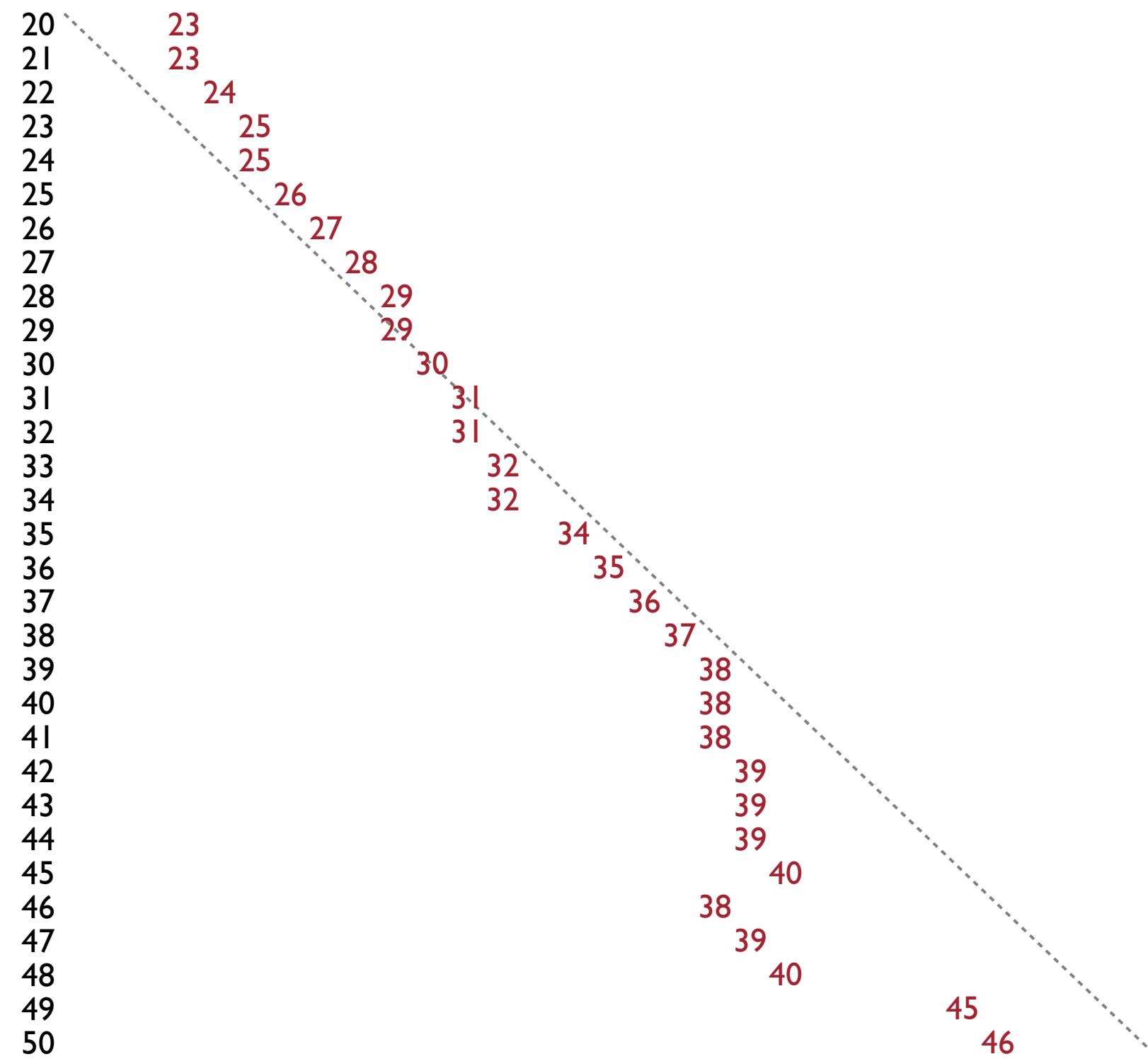
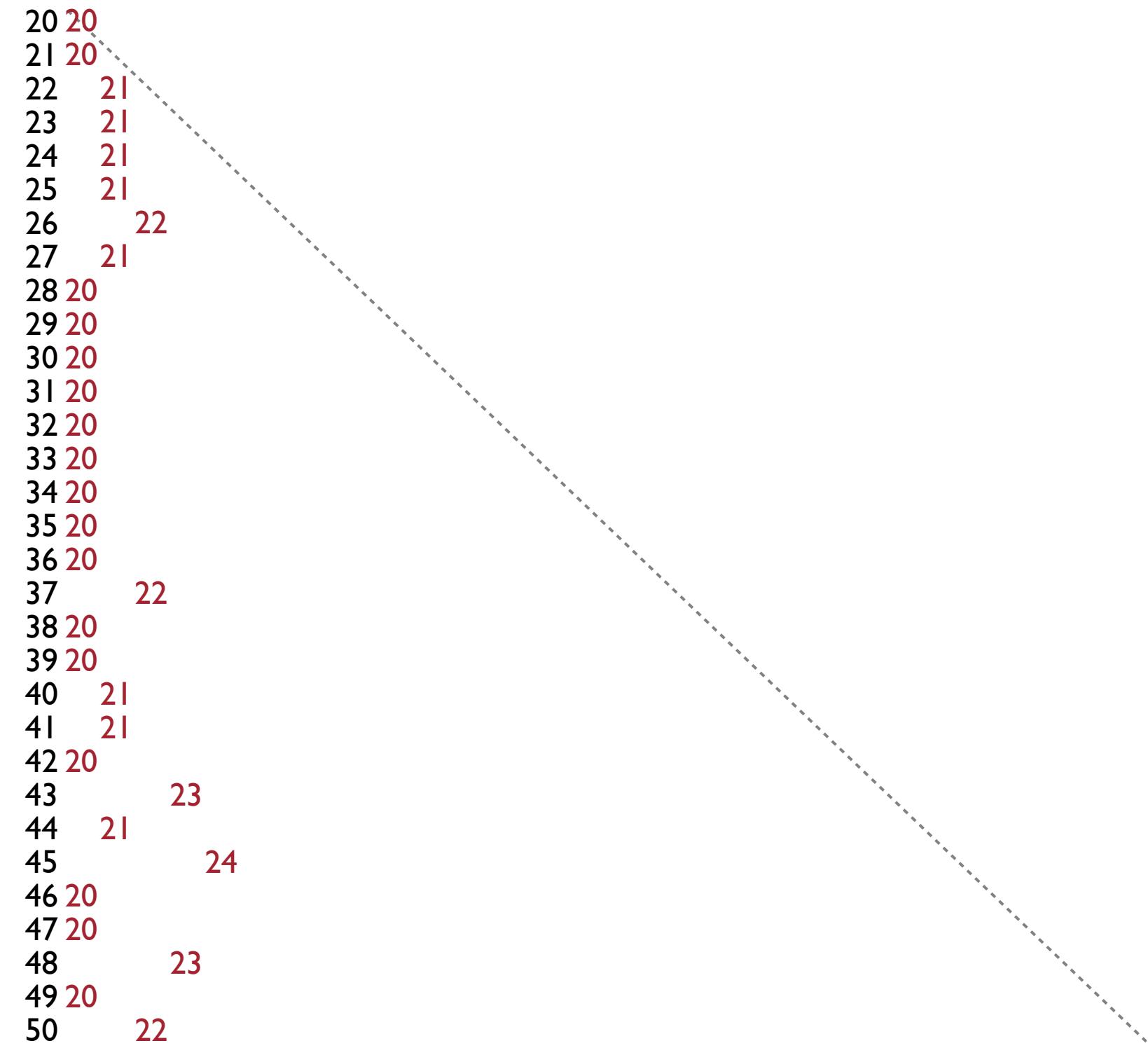


a woman's age vs. the age of the men who look best to her



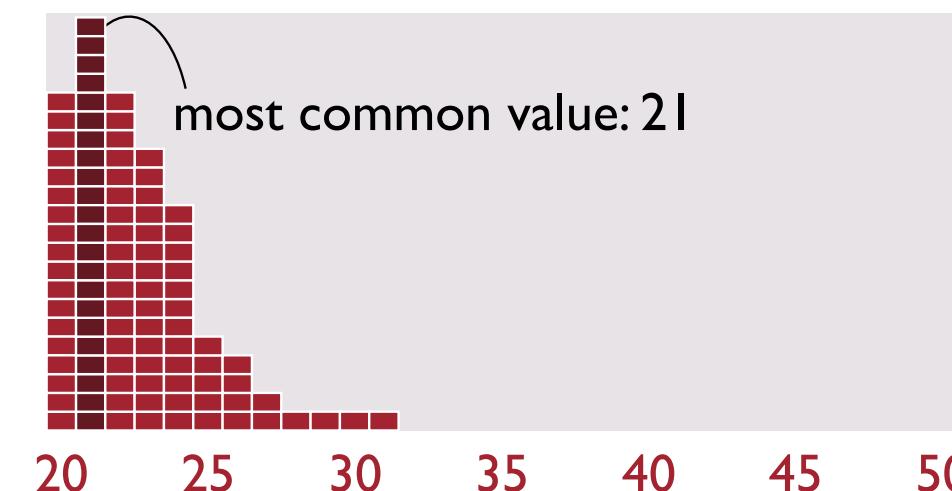
a man's age vs. the age of the women who look best to him



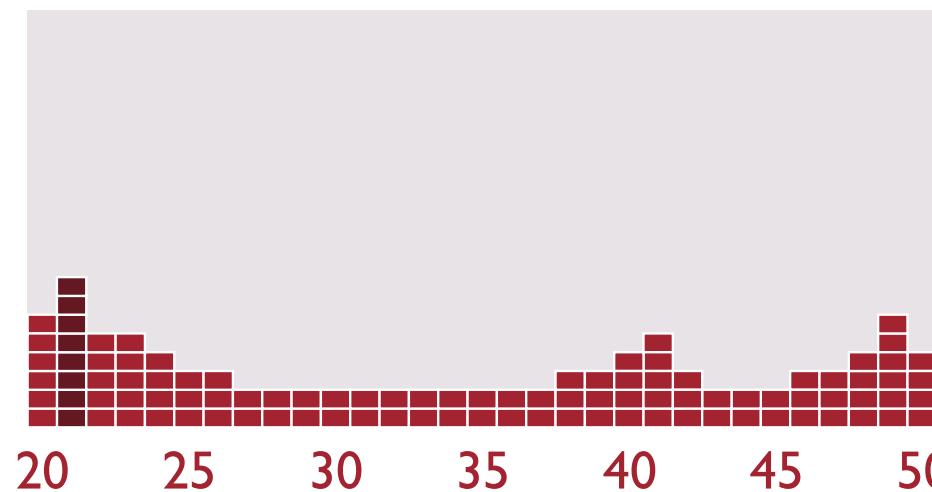
*men of 40 vs. the age
of the women who look
best to them*

— = 1% of men

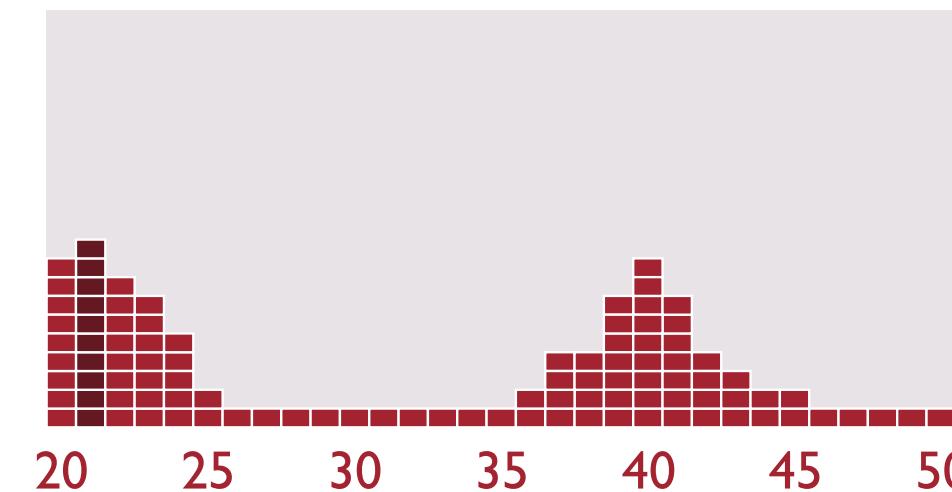
distribution 1



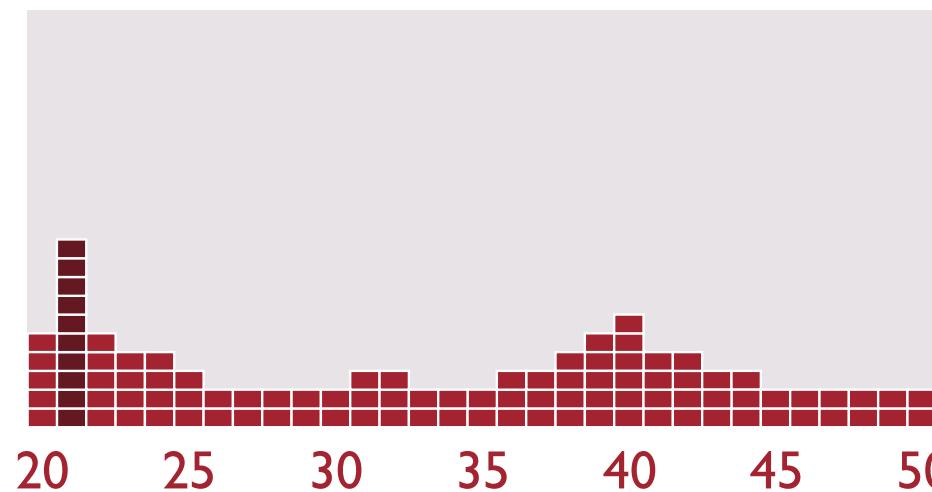
distribution 2



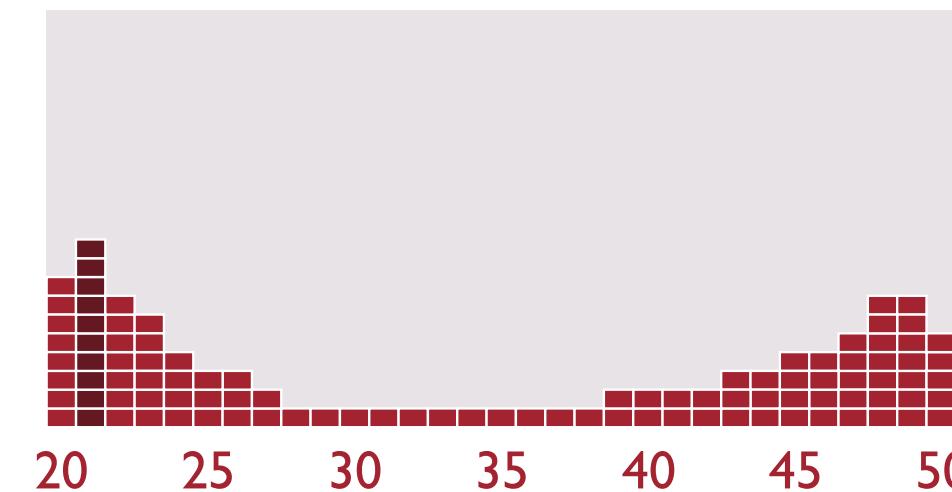
distribution 3



distribution 4



distribution 5



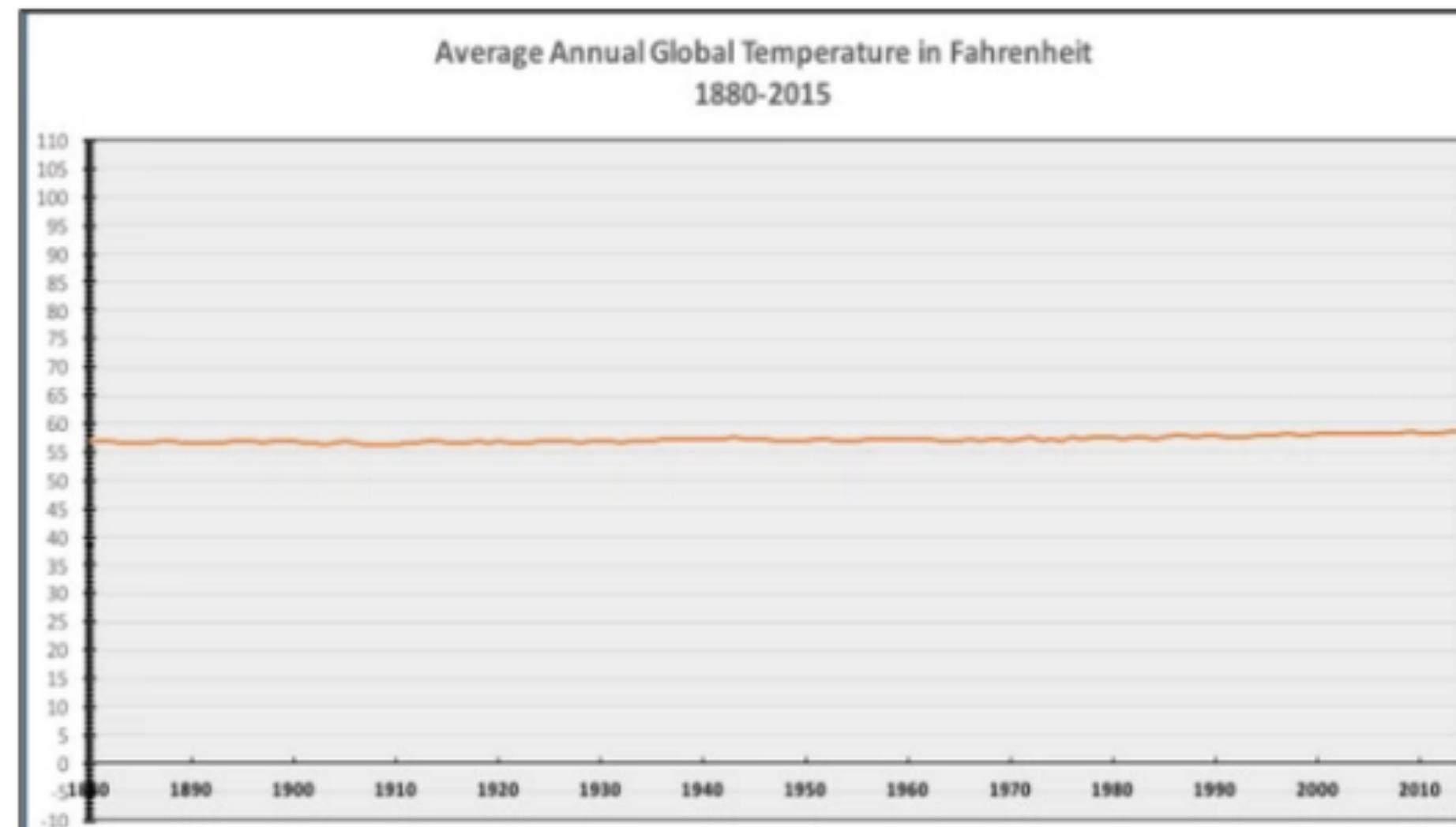
Visual Honesty and Precision

Axes



The only #climatechange chart you need to see.
natl.re/wPKpro

(h/t [@powerlineUS](#))

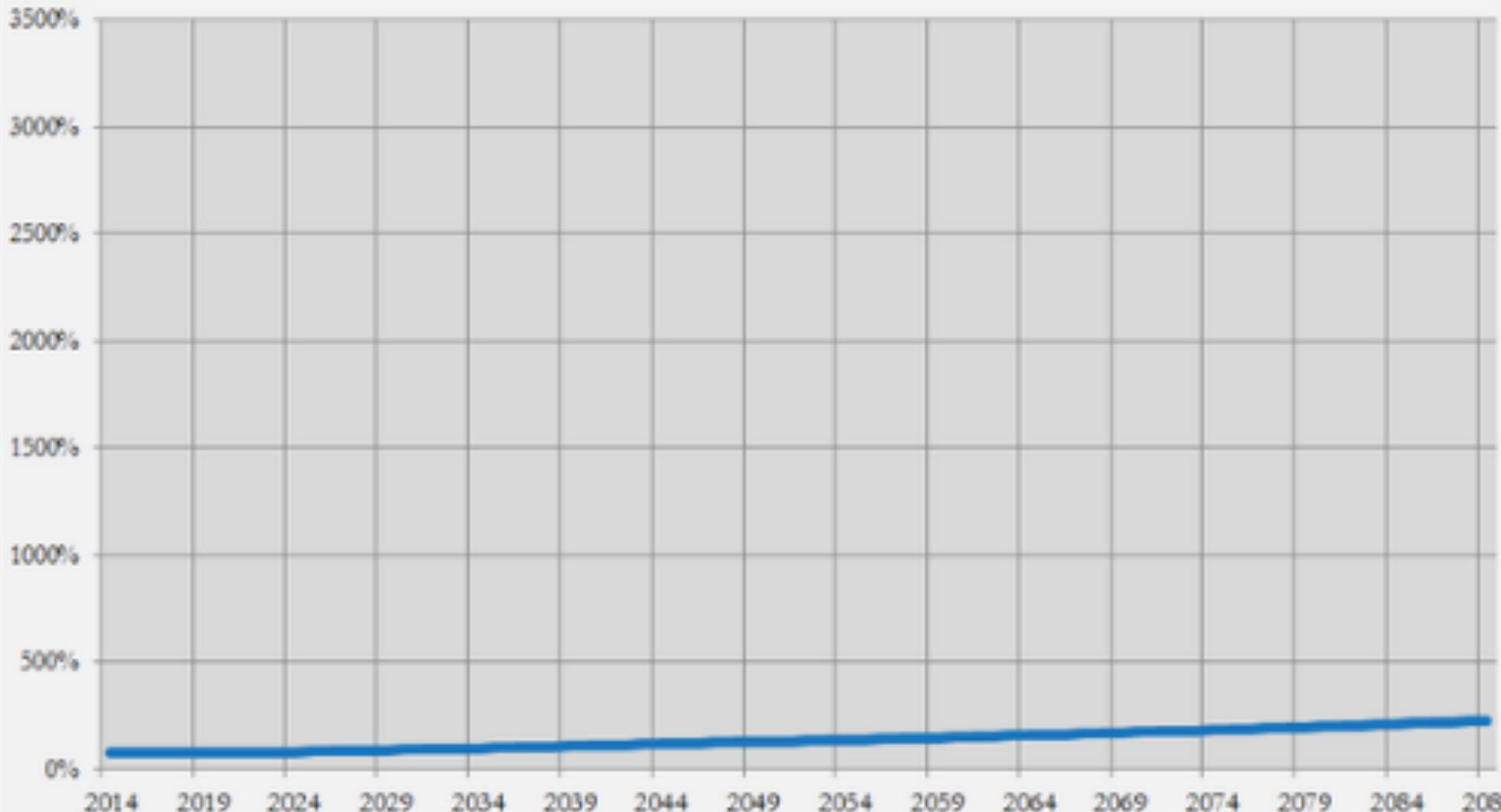




sean. @SeanMcElwee · 14 Dec 2015

.@NRO @powerlineUS no need to worry about the national debt then either!

Federal Debt Held by the Public, as a share of GDP



Source: CBO, 2014

@SeanMcElwee



...

Average global temperature by year

Data from NASA/GISS.

60°

59

58

57

56

55

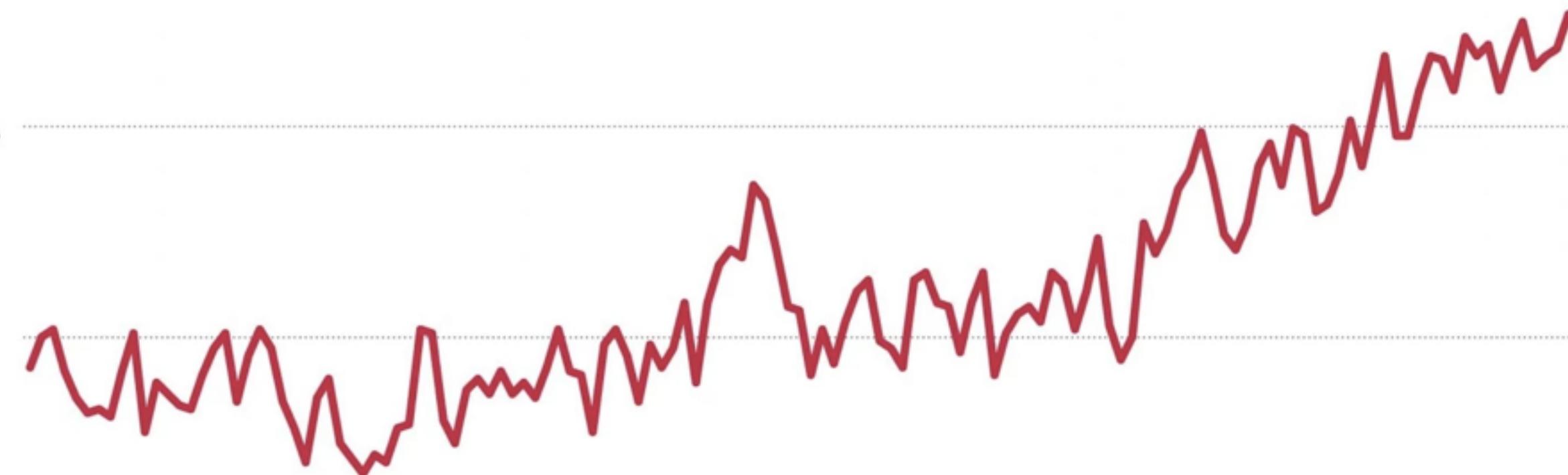
1900

1925

1950

1975

2000

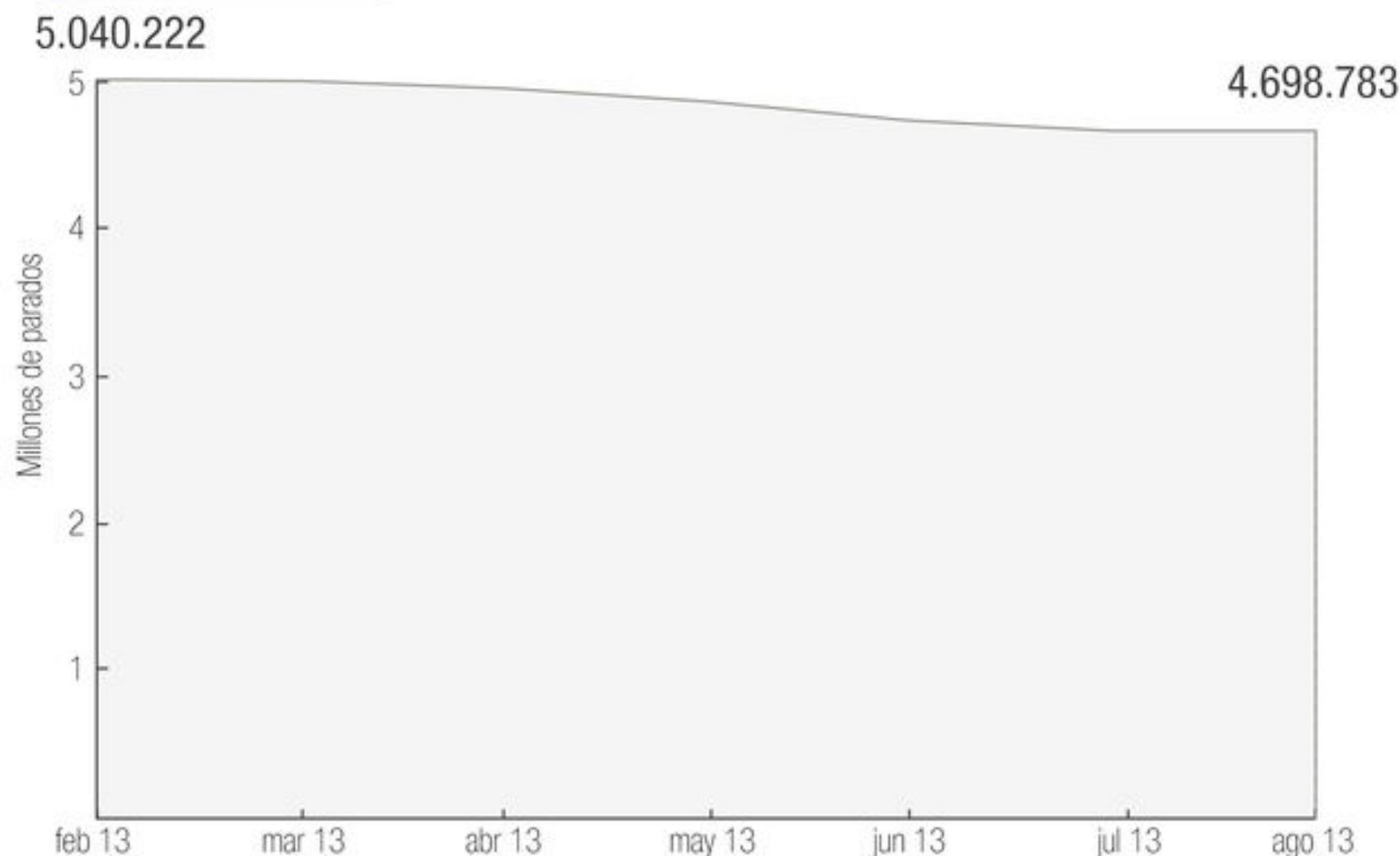


Paro registrado 2013



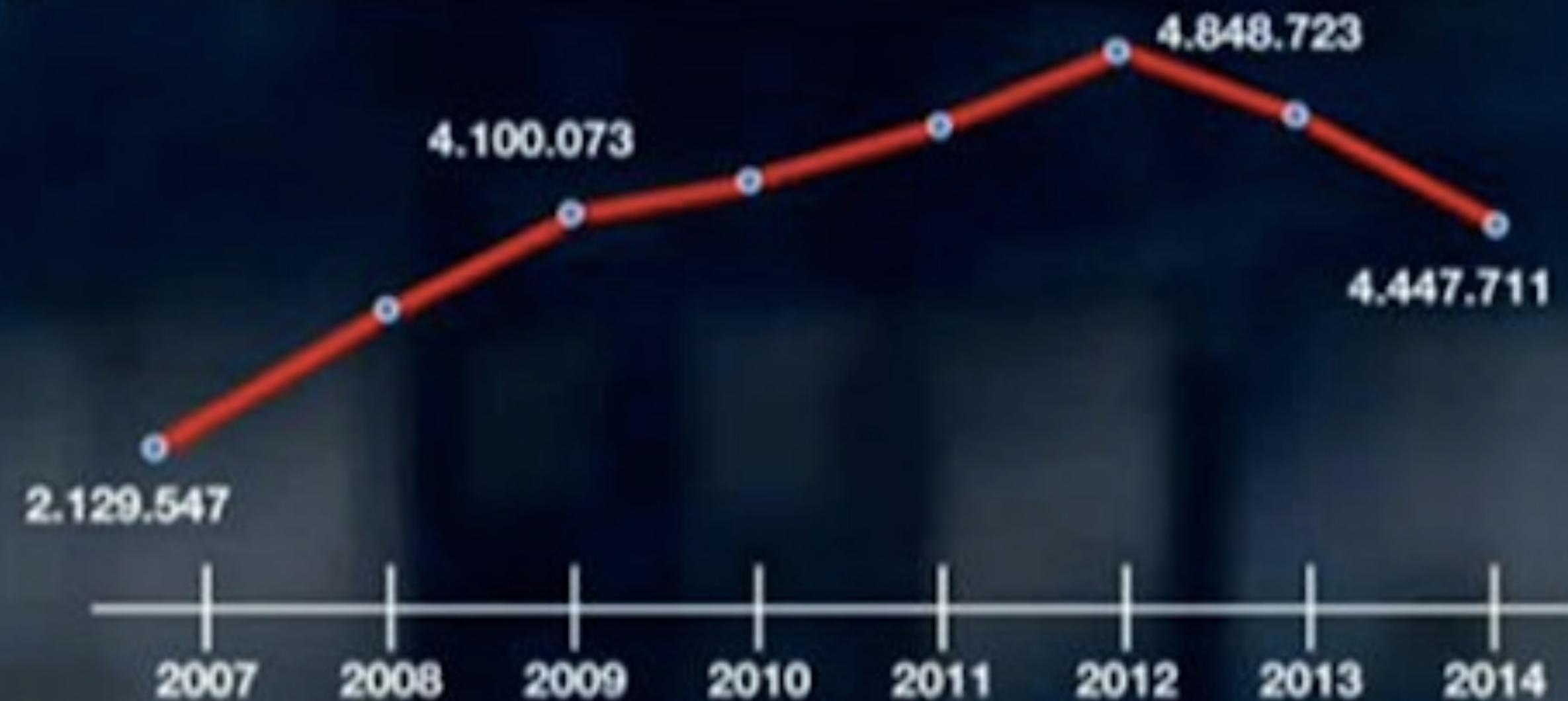
Captura del gráfico con la evolución del paro registrado emitido en el Telediario 1 de TVE

Paro registrado



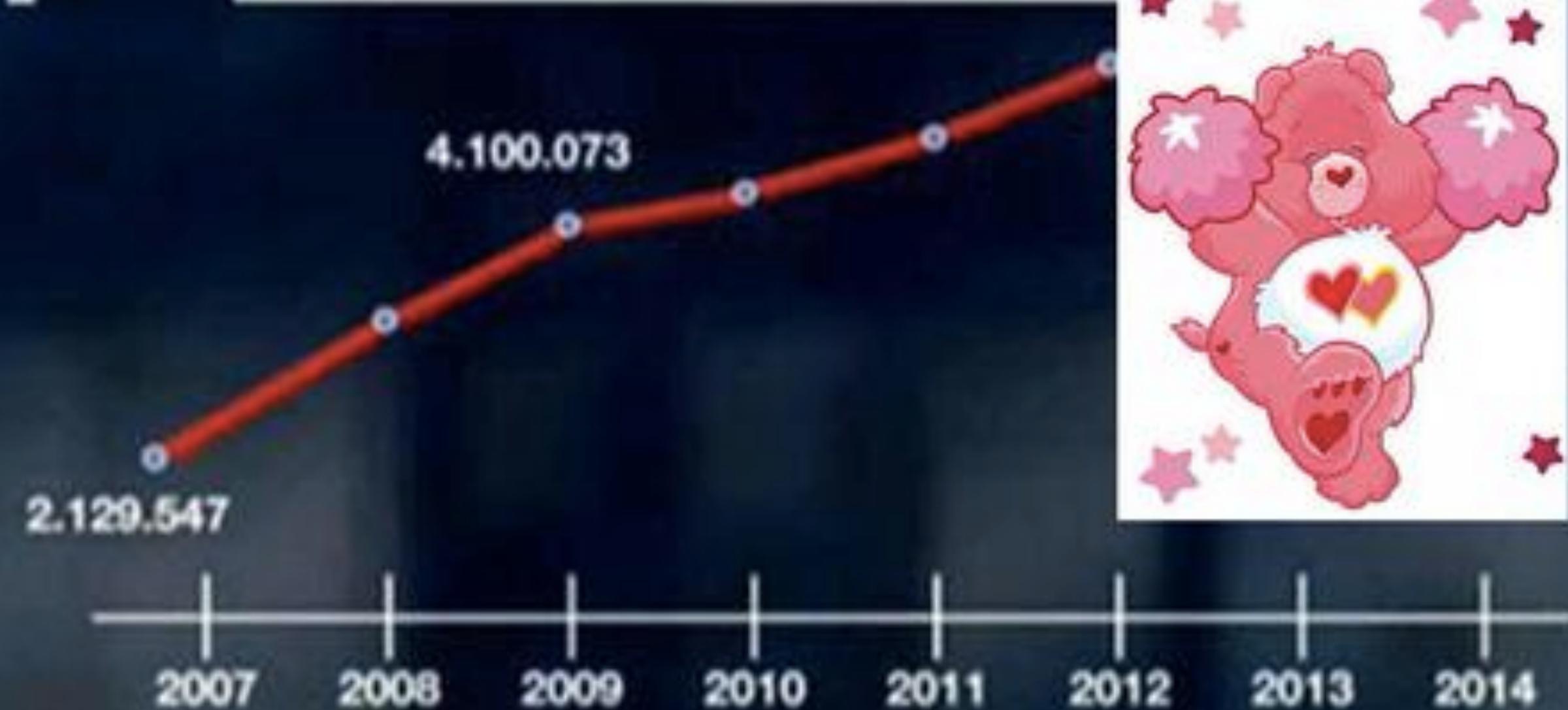
Fuente: Ministerio de Empleo

REGISTRO DESEMPLEO



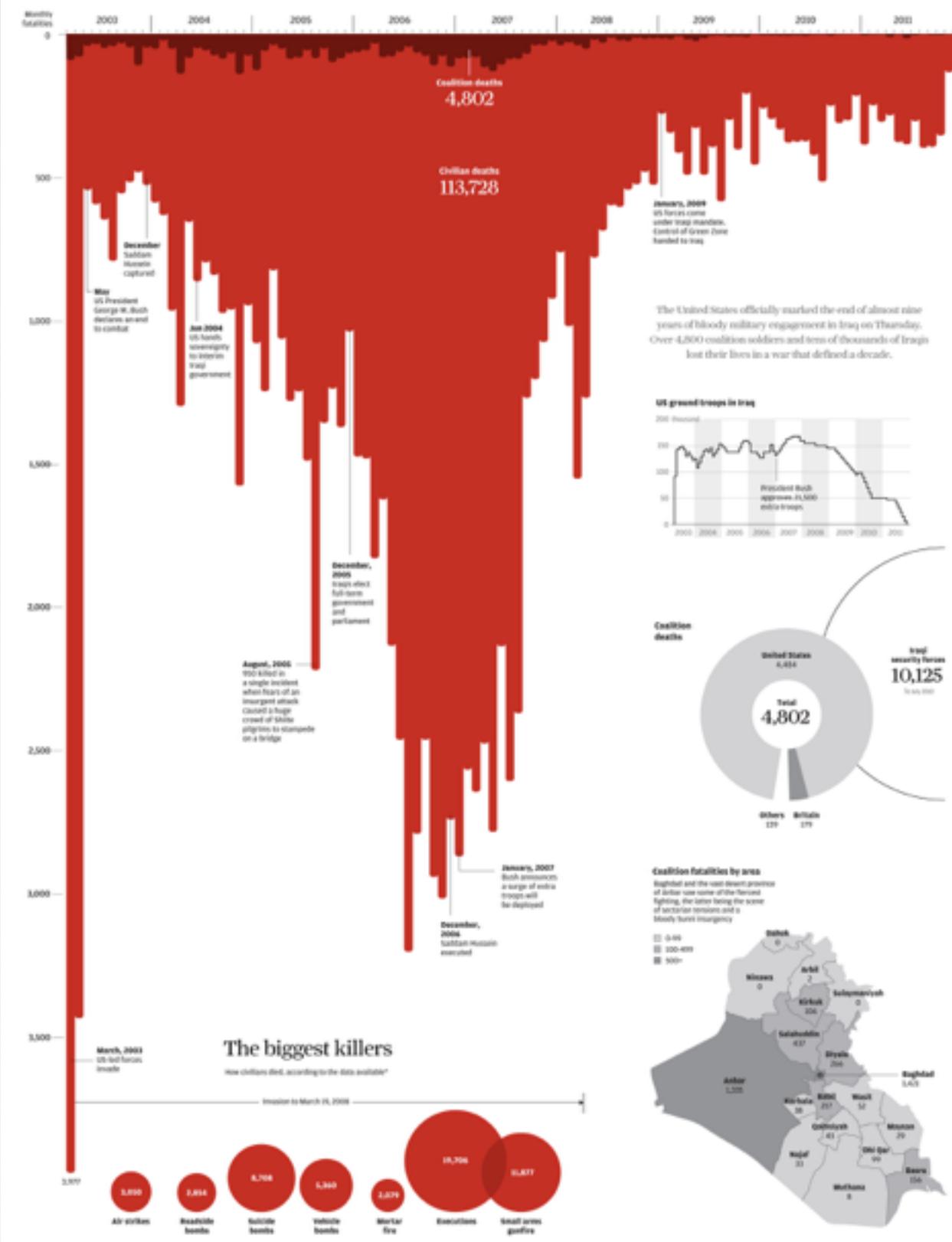
Fuente:
Ministerio de empleo
y Seguridad Social

REGISTRO DESEMPLEO



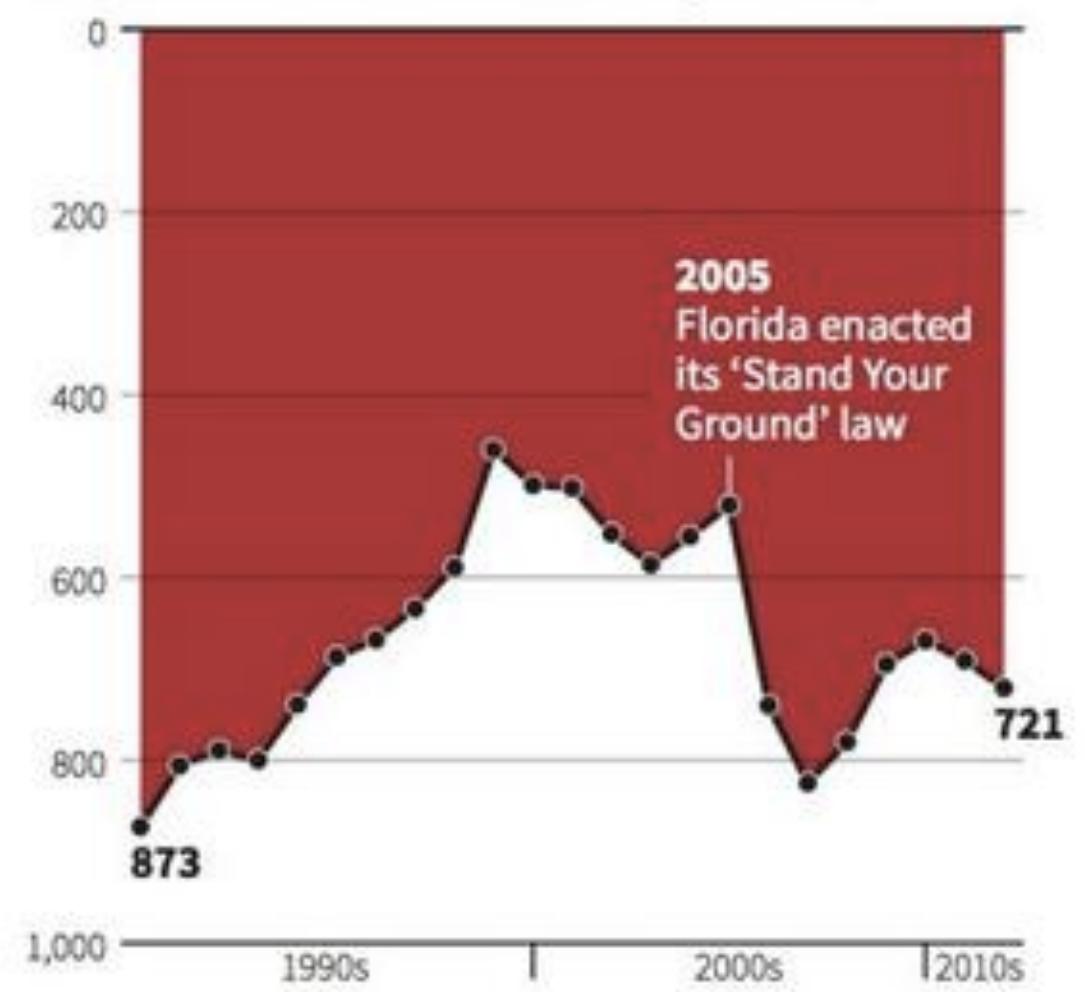
Fuente:
Ministerio de empleo
y Seguridad Social

Iraq's bloody toll



Gun deaths in Florida

Number of murders committed using firearms



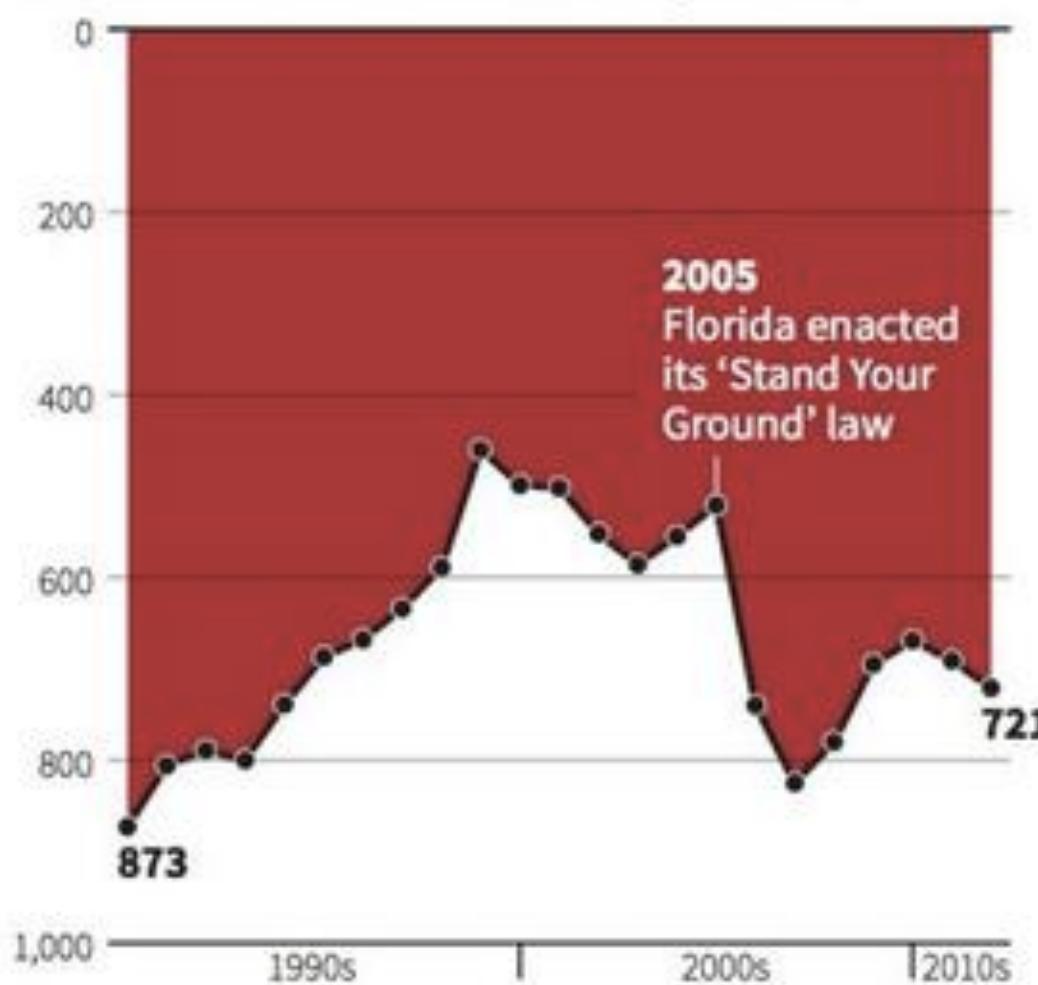
Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

REUTERS

Gun deaths in Florida

Number of murders committed using firearms

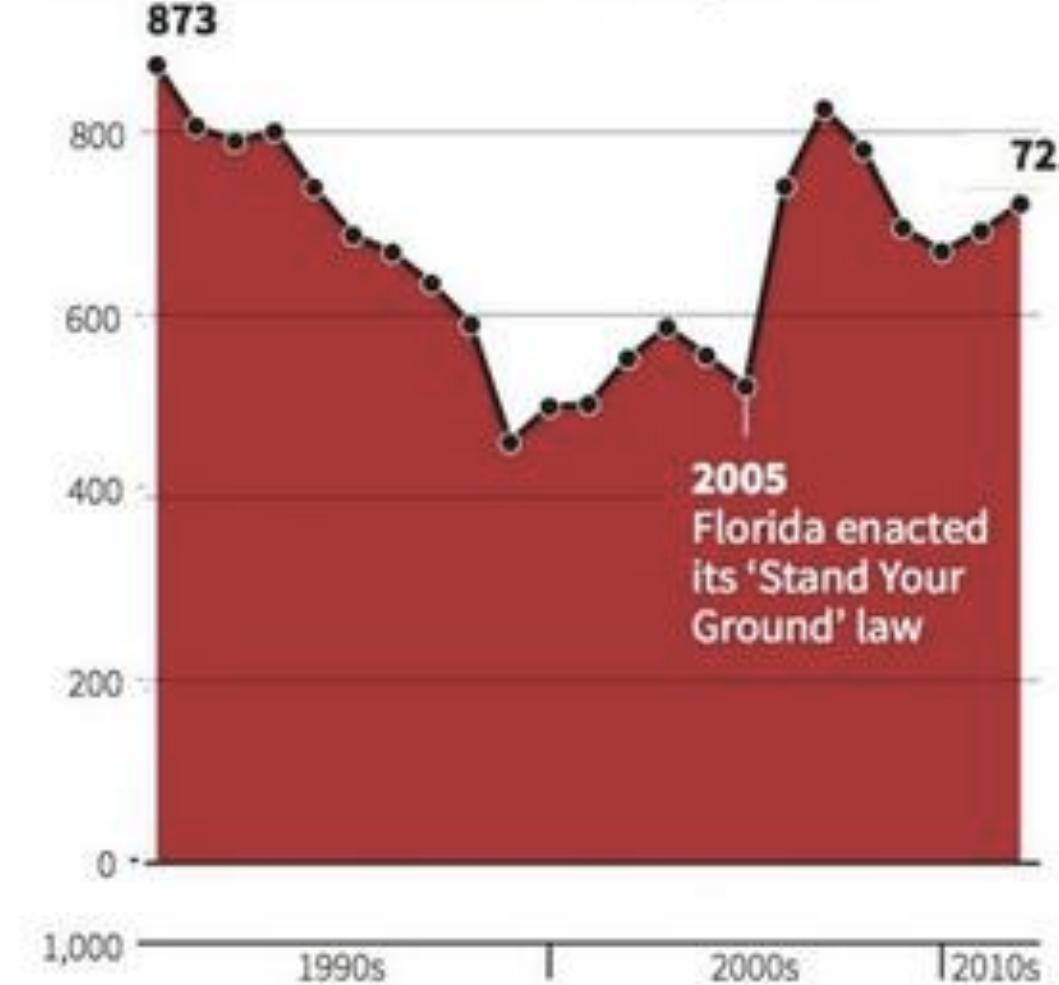


Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

Gun deaths in Florida

Number of murders committed using firearms



Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

BEFORE

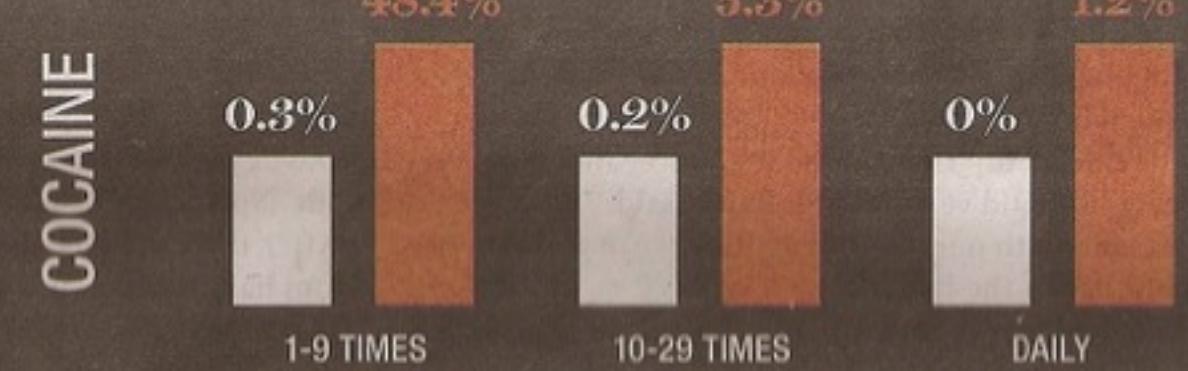
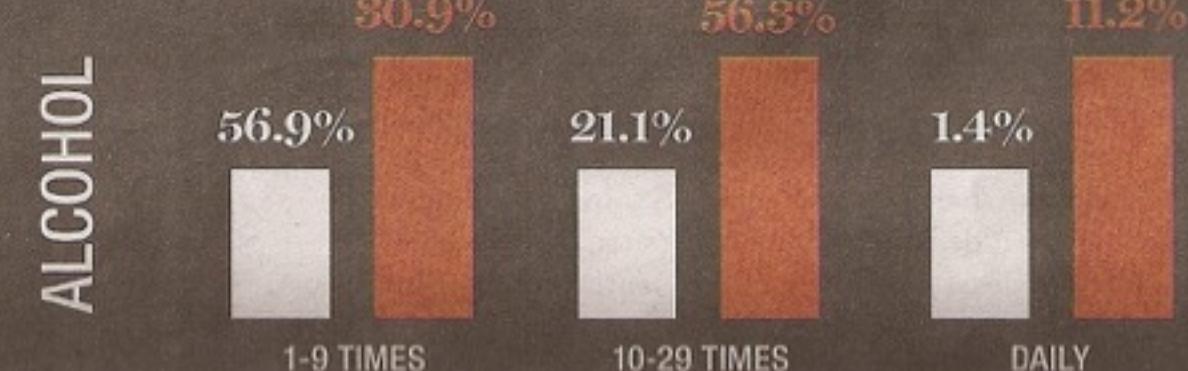
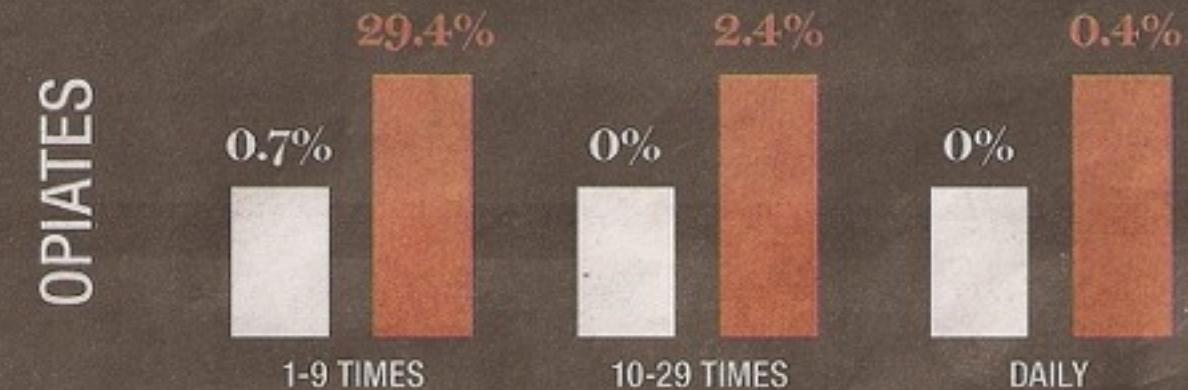
AFTER

REUTERS

REUTERS

BY THE NUMBERS

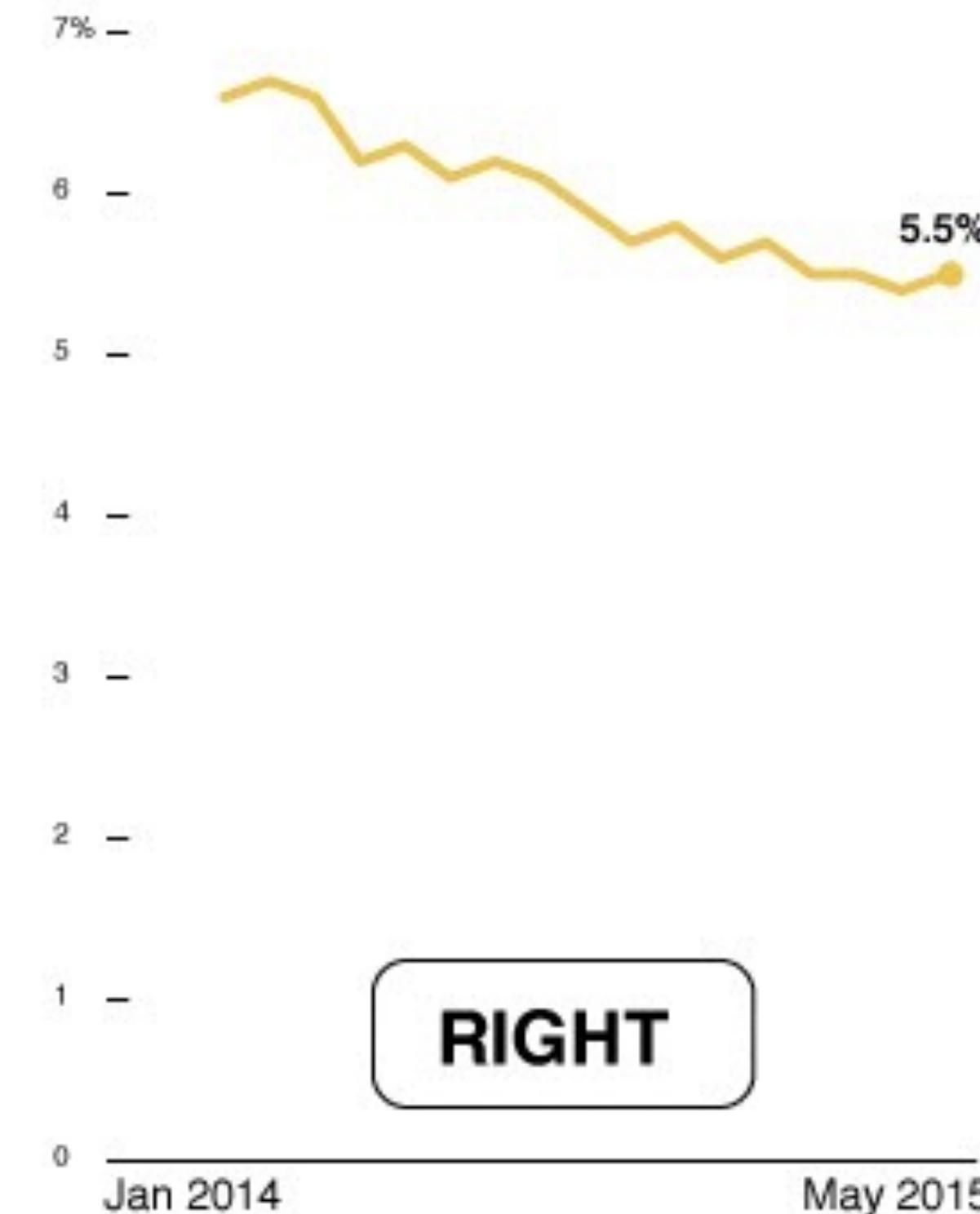
The National Collegiate Health Assessment was taken by 1,000 UCSB students in Spring 2009. Participants were asked how frequently they used substances over the past 30 days. Numbers in white reflect actual student use, while red numbers indicate perceived substance use. The average age of participants was 20 years and approximately 99 percent were full-time students.



US GDP



US GDP



US GDP

\$16 trillion

12

8

4

0

'08

'09

'10

US GDP

\$15.00 trillion

14.75

14.50

14.25

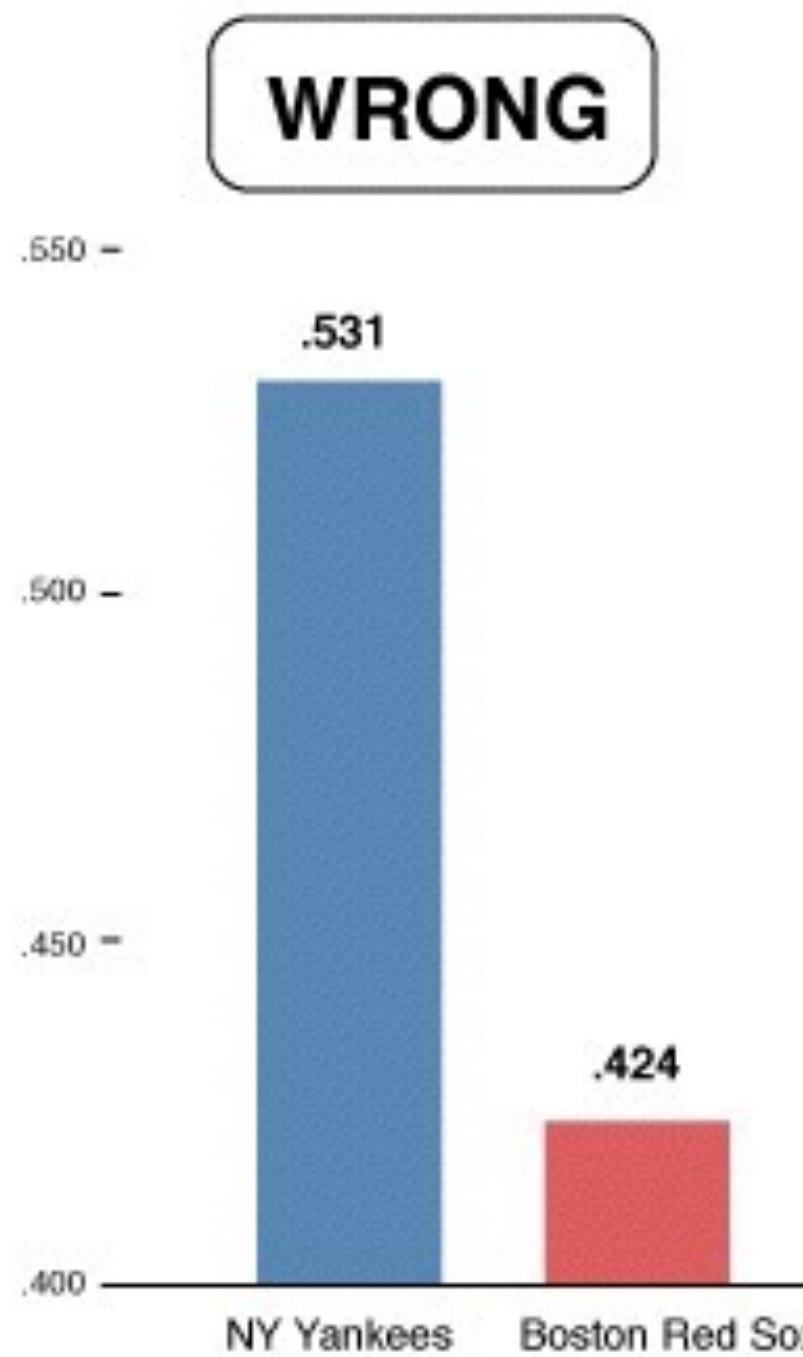
14.00

'08

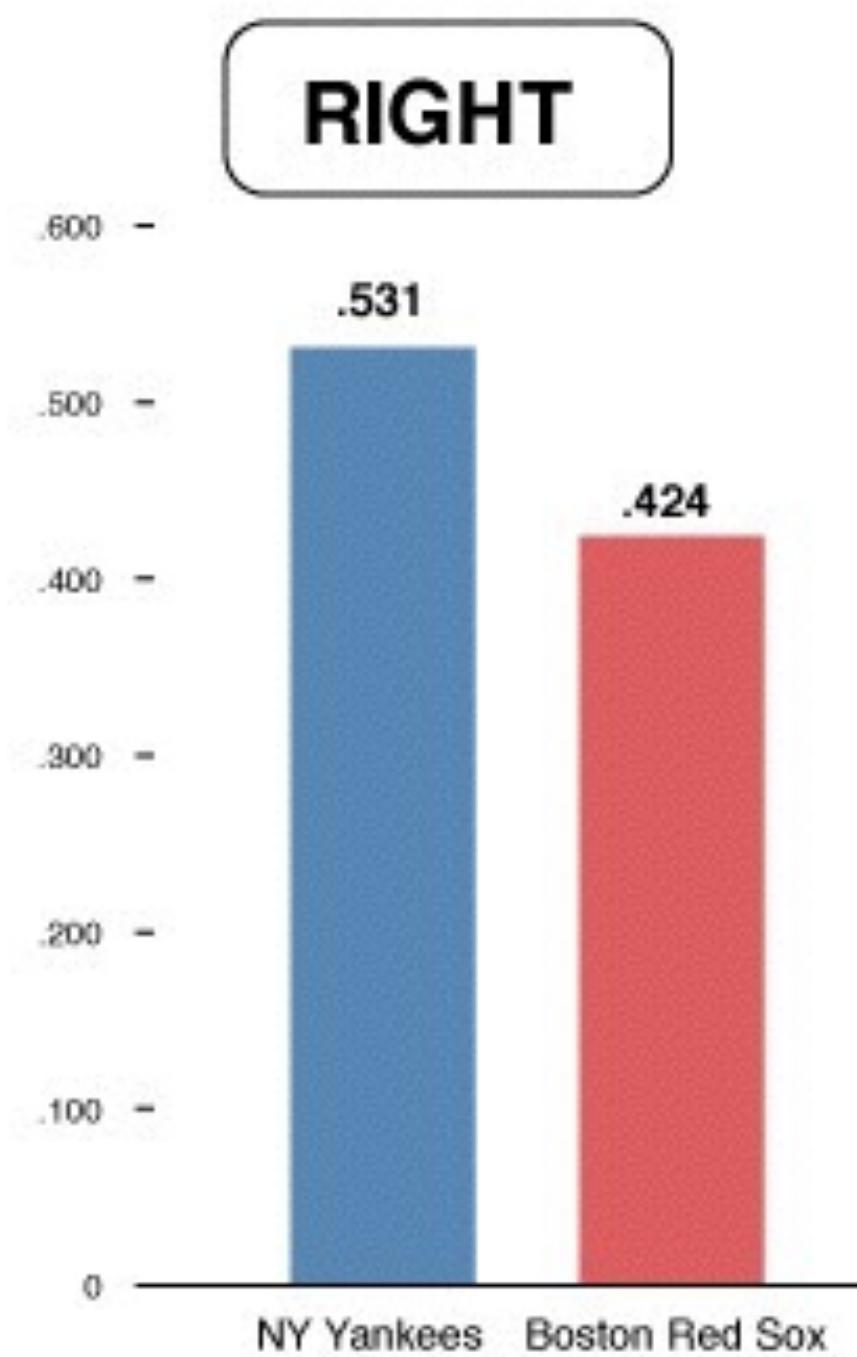
'09

'10

Percentage of victories



Percentage of victories



Most dangerous cities

Total murders in 2014

WRONG

Chicago



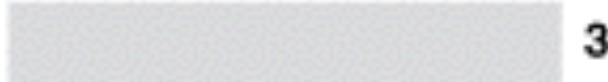
407

New York



328

Detroit



304

Los Angeles



259

Philadelphia



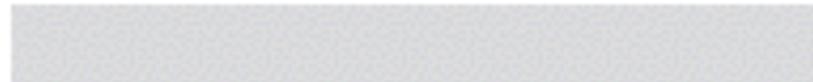
248

Most dangerous cities

Murder rate in major US cities in 2014,
per 100,000 people

RIGHT

Detroit



45

New Orleans



41

Newark



40

St. Louis



38

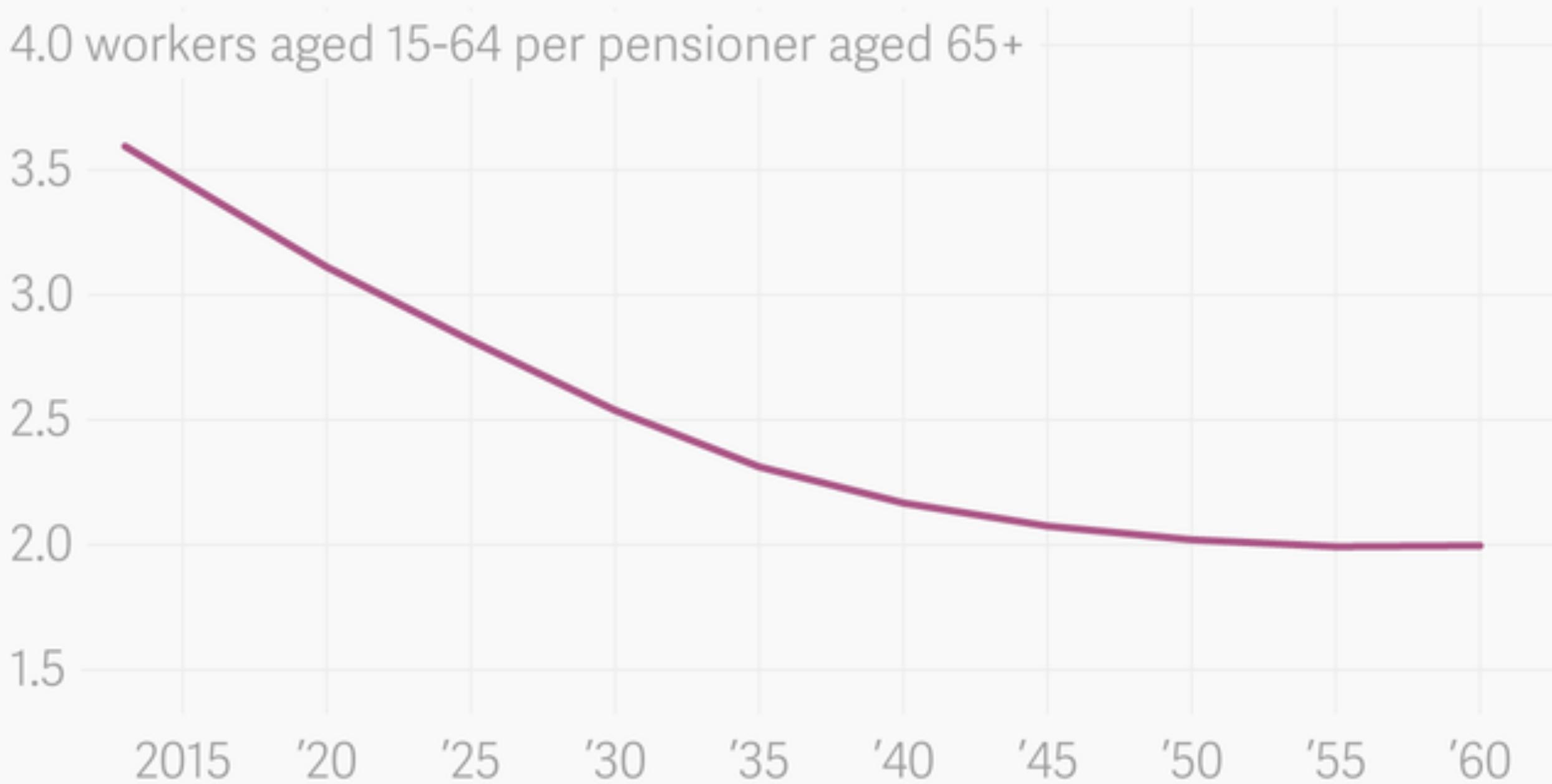
Baltimore



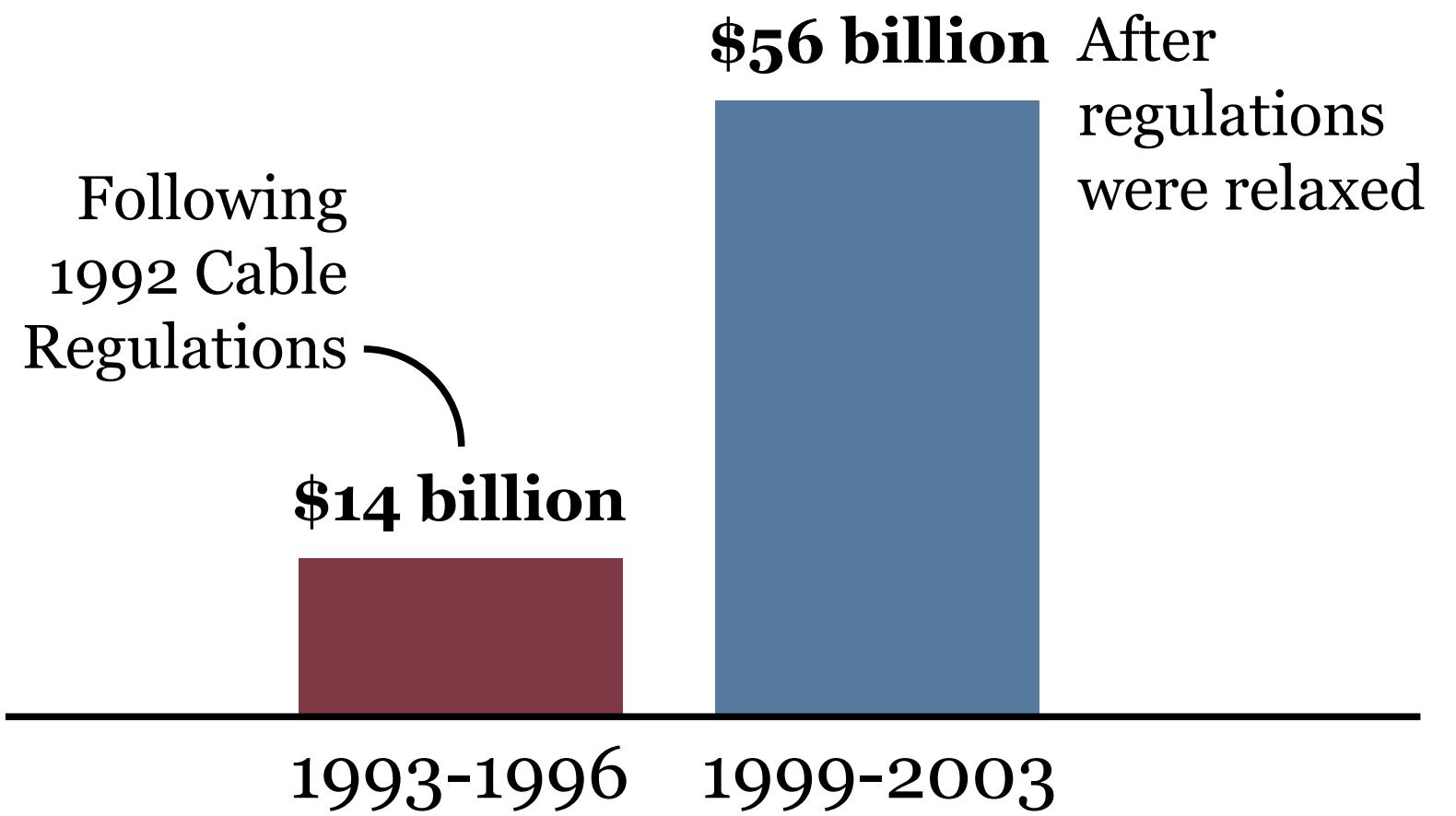
37

Projected EU old-age dependency ratio

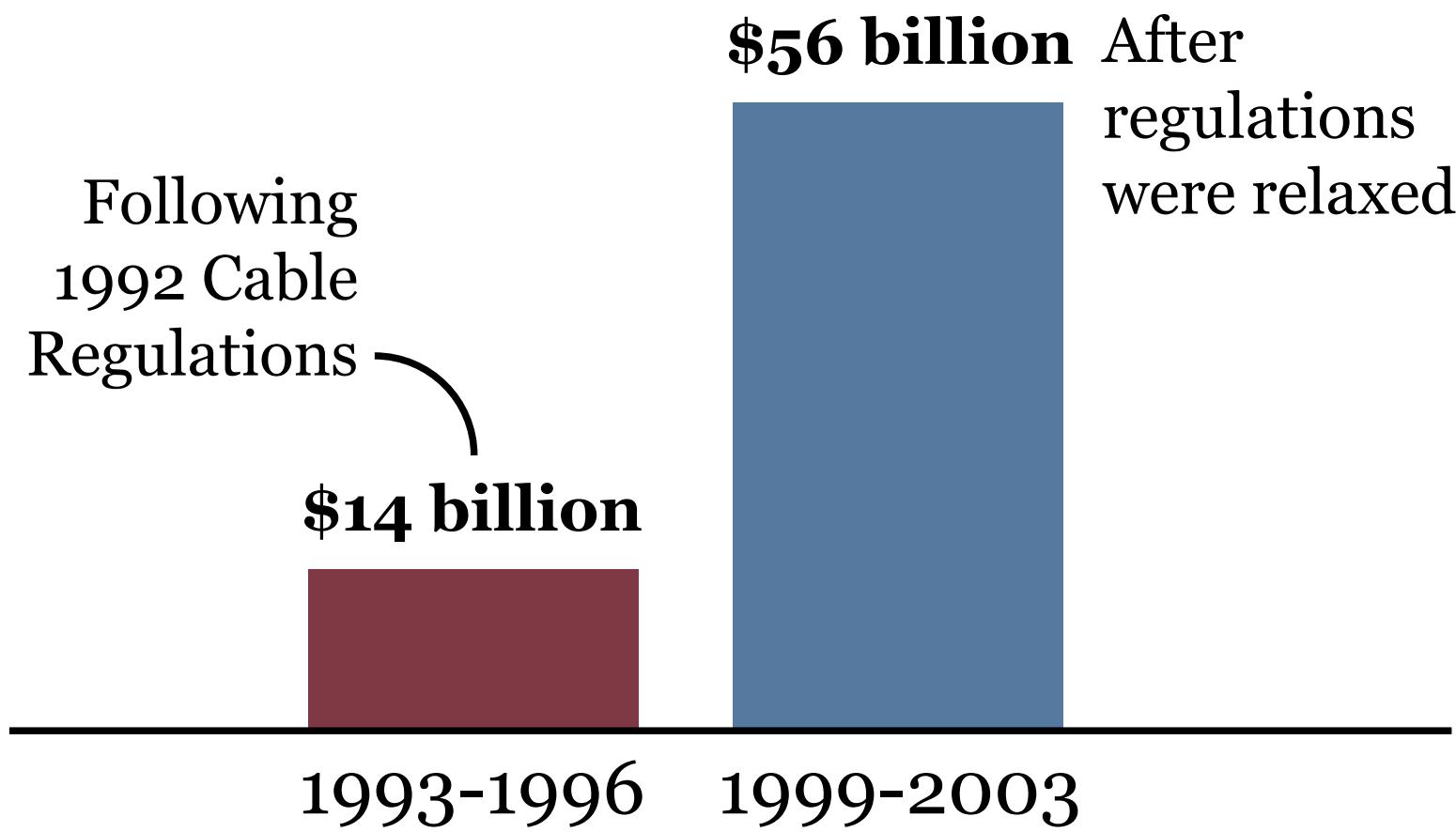
4.0 workers aged 15-64 per pensioner aged 65+



Less regulation = More industry investment

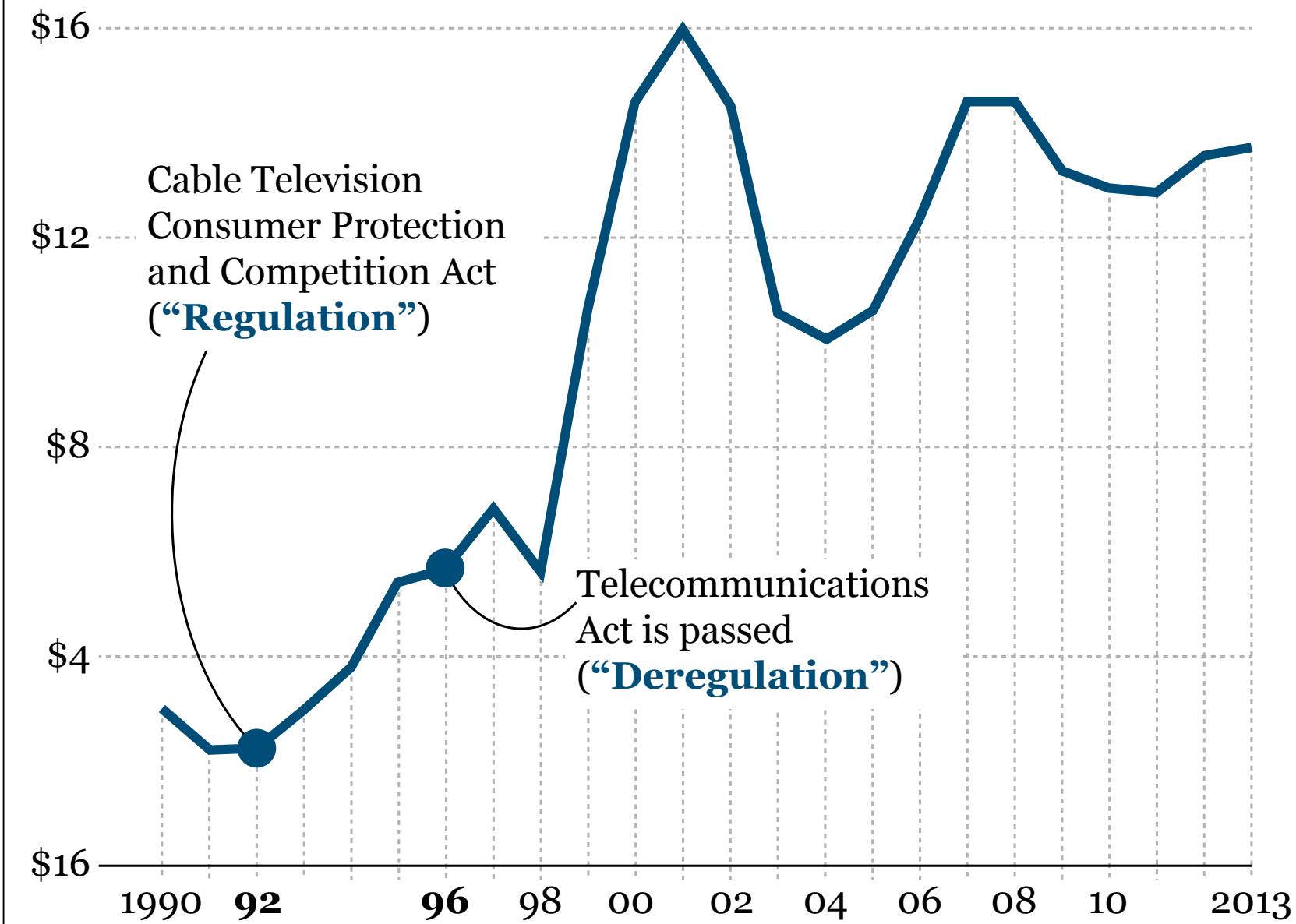


Less regulation = More industry investment

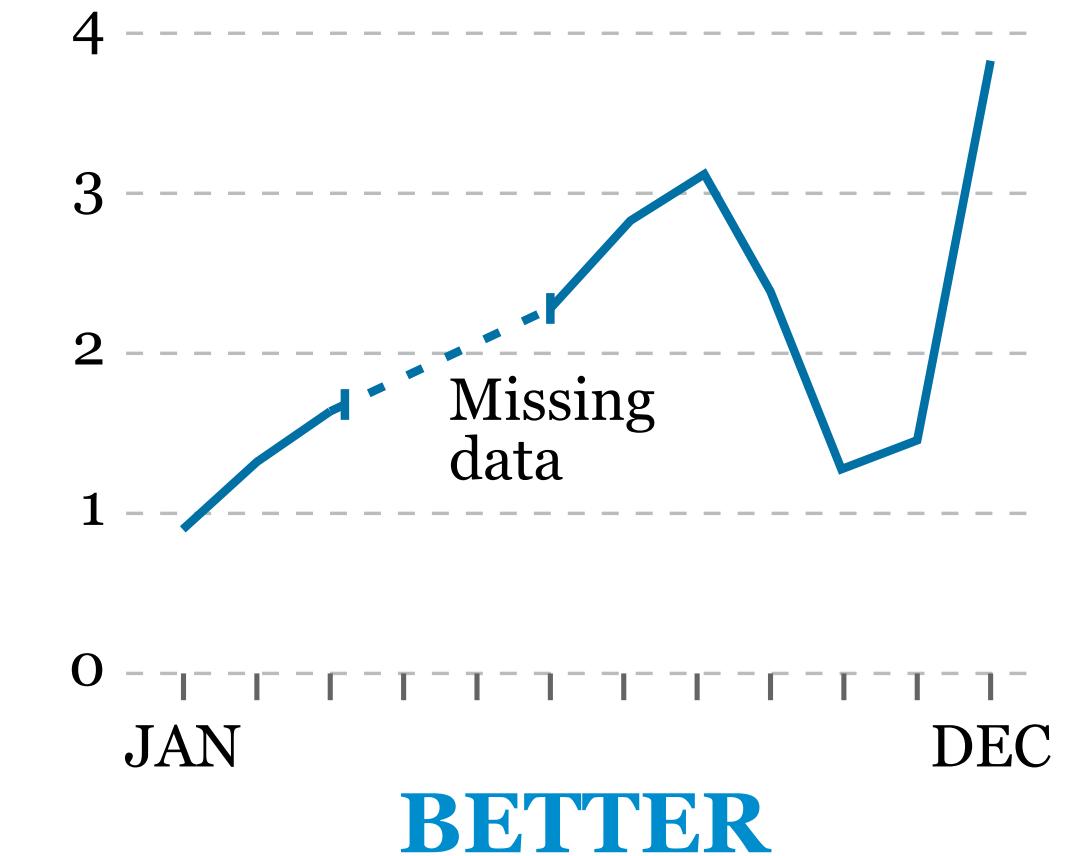
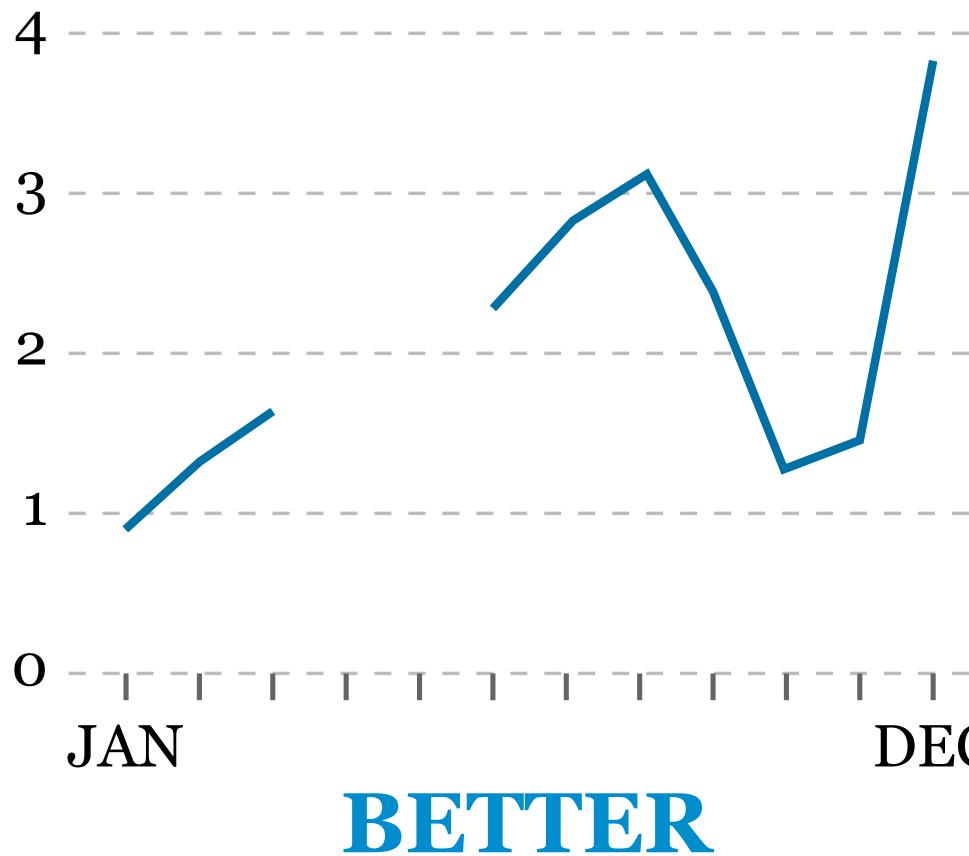
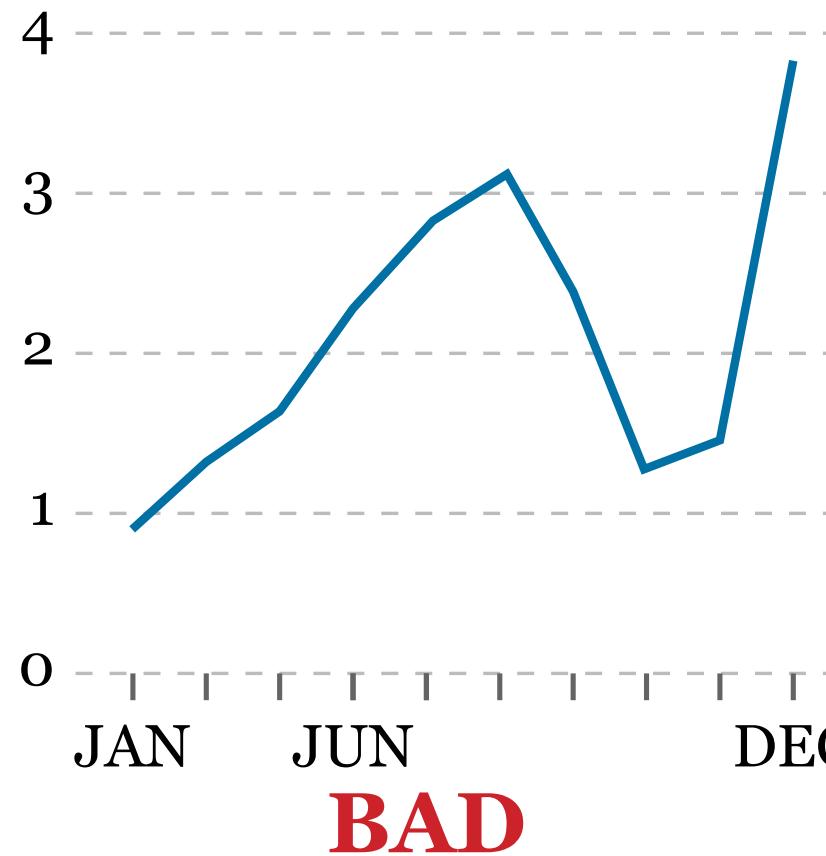


Cable Industry Infrastructure Expenditures

In billions

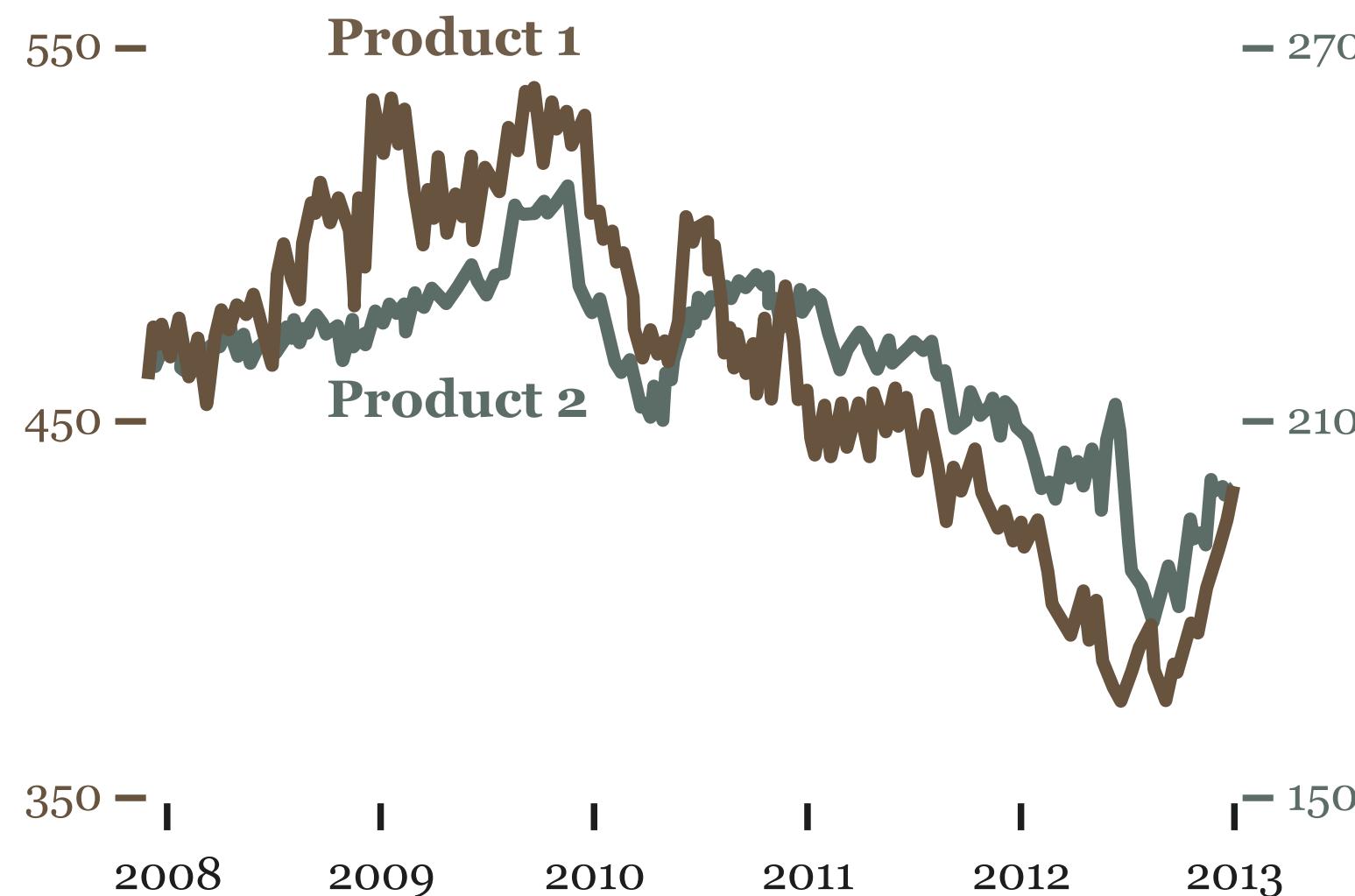


Monthly sales millions of dollars



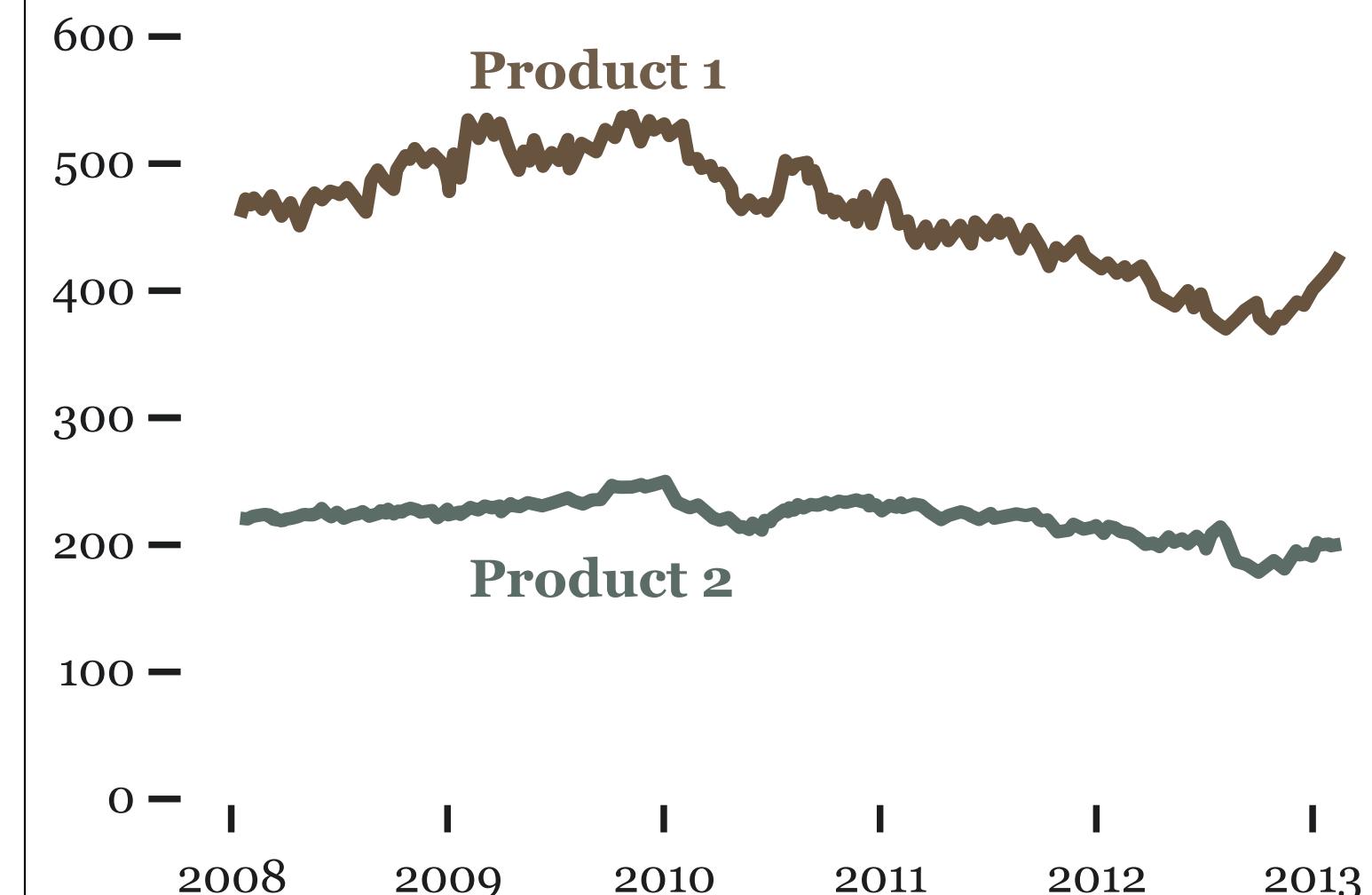
PRODUCTION COSTS

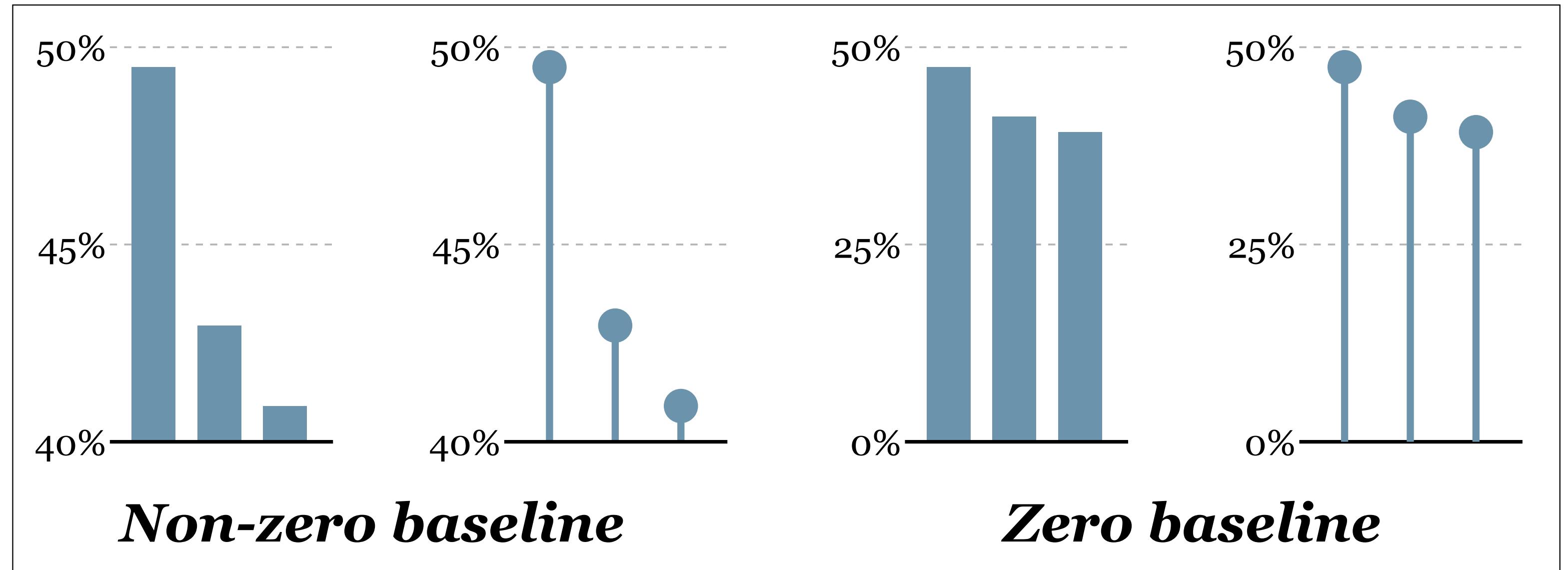
U.S. dollars per unit

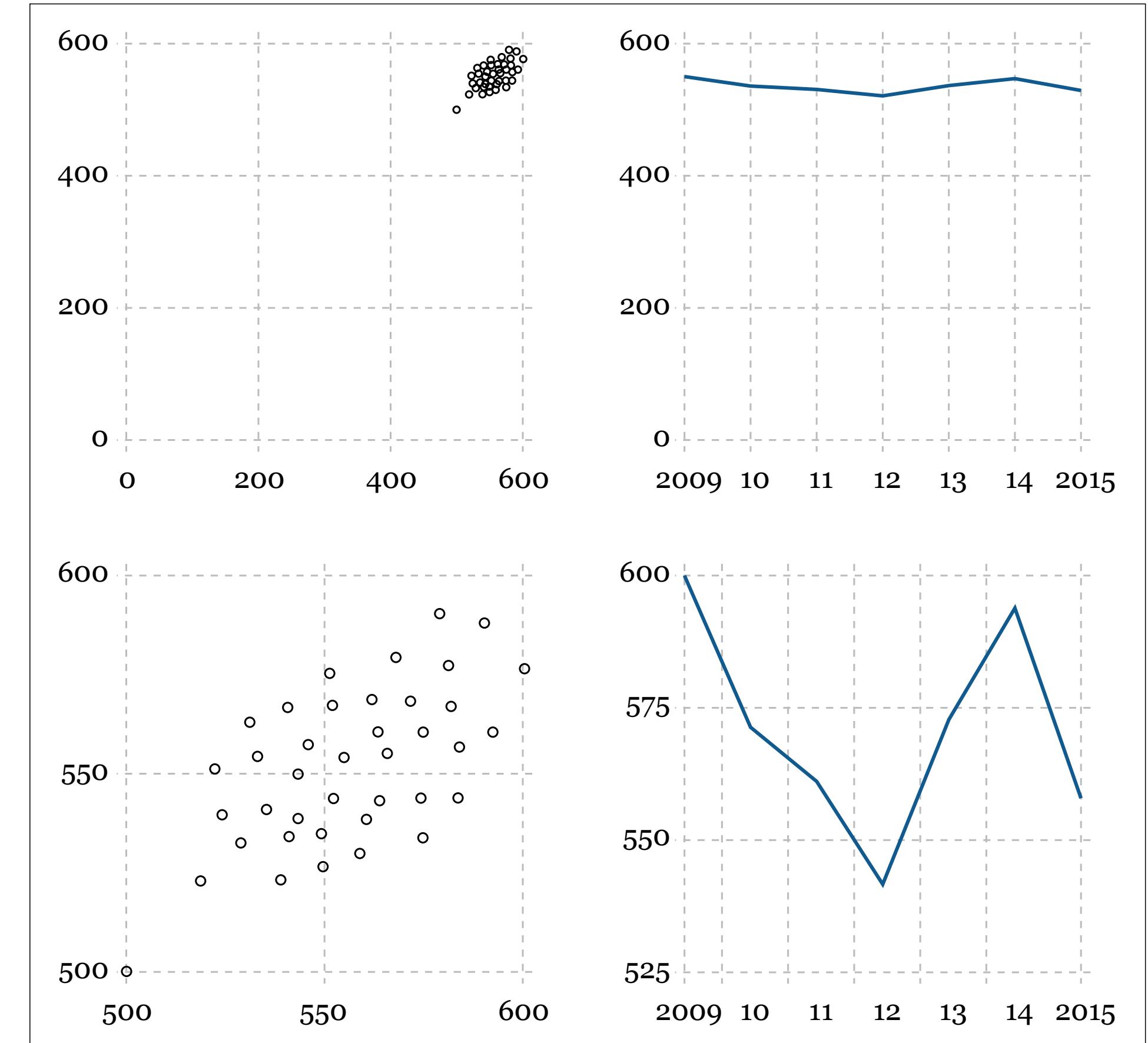


PRODUCTION COSTS

U.S. dollars per unit



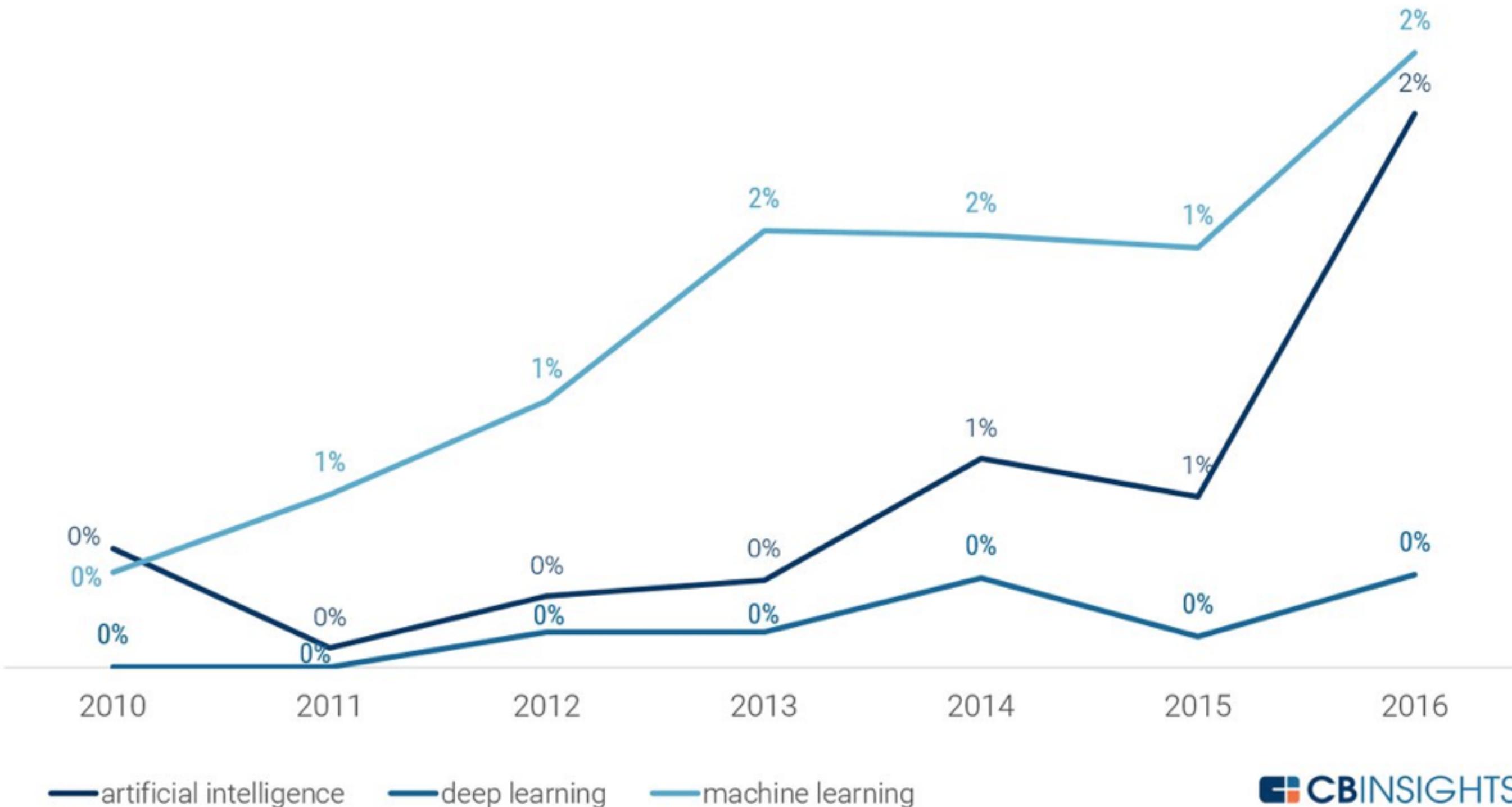






LEARNING HOW TO LEARN

Percentage of VC-backed companies with certain words in their company description over time



OBAMACARE ENROLLMENT

7,100,000

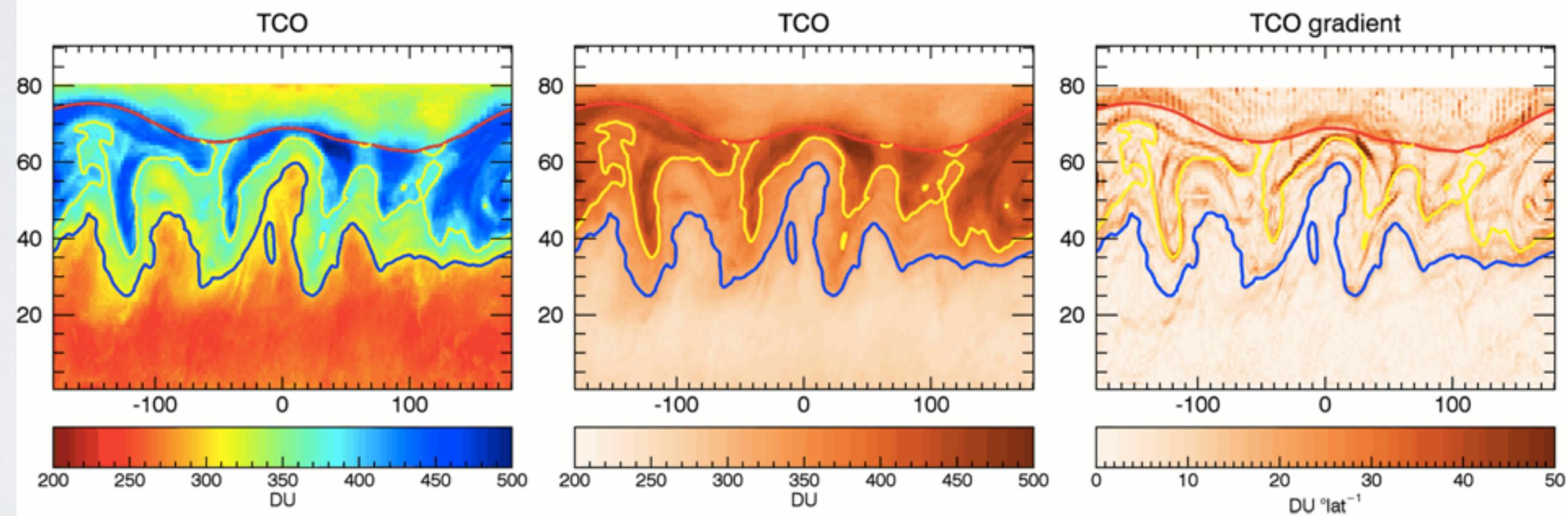
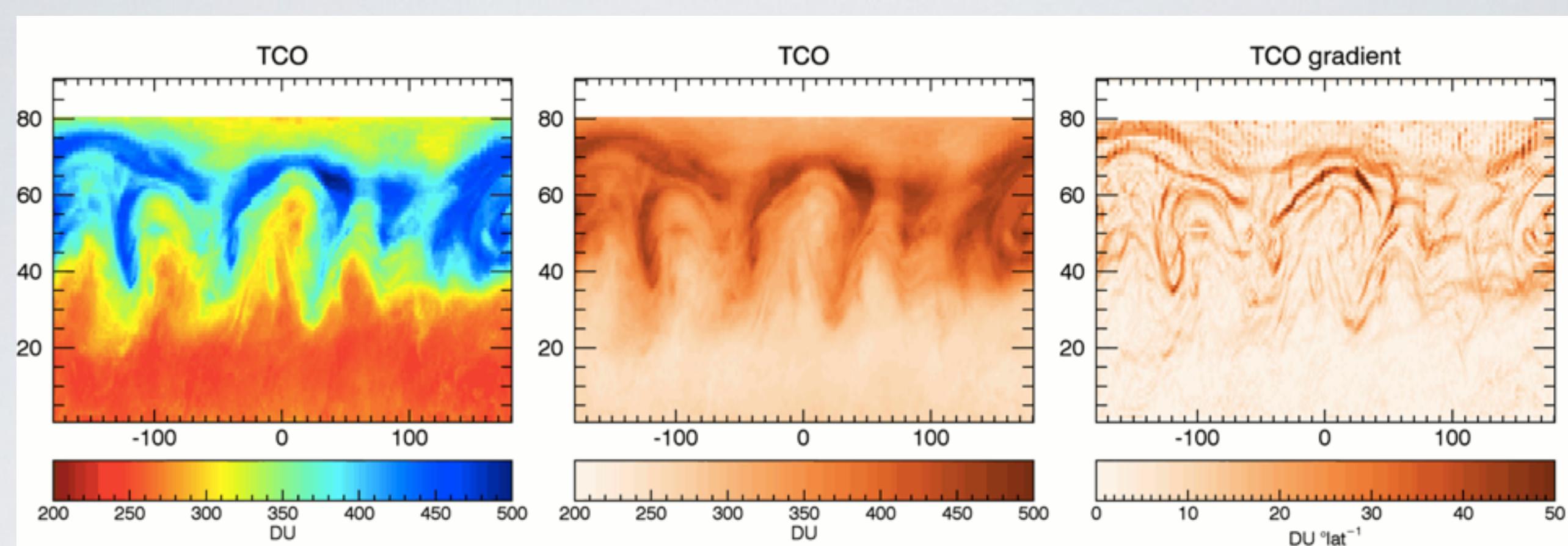
**ACTUAL
ENROLLMENT**

7,000,000

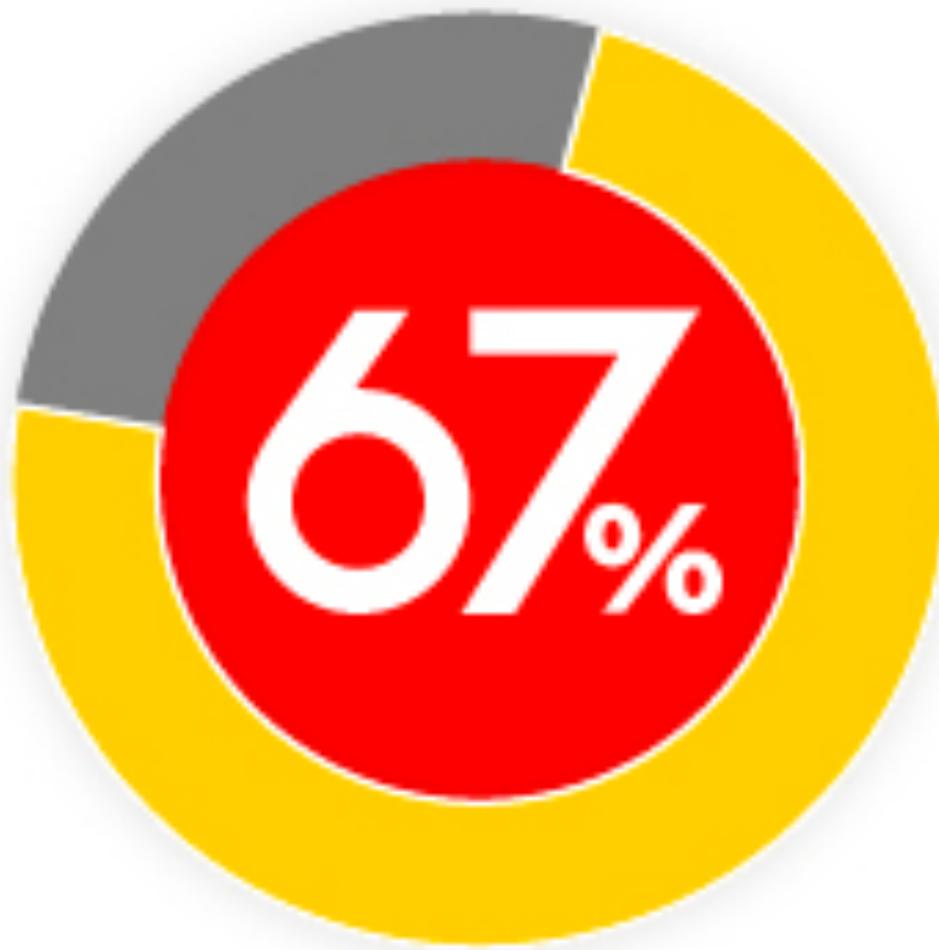
GOAL



Colour



Shapes

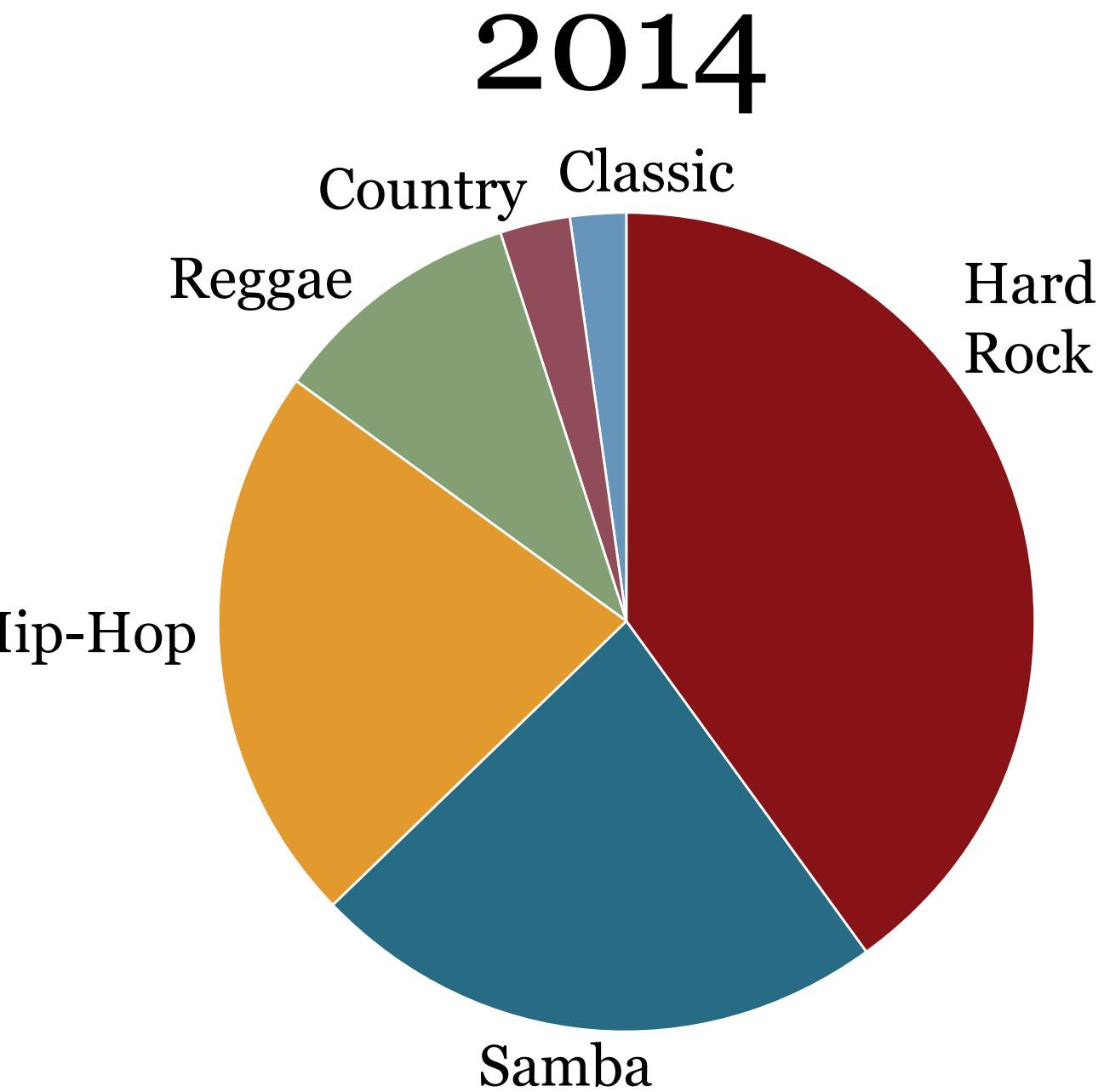
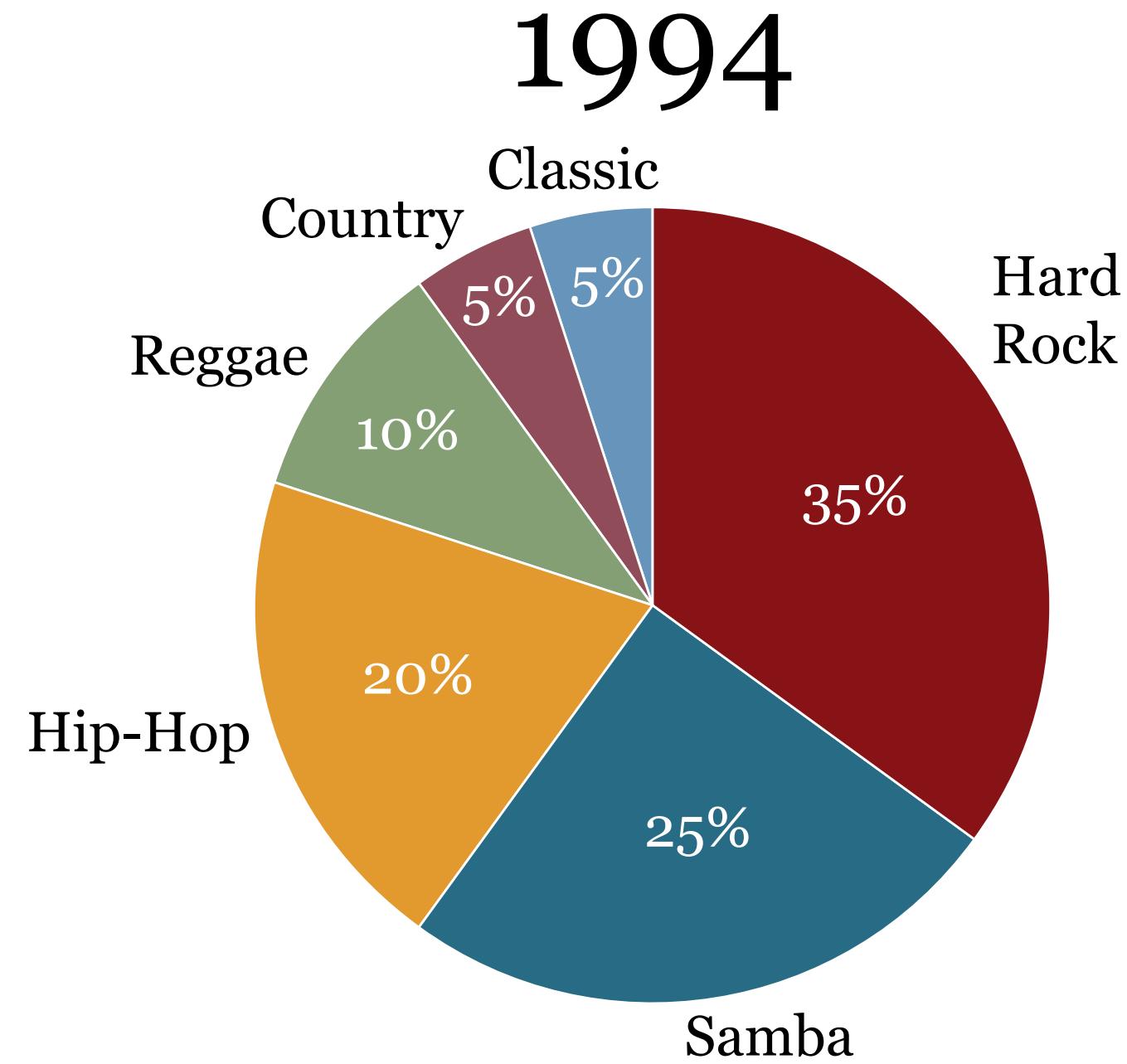


of all online deals were posted
before 5 p.m. EST.

How Music Preferences Have Changed in Two Decades

Music styles preferred by University of Miami students. Survey based on interviews with 1,000 students.

SOURCE: WishfulThinkingData Inc.

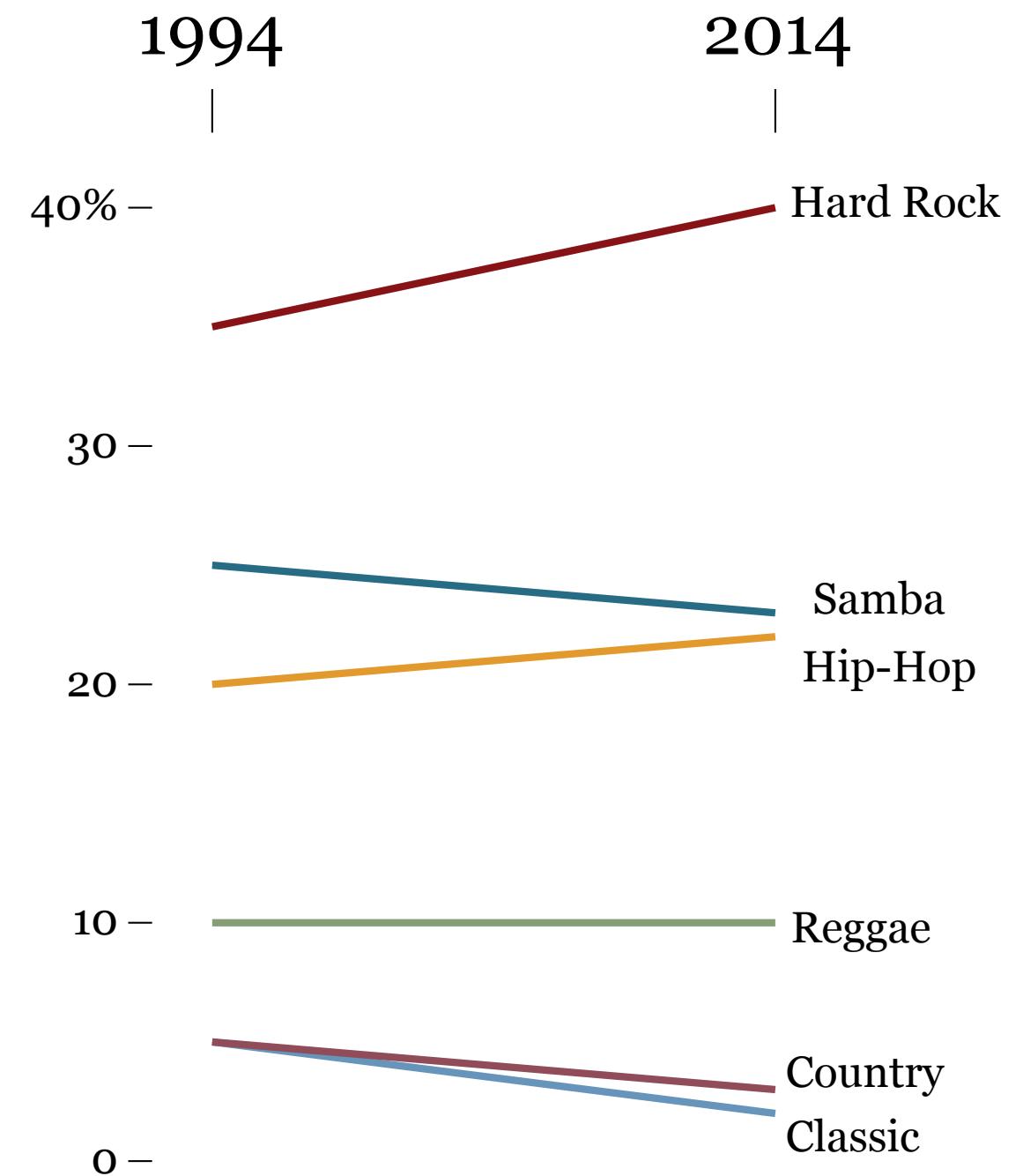


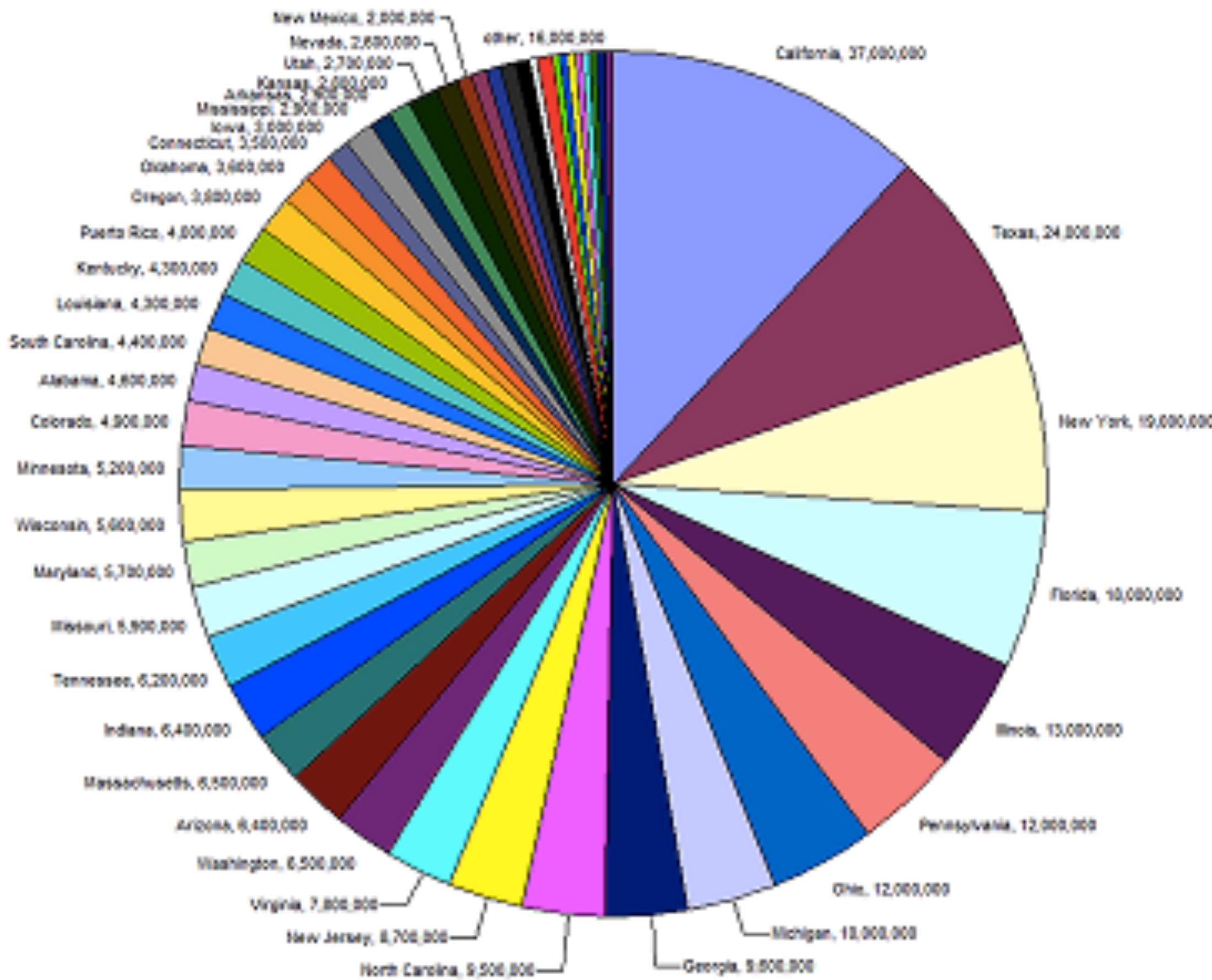
How Music Preferences Have Changed in Two Decades

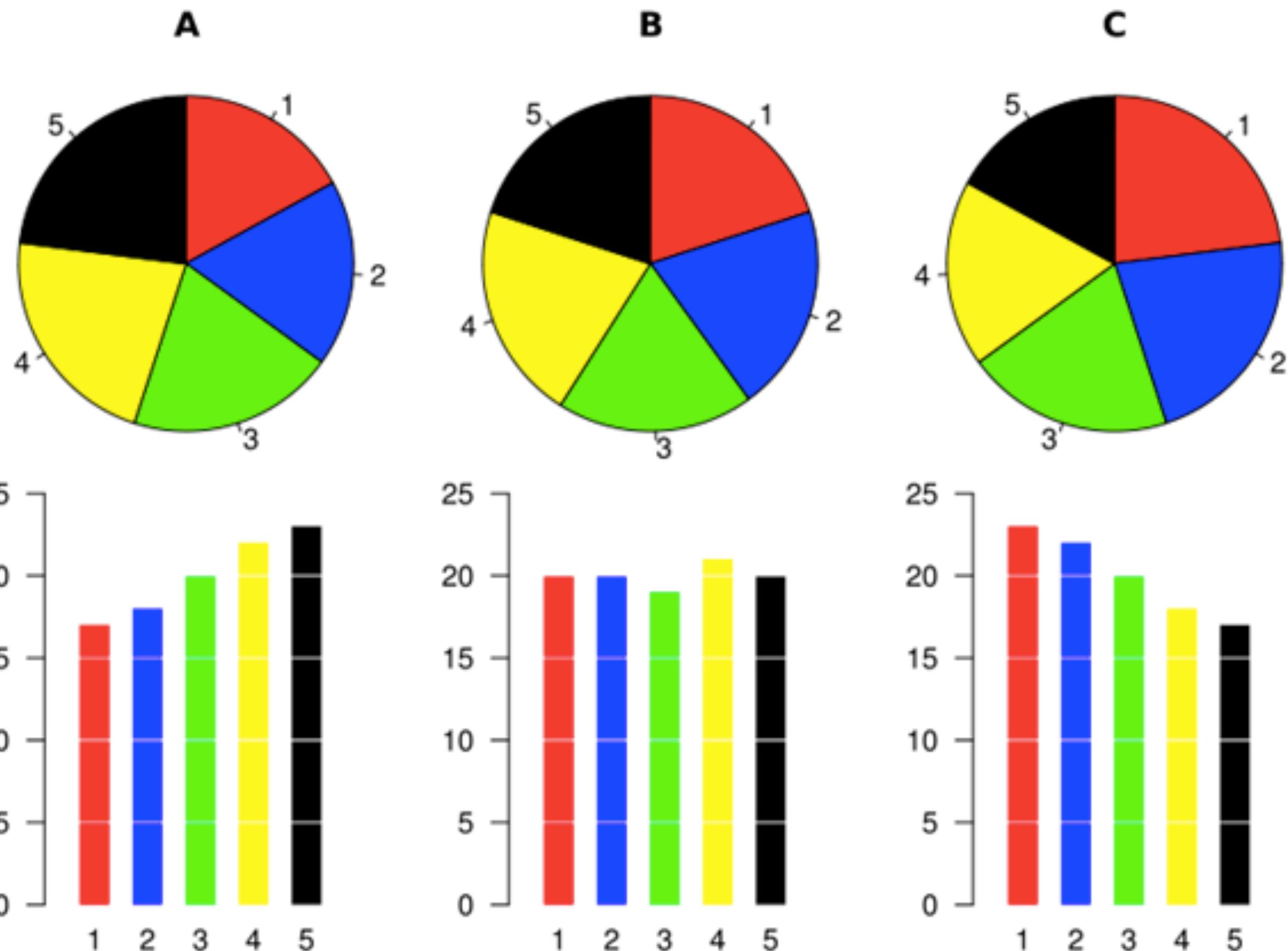
Music styles preferred by University of Miami students.

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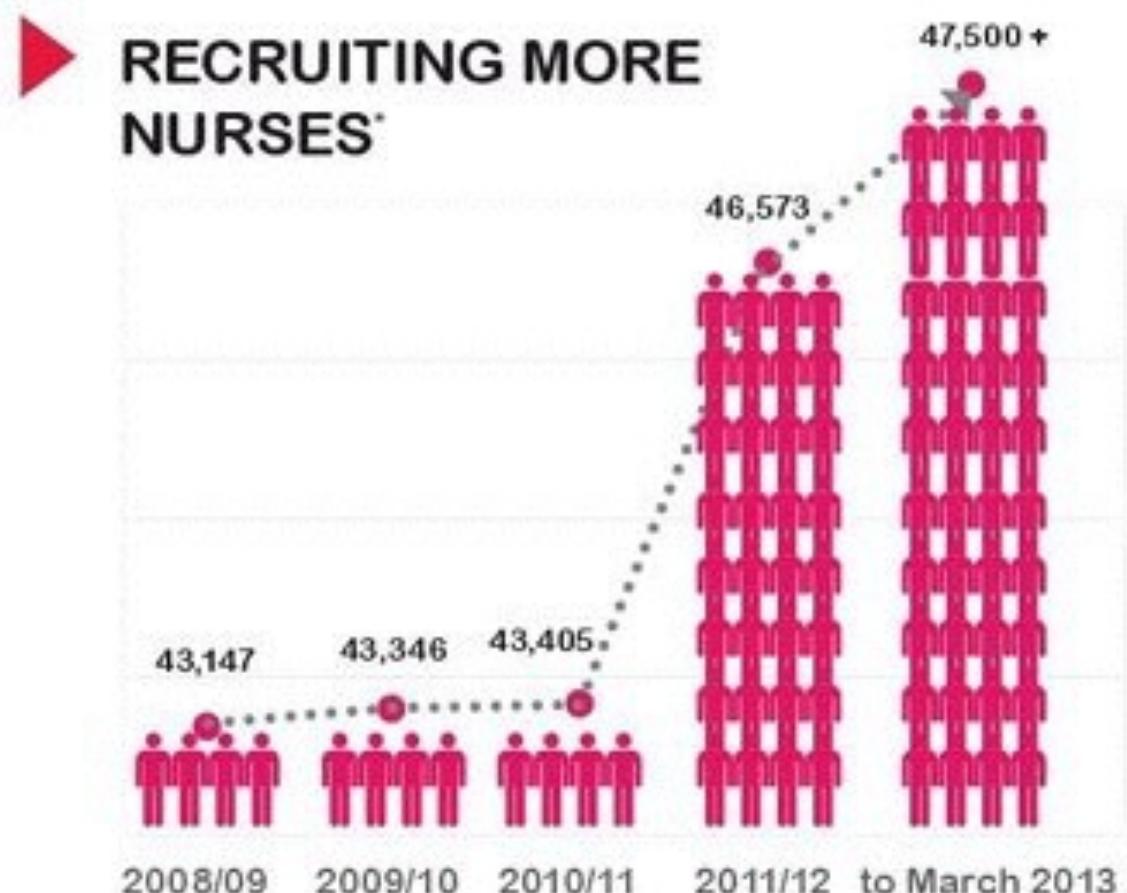






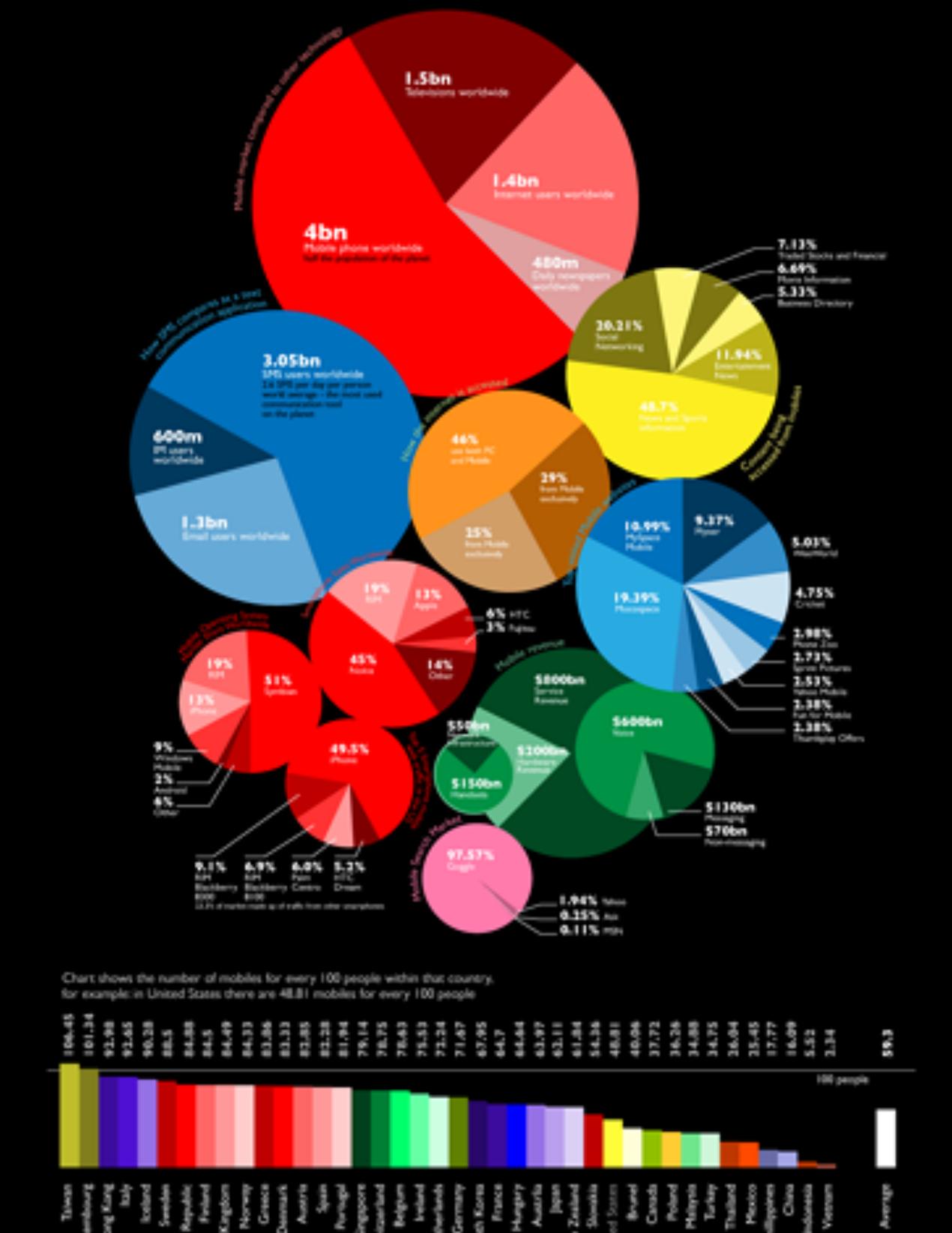


The NSW Health system is...



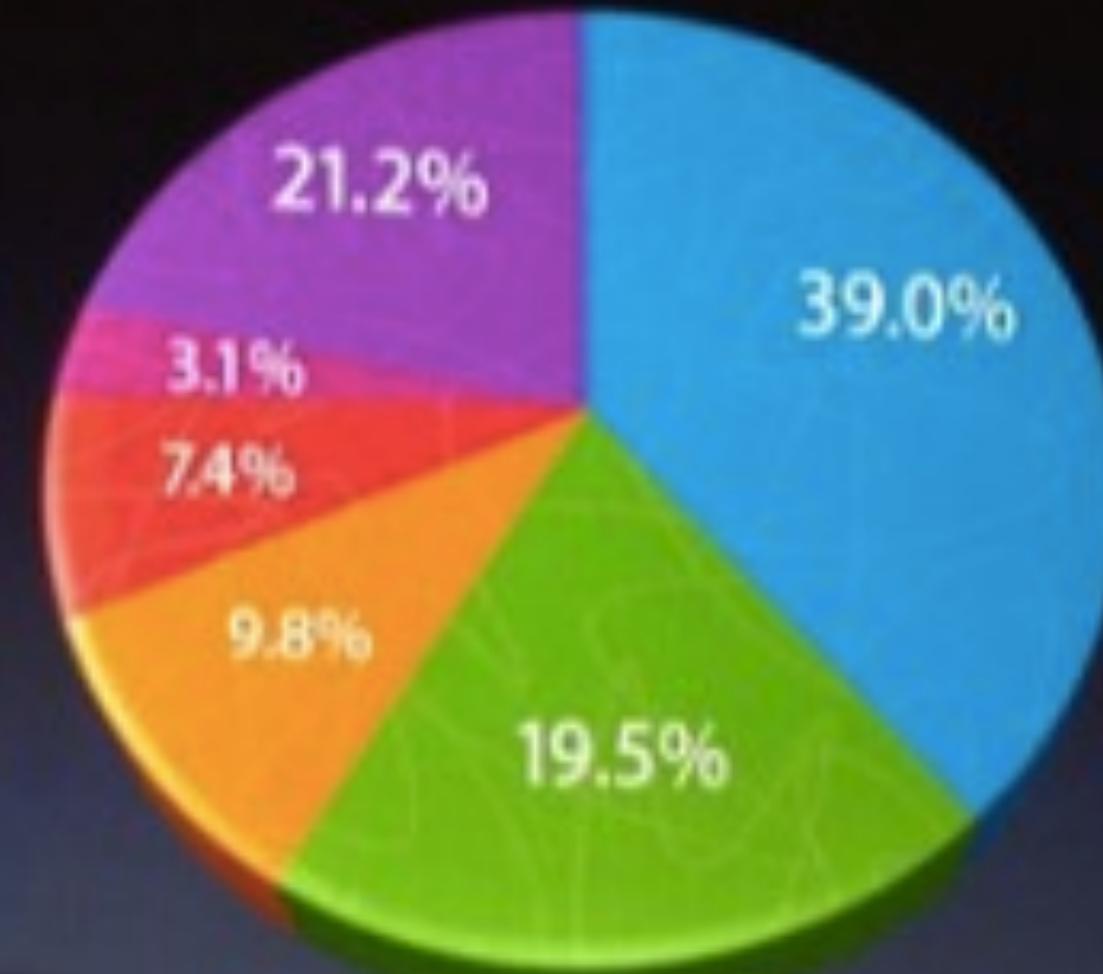
* Nursing headcount figures at June includes non casual staff and 3rd schedule

The size of the Mobile market



U.S. SmartPhone Marketshare

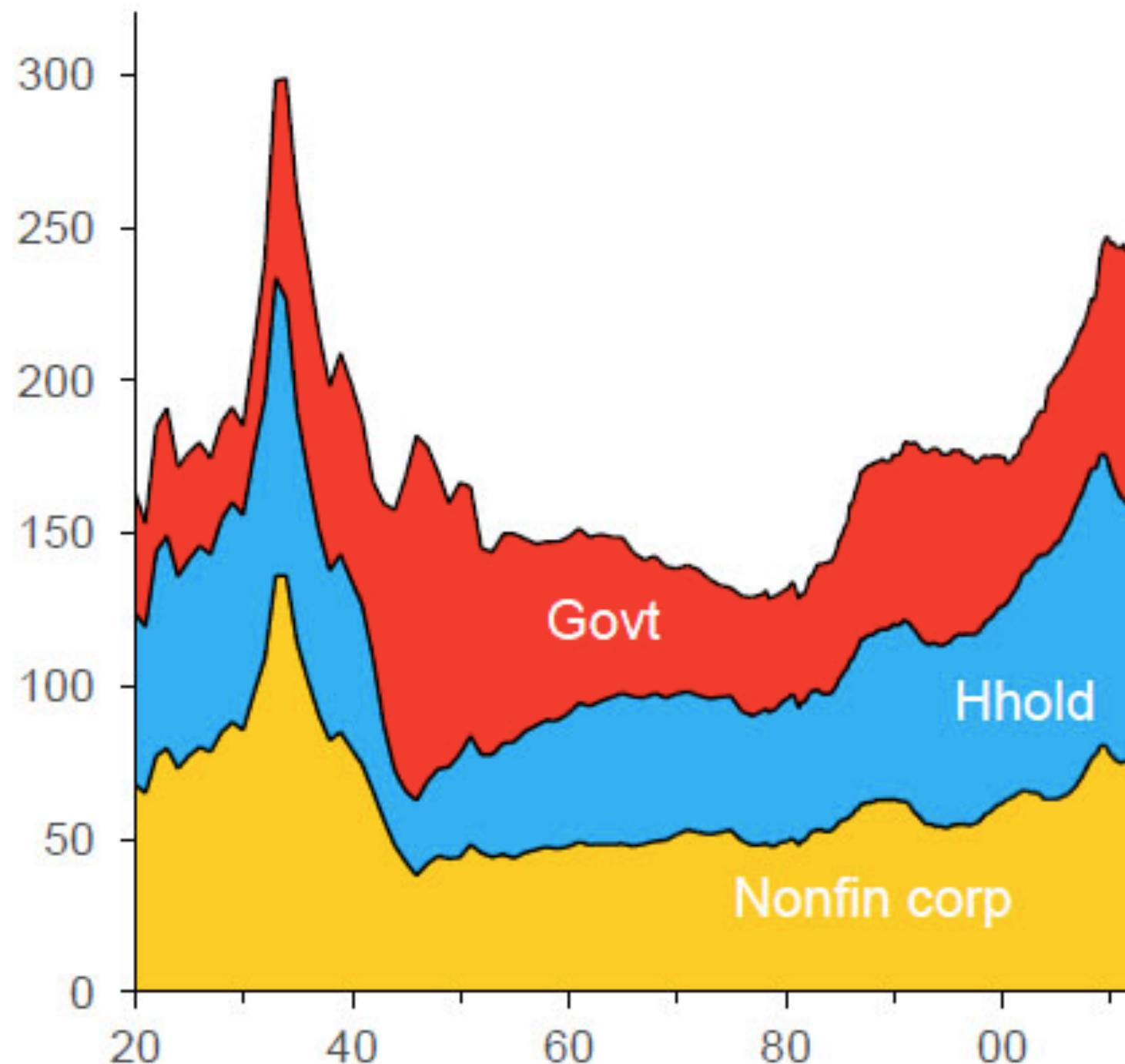
- RIM
- Apple
- Palm
- Motorola
- Nokia
- Other



Source: Gartner Inc.

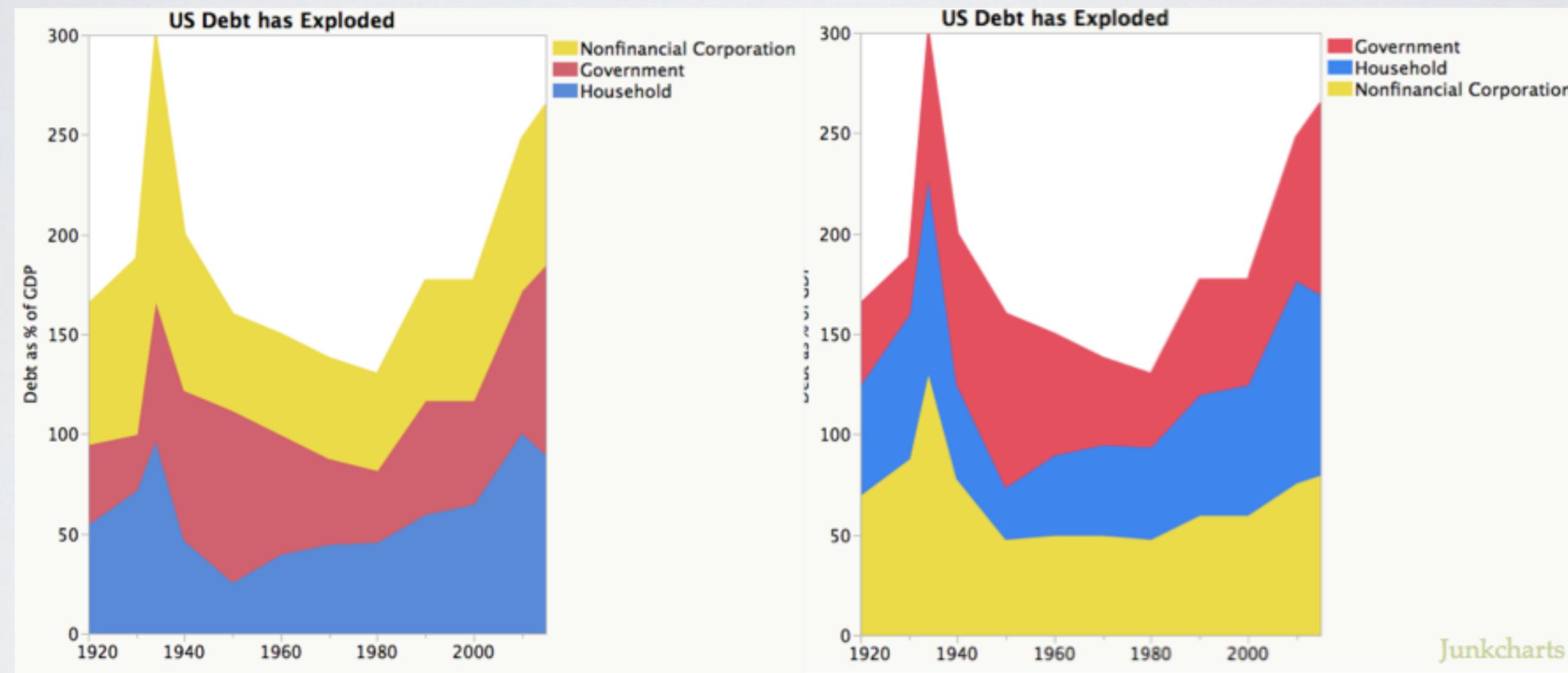
More debt = stronger wealth effects

US debt across non-fin sectors, % GDP

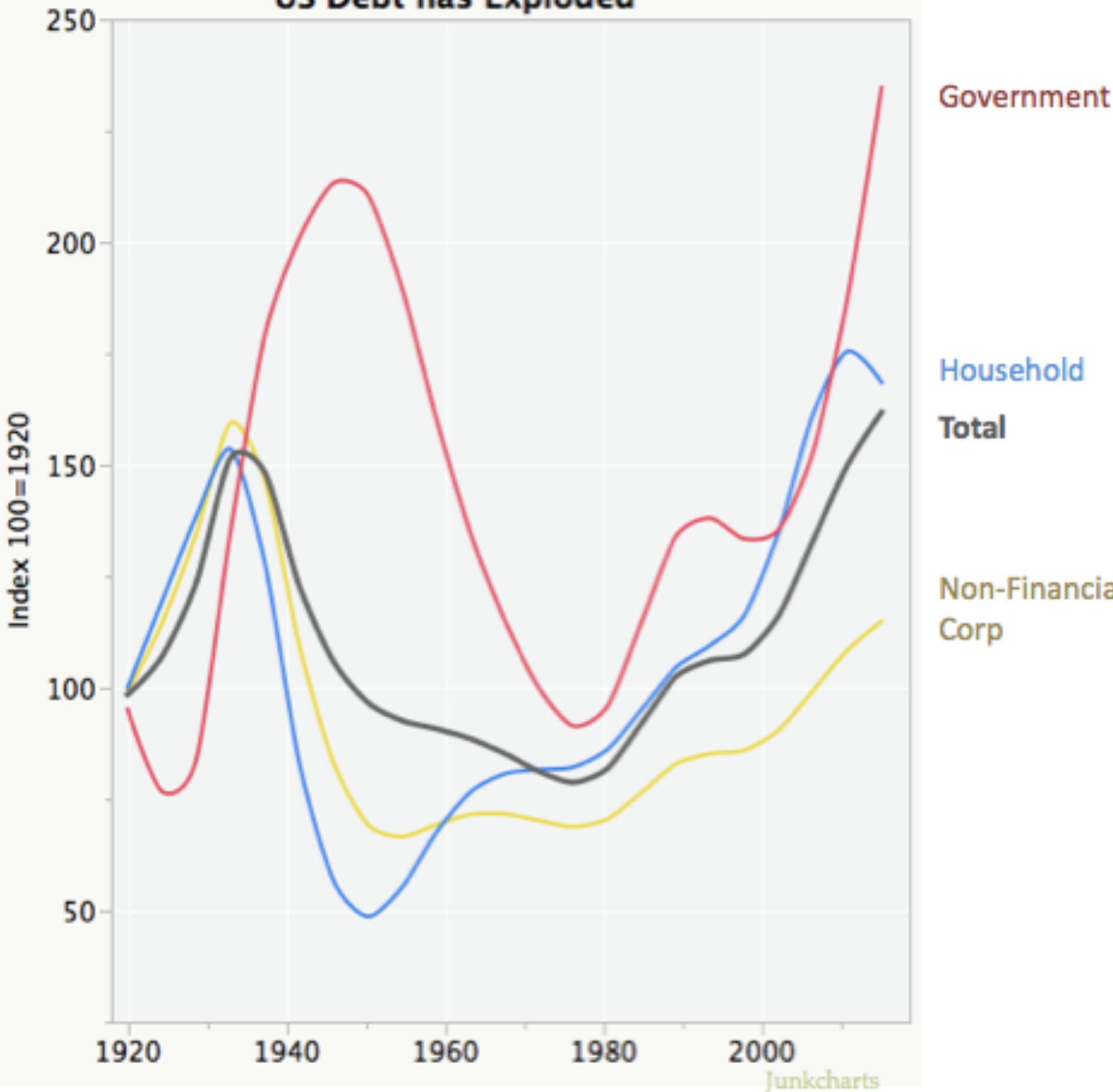


Source: Federal Reserve.

<http://junkcharts.typepad.com/>



US Debt has Exploded



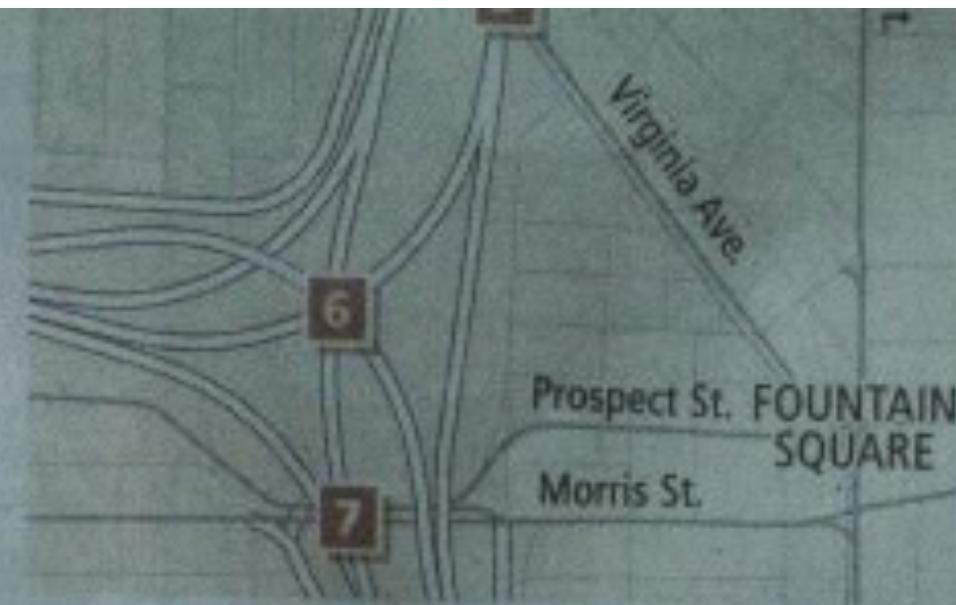
INDOT hopes to begin work in late August. About 9,000 drivers travel through the area daily, according to numbers from 2011, the most recent year available. The announcement follows a recommendation from the Indiana Department of Transportation, which says an overpass struck the Virginia Avenue bridge, shutting down westbound I-65 and eastbound traffic. Emergency repairs were made.

There have been no recorded more similar incidents since

"We want to emphasize that the bridge is structurally safe," said Brian Wingfield, INDOT's deputy director of engineering. "Our goal is to decrease the probability of bridge

closure, Wingfield said. Movement will be low-

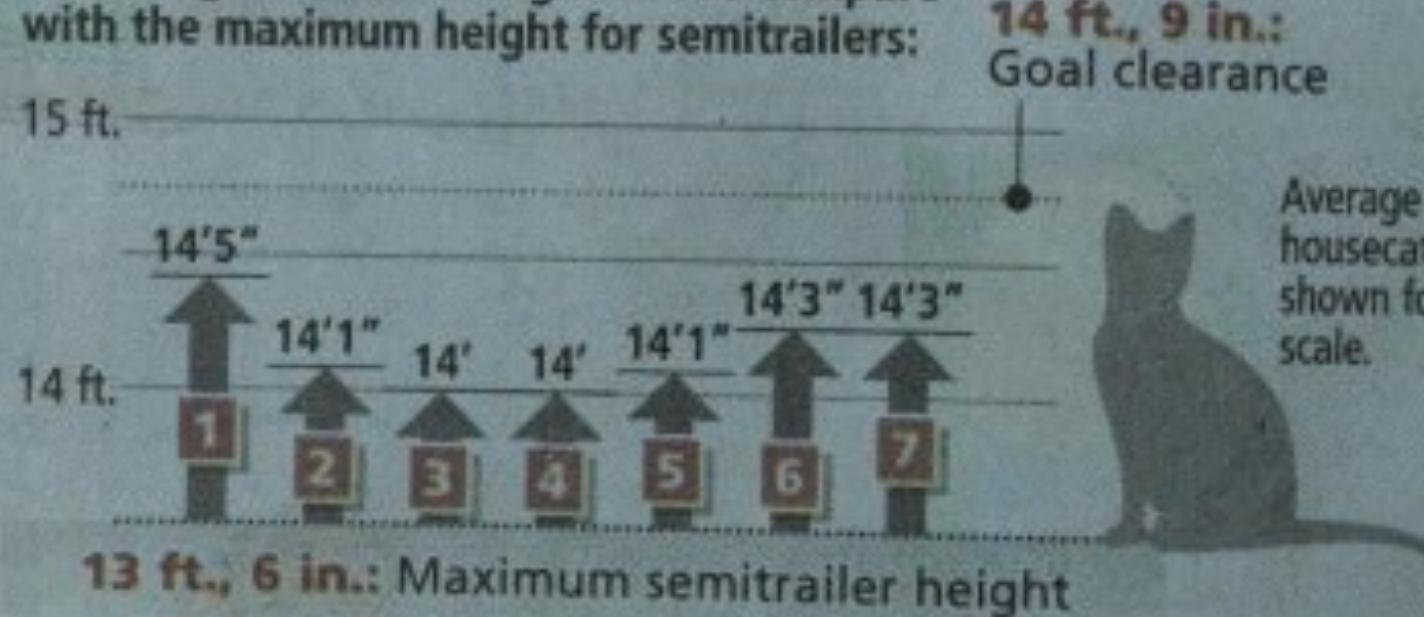
» See SPLIT, Page B3



- 6. I-65 southbound ramp bridge to I-70 westbound
- 7. Morris Street bridge over I-65 southbound

How heights of the bridges above compare with the maximum height for semitrailers:

15 ft.



SOURCE: INDOT

STEPHEN J. BEARD / THE STAR

Office help

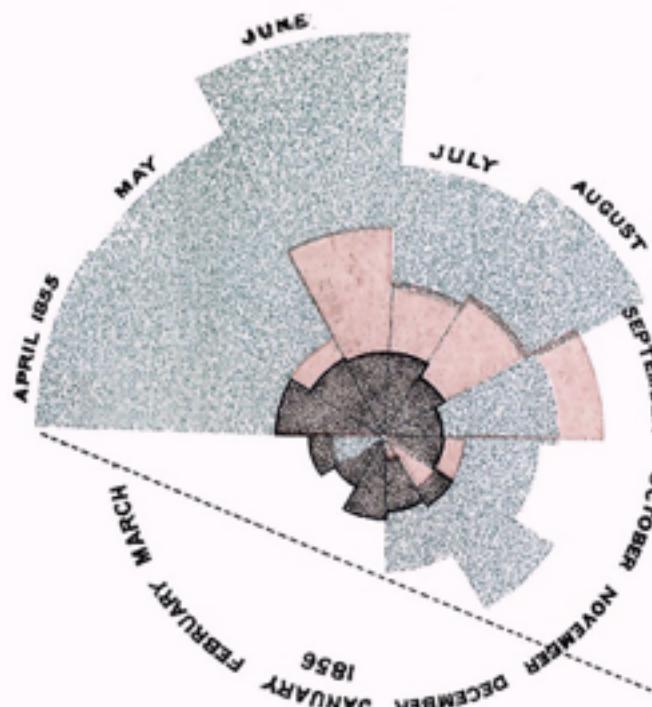
In front
dows, ta
state an
relief to
and the

Under
neighbo
ize their
easier f

his Carmel appearance

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

APRIL 1855 TO MARCH 1856.



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

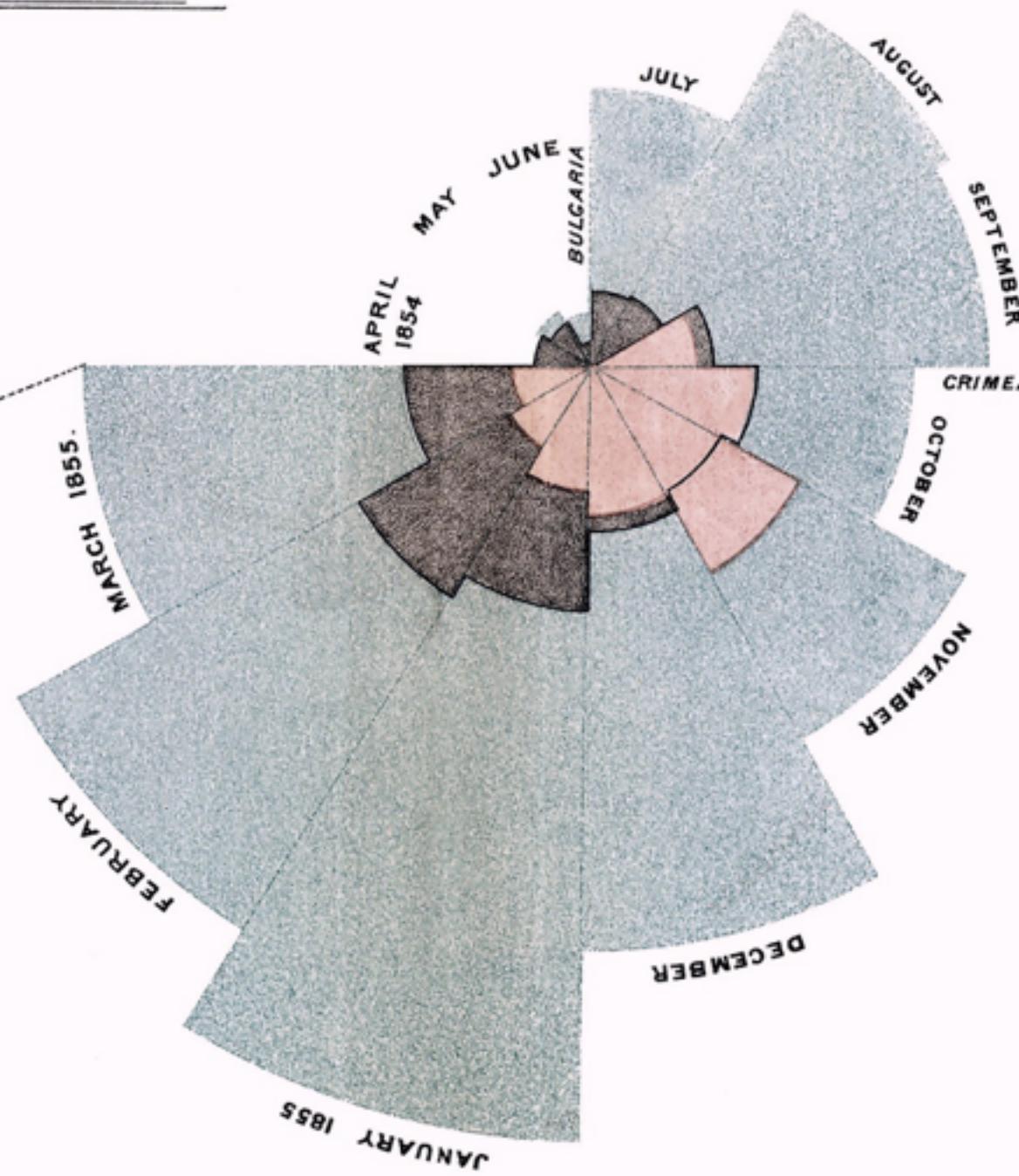
The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases; the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes.

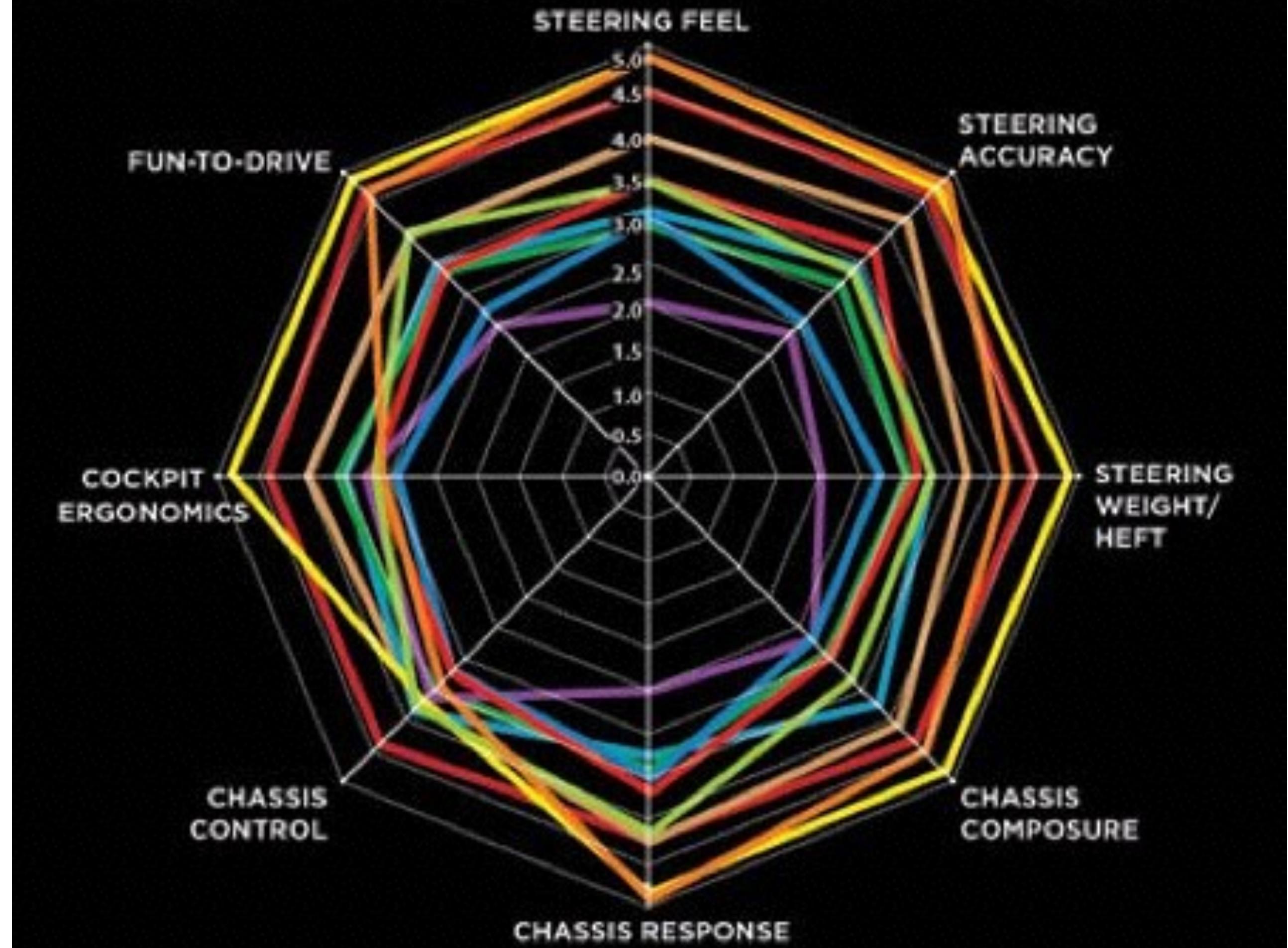
The black line across the red triangle in Nov. 1854 marks the boundary of the deaths from all other causes during the month.

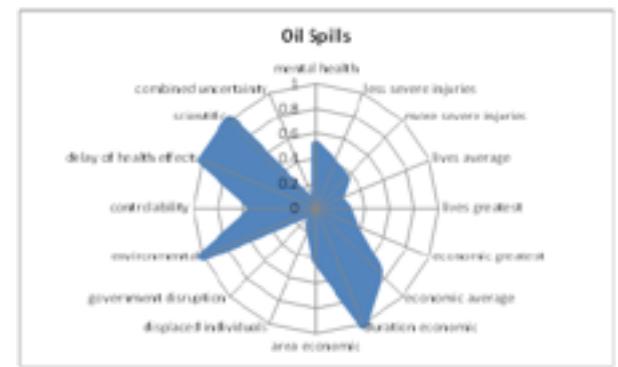
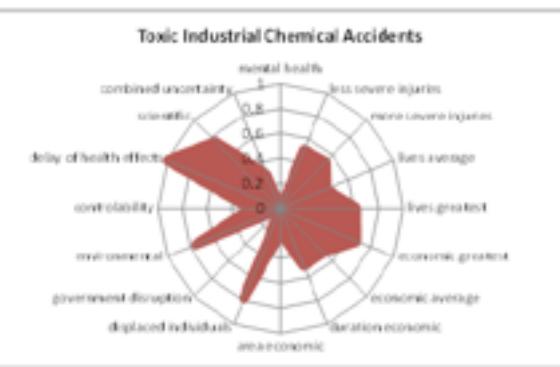
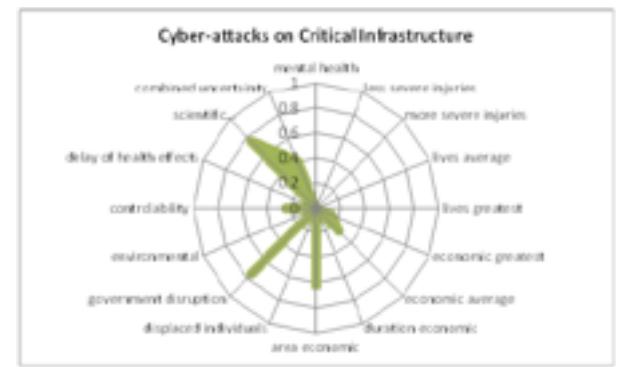
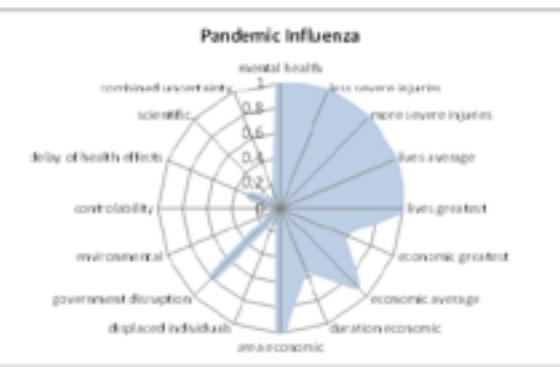
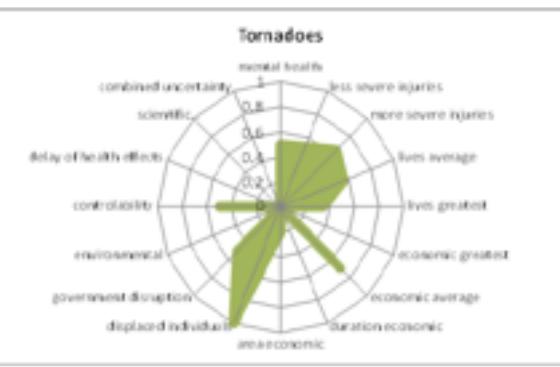
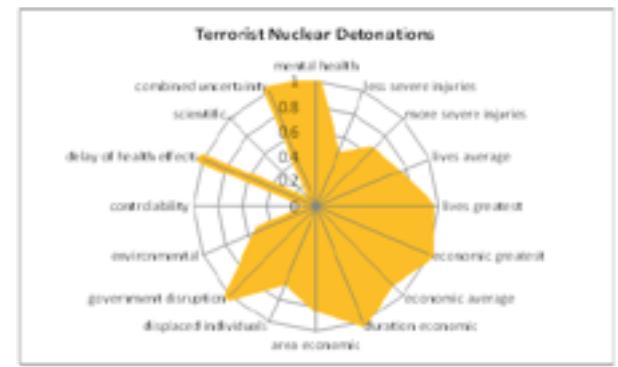
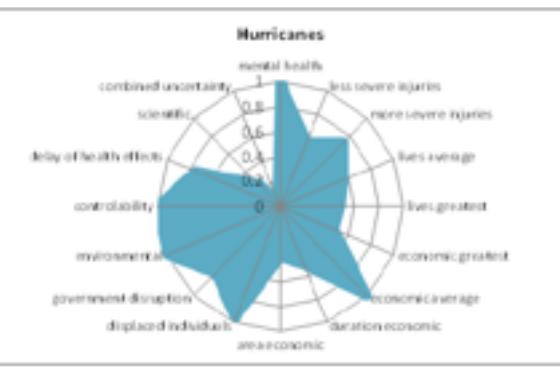
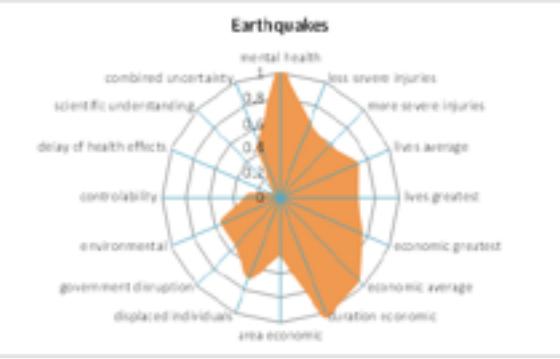
In October 1854, & April 1855, the black area coincides with the red; in January & February 1856, the blue coincides with the black.

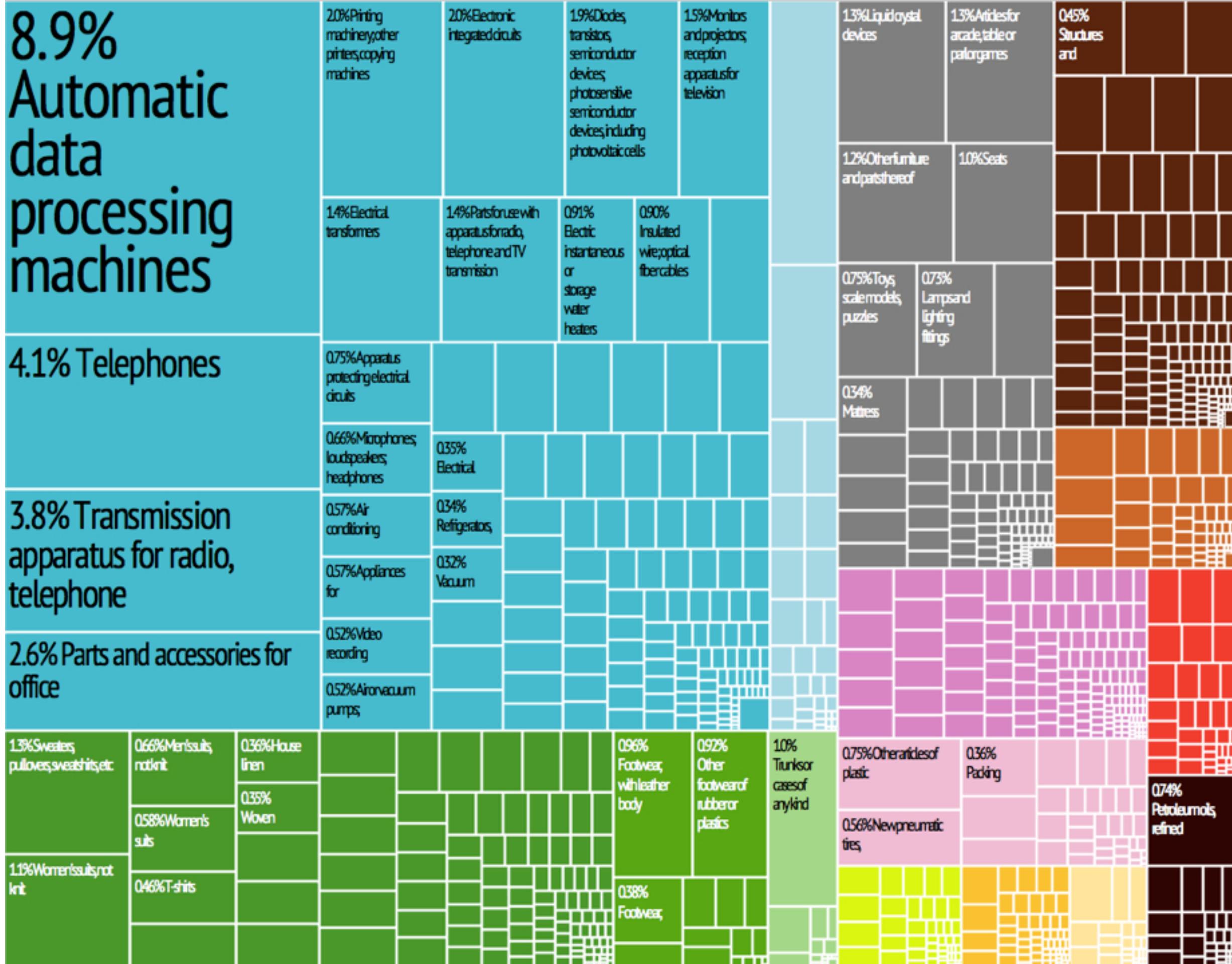
The entire areas may be compared by following the blue, the red & the black lines enclosing them.

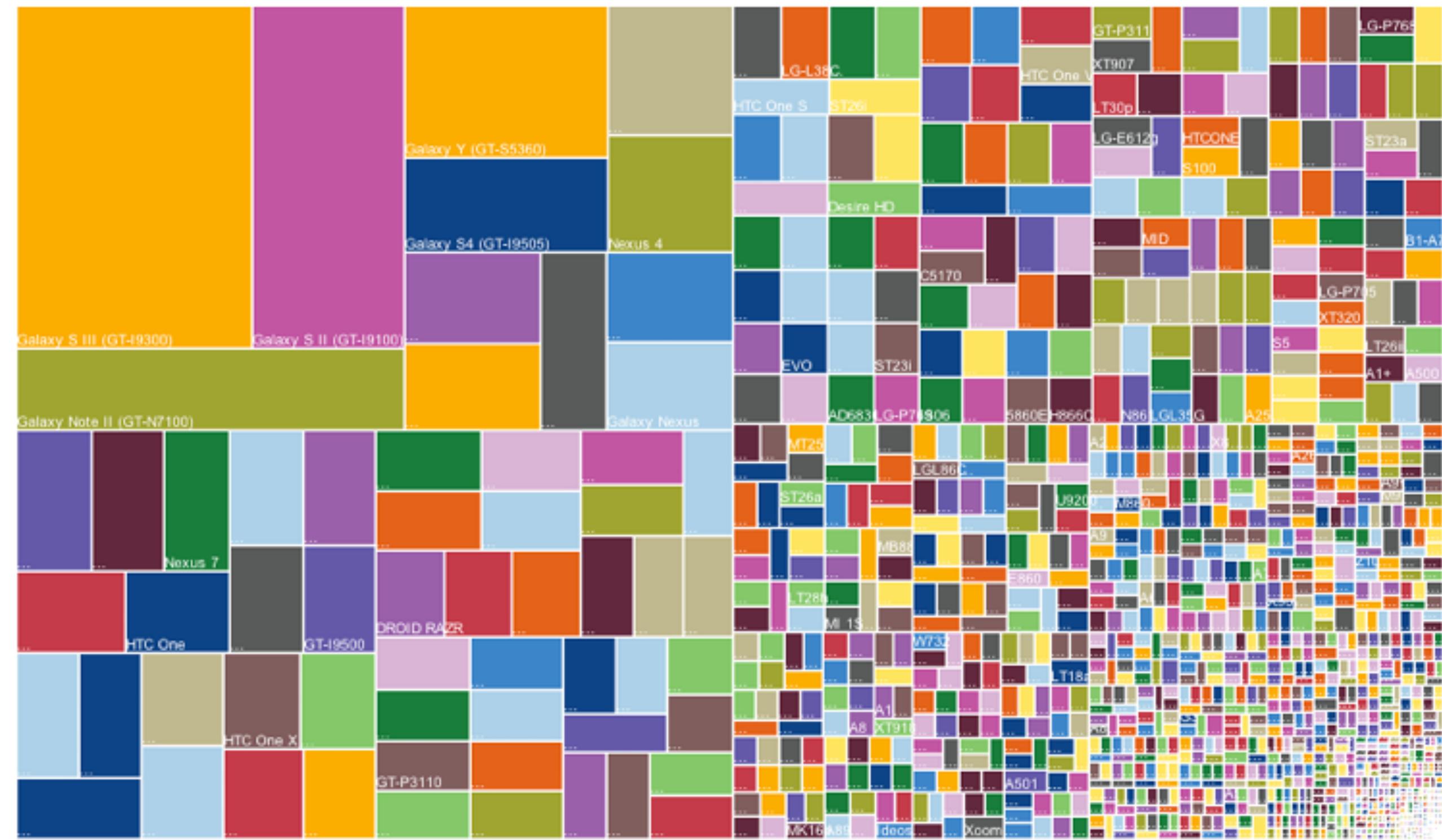
1.
APRIL 1854 TO MARCH 1855.





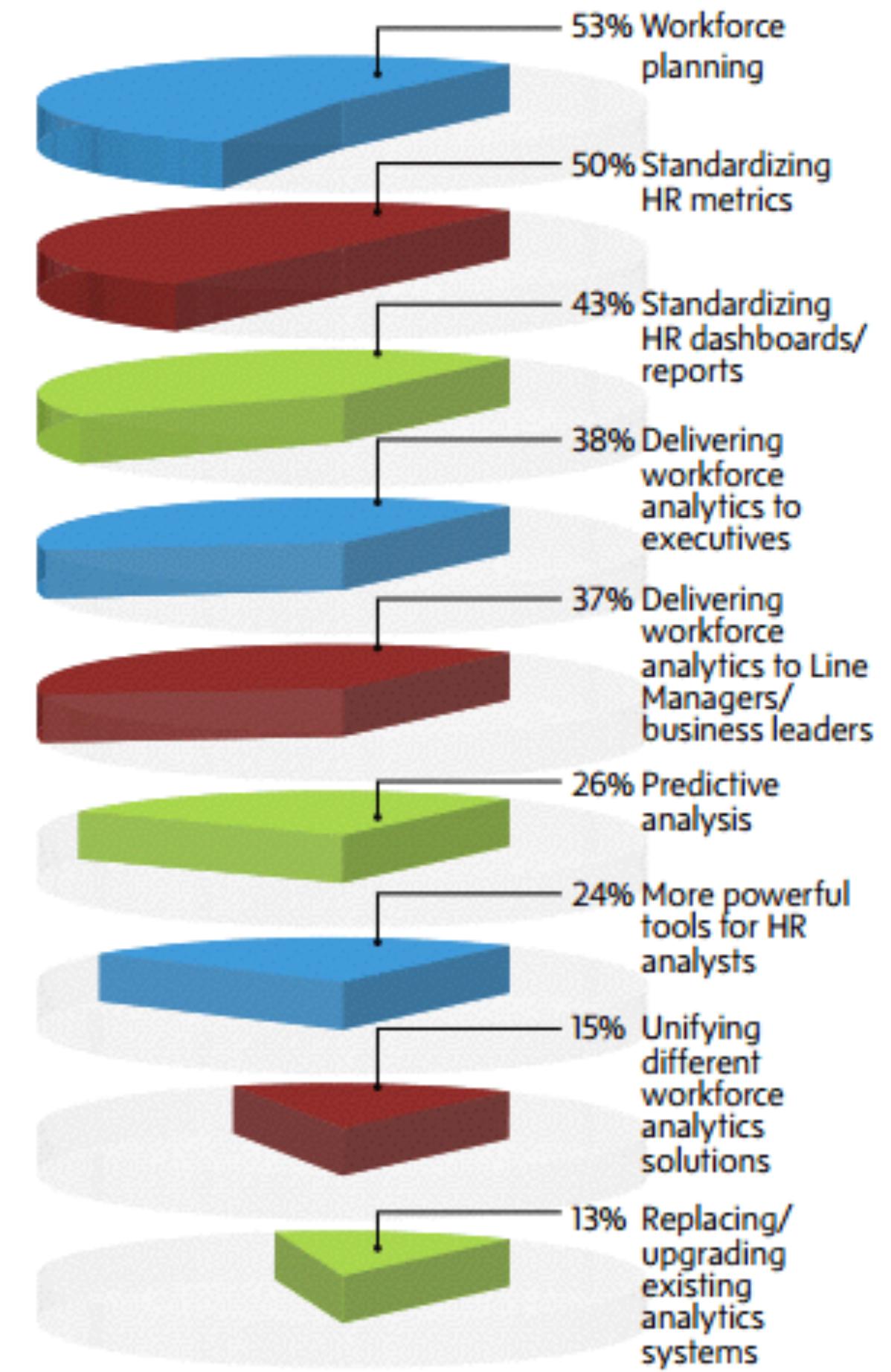






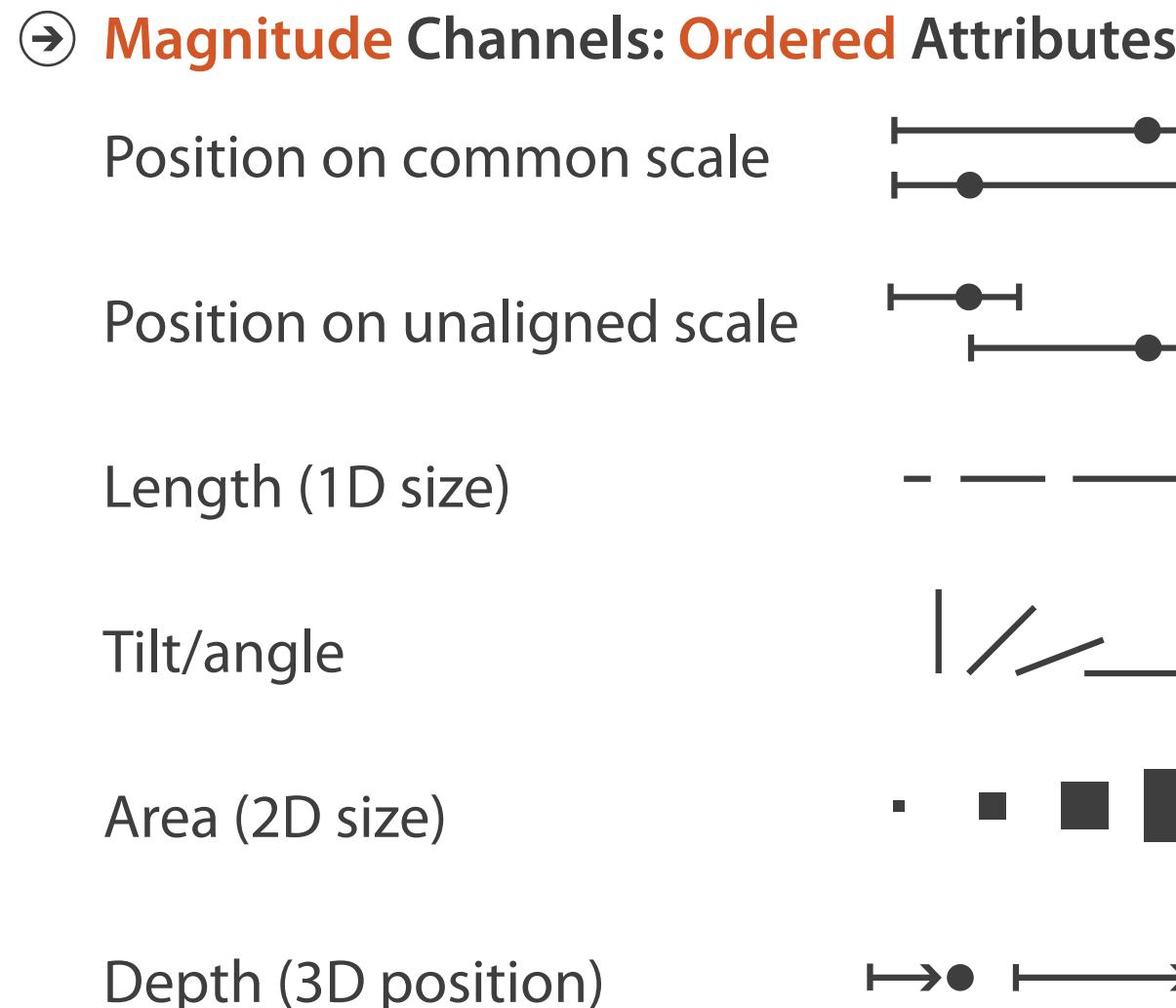
Rules of Thumb

- Axes should
 - be consistent (among them and with user experience)
 - be well labeled
 - reach the origin for bar charts (and everywhere minus exceptional conditions)
- No unjustified 3D
 - Power of the plane
 - Disparity of depth
 - Occlusion hides information
 - Perspective distortion dangers
 - Tilted text isn't legible
- No unjustified 2D
- Eyes beat memory
- Resolution over immersion
- Overview first, zoom and filter, details on demand
- Responsiveness is required
- Function first, form next.

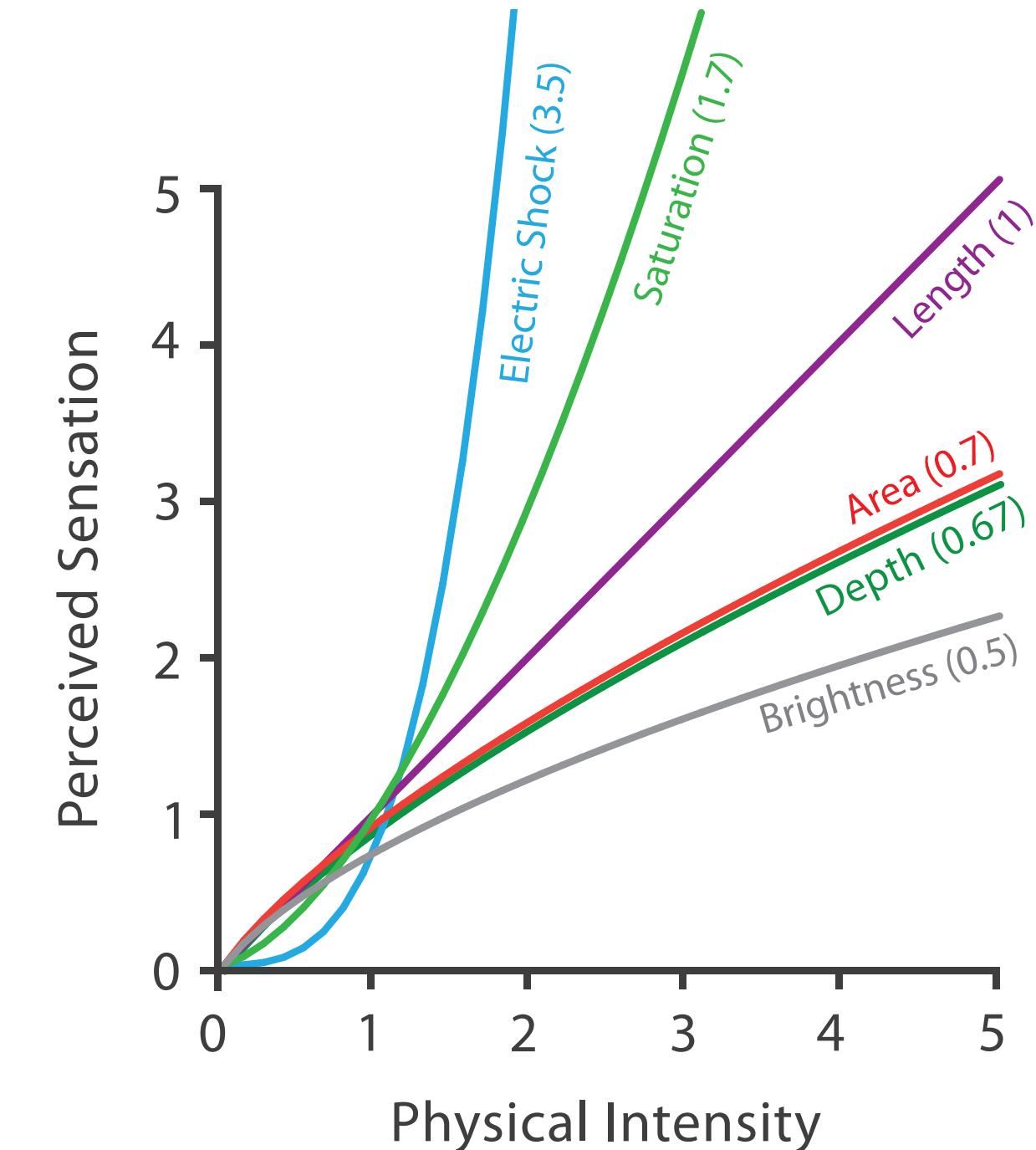


No unjustified 3D: Power of the plane

- high-ranked spatial position channels: **planar spatial position**
 - not depth!

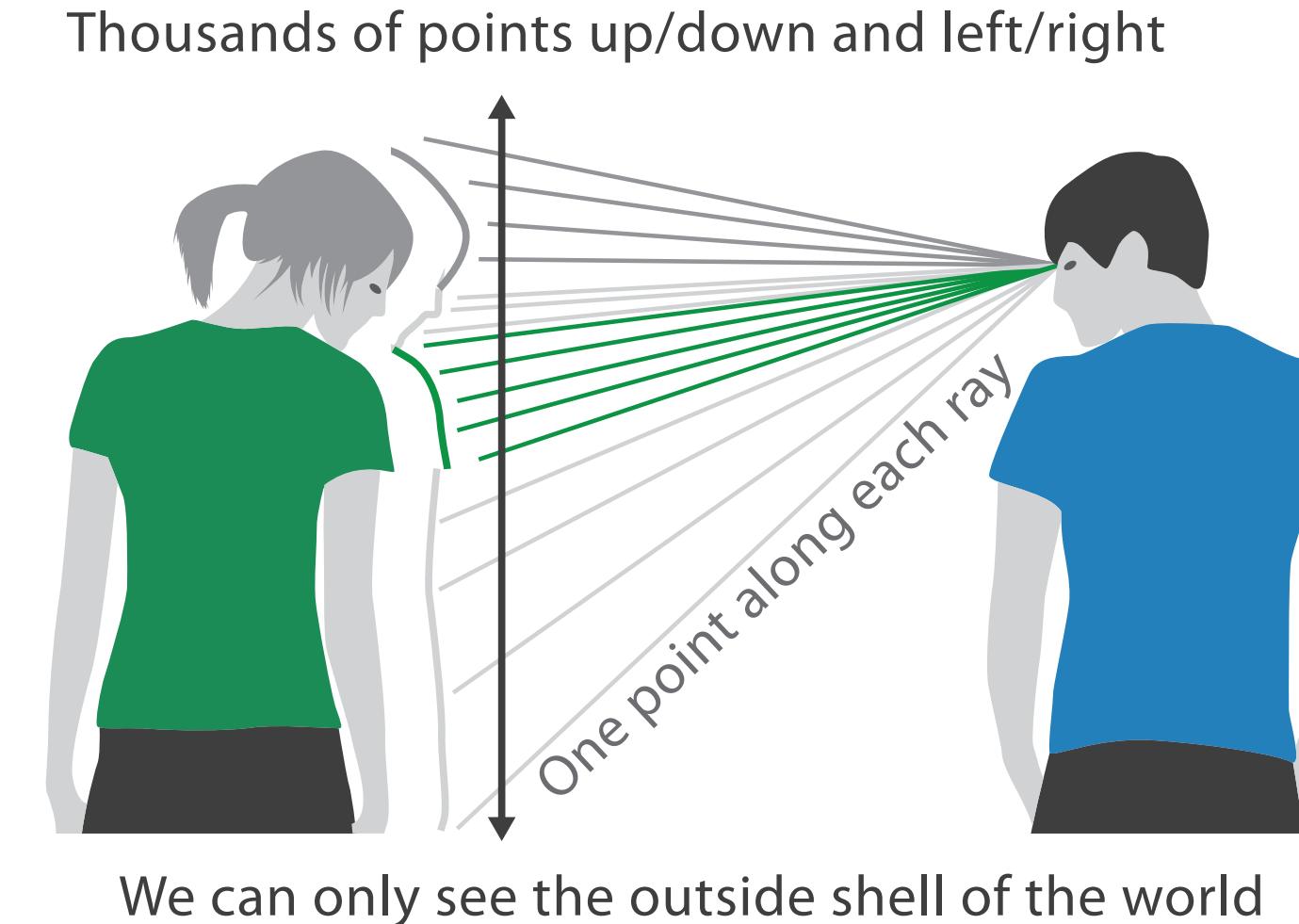
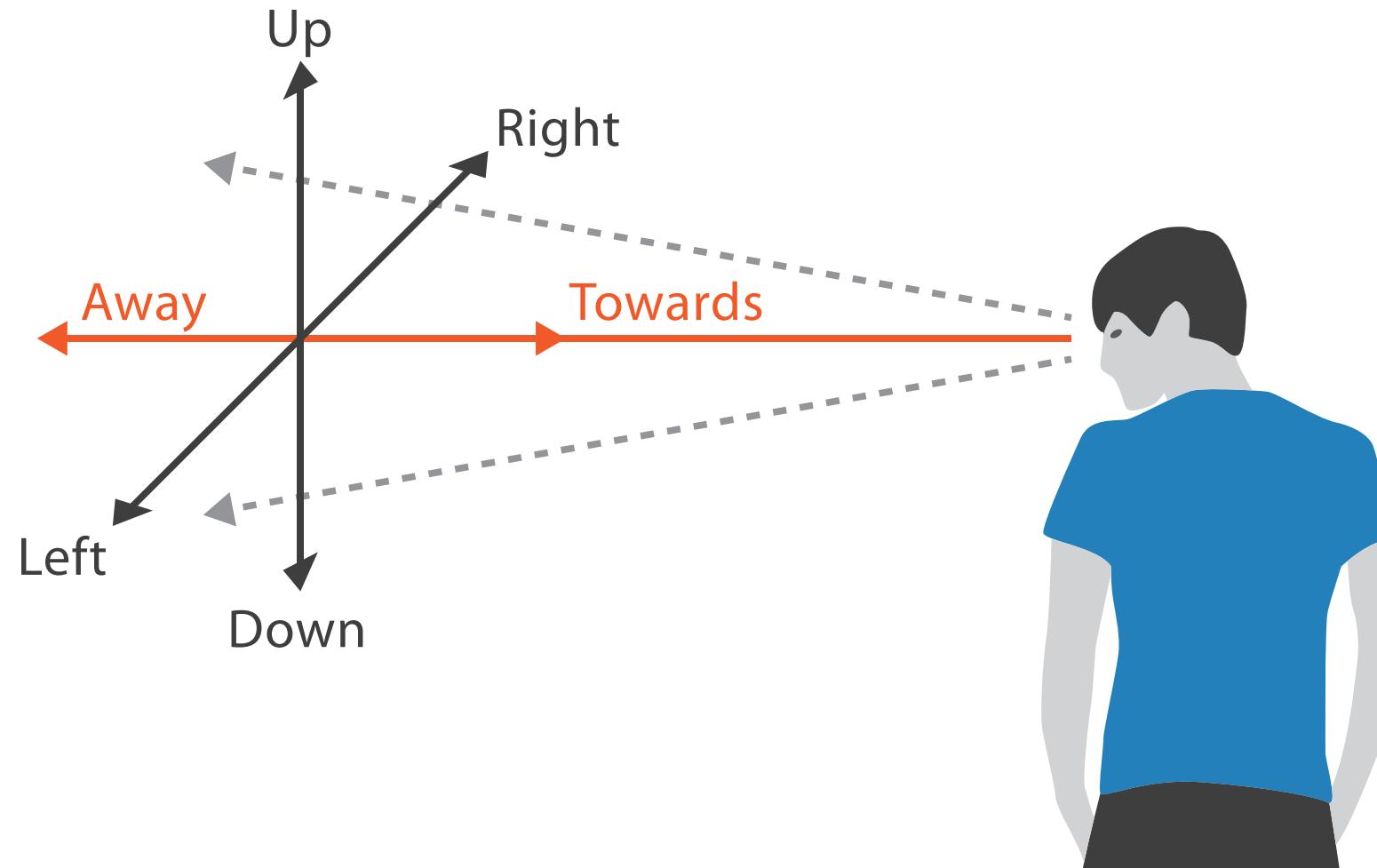


Steven's Psychophysical Power Law: $S = I^n$



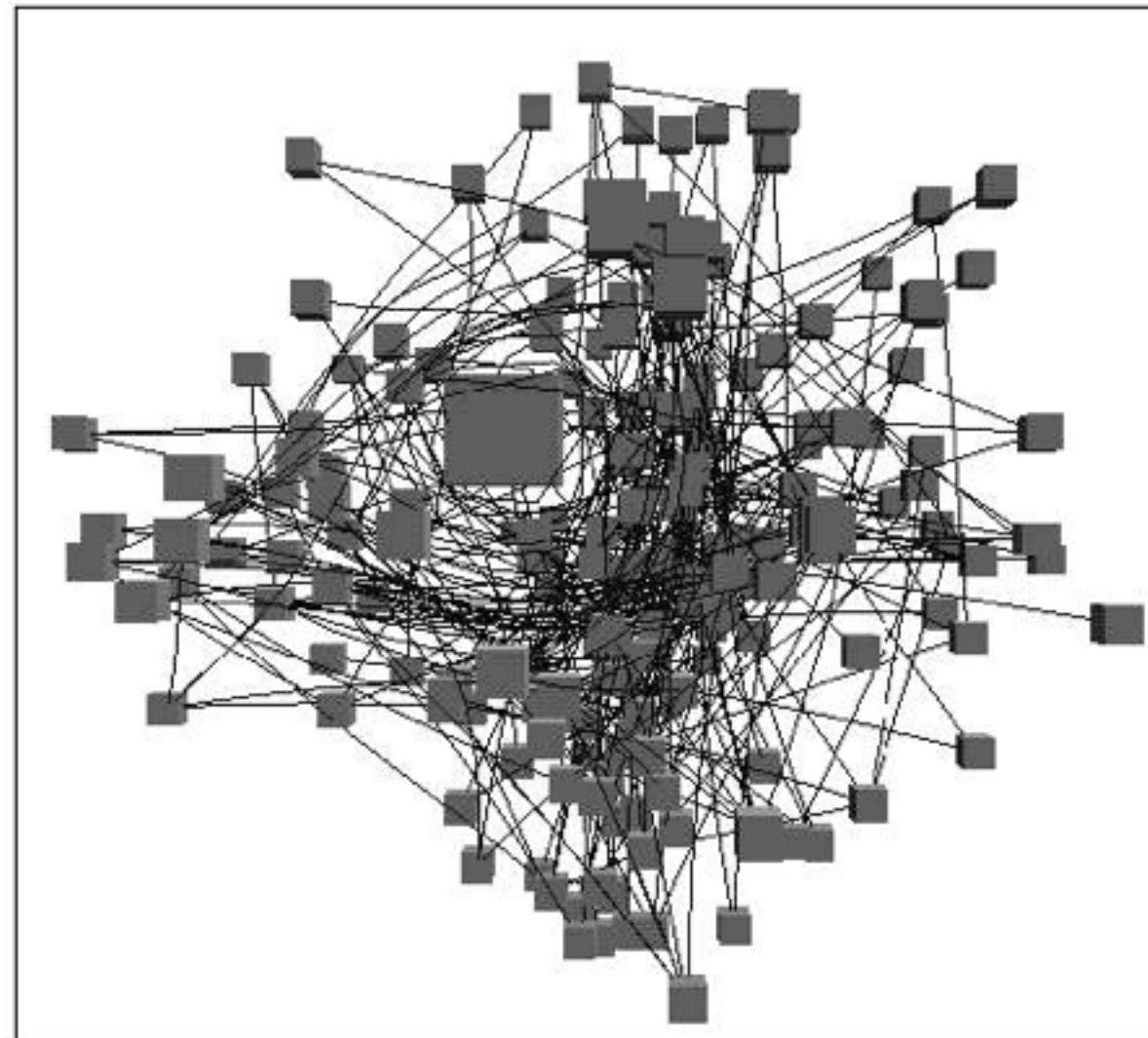
No unjustified 3D: Danger of depth

- we don't really live in 3D: we **see** in 2.05D
 - acquire more info on image plane quickly from eye movements
 - acquire more info for depth slower, from head/body motion



Occlusion hides information

- occlusion
- interaction complexity



[*Distortion Viewing Techniques for 3D Data. Carpendale et al. InfoVis 1996.*]

Perspective distortion loses information

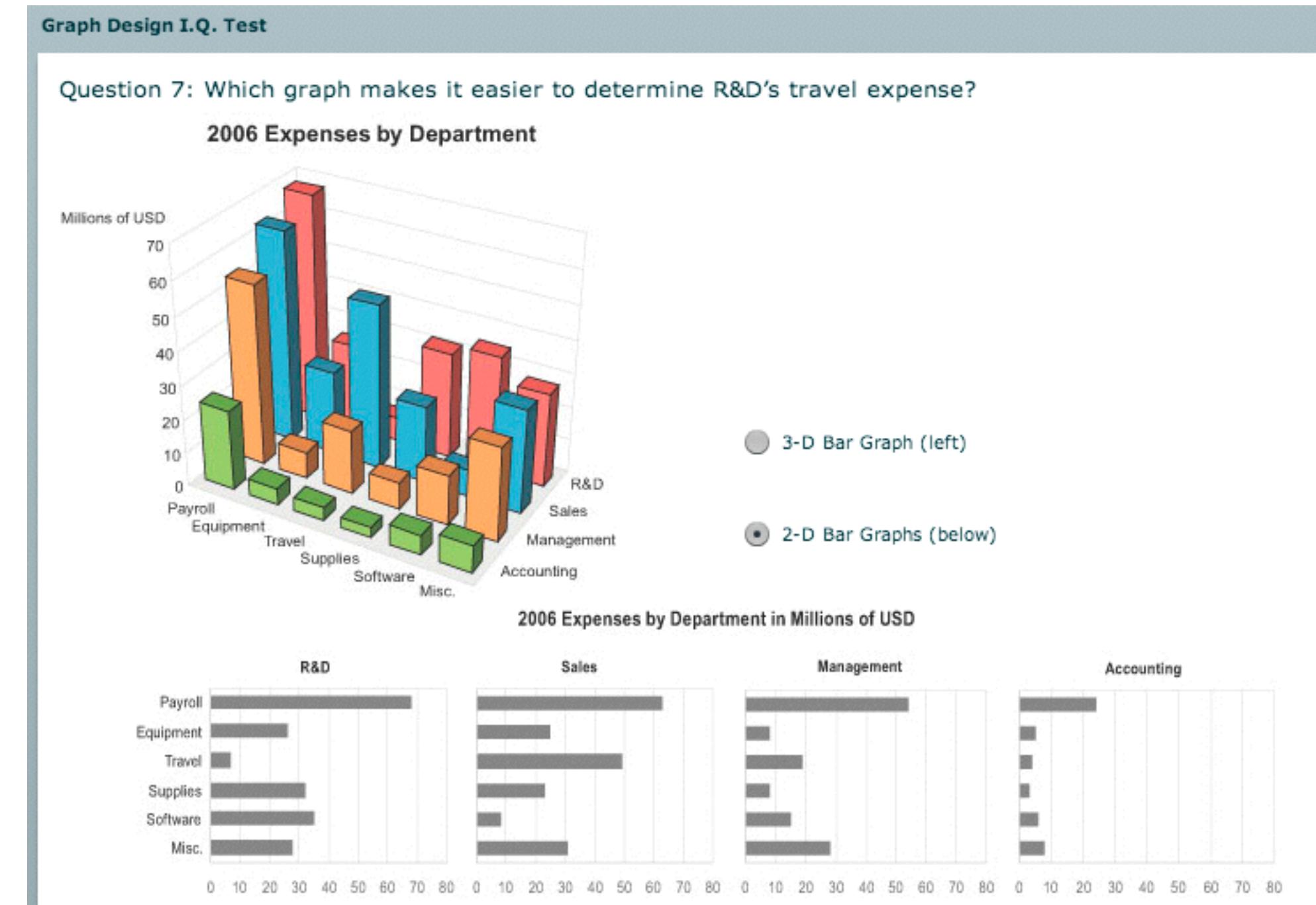
- perspective distortion
 - interferes with all size channel encodings
 - power of the plane is lost!



[Visualizing the Results of Multimedia Web Search Engines.
Mukherjea, Hirata, and Hara. InfoVis 96]

3D vs 2D bar charts

- 3D bars never a good idea!

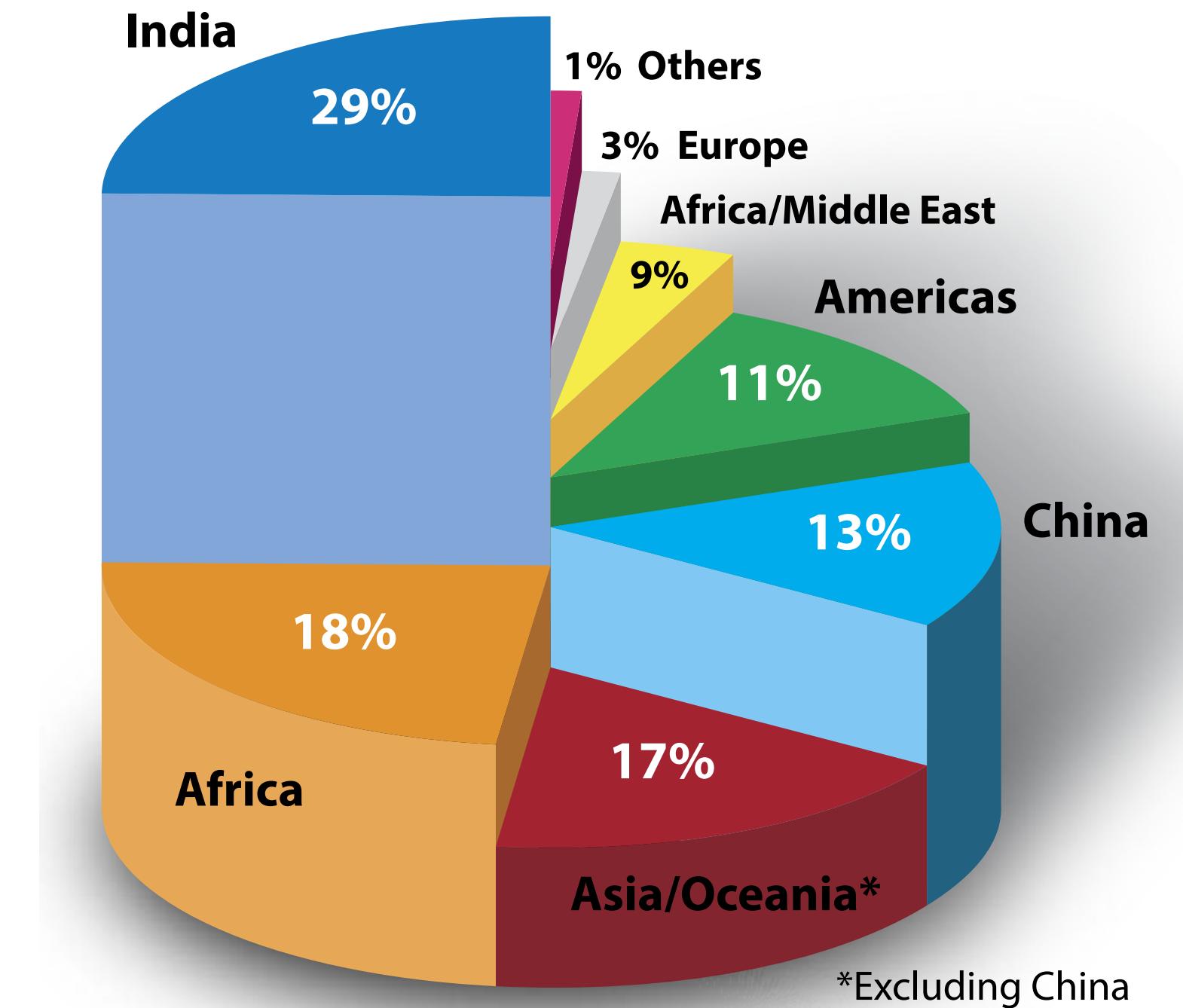


[<http://perceptualedge.com/files/GraphDesignIQ.html>]

3D vs 2D bar charts

- 3D bars never a good idea!

Share of worldwide urban population growth 2010-2050

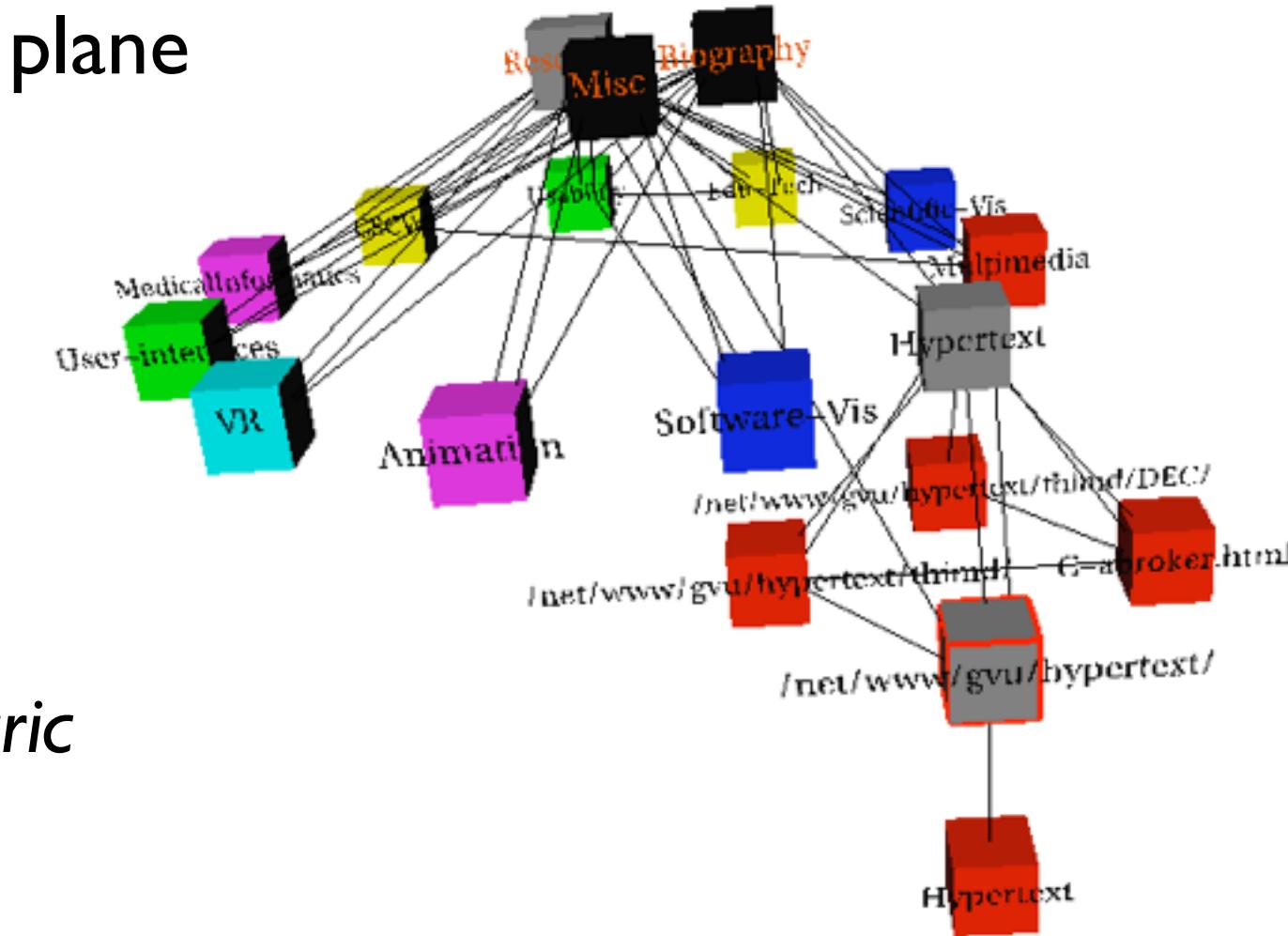


Tilted text isn't legible

- text legibility
 - far worse when tilted from image plane

- further reading

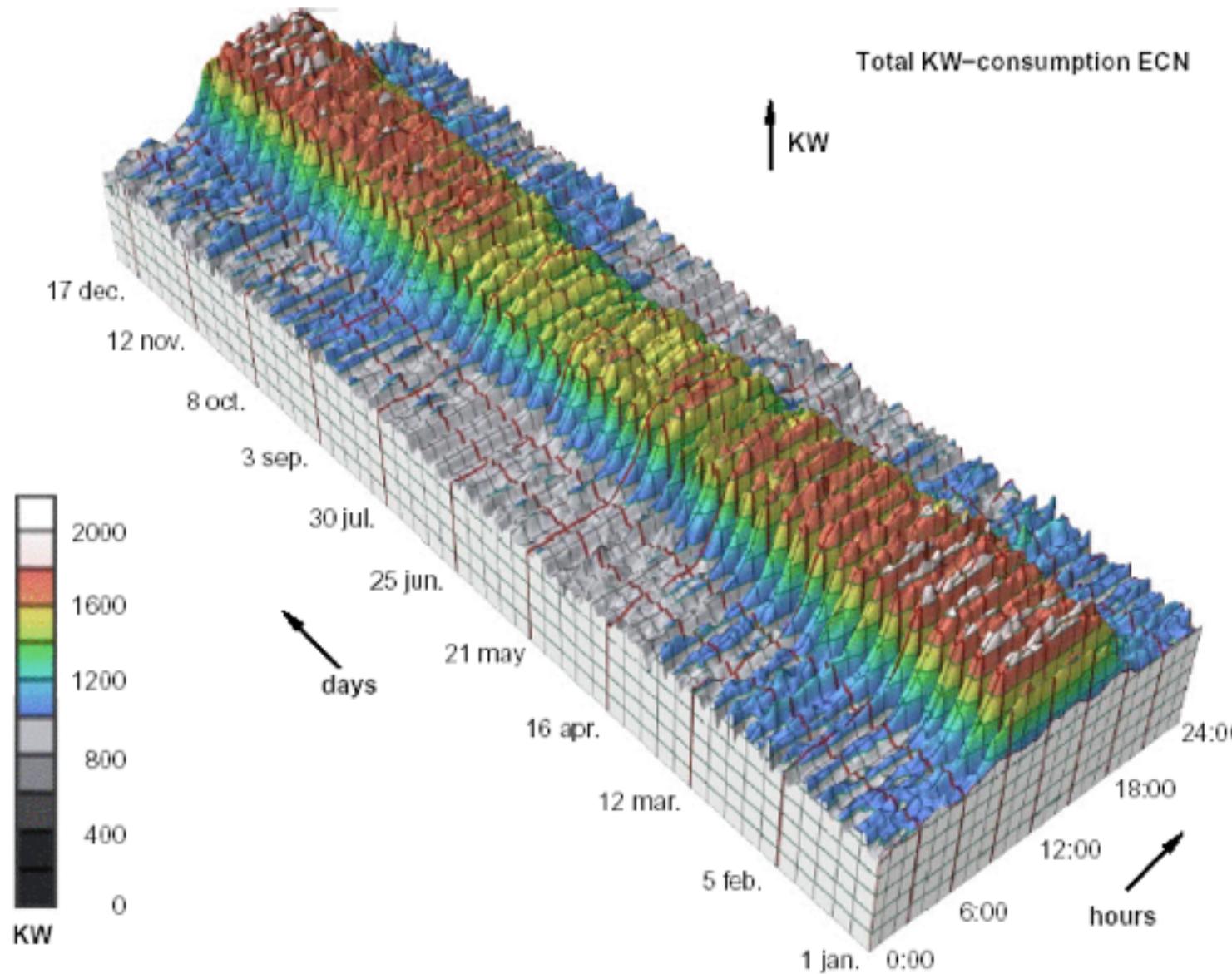
[Exploring and Reducing the Effects of
Orientation on Text Readability in Volumetric
Displays.
Grossman et al. CHI 2007]



[Visualizing the World-Wide Web with the Navigational View Builder.
Mukherjea and Foley. Computer Networks and ISDN Systems,
1995.]

No unjustified 3D example: Time-series data

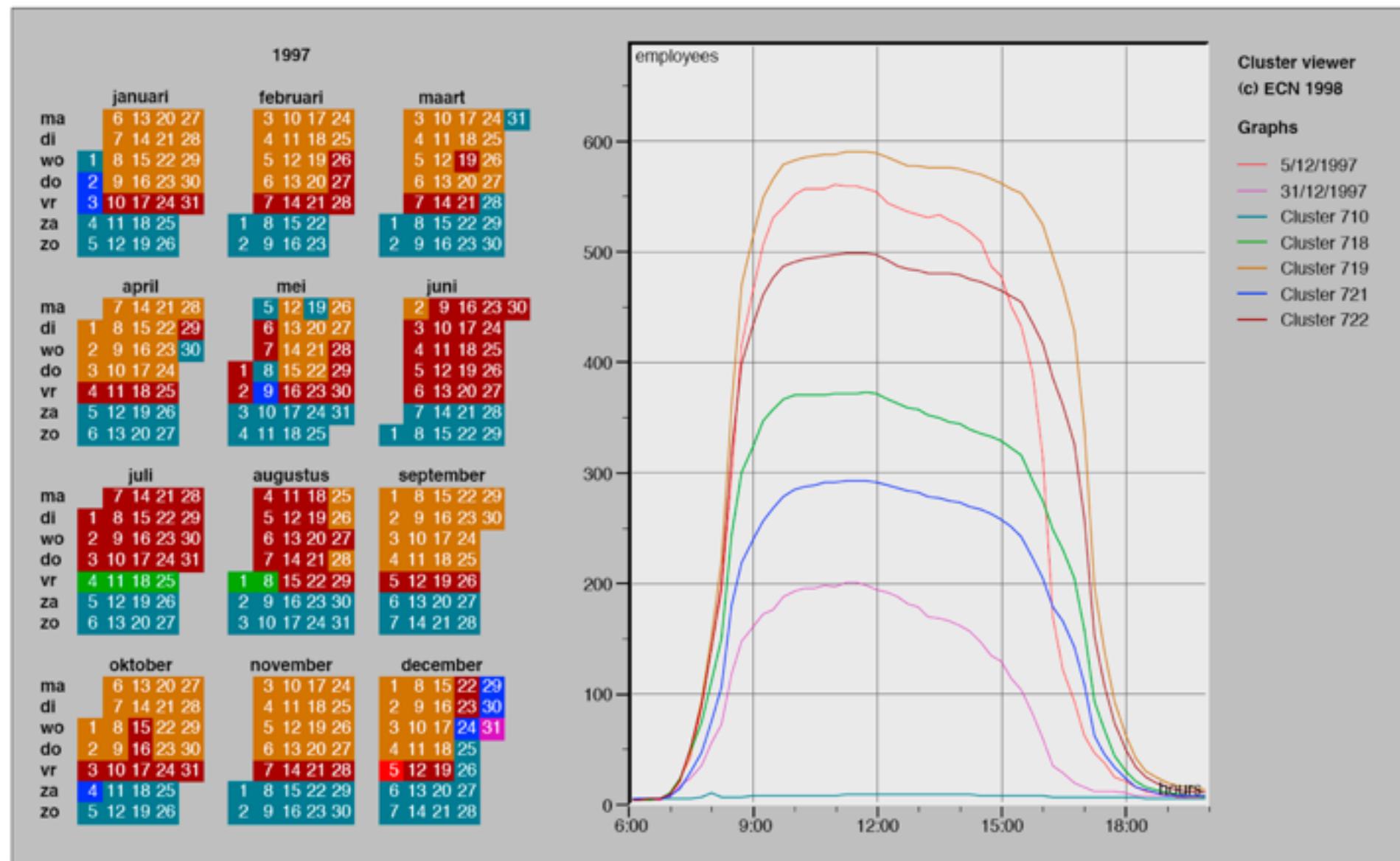
- extruded curves: detailed comparisons impossible



[Cluster and Calendar based Visualization of Time Series Data. van Wijk and van Selow, Proc. InfoVis 99.]

No unjustified 3D example: Transform for new data abstraction

- derived data: cluster hierarchy
- juxtapose multiple views: calendar, superimposed 2D curves



[Cluster and Calendar based Visualization of Time Series Data. van Wijk and van Selow, Proc. InfoVis 99.]

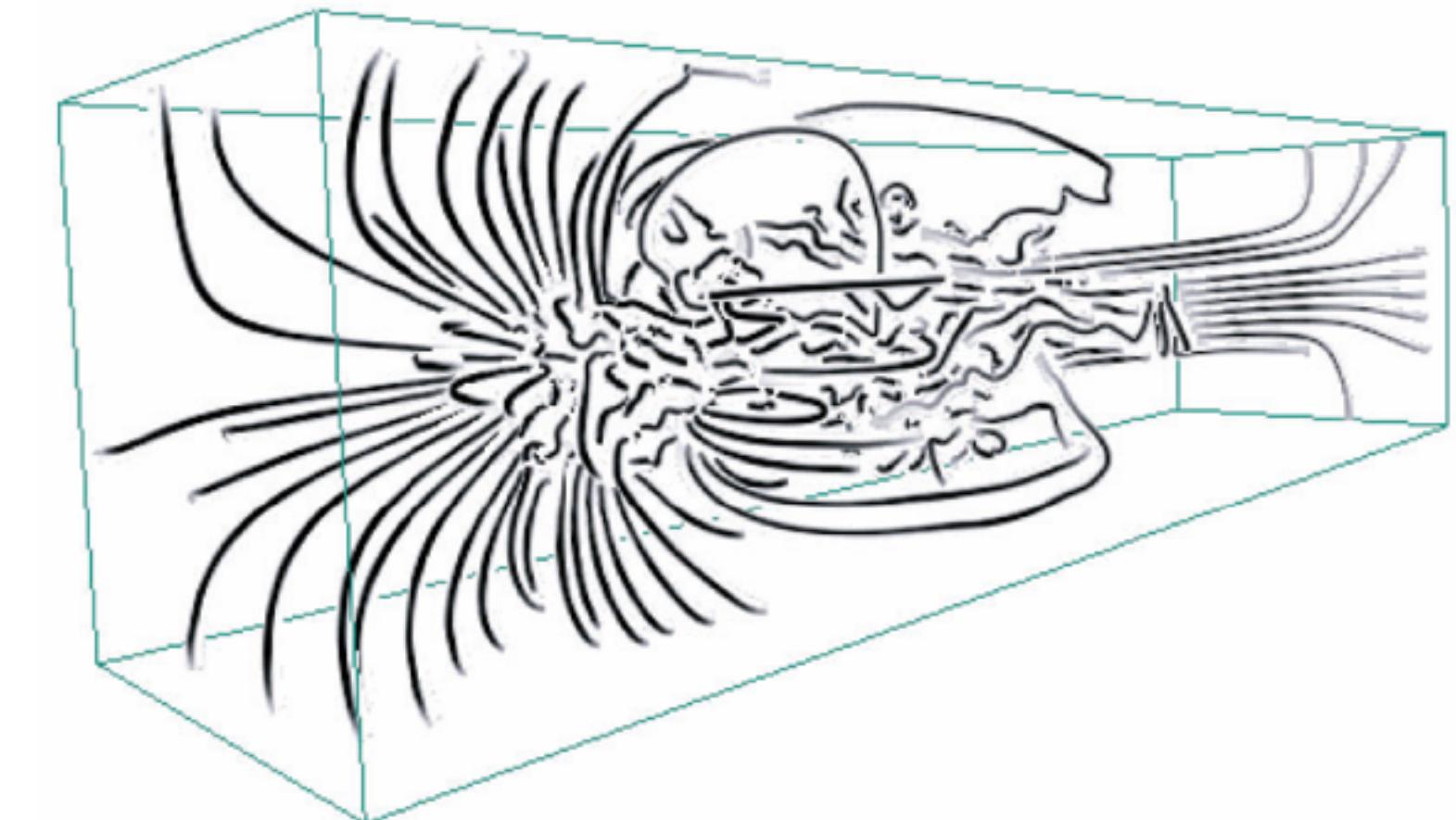
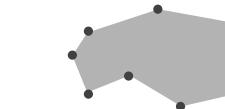
Justified 3D: shape perception

- benefits outweigh costs when task is shape perception for 3D spatial data
 - interactive navigation supports synthesis across many viewpoints

Targets

→ Spatial Data

→ Shape

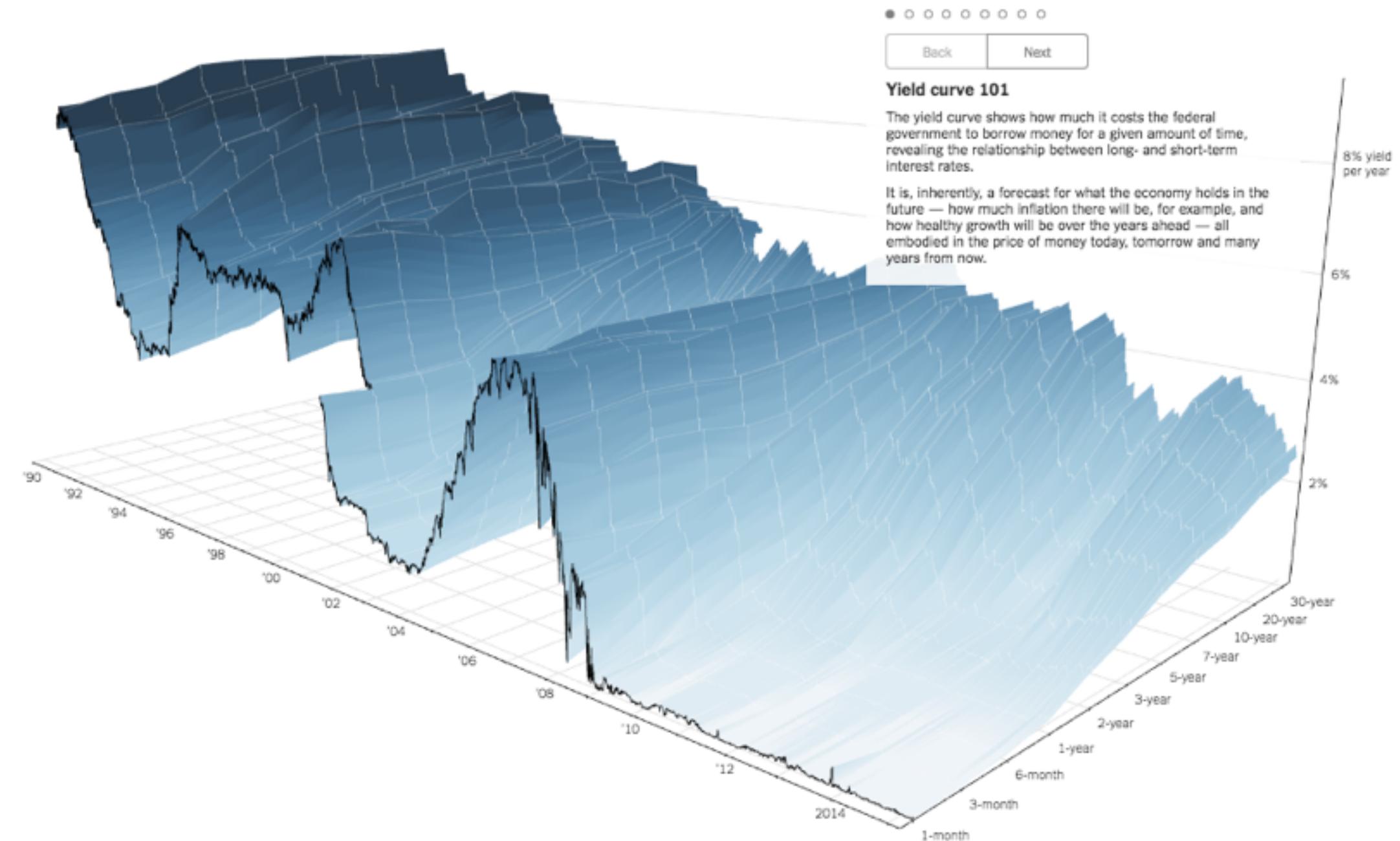


[Image-Based Streamline Generation and Rendering. Li and Shen. IEEE Trans. Visualization and Computer Graphics (TVCG) 13:3 (2007), 630–640.]

Justified 3D: Economic growth curve

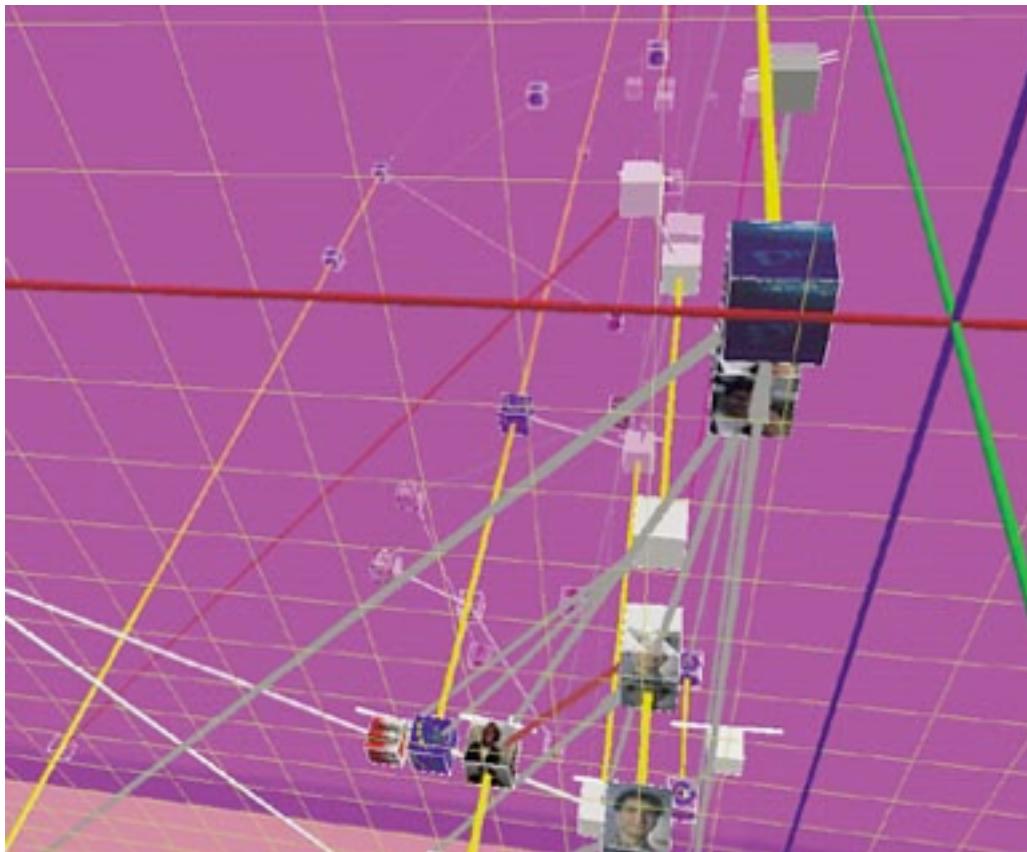
A 3-D View of a Chart That Predicts The Economic Future: The Yield Curve

By GREGOR AISCH and AMANDA COX MARCH 18, 2015



No unjustified 3D

- 3D legitimate for true 3D spatial data
- 3D needs very careful justification **for abstract data**
 - enthusiasm in 1990s, but now skepticism
 - be especially careful with 3D for point clouds or networks



[WEBPATH-a three dimensional Web history. Frecon and Smith. Proc. InfoVis 1999]

No unjustified 2D

- consider whether network data requires 2D spatial layout
 - especially if reading text is central to task!
 - arranging as network means lower information density and harder label lookup compared to text lists
- benefits outweigh costs when topological structure/context important for task
 - be especially careful for search results, document collections, ontologies



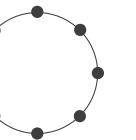
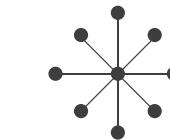
Targets



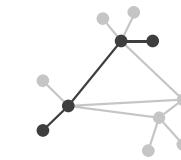
Network Data



Topology



→ Paths



Eyes beat memory

- principle: external cognition vs. internal memory
 - easy to compare by moving eyes between side-by-side views
 - harder to compare visible item to memory of what you saw
- implications for animation
 - great for choreographed storytelling
 - great for transitions between two states
 - poor for many states with changes everywhere
 - consider small multiples instead



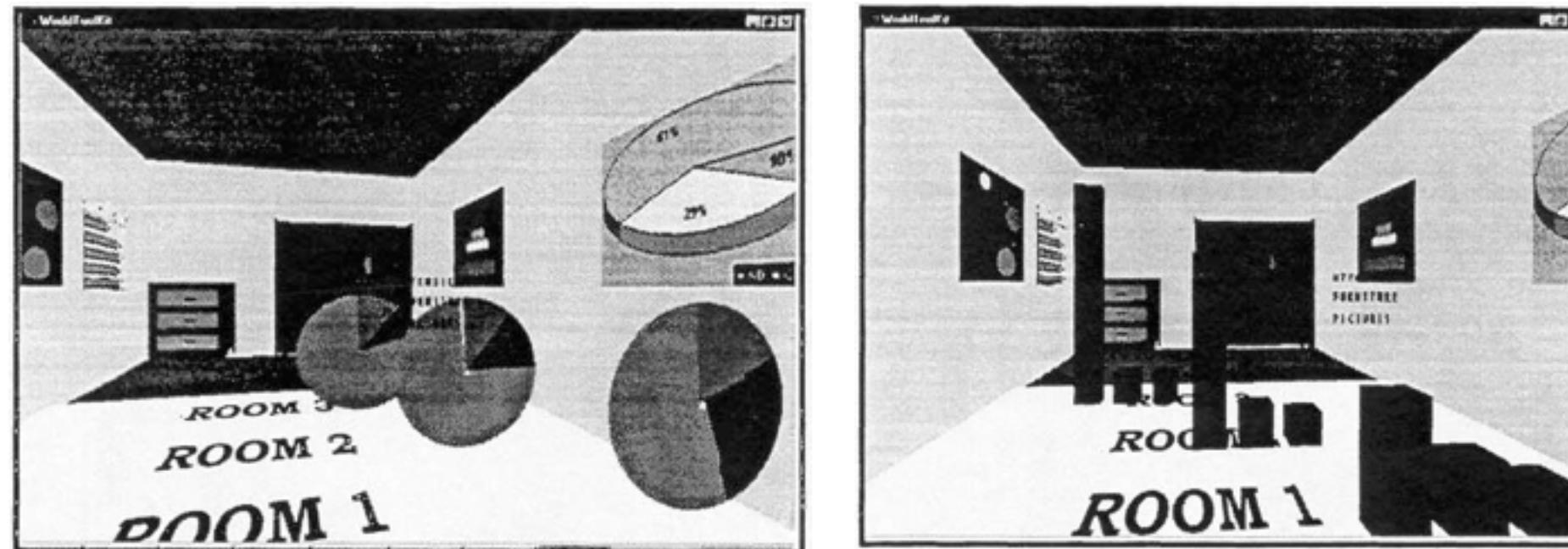
Change blindness

- if attention is directed elsewhere, even drastic changes not noticeable
 - door experiment
- change blindness demos
 - mask in between images

<https://www.youtube.com/watch?v=VkrVozZR2c>

Resolution beats immersion

- immersion typically not helpful for abstract data
 - do not need sense of presence or stereoscopic 3D
- resolution much more important
 - pixels are the scarcest resource
 - desktop also better for workflow integration
- virtual reality for abstract data very difficult to justify



[Development of an information visualization tool using virtual reality. Kirner and Martins. Proc. Symp. Applied Computing 2000]

Function first, form next

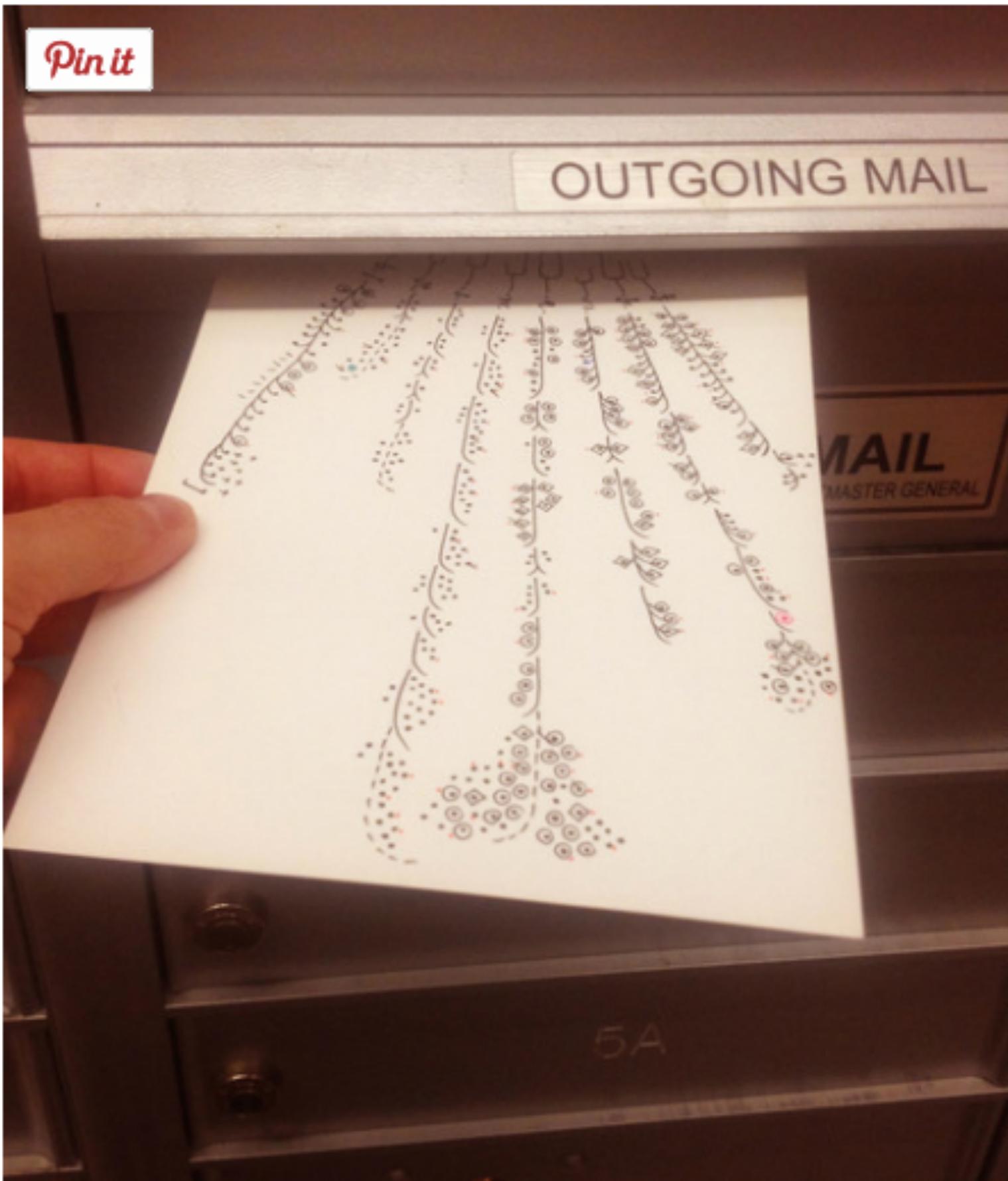
- start with focus on functionality
 - straightforward to improve aesthetics later on, as refinement
 - if no expertise in-house, find good graphic designer to work with
- dangerous to start with aesthetics
 - usually impossible to add function retroactively

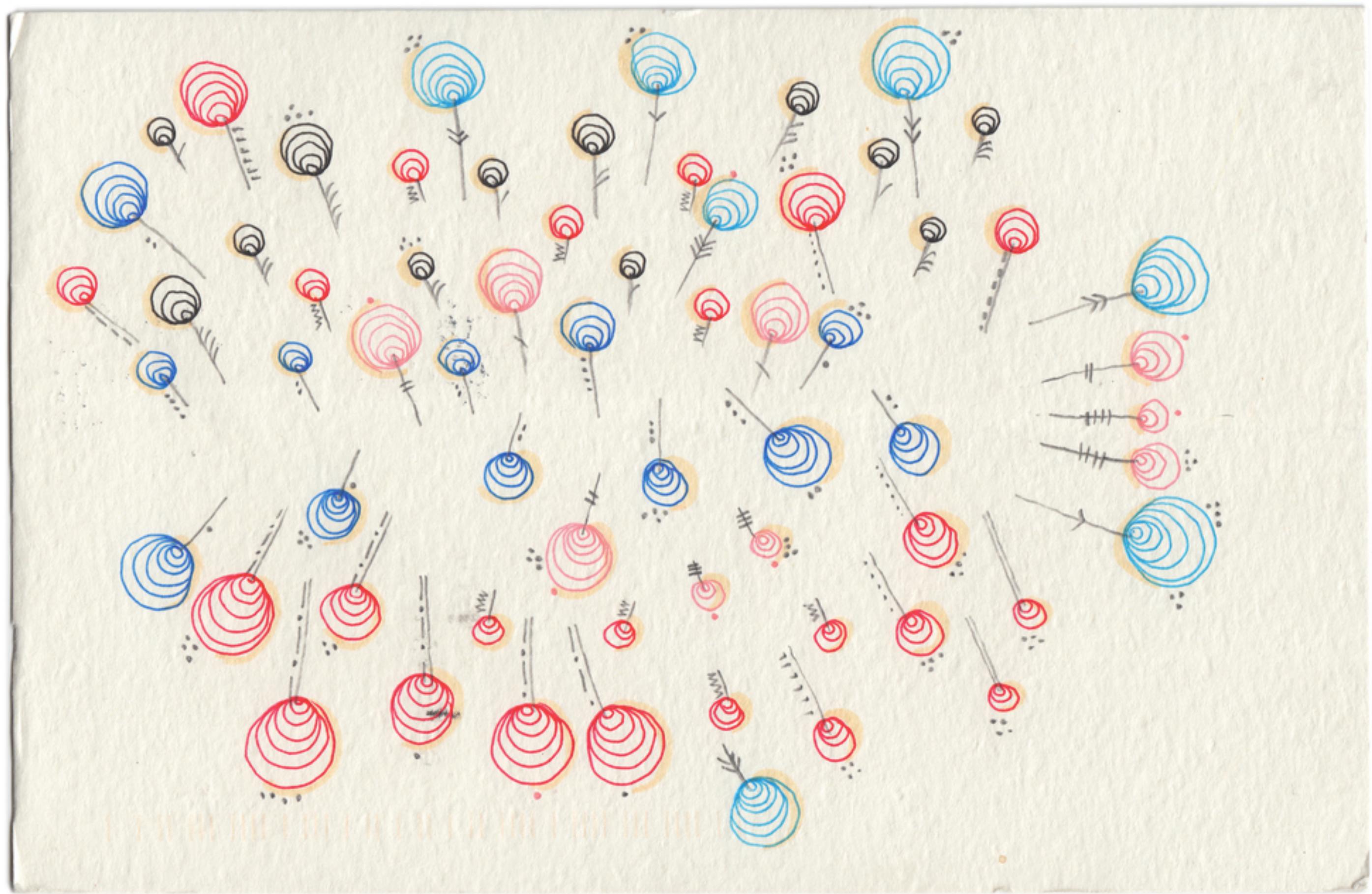
loudnoises
uninteresting
wordle
lookatme colours shiny marketing useless

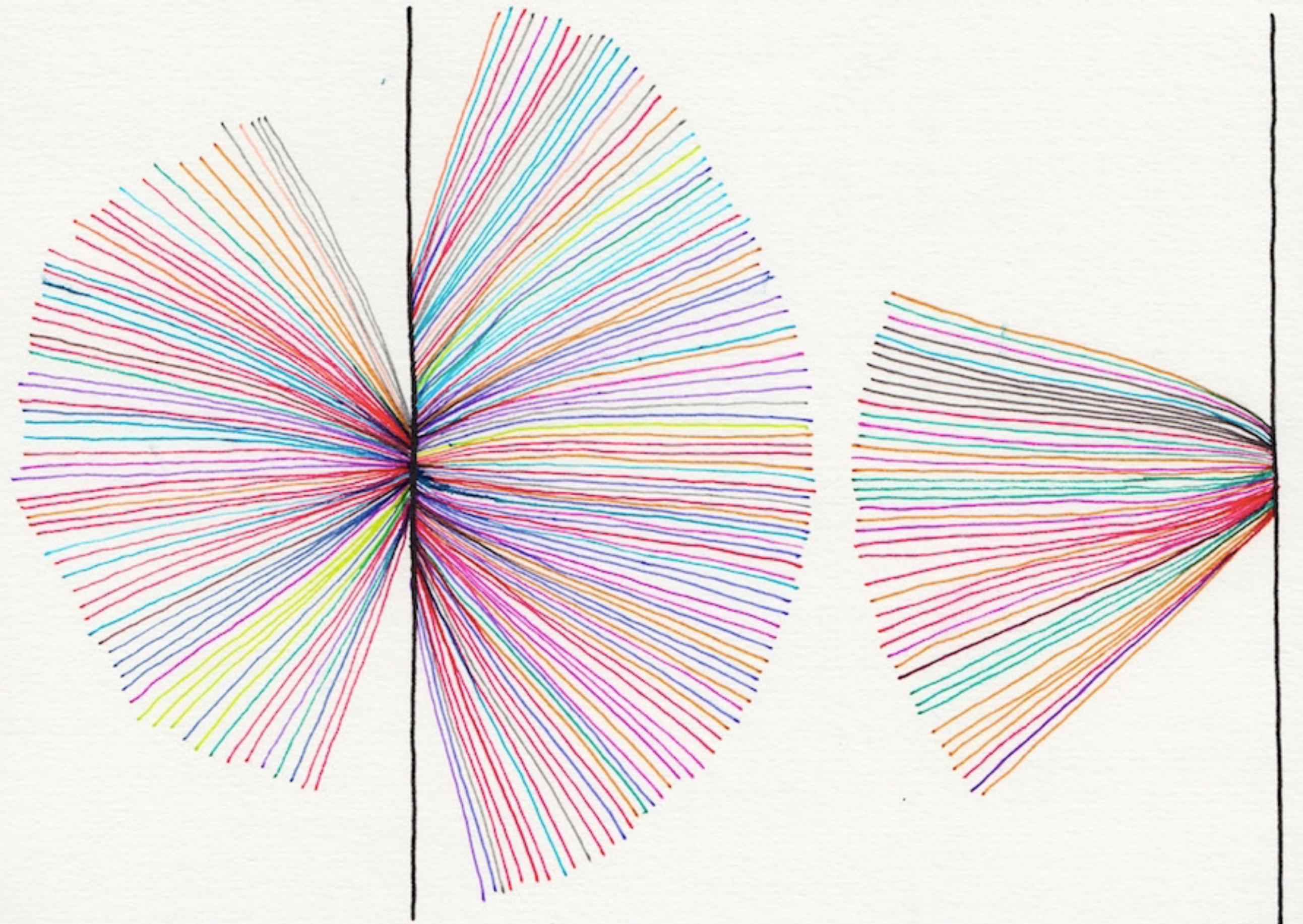
Data art



Pin it



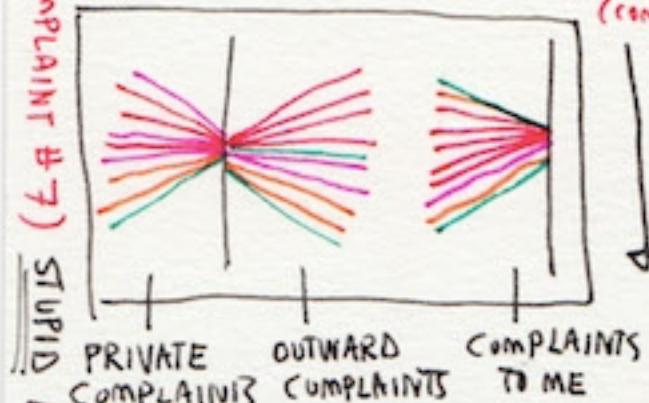




DEAR DATA - WEEK 07

A WEEK OF COMPLAINTS*

AND GENERAL GRUMPINESS
HOW TO READ IT: (I ~~THREW DOWN MY~~



TYPE OF COMPLAINT:

WEATHER	HEALTH
HUSBAND	HUNGER
ANIMALS	MYSELF
FAMILY	TECHNOLOGY/MEDIA
SOCIETY	MONEY
THE WORLD TODAY	INANIMATE OBJECTS
ACQUAINTANCES/STRANGERS	TRANSPORT
MY APPEARANCE	
FRIENDS	
WORK	* THIS PEN (COMPLAINT #?) LEAKED + SMUDGED MY DRAWING + GOT ALL OVER MY HANDS!
LEFT HAND	* AND A WEEK OF COMPLAINTS ABOUT HOW I F***ED UP THIS DRAWING! (COMPLAINT #5)

MAIN STATS

PRIVATE COMPLAINTS: 67

OUTWARD COMPLAINTS: 100

COMPLAINTS TO ME: 43

OF PEOPLE WHO

CALLED ME: 5

TOP COMPLAINER: MY DAD

OF PEOPLE I

CALLED: 6

TOP COMPLAINEE: MY HUSBAND

I COMPLAINED MOST ABOUT MY

FAMILY (SORRY MOM + DAD)

I LOVE YOU BOTH!

+ SECOND MOST COMPLAINING ABOUT

MY HUSBAND (SORRY STEVE I

LOVED YOU!)

FROM:
S POSAVEC

LONDON
UK



TO:

GIORGIA LUPI

BROOKLYN, NY 11249

USA

DELIVERED BY
HAND (SPECIAL NYC
DELIVERY!)

66 DEAR DATA

WEEK 36: SHALL I?

NEW YORK 30.6.2015

FROM:

G.L.V.P.

TO: NEW YORK 2015

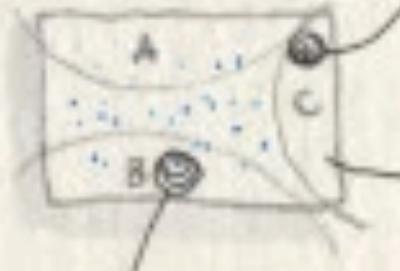
1124 9 BROOKLYN
- NY - USA

GLOBAL



REBORN

HOW TO READ IT: Every element (◎) represents a moment in the week where I was UNDECIDED about whether to do/think something or not.



ELEMENTS:

solved almost immediately or stopped thinking of it

postponed but solved

"still open" at the end of the week

→ did I talk to anybody about it? MUM co-worker friend boy friend you!

→ dimension = level of anxiety that the un-decision got me

Colors what was I undecided about?

Dear Data ◎

- postcard
- eyeo
- Book
- website

work ◎

- work on
- hang out
- design
- organization
- how to write

organizational stuff ◎

- ask to make it warmer

specific thing

- stay or leave
- what to eat/drink

length =

how long did it take to decide ??

not too much

a little while

forever!!

personal ◎

- am I wrong?

- am I terrible?

- Should I change?

physical

- eat more of xyz

- grab a meal

- what to wear

- pet now or later

SEND TO:

STEFANIE POSAVEC

LONDON

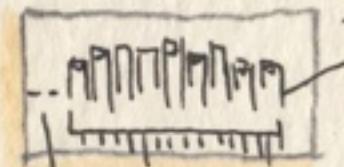
- UK -

ENGLAND

66 Dear Data

WEEK 51: privacy (please!)

HOW TO READ IT:



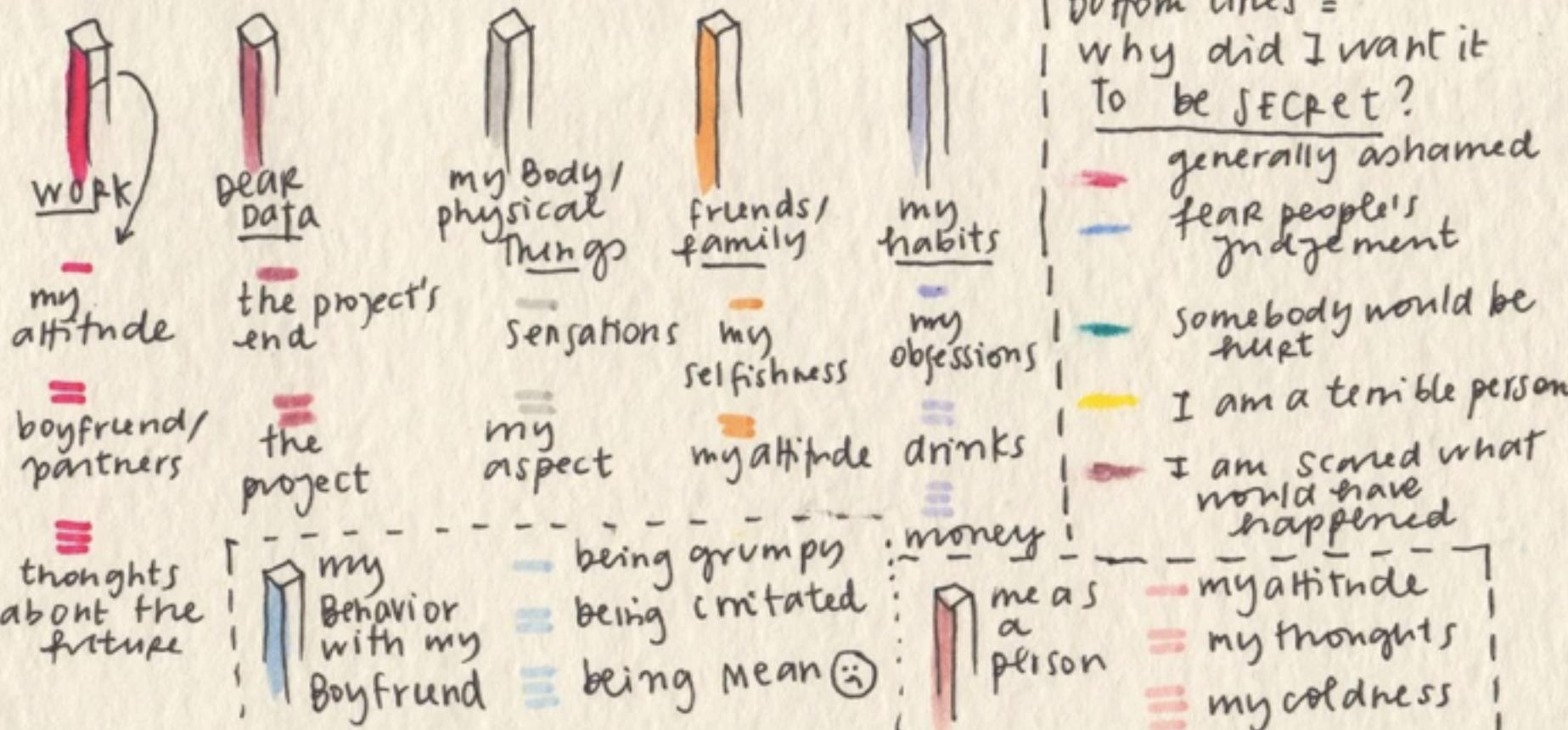
this week I tracked
EVERYTHING I DID, thought
or reflected upon that
I wouldn't wanna tell,
(in chronologic order.)

[--- = dashed
lines = documenting the FIRST
MASSIVE DATA VOID in Dear
Data = I forgot to track the
whole Monday morning ☺]



COLOR and LINES =
what was I "ashamed
about"

HEIGHT =
LEVEL
OF
PRIVACY
the higher
the more
preserved



FROM:
G. LVPI

BROOKLYN
-NY - USA



SEND TO:

STEFANIE POSAVEC

LONDON

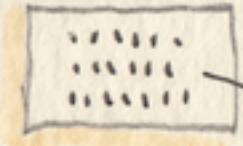
- UK -

ENGLAND

66 Dear Data

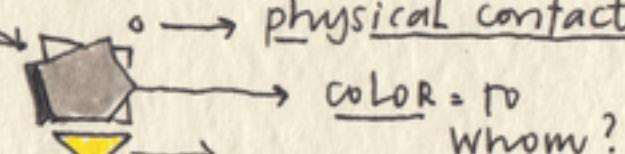
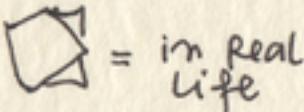
WEEK 52 - ... GoodBye! *Last week of Dear Data

HOW To READ IT:

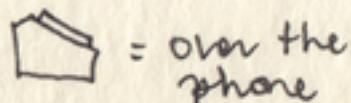


This week I tracked all the "GoodByes / ByeByes / goodnight" I said.
Each Element is a goodbye I said, in chronological order.

SHAPE = "HOW"

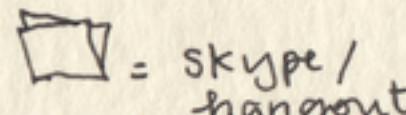


physical contact : • kiss
• hug
○ hand-shake
(no physical contact if dot is missing)



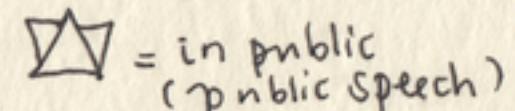
COLOR = to Whom?
color of the Triangle =
did I add something?

mum
boyfriend
friend
you and Rebecca
coworker
acquaintance



▼ = good luck!
▼ = have fun/
enjoy/divertiti!

you and
Rebecca



▼ = talk soon / see you
later / a dopo!

coworker



= farewell to my old apartment!

▼ = thanks! / thanks
for... / grazie

acquaintance

* = missed goodnight
to my boyfriend 'cause
I fell asleep too early

▼ = have a nice
day/evening
...

client

▼ = love you!

grandma

stranger

(sales man/
waitress...)

FROM:
G. LVPI

BROOKLYN
NY - USA



SEND TO:

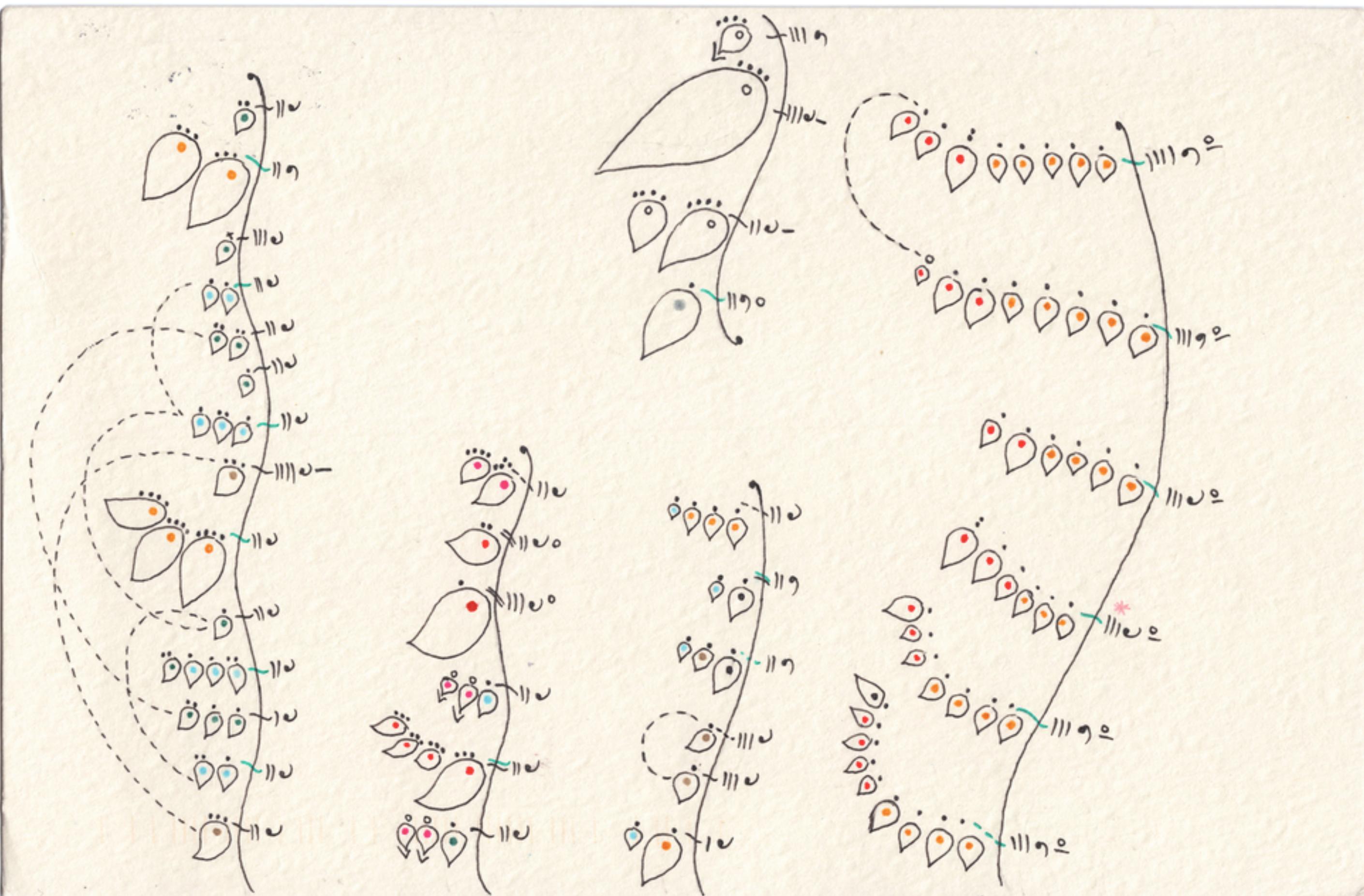
STEFANIE POSAVEC

London

- UK -

England







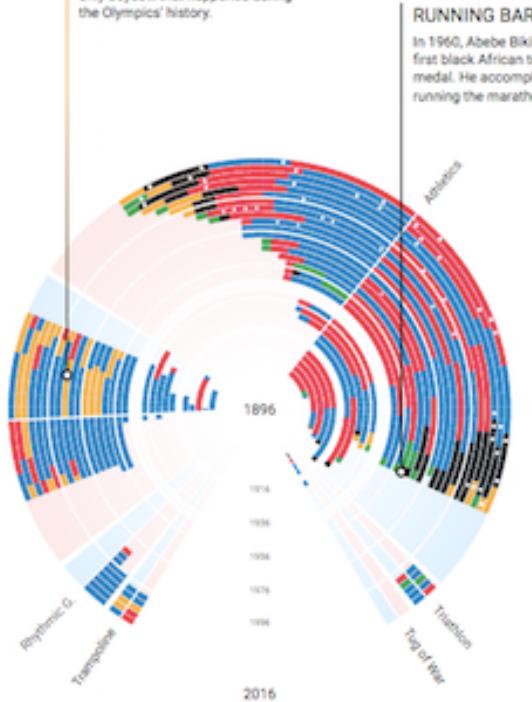
<https://vimeo.com/169599296>

<https://vimeo.com/163153865>



Weather baskets

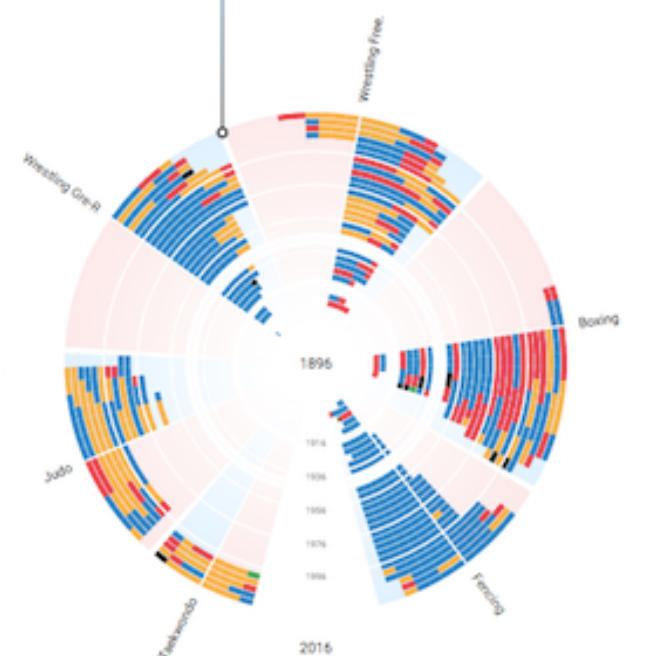
ASIA TAKES OVER IN 1984
The boycott of the Soviet Union and 15 other nations in the Los Angeles 1984 games is most notable in Gymnastics, which was dominated by the Soviet Union during those years. Japan and China took the place of Russia in winning most of the women's events. This was not the only boycott that happened during the Olympics' history.



BUSY 1920'S
The 1920 edition in Antwerp saw a large increase in the number of different events held. Never again could so many medals be won in archery, athletics, shooting, and sailing. Shooting had 21 events for men. Thankfully no live birds have been used for more than 100 years.



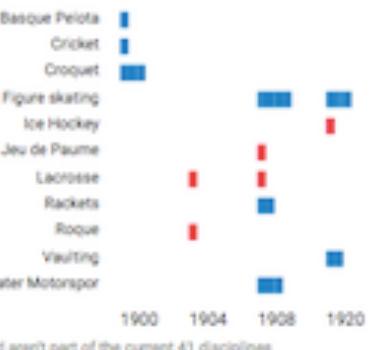
THE LAST AMATEURS
Wrestling is the last Olympic sport where the athletes still need to have an amateur status, for the safety of the participants. Boxing also required an amateur status until Rio 2016.



Henry Pearce
quarter-final race to
a family of ducks
front of his boat in
vertheless, Pearce
in gold in the end.

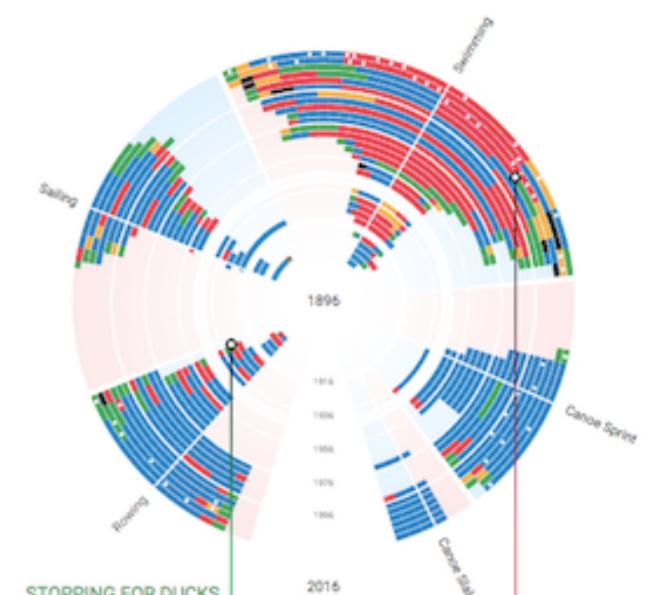
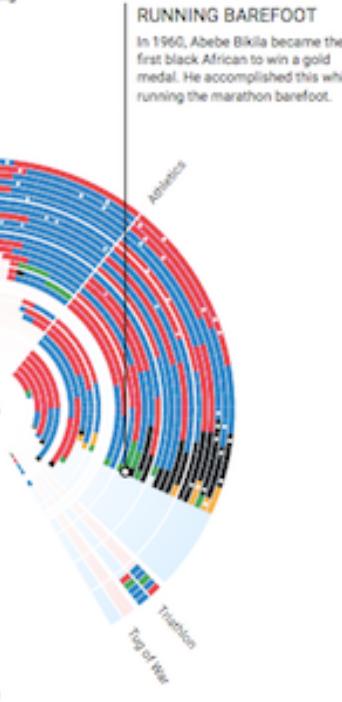
PHELPS' 1ST GOLD
Michael Phelps' first gold medal was won in the 400-meter individual medley in Athens, 2004. Out of the 16 men's swimming events during those games, Phelps took home 6 gold medals, of which 4 from individual races.

Winners of the 11 sports that competed in less than 2 editions



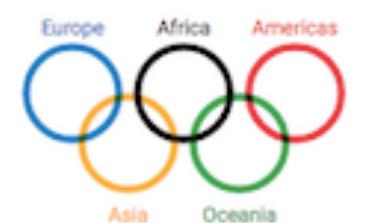
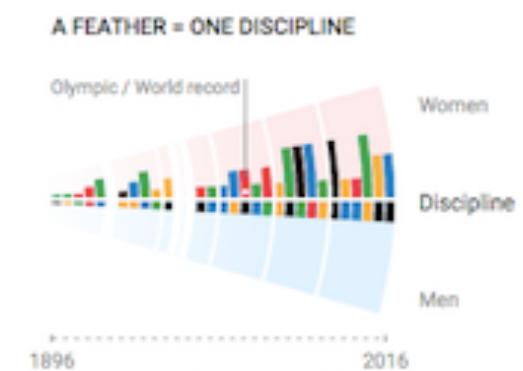
ONE EDITION'S RULE
Although taking home half of the gold cycling track medals in 2004, Australia didn't get any gold 4 years later after Great Britain discovered its love for, and talents in, track cycling.

THE FARTHEST DIVE
Diving's very first event was 'Plunge for distance' in 1904. The winner was the competitor who remained underwater for the longest distance after an initial dive. Regarded as uninteresting, it did not reappear in any subsequent Olympic Games.



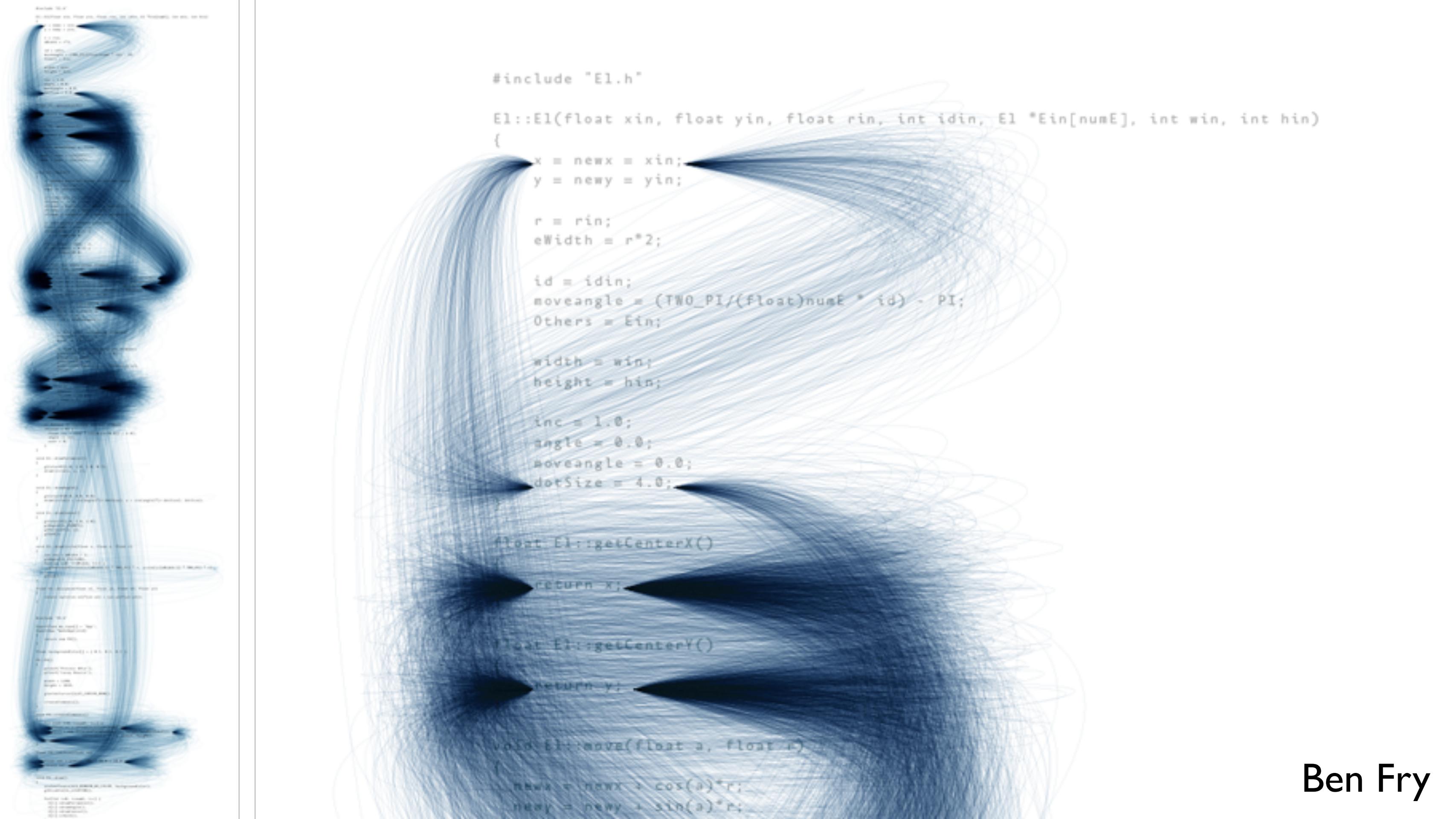
Winners of the 11 sports that competed in less than 2 editions

- Basque Pelota
- Cricket
- Croquet
- Figure skating
- Ice Hockey
- Jeu de Paume
- Lacrosse
- Rackets
- Roque
- Vaulting
- Water Motorsport





Aaron Koblin



```
#include "El.h"

El::El(float xin, float yin, float rin, int idin, El *Ein[numE], int win, int hin)
{
    x = newx = xin;
    y = newy = yin;

    r = rin;
    eWidth = r*2;

    id = idin;
    moveangle = (TWO_PI/(Float)numE * id) - PI;
    Others = Ein;

    width= win;
    height = hin;

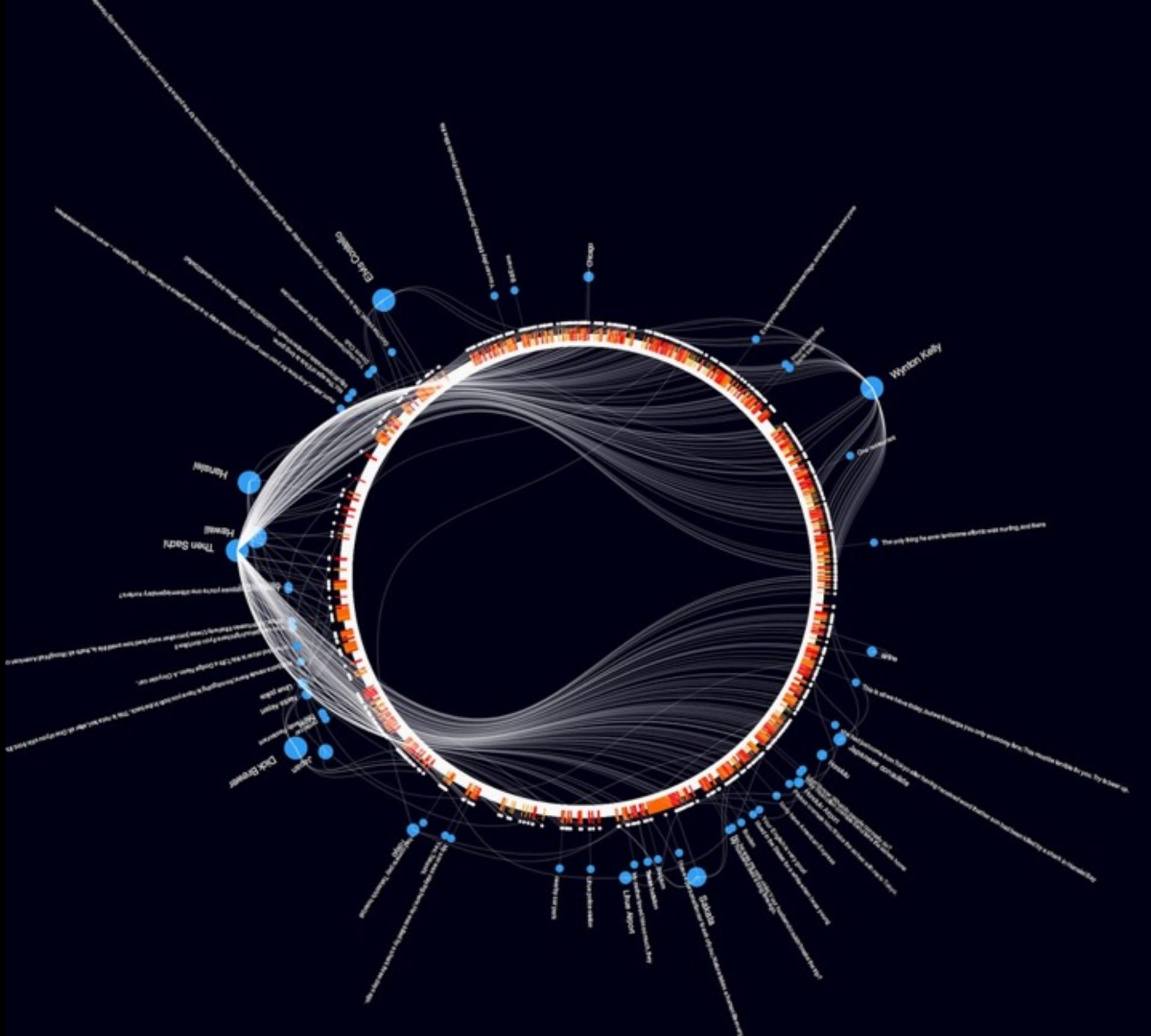
    inc = 1.0;
    angle = 0.0;
    moveangle = 0.0;
    dotSize = 4.0;
}

float El::getCenterX()
{
    return x;
}

float El::getCenterY()
{
    return y;
}

void El::move(float a, float i)
{
    newx = newx + cos(a)*r;
    newy = newy + sin(a)*r;
}
```

Ben Fry



Jer Thorp



THE DELETED

The 100 longest Article for Deletion [AfD] discussions on Wikipedia,
which resulted in deletion of the article.

Death by chocolate



Egguality

30%

Belgium

22%

Japan

Chicoree, asparagus and beer



Ayvar with hazelnut, cumin

48%

Turkey



Wakame salad with gari ginger, soy sauce



What is the proportion
of women in academia?



FACT MEETS WEST

Where are you from?

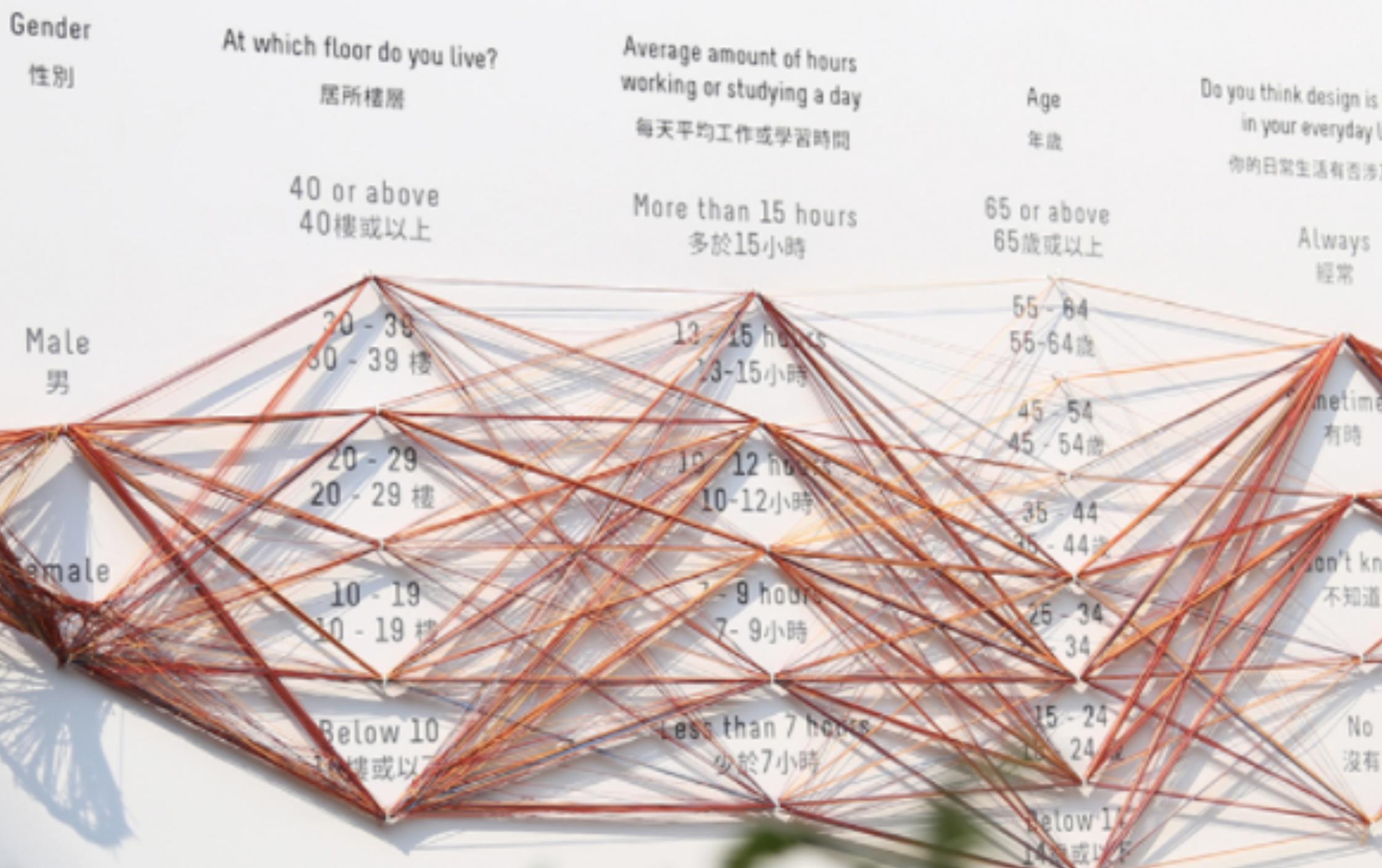
你的居住地

Locals
香港

Asia
亞洲

Rest of the World
世界其他地區

By DOMESTIC DATA STREAMERS



Gracias!