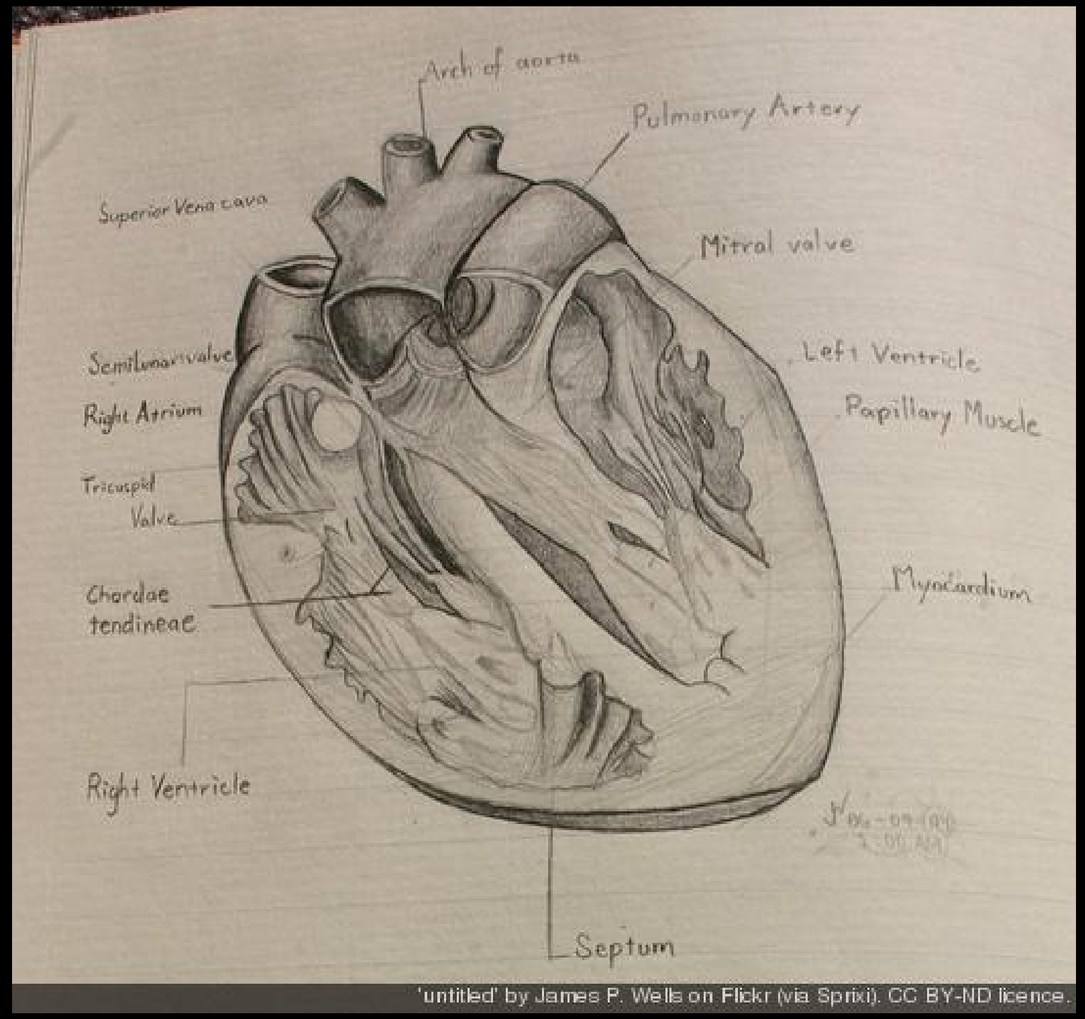
LATCH method

Location

'World Metro Map by Mark Ovenden' by Annie Mole on Flickr (via Sprixi). CC BY licence.

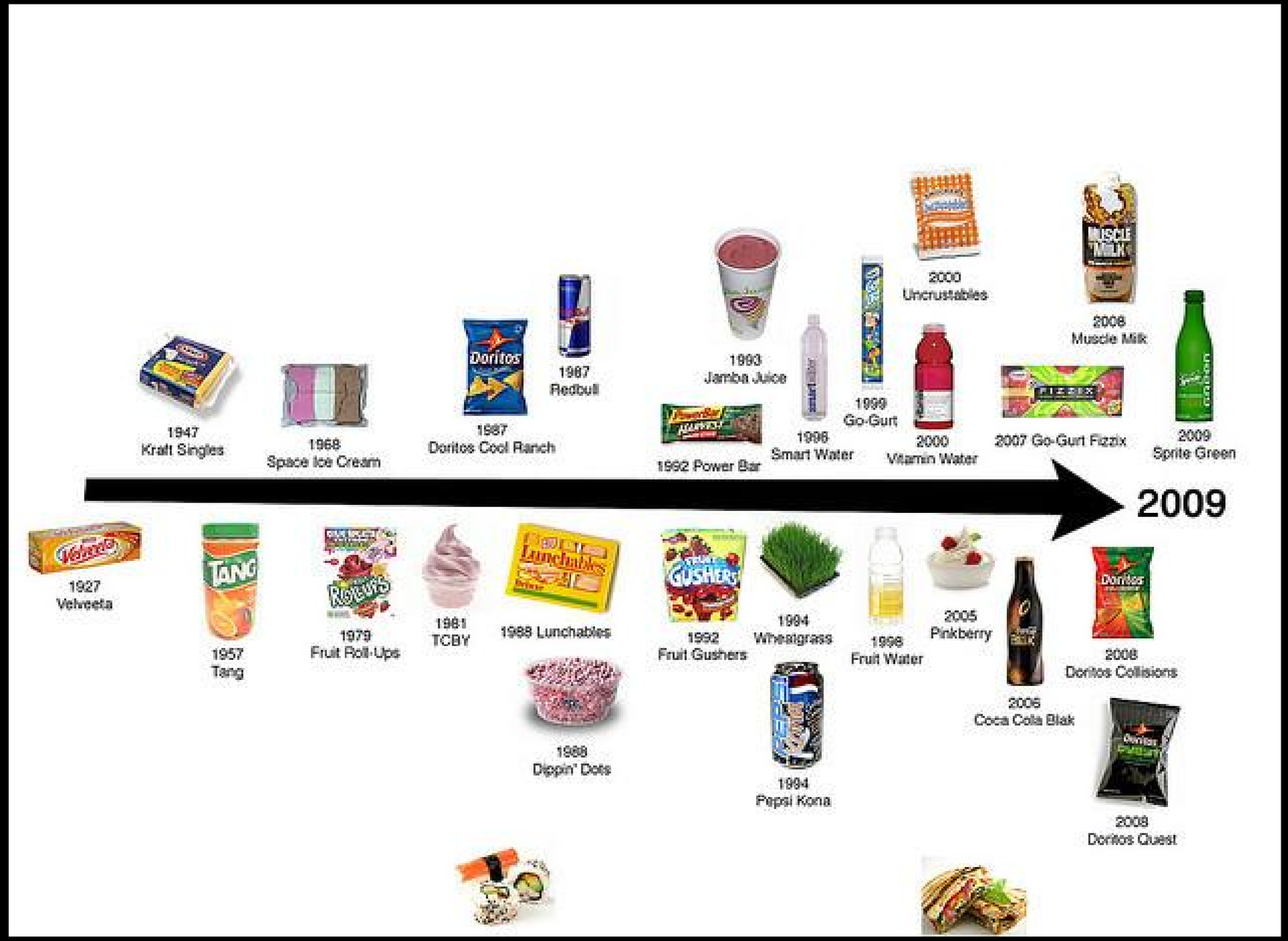


'untitled' by James P. Wells on Flickr (via Sprixi). CC BY-ND licence.

Alphabet

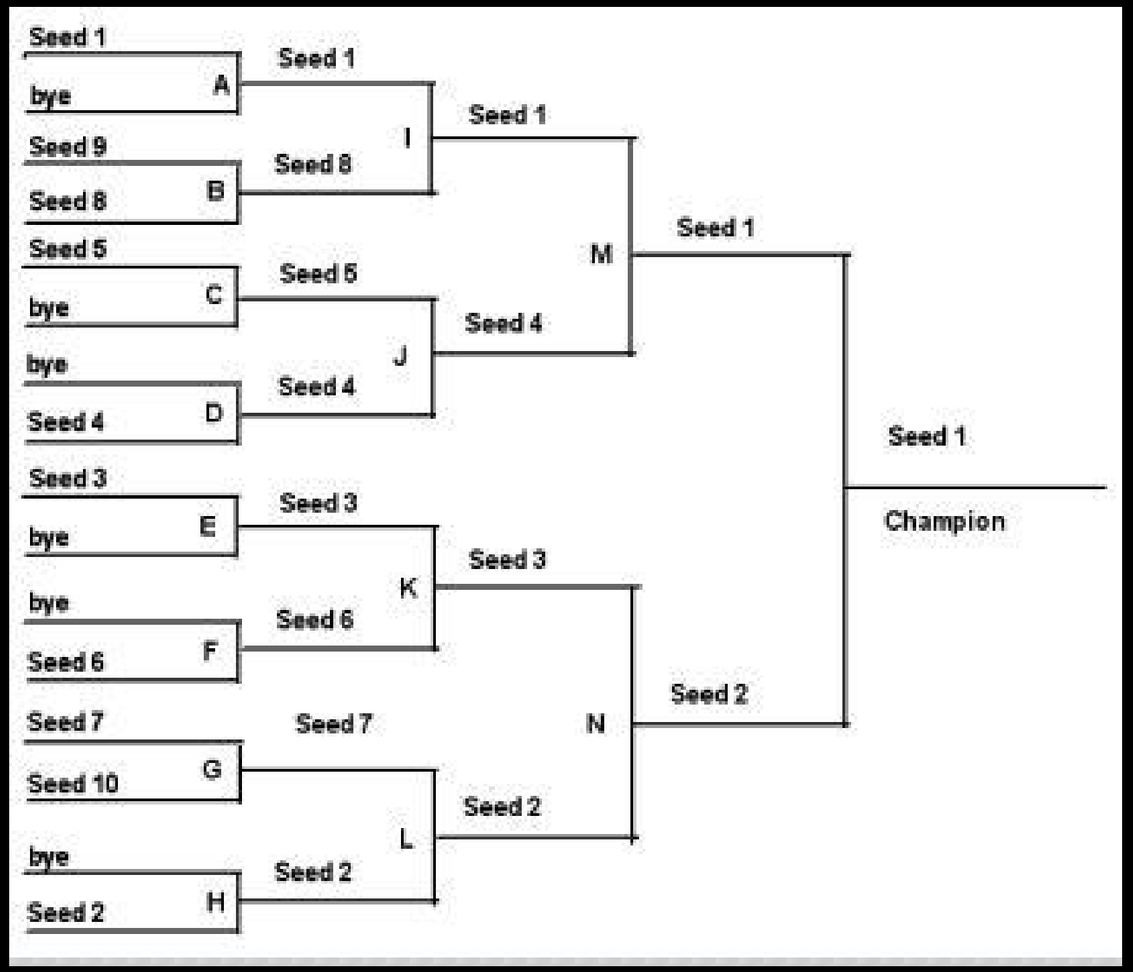

tawny owl
tawse or taws
into thongs, formerly
schoolteacher. [C16: prob.
tax
government to raise
prices of goods and
strain.

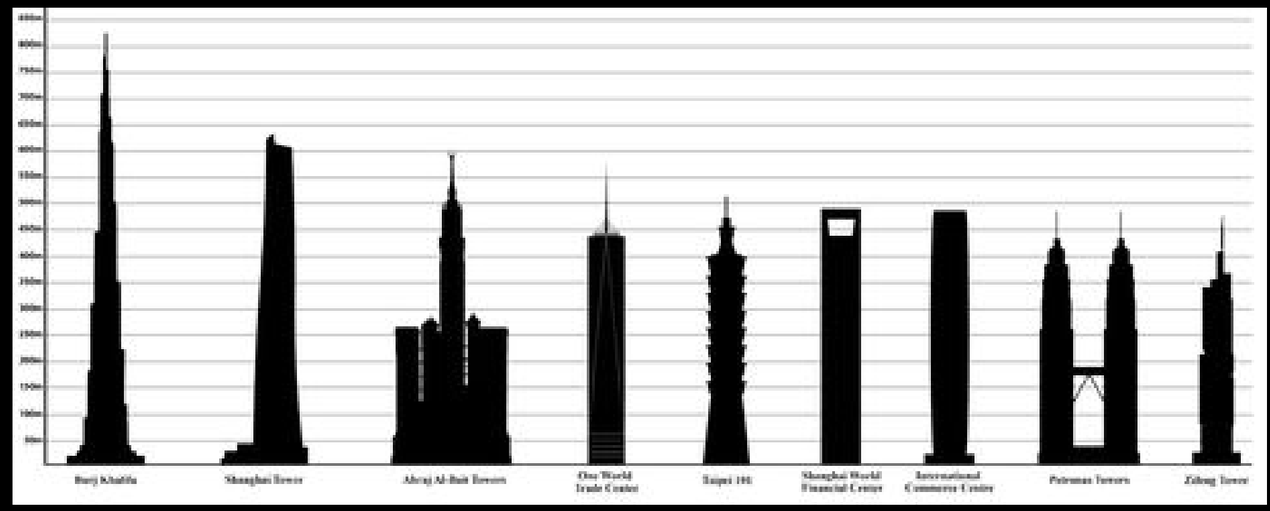
Time


1947
Kraft Singles
1968
Space Ice Cream
1987
Doritos Cool Ranch
1987
Redbull
1993
Jamba Juice
1992 Power Bar
1996
Smart Water
1999
Go-Gurt
2000
Uncrustables
2000
Vitamin Water
2007 Go-Gurt Fizzix
2008
Muscle Milk
2009
Sprite Green
2009
1927
Velveeta
1957
Tang
1979
Fruit Roll-Ups
1981
TCBY
1988 Lunchables
1988
Dippin' Dots
1992
Fruit Gushers
1994
Wheatgrass
1994
Pepsi Kona
1998
Fruit Water
2005
Pinkberry
2006
Coca Cola Blak
2008
Doritos Collisions
2008
Doritos Quest

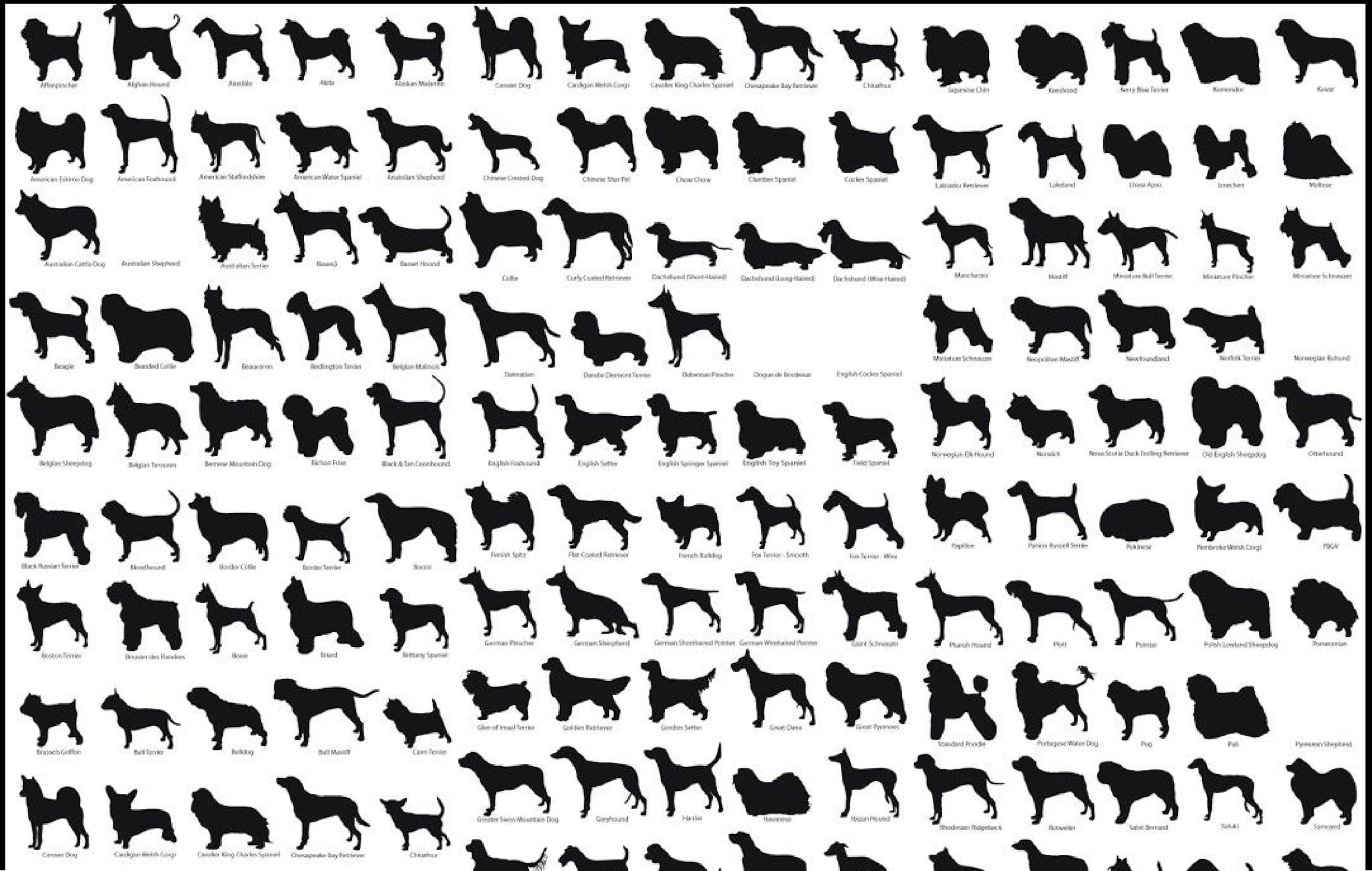
Category

Hierarchy


Seed 1
bye
A
Seed 1
Seed 9
Seed 8
B
Seed 8
I
Seed 1
Seed 5
bye
C
Seed 5
bye
Seed 4
J
Seed 4
Seed 4
D
Seed 1
M
Seed 1
Champion
Seed 3
bye
E
Seed 3
bye
Seed 6
F
Seed 6
K
Seed 3
Seed 7
Seed 10
G
Seed 7
bye
Seed 2
L
Seed 2
Seed 2
H
Seed 2
N



Dog Breeds


Affenpinscher
Afghan Hound
Airedale
Akita
Alaskan Malamute
Canaan Dog
Cardigan Welsh Corgi
Cavalier King Charles Spaniel
Chesapeake Bay Retriever
Chihuahua
Japanese Chin
Keeshond
Kerry Blue Terrier
Komondor
Kuvasz
American Eskimo Dog
American Foxhound
American Staffordshire
American Water Spaniel
Anatolian Shepherd
Chinese Crested Dog
Chinese Shar Pei
Chow Chow
Clumber Spaniel
Cocker Spaniel
Labrador Retriever
Lakeland
Lhasa Apso
Lowchen
Maltese
Australian Cattle Dog
Australian Shepherd
Australian Terrier
Basenji
Basset Hound
Collie
Curly Coated Retriever
Dachshund (Short-Haired)
Dachshund (Long-Haired)
Dachshund (Wire-Haired)
Manchester
Mastiff
Miniature Bull Terrier
Miniature Pinscher
Miniature Schnauzer
Beagle
Bearded Collie
Beauceron
Bedlington Terrier
Belgian Malinois
Dalmatian
Dandie Dinmont Terrier
Doberman Pinscher
Dogue de Bordeaux
English Cocker Spaniel
Miniature Schnauzer
Neopolitan Mastiff
Newfoundland
Norfolk Terrier
Norwegian Buhund
Belgian Sheepdog
Belgian Tervuren
Bernese Mountain Dog
Bichon Frise
Black & Tan Coonhound
English Foxhound
English Setter
English Springer Spaniel
English Toy Spaniel
Field Spaniel
Norwegian Elk Hound
Norwich
Nova Scotia Duck Tolling Retriever
Old English Sheepdog
Otterhound
Black Russian Terrier
Bloodhound
Border Collie
Border Terrier
Boxer
Finnish Spitz
Flat-Coated Retriever
French Bulldog
Fox Terrier - Smooth
Fox Terrier - Wire
Papillon
Parson Russell Terrier
Pekinese
Pembroke Welsh Corgi
PBGV
Boston Terrier
Bouvier des Flandres
Boxer
Briard
Brittany Spaniel
German Pinscher
German Shepherd
German Shorthaired Pointer
German Wirehaired Pointer
Giant Schnauzer
Pharoh Hound
Plott
Pointer
Polish Lowland Sheepdog
Pomeranian
Brussels Griffon
Bull Terrier
Bulldog
Bull Mastiff
Cairn Terrier
Glen of Imaal Terrier
Golden Retriever
Gordon Setter
Great Dane
Great Pyrenees
Standard Poodle
Portugese Water Dog
Pug
Puli
Pyrenean Shepherd
Canaan Dog
Cardigan Welsh Corgi
Cavalier King Charles Spaniel
Chesapeake Bay Retriever
Chihuahua
Greater Swiss Mountain Dog
Greyhound
Harrier
Havanese
Ibizan Hound
Rhodesian Ridgeback
Rotweiler
Saint Bernard
Saluki
Samoyed

Dog Breeds

Affenpinscher

Afghan Hound

Airedale Terrier

Akita

Alaskan Malamute

American English Coonhound

American Eskimo Dog

American Foxhound

American Staffordshire Terrier

American Water Spaniel

Anatolian Shepherd Dog

Australian Cattle Dog

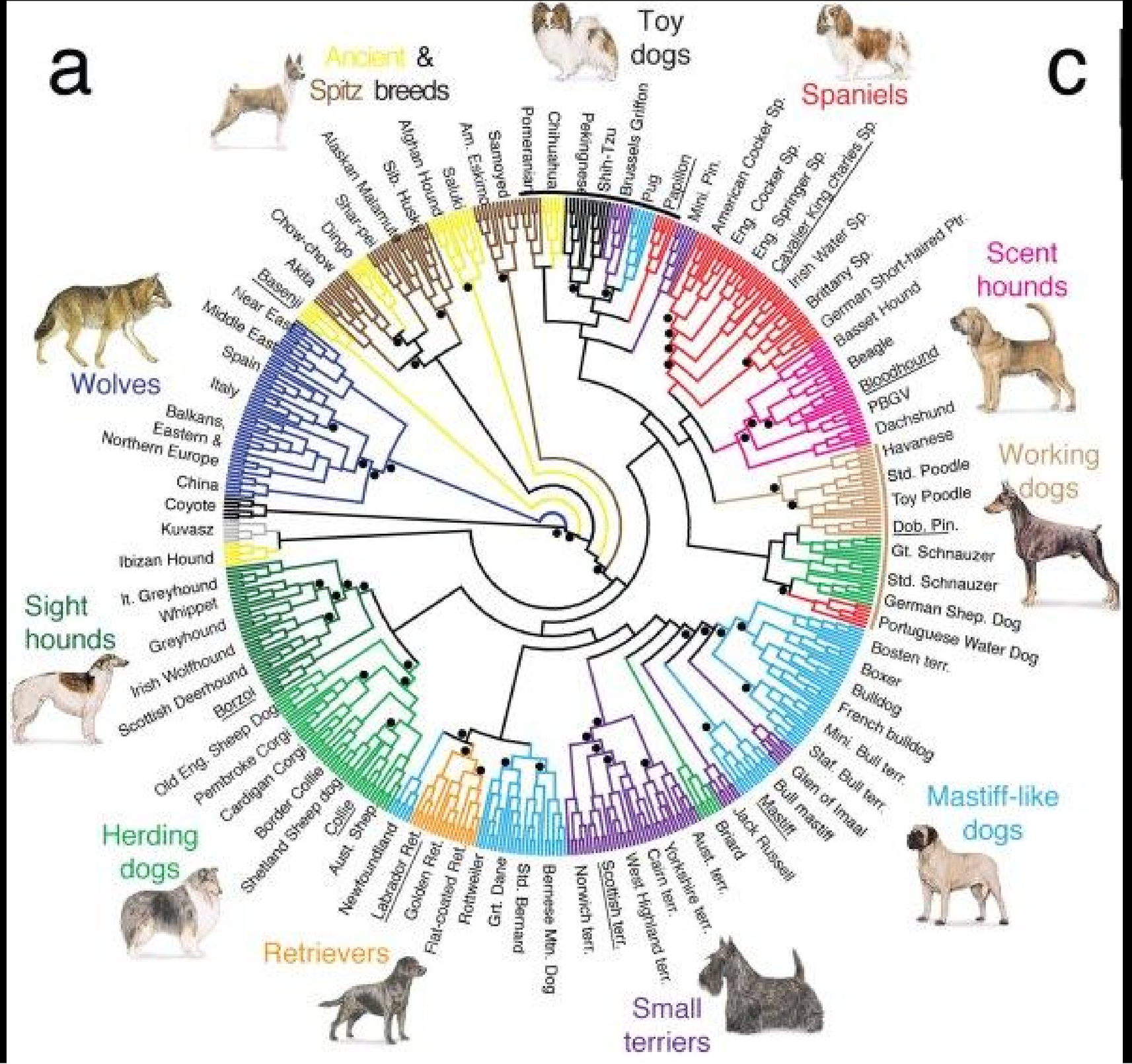
Australian Shepherd

Australian Terrier

Dog Breeds


Affenpinscher
Brussels Griffon
Cavalier King Charles Spaniel
Chihuahua
Chinese Crested
English Toy Spaniel
Havanese
Italian Greyhound
Japanese Chin
Maltese
Manchester Terrier
Miniature Pinscher
Papillon
Pekingese
Pomeranian
Poodle
Pug
Shih Tzu
Silky Terrier
Toy Fox Terrier
Yorkshire Terrier

Dog Breeds


a
c
Ancient & Spitz breeds
Toy dogs
Spaniels
Scent hounds
Working dogs
Mastiff-like dogs
Small terriers
Retrievers
Herding dogs
Sight hounds
Wolves
Ibizan Hound
Whippet
Greyhound
Irish Wolfhound
Scottish Deerhound
Borzoi
Old Eng. Sheep Dog
Pembroke Corgi
Cardigan Corgi
Border Collie
Shetland Sheep dog
Collie
Aust. Shep.
Newfoundland
Labrador Ret.
Golden Ret.
Flat-coated Ret.
Rottweiler
Grt. Dane
Std. Bernard
Bernese Mtn. Dog
Norwich terr.
Scottish terr.
West Highland terr.
Cairn terr.
Yorkshire terr.
Aust. terr.
Briard
Jack Russell
Mastiff
Bull mastiff
Glen of Imaal
Staf. Bull terr.
Mini. Bull terr.
French bulldog
Bulldog
Boxer
Boston terr.
Portuguese Water Dog
German Shep. Dog
Std. Schnauzer
Gt. Schnauzer
Dob. Pin.
Toy Poodle
Std. Poodle
Havanese
Dachshund
PBGV
Bloodhound
Beagle
Basset Hound
German Short-haired Pt.
Brittany Sp.
Irish Water Sp.
Cavalier King charles Sp.
Eng. Springer Sp.
Eng. Cocker Sp.
American Cocker Sp.
Mini. Pin.
Papillon
Pug
Brussels Griffon
Shih-Tzu
Pekingnese
Chihuahua
Pomeranian
Samoyed
Am. Eskimo
Saluki
Afghan Hound
Sib. Husky
Alaskan Malamute
Shar-pei
Dingo
Chow-chow
Akita
Basenji
Near East
Middle East
Spain
Italy
Balkans, Eastern & Northern Europe
China
Coyote
Kuvasz

How would you organize all of the sales and product manuals accumulated by a company over a decade?

By Location of manufacture?
Alphabetically?
Date the product was put in use or produced?
Color?
Products used most to products used least?

(of course, most likely we would use a combination!)

You are preparing a report on the auto industry which features many models of cars from many different car manufacturers? You have much data to work with (Consumer Reports ratings, Crash test info, etc.)

What's the story?

LET’S LATCH!

Visual cues/Preattentive Attr.

Mapping data to color
and geometry

Color/Intensity

Saturation / intensity

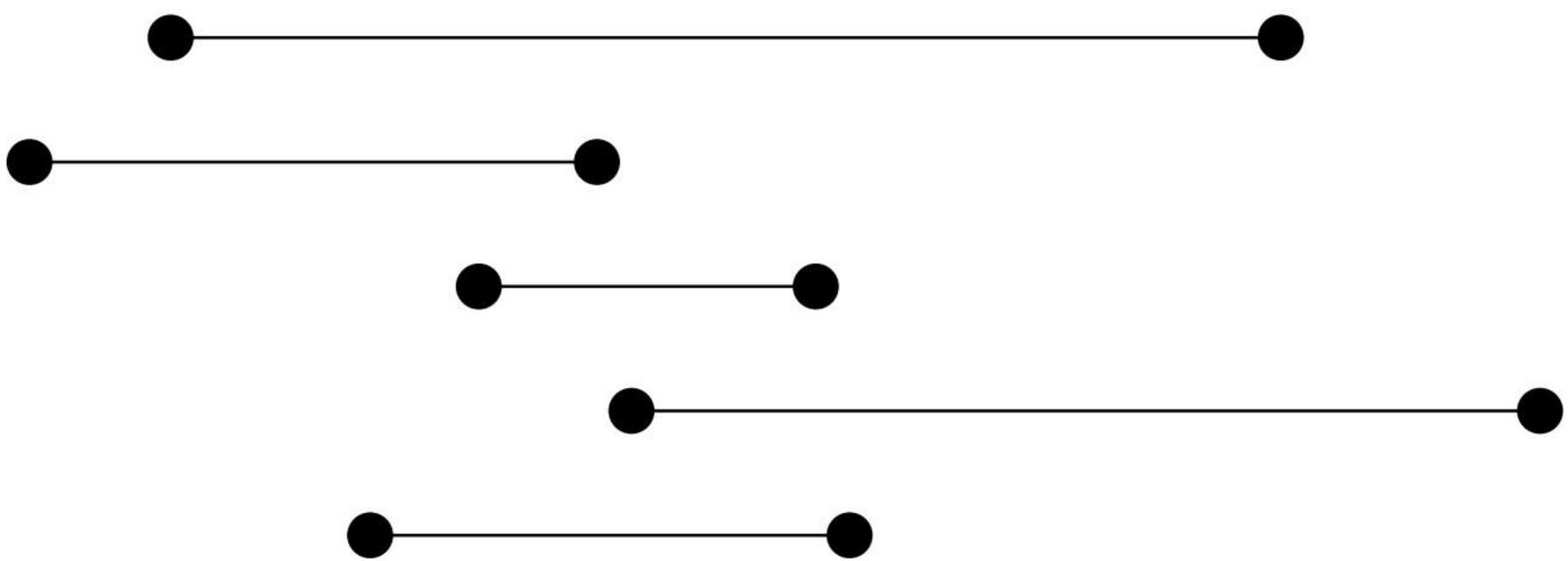
Color / hue

Form

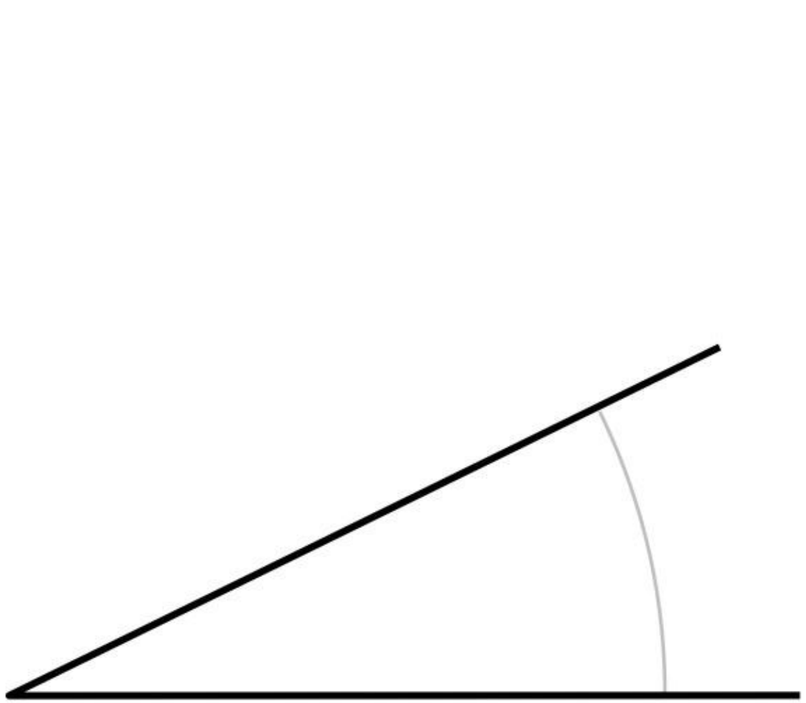
Length

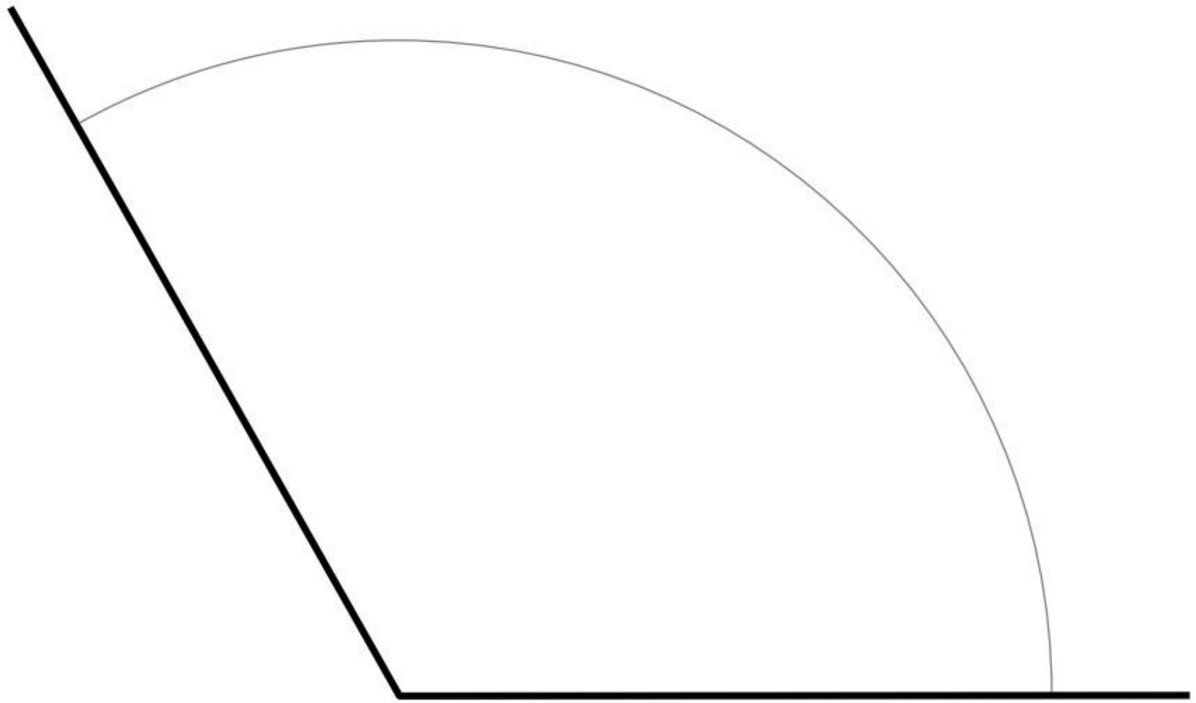
[redacted]

Proximity

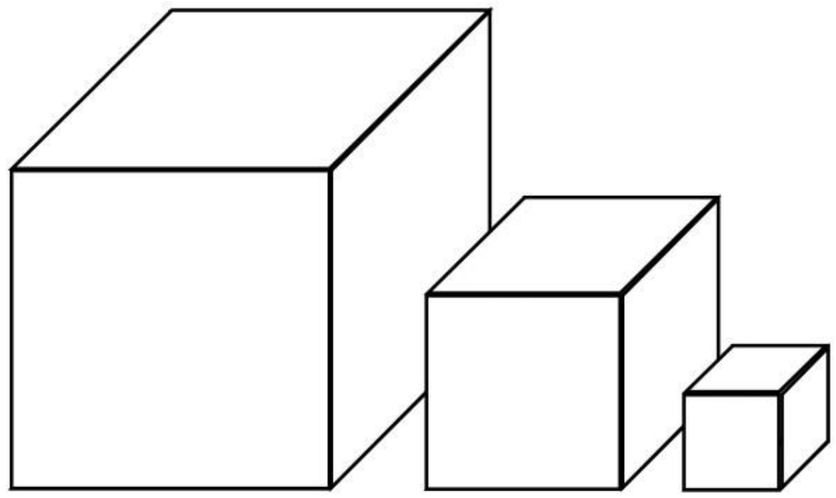


Angle



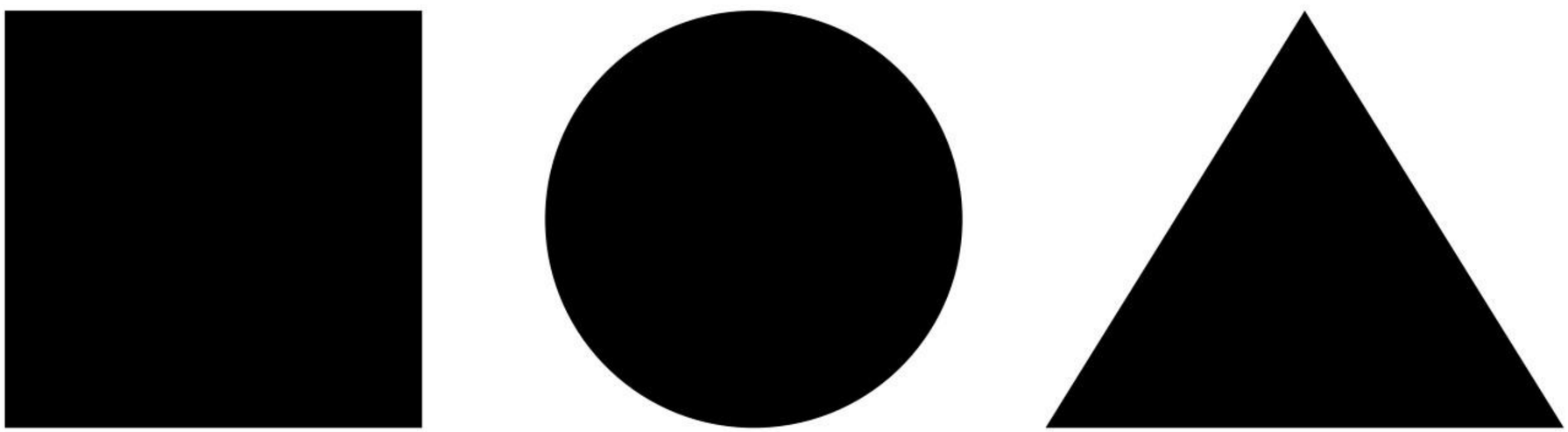


Area / volume

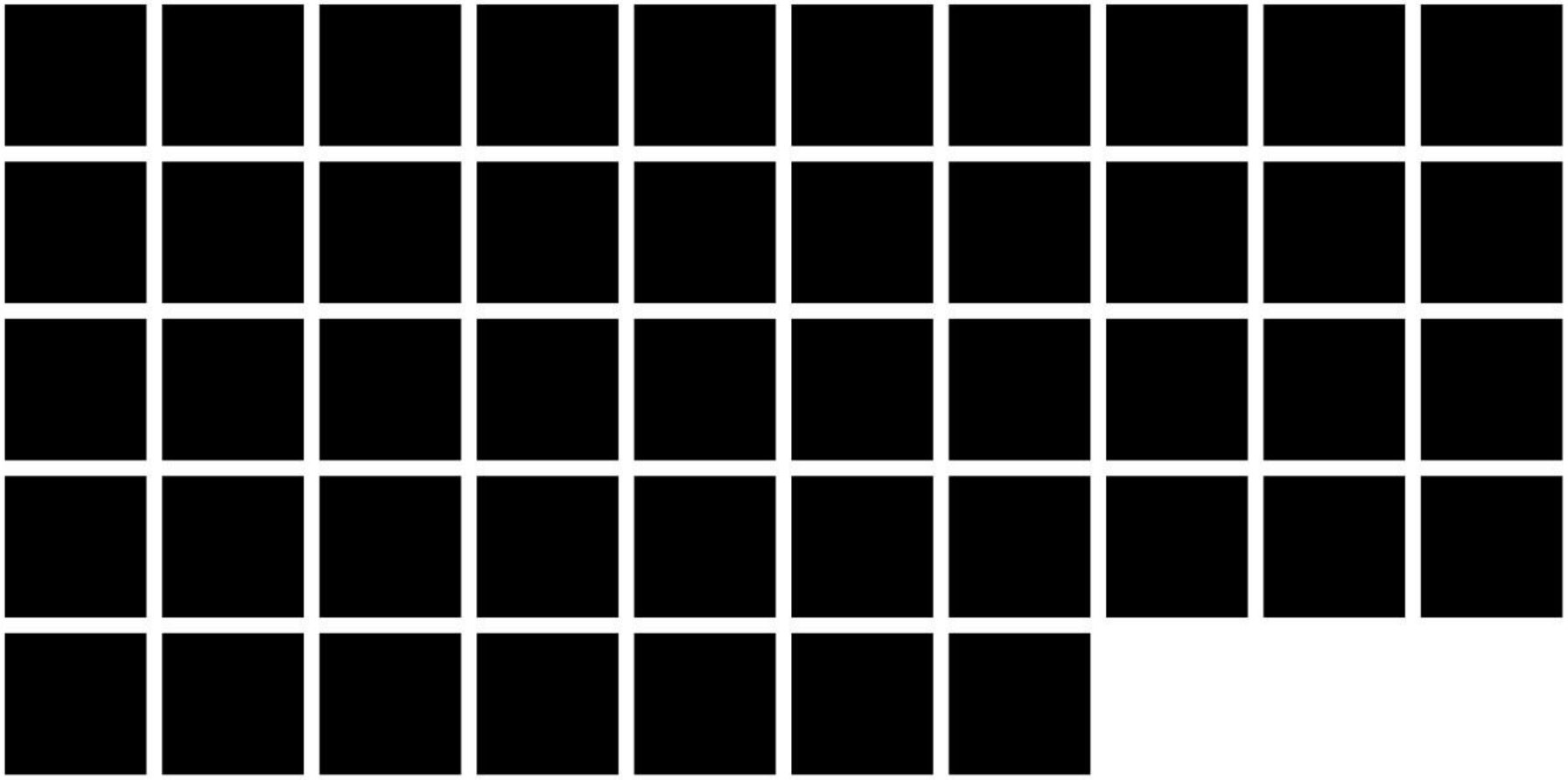


Direction

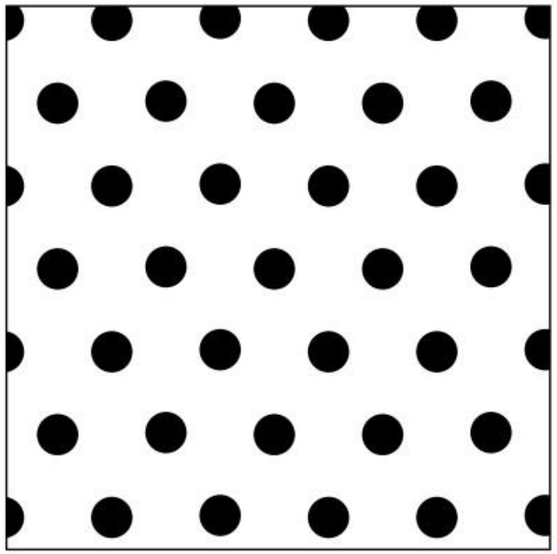
Shape

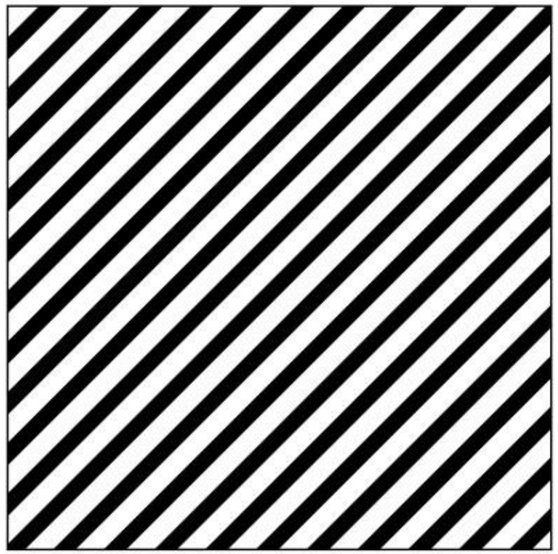


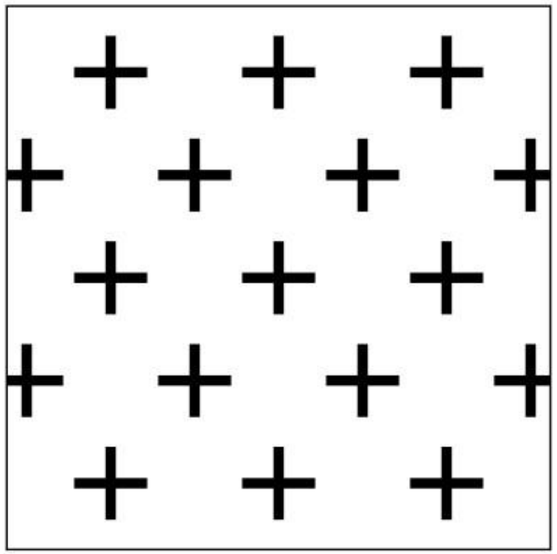
Repetition



Pattern

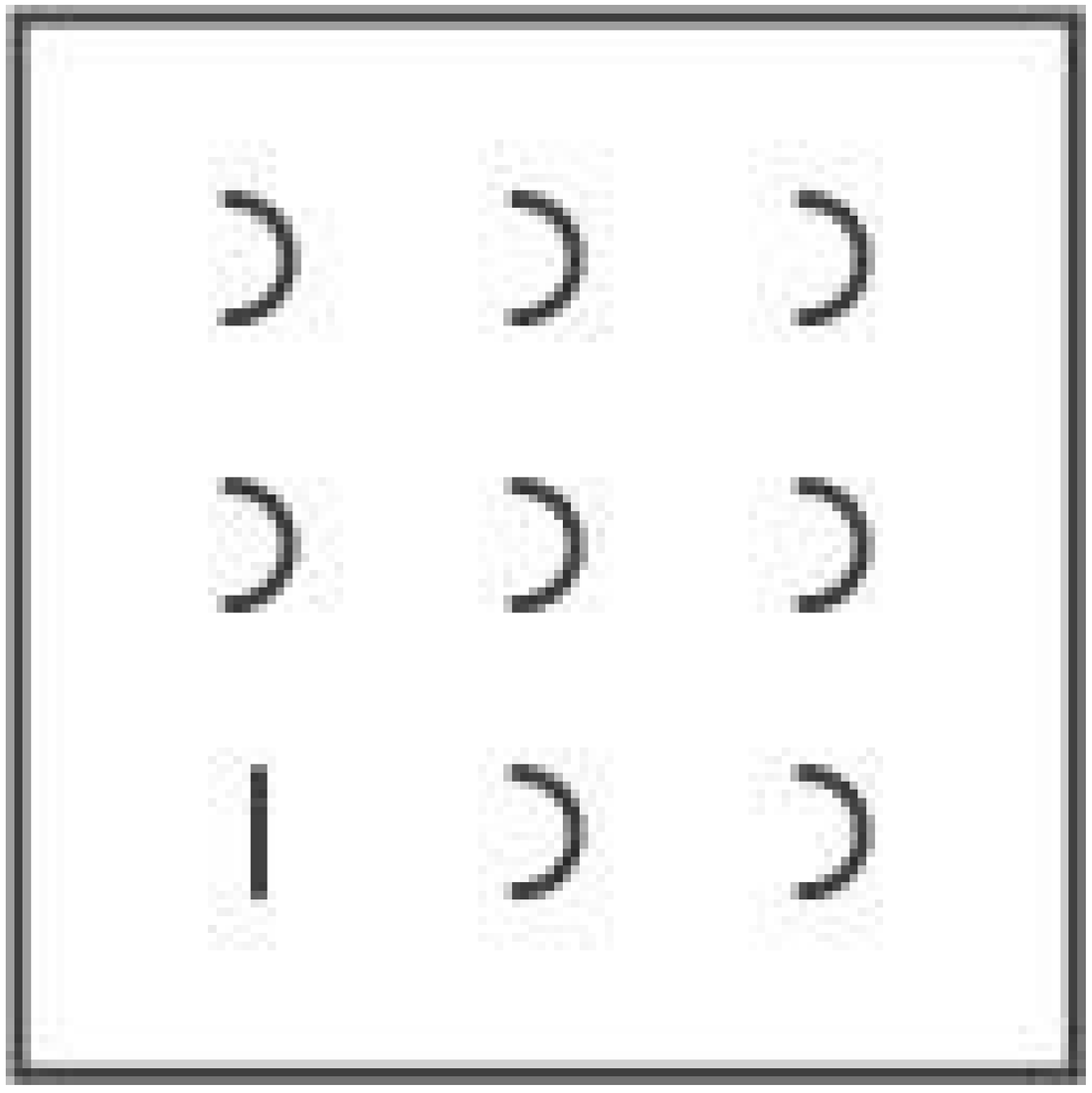




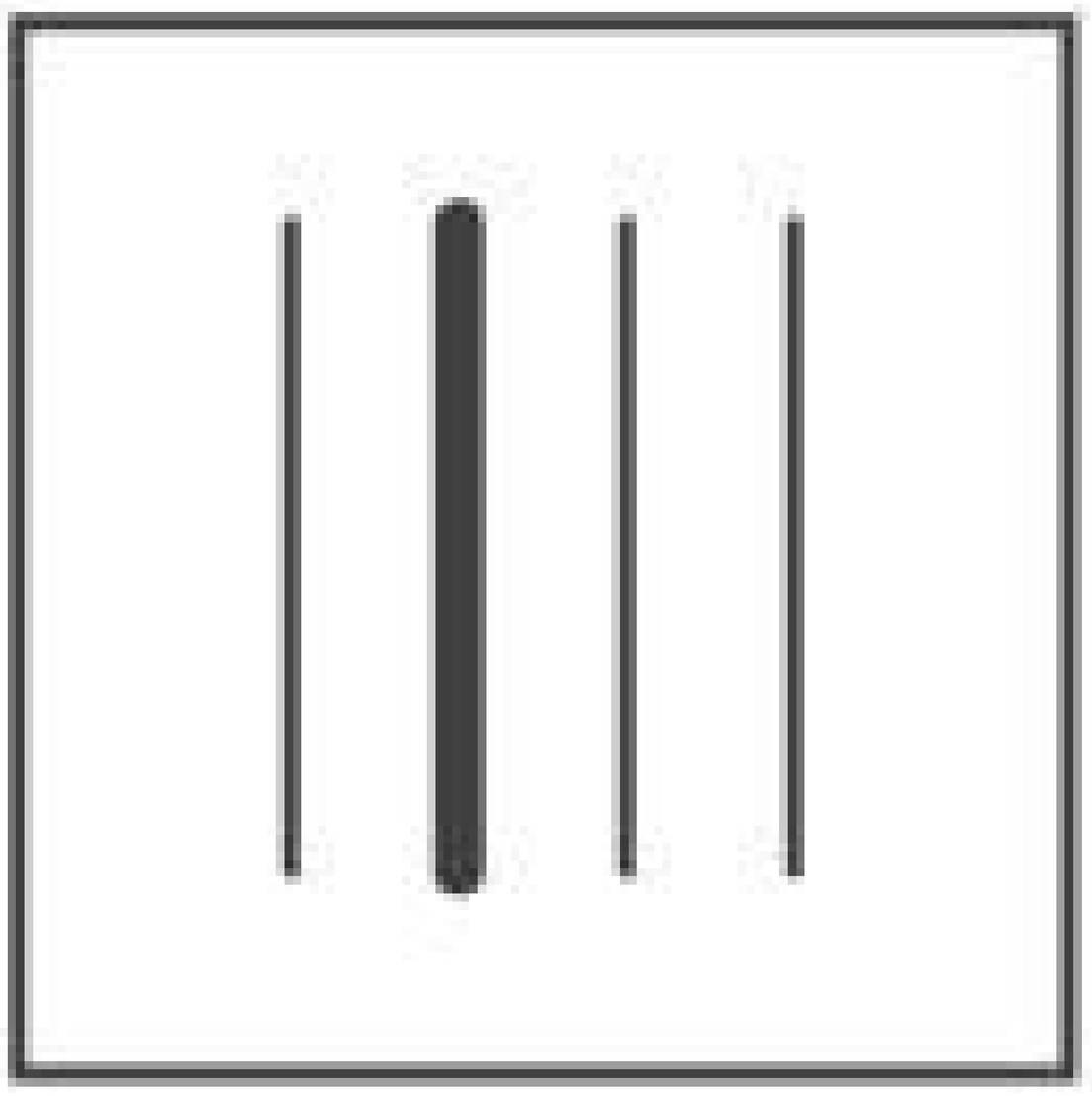


Orientation

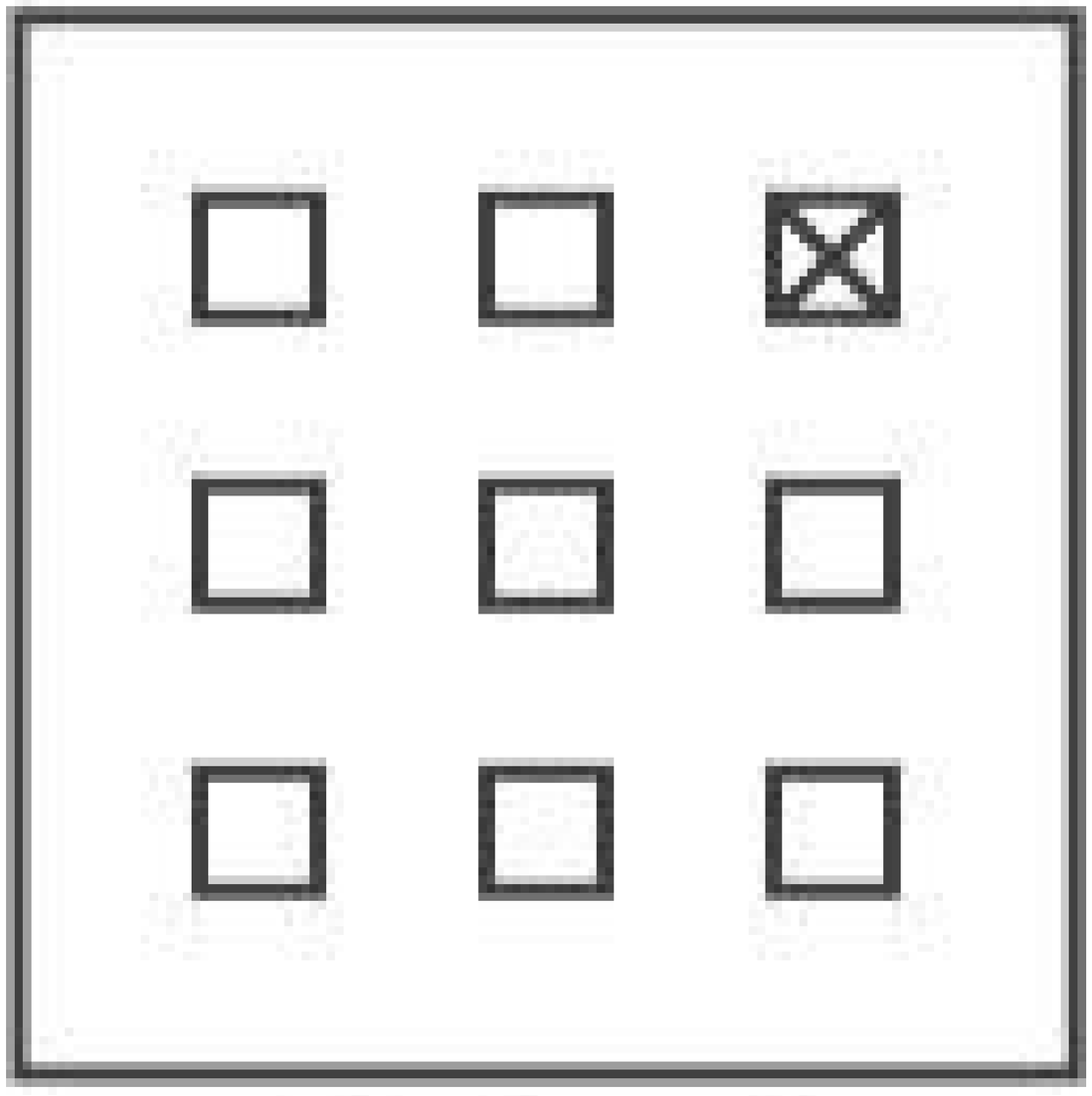
Curvature



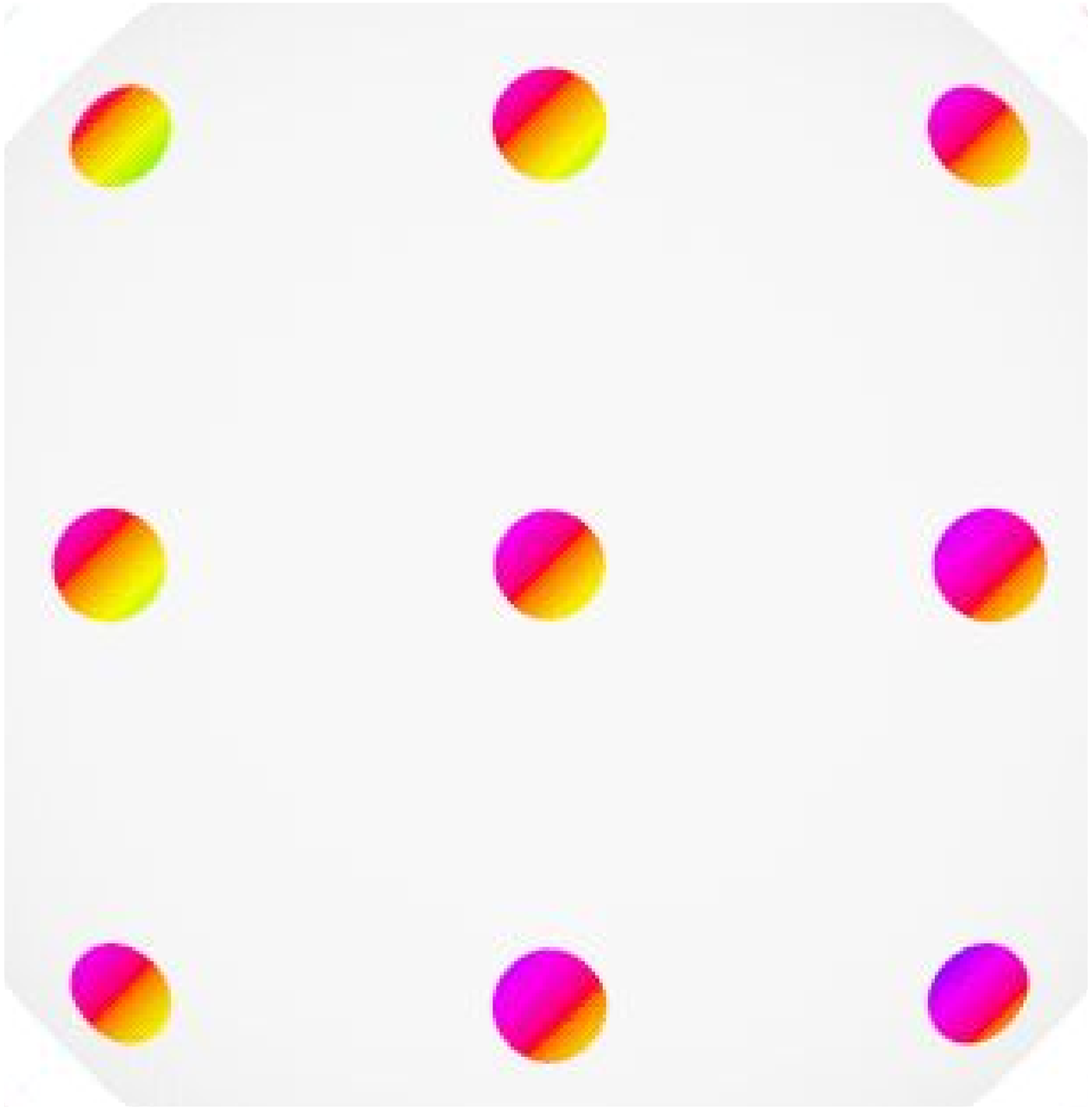
Width



Added Marks

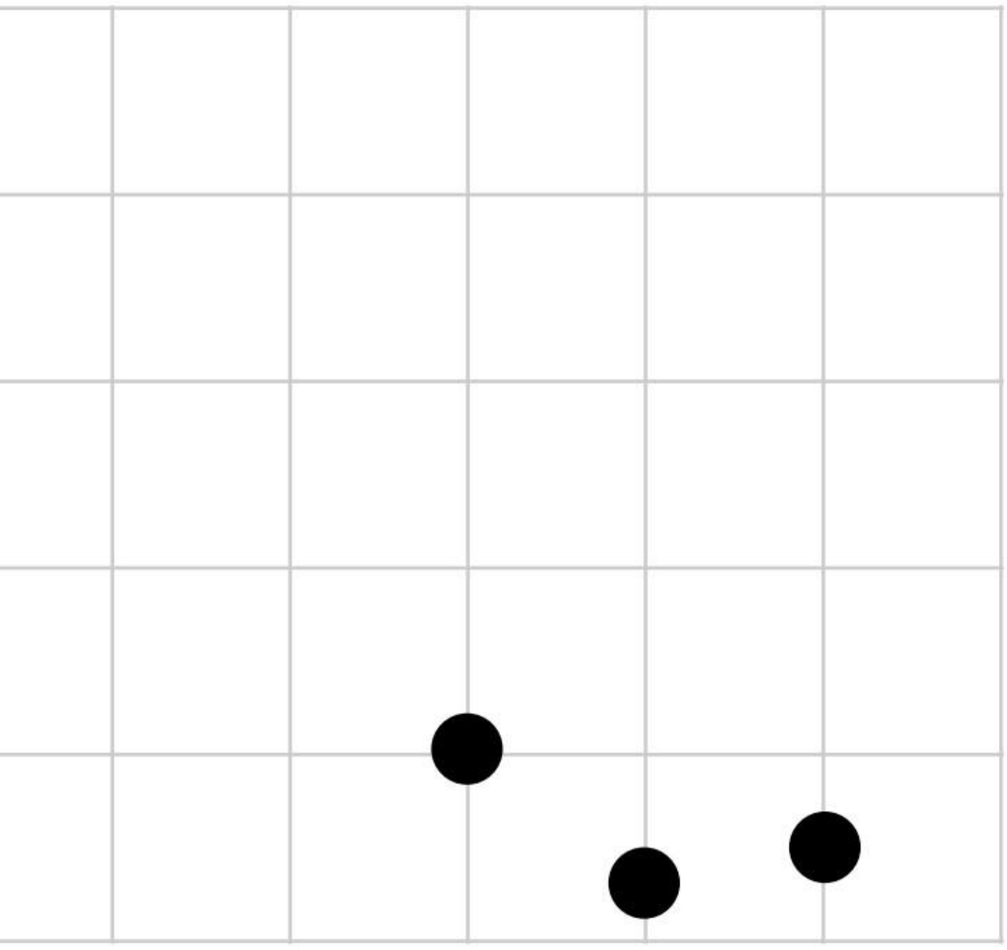


Movement

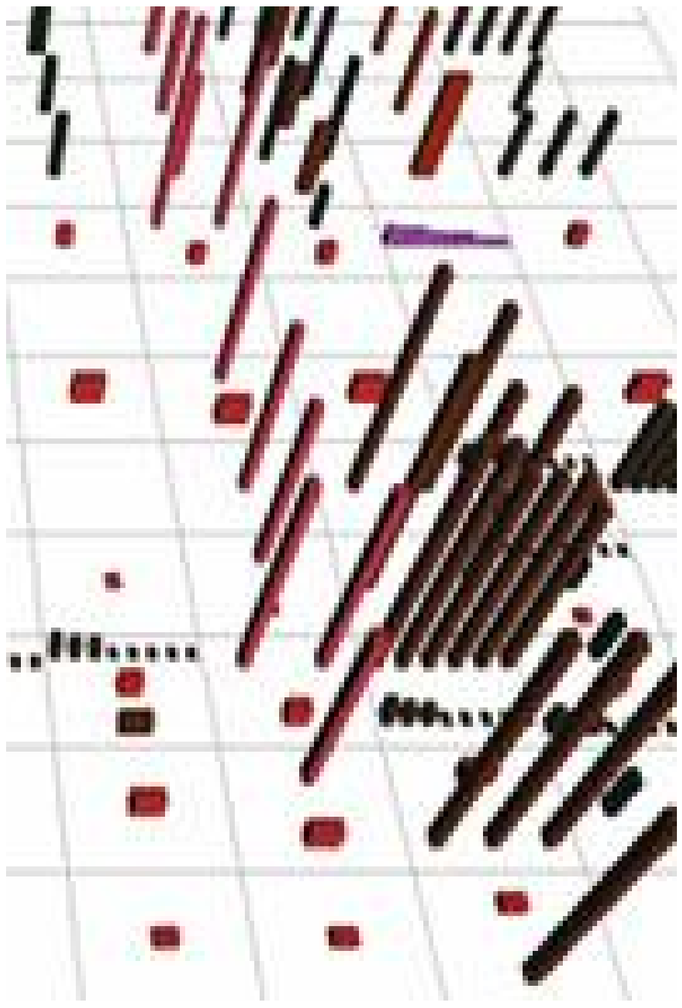


Spatial Positioning

Position



Depth



CHECK OUT MORE HERE:

https://learnforeverlearn.com/preattentive/

Visualization forms

What are you trying to show?

Change over time?

Distribution of values?

Parts to the whole?

A ranking?

Relationships between 2 or more variables?

Cause & effect?

Flow between entities?

Geo-spatial locations?

What are you trying to show?

Deviation

Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).

Example FT uses
Trade surplus/deficit, climate change

Diverging bar

A simple standard bar chart that can handle both negative and positive magnitude values.

Diverging stacked bar

Perfect for presenting survey results which involve sentiment (eg disagree/neutral/agree).

Spine chart

Splits a single value into 2 contrasting components (eg Male/Female).

Surplus/deficit filled line

The shaded area of these charts allows a balance to be shown – either against a baseline or between two series.

XY heatmap

A good way of showing the patterns between 2 categories of data, less good at showing fine differences in amounts.

Correlation

Show the relationship between two or more variables. Be mindful that, unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the other).

Example FT uses
Inflation & unemployment, income & life expectancy

Scatterplot

The standard way to show the relationship between two continuous variables, each of which has its own axis.

Line + Column

A good way of showing the relationship between an amount (column) and a rate (line).

Connected scatterplot

Usually used to show how the relationship between 2 variables has changed over time.

Bubble

Like a scatterplot, but adds additional detail by sizing the circles according to a third variable.

Ranking

Use where an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.

Example FT uses
Wealth, deprivation, league tables, constituency election results

Ordered bar

Standard bar charts display the ranks of values much more easily when sorted into order.

Ordered column

See above.

Ordered proportional symbol

Use when there are big variations between values and/or seeing fine differences between data is not so important.

Dot strip plot

Dots placed in order on a strip are a space-efficient method of laying out ranks across multiple categories.

Slope

Perfect for showing how ranks have changed over time or vary between categories.

Lollipop chart

Lollipops draw more attention to the data value than standard bar/column and can also show rank and value effectively.

Distribution

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

Example FT uses
Income distribution, population (age/sex) distribution

Histogram

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

Boxplot

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

Violin plot

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

Population pyramid

A standard way for showing the age and sex breakdown of a population-distribution; effectively back to back histog rams.

Dot strip plot

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

Dot plot

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

Barcode plot

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

Cumulative curve

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

Change over Time

Give emphasis to changing trends. These can be short (intra-day) movements or extended series traversing decades or centuries. Choosing the correct time period is important to provide suitable context for the reader.

Example FT uses
Share price movements, economic time series

Line

The standard way to show a changing time series. If data are irregular, consider markers to represent data points.

Column

Columns work well for showing change over time - but usually best with only one series of data at a time.

Line + column

A good way of showing the relationship over time between an amount (column) and a rate (line).

Stock price

Usually focussed on day-to-day activity, these charts show opening/closing and hi/low points of each day.

Slope

Good for showing changing data as long as the data can be simplified into 2 or 3 points without missing a key part of story.

Area chart

Use with care – these are good at showing changes to total, but seeing change in components can be very difficult.

Fan chart (projections)

Use to show the uncertainty in future projections - usually this grows the further forward to projection.

Connected scatterplot

A good way of showing changing data for two variables whenever there is a relatively clear pattern of progression.

Calendar heatmap

A great way of showing temporal patterns (daily, weekly, monthly) – at the expense of showing precision in quantity.

Priestley timeline

Great when date and duration are key elements of the story in the data.

Circle timeline

Good for showing discrete values of varying size across multiple categories (eg earthquakes by continent).

Seismogram

Another alternative to the circle timeline for showing series where there are big variations in the data.

Part-to-whole

Show how a single entity can be broken down into its component elements. If the reader's interest is solely in the size of the components, consider a magnitude-type chart instead.

Example FT uses
Fiscal budgets, company structures, national election results

Stacked column

A simple way of showing part-to-whole relationships but can be difficult to read with more than a few components.

Proportional stacked bar

A good way of showing the size and proportion of data at the same time – as long as the data are not too complicated.

Pie

A common way of showing part-to-whole data – but be aware that it's difficult to accurately compare the size of the segments.

Donut

Similar to a pie chart – but the centre can be a good way of making space to include more information about the data (eg. total).

Treemap

Use for hierarchical part-to-whole relationships; can be difficult to read when there are many small segments.

Voronoi

A way of turning points into areas – any point within each area is closer to the central point than any other centroid.

Sunburst

Another way of visualising hierarchical part-to-whole relationships. Use sparingly (if at all) for obvious reasons.

Arc

A hemicycle, often used for visualising political results in parliaments.

Gridplot

Good for showing % information, they work best when used on whole numbers and work well in multiple layout form.

Venn

Generally only used for schematic representation.

Waterfall

Can be useful for showing part-to-whole relationships where some of the components are negative.

Magnitude

Show size comparisons. These can be relative (just being able to see largest/biggest) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels, dollars or people) rather than a calculated rate or per cent.

Example FT uses
Commodity production, market capitalisation

Column

The standard way to compare the size of things. Must always start at 0 on the axis.

Bar

See above. Good when the data are not time series and labels have long category names.

Paired column

As per standard column but allows for multiple series. Can become tricky to read with more than 2 series.

Paired bar

See above.

Proportional stacked bar

A good way of showing the size and proportion of data at the same time – as long as the data are not too complicated.

Proportional symbol

Use when there are big variations between values and/or seeing fine differences between data is not so important.

Isotype (pictogram)

Excellent solution in some instances – use only with whole numbers (do not slice off an arm to represent a decimal).

Lollipop chart

Lollipop charts draw more attention to the data value than standard bar/column – does not HAVE to start at zero (but preferable).

Radar chart

A space-efficient way of showing value of multiple variables - but make sure they are organised in a way that makes sense to reader.

Parallel coordinates

An alternative to radar charts – again, the arrangement of the variables is important. Usually benefits from highlighting values.

Spatial

Used only when precise locations or geographical patterns in data are more important to the reader than anything else.

Example FT uses
Locator maps, population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election results

Basic choropleth (rate/ratio)

The standard approach for plotting data on a map – should always be rates rather than totals and use a sensible base geography.

Proportional symbol (count/magnitude)

Use for totals rather than rates – be wary that small differences in data will be hard to see.

Flow map

For showing unambiguous movement across a map.

Contour map

For showing areas of equal value on a map. Can use deviation colour schemes for showing +/- values.

Equalised cartogram

Converting each unit on a map to a regular and equally-sized shape – good for representing voting regions with equal value.

Scaled cartogram (value)

Stretching and shrinking a map so that each area is sized according to a particular value.

Dot density

Used to show the location of individual events/locations – make sure to annotate any gaps so the reader should see.

Heat map

Grid-based data values mapped with an intensity colour scale. As choropleth map – but not snapped to an admin/political unit.

Flow

Show the reader volumes or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.

Example FT uses
Movement of funds, trade, migrants, lawsuits, information; relationship graphs.

Sankey

Shows changes in flows from one condition to at least one other, good for tracing the eventual outcome of a complex process.

Waterfall

Designed to show the sequencing of data through a flow process, typically budgets. Can include +/- components.

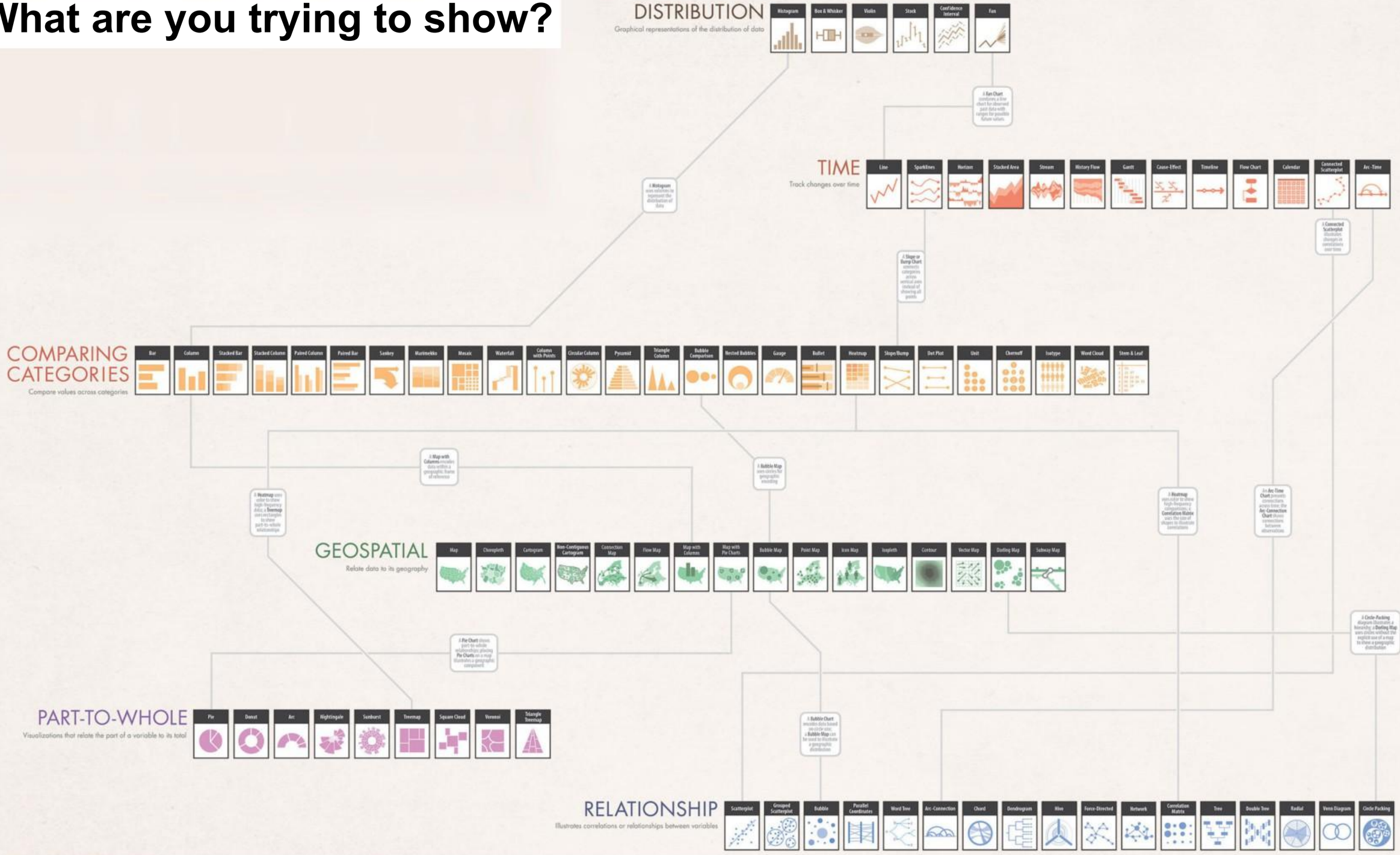
Chord

A complex but powerful diagram which can illustrate 2-way flows (and net winner) in a matrix.

Network

Used for showing the strength and inter-connectedness of relationships of varying types.

What are you trying to show?

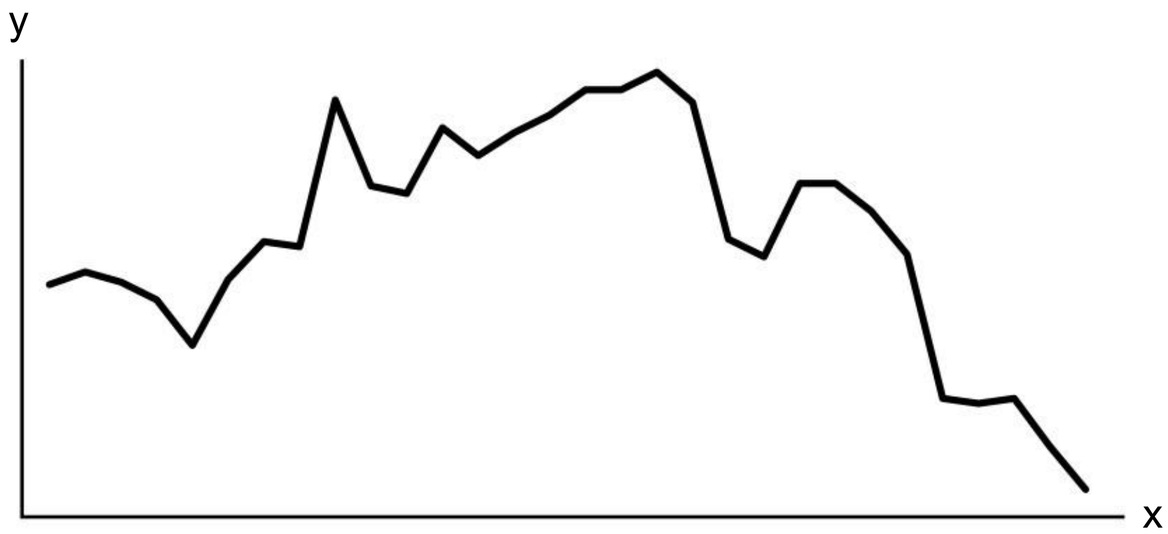


“Form (ever) follows function”

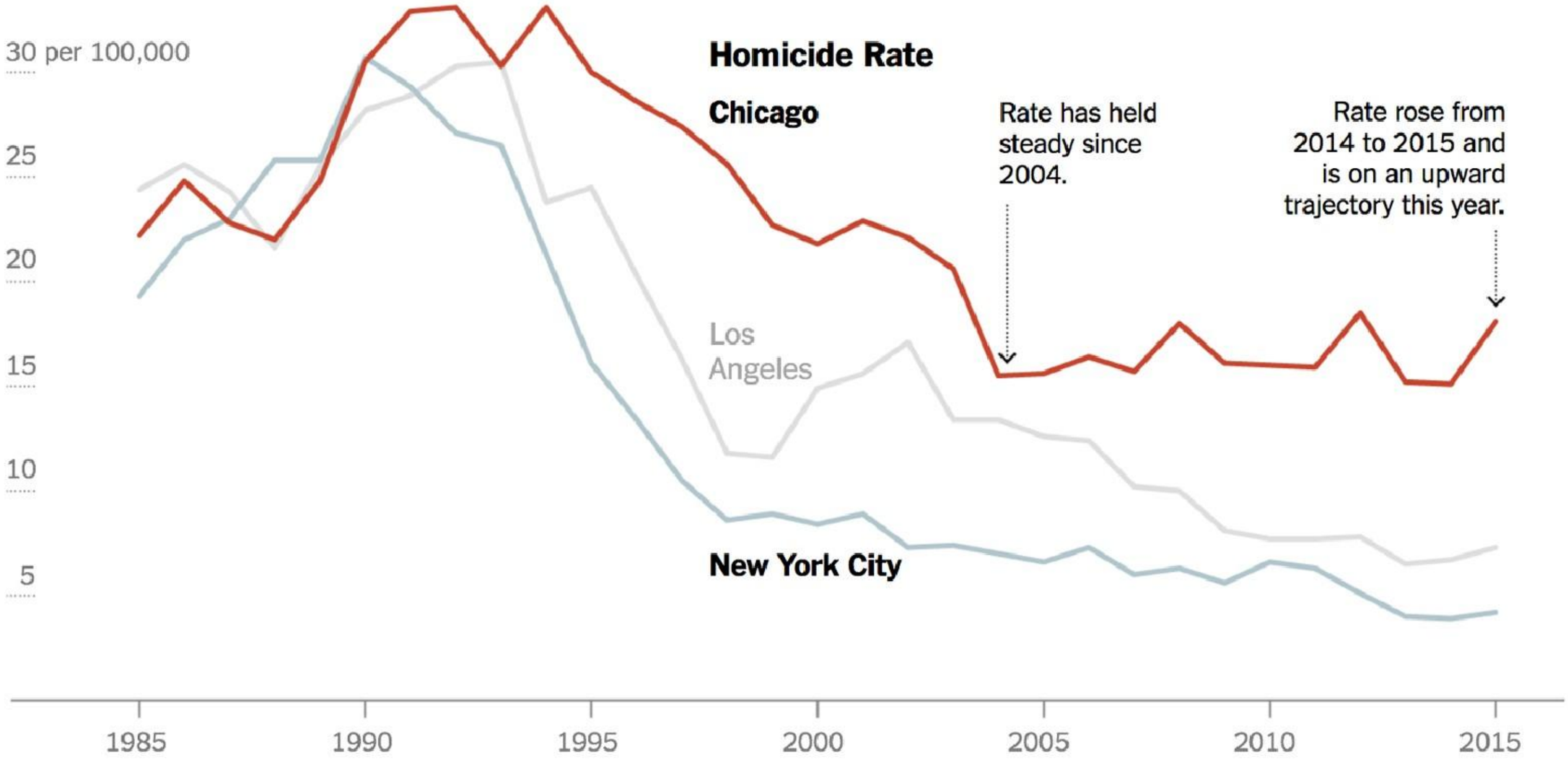
— Louis Henry Sullivan, 1896

Visualization style should reflect its purpose

Line chart / Track continuous changes over time

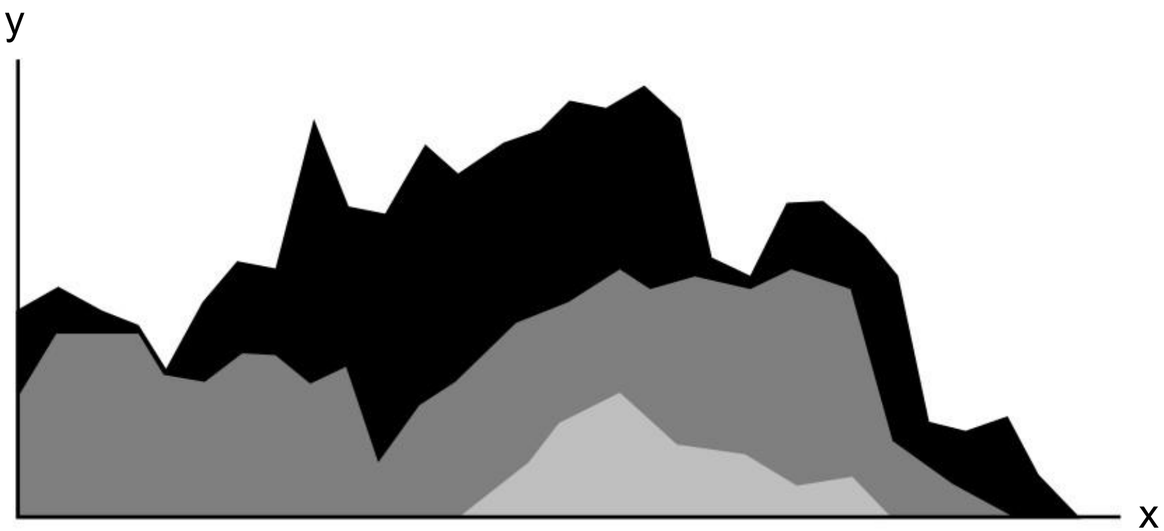


Line chart / Track continuous changes over time

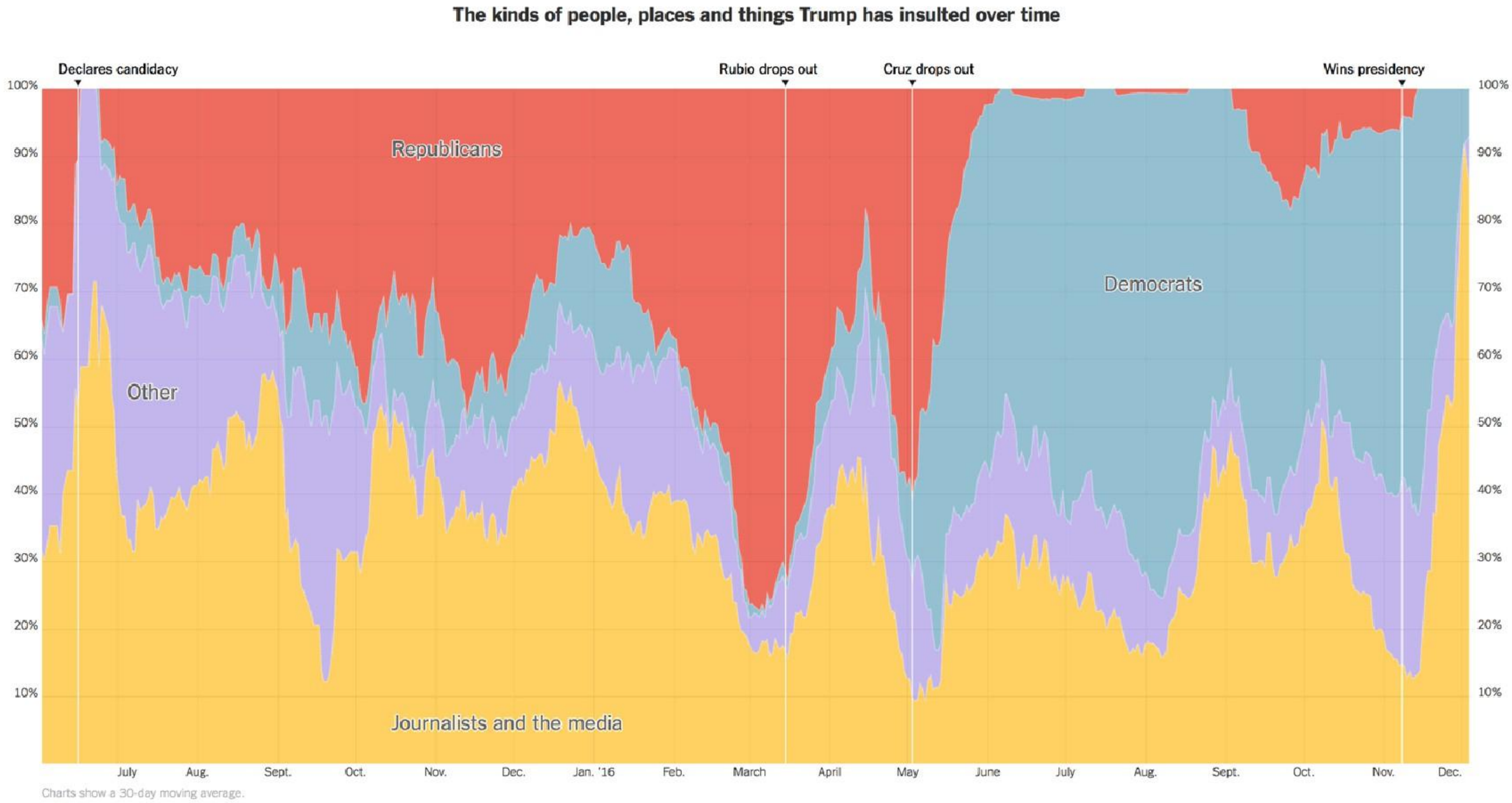


https://www.nytimes.com/interactive/2016/05/18/us/chicago-murder-problem.html

Area chart / Compare parts-to-whole or volume over time

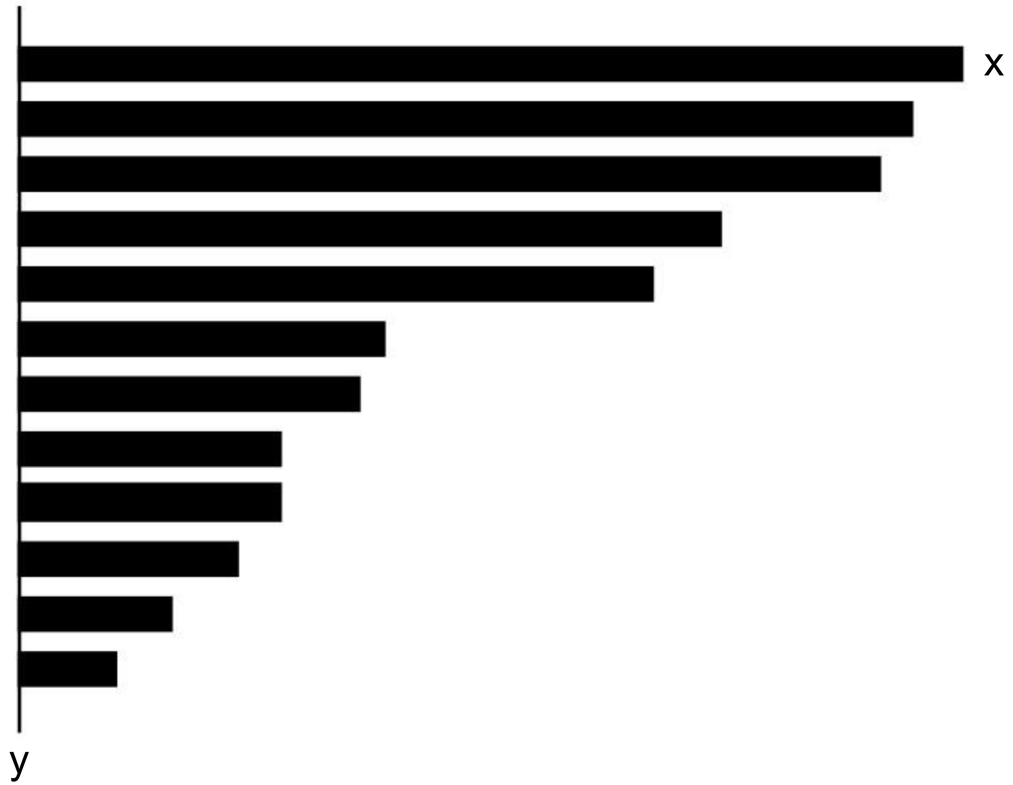


Area chart / Compare parts-to-whole or volume over time



https://www.nytimes.com/interactive/2016/12/06/upshot/how-to-know-what-donald-trump-really-cares-about-look-at-who-hes-

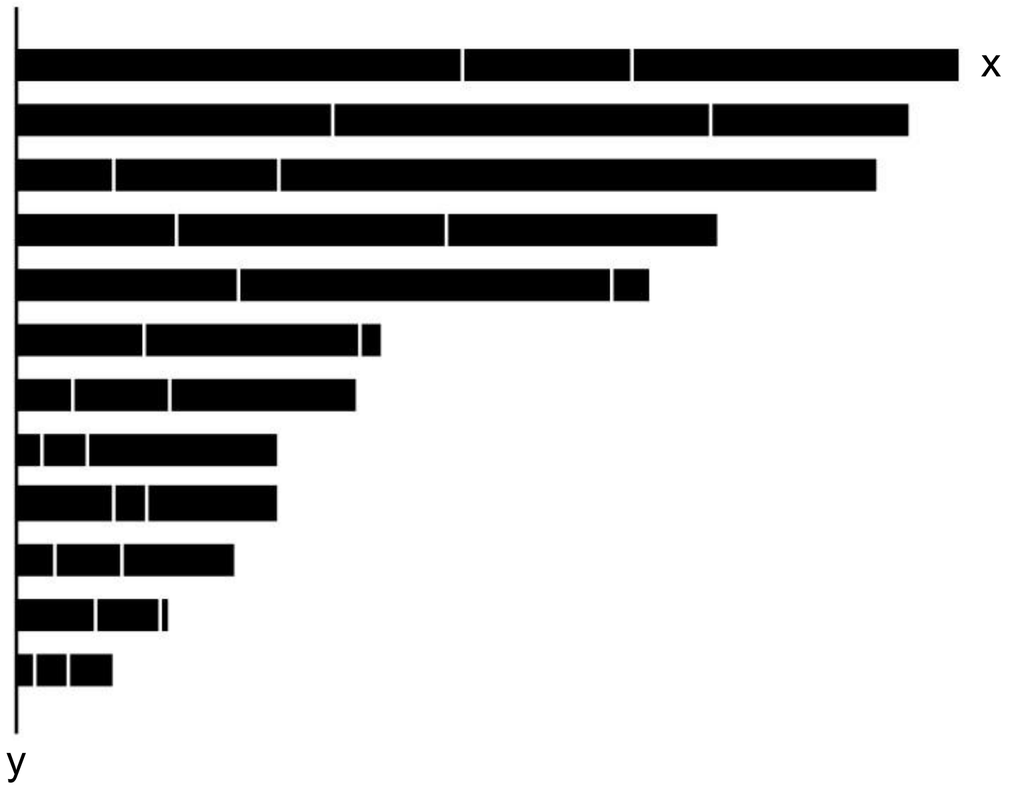
Bar chart / Comparing discrete changes in size or magnitude



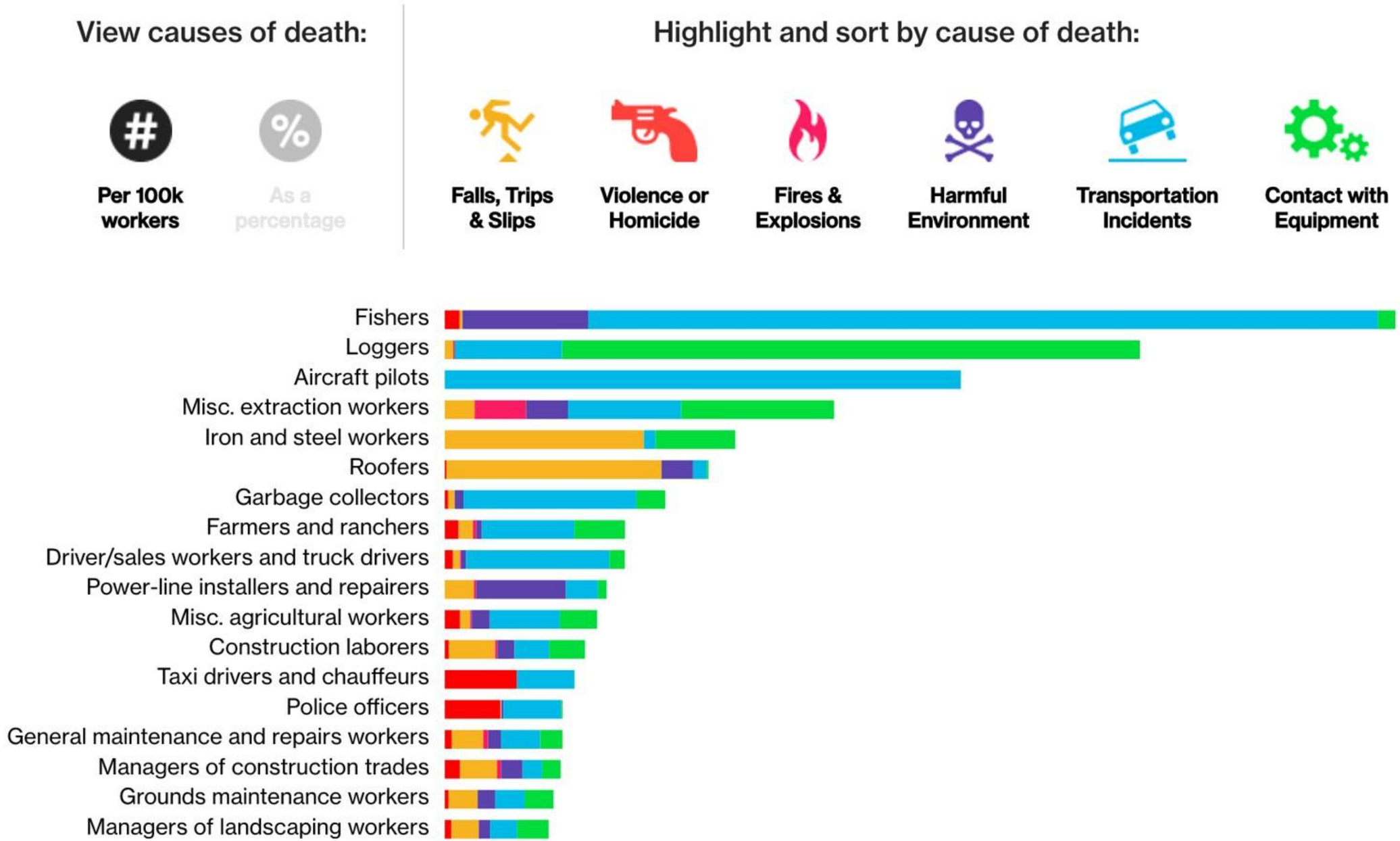
Bar chart / Comparing discrete changes in size or magnitude

http://feltron.com/FAR13.html

Stacked bar chart / Comparing discrete changes to parts-to-whole

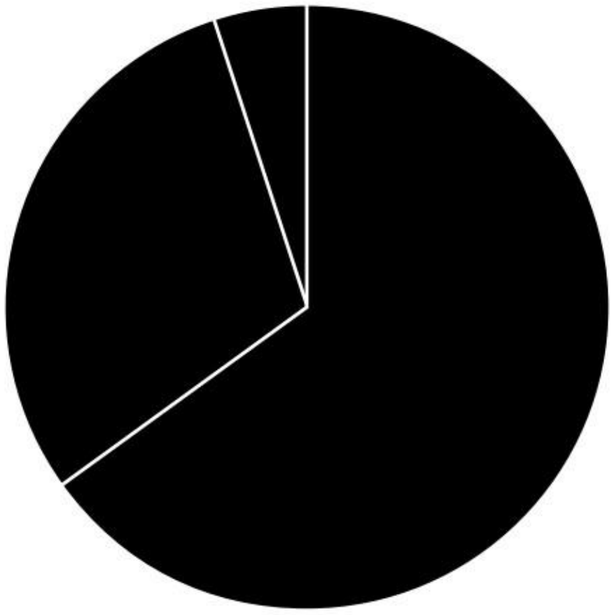


Stacked bar chart / Comparing discrete changes to parts-to-whole

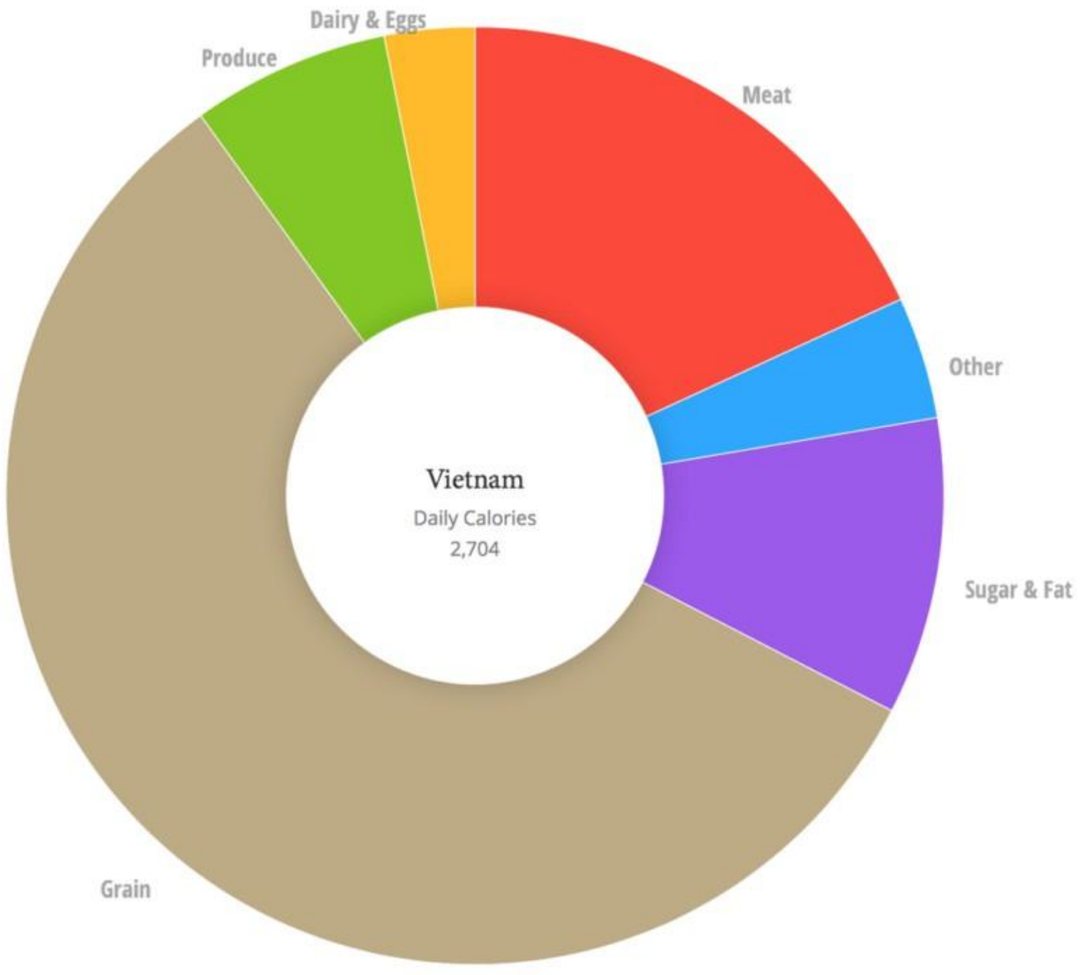


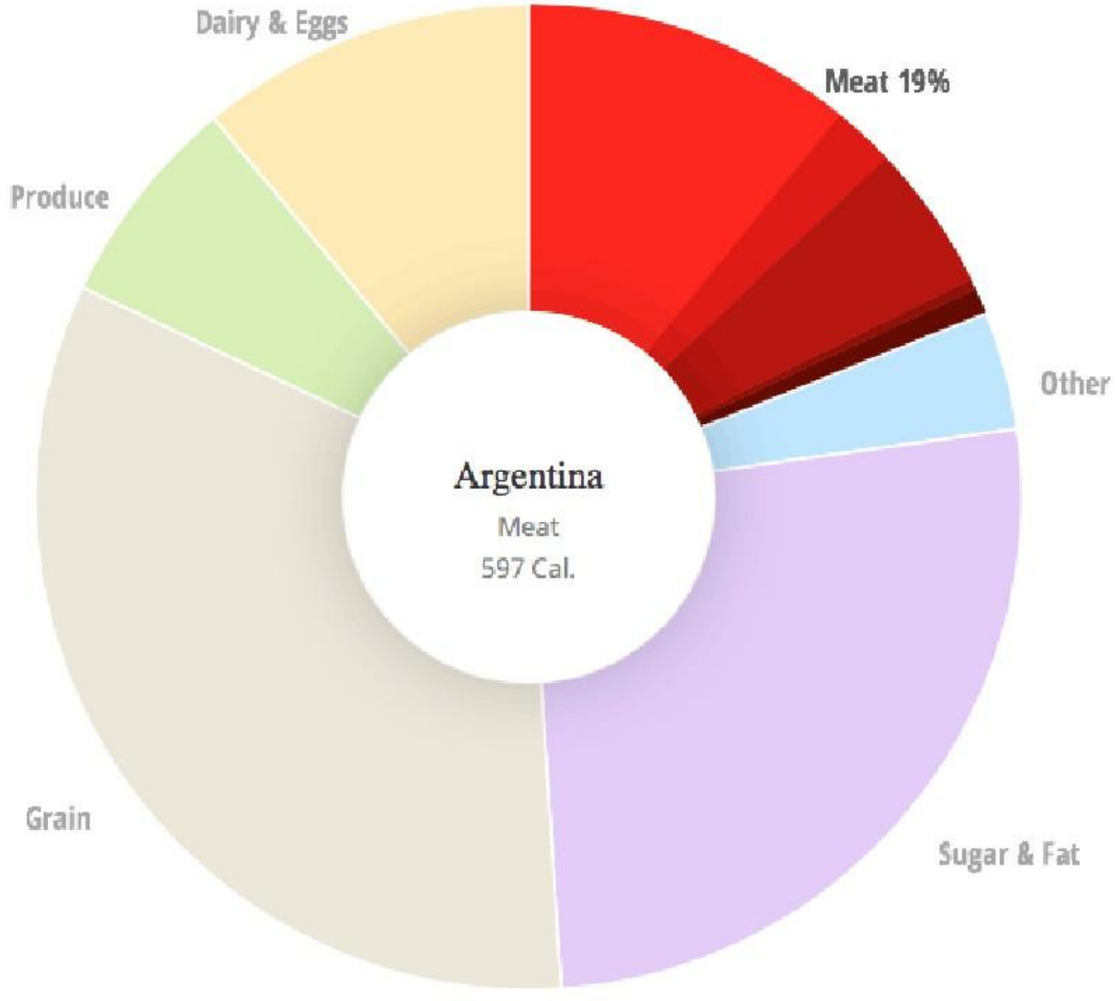
https://www.bloomberg.com/graphics/2015-dangerous-jobs/

Pie chart / Comparing parts-to-whole



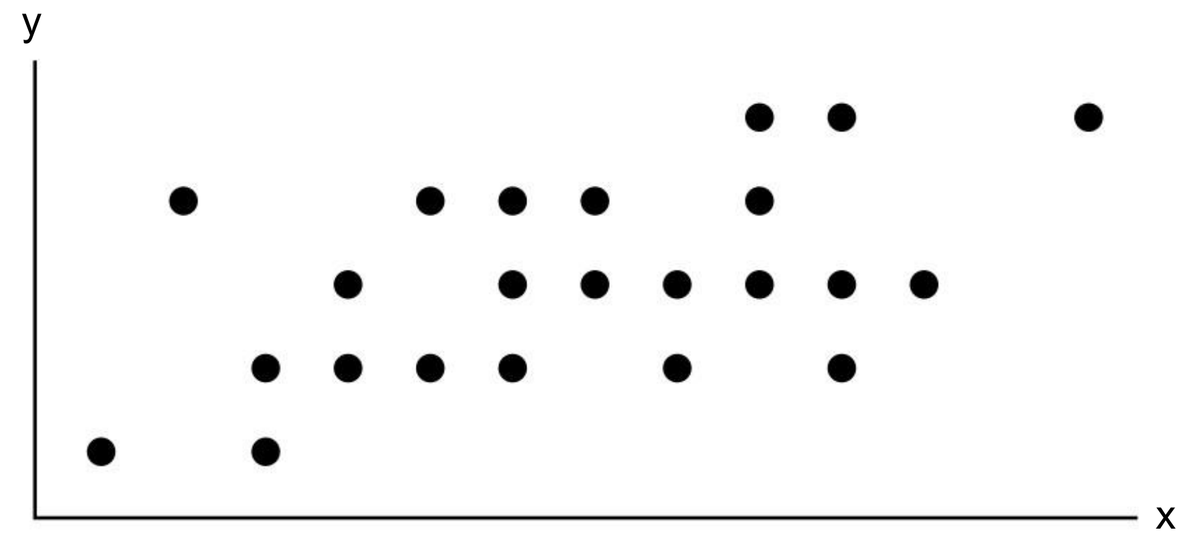
Pie chart / Comparing parts-to-whole



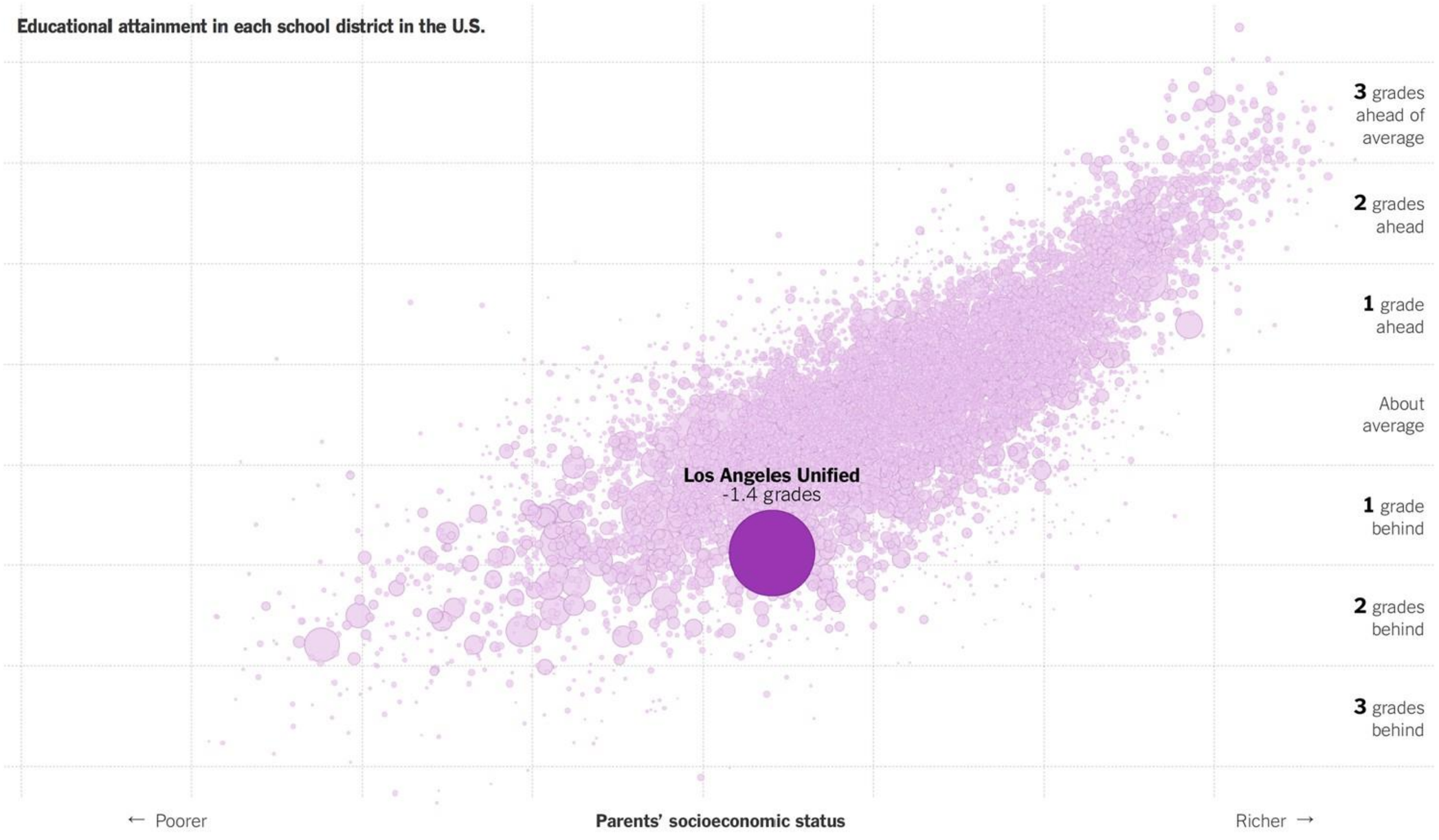


http://www.nationalgeographic.com/what-the-world-eats/

Scatterplot / Shows the relationship between two continuous variables

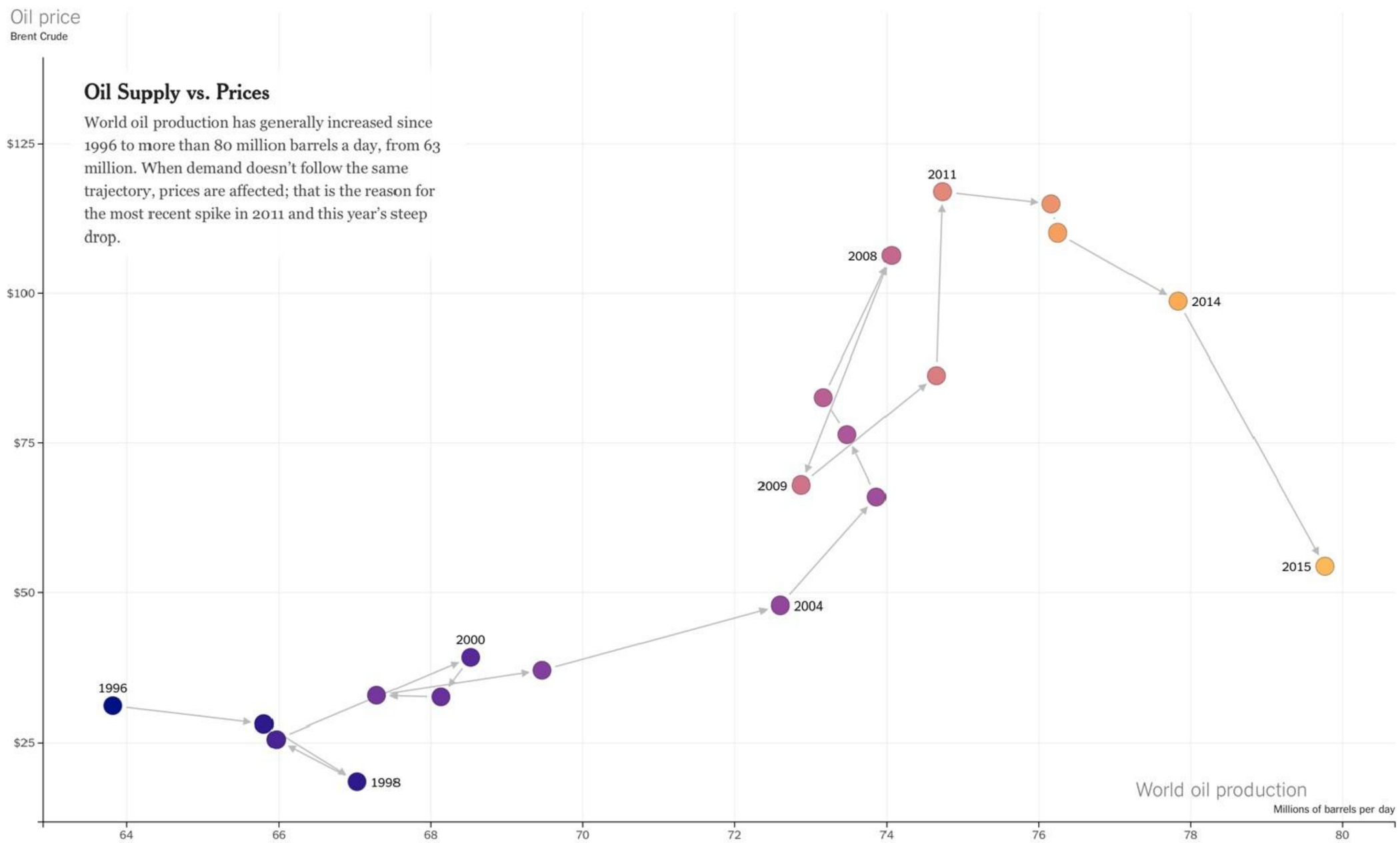


Scatterplot / Shows the relationship between two continuous variables



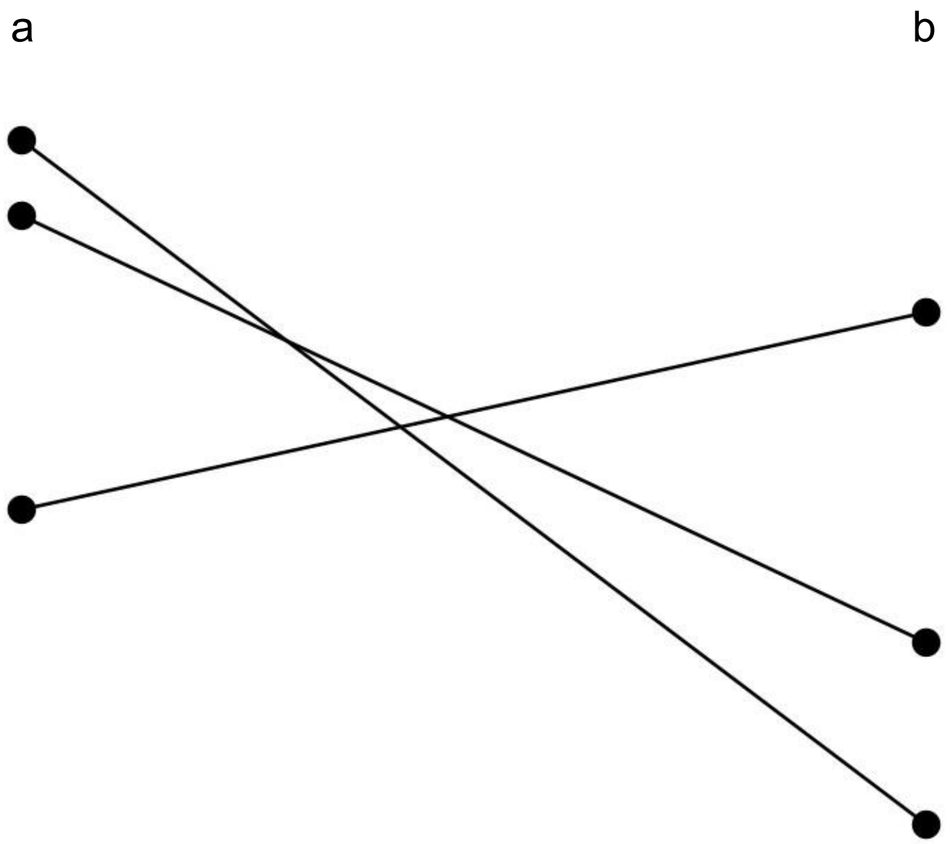
https://www.nytimes.com/interactive/2016/04/29/upshot/money-race-and-success-how-your-school-district-compares.html

Connected scatterplot / Show relationships over time

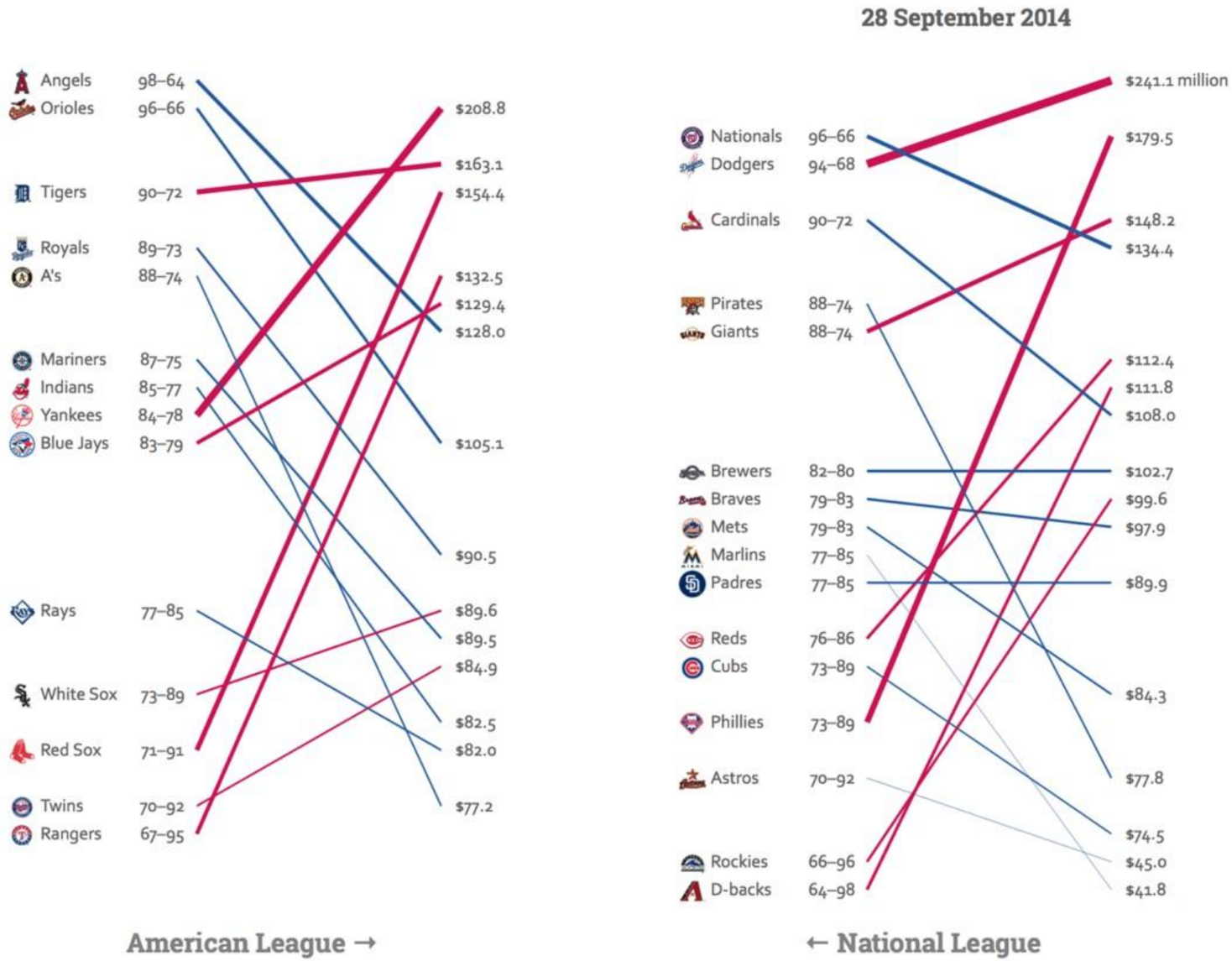


https://www.nytimes.com/interactive/2015/09/30/business/how-the-us-and-opec-drive-oil-prices.html

Slope chart / Measure change in rank or magnitude between two points

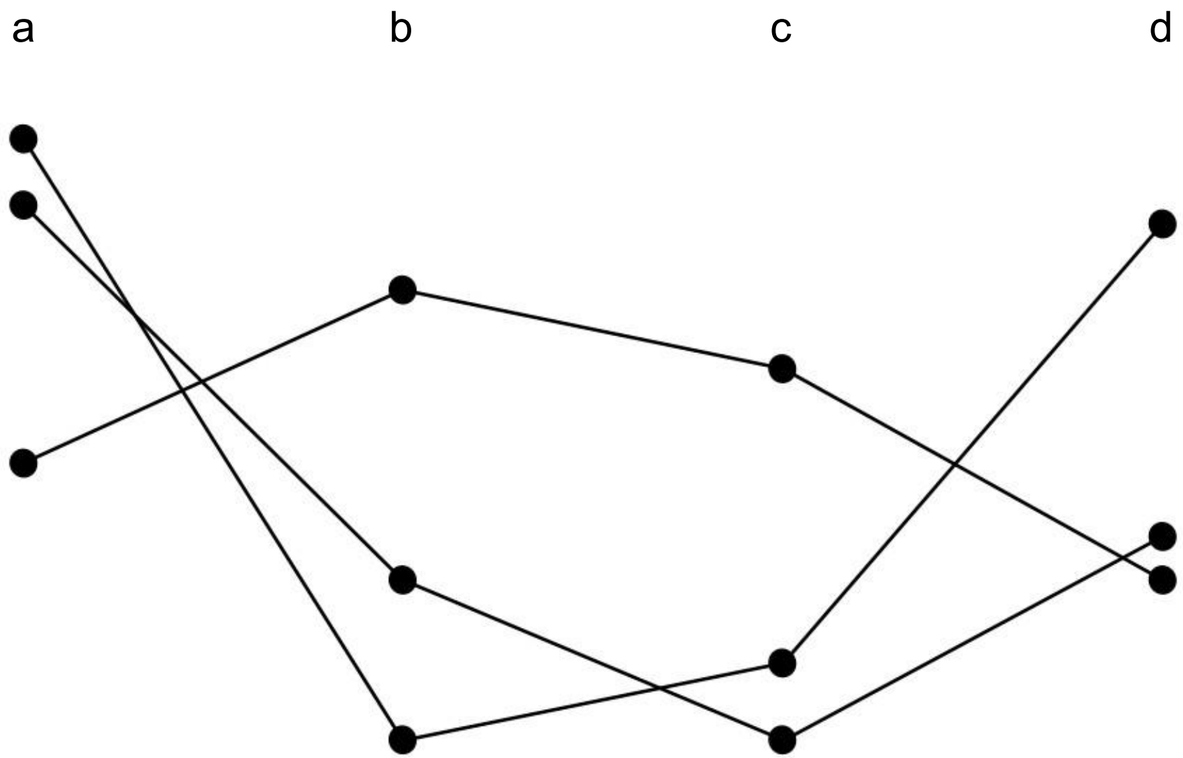


Slope chart / Measure change in rank or magnitude between two points

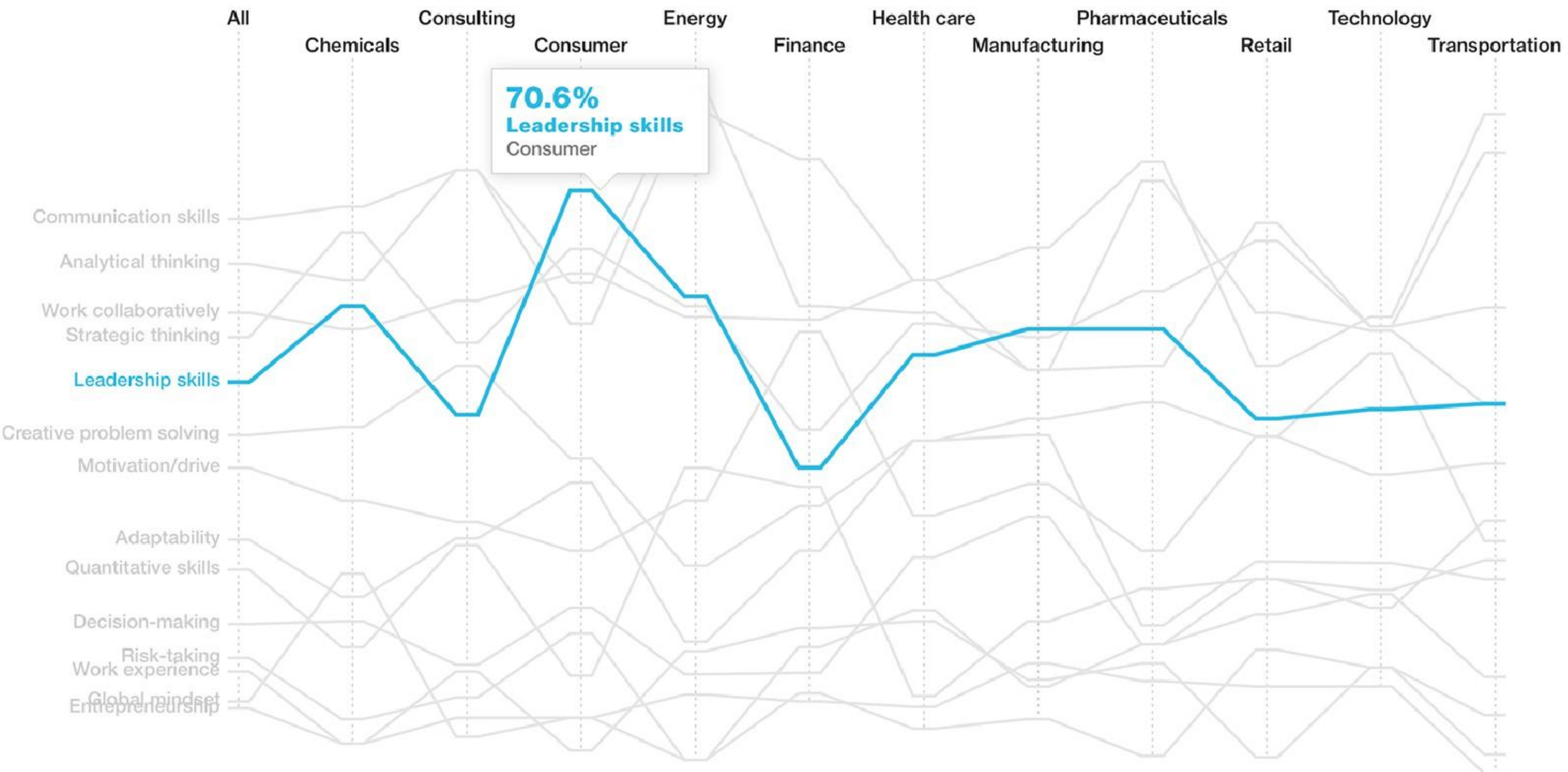


https://fathom.info/salaryper/

Parallel coordinates / Measures rankings with multivariate data

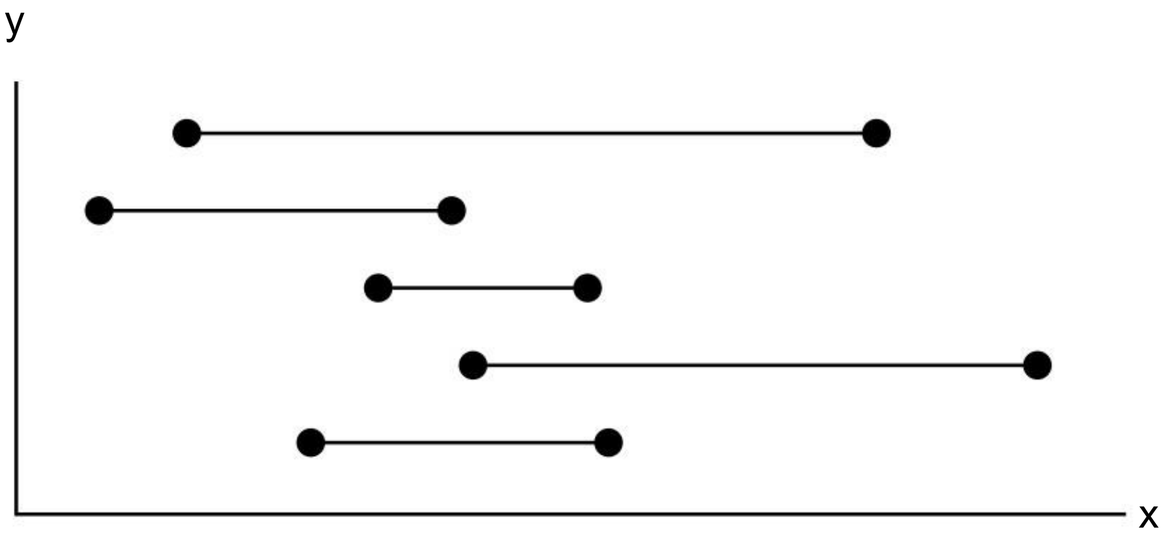


Parallel coordinates / Measures rankings with multivariate data

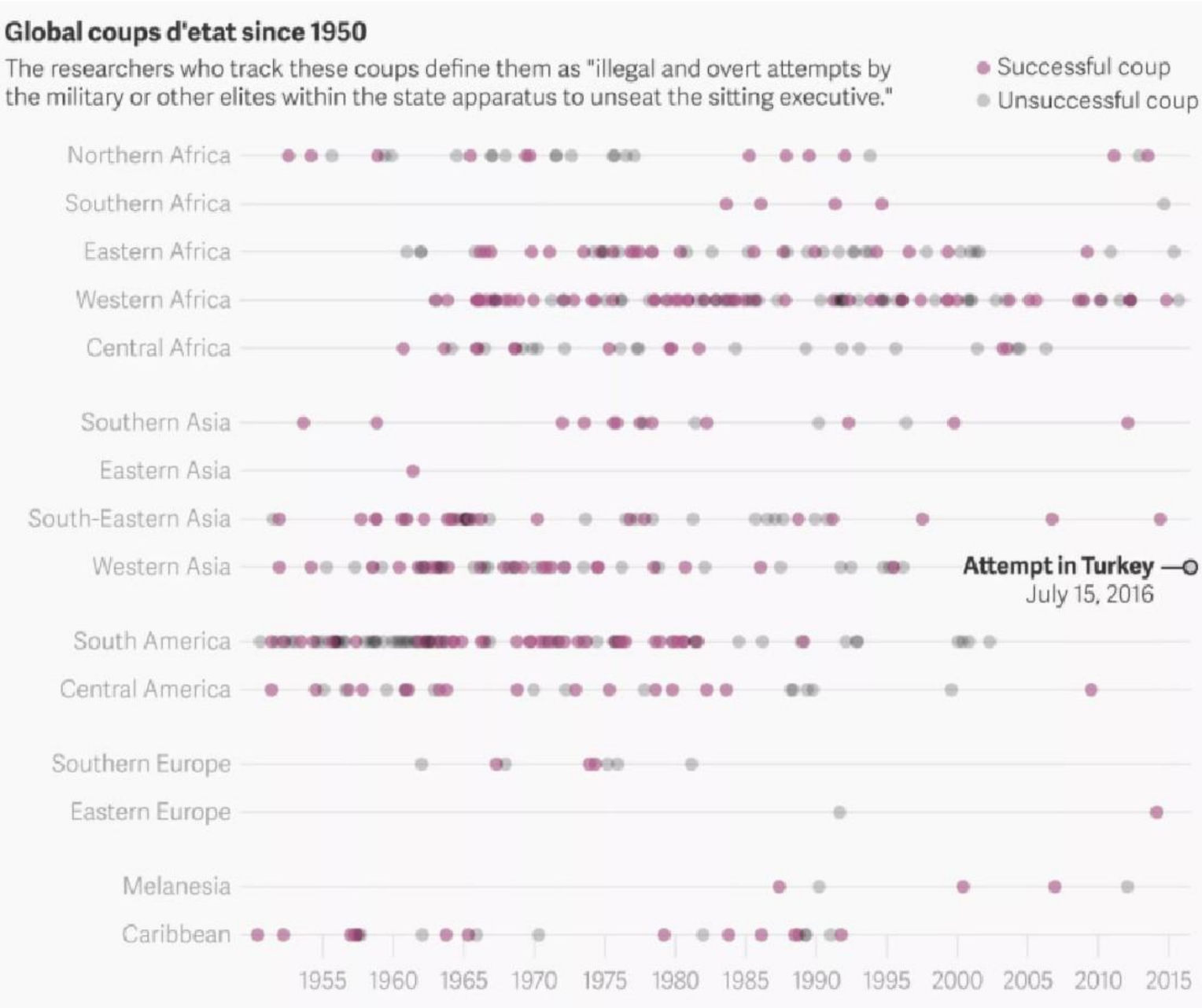


https://www.bloomberg.com/graphics/2016-job-skills-report/

Dot plot / Shows change, range and distribution of data across categories

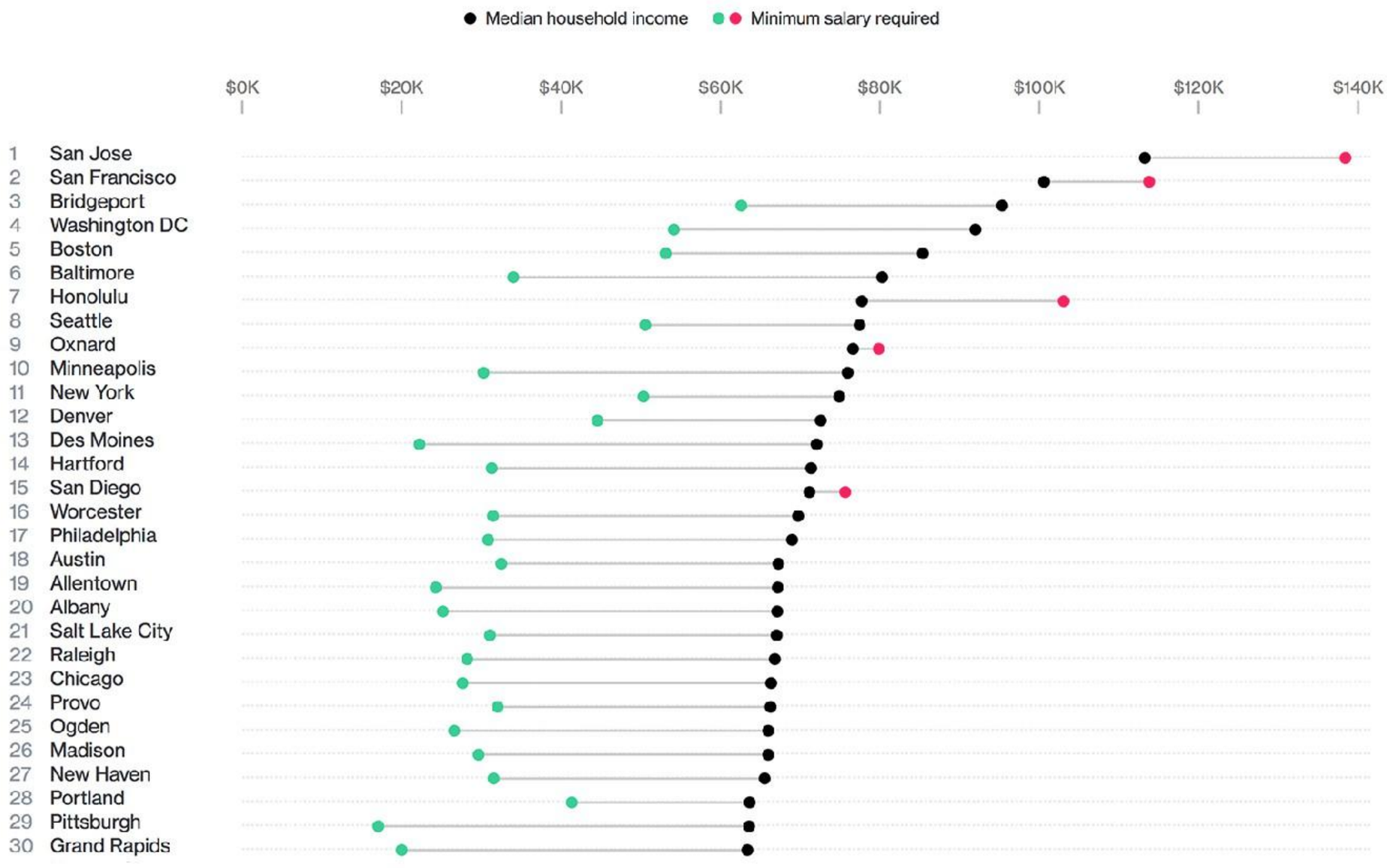


Dot plot / Shows change, range and distribution of data across categories



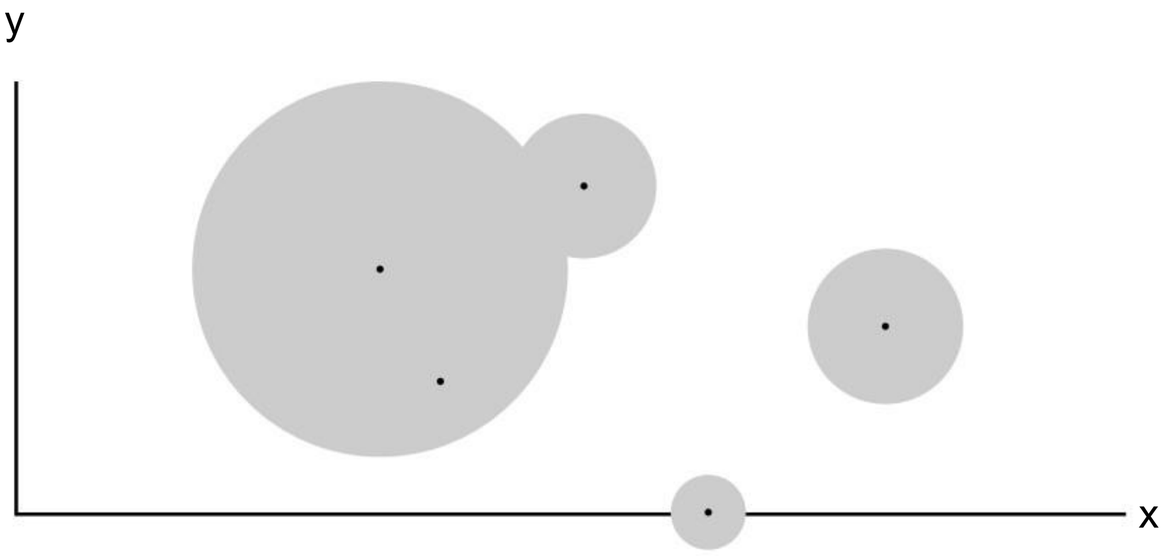
https://projects.fivethirtyeight.com

Dot plot / Shows change, range and distribution of data across categories

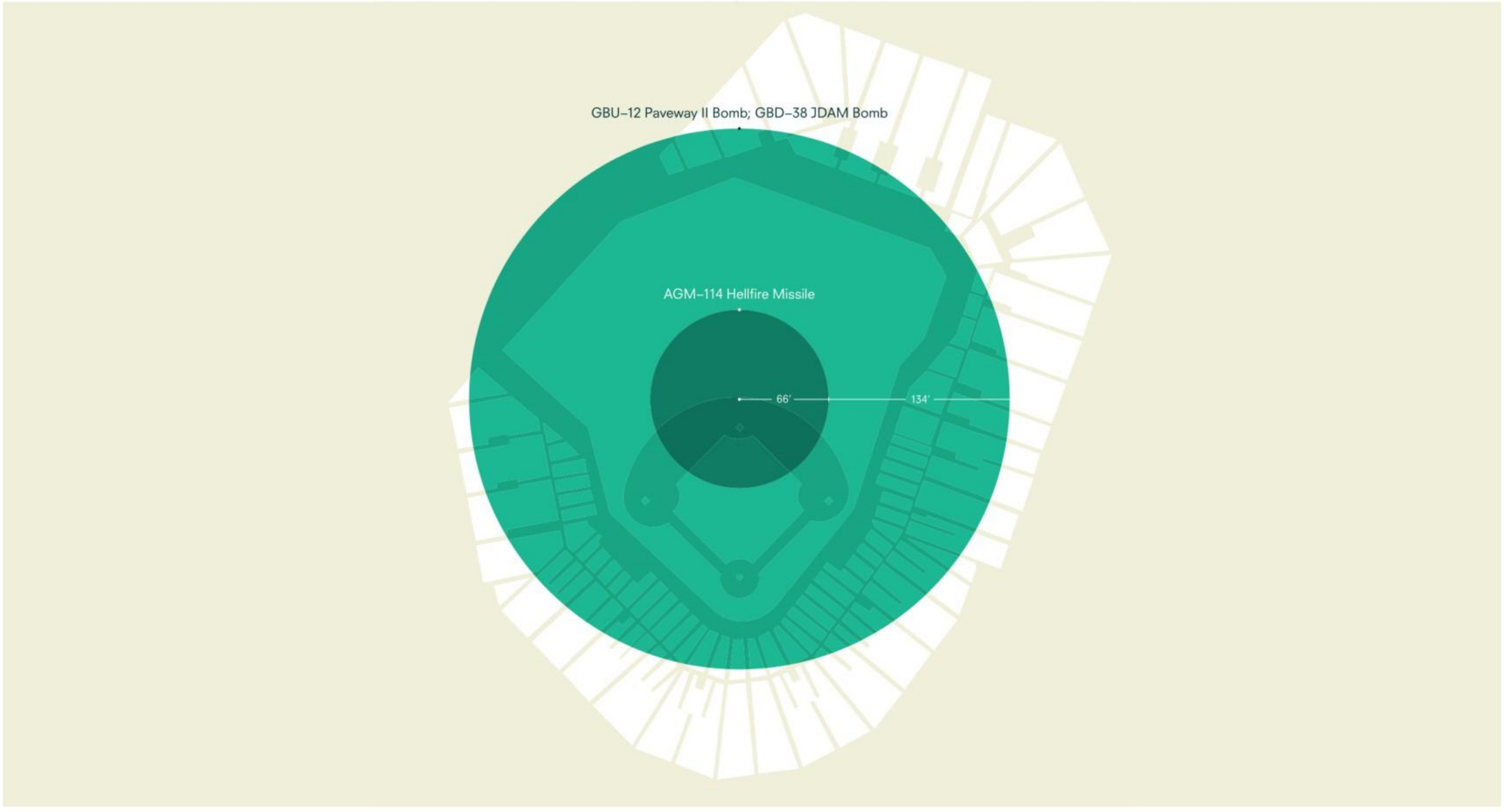


https://www.bloomberg.com/graphics/2016-housing-affordability/

Proportional bubbles / Compares big variations in magnitude

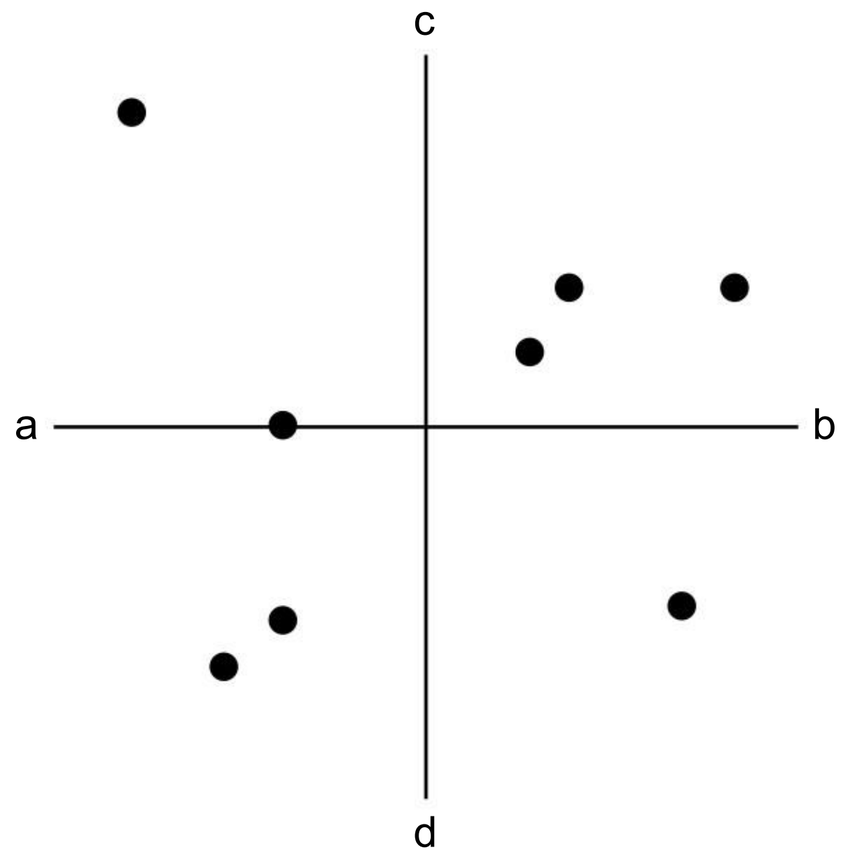


Proportional bubbles / Compares big variations in magnitude



http://madebyfriends.co/drones/

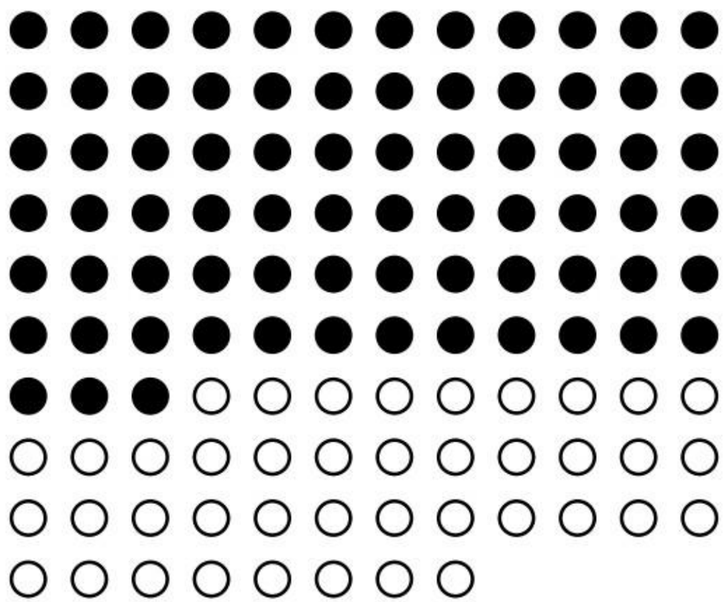
Matrix chart / Categorizes data into quadrants



Matrix chart / Categorizes data into quadrants

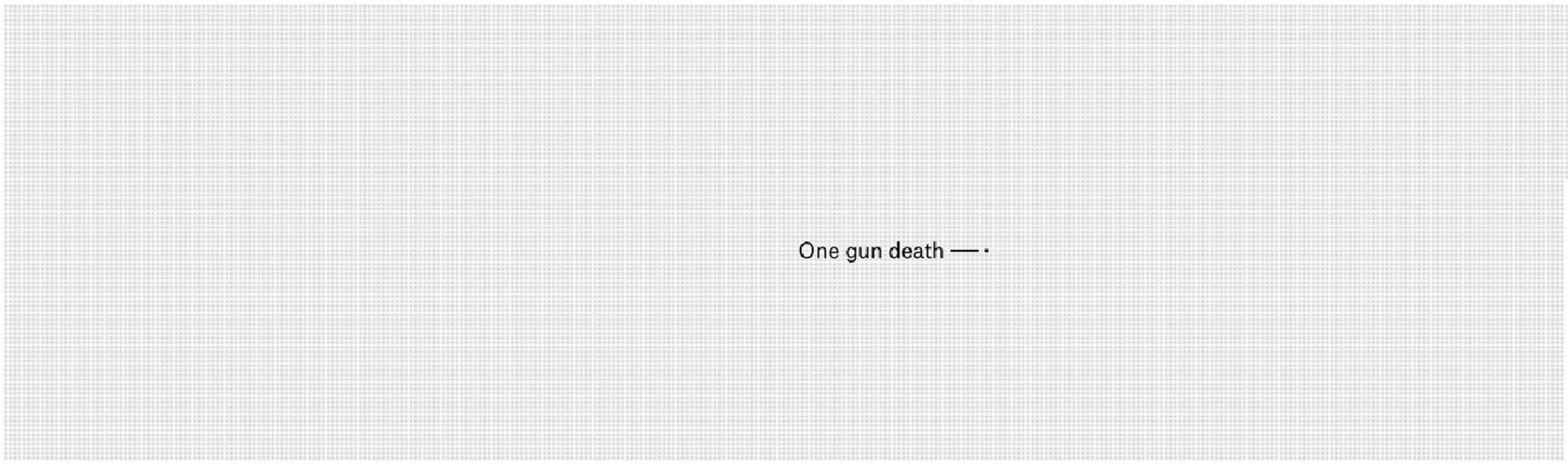
http://nymag.com/arts/all/approvalmatrix/approval-matrix-2016-09-05/

Gridplot / Shapes or icons to represent size or parts-to-whole



Gridplot / Shapes or icons to represent size or parts-to-whole

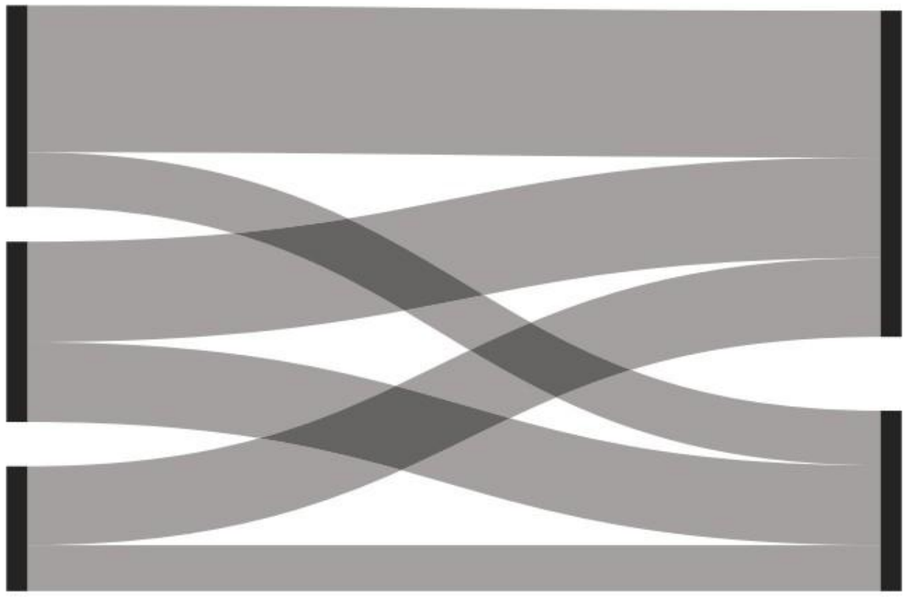
More than **33,000** people are fatally shot in the U.S. each year.



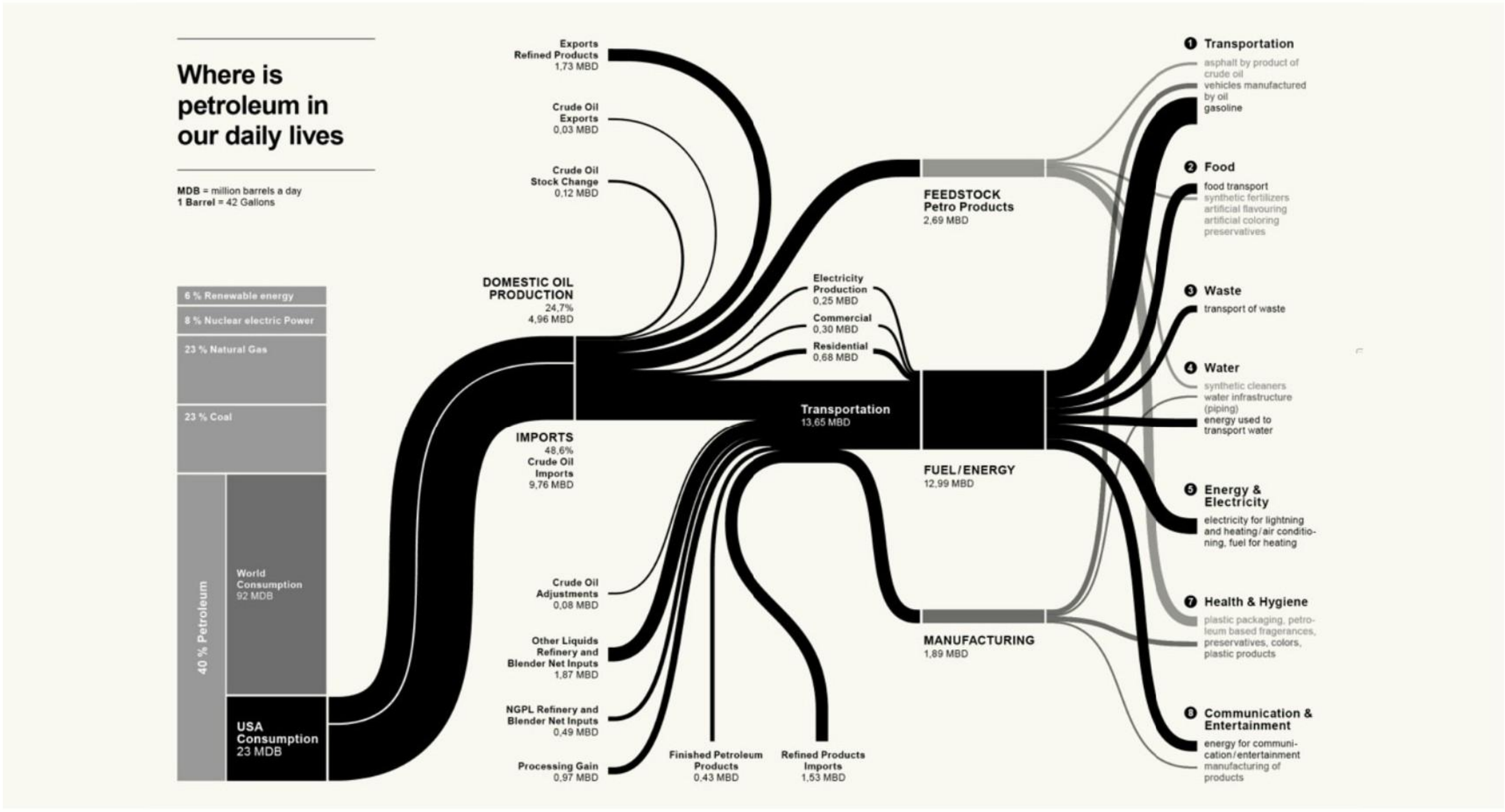
1 2 3 4 5 6 7 8 9 10 11 12 | Explore the data for yourself »

https://fivethirtyeight.com/features/gun-deaths/

Sankey diagram / Flow direction and amounts

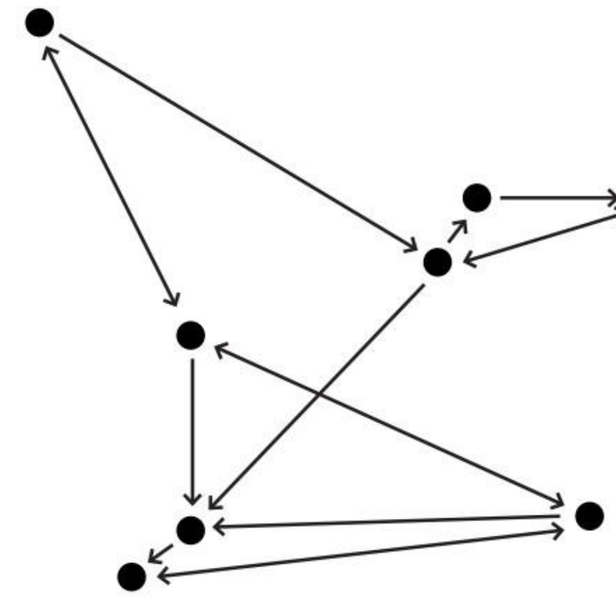


Sankey diagram / Flow direction and amounts

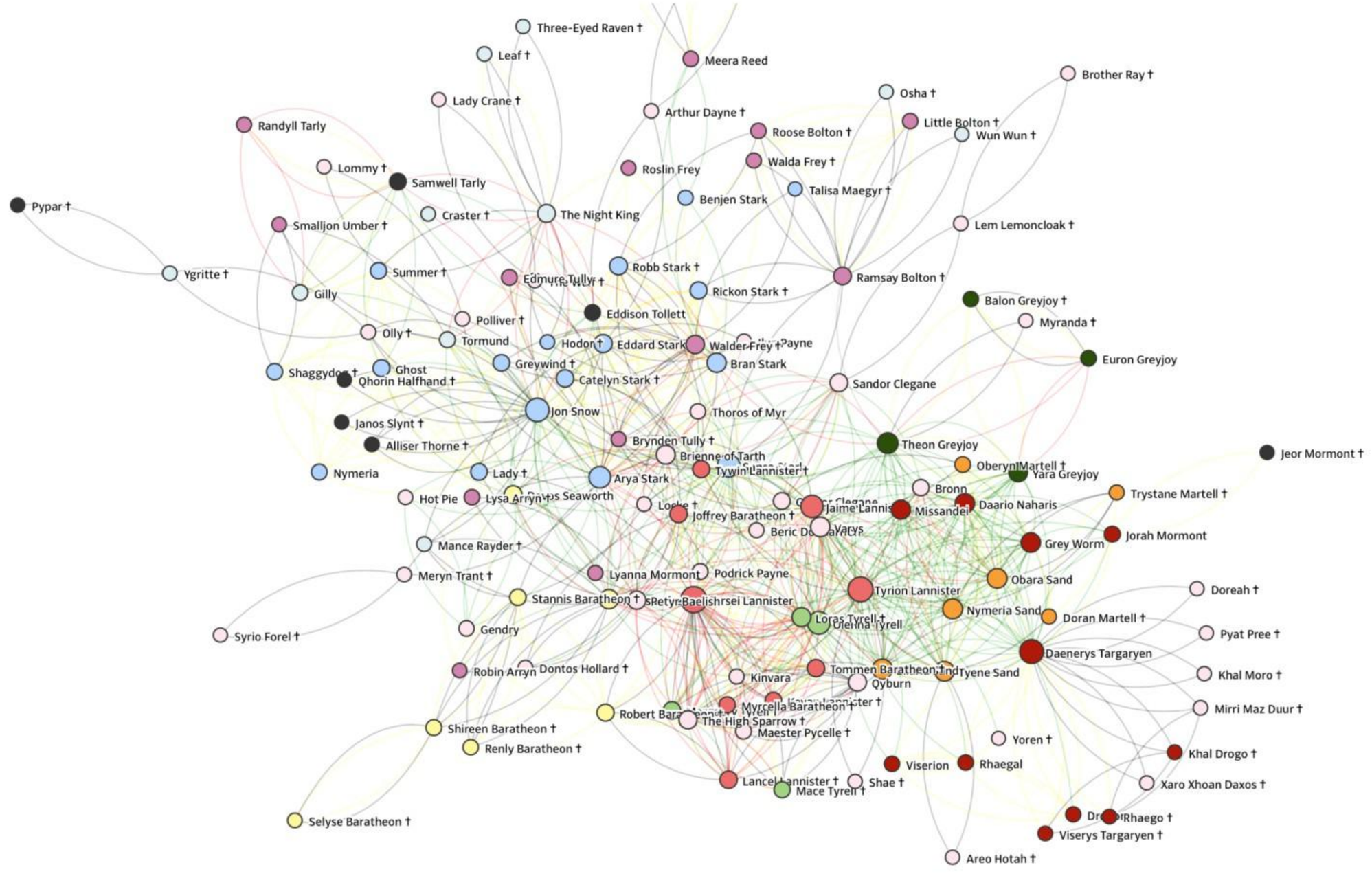


https://www.ifu.com/knowtheflow/2013/from-data-to-knowledge-the-power-of-elegant-sankey-diagrams/

Network diagram / Shows the inter-connectedness of relationships

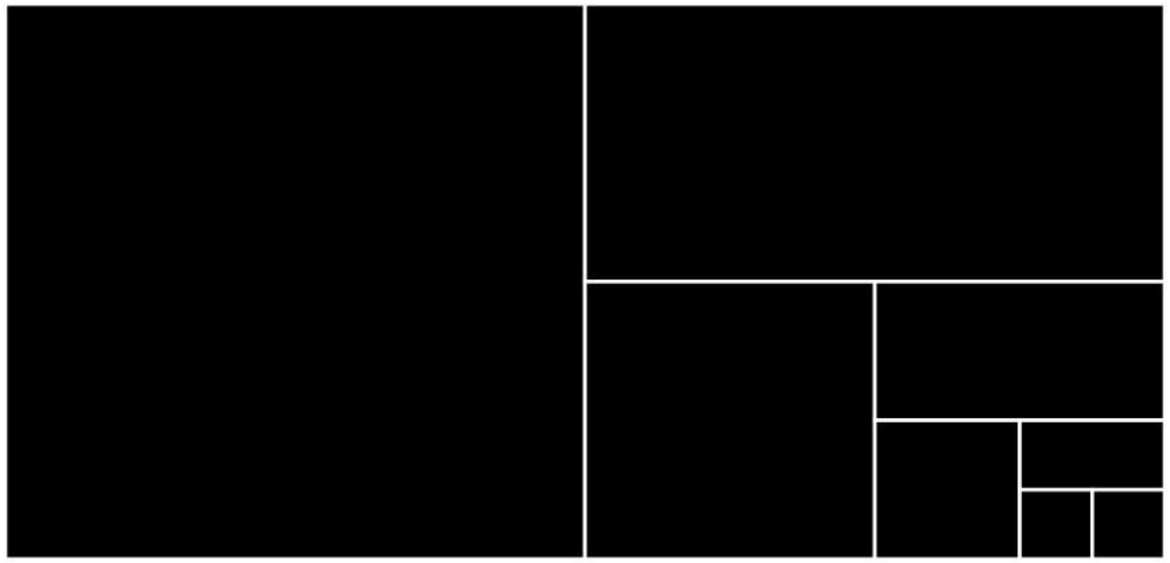


Network diagram / Shows the inter-connectedness of relationships



http://www.sueddeutsche.de/kultur/game-of-thrones-character-map-friend-or-foe-1.2521382

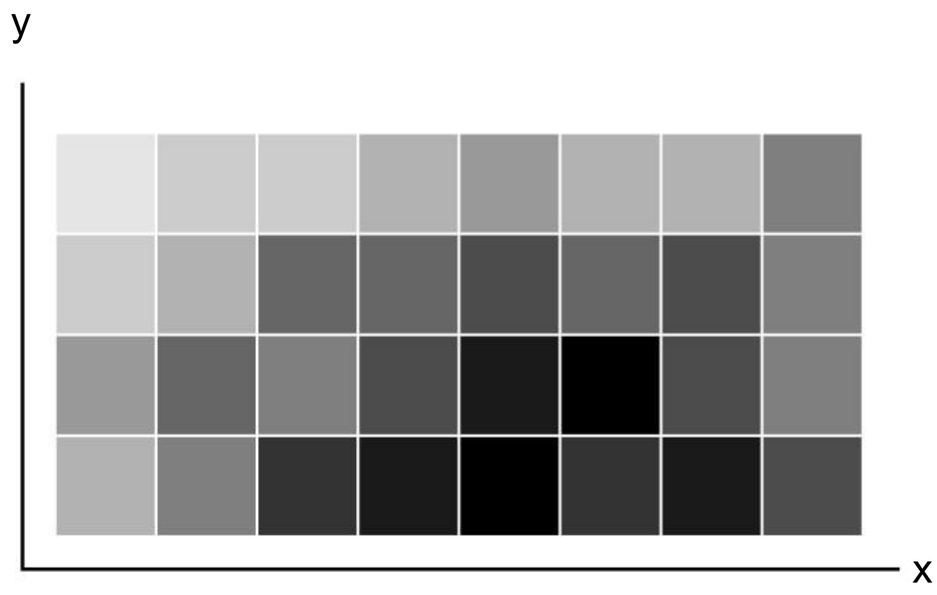
Treemap / Displays hierarchical part-to-whole relationships



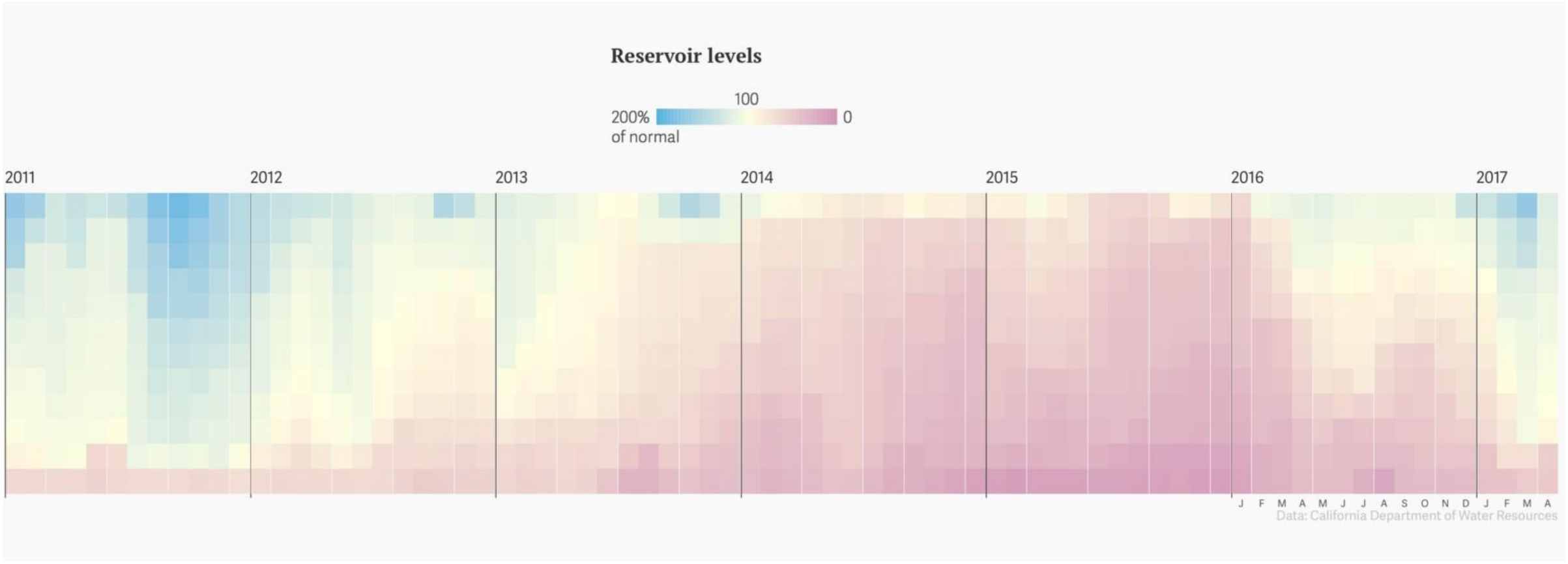
Treemap / Displays hierarchical part-to-whole relationships

https://finviz.com/map.ashx

Heatmap / Shows paterns between two categories of data

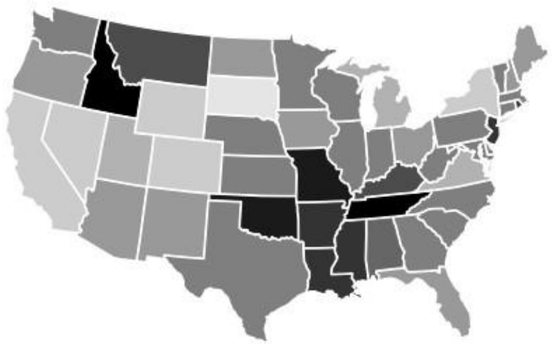


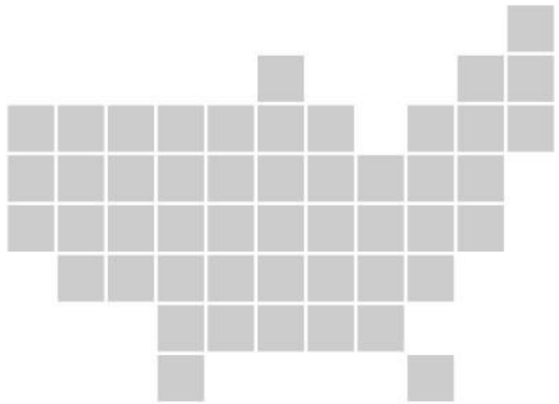
Heatmap / Shows patterns between two categories of data



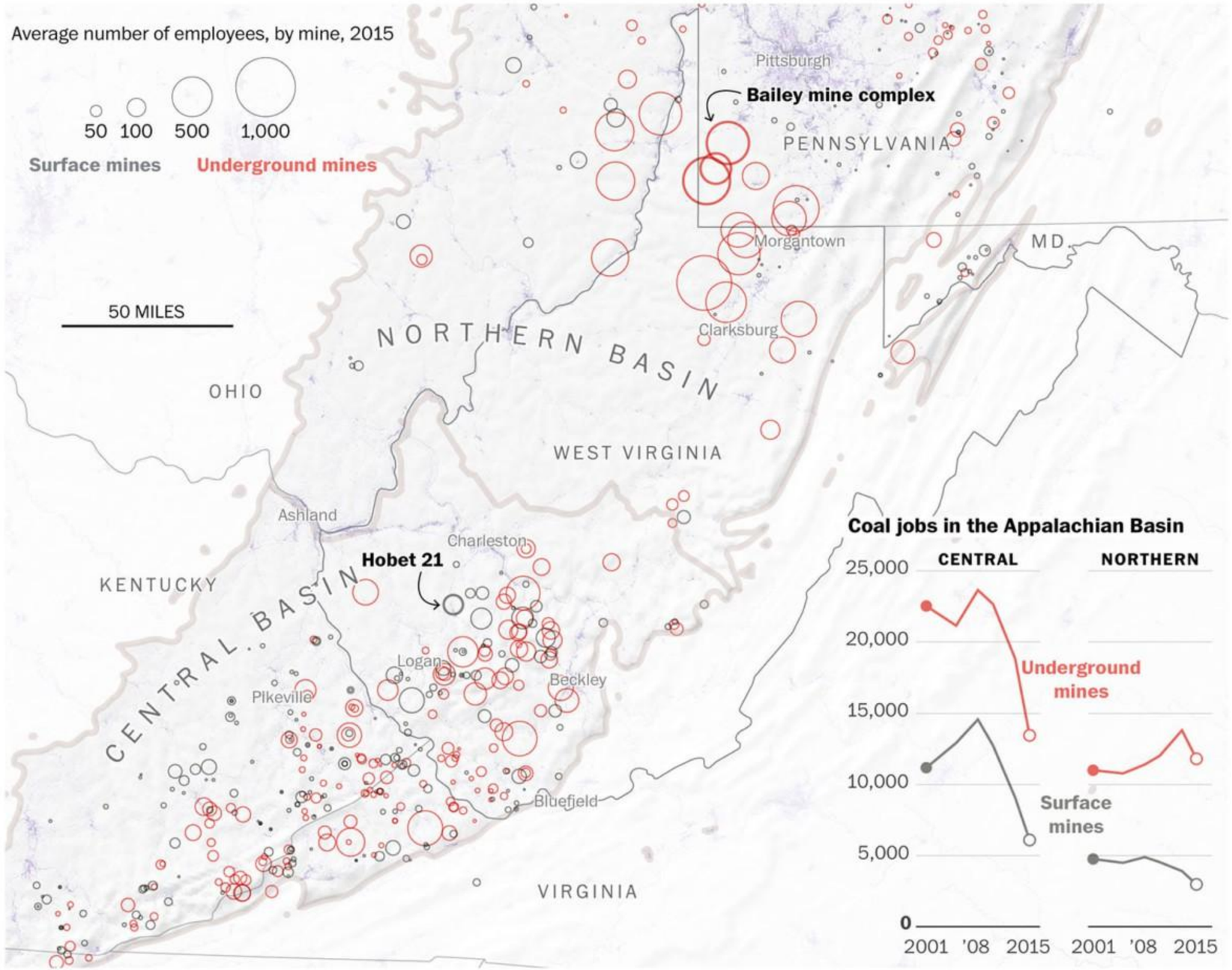
https://qz.com/951019/what-the-six-year-drought-did-to-california-in-93-maps-and-two-charts/

Maps / Proportional bubbles, choropleths, cartograms



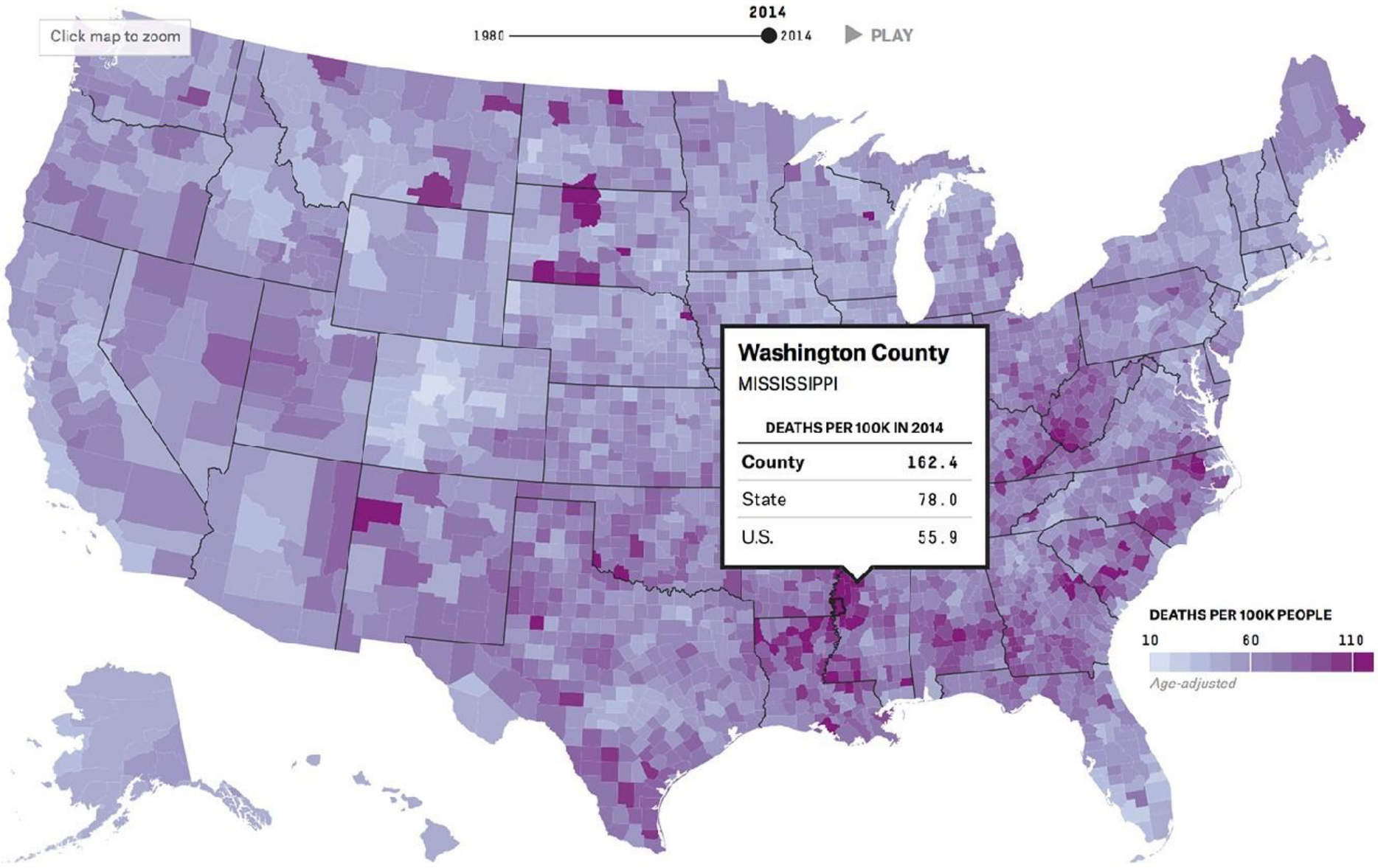


Maps / Proportional bubbles



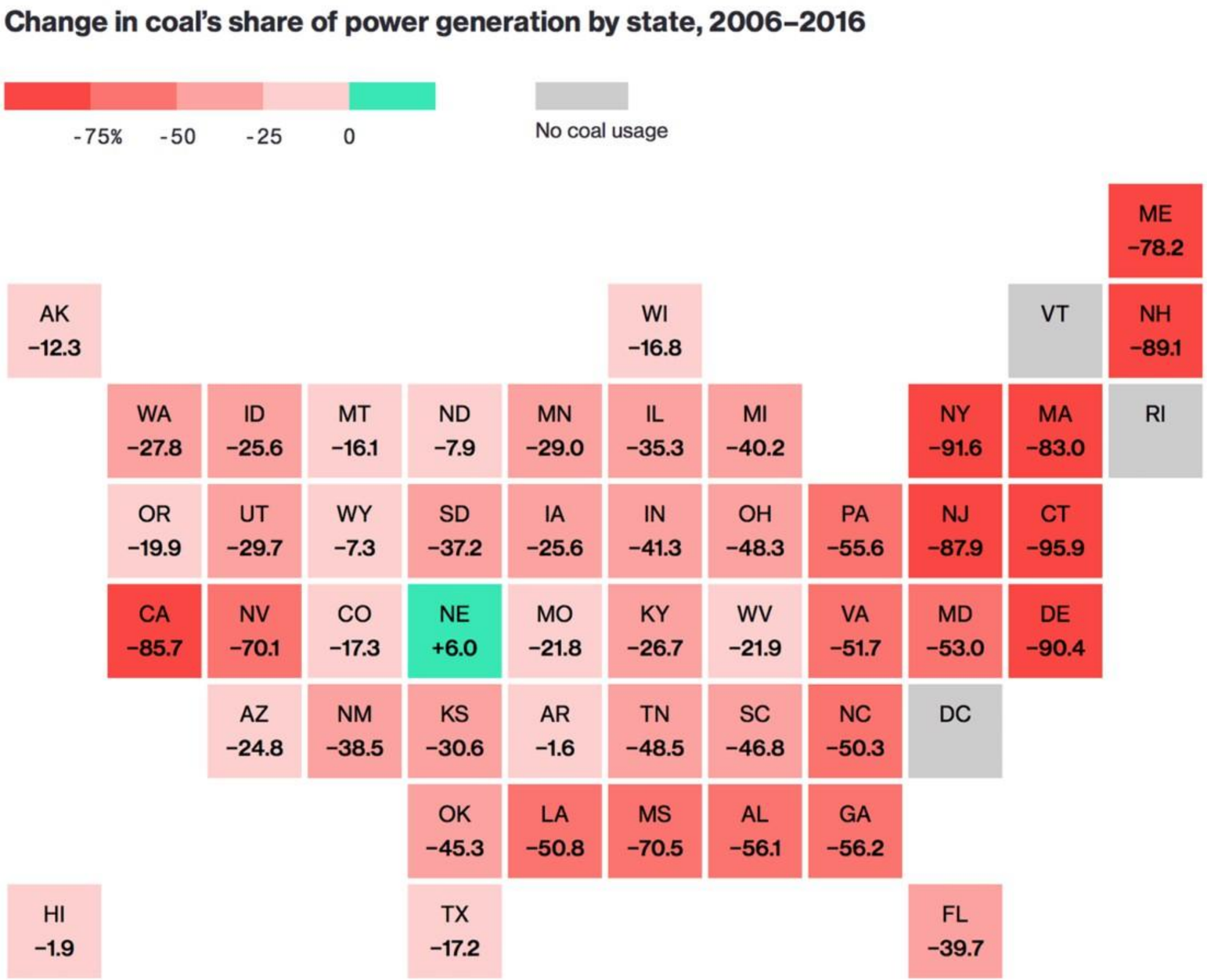
https://www.washingtonpost.com/graphics/national/coal-jobs-in-appalachia

Maps / Choropleths



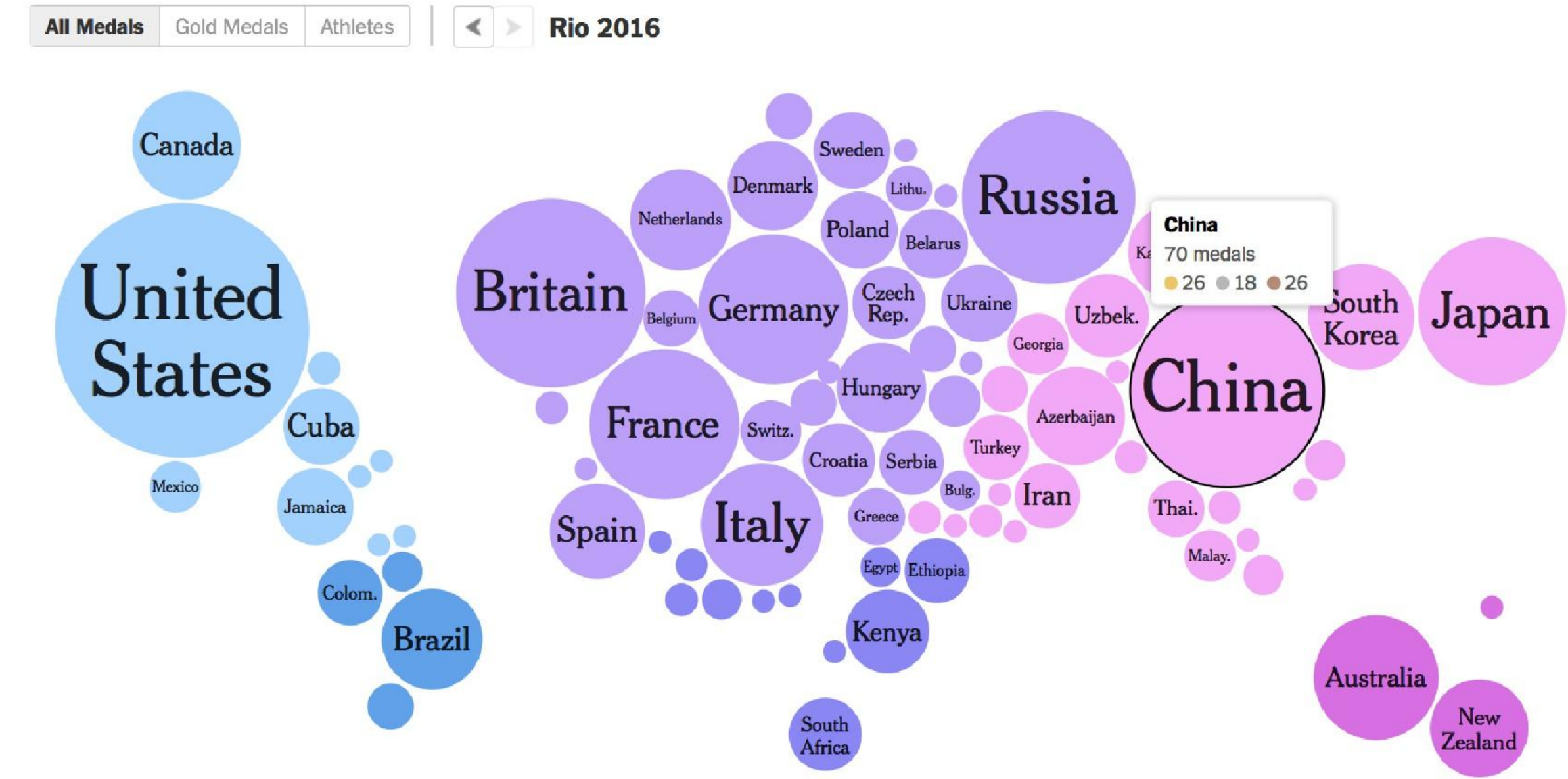
https://projects.fivethirtyeight.com/mortality-rates-united-states/

Maps / Equal-area cartogram



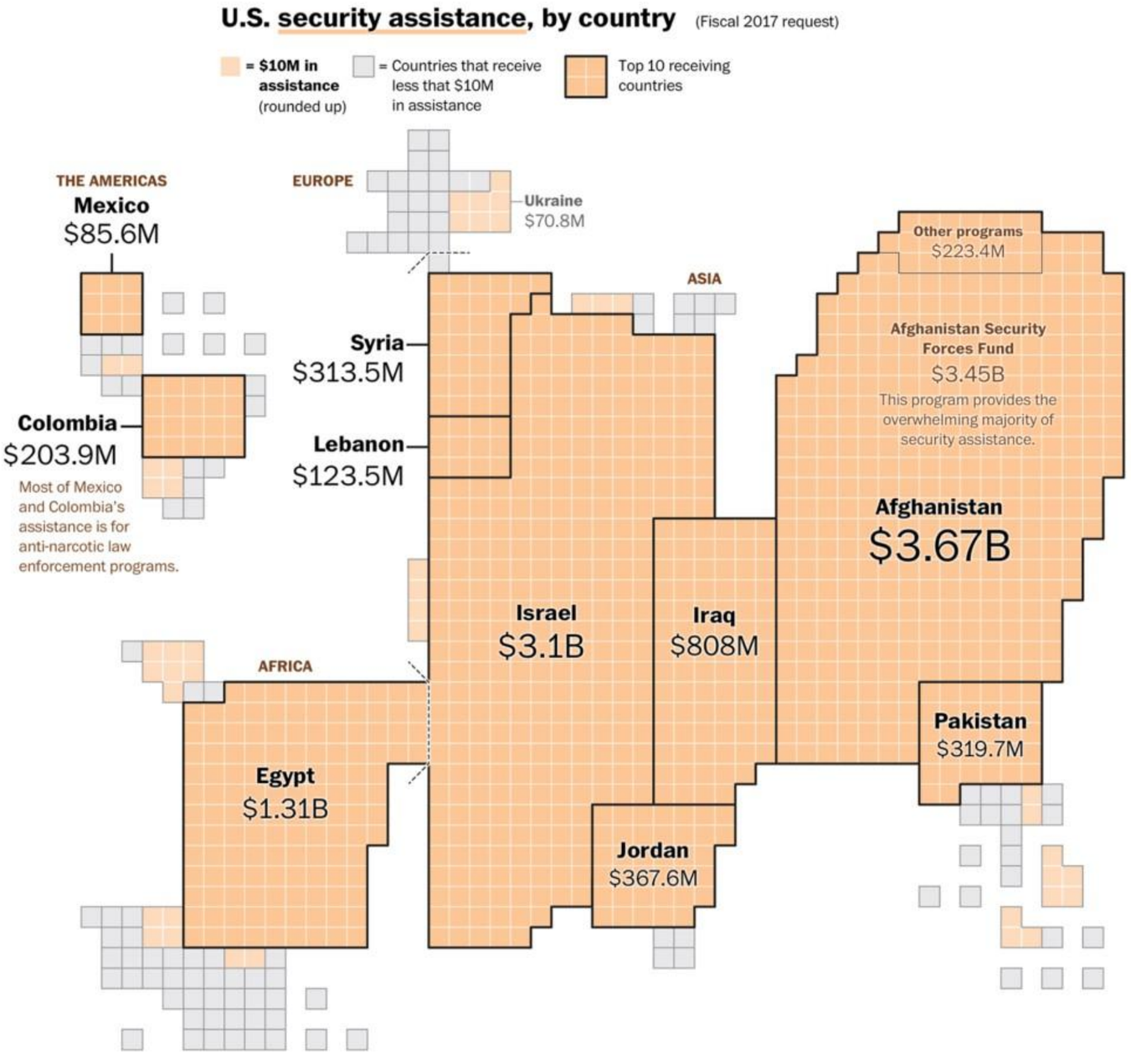
https://www.bloomberg.com/graphics/2017-coal-states-shrinking-appetite/

Maps / Dorling map



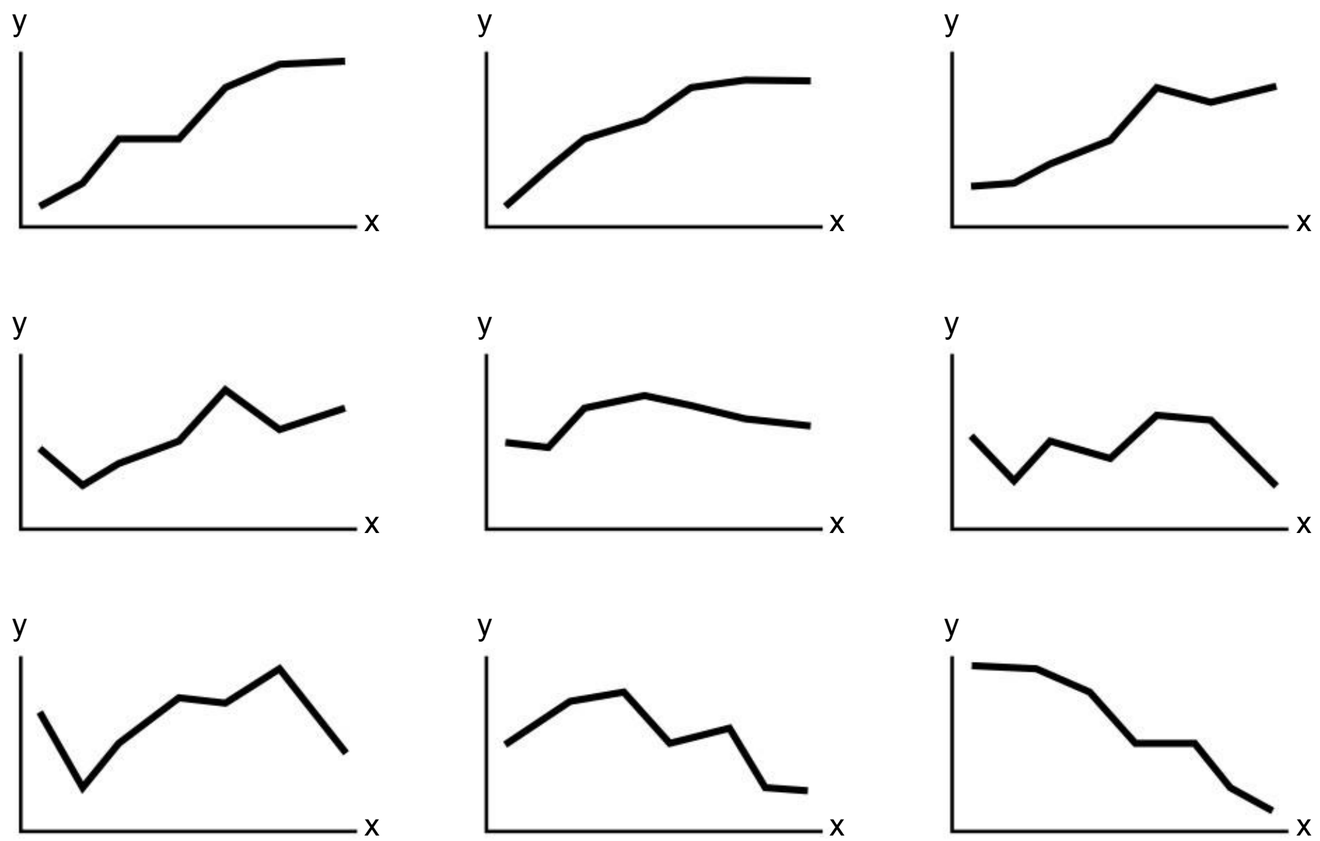
https://www.nytimes.com/interactive/2016/sports/olympics/rio-olympics-2016-medals-results.html

Maps / Scaled cartogram

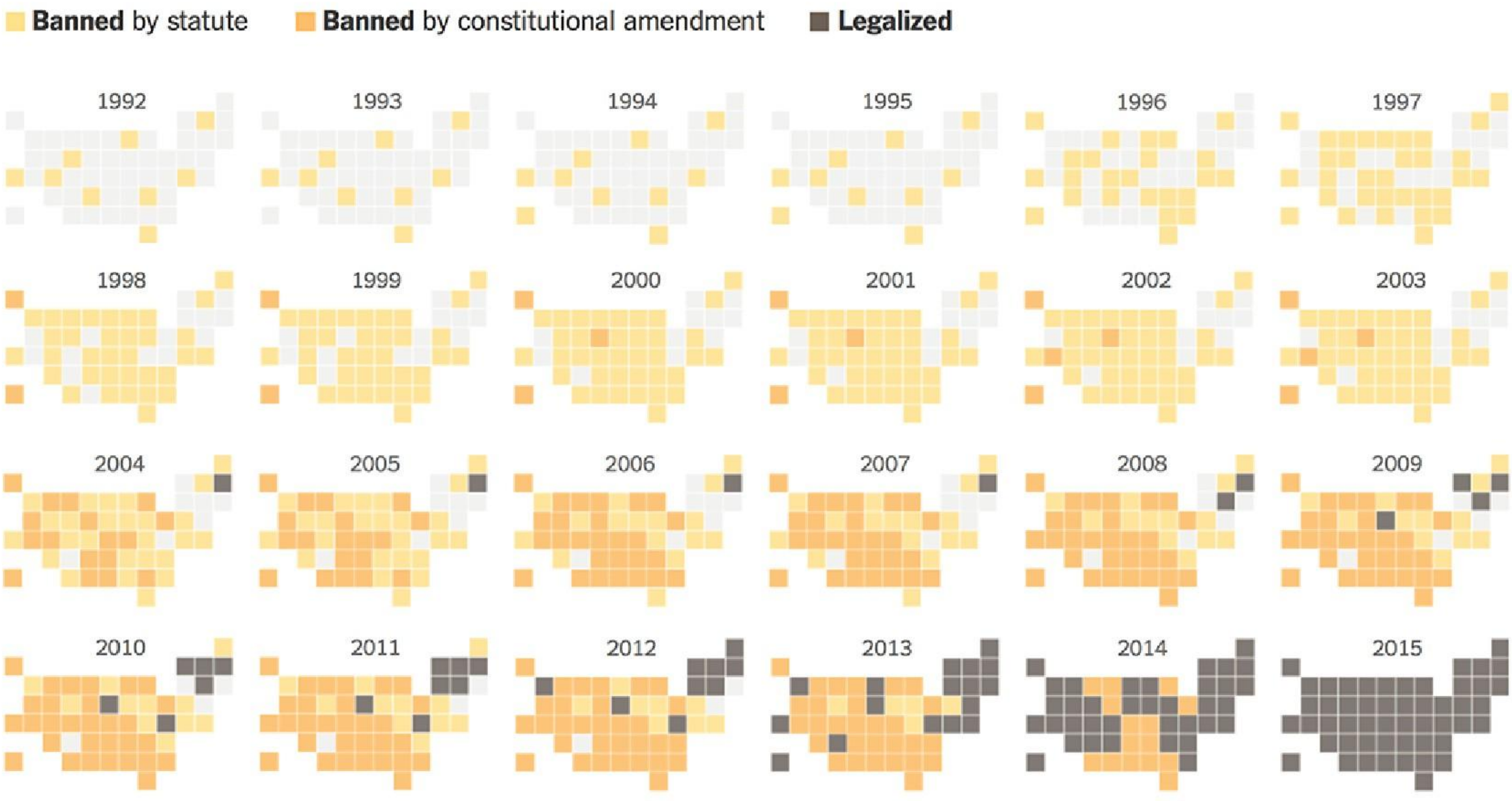


https://www.washingtonpost.com/graphics/world/which-countries-get-the-most-foreign-aid/

Small multiples / Series ordered by a quantitative variable

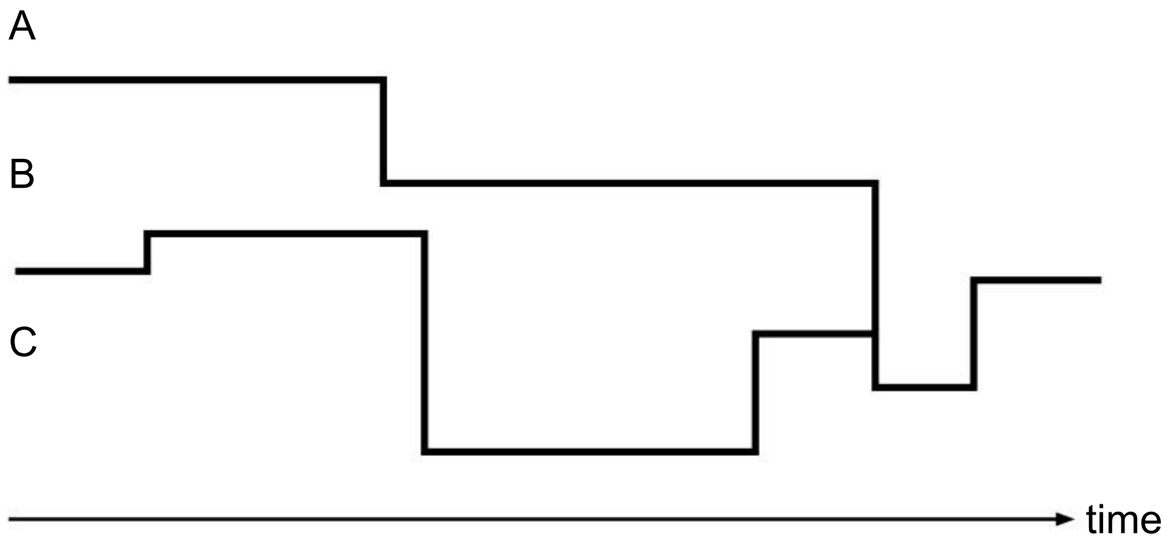


Small multiples / Series ordered by a quantitative variable

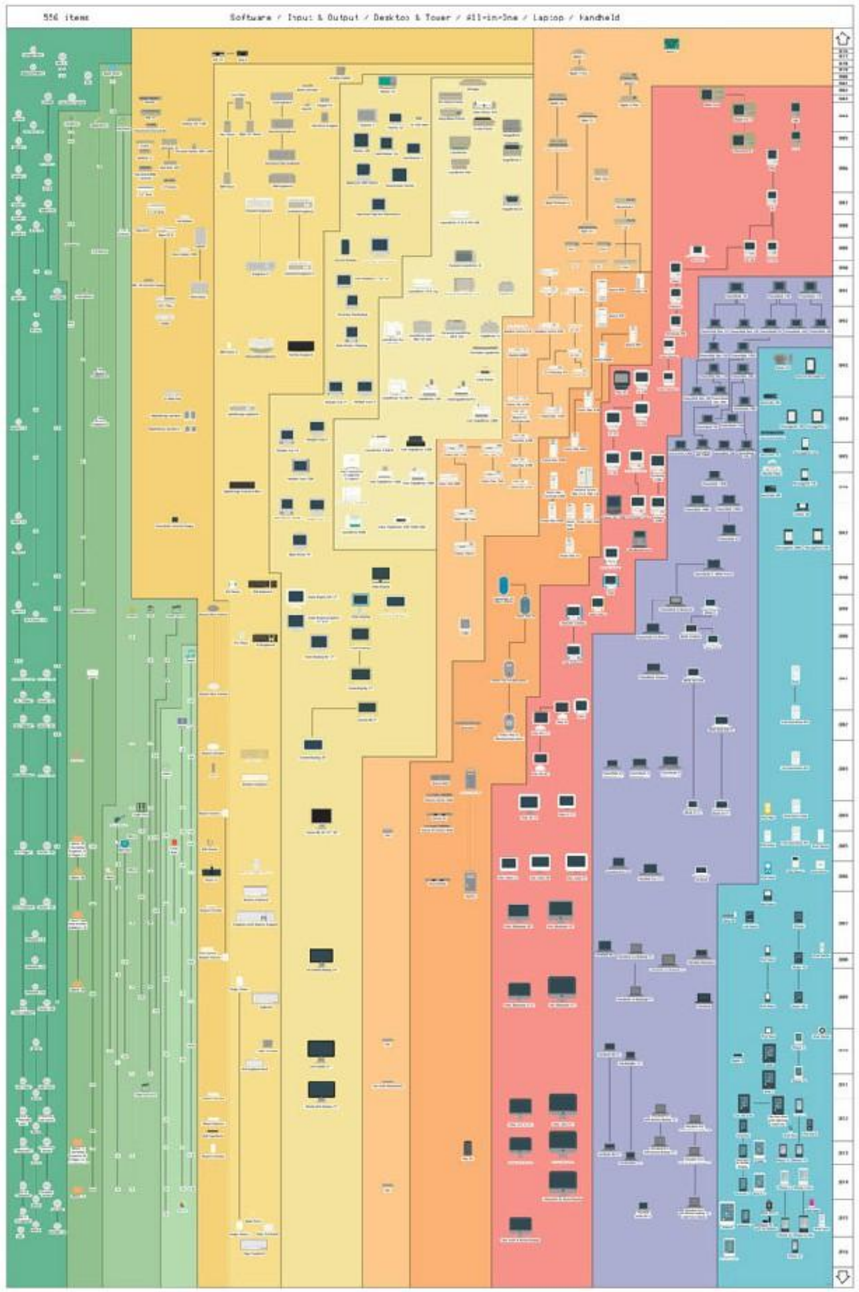


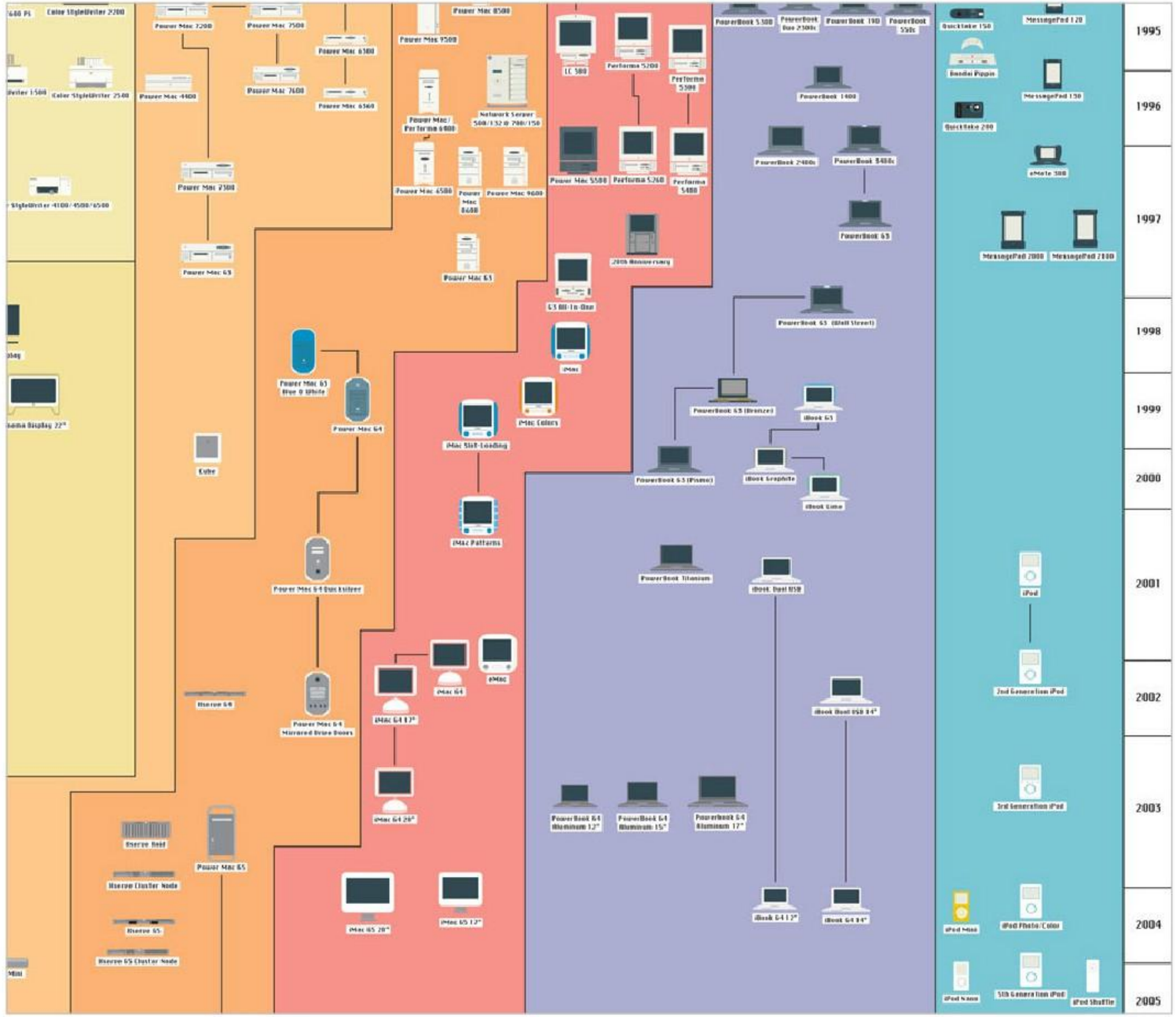
https://www.nytimes.com/interactive/2015/03/04/us/gay-marriage-state-by-state.html

Timeline / Qualitative information over time



Timeline / Qualitative information over time





https://www.popchartlab.com/collections/prints-tech/products/the-insanely-great-history-of-apple-devices

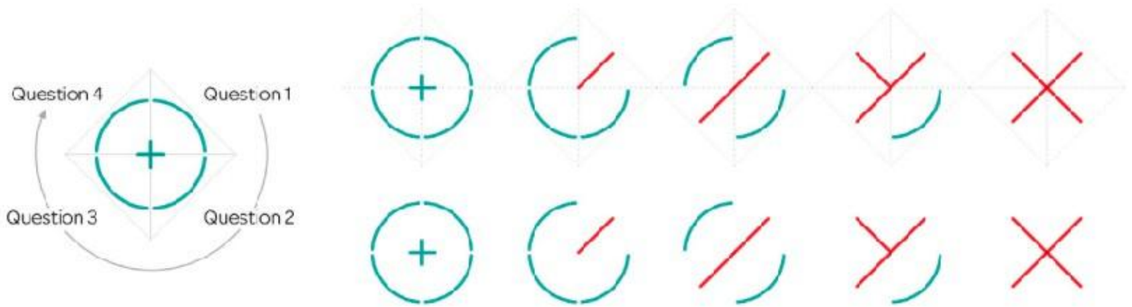
Unique forms / When nothing exisiting works...

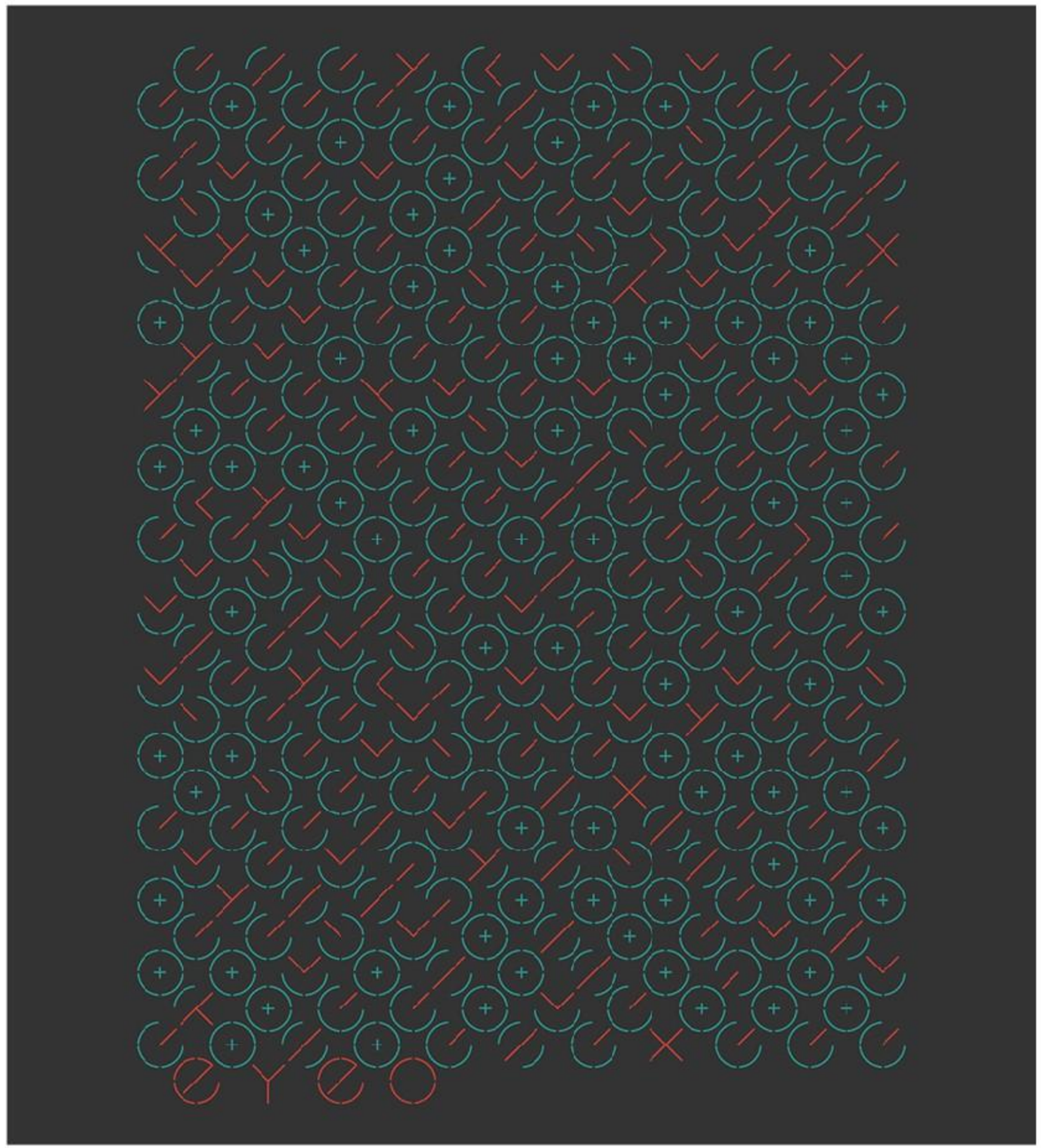
1. Have you ever lied about knowing something about design/art/technology when you really didn't?

2. Have you ever blatantly lied on your resumé?

3. Have you participated in sackable / illegal behaviour on the (current) job?

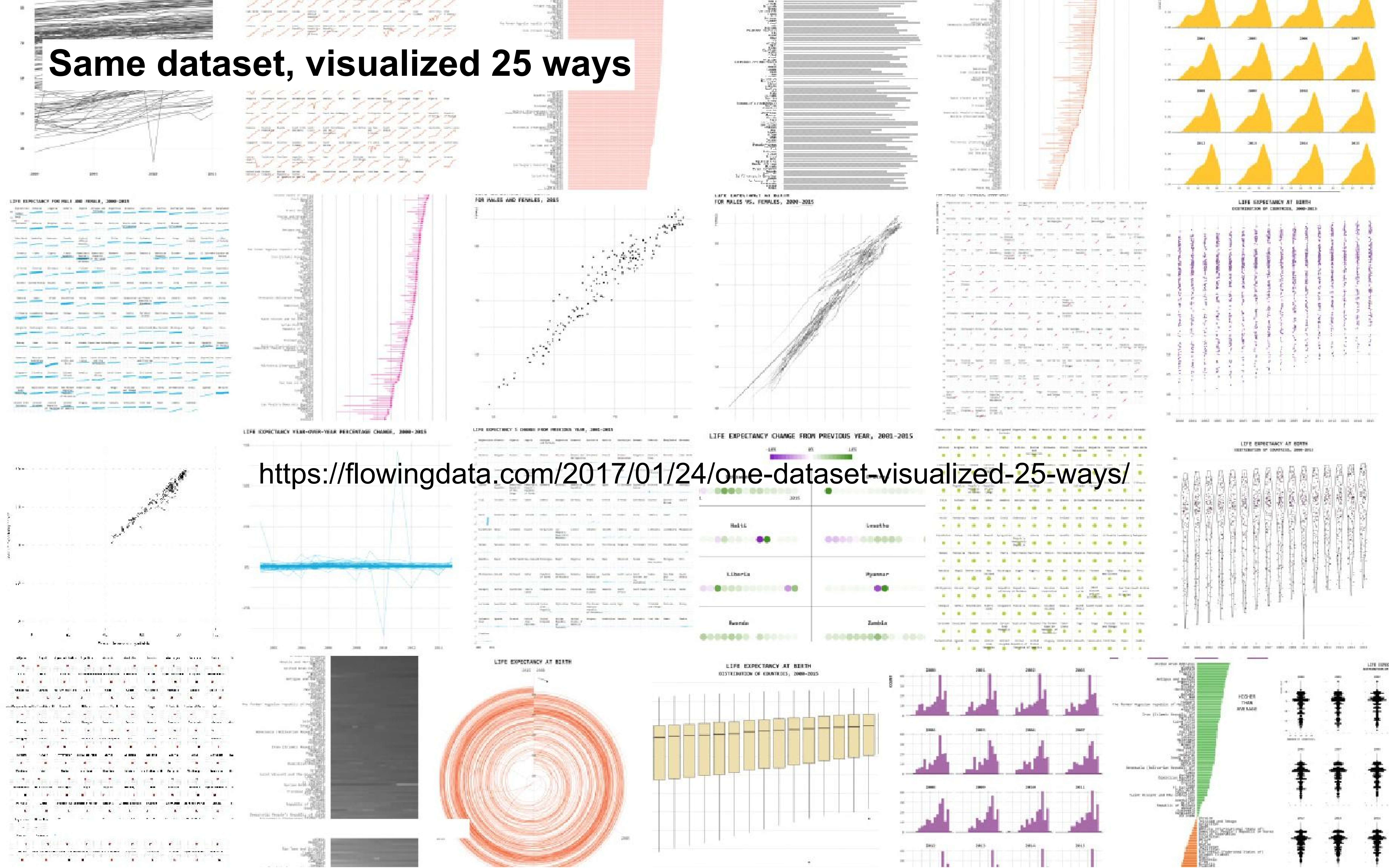
4. Have you ever used Machiavellian tactics to get ahead?





http://www.stefanieposavec.co.uk/-everything-in-between/#/eyeo-2013-t-shirt/

Same dataset, visualized 25 ways



https://flowingdata.com/2017/01/24/one-dataset-visualized-25-ways/

Physical data visualizations

http://infographicsnews.blogspot.com/2011/02/cartogram-done-in-real-3d.html

gdblogs.shu.ac.uk/b4018148/2015/11/02/translate-and-transmit-ways-to-physically-visualize-data/

Readings (Suggested)

Taking Data Visualization From Eye Candy to Efficiency,
National Geographic : **http://bit.ly/1FdXs9x**

There Are Many Ways to Map Election Results.
We've Tried Most of Them,
New York Times : **http://nyti.ms/2ku6jhw**

Making Election Maps Popular Again,
Lisa Charlotte Rost **http://bit.ly/2xai2bm**

Translate and Transmit: Physical Viz **http://bit.ly/2ylVSkv**

Physical visualizations **http://bit.ly/2xtT2ff**

List of Physical Visualizations/Related Artifacts **http://bit.ly/1zz9oMc**

Assignment

Using one of your printed out images as the subject, create a visualization of that subject- telling whatever story you want to tell using the various organizations, visual cues, and forms you know now. DUE NEXT MONDAY