

Exceptional Presentations In Spite of PowerPoint: *How to Communicate in the Digital Age*

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@PIDGirl

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The Dow Chemical Company
@mjphd





*A presentation
succeeds because of what
you say, not because of
what you show.*

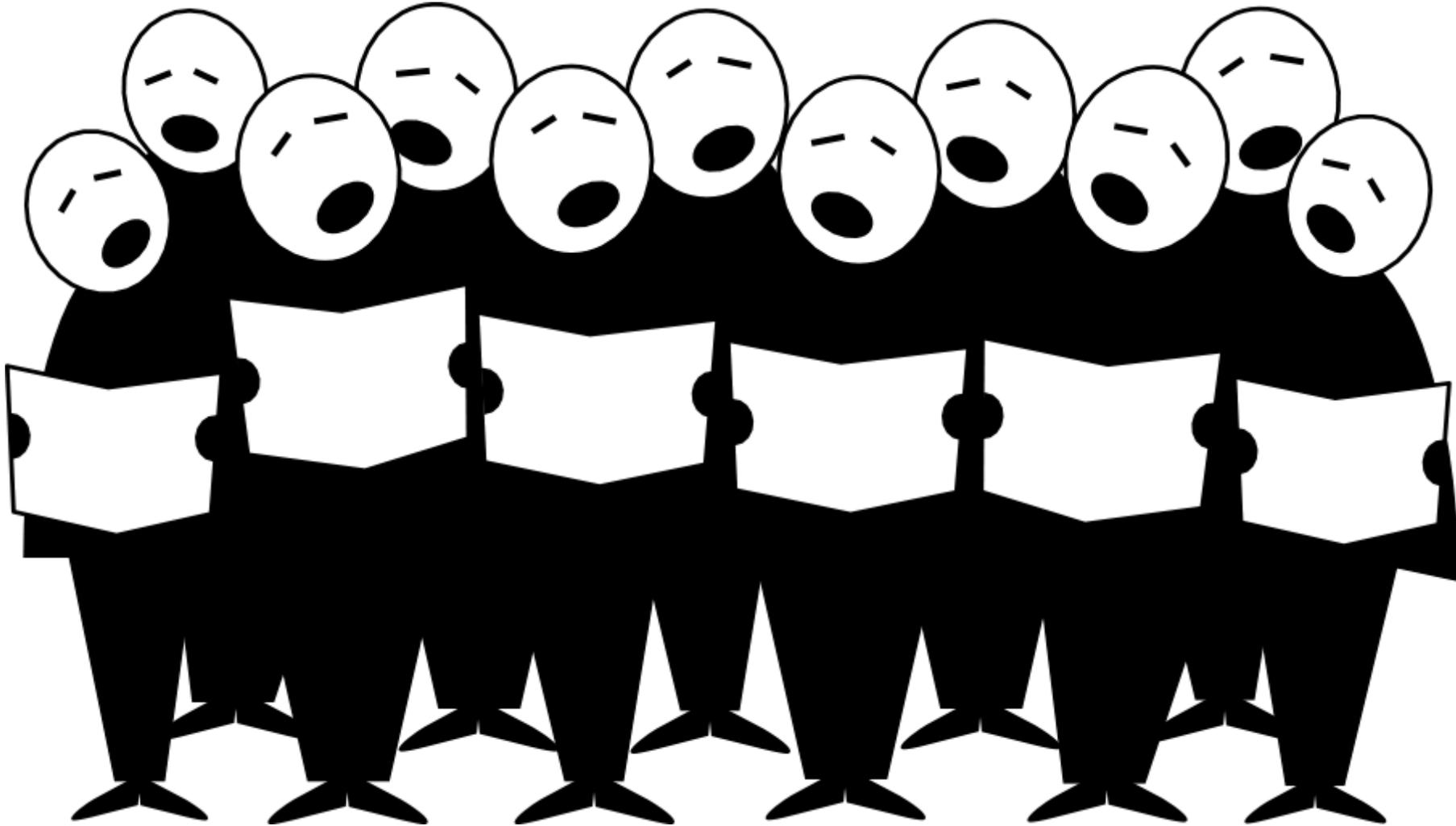
Why Use Visual Aids?

	Recall in 3 hrs	Recall in 3 days
Telling (alone)	70%	10%
Showing (alone)	72%	20%
Telling and Showing Together	85%	65%

Gene Anderson

Picture superiority effect
Paired association learning

Slides As Chorus



slides and pictures support what you say, don't replace it



Command the Room



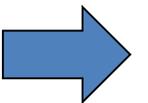
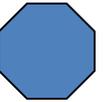
from <http://genius.com>

Proactively Paranoid

Adam Bryant NYT Guide



Use hyperlinks in the document to give yourself flexibility to shorten or amplify topics





Designing a presentation without an audience in mind is like writing a love letter and addressing it 'to whom it may concern'.



Ken Haemer
Presentation Research Manager,
AT&T

The Six Signals All Audiences Want to Hear



1. I will not waste your time
2. I know who you are
3. I am well organized
4. I know my subject
5. Here is my most important point
6. I am finished



Ed Wohlmuth in The Overnight Guide to Public Speaking



**The beginning is the most
important part of the work.**

Plato





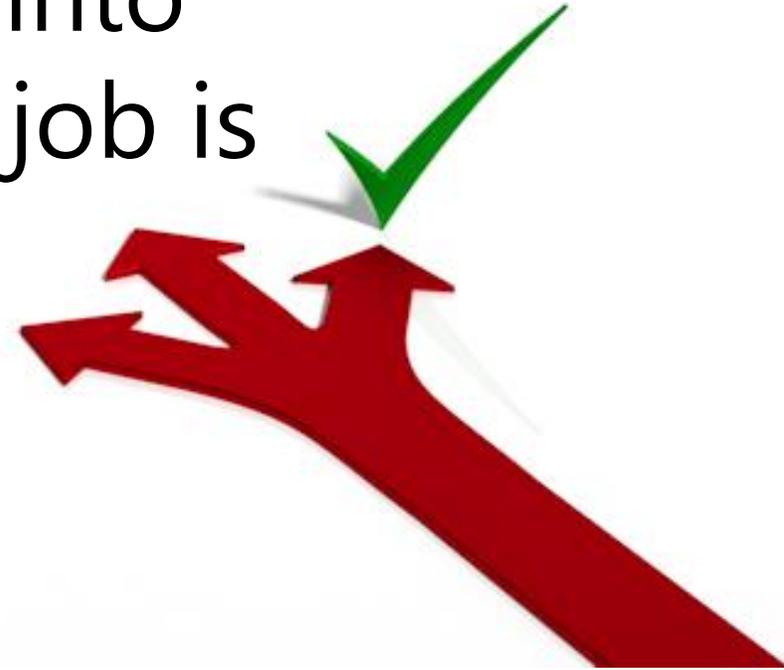
**No one can remember
more than three points.**

Phil Crosby



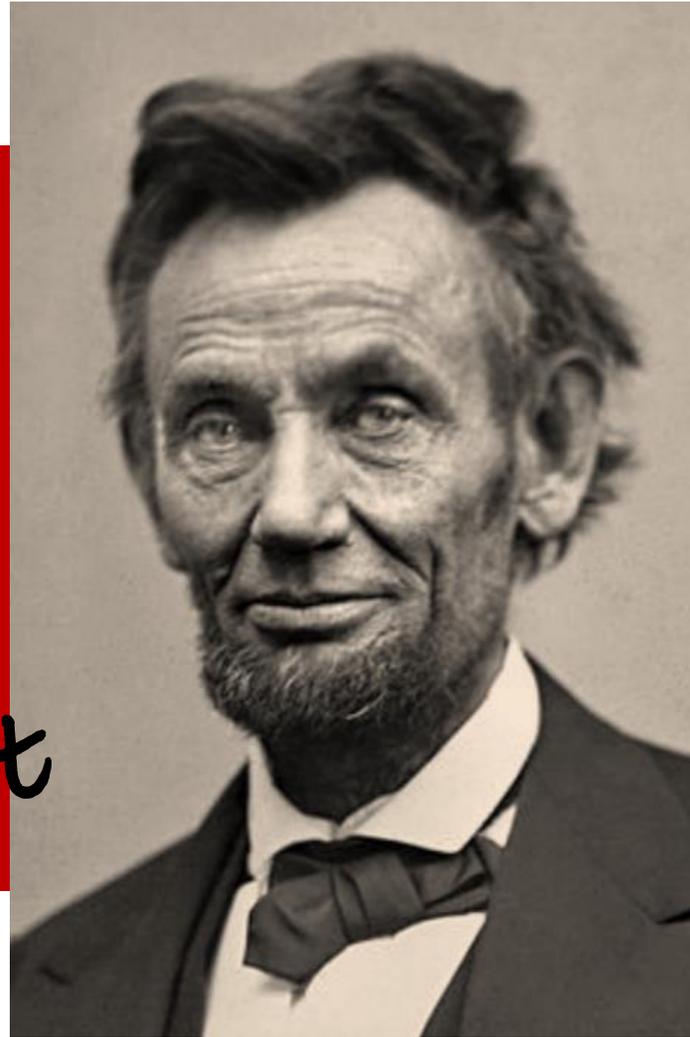


99.9999% of presentations are to ***influence***. Never fall into the trap of thinking your job is only to ***inform***.



Nearly all men can stand adversity, but if you want to test a man's character, give him power.

^point



*Google Peter Norvig PowerPoint
Gettysburg – fun stuff*

Lincoln quote modified by Duarte

— Gettysburg Cemetery Dedication

Abraham Lincoln

Agenda

- Met on battlefield (great)
- Dedicate portion of field - fitting!
- Unfinished work (great tasks)

Not on Agenda!

- Dedicate
- Consecrate
- Hallow
(in narrow sense)
- Add or detract
- Note or remember what we say

Review of Key Objectives & Critical Success Factors

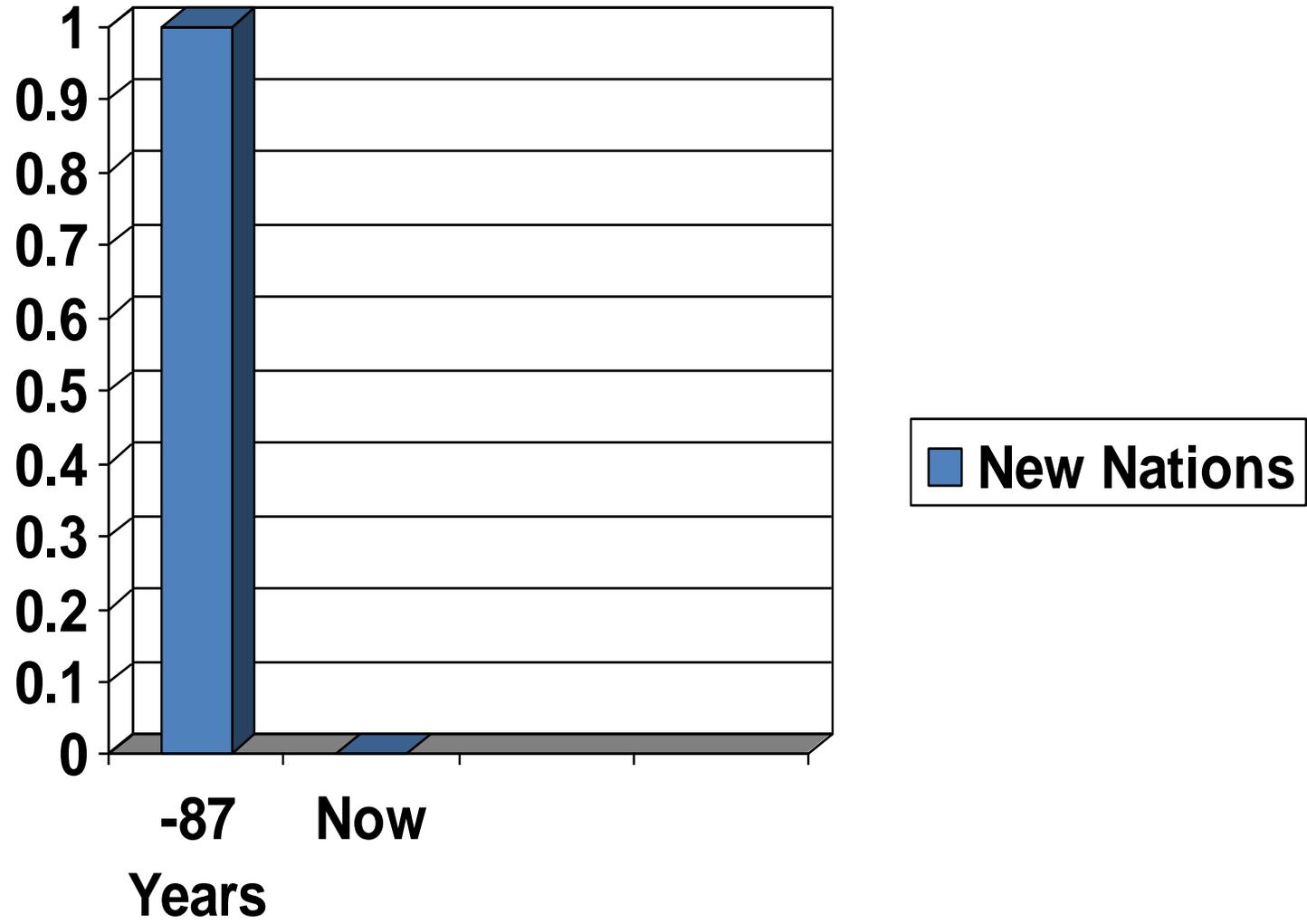
What makes nation unique

- Conceived in Liberty
- Men are equal

Shared vision

- New birth of freedom
- Gov't of/for/by the people

Organizational Overview



Summary

- New nation
- Civil war
- Dedicate field
- Dedicated to unfinished work
- New birth of freedom
- Government not perish

PowerPoint Poisoning

Dilbert by Scott Adams

INTRODUCED THE CONCEPT OF POWERPOINT
POISONING

<http://dilbert.com/strip/2000-08-16>

August 16, 2000

The New York Times

April 26, 2010

We Have Met the Enemy and He Is PowerPoint

By ELISABETH BUMILLER

WASHINGTON — Gen. Stanley A. McChrystal, the leader of American forces in Afghanistan, was interrupted in a PowerPoint slide in Kabul last summer when he announced the new strategy, but looked more like a man who had been

interrupted in laughter.

Edward R. Tufte
The Cognitive Style of PowerPoint



PID
ANA

What's Your Point,
Lieutenant? Just Cut
To the Pie Charts

* * *
The Pentagon Declares War
On Electronic Slide Shows
That Make Briefings a Pain

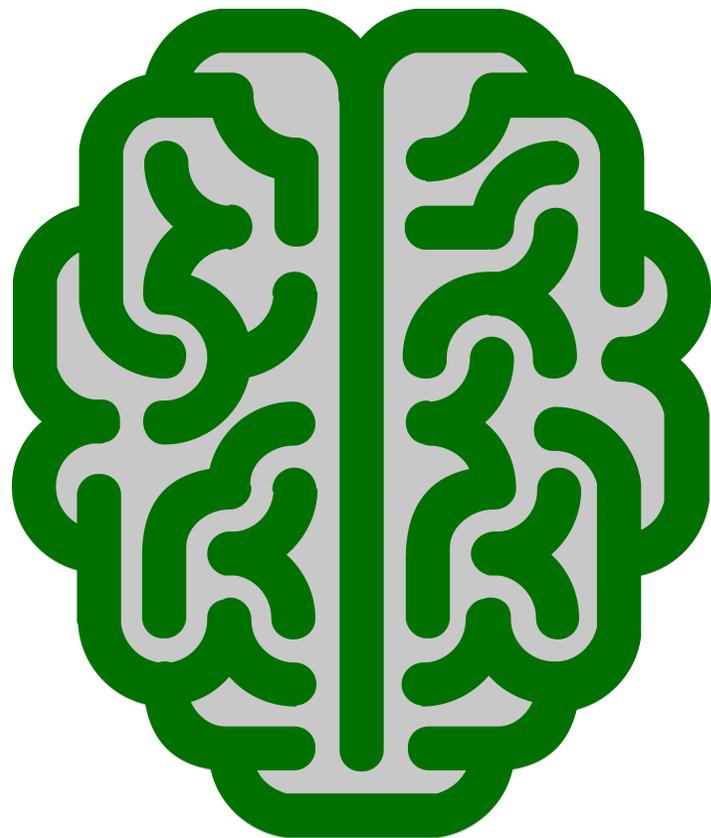
By GREG JAFFE

Staff Reporter of THE WALL STREET JOURNAL
WASHINGTON — Earlier this year, Gen. Hugh Shelton, chairman of the Joint Chiefs of Staff, issued an unusual order to U.S. military bases around the globe. His message: enough with the bells and whistles — just get to the point.

It seems that e-mailed military briefings larded with electronic “slides” of booming tanks and spinning pie charts were gobbling up so much of the Defense Department’s classified bandwidth that they were slowing more-critical communications between headquarters and the field.

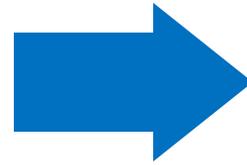
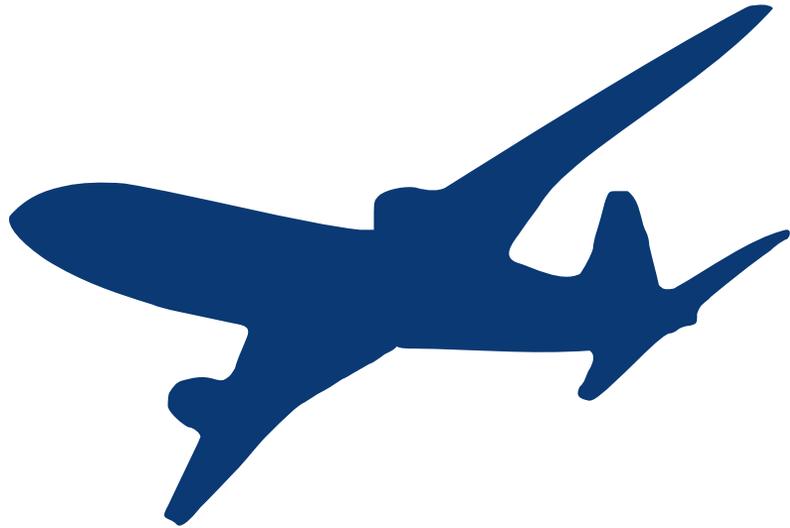
Too many bright, young junior officers are leaving the military for the private sector? A recent survey of captains at Fort Benning, Ga., cites the “ubiquity of the PowerPoint Army” as a prime reason for their disaffection. “The idea behind meetings is for us to sit in front of all our eyes glazing over,” one officer said.

Mind Ready



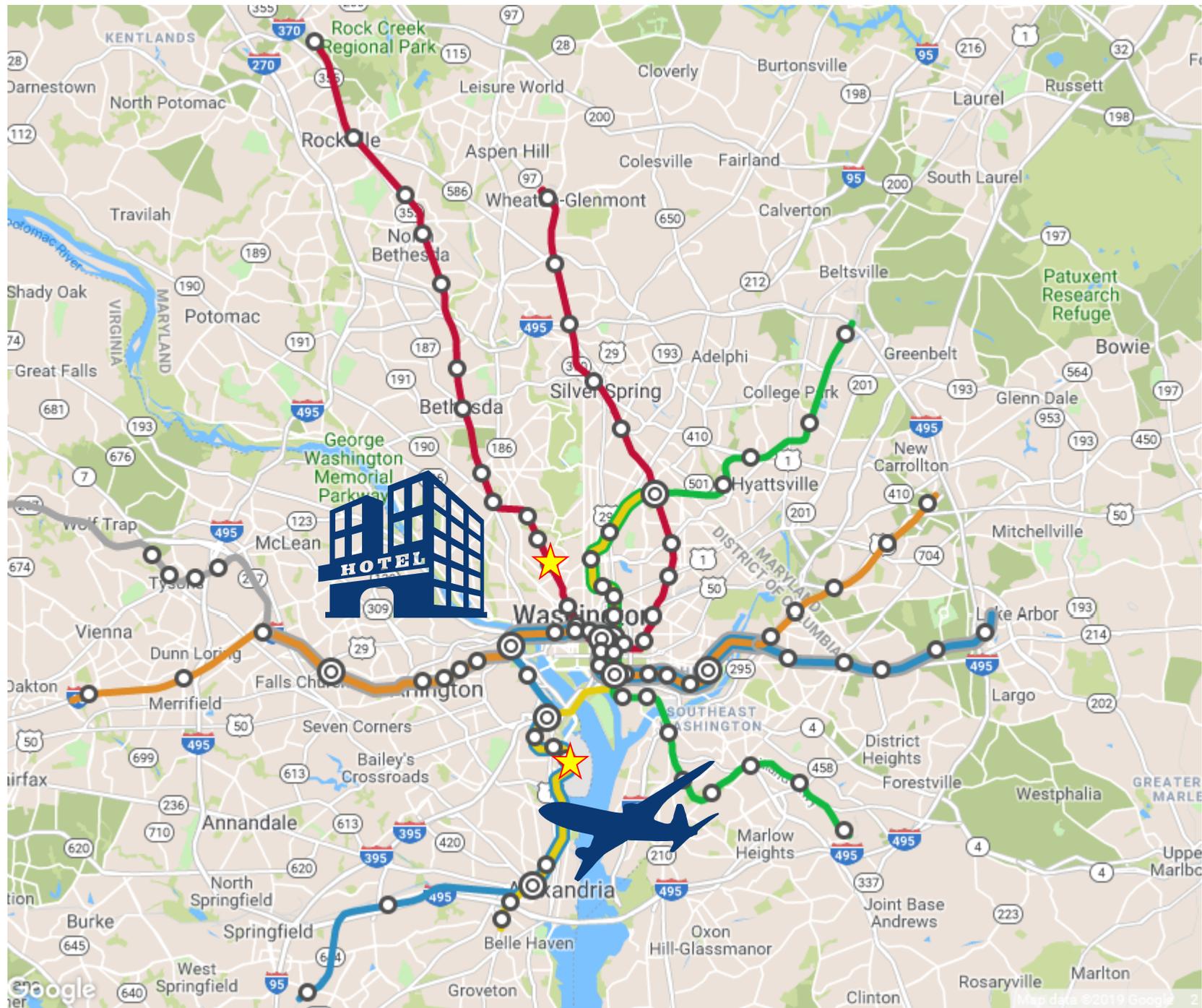
ready

Washington, D.C.



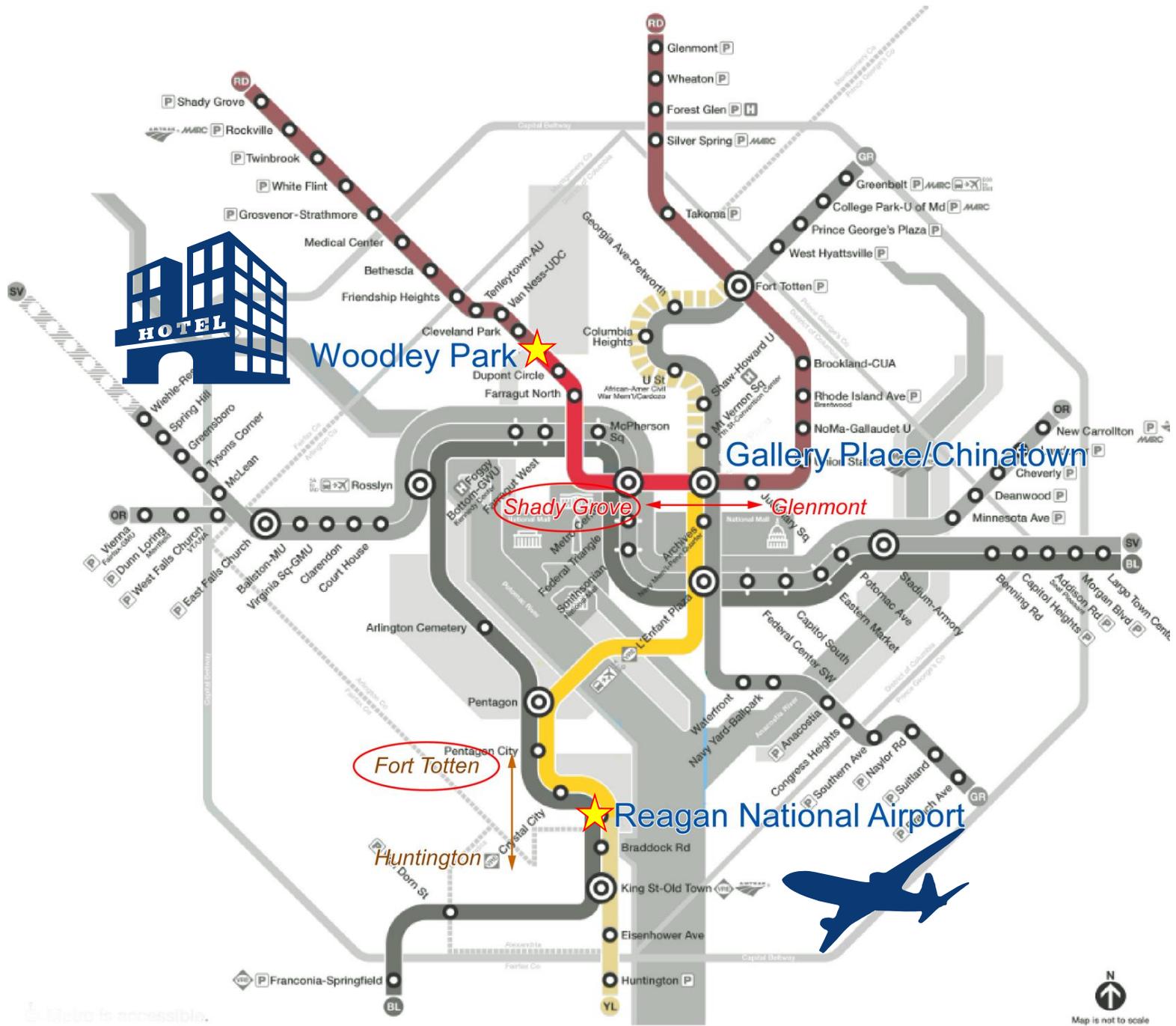
Reagan National Airport

Marriott Wardman Park











Woodley Park ★

Gallery Place/Chinatown

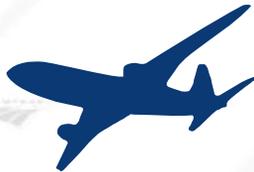
Shady Grove

Glenmont

Fort Totten

★ Reagan National Airport

Huntington



Font Choice

Focus on readability.



Sans serif

Arial

Segoe

Tahoma

Serif

Times New Roman

Averia

Bookman

Century

Trouble

Comic Sans

Bazooka

Script

Fancy

Wierd

STRANGE

Swirly

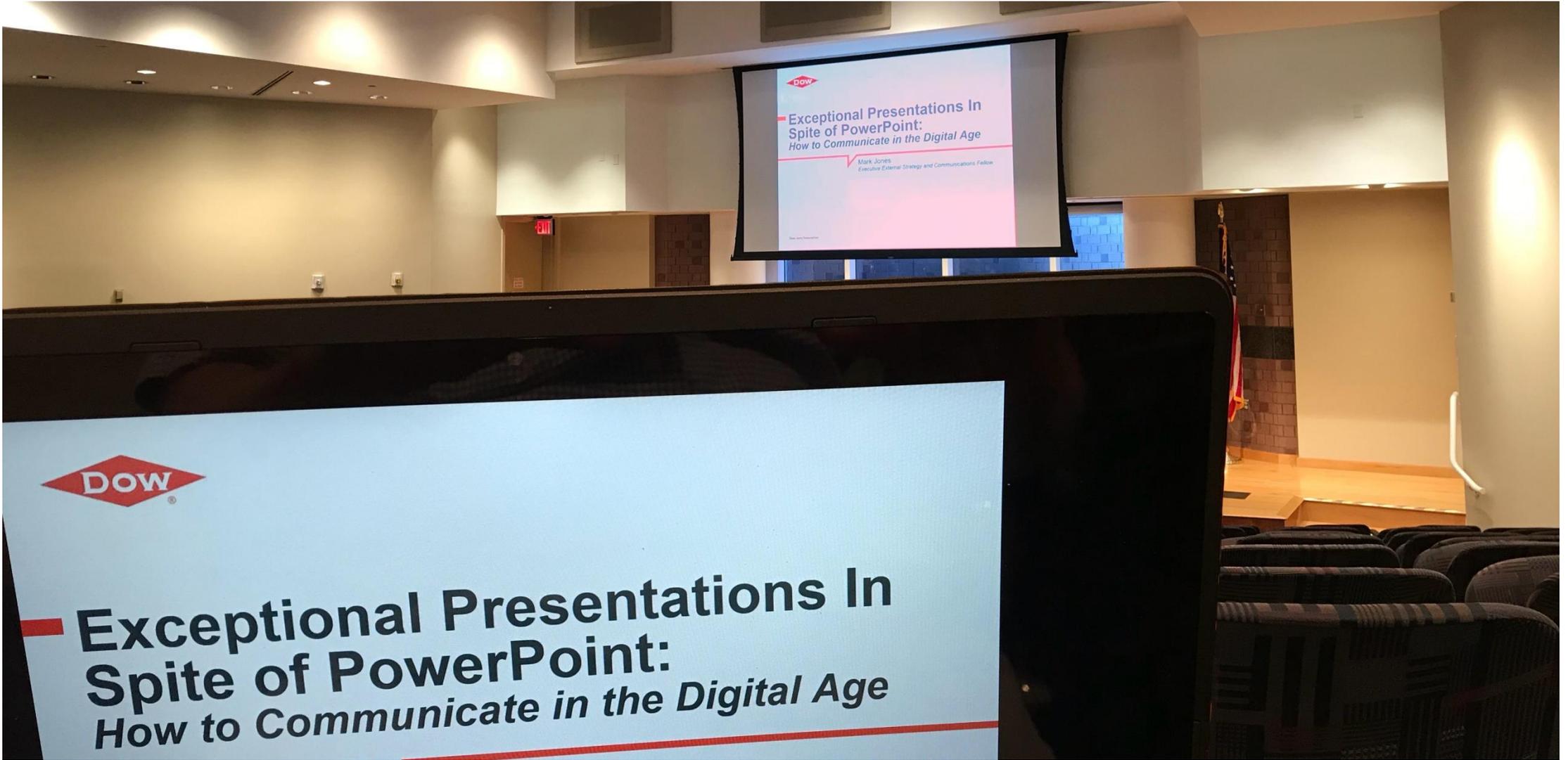
BIZAPPE

Fonts Instead of Icons

Specialty

COMMODITY

Size?



Size?



14 pt

36 pt

72 pt

4.5 pt (4.5)

11.6 pt (11.6)

23 pt

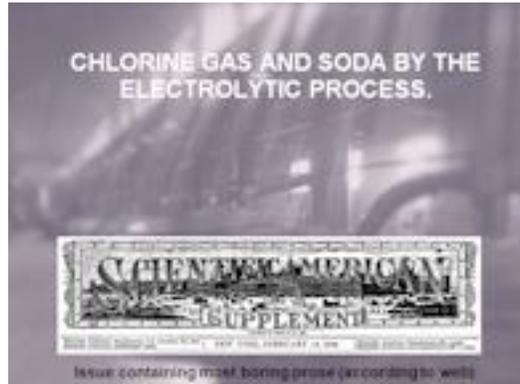
2.3 pt (2.3)

6 pt (6)

12 pt (12)

The Multi-slide Slide

Dreaded



- decomposition of a solution of common salt by means of an electric current
 - direct conversion into chlorine gas and caustic soda solution
- known for a long time by electro-chemists
 - first sound commercial basis
 - Mr. James Greenwood, after years of development
- perfected an electrolytic process for the direct production of caustic soda and chlorine,
 - other chemical products, too
 - plant at Phoenix Wharf, Battersea, London
 - funded by Caustic Soda and Chlorine Syndicate, London
- uses ingenious method by which the electrolyzed products are separated, and their recombination rendered impossible.

- uses a specially constructed diaphragm
 - composed of a series of V-shaped glass troughs
 - fitted in a frame within each other with a small space between them
 - lightly packed with asbestos fiber
- uses a compound anode
 - carbon plates with a metal core to increase the conductivity
 - treated to render it non-porous and impervious to attack by the nascent chlorine evolved on its surface
- first anode invented that is at all suitable for working on a large scale
 - constitutes a marked advance in the apparatus used in electrolytic methods of production

- in operation for several months
 - installation consists of five large electrolytic vessels
 - each fitted with five anodes and six cathodes arranged alternately
 - anodes and cathodes separated by the special diaphragms
 - each vessel is thus divided into ten anode or chlorine sections and six cathode or caustic soda sections
- anodes and cathodes in each vessel are connected up in parallel similar to an ordinary storage battery
 - five electrolytic vessels are connected up in series
 - current is produced by an Elwell-Parker dynamo
 - electromotive force required to overcome the resistance of each vessel is about 4.4 volts
 - current density of 10 amperes per square foot of electrode surface

- fifty anodes are connected by means of tubes, the inlet being at the bottom and the outlet at the top of each section
 - cathode sections are connected in the same manner
- the electrolytic vessels are charged with a solution of common salt, through which a current of electricity is then passed, thus decomposing or splitting up the salt into chlorine and sodium
 - sodium converts into caustic soda
- automatic circulation of the solutions is maintained by placing the charging tanks at a slight elevation, and the vessels themselves on platforms arranged in steps
 - solutions are pumped back from the lowest vessel to their respective charging tanks

- chlorine gas evolved is conveyed by means of main and branch tubes into several absorbers
 - milk of lime, kept in a state of agitation, takes up the chlorine, thus making it into bleaching or chlorate liquor
 - chlorine to be made into bleaching powder is conveyed into leaden chambers and treated with lime in the usual manner
- caustic soda solution can be used as is
 - if solid form, and practically free from salt, is required then the caustic alkali liquor is transferred from the electrolytic vessels to evaporating pans, where it is concentrated to the required strength by evaporation and at the same time the salt remaining in the solution is eliminated by precipitation.

“

*Don't worry about slide count.
Just make your slides **count**.*

”

Nancy Duarte in HBR Guide

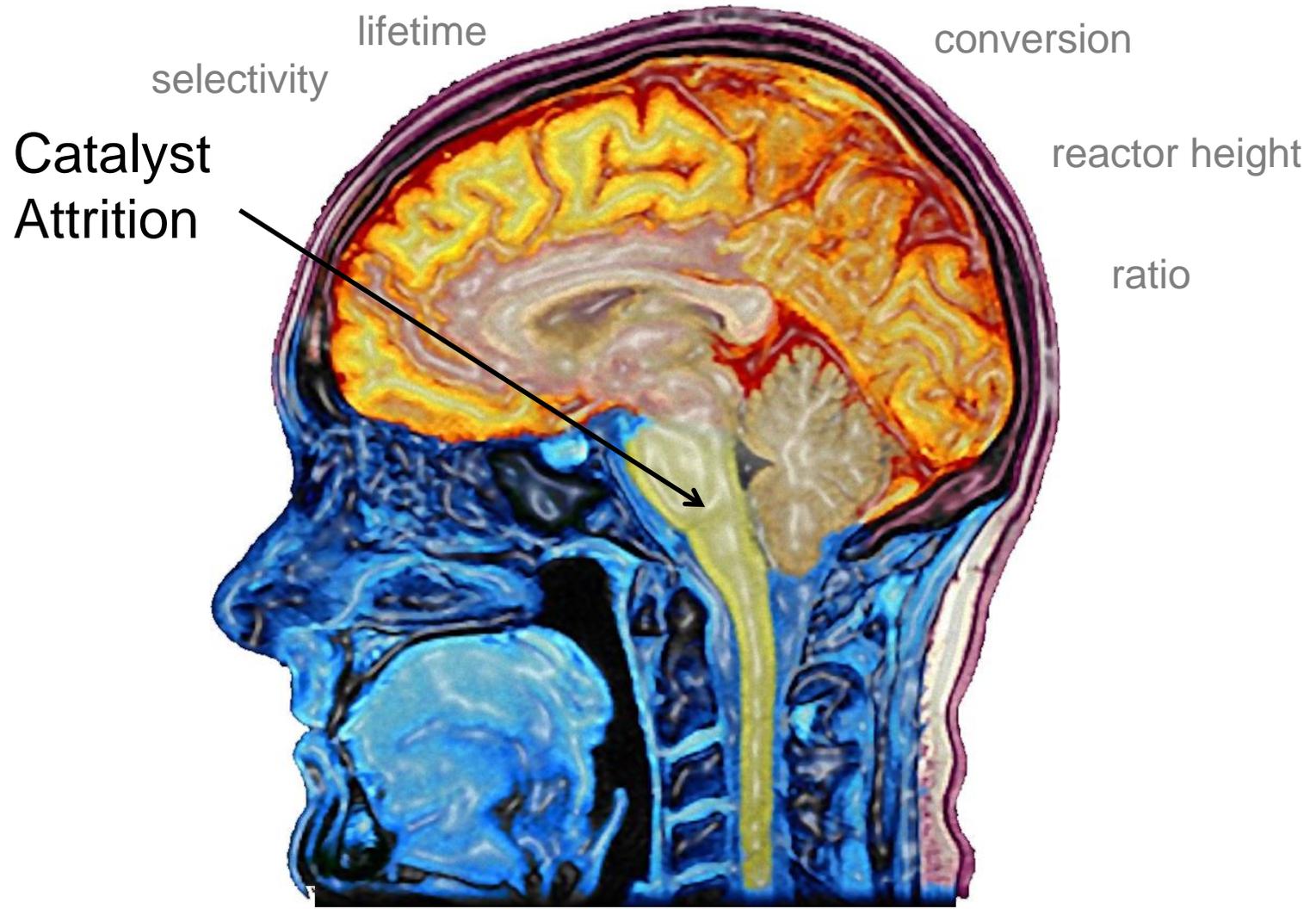
Memorable is Good

Which is better for the environment?

A meat-eater in a Prius



A vegan in a Hummer



Embodied Fossil Energy





- Four Principles of Data Presentation
- Tell the truth
 - Get to the point
 - Pick the right tool
 - Highlight what is important
 - Keep it simple
- Everything should be made as simple as possible, but not simpler.

1991 Top 50 U.S. Chemical Companies



1991 Top 50 U.S. Chemical Companies Today



Demonstrations



June 12, 2017; the National Academy of Sciences, Washington, D.C.

Five Principles of Data Presentation

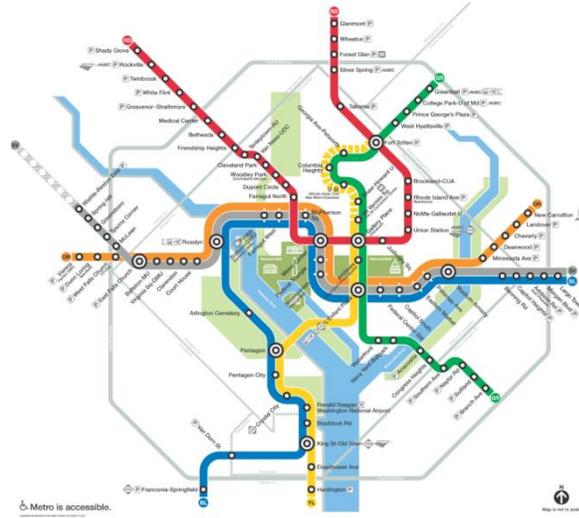


- *Tell the truth*
- *Get to the point*
- *Pick the right tool*
- *Highlight what is important*
- *Keep it ~~simple~~ **appropriate***

Everything should be made as simple as possible, but not simpler.



Nancy Duarte in Slideology



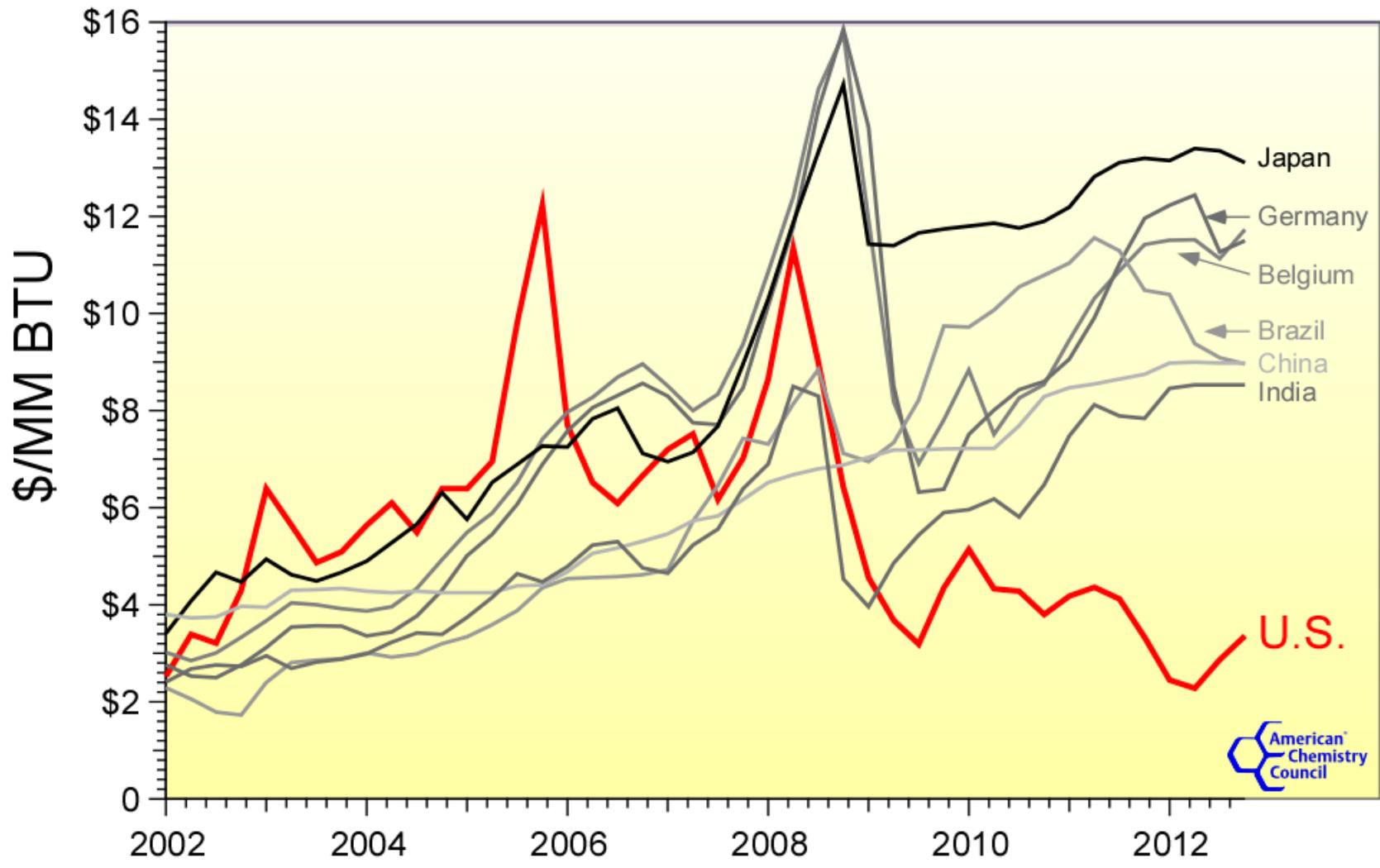
Simplicity



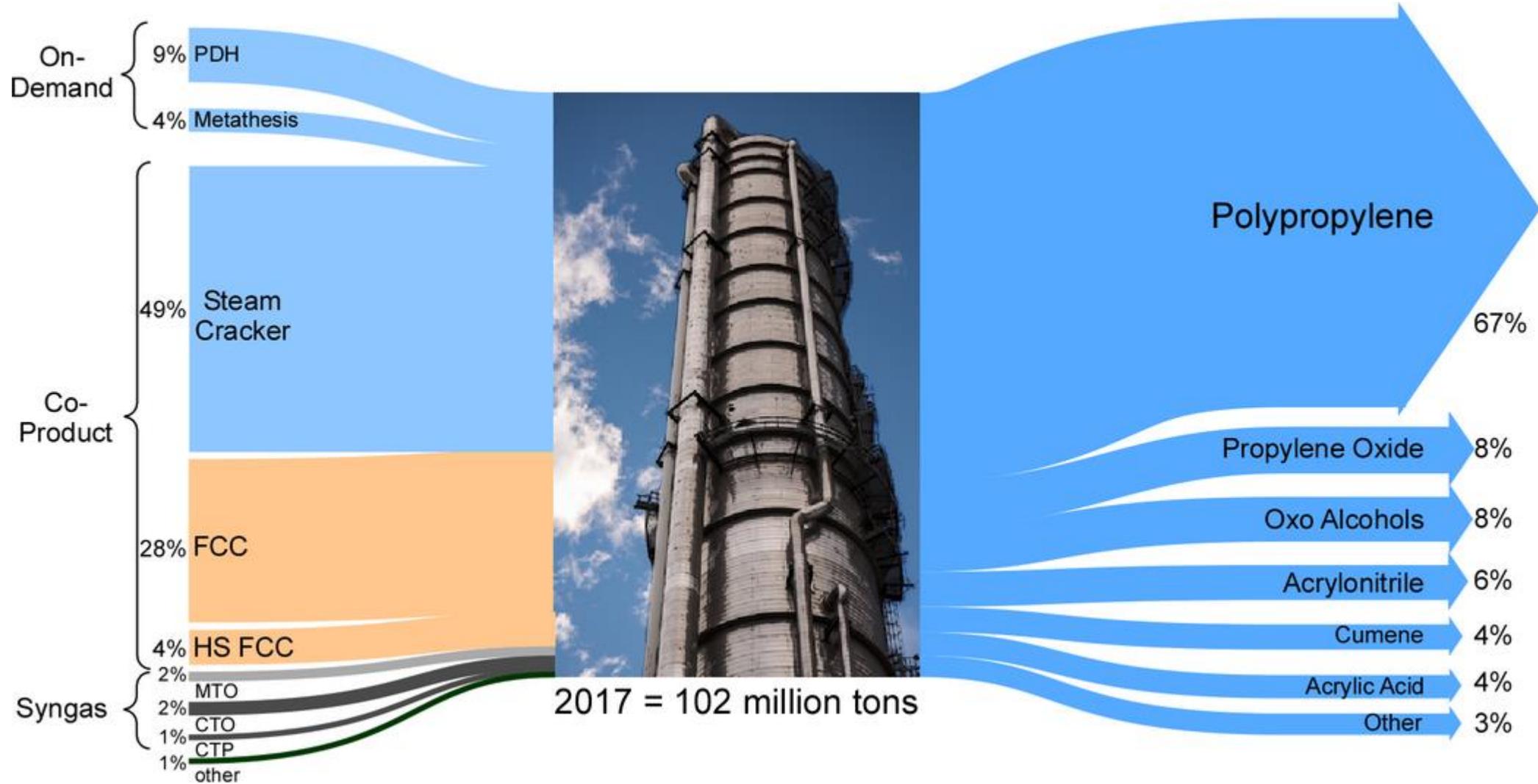
Everything should be made as simple as possible, but not simpler.

Albert Einstein

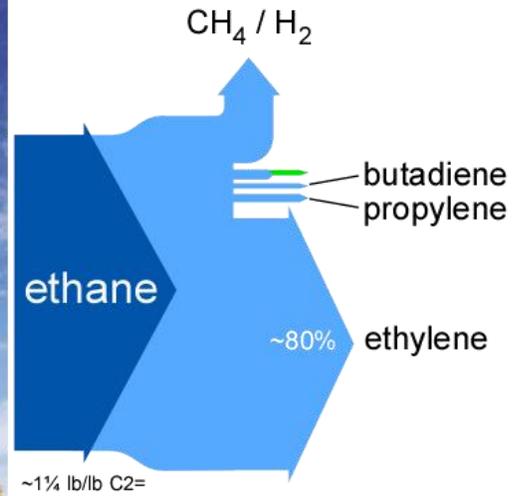
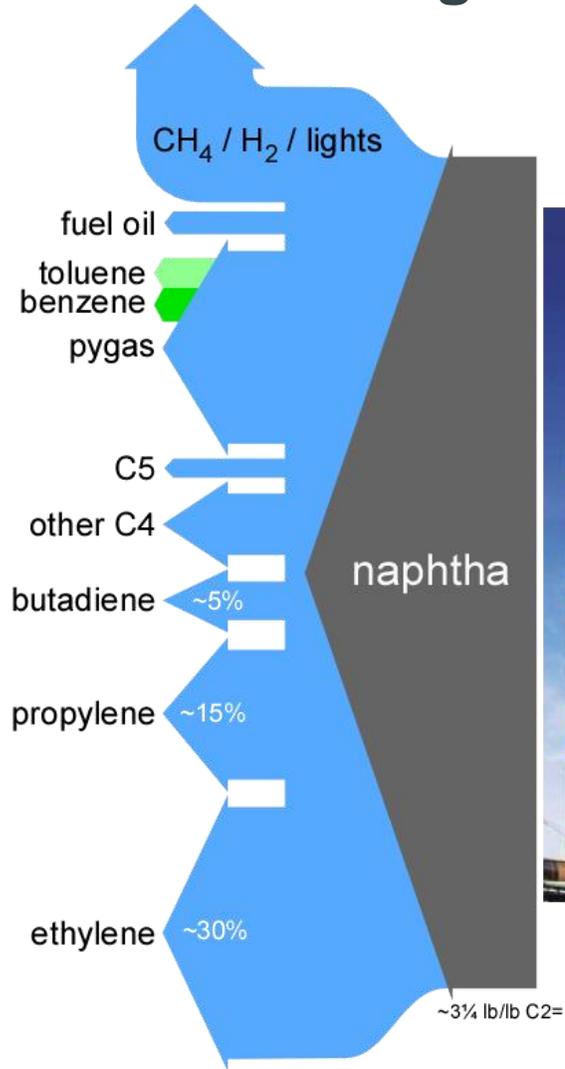




World Propylene

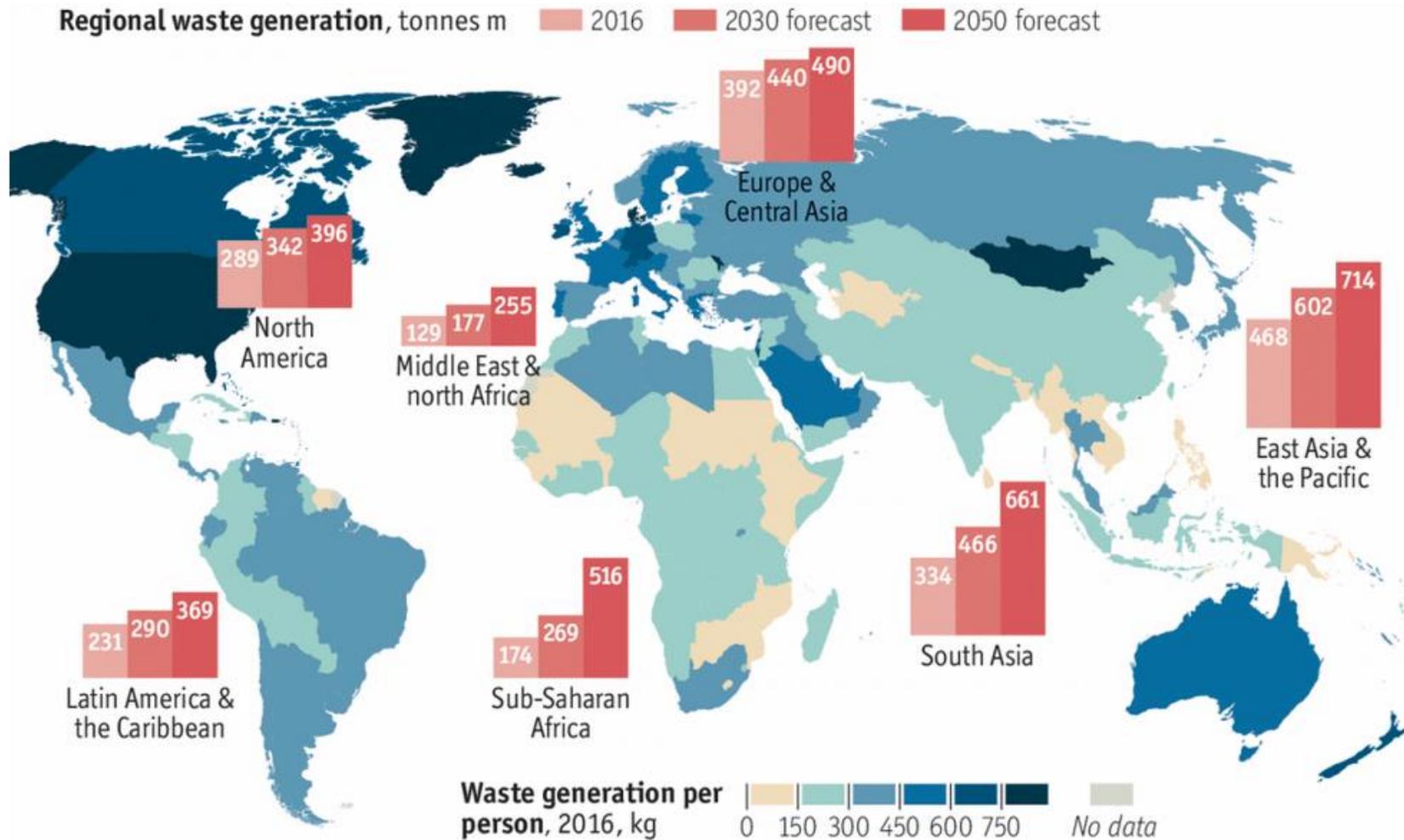


Naphtha vs Ethane Cracking Comparison



same amount of ethylene

Lots of Information – Throwaway World

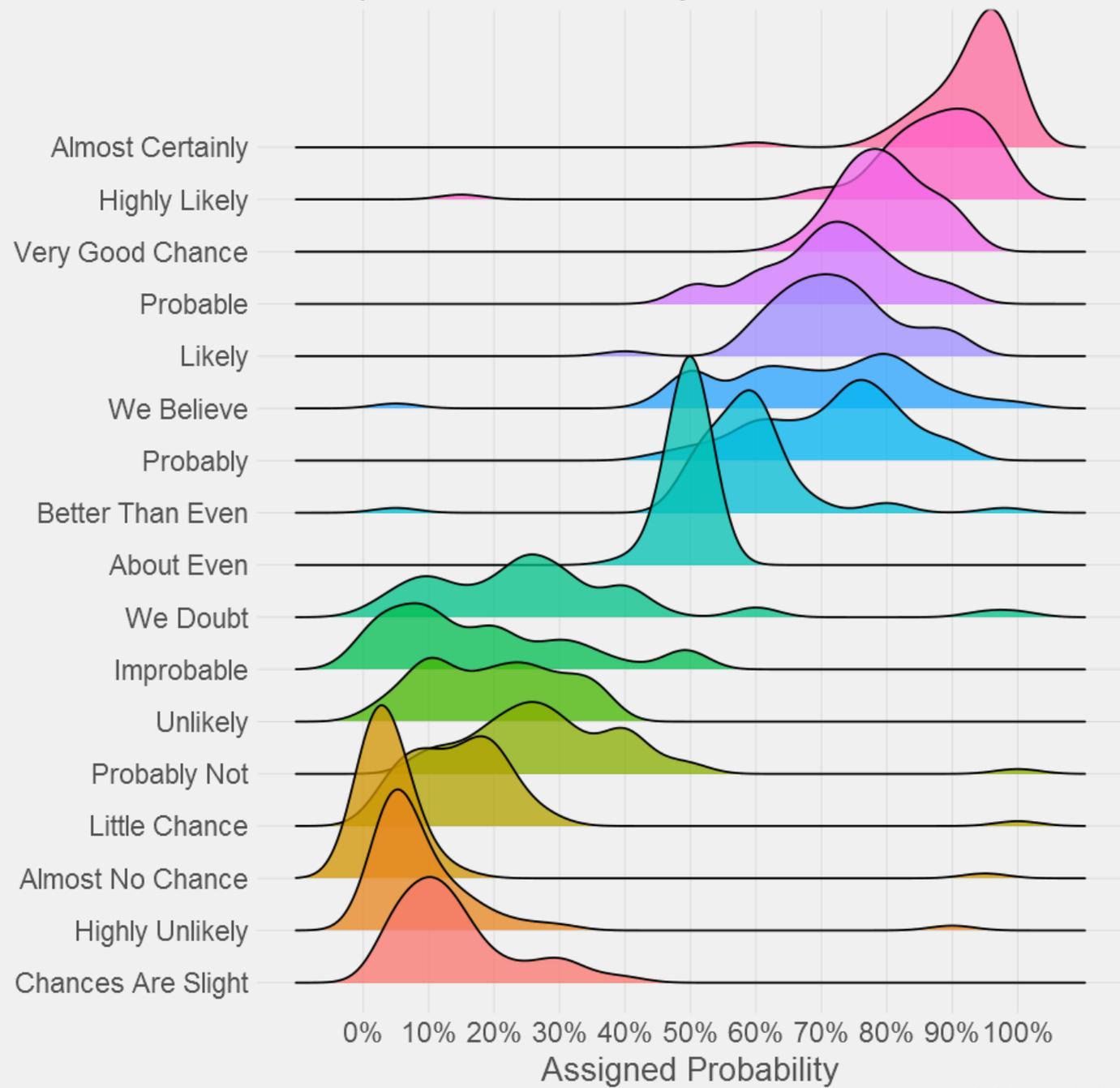


Source: World Bank

The Economist; 2 Oct 2018

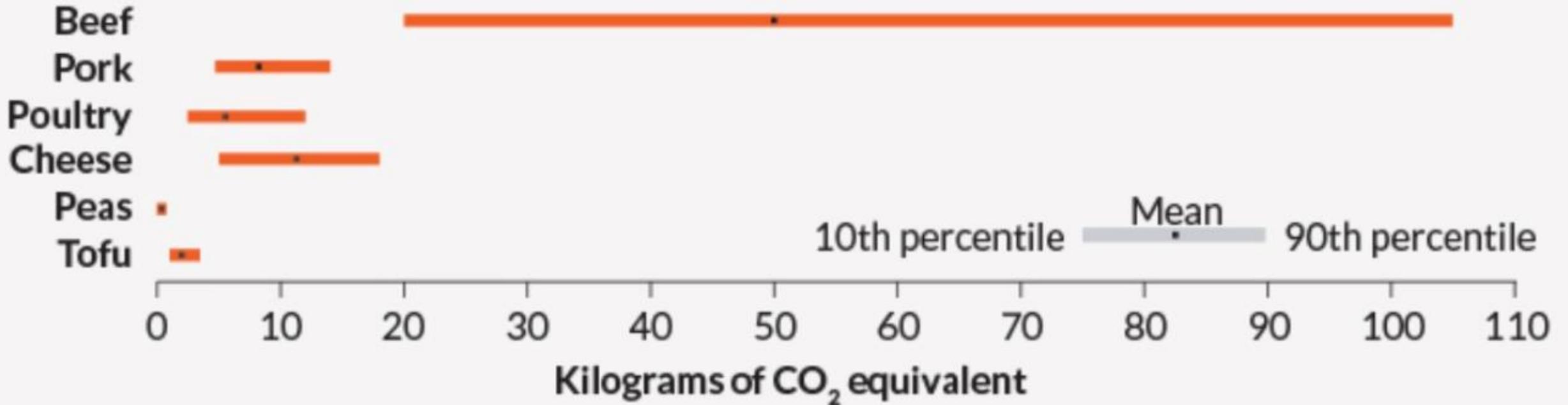


Perceptions of Probability



Farm to Table

Greenhouse gas emissions from protein-rich foods (per 100 grams)

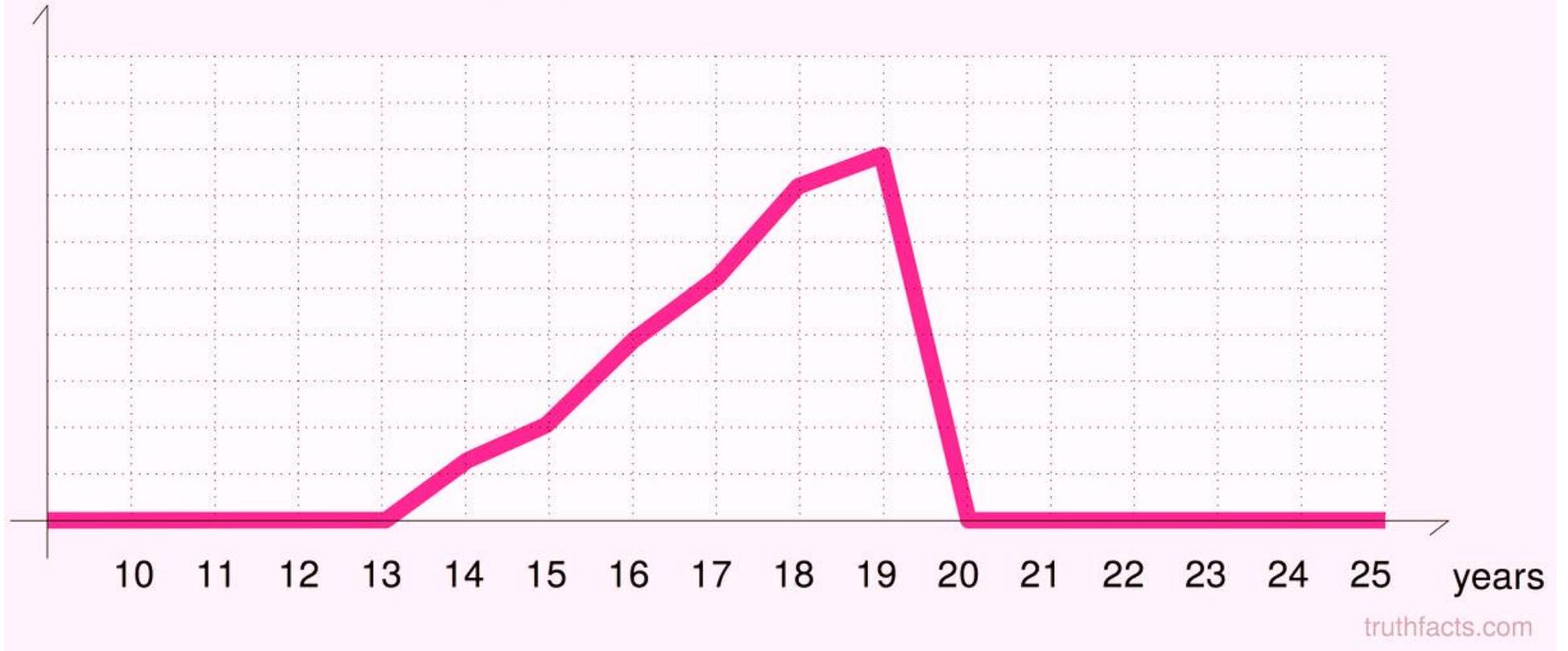


graphic by C. Chang in Milius, Susan; "Can science build a better burger?", *Science News*, September 20, 2018 downloaded from [sciencenews.org/article/can-science-build-better-burger](https://www.sciencenews.org/article/can-science-build-better-burger) on 2 November 2018.

Bad Graphs



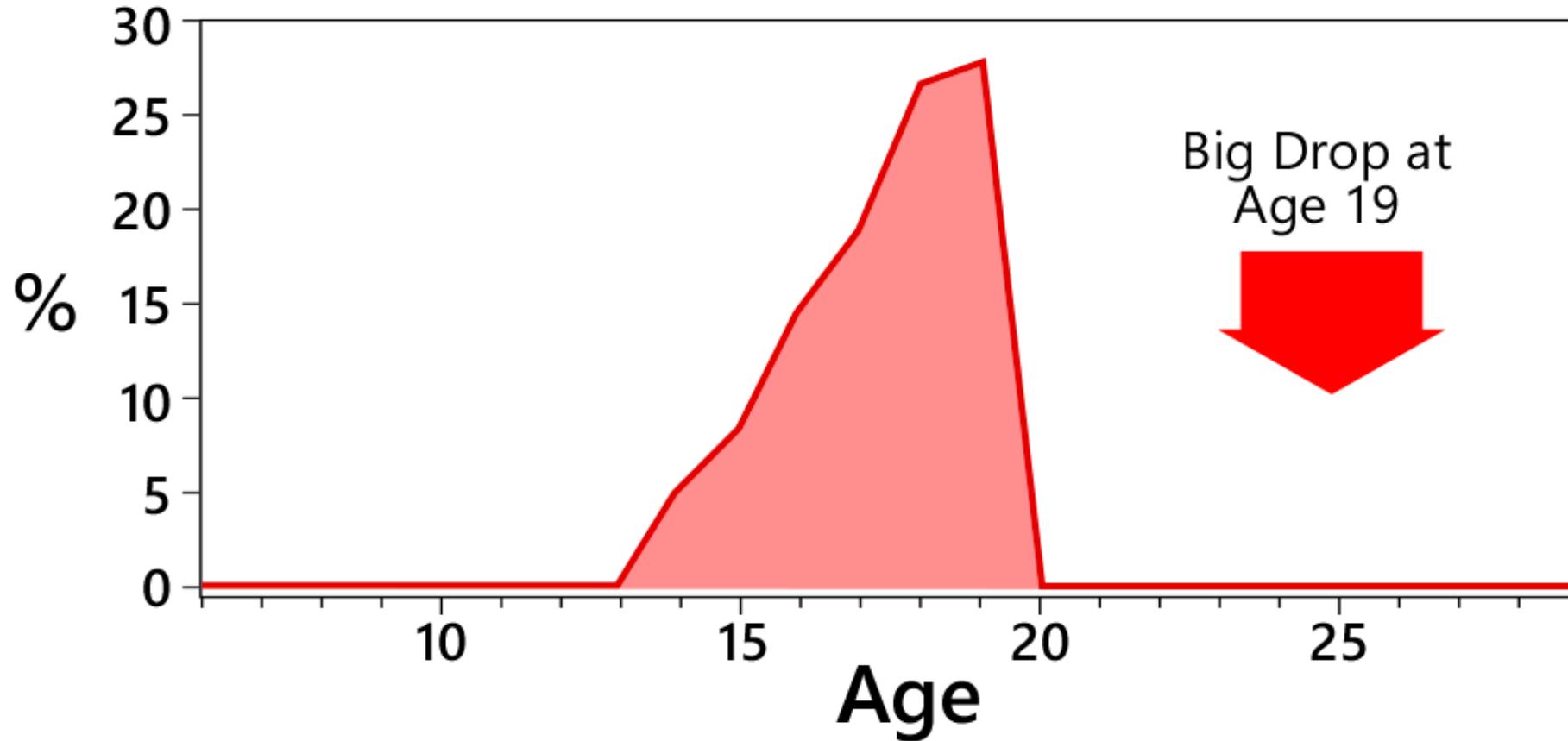
**STATISTICS SHOW THAT TEEN PREGNANCIES DROP
DRASTICALLY AFTER THE AGE OF 20**

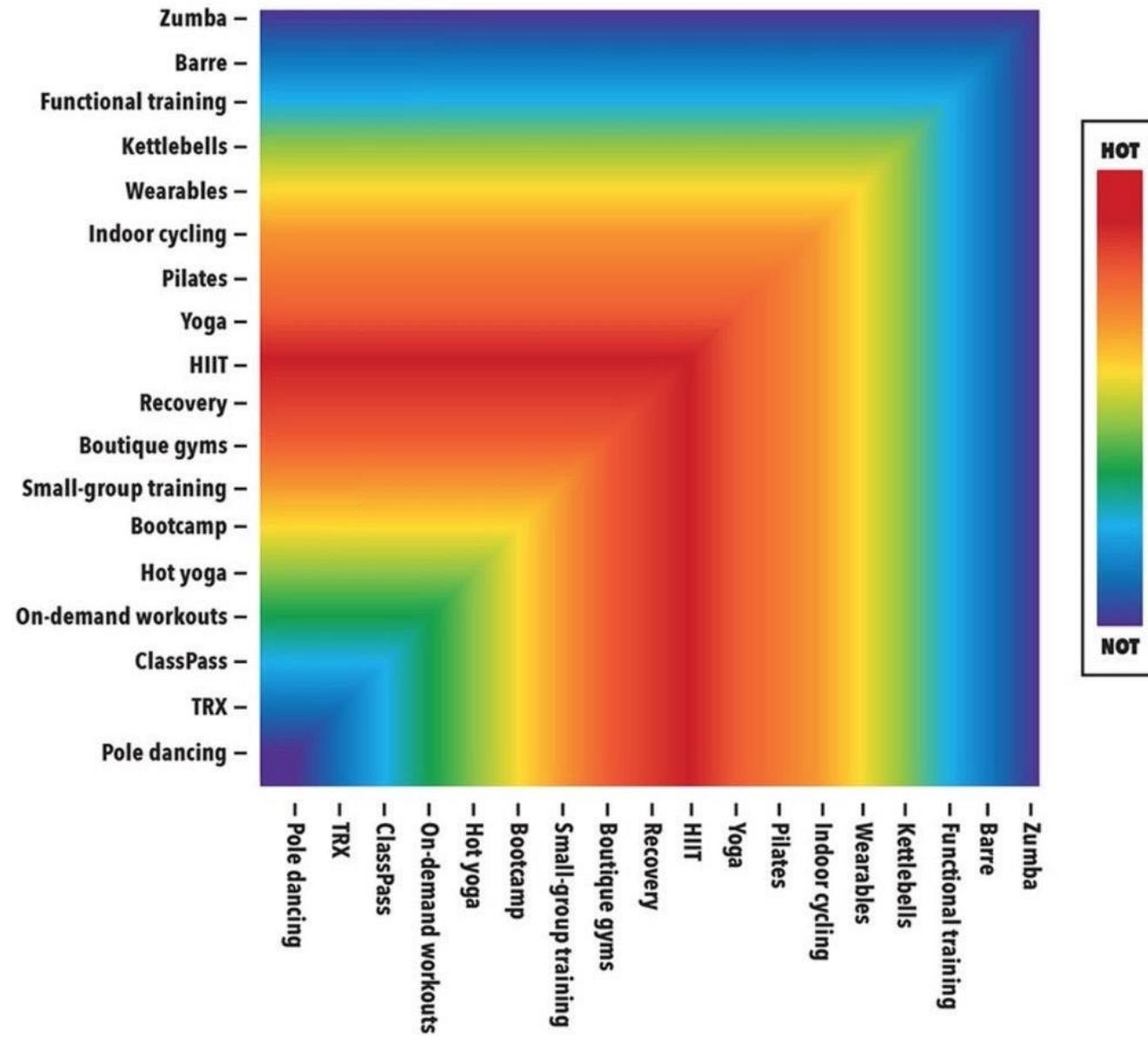


<http://www.truthfacts.com/top-100>

Flawed Conclusion, But Better Graph

Teen Pregnancy



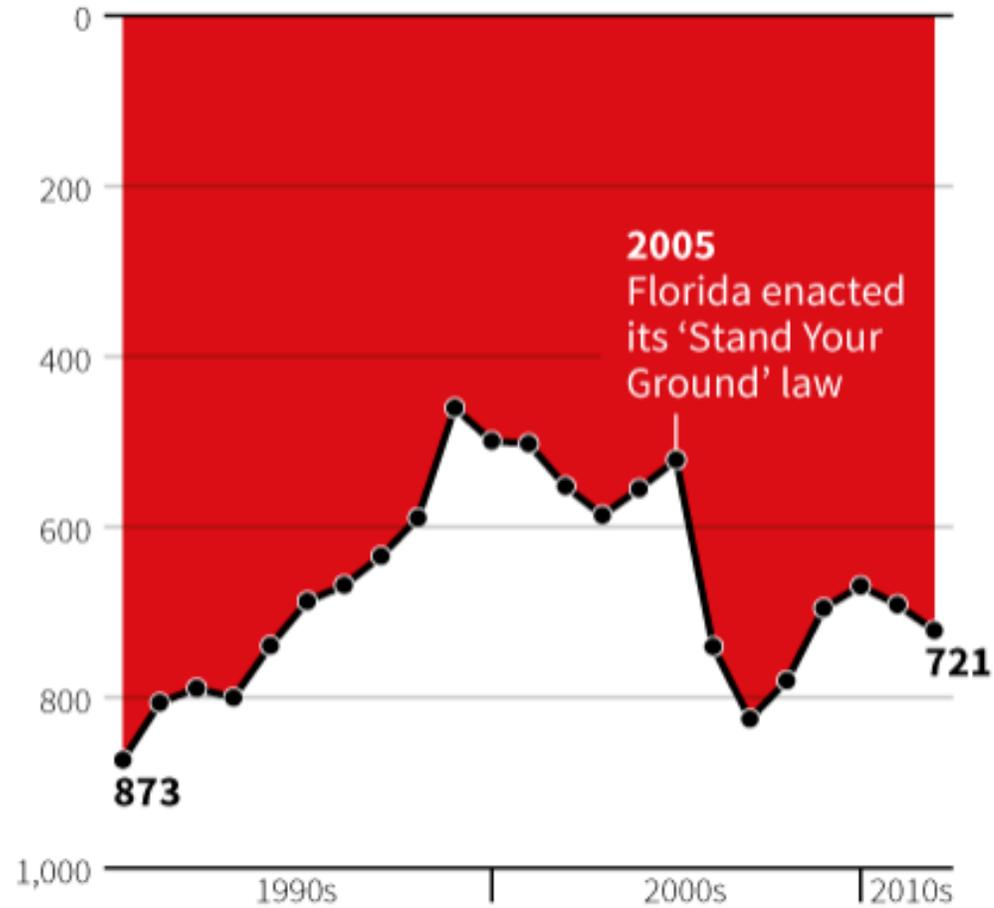


Sources: ACE, IHRSA and ClubIntel

Gun deaths in Florida



Number of murders committed using firearms



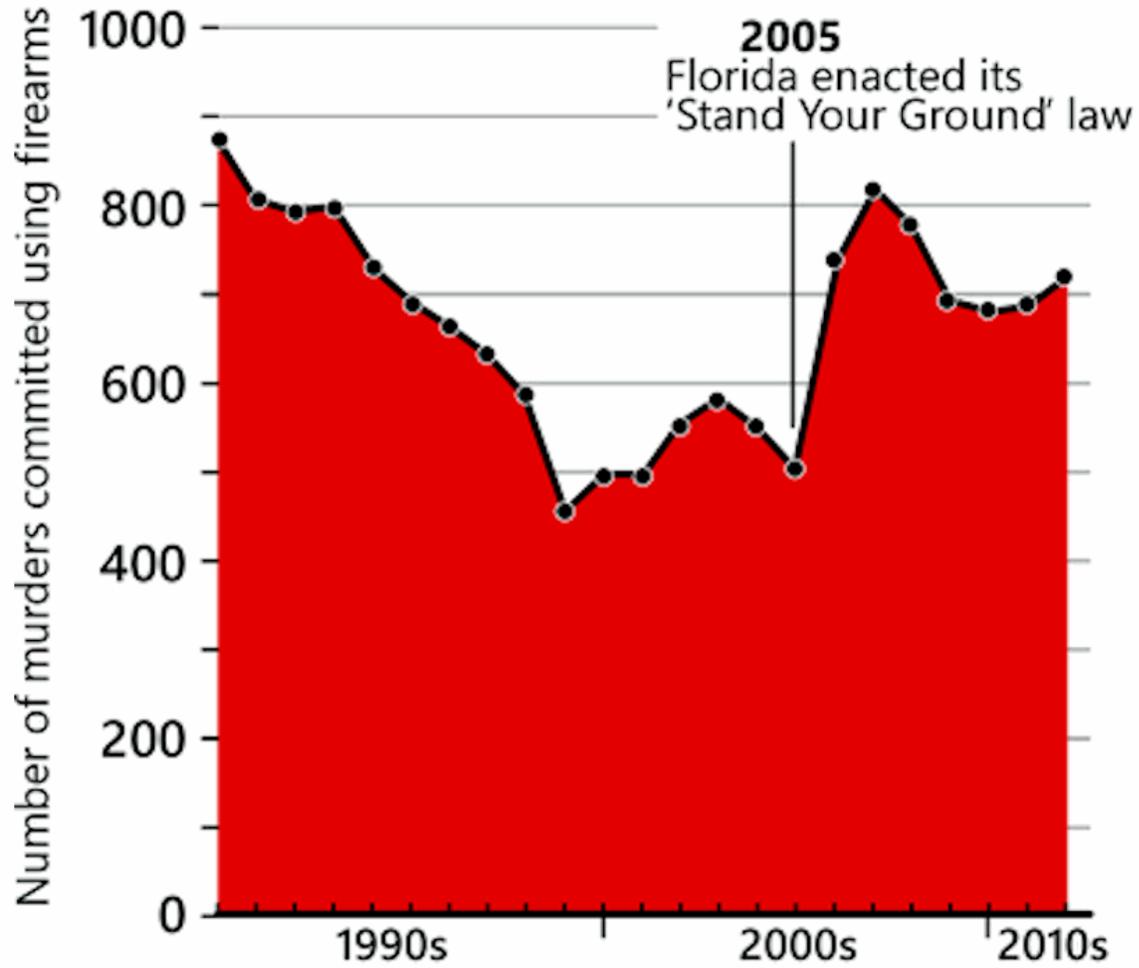
Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

REUTERS

[methodsavvy.com/good-data-bad-graphs/](https://www.methodsavvy.com/good-data-bad-graphs/)

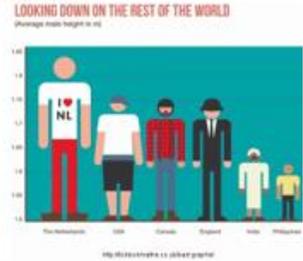
Gun deaths in Florida



Source: Florida Dept of Law Enforcement

Workshop Time

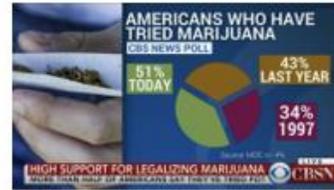
Data Visualization 1a



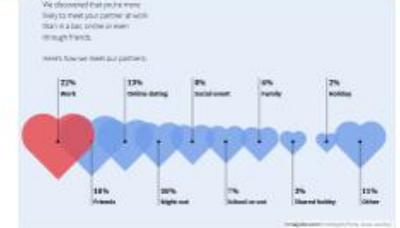
Data Visualization 1b



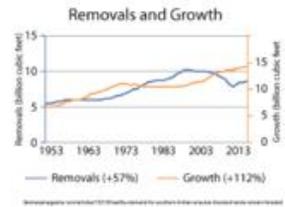
Data Visualization 2a



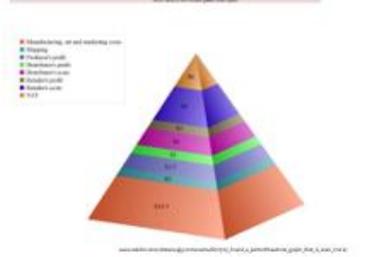
Data Visualization 2b



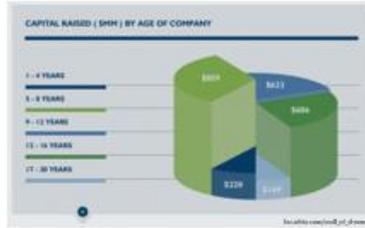
Data Visualization 5a



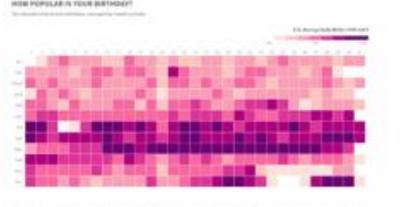
Data Visualization 5b



Data Visualization 6a

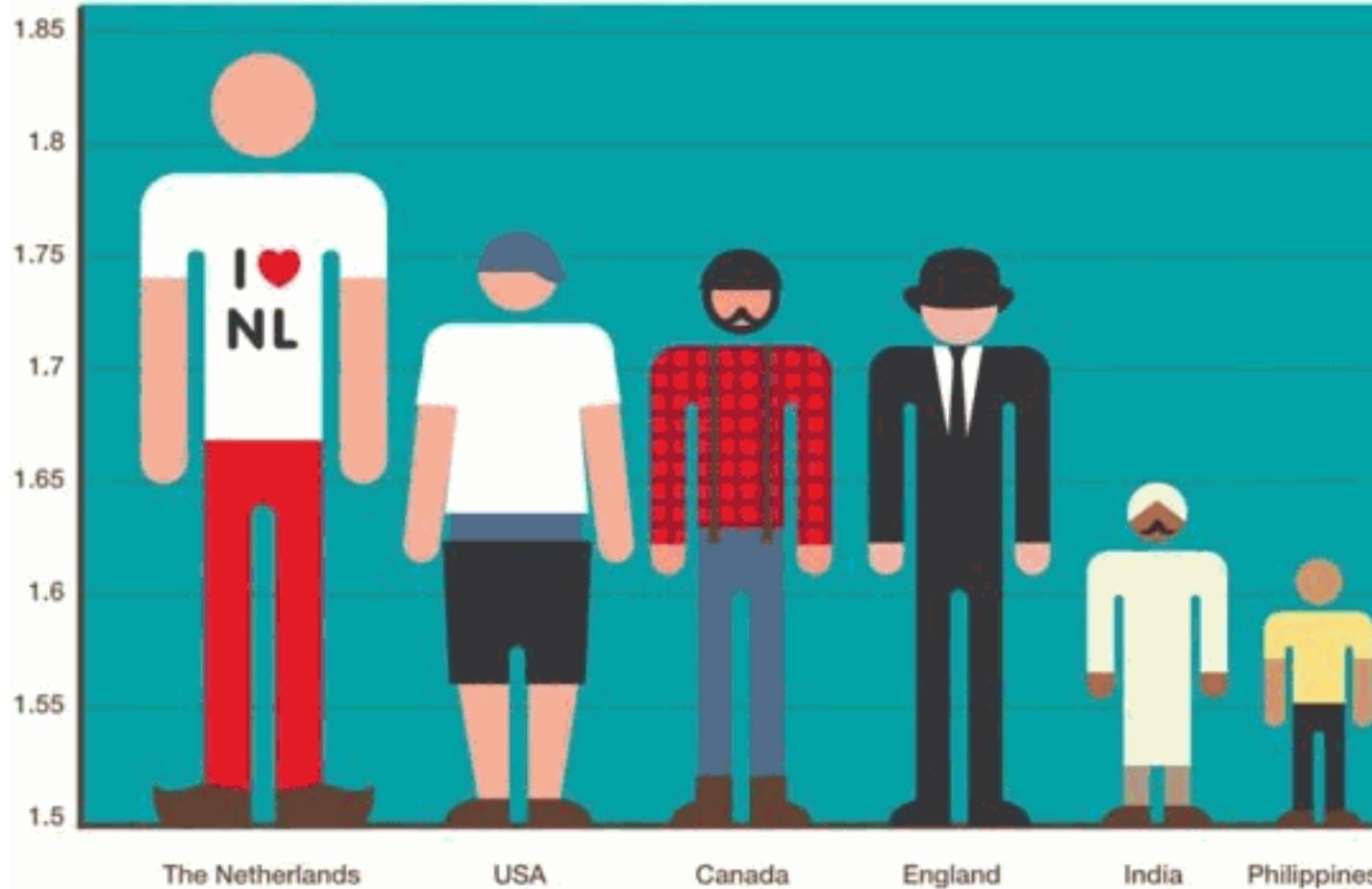


Data Visualization 6b



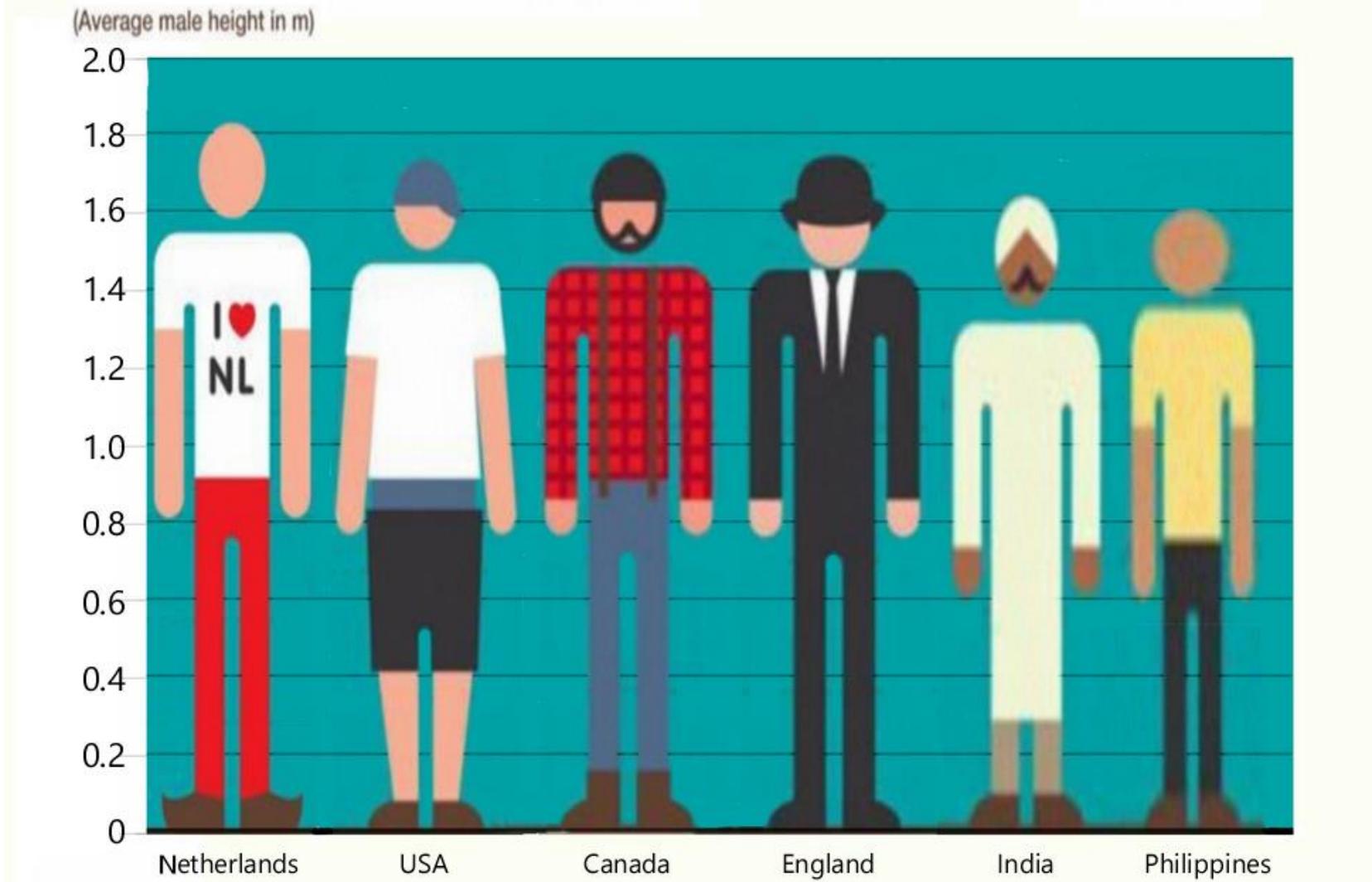
Bad Graphs – Looking Down on the Rest of the World

(Average male height in m)

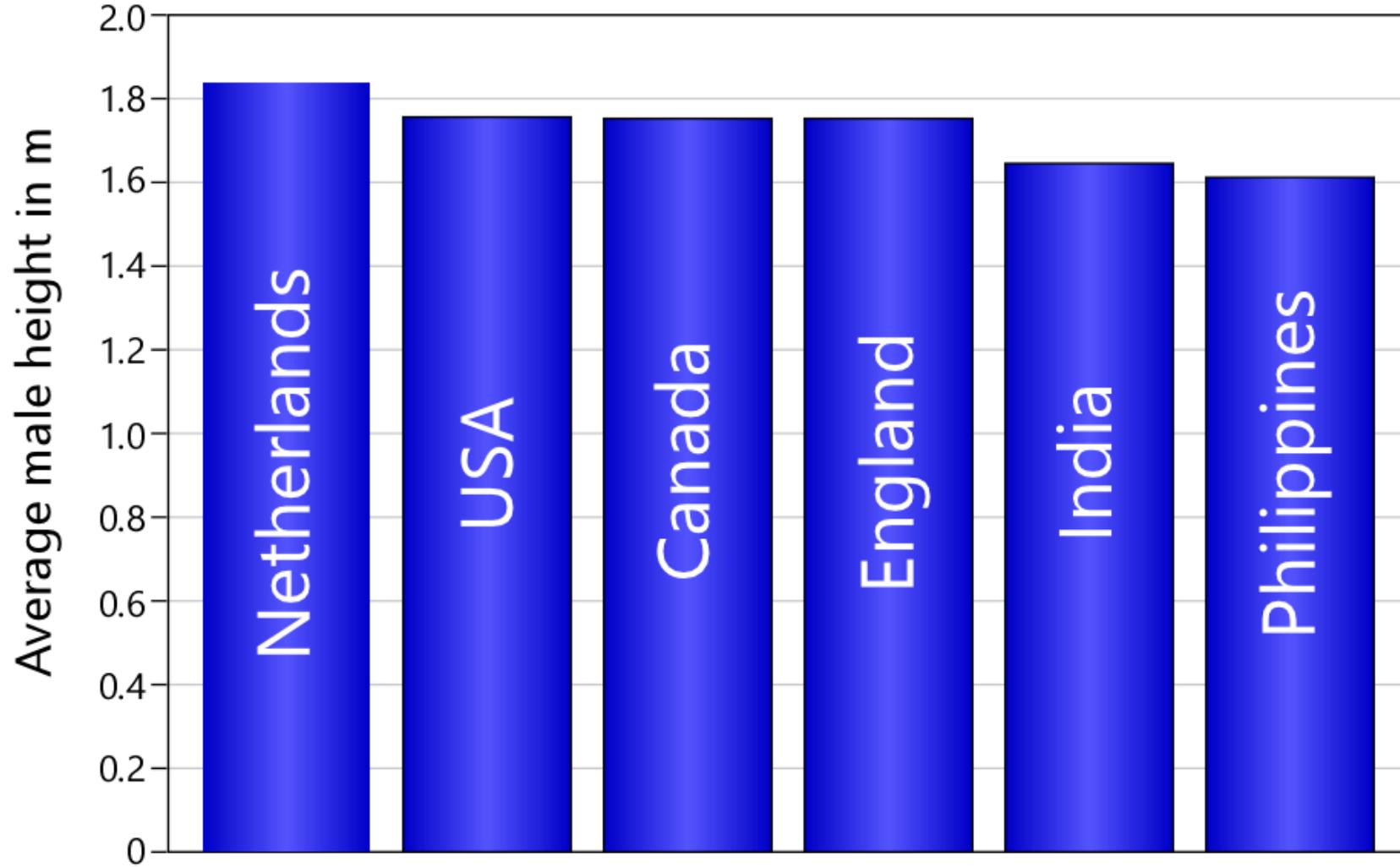


ticktockmaths.co.uk/bad-graphs/

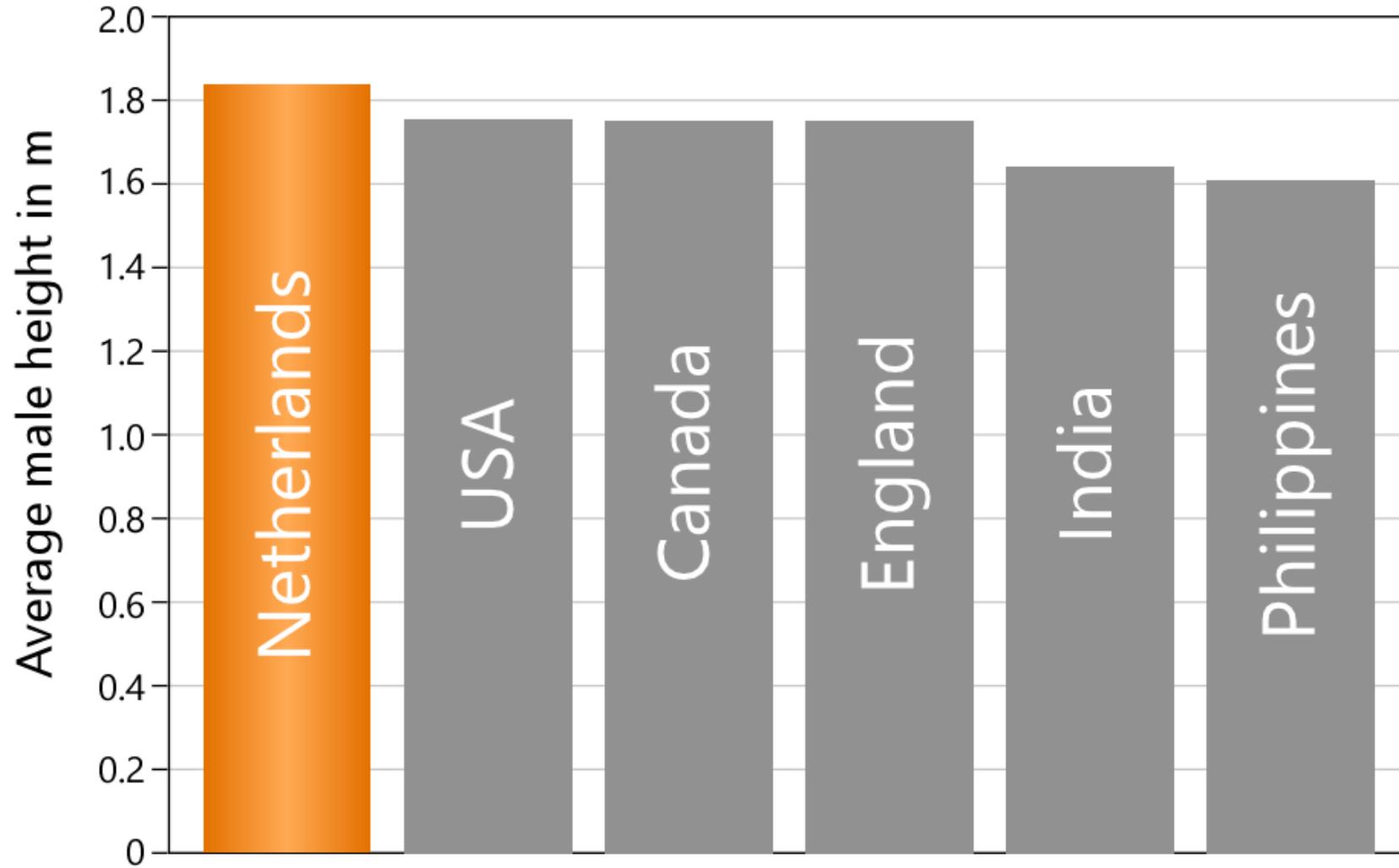
Better – but not good enough



Better Graph



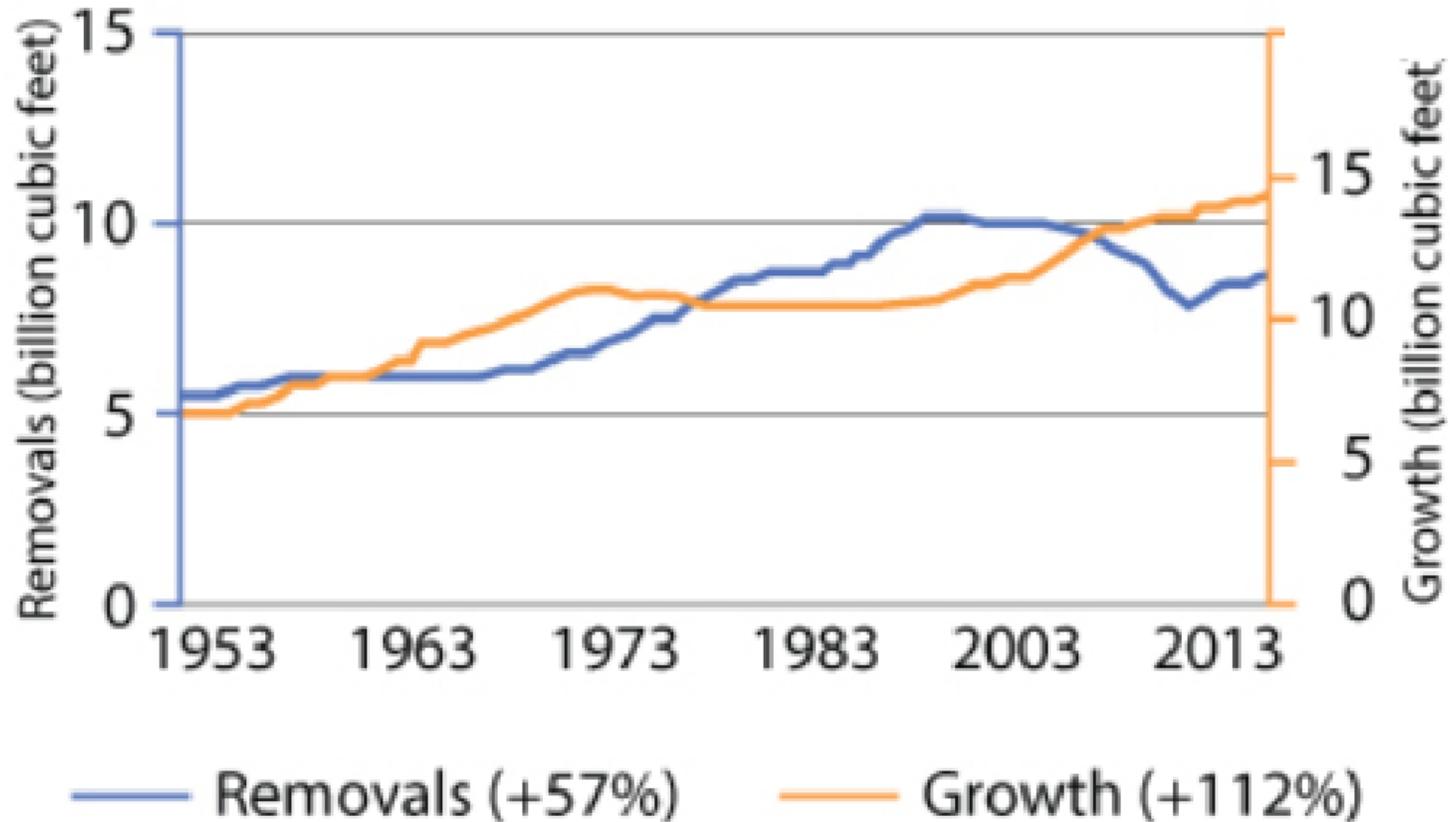
Making the Point



Bad Graphs – Axis Games

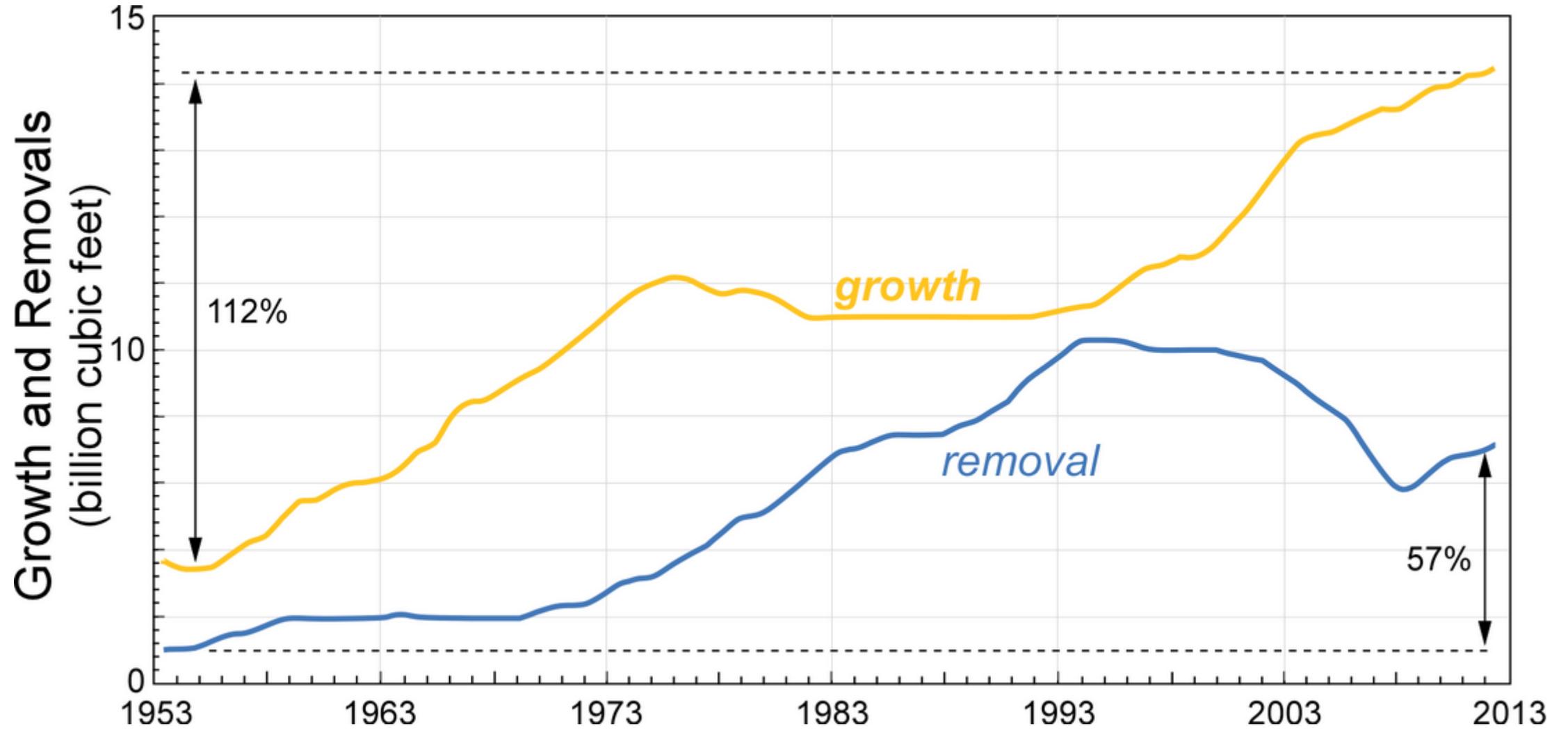
Southern Timber

Removals and Growth

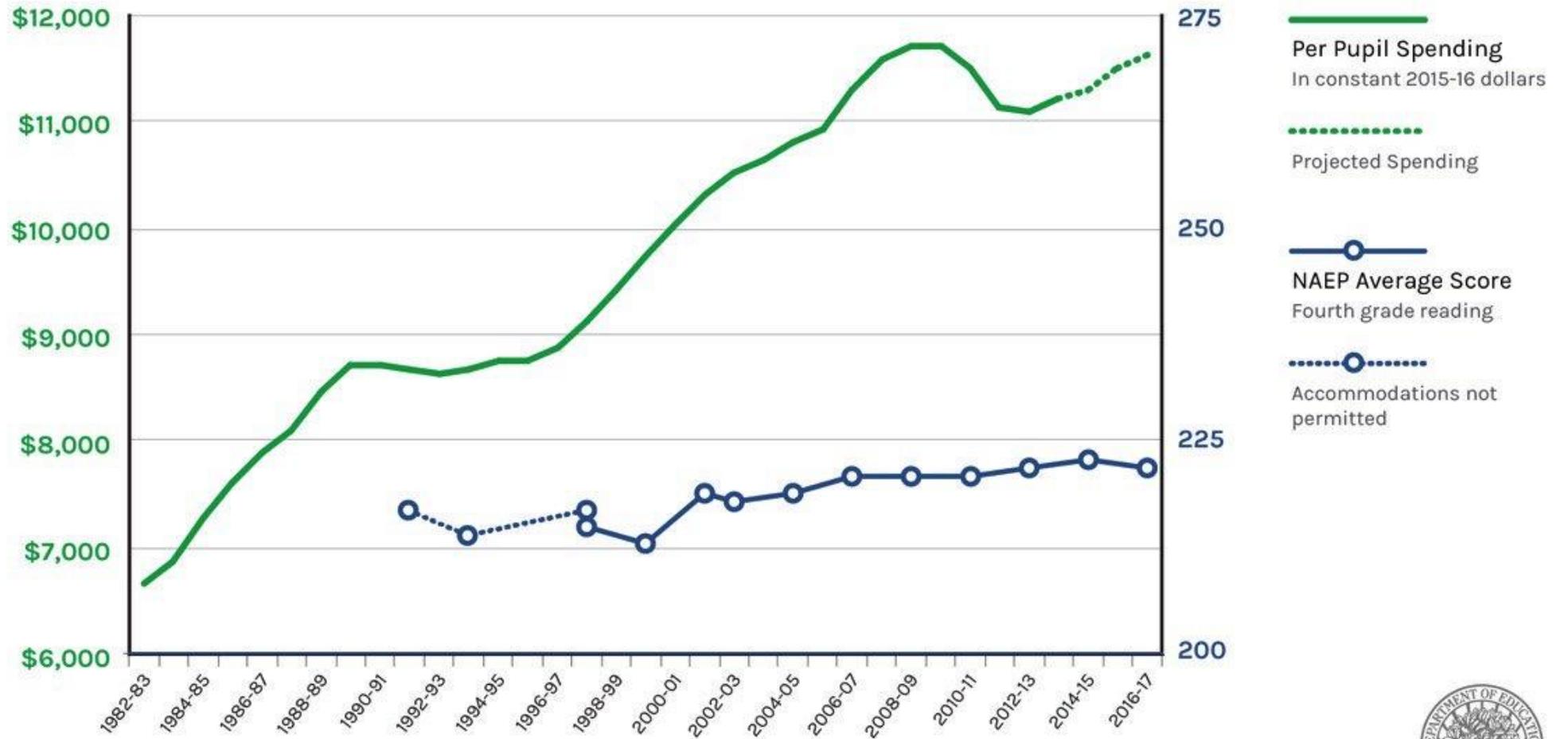


biomassmagazine.com/articles/15210/healthy-demand-for-southern-timber-ensures-forested-lands-remain-forested

Better Graph – Southern Timber

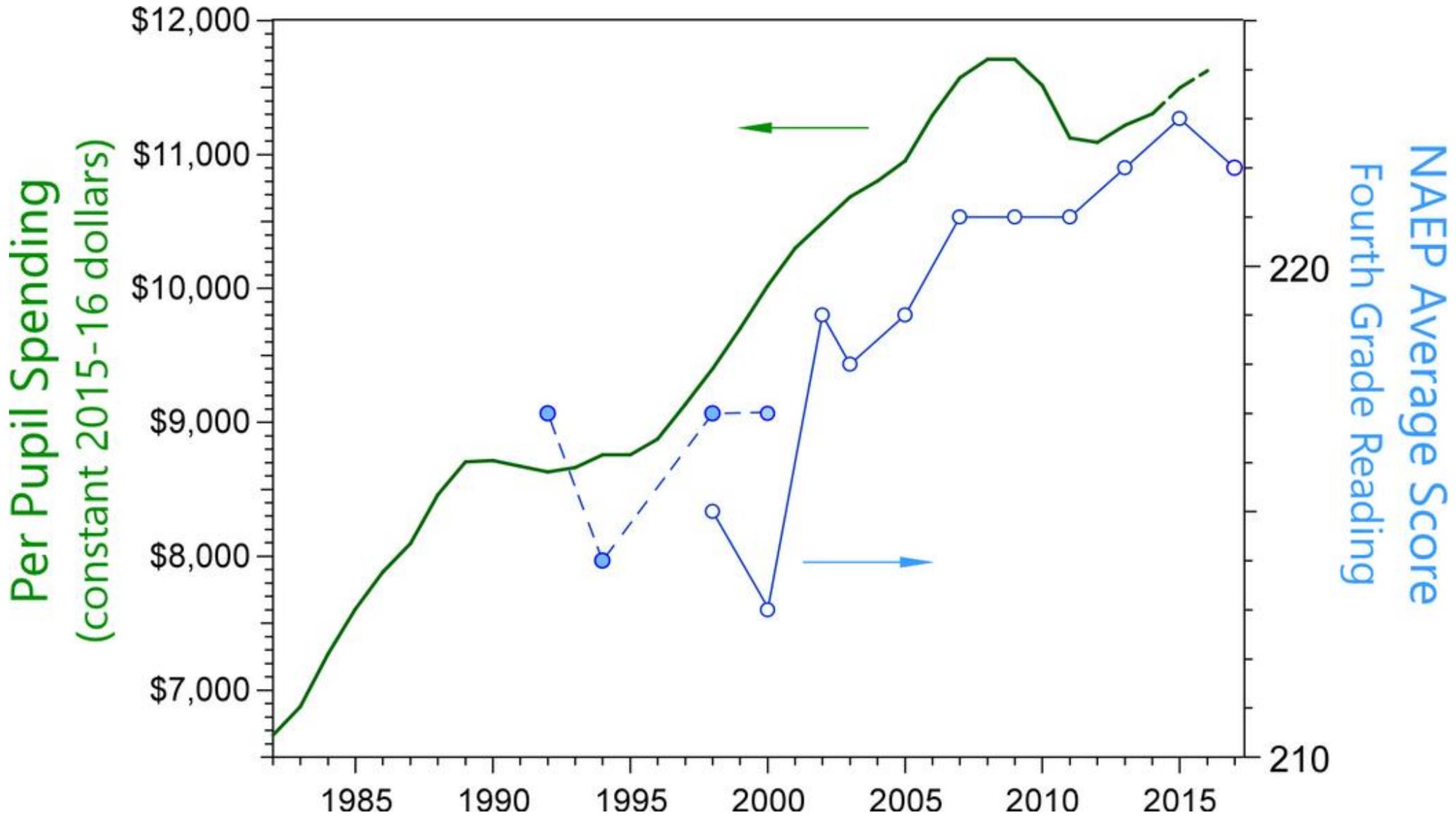


Bad Graph – Games with 2 Axes



Source: U.S. Department of Education, National Center for Education Statistics, Revenues and Expenditures for Public Elementary and Secondary Education, 1970-71 through 1986-87; Common Core of Data (CCD), "National Public Education Financial Survey," 1987-88 through 2013-14; National Elementary and Secondary Enrollment Projection Model, 1972 through 2026; Public Elementary and Secondary Education Current Expenditure Projection Model, 1973-74 through 2026-27; and National Assessment of Educational Progress, Reading Report Card, 2017

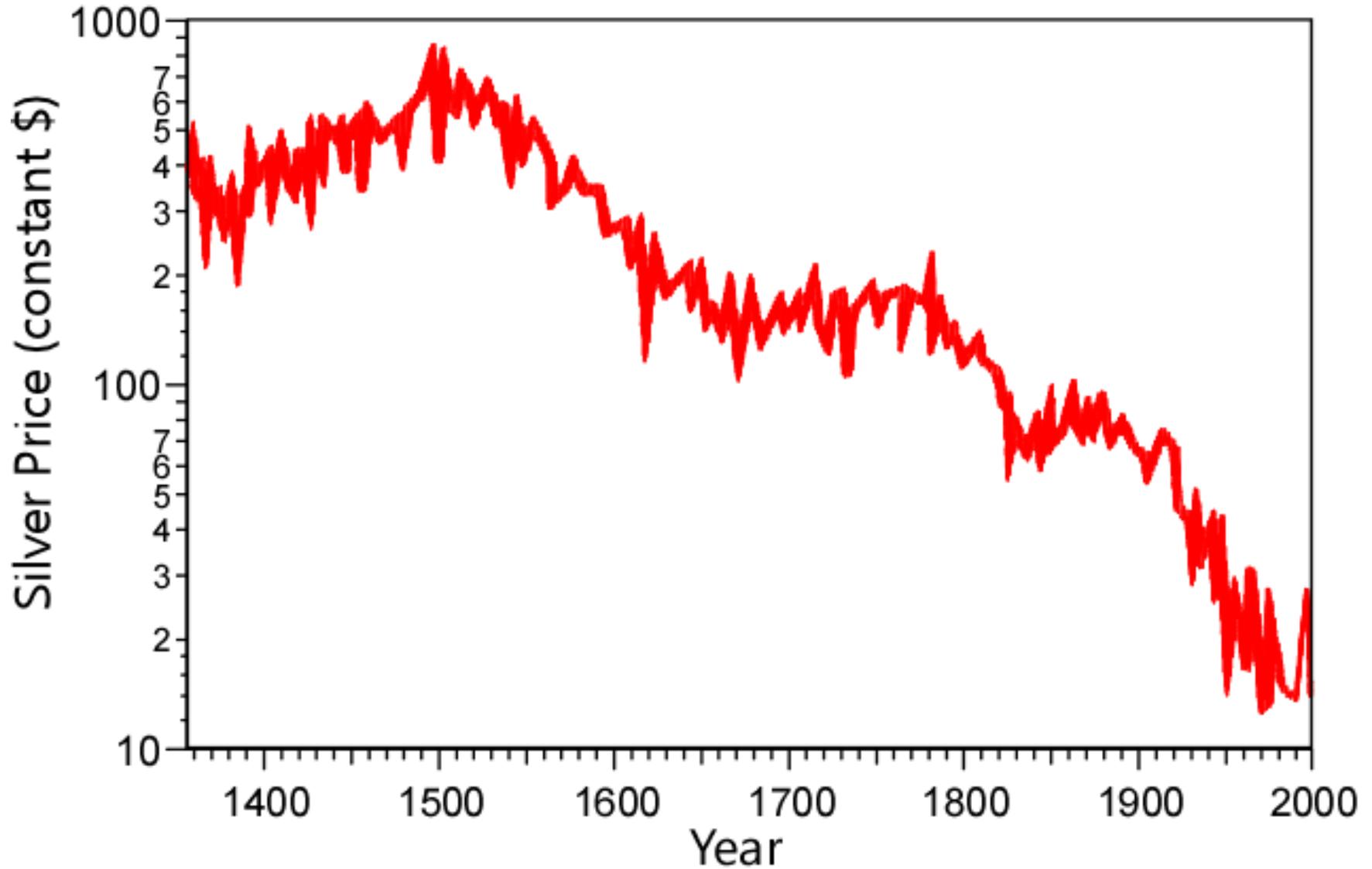




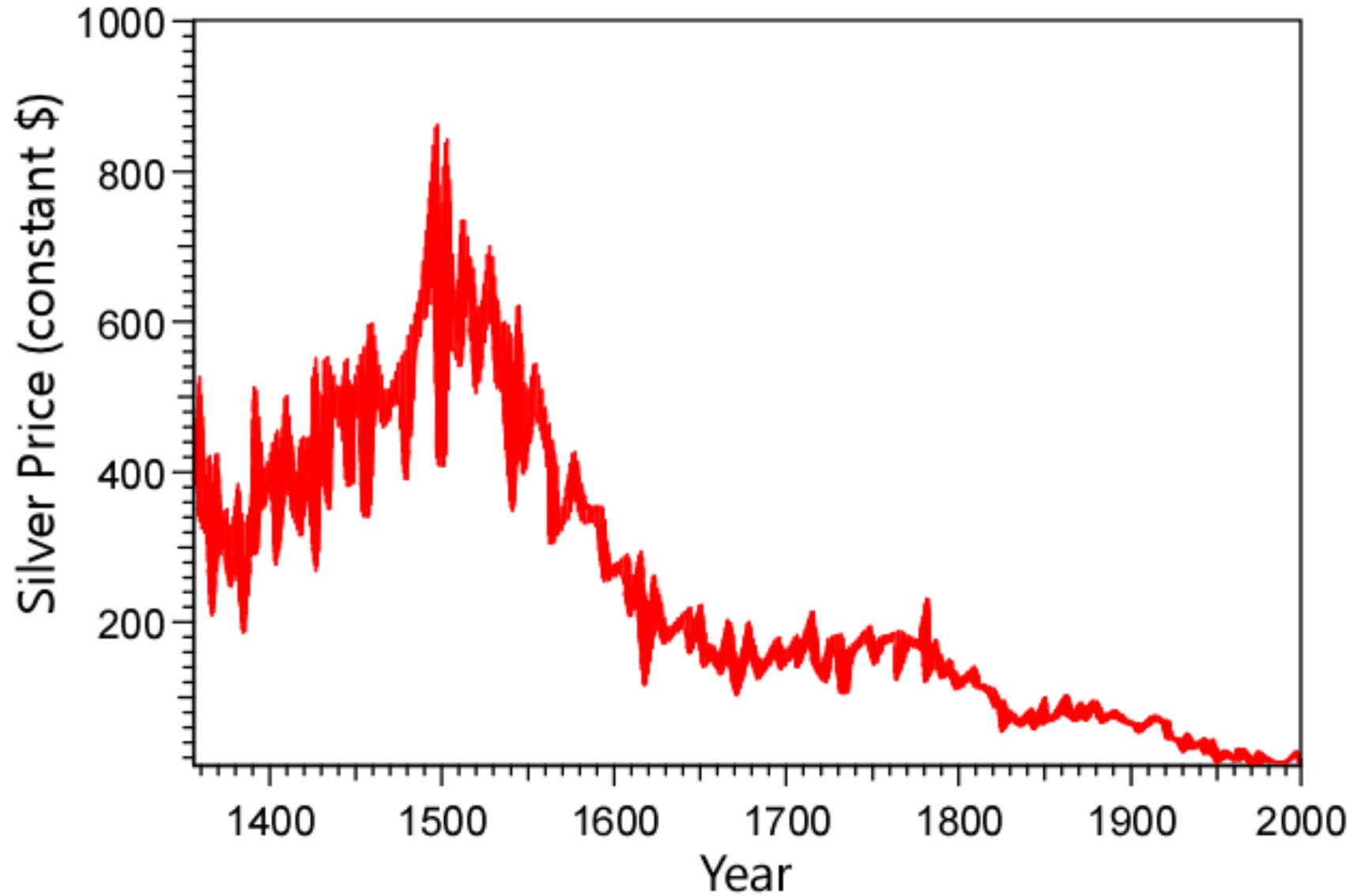


source: YouTube How To Make Everything

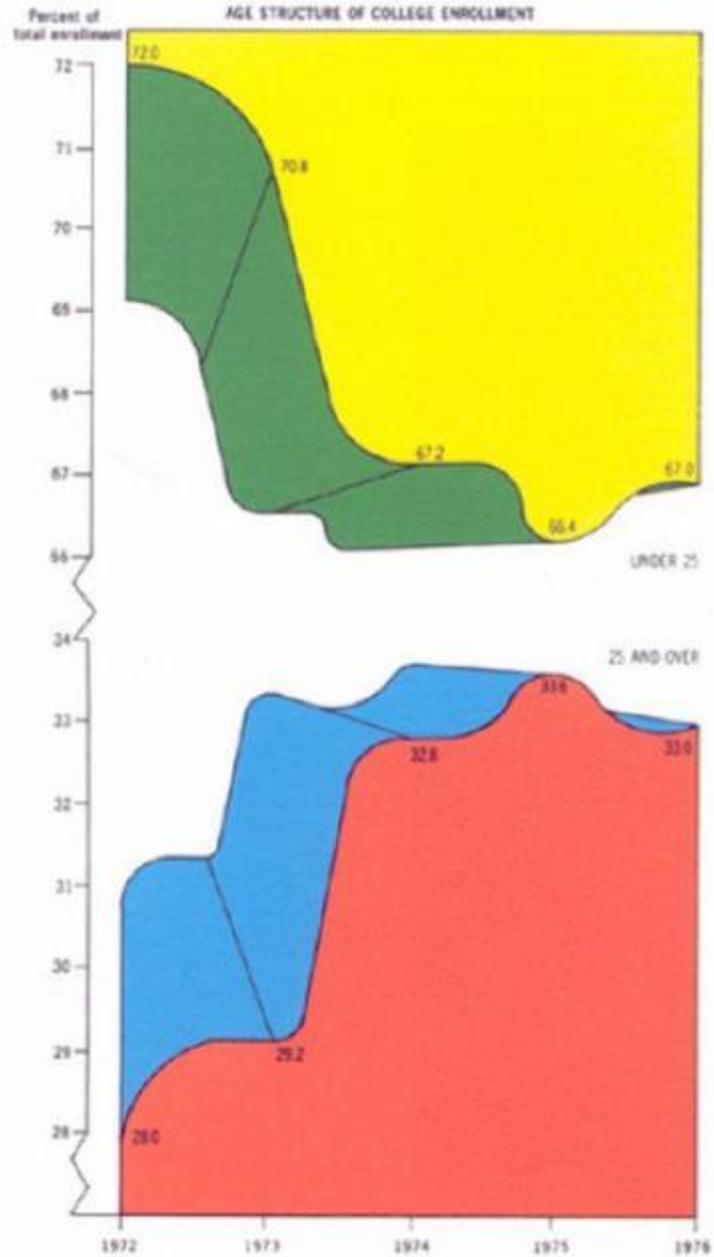
Price of Silver



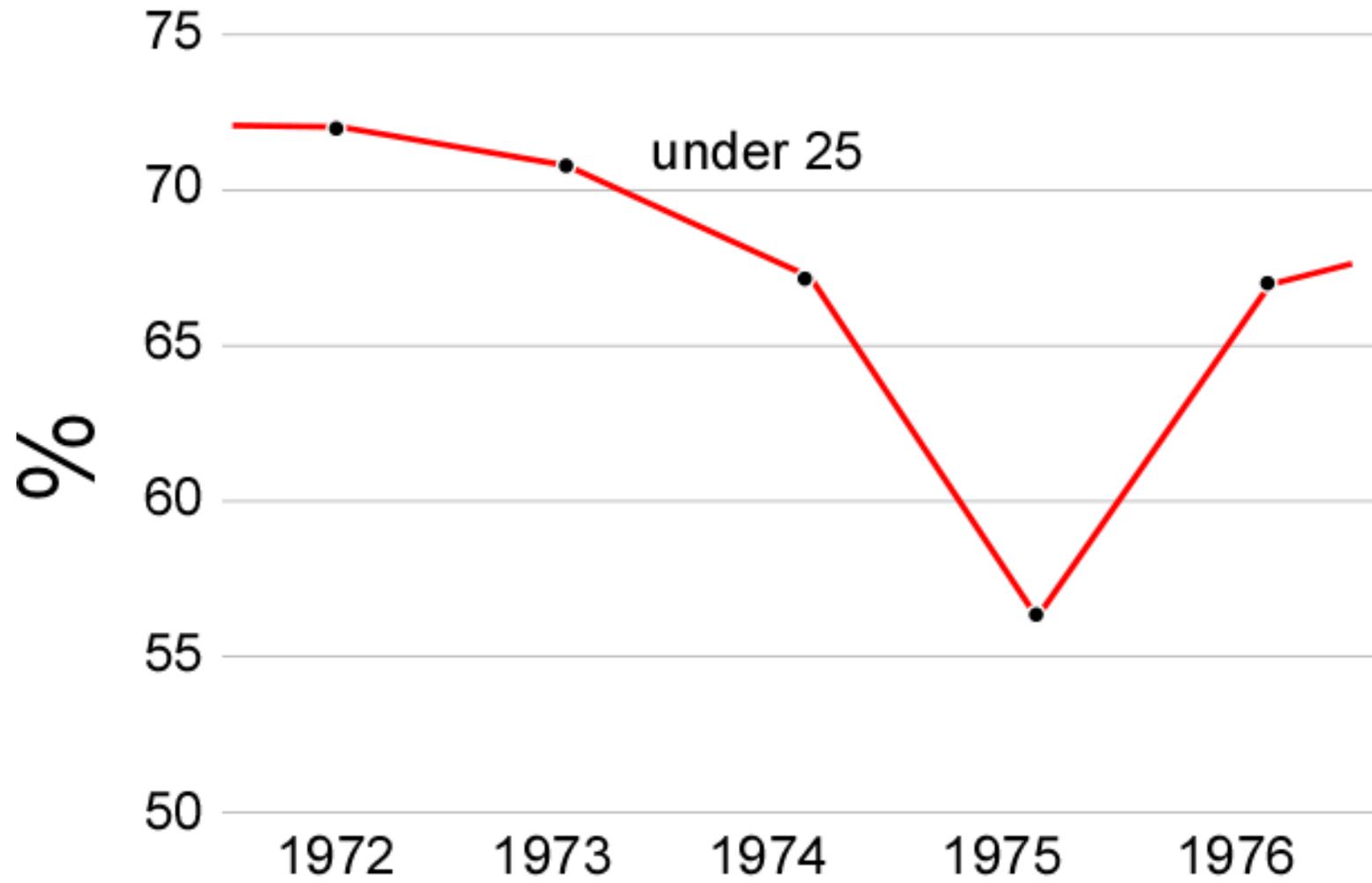
Price of Silver



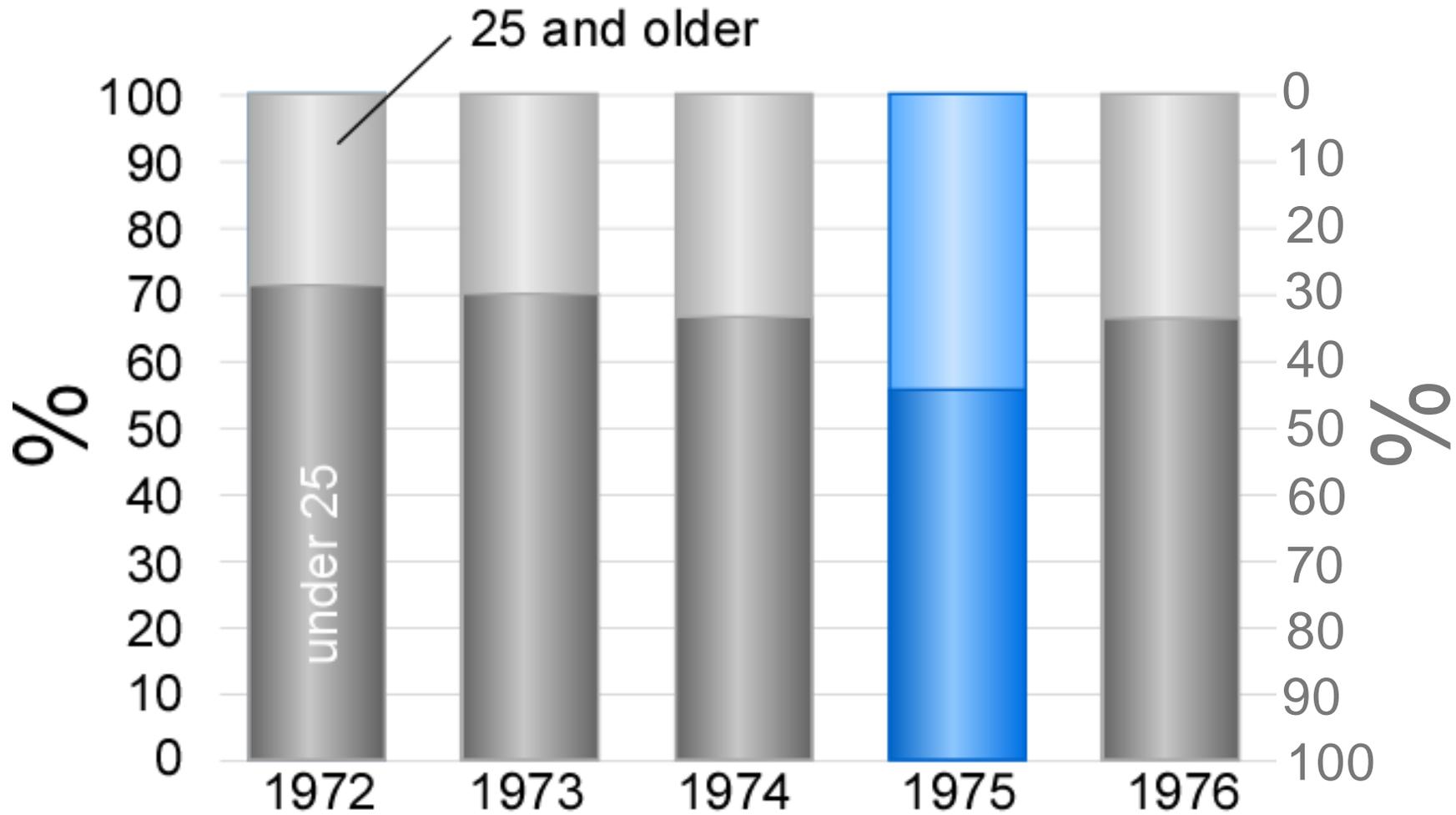
Tufte Worst Plot Ever

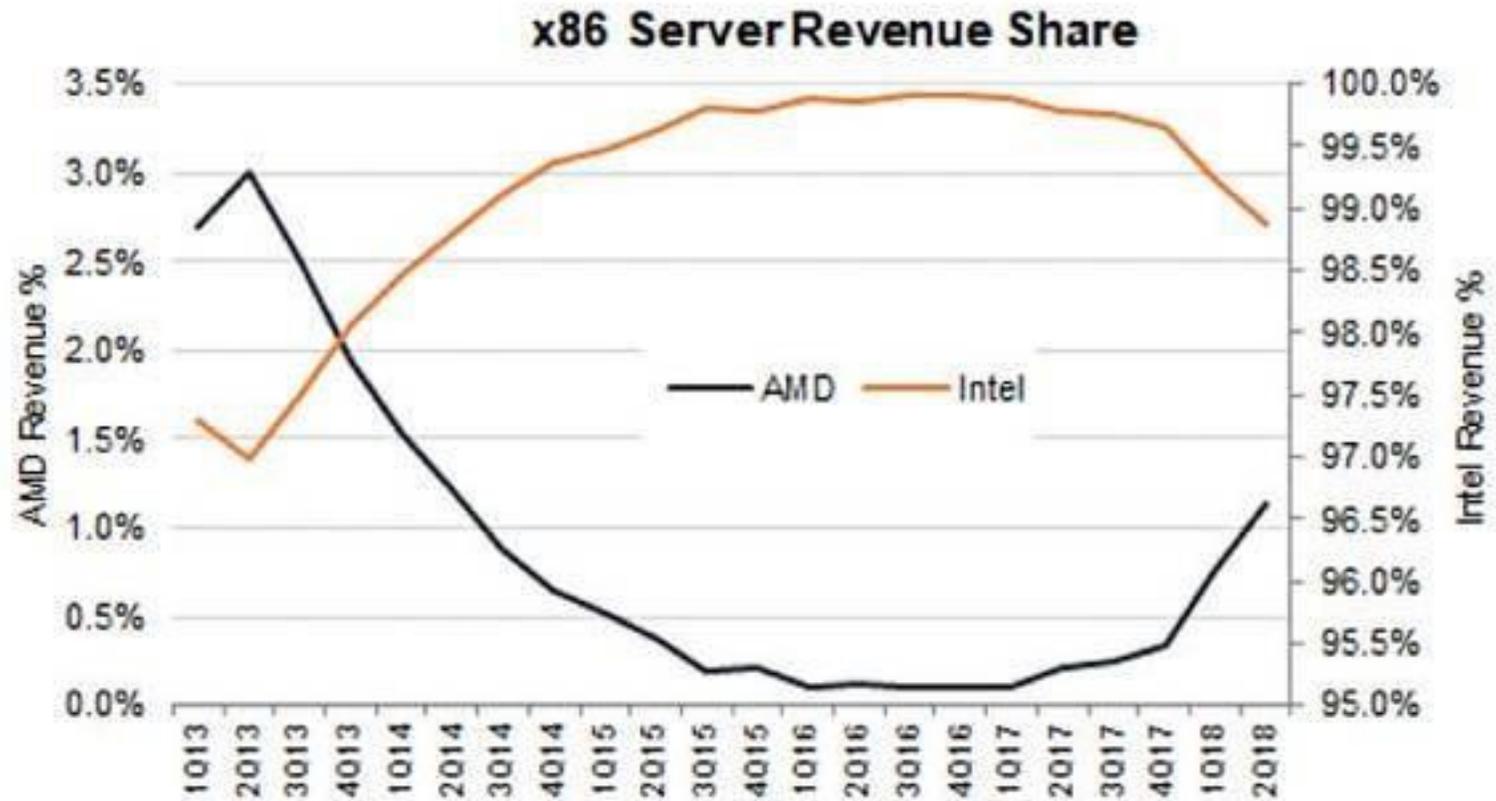


Demographic Distribution



Demographic Distribution

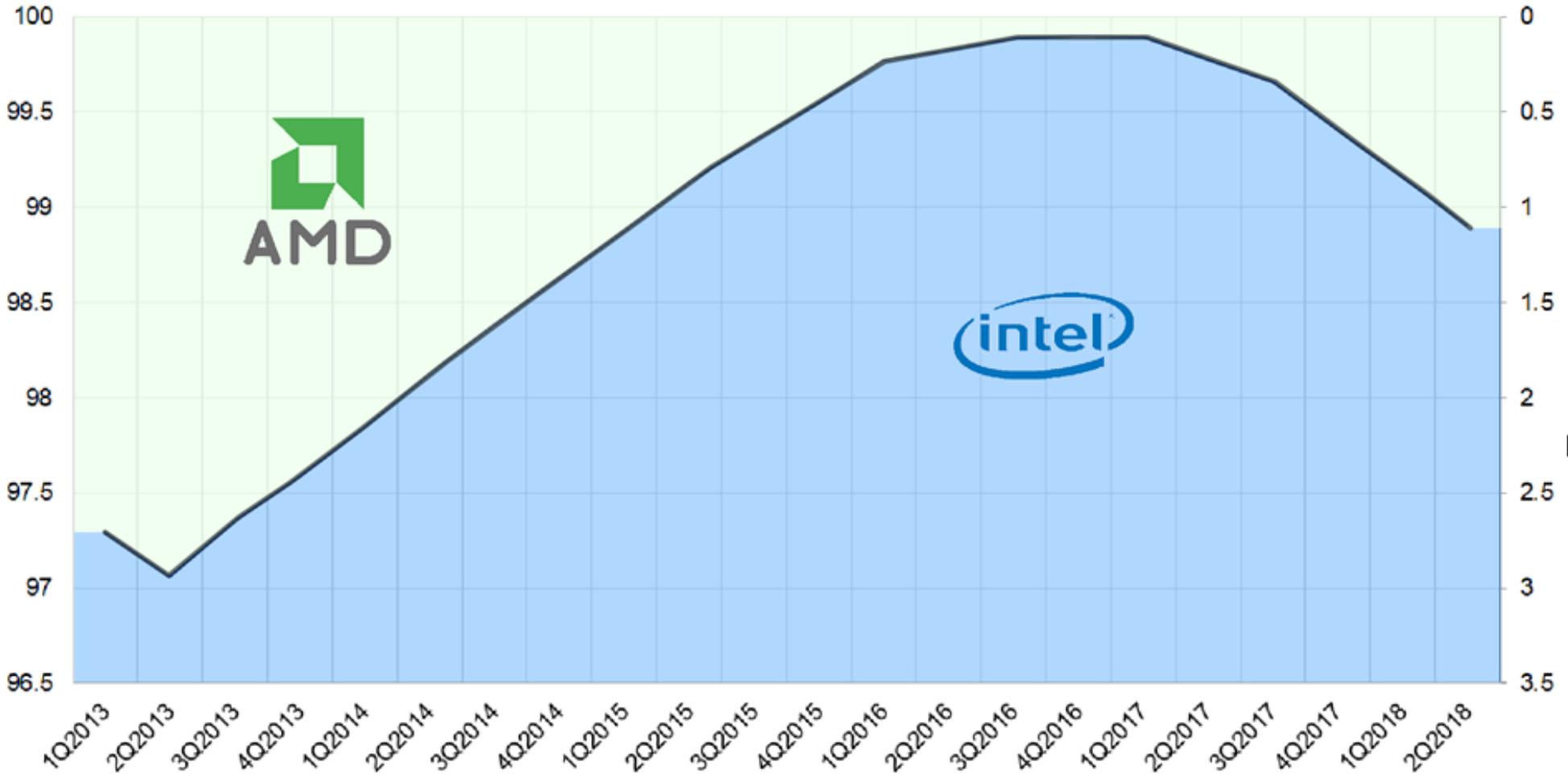




Source: Mercury Research; Wells Fargo Securities, LLC

https://www.theregister.co.uk/2018/08/06/amd_epyc_intel_xeon_x86_server_revenue_share/

x86 Server Revenue Share



Market Share (%)

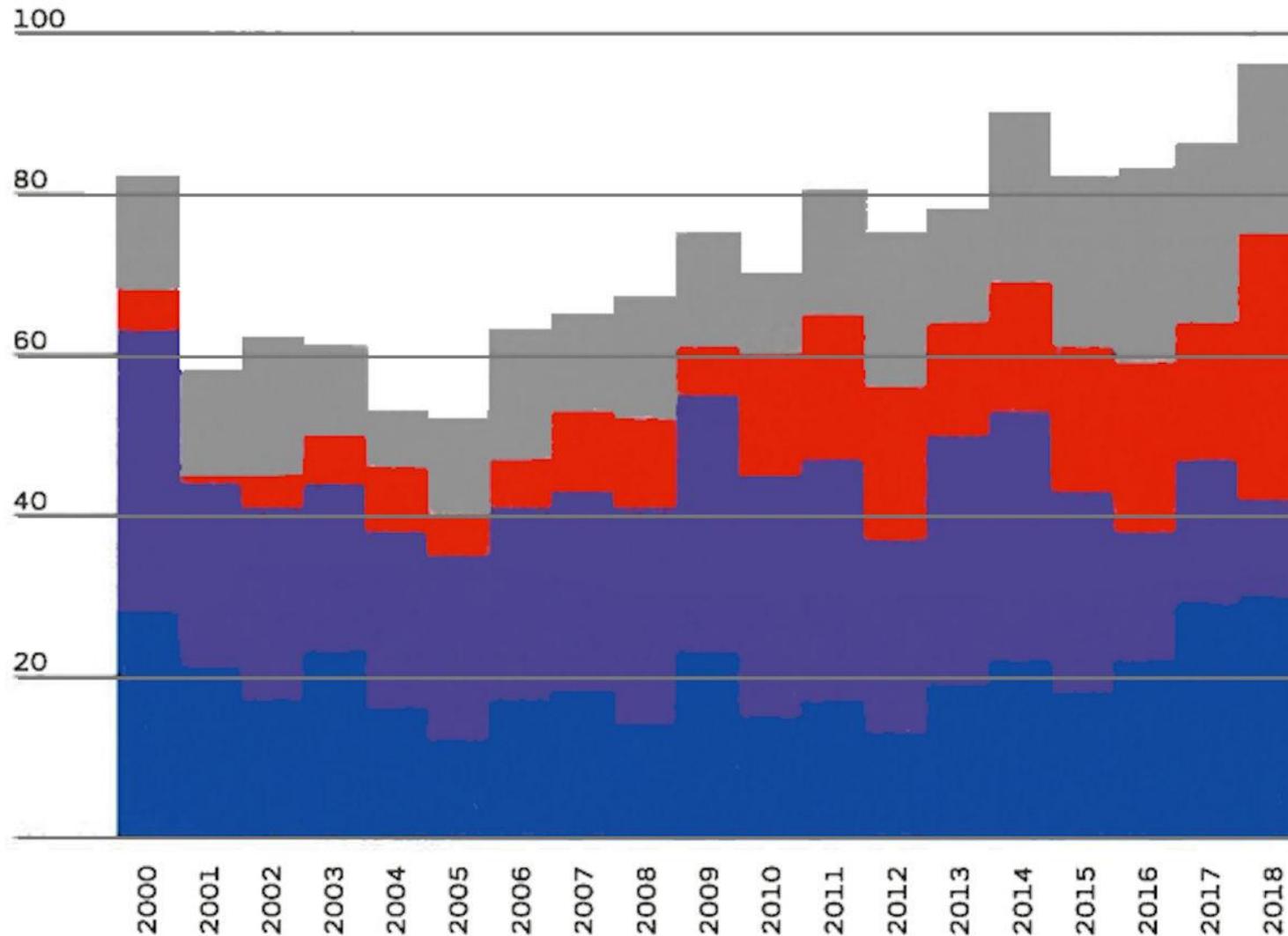


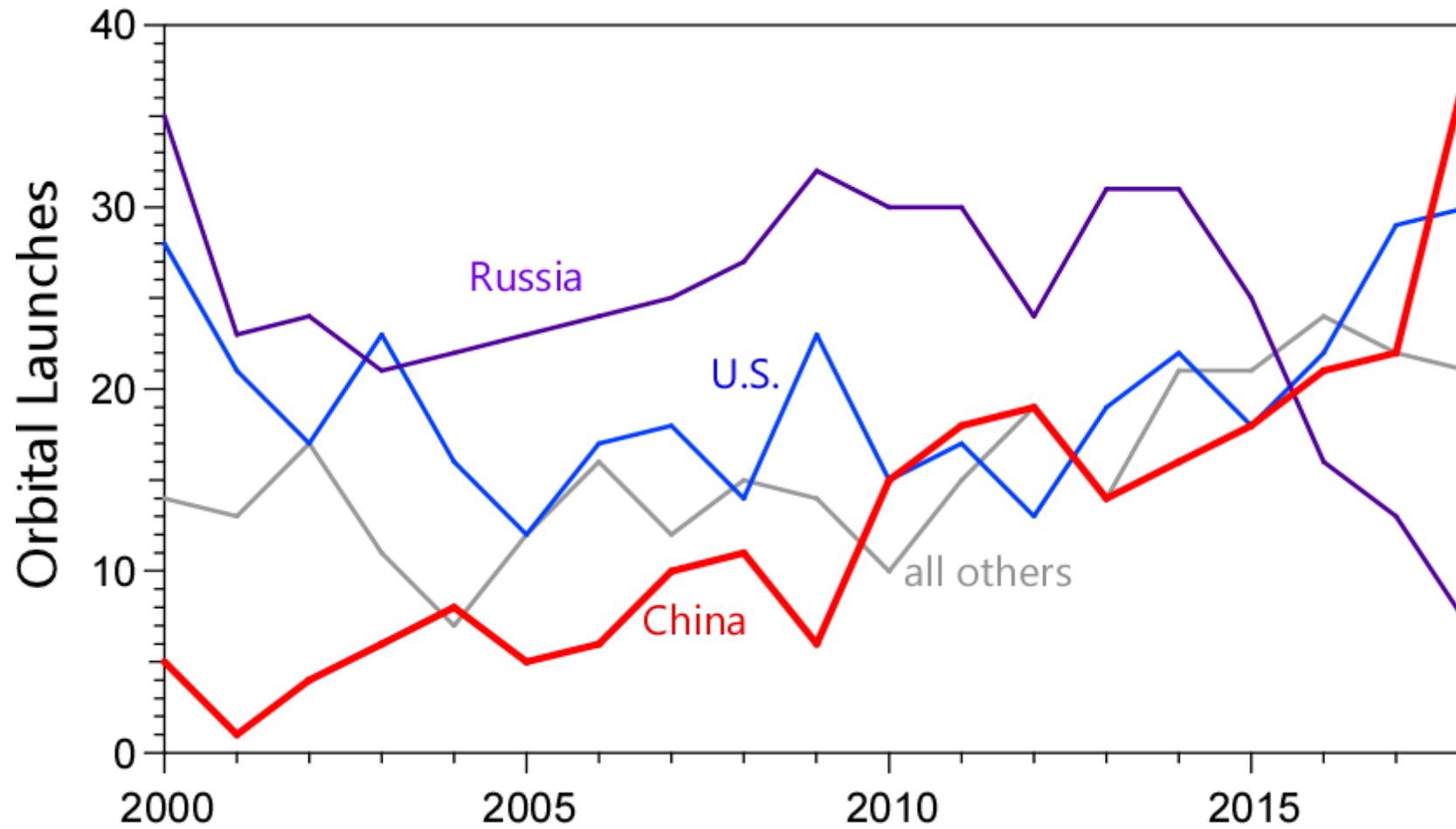
Market Share (%)

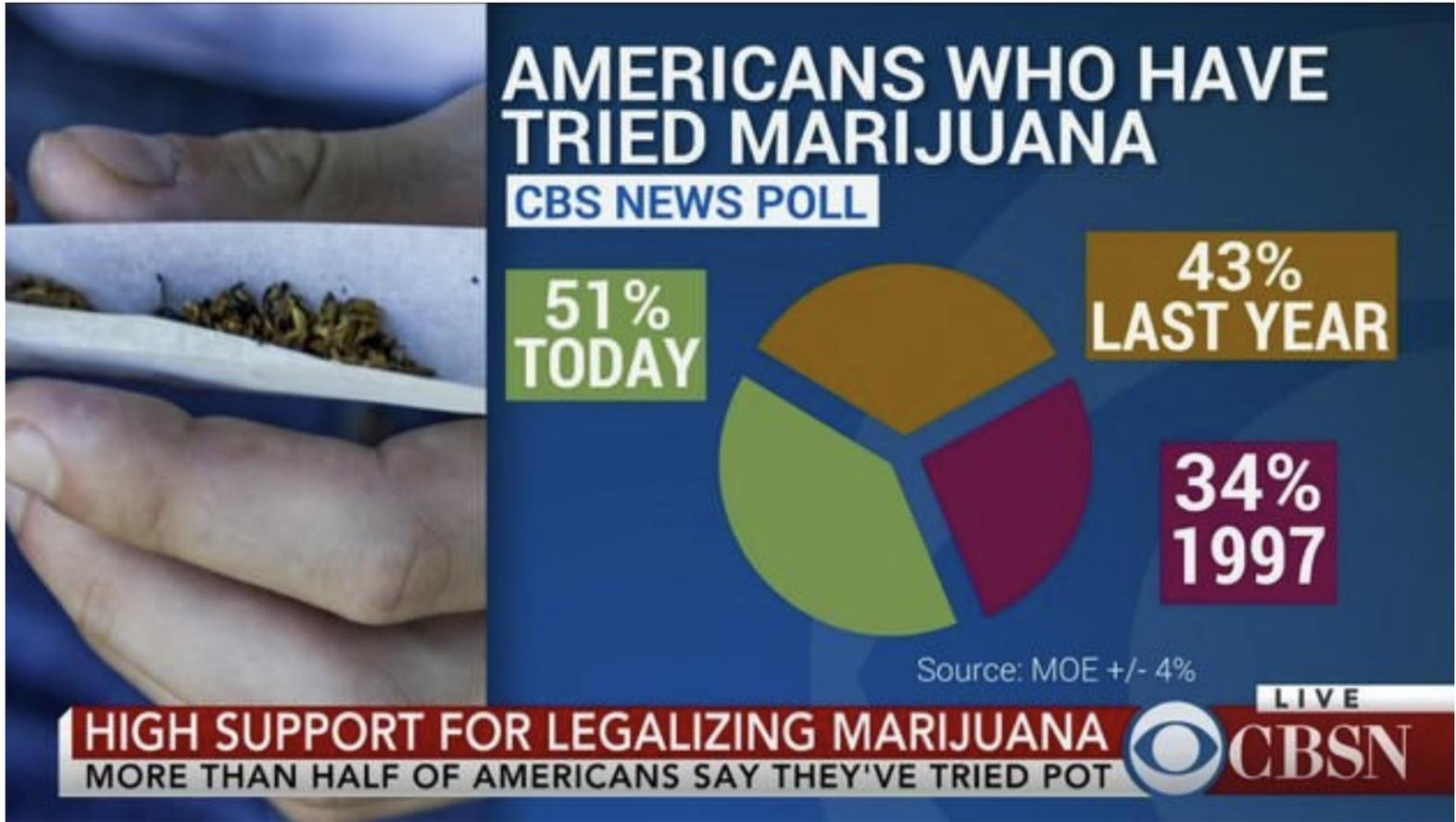
Orbital launches by nation 2000-2018 (as of November)

China's space program has grown steadily. As of late 2018, China was on pace for nearly 40 orbital launches, more than any other country last year.

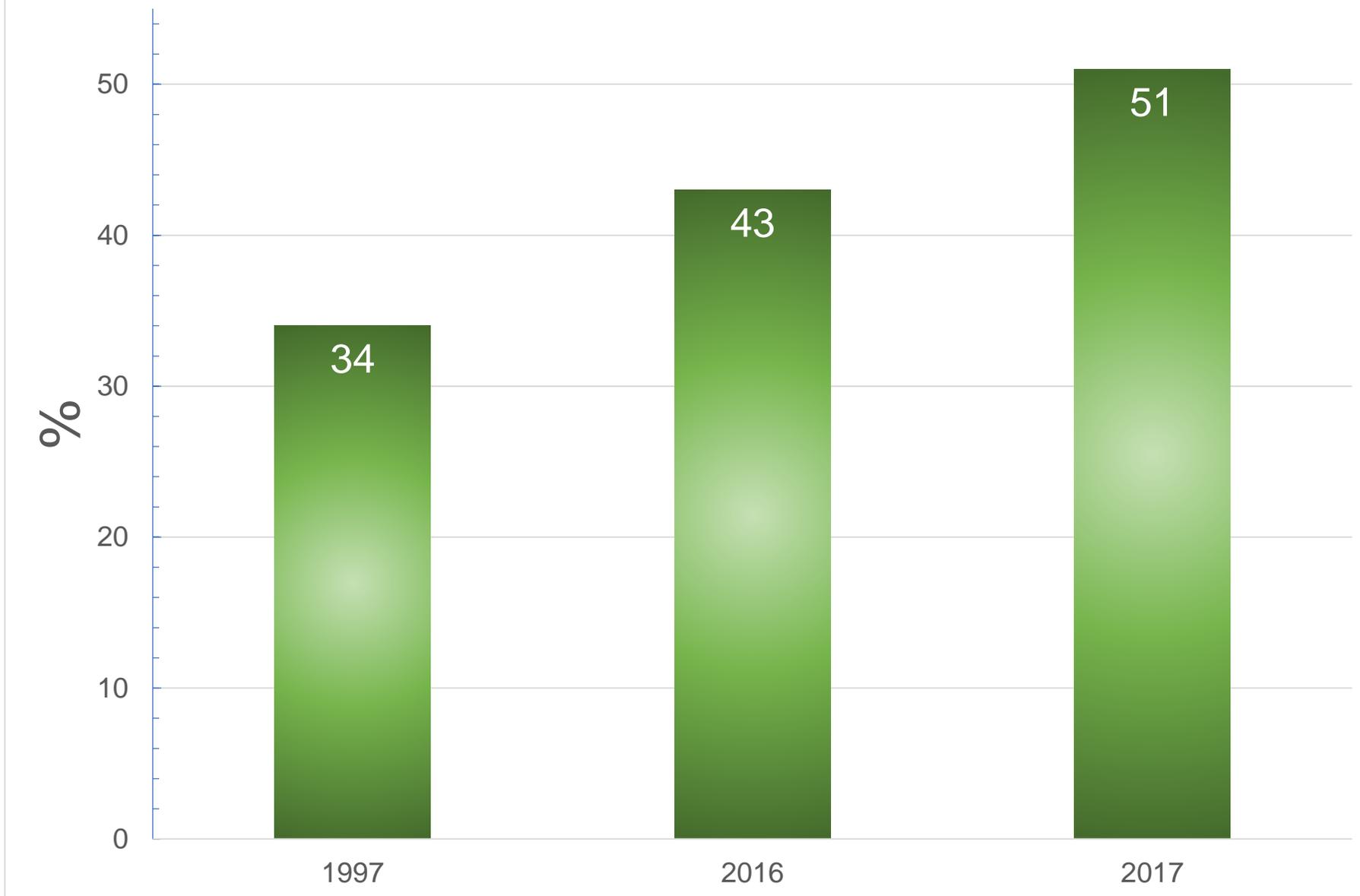
- USA
- Russia
- China
- Other nations



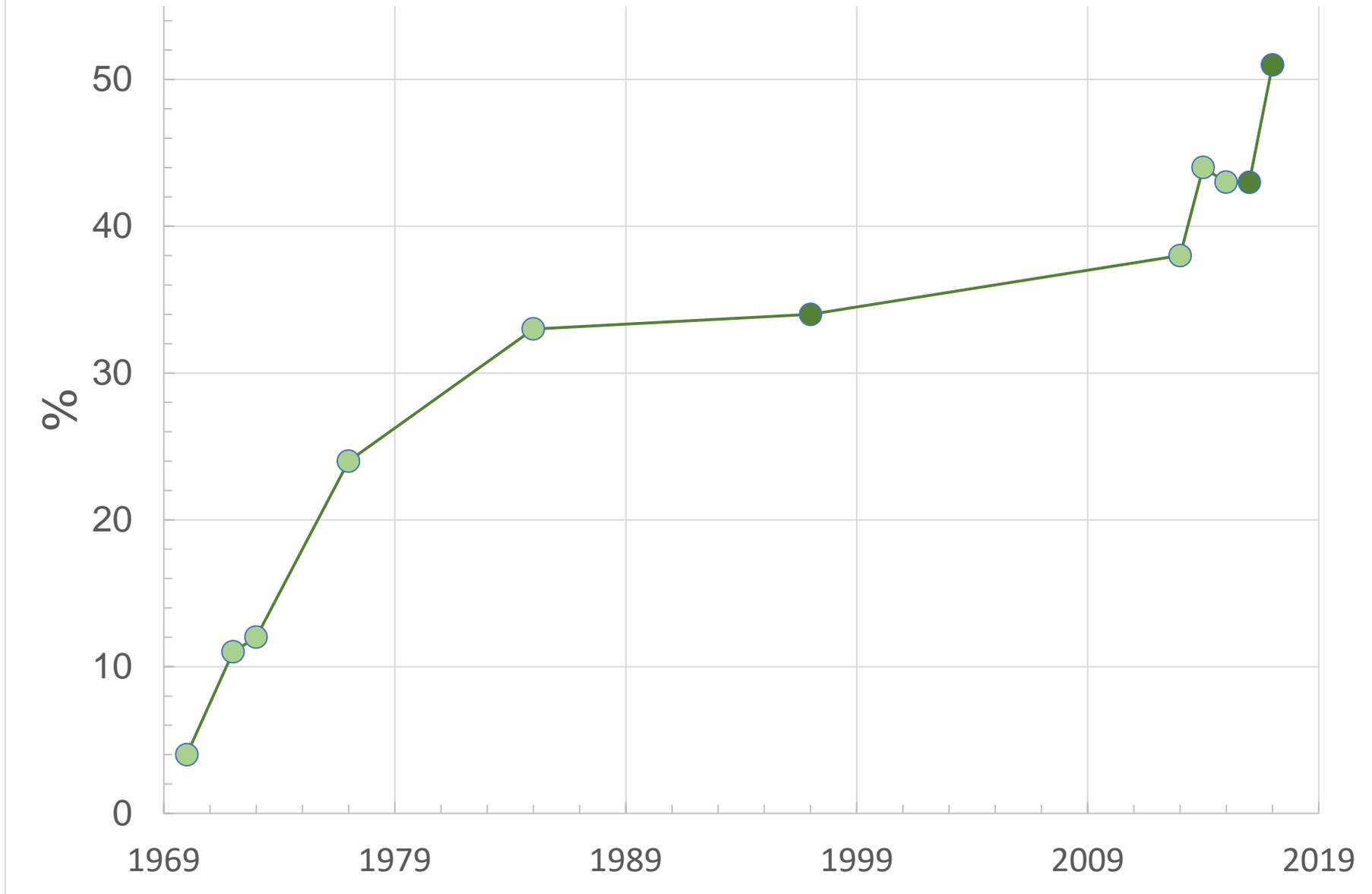




Americans Who Have Tried Marijuana



Americans Who Have Tried Marijuana



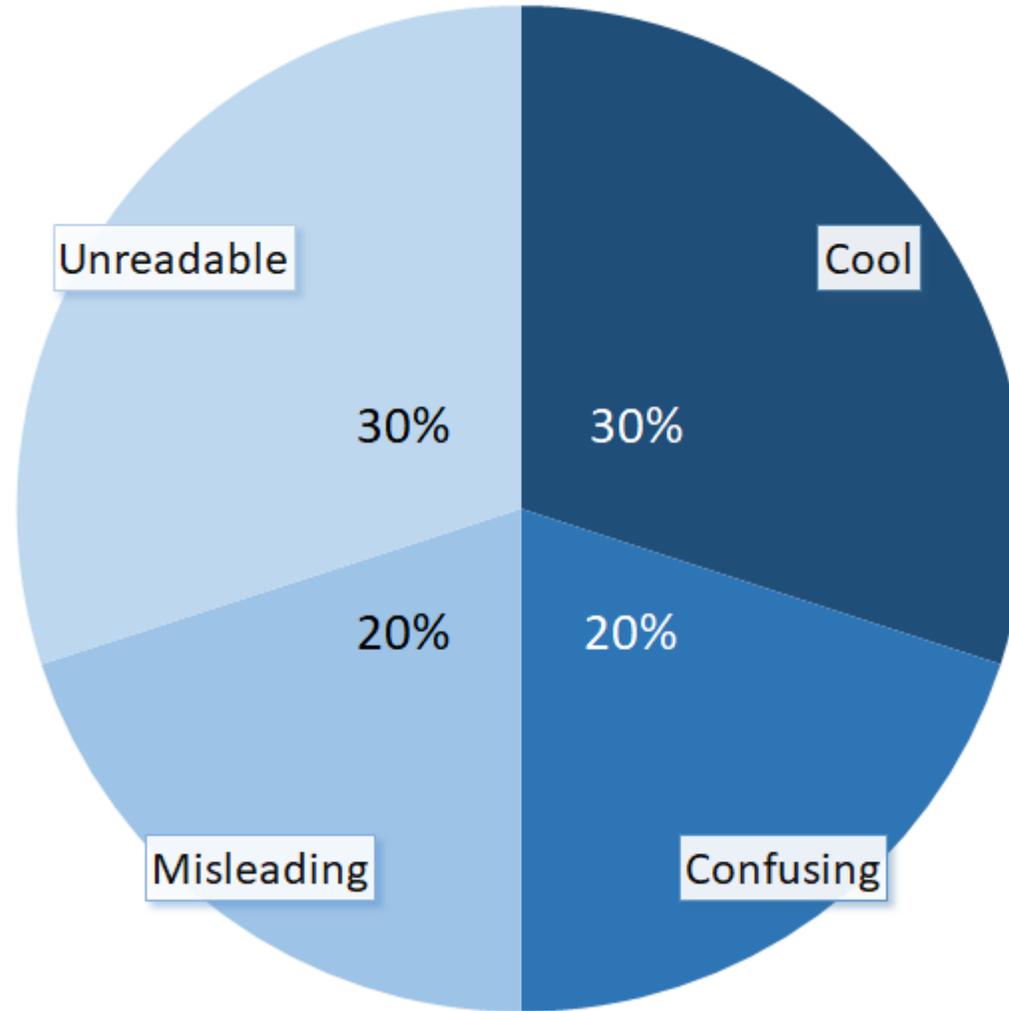
Perception of 3D Pie Charts



- Cool (30%)
- Confusing (20%)
- Misleading (20%)
- Unreadable (30%)

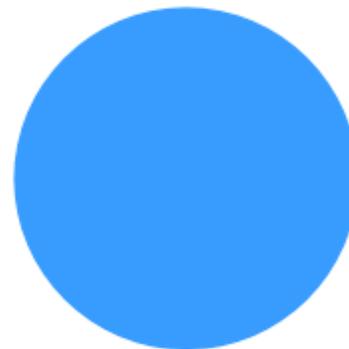
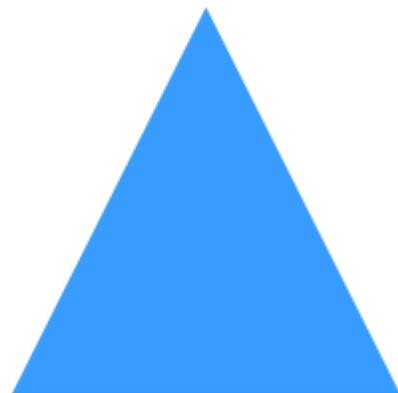
GraphJam

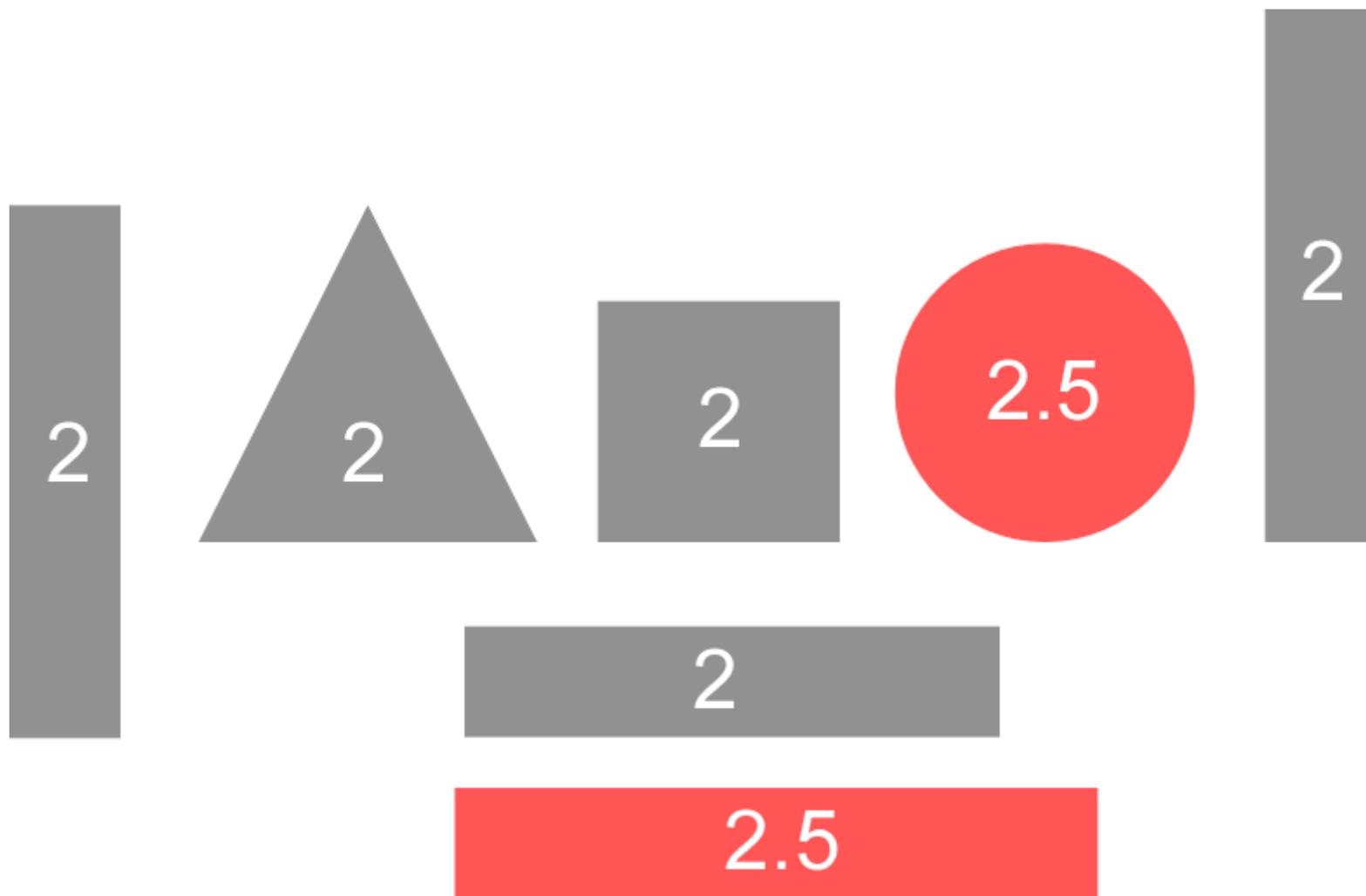
Perception of 3D Pie Charts



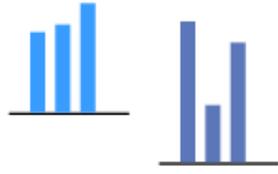


Which is largest?

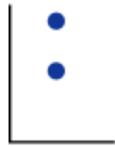




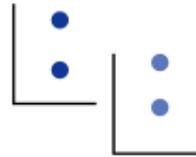
Human Perception



volume



position
(aligned)



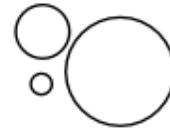
position
(unaligned)



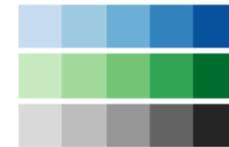
length



angle



area



color intensity



color hue

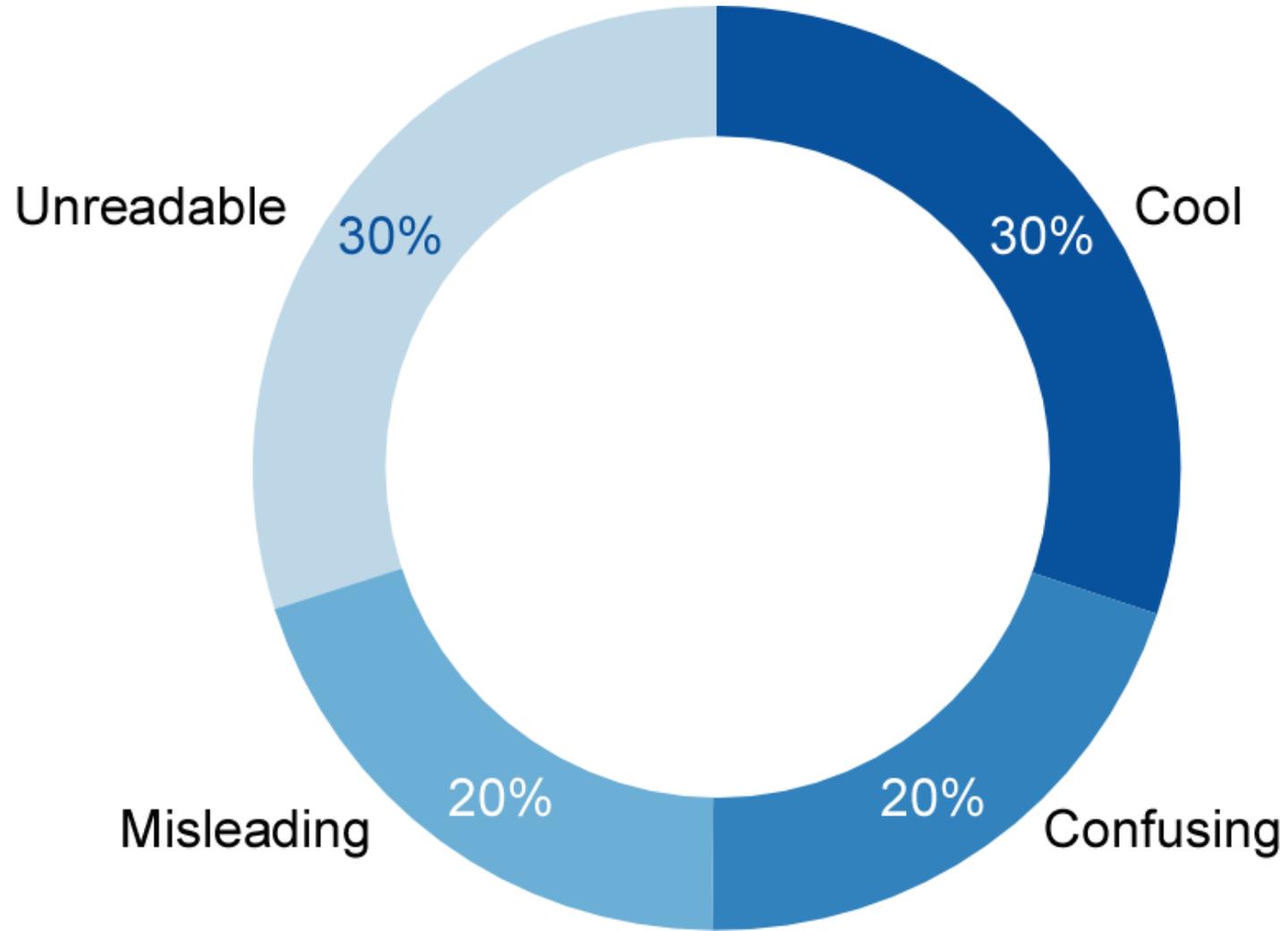
more
accurate

human perception

less
accurate

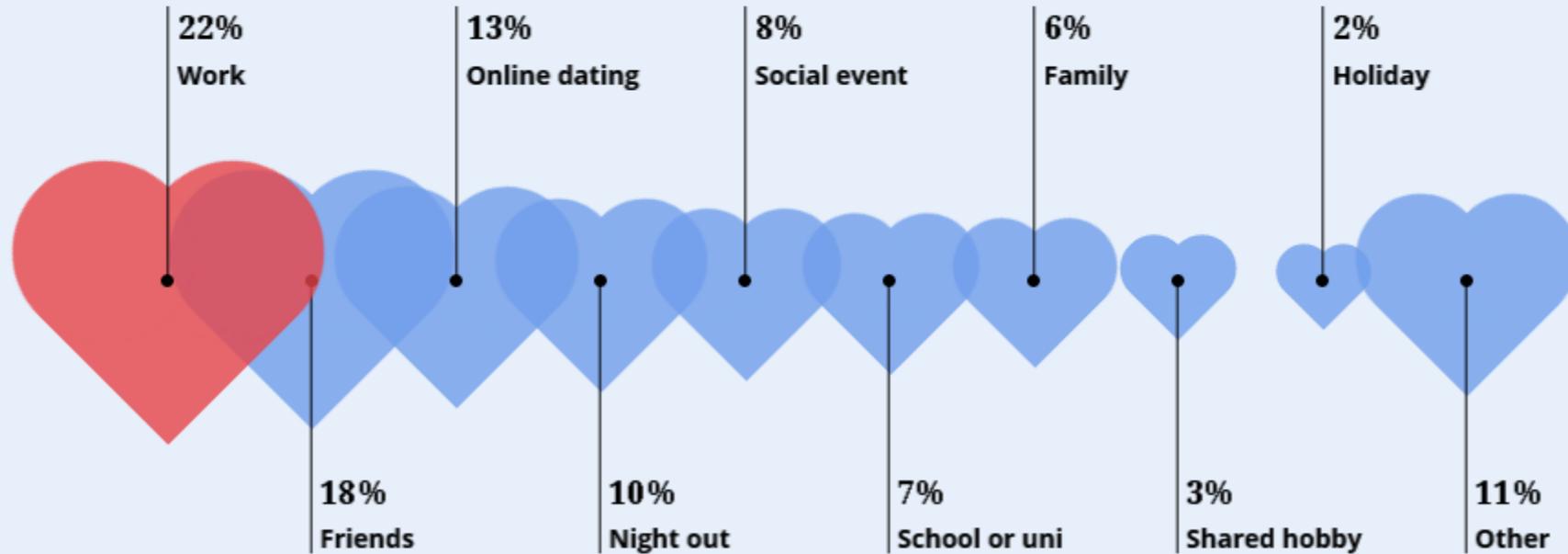
Cleveland, W.S. and McGill, R., 1984. Graphical perception: Theory, experimentation, and application to the development of graphical methods. *Journal of the American statistical association*, 79(387), pp.531-554.

Perception of 3D Pie Charts



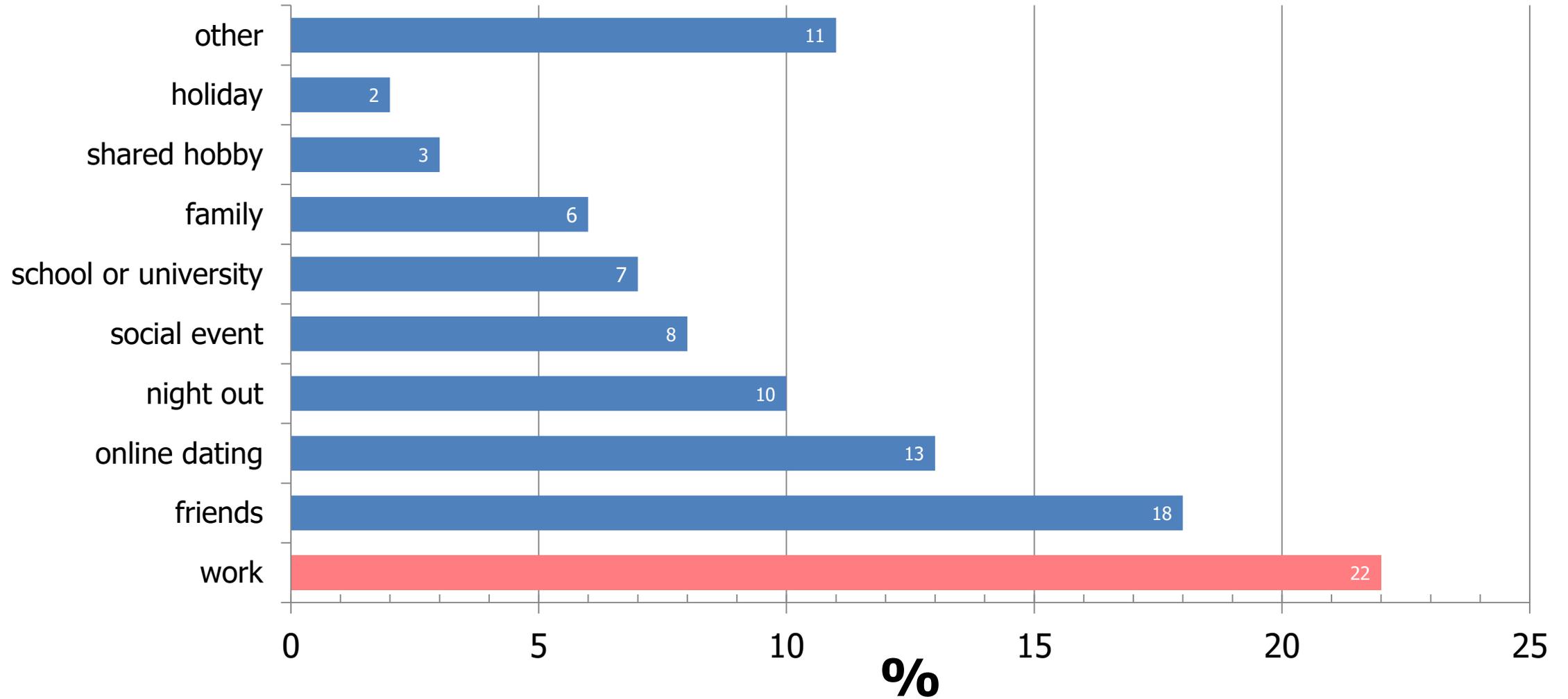
We discovered that you're more likely to meet your partner at work than in a bar, online or even through friends.

Here's how we meet our partners:



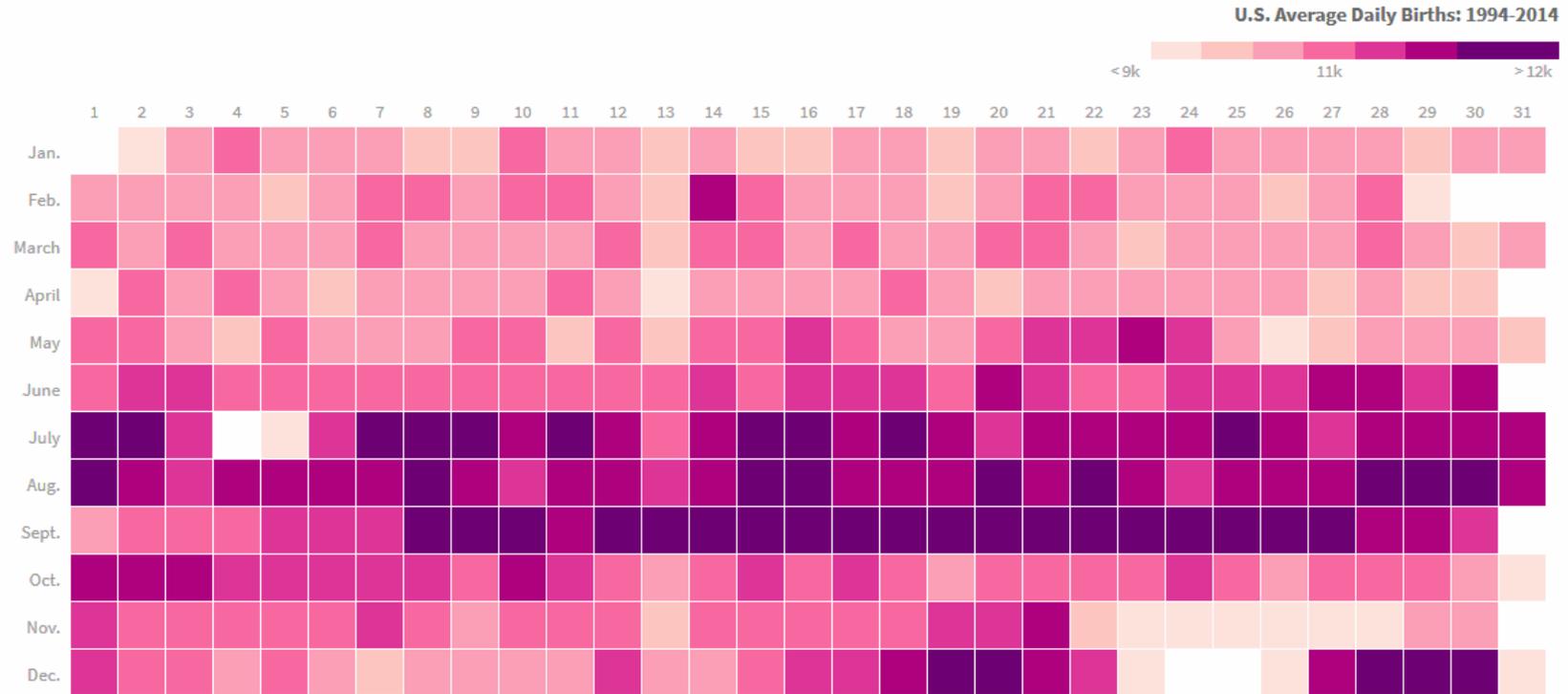
totaljobs.com/insidejob/how-love-works/

Where We Meet Our Partners



HOW POPULAR IS YOUR BIRTHDAY?

Two decades of American birthdays, averaged by month and day.



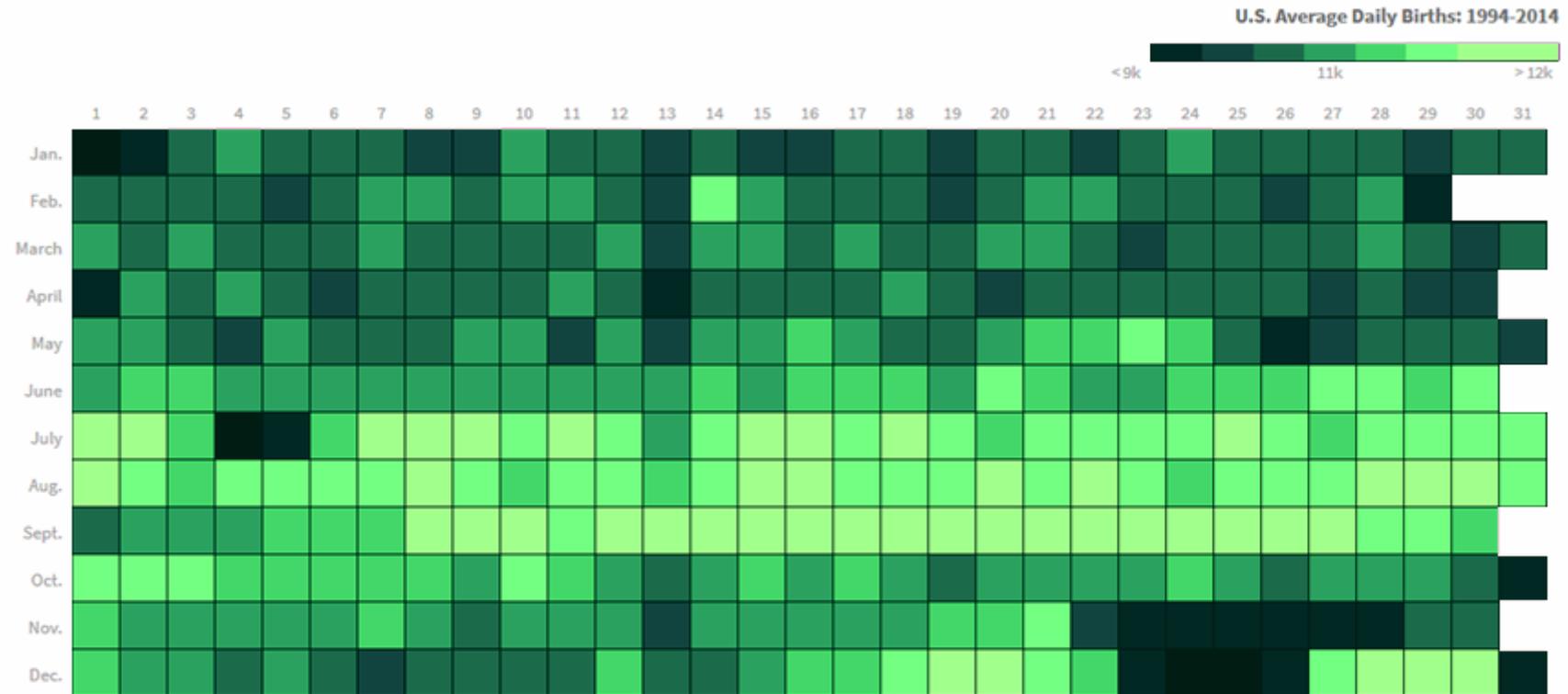
Notes: The conception date, purely for illustration, is 266 days prior to birth. It represents a hypothetical "moment of conception" based on the normal gestation period for humans, 280 days, minus the average time for ovulation, two weeks.

Data: U.S. National Center for Health Statistics (1994-2003); U.S. Social Security Administration (2004-2014) — via FiveThirtyEight

Credit: Matt Stiles/The Daily Viz

HOW POPULAR IS YOUR BIRTHDAY?

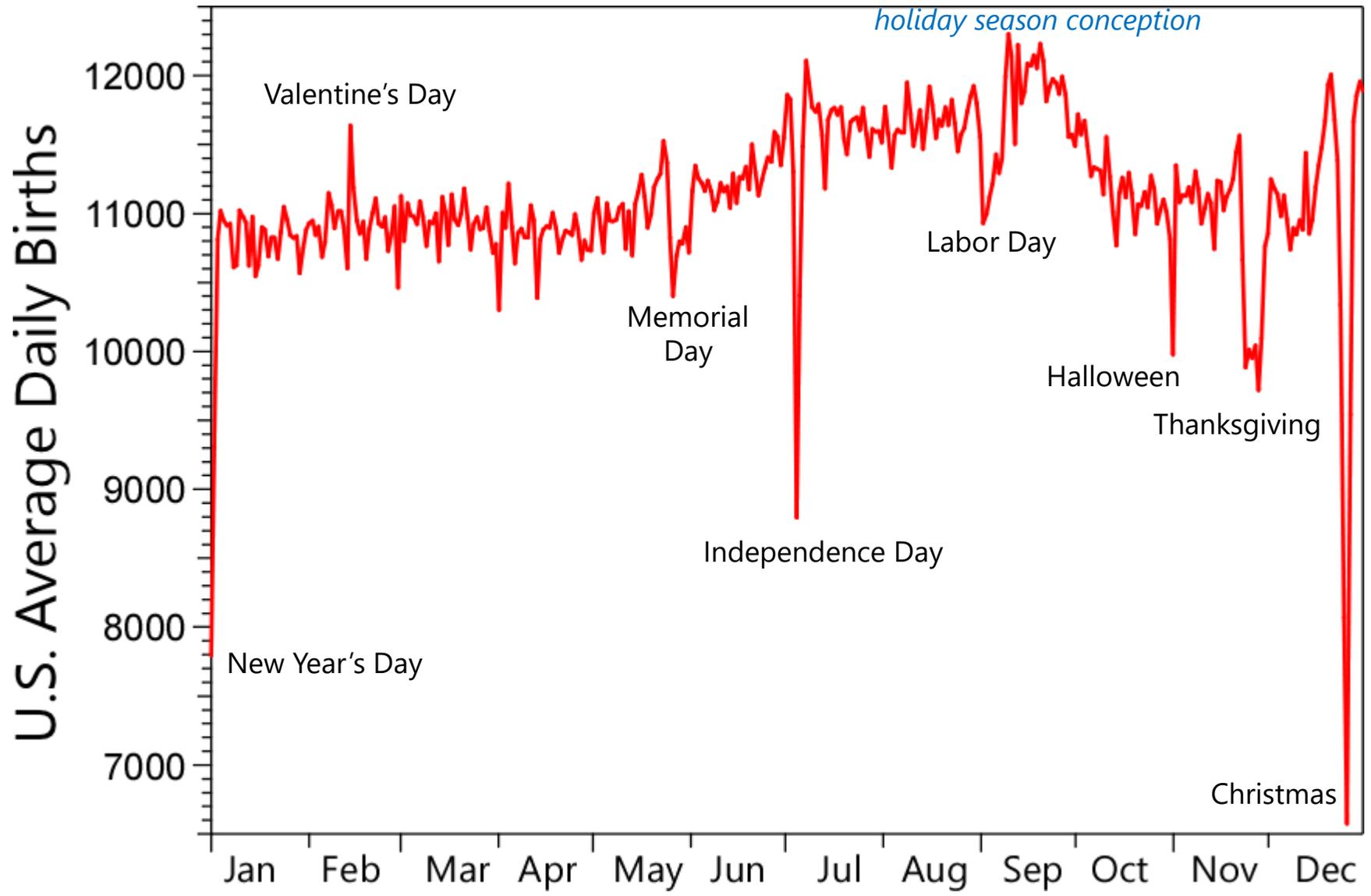
Two decades of American birthdays, averaged by month and day.



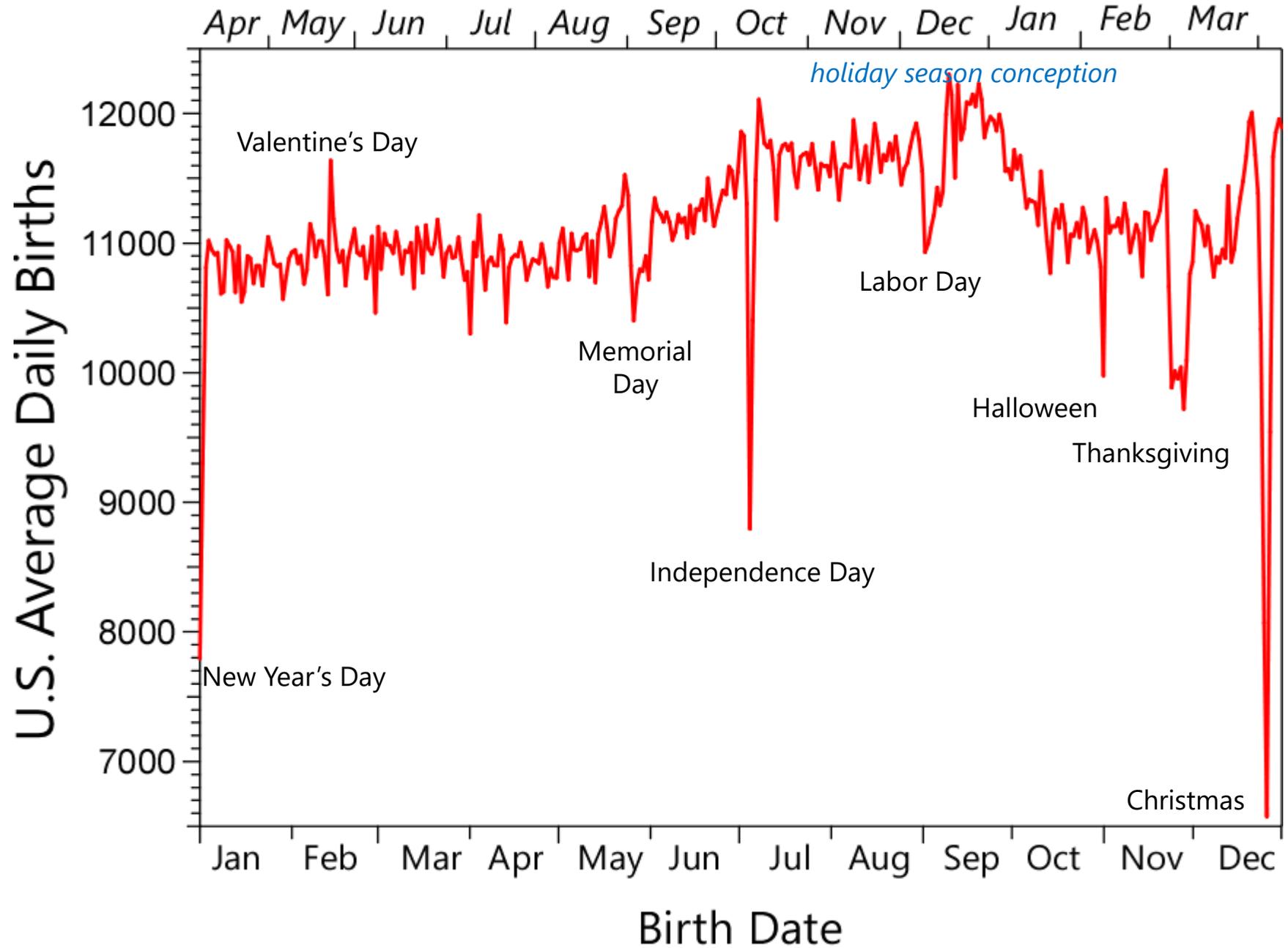
Notes: The conception date, purely for illustration, is 266 days prior to birth. It represents a hypothetical "moment of conception" based on the normal gestation period for humans, 280 days, minus the average time for ovulation, two weeks.

Data: U.S. National Center for Health Statistics (1994-2003); U.S. Social Security Administration (2004-2014) — via FiveThirtyEight

Credit: Matt Stiles/The Daily Viz



Approximate Conception Date



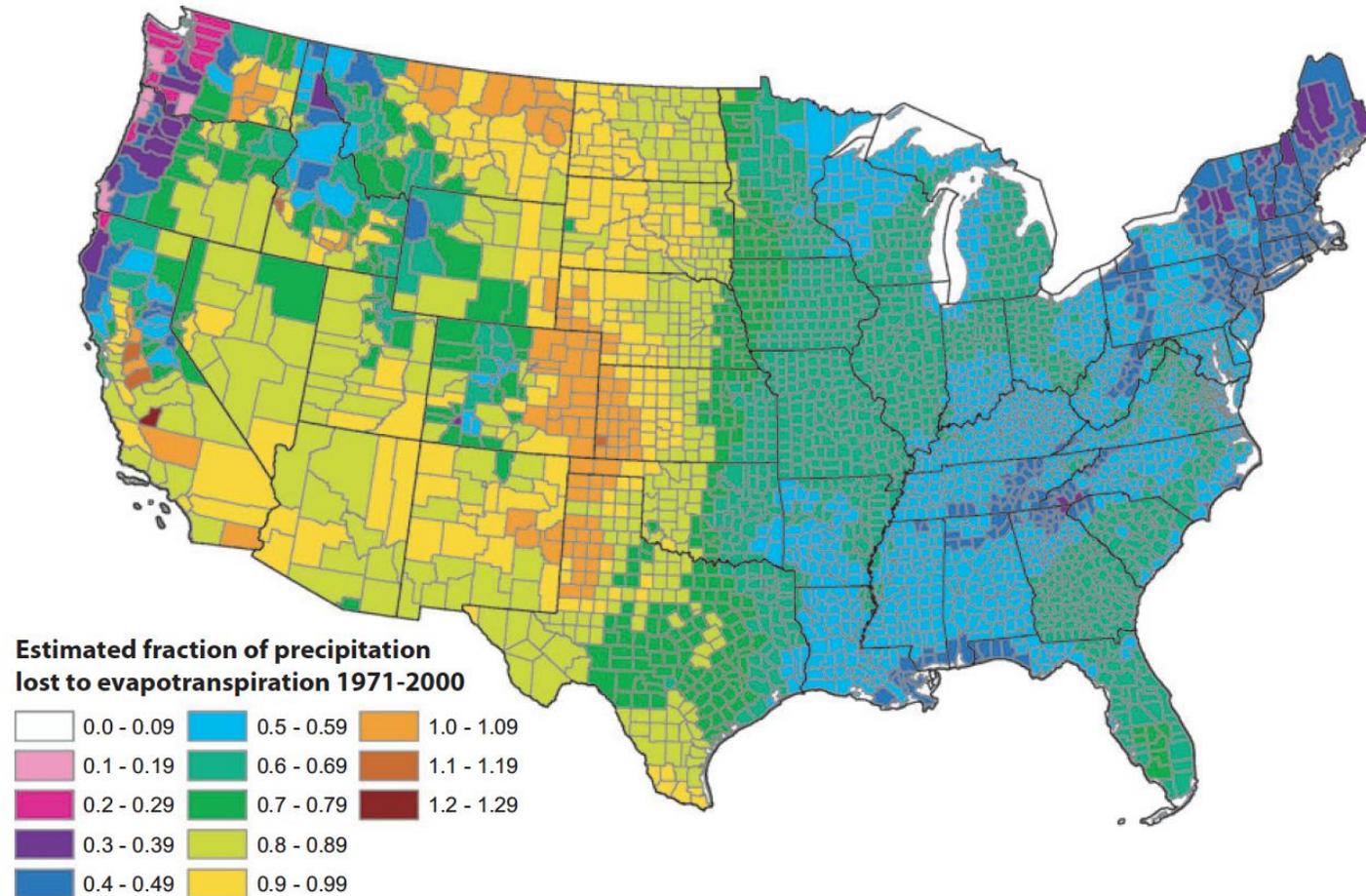
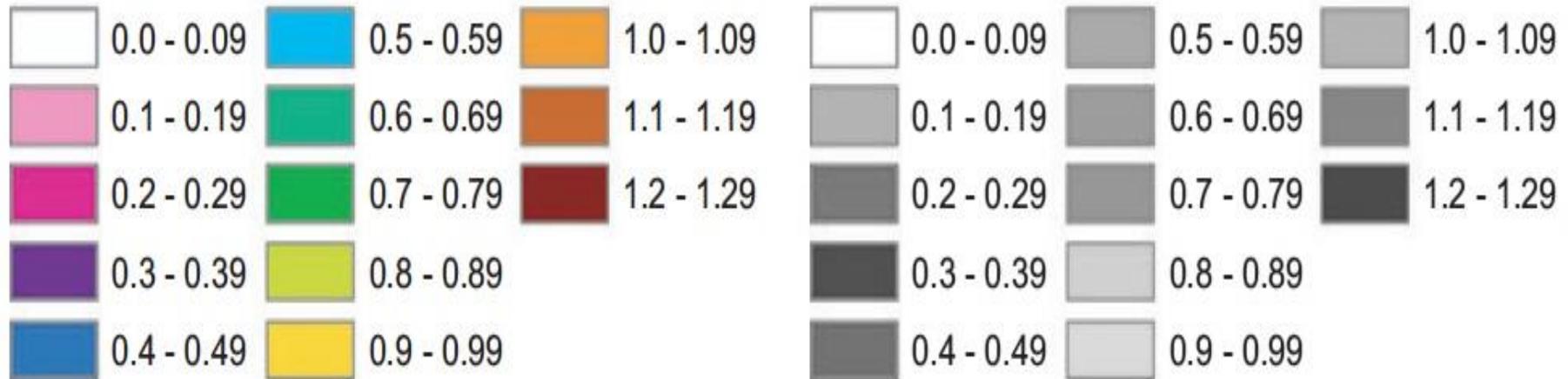


FIGURE 13. Estimated Mean Annual Ratio of Actual Evapotranspiration (ET) to Precipitation (P) for the Conterminous U.S. for the Period 1971-2000. Estimates are based on the regression equation in Table 1 that includes land cover. Calculations of ET/P were made first at the 800-m resolution of the PRISM climate data. The mean values for the counties (shown) were then calculated by averaging the 800-m values within each county. Areas with fractions >1 are agricultural counties that either import surface water or mine deep groundwater.

Sanford, W.E. and Selnick, D.L., 2013. Estimation of Evapotranspiration Across the Conterminous United States Using a Regression With Climate and Land-Cover Data. *JAWRA Journal of the American Water Resources Association*, 49(1), pp.217-230.

Abrupt Change In Luminance



Number of data classes: 4

how to use | updates | downloads | credits

COLORBREWER 2.0

color advice for cartography

Nature of your data:
 sequential diverging qualitative

Pick a color scheme:

Multi-hue: Single hue:

Only show:
 colorblind safe
 print friendly
 photocopy safe

Context:
 roads
 cities
 borders

Background:
 solid color terrain

 color transparency

4-class BuGn

EXPORT

HEX

- #edf8fb
- #b2e2e2
- #66c2a4
- #238b45

© Cynthia Brewer, Mark Harrower and The Pennsylvania State University

[Source code and feedback](#)

[Back to Flash version](#)

[Back to ColorBrewer 1.0](#)

 axismaps

EPA Trash Data

Figure 5. Total MSW Generation (by material), 2014
258 Million Tons

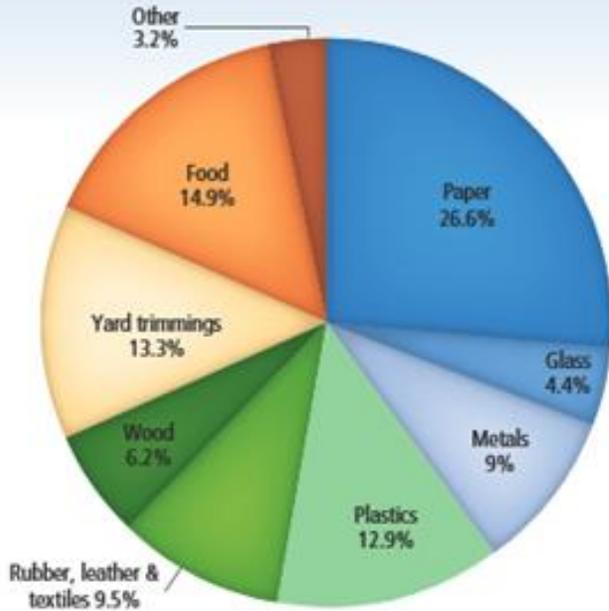


Figure 6. Total MSW Recycling and Composting (by material), 2014
89 Million Tons

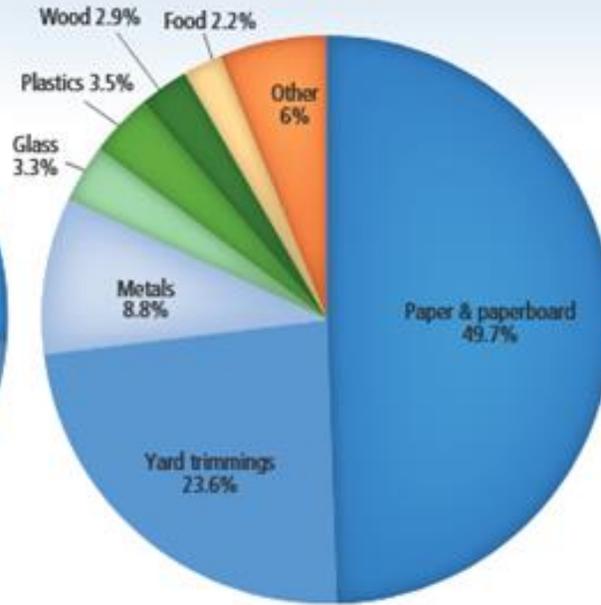


Figure 7. Total MSW Combusted with Energy Recovery (by material), 2014
33 Million Tons

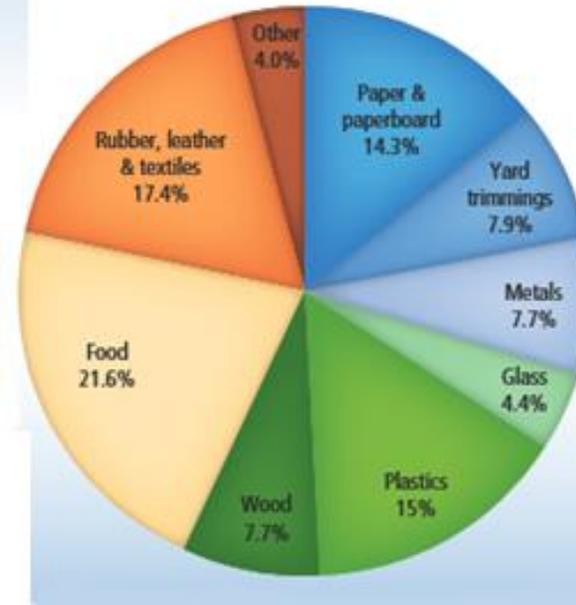
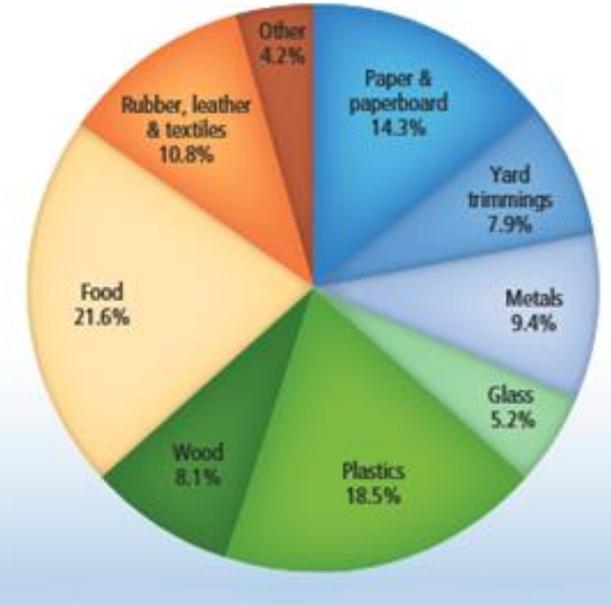


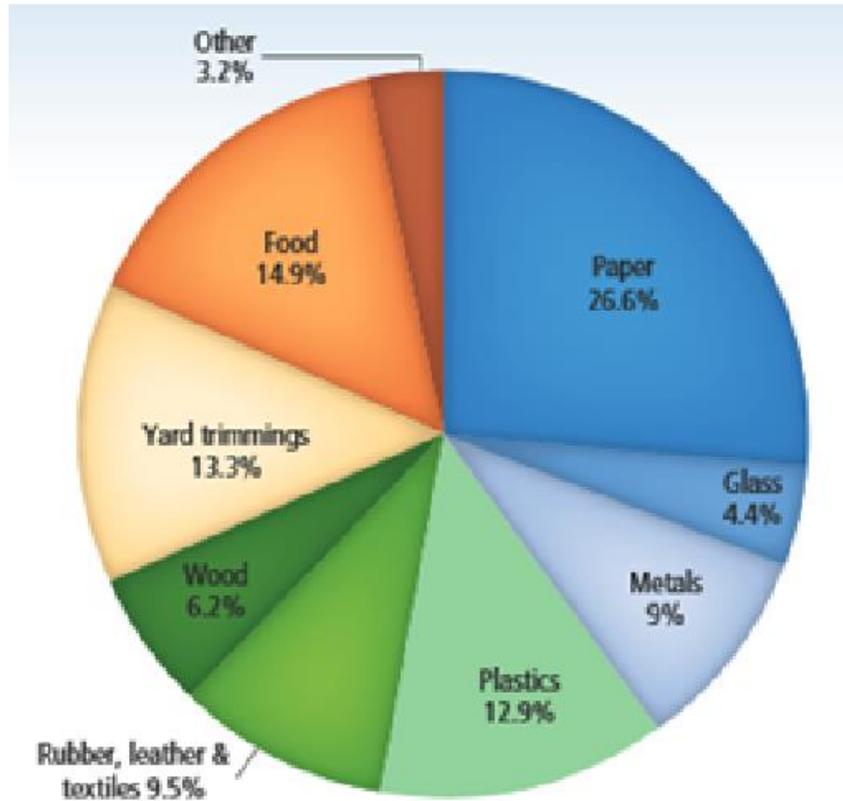
Figure 8. Total MSW Landfilled (by material), 2014
136 Million Tons



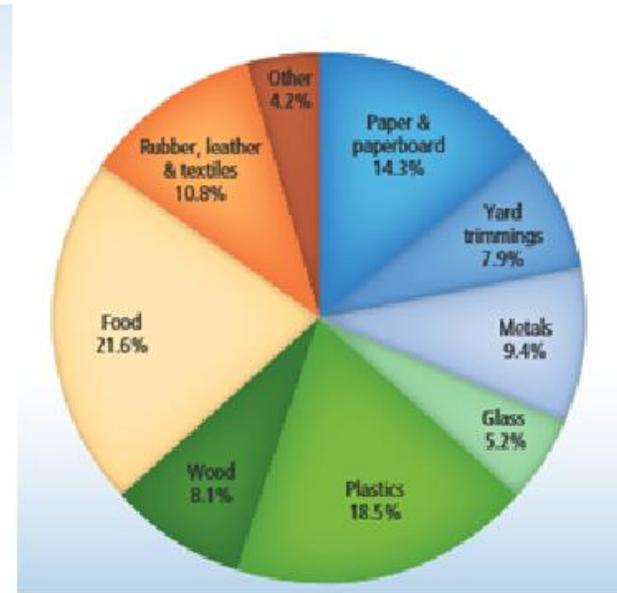
https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf

Real Example

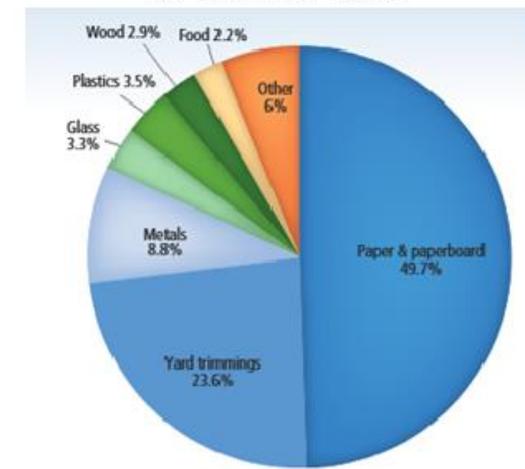
Total MSW Generation
258 Million Tons



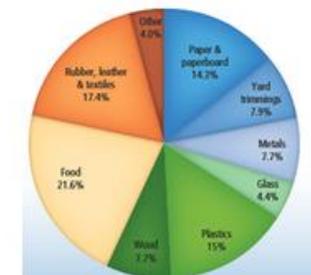
Total MSW Landfilled
136 Million Tons



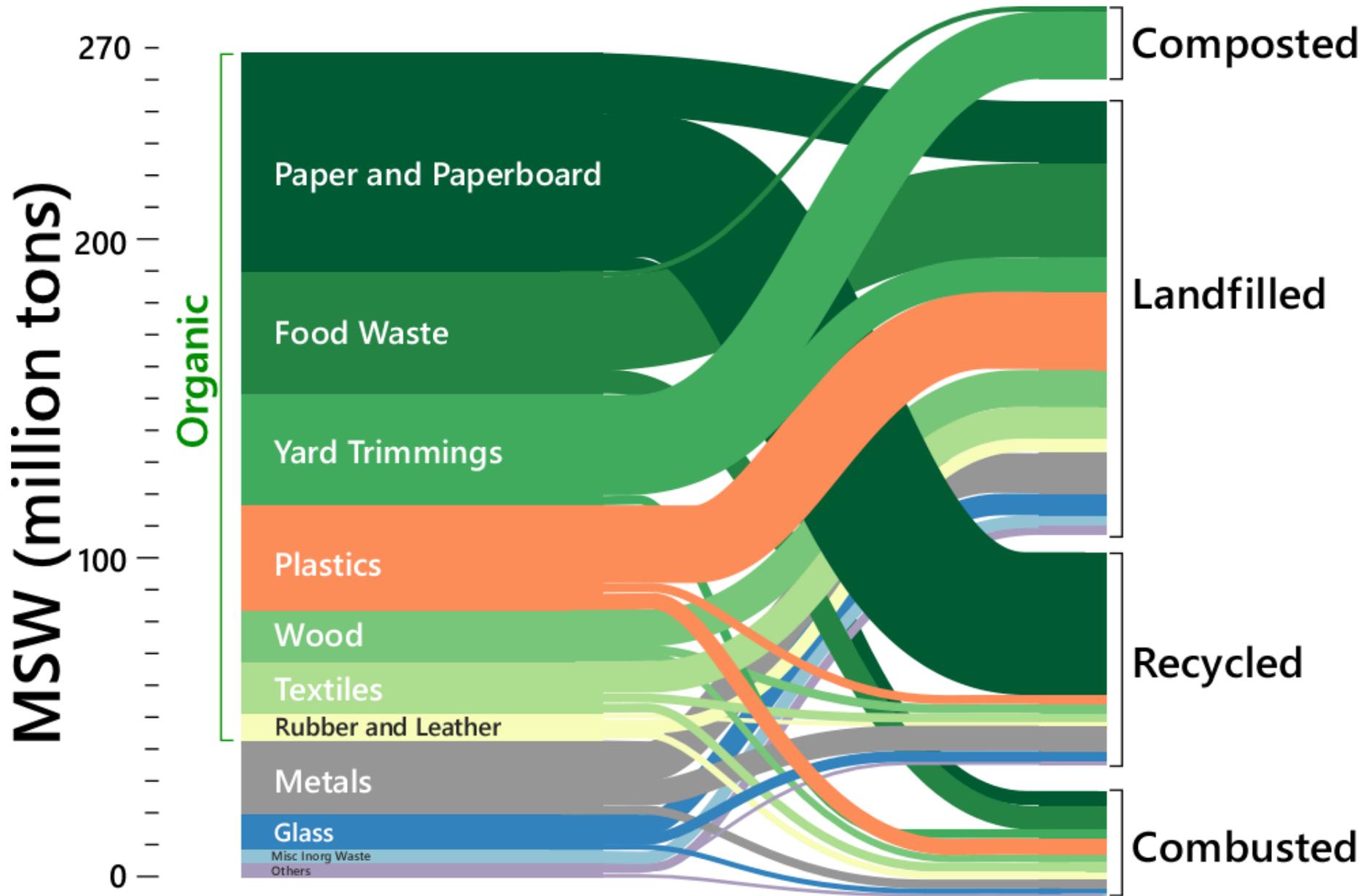
Total MSW Recycling and Composting
89 Million Tons



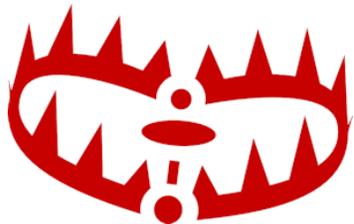
Total MSW Combusted with Energy Recovery
33 Million Tons



https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf



Just Don't Do It

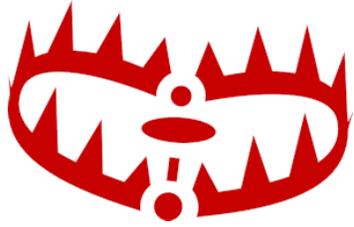


The top 10 Payment Card Processors account for 57% of the total number of Merchant Outlets in 2010.



Distribution of the top 100 Payment Card Processors

@CBinsights 28 Jun 2017



Anatomy of a Winning TED Talk

● 1%

Sophisticated Visual Aids

We're not sure who puts the D in TED—most of the best presentations favor tepid PowerPoint slide shows (sorry, Brené Brown), Pictionary-quality drawings (really, Simon Sinek?), or no props at all.

● 5%

Opening Joke

Remember the one about the shoe salesmen who went to Africa in the 1900s? That's how Benjamin Zander opened his talk—which turned out to be about classical music.

● 5%

Spontaneous Moment

Don't overprepare. Tease the guy in the front row ("You could light up a village with this guy's eyes"). Commend the stagehand who handles the human brain you brought.

● 5%

Statement of Utter Certainty

People come for answers—give 'em what they want, as Shawn Achor did: "By training your brain ... we can reverse the formula for happiness and success."

● 12%

Snappy Refrain

The TED equivalent of "I have a dream." Example: "People don't buy what you do; they buy why you do it." Repeat 7x.

● 23%

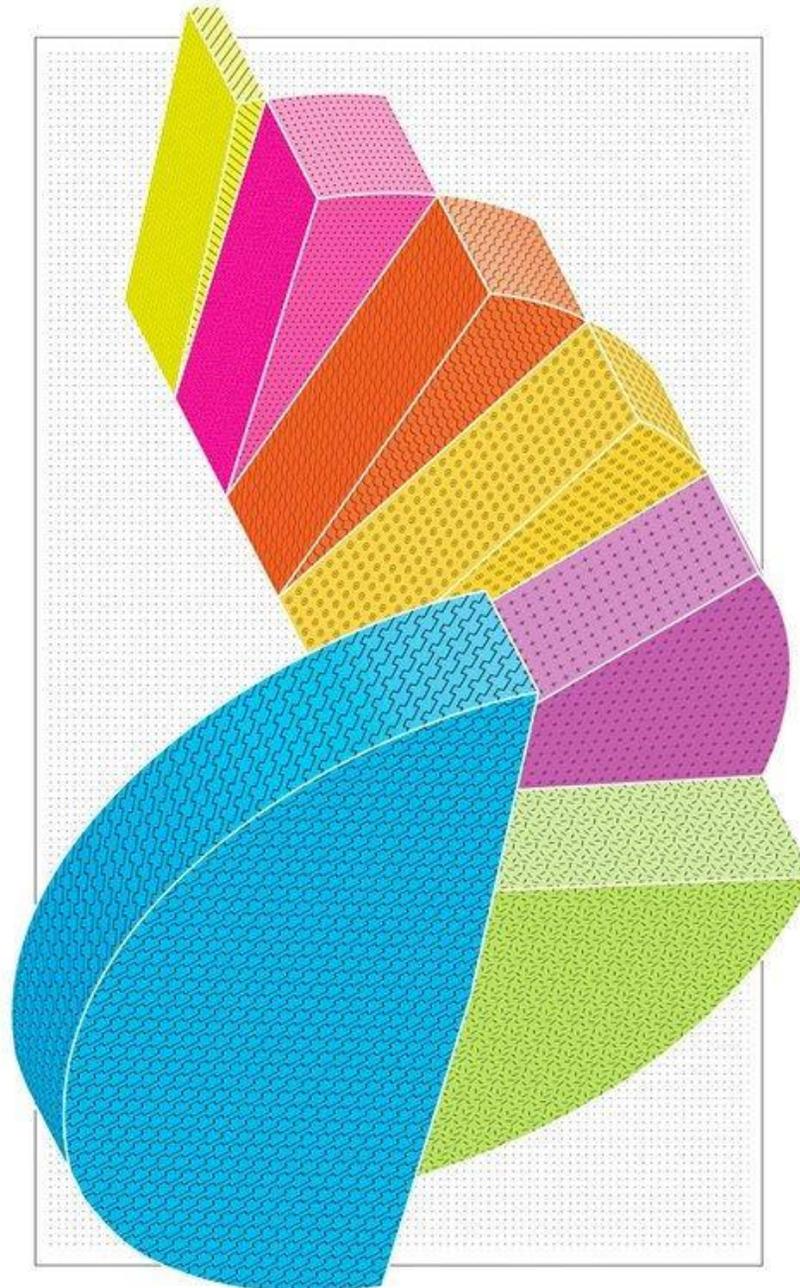
Personal Failure

Be relatable. We want to know about that nervous breakdown. Or at least the time you didn't fit in at summer camp.

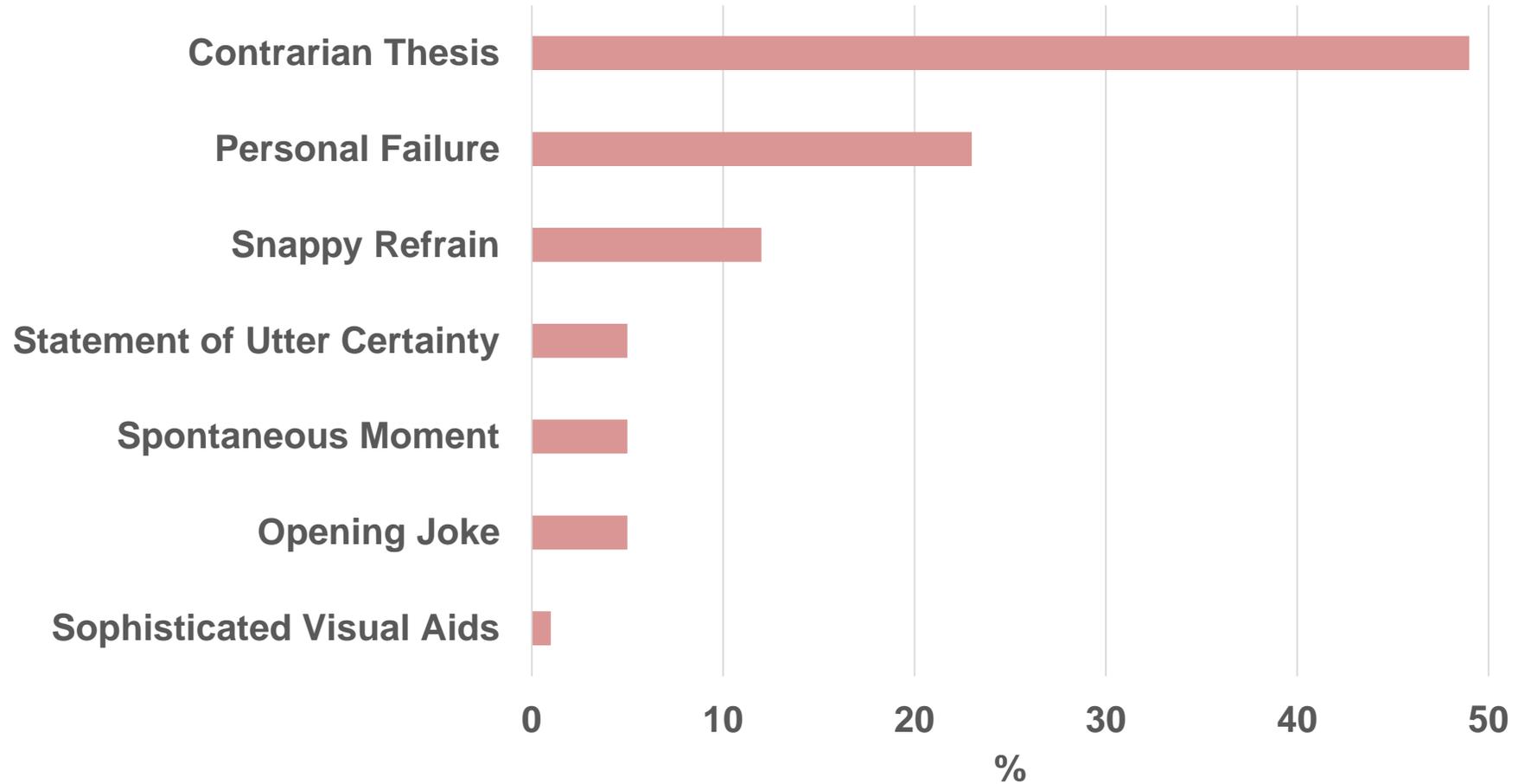
● 49%

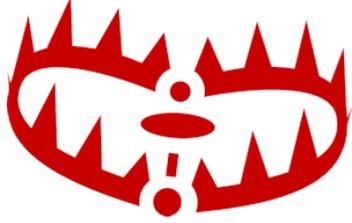
Contrarian Thesis

Wait a sec—we should be playing *more* videogames? The more choices we have, the worse off we are? TED is where conventional wisdom goes to die.



Anatomy of a Winning TED Talk



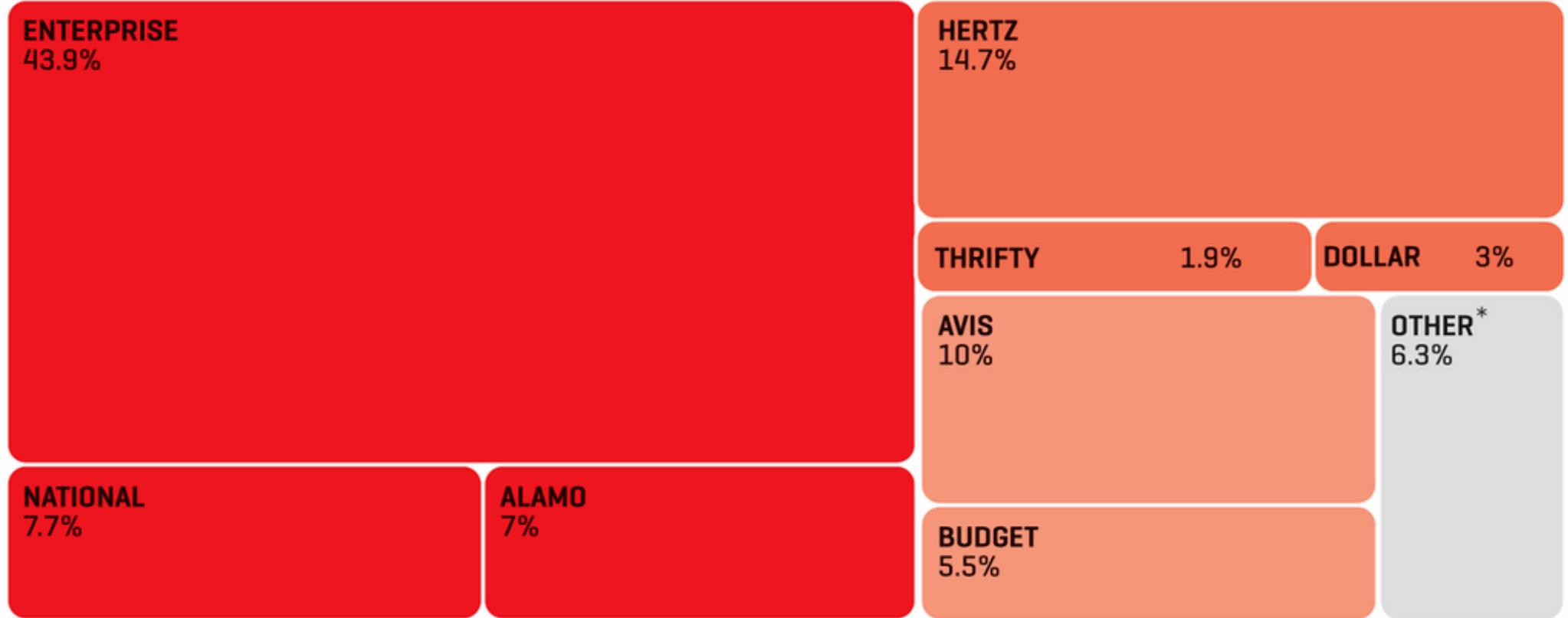


CAR RENTAL COMPANIES MARKET SHARE

ENTERPRISE HOLDINGS

HERTZ CORP.

AVIS BUDGET GROUP

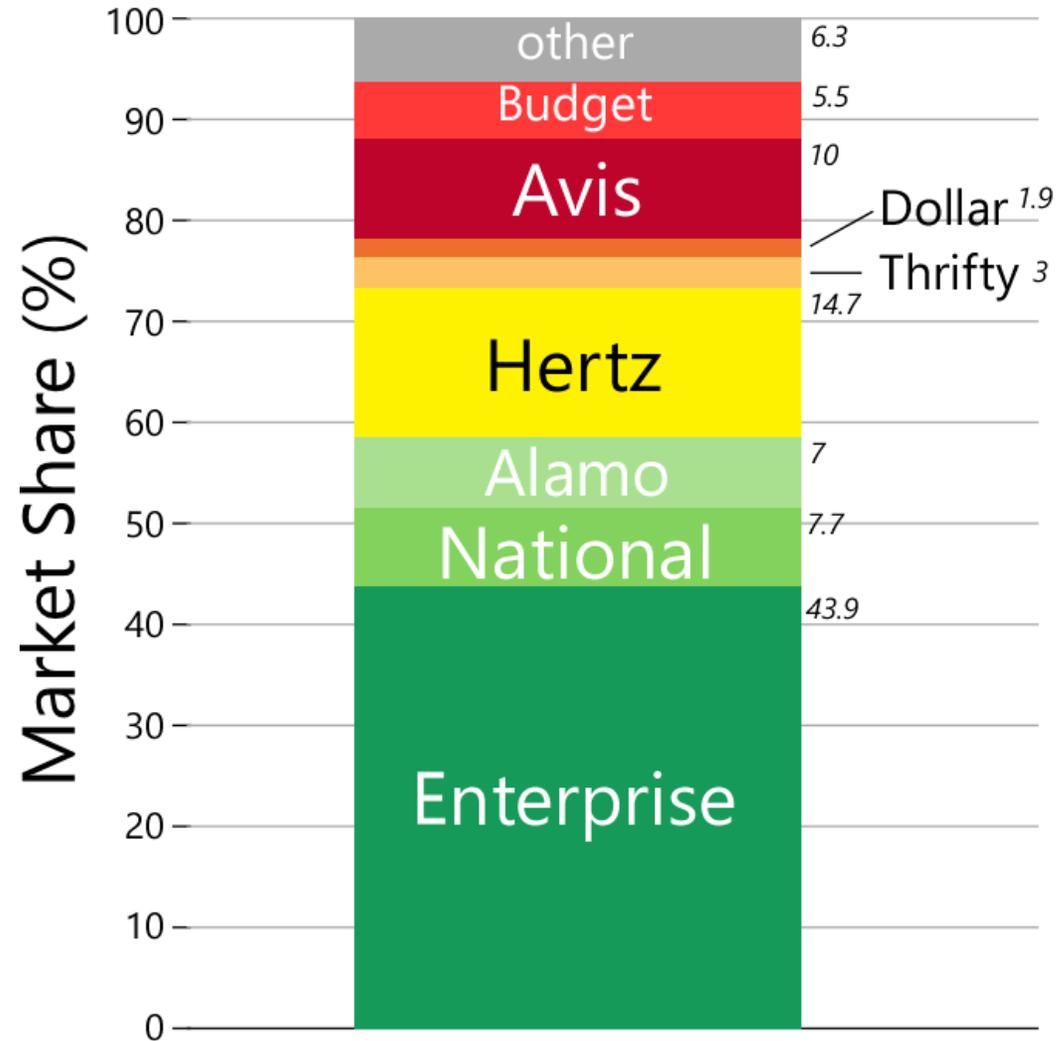


*OTHERS INCLUDE PAYLESS, AN AVIS SUBSIDIARY WITH VERY SMALL MARKET SHARE

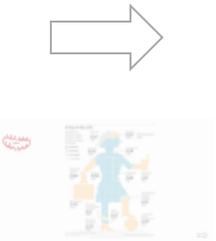
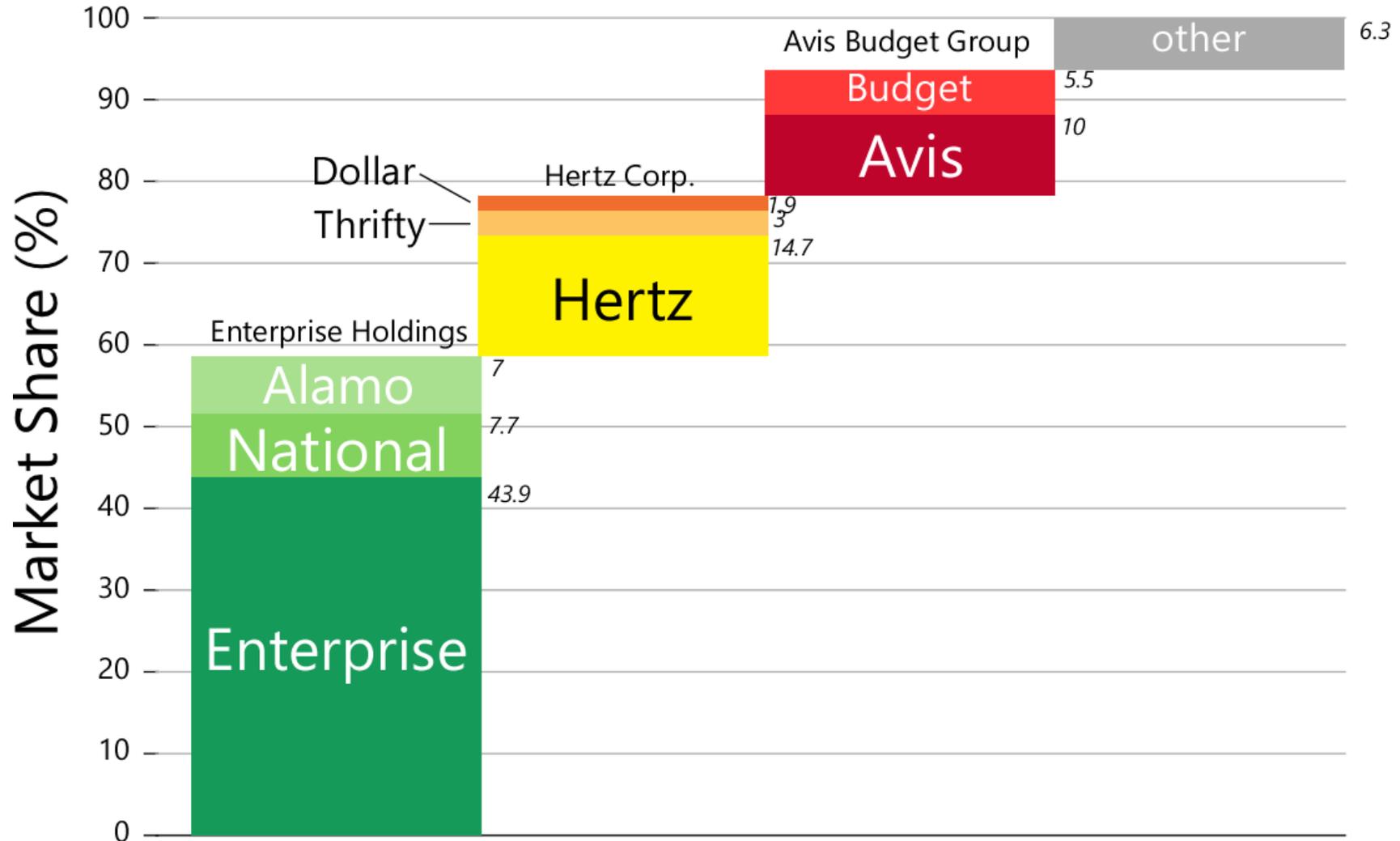
SOURCE: EUROMONITOR

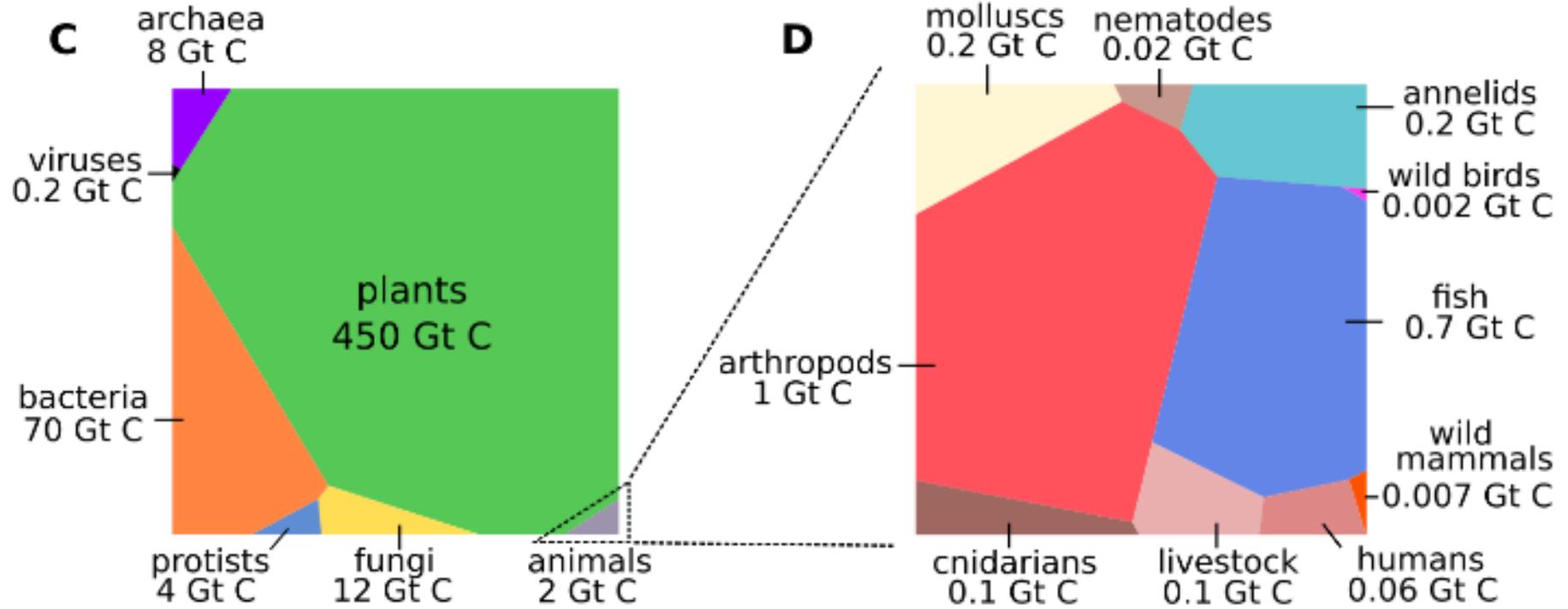
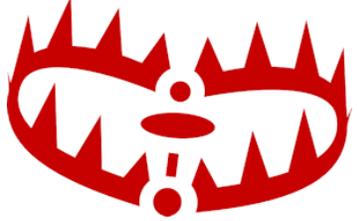
Fortune, Nov. 1, 2018, page 124.

Car Rental Companies Market Share



Car Rental Companies Market Share



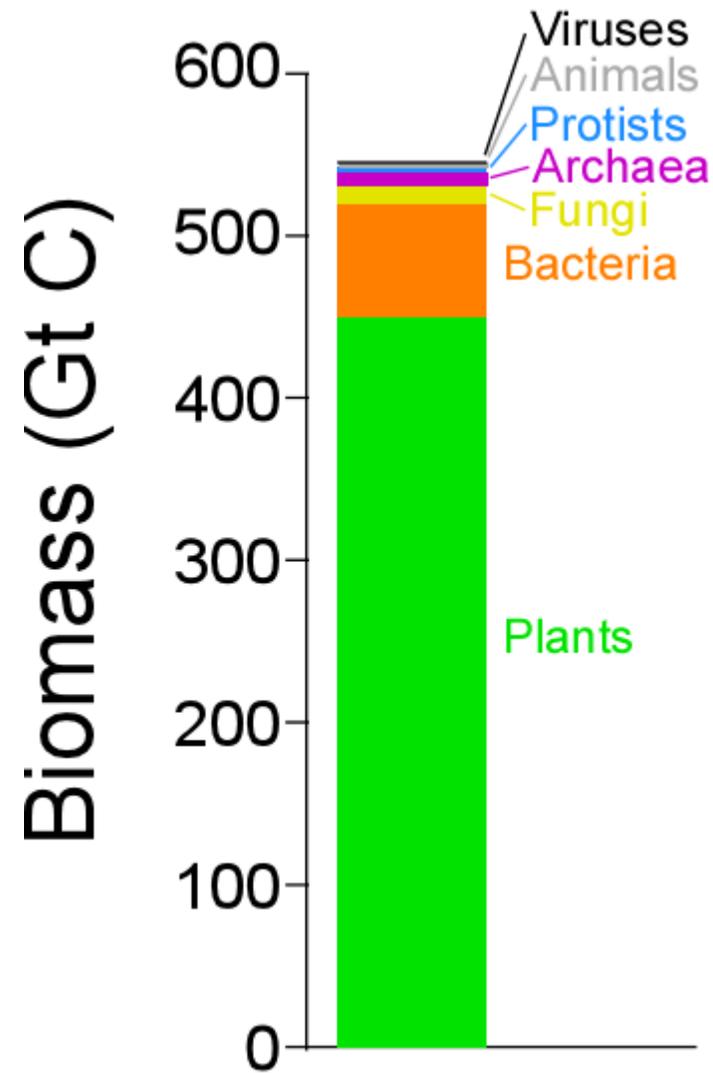


The biomass distribution on Earth

Yinon M. Bar-On, Rob Phillips, and Ron Milo

PNAS June 19, 2018, 115 (25) 6506-6511; published ahead of print May 21, 2018. <https://doi.org/10.1073/pnas.1711842115>

Edited by Paul G. Falkowski, Rutgers, The State University of New Jersey, New Brunswick, NJ, and approved April 13, 2018 (received for review July 3, 2017)

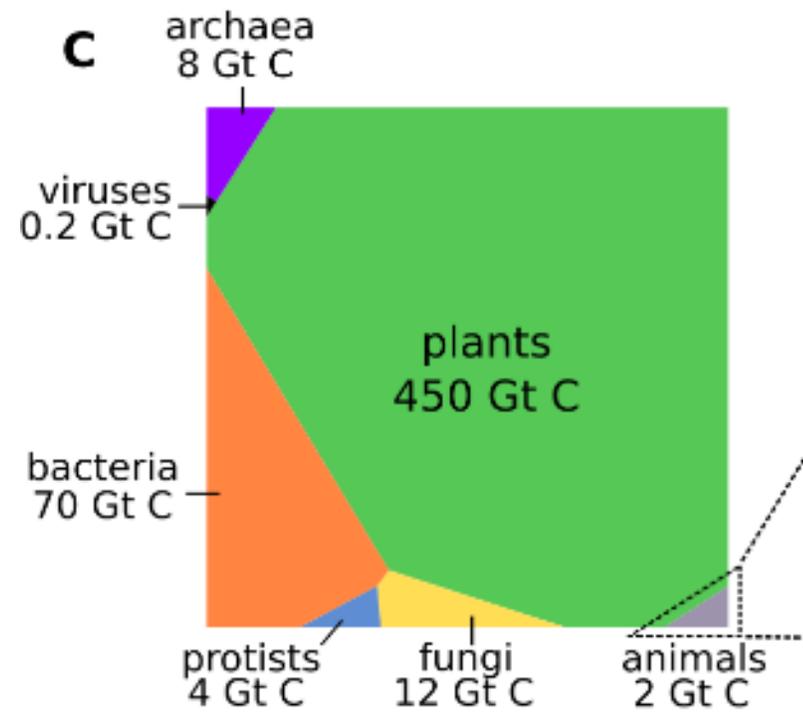
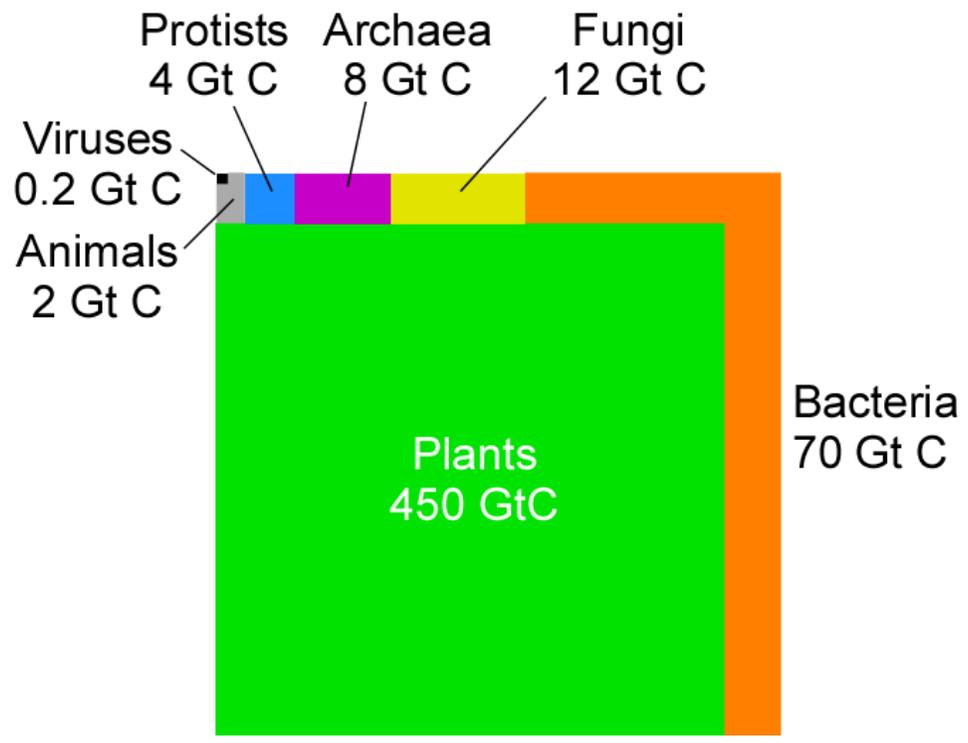


The biomass distribution on Earth

Yinon M. Bar-On, Rob Phillips, and Ron Milo

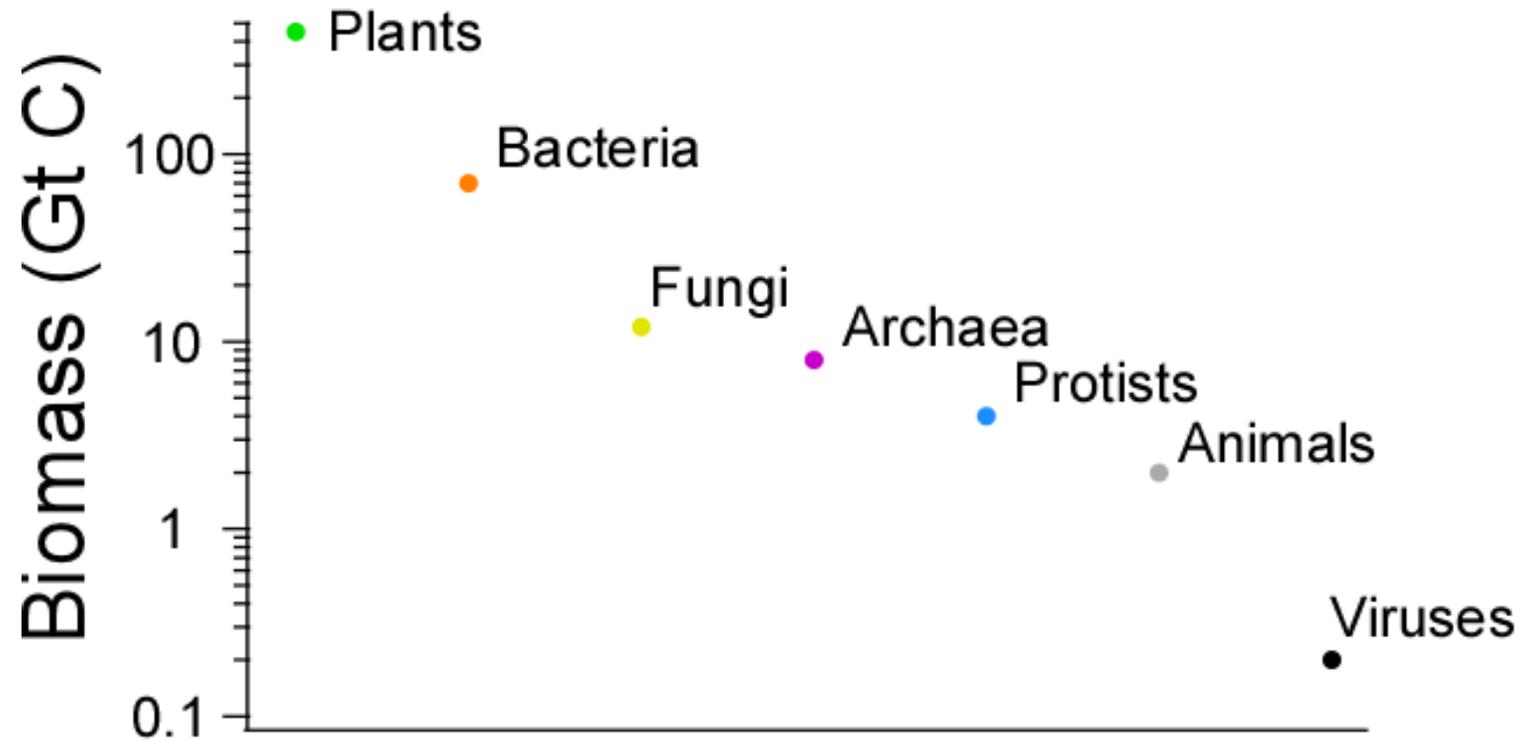
PNAS June 19, 2018, 115 (25) 6506-6511; published ahead of print May 21, 2018. <https://doi.org/10.1073/pnas.1711842115>

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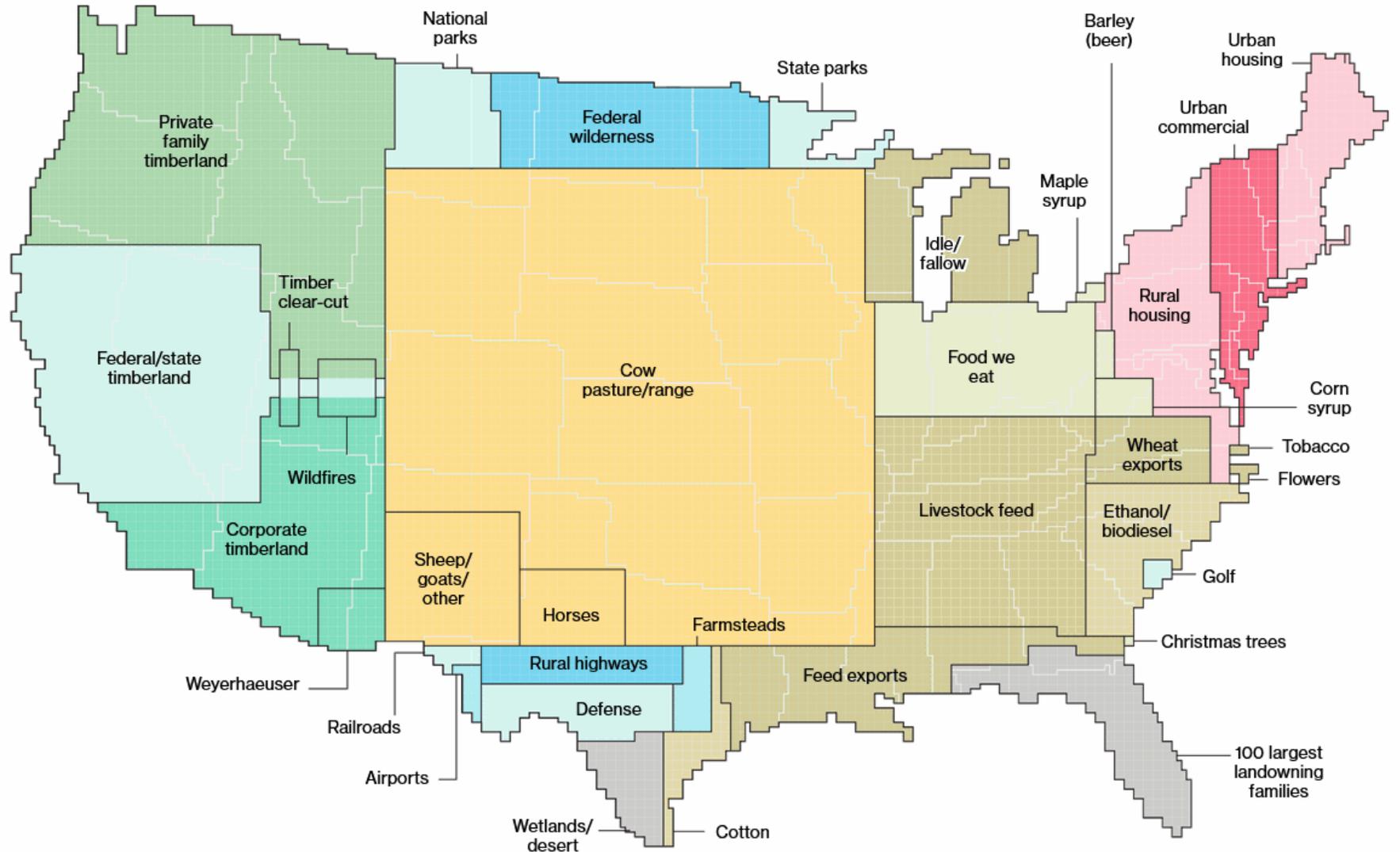


The biomass distribution on Earth

Inventory of Life on Earth

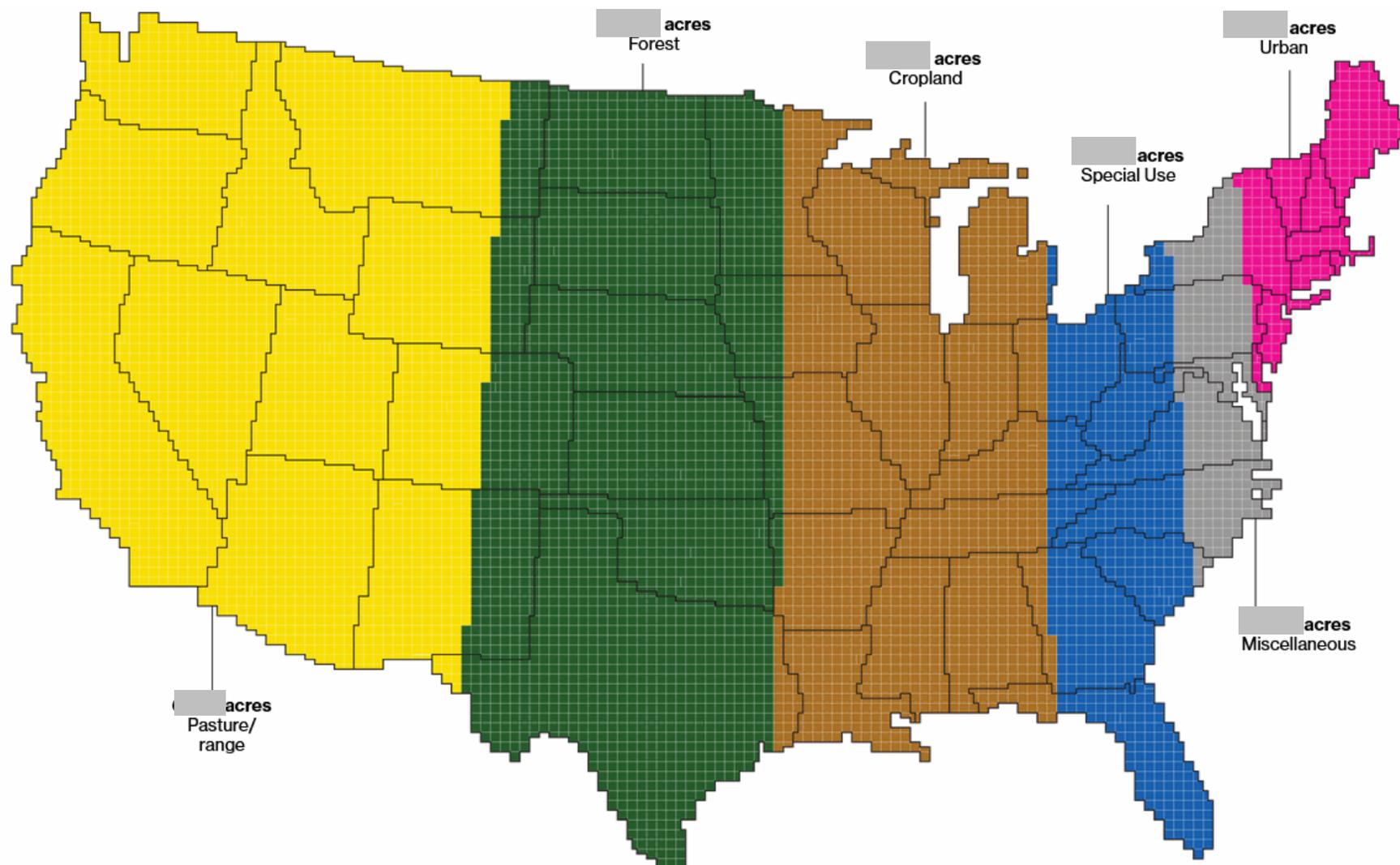


Land Use in the U.S.

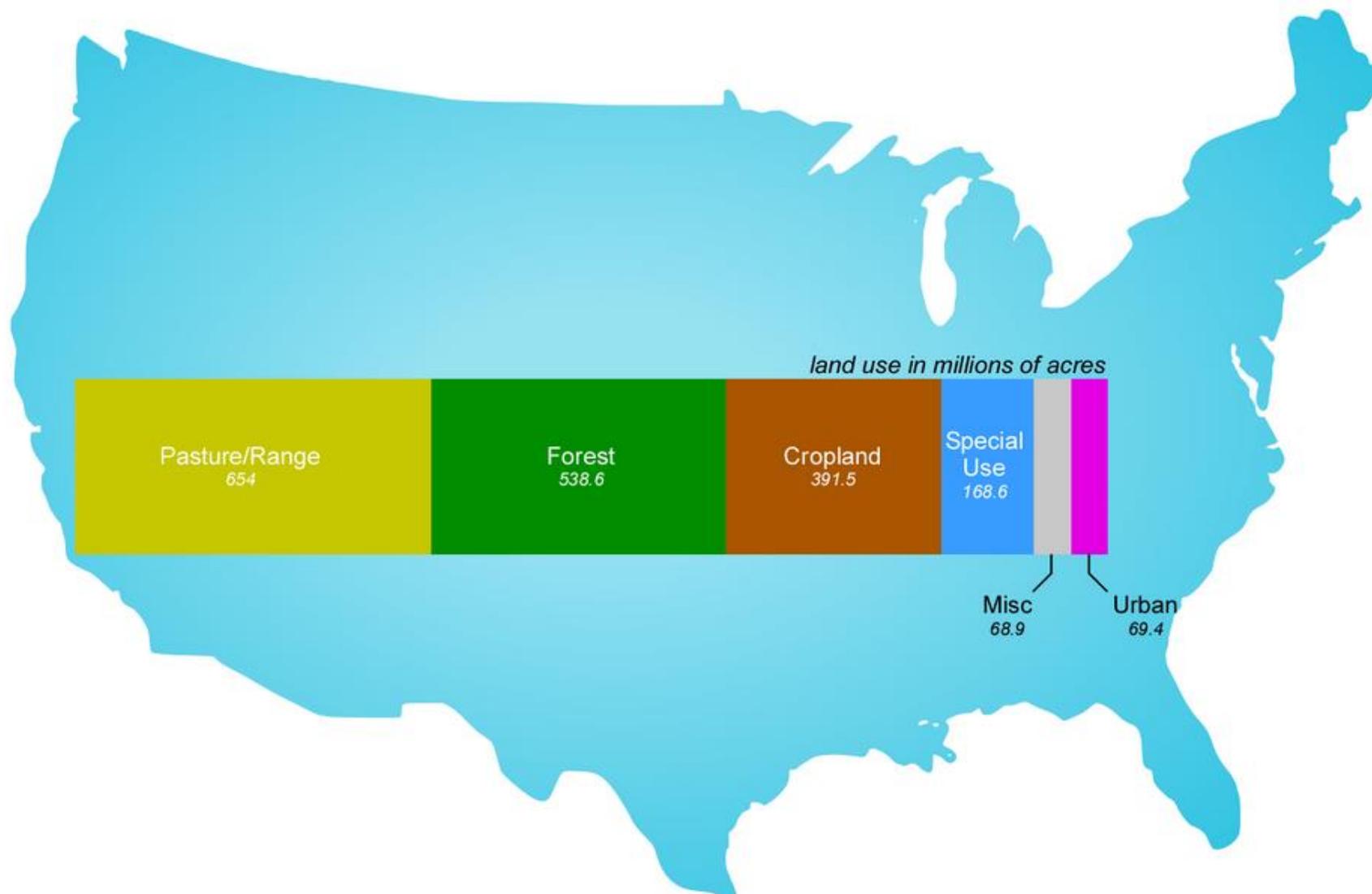


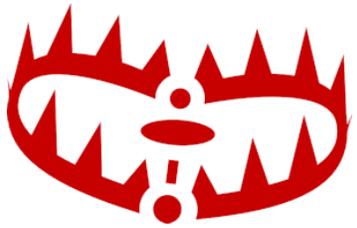
<https://www.bloomberg.com/graphics/2018-us-land-use/>

Land Use in the U.S.



Land Use in the U.S.

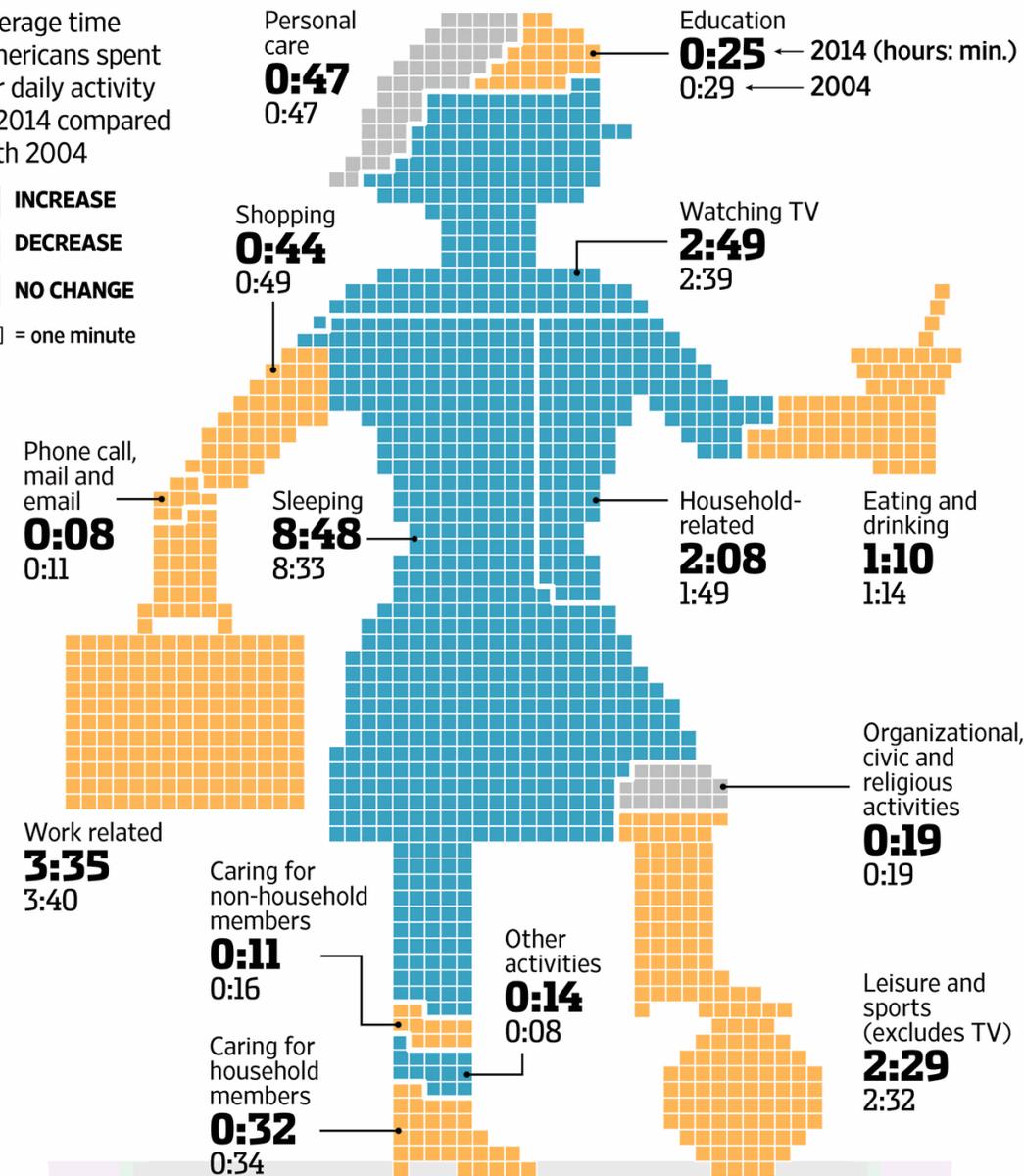




A Day in the Life

Average time Americans spent per daily activity in 2014 compared with 2004

- INCREASE
- DECREASE
- NO CHANGE
- = one minute



Note: Time may not total 24 hours due to rounding.

Source: Labor Department

Christopher Kaeser/THE WALL STREET JOURNAL.

www.wsj.com/articles/were-working-more-hours-and-watching-more-tv-1435187603



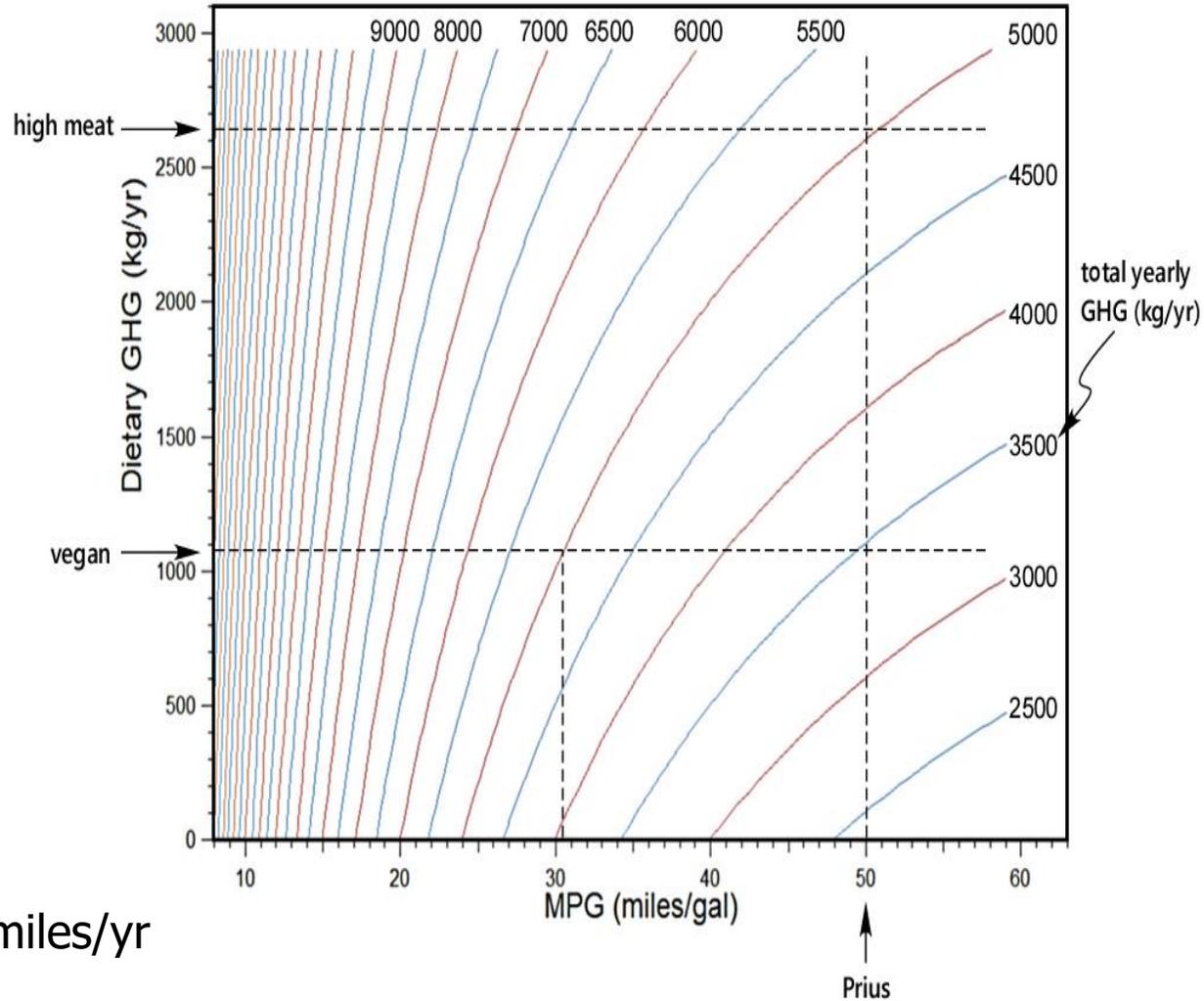
Which Is Better For The Environment?

A MEAT-EATER IN A PRIUS



A VEGAN IN A HUMMER

Vegan/Meat-eater Driving Comparison

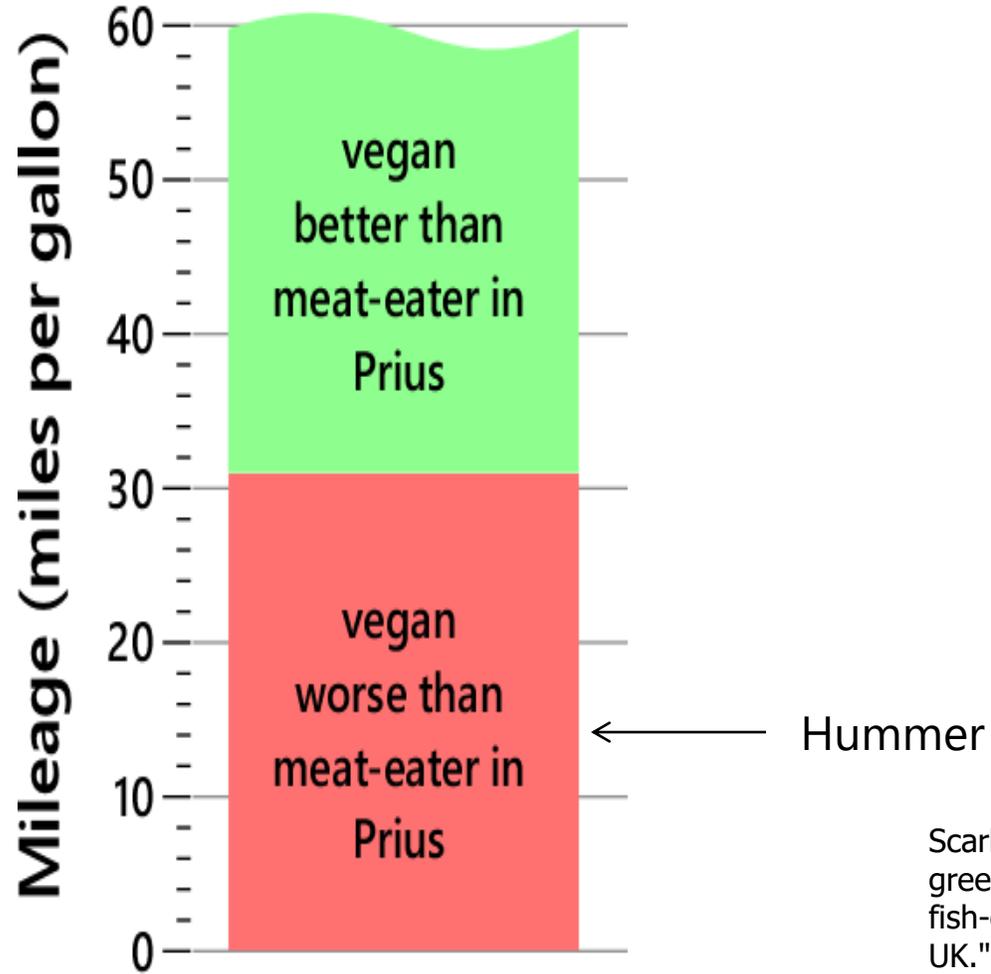


assumes 13,476 miles/yr

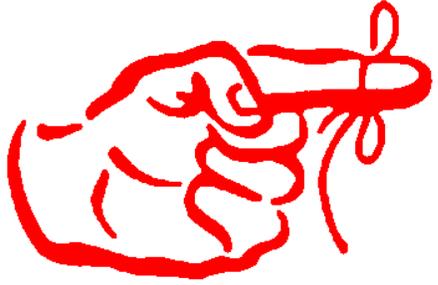
Scarborough, Peter, et al. "Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK." *Climatic Change* 125.2 (2014): 179-192.

Vegan/Meat-eater Driving Comparison

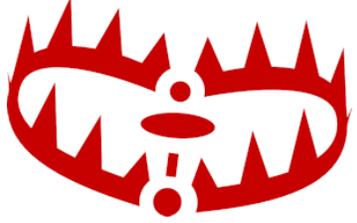
assumes 13,476 miles/yr



Scarborough, Peter, et al. "Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK." *Climatic Change* 125.2 (2014): 179-192.



graphs used to gain understanding are unlikely to be good for presentation

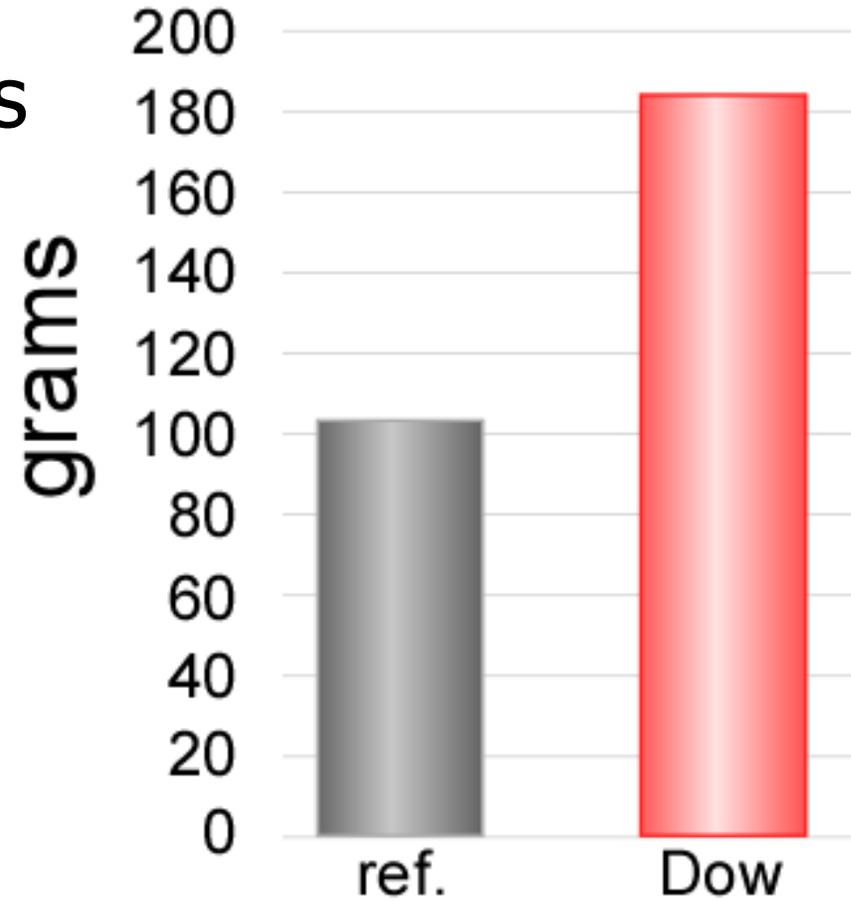


Just Because
it doesn't
PowerPoint
mean you
Lets You Do
should!
Something...

Video \neq Animation

Film Performance

Dart Impact Results

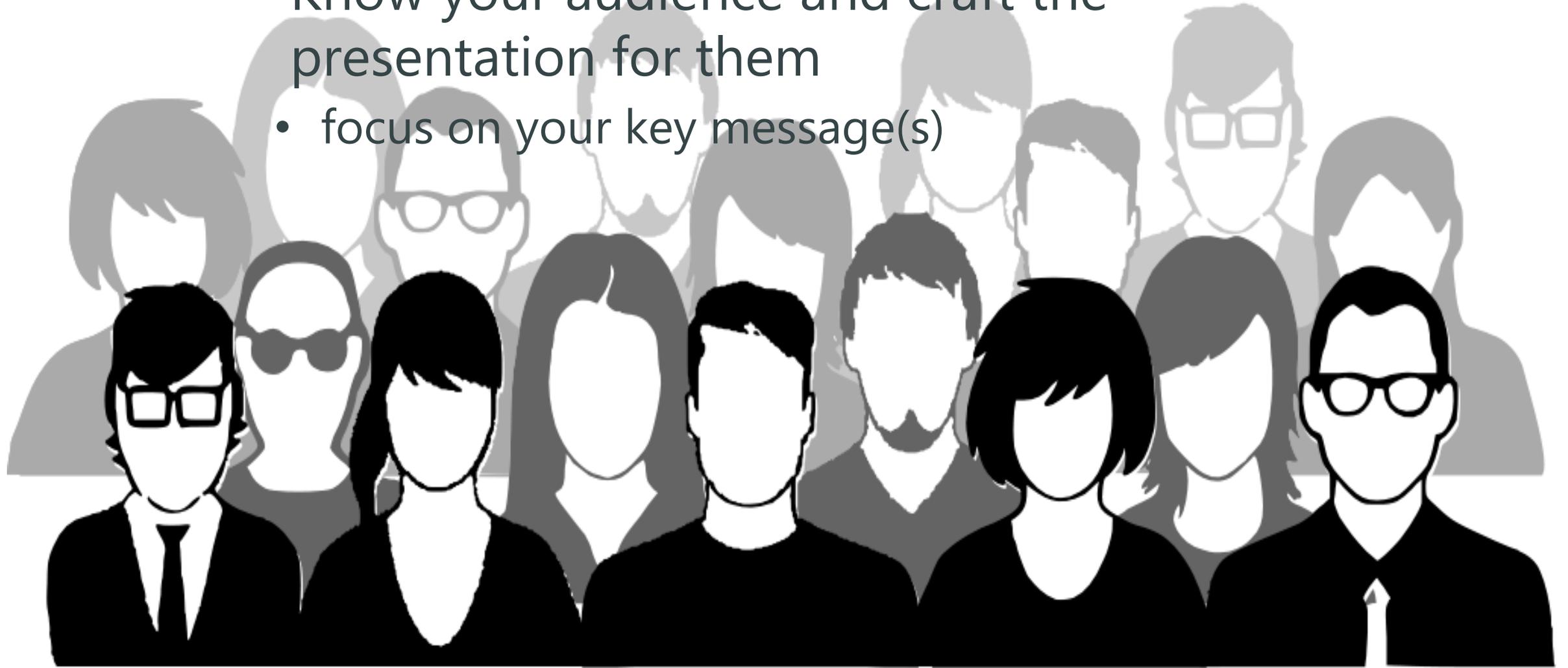


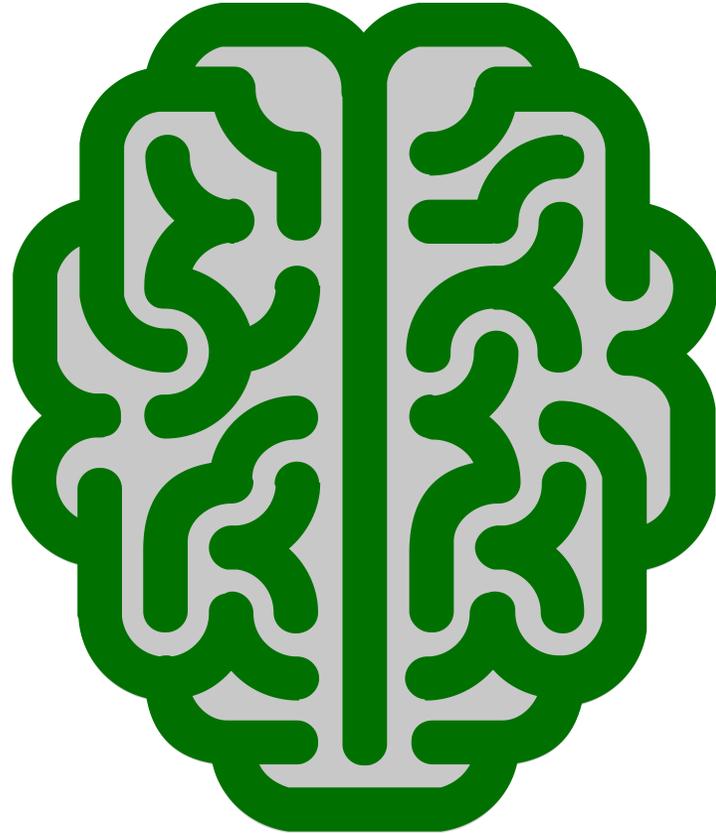
Film Performance



The Presentation Is For Your Audience

- Know your audience and craft the presentation for them
- focus on your key message(s)





ready

- memorable is better than forgettable (pics memorable)
- make graphics *mind ready*
- info density right for material and audience

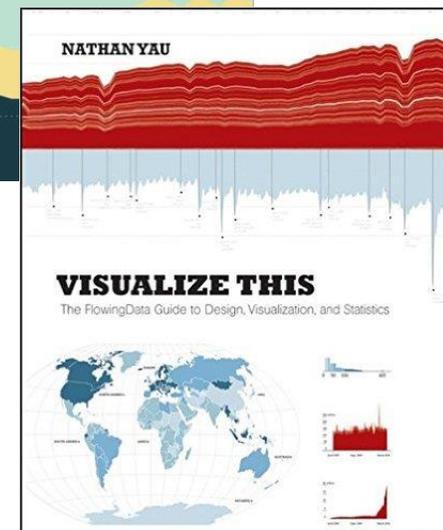
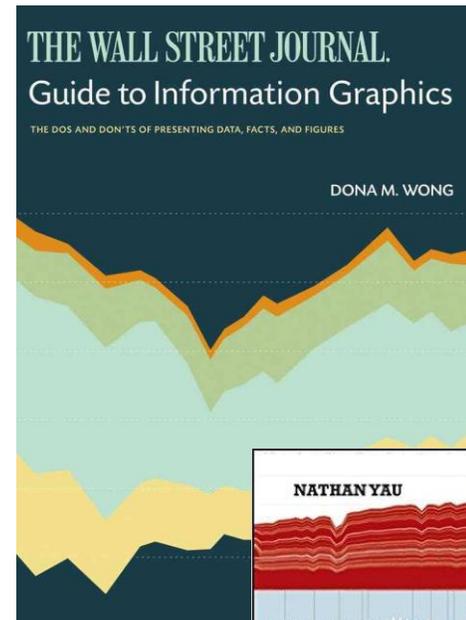
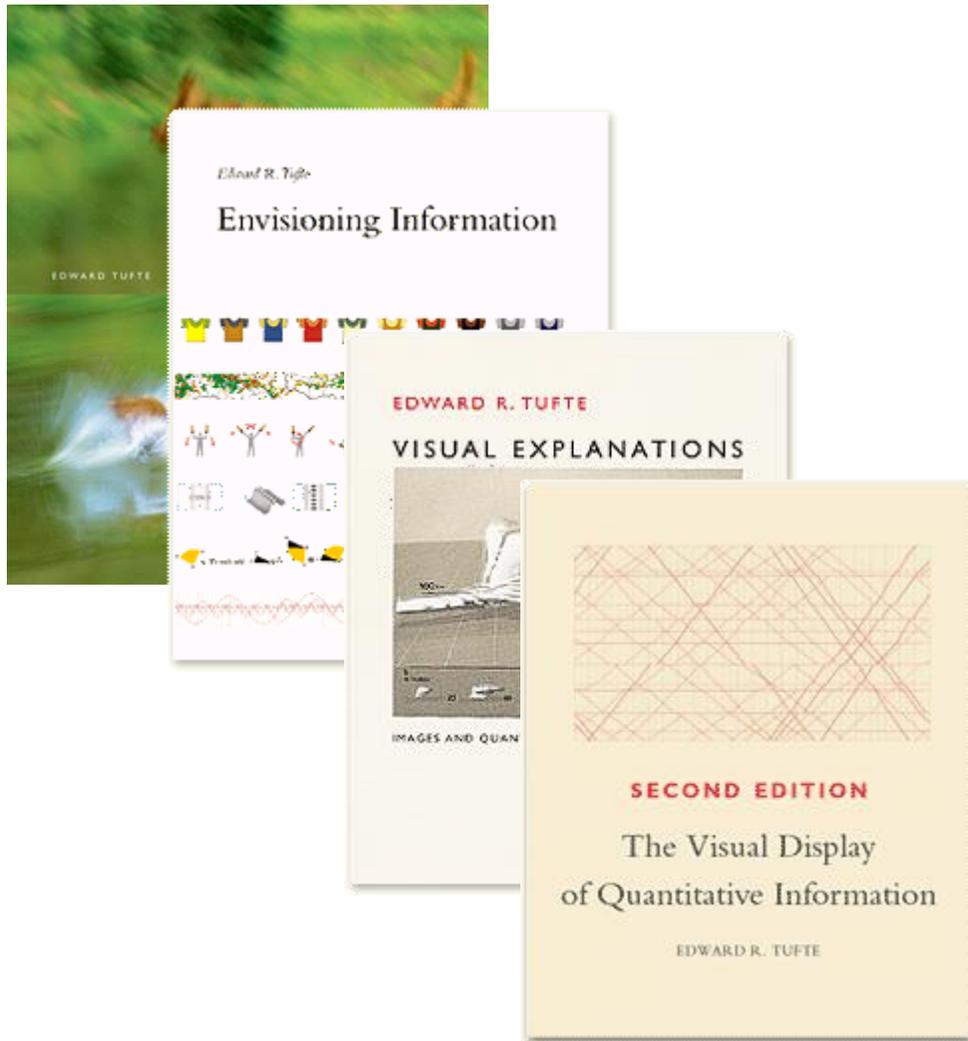


- *don't let tools get in the way*

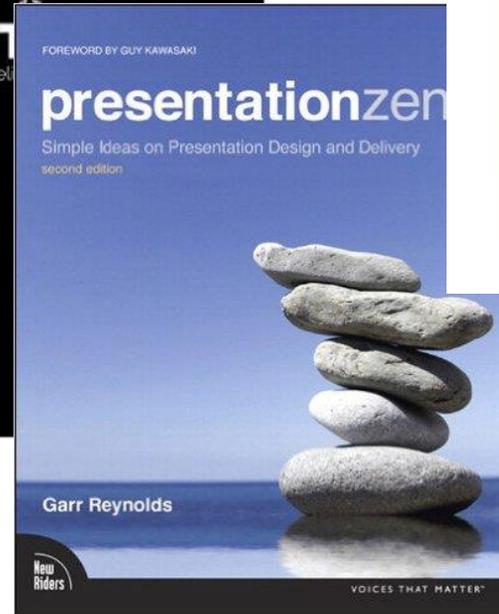
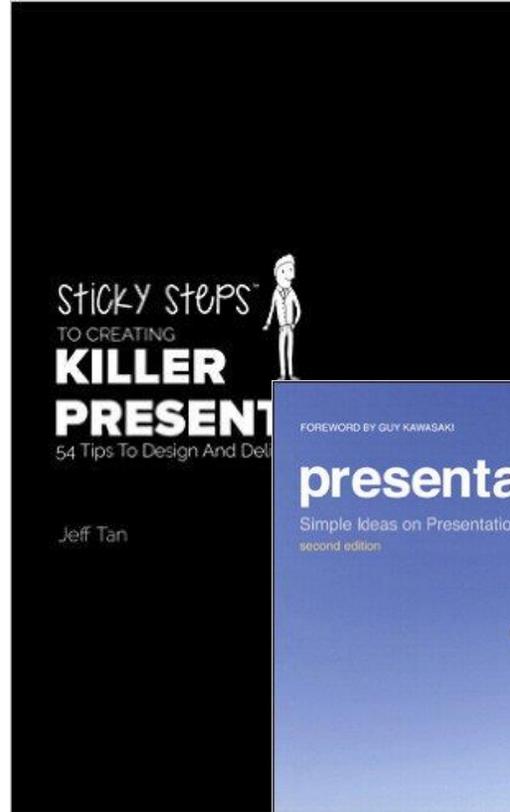
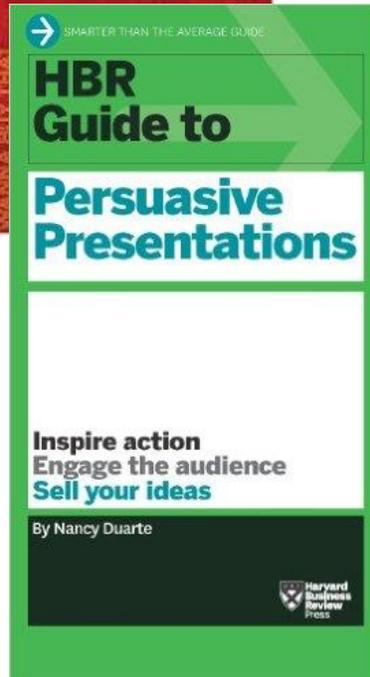
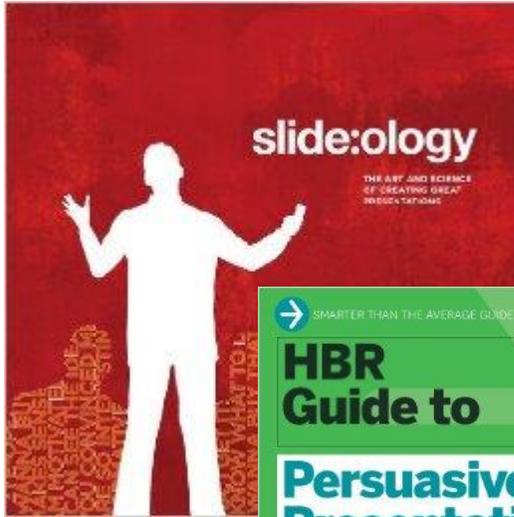
- be prepared
 - *practice*
 - *script at least the first 3 minutes- most valuable real estate*



Favorite References – Display of Information



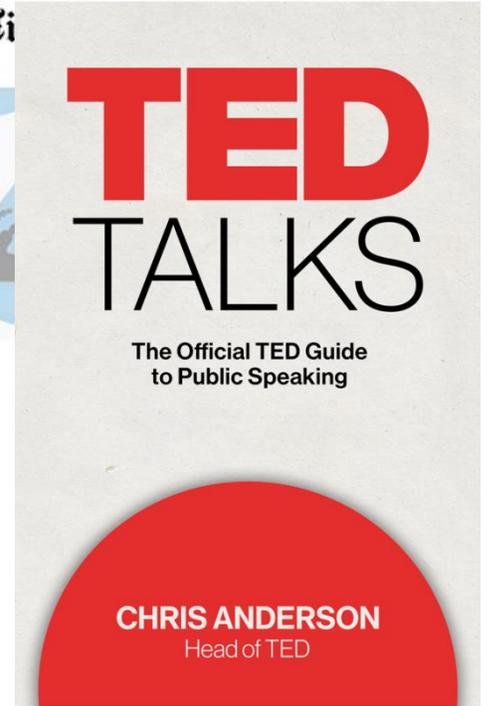
Favorite References - Presentations



How to Speak in Public

By ADAM BRYANT

The New York Times
November 2018



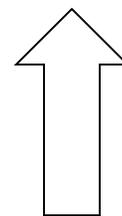
Duarte's Golden Rule



*Never give a presentation you
wouldn't want to sit through.*

Nancy Duarte in HBR Guide





Skip Ahead Slide

