

Which Visualization?

A Quick Reference

You have the following data table:
Categories in the first two columns,
 a **single ordered category**,
 and a few **continuous metrics**.

Categories		Ordered Cats	Continuous Metrics			
City	Airline	Class	Month	Distance	FlightTime	Price
Alphaville	XeroTrip	\$	1	300	120	250
Betastan	YoloFly	\$\$	2	500	185	1,525
Chicago	ZeusAir	\$\$\$	3	650	240	4,023
...

Here's how to plot them.

Categories

Ordered Categories

Continuous Metrics

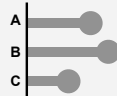
Metric, split by 1 category

Bar (Row)



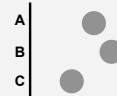
Rows allow readable labels, while columns awkwardly turn text

Lollipop



More focus on the positions of tops. Fun factor +1

Dot Plot



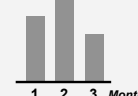
A non-zero y-axis base may be less misleading here

Bar (Column)



Histogram. Boxes help convey the underlying bins

Bar (Column)



Time moves horizontally. So use Column, not Row

Area



Adds continuity to x-axis

Line



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

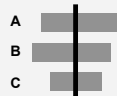
... by 2+ categories

Bar Table X,Y



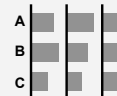
Compare X to Y, 'Small multiples'

Mirror Bar



Compare X to Y

Bar Table X,Y,Z,...



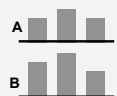
Compare as many as you like

Bar Table X,Y, Delta



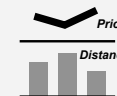
Comparisons are slow. Plot critical Deltas explicitly

Bar Table



Compare a continuous metric across a category

Bar Line Table



Compare two metrics

Line Table



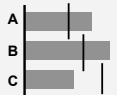
Trends visible, but use Lines (below) if precision is key

Benchmark Bar



Compare X to a benchmark

Benchmarks Bar



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

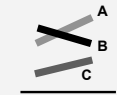
Interleaved Bar



Compare X to Y (not recommended)

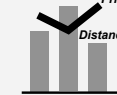
Interleaves two categories into one spatial dimension. Typically better to use Bar Table (above) instead

Slopegraph



With two values, slope encodes delta

Dual Axis



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

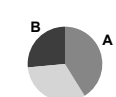
Lines



Compare many. Getting spaghetti? Use Line-Table (above)

Part-to-Whole, split by 1 category

Pie



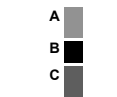
Screams 'Percentages!'

Stacked Bar (Row)



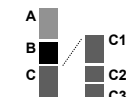
More precise and flex, but less screaming

Stacked Bar (Col)



Now I'm standing

Breakout Bar



Let's zoom in here. Use different colors. Global starts left (or top)

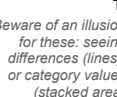
Waterfall



Waterfalls are vertical stacked bars that narrate financial values in a (typically) artificially imposed ordering

These lines are identical, with equal vertical separation at each X

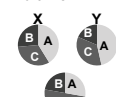
Stacked area



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

... by 2+ categories

MultiPie



Please don't... (not recommended)

Stacked Bars (R)



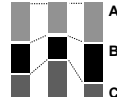
...Use this instead

Stacked Bars (C)



Horizontal flow implies an ordering

... with lines

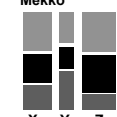


Added lines suggest continuity, help depict changes

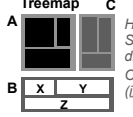
No legends. Instead, directly label actual values

Mekko stacks in X and Y simultaneously. Here XYZ might be absolute values of a market, and ABC are company market shares as %s

Mekko



Treemap



Hierarchy, ~3 levels max. Size & color code different metrics. Often misused (info)

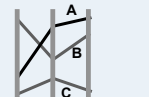
Metrics: relationships to other metrics

Scatter



A most powerful chart

Parallel Coordinates



Instead of Perpendicular Cartesian axes, Parallel format allows more axes

Look at this number Just look at it.

Dot Array



Dot Array %



43%

Huge Number

Icon Array



Icon Array %

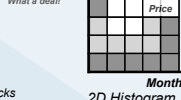


Connecting Lines imply continuous data



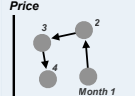
Same data, ask people. 'What do you see?' USA Dutch 'Dutch people are taller than Americans' USA Dutch 'People get taller as they get more Dutch'

2D Heat



What a deal! 2D Histogram

Connected Scatter



The power of a scatterplot, with points connected by time (info)

Rosling Scatter



Watch Hans Rosling's famous TED talk. He adds two more metrics, and moves it over time

Map



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