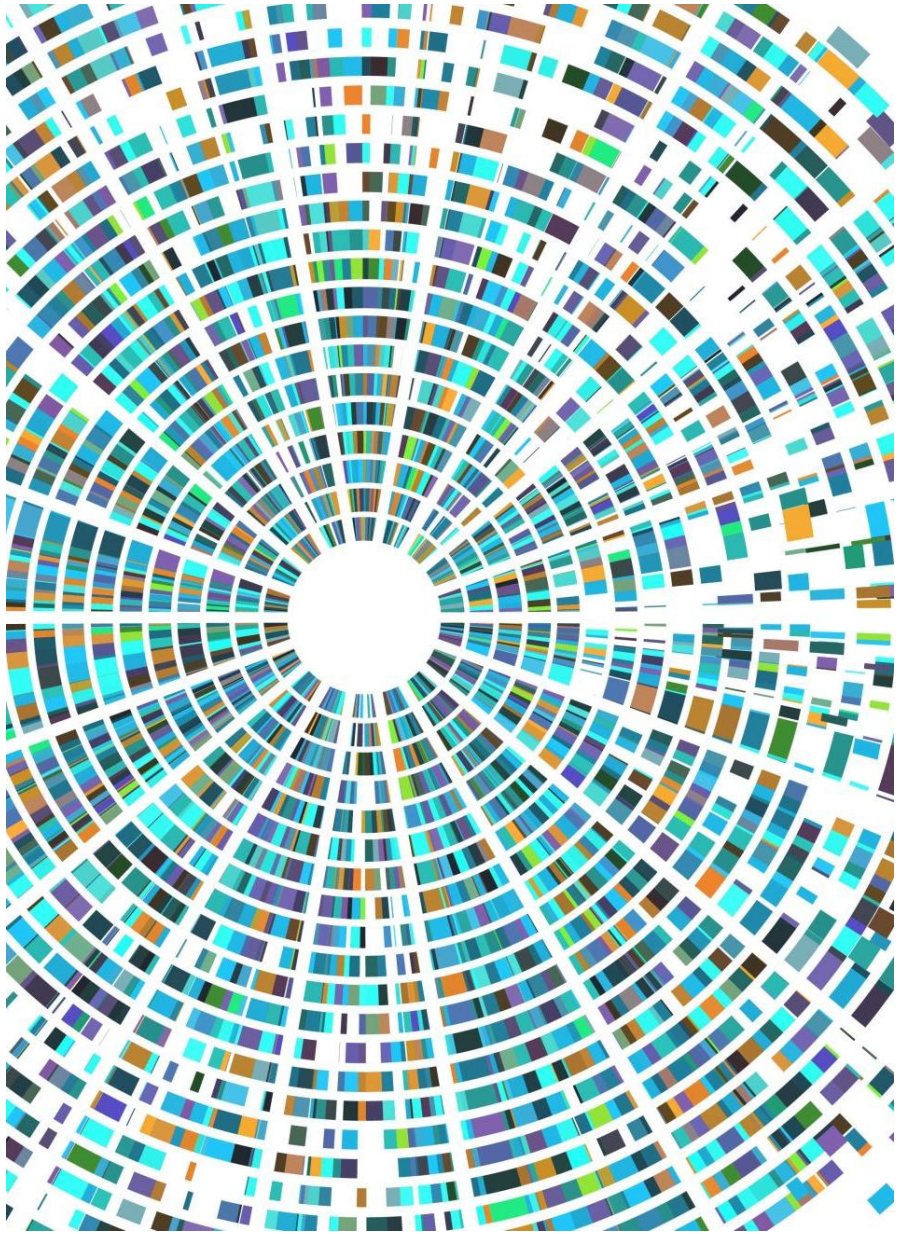
Slides: https://brosz.ca/slides

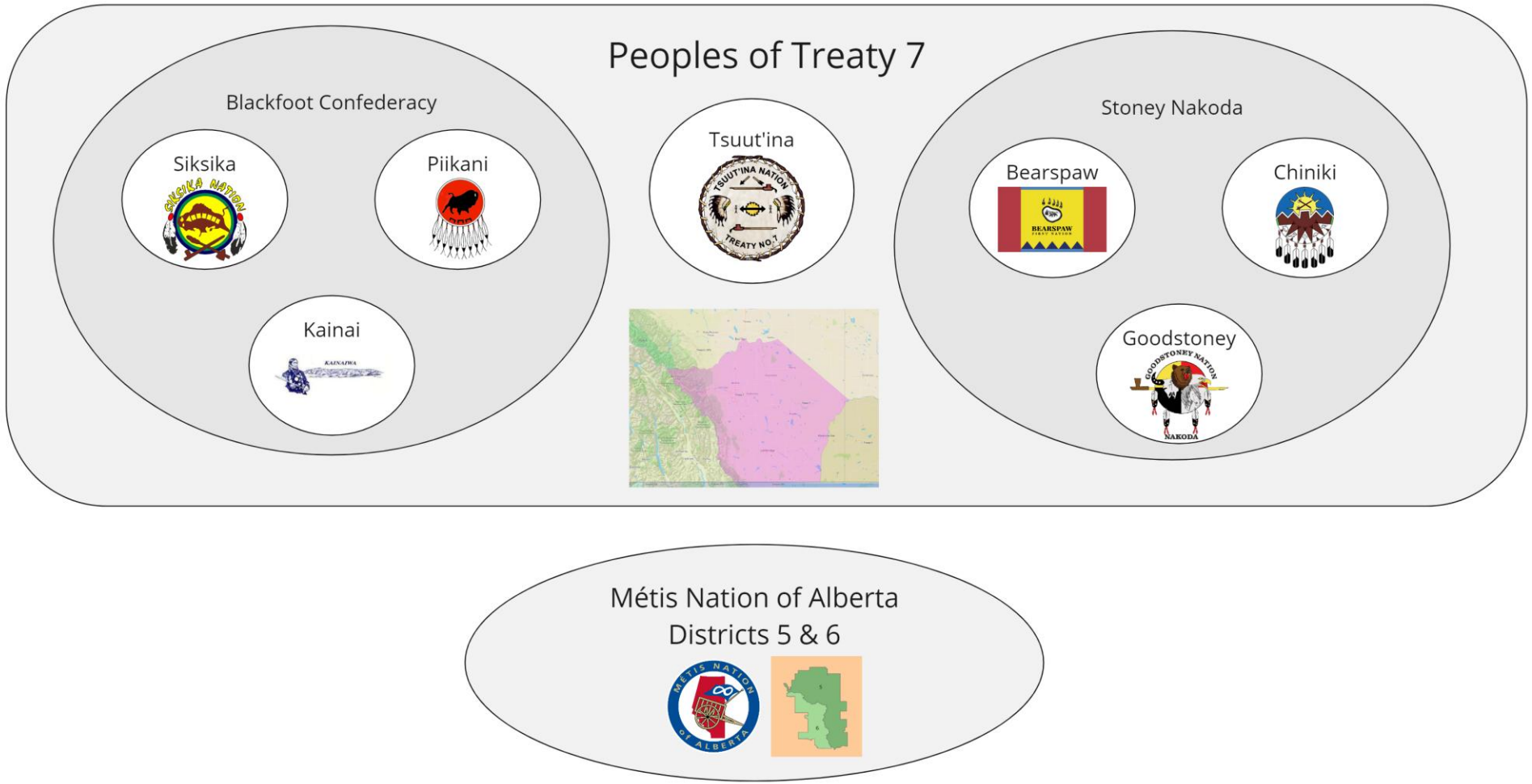


Data Visualization Tips & Tricks

Research Communications Day

May 26, 2026

John Brosz
Data & Visualization Curator



The University of Calgary, located in the heart of Southern Alberta, both acknowledges and pays tribute to the traditional territories of the peoples of Treaty 7, which includes the Blackfoot Confederacy (comprised of the Siksika, the Piikani, and the Kainai First Nations), the Tsuut’ina First Nation, and the Stoney Nakoda (including the Chiniki, Bearspaw, and Goodstoney First nations). The city of Calgary is also home to the Métis Nation within Alberta (Nose Hill District 5 and Elbow District 6).

Who I am

John Brosz, PhD
Data & Visualization Curator,
Direct, Lab NEXT
Libraries & Cultural Resources

Background:
computer science,
information visualization,
computer graphics

Role at library is to **support data visualization** across campus.

Contact me for
data vis help!
JDLBROSZ@UCALGARY.CA

Visualization Studio

Display Wall

- 31 million pixels
- Compare that to HD (2.07 million) or even 4K (8.3 million)

Space to support research & learning

Can be booked for up to a week straight.

Uses:

Analysis

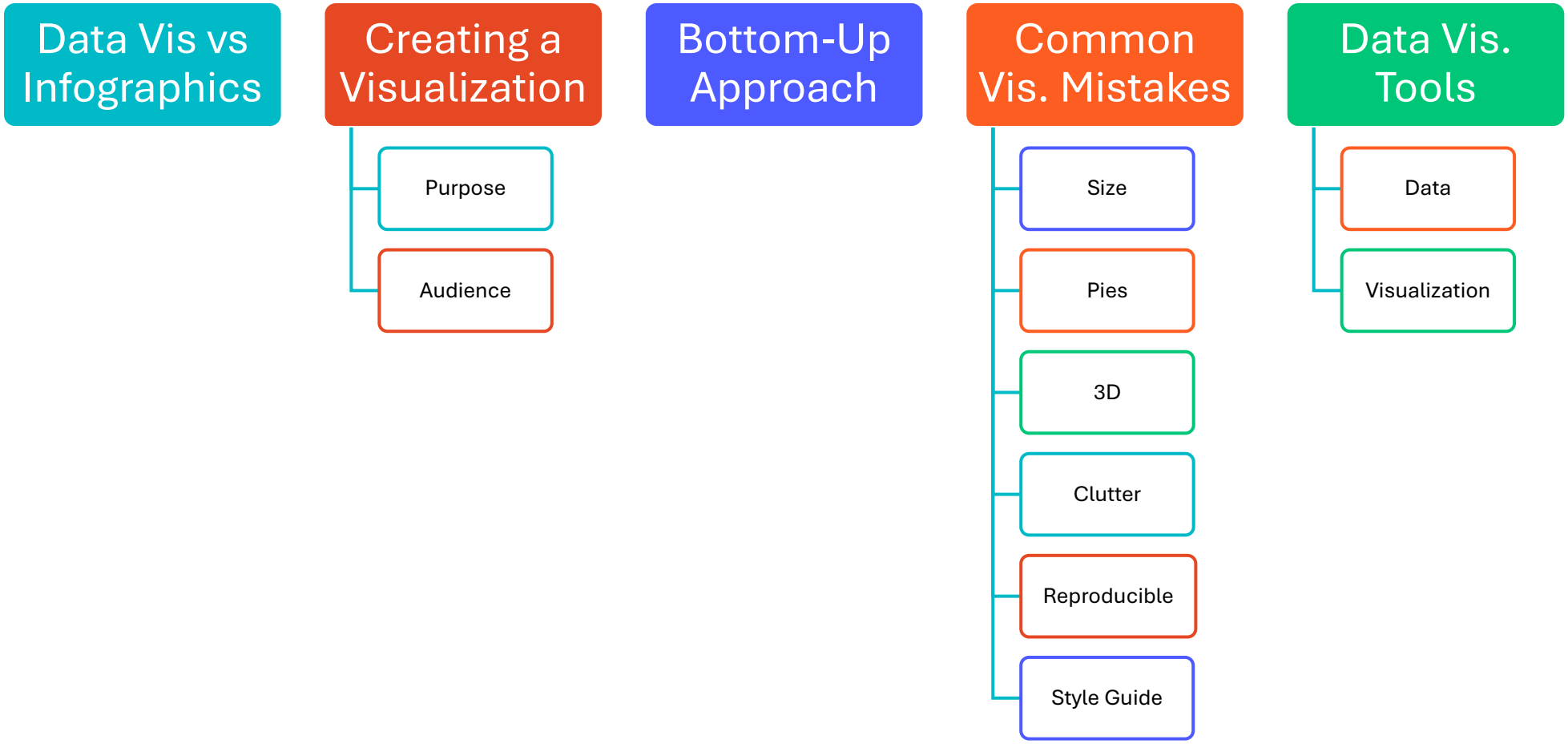
Presentation

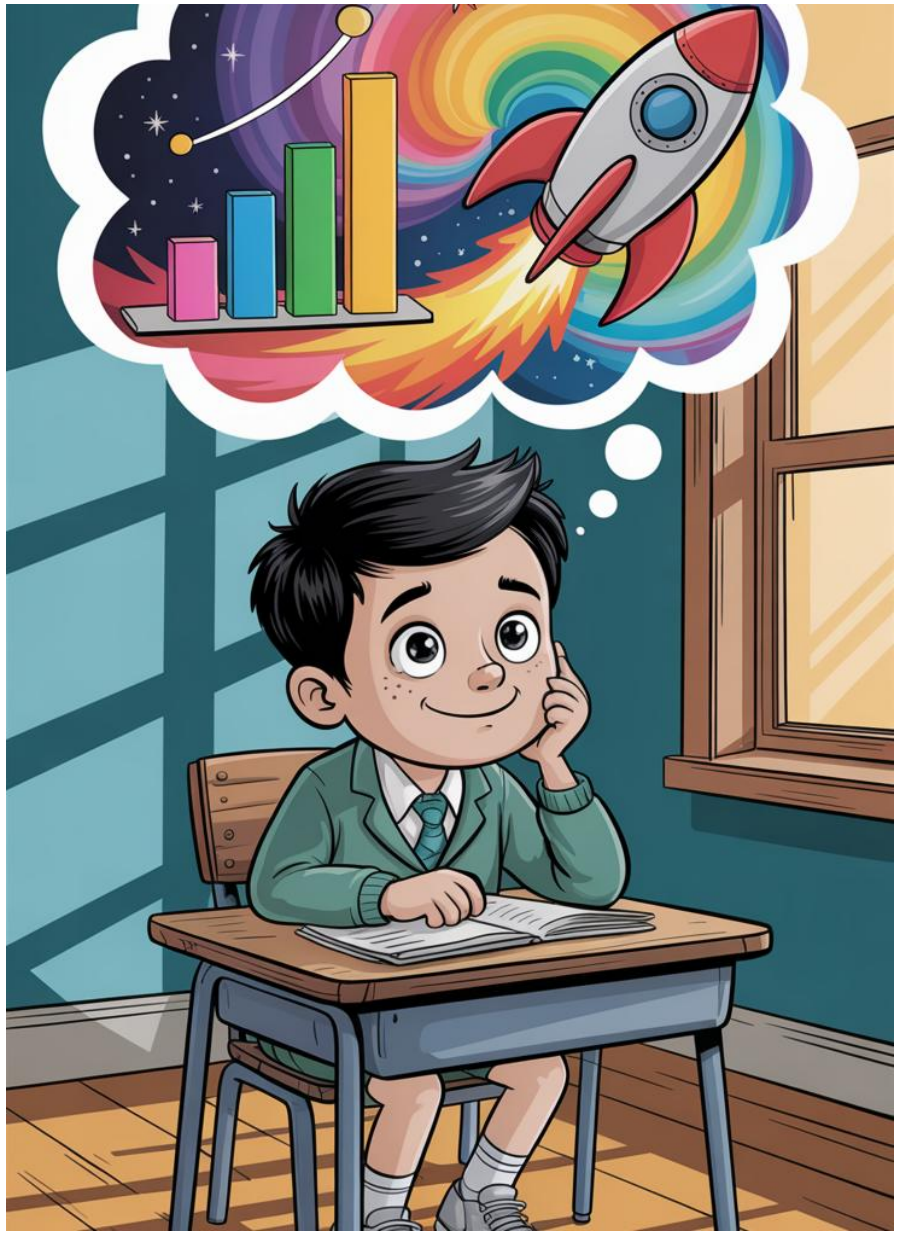
Teaching

Events

Book this space at https://library.ucalgary.ca/visualization

Objectives


Data Vis vs Infographics
Creating a Visualization
Purpose
Audience
Bottom-Up Approach
Common Vis. Mistakes
Size
Pies
3D
Clutter
Reproducible
Style Guide
Data Vis. Tools
Data
Visualization



What do I mean by Data Visualization?

Visual representation of data

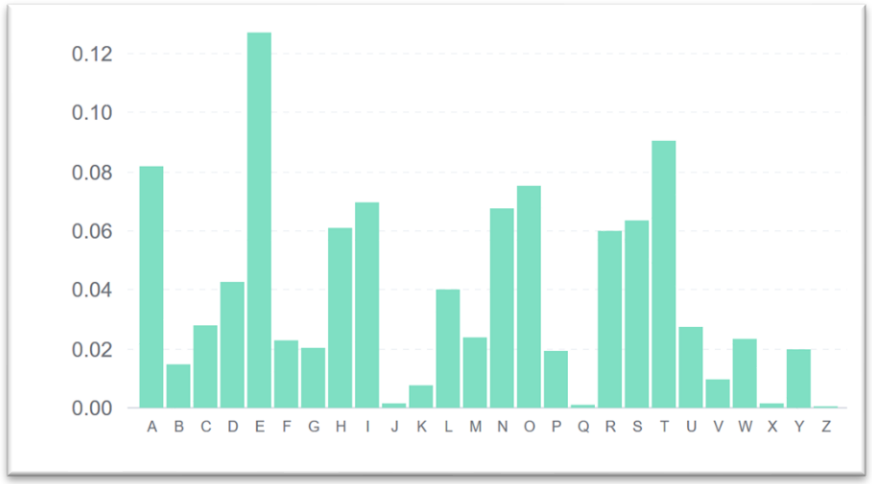
“Transformation of the symbolic into the geometric” [McCormick et al, 1987]

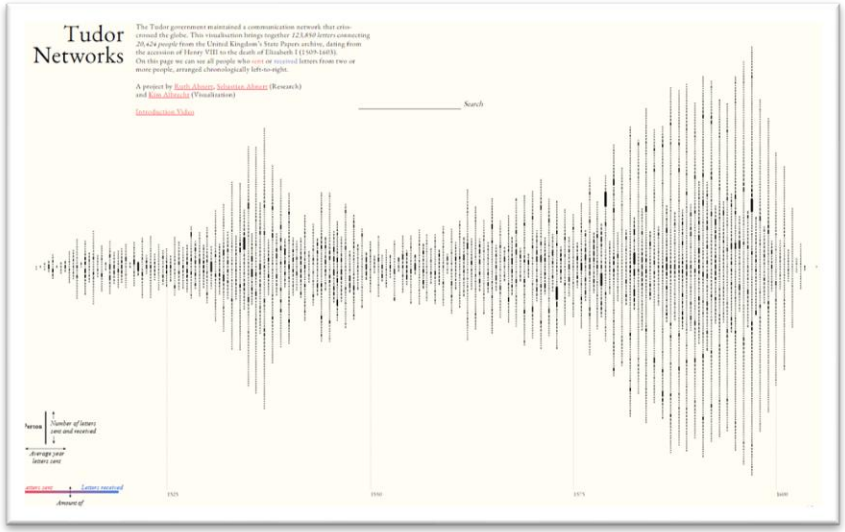
“… artificial memory that best supports our natural means of perception” [Bertin, 1967]

“Use of computer-generated, interactive, visual representations of data to amplify cognition” [Card, Mackinlay, & Shneidermann, 1999]

MORE THAN JUST MAKING CHARTS OR PRETTY PICTURES

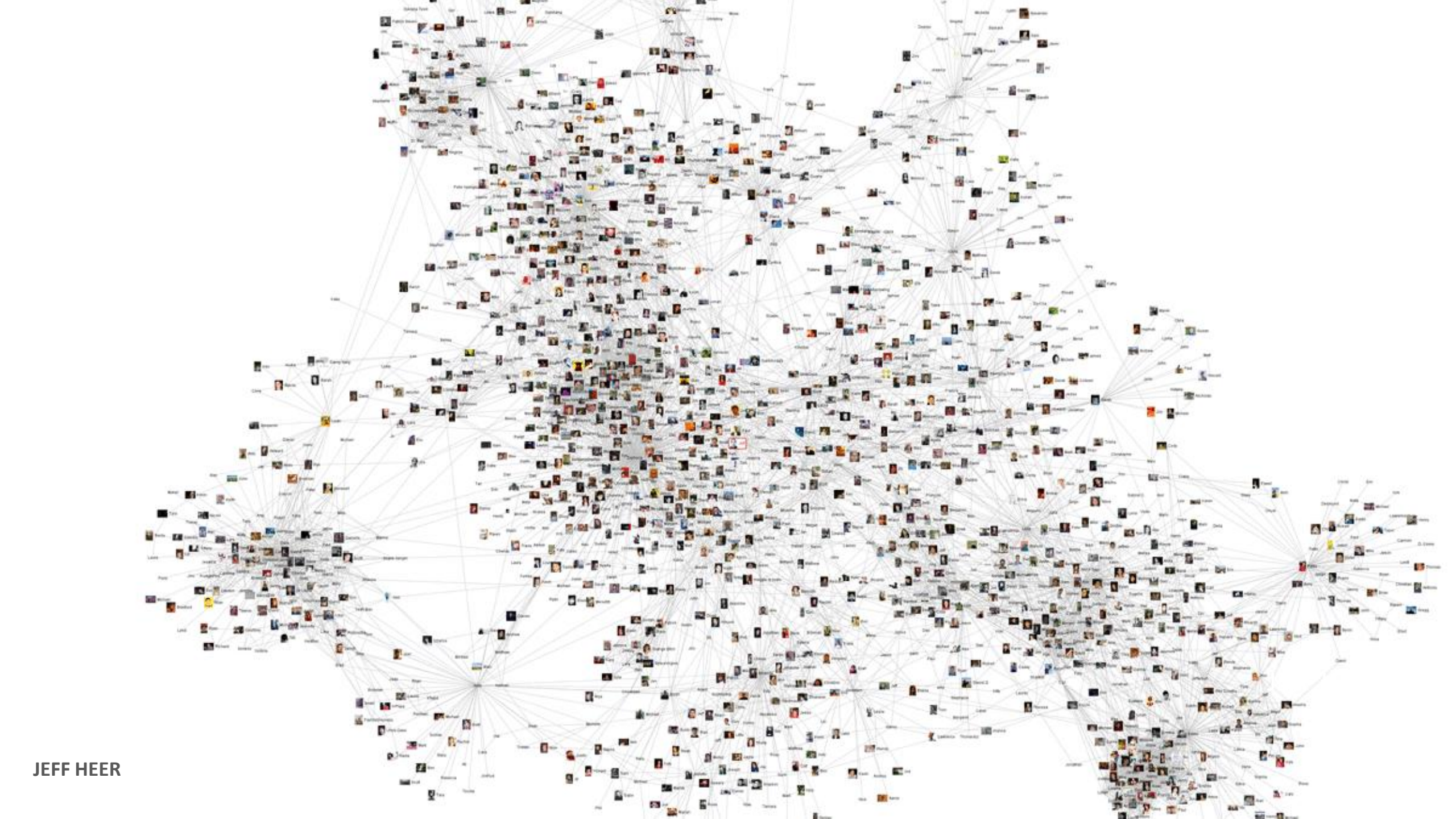
https://www.behance.net/gallery/30395075/U10-Atlas-Regio-Utrecht





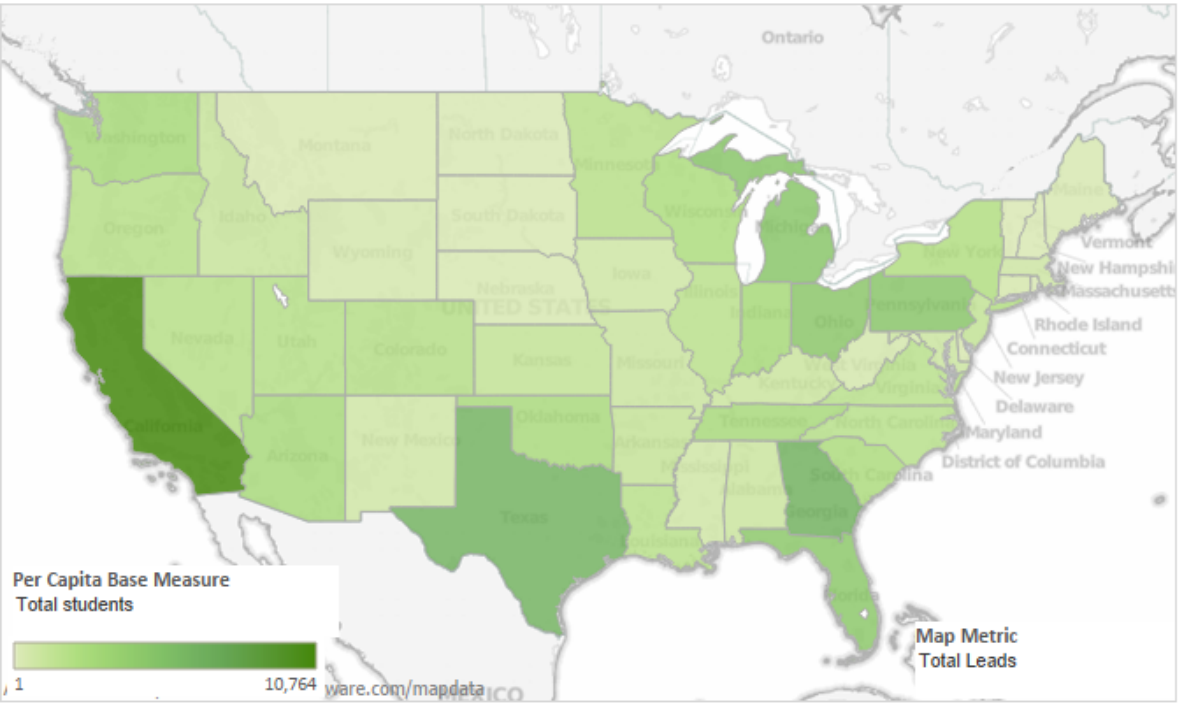
https://tudornetworks.net/

https://www.theguardian.com/us-news/ng-interactive/2017/dec/20/bussed-out-america-moves-homeless-people-country-study

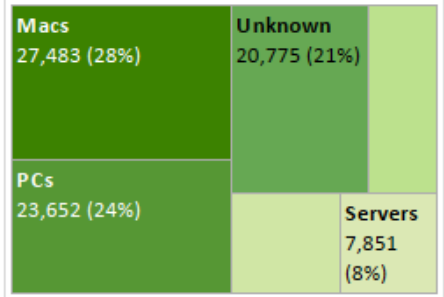


JEFF HEER

Leads by State

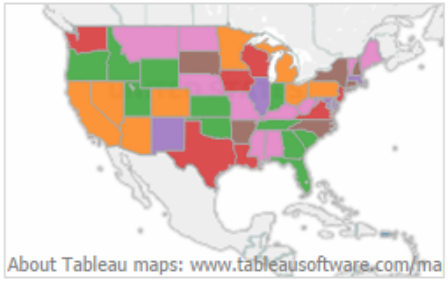


Product Area



Show Classifications Of

State Type



Response Time

Response Time	Convert %	Leads	Converted
< 2 Hrs	6.46%	5,310	343
< 1 Day	4.67%	9,556	446
Later	3.89%	84,134	3,270

Summary

Lead Gen Budget	$3,226,
Leads	99,
Budget per Lead	$3
Converted	4,
Budget per Conversion	$79
Convert %	4.

Lead Volume Change

	Leads		WoW Change		YoY Change	
	2012	2013	2012	2013	2012	2013
1	4,475	1,933				-57%
2	3,249	1,645	-27%	-15%		-49%
3	1,714	2,035	-47%	24%		19%
4	1,322	4,854	-23%	139%		267%
5	1,476	2,743	12%	-43%		86%
6	5,300	2,643	259%	-4%		-50%
7	3,624	2,420	-32%	-8%		-33%
8	360	1,888	-90%	-22%		424%
9		1,051	-100%	-44%		
10		1,113		6%		
11	1,196	2,639		137%		121%
12	4,418	2,345	269%	-11%		-47%
13	3,990	2,904	-10%	24%		-27%
14	1,155	2,358	-71%	-19%		104%
15		1,809	-100%	-23%		
16		1,086		-40%		
17		1,193		10%		
18		2,941		147%		
19		2,889		-2%		
20		2,616		-9%		
21		3,358		28%		
22		2,554		-24%		
23		1,188		-53%		
24		1,326		12%		
25		2,515		90%		
26		2,411		-4%		
27		2,166		-10%		
28		2,494		15%		
29		1,742		-30%		

Filters

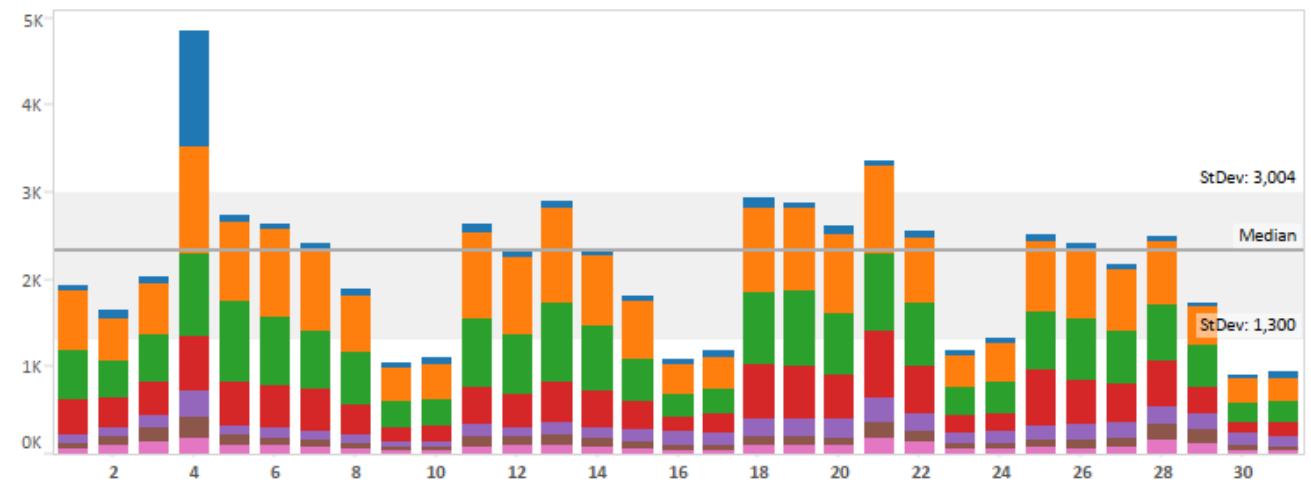
Region

State Type

Lead Source
All

Generated By
All

Breakdown Lead By Day

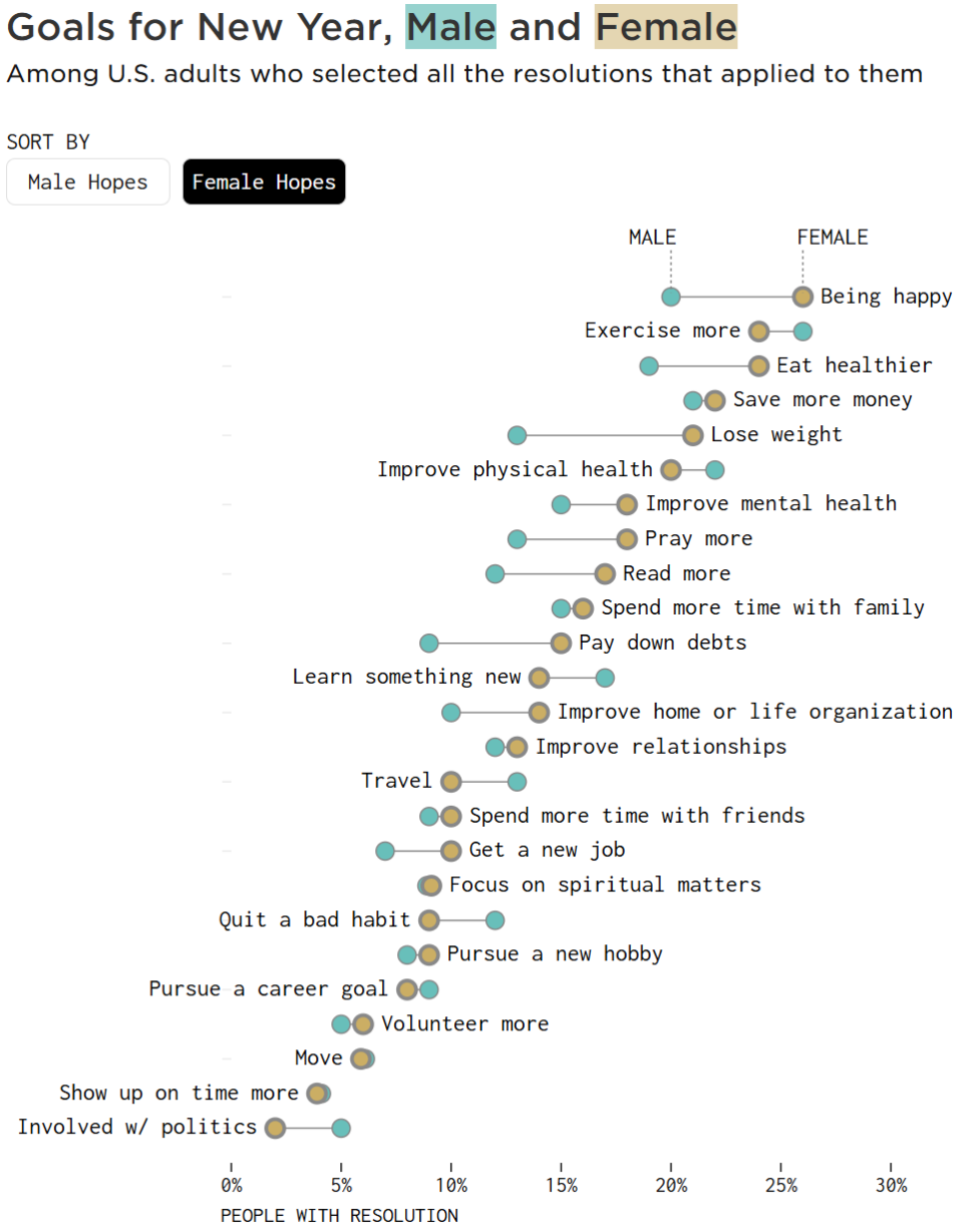


Measure: Lead

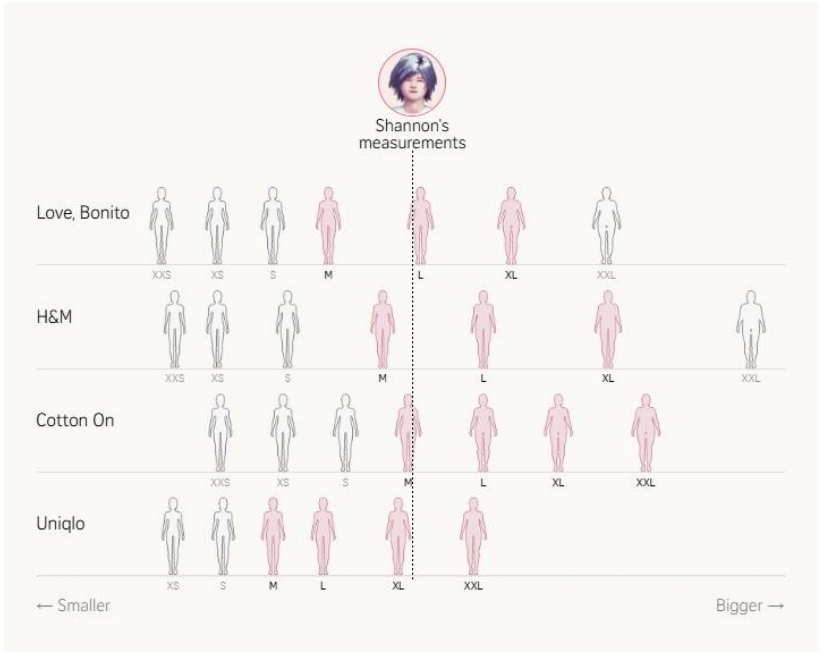
Date Interval: Day

Color By: State Type

- Unspecified
- Type A
- Type B
- Type C
- Type D
- Type E
- Type F



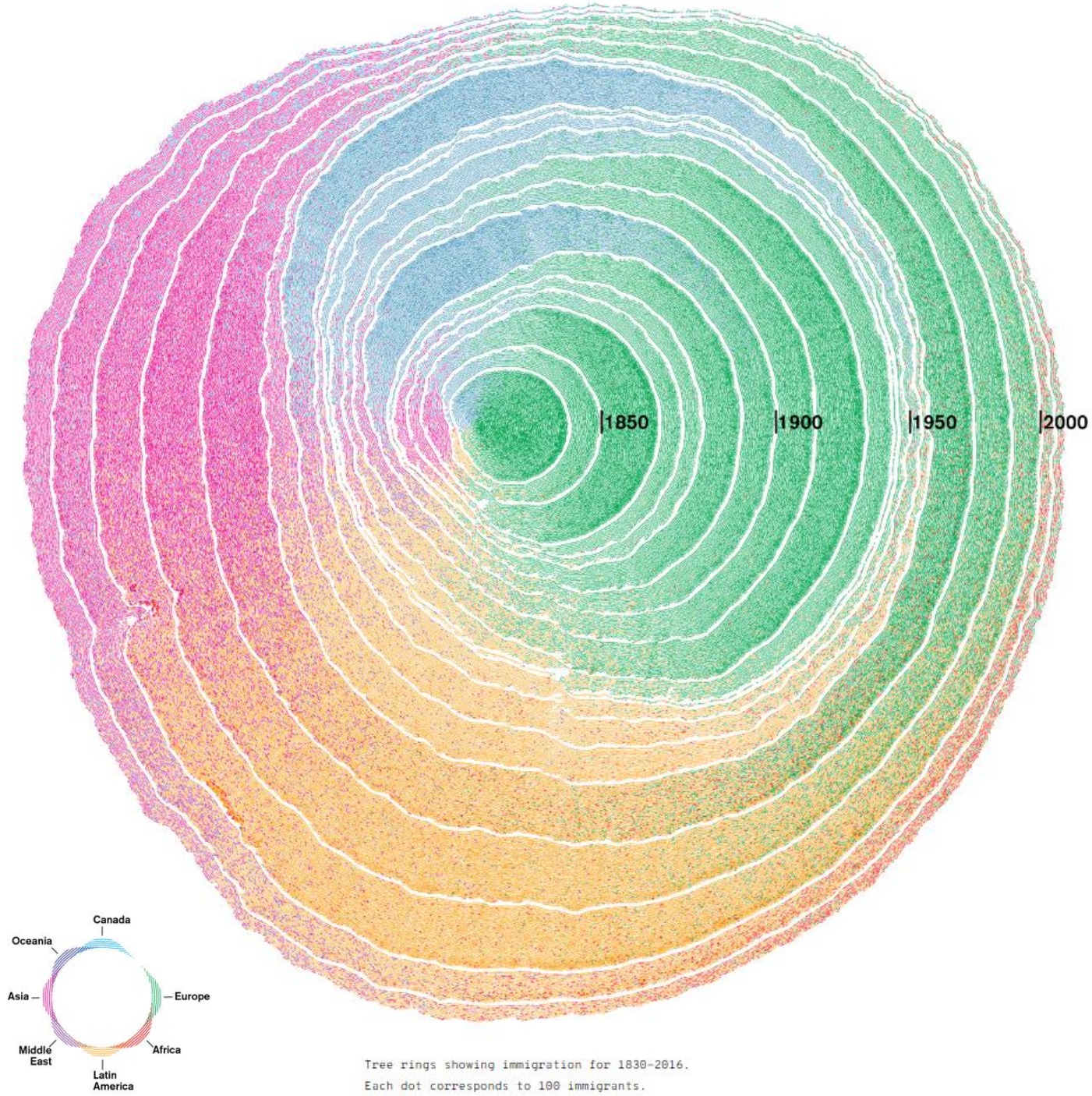
From https://flowingdata.com/2026/01/05/new-years-resolutions-for-men-and-women/



https://www.straitstimes.com/multimedia/graphics/2025/09/womens-clothing-size-guide-singapore/index.html

US Immigration Data

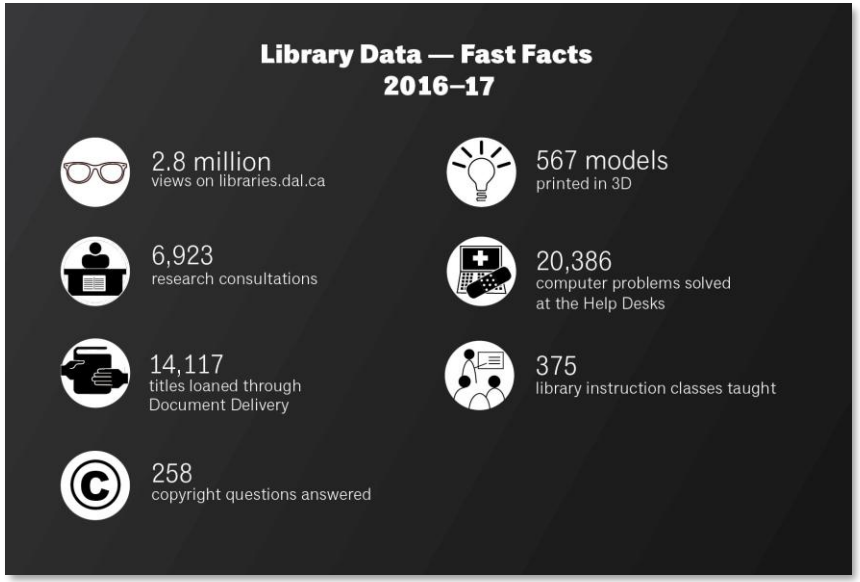
https://web.northeastern.edu/naturalizing-immigration-dataviz/



Data Graphics & Info Graphics

Data Graphic

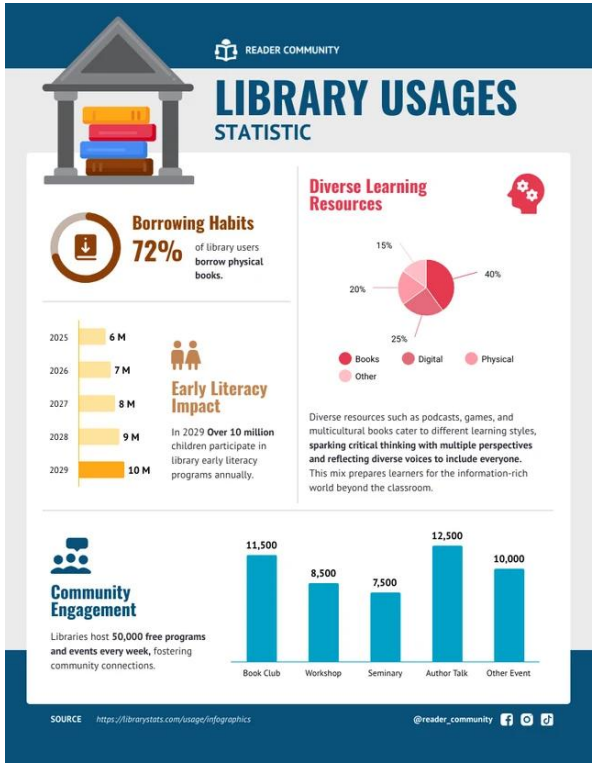
Uses words and numbers to represent quantitative data.
Icon-like graphical elements for visual appeal & memorability



https://libraries.dal.ca/about/library-assessment/library-data.html

Info Graphic

Infographics combine images, charts, and text to present information clearly and engagingly.



https://venngage.com/templates/infographics/library-usages-statistic-infographic

InfoGraphics & Visualizations

Infographics tell a premeditated story to guide the audience with information.

InfoGraphic

- Best for telling a **premeditated story** and offer **subjectivity**
- Best for **guiding the audience** to conclusions and **pointing out relationships**
- Created **manually** for a **specific** presentation of information
- May include data visualization(s)

Data Visualization

- Provides a **visual representation of data**.
- Often is a piece of a story.
- Most visualization types can be applied to different datasets.

https://blog.prototypr.io/getting-it-right-why-infographics-are-not-the-same-as-data-visualizations-a23da7de745e

Perception

Brain

- **Visual Cortex**: fast & efficient – pre-attentive processing
- **Cerebral Cortex**: slower, less efficient

Goal: do as much as possible with Visual Cortex as possible

Perception

How many 3s?

1 8 4 7 9 5 3 2 1 2 4 6 7 8 9 5 6 4 3

4 8 0 6 4 8 0 3 2 8 8 7 9 6 2 3 1 0 6

9 9 6 3 4 4 2 6 8 1 5 6 8 7 9 0 3 2 1

1 5 6 8 7 9 6 5 1 2 3 5 9 9 7 8 9 6 5

4 3 2 1 3 2 1 5 4 9 8 3 4 2 5 8 4 8 9

2 2 1 5 6 7 8 6 5 6 3 1 4 5 1 3 4 5 1

Perception

How many 3s?

1 8 4 7 9 5 3 2 1 2 4 6 7 8 9 5 6 4 3

4 8 0 6 4 8 0 3 2 8 8 7 9 6 2 3 1 0 6

9 9 6 3 4 4 2 6 8 1 5 6 8 7 9 0 3 2 1

1 5 6 8 7 9 6 5 1 2 3 5 9 9 7 8 9 6 5

4 3 2 1 3 2 1 5 4 9 8 3 4 2 5 8 4 8 9

2 2 1 5 6 7 8 6 5 6 3 1 4 5 1 3 4 5 1

Perception

How many 3s?

1 8 4 7 9 5 3 2 1 2 4 6 7 8 9 5 6 4 3

4 8 0 6 4 8 0 3 2 8 8 7 9 6 2 3 1 0 6

9 9 6 3 4 4 2 6 8 1 5 6 8 7 9 0 3 2 1

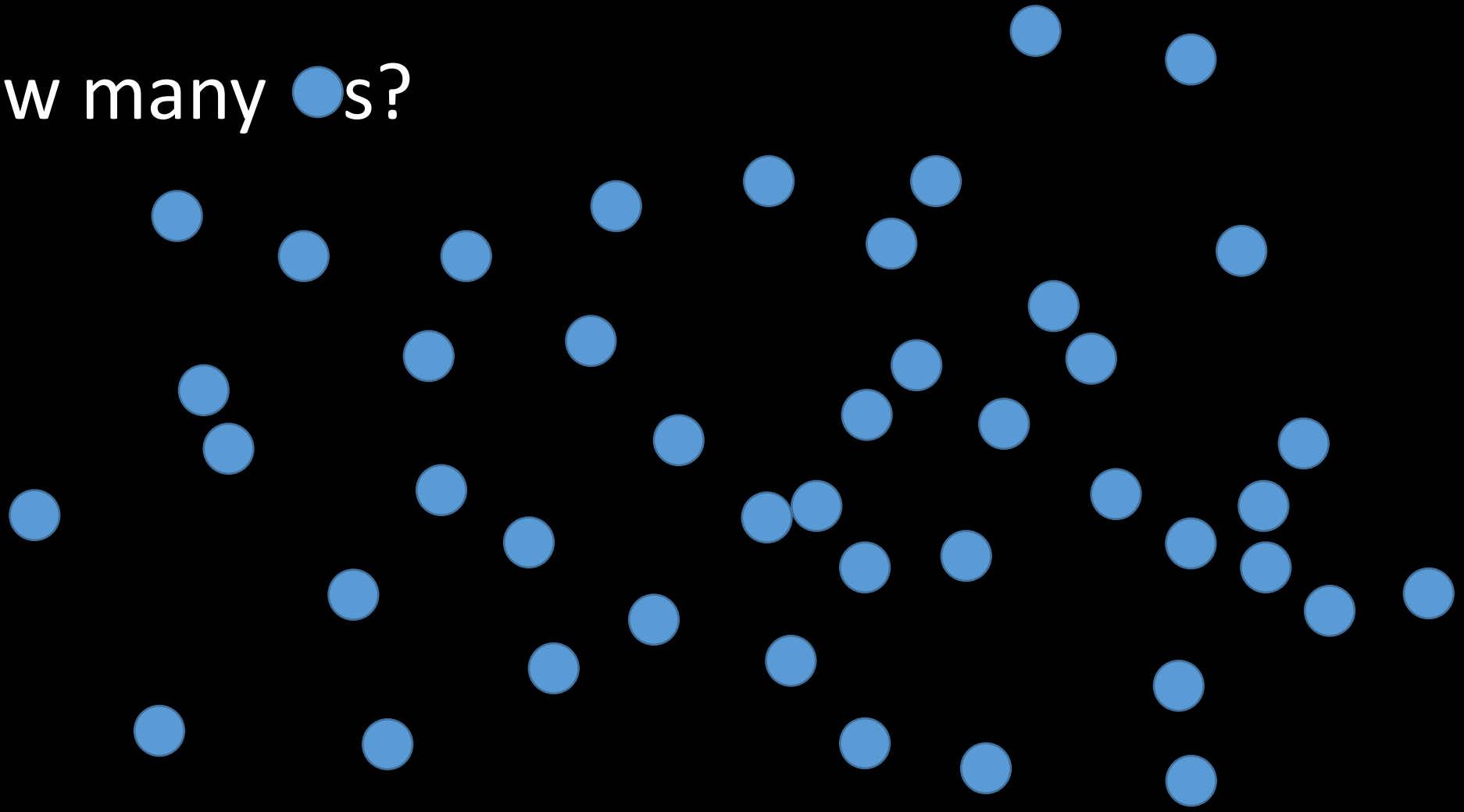
1 5 6 8 7 9 6 5 1 2 3 5 9 9 7 8 9 6 5

4 3 2 1 3 2 1 5 4 9 8 3 4 2 5 8 4 8 9

2 2 1 5 6 7 8 6 5 6 3 1 4 5 1 3 4 5 1

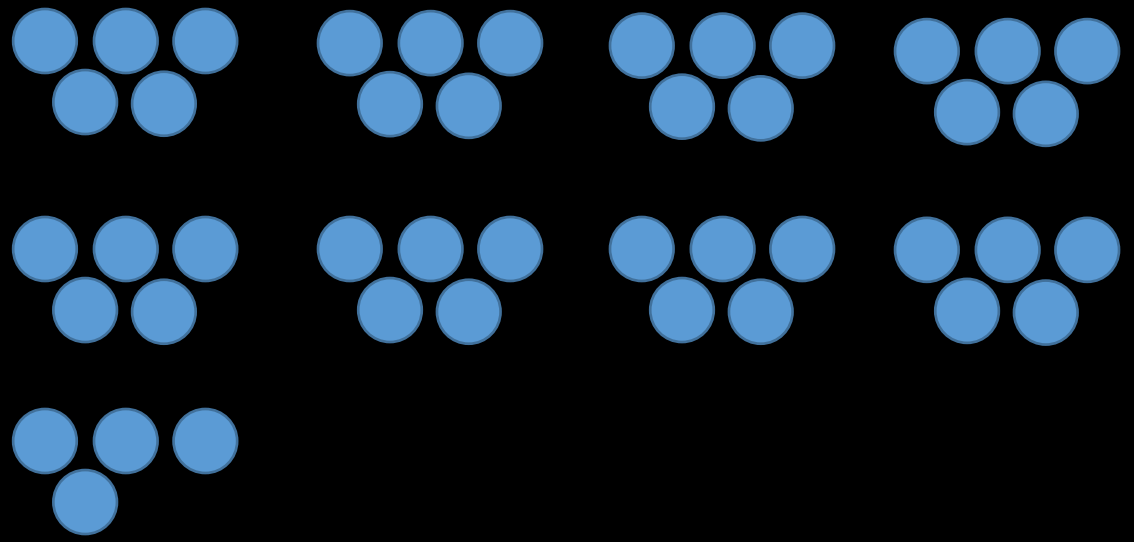
Perception

How many s?



Perception

How many ●s?



How Do We Create a Good Data Visualization?

Know the Data

Number of attributes

Data types: numeric, ordered, categorical

Trustworthiness: bad fields, inaccuracies, missing values

Know your purpose

What do you want to show?

What do you want people to take away?

Memorable? Accurate? Eye catching?

Know your audience

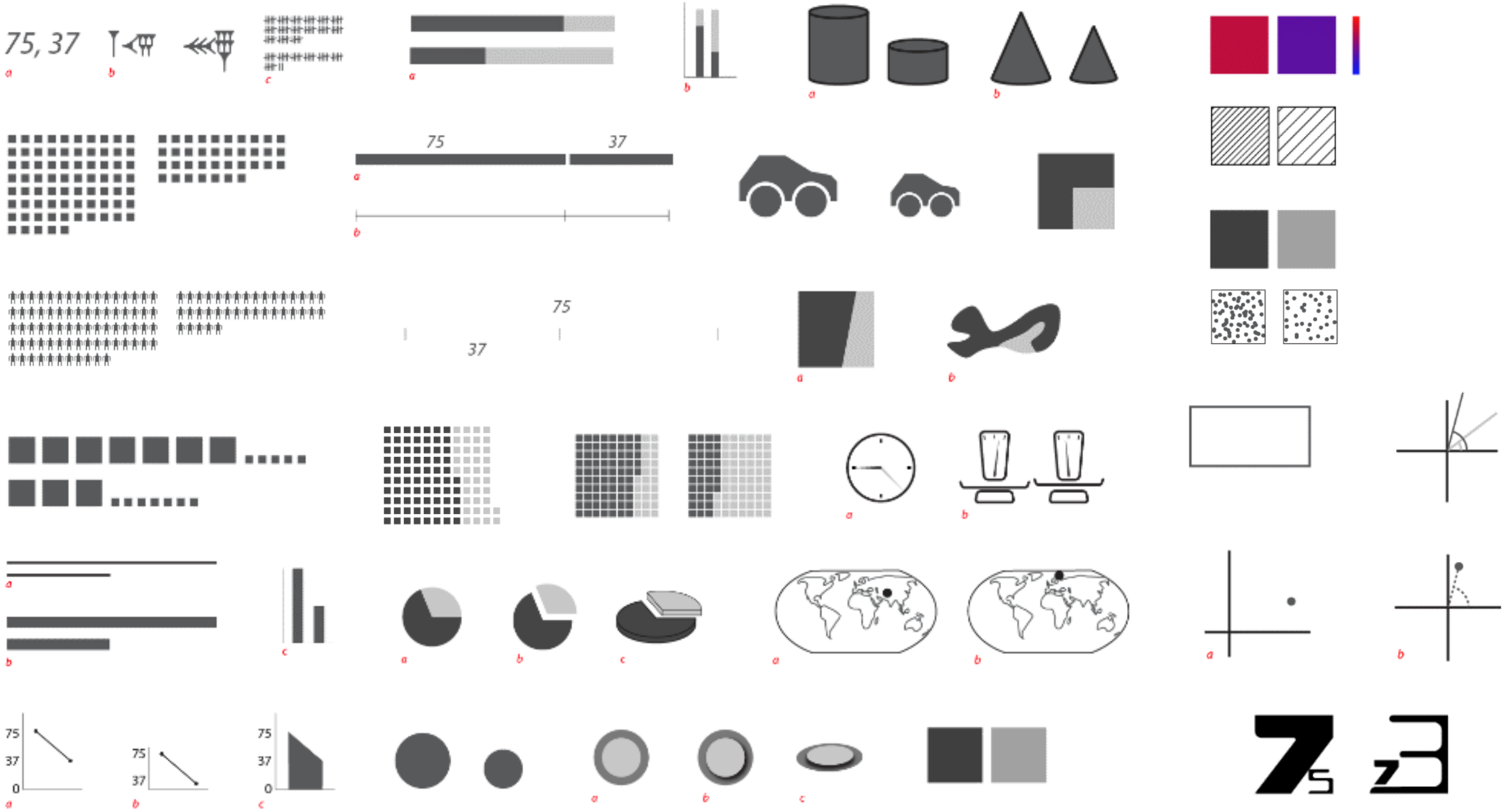
What do they know already?

What do they want to know?

What type of task might they be wanting to achieve?

SKETCH AS MANY WAYS AS YOU CAN TO COMMUNICATE THESE TWO QUANTITIES:

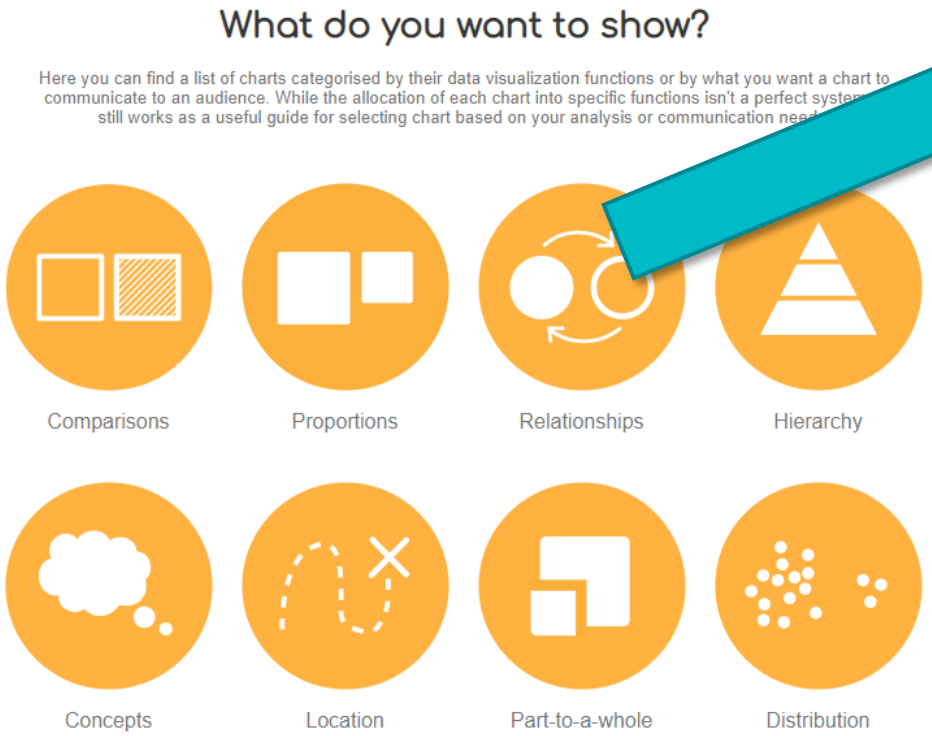
75 37

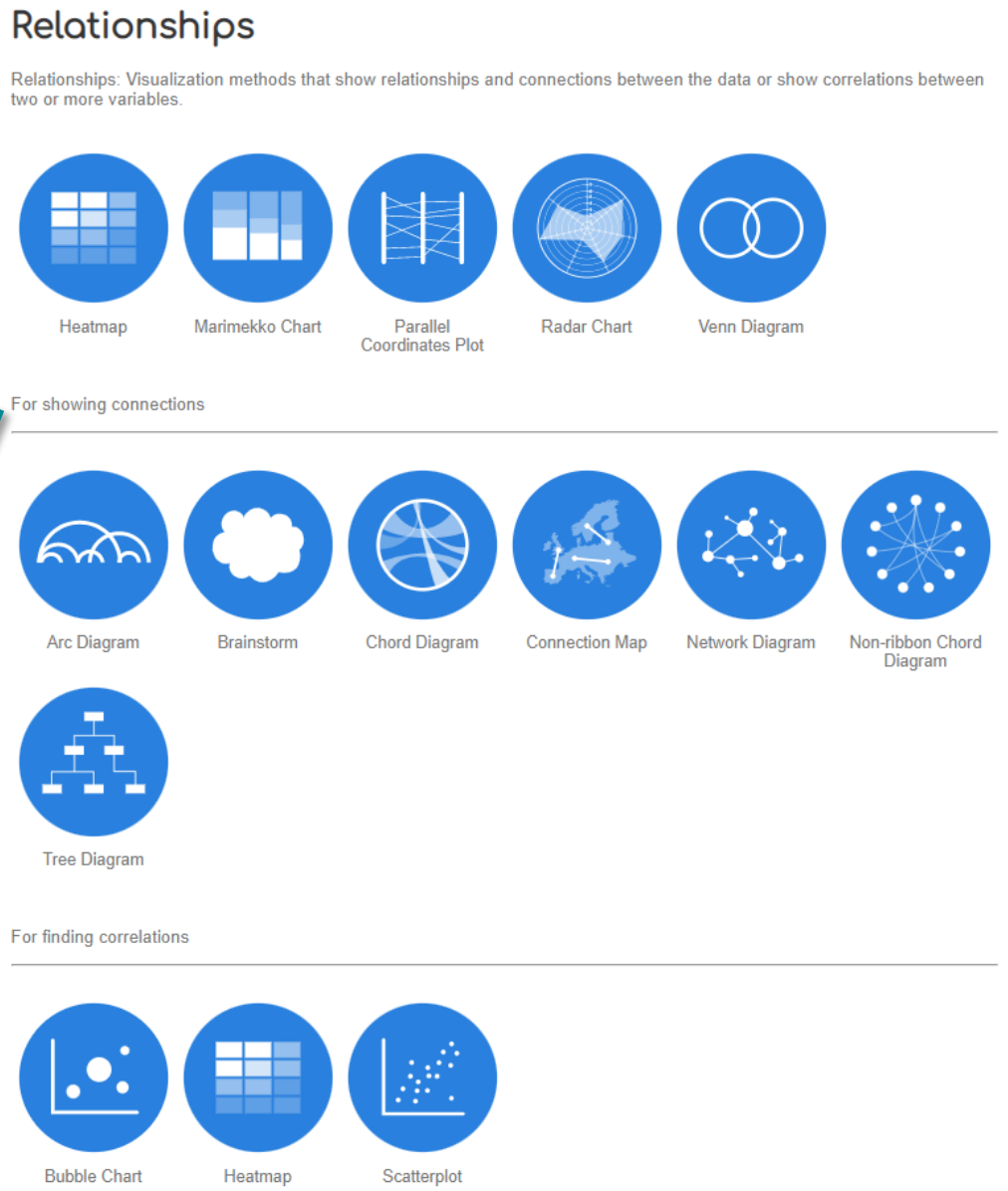


http://blog.visual.ly/45-ways-to-communicate-two-quantities/

One Approach

Look at your desired purpose and pick a chart type.
https://datavizcatalogue.com/





Another Approach - Visual Variables

- Build your visualization from the bottom-up based on your data & goals

Why?

- Encourages you to explore beyond the “same-old” options
- Find a better design for your visualization
- But, can be more challenging to find a tool that produces a final version

Visual Primitives - Marks

What can we change about a mark?

Choose Visual Variables Based on Data

Data

Categorical 

Ordered Small Medium Large

Quantitative 1 2 5.29 42 101

Visual Variables & Data

Variable	Categorical	Order	Quantitative	Length
Size	Yes	Yes	1D: Yes 2: Somewhat 3D: No	5/20
Position	Yes	Yes	Yes	Infinite
Shape	Yes	No	No	5 / Infinite
Lightness & Saturation	Yes	Yes	No	7 / 10
Hue	Yes	Not advisable	Not advisable	7 / 10
Angle	Yes	No	No	4 / 8
Texture	Yes	No	No	Infinite

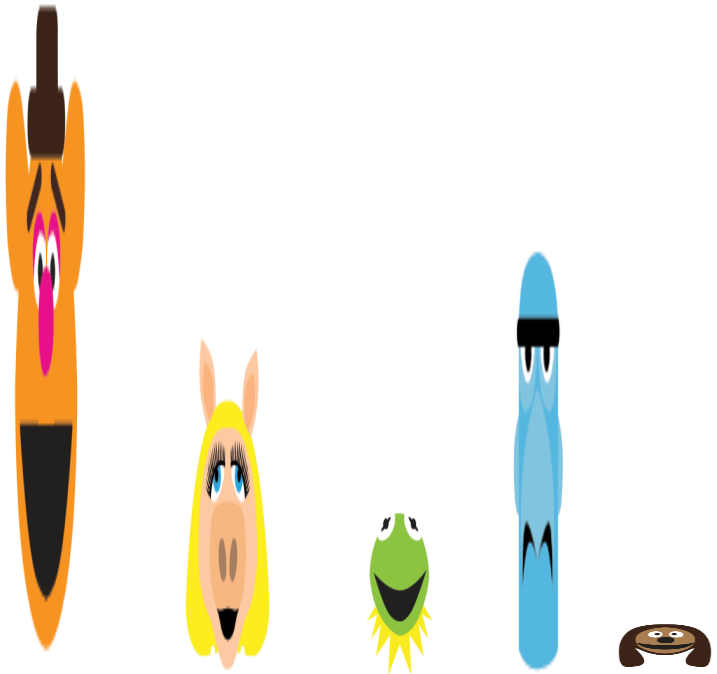
Semiology of Graphics by Jacques Bertin. 1967.

M.S.T. Carpendale. Considering Visual Variables as a Basis for Information Visualisation. Research report 2001-693-16, Department of Computer science, University of Calgary, 2003.

Is Size Quantitative?

How big (what value) is Kermit compared to Fozzie below?

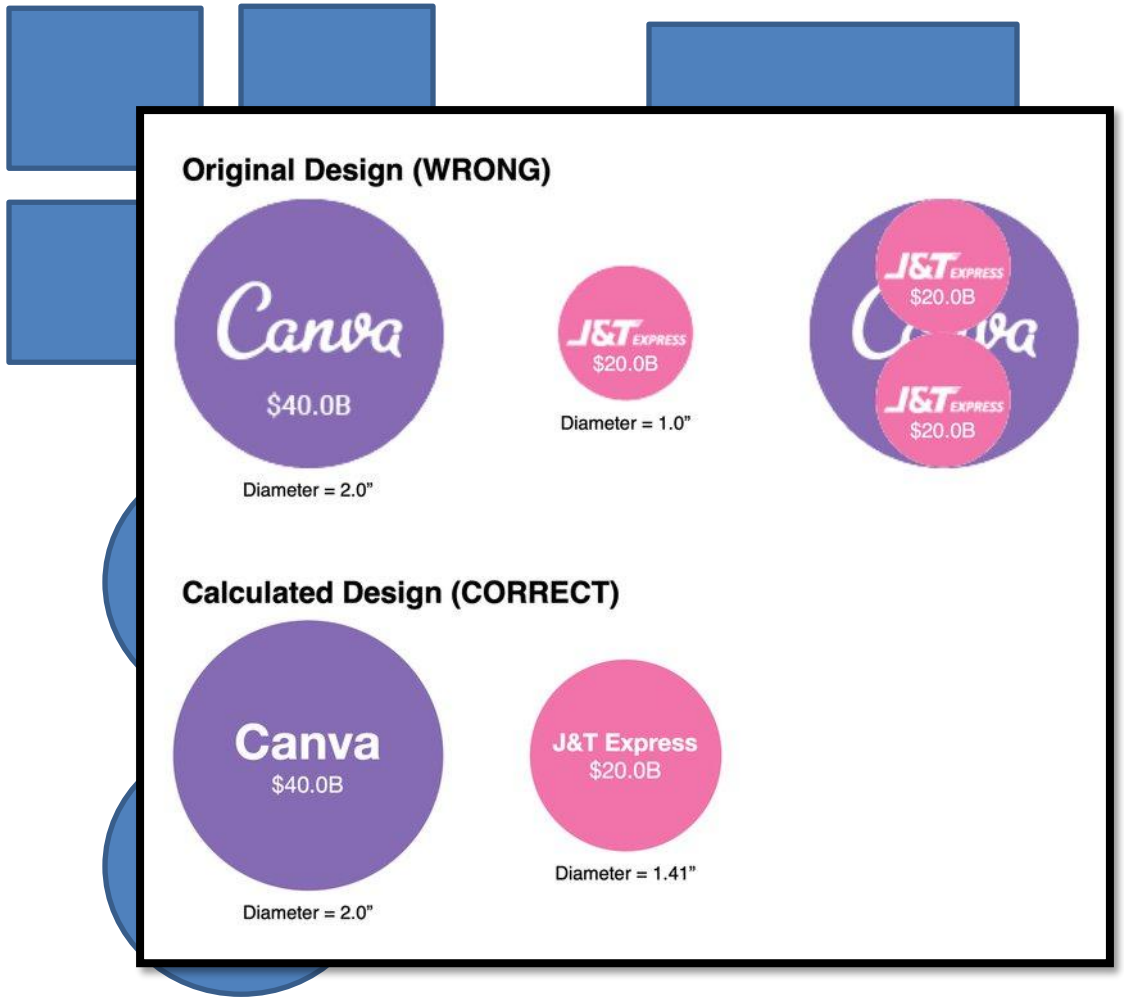
1D



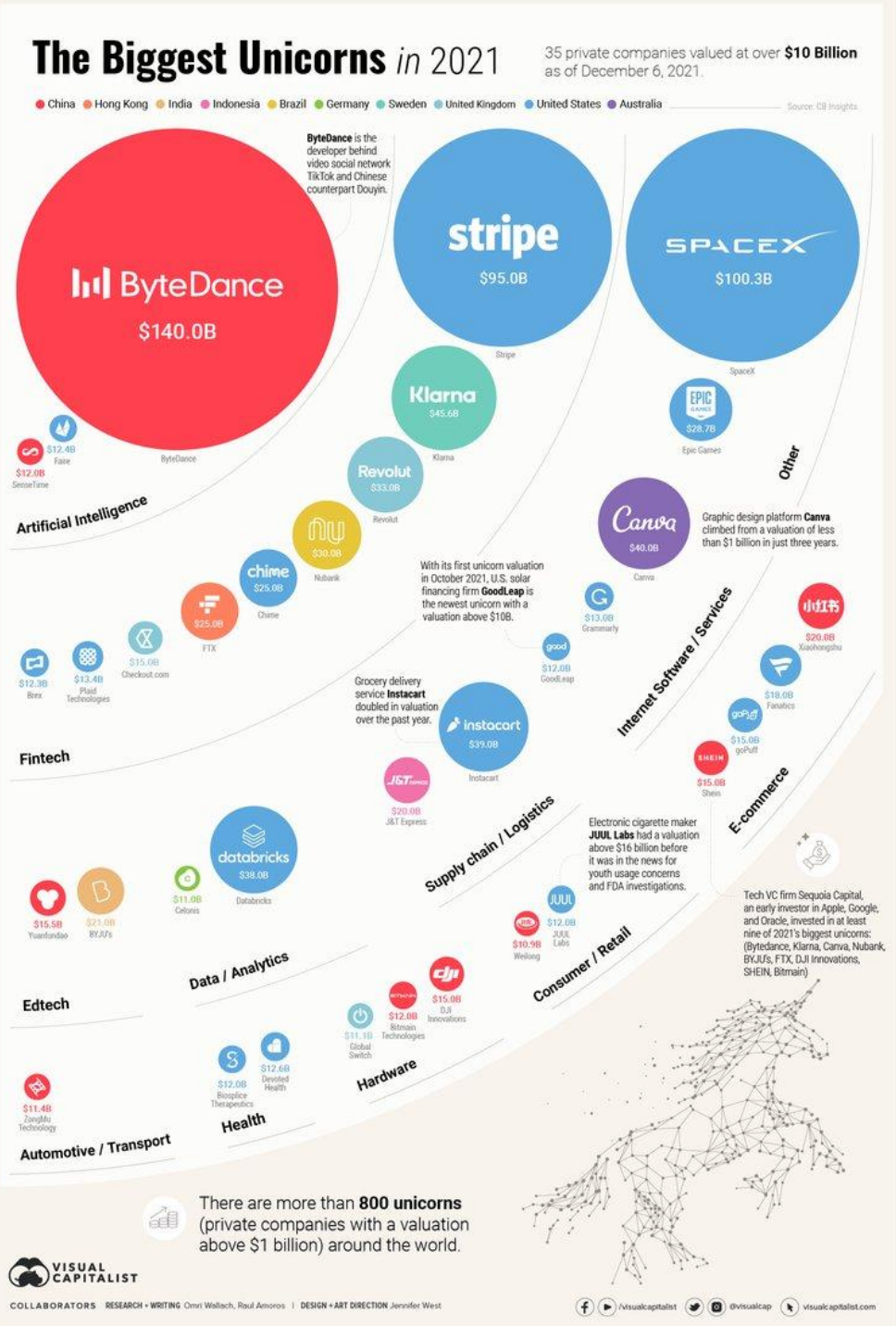
2D

Muppet drawings from http://www.gareth53.co.uk/blog/2011/11/muppet-birthday-card.html

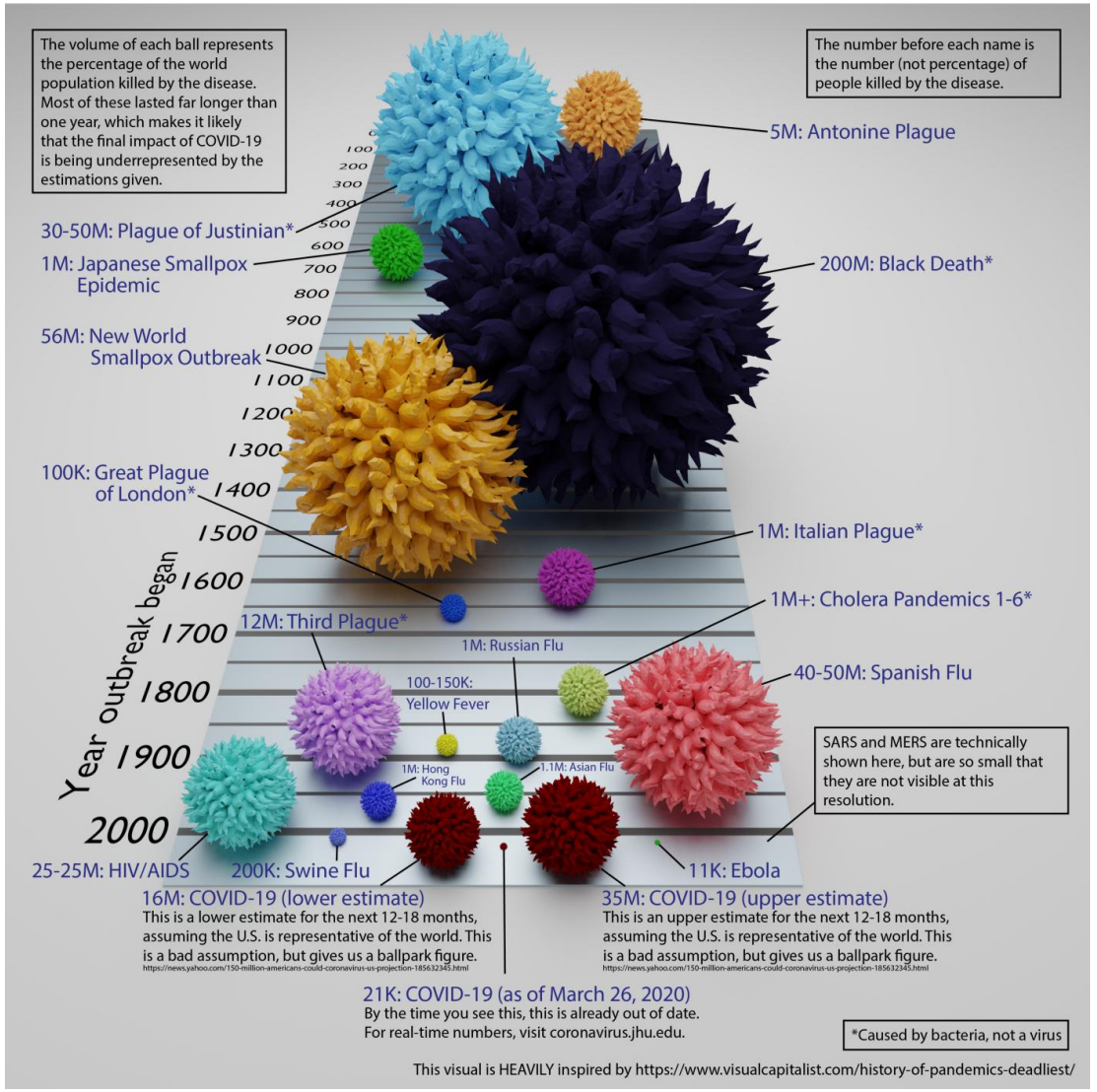
Is Size Quantitative?



https://coolinfographics.com/blog/2021/12/15/false-visualizations-getting-circles-sizes-wrong



3D Size



"Death count of various pandemics as a ratio of world population" from r/dataisbeautiful

https://www.reddit.com/r/dataisbeautiful/comments/fp76db/death_count_of_various_pandemics_as_a_ratio_of/

Visual Variables & Data

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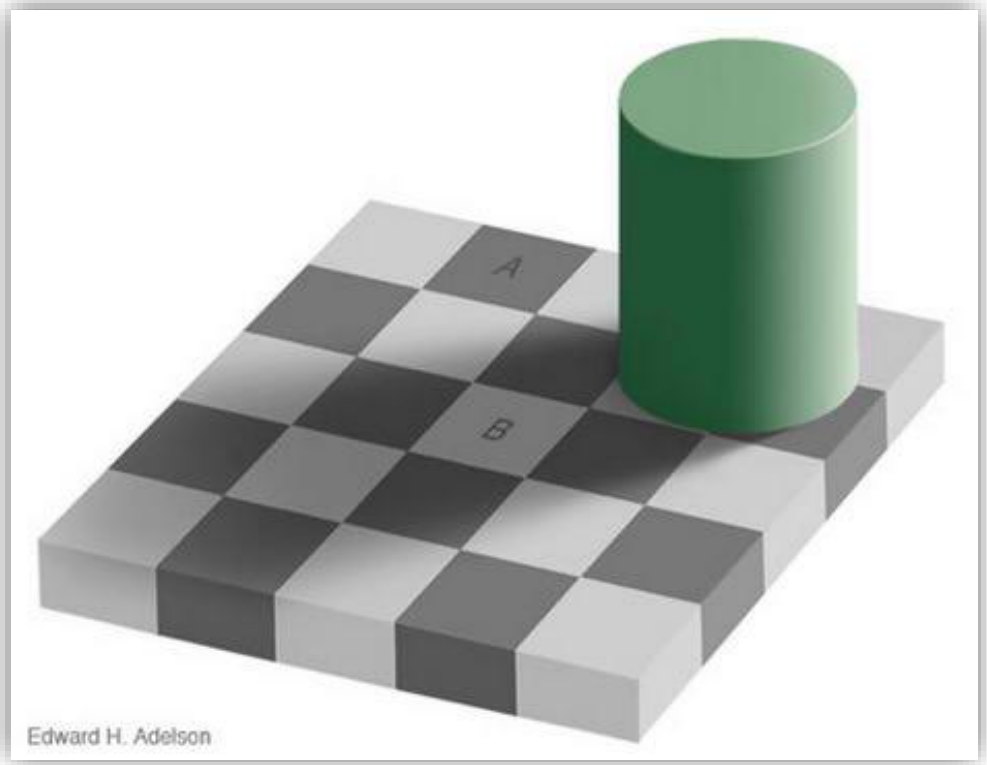
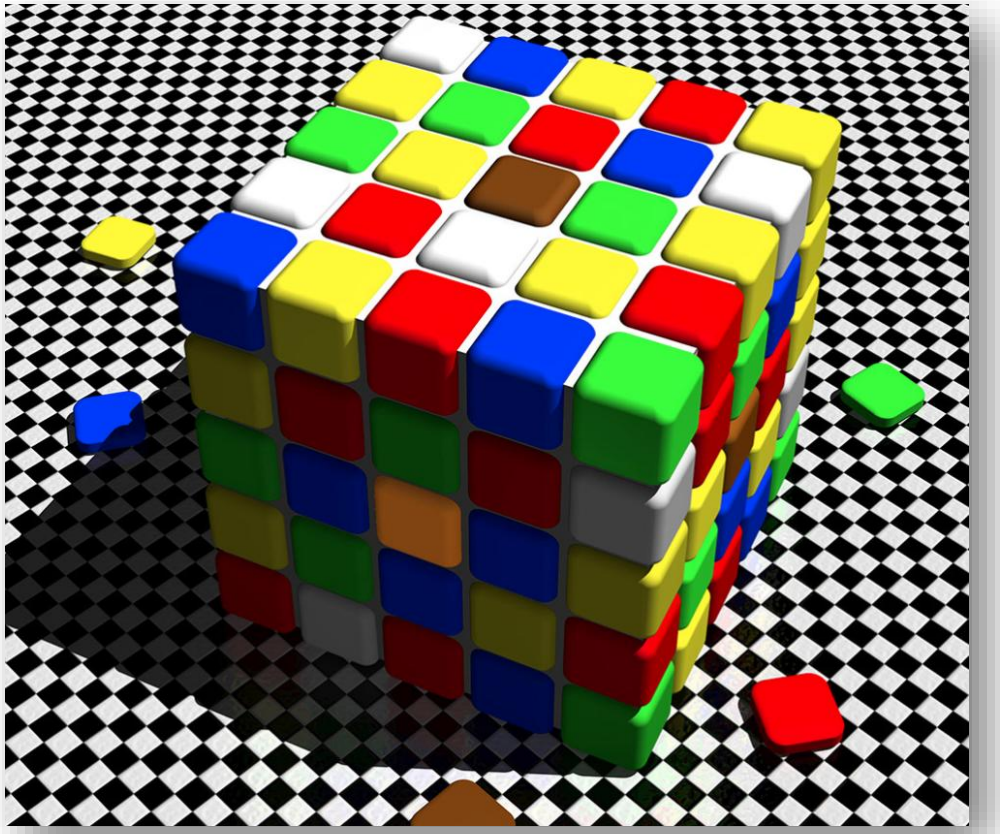
Semiology of Graphics by Jacques Bertin. 1967.

M.S.T. Carpendale. Considering Visual Variables as a Basis for Information Visualisation. Research report 2001-693-16, Department of Computer science, University of Calgary, 2003.

Hue (Colour)
Can we use hue for quantitative values?

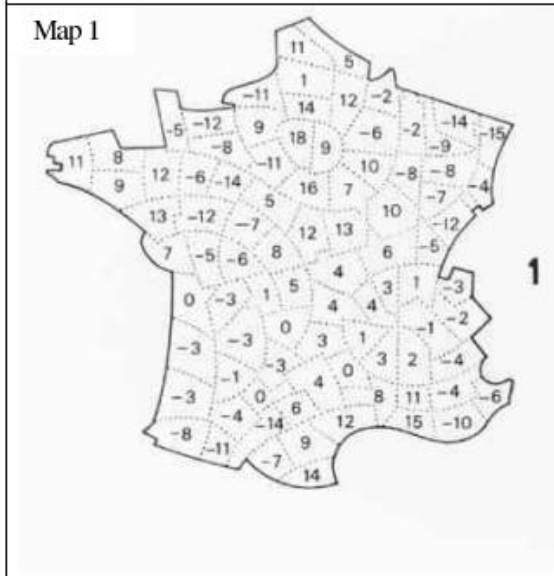




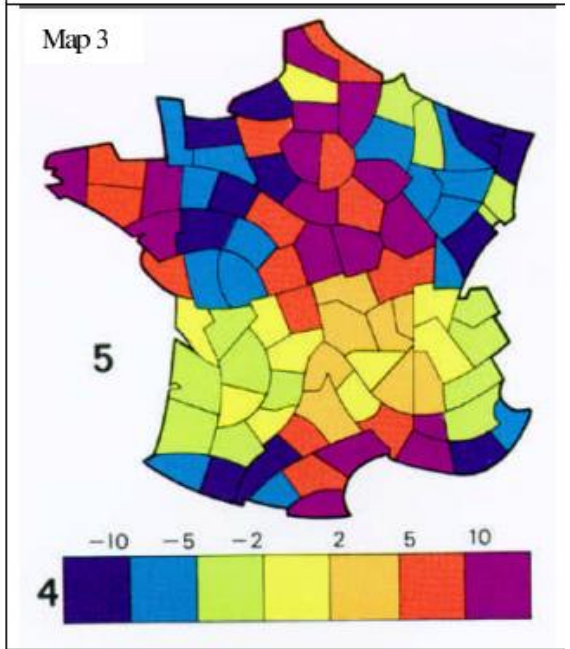
Weber's Law: human perception is fundamentally based on relative judgments, not absolute values.

Rainbow Scale Considerations

Map 1



Map 3

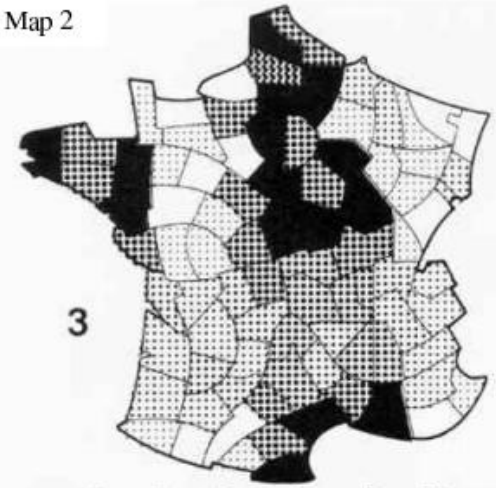


Rainbow Scale Considerations

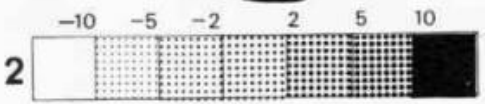
Map 1

1

Map 2

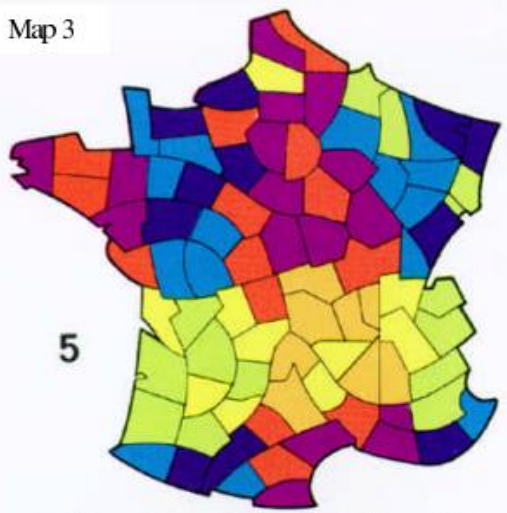


3



2

Map 3



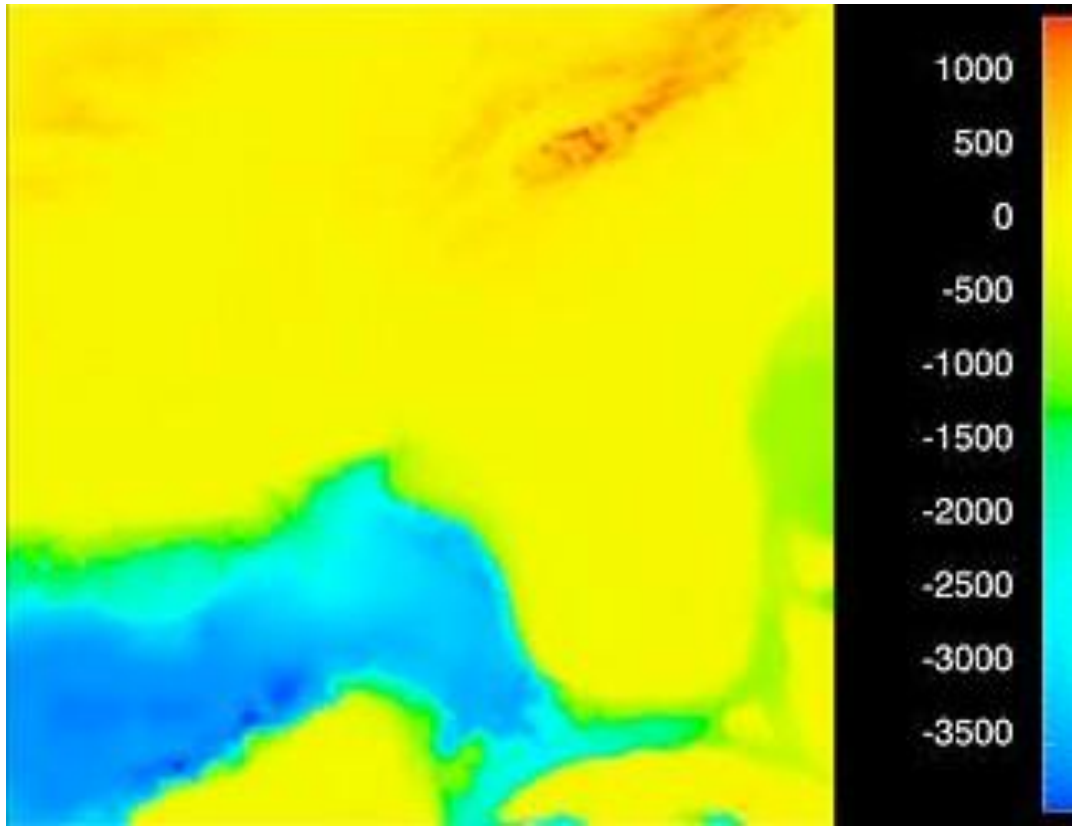
5

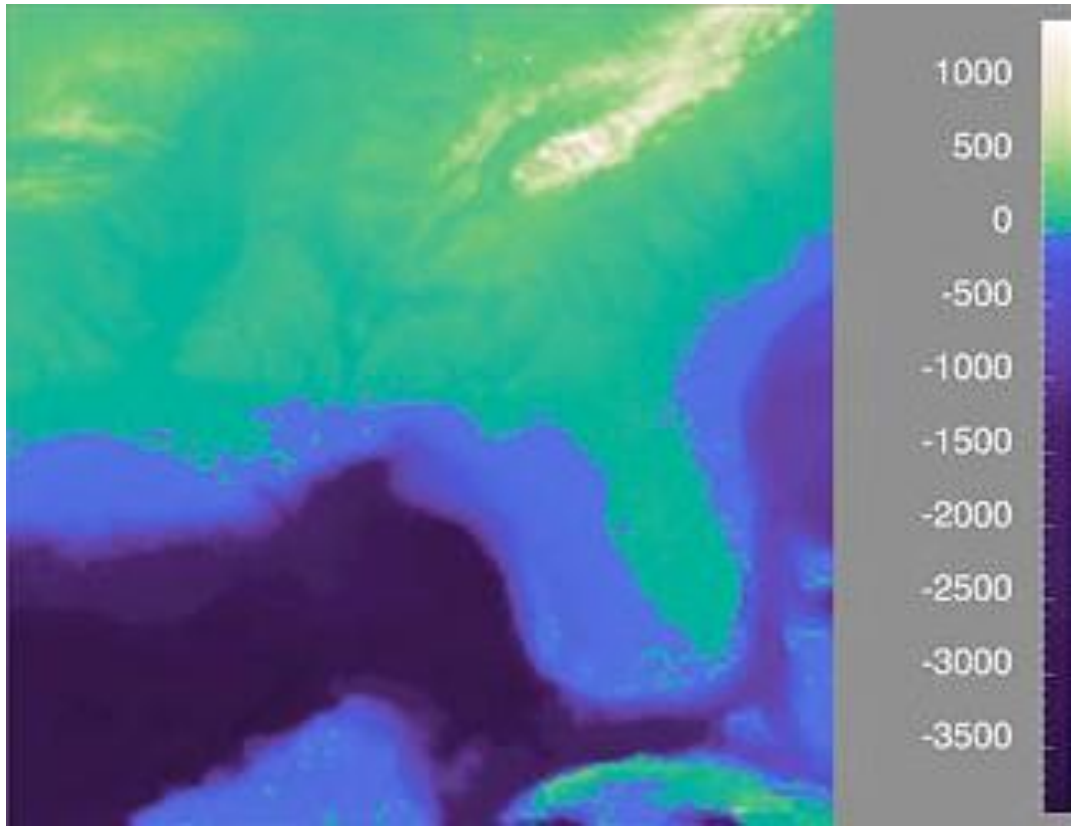
4

Map 4

11

10


1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500


1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500

Destroys Detail

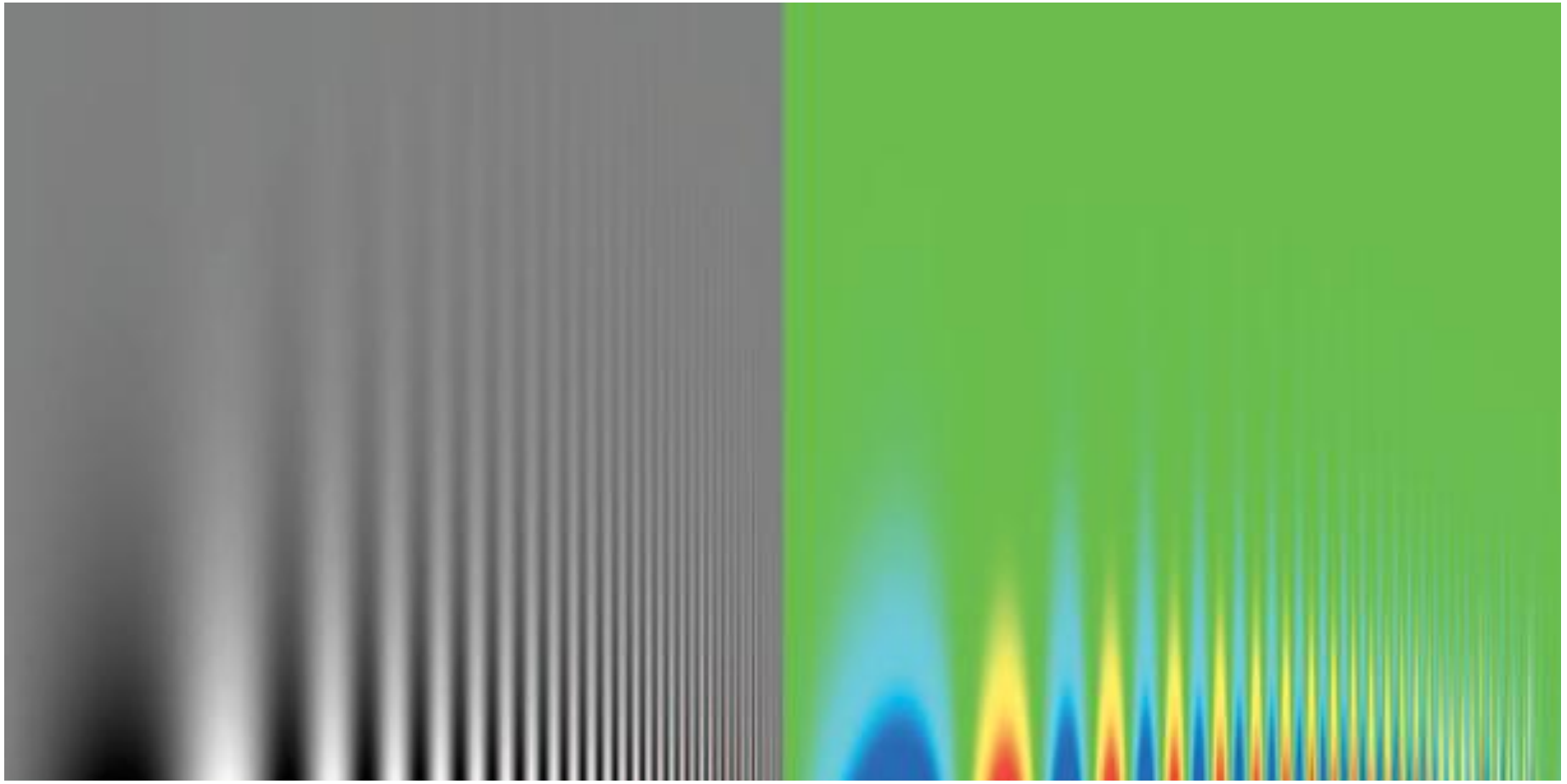
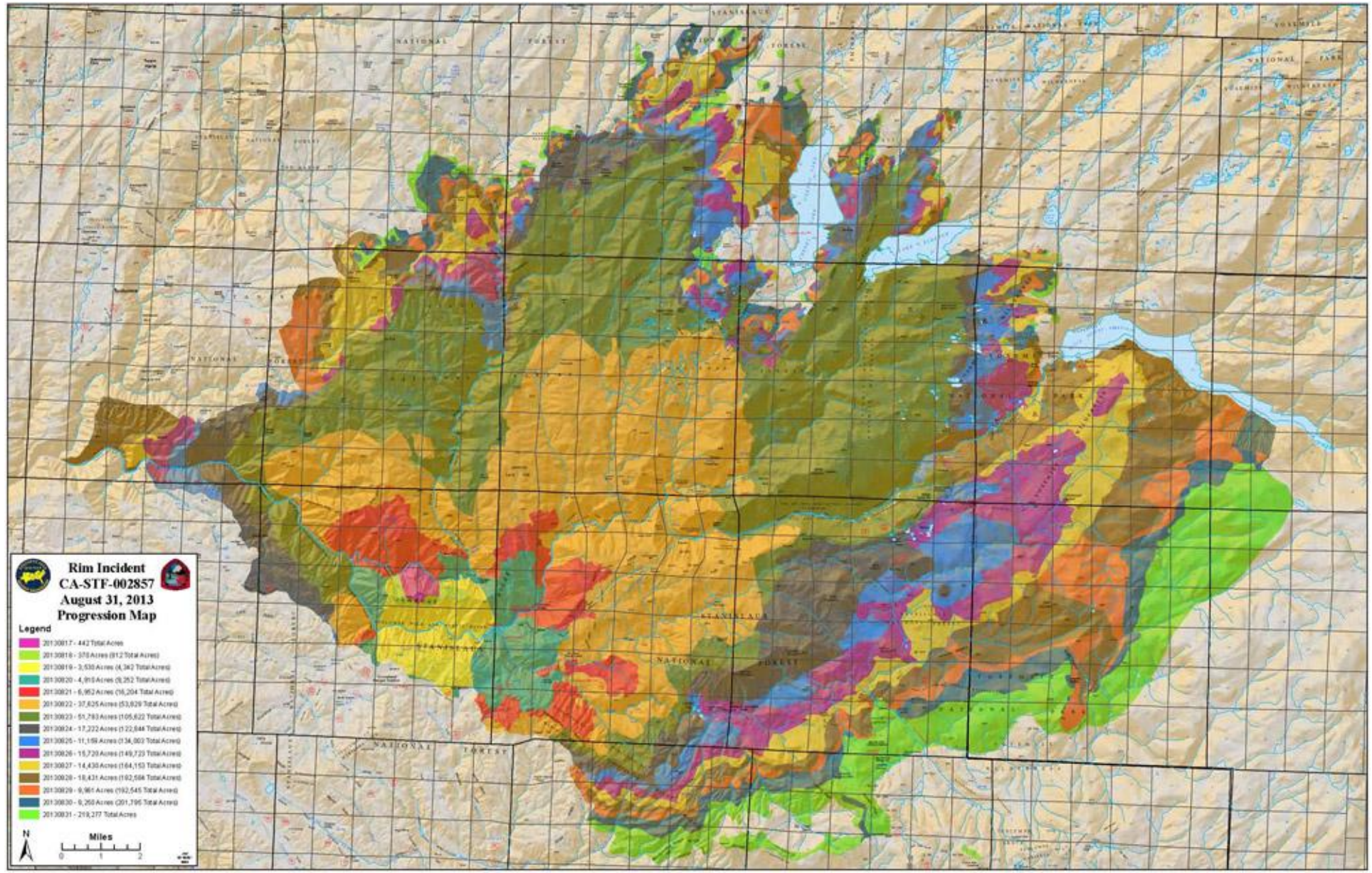
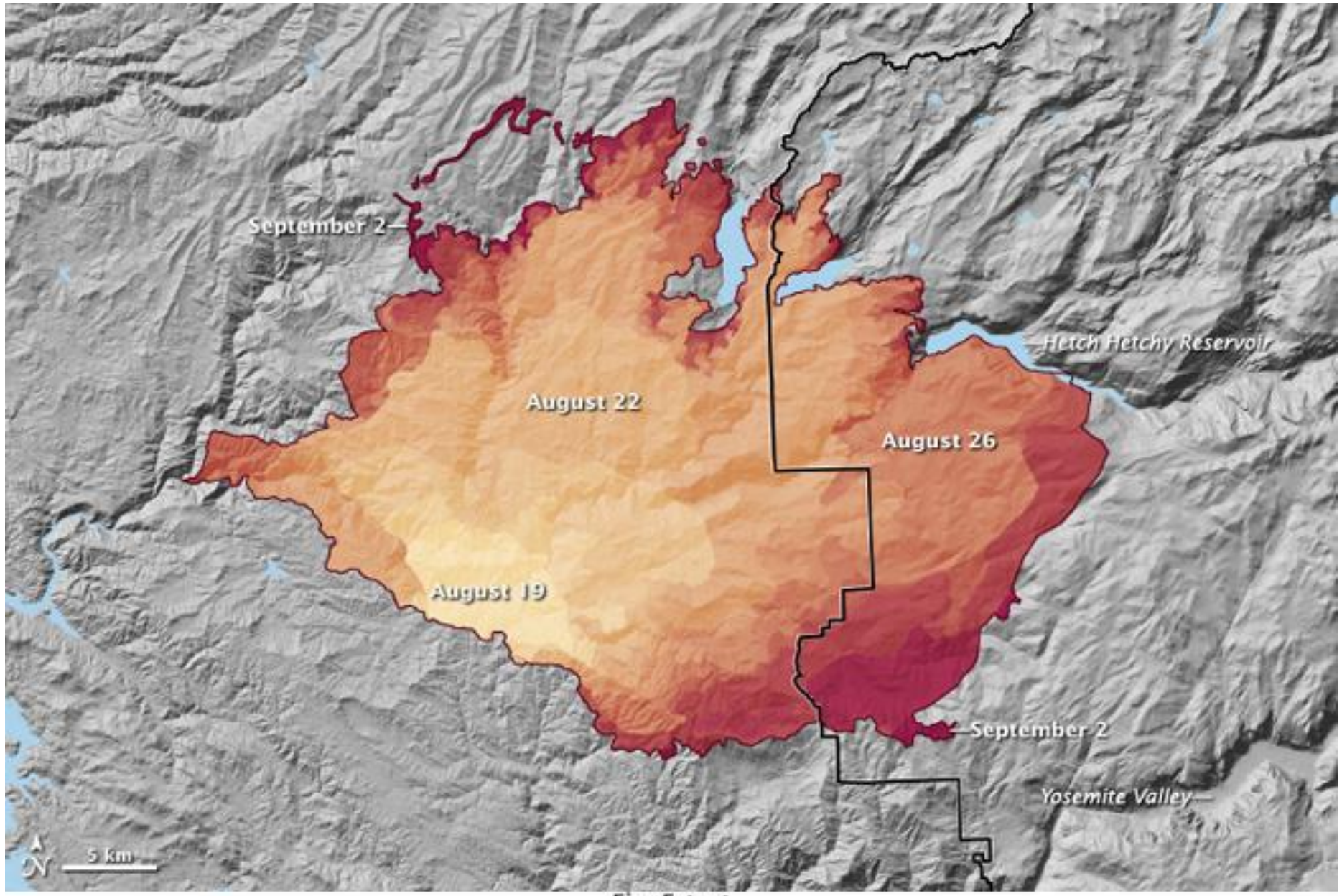


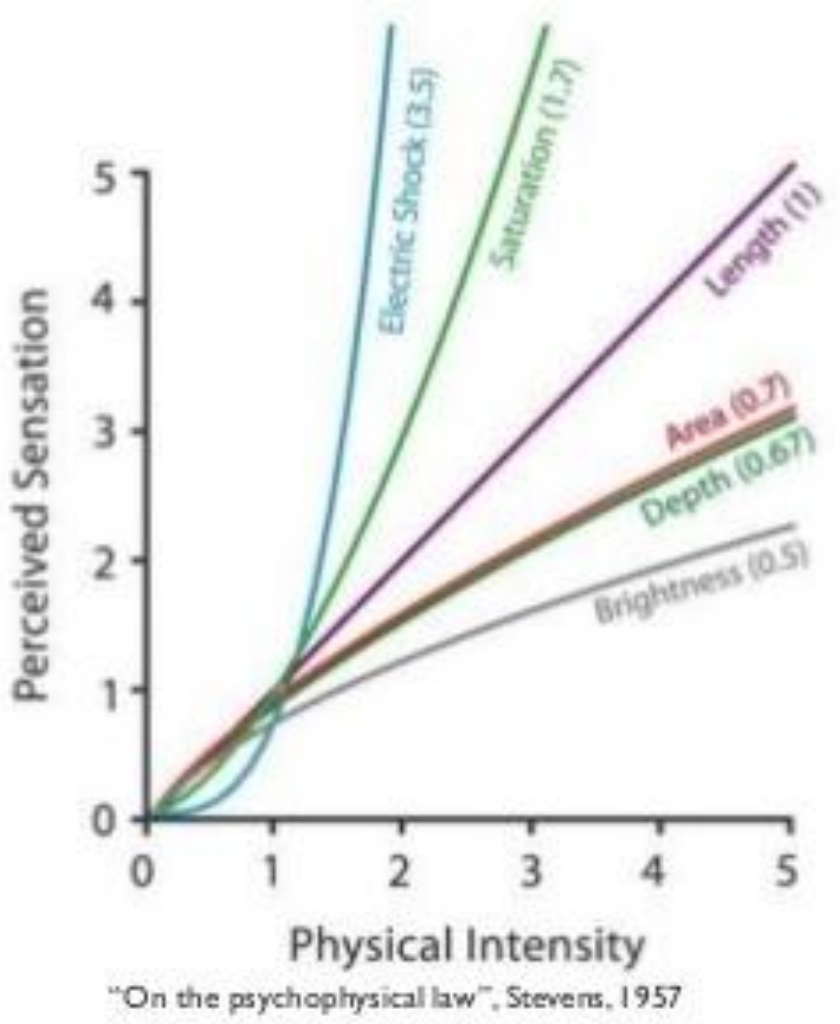
Image from *Borland & Taylor II (2007), Rainbow Color Map (Still) Considered Harmful. IEEE Visualization Viewpoints, pp 14-17.*


Rim Incident
CA-STF-002857
August 31, 2013
Progression Map
Legend
20130817 - 442 Total Acres
20130818 - 370 Acres (812 Total Acres)
20130819 - 3,530 Acres (4,342 Total Acres)
20130820 - 4,910 Acres (9,252 Total Acres)
20130821 - 6,952 Acres (16,204 Total Acres)
20130822 - 37,625 Acres (53,829 Total Acres)
20130823 - 51,793 Acres (105,622 Total Acres)
20130824 - 17,222 Acres (122,844 Total Acres)
20130825 - 11,159 Acres (134,003 Total Acres)
20130826 - 15,720 Acres (149,723 Total Acres)
20130827 - 14,430 Acres (164,153 Total Acres)
20130828 - 18,431 Acres (182,584 Total Acres)
20130829 - 9,961 Acres (192,545 Total Acres)
20130830 - 9,250 Acres (201,795 Total Acres)
20130831 - 219,277 Total Acres
N
Miles
0
1
2

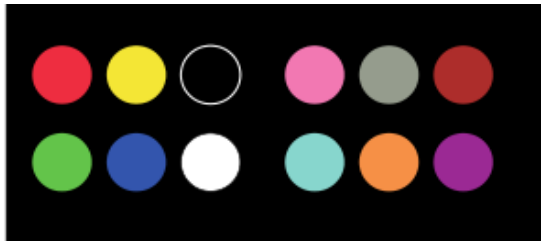

September 2
August 22
August 26
August 19
Hetch Hetchy Reservoir
September 2
Yosemite Valley
N
5 km
Fire Extent
August 19
August 26
September 2

Colour

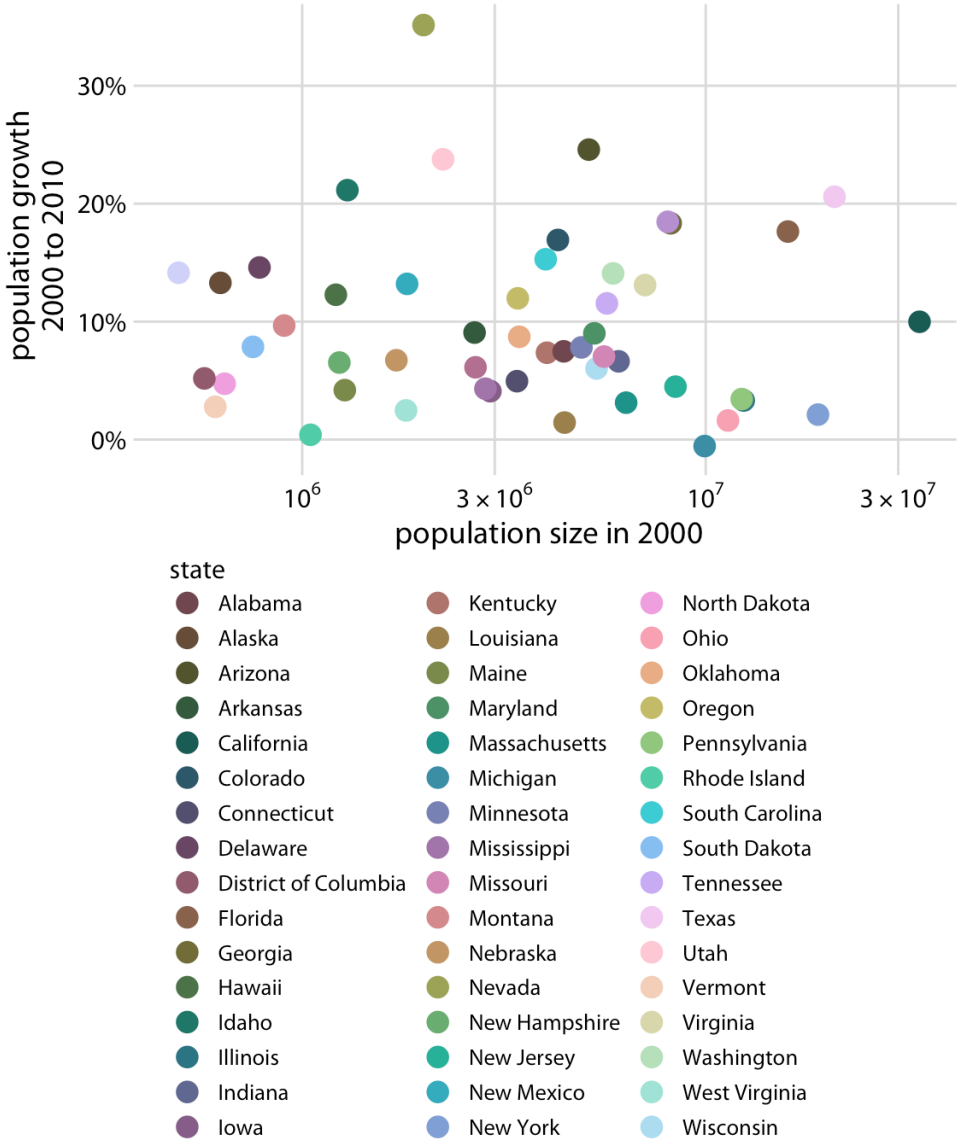
- Use Carefully!
- Stick to 5-8 colours (less is more)
  - Good contrast
  - Works in grayscale and for colour vision deficiencies (no red & green)



"On the psychophysical law", Stevens, 1957

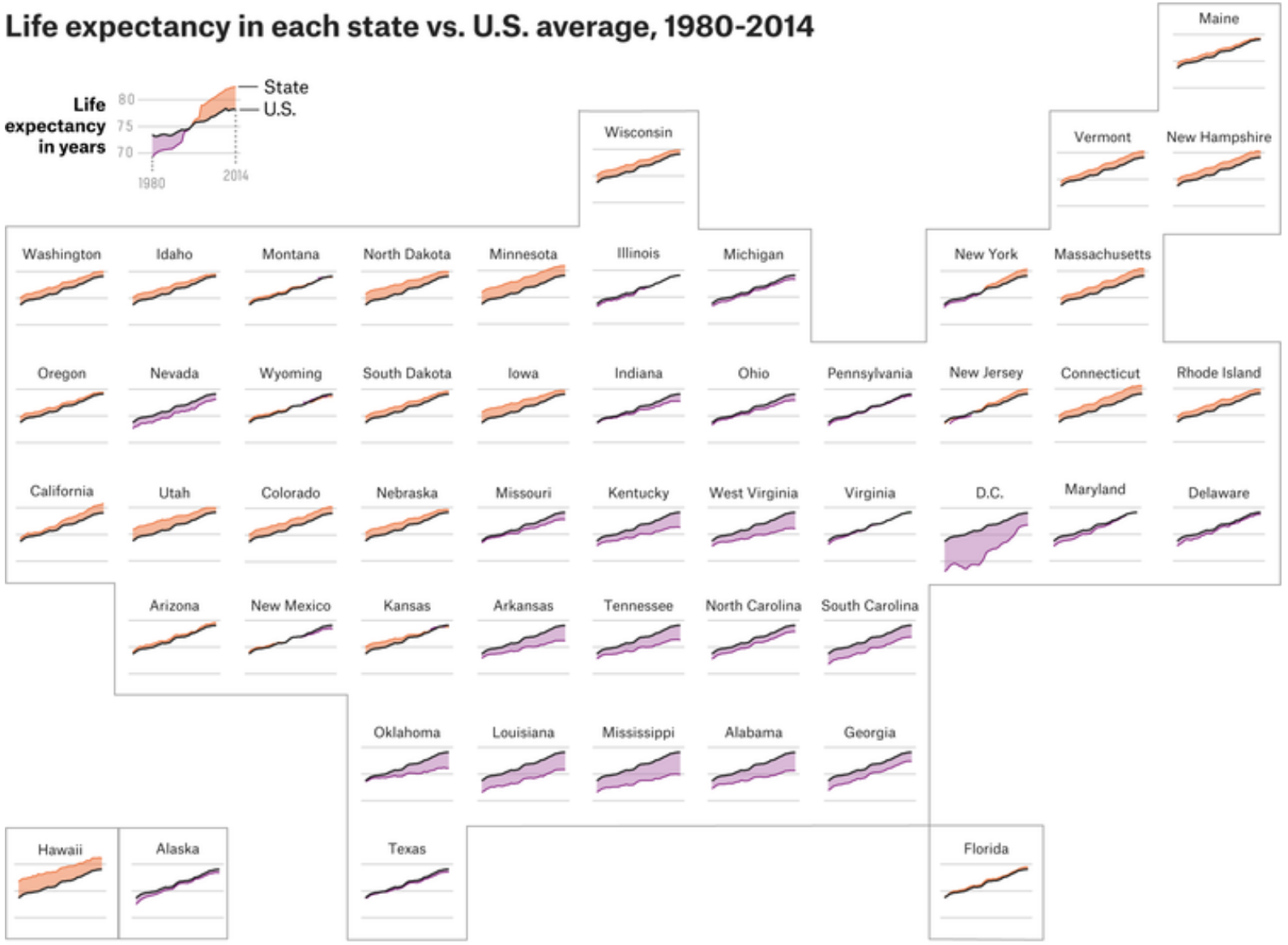


Too many colours



from https://clauswilke.com/dataviz/color-pitfalls.html

Life expectancy in each state vs. U.S. average, 1980-2014



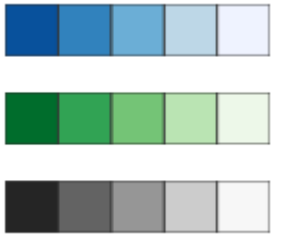
FiveThirtyEight

SOURCE: INSTITUTE FOR HEALTH METRICS AND EVALUATION

Colour Scales

Sequential (dark to light or light to dark)

- Quantitative data or ordered qualitative data
- Single or multiple hues

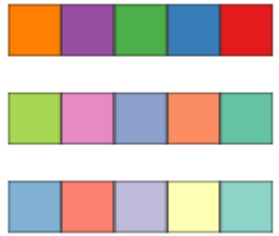


Diverging (dark in 1 hue to light to dark in a different hue)

- Quantitative data or ordered qualitative data
- Use if there is a meaningful middle point

Categorical

- Qualitative data
- Give hues different brightness so that they appear distinct in grayscale
- Be careful with red & green



Color scales from ColorBrewer 2.0

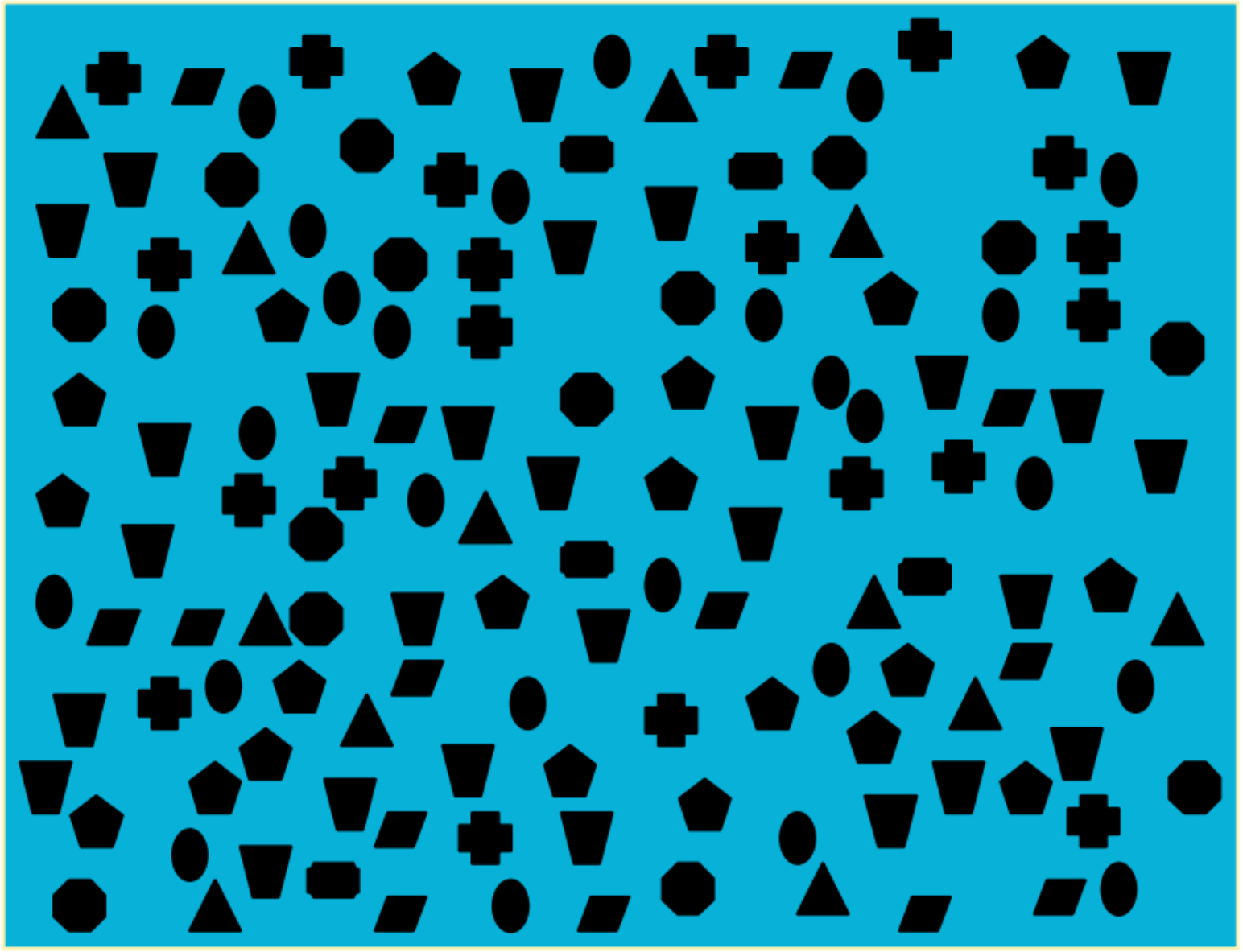
Visual Variables & Data

Variable	Categorical	Order	Quantitative	Length
Size	Yes	Yes	1D: Yes 2: Somewhat 3D: No	5/20
Position	Yes	Yes	Yes	Infinite
Shape	Yes	No	No	5 / Infinite
Lightness & Saturation	Yes	Yes	No	7 / 10
Hue	Yes	Not advisable	Not advisable	7 / 10
Angle	Yes	No	No	4 / 8
Texture	Yes	No	No	Infinite

Semiology of Graphics by Jacques Bertin. 1967.

M.S.T. Carpendale. Considering Visual Variables as a Basis for Information Visualisation. Research report 2001-693-16, Department of Computer science, University of Calgary, 2003.

Shape



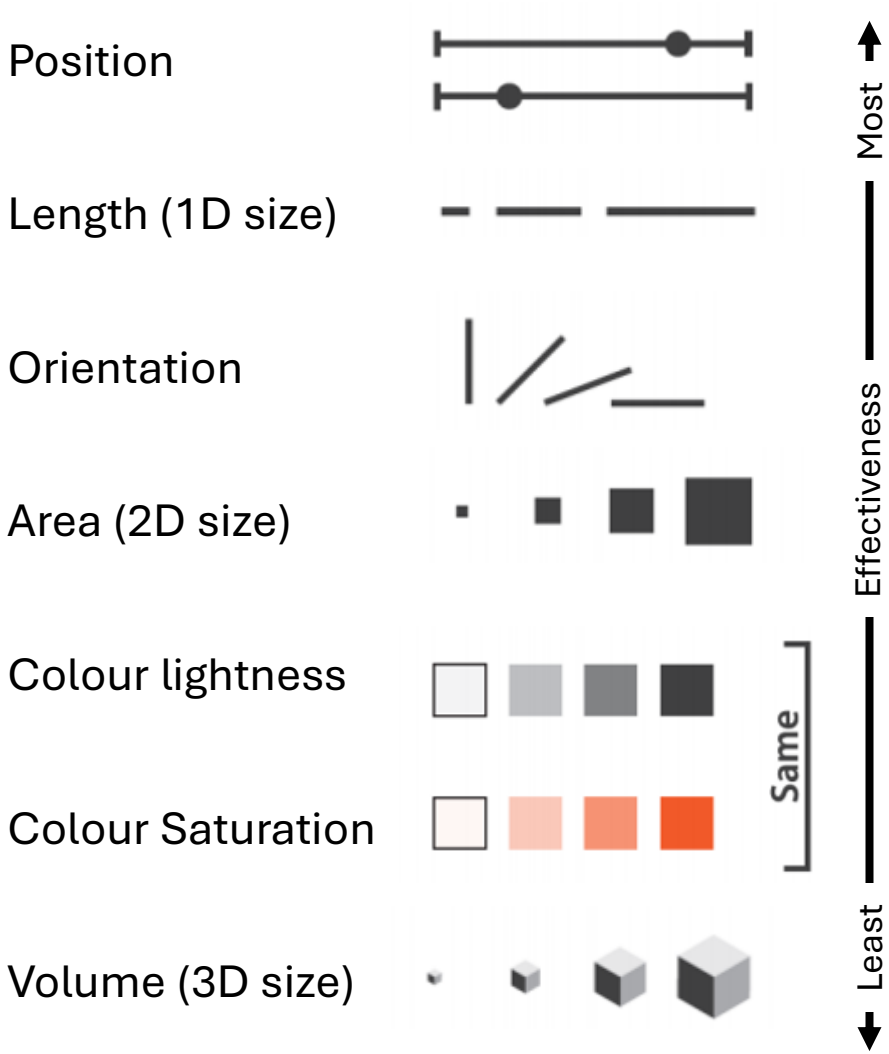
Visual Variables & Data

Variable	Categorical	Order	Quantitative	Length
Size	Yes	Yes	1D: Yes 2: Somewhat 3D: No	5/20
Position	Yes	Yes	Yes	Infinite
Shape	Yes	No	No	5 / Infinite
Lightness & Saturation	Yes	Yes	No	7 / 10
Hue	Yes	Not advisable	Not advisable	7 / 10
Angle	Yes	No	No	4 / 8
Texture	Yes	No	No	Infinite

Semiology of Graphics by Jacques Bertin. 1967.

M.S.T. Carpendale. Considering Visual Variables as a Basis for Information Visualisation. Research report 2001-693-16, Department of Computer science, University of Calgary, 2003.

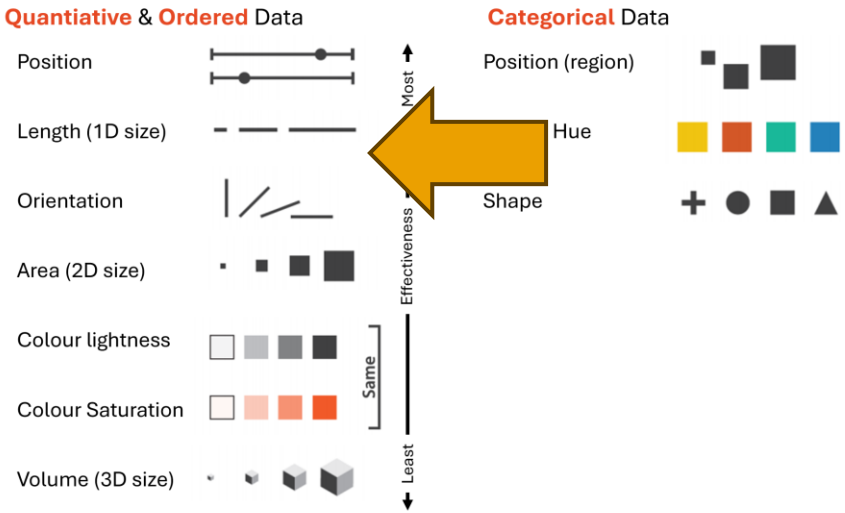
Quantiative & **Ordered** Data

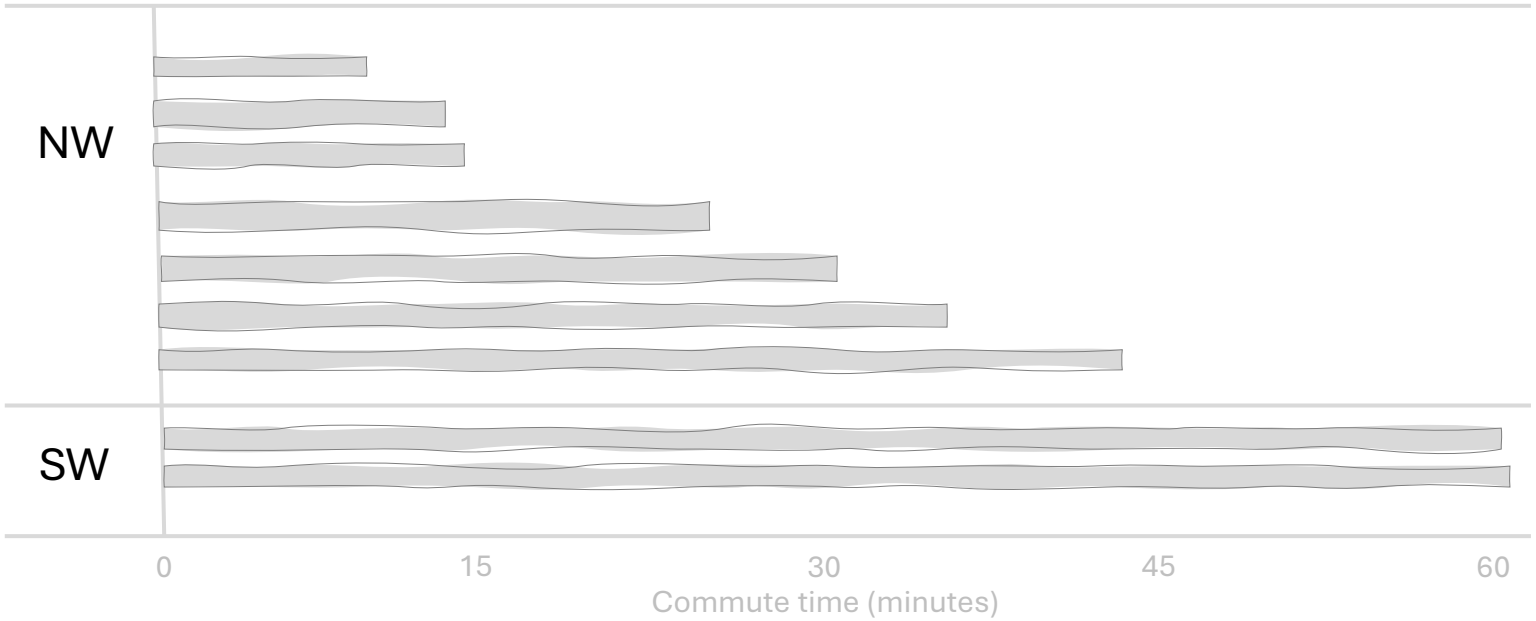


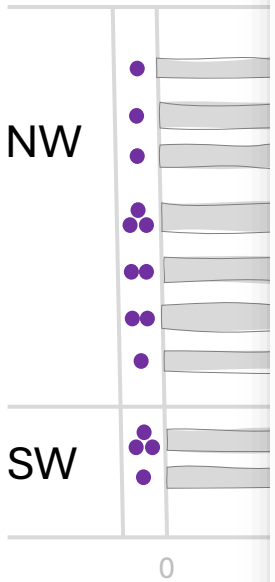
Categorical Data

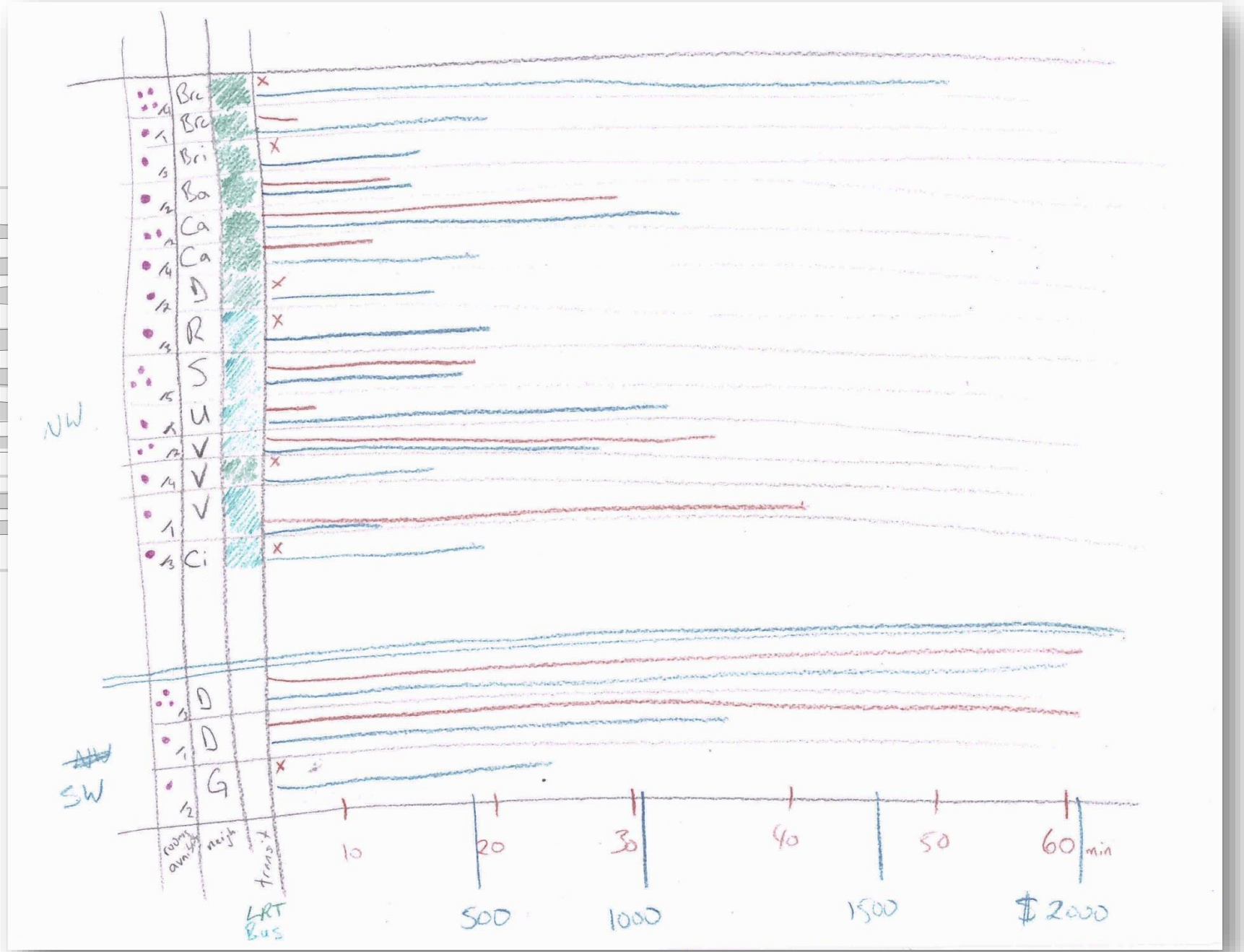
From ***Visual Analysis & Design*** by Tamara Munzner

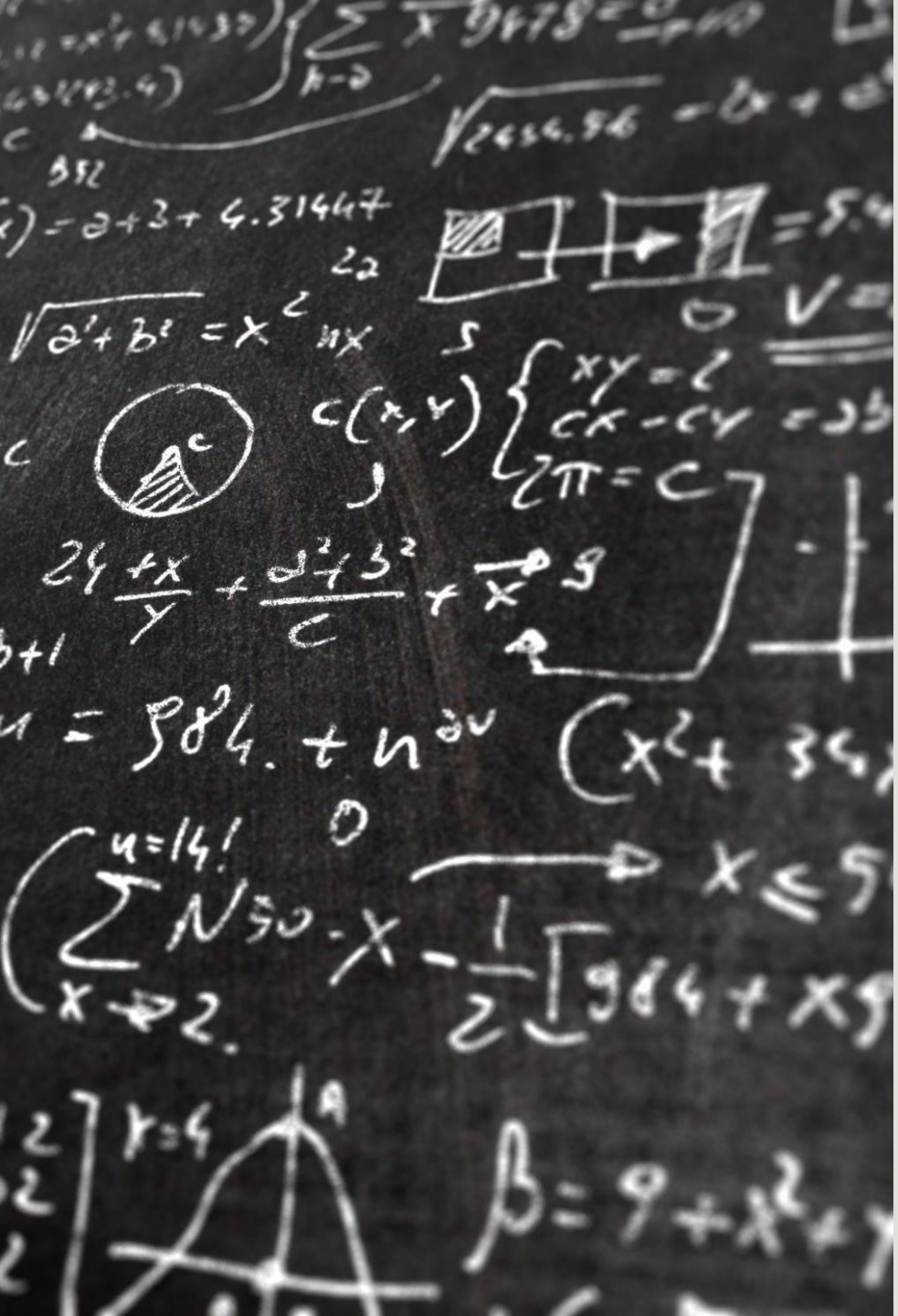
Quad.	Neighbourhood	Type	Rooms Available	# People at Residence	Rent	Dam. Dep.	Transit	Walking Time to Uni	Date Available	Pets	Furn-ished	Smok-ing	Gender	Private Entr.	Private Bath	Includes Utilities
NW	Dalhousie	Room	1	2	500	500	LRT	NA	01-May	No	Yes	No	Any	Yes	No	No
NW	Brentwood	House	4	4	1750	1750	LRT		01-Jul	No	Yes	No	Any	Yes	Yes	Yes
NW	Capitol Hill	Basemt	2	2	1150	1150	LRT	30	01-Apr	No	No	No	Any	Yes	Yes	Shared
NW	Varsity	Room	2	4	370	370	Bus	35	28-Mar	No	Yes	No	Any	Yes	No	Yes
NW	St Andrews	Condo	3	5	575	575	Bus	20	01-May	No	Yes	No	Male	No	No	Shared
NW	Ranchlands	Room	1	3	600	600	Bus	NA	01-May	No	Yes	No	Male	Yes	No	Yes
NW	Uni. Heights	Apt	1	1	1100	1100	Bus	10	01-May	No	No	No	Male	Yes	Yes	Heat+Water
NW	Varsity	Apt	1	1	919	699	Bus	40	01-Apr	Cats	No	No	Any	Yes	Yes	Heat+Water
NW	Varsity	Room	1	4	440	100	LRT	NA	01-May	No	Yes	No	Female	No	Yes	Yes
NW	Citadel	Room	1	3	550	550	Bus	NA	01-May	Other	No	Neg.	Any	No	No	Shared
NW	Brentwood	Basemt	1	1	500	500	LRT	7	01-Apr	No	Yes	No	Male	Yes	Yes	Yes
NW	Capitol Hill	Room	1	4	500	350	LRT	12	01-May	Cats	Yes	No	Female	Yes	Yes	Yes
NW	Briar Hill	House	1	3	500	200	LRT		01-May	No	Yes	No	Any	No	Yes	Yes
NW	Banff Trail	Room	1	2	450	460	LRT	14	01-May	No	Partial	No	Female	No	No	Yes
SW	Downtown	Apt	3	3	1989	699	LRT	60	18-Mar	Yes	No	No	Any	Yes	Yes	Yes
SW	Downtown	Apt	1	1	1209	499	LRT	60	18-Mar	No	No	No	Any	Yes	Yes	Yes
SW	Glamorgan	Apt	1	2	700	350	Bus	NA	01-Jun	No	No	No	Any	Yes	No	Yes






NW
SW
0


NW
SW
10
20
30
40
50
60 min
500
1000
1500
$2000
LRT
Bus



Sketching

Fast & easy

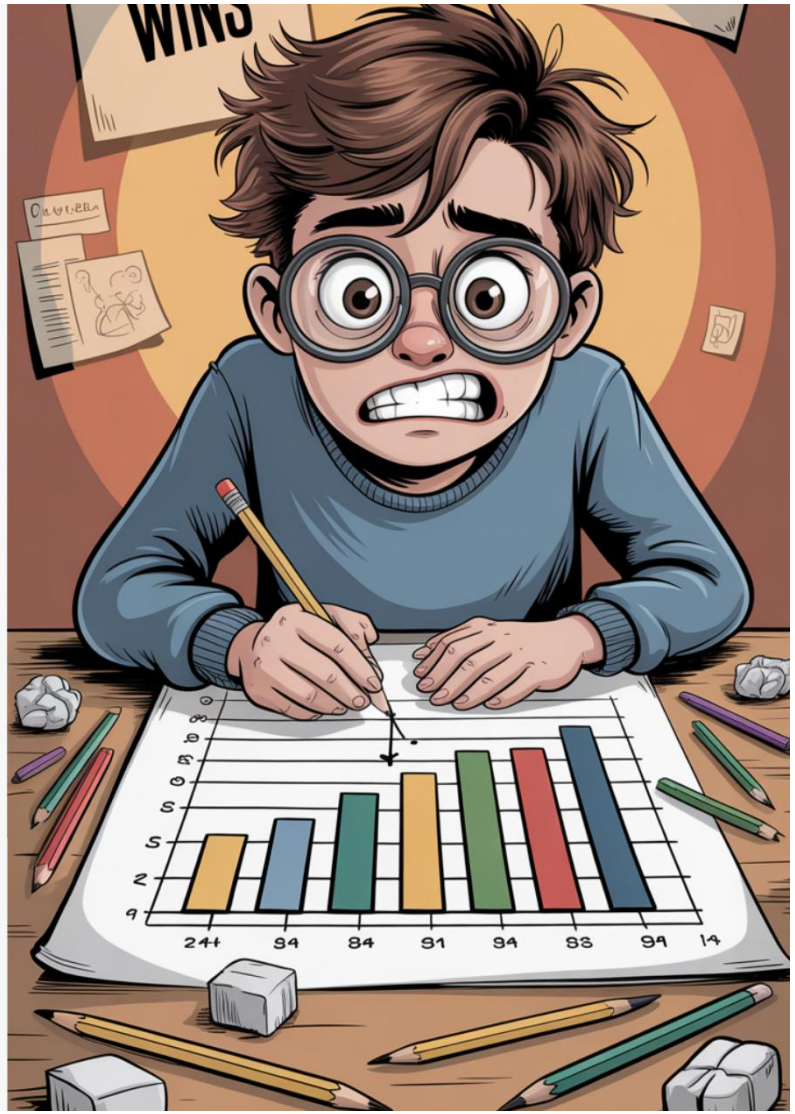
- Encourages exploration
- Easier to iterate & discard

Not bound by software / data limitations

Learn about your data / find problems

Explore the “design space” rather than software capabilities

Avoiding Visualization Mistakes



Visualization ~~Rules~~ Advice

"Avoid chart junk at all costs"

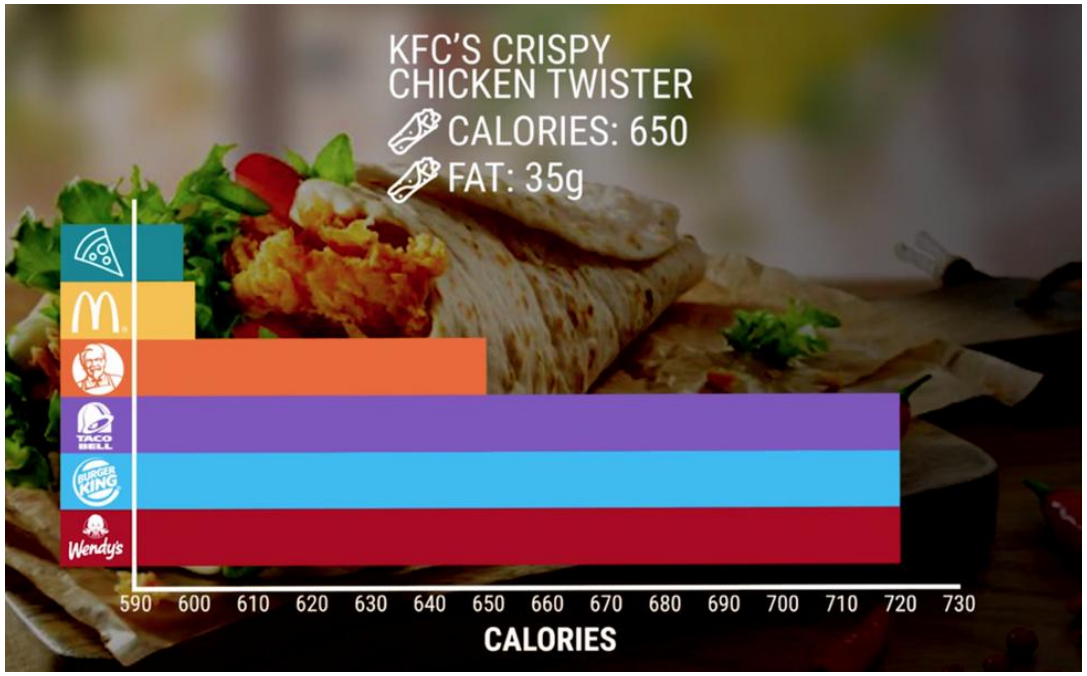
"Never use pie charts"

"Bright colors don't work"

"No rainbow color-maps"

- These are all very situationally dependent
- Make sure you have reasons for breaking them
- Beware of fanatics

Misuse of Size



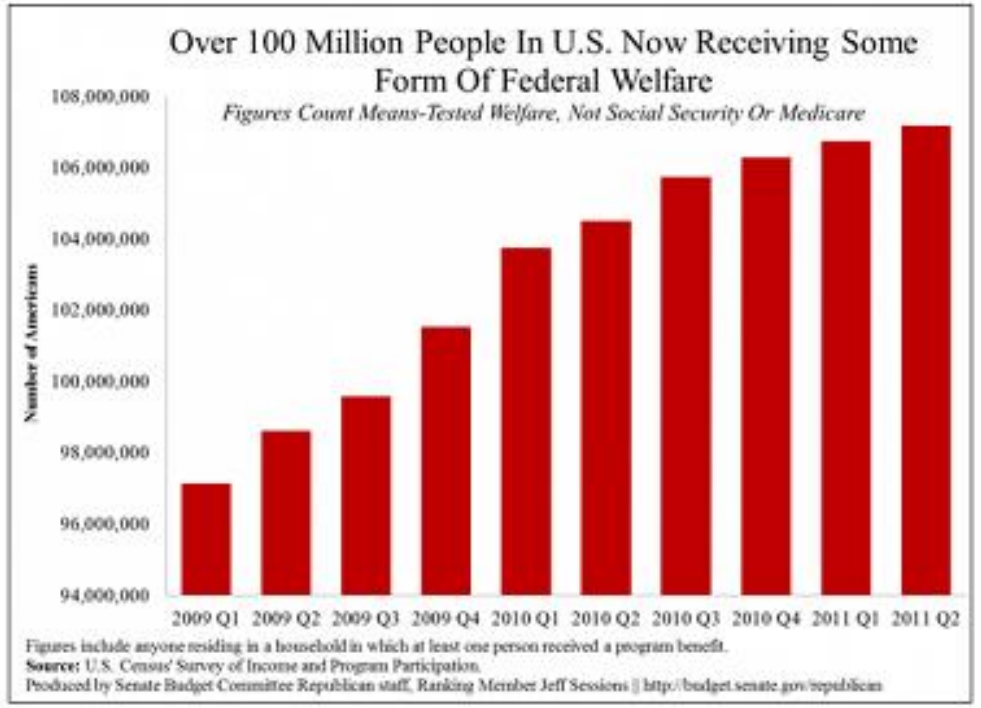
https://www.reddit.com/r/dataisugly/comments/6aaep3/found_on_business_insider/

THE BLOG

Over 100 Million Now Receiving Federal Welfare

2:40 PM, AUG 8, 2012 • BY DANIEL HALPER

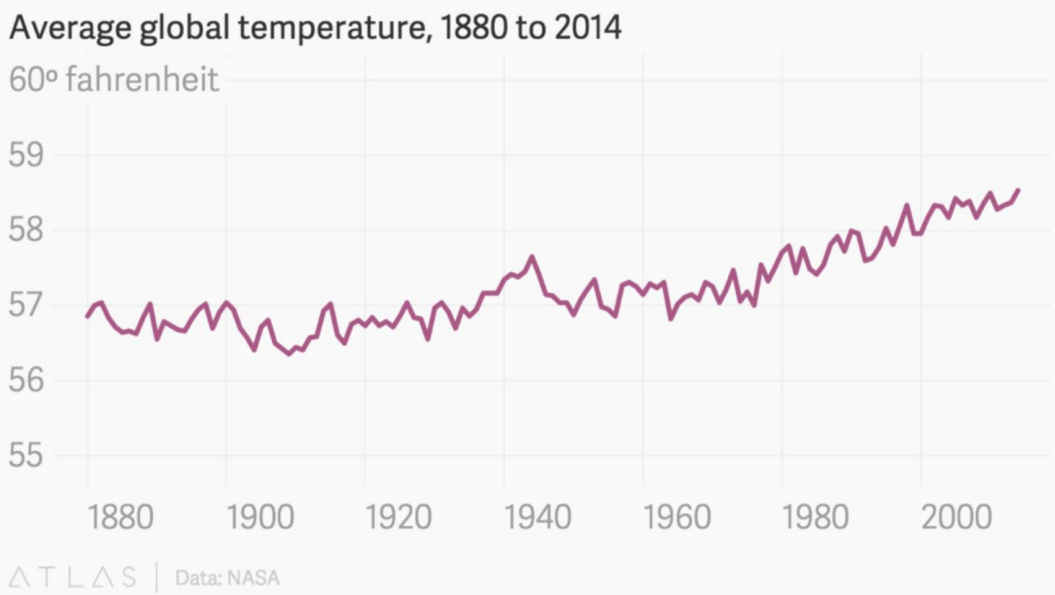
A new chart set to be released later today by the Republican side of the Senate Budget Committee details a startling statistic: "Over 100 Million People in U.S. Now Receiving Some Form Of Federal Welfare."



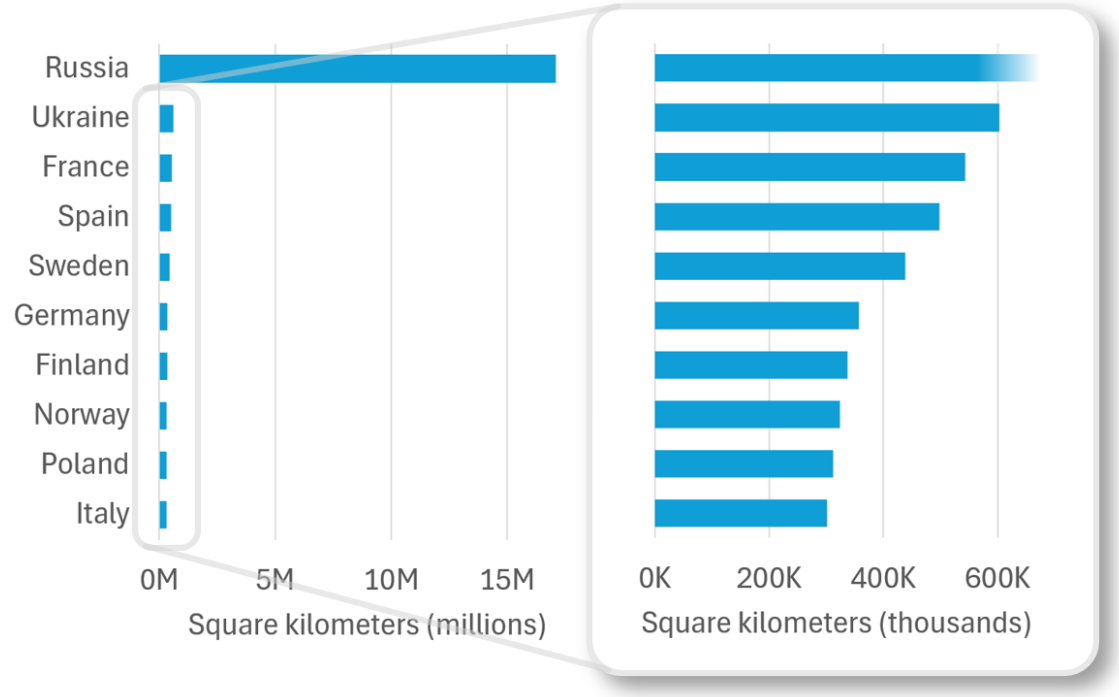
https://nbc24.com/news/nation-world/jaw-dropping--over-100-million-now-on-federal-welfare

Misuse of Size – How to Fix

1) Use position instead of size



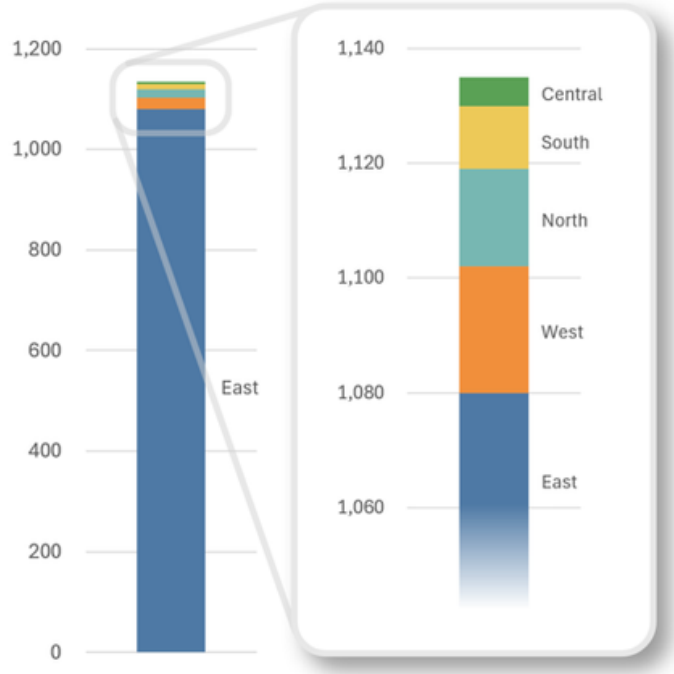
2) Add an inset



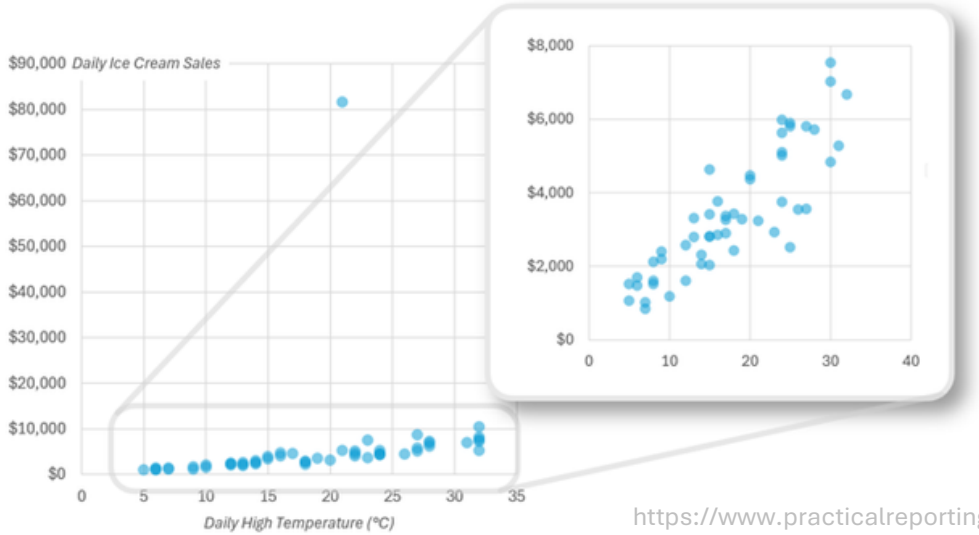
https://www.practicalreporting.com/blog/2025/5/26/wuk6wqavmiu61bl9v4i8uksw3gws3k

Monthly Expenses by Region, 2024

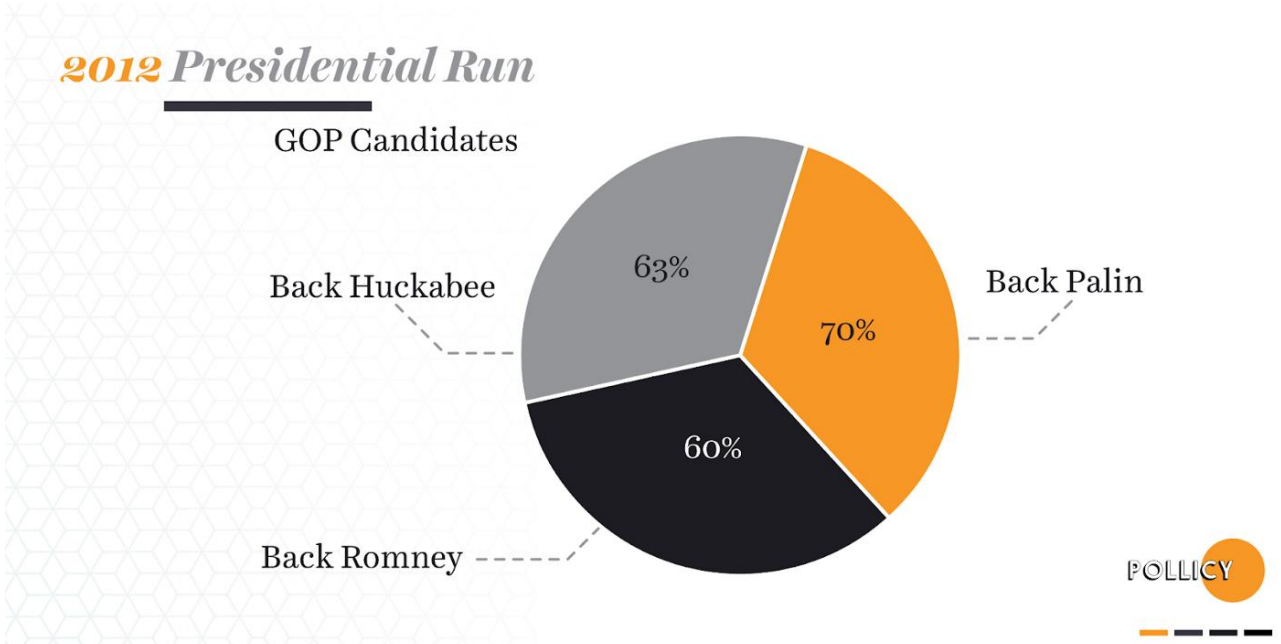
Headcount by Region, 2024

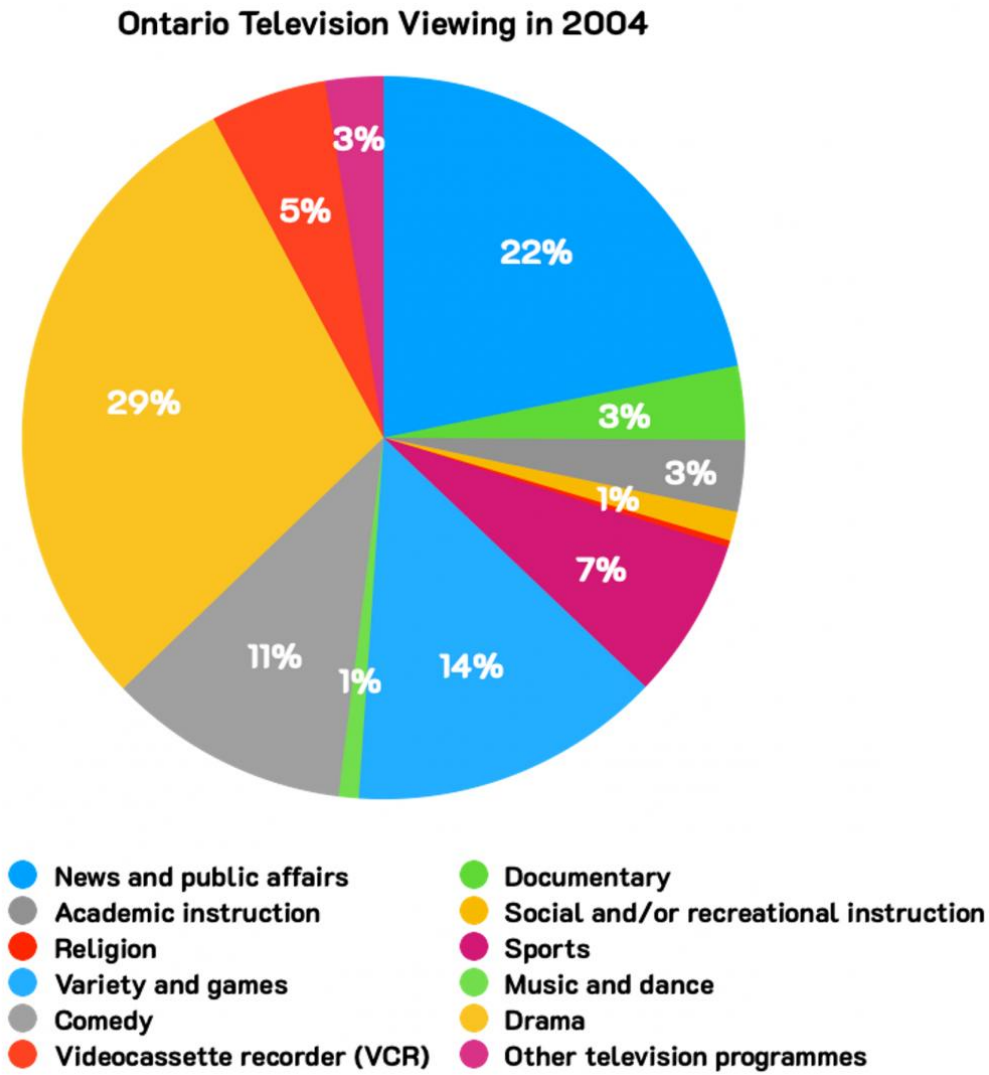


Daily High Temperature vs. Daily Ice Cream Sales, Summer 2024



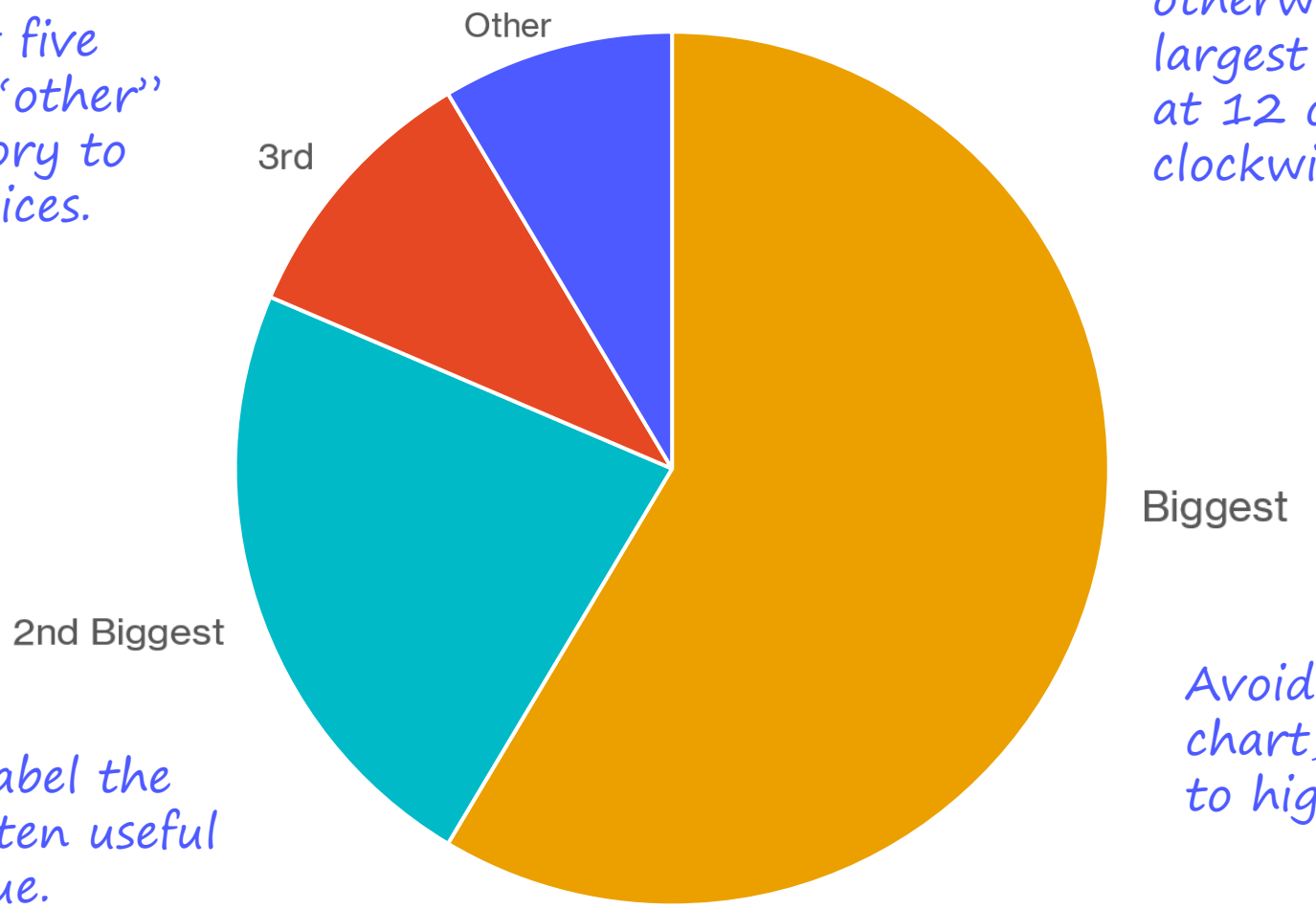
Pies


2012 Presidential Run
GOP Candidates
Back Huckabee
63%
Back Palin
70%
60%
Back Romney
POLLICY


Ontario Television Viewing in 2004
22%
3%
3%
1%
7%
14%
1%
11%
29%
5%
3%
News and public affairs
Academic instruction
Religion
Variety and games
Comedy
Videocassette recorder (VCR)
Documentary
Social and/or recreational instruction
Sports
Music and dance
Drama
Other television programmes

Pie Charts

Aim for at most five slices; make an "other" or "misc" category to combine small slices.

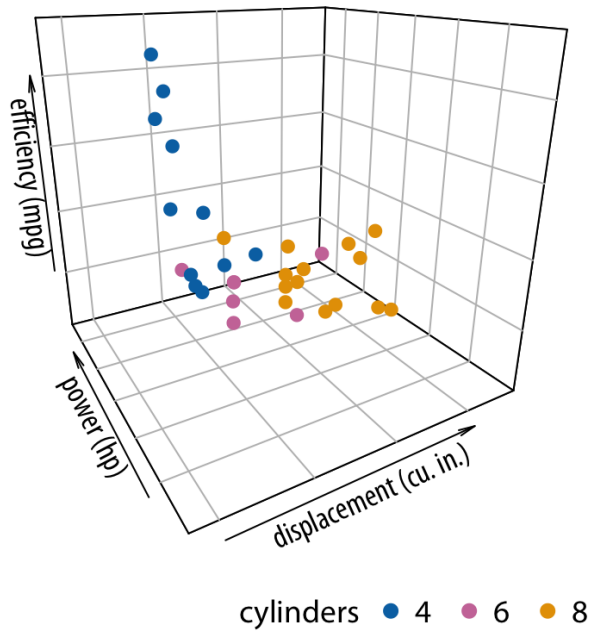


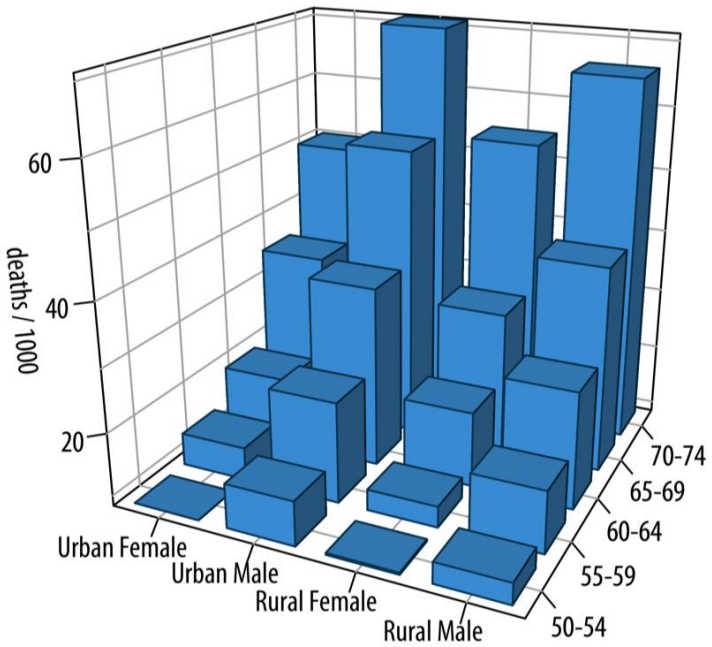
Unless there's a reason otherwise, sort from largest to smallest, start at 12 o'clock going clockwise.

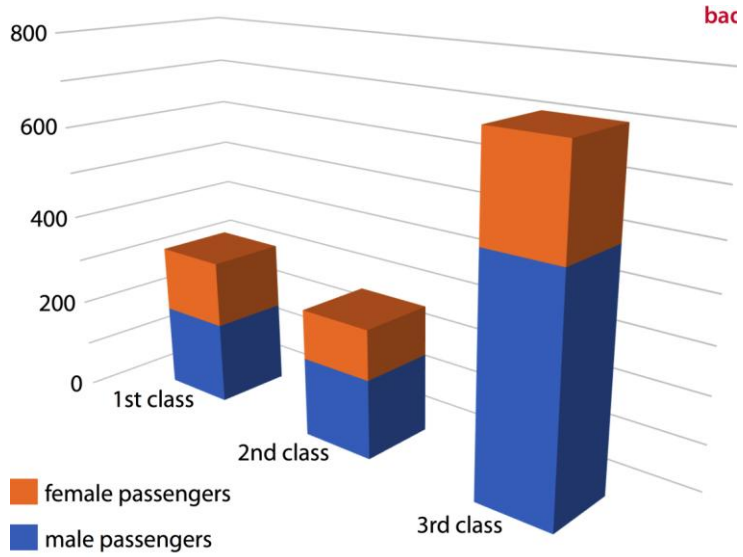
Skip the legend, label the slices directly. Often useful to include the value.

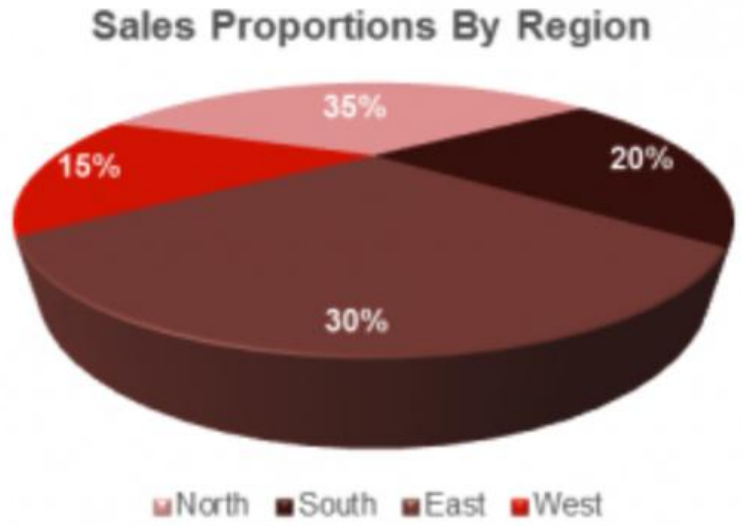
Avoid exploding the pie chart, use colour or borders to highlight.

Avoid 3D

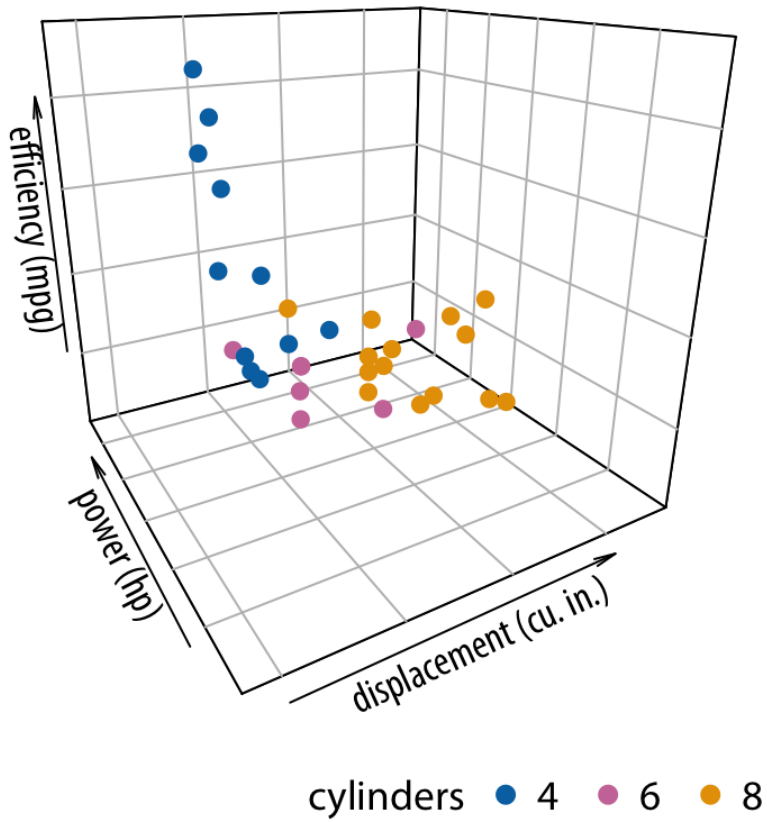

efficiency (mpg)
power (hp)
displacement (cu. in.)
cylinders 4 6 8

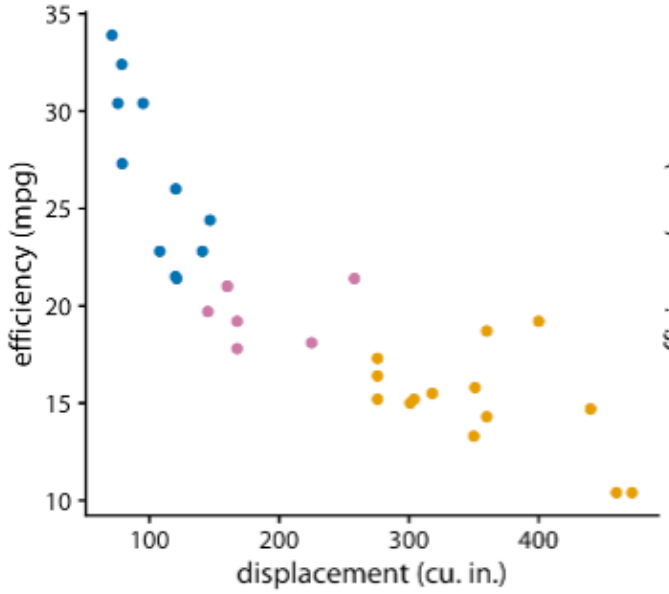

60
40
20
deaths / 1000
Urban Female
Urban Male
Rural Female
Rural Male
70-74
65-69
60-64
55-59
50-54

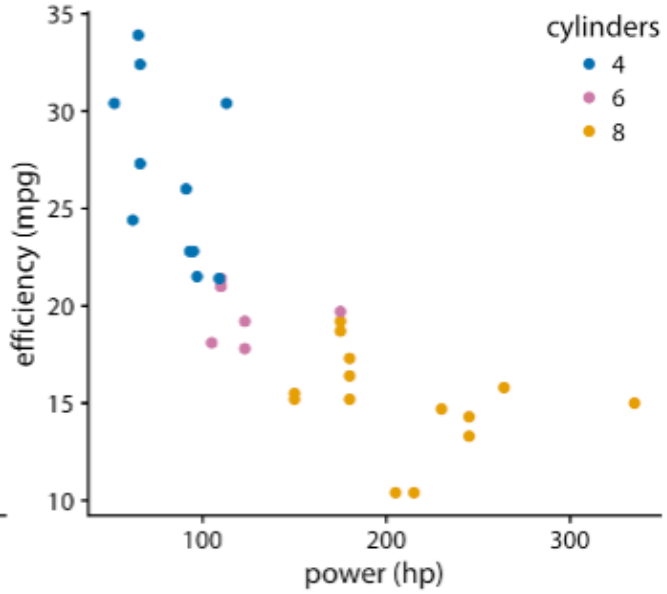

800
600
400
200
0
1st class
2nd class
3rd class
female passengers
male passengers

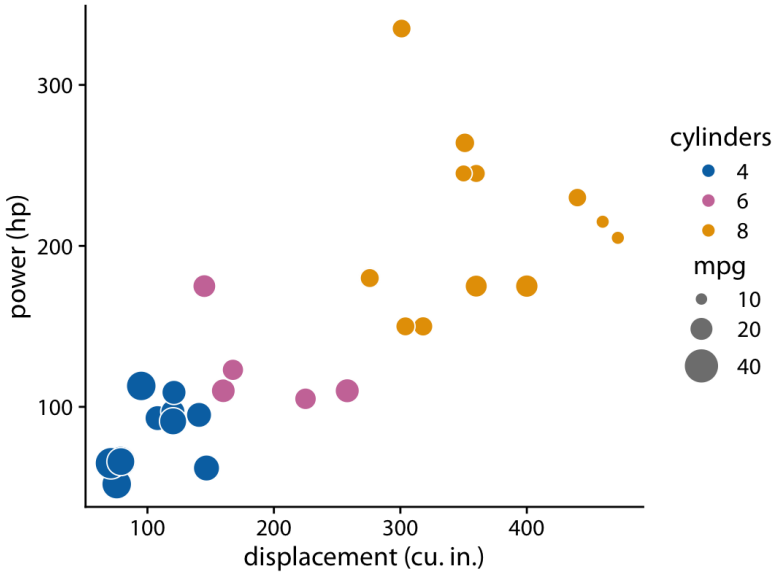

Sales Proportions By Region
35%
15%
20%
30%
North
South
East
West

Avoid 3D
Better solution



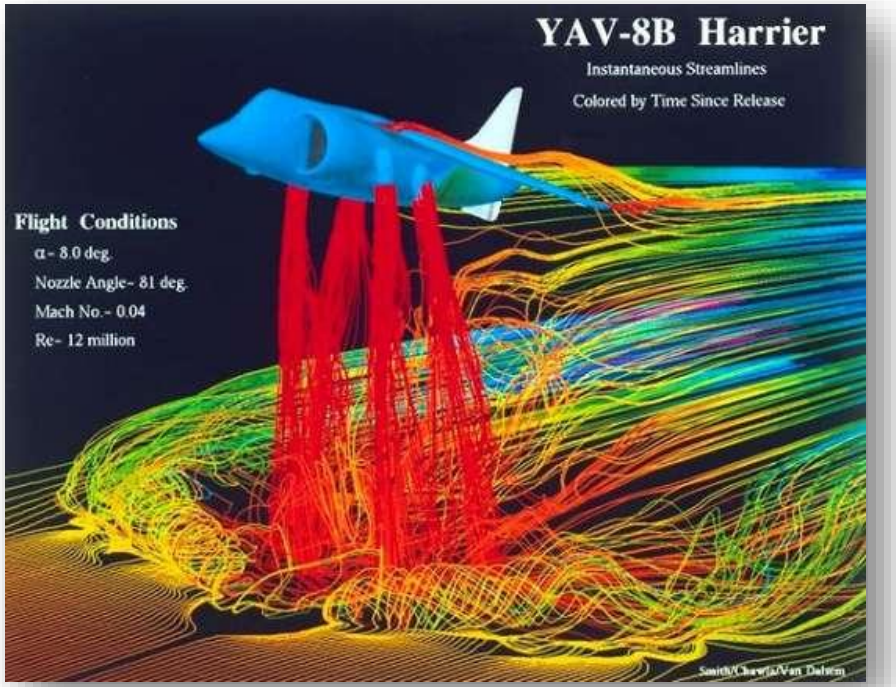




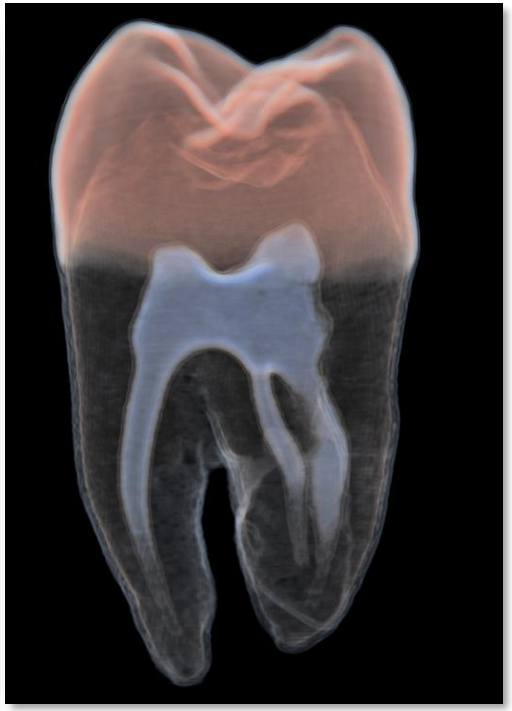


From https://clauswilke.com/dataviz/no-3d.html

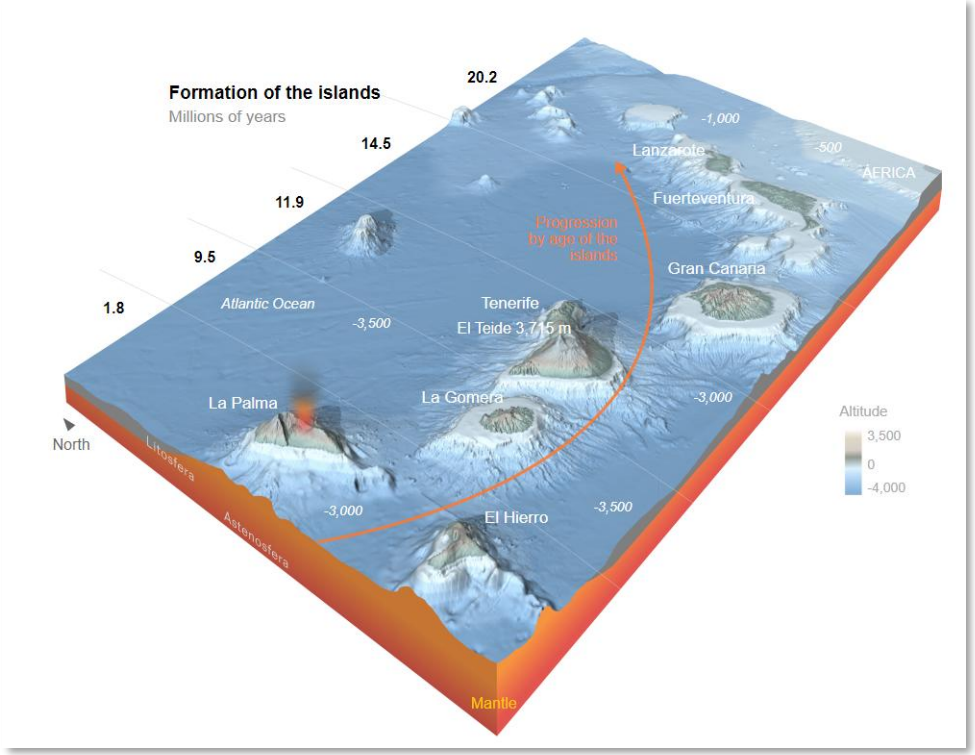
When to use 3D?



https://aerospaceweb.org/question/planes/q0102a.shtml



https://www.kitware.com/new-in-paraview-5-9-volume-rendering-with-a-separate-opacity-array/



https://english.elpais.com/science-tech/2021-10-06/the-underwater-hotspot-feeding-la-palmas-volcano-will-create-new-islands.html

Clutter: Data-ink Ratio

“A large share of ink on a graphic should present data-information, the ink changing as the data change. Data-ink is the non-erasable core of a graphic, the non-redundant ink arranged in response to variation in the numbers represented.”

- Edward Tufte, *The Visual Display of Quantitative Information, 1983*.

5 Principles

1. Above all else show data.
2. Maximize the data-ink ratio.
3. Erase non-data-ink.
4. Erase redundant data-ink.
5. Revise and edit

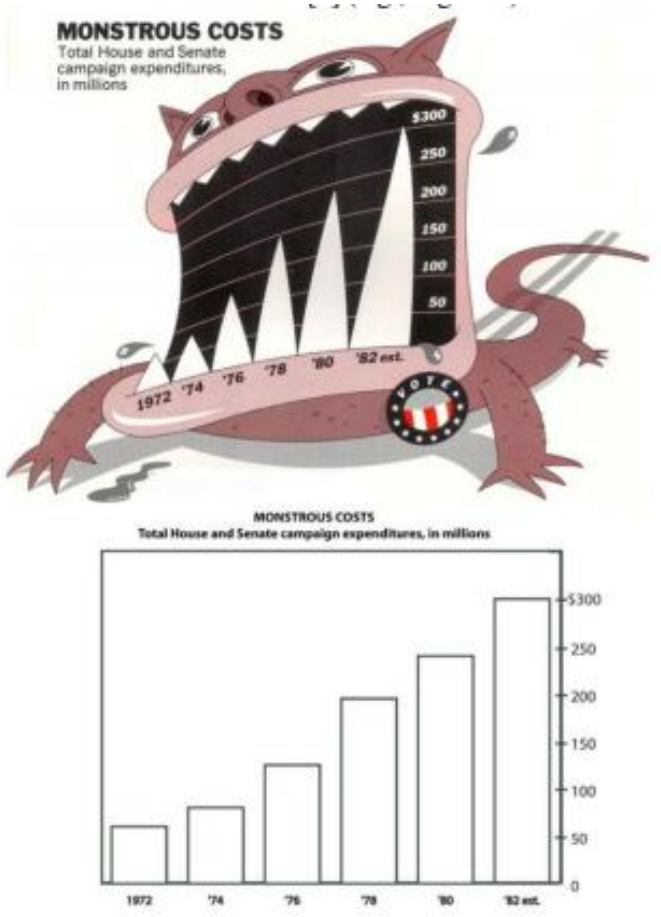
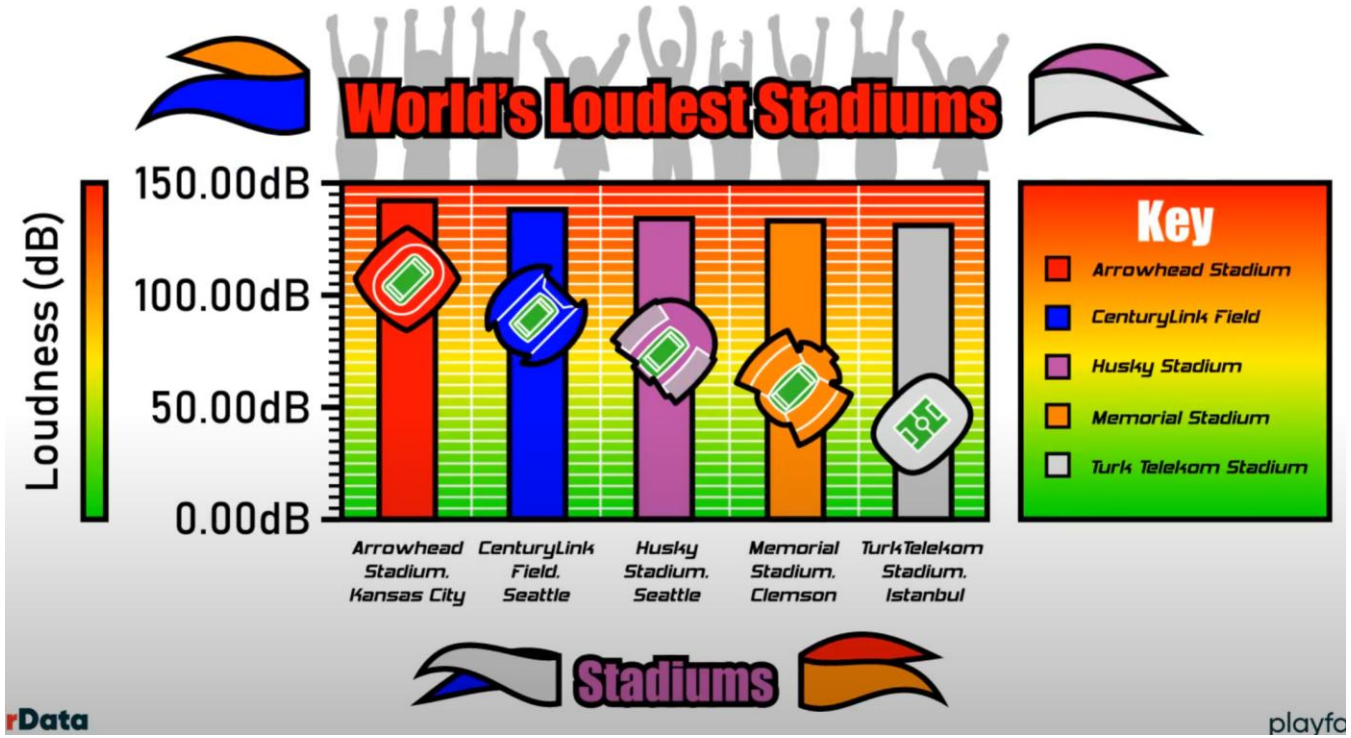
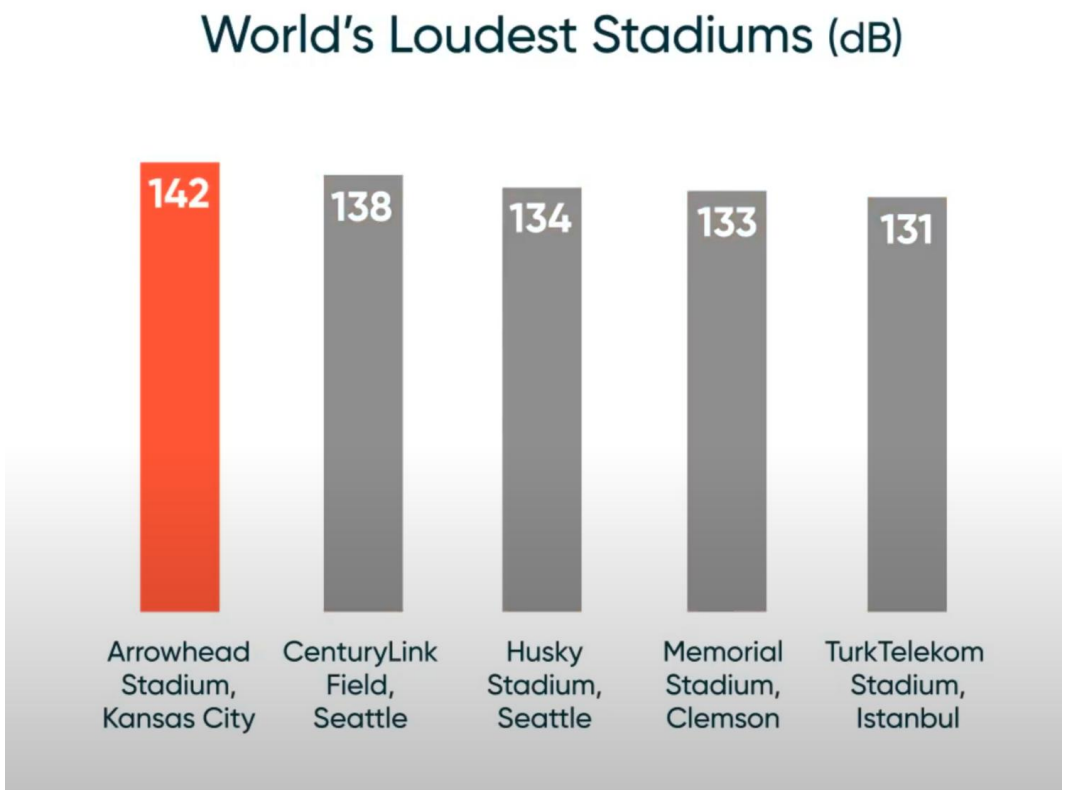


Figure 1. A chart by Holmes [7] (above), and a ‘plain’ version.

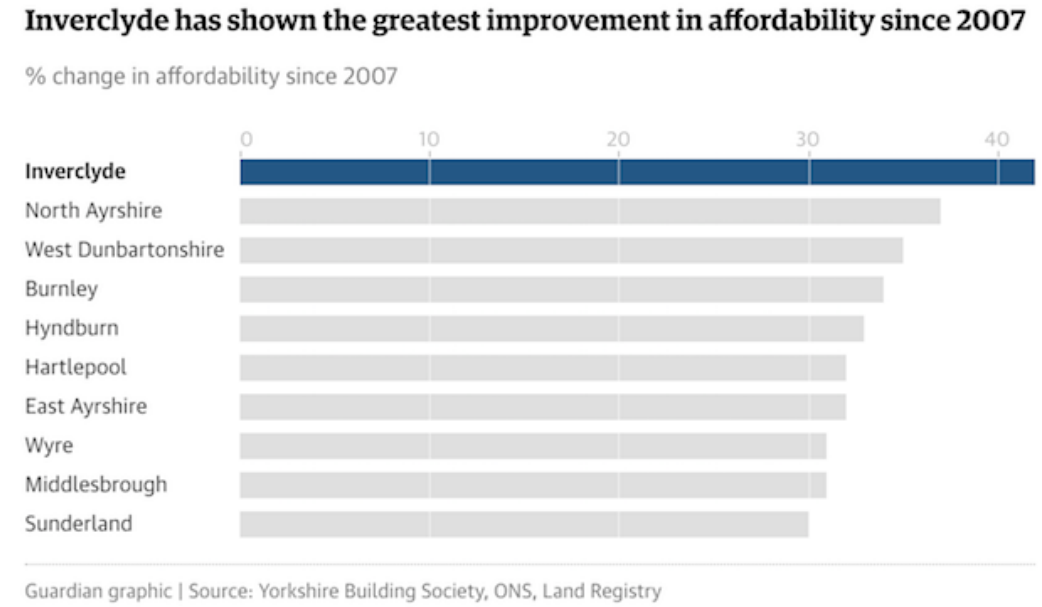


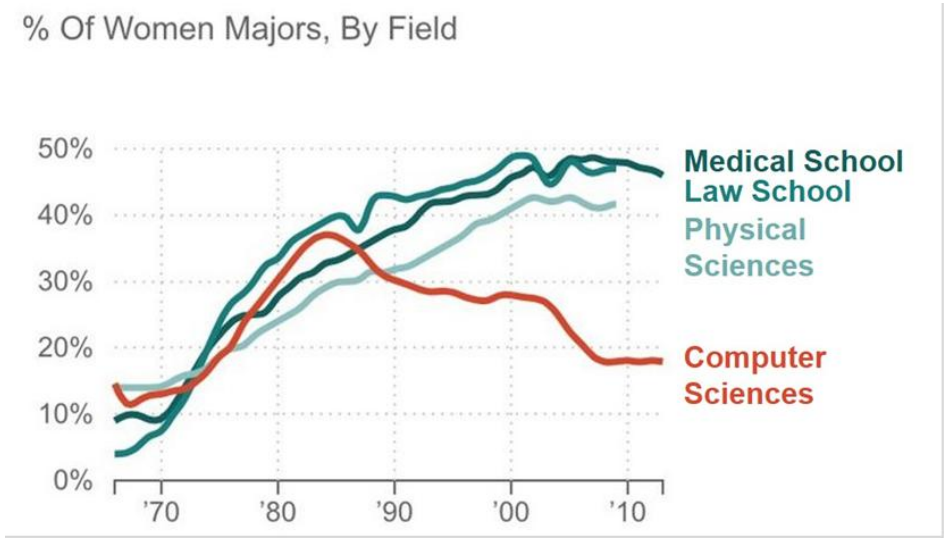


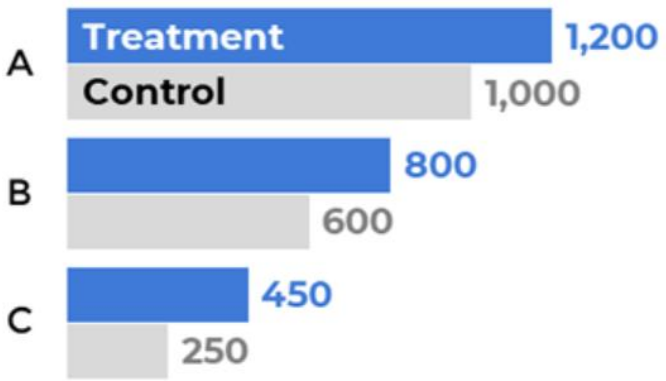
From https://playfairdata.com/data-ink-ratio-animation-and-how-to-apply-it-in-tableau/

Clutter

- Grid lines – very faint or “negatives”
- Legend – can you label directly?
- Do you need to draw the axis?
  Not if you have the values labelled.
- Usually no need for borders







Reproducible Visualizations

Data/file organization

Save raw data as well as intermediate copies

File names (dates, versions, project)

Document your data sources

Document your process

Scripts / operations used to clean and analyze the data

Filters used, range explored, visualization design choices

Tool versions

Save outputs in open formats

Data: csv, tsv, json, and other plain text formats

Figures: vector if possible (svg, pdf)

Data repository

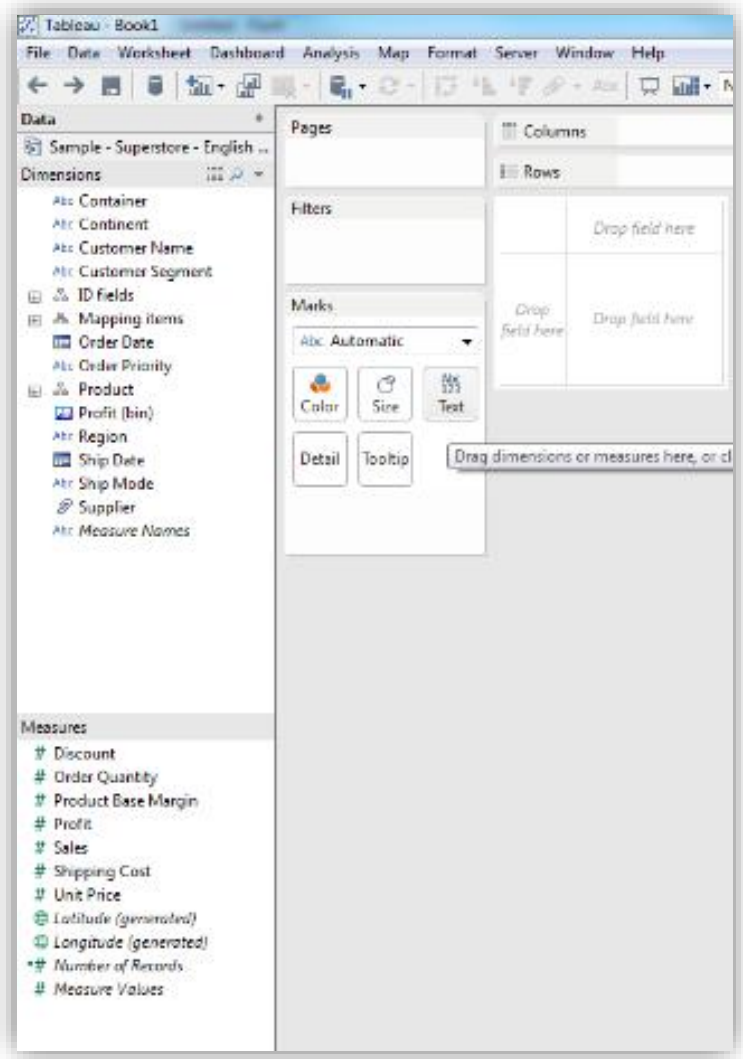
Data Vis Tools

Tools Handout: brosz.ca/slides/

Tableau

http://www.tableau.com/

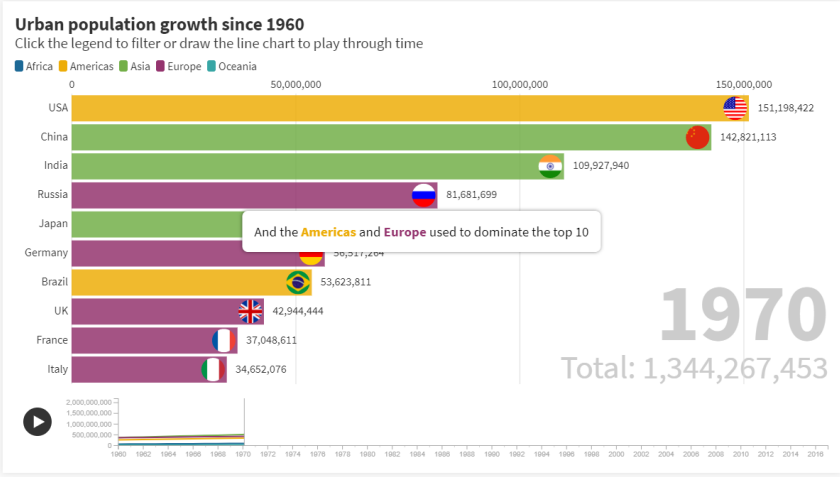
- Many chart types
- Interactive web output
- Access to underlying data
- Many data sources (live)
- Drag & drop – easy to experiment
- Maps
- Good defaults
- Link visualizations
- R can plugin
- Academic Program - Free for students

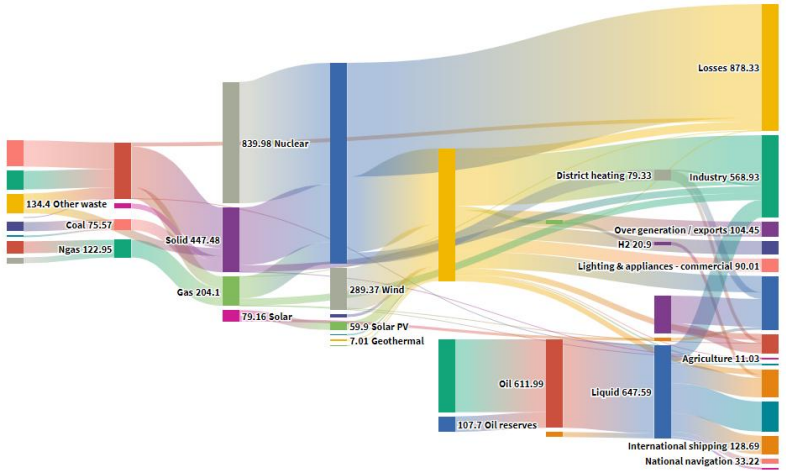


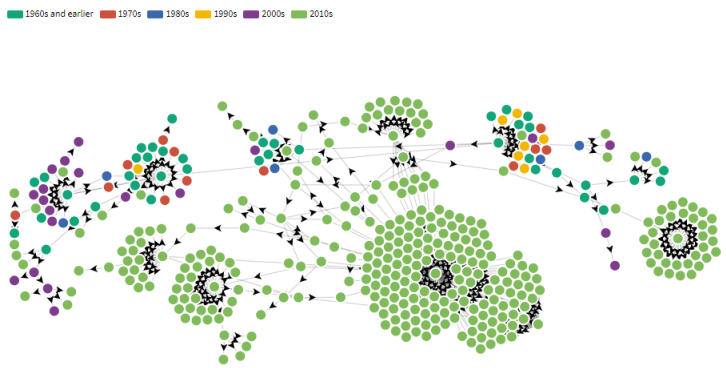
Flourish

https://flourish.studio/

- Interactive visualizations that can be embedded in websites
- Free (data shared publicly), paid otherwise
- Stick to relatively small datasets (< 10K)



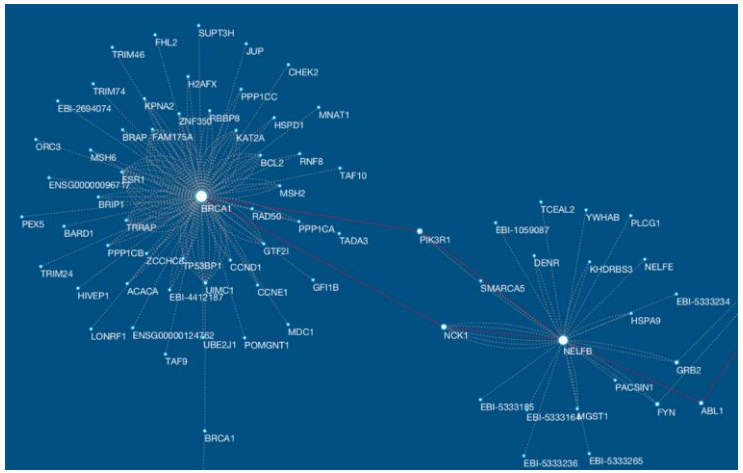


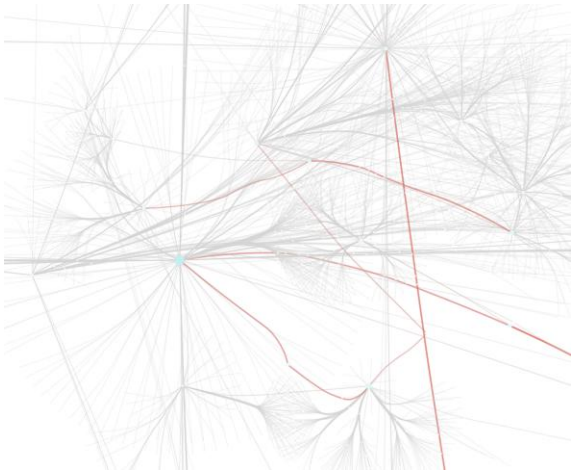


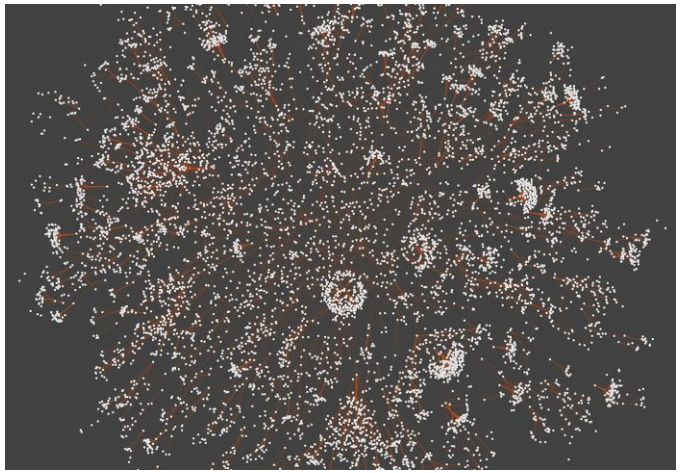
Cytoscape

https://cytoscape.org/

- Windows/Linux/OS X
- Created for bioinformatics
- Use cytoscape.js to bring your cytoscape projects to the web
- Apps (plugins) provide extra features





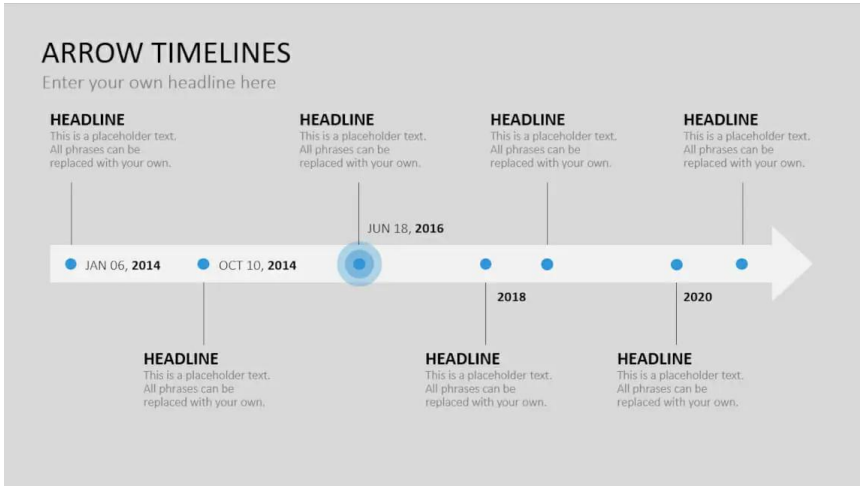


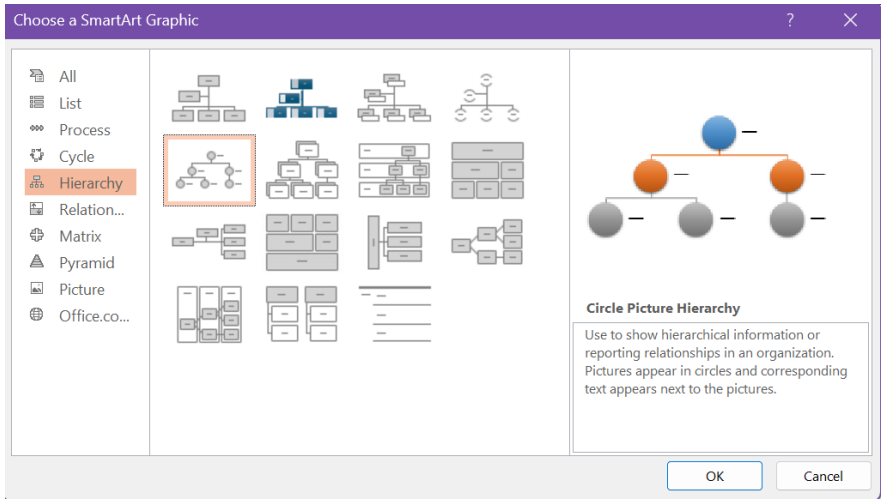
PowerPoint / Google Slides / Miro

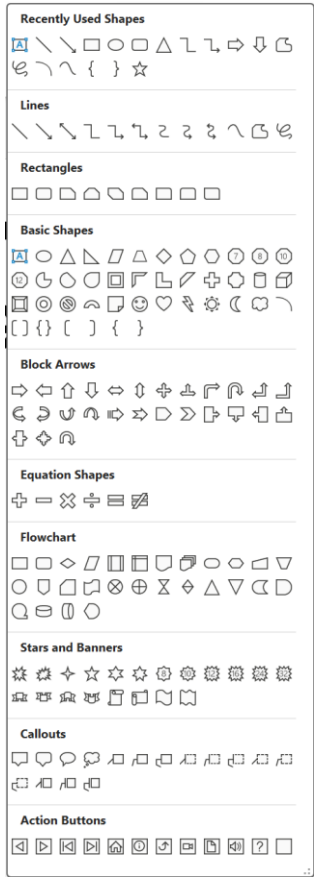
https://miro.com/

Use for

- Timelines
- Network or tree with less than 50 edges
- Custom visualizations
- Testing designs







Colour

Adobe Color - https://color.adobe.com/

- Pick great colour palettes
- Given this colour, pick complementary colours
- Color Blindness accessibility test

ColorBrewer - http://colorbrewer2.org/

- Help in choosing colours for maps
- Colourblind, printing, etc.

Color-Buddy - https://color-buddy.netlify.app/

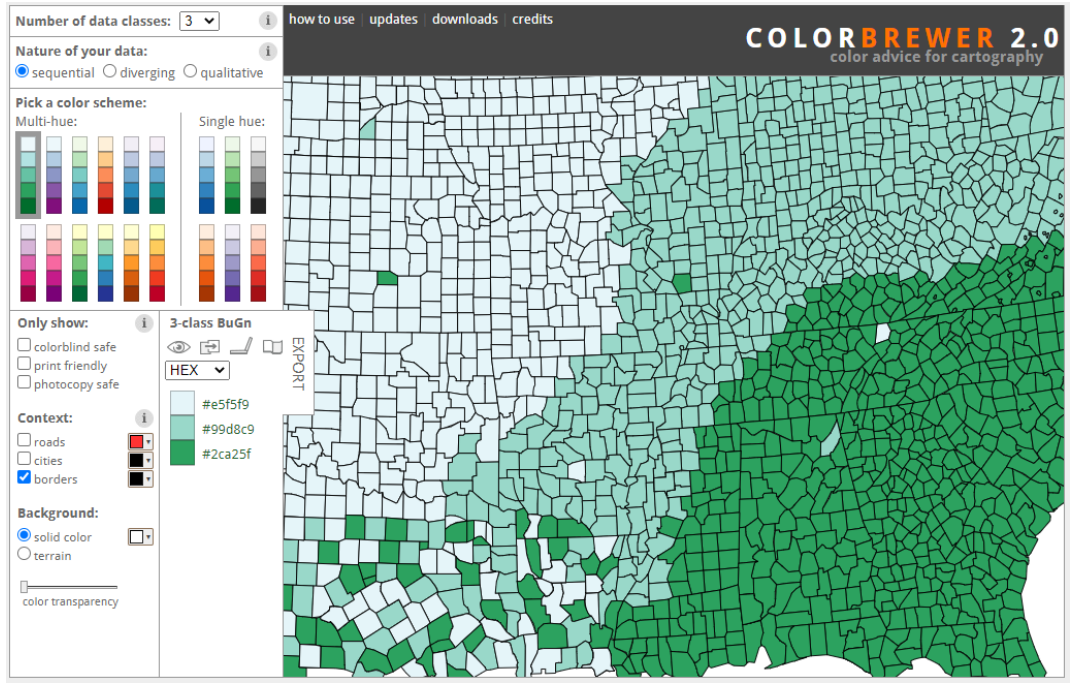
- More options, shows several different types of visualization

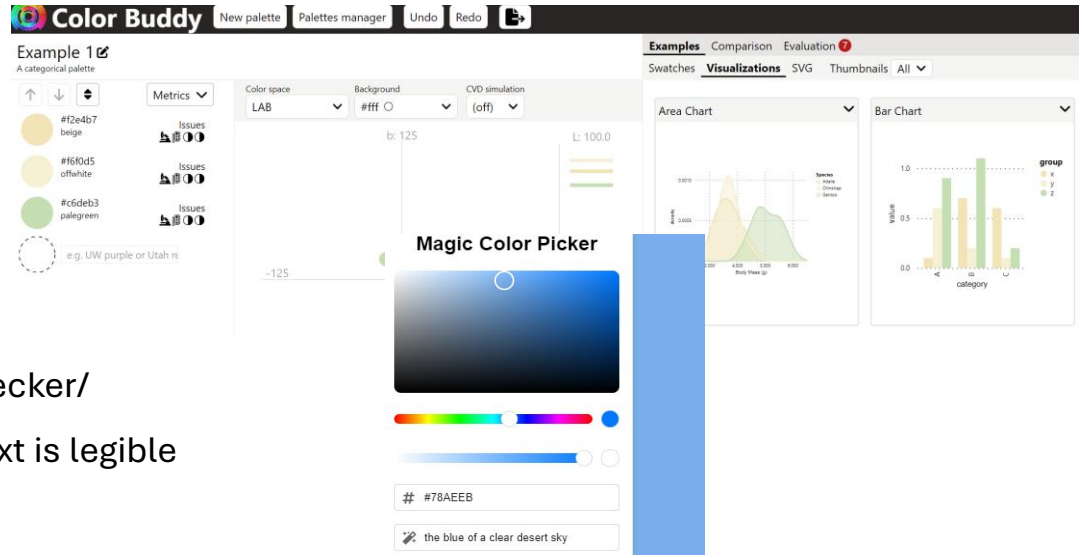
Magic Color Picker - https://text2color.com/picker.html

- AI that changes text to RGB colour codes

WebAIM Contrast Checker - https://webaim.org/resources/contrastchecker/

- Tests contrast between text & background colours so you can be sure text is legible





Generative AI

Suggested Uses:

- Create python or R scripts to manipulate data
- Supplement data tables (e.g., lookup latitude/longitude)
- Creating synthetic data (anonymous or testing data)
- Generating metadata (tags, descriptions)

Why Not?

- Challenging to keep your visualizations reproducible; what transformations AI has made to your data?
- AI hallucinations are hard to catch unless you are very familiar with your data.
- Creating an entire visualizations is tricky.
  - Labels, colours, axes, or aesthetic details often come out wrong
  - You can be left trying over and over, hoping to eventually hitting the jackpot.
- Generate code/scripts (python, R) or SVG to create your visualization; much easier to tweak/adjust the output.
- See https://www.practicalreporting.com/blog/2025/4/8/its-april-2025-should-you-be-using-ai-to-create-charts-instead-of-exceltableauetc

Resources – Data Vis Tools

John's Tools Handout – https://brosz.ca/slides/

Visualizing Data - https://www.visualisingdata.com/resources/

120+ visualization tools

Article news.org/articles/what-i-learned-recreating-one-chart-using-24-tools/