Which Visualization? A Quick Reference

You have the following data.
Categories in the first two rows,
a single ordered category,
and a few continuous metrics.

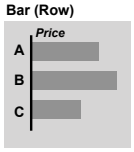
Here's how to plot them.

Categories		*Ordered Cats*	*Continuous Metrics*		
City	Airline	Class	Month	Distance	FlightTime
Alphaville	XeroTrip	$	1	300	120
Betastan	YoloFly	$$	2	500	185
Chicago	ZeusAir	$$$	3	650	240
…	…	…	…	…	…

Categories ***Ordered Categories*** ***Continuous Metrics***

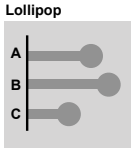
Metric, split by 1 category

Bar (Row)



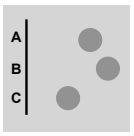
Rows allow readable labels, while columns awkwardly turn text

Lollipop



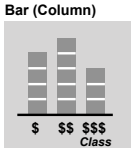
More focus on the positions of tops. Fun factor +1

Dot Plot



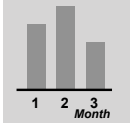
A non-zero y-axis base may be less misleading here

Bar (Column)



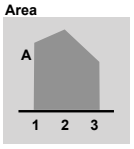
Histogram. Boxes help viewers understand the underlying bins

Bar (Column)



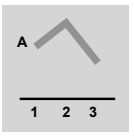
Time moves horizontally. So use Column, nor Row

Area



Adds continuity to x-axis

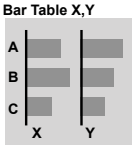
Line



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

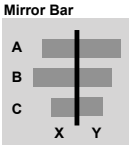
… by 2+ categories

Bar Table X,Y



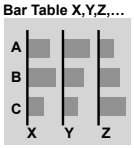
Compare X to Y 'Small multiples'

Mirror Bar



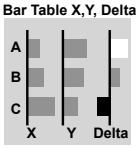
Compare X to Y

Bar Table X,Y,Z,…



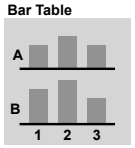
Compare as many as you like

Bar Table X,Y, Delta



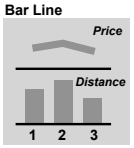
Comparisons are slow. Plot critical Deltas explicitly

Bar Table



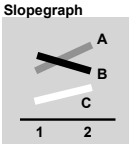
Compare a continuous metric across a category

Bar Line



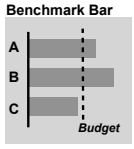
Compare two metrics

Slopegraph



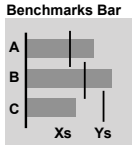
Two values only, slope encodes delta

Benchmark Bar



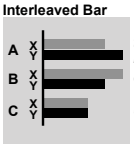
Compare X to a benchmark

Benchmarks Bar



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

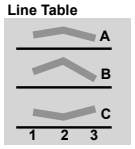
Interleaved Bar



Compare X to Y (not recommended)

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

Line Table

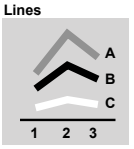


Easy to compare trends, though with less precision than for Lines (right)

Dual Axis

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

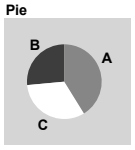
Lines



Compare as many as you like. Getting spaghetti? Use Line-Line (look left)

Part-to-Whole, split by 1 category

Pie

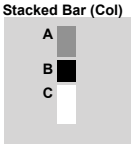


Screams 'Percentages!'

Stacked Bar (Row)

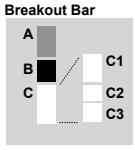
More precise and flex, but less screaming

Stacked Bar (Col)



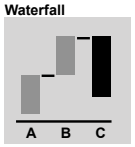
Now I'm standing

Breakout Bar

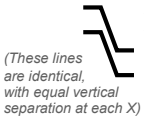


Let's zoom in here. User different colors. Global starts left (or top)

Waterfall



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

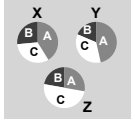


(These lines are identical, with equal vertical separation at each X)

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

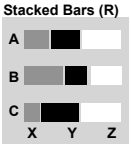
… by 2+ categories

MultiPie



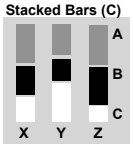
Please don't… (not recommended)

Stacked Bars (R)



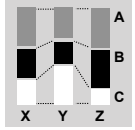
…Use this instead

Stacked Bars (C)



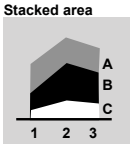
Horizontal flow implies an ordering

… with lines



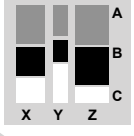
Added lines suggest continuity, help show changes

Stacked area



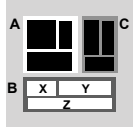
Now we are definitely continuous

Mekko



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

Treemap



Hierarchy representation (2-3 levels max). Often misused. Size & color code different metrics (info)

Look at this number
Just look at it.

Dot Array

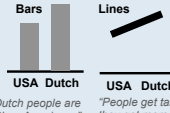
Dot Array %

43%
Huge Number

Icon Array (ISOTYPE)

Icon Array %

Connecting Lines imply continuous data



Same data, ask people, "What do you see?"

"Dutch people are taller than Americans"

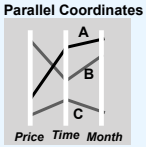
"People get taller as they get more Dutch"

Metric relationships to other metrics

Scatter

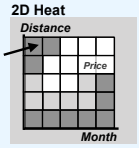
A most powerful chart

Parallel Coordinates



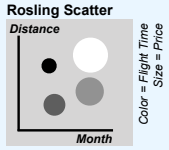
Instead of Perpendicular Cartesian axes, Parallel format allows more axes

2D Heat



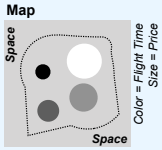
Can be used as a 2D Histogram

Rosling Scatter



Watch Hans Rosling's famous TED talk. He'll add two more metrics, and move it over time

Map



Maps and scatterplots share the same DNA

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