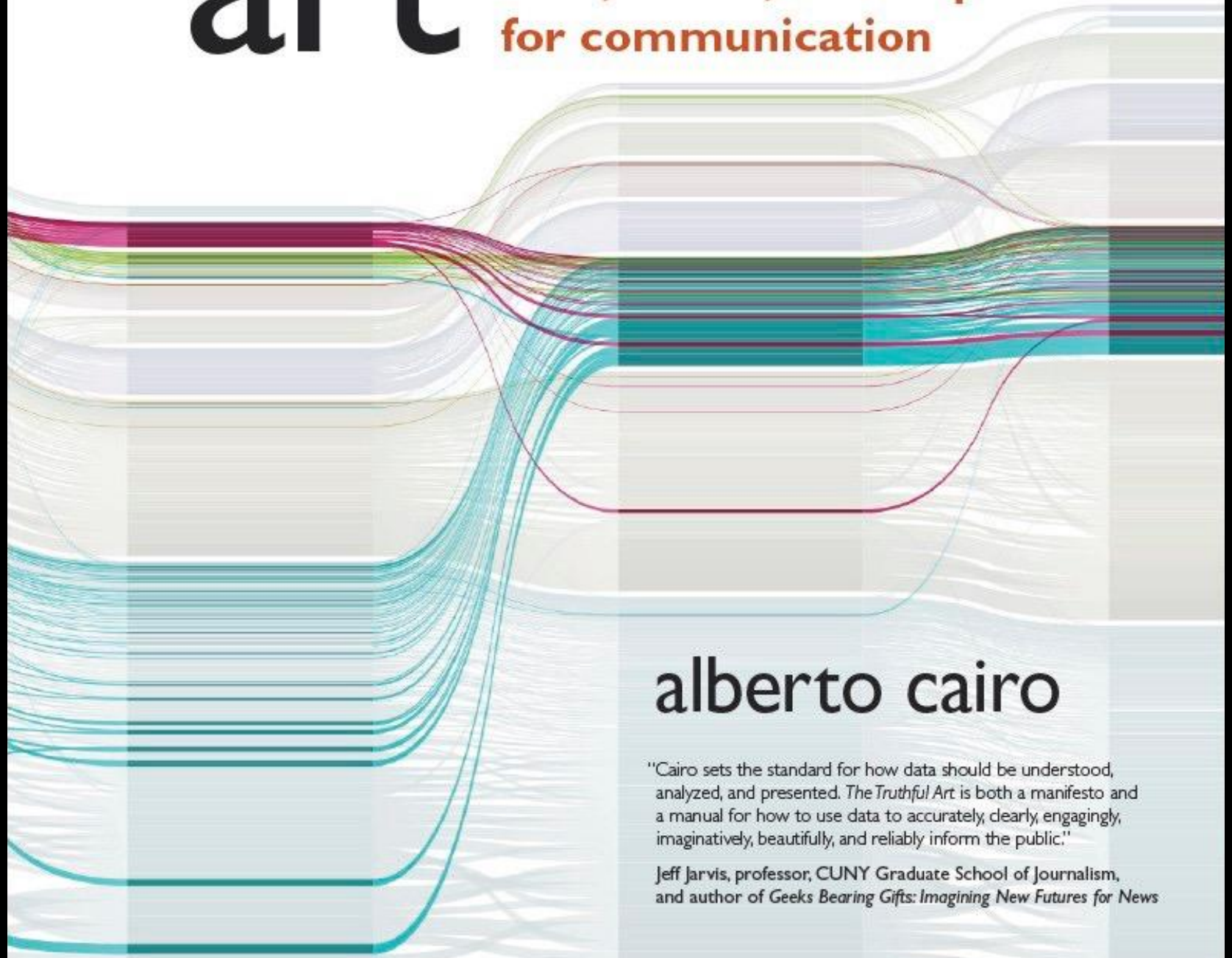
### Annual Revenue





**Outliers**





# the truthful art

data, charts, and maps  
for communication

alberto cairo

"Cairo sets the standard for how data should be understood, analyzed, and presented. *The Truthful Art* is both a manifesto and a manual for how to use data to accurately, clearly, engagingly, imaginatively, beautifully, and reliably inform the public."

Jeff Jarvis, professor, CUNY Graduate School of Journalism,  
and author of *Geeks Bearing Gifts: Imagining New Futures for News*



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Bulletin](#)

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[An Introduction](#)

[Admissions](#)

[Course Abbreviations](#)

[Academic  
Organization and  
Undergraduate  
Requirements](#)

[Undergraduate  
Education](#)

[Academic Units](#)

[Academic Policies  
and Procedures](#)

[Student Affairs](#)

[Facilities and  
Services](#)

[Finances and  
Financial Aid](#)

[UNC-Chapel Hill  
Regulations and  
Policies](#)

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Constituent  
Institutions](#)

[Campus Map](#)

[Appendix](#)

[Return to Front Page](#)

## 2015-2016 Undergraduate Bulletin

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### Department of Geography

[geography.unc.edu](http://geography.unc.edu)

205 Saunders Hall, CB# 3220; (919) 962-8901

MICHAEL E. EMCH, *Chair*

#### Introduction

Geography is an integrative discipline that seeks to understand the evolving character, spatial organization, and complexities of the earth and its inhabitants including feedbacks between "natural" and "social" systems. Within this broad vision, geographers study many issues, including the geographic manifestations of cultural, social, economic, and political processes; the geography and dynamics of the earth's environmental systems; and geographic information analysis and visualization. Across these domains, geographic work is often fundamentally tied to the analysis of data collected in the field.

Human geographers study the spatial aspects of human existence: how people and their activities are distributed across the globe, how humans use, produce, and perceive space, place, regions, and landscapes, and how they create, transform, and sustain the character of places. Environmental geography is rooted in a systems approach to the dynamics within, and interactions between, the atmosphere, hydrosphere, biosphere, and lithosphere, and how these produce geographic patterns in vegetation, biological communities, weather and climate, landforms, soils, and resource availability. Geography also has been at the forefront in the development and application of satellite remote sensing, geographic information systems, and other spatial data, analysis, and visualization approaches for understanding human and environmental systems.

Geographers find careers in numerous government agencies; nongovernmental organizations working on social, health, and environmental issues; private and public sector work in energy, transportation, economics, development, and tourism; urban and regional planning; research and education; community development; resource management; and private, public, and research careers in environmental inventory, monitoring, modeling.

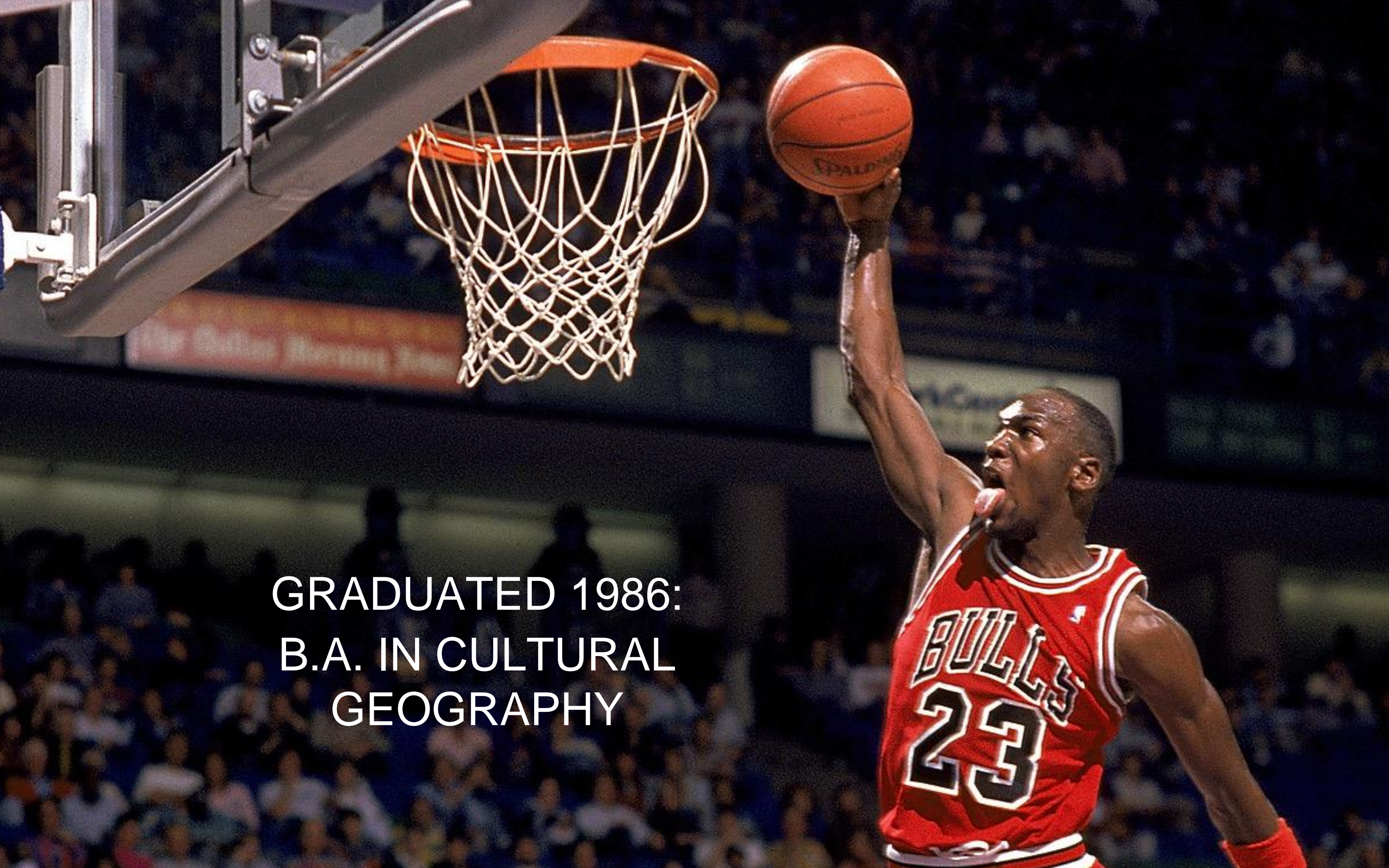
#### Geography Major, B.A.

##### Core Requirements

- GEOG 110 or 111
- GEOG 120, 121, or 130
- GEOG 370, 391, 392, and 697
- Four additional courses, at least three of which must be at the 400-level or above. These may

GEOGRAPHY DEPT.  
HIGHEST SALARY  
FOR GRADUATES





GRADUATED 1986:  
B.A. IN CULTURAL  
GEOGRAPHY

# 20 SALARIES



- 25,000
- 25,000
- 30,000
- 30,000
- 30,000
- 35,000
- 35,000
- 40,000
- 40,000
- 45,000
- 50,000
- 50,000
- 60,000
- 65,000
- 70,000
- 75,000
- 80,000
- 90,000
- 100,000
- 100,000,000

**MEDIAN**

**\$47,500**



**AVERAGE (MEAN)**

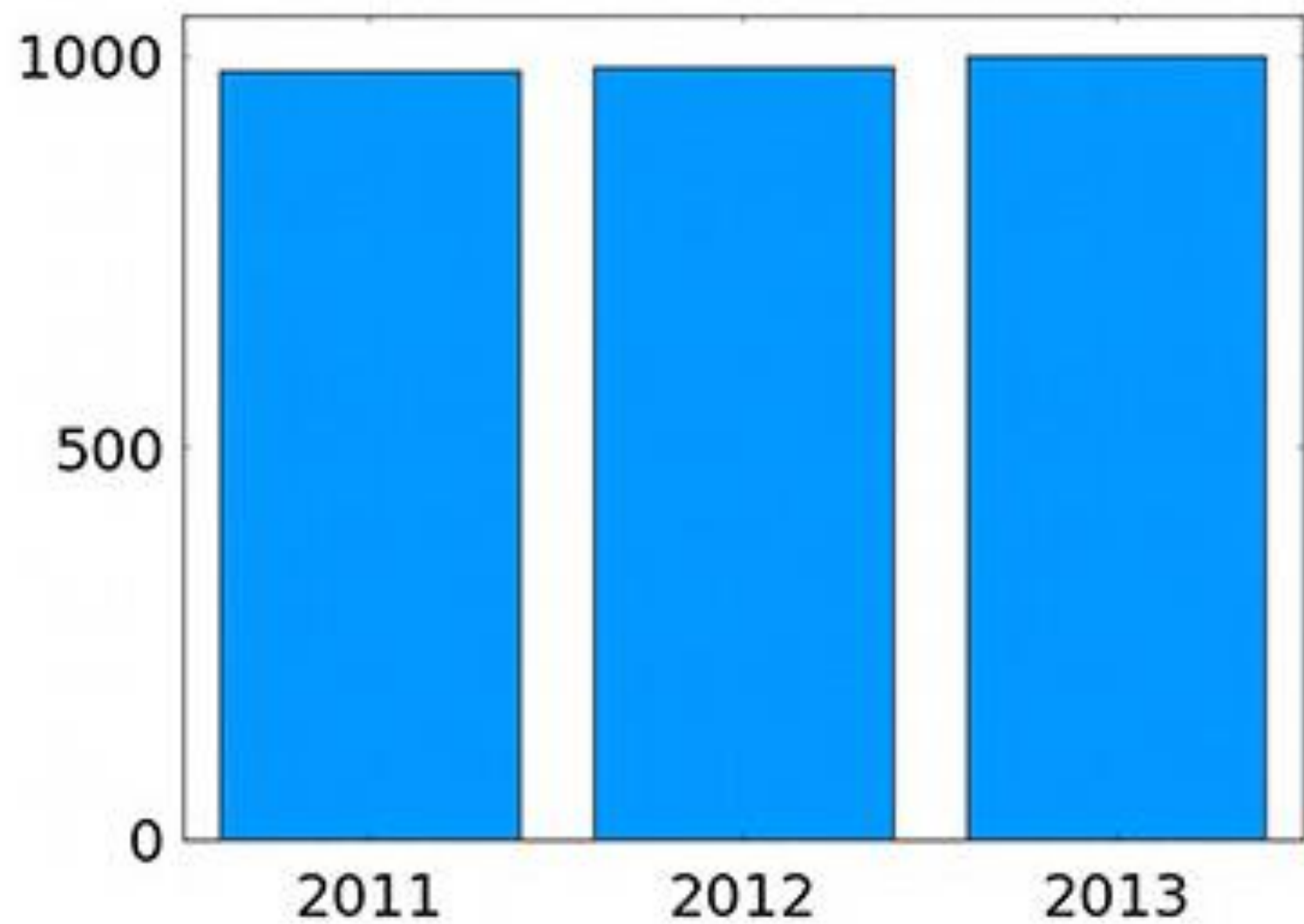
**\$5,048,750**



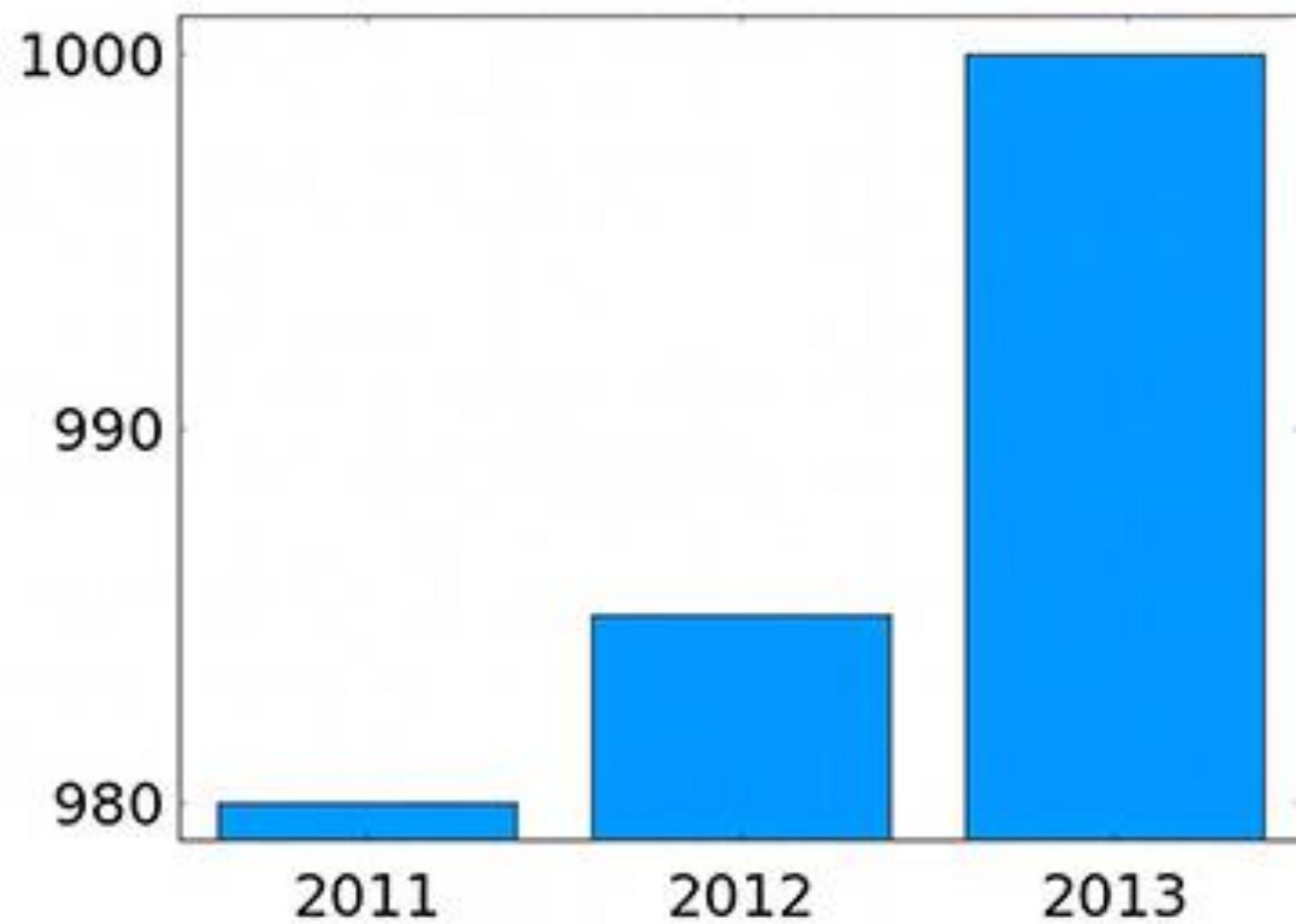


# The Y-axis

Number of fraudulent data visualizations is stable

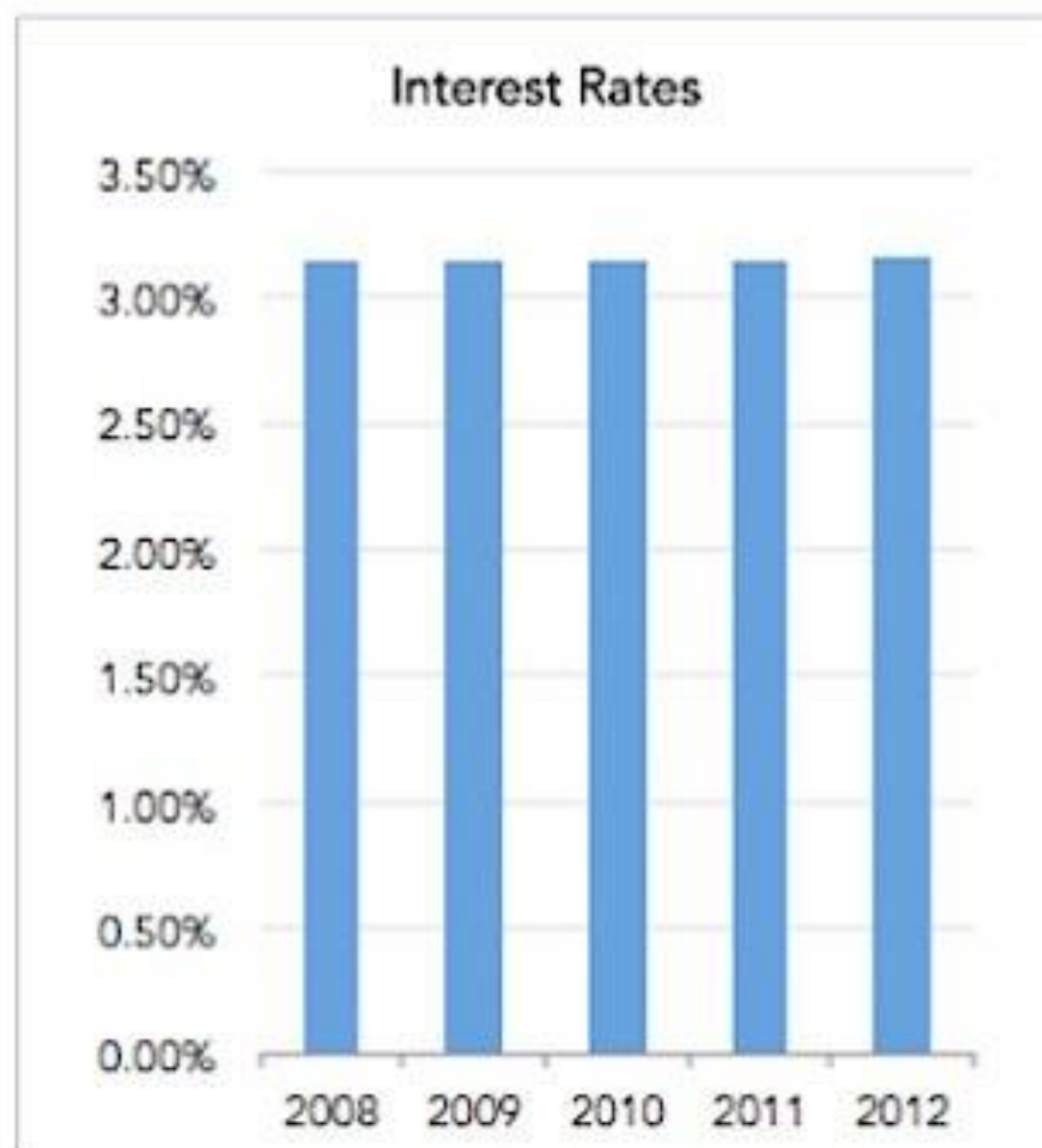
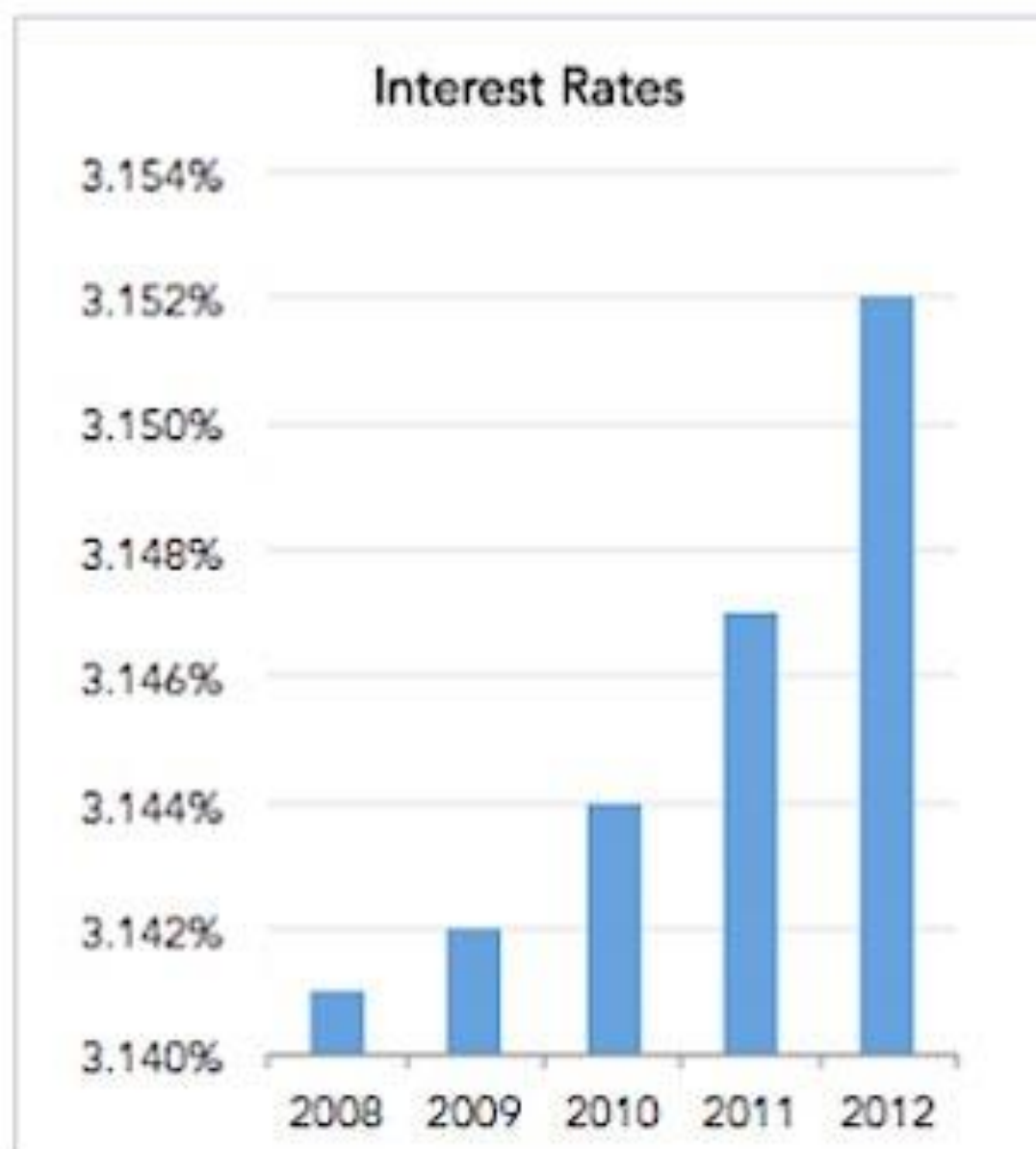


Number of fraudulent data visualizations is skyrocketing!

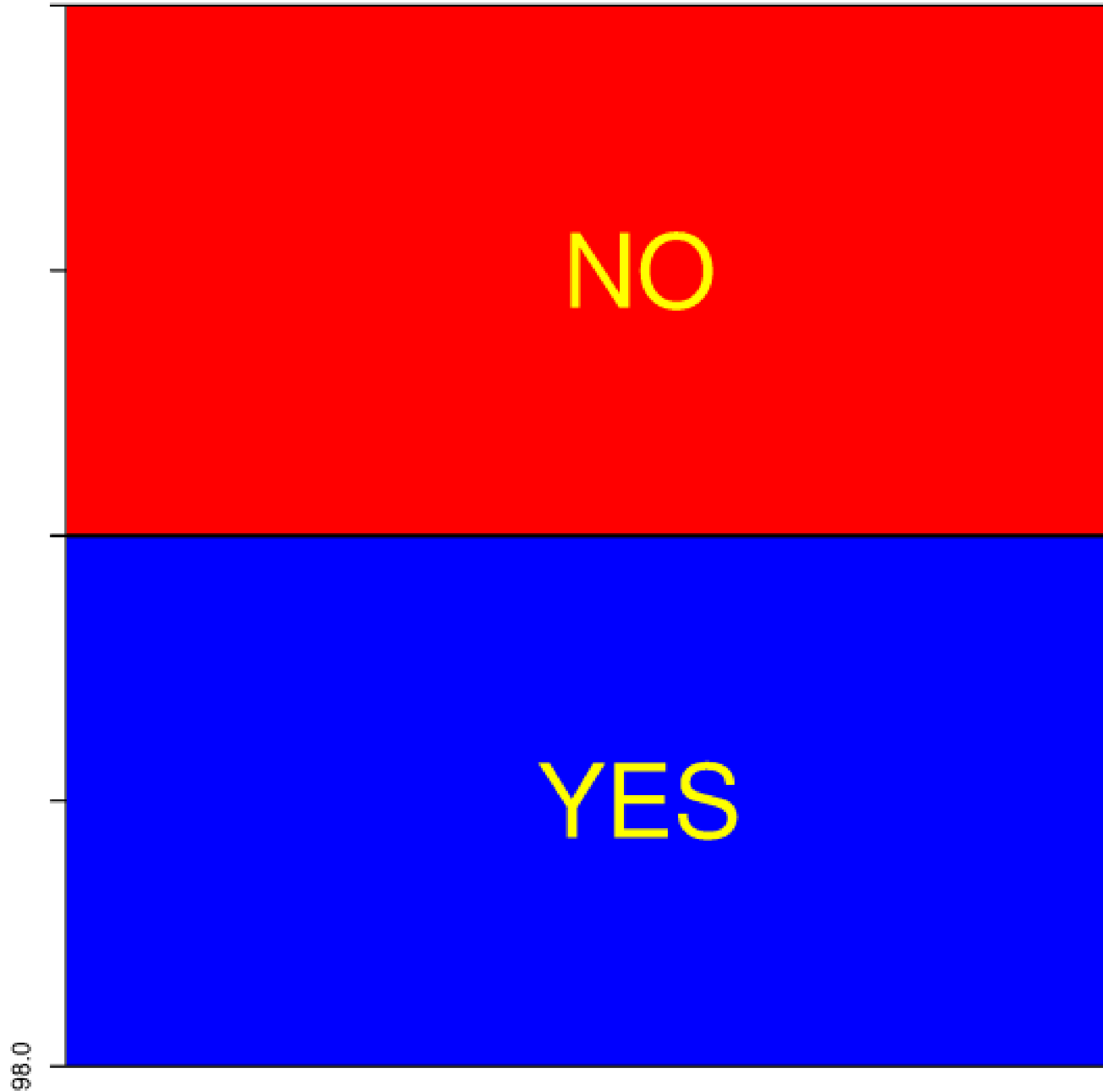




## Same Data, Different Y-Axis



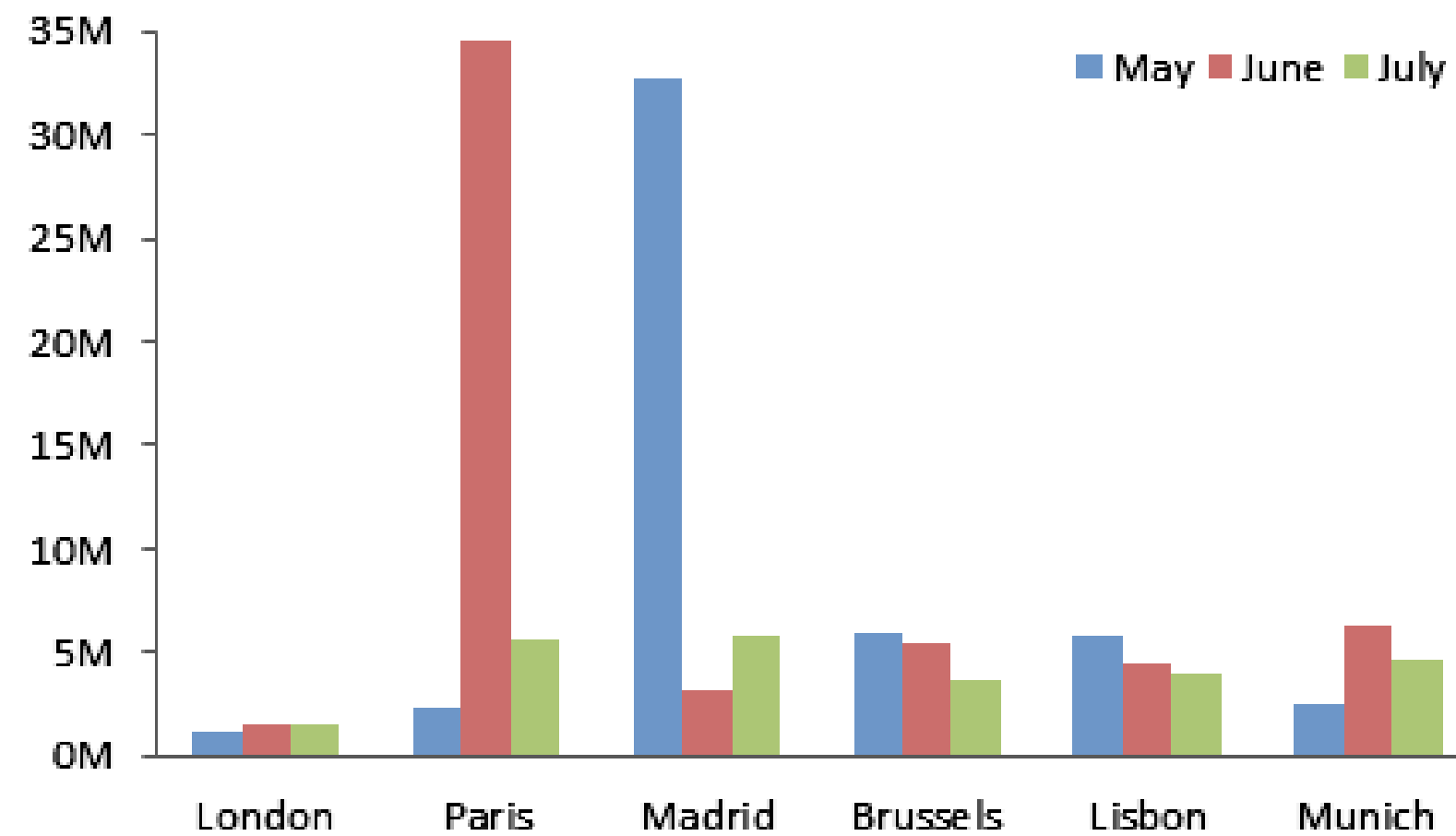
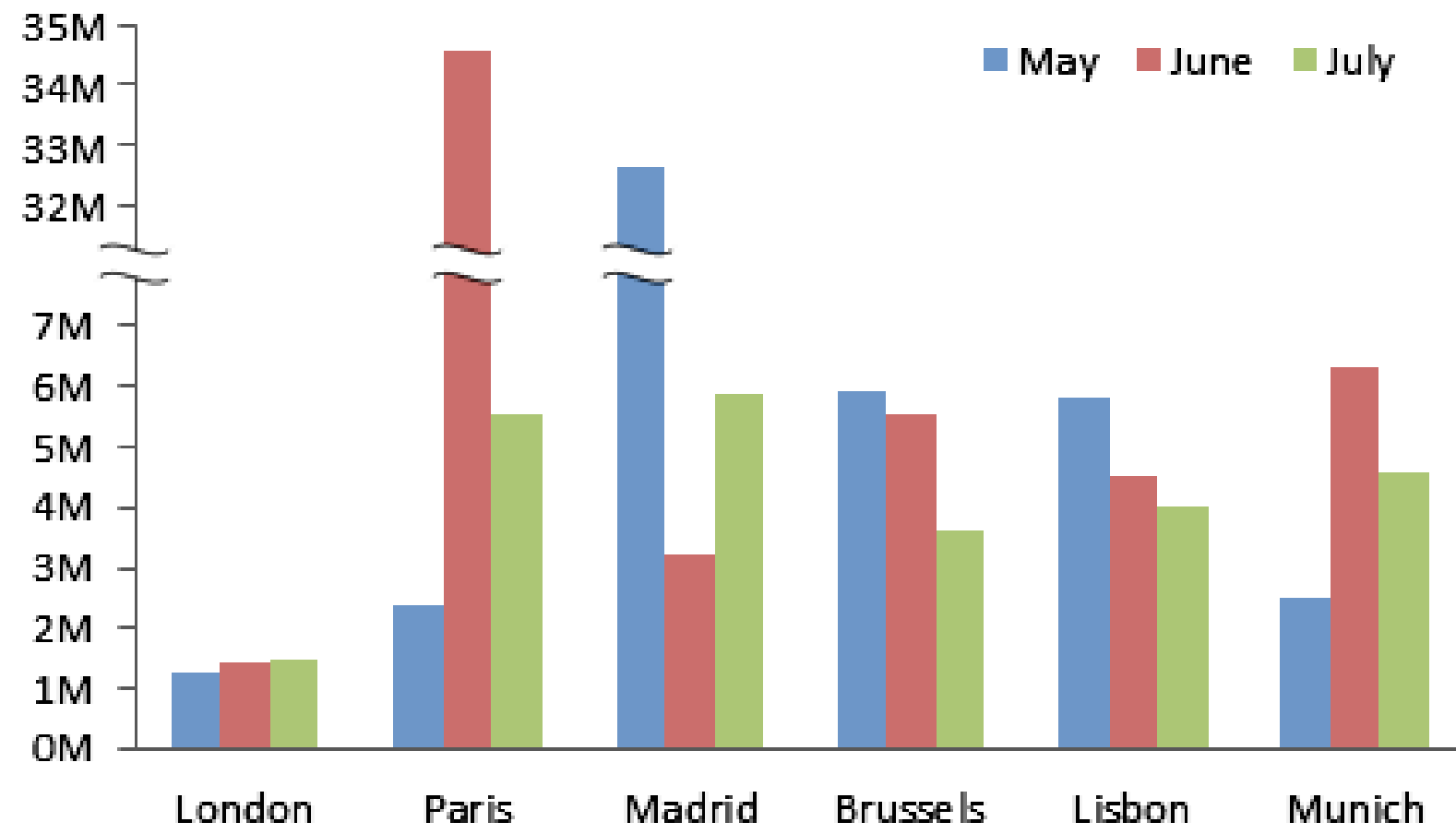
IS CUTTING OFF THE Y-AXIS MISLEADING?



YES

NO



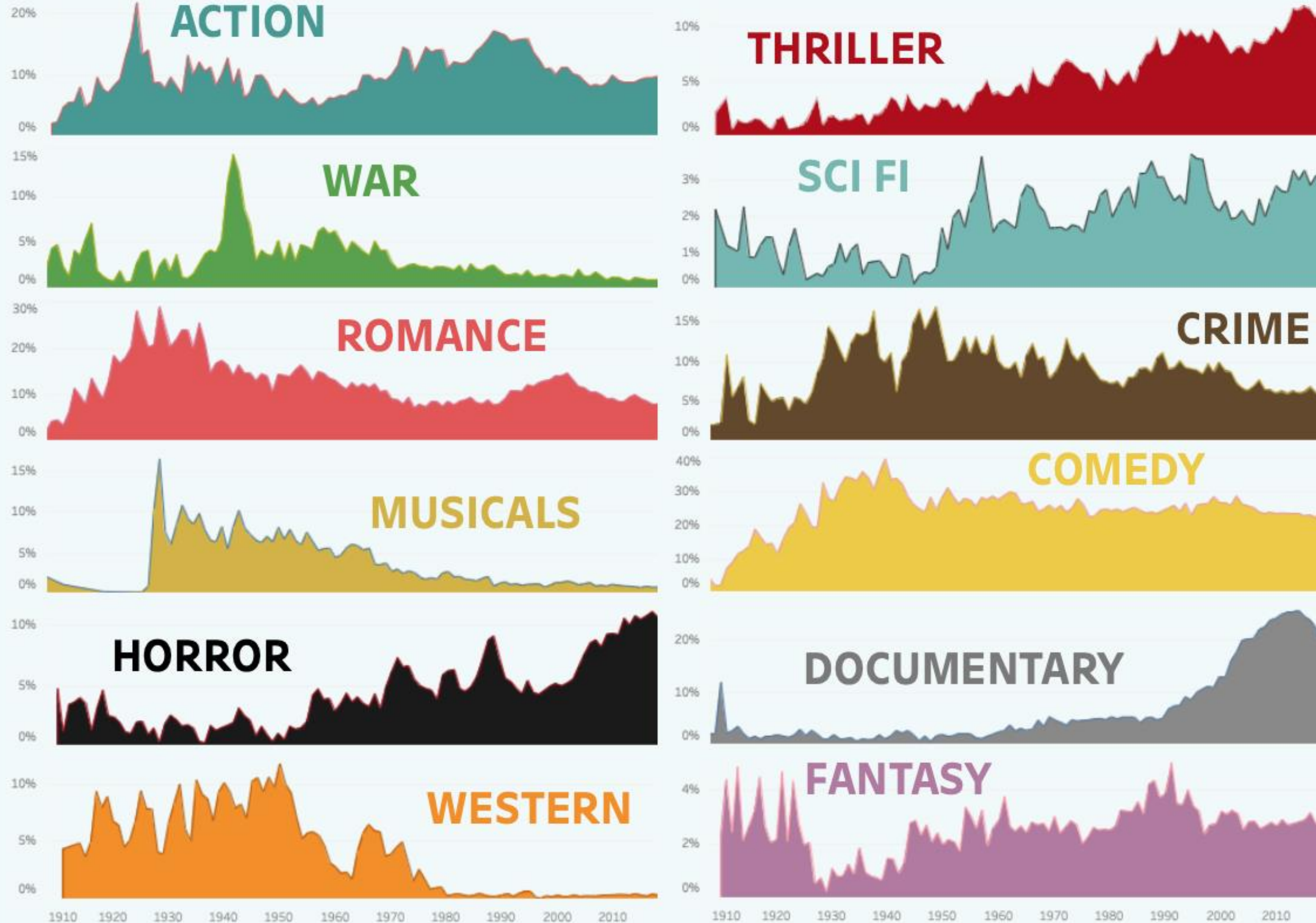


# FILM GENRE POPULARITY 1910-2018

CLICK TO  
STANDARDIZE  
AXIS RANGE

BO MCCREADY  @BOKNOWSDATA

This graphic shows film genre popularity over time, represented as the percentage of all films released that year with the specified genre tagged on IMDB. Each genre has a different axis range, so these lines show popularity relative to other years, not necessarily relative to other genres.

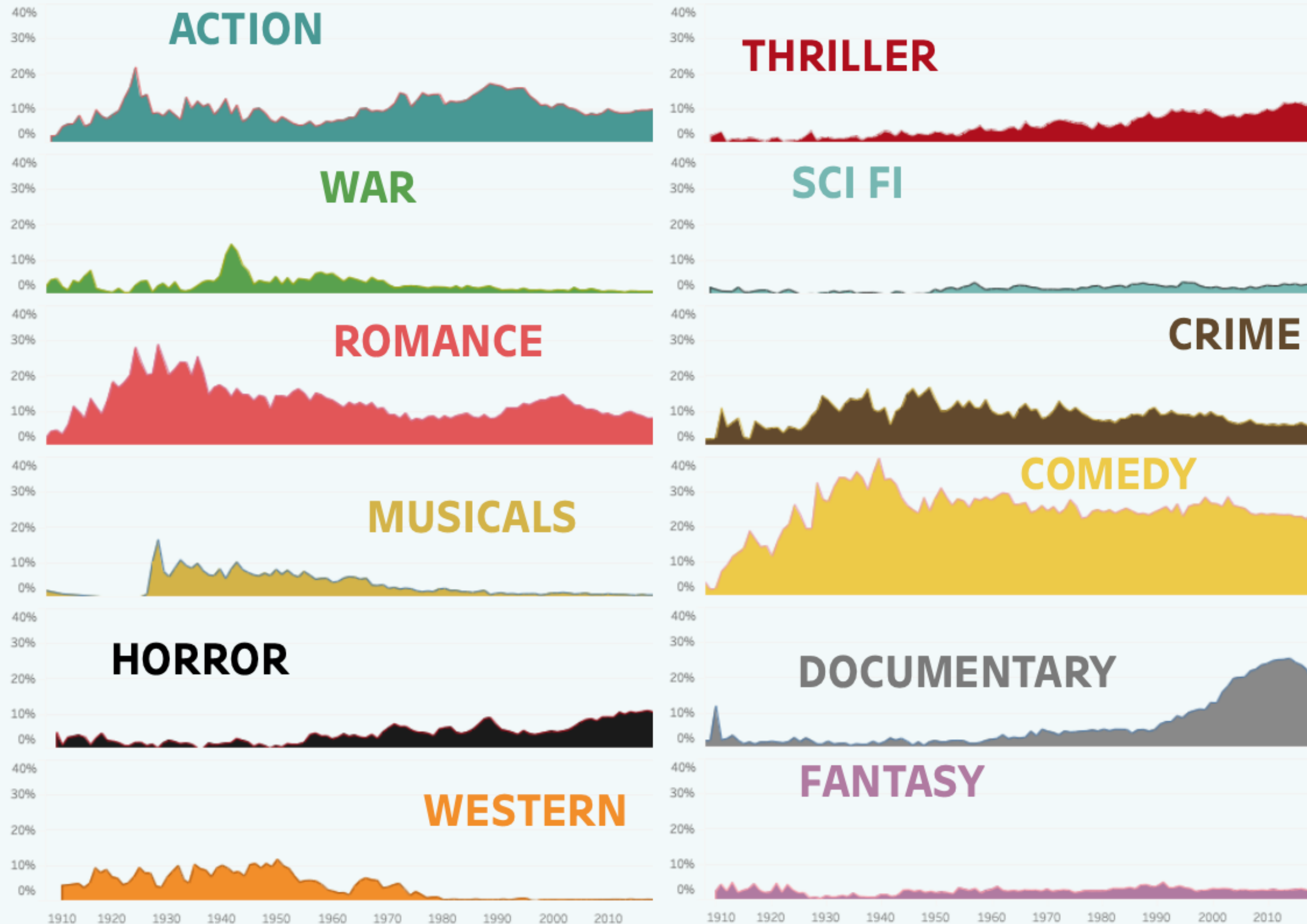


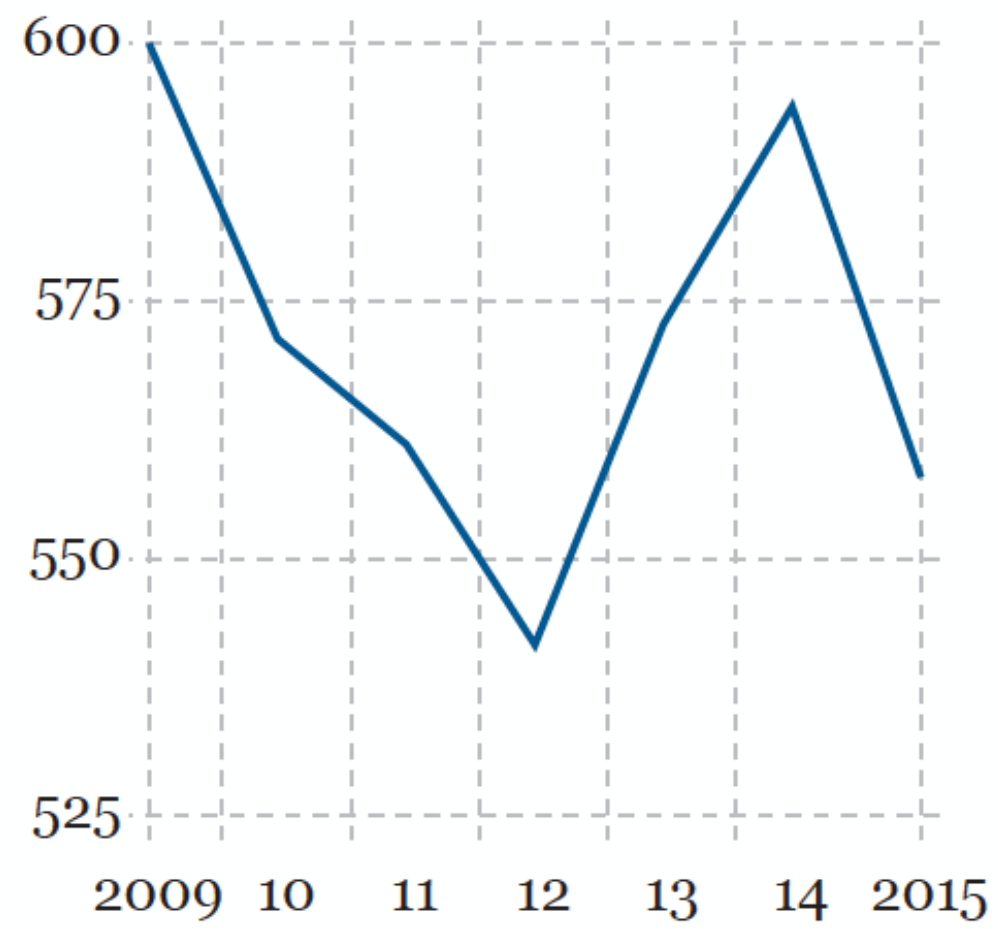
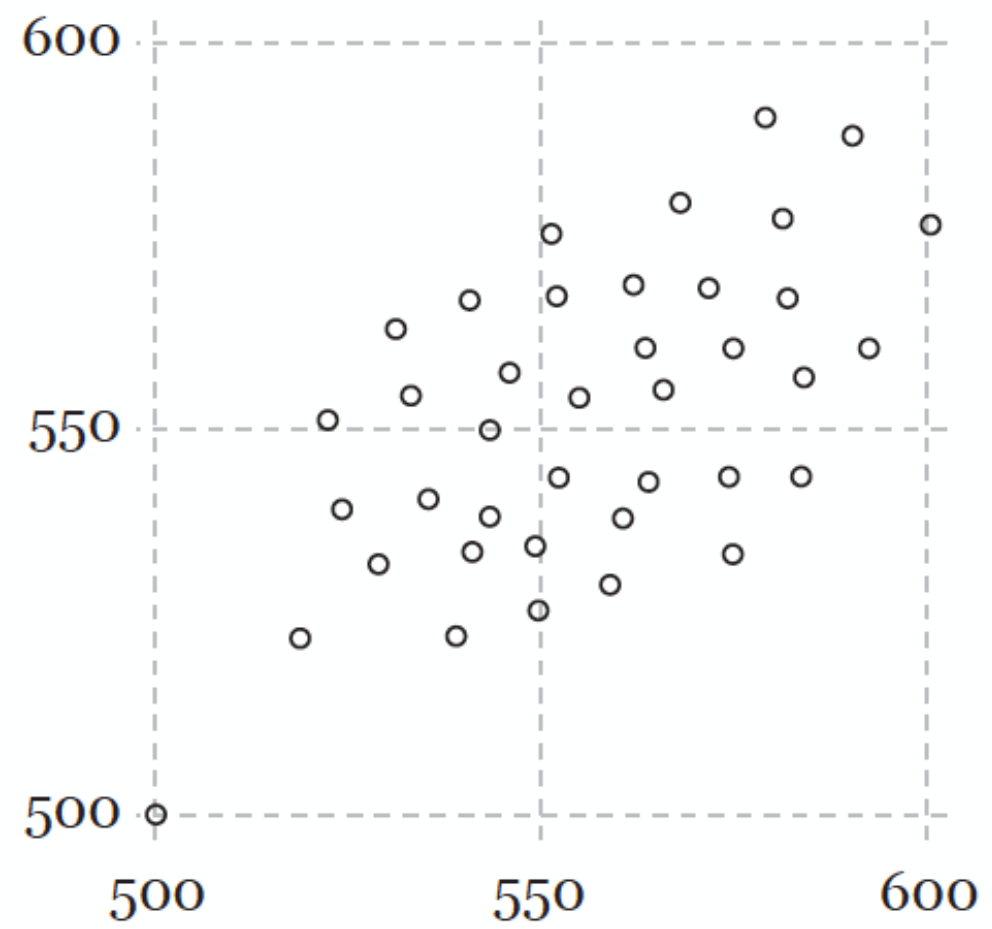
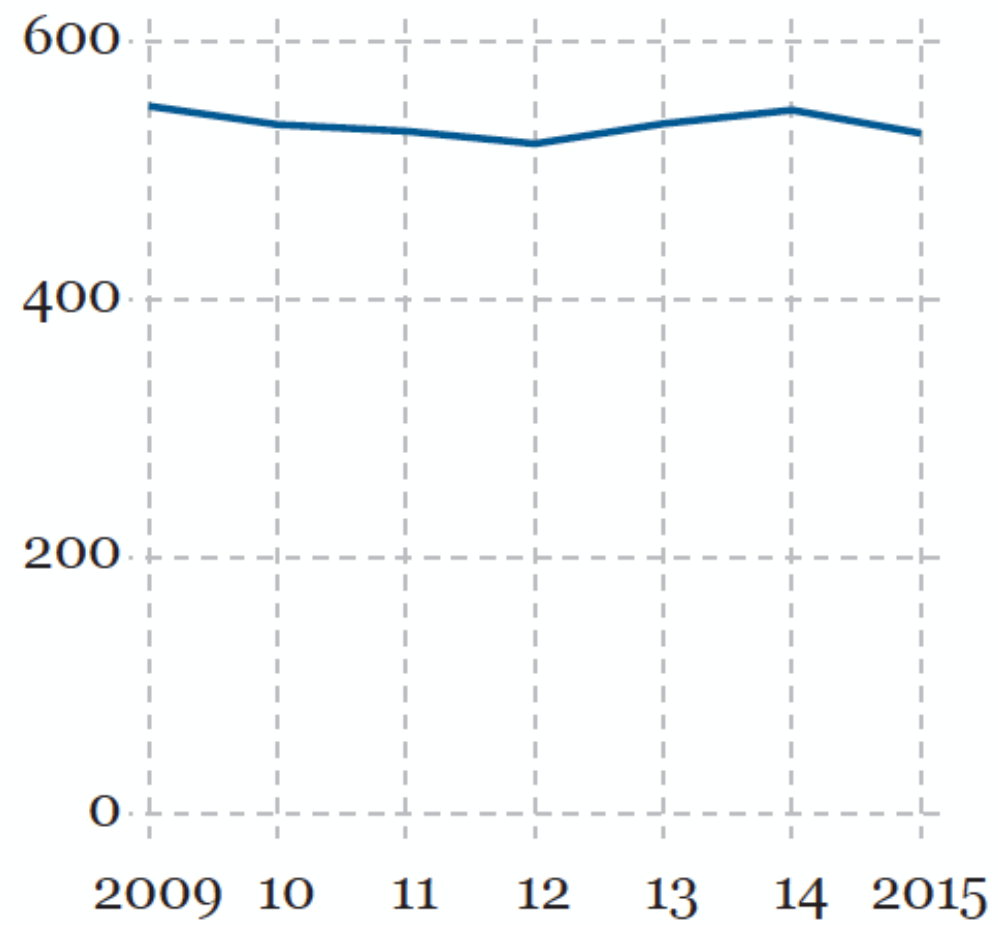
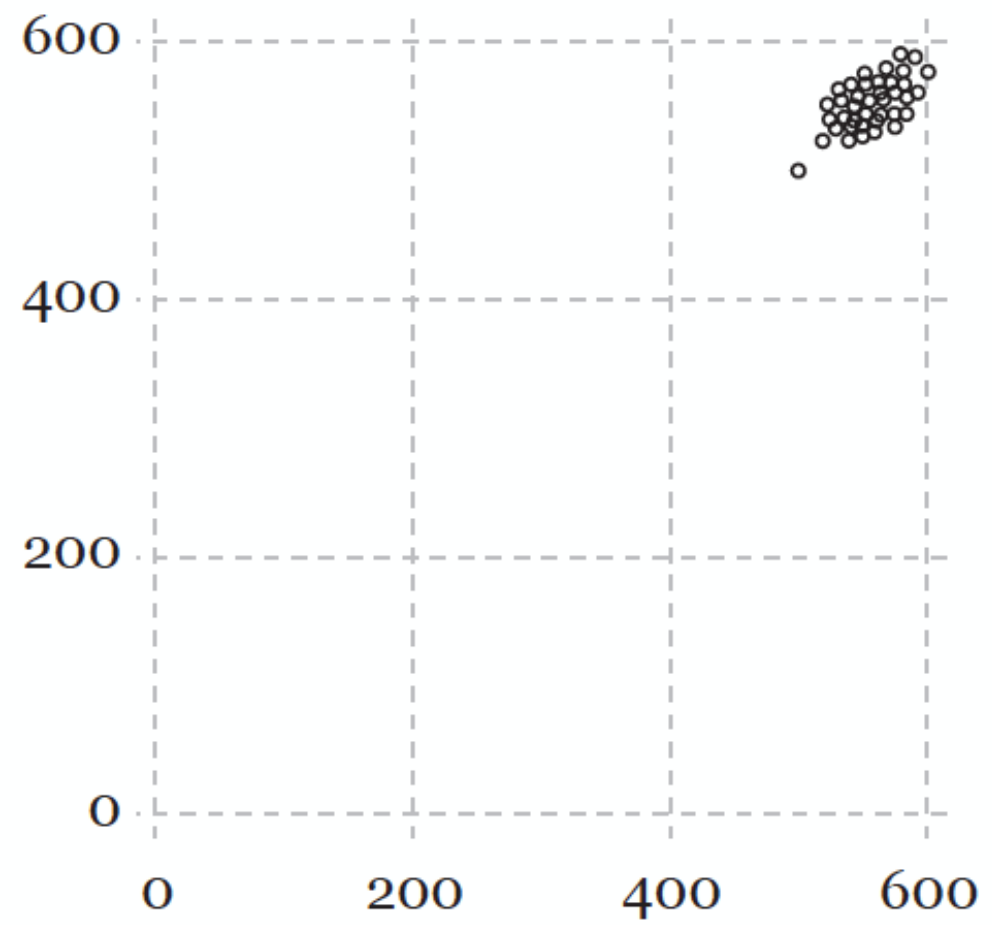
# FILM GENRE POPULARITY 1910-2018

CLICK TO  
VARY  
AXIS RANGE

BO MCCREADY  @BOKNOWSDATA

This graphic shows film genre popularity over time, represented as the percentage of all films released that year with the specified genre tagged on IMDB. Each genre has the same axis range, from 0-40%.

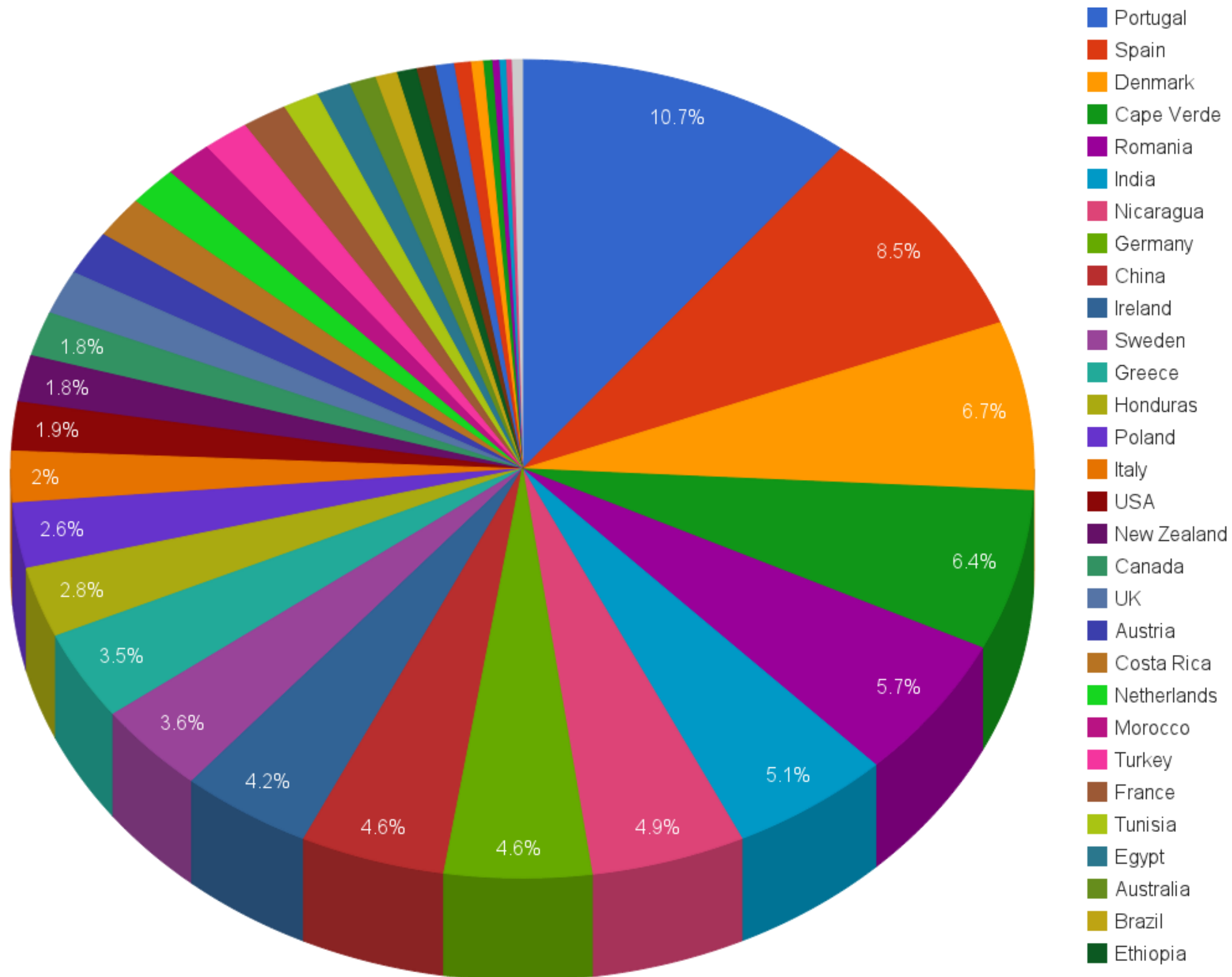






**Color**



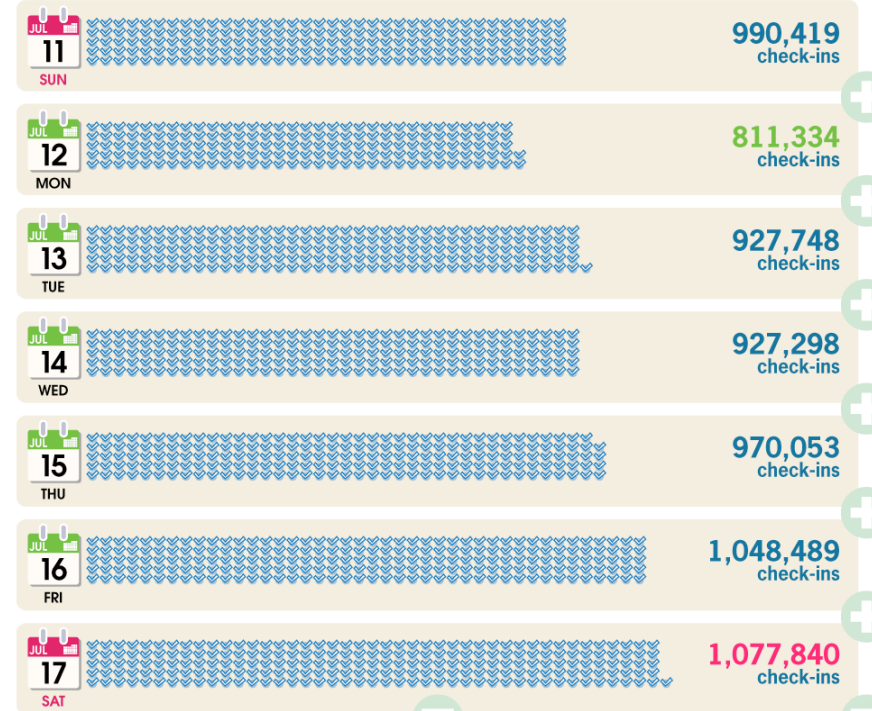


# Foursquare Check-ins

Copyright © 2010 Wiredset/Trendrr. All rights reserved.

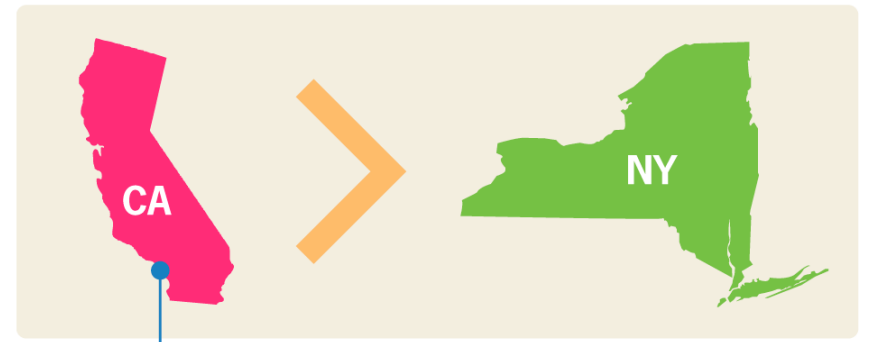
Sunday July 11, 2010 through Saturday July 17, 2010

5,000 check-ins



Approximately **952,000** daily check-ins per average day

Approximately **6.66 million** total check-ins



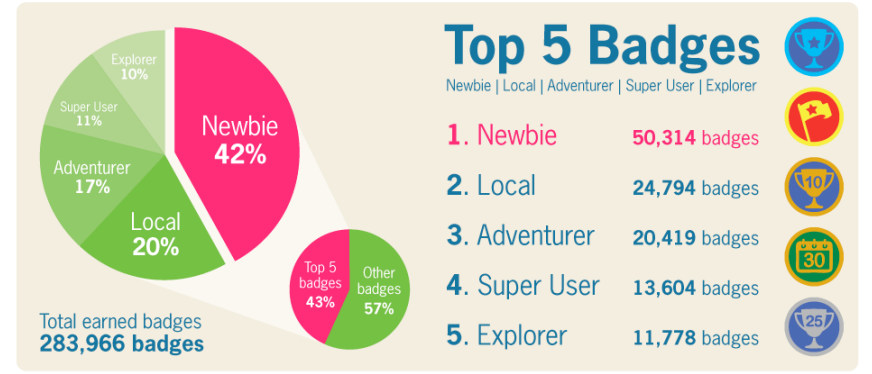
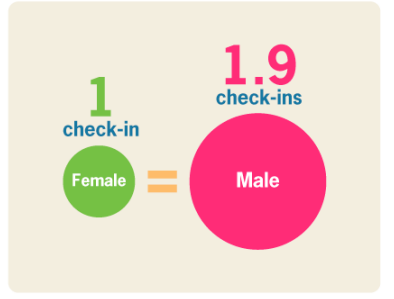
The city that had the largest amount of check-ins

**Los Angeles, CA**

On an average day...

The most check-ins @ **08:00 PM**

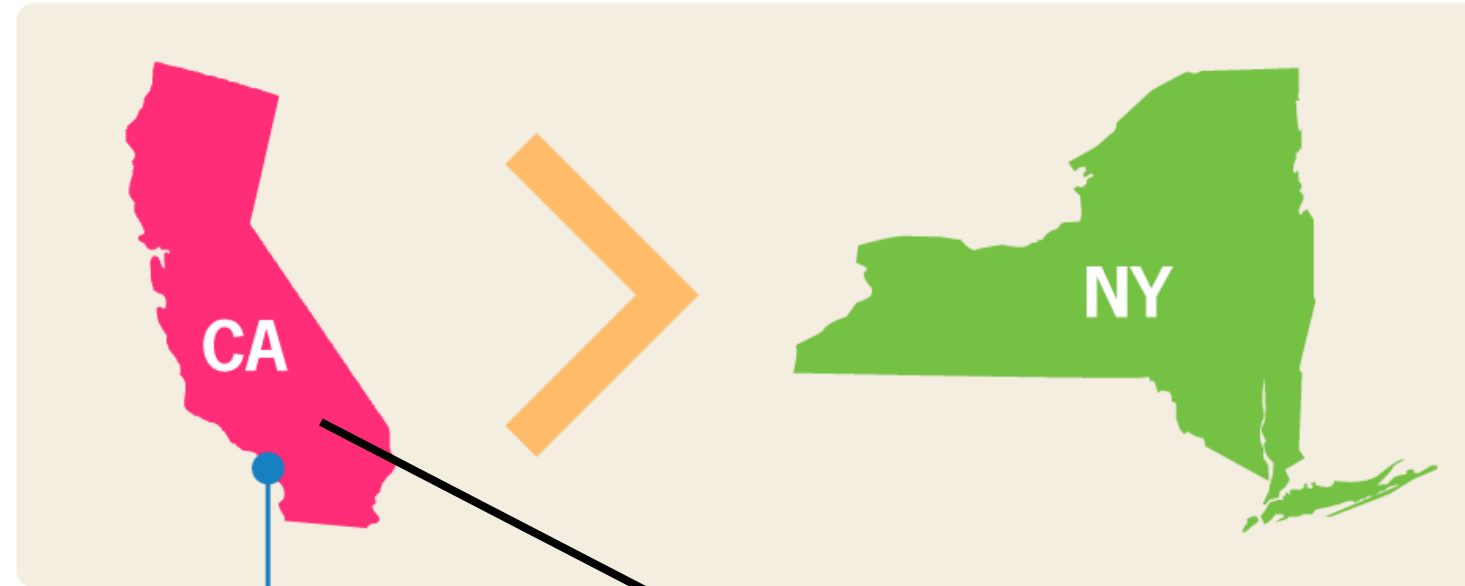
The least check-ins @ **04:00 AM**



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Approximately  
**952,000**  
daily check-ins per average day

Approximately  
**6.66 million**  
total check-ins



The city that had the largest amount of check-ins

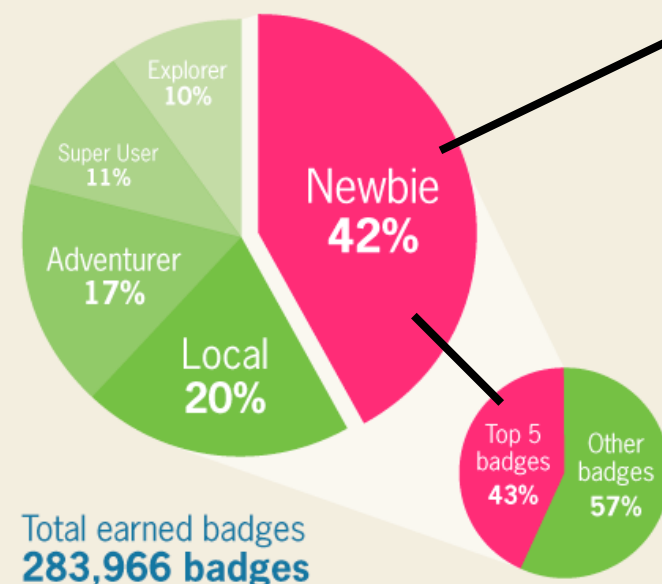
**Los Angeles, CA**

On an average day...

The **most** check-ins @ **08:00 PM**

The **least** check-ins @ **04:00 AM**

**1** check-in  
Female = **1.9** check-ins  
Male



Total earned badges  
**283,966 badges**

## Top 5 Badges

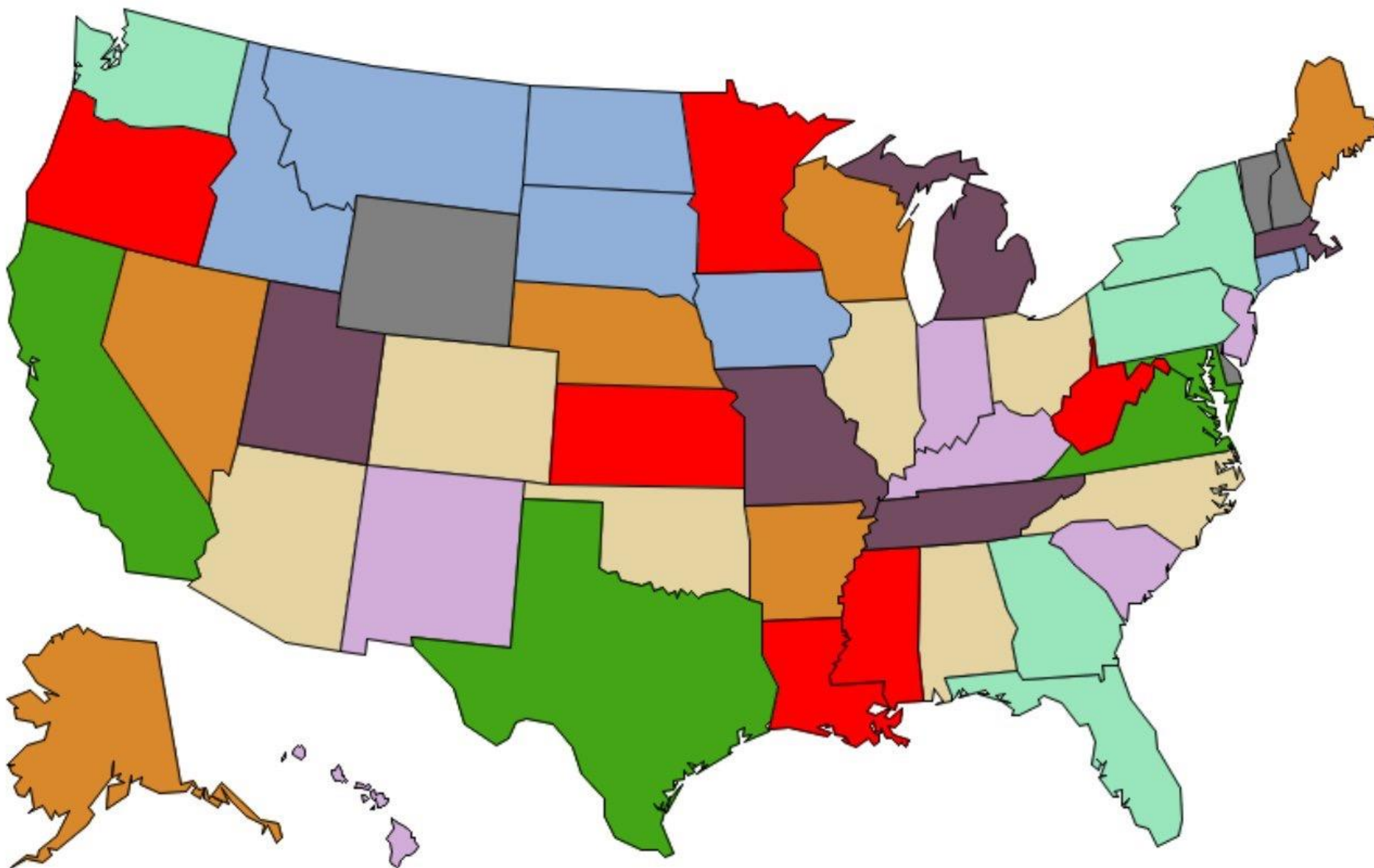
Newbie | Local | Adventurer | Super User | Explorer

- 1. Newbie** 50,314 badges
- 2. Local** 24,794 badges
- 3. Adventurer** 20,419 badges
- 4. Super User** 13,604 badges
- 5. Explorer** 11,778 badges



# U.S. MAP

## Non-Seasonal Full-Time Permanent (NSFTP) Employees



NSFTP Employee Ranges

0 - 5,000

15,001 - 20,000

35,001 - 50,000

5,001 - 10,000

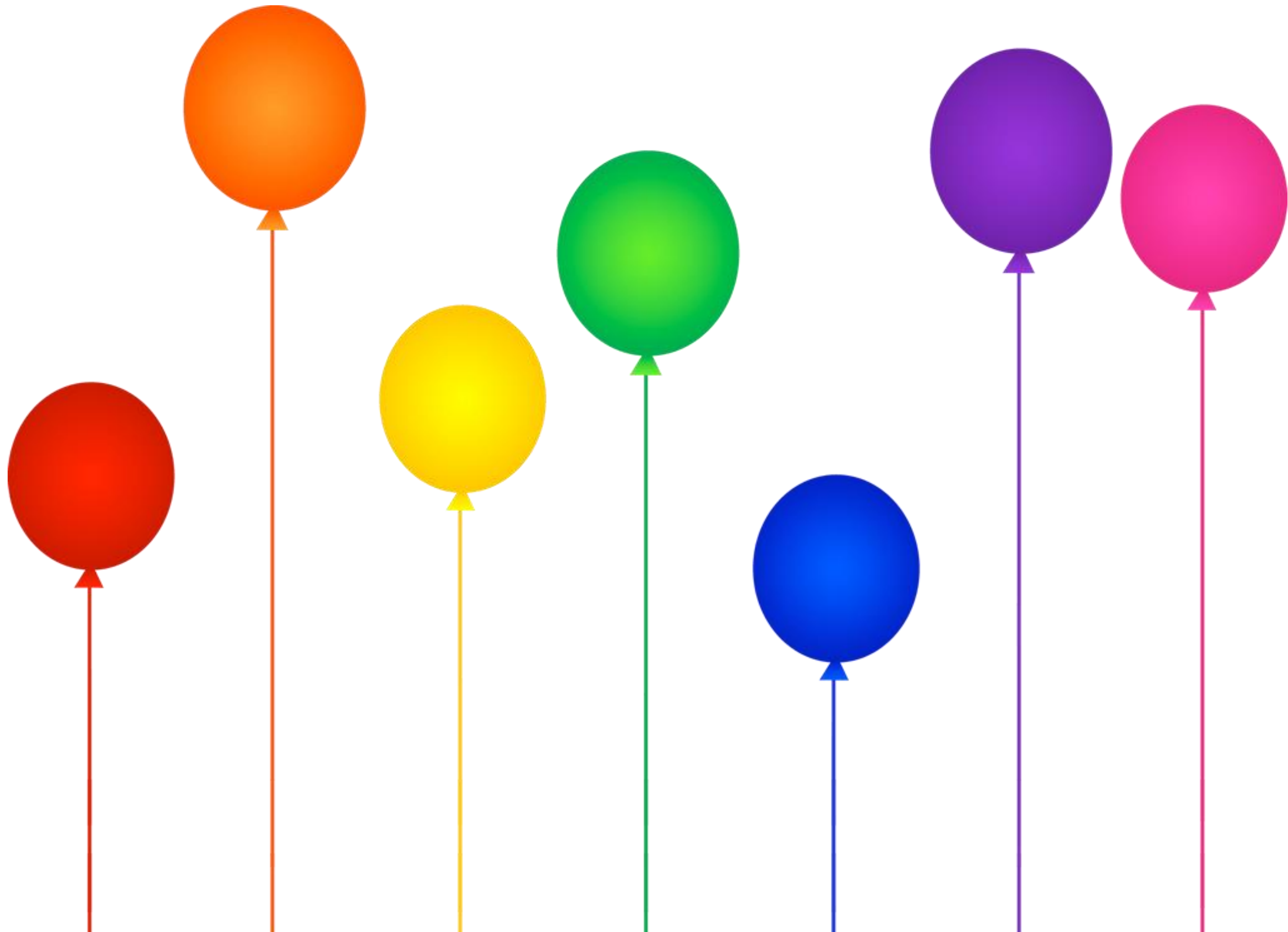
20,001 - 25,000

50,001 - 100,000

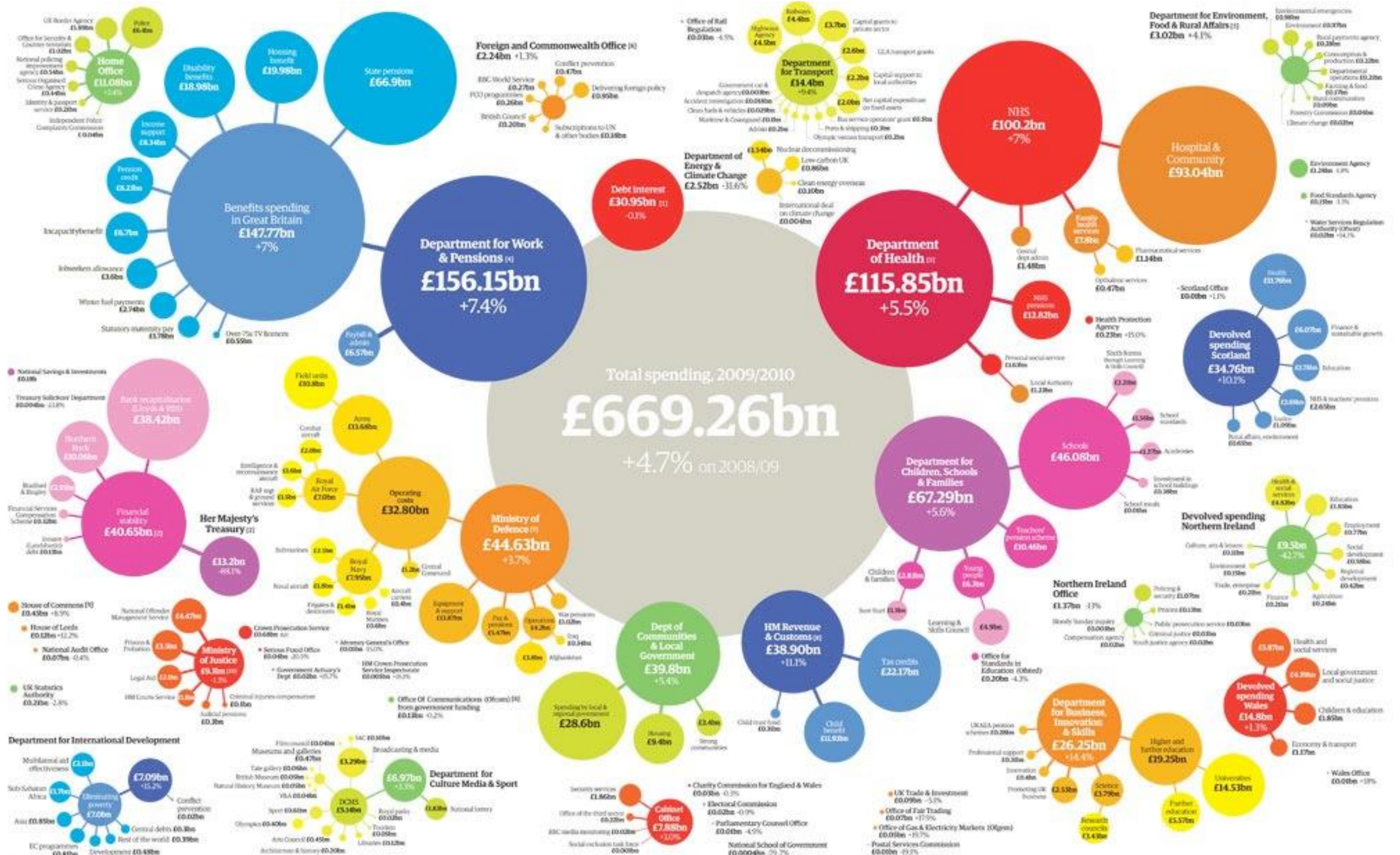
10,001 - 15,000

25,001 - 35,000

OVER 100,000



Total spending, 2009/2010  
**£669.26bn**  
 +4.7% on 2008/09



**NOTES**

1. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

2. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

3. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

4. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

5. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

6. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

7. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

8. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

9. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.

10. Figures are in £ billions unless otherwise stated. All figures are rounded to the nearest £100 million.



**Which chart?**

[johngrimwade.com/iedc](http://johngrimwade.com/iedc)

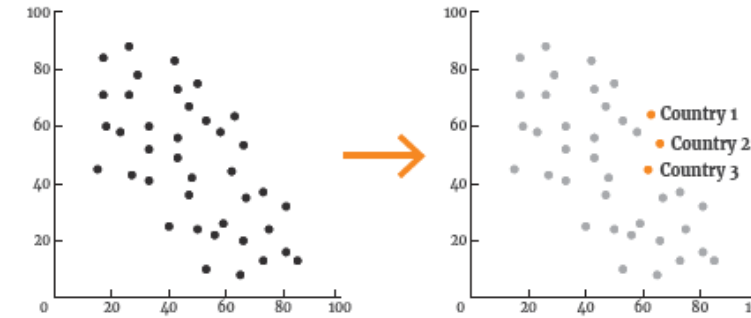




# Core Principles of Data Visualization

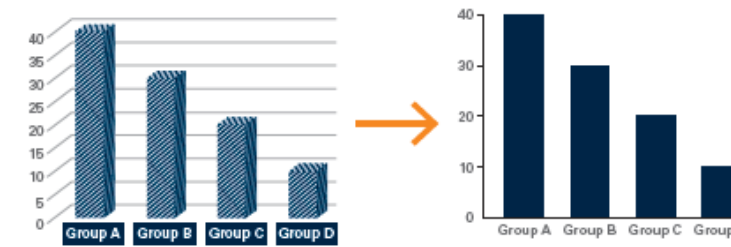
## Show the data

People read graphs in a research report, article, or blog to understand the story being told. The data is the most important part of the graph and should be presented in the clearest way possible. But that does not mean that all of the data must be shown—indeed, many graphs show too much.



## Reduce the clutter

Chart clutter, those unnecessary or distracting visual elements, will tend to reduce effectiveness. Clutter comes in the form of dark or heavy gridlines; unnecessary tick marks, labels, or text; unnecessary icons or pictures; ornamental shading and gradients; and unnecessary dimensions. Too often graphs use textured or filled gradients.

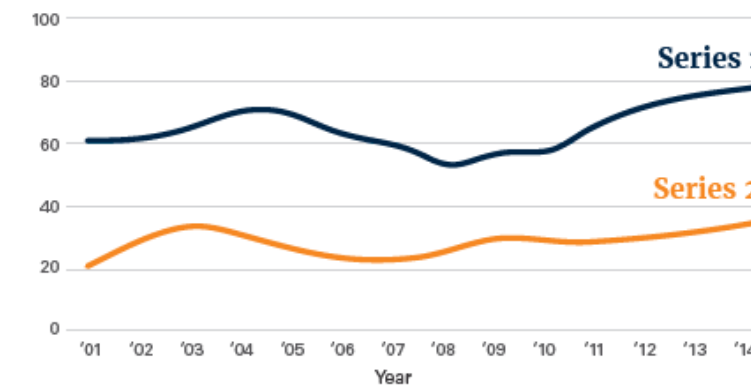


## Integrate the text and the graph

Standard research reports often suffer from the **slideshow effect**, in which the writer narrates the text elements that appear in the graph. A better model is one in which visualizations are constructed to complement the text and at the same time to contain enough information to stand alone. As a simple example, legends that define or explain a line, bar, or point are often placed far from the content of the graph—off to the right or below the graph. Integrated legends—right below the title, directly on the chart, or at the end of a line—are more accessible.

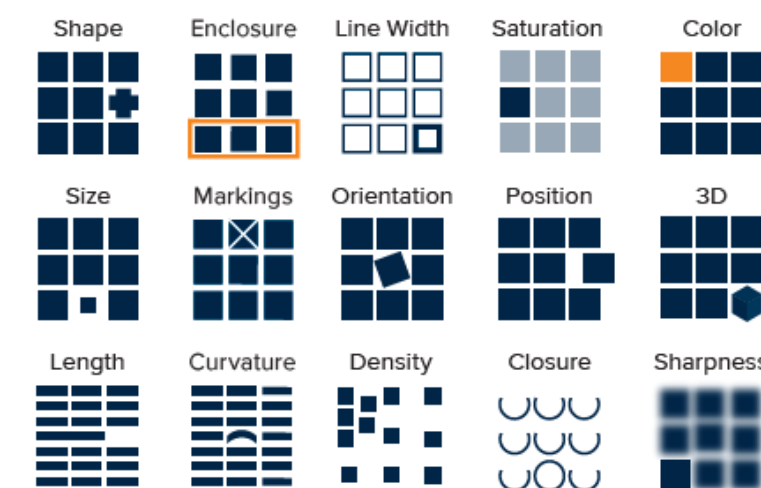
## Chart Title Here

(Y axis label here)



## Preattentive Processing

Effective data visualization taps into the brain's **preattentive visual processing**. Because our eyes detect a limited set of visual characteristics (such as shape and contrast), we combine various characteristics of an object and unconsciously perceive them as comprising an image. Preattentive processing refers to the cognitive operations that can be performed prior to focusing attention on any particular region of an image. In other words, it's the stuff you notice right away.



# Visual vocabulary

## *Designing with data*

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

# Distribution

Show values in a dataset and how often they occur. The shape (or 'skew') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.

## Example uses

Income distribution, population (age/sex) distribution

### Histogram



The standard way to show a statistical distribution - keep the gaps between columns small to highlight the 'shape' of the data.

### Boxplot



Summarise multiple distributions by showing the median (centre) and range of the data

### Violin plot



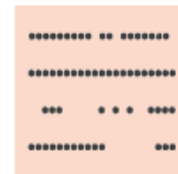
Similar to a box plot but more effective with complex distributions (data that cannot be summarised with simple average).

### Population pyramid



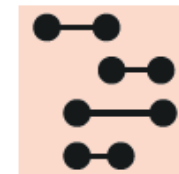
A standard way for showing the age and sex breakdown of a population distribution; effectively, back to back histograms.

### Dot strip plot



Good for showing individual values in a distribution, can be a problem when too many dots have the same value.

### Dot plot



A simple way of showing the change or range (min/max) of data across multiple categories.

### Barcode plot



Like dot strip plots, good for displaying all the data in a table, they work best when highlighting individual values.

### Cumulative curve



A good way of showing how unequal a distribution is: y axis is always cumulative frequency, x axis is always a measure.

## Try Domo Now For Free

Convert Your Spreadsheet Data Into Revenue Generating Insights. [domo.com](https://domo.com)



Search by Function

View by List



Arc Diagram



Area Graph



Bar Chart



Box & Whisker Plot



Brainstorm



Bubble Chart



Bubble Map



Bullet Graph



Calendar



Candlestick Chart



Chord Diagram



Choropleth Map



Circle Packing



Connection Map



Density Plot



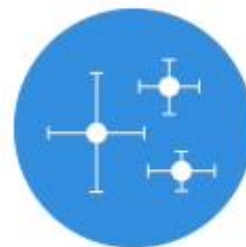
Donut Chart



Dot Map



Dot Matrix Chart



Error Bars



Flow Chart



Flow Map



Gantt Chart



Heatmap



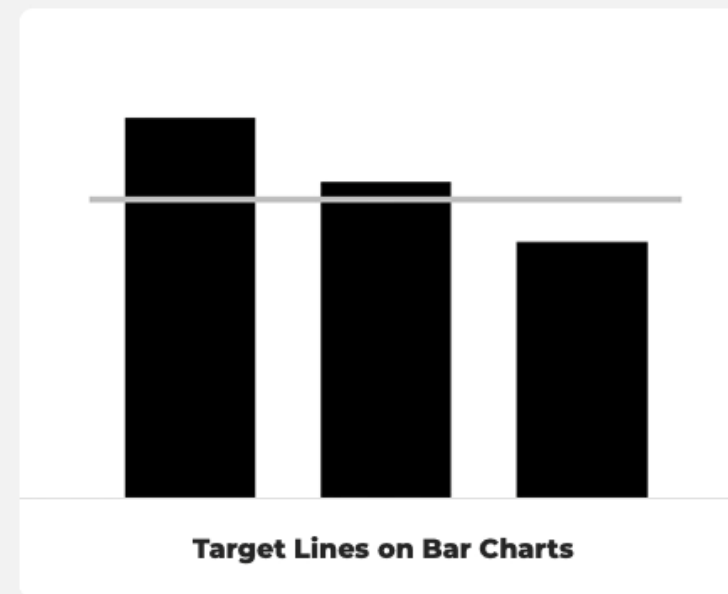
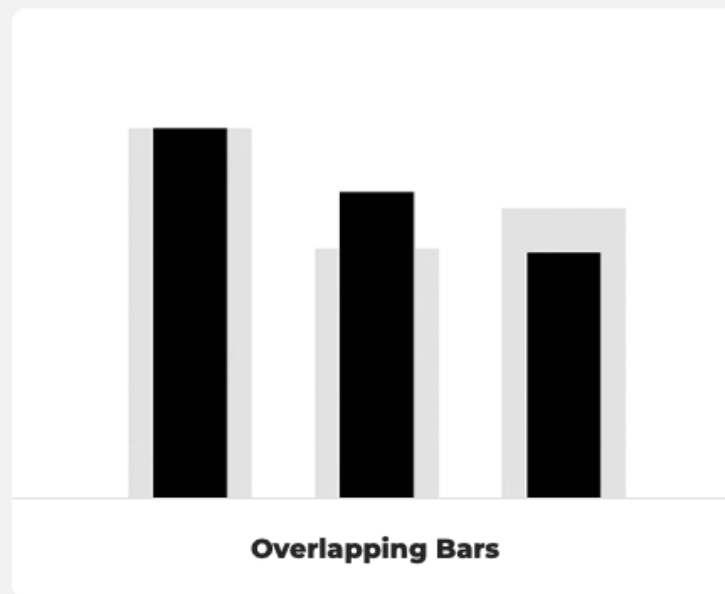
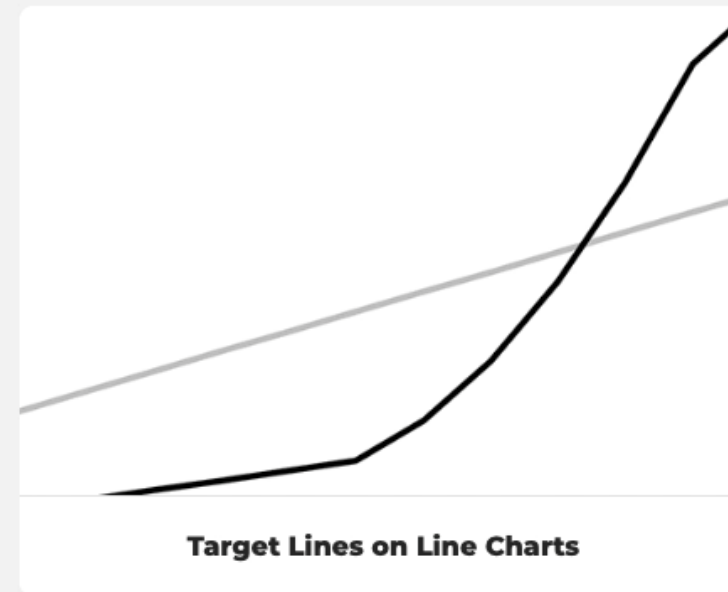
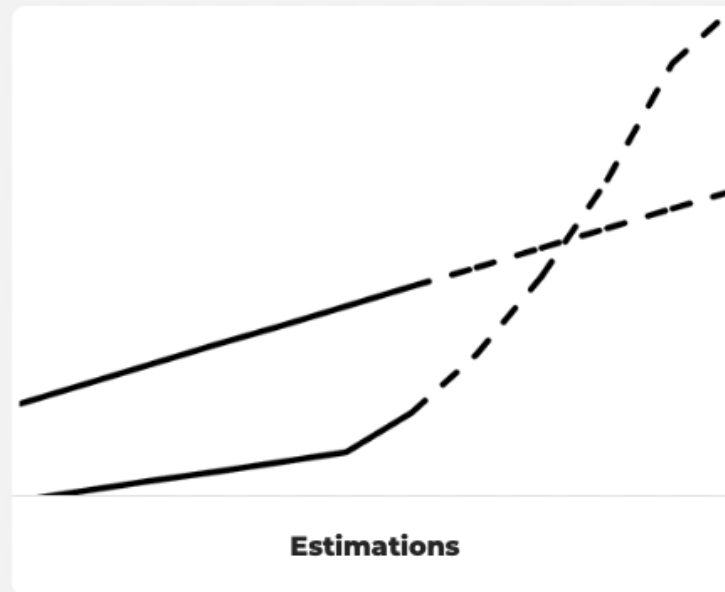
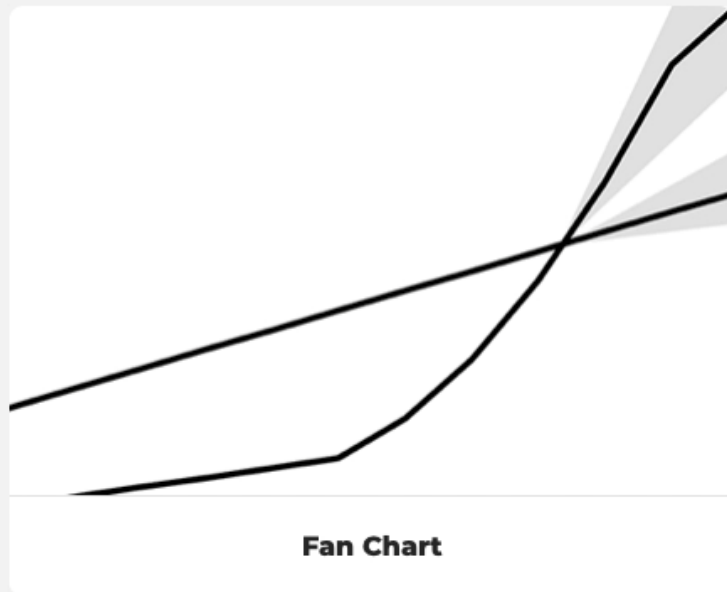
Histogram

[datavizcatalogue.com](http://datavizcatalogue.com)

# Interactive Chart Chooser

Wondering which type of graph is the best fit for your data? Explore our interactive chart chooser using the filters. For example, if you click on 3+ Points in Time, you'll see familiar faces like line graphs and meet new friends like multimedia timelines.

[All](#) | [1 Point in Time](#) | [2 Points in Time](#) | [3+ Points in Time](#) | [Comparisons](#) | [Correlation](#) | [Distribution](#) | [Exploratory](#) | [Part to Whole](#) | [Progress Towards Goals](#) | [Relationships](#)



[depictdatastudio.com/charts](https://depictdatastudio.com/charts)

Chart Chooser brought to you by Juice Analytics



Need more juice? Check out Juicebox — a new kind of tool for presenting data.

SCHEDULE A DEMO

LEARN MORE

## Welcome to Chart Chooser — our favorite tool for improved Excel and PowerPoint charts.

Use the filters below to find the right chart type for your needs, then download as Excel or PowerPoint templates and insert your own data.

Learn more about the origins of Chart Chooser [here](#).

What type of visualization do you need for your data?:

Viewing 17 of 17

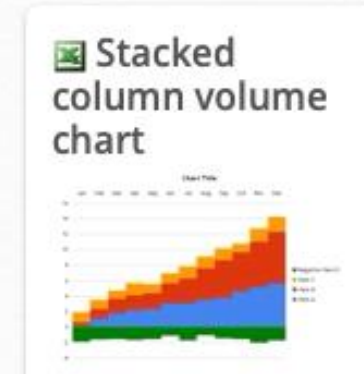
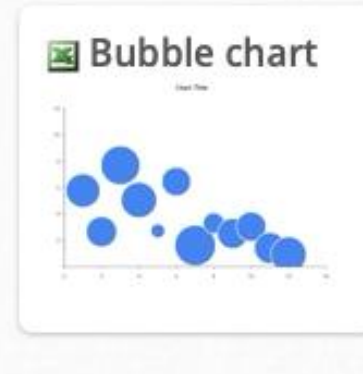
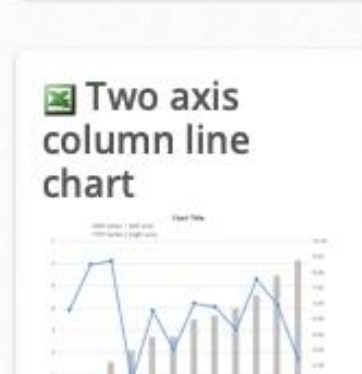
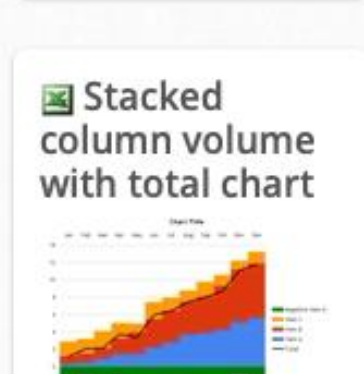
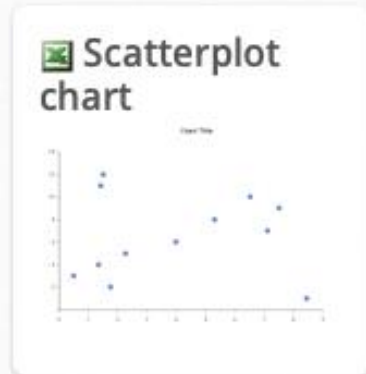
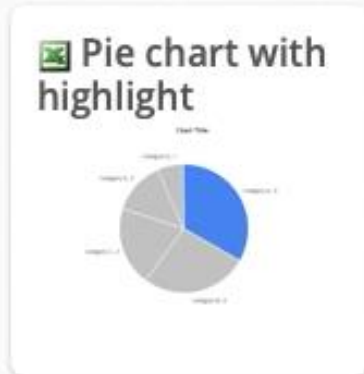
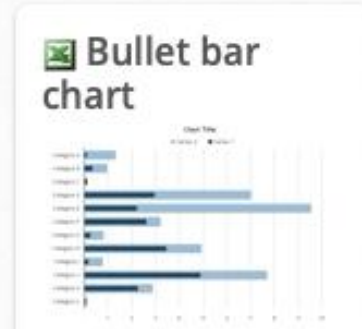
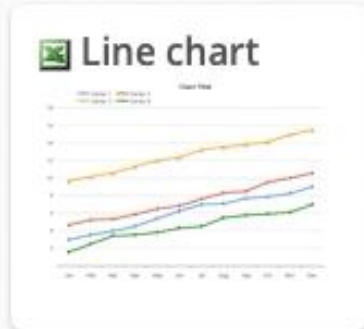
All Comparison Distribution Composition Trend Relationship Table

For which program?:

Powerpoint Excel

Are you a fan?

Share +



Item	Q1	Q2	Q3	Q4	Q5
Item 1	100	200	300	400	500
Item 2	150	250	350	450	550
Item 3	200	300	400	500	600
Item 4	250	350	450	550	650
Item 5	300	400	500	600	700
Item 6	350	450	550	650	750
Item 7	400	500	600	700	800
Item 8	450	550	650	750	850
Item 9	500	600	700	800	900
Item 10	550	650	750	850	950
Item 11	600	700	800	900	1000
Item 12	650	750	850	950	1050
Item 13	700	800	900	1000	1100
Item 14	750	850	950	1050	1150
Item 15	800	900	1000	1100	1200
Item 16	850	950	1050	1150	1250
Item 17	900	1000	1100	1200	1300
Item 18	950	1050	1150	1250	1350
Item 19	1000	1100	1200	1300	1400
Item 20	1050	1150	1250	1350	1450

Item	Group 1	Group 2	Group 3	Group 4	Group 5
Item 1	100	200	300	400	500
Item 2	150	250	350	450	550
Item 3	200	300	400	500	600
Item 4	250	350	450	550	650
Item 5	300	400	500	600	700
Item 6	350	450	550	650	750
Item 7	400	500	600	700	800
Item 8	450	550	650	750	850
Item 9	500	600	700	800	900
Item 10	550	650	750	850	950
Item 11	600	700	800	900	1000
Item 12	650	750	850	950	1050
Item 13	700	800	900	1000	1100
Item 14	750	850	950	1050	1150
Item 15	800	900	1000	1100	1200
Item 16	850	950	1050	1150	1250
Item 17	900	1000	1100	1200	1300
Item 18	950	1050	1150	1250	1350
Item 19	1000	1100	1200	1300	1400
Item 20	1050	1150	1250	1350	1450

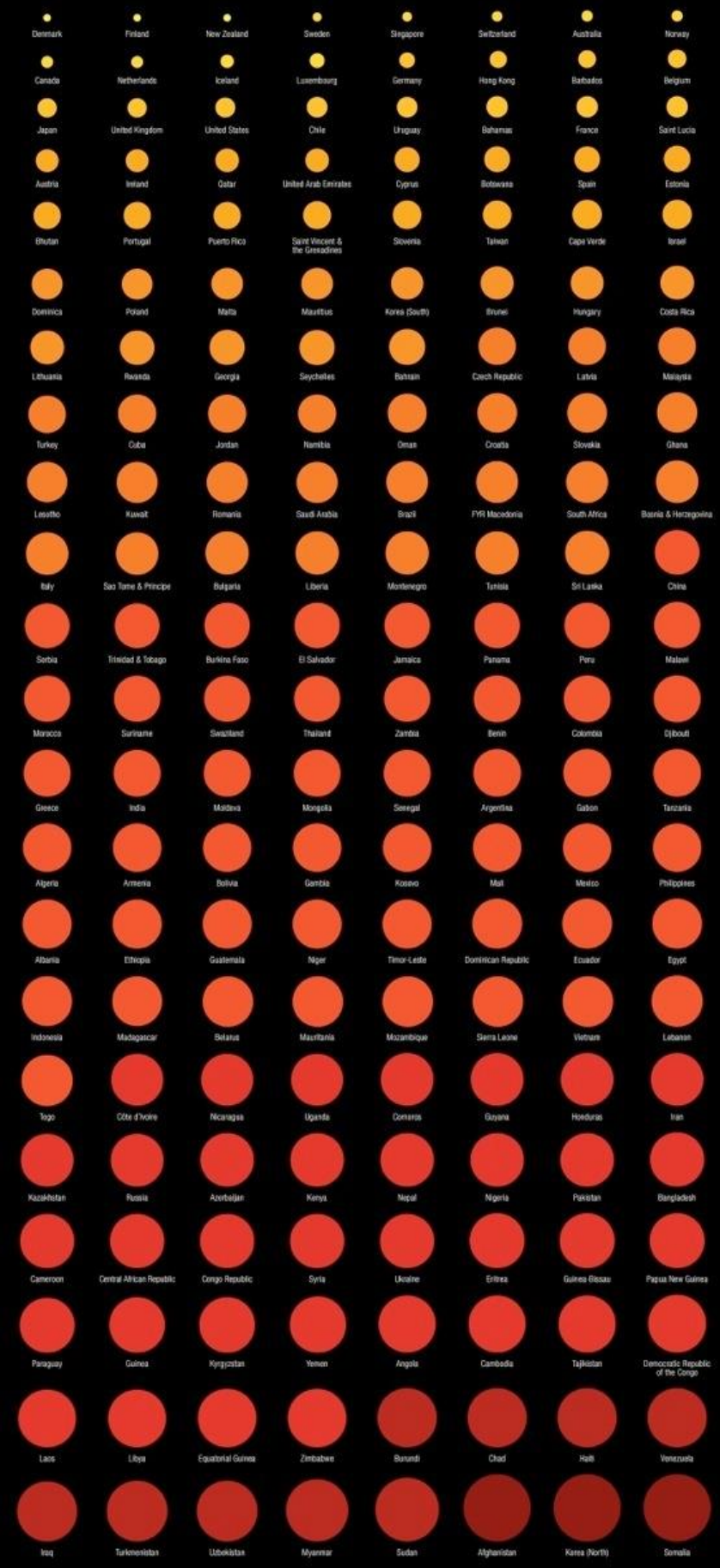
Name	Age	Salary	MB	MB	MB
John Thompson	35	50000	14	25	17
Alice Smith	28	45000	12	22	15
Bob Johnson	42	60000	18	30	20
Charlie Brown	30	48000	13	23	16
Diana Prince	25	40000	10	18	12
Edward Norton	45	70000	22	35	25
Fiona Green	32	55000	15	26	18
George Lucas	50	80000	28	40	30
Hannah Lee	27	42000	11	20	14
Ivan Drago	55	90000	35	45	35
Jane Foster	33	52000	16	27	19
Kyle Reese	40	65000	20	32	22
Laura Palmer	29	46000	12	22	15
Mark Zuckerberg	38	58000	14	24	17
Nancy Drew	26	41000	10	19	13
Oscar Wilde	48	75000	25	38	28
Peter Parker	31	50000	14	25	17
Quinn Fabray	24	38000	9	17	11
Rachel Watson	36	53000	15	26	18
Sam Winchester	41	62000	17	29	21
Tina Turner	52	85000	30	42	32
Uma Thurman	43	72000	26	37	27
Victor Krumpholtz	34	56000	16	27	19
Wendie Renner	23	36000	8	16	10
Xavier Woods	46	68000	19	30	22
Yara Flor	37	59000	17	28	20
Zoe Lister-Jones	28	44000	11	21	14



[labs.juiceanalytics.com/chartchooser](https://labs.juiceanalytics.com/chartchooser)

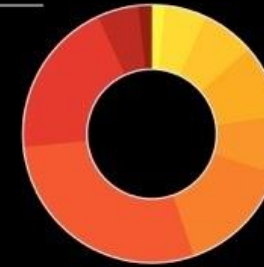
# HOW CORRUPT IS YOUR COUNTRY?

The perceived levels of public sector corruption in 176 countries/territories around the world.



## GLOBAL

70% of countries score less than 50 out of 100.  
43 is the average score worldwide.



## AMERICAS

66% score below 50  
Top: Canada  
Bottom: Haiti, Venezuela



## ASIA PACIFIC

68% score below 50  
Top: New Zealand  
Bottom: Afghanistan, Korea (North)



## EASTERN EUROPE & CENTRAL ASIA

95% score below 50  
Top: Georgia  
Bottom: Turkmenistan, Uzbekistan



## EU & WESTERN EUROPE

23% score below 50  
Top: Denmark, Finland  
Bottom: Greece



## MIDDLE EAST & NORTH AFRICA

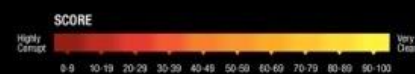
78% score below 50  
Top: Qatar, United Arab Emirates  
Bottom: Iraq



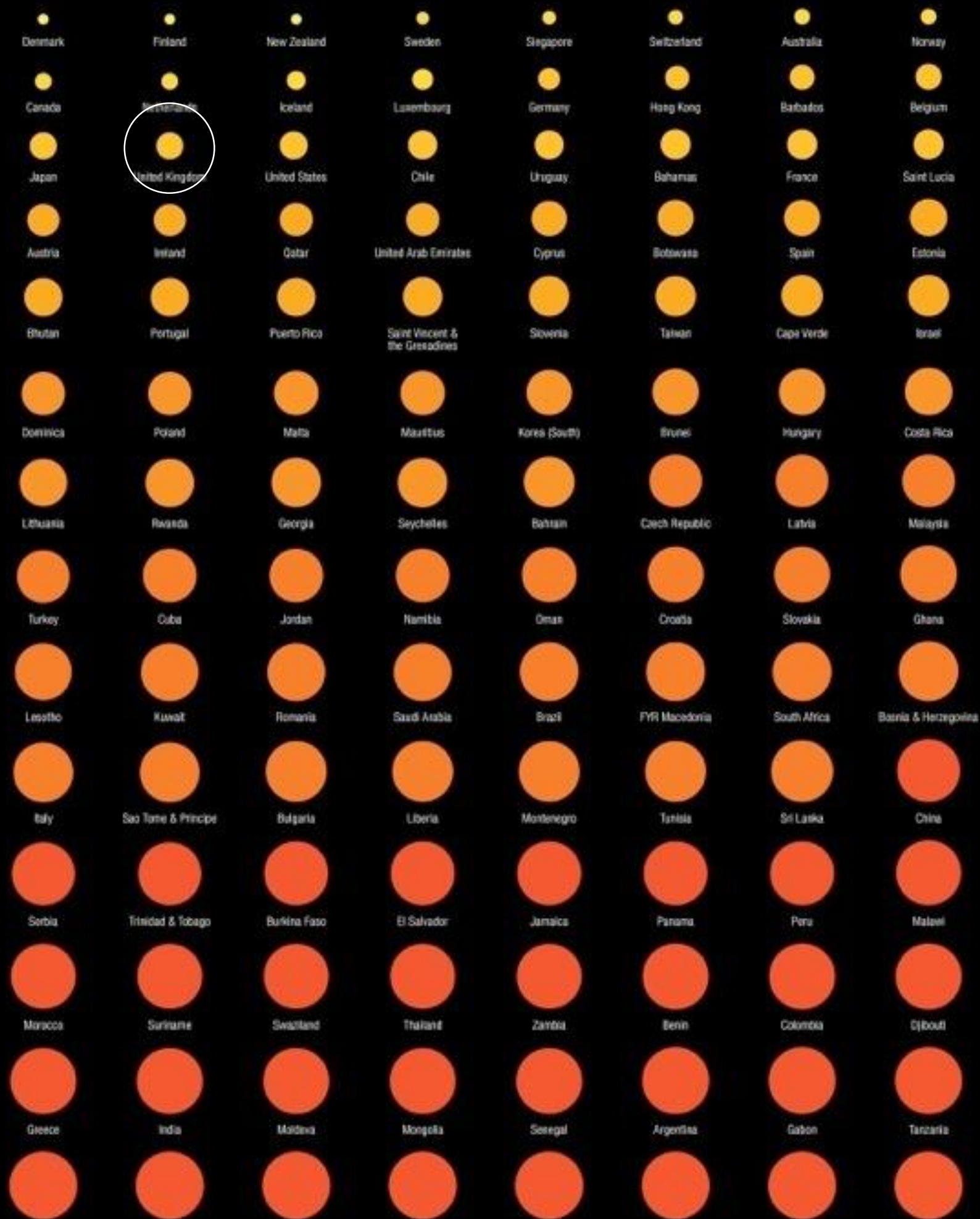
## SUB-SAHARAN AFRICA

90% score below 50  
Top: Botswana  
Bottom: Somalia

Source: Corruption Perceptions Index 2012



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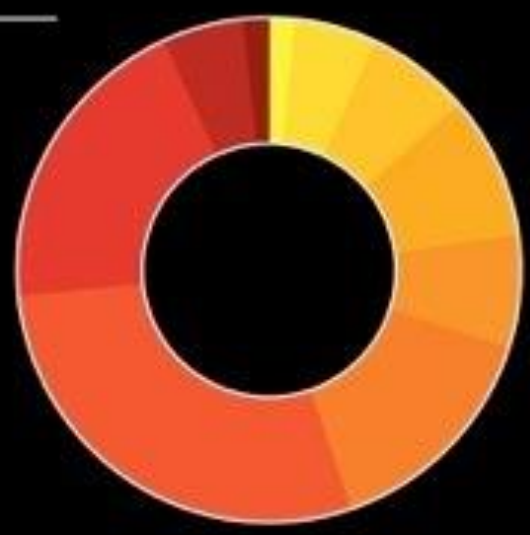


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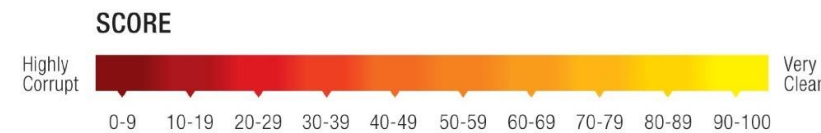
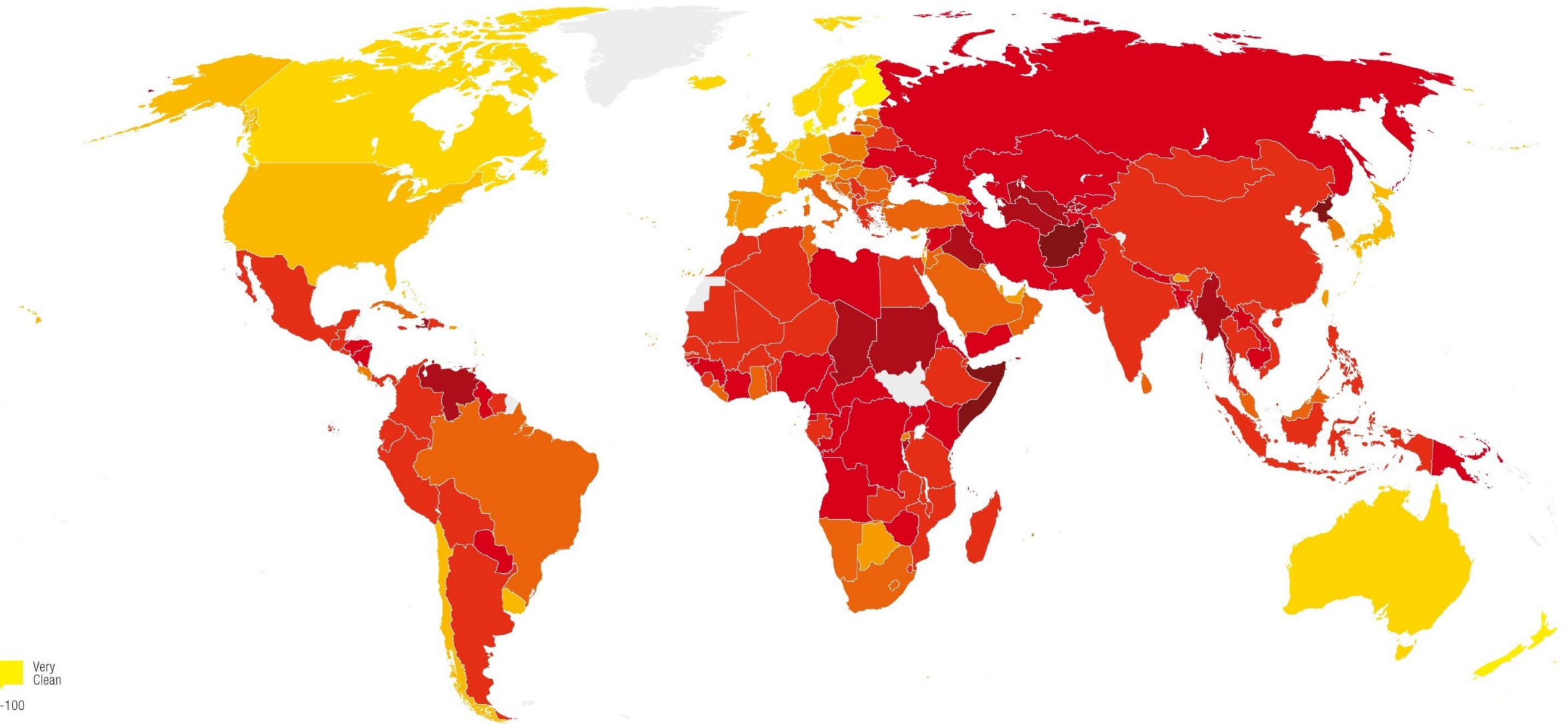
## ASIA PACIFIC

68% score below 50  
Top: New Zealand  
Bottom: Afghanistan, Korea (North)



# CORRUPTION PERCEPTIONS INDEX

The perceived levels of public sector corruption in 176 countries/territories around the world.



RANK	COUNTRY/TERRITORY	SCORE
1	Denmark	90
1	Finland	90
1	New Zealand	90
4	Sweden	88
5	Singapore	87
6	Switzerland	86
7	Australia	85
7	Norway	85
9	Canada	84
9	Netherlands	84
11	Iceland	82
12	Luxembourg	80
13	Germany	79
14	Hong Kong	77
15	Barbados	76
16	Belgium	75
17	Japan	74
17	United Kingdom	74
19	United States	73
20	Chile	72
20	Uruguay	72
22	Bahamas	71
22	France	71

22	Saint Lucia	71
25	Austria	69
25	Ireland	69
27	Qatar	68
27	United Arab Emirates	68
29	Cyprus	66
30	Botswana	65
30	Spain	65
32	Estonia	64
33	Bhutan	63
33	Portugal	63
33	Puerto Rico	63
36	Saint Vincent and the Grenadines	62
37	Slovenia	61
37	Taiwan	61
39	Cape Verde	60
39	Israel	60
41	Dominica	58
41	Poland	58
43	Malta	57
43	Mauritius	57
45	Korea (South)	56
46	Brunei	55

RANK	COUNTRY/TERRITORY	SCORE
46	Hungary	55
48	Costa Rica	54
48	Lithuania	54
50	Rwanda	53
51	Georgia	52
51	Seychelles	52
53	Bahrain	51
54	Czech Republic	49
54	Latvia	49
54	Malaysia	49
54	Turkey	49
58	Cuba	48
58	Jordan	48
58	Namibia	48
61	Oman	47
62	Croatia	46
62	Slovakia	46
64	Ghana	45
64	Lesotho	45
66	Kuwait	44
66	Romania	44
66	Saudi Arabia	44
69	Brazil	43

69	FYR Macedonia	43
69	South Africa	43
72	Bosnia and Herzegovina	42
72	Italy	42
72	Sao Tome and Principe	42
75	Bulgaria	41
75	Liberia	41
75	Montenegro	41
75	Tunisia	41
79	Sri Lanka	40
80	China	39
80	Serbia	39
80	Trinidad and Tobago	39
83	Burkina Faso	38
83	El Salvador	38
83	Jamaica	38
83	Panama	38
83	Peru	38
88	Malawi	37
88	Morocco	37
88	Suriname	37
88	Swaziland	37

RANK	COUNTRY/TERRITORY	SCORE
88	Thailand	37
88	Zambia	37
94	Benin	36
94	Colombia	36
94	Djibouti	36
94	Greece	36
94	India	36
94	Moldova	36
94	Mongolia	36
94	Senegal	36
102	Argentina	35
102	Gabon	35
102	Tanzania	35
105	Algeria	34
105	Armenia	34
105	Bolivia	34
105	Gambia	34
105	Kosovo	34
105	Mali	34
105	Mexico	34
105	Philippines	34
113	Albania	33
113	Ethiopia	33

113	Guatemala	33
113	Niger	33
113	Timor-Leste	33
118	Dominican Republic	32
118	Ecuador	32
118	Egypt	32
118	Indonesia	32
118	Madagascar	32
123	Belarus	31
123	Mauritania	31
123	Mozambique	31
123	Sierra Leone	31
123	Vietnam	31
128	Lebanon	30
128	Togo	30
130	Côte d'Ivoire	29
130	Nicaragua	29
130	Uganda	29
133	Comoros	28
133	Guyana	28
133	Honduras	28
133	Iran	28
133	Kazakhstan	28

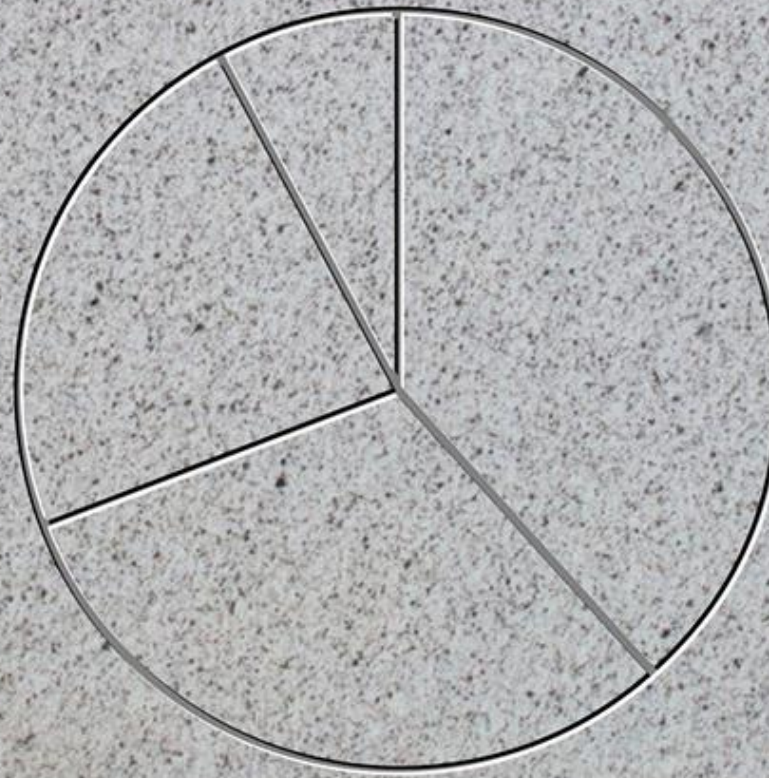
RANK	COUNTRY/TERRITORY	SCORE
133	Russia	28
139	Azerbaijan	27
139	Kenya	27
139	Nepal	27
139	Nigeria	27
139	Pakistan	27
144	Bangladesh	26
144	Cameroon	26
144	Central African Republic	26
144	Congo Republic	26
144	Syria	26
144	Ukraine	26
150	Eritrea	25
150	Guinea-Bissau	25
150	Papua New Guinea	25
150	Paraguay	25
154	Guinea	24
154	Kyrgyzstan	24
156	Yemen	23
157	Angola	22
157	Cambodia	22

157	Tajikistan	22
160	Democratic Republic of the Congo	21
160	Laos	21
160	Libya	21
163	Equatorial Guinea	20
163	Zimbabwe	20
165	Burundi	19
165	Chad	19
165	Haiti	19
165	Venezuela	19
169	Iraq	18
170	Turkmenistan	17
170	Uzbekistan	17
172	Myanmar	15
173	Sudan	13
174	Afghanistan	8
174	Korea (North)	8
174	Somalia	8



**Pie chart**

IN LOVING  
MEMORY

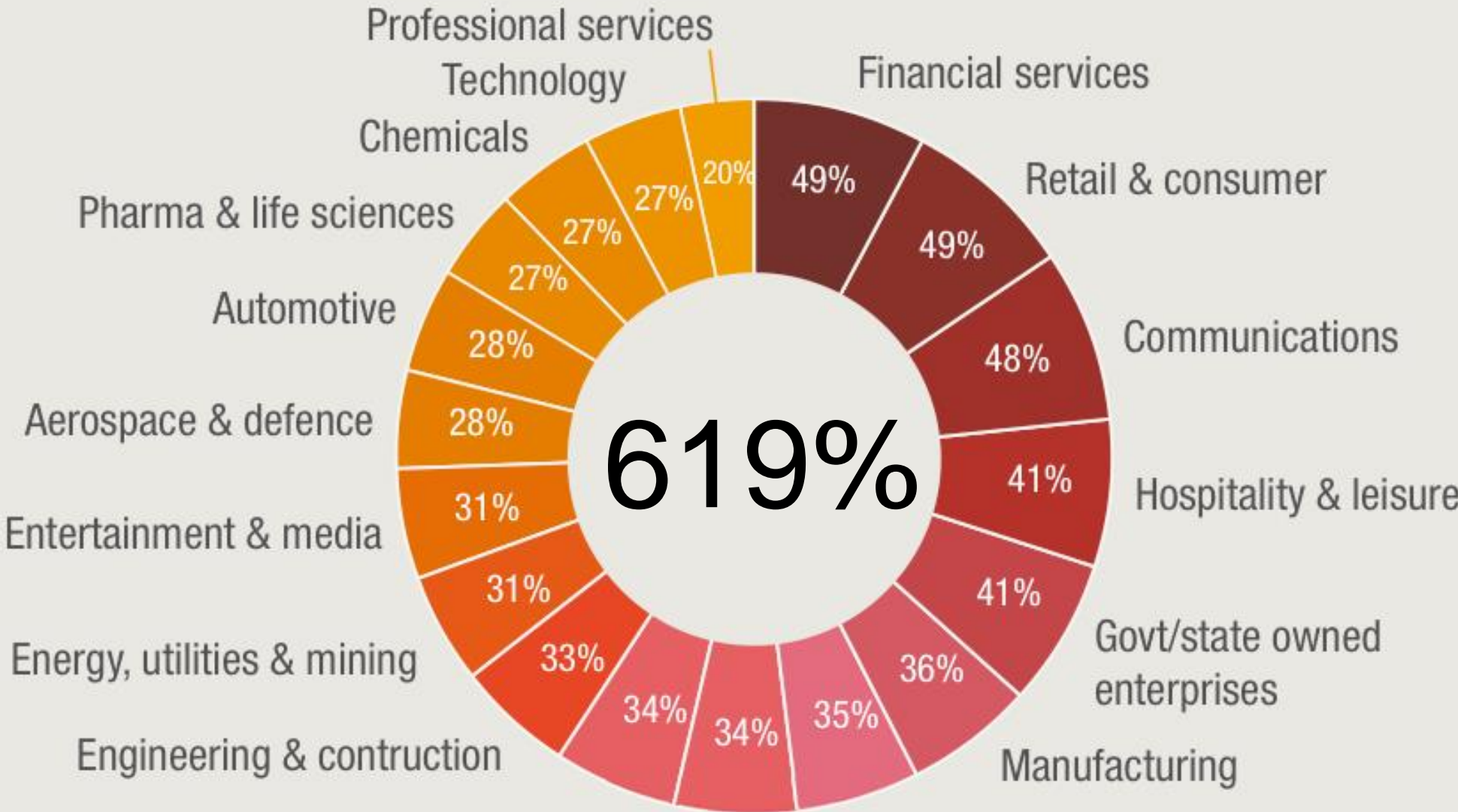


*“The only worse design  
than a pie chart  
is several of them.”*

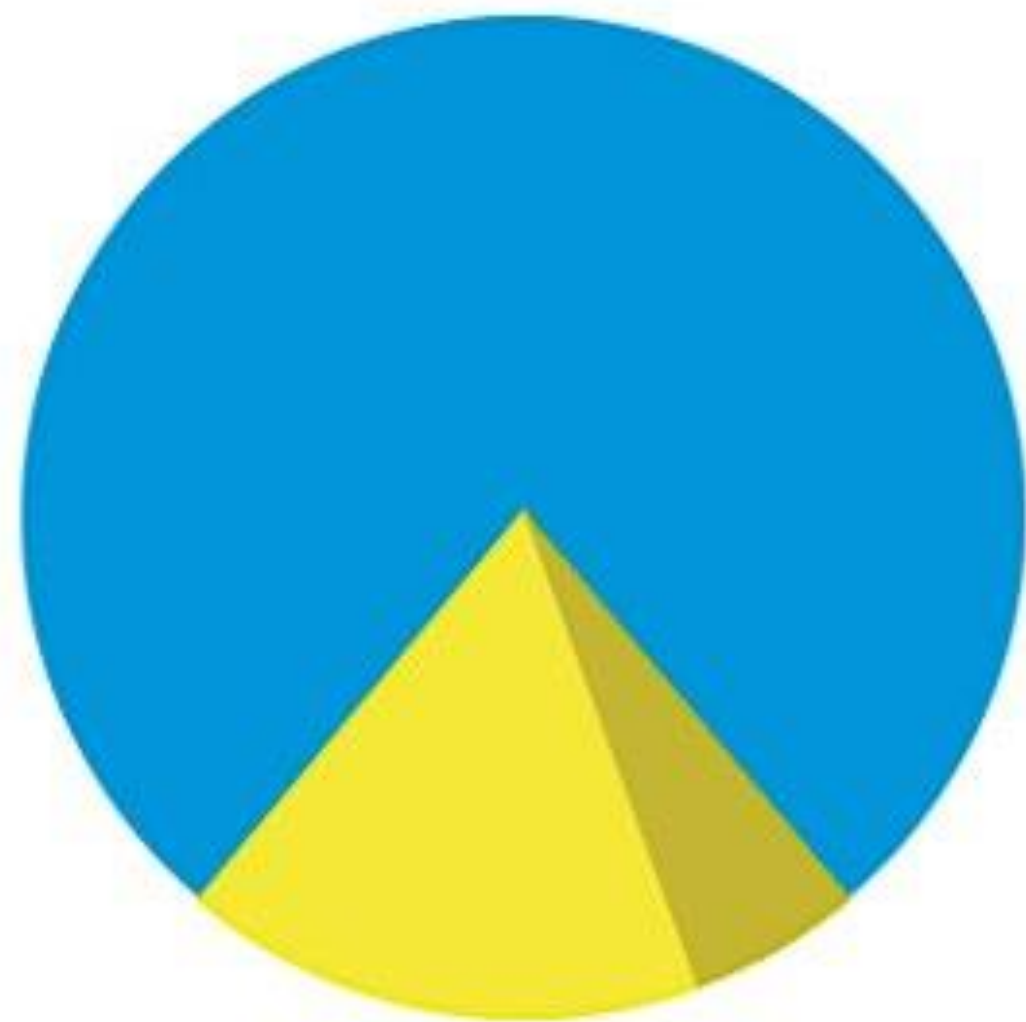
EDWARD TUFTE




# Which industries are at risk?

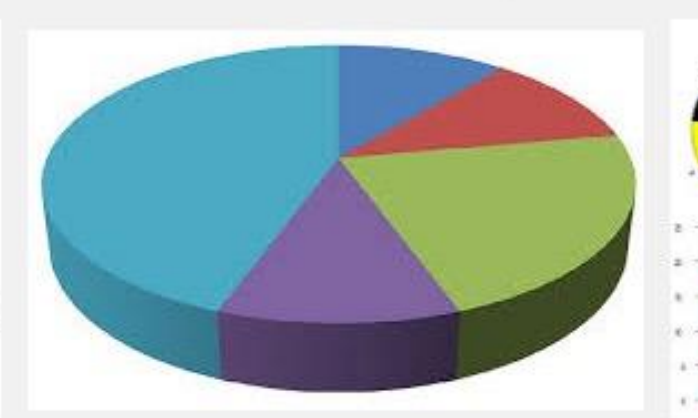
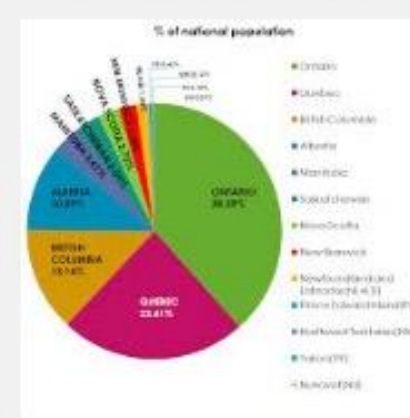
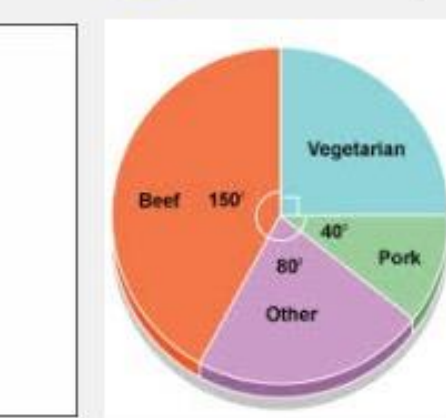
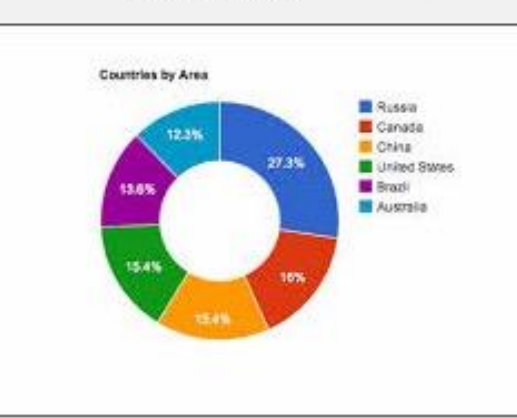
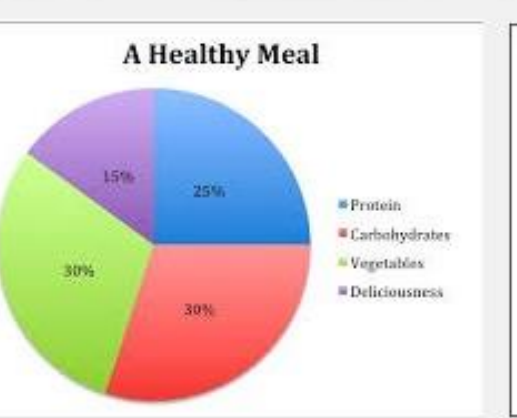
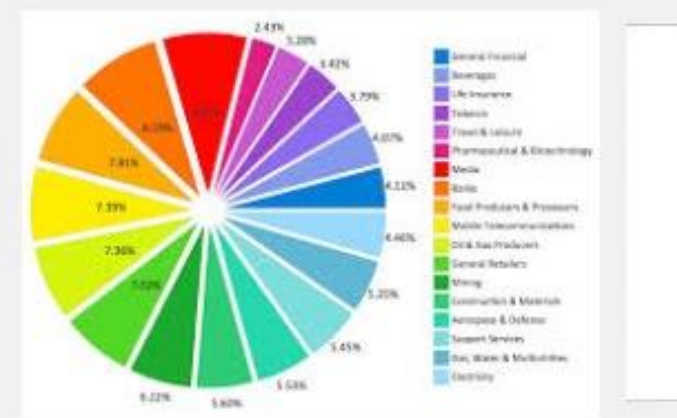
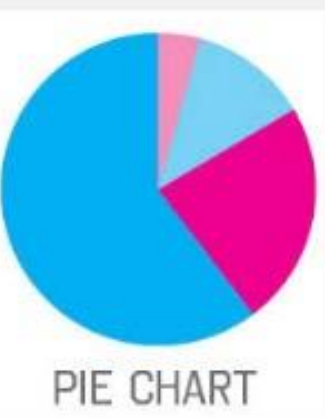
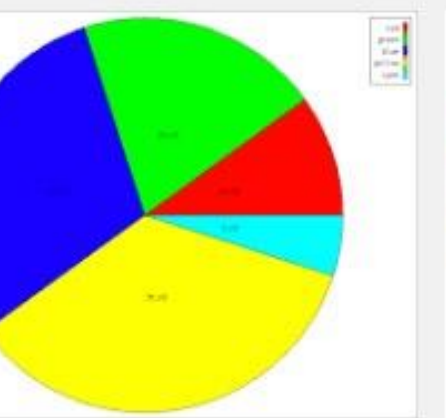
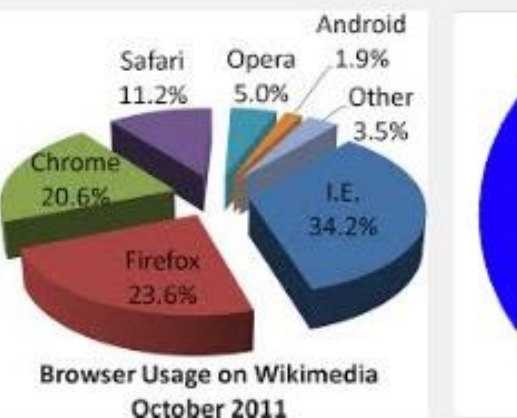
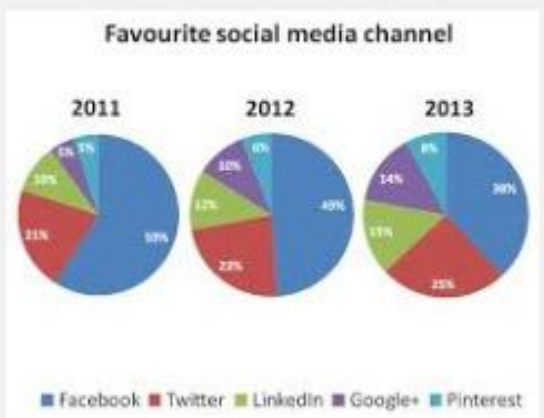
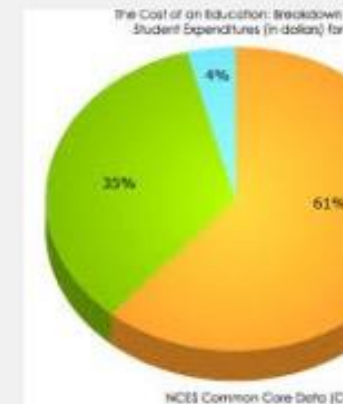
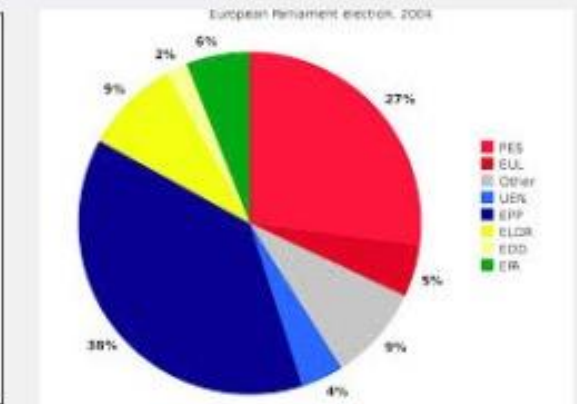
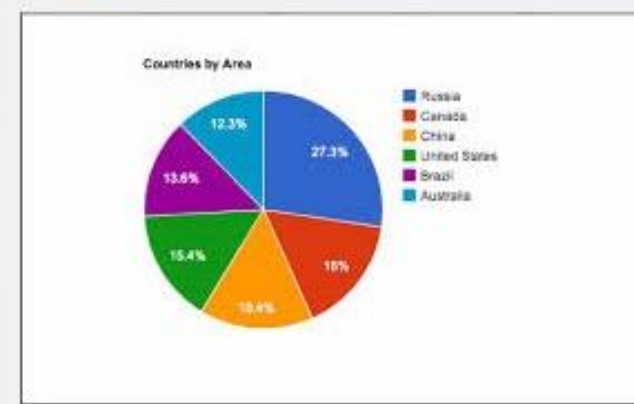
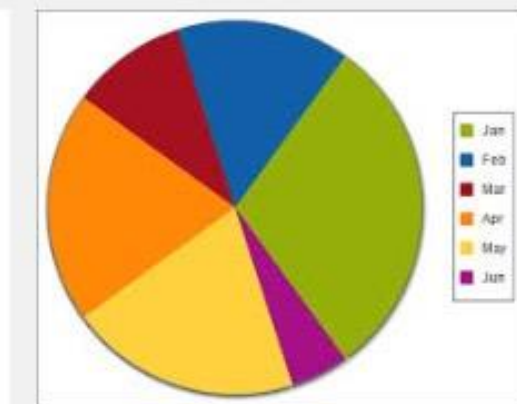
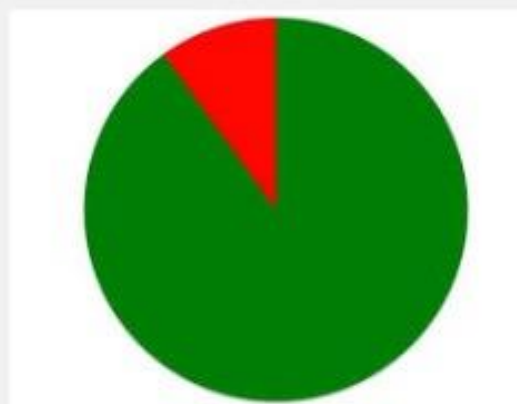
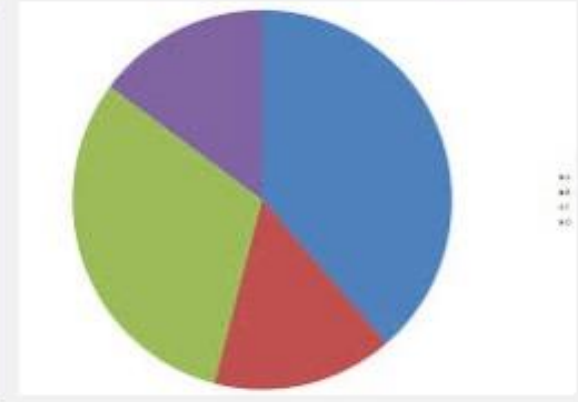
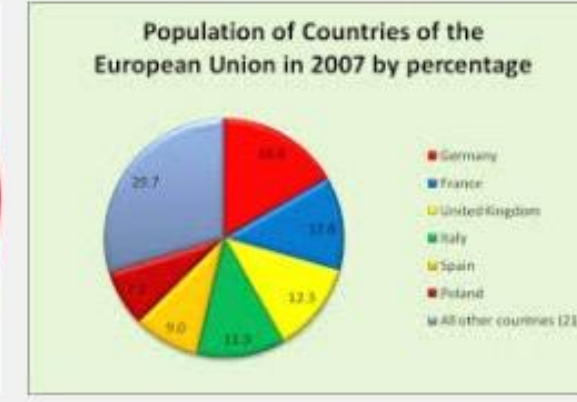
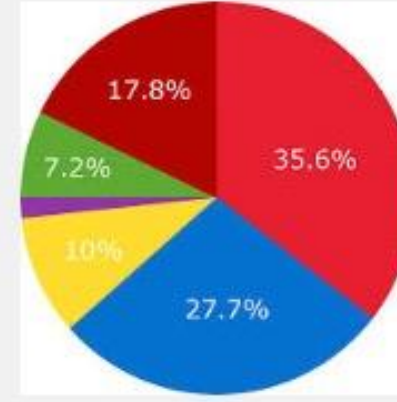
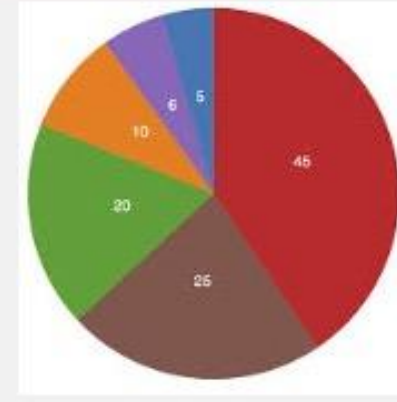
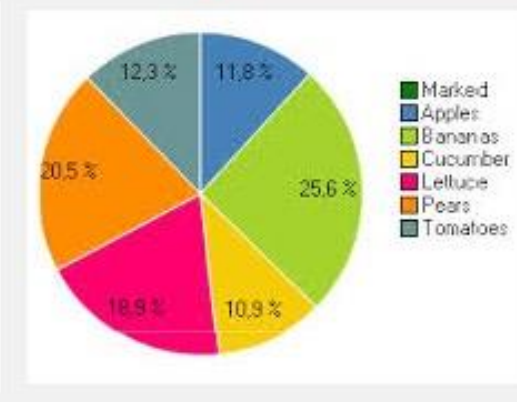
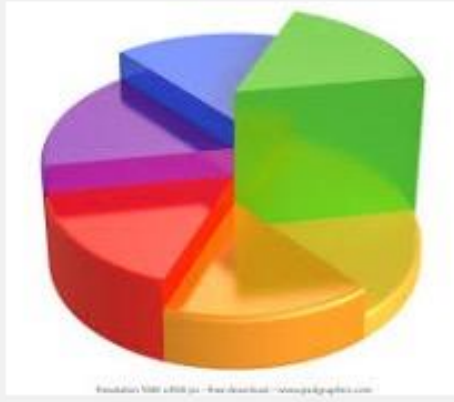
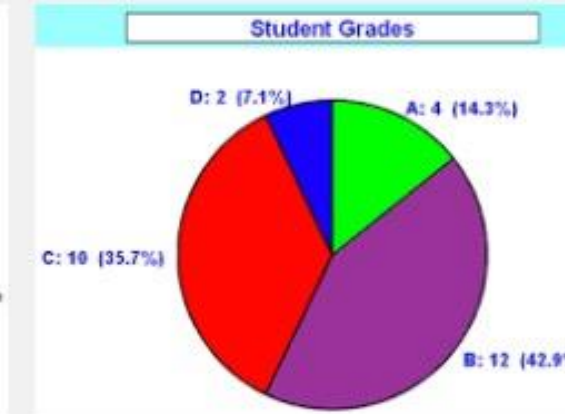
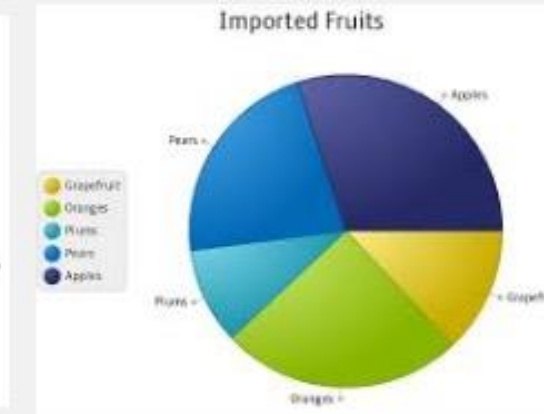
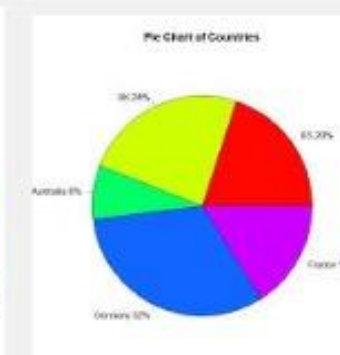
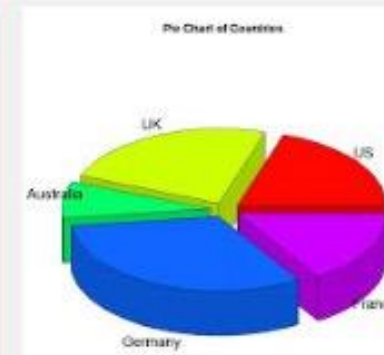
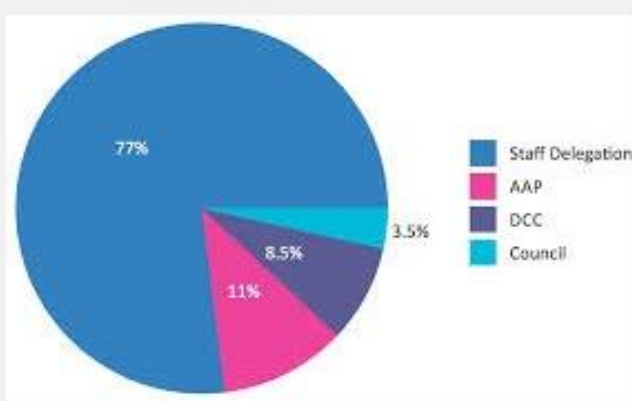
By industry, economic crime is most commonly reported in the financial services, retail and consumer, and communications sectors. Nearly 50% of respondents in each said they had been crime victims.







-  **Sky**
-  **Sunny side of pyramid**
-  **Shady side of pyramid**



100%

Parts of a whole.

The same data can be shown as bars, but the sense of the values being components of a complete item will not be as strong.

# 2012 PRESIDENTIAL RUN

## GOP CANDIDATES



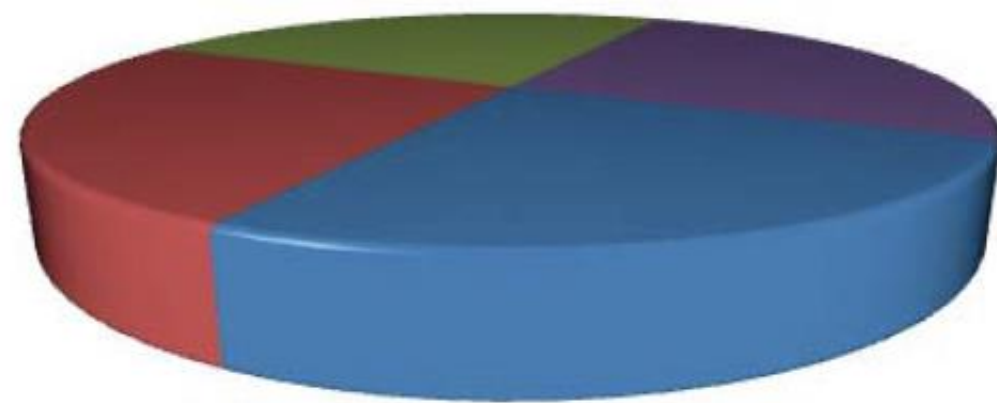
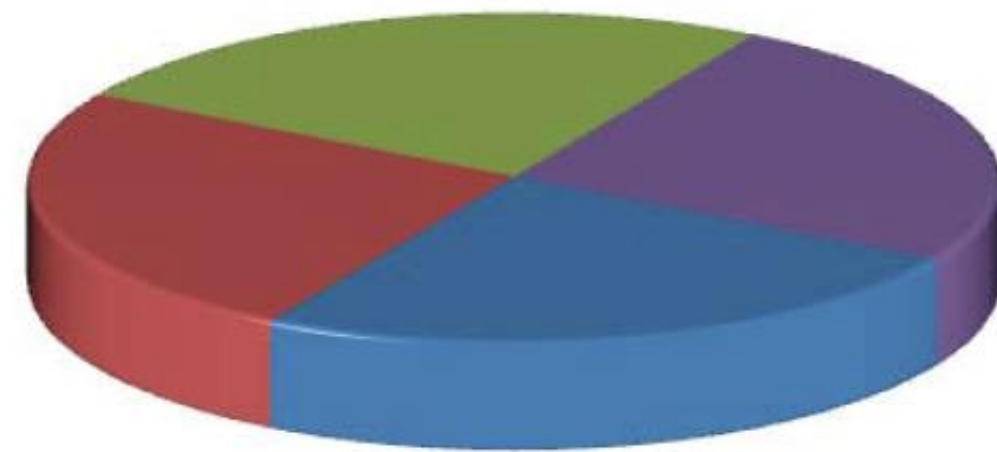
**FOX**

47°

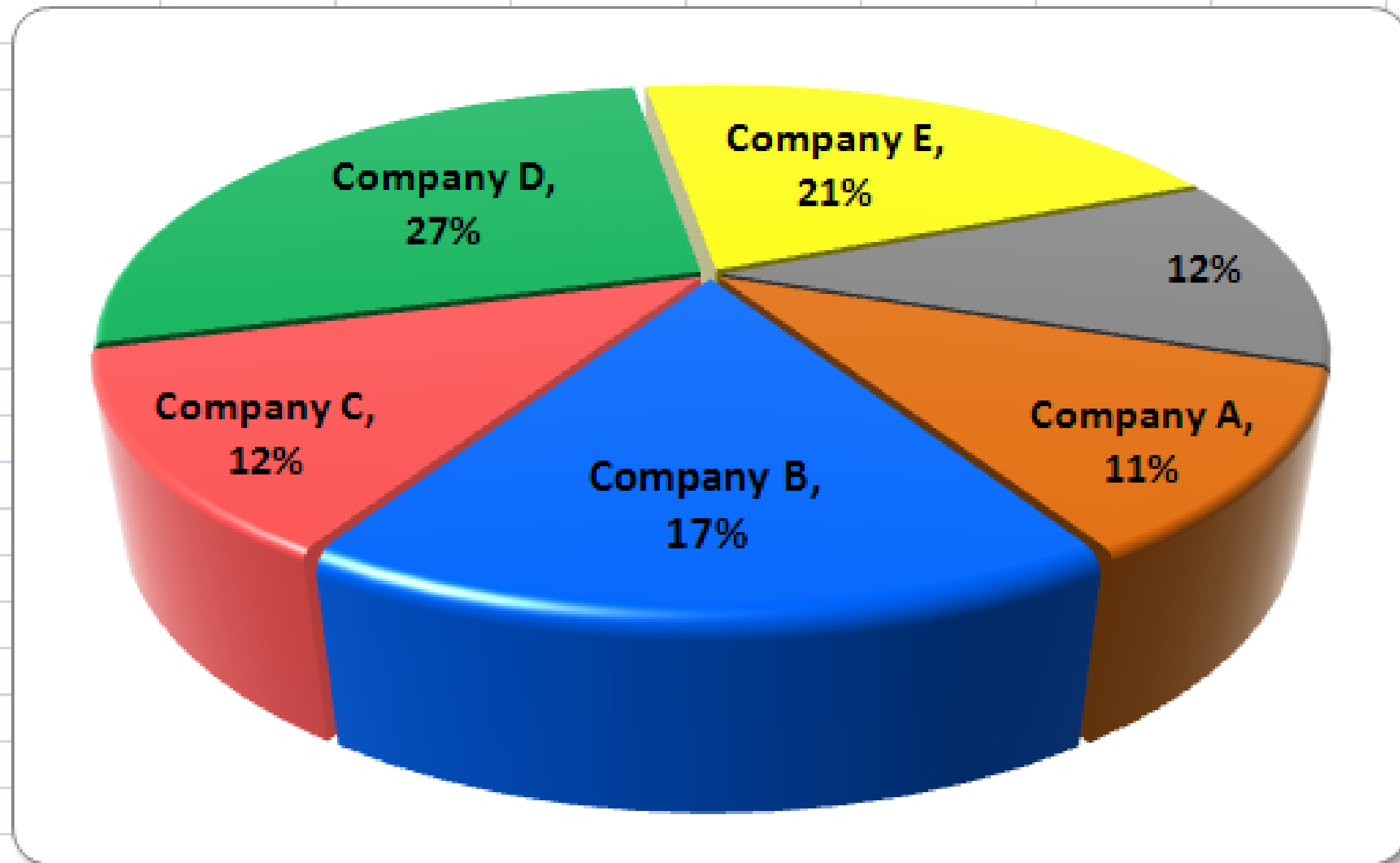
**SOURCE: OPINIONS**

**DYNAMIC**





	A	B
1	<b>The Pie Chart</b>	
2		
3	2009	Part
4	Company A	11%
5	Company B	17%
6	Company C	12%
7	Company D	27%
8	Company E	21%
9	Other	12%
10	<b>Total</b>	<b>100%</b>
11		
12		
13		
14		
15		
16		
17		
18		
19		





**Bar chart**



Work bests for categorical data.

Easy to compare bar lengths.

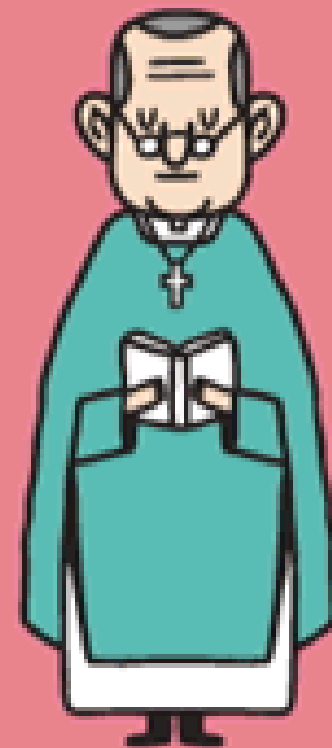
It's not easy to compare proportional shapes, especially when the differences are small.

# EN QUIÉNES CONFIAMOS LOS MEXICANOS



AMIGOS/FAMILIA

0%



IGLESIA CATÓLICA

0%



EJÉRCITO

0%



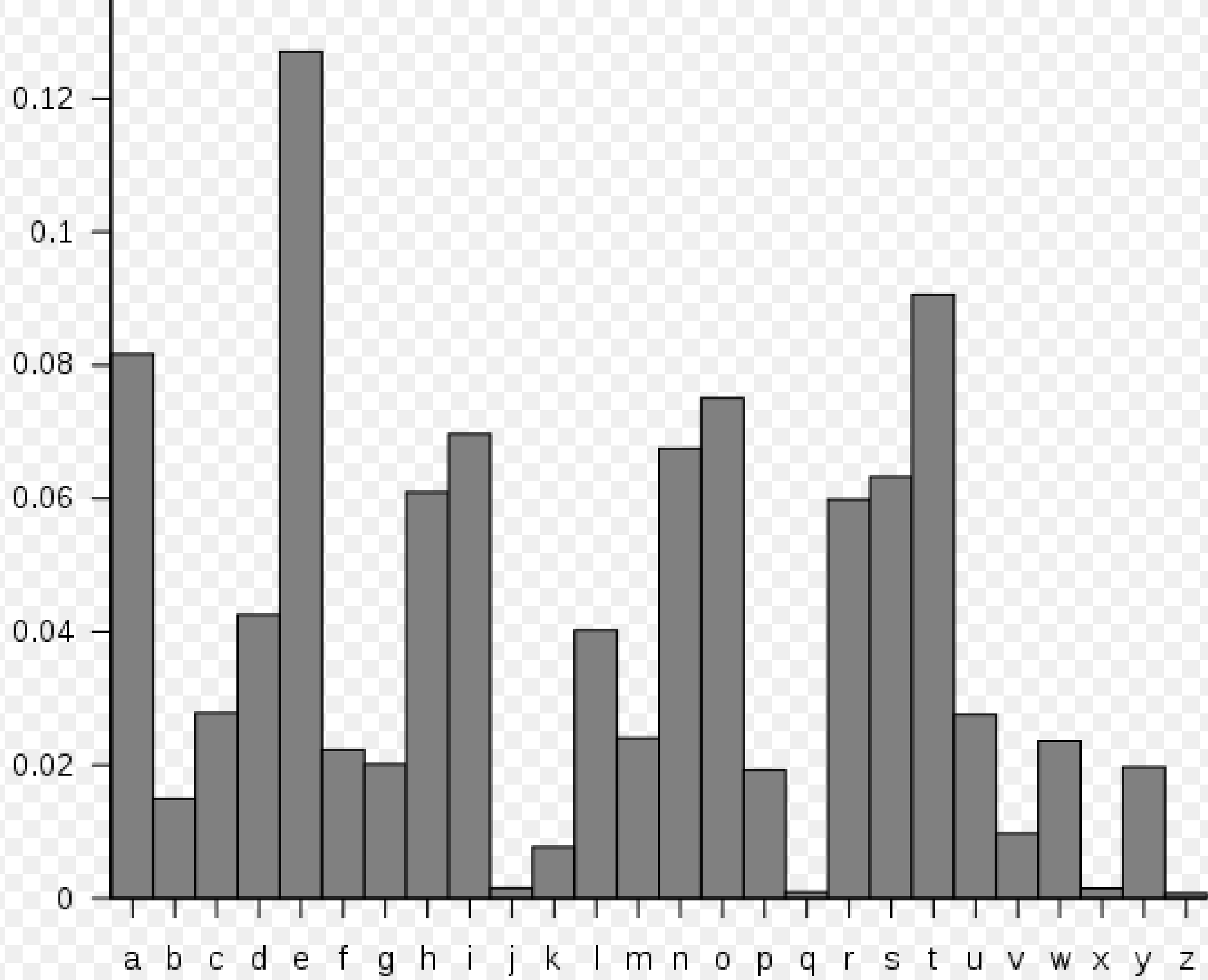
MAESTROS

0%



POLÍTICOS

0%





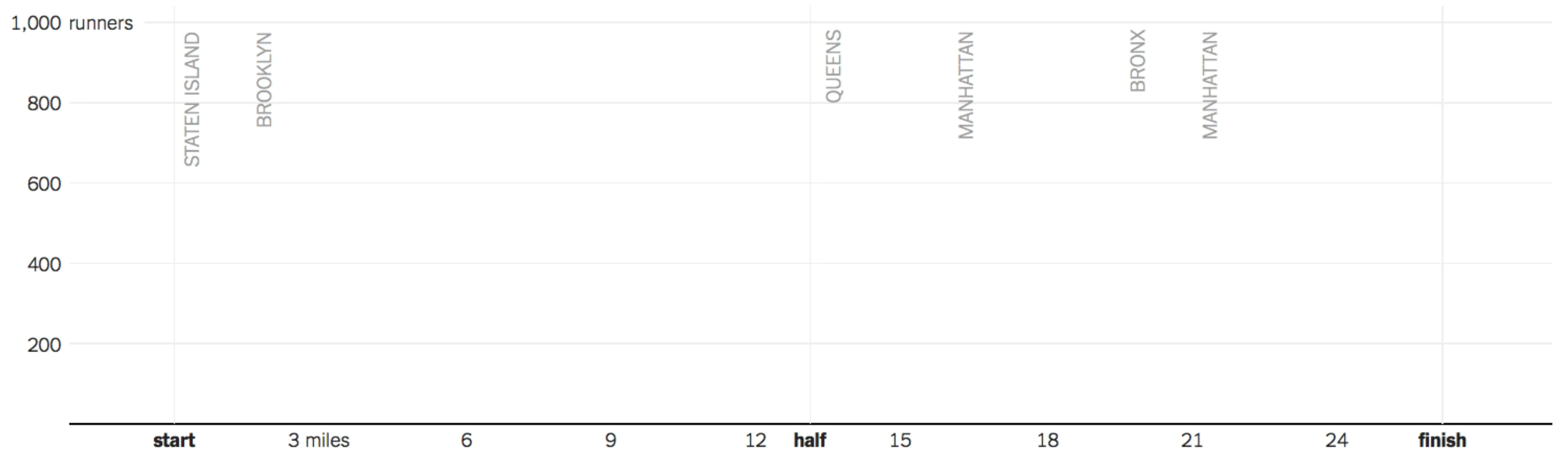


**Fever chart**

Shows changes over time.

Works best for continuous data.

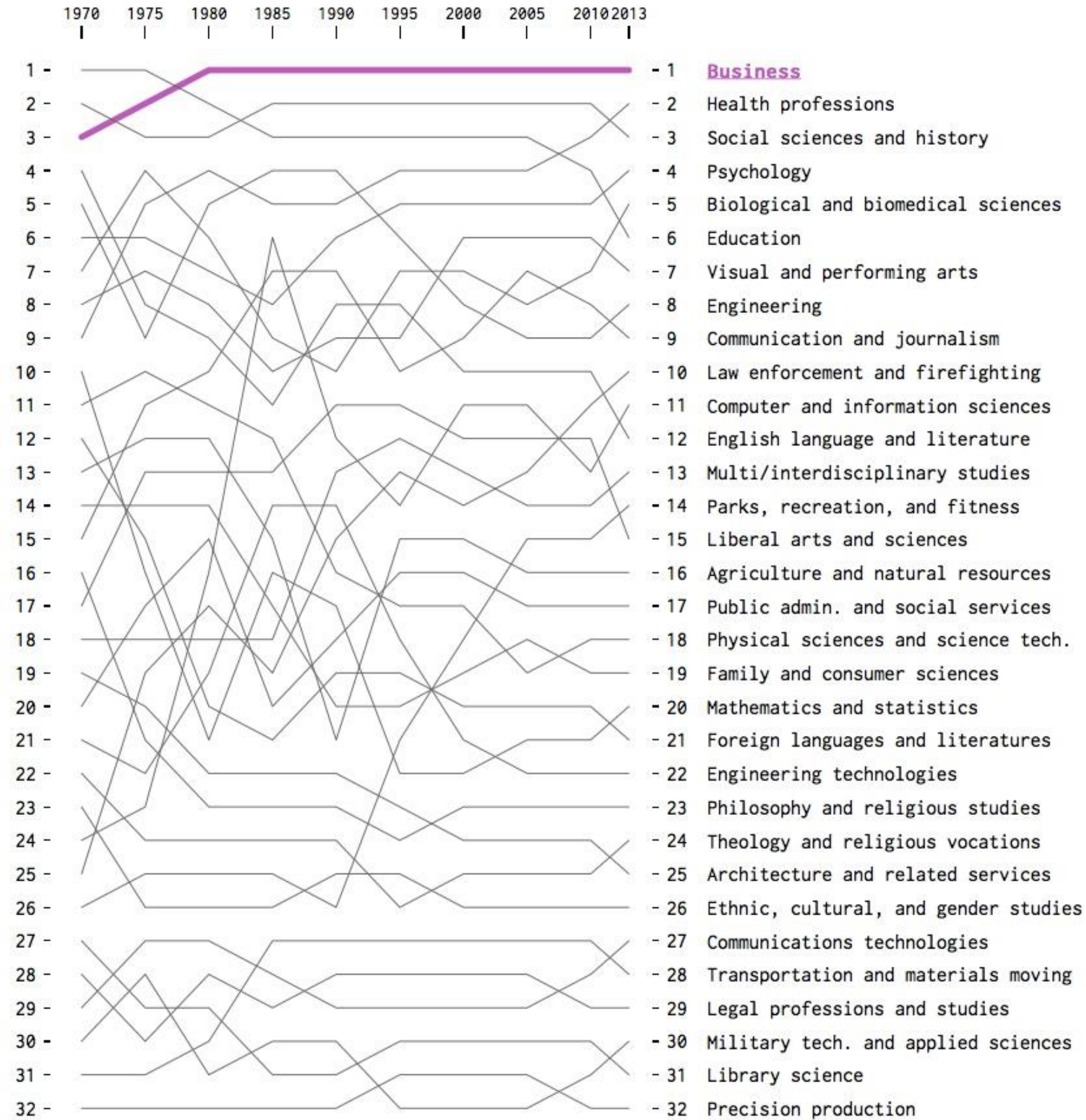
# 50,000 Runners, Moving in Waves







# FIELD RANKINGS BASED ON BACHELOR'S DEGREES





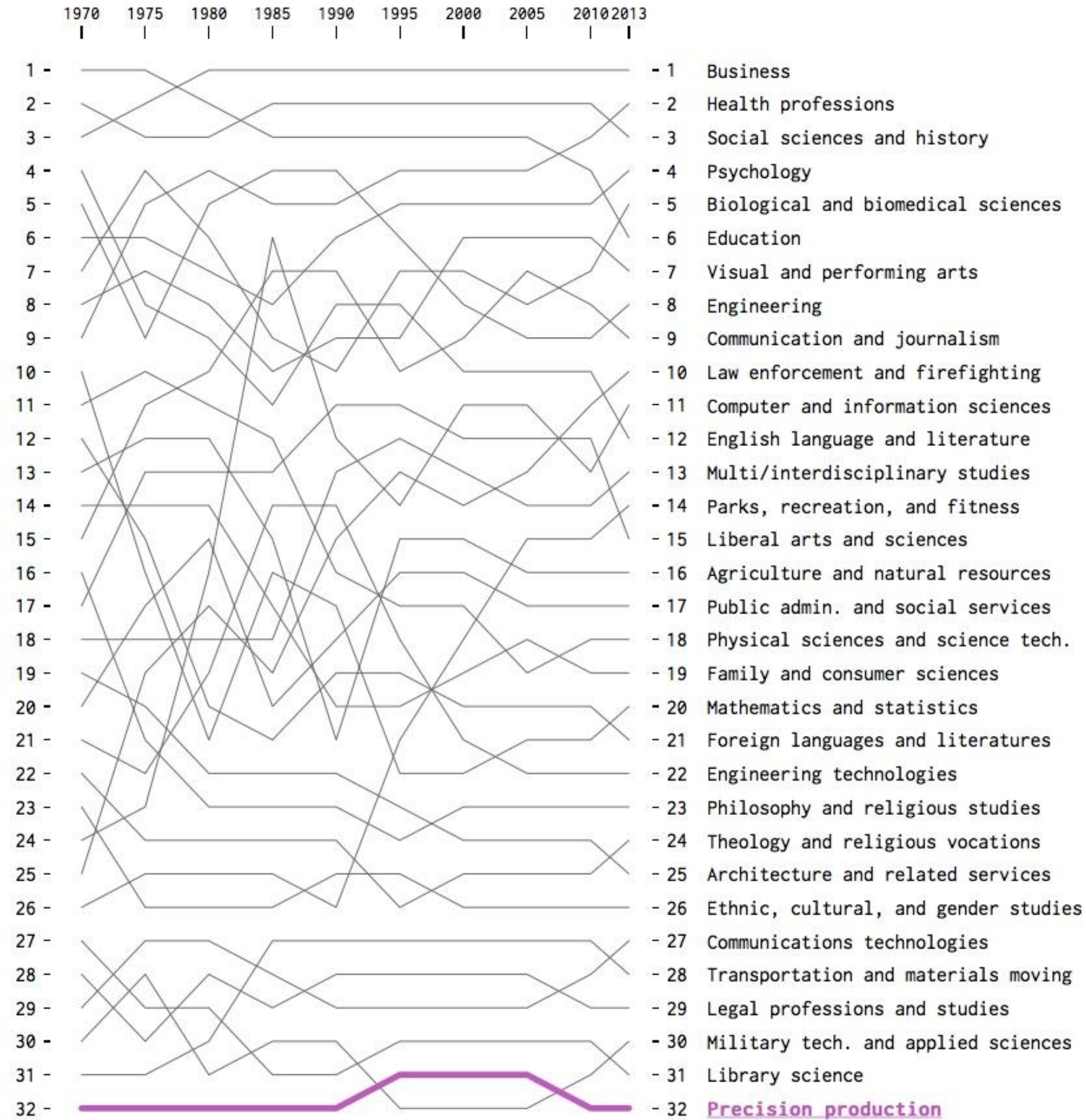








# FIELD RANKINGS BASED ON BACHELOR'S DEGREES





**Proportional circles**

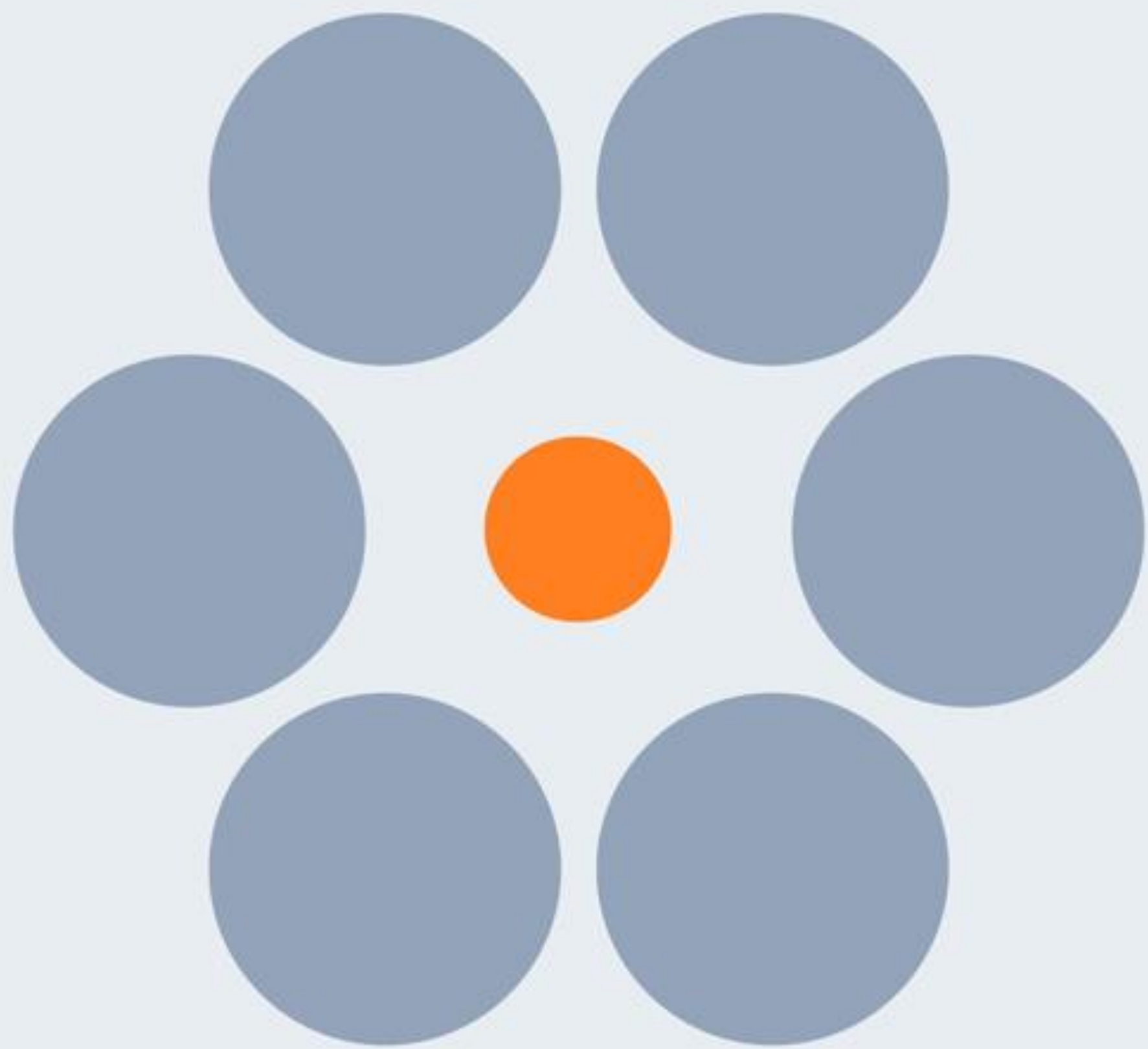


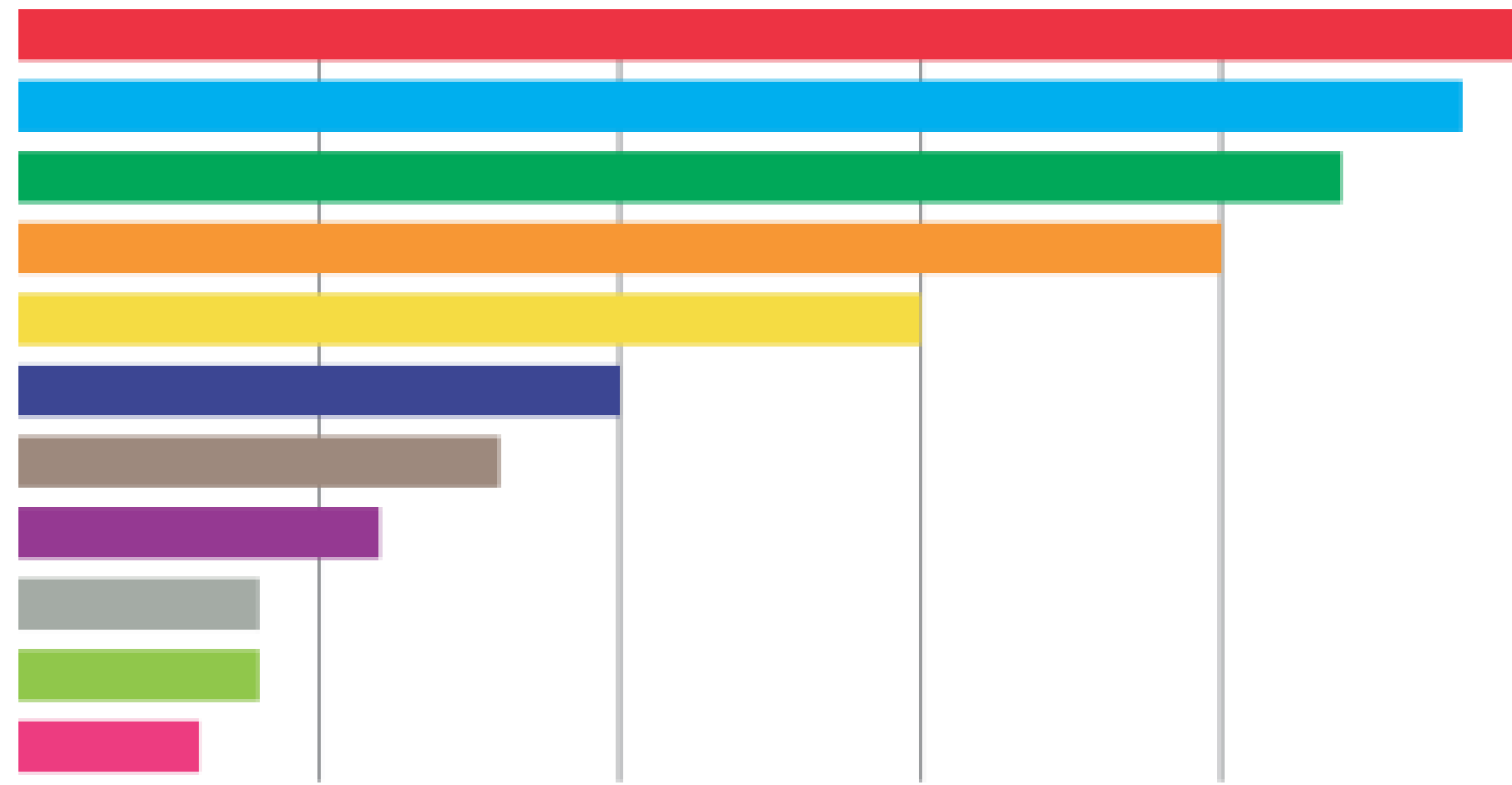
Can compare hugely different numbers.

Not good for small differences.

# total wins by franchise, nba







Area, not diameter.

# SUBSIDIZE THIS

THE PRICE THAT YOU PAY FOR ENERGY—WHETHER ELECTRICITY AT YOUR HOUSE OR GAS AT THE PUMP—ISN'T ACTUALLY THE PRICE THAT THE MARKET WOULD SET FOR THAT ENERGY.

The government spends billions of dollars to support the energy industry, which allows it to make energy cheaper than it should cost on the open market. These subsidies—either in the form of tax breaks or direct funding—favor some types of energy over others, giving our country a skewed sense of what each gallon of gas or wind-powered electron costs. This is a look at where the government directed its subsidy dollars from 2002 to 2008.

SOURCE "Estimating U.S. Government Subsidies to Energy Sources" by the Environmental Law Institute



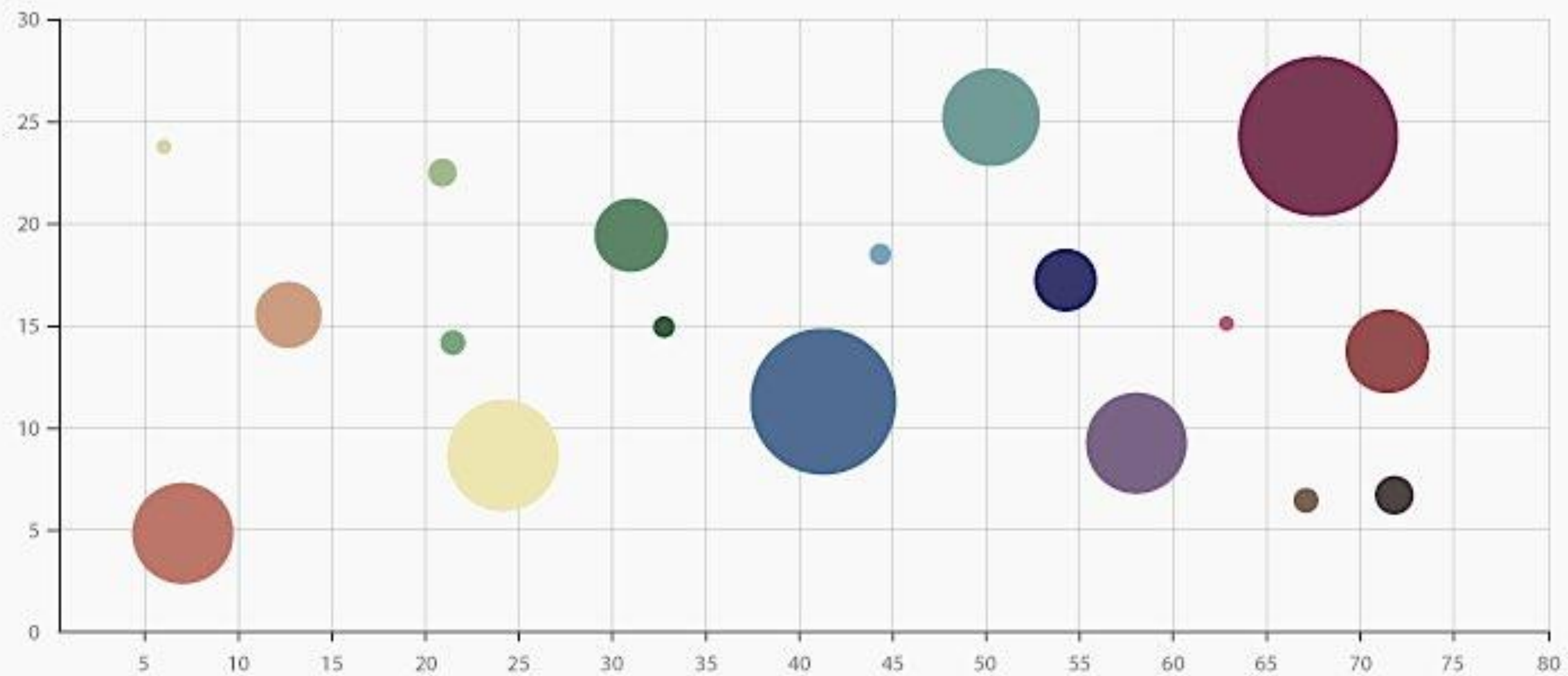
# SUBSIDIZE THIS

THE PRICE THAT YOU PAY FOR ENERGY—WHETHER ELECTRICITY AT YOUR HOUSE OR GAS AT THE PUMP—ISN'T ACTUALLY THE PRICE THAT THE MARKET WOULD SET FOR THAT ENERGY.

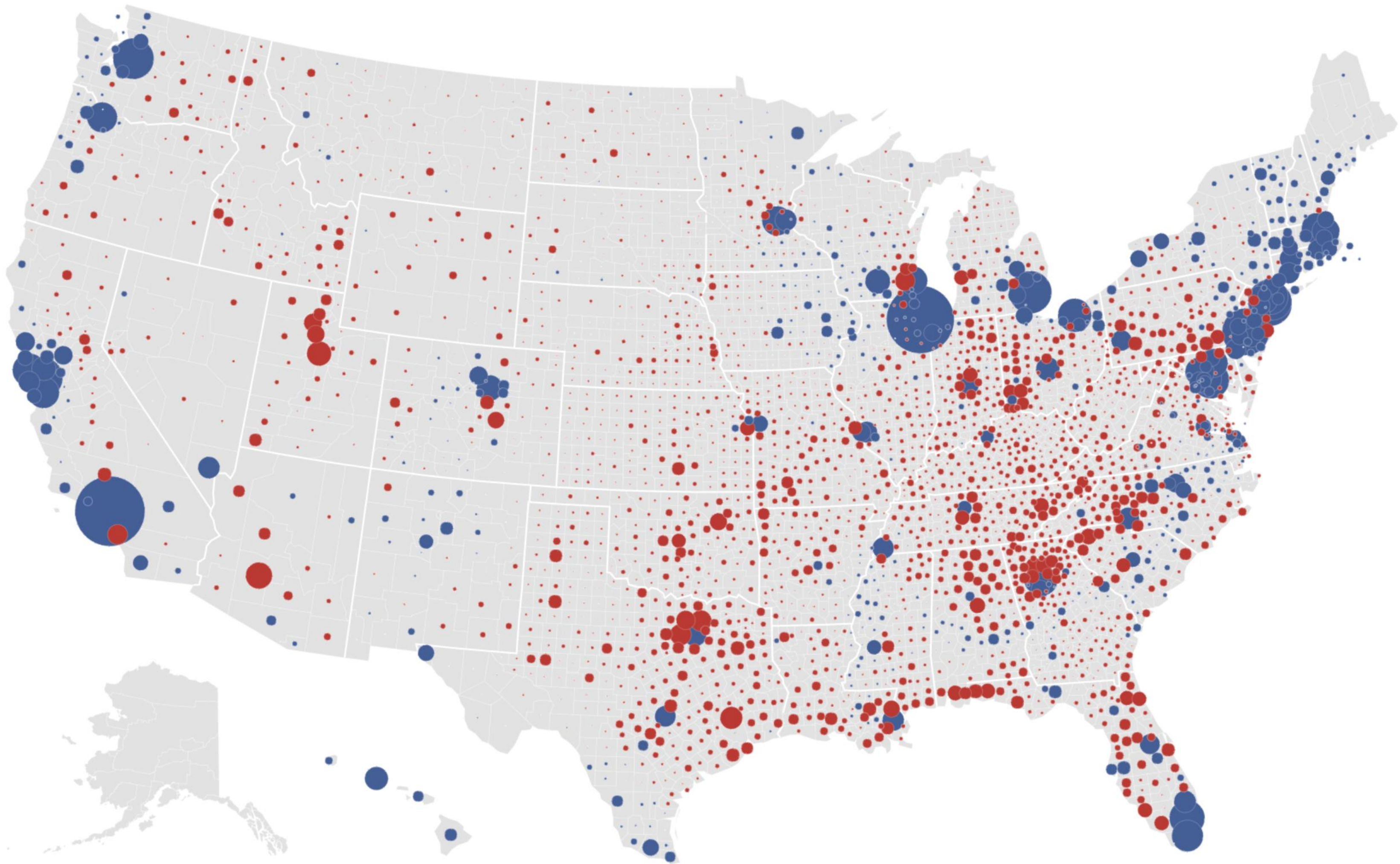
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SOURCE "Estimating U.S. Government Subsidies to Energy Sources" by the Environmental Law Institute

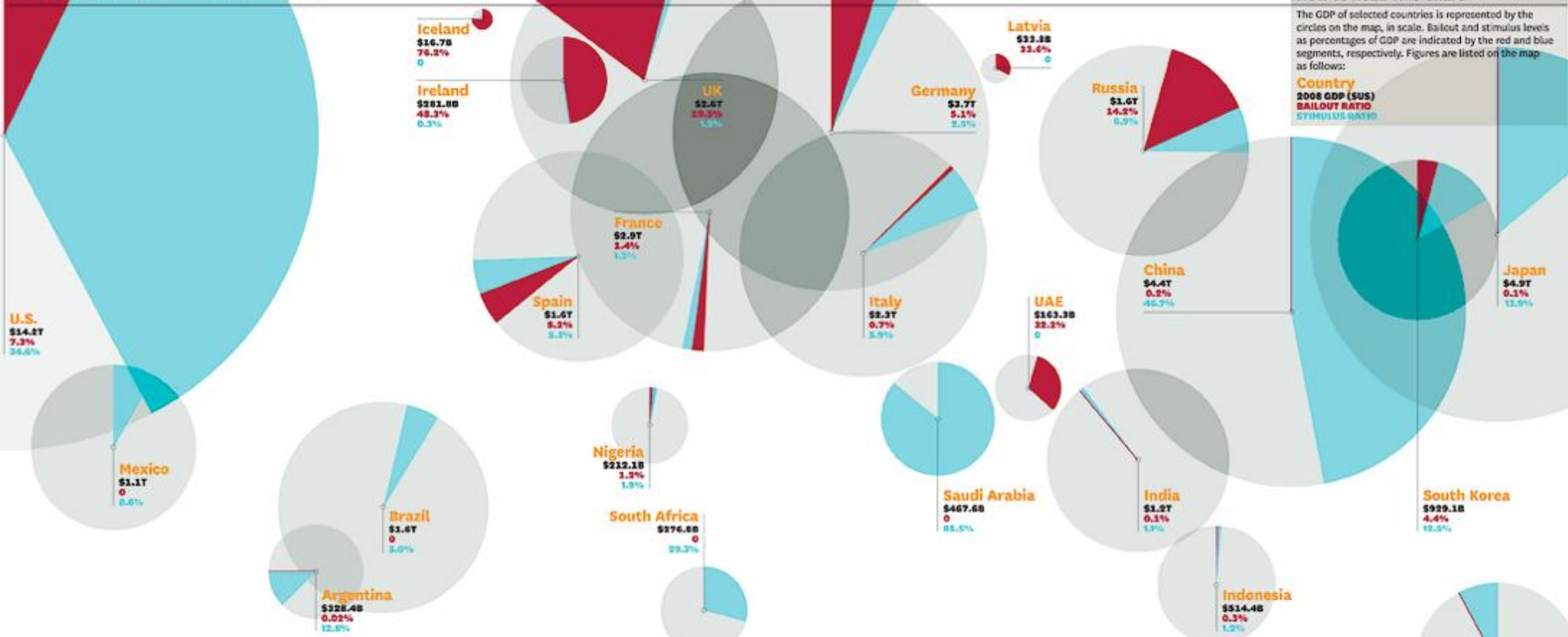








# Vision Statement



**How to Read This Chart**  
 The GDP of selected countries is represented by the circles on the map, in scale. Bailout and stimulus levels as percentages of GDP are indicated by the red and blue segments, respectively. Figures are listed on the map as follows:  
**Country**  
**2008 GDP (\$US)**  
**BAILOUT RATIO**  
**STIMULUS RATIO**

## A Map to Healthy—and Ailing—Markets

The economic crisis will influence business long into recovery. As strategists target global investments, they need to understand the effects of bailout and stimulus programs. Calculating these interventions as percentages of GDP helps identify which economies will be stressed and which will have the resources to bounce back.

**Bailout**  
 A high bailout-to-GDP ratio—a large slice of red in the pie—usually indicates financial stress and instability that will extend the economy's recovery time. Countries with the highest bailout percentages are mostly in the West, where the crisis originated. (Three-quarters of all bailout money was allocated in Western nations and accounts for 7.8% of their combined GDP.) Others, like the United Arab Emirates, were deeply invested in Western financial markets and real estate. For instance, despite similar conservative stances regarding leverage, the UAE and Saudi Arabia experienced markedly different recessions because the UAE did not strictly enforce its policies. Countries with high percentages not pictured here include Hungary (20.6%), Qatar (17.9%), and Norway (19.5%).

**Stimulus**  
 The stimulus-to-GDP ratio is more complicated. A high percentage of stimulus—a large slice of blue—indicates that the country is deeply affected by the recession but also willing and able to drive recovery through public policy. Although Eastern economies didn't use much bailout money, they received 40% of all stimulus funds—amounting to a 20.6% stimulus-to-GDP ratio (\$3.7T), compared with Western economies' 14.6% ratio (\$5.7T). Given the scope of global trade and the West's demand for Eastern goods and services, the recession reached beyond Western financial markets. This was a global economy in action: The source of the trouble was local; its effect, worldwide. Eastern nations including China and Japan have invested substantial funds in aviation, shipbuilding, textiles, and petrochemicals. South Korea has chosen to prop up small and midsize businesses and, like China, to invest more heavily than the U.S. in green projects such as solar energy and clean transportation.



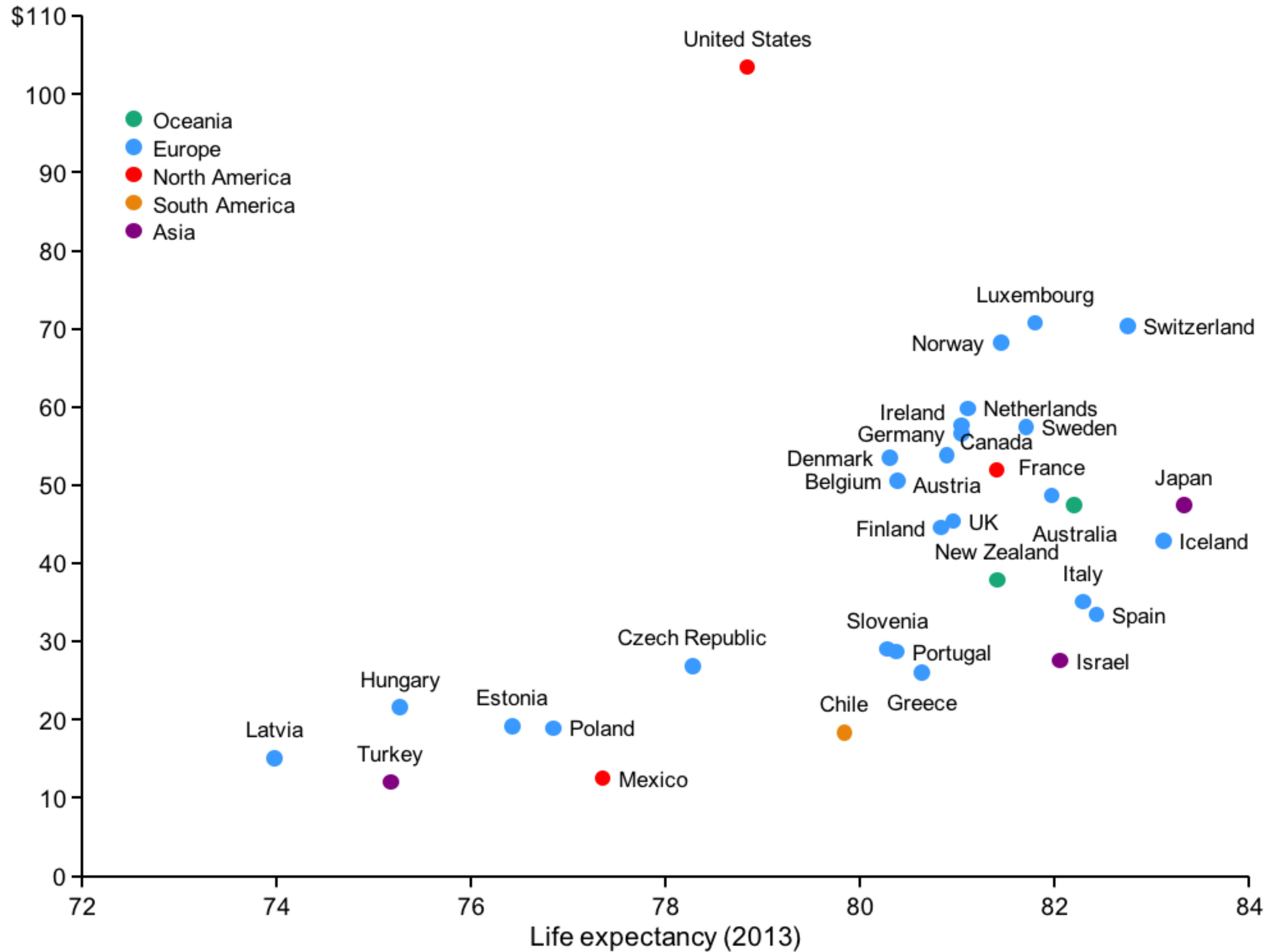
**Grail Research** is a strategic research firm based in Cambridge, Massachusetts. The design firm **de Luxe & Associates** is based in Sydney.

HBR Reprint F1001E

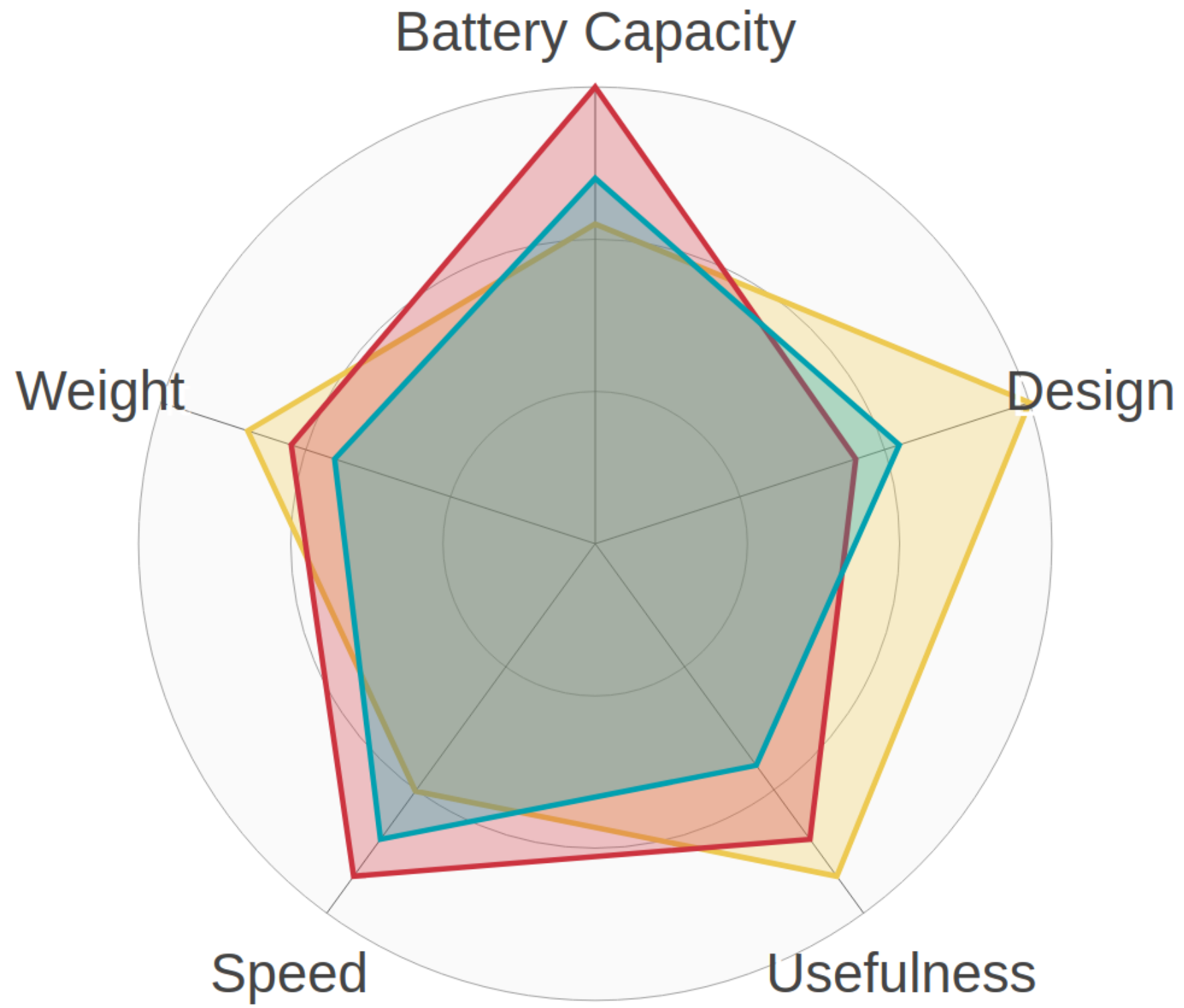


**Other chart types**

Healthcare expenditure per capita/Life expectancy  
(2013, normalized to 2010 international dollars)



Source: Our World in Data



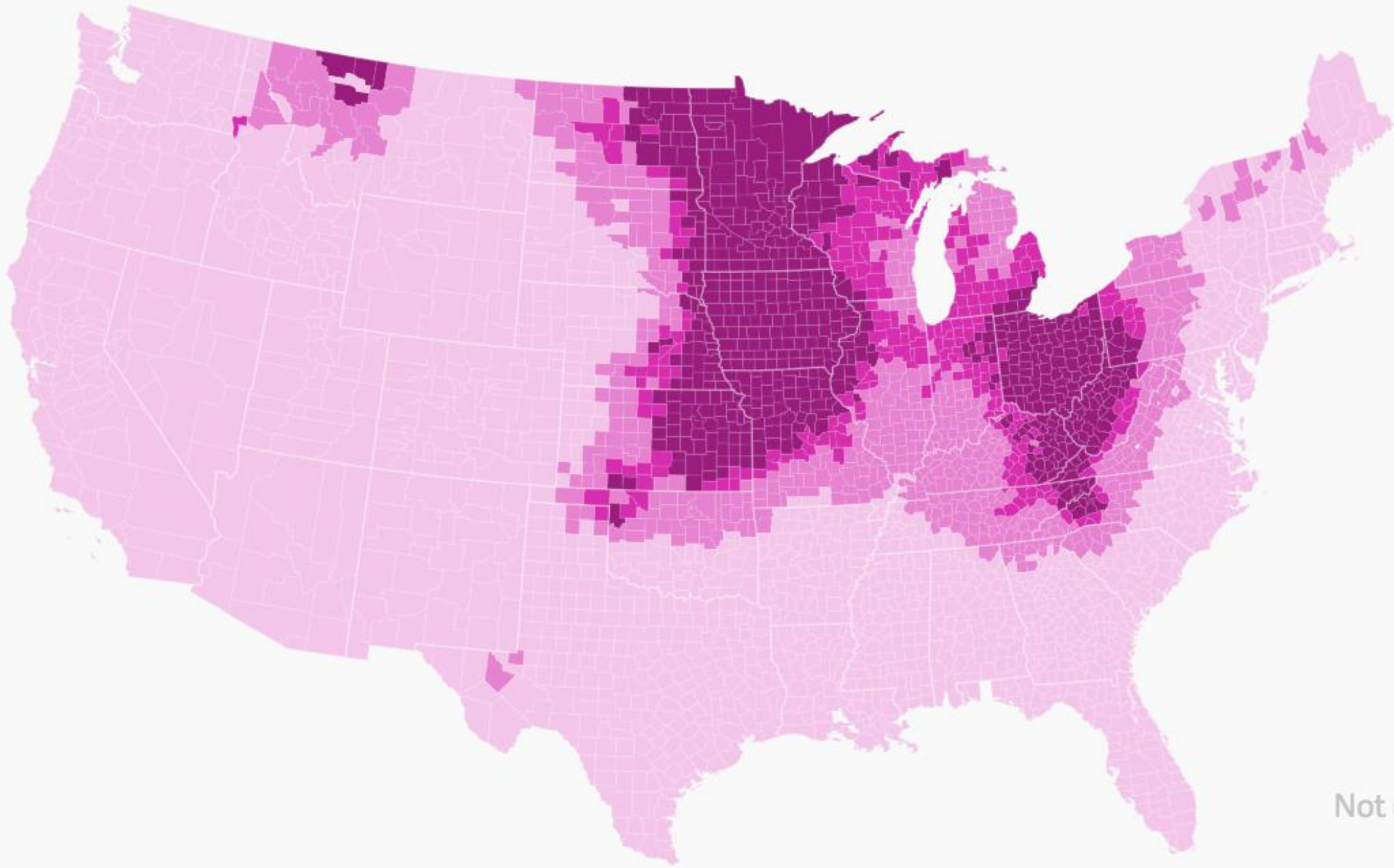
bro

**BUDDY**

dude

fella

pal



Not common →

Very common →

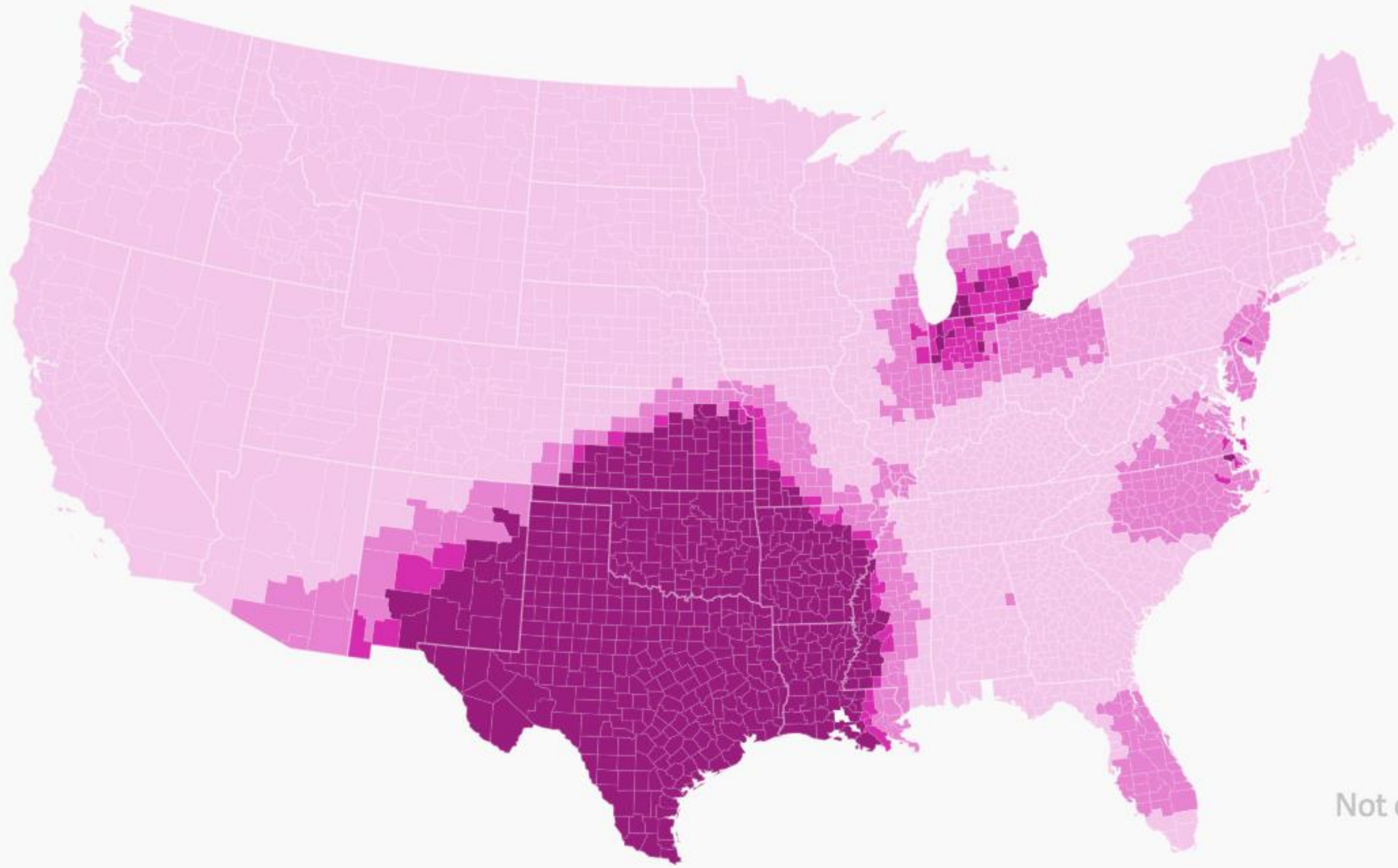
**BRO**

buddy

dude

fella

pal



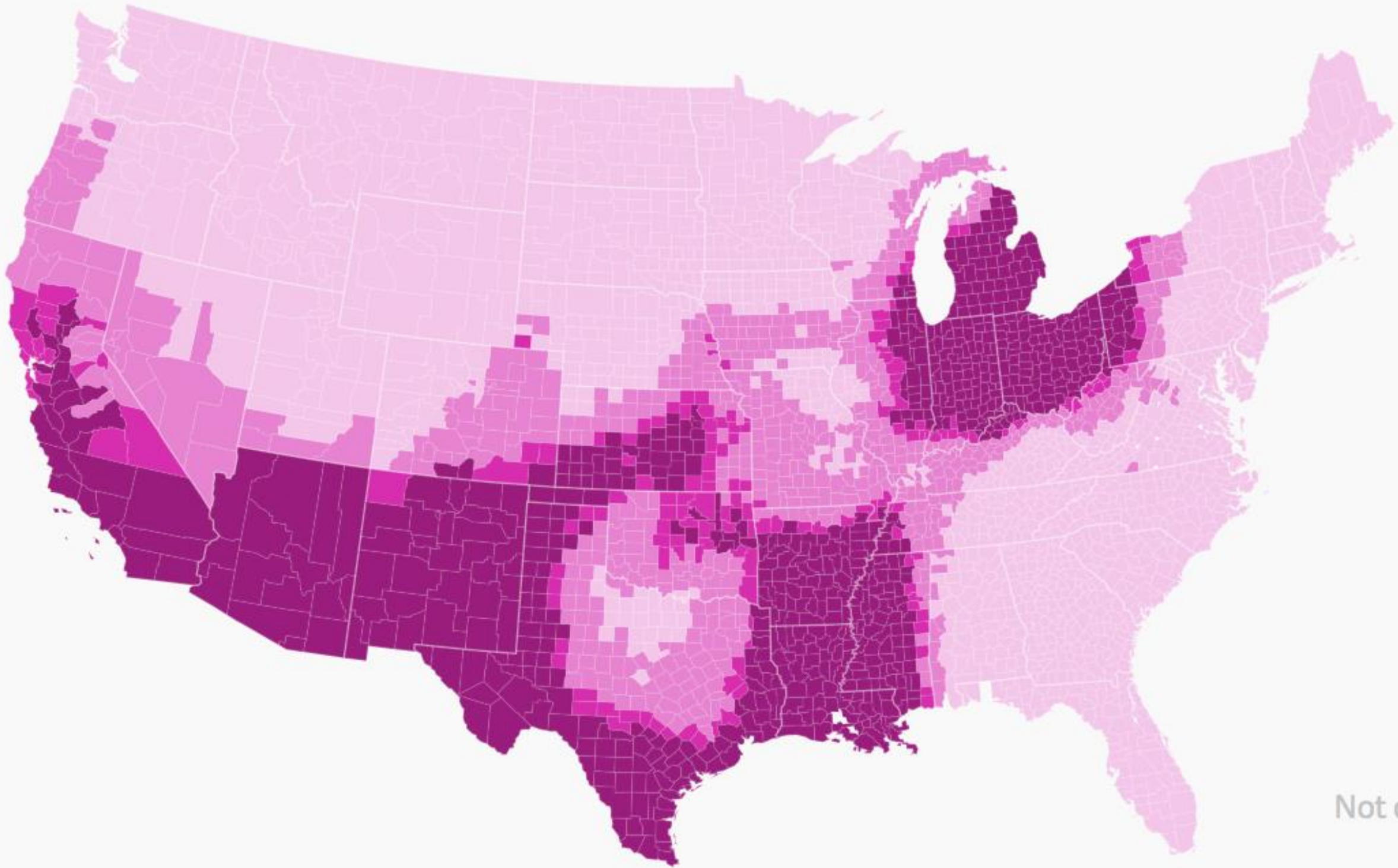
bro

buddy

**DUDE**

fella

pal





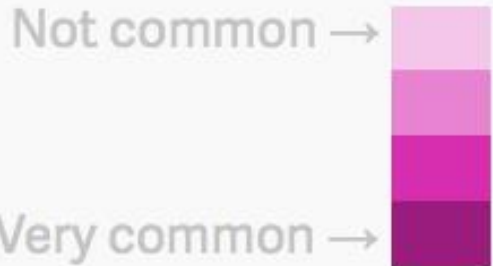
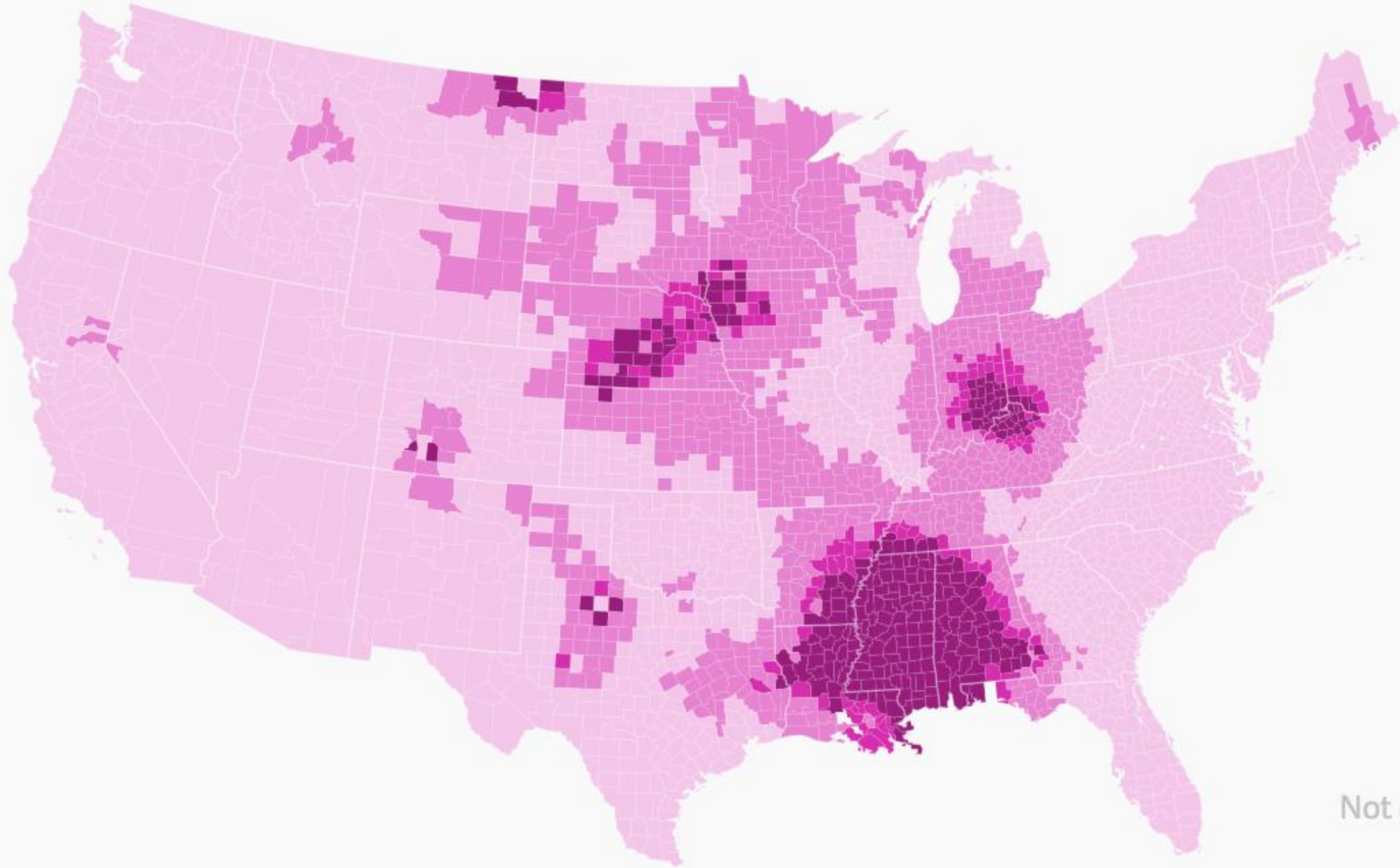
bro

buddy

dude

**FELLA**

pal



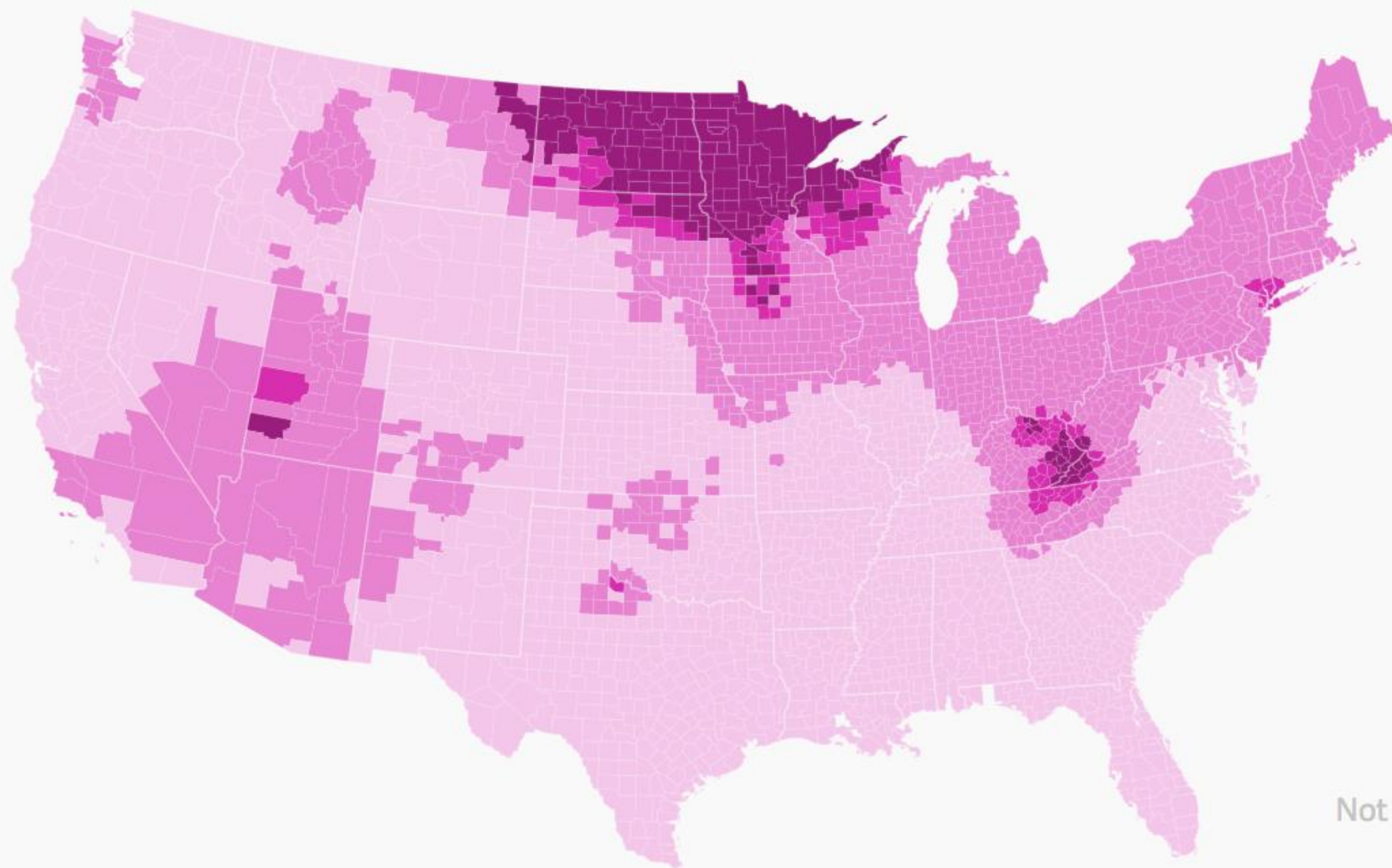
bro

buddy

dude

fella

**PAL**



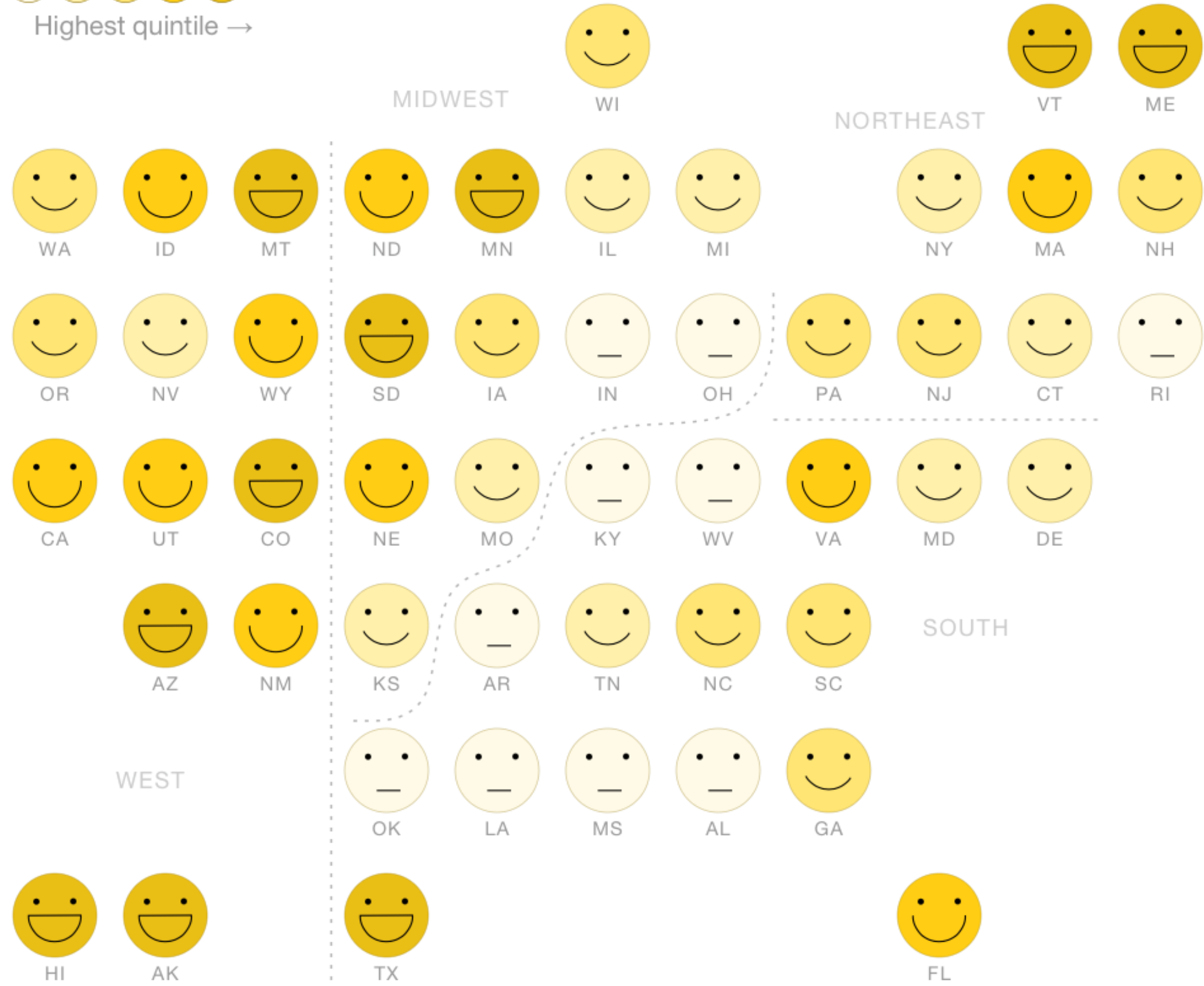
Not common →

Very common →

Well-being score



Highest quintile →



Gutfeld on Venezuela's descent into socialist chaos

Official: Asylum seekers to wait in Mexico as soon as Friday while cases are considered

Massive data breach involving millions of mortgage documents just got much worse

Sorry, Sweethearts Fans: Iconic Candy Won't Be Sold This Year

Starbucks Earnings Beat, Guidance Upbeat; Stock Eyes Buy Point

Intel forecasts first-quarter below estimates, shares fall

After Thursday test firing, SpaceX may be a month from commercial crew launch

Scientists Try to Recreate Freakishly Tall 'Rogue' Waves in the Lab

SpaceX conducts static fire test on Falcon 9 ahead of Crew Dragon debut

Trump reportedly grows weary with Giuliani's gaffes

Top Florida official resigns after photos surface in blackface, mocking Katrina survivors

How Americans can end the shutdown in one day: Call for a strike

NY Post Shocked To Learn Biglaw Works Paralegals To The Bone

Intel's shares plunge 8% as it misses on revenue, earnings, and guidance

How Americans can end the shutdown in one day: Call for a strike

SBUX earnings Q1 2019

Record-Setting Ice Hole Drilled in Antarctica

Complete Axolotl Genome Could Pave the Way Toward Human Tissue Regeneration

You're Using Extra Virgin Olive Oil All Wrong

Moon-Forming Smashup May Have Paved the Way for Life

White House Drafts Emergency Order Trump Could Issue Over Wall Funds: CNN

PG&E shares spike 50% after California investigators clear utility of blame for a 2017 fire

Trump aides keep telling struggling workers to suck it up

Schumer blocks bill to pay Coast Guard I TheHill

Intel shares drop 6% after delivering poor Q1 guidance

Tesla Reduces Production of Model S and X Cars

National Chicken Council, shouting into void, petitions government for federal wings holiday

Stock Market News: Xilinx, Lam Research Lead Monster Chip

Trump tariffs reduce Ford UAW workers' profit-sharing checks by \$750 each

Lasers used to beam audible messages directly to people's ears

"Moons of Moons" --Could Serve as an Outpost for a Technological Civilization

NASA's Opportunity Rover Logs 15 Years on Mars

"Fast-Track" -- New 'Alien' Species Rapidly Evolving in Antarctica's Waters

Now we know the secret of Kellyanne Conway's success in the Trump White House

Senate blocks White House-backed bill to end

Kalief Browder's Suicide Brought Changes to Rikers. Now It Has Led to a \$3 Million Settlement.

Pelosi: No Dem counter on border security I TheHill

How the chaos in Venezuela will impact oil prices

Nissan shareholders could kick a Brentwood man off the board after accusations of fraud

Why Shares of Xilinx Are Soaring Today

General Motors is investing \$22 million in a Tennessee plant to build fuel efficient V-8 engines

Coca-Cola Pulls Out of Super Bowl

Indianapolis weather: Temperatures could be 'dangerously cold' next week

Breakthrough reported in fabricating nanochips

'Scotland's Krakatoa': Large volcanic eruption 56 million years ago wiped out hundreds of species

Extreme Weather Is Preventing Plants From Processing

House Democrats zero in on Deutsche

A guide to pronouncing 2020 candidates' names

Democrat erupts at Cruz's 'crocodile tears' on the Senate floor: WATCH

Ben Stiller sitting with New York Gov. Andrew Cuomo stuns social media users

Schools closing Friday due to illness

With recent outbreak, here's how to stay protected against measles

10-Year-Old Boy's Kidney Grew in His

Spotify data shows how music preferences change with latitude

Toddler suffering from hallucinations, seizures diagnosed with rare brain disease

Report: Cost of Insulin Has Doubled Over Five Years

Manlius Sergeant Ken Hatter is cancer free after an 11-year battle

Third flu-related death reported in El Paso

Off-duty St. Louis police officer accidentally shot and killed by on-duty officer

Police describe execution-style killings inside Florida bank

Alexandria Ocasio-Cortez quotes the Bible after Sarah Huckabee Sanders says she should leave climate change up to God

Go to bed! Brain researchers warn that lack of sleep is a public health crisis.

Married people walk faster, says new research.

Hamilton County health officials issue alert over spike in overdoses

Scientists uncover link between gum disease, Alzheimer's disease

As flu season nears its peak, good news -- for those who got the vaccine

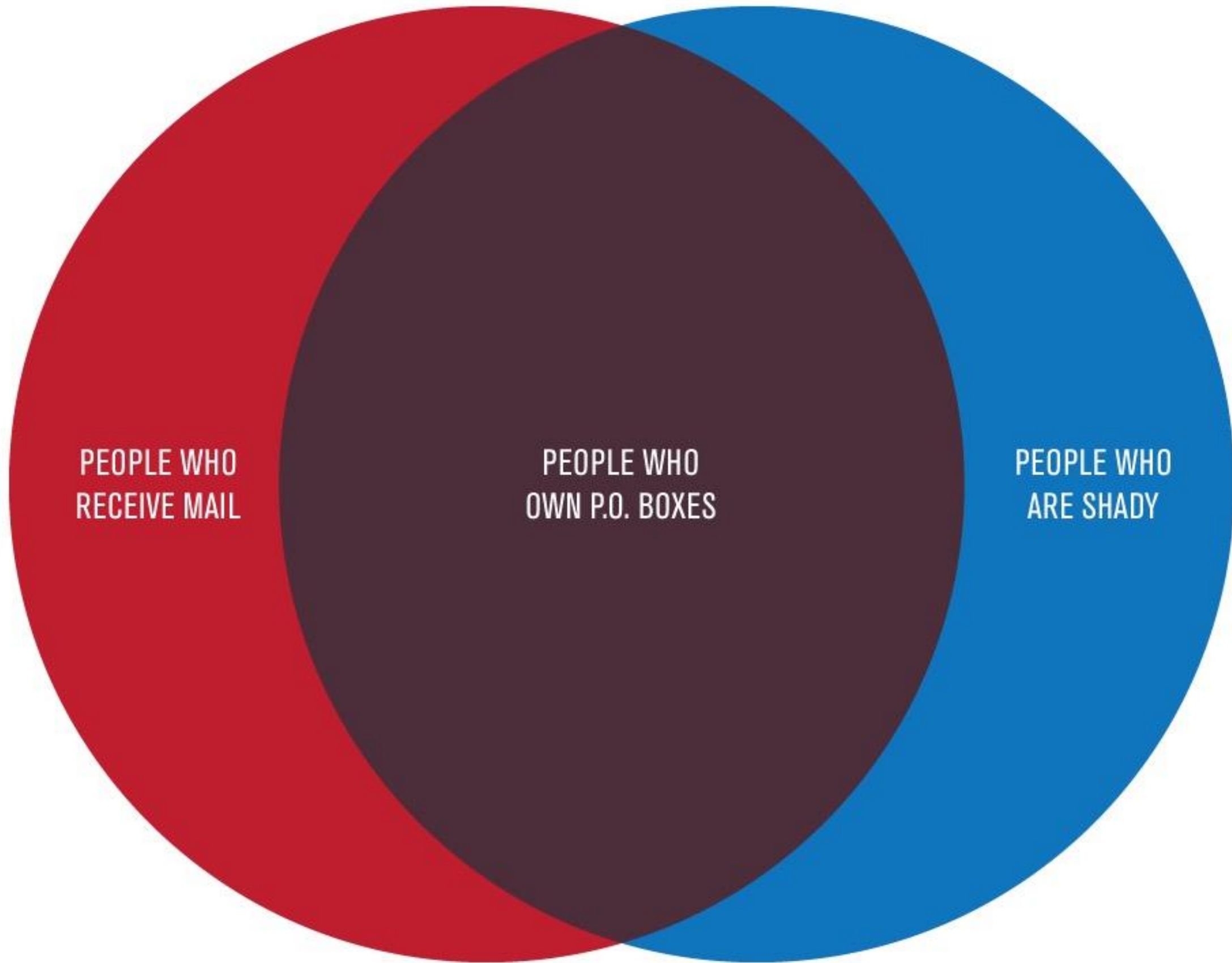
Does gum disease have a key role in Alzheimer's?

A Measles Outbreak Has Hit An Anti-Vaxer Hotspot In The US

This bat species may be the source of the Ebola epidemic that killed more than 11000 people in West Africa

A year later, formerly conjoined twins learning to grow independently

Mass cloning for neuro research? Chinese scientists report birth of five gene-edited monkeys



PEOPLE WHO  
RECEIVE MAIL

PEOPLE WHO  
OWN P.O. BOXES

PEOPLE WHO  
ARE SHADY

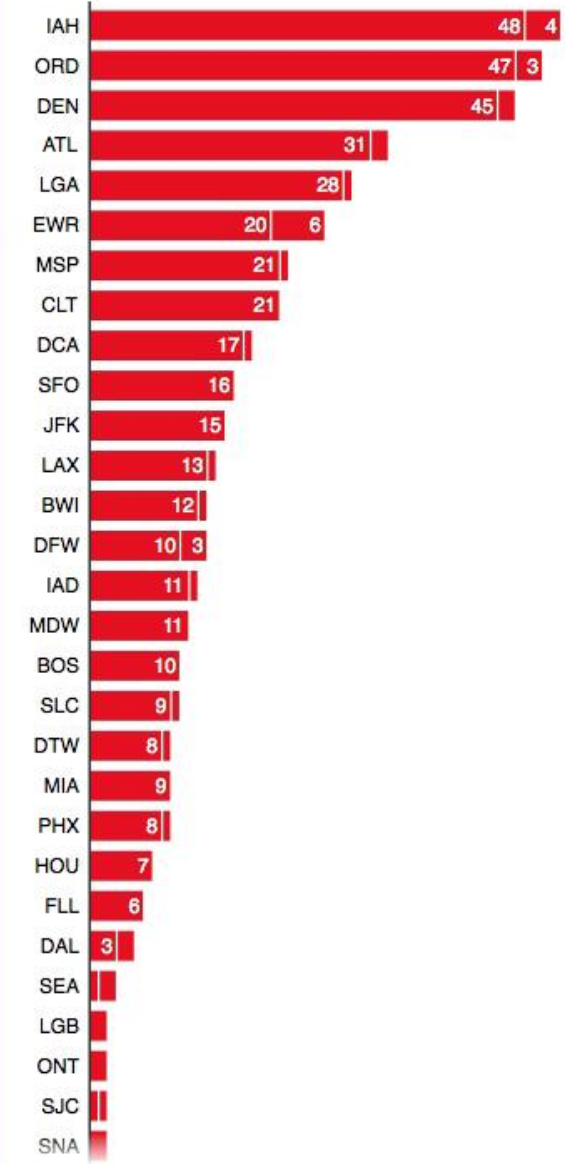
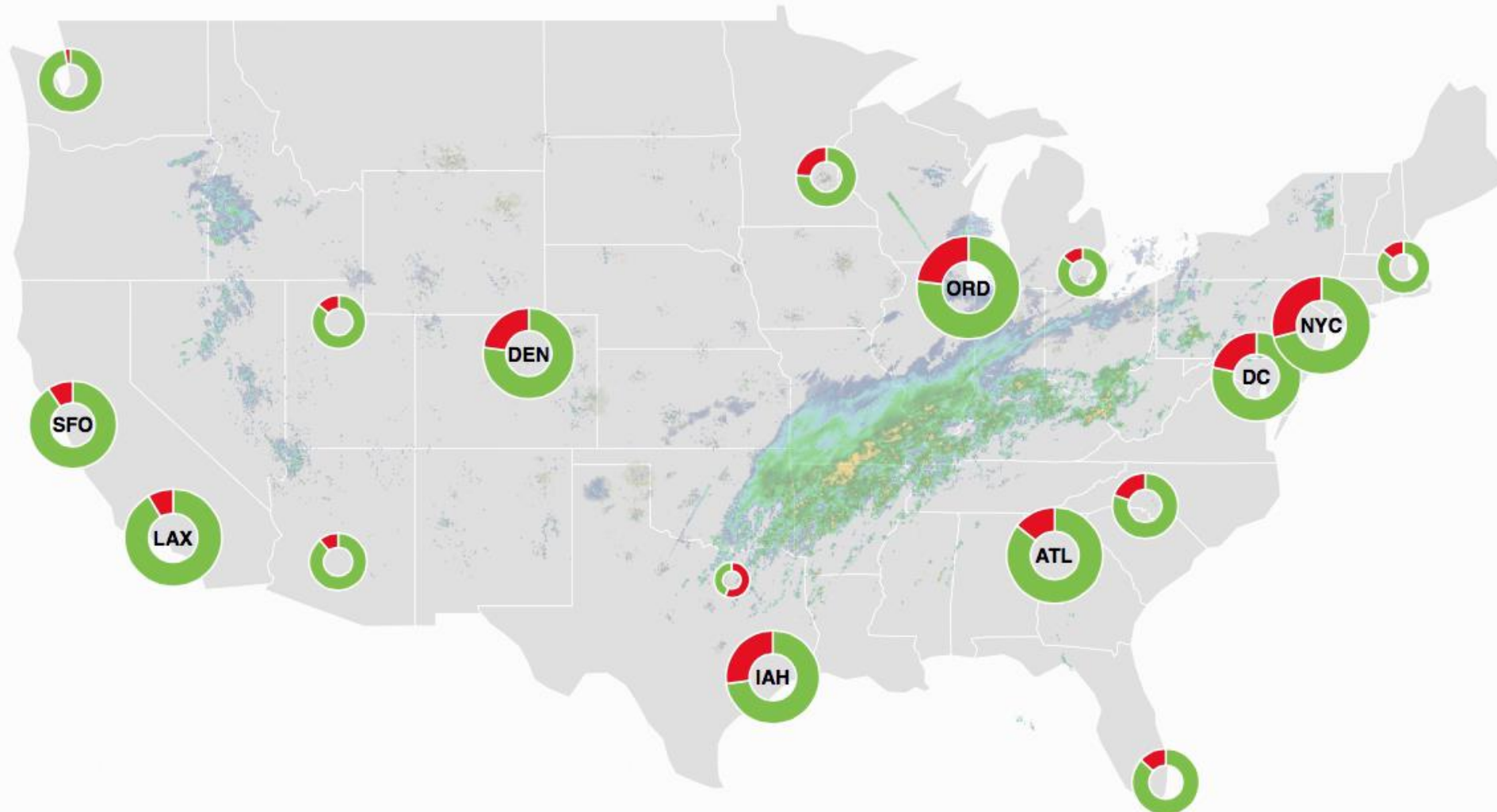
434

DELAYS

34

CANCELLATIONS

between 9 AM and 1 PM (all cancellations today)



■ : On Time ■ : Misery



Dec 5

Dec 6

**When other gifts won't cut it**

SensoTouch 3D Ranked **BEST RAZOR** by Gizmodo

GIZRANK ★★★★★

**Save up to \$50.00**  
on select Philips Norelco products  
(Discount at checkout)

[Shop now](#)

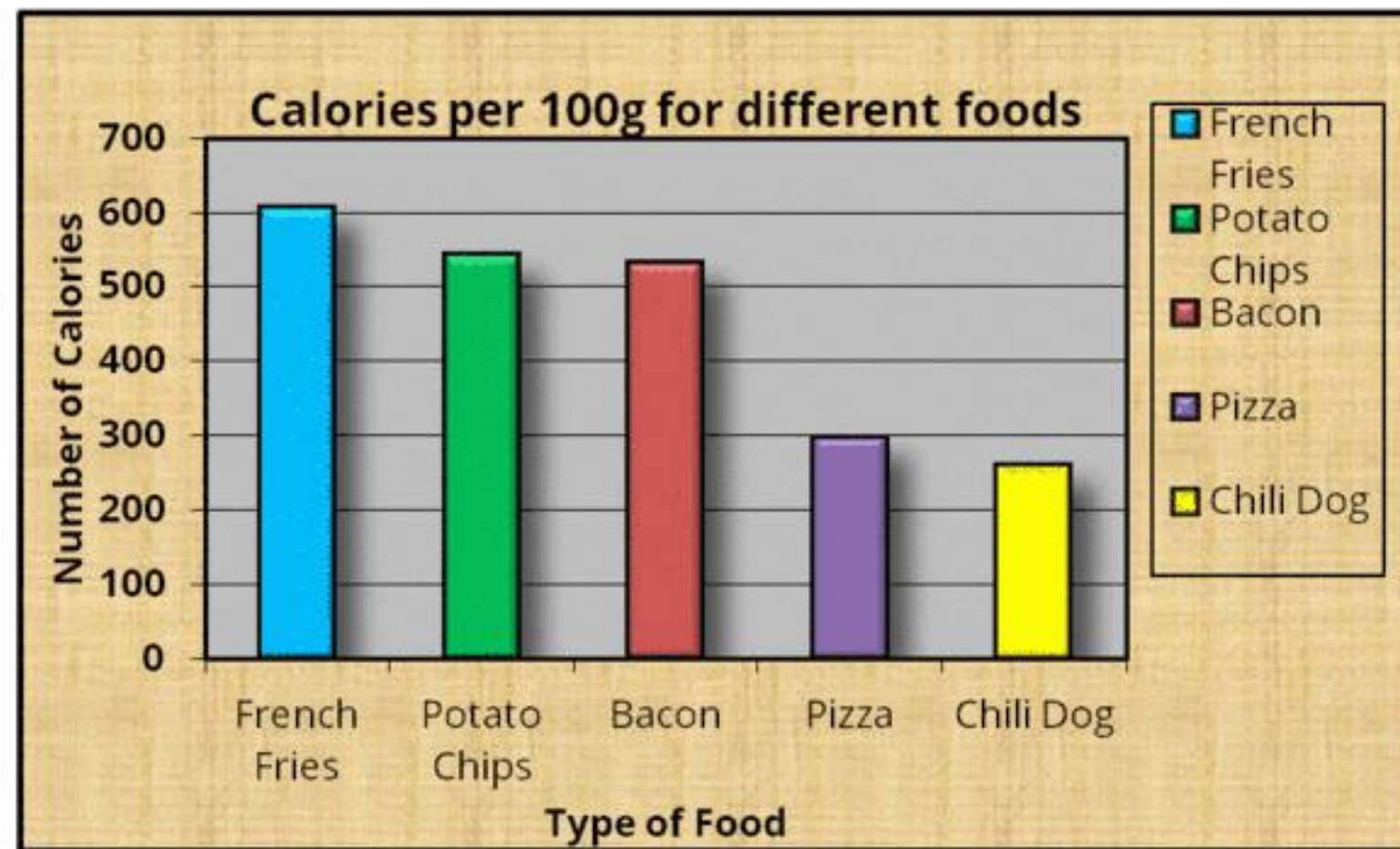
PHILIPS NORELCO amazon



**Redundancy**

# Remove background

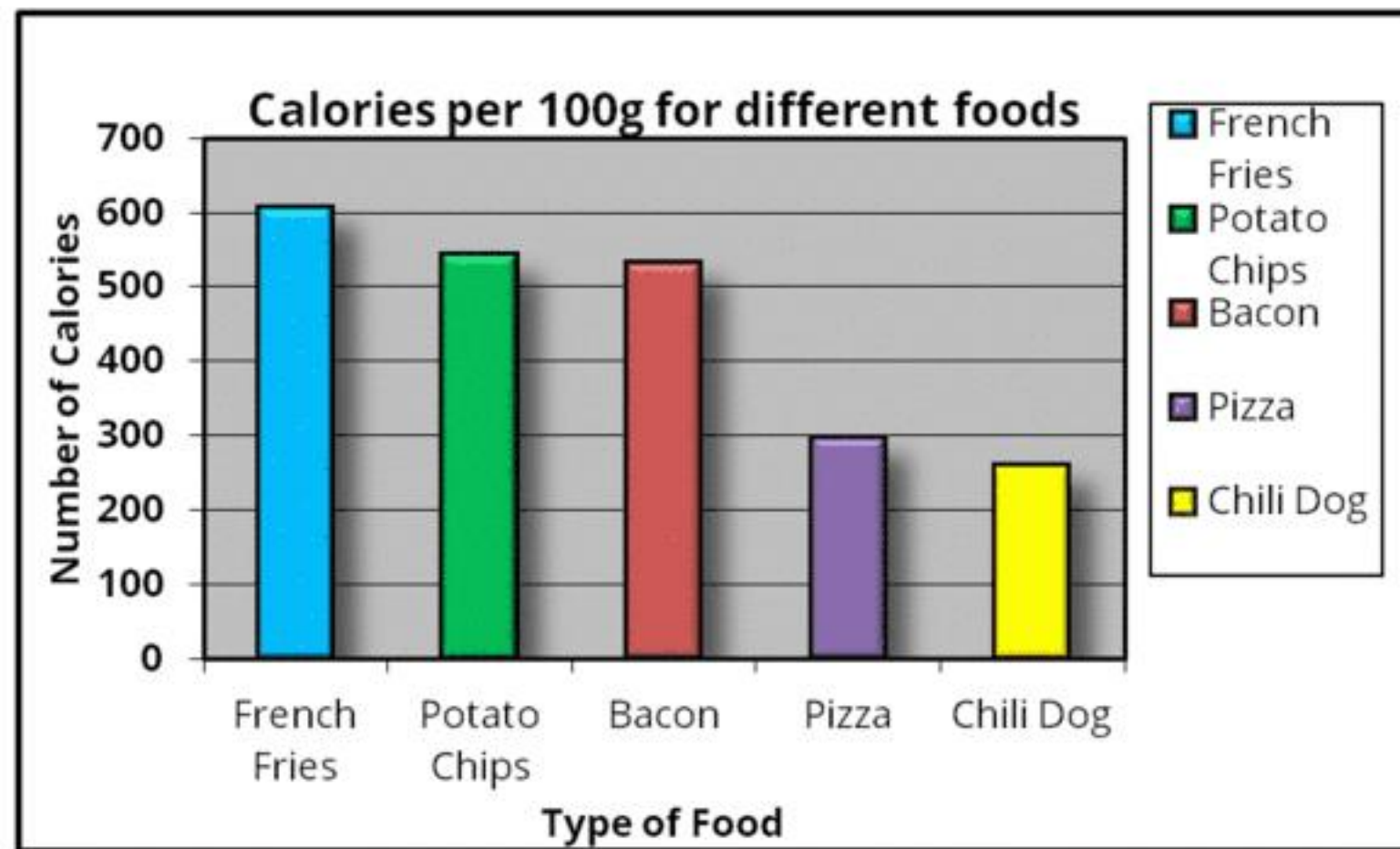
Calories: How does bacon compare?





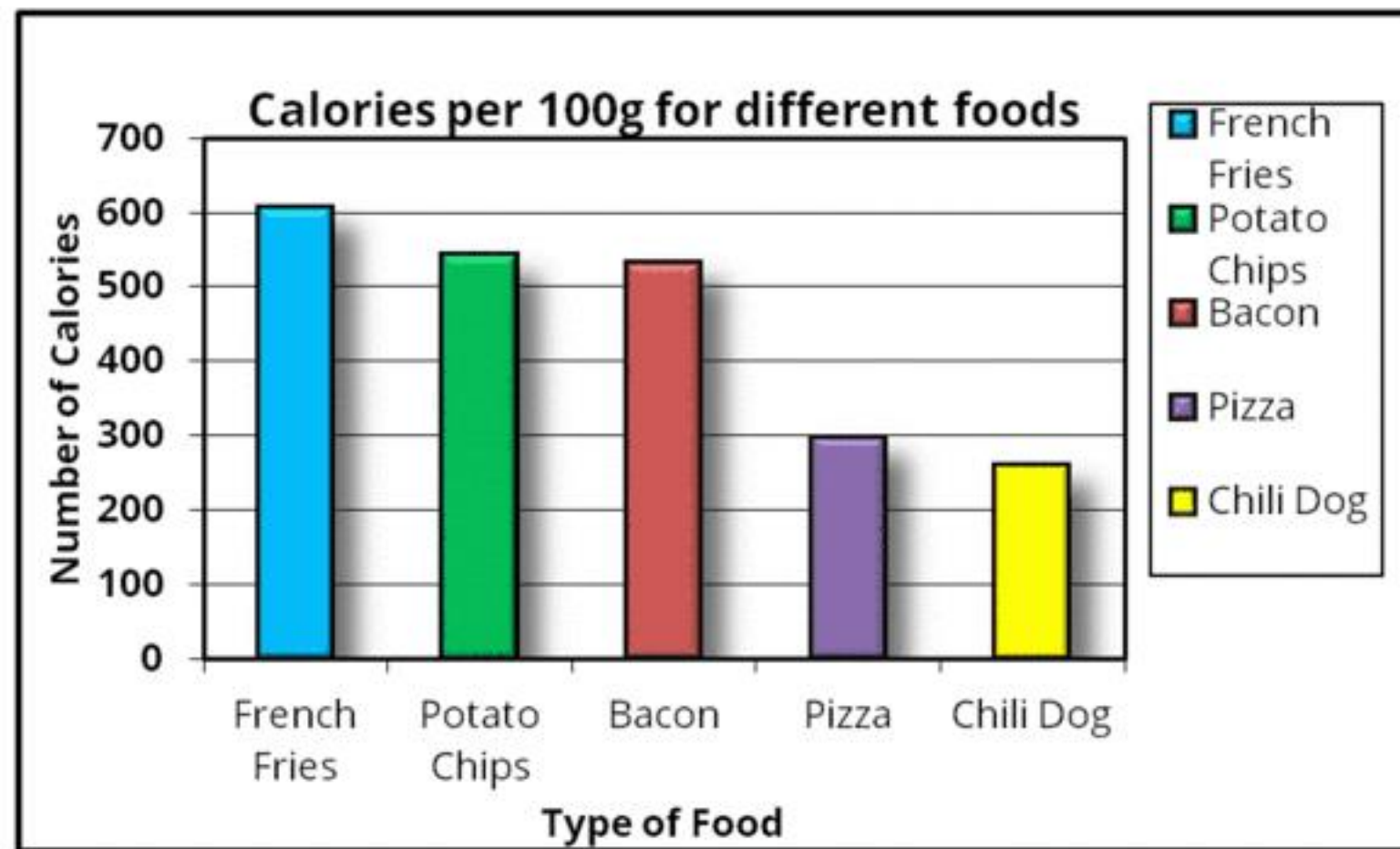
# Remove chart background

Calories: How does bacon compare?



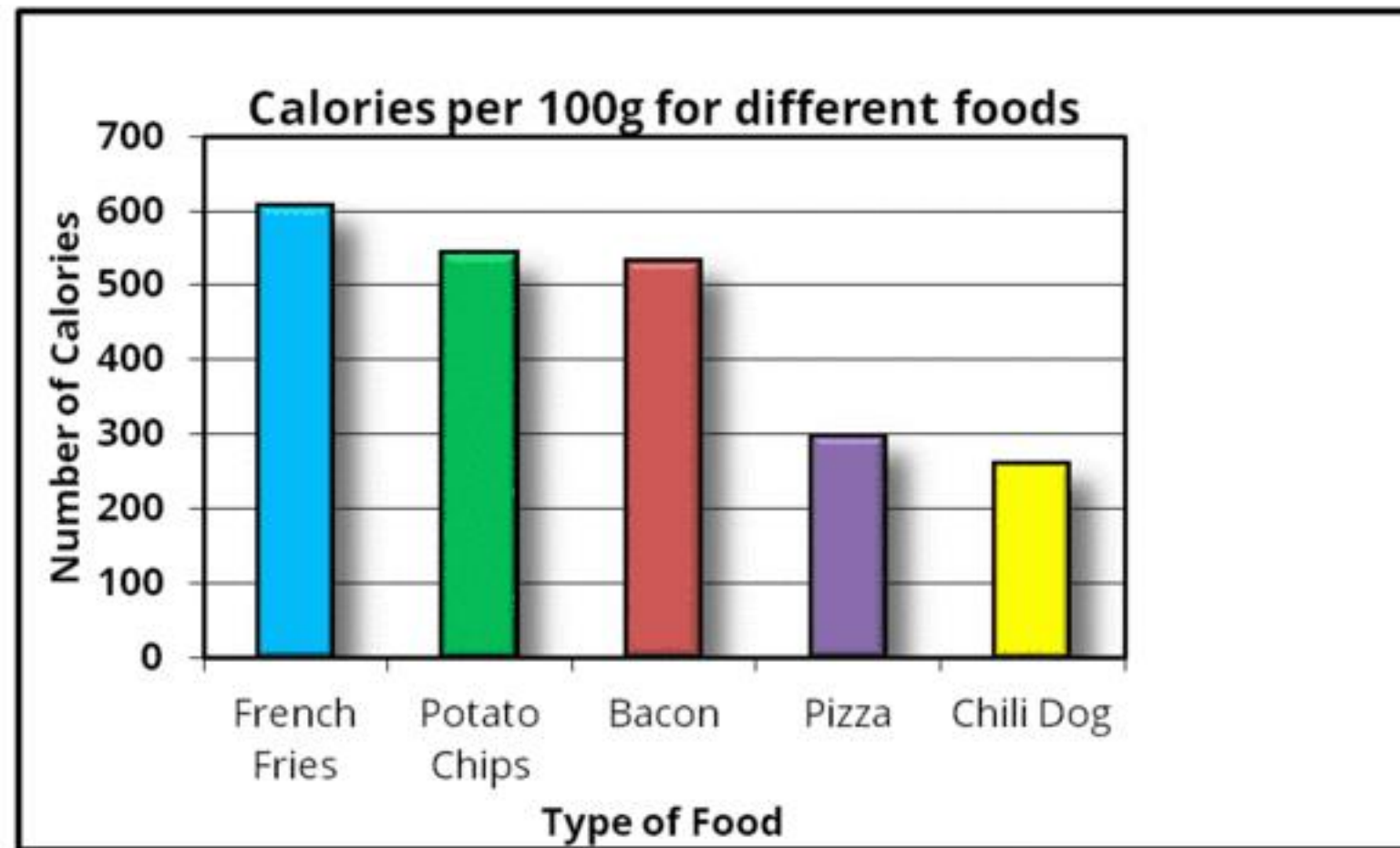
# Remove redundant key

Calories: How does bacon compare?



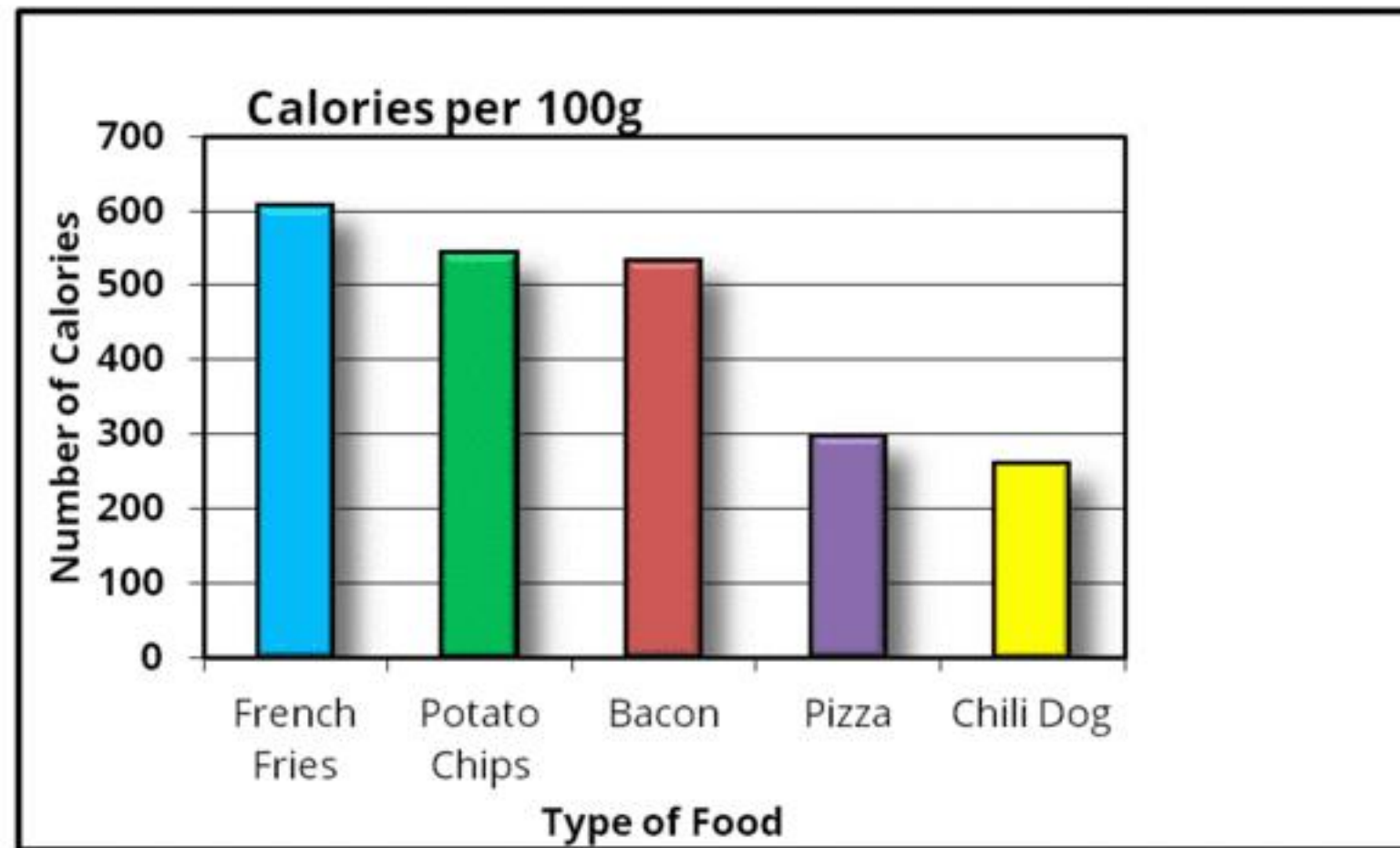
# Shorten calorie description

Calories: How does bacon compare?



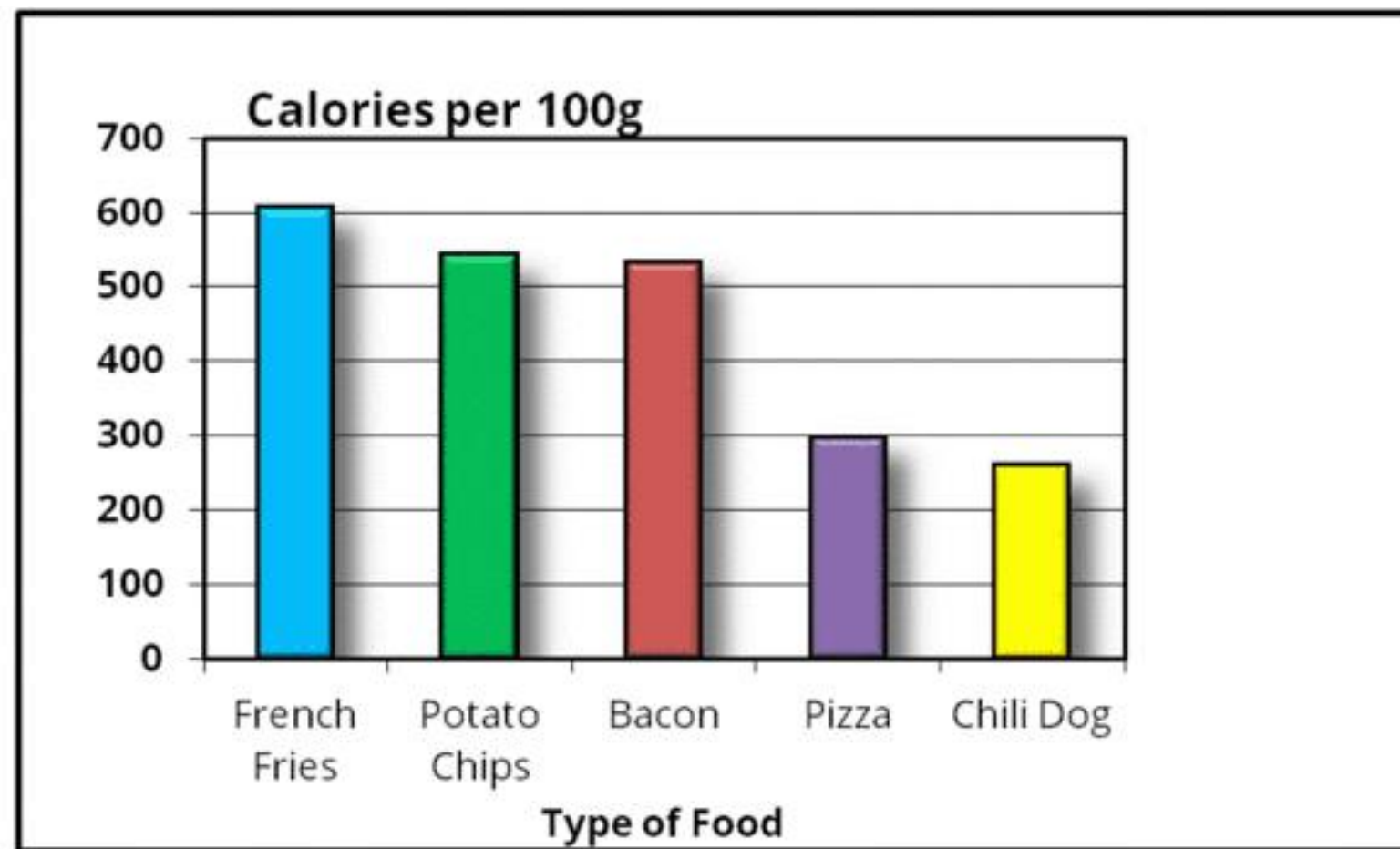
# Remove redundant vertical scale description

Calories: How does bacon compare?



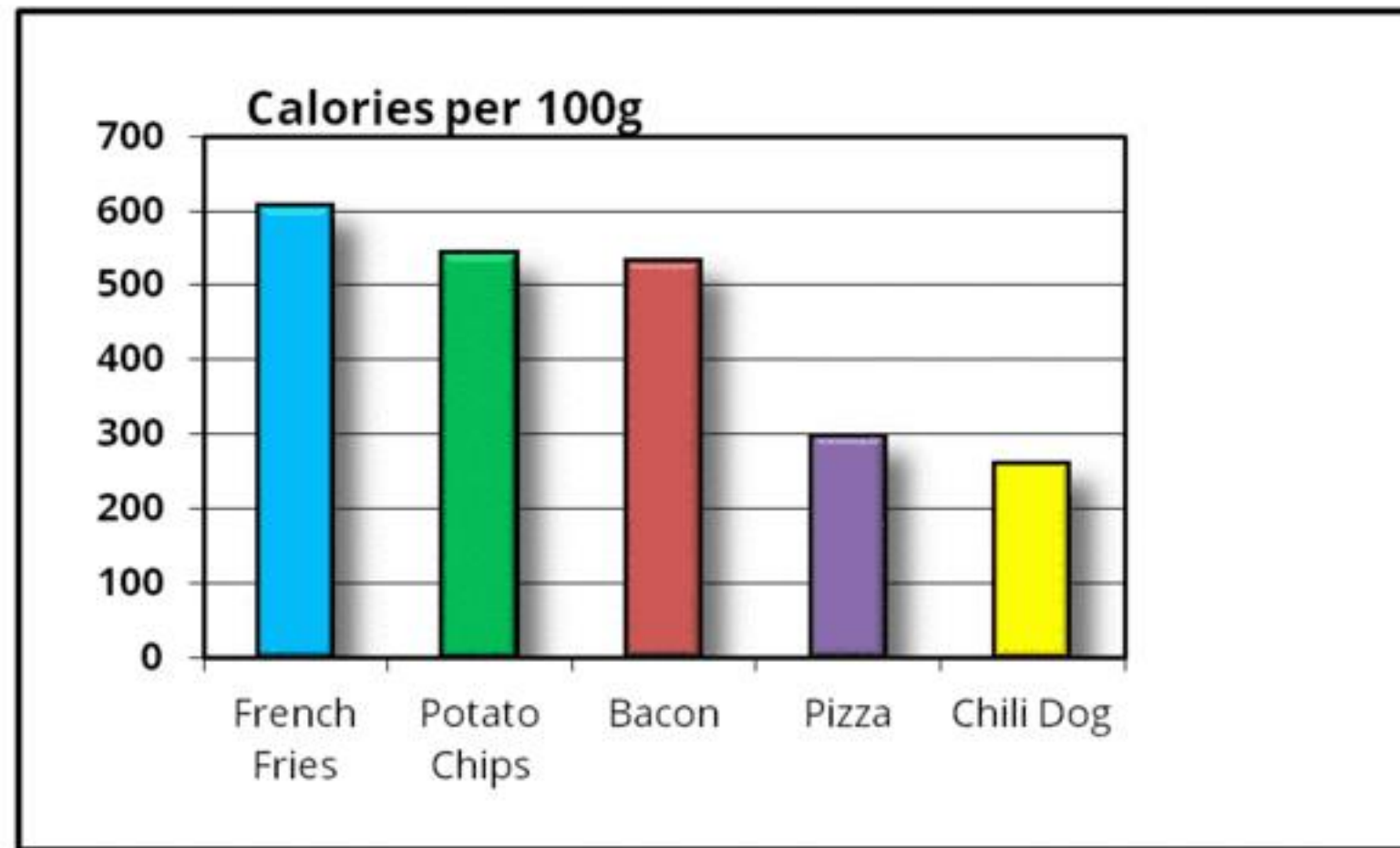
# Remove redundant type of food description

Calories: How does bacon compare?



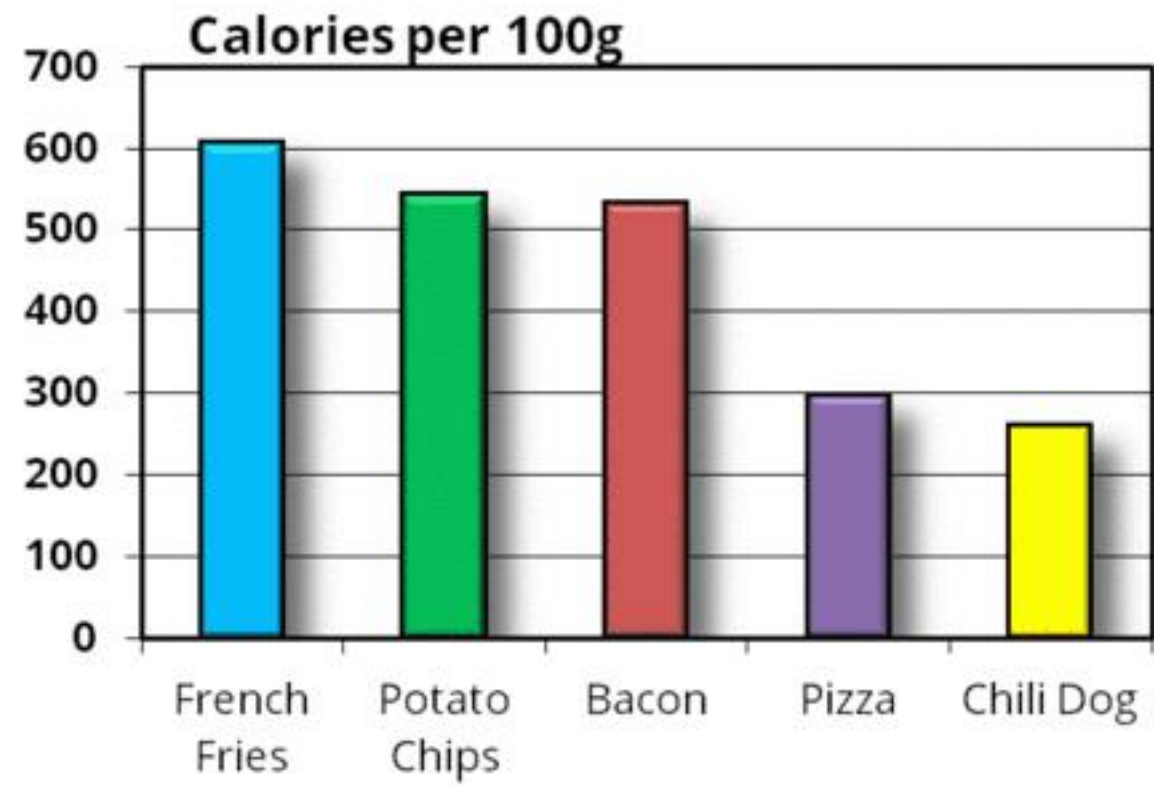
# Remove outer border

Calories: How does bacon compare?



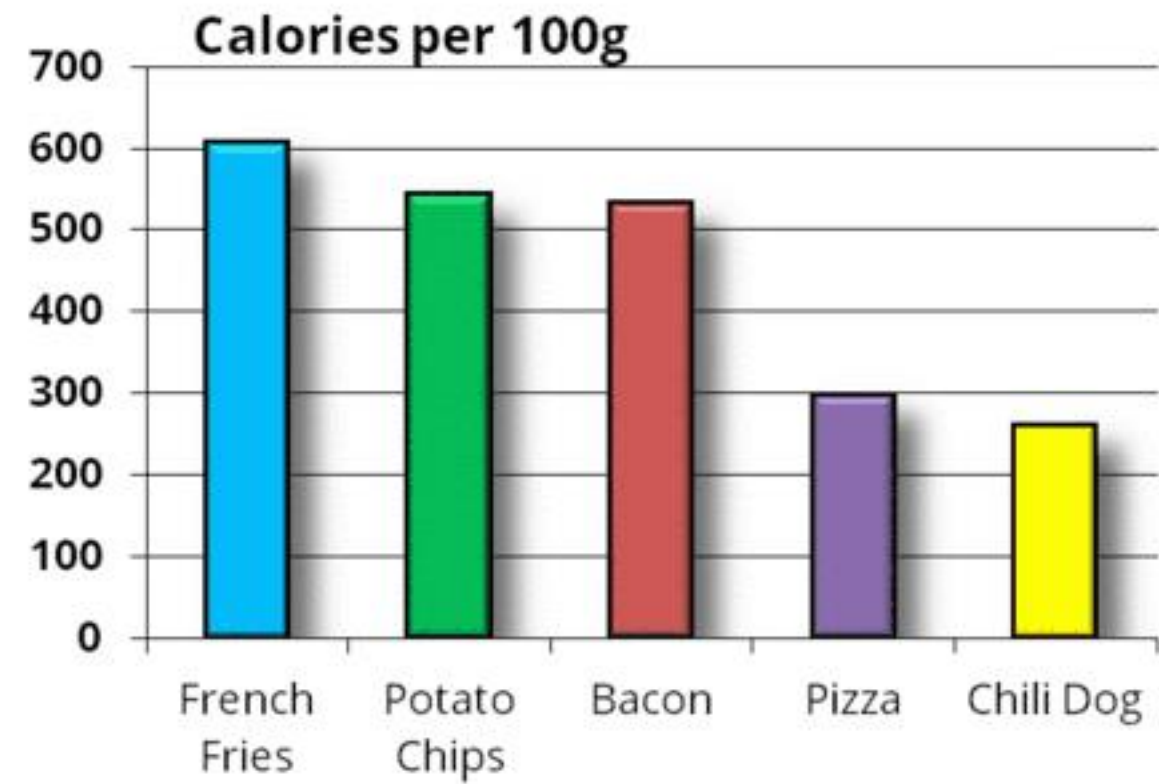
# Remove inner border

Calories: How does bacon compare?



# Remove outline on bars

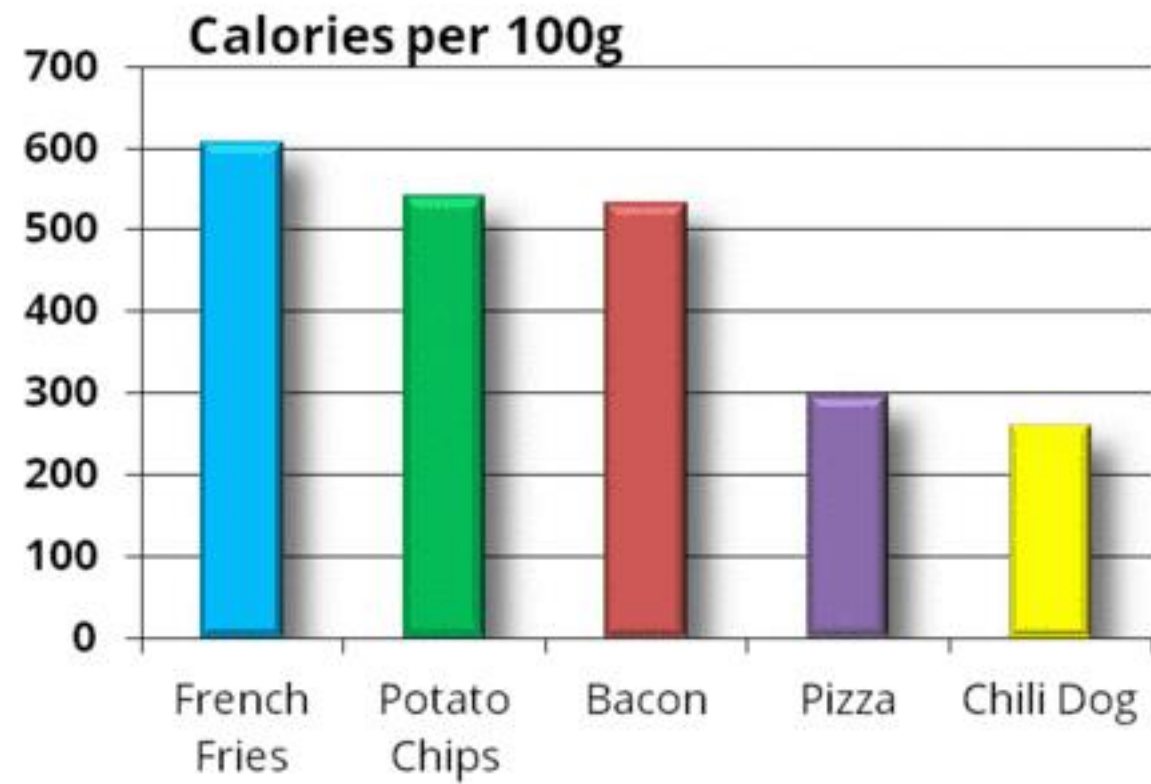
Calories: How does bacon compare?





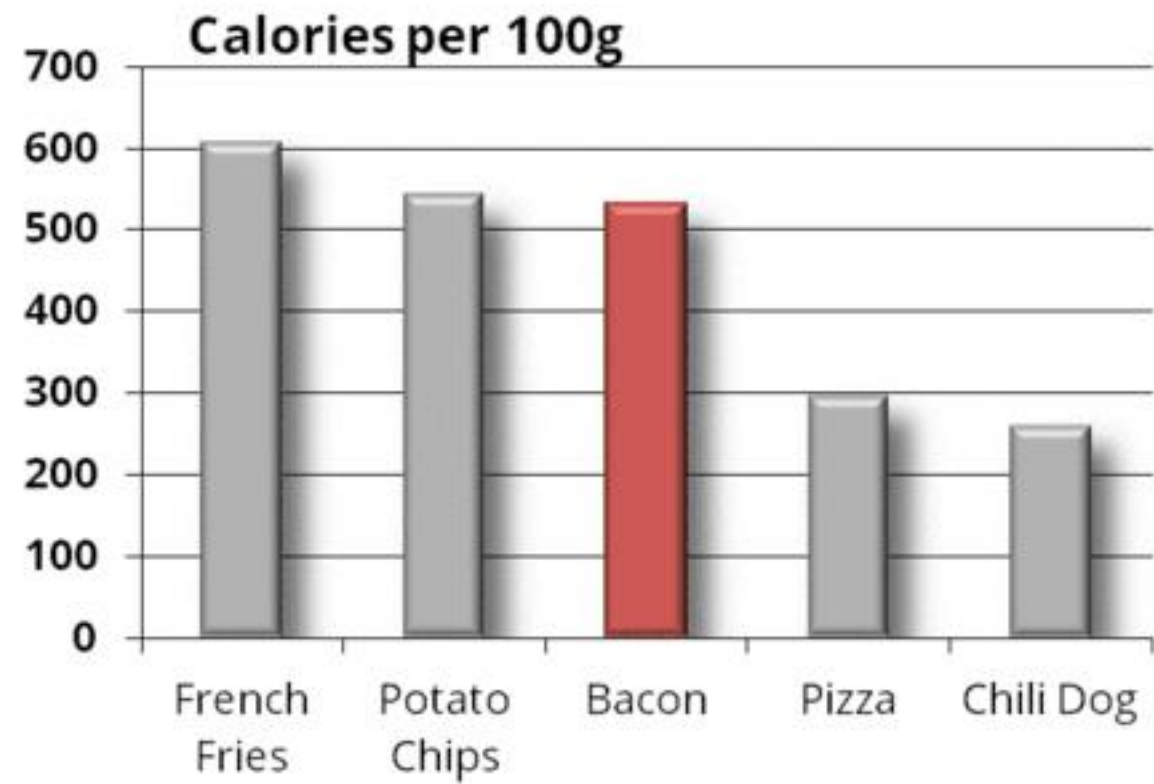
# Reduce colors to emphasize key number

Calories: How does bacon compare?



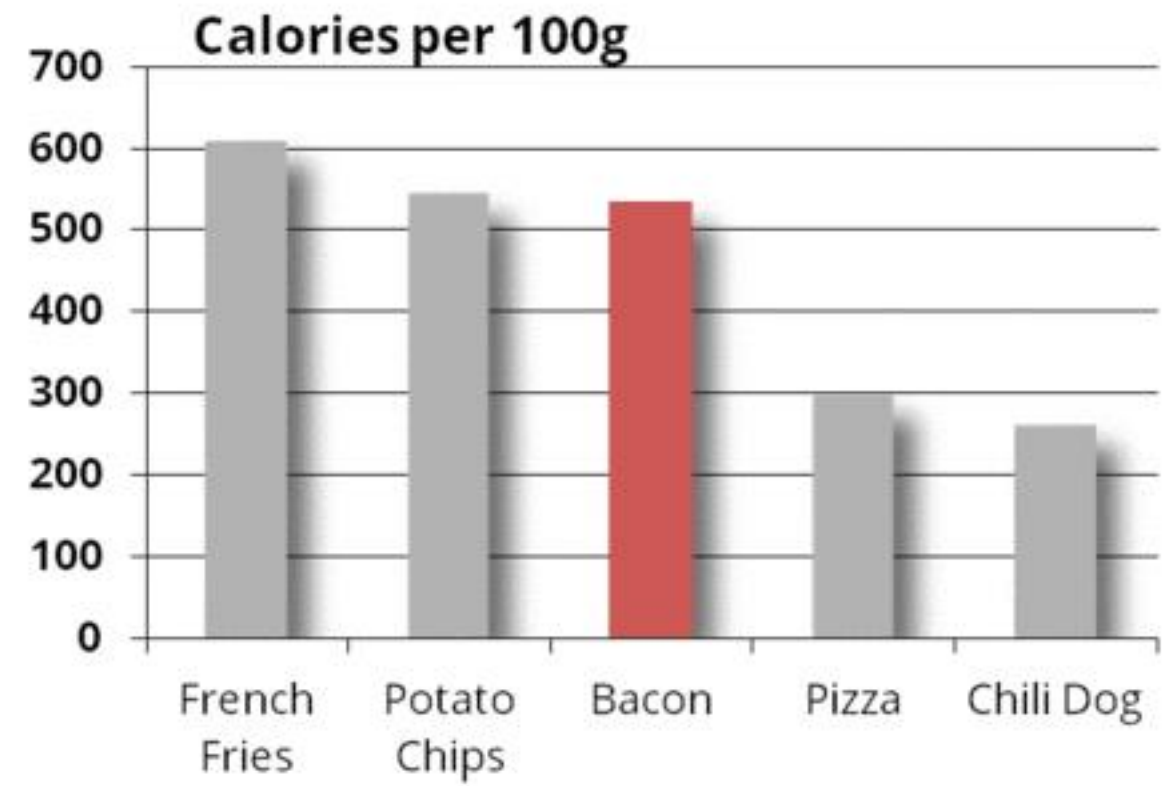
# Remove modeling

Calories: How does bacon compare?



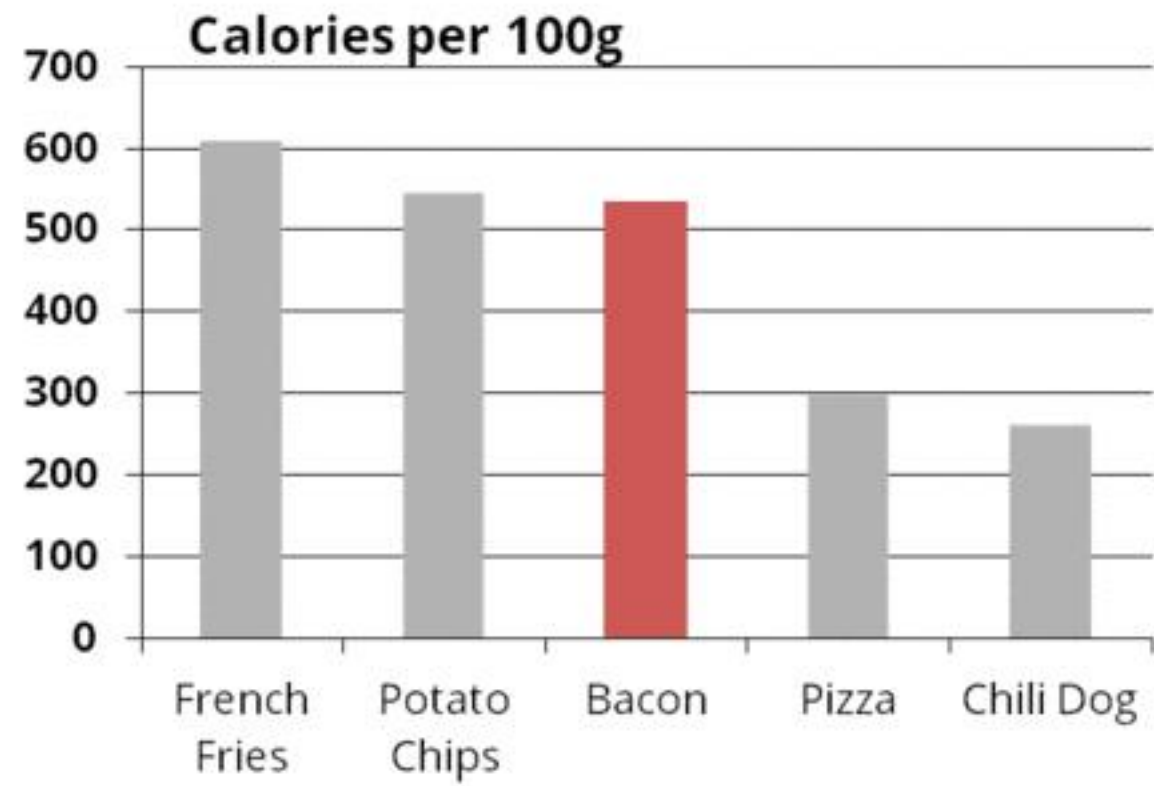
# Remove shadows

Calories: How does bacon compare?



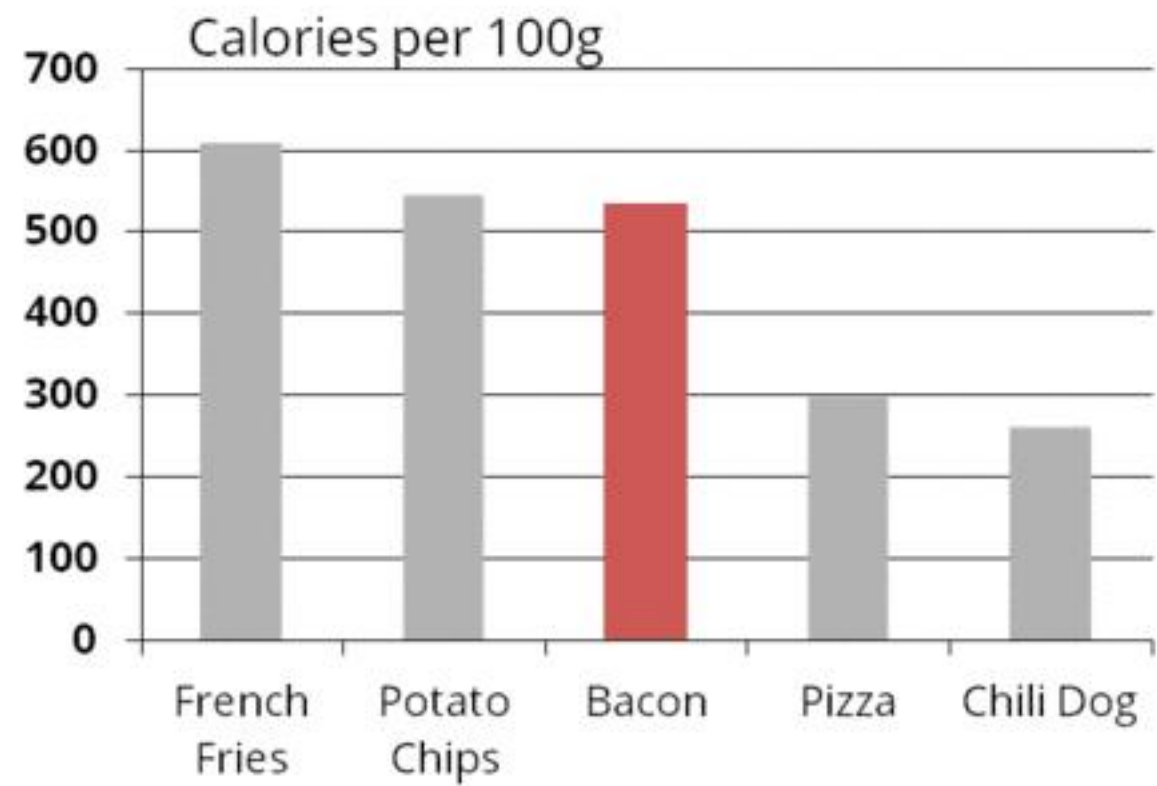
# Lighten calorie label

Calories: How does bacon compare?



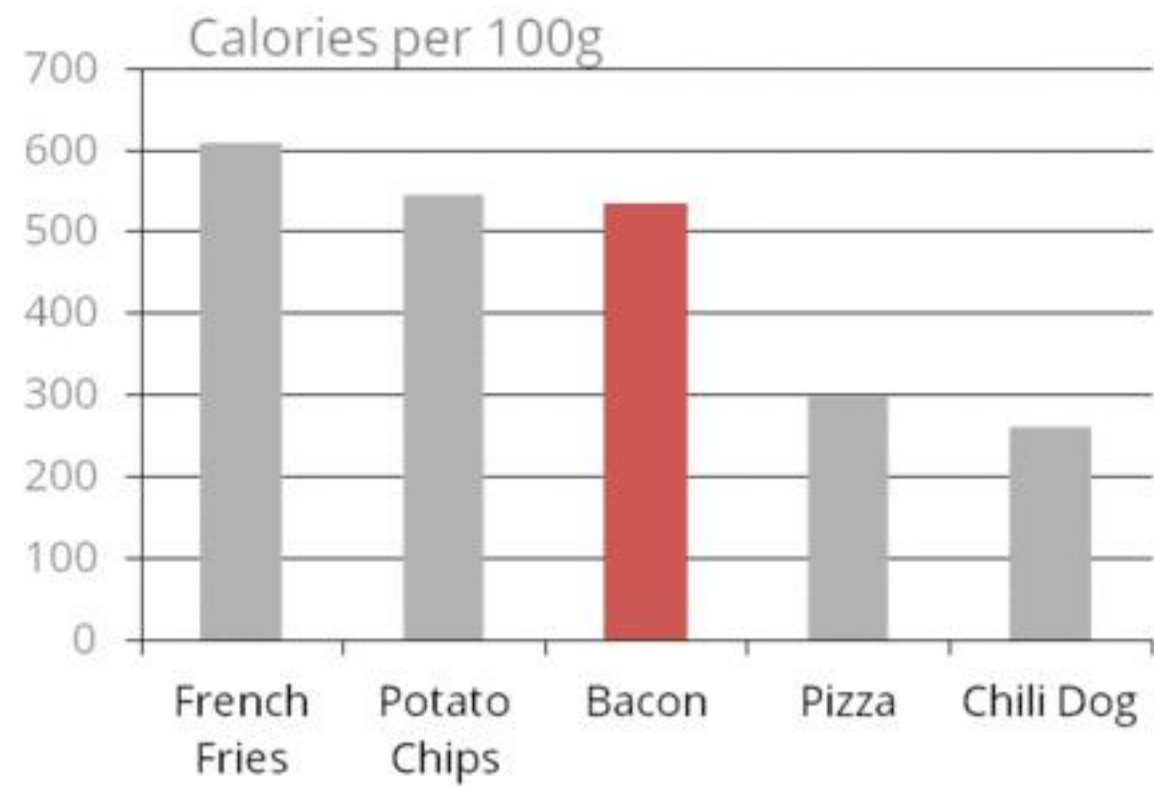
# Lighten Y-axis labels

Calories: How does bacon compare?



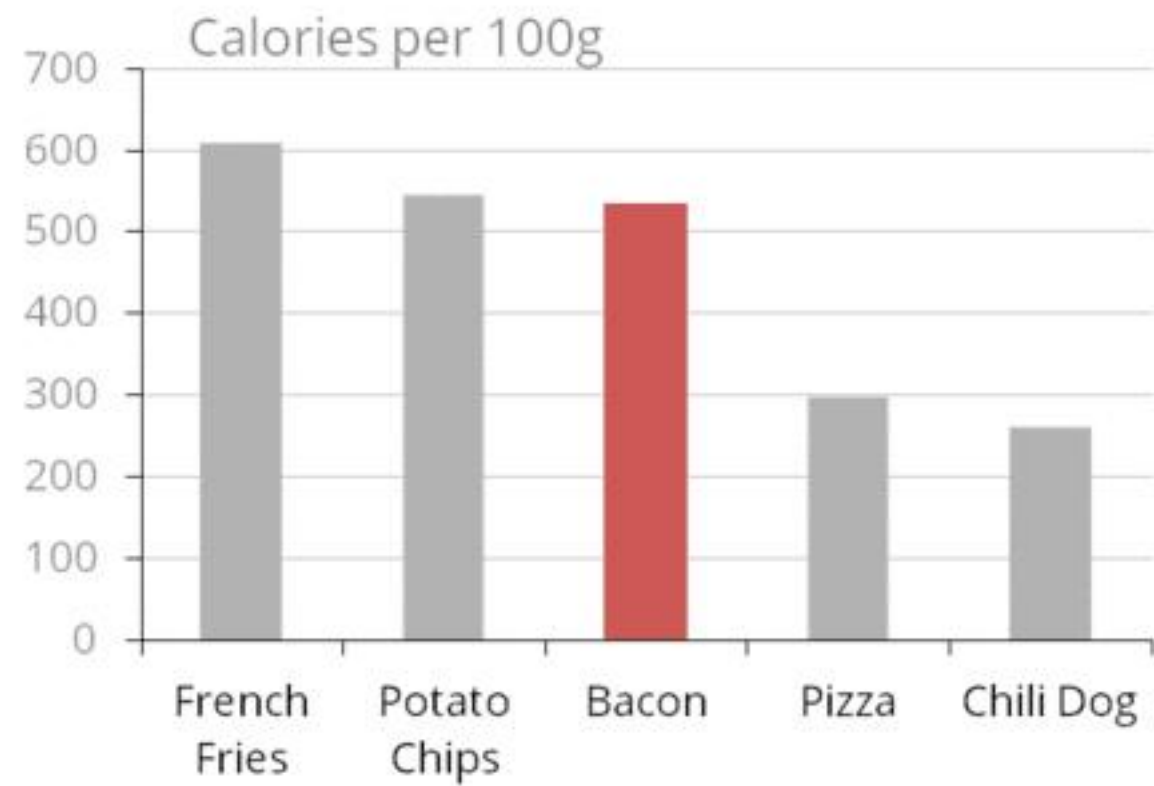
# Lighten horizontal lines

Calories: How does bacon compare?



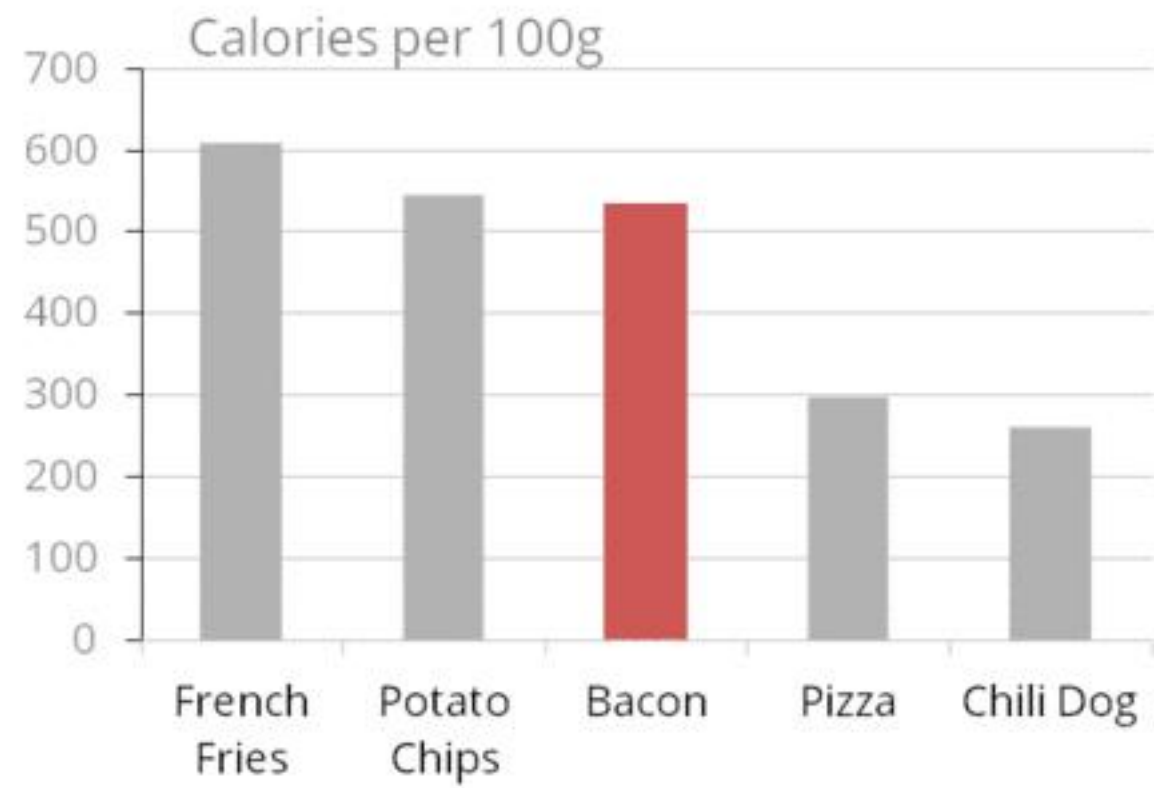
# Lighten X-axis

Calories: How does bacon compare?



# Lighten Y-axis

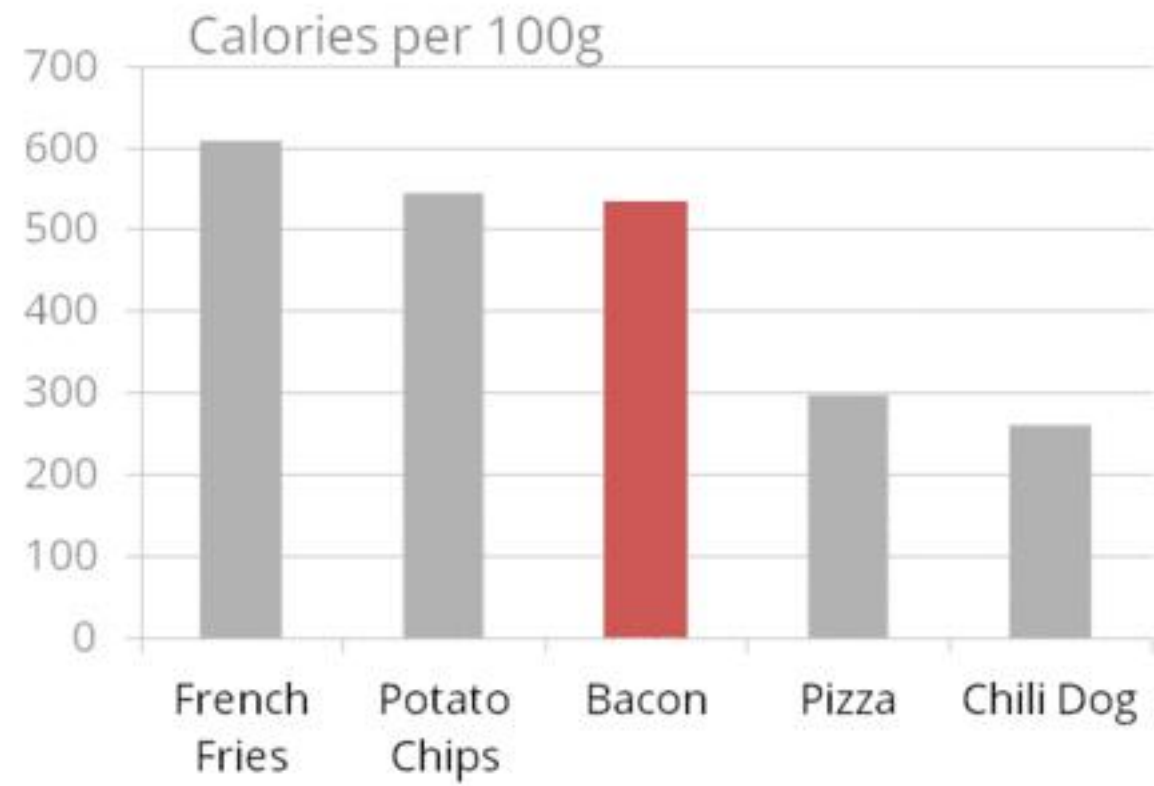
Calories: How does bacon compare?





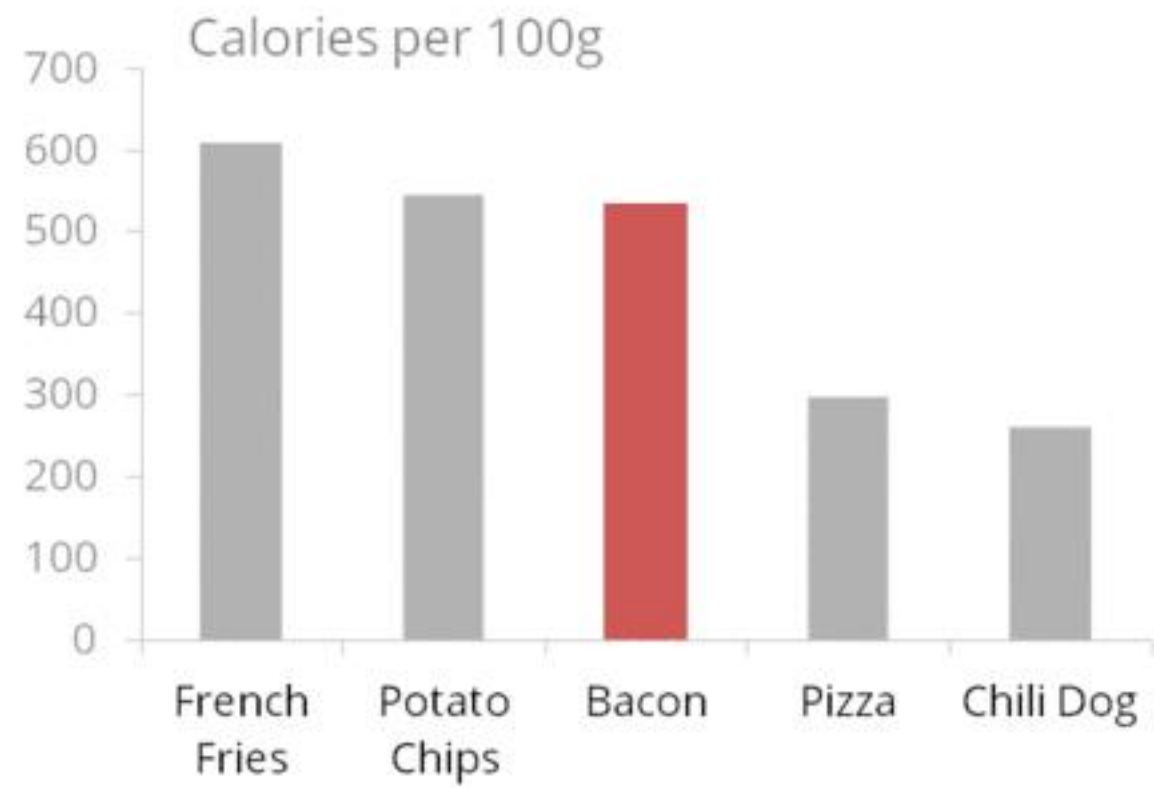
# Remove chart lines

Calories: How does bacon compare?



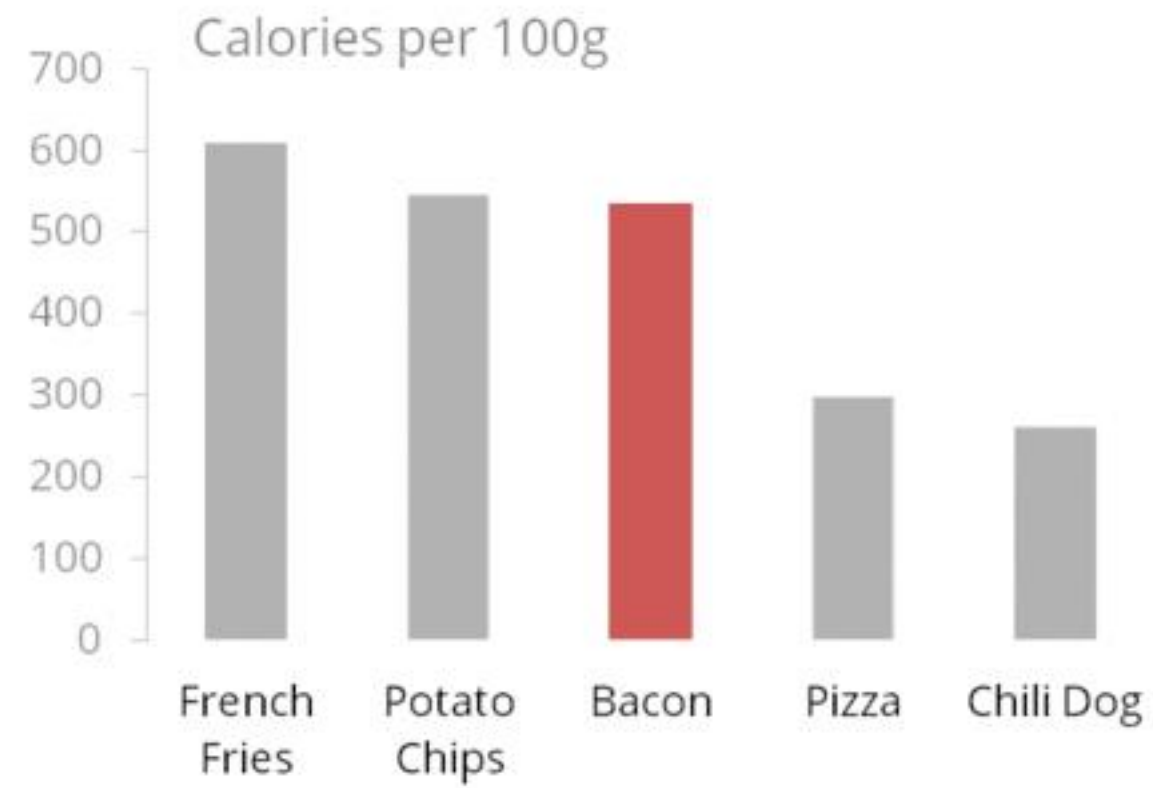
# Remove X-axis

Calories: How does bacon compare?



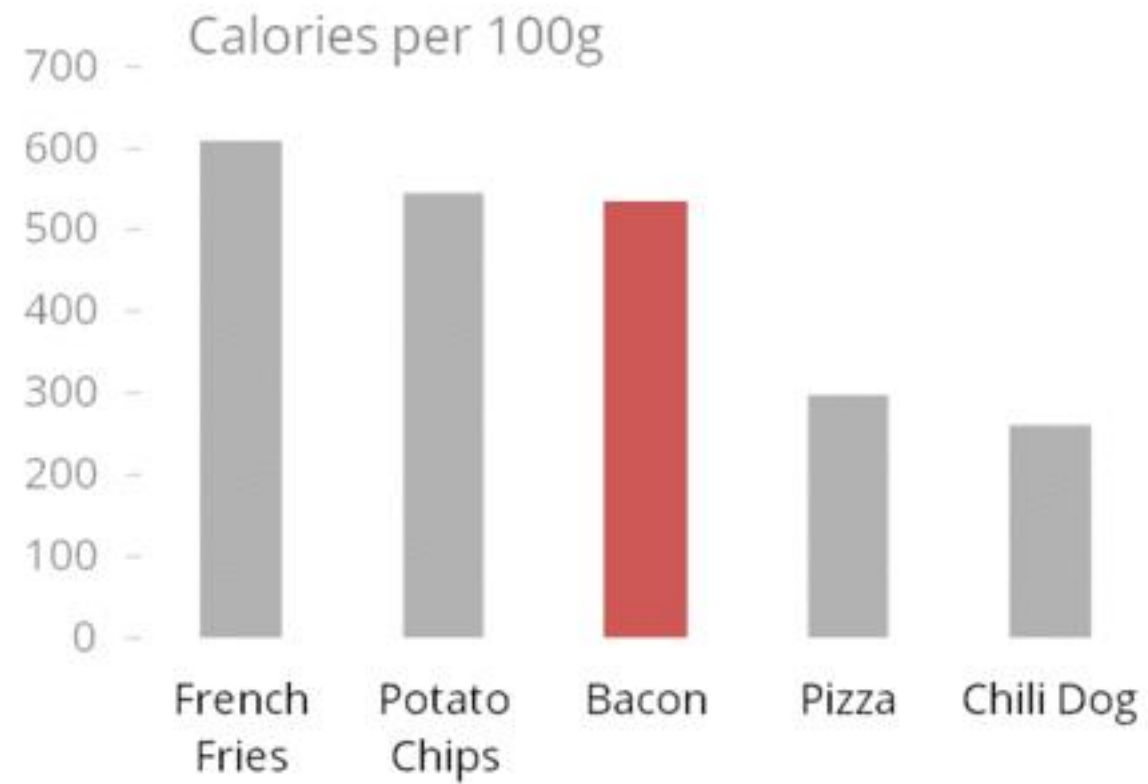
# Remove Y-axis

Calories: How does bacon compare?



# Remove vertical scale completely

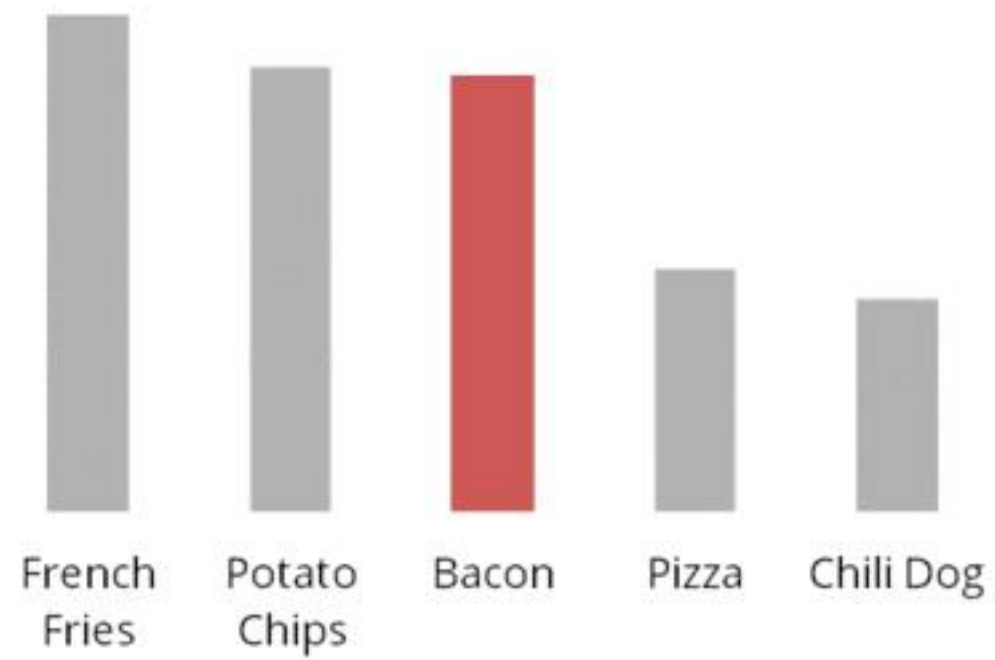
Calories: How does bacon compare?



# Put numbers inside bars

Calories: How does bacon compare?

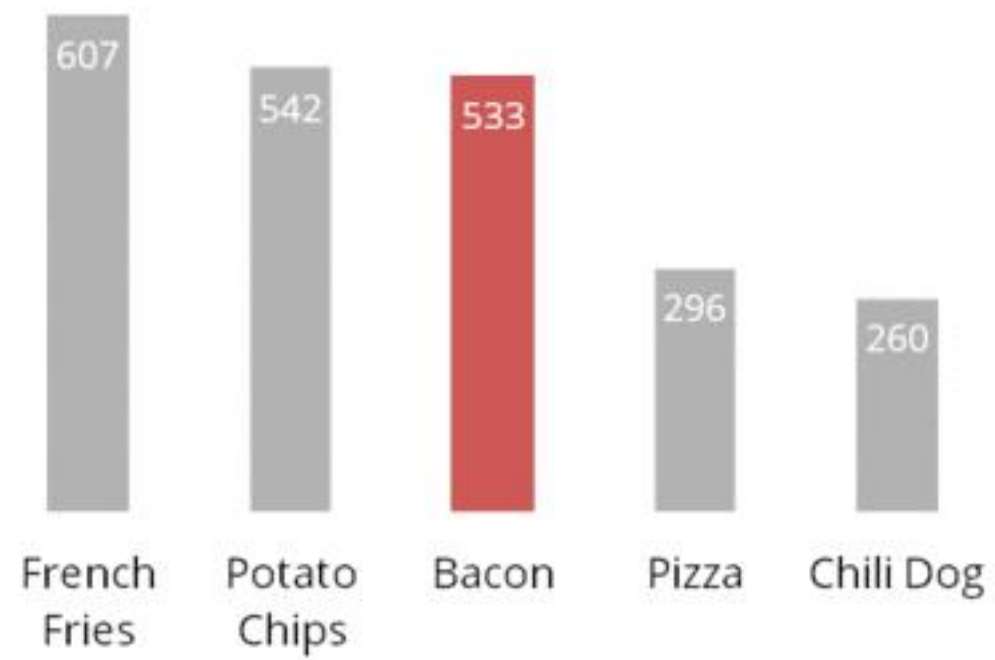
Calories per 100g



# Simplify headline

Calories: How does bacon compare?

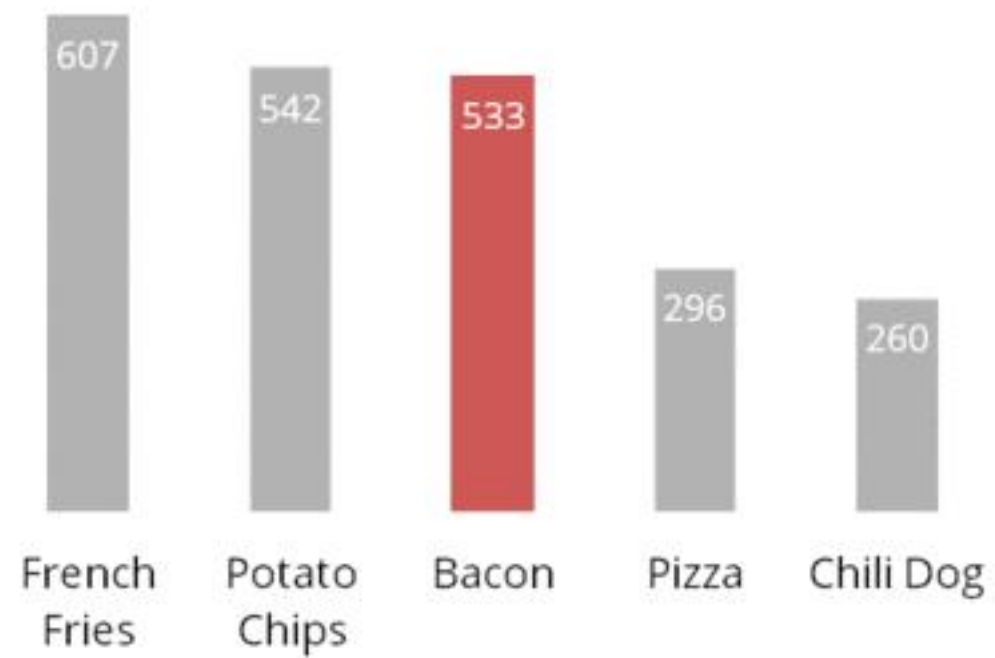
Calories per 100g



# Align headline

How does bacon compare?

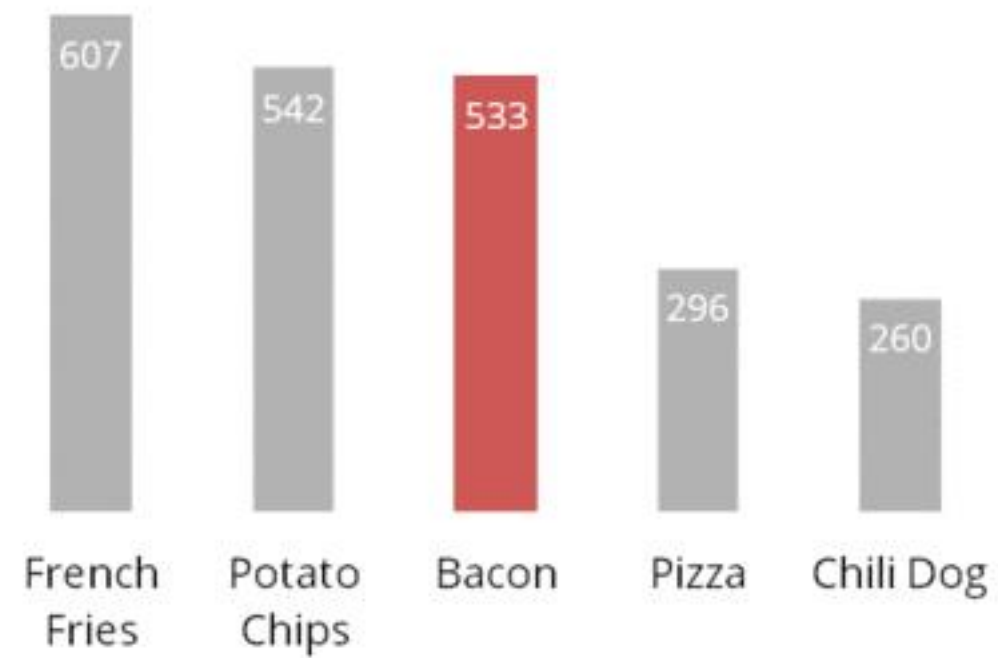
Calories per 100g



# Close up space between headline and sub-heading

How does bacon compare?

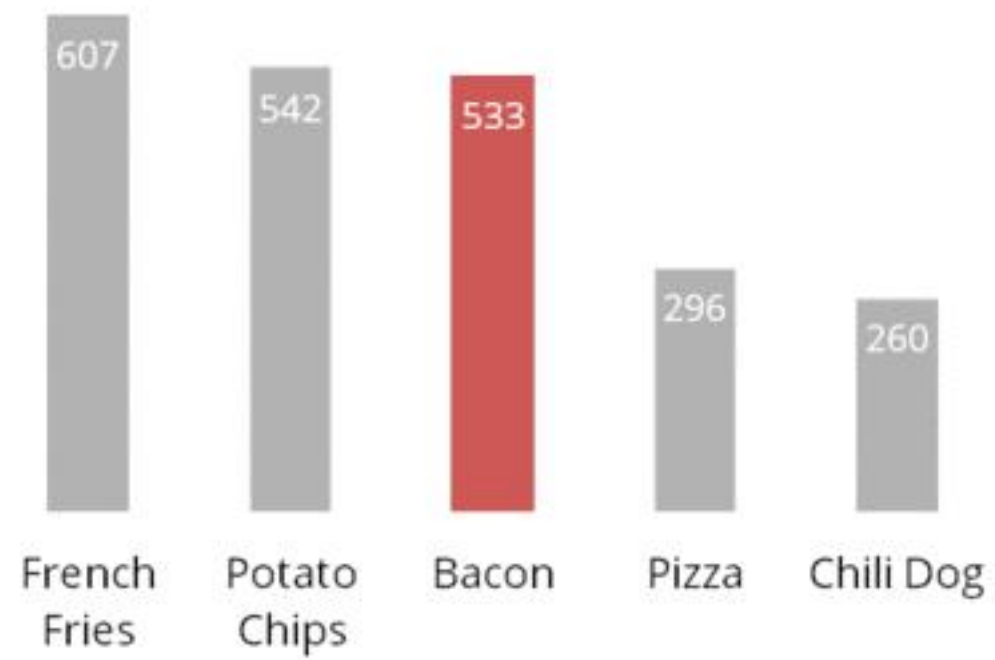
Calories per 100g





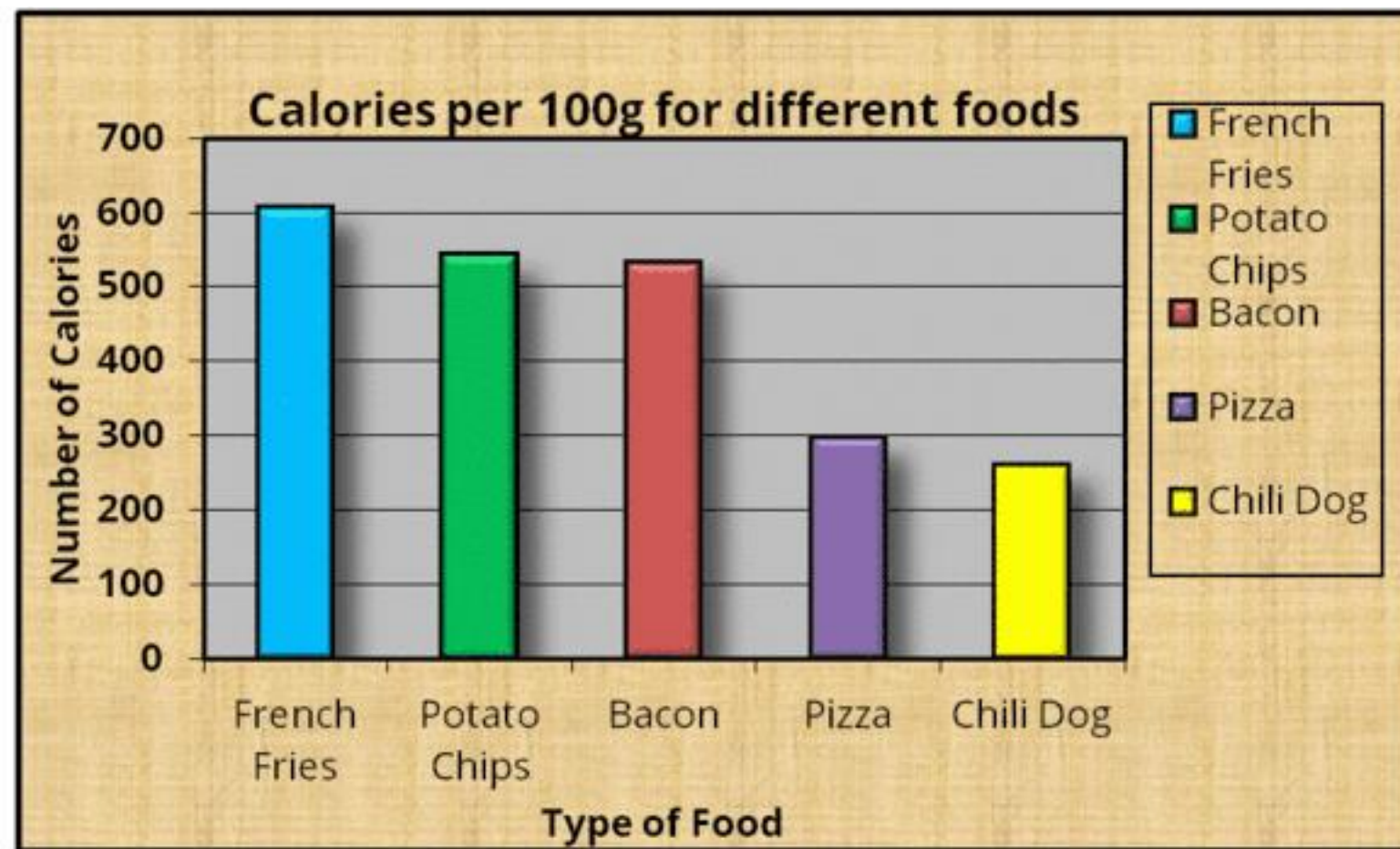
## How does bacon compare?

Calories per 100g



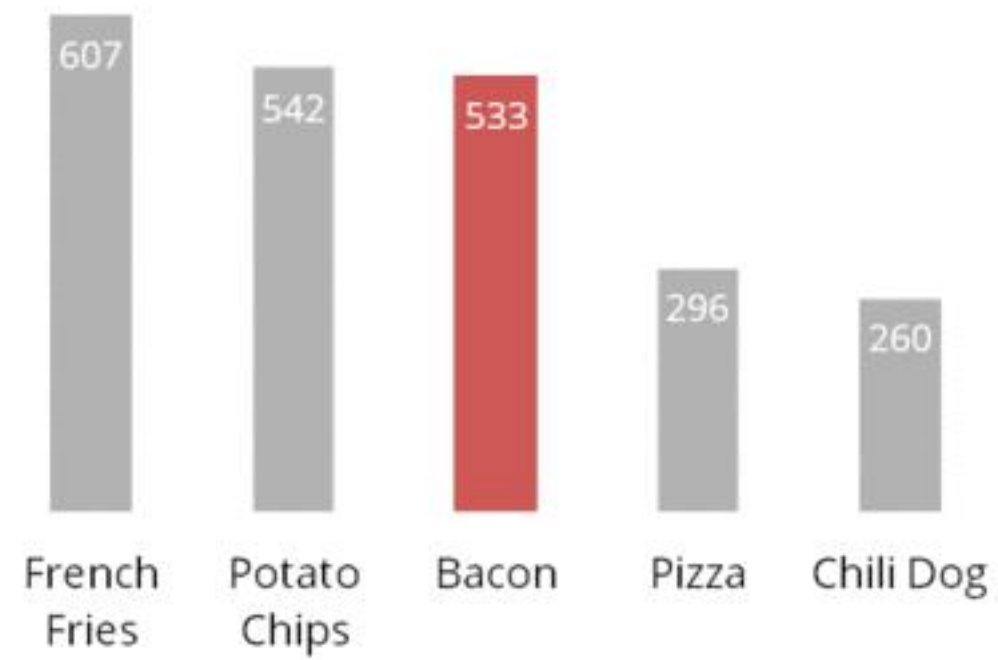
# BEFORE

Calories: How does bacon compare?



# AFTER

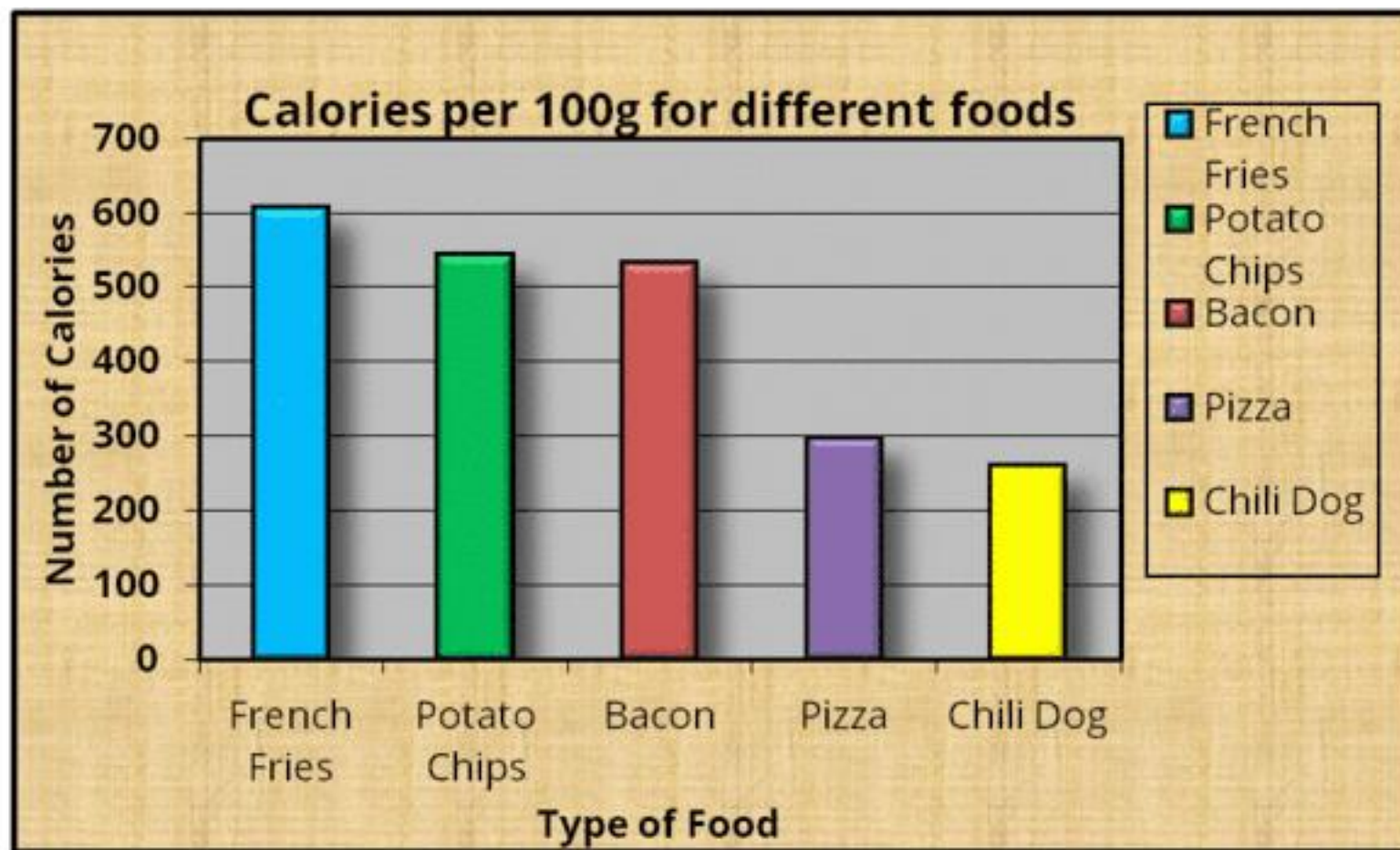
How does bacon compare?  
Calories per 100g



# BEFORE

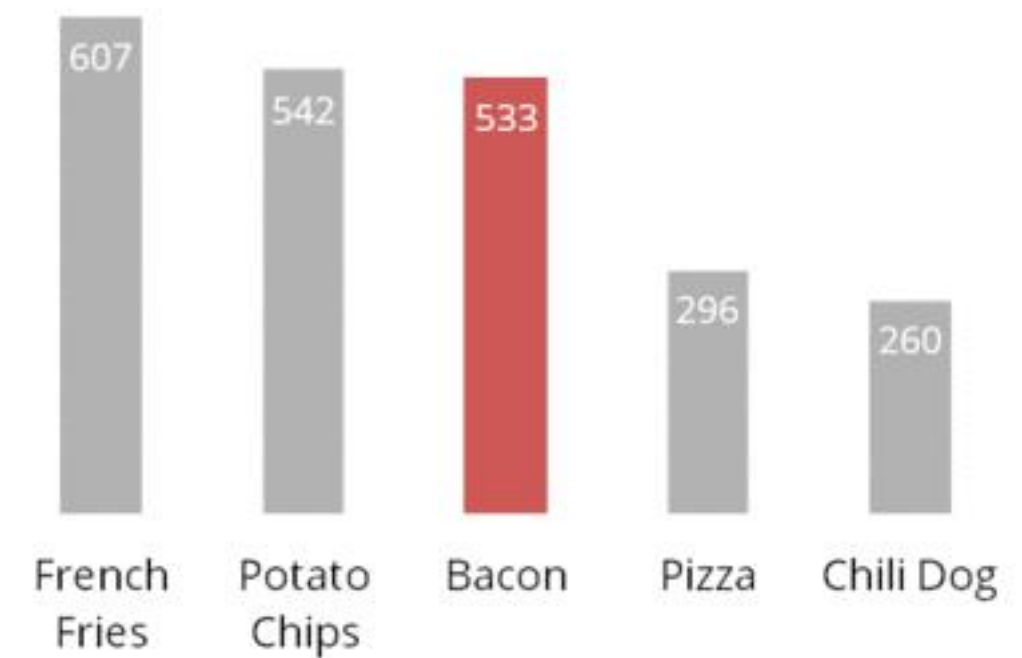
# AFTER

Calories: How does bacon compare?



How does bacon compare?

Calories per 100g



# Getting the message across



INFORMATION → AUDIENCE



1. Who is it for?
2. Try and put yourself in the user's position.
3. Make your visualizations approachable and engaging.

# data visualization references network

A navigable selection of sites and resources about data visualization

- 📄 blogs 48
- 🏢 studios 41
- 👤 people 31
- 🔧 tools 20
- 📖 books 5

The aim of this tool is to enable the discovery of amazing and useful contents from the infovis field. I made the compilation by my own criteria and taking into consideration other selections (listed below).

Feel free to propose new resources, just write me a tweet ([@moeblo](#)) with the proposed link.

The bipartite network resources-tags has been built by reading the tags used by [Delicious](#) users when saving the links.

download the data:  
[simple lists \(txt\)](#) | [complete data \(json\)](#)

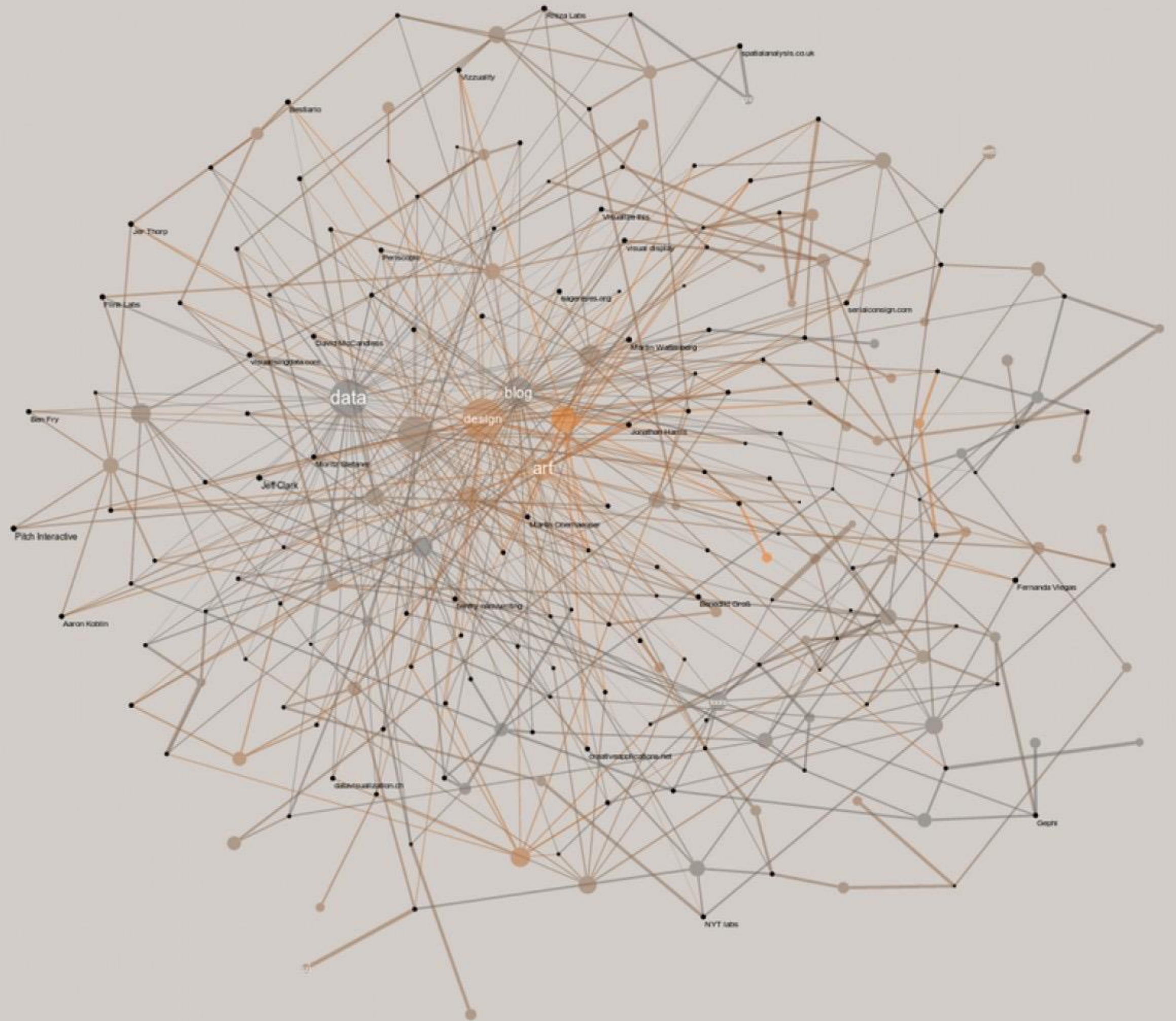
tag colors are based on a 'soft' to 'hard' scale (defined by a mixed handy/algorithmic method)

soft  hard

These are great compilations of infovis resources done by reliable people:

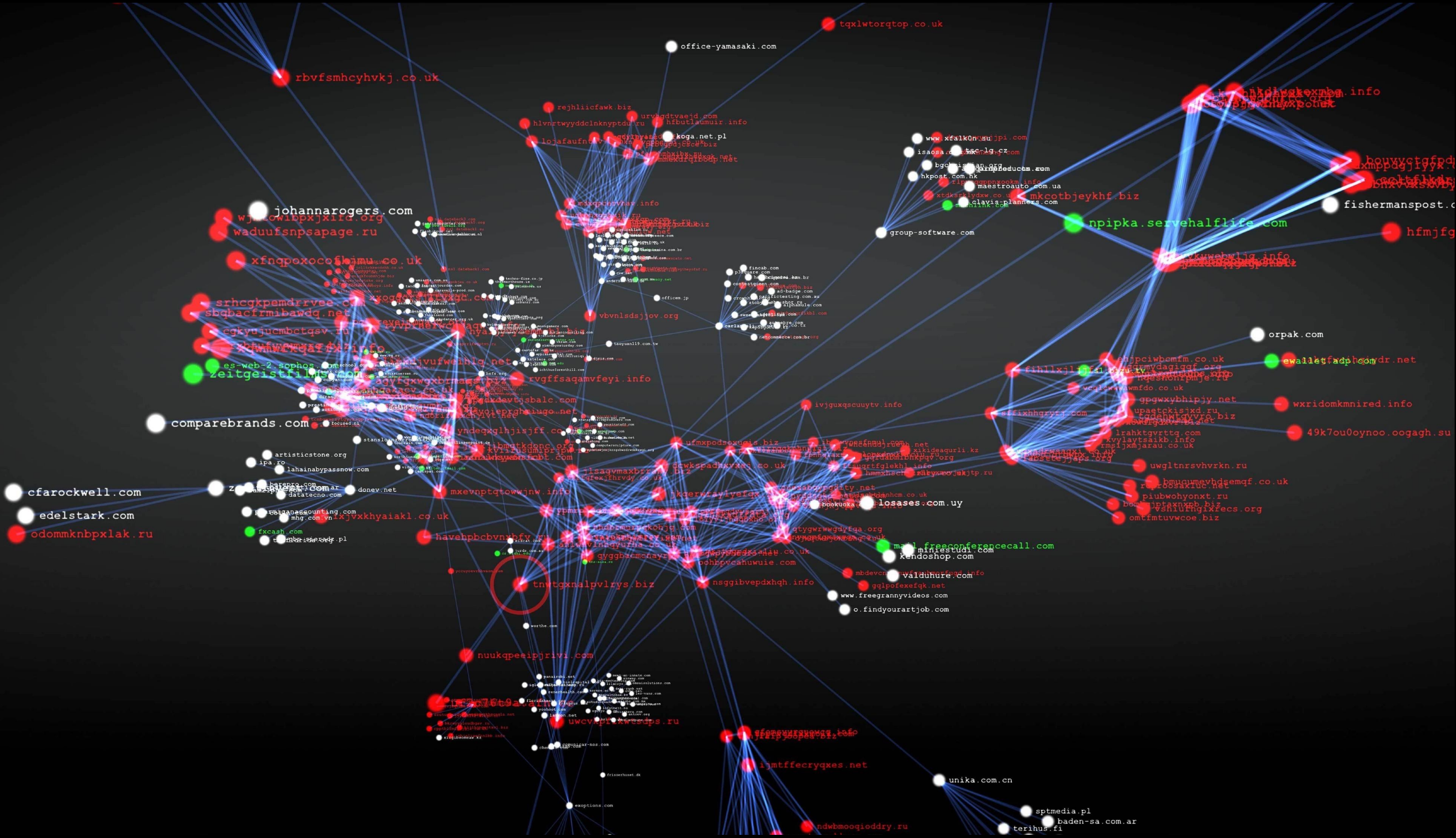
- [blogs worth following](#), by [flowingdata](#)
- [essential resources](#), from [visualizingdata](#)
- [carefully selected list of tools](#), by [datavis](#)

created by [Santiago Ortiz](#)  [Tweet](#) 127



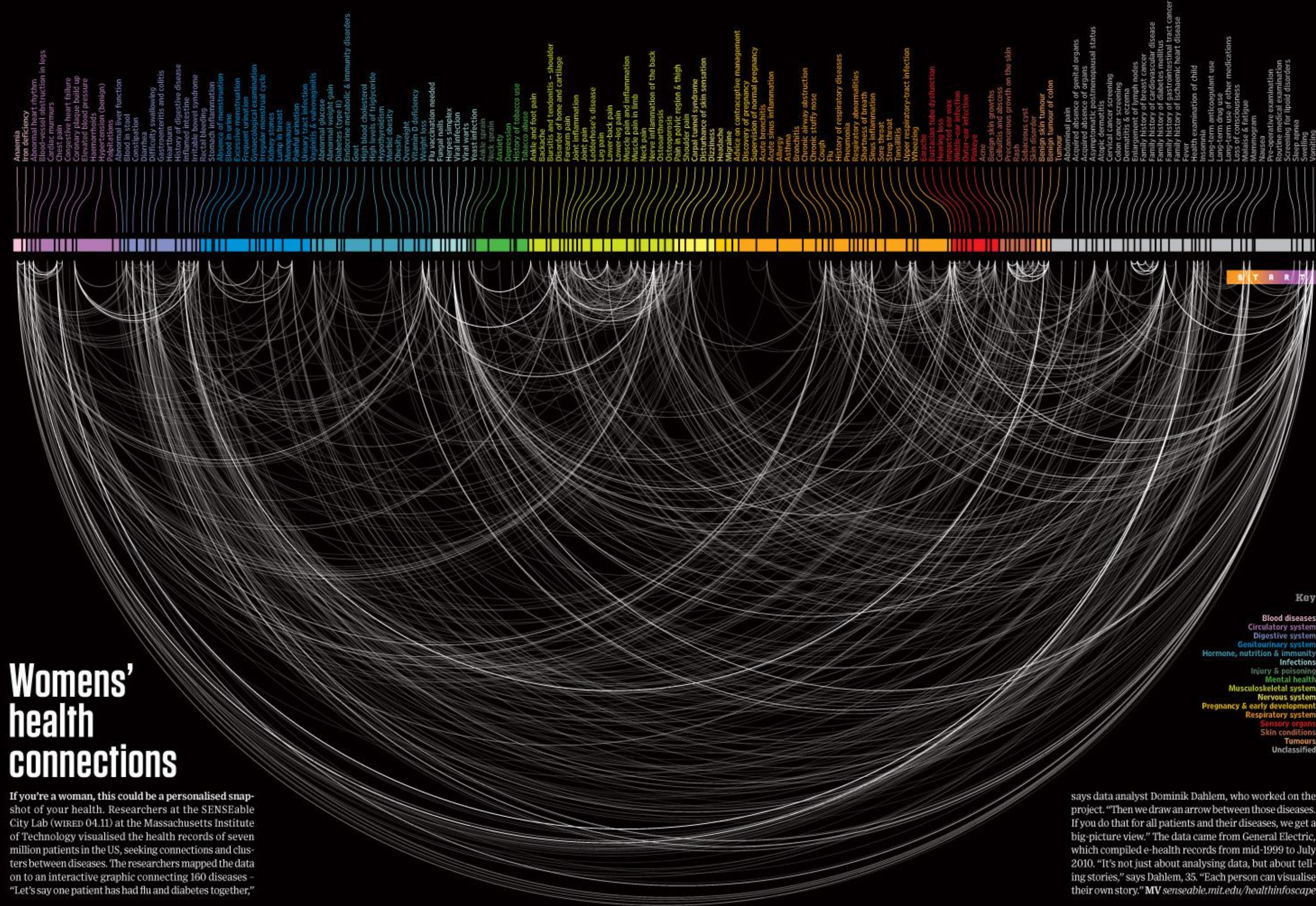
select nodes by clicking





# Womens' health connections

If you're a woman, this could be a personalised snapshot of your health. Researchers at the SENSEable City Lab (WIRED 04.11) at the Massachusetts Institute of Technology visualised the health records of seven million patients in the US, seeking connections and clusters between diseases. The researchers mapped the data on to an interactive graphic connecting 160 diseases – "Let's say one patient has had flu and diabetes together,"



- Key**
- Blood diseases
  - Circulatory system
  - Digestive system
  - Genitourinary system
  - Hormone, nutrition & immunity
  - Infections
  - Injury & poisoning
  - Mental health
  - Musculoskeletal system
  - Nervous system
  - Pregnancy & early development
  - Respiratory system
  - Sensory organs
  - Skin conditions
  - Tumours
  - Unclassified

says data analyst Dominik Dahlem, who worked on the project. "Then we draw an arrow between those diseases. If you do that for all patients and their diseases, we get a big-picture view." The data came from General Electric, which compiled e-health records from mid-1999 to July 2010. "It's not just about analysing data, but about telling stories," says Dahlem, 35. "Each person can visualise their own story." [MV.senseable.mit.edu/healthinfoscape](http://MV.senseable.mit.edu/healthinfoscape)



THE

HOLLYWOOD

EFFECT

21 X4 267 22 X7 492 24 X5 542

Three vertical panels displaying technical diagrams and data. Each panel features a top diagram, a central schematic, and a bottom data grid. The data includes labels like '0427 87%' and '0427 88%'.

OFFLINE 00:00:28:29

A large central map with a red boundary and blue data points. The map is overlaid with a grid and various icons. To the left of the map is a sidebar with 'OFFLINE' status and a timer '00:00:28:29'. To the right is a 'FEEDS' section with various icons.

A1 XX

A detailed data dashboard. It features a central circular diagram with a blue and white pattern. To the right is a grid of numerical values and icons. The values include 150, 172, 191, 151, 176, 192, 163, 177, 195, 166, 180, 197, 170, 185, 198, and 171, 186, 199. At the bottom are buttons labeled H1, D5, F7, D2, Z7, Y2, H7, U5, Y2, X7, A2, 3<, and 37.



000000  
PCAP SYS NR08  
**SEN04324**

AUT MAN A  
OTR

TK78

A2

A1

000000  
PCAP SYS NR08  
**SEN04324**

AUT MAN A  
OTR

TK78

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000000  
PCAP SYS NR08  
**SEN04324**

AUT MAN A  
OTR

TK78

A2

A1

000000  
PCAP SYS NR08  
**SEN04324**

AUT MAN A  
OTR

TK78

A2

A1

**PCAP SYS-MONITOR**  
SYSTEM/ACT/US/LEVEL (COMMAND)

**NCC1701 (STAT)**

000 POSITION ID 78.14  
**KIRK**  
NR8 07 48 8018 81 88

000 POSITION ID 78.14  
**KHAN**  
NR8 07 48 8018 81 88

000 POSITION ID 78.14  
**ALERT**   
NR8 07 48 8018 81 88

000 POSITION ID 78.14  
**ALERT**   
NR8 07 48 8018 81 88

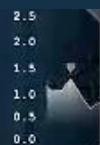


14.02.2013  
FEBRUAR

FUTURE PRESENTATION

02  
03

TRANSACTION  
LIVE STATUS



GLOBAL CONTROL 7.365.894.198

LIVE DATA TRANSFER



CBS ORDERS GRAMMYS DRESS CODE  
Sexy outfits marking family events?

LIVE DATA TRANSFER



CHELYABINSK, RUSSIA  
JUST IN  
RUSSIA METEOR SHOWER  
Itar-Tass: Four students suffered injuries from broken glass

REUTERS

CHANNEL #1  
CHANNEL #2  
CHANNEL #4  
MAIN BUTTONS

G  
G3  
F1  
F12  
FL  
A1  
G8  
F11  
F8

SETTINGS AS 1  
SETTINGS DELTA 1  
WARNING



WARNING  
Status indicators and progress bars

22. LOCAL DATA

23. ...

24. CLOUD DATA

POI

BASHNEFT	59,0
JSC 'Severstal'	12,3
OJSC 'MMC 'NOBILSK NICKEL'	165,7
OAO 'LUKOIL'	62,1
JSC E.ON Russia	0,1

Levon Helm remains

Anderson Cooper takes  
life of The Band's Levon  
contributions to music

LIVE DATA TRANSFER



FLORIDA UNDECIDED VOTERS  
SPEAKING TIME  
OBAMA 19:22  
ROMNEY 19:17

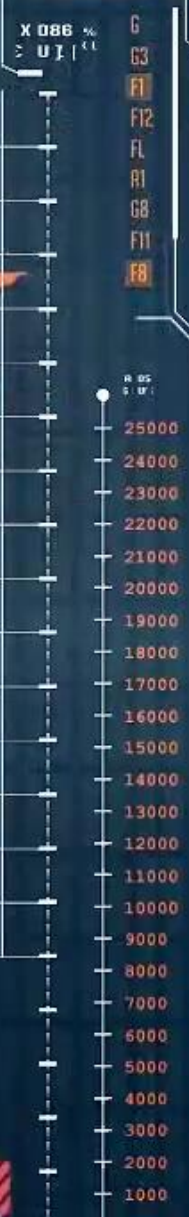
LIVE EARTH MONITOR

#08



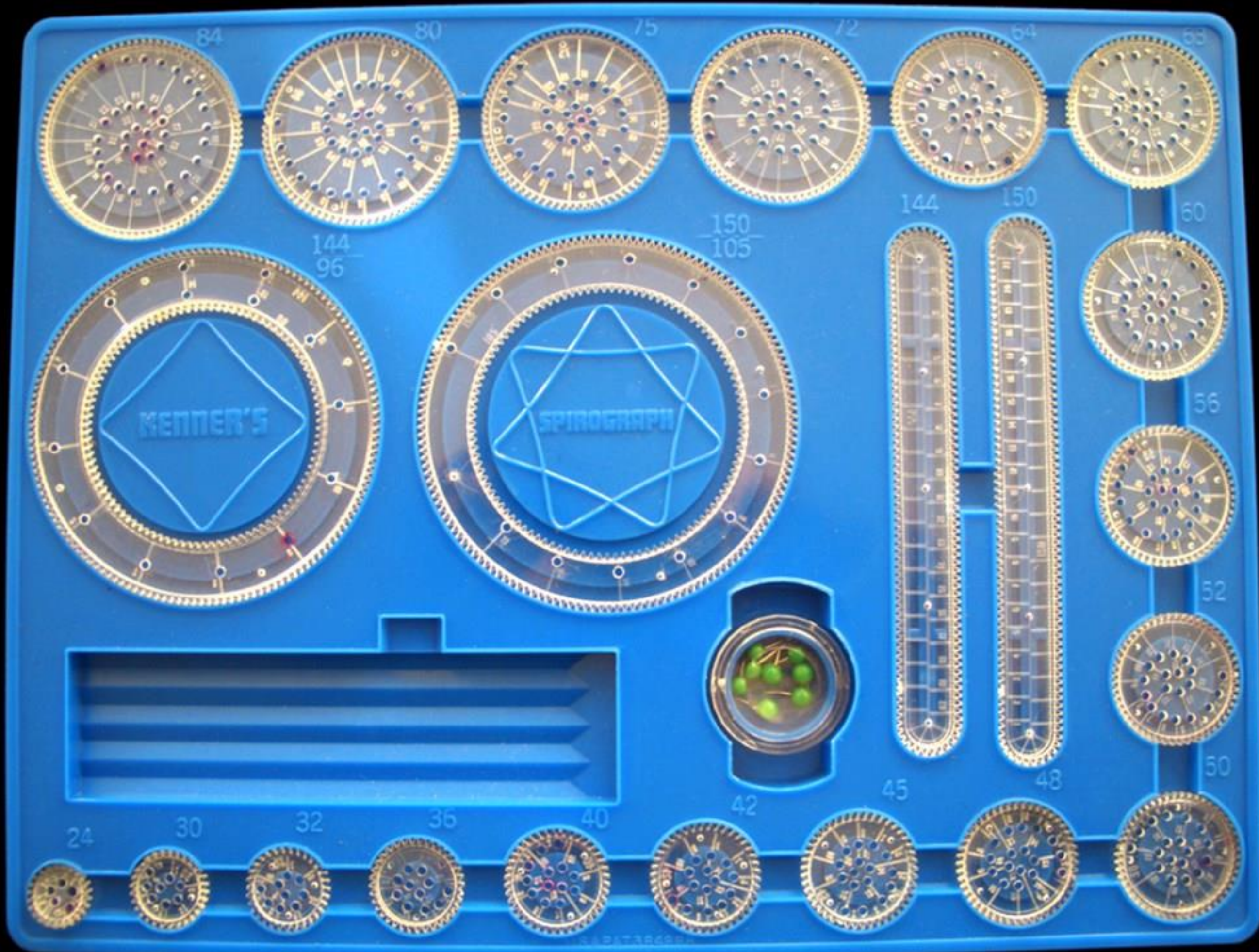
021.

WATCH STATS



18:56.45<sup>515</sup>  
TIME

COMMUNICATION  
VOICE & CAM SETTINGS  
SOFTWARE DETAILS



84

80

75

72

64

55

144

96

150

105

144

150

60

56

52

50

KENNER'S

SPIROGRAPH

24

30

32

36

40

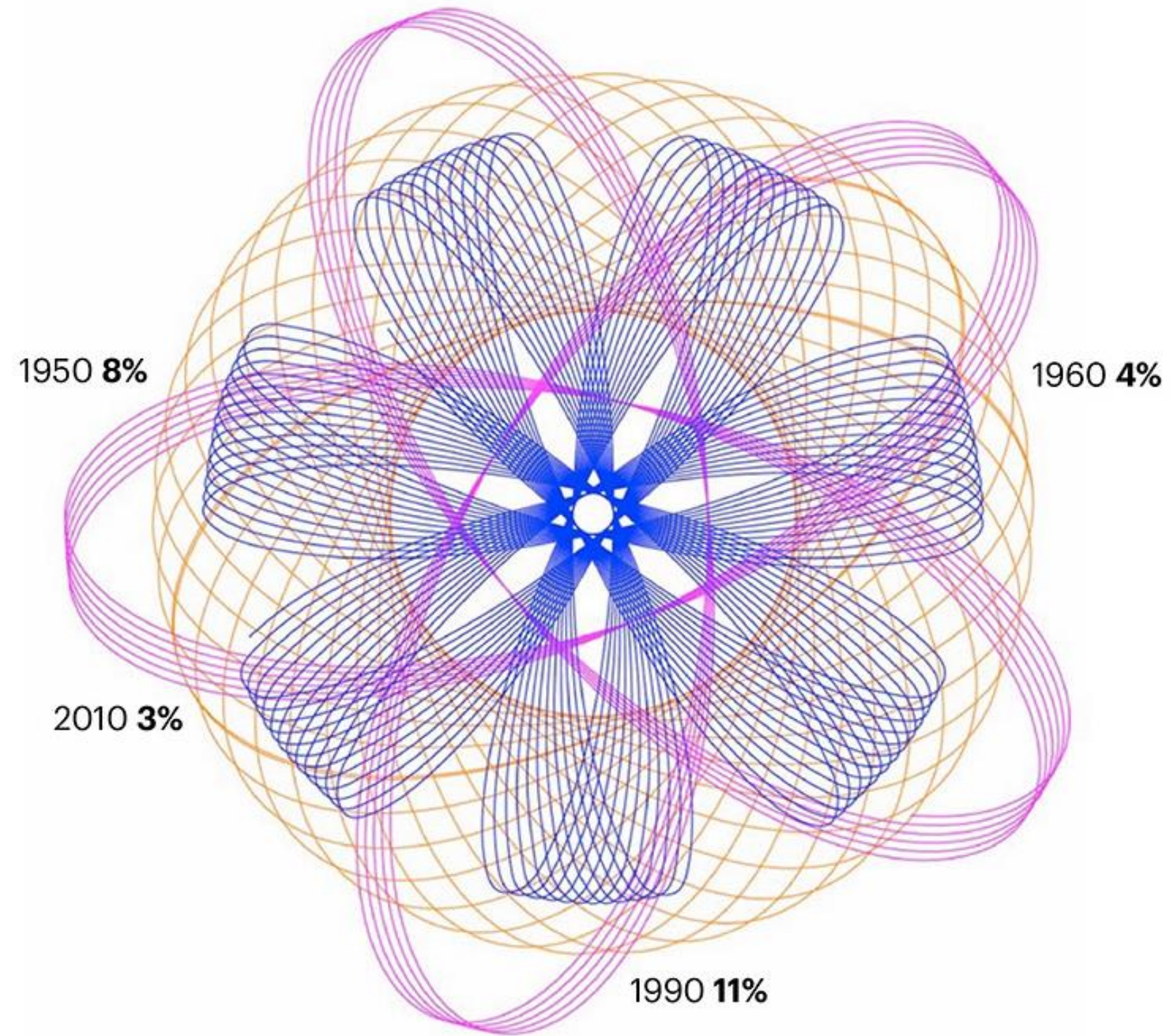
42

45

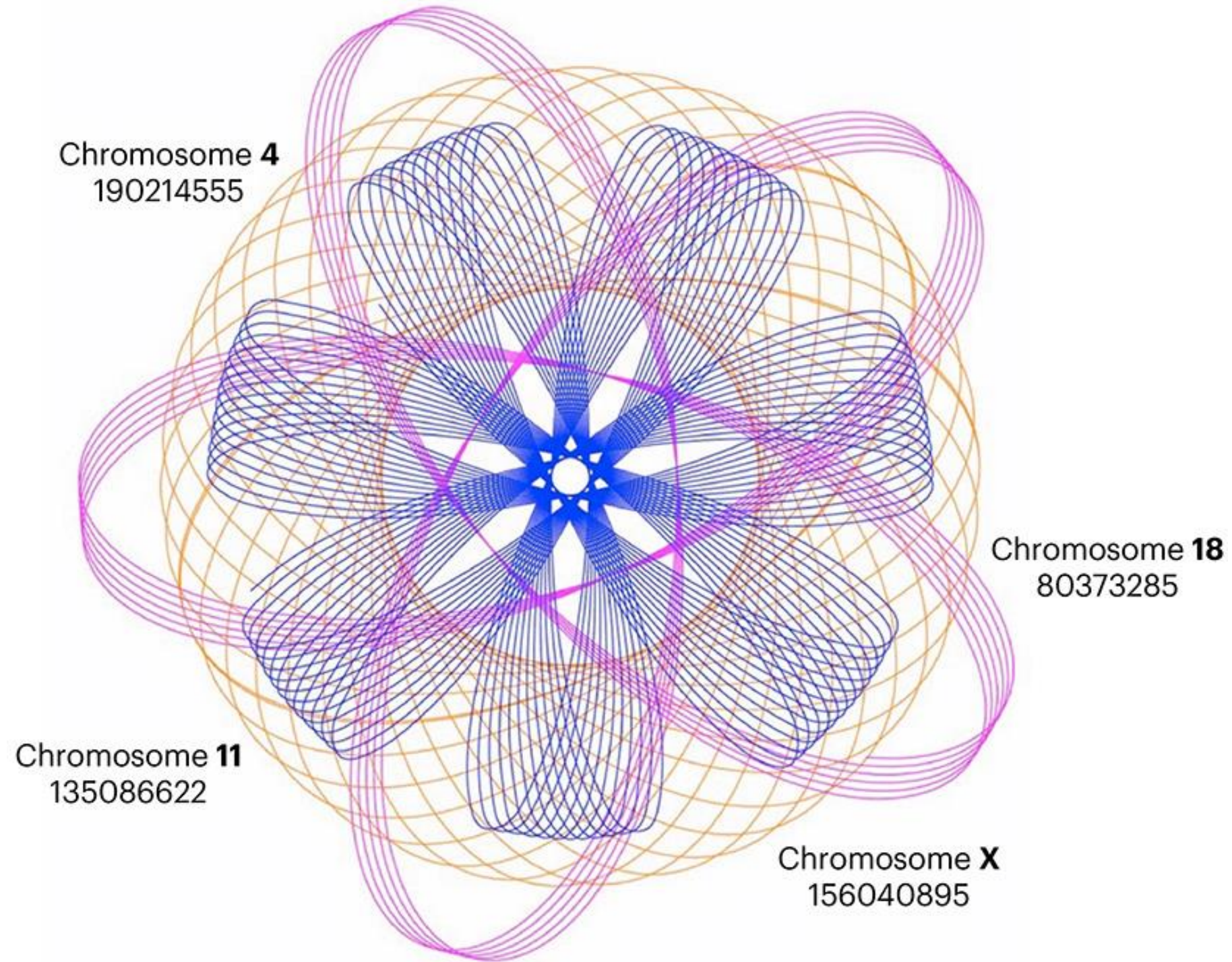
48



# Inflation 1950–2015



# The Genome Explained





No

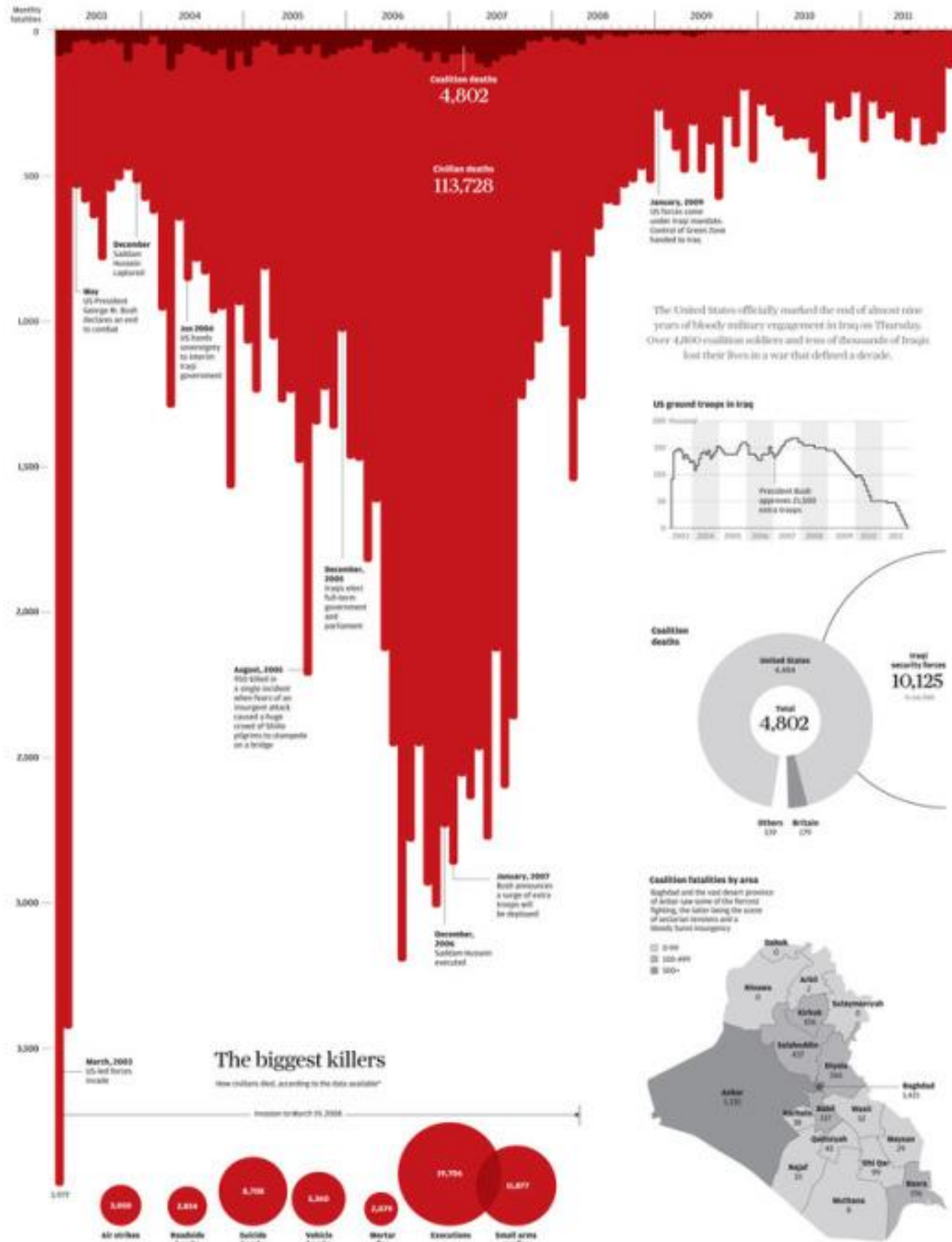


**DATA VIZ** THAT  
DOES NOT WORK

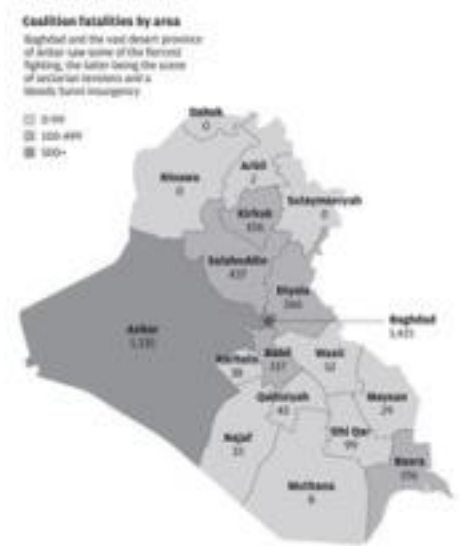
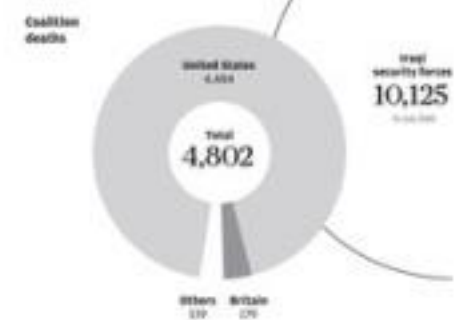
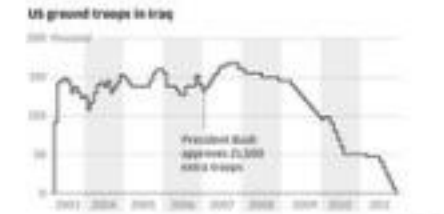
**DATA VIZ**  
THAT MAKES ME  
WANT TO CRY

**DATA VIZ**  
THAT WORKS

# Iraq's bloody toll



The United States officially marked the end of almost nine years of bloody military engagement in Iraq on Thursday. Over 4,800 coalition soldiers and tens of thousands of Iraqis lost their lives in a war that defined a decade.

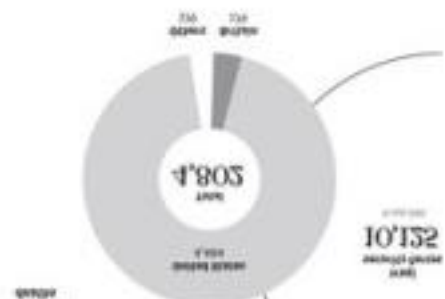




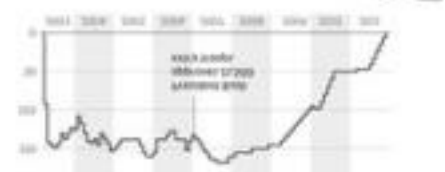
### The biggest killers



Map of Israel showing regional distribution of deaths.



Regional distribution of deaths.

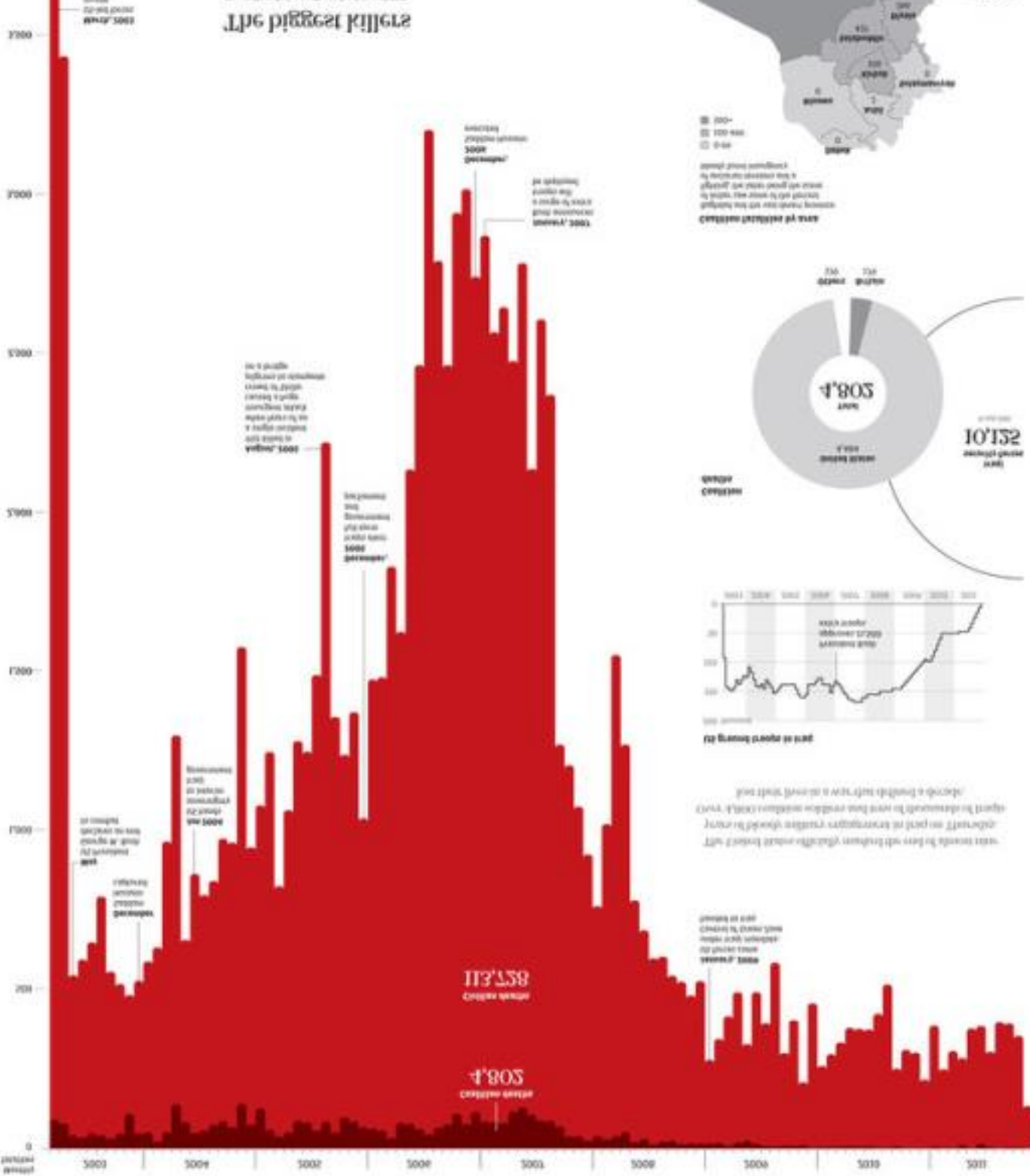


Historical trend of deaths over time.

Analysis of the data showing a significant increase in deaths in recent years.

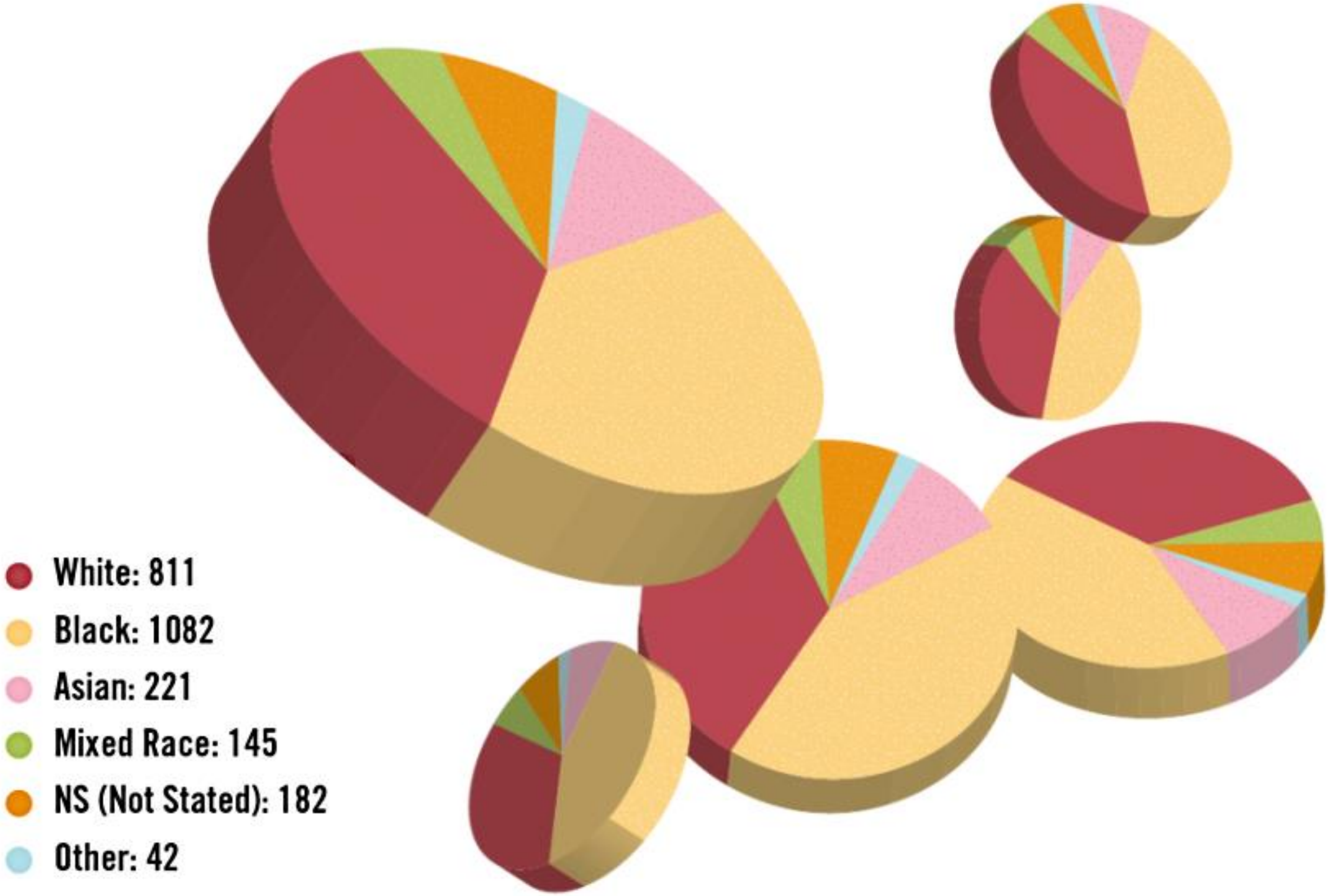
Comparison of current death tolls with historical data.

Contextual information regarding the conflict.



# It's a bloody toll

# Convictions in London for class A drug supply.









x=Nicolas cage films

y=swimming pool drownings

x=Divorces in Maine

y=Margarine consumption

# Spurious correlations

CORRELATION DOES NOT EQUAL CAUSATION

x=cheese eating

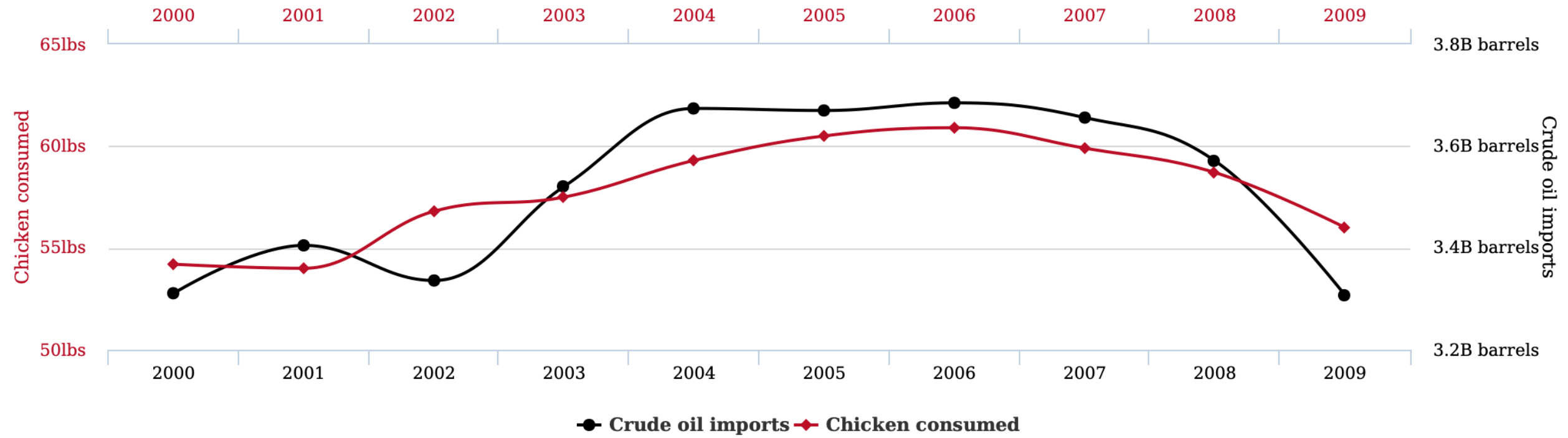
y=Fatal Linen Tangles

x=shark attacks

y=tornadoes

TYLER VIGEN

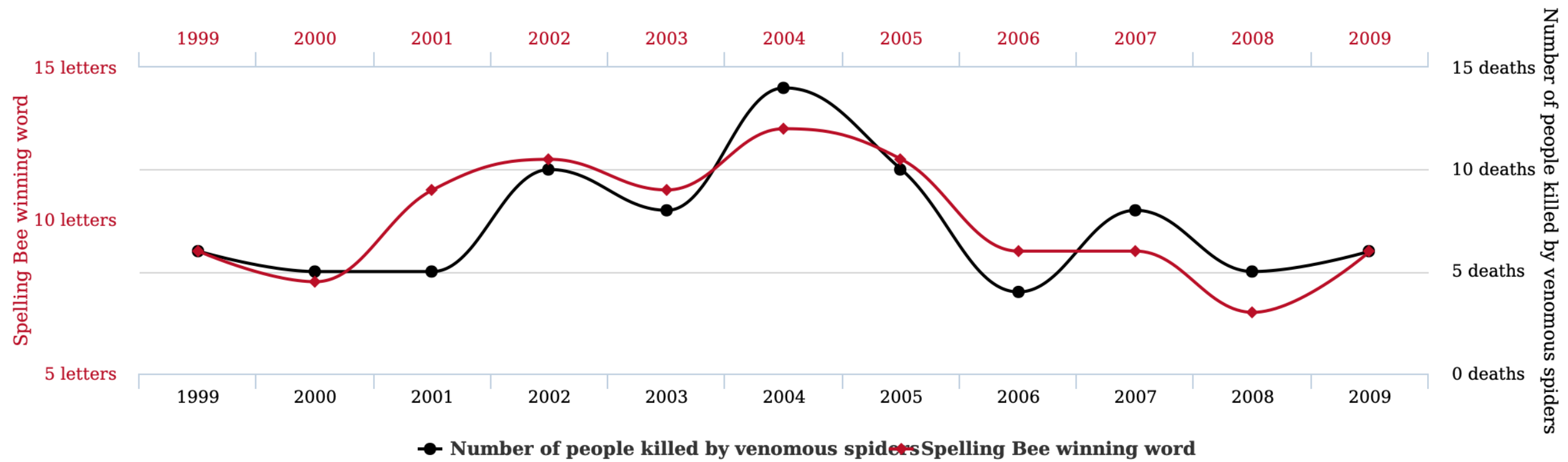
# Per capita consumption of chicken correlates with Total US crude oil imports



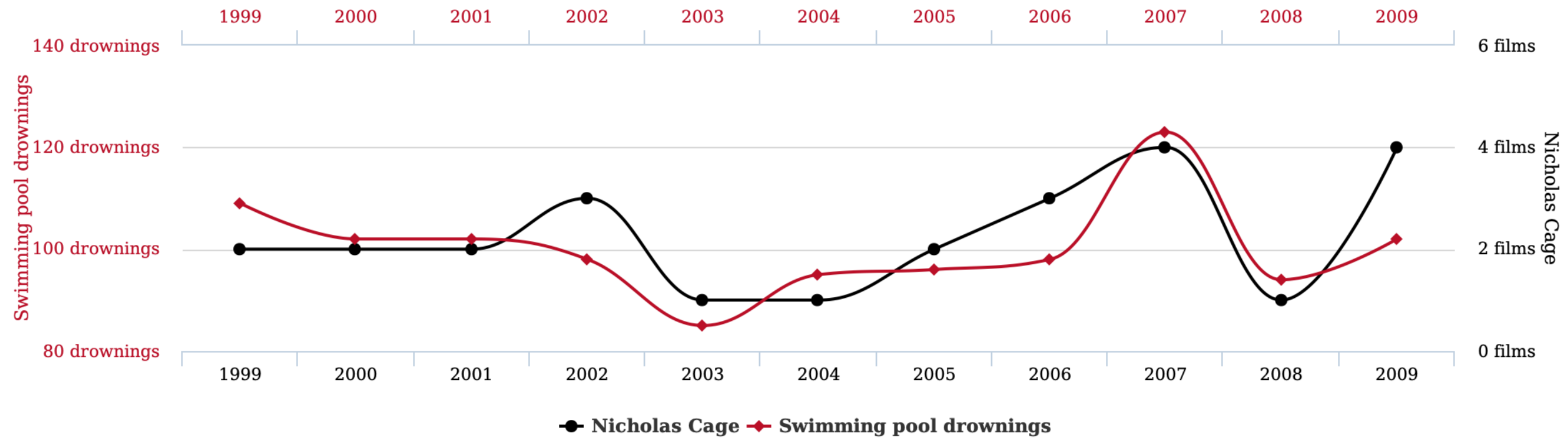
# Letters in Winning Word of Scripps National Spelling Bee

correlates with

## Number of people killed by venomous spiders



# Number of people who drowned by falling into a pool correlates with Films Nicolas Cage appeared in





Should know better



### Match Stats



MAN

Possession

BAS



60%



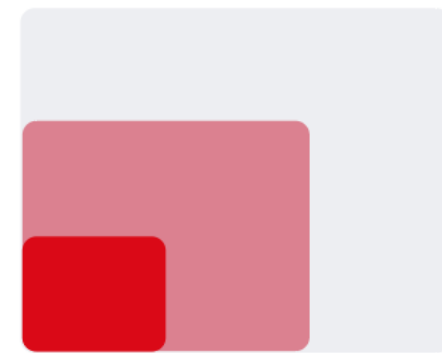
40%

### Shots (on Goal)

18 (8)



8 (2)



12

Fouls

14

2

Yellow Cards

3

0

Red Cards

0

0

Offsides

0

7

Corner Kicks

3

2

Saves

5



Form

# ESPN

## Meeting canceled



**SOURCE** Post-it Brand survey of 1,000 U.S. full-time office workers

JAE YANG AND KARL GELLES, USA TODAY

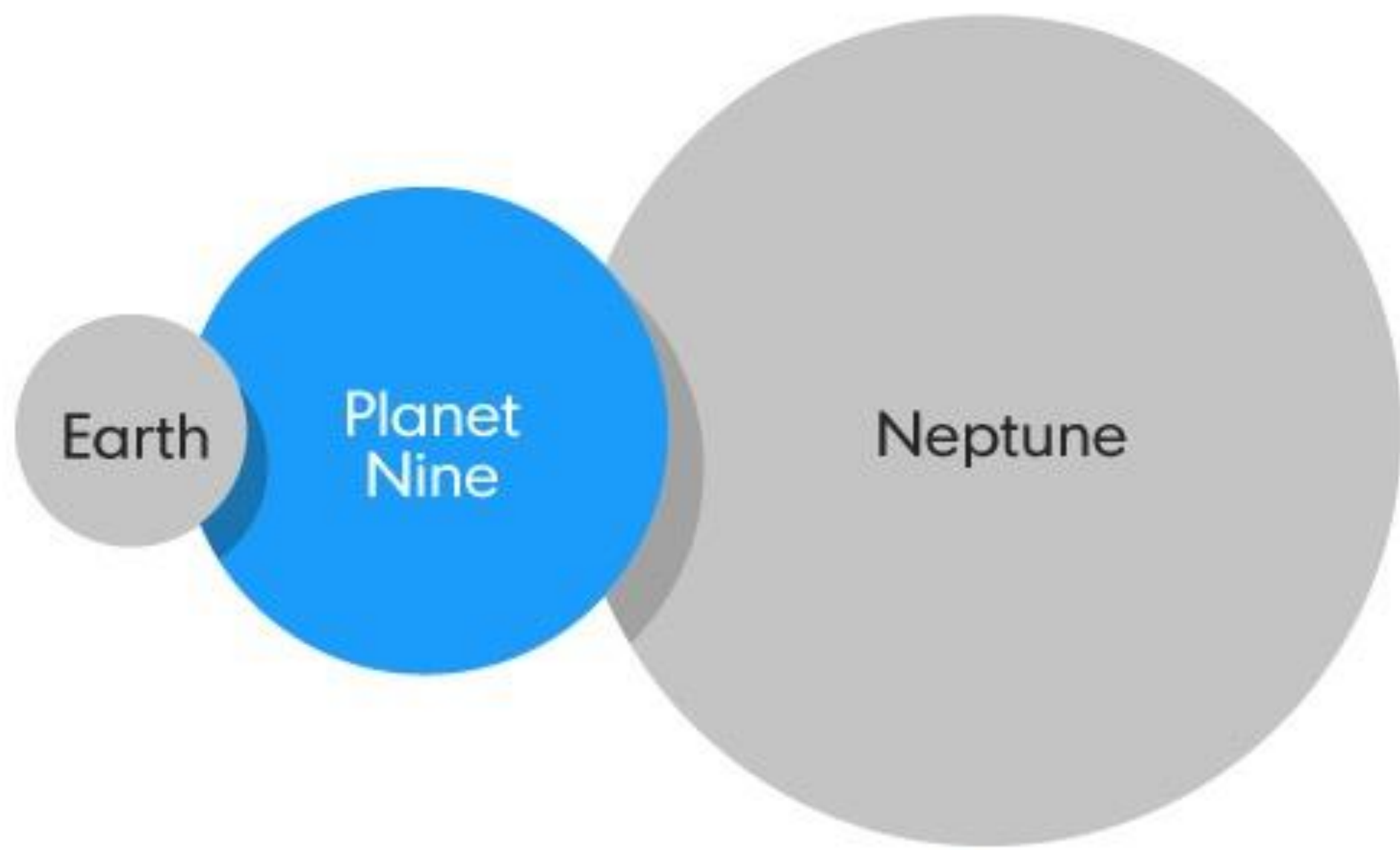
ma  
Do  
pea  
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120  
pu  
set  
&  
the  
day  
high  
up  
ne  
tri  
th  
high  
say  
off

USA  
TODAY



## SIZING UP PLANET NINE

Scientists estimate the planet measures somewhere between the size of Earth and that of the planet Neptune.



SOURCE: Caltech  
Frank Pompa, USA TODAY



# NBC2 VIEWER VOTE

NBC-2.COM

## HOW CONCERNED ARE YOU ABOUT THE ZIKA VIRUS?



88° 4:04

NBC

**16** number of ripe bananas Jamaican sprinter Yohan Blake eats every day to keep his potassium levels up\*\*\*



\*\*\* One banana represents two of the fruit

CNN

# WELFARE VS. FULL TIME JOBS



SOURCE: CENSUS BUREAU, 2011

# OBAMACARE ENROLLMENT

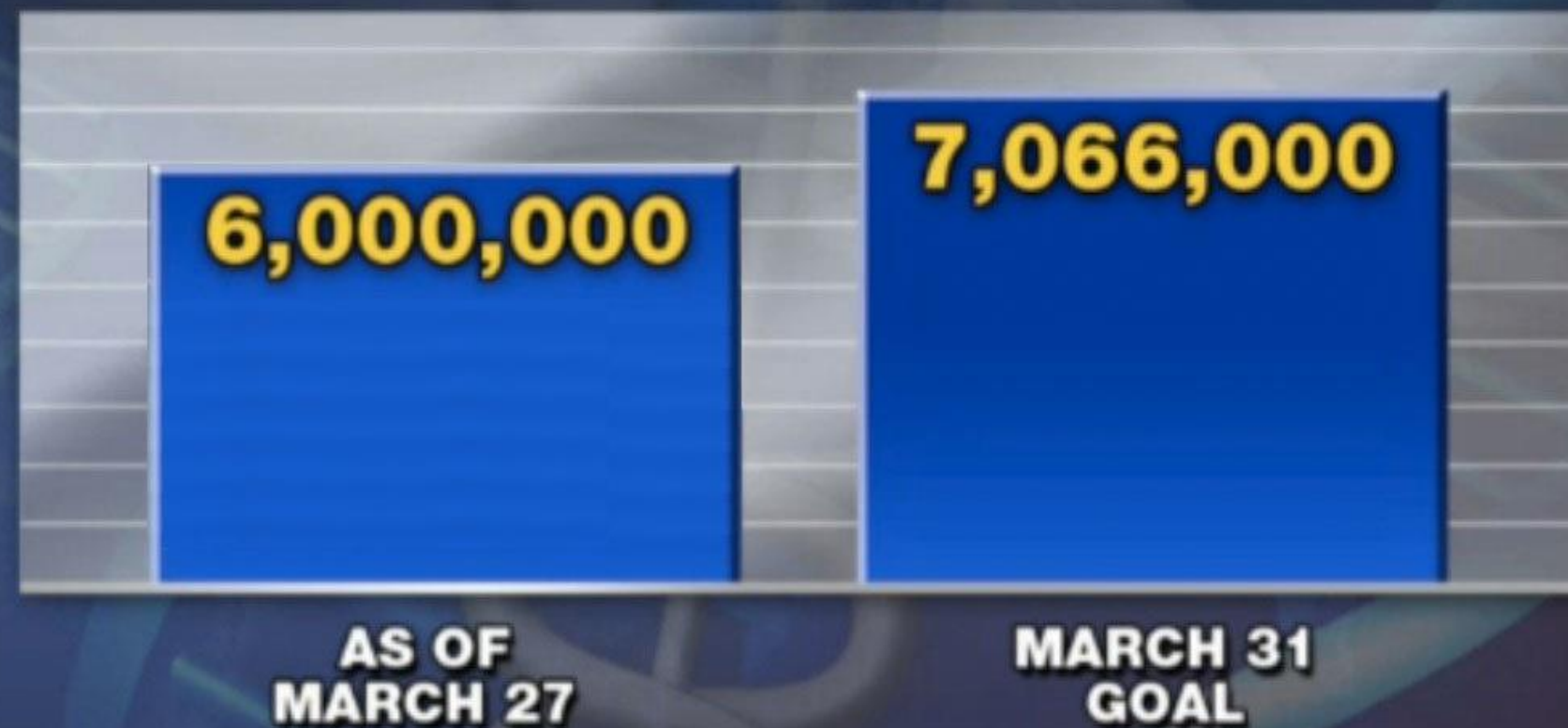


AS OF  
MARCH 27

MARCH 31  
GOAL

SOURCE: HHS

# OBAMACARE ENROLLMENT



SOURCE: HHS

**VOTO**  
**2013**  
El pueblo decide

ELECCIÓN PRESIDENCIAL 2013



PORCENTAJES



Nicolás Maduro Moros



% 49,07



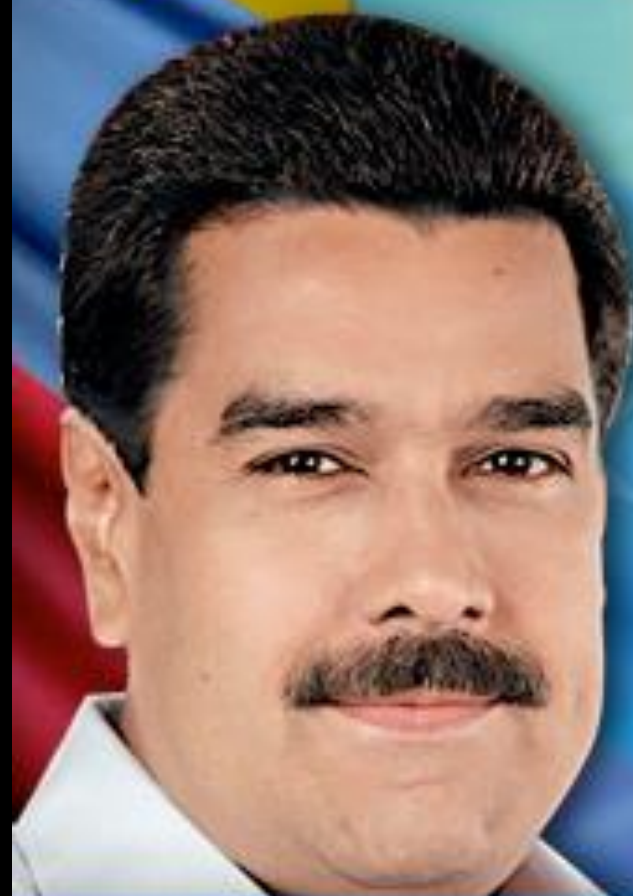
Henrique Capriles Radonski

**VOTO**  
**2013**  
El pueblo decide

ELECCIÓN PRESIDENCIAL 2013



PORCENTAJES



Nicolás Maduro Moros

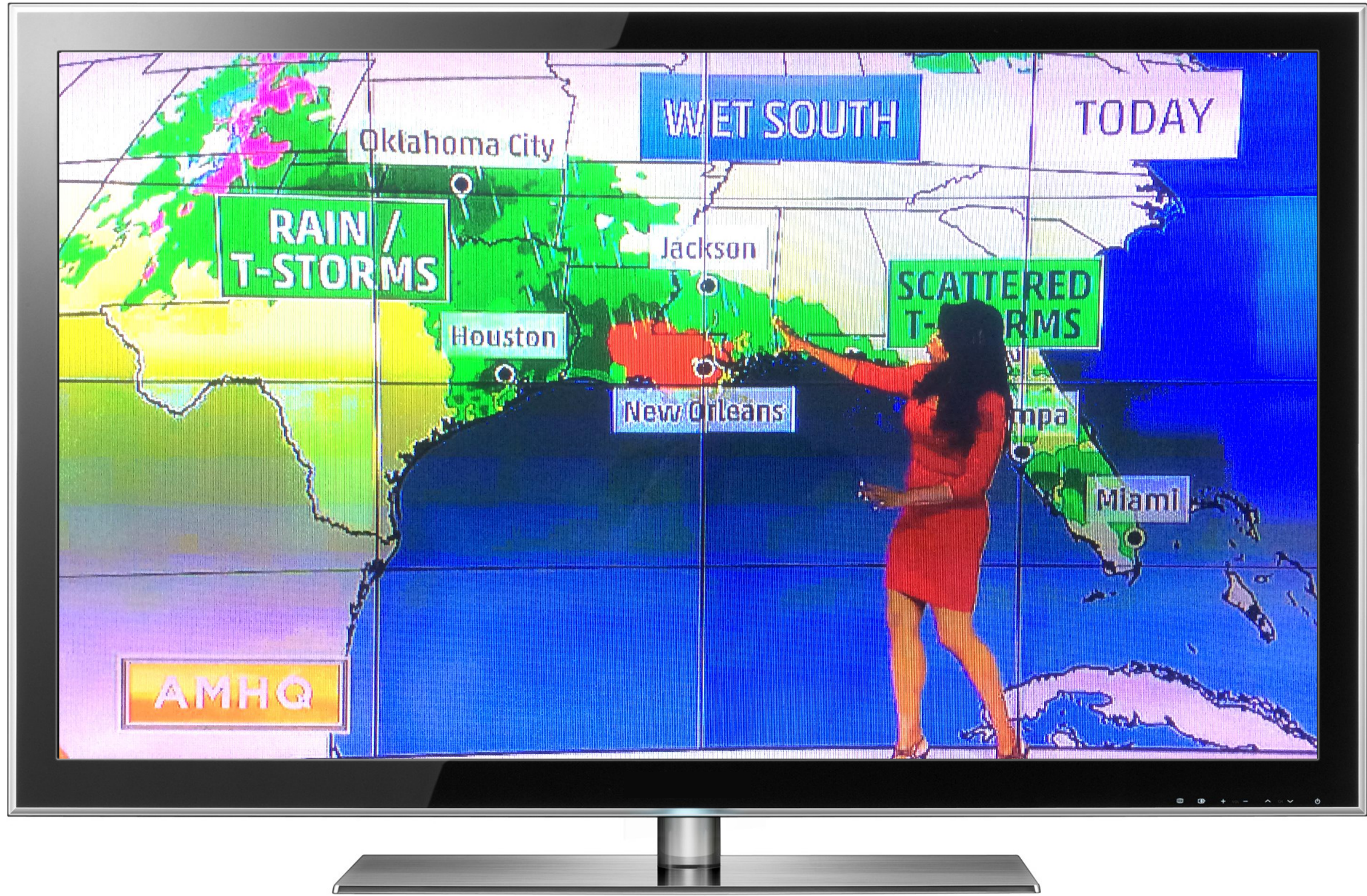


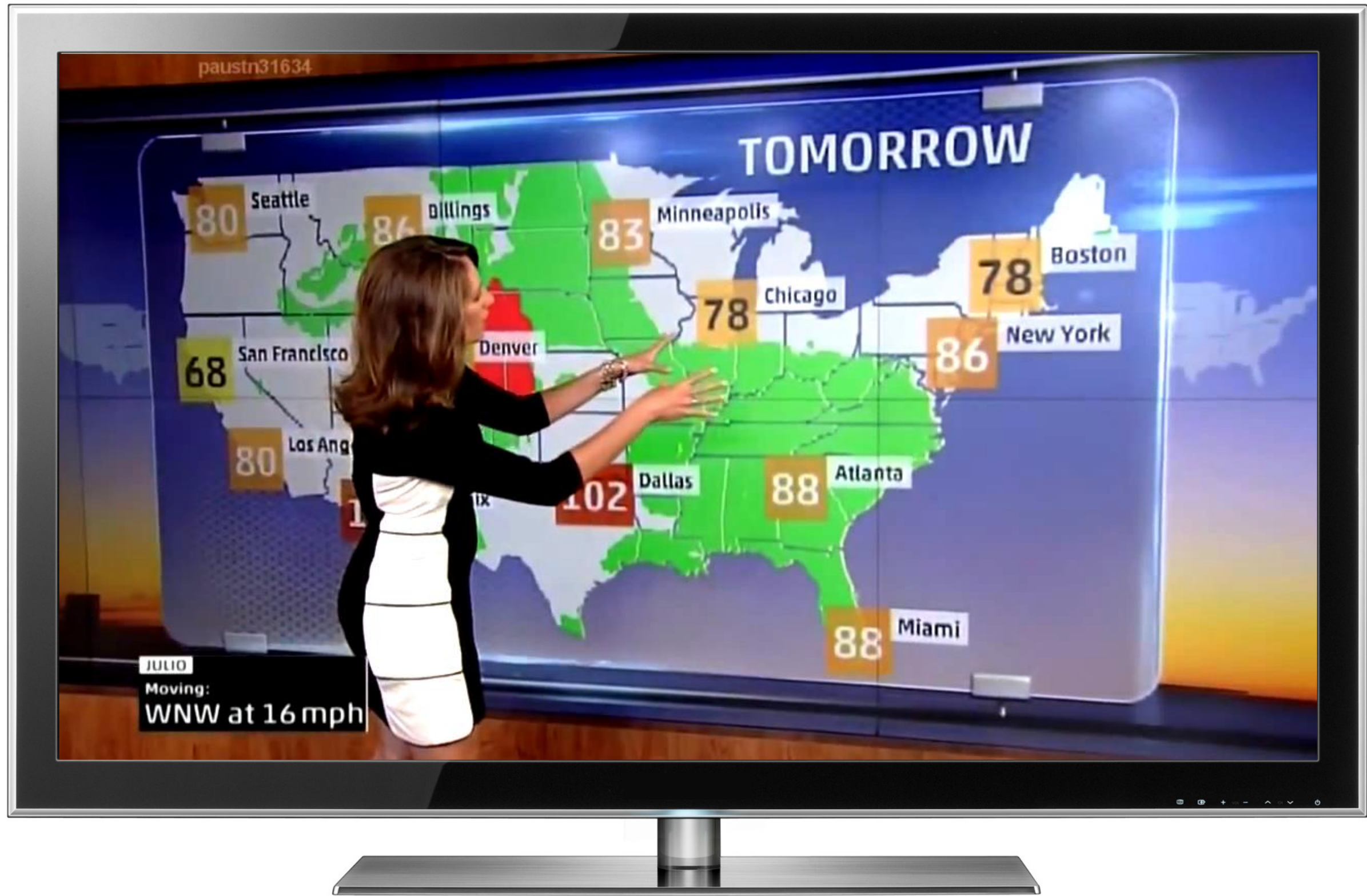
Henrique Capriles Radonski

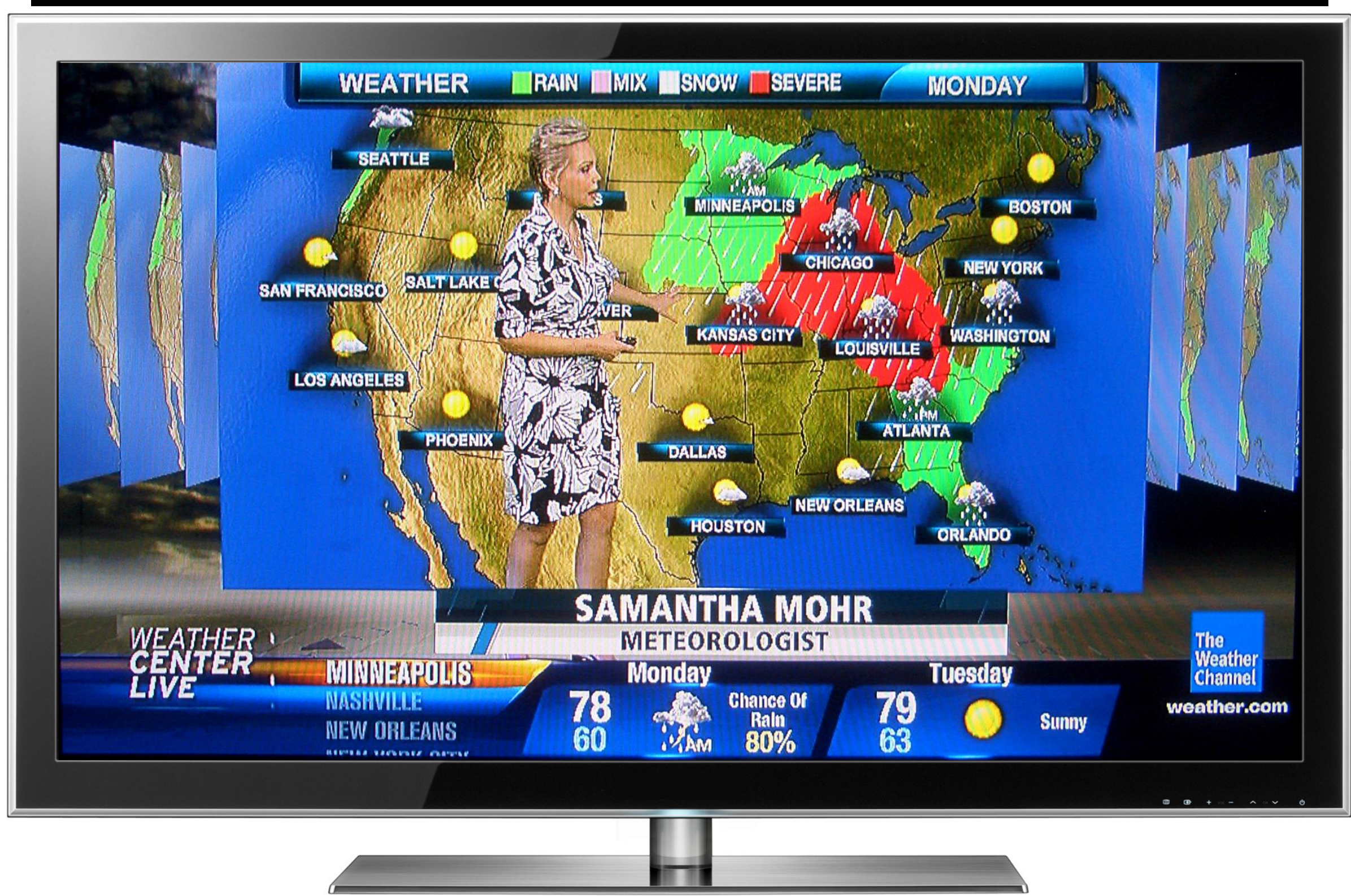




**The  
Weather  
Channel**







WEATHER

RAIN MIX SNOW SEVERE

MONDAY



**SAMANTHA MOHR**  
METEOROLOGIST

WEATHER  
CENTER  
LIVE

**MINNEAPOLIS**  
NASHVILLE  
NEW ORLEANS

Monday  
**78**  
**60**  
Chance Of  
Rain  
**80%**

Tuesday  
**79**  
**63**  
Sunny

The  
Weather  
Channel  
weather.com



### NORTHEAST FORECAST

SNOW GRADUALLY ENDS POCONOS AND UPSTATE NEW YORK

WEATHER CENTER

MINNEAPOLIS

NASHVILLE  
NEW ORLEANS  
NEW YORK CITY

28°

Light Snow



Right Now

Wind

6 mph from SE

Feels Like

22°

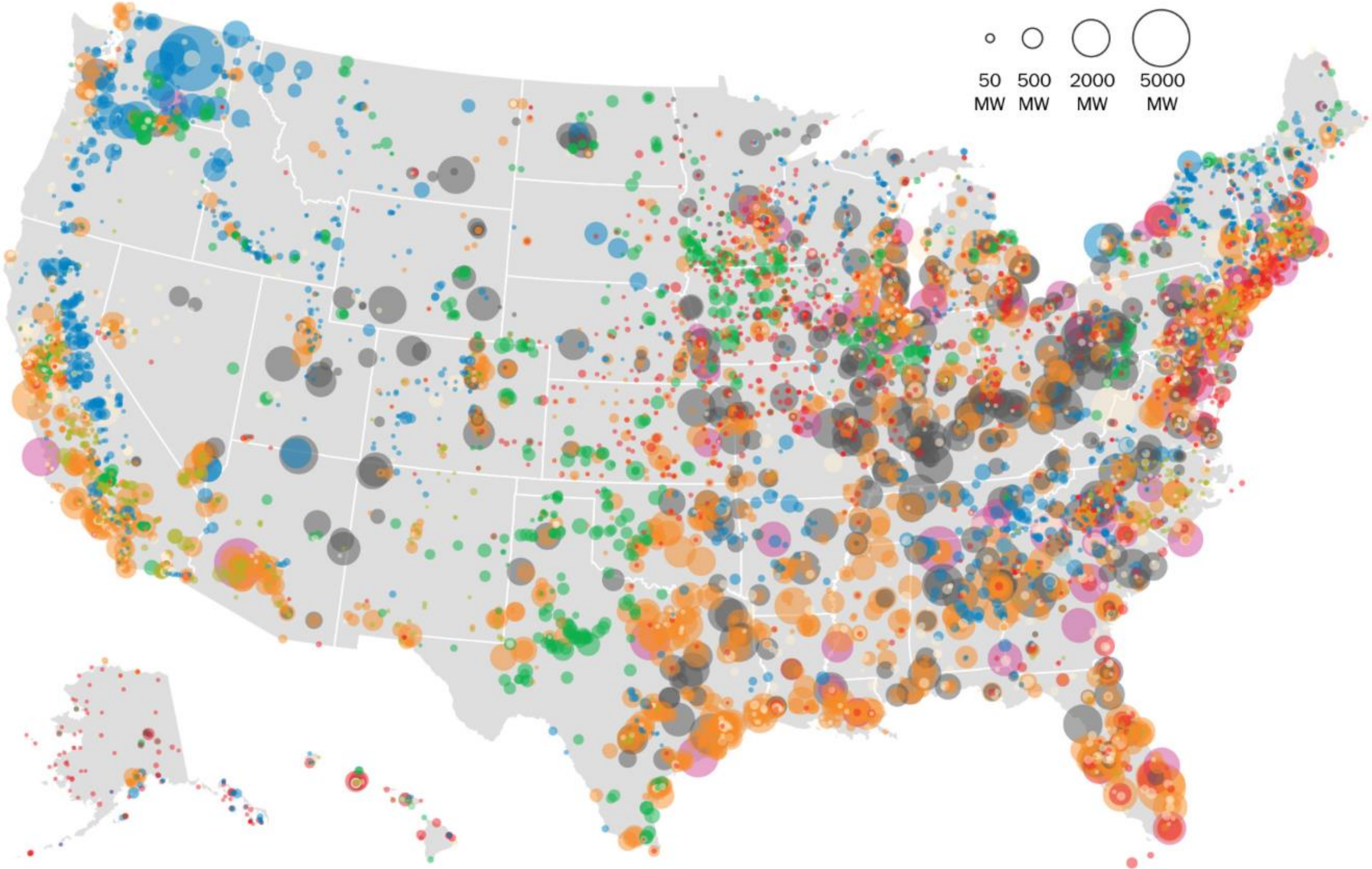
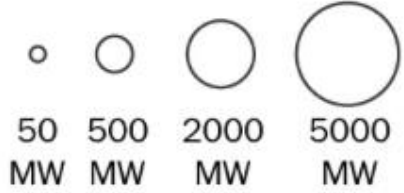
The Weather Channel

weather.com



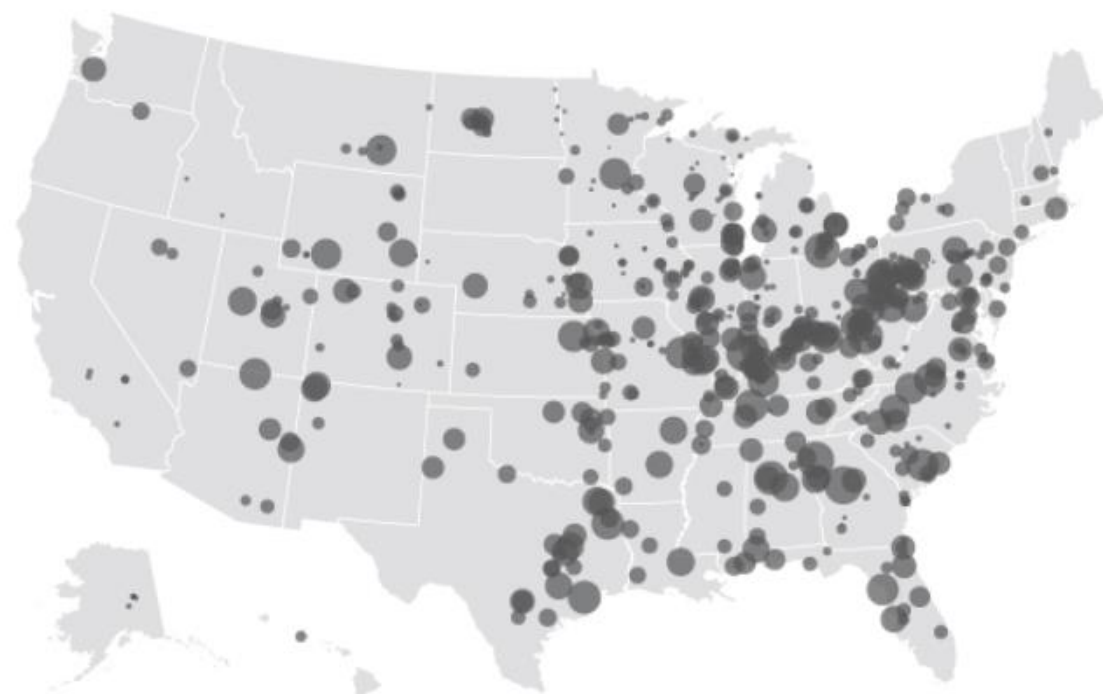
**Yes**

# Plant capacity by power source in megawatts





## Coal-powered electric plants

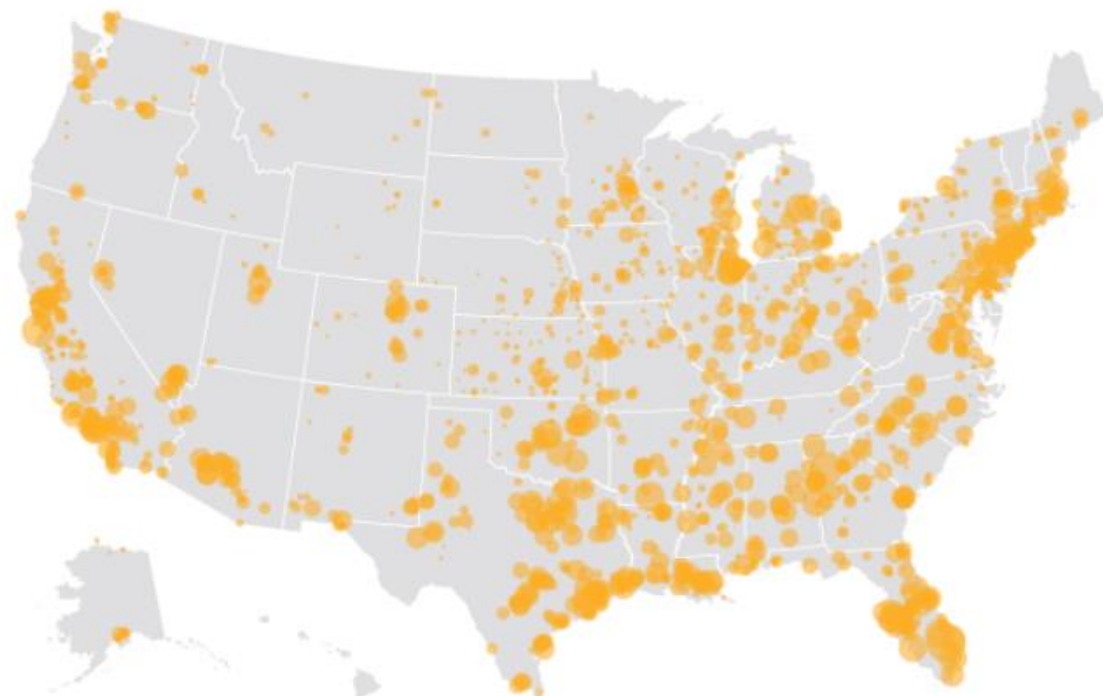


**There are 511 coal-powered electric plants in the U.S. They have generated 34 percent of the nation's electricity this year.**

The leading fuel for electricity generation in the country, coal is most popular in the Midwest, Appalachia and the East Coast, but is also the primary source in Wyoming, Utah, Montana and Arizona. It generated the vast majority of the nation's electricity in the late 1980s but now creates one-third with natural gas gaining steadily. Coal is the chief source of electricity in 22 states and creates a majority of the electrical power in 14 states.



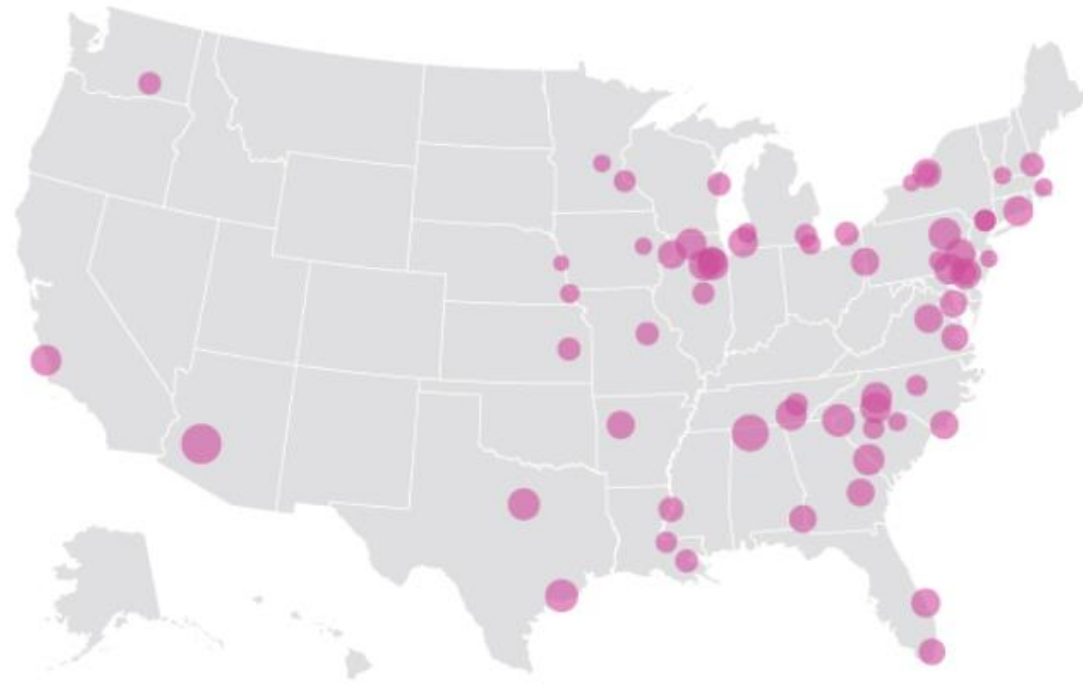
## Natural gas



**There are 1,740 natural gas-powered electric plants in the U.S. They have generated 30 percent of the nation's electricity this year.**

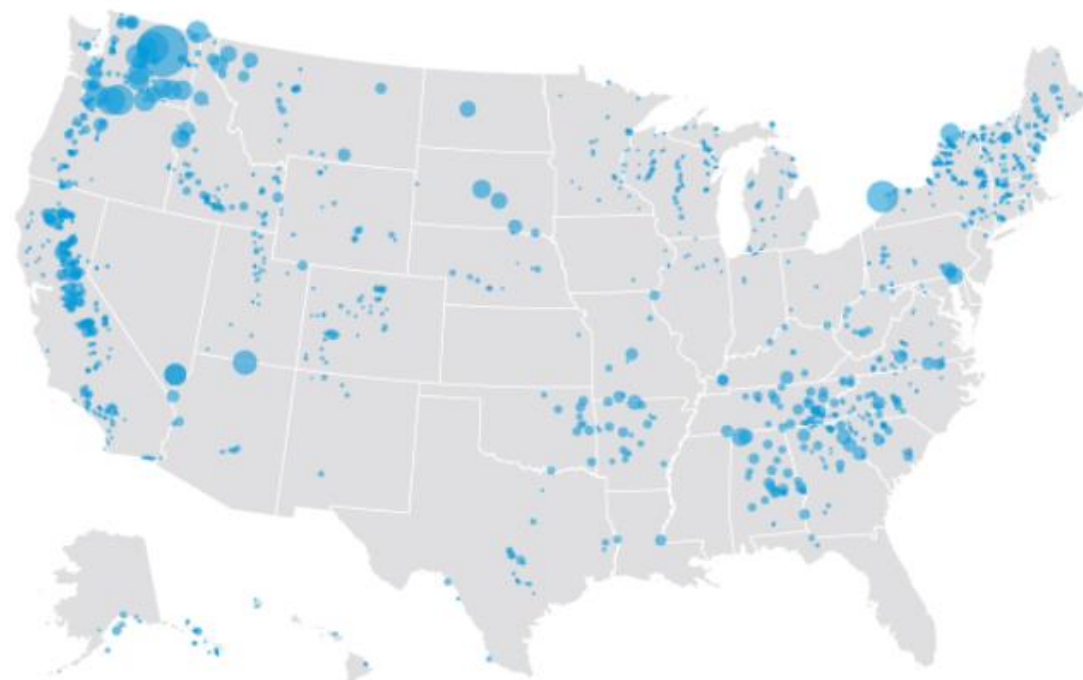
Advances and expansion of fracking in the past decade have unlocked vast supplies of natural gas from shale deposits all over the country. Natural gas is the predominant source of power in 15 states including all of the Gulf of Mexico states, Virginia, Georgia, New York, Massachusetts, Nevada and California.





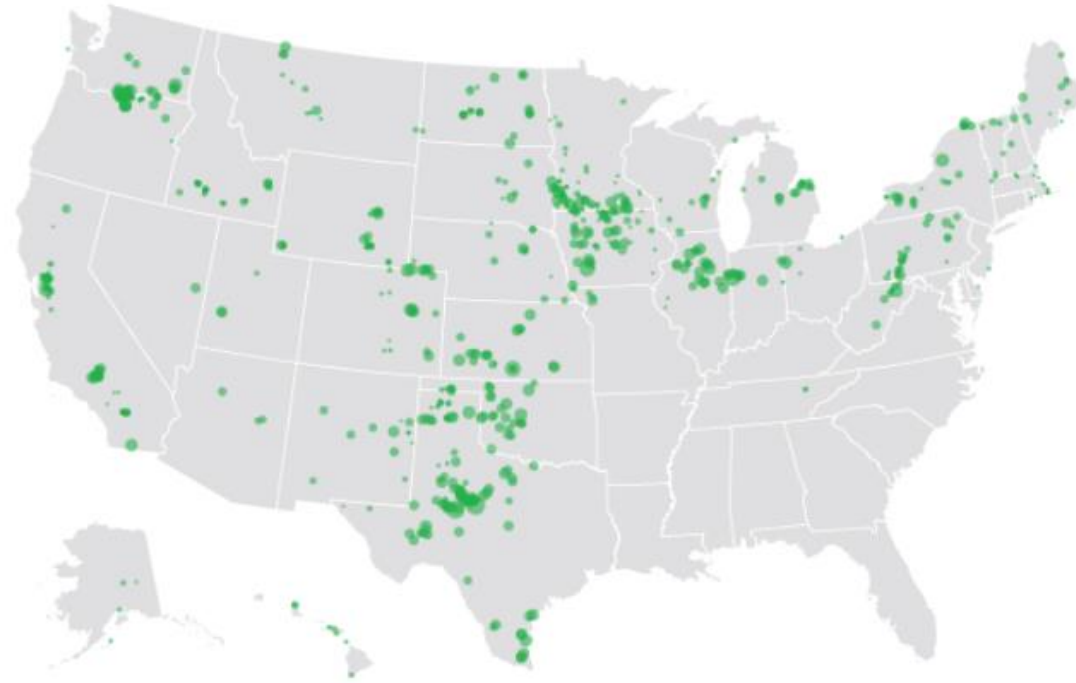
**There are 99 reactors at 63 nuclear electric plants in the U.S. They have generated 20 percent of the nation's electricity this year.**

Five new nuclear plants are under construction following decades of pause after the initial push in the 1970s and 1980s driven by the first oil shock. Only South Carolina, Illinois, Pennsylvania, Connecticut and New Hampshire get a plurality of their power from nuclear. Twenty states have no nuclear electricity generation at all.



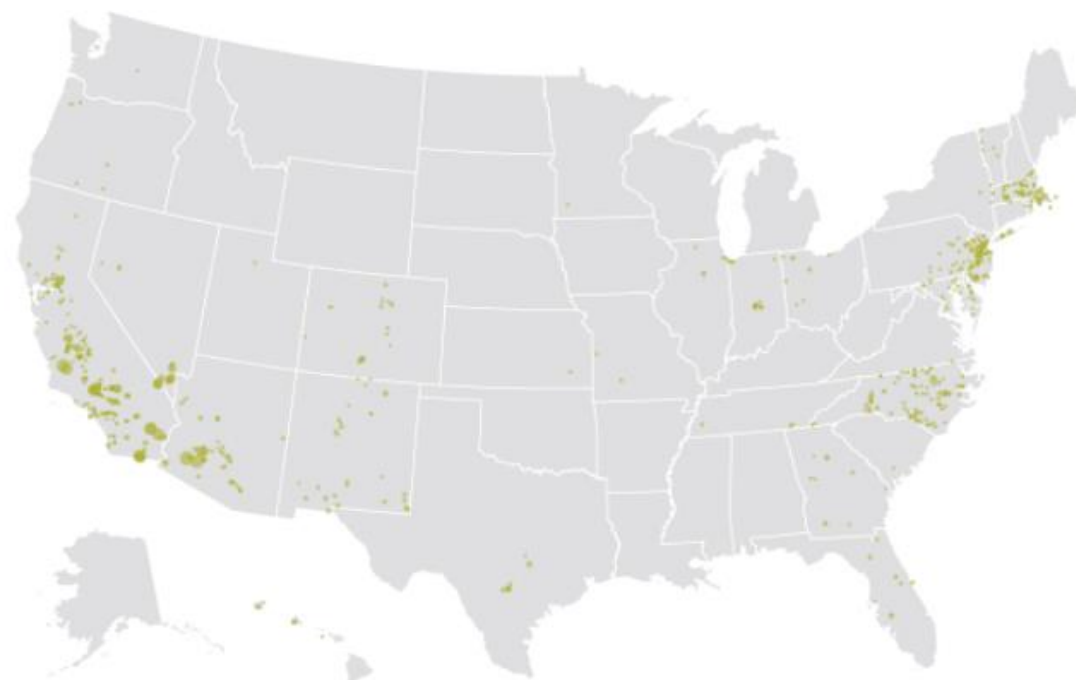
**There are 1,436 hydroelectric plants in the U.S. They have generated 7 percent of the nation's electricity this year.**

Washington, Oregon and Idaho lead the nation in power from hydroelectric plants. It's a feast-or-famine source, providing 48 percent or more of the power in five states, but less than 10 percent of the electricity in 40 states. Government-run plants generate most of the power.



**There are 843 wind-powered electric plants in the U.S. They have generated 5 percent of the nation's electricity this year.**

Wind is the fastest growing source, finding a home in the Great Plains where wind blows reliably across wide open spaces. Iowa and South Dakota get one third of their power from wind, followed by Kansas, Vermont and North Dakota.



All

**There are 772 solar-powered electric plants in the U.S. They have generated 1 percent of the nation's electricity this year.**

Sun power is predominantly in the Southwest where the sun shines the most. Thirty-nine states have no solar generating plants. California gets 8 percent of its electricity from solar and Nevada gets 5 percent, followed by Vermont and Arizona with 4 percent each.



There are **1,098** oil-powered electric plants in the U.S. They have generated **one percent** of the nation's electricity this year.

Petroleum is no longer a popular source for electricity generation. After the rise of OPEC and the oil shocks and price increases of the 1970s, utilities switched to other fuels, mostly coal. Hawaii is the only state that gets a plurality of its electricity from oil.



# Based on a True True Story?

Scene-by-scene Breakdown of Hollywood Films

TRUE TRUE-ISH FALSE-ISH FALSE UNKNOWN

PEDANTRY Flexible - c'mon, it's movies! SORT Date Released

74% Hidden Figures 2016



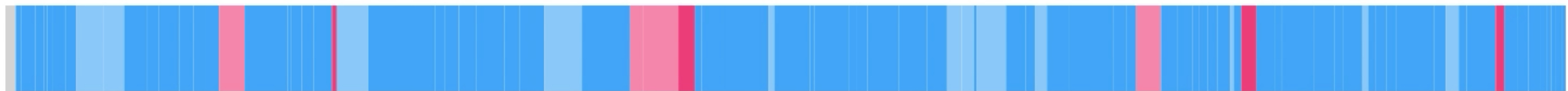
61.4% Lion 2016



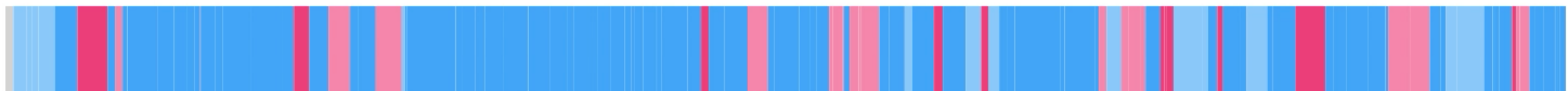
52.7% Hacksaw Ridge 2016



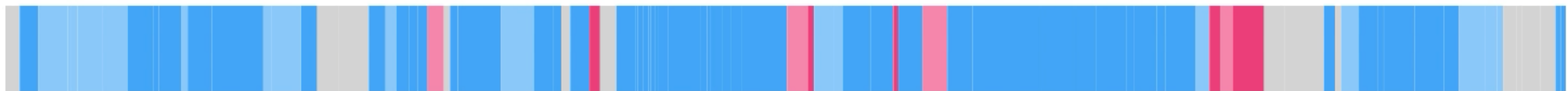
91.4% The Big Short 2015



76.2% Spotlight 2015



88.8% Bridge of Spies 2015



100% Selma 2014

**Speed of Light**  
7.5 orbits per second at surface



James O'Donoghue / NASA — T: @physicsJ IG: jameslikesspace

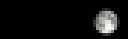
# EARTH AND MOON

— to scale —

Speed of light in real-time  
Surface-to-surface in 1.255 seconds



EARTH



MOON

Average distance  
384,400 KM

# EARTH, MOON AND MARS

— All distances to scale; bodies x20 larger —

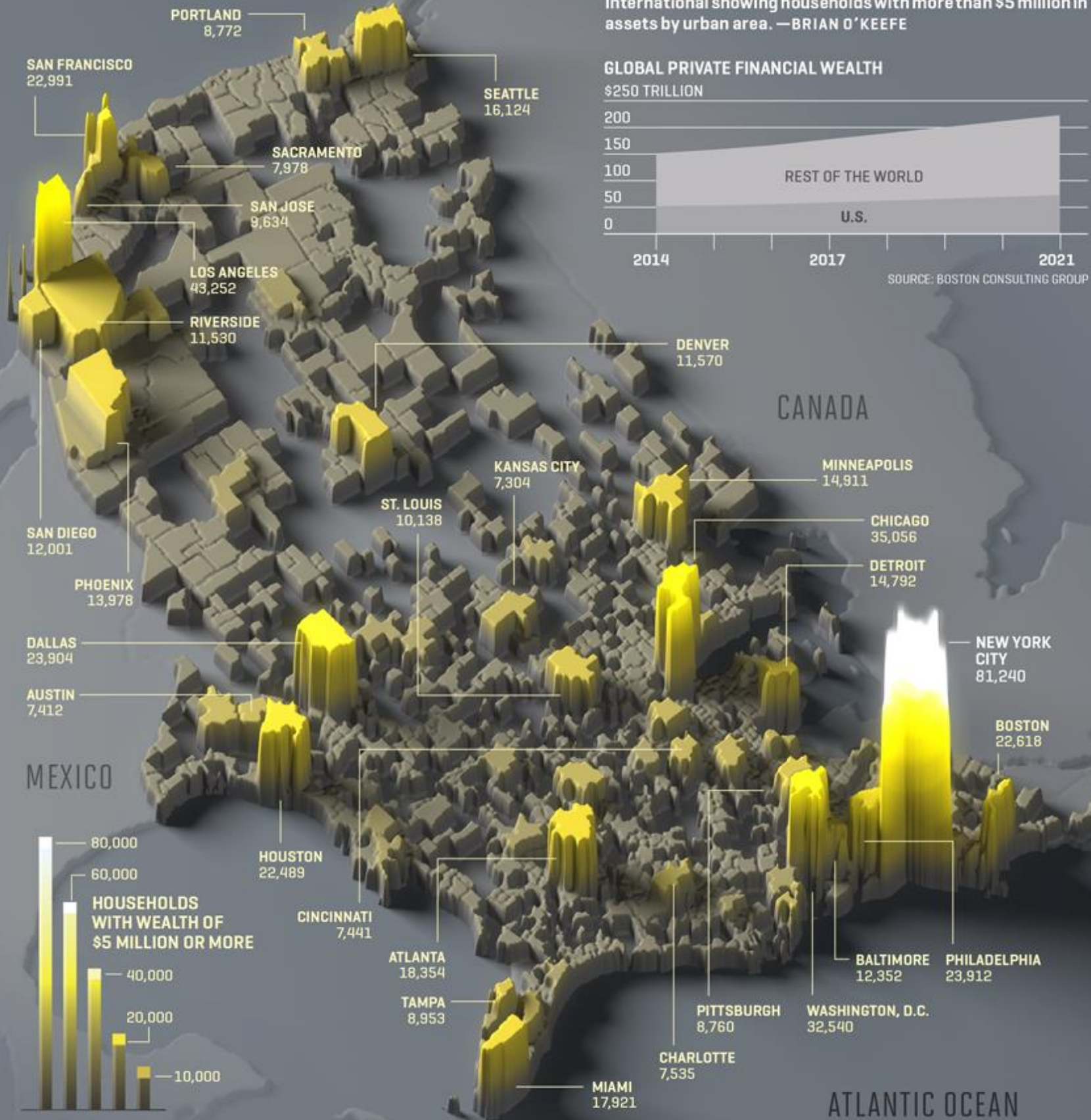


James O'Donoghue / NASA Imagery — T: @physicsJ IG: jameslikespace



# CITIES OF GOLD

THE RICH CONTINUE to get richer—and at a faster rate. Global private financial wealth increased by 5.3% to \$166.5 trillion last year, according to the Boston Consulting Group. That compares with a 4.4% gain the year before. Some 45% of that \$166.5 trillion is held by 18 million millionaire households worldwide. The number of such households in Asia is growing fast. But the U.S. still has the largest share, with more than 7 million millionaire households vs. 2.1 million in China. To see where wealth is concentrated in the U.S., we plotted data from Phoenix Marketing International showing households with more than \$5 million in assets by urban area. —BRIAN O'KEEFE





# Flag Stories

a project by ferdio







**CHILD'S PLAY**  
8-12 points



**FAIR**  
13-32 points



**PASSABLE**  
34-176 points



**CHALLENGING**  
191-856 points



**IMPOSSIBLE**  
1028-10874 points





ASIA



EUROPE



OCEANIA



NORTH AMERICA



AFRICA

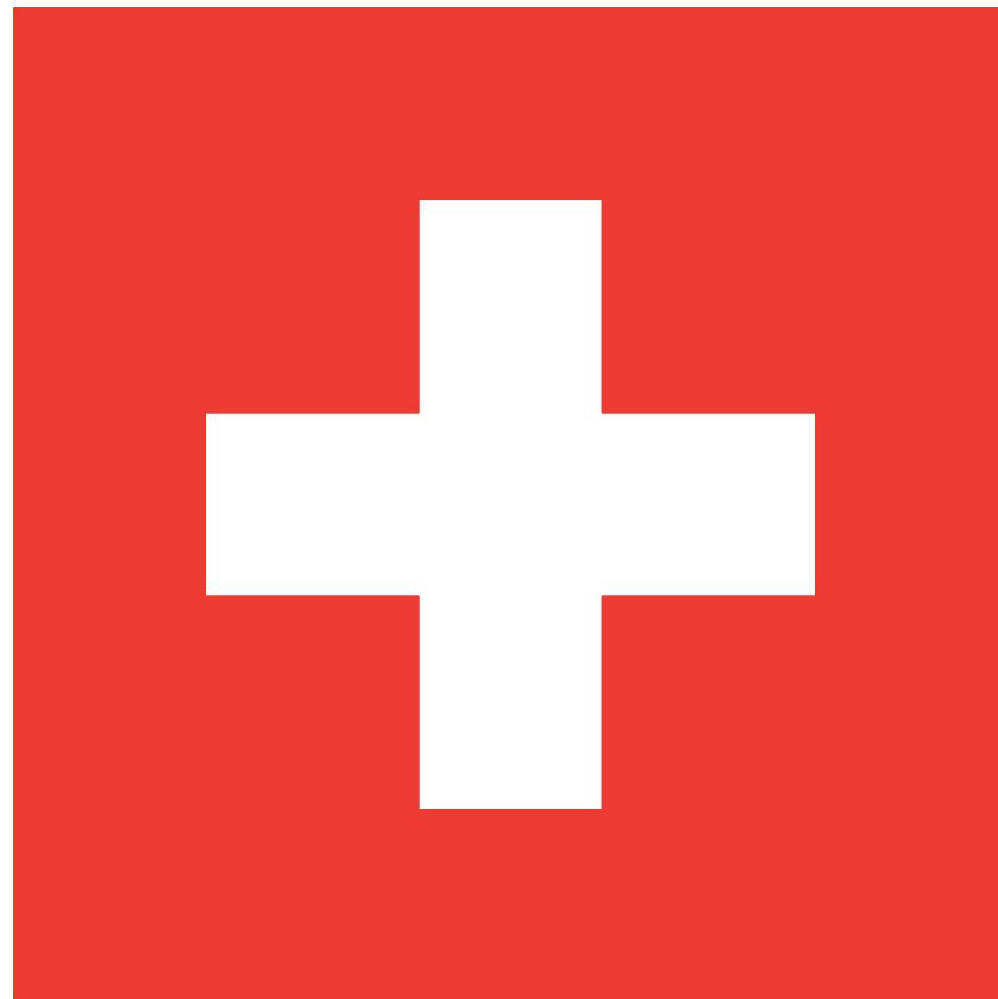


SOUTH AMERICA





**URSUS WEHRLI**



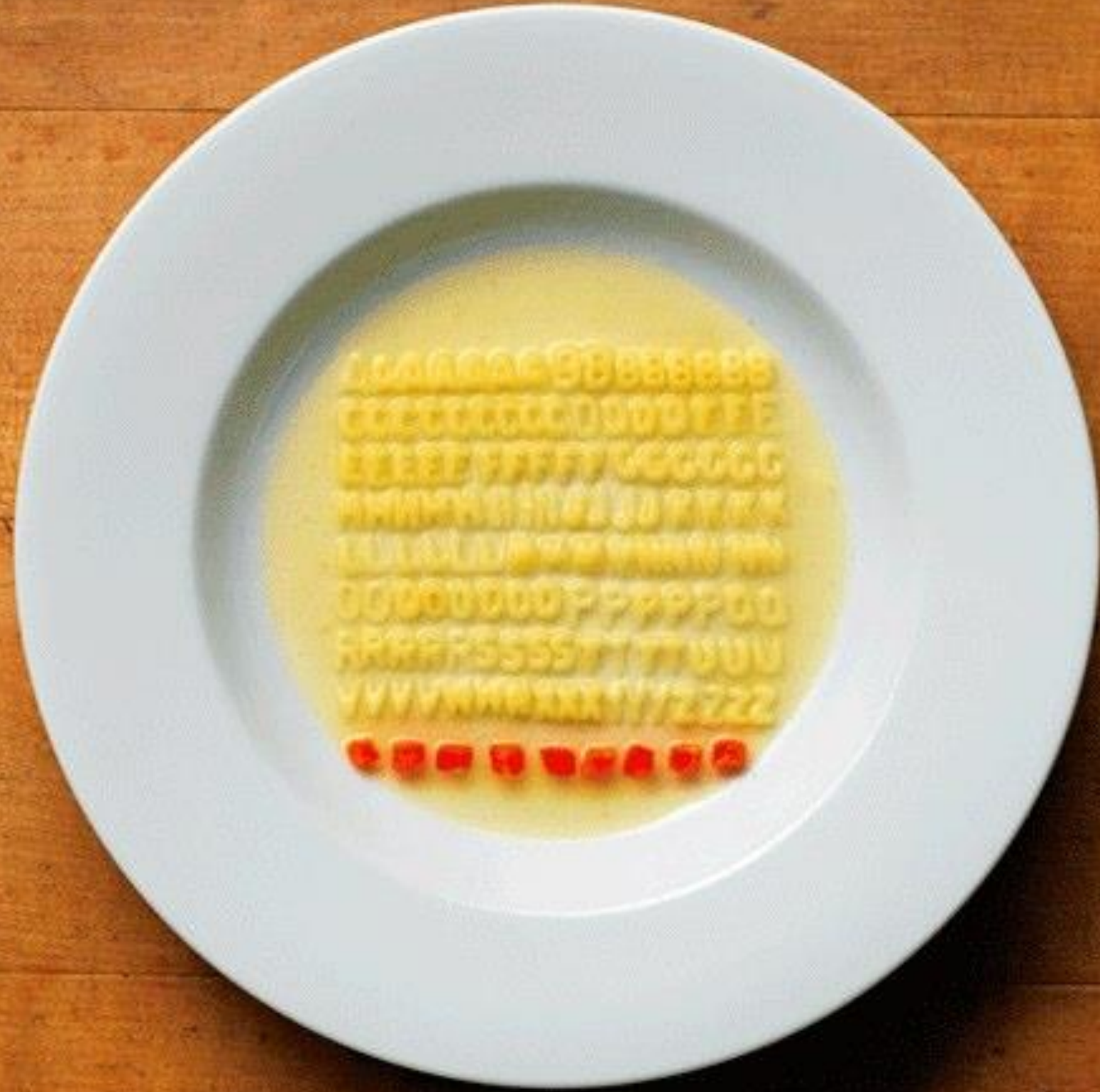


















# VisCom

THE SCRIPPS COLLEGE  
OF COMMUNICATION



OHIO  
UNIVERSITY



**ACADEMIC YEAR?**



# EXECUTIONS BY STATE

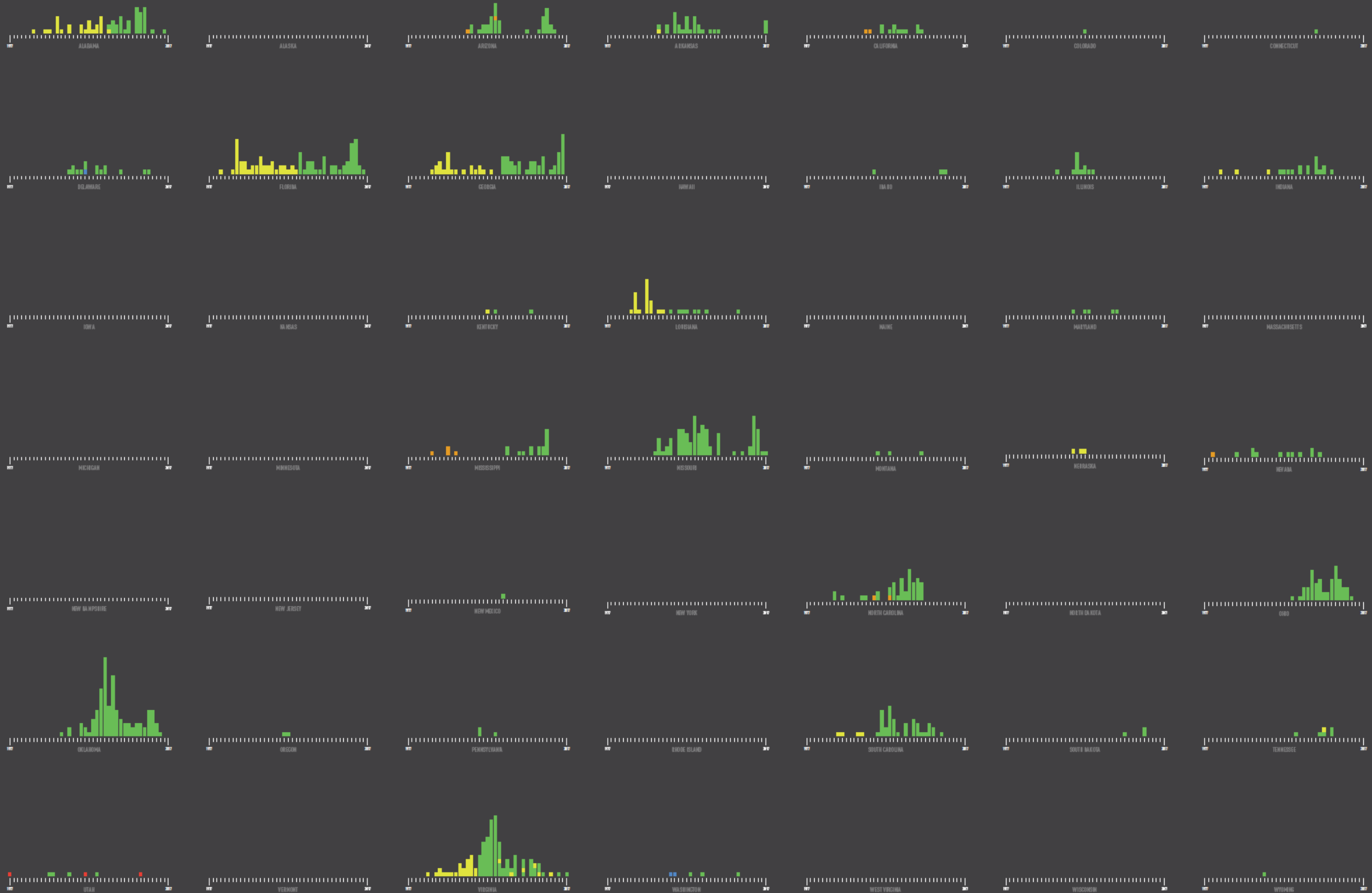
## 1977-2017\*

The death penalty is something that has been around since as early as Eleventh Century B.C.E. Since then, laws and practices have fluctuated in regards to the allowance of executions. After years of changes, the death penalty officially suspended in the United States in June of 1972. It remained this way for nearly five years. Later this year, Oklahoma becomes the first state to use lethal injection as a method of execution. However, with the influx of this practice after it's reenactment, several states have still remained against it and not executed anyone in the past 40 years; 16 to be exact (these states are faded out). This graphic is meant to show the trend of executions and the methods of doing so while serving as a comparison among states.

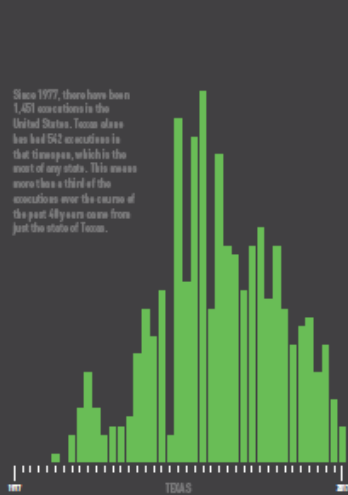
### KEY

- Electrocution
- Lethal Injection
- Gas Chamber
- Hanging
- Firing Squad

\*As of July 25, 2017  
Source: deathpenaltyinfo.org



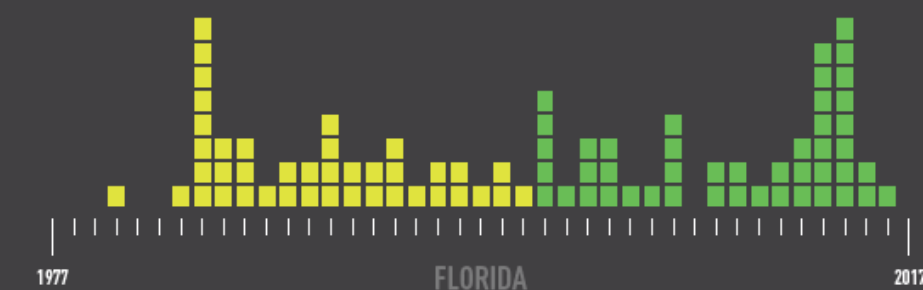
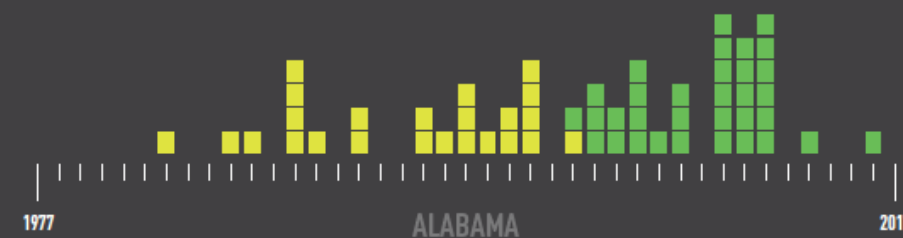
Since 1977, there have been 1,451 executions in the United States. Texas alone has led 542 executions in that time span, which is the most of any state. This means more than a third of the executions over the course of the past 40 years came from just the state of Texas.



# EXECUTIONS BY STATE

## 1977-2017\*

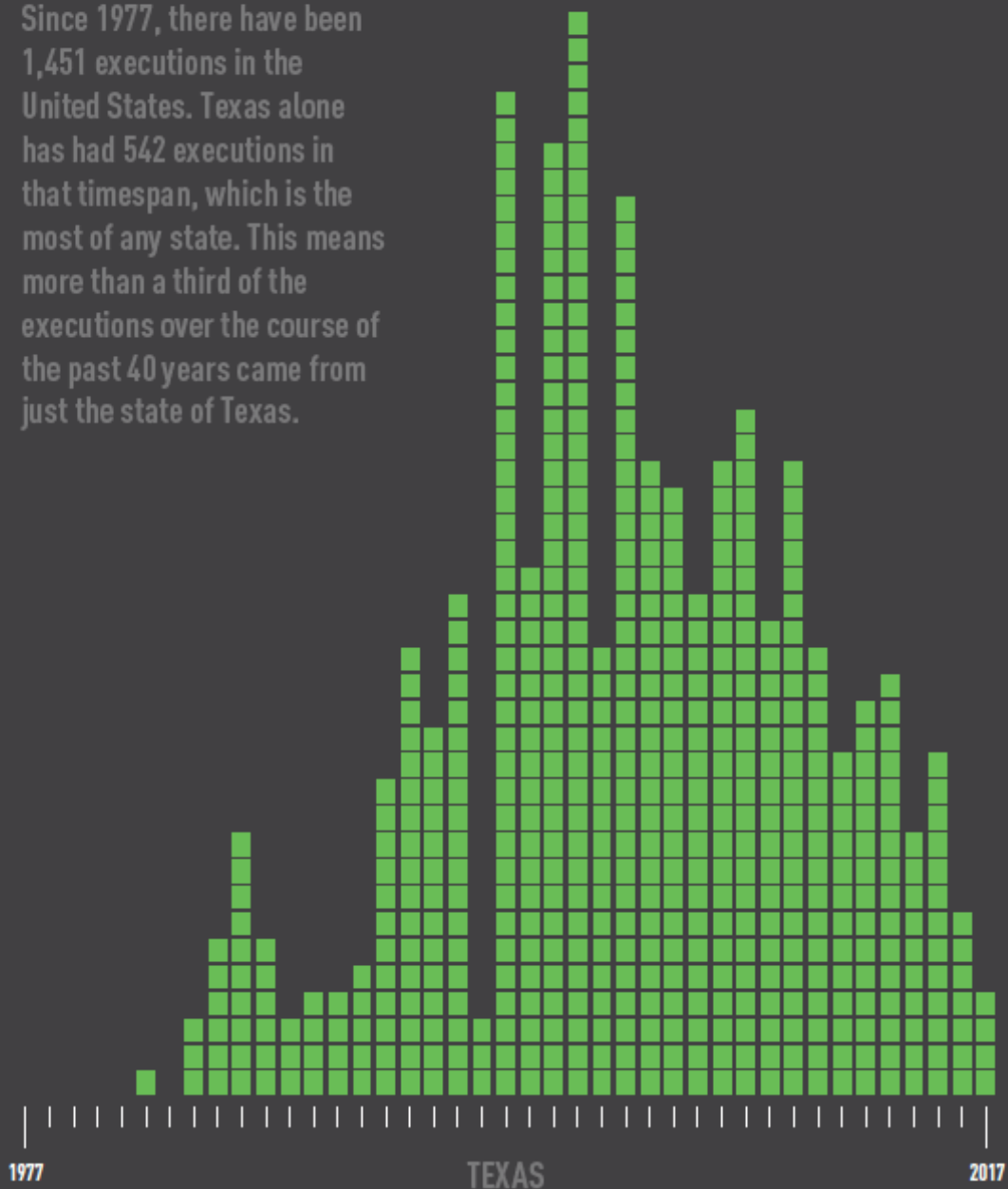
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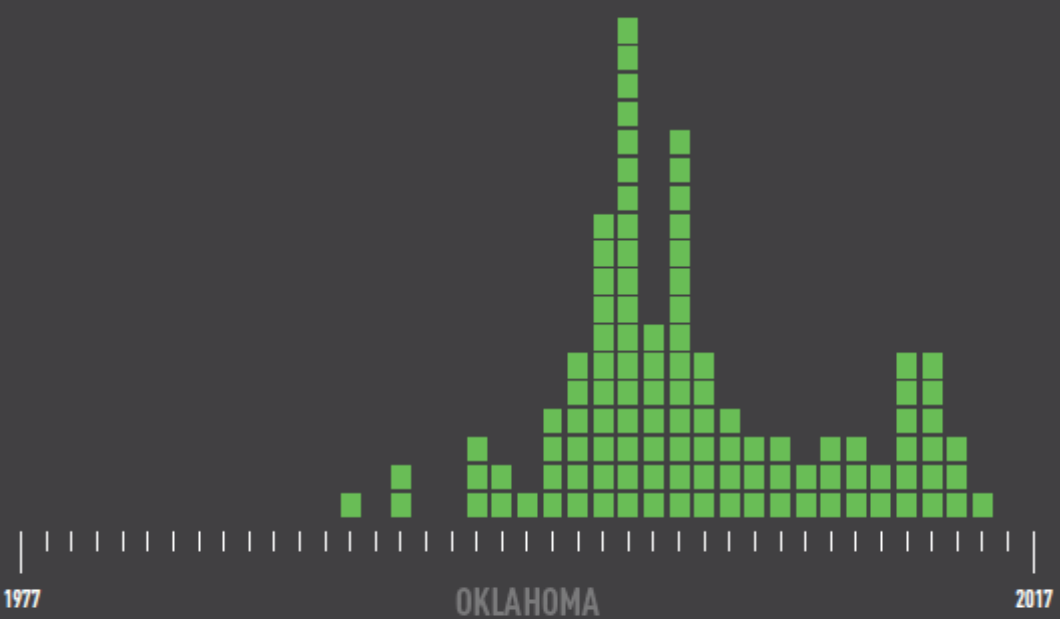
### KEY

- Electrocution
- Lethal Injection
- Gas Chamber
- Hanging
- Firing Squad

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1977 NEW HAMPSHIRE 2017 1977



1977 OKLAHOMA 2017 1977



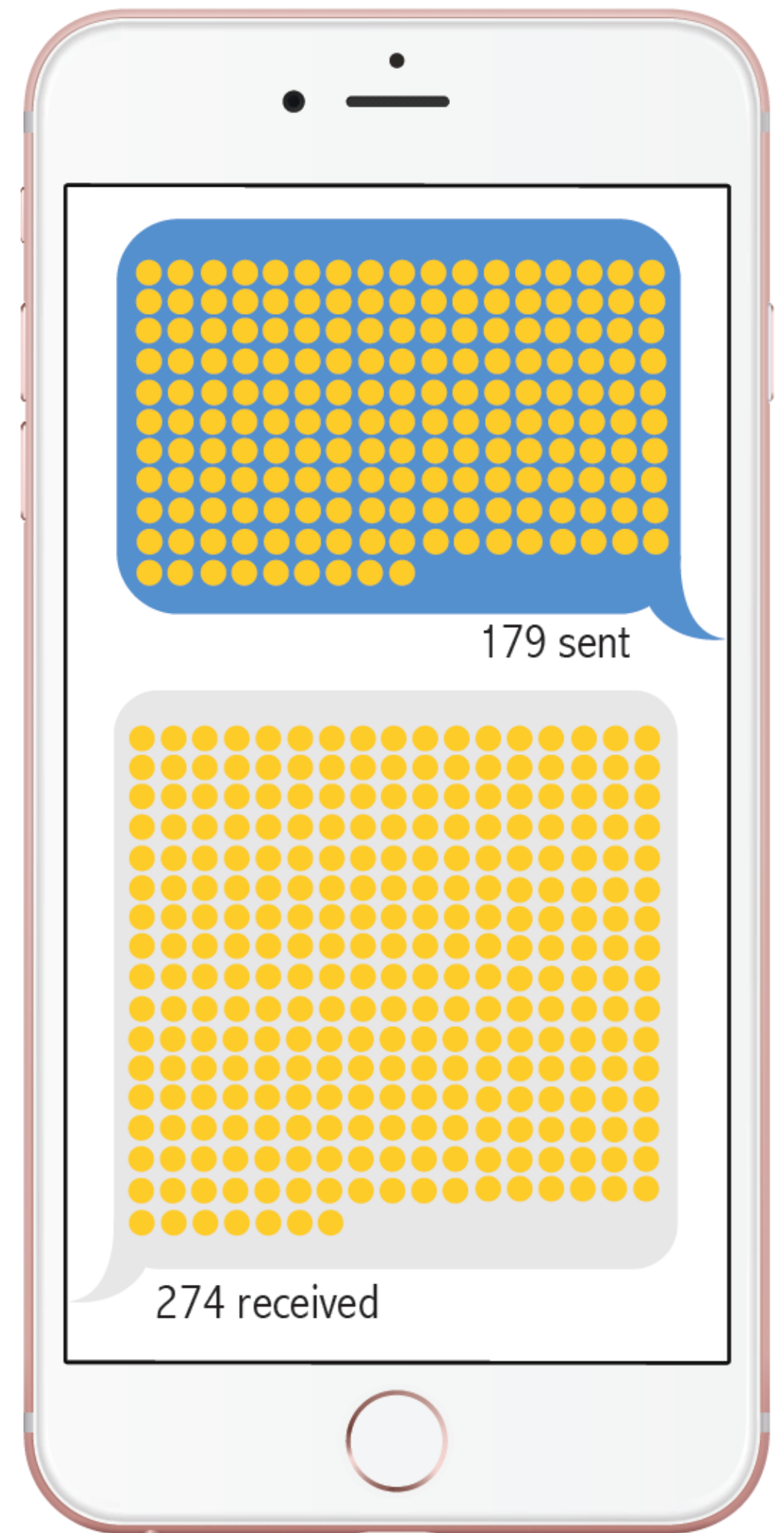
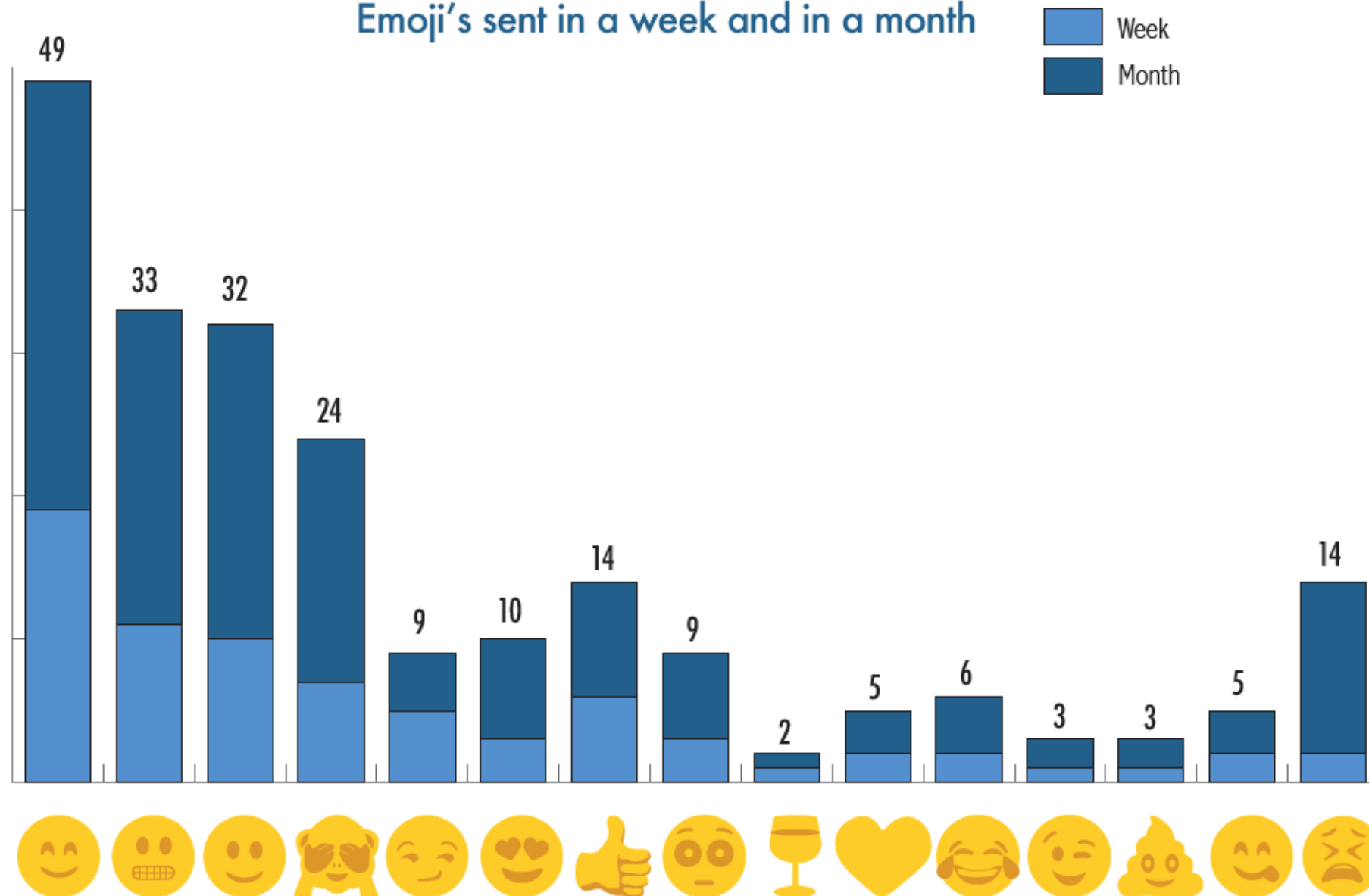
1977 UTAH 2017 1977

# Emoji Overload

Emoji's used in a week and a month

Over the course of the month, I tracked the amount of emoji's I sent and the how many I received from other people and the frequency of the type of emoji I sent to people. A large bulk of the emoji's I recieved were from one person. Emoji's express the emotions we feel as well as our relationships with others. From this I learned that I use way too many emojis.

Emoji's sent in a week and in a month



# VisCom



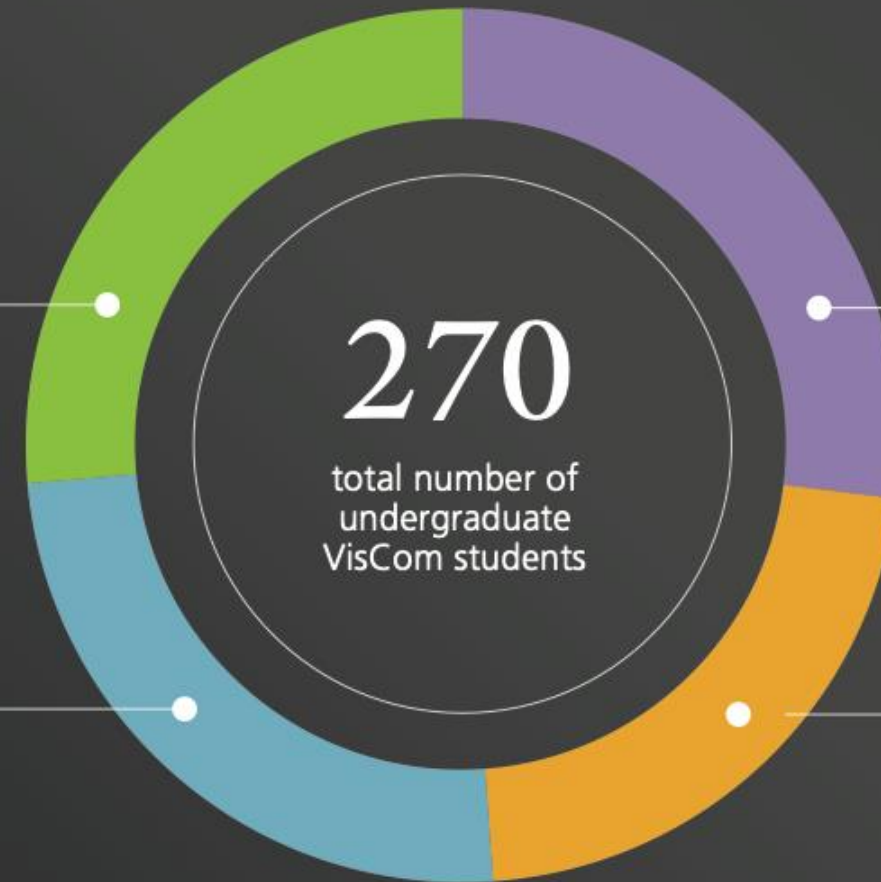
Our highly competitive program in southeastern Ohio draws talented students from around the globe to take their visual communication talents to the highest level. We're all about storytelling in the most compelling way, whether it be through information design (interactive and publication), photojournalism, or commercial photography.

## seniors // 71

commercial photography	12
photojournalism	29
publication design	19
multimedia	11

## juniors // 67

commercial photography	18
photojournalism	20
publication design	21
multimedia	8



## freshmen // 73

commercial photography	7
photojournalism	37
publication design	16
multimedia	12

## sophomores // 59

commercial photography	20
photojournalism	18
publication design	16
multimedia	5



# Commercial Photography



Commercial photography students have the opportunity to work in the studio and on location to create images that showcase fashion, still life, portraiture and architecture. Different camera formats are explored.



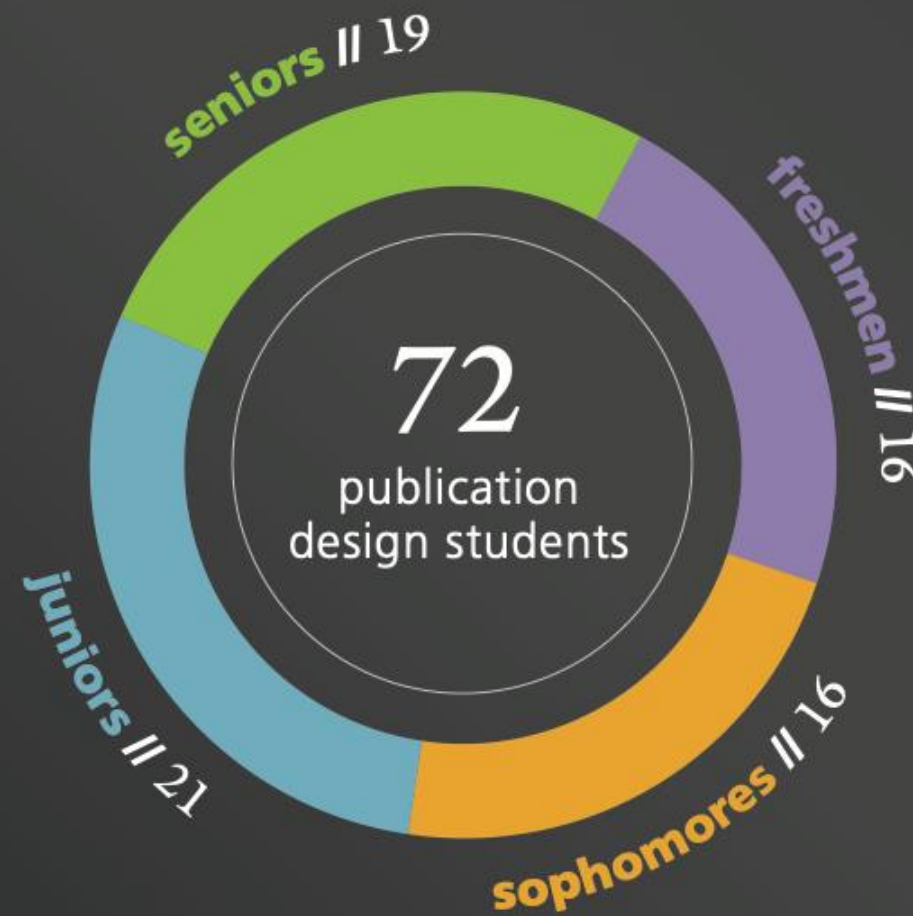
# Photojournalism

The photojournalism sequence focuses on photographing people and places within the community, with an eye toward a documentary style of storytelling. Students learn the power of still and video images.



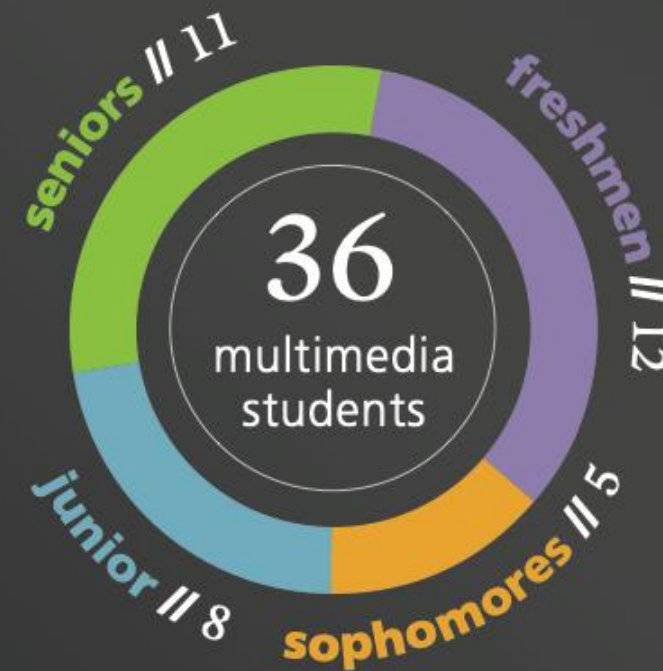
# Publication Design

Students learn how to create infographics, maps, illustrations and layouts for feature and news presentations that educate, inform and enlighten readers through strong visual storytelling and clear communication.



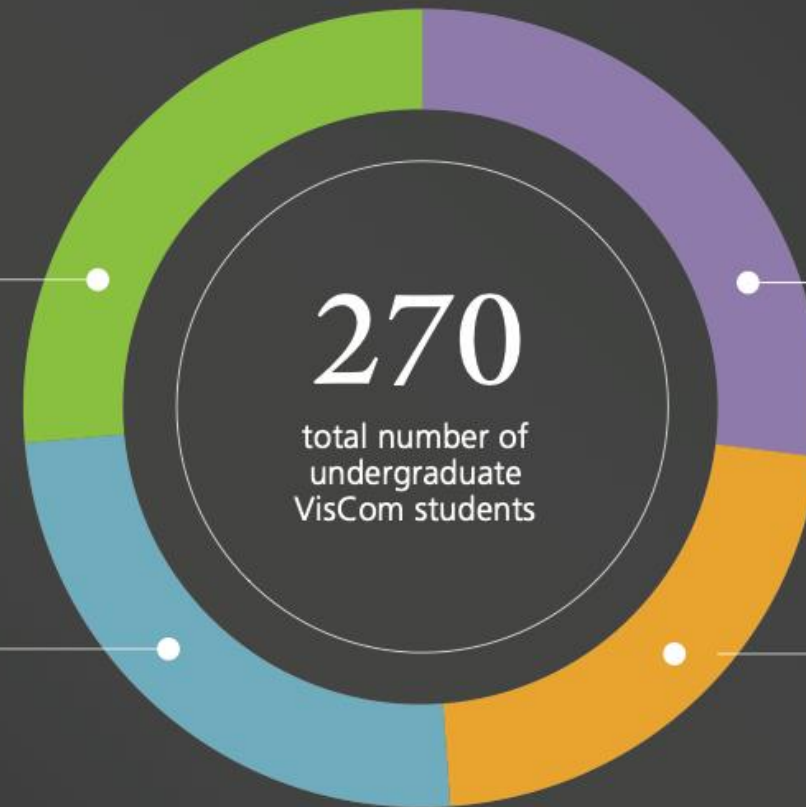
# Multimedia

Students learn how to integrate audio, video, still images and illustrations for the web and mobile devices. Information architecture and user experience design are key components explored to tell stories in a digital medium.



# VisCom

BY THE NUMBERS



## seniors // 71

commercial photography	12
photojournalism	29
publication design	19
multimedia	11

## freshmen // 73

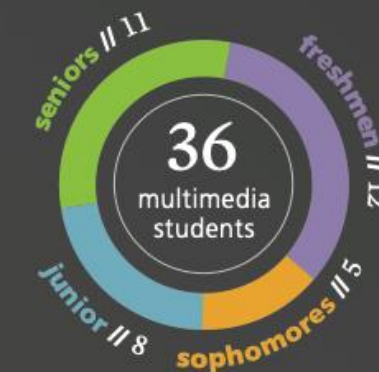
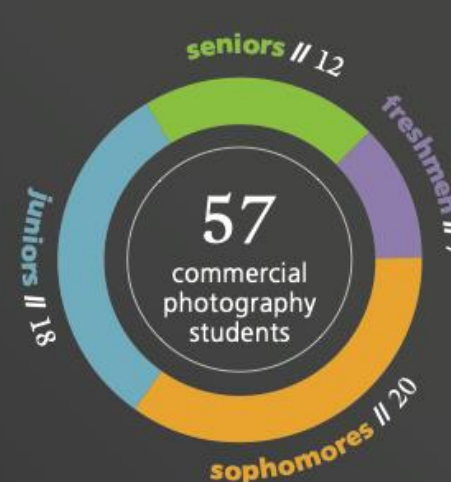
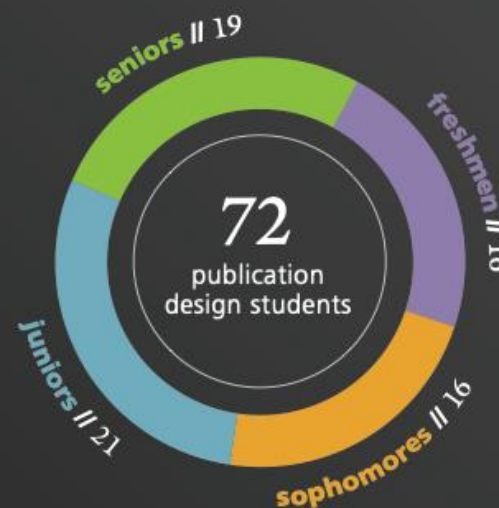
commercial photography	7
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## juniors // 67

commercial photography	18
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publication design	21
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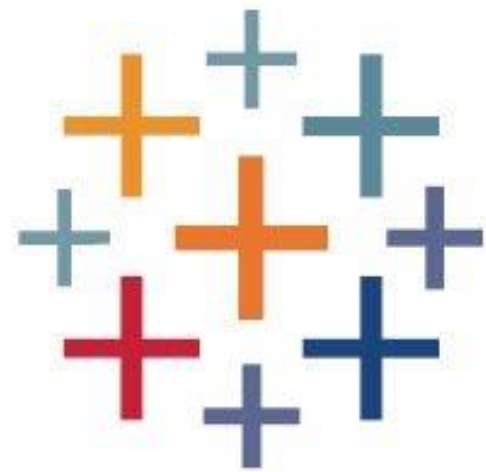
## sophomores // 59

commercial photography	20
photojournalism	18
publication design	16
multimedia	5



# Software





+ a b | e a u<sup>®</sup>  
S O F T W A R E



# Flourish

Powerful, beautiful, easy  
data visualisation.



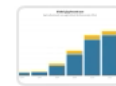
# Hi John Grimwade

 **All projects and data are public**

You have a Public account, so all your projects and data are publicly visible. To keep them private, you will need to upgrade. [Start a free trial](#)

## Visualisations

 new

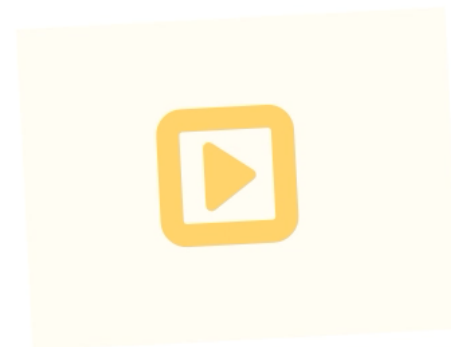


### Global glyphosate use

2 minutes ago



## Stories



A story is an animated interactive presentation to guide an audience through one or more visualisations

 Create a story

# Hi John Grimwade

**👁 All projects and data are public**

You have a Public account, so all your projects and data are publicly visible. To keep them private, you will need to upgrade. [Start a free trial](#)

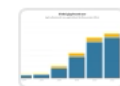
## Visualisations

**+ new**



### Column chart (stacked)

a minute ago

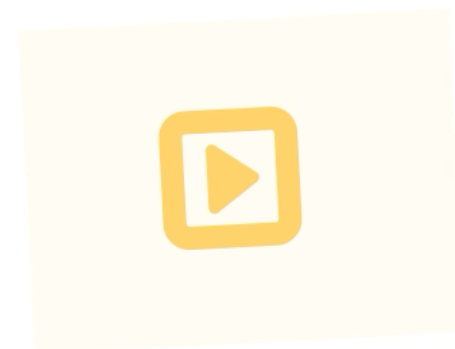


### Global glyphosate use

5 minutes ago



## Stories



A story is an animated interactive presentation to guide an audience through one or more visualisations

**+ Create a story**



# No software

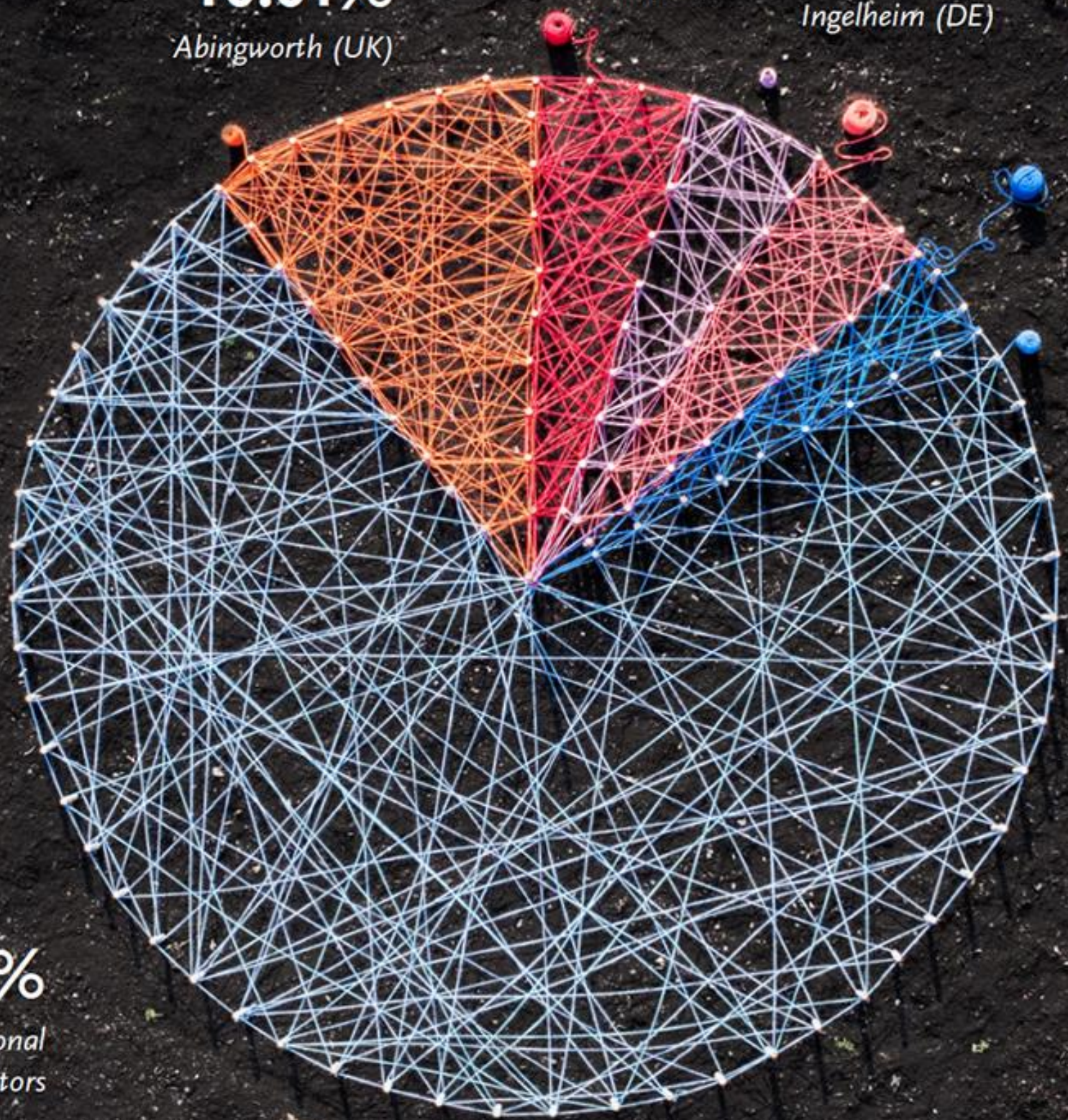








**73.14%**  
*Other institutional  
and retail investors*



**10.01%**  
*Abingworth (UK)*

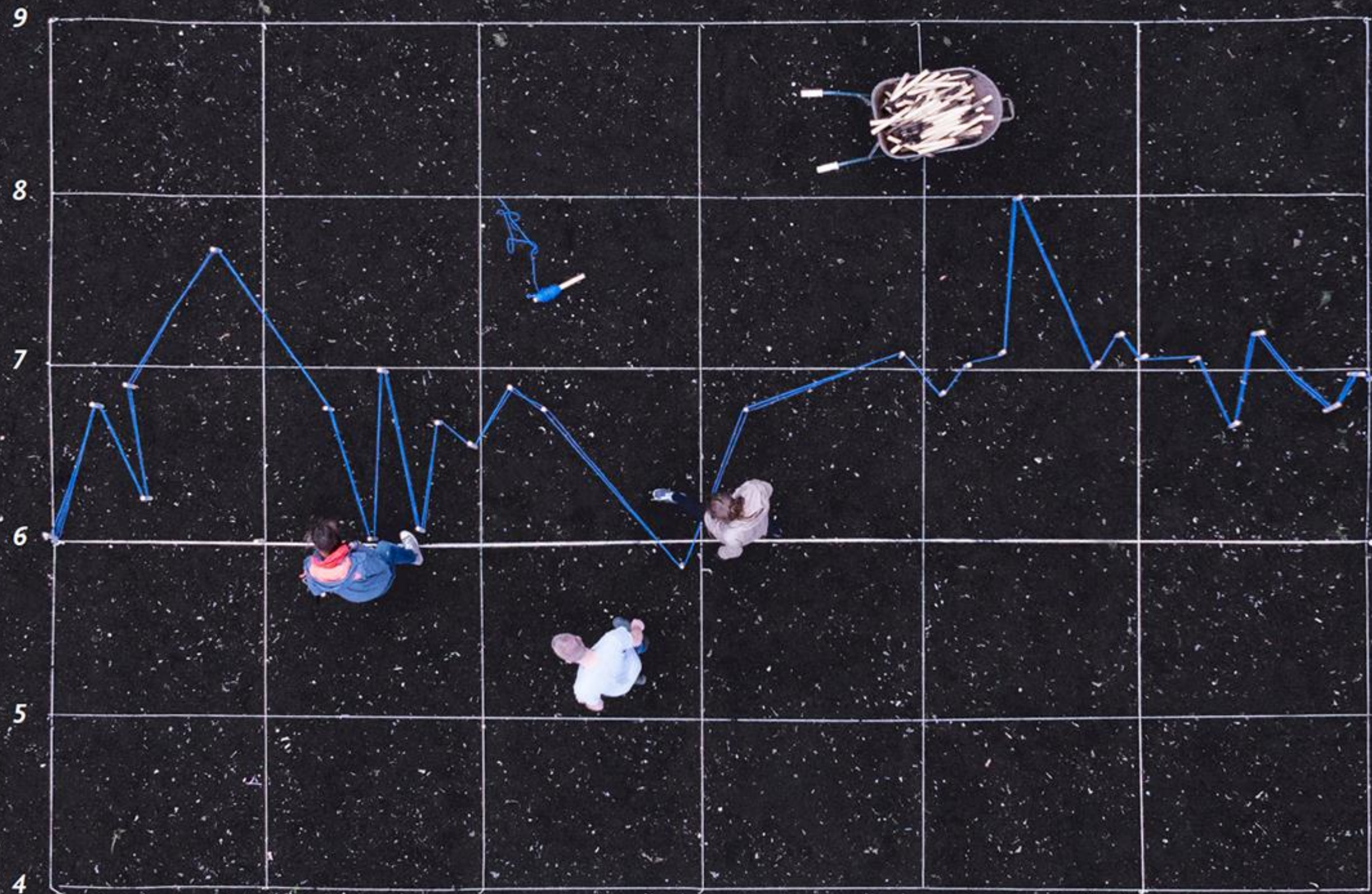
**5.21%**  
*Biotech Value  
Fund (US)*

**4.37%**  
*Boehringer  
Ingelheim (DE)*

**4.24%**  
*Perceptive  
Advisors (US)*

**3.03%**  
*Aviva (UK)*





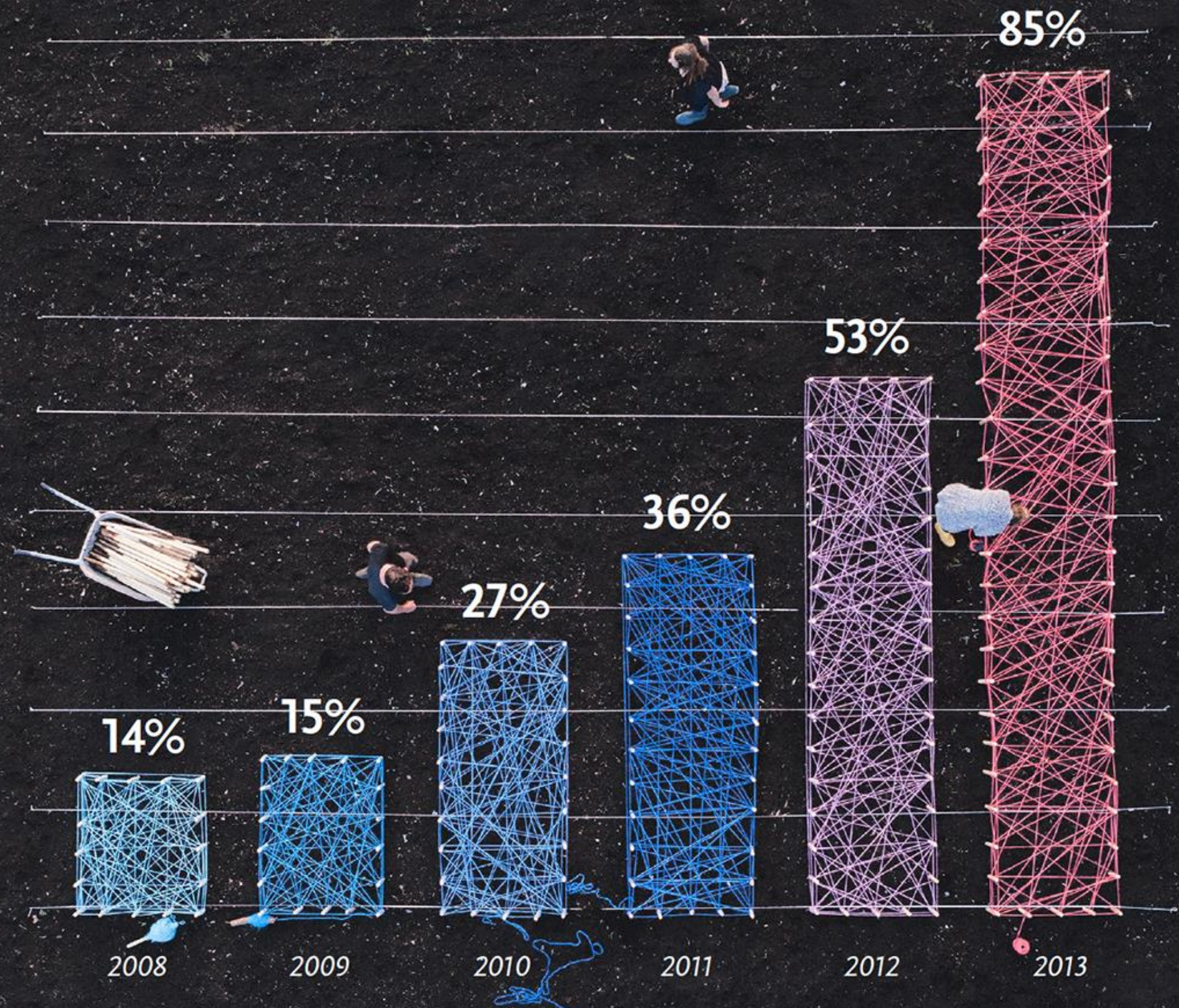
March 2013

May 2013

July 2013

September 2013

November 2013



From chaos  
to order









