Which Visualization?

A Quick Reference

You have the following data (sample): **Discrete Categories,**

Ordered categories, and Continuous Metrics

Here's how to plot them

| Categories | | Ordered Ca | ats | Continuous | Metrics | | |
|------------|----------|------------|--------------|------------|----------|------------|-------|
| City | Airline | Class | PriceBracket | Month | Distance | FlightTime | Price |
| Alphaville | XeroTrip | Coach | \$ | 1 | 300 | 120 | 250 |
| Betastan | YoloFly | Business | \$\$ | 2 | 500 | 185 | 1,525 |
| Chicago | ZeusAir | First | \$\$\$ | 3 | 650 | 240 | 4,023 |
| | • • • | • • • | • • • | • • • | • • • | • • • | • • • |

Discrete Categories **Ordered Categories Continuous Metrics**

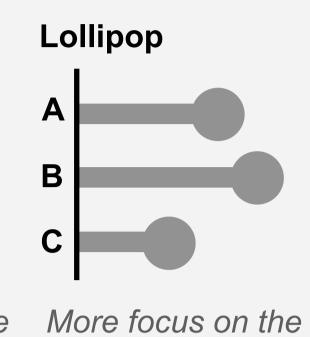


... by 2 categories

Bar (Row) Rows allow readable

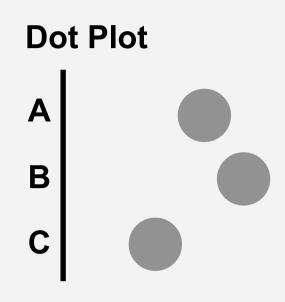
labels, while columns

awkwardly turn text



positions of tops.

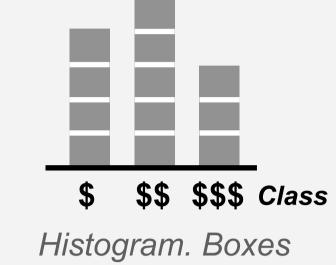
Fun factor +1



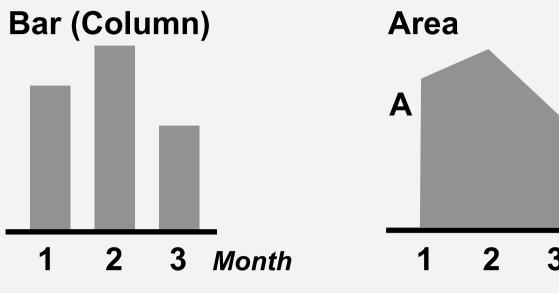
A non-zero y-axis

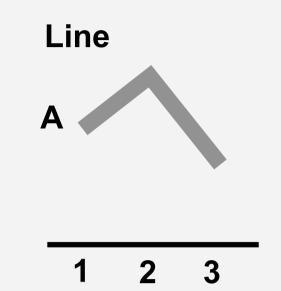
base may be less

misleading here



Bar (Column)





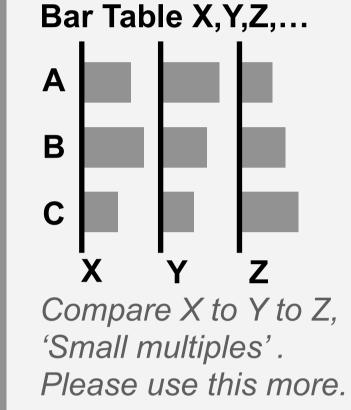
help convey the underlying bins

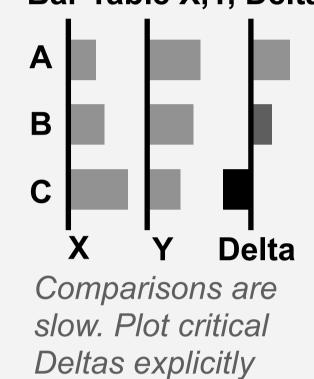
Time moves horizontally. So use Column, not Row

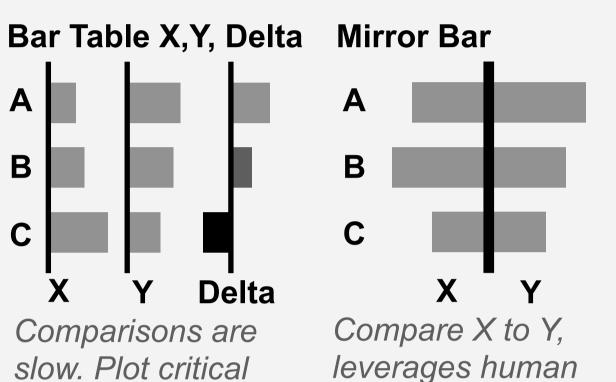
Bar Table

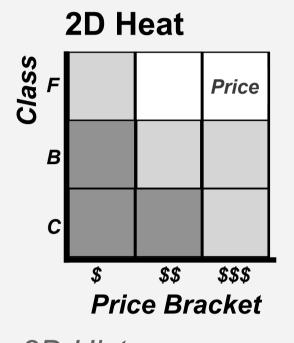
Adds continuity to x-axis.

A non-zero y-axis base may be less misleading here



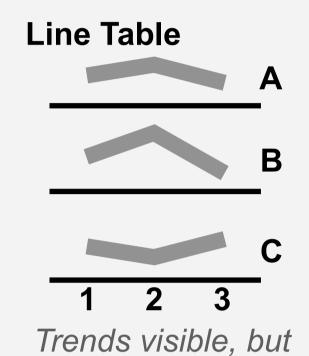






В Compare a metric across an ordered category

Bar Line Table Distance 2 3 Now one is continuous-er



use Lines (below)

to compare heights

Benchmark Bar

Budget Compare X to a benchmark

Benchmarks Bar Α В Ys Xs

Compare X to Y. Fancier version called a 'Bullet graph'

Interleaved Bar

Compare X to Y

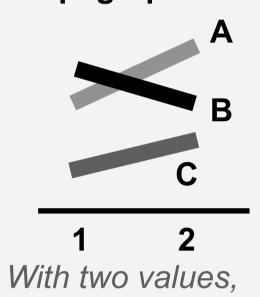
(not recommended)

symmetry perception

Interleaves two categories into one spatial dimension. Typically better to use Bar Table (above) instead

2D Histogram. Similar in spirit to a bar table, but ordered cats + color encoding

Slopegraph



slope encodes

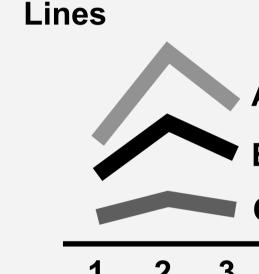
Use (above) instead. Crossings here are salient, but meaningless

Dual Axis

Lines

Price

Distance



Compare many. Getting spaghetti? Split into subset or Line-Table (above)

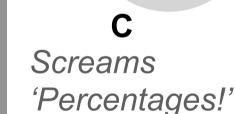
binned by 1 category

Part-to-Whole,

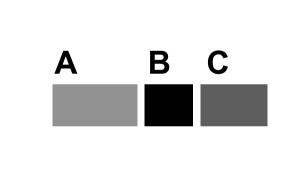
... by 2 categories

Pie



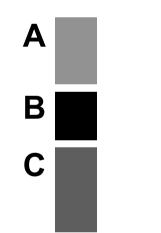


Stacked Bar (Row)



More precise and flex, but less screaming

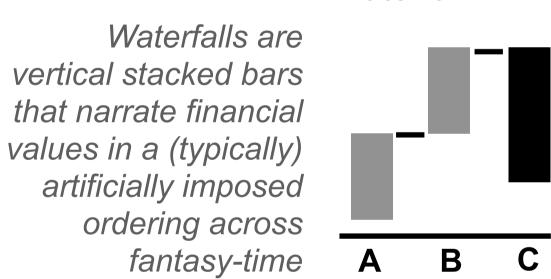
Stacked Bar (Col)



Now I'm standing

Waterfall

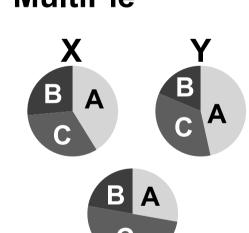
delta



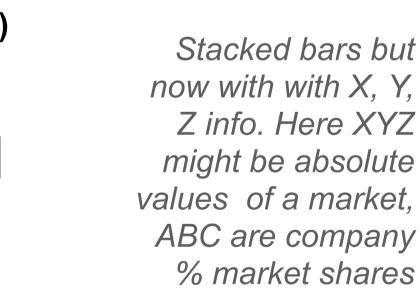
These lines are identical, with equal Y separation at each X slice, but it doesn't look that way!

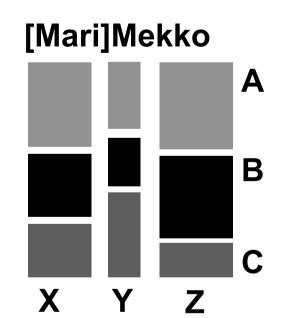
Beware of an illusion for these: seeing differences (lines), or category values (stacked area) can be difficult and even misleading

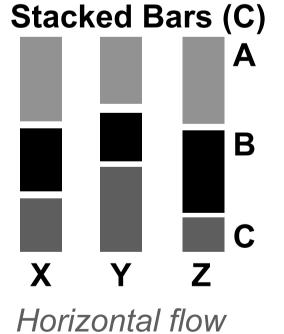




Stacked Bars (R)

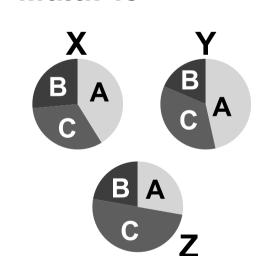






... with lines

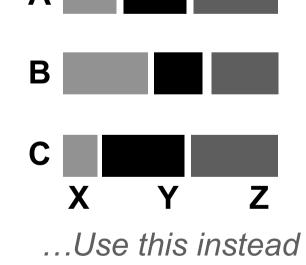
No legends. Instead, directly label actual values

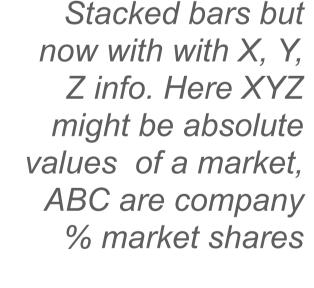


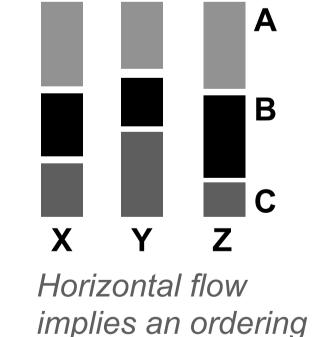
Please don't...

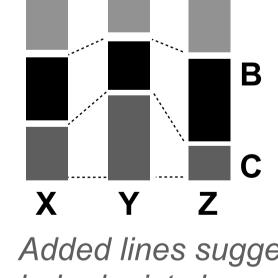
Look at this number.

(not recommended)









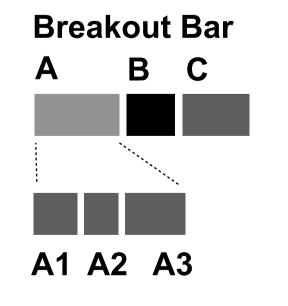
2 3

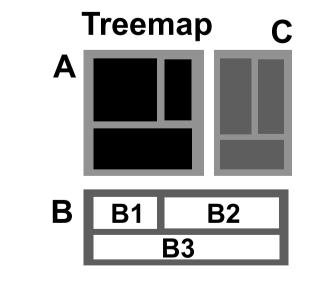
Stacked area

Added lines suggest continuity, help depict changes

Now it's definitely continuous

Let's zoom in here. Use different colors. Global at top or left.



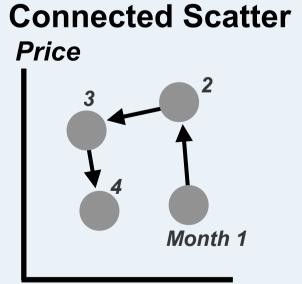


Hierarchy, ~3 levels max of bento boxes going all Inception within other bentos. Size+Color better code different metrics. Typically <u>misused</u>. 95% sure you actually wanted a Bar Table (above)

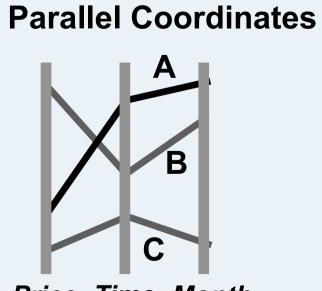
Scatter **Price**

An elegant graph, from a <u>civilized age</u>

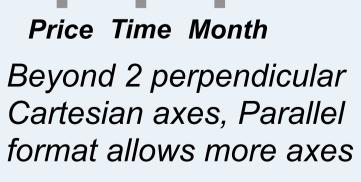
Month

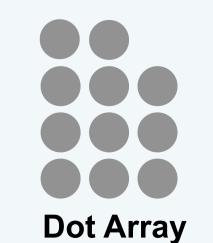


A scatterplot, connected into a journey over time



Distance

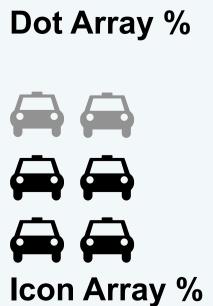


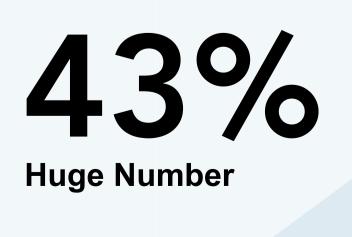


Icon Array

(ISOTYPE)

Just look at it.



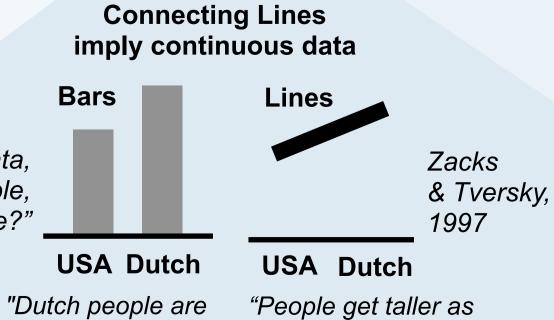


Same data,

ask people,

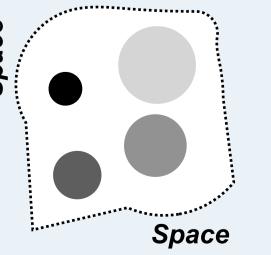
taller than Americans"

"What do you see?"



Metrics: relationships to other metrics

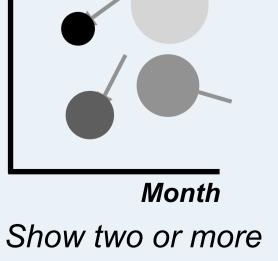
Hans Rosling Scatter Map Distance



Maps and Roslings share the same DNA Color = Flight Time Size = Price

Month Watch Rosling's TED talk. Take XY scatter and adds two more metrics (color and size), and then moves in time

Rosling Comet Distance



X+Y history values for comparison over time

they get more Dutch"