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# DATA VISUALIZATION

VISUALIZATION CATALOGUE

# A CLASSIFICATION OF CHART TYPES



## Data comparison charts

## Data reduction charts

Comparison

Composition

Distribution

Evolution

Relationship

Profiling

Bars



Pie



Histogram



Line



Scatterplot



Grouped bars



Dot plot



Bullet



Pareto



ID Scatterplot



Horizon



Connected Scatterplot



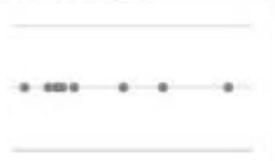
Cycle plot



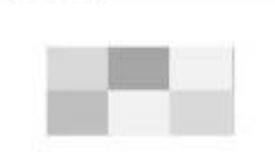
Scatterplot matrix



ID Scatterplot



Heat map



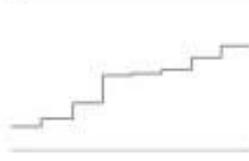
Multidimensional Pie



Boxplot



Step



Bubble



Reorderable matrix



Horizon



Slope



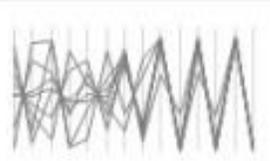
Alert



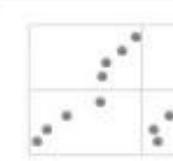
Connected Scatterplot



Parallel Plot



Trellis

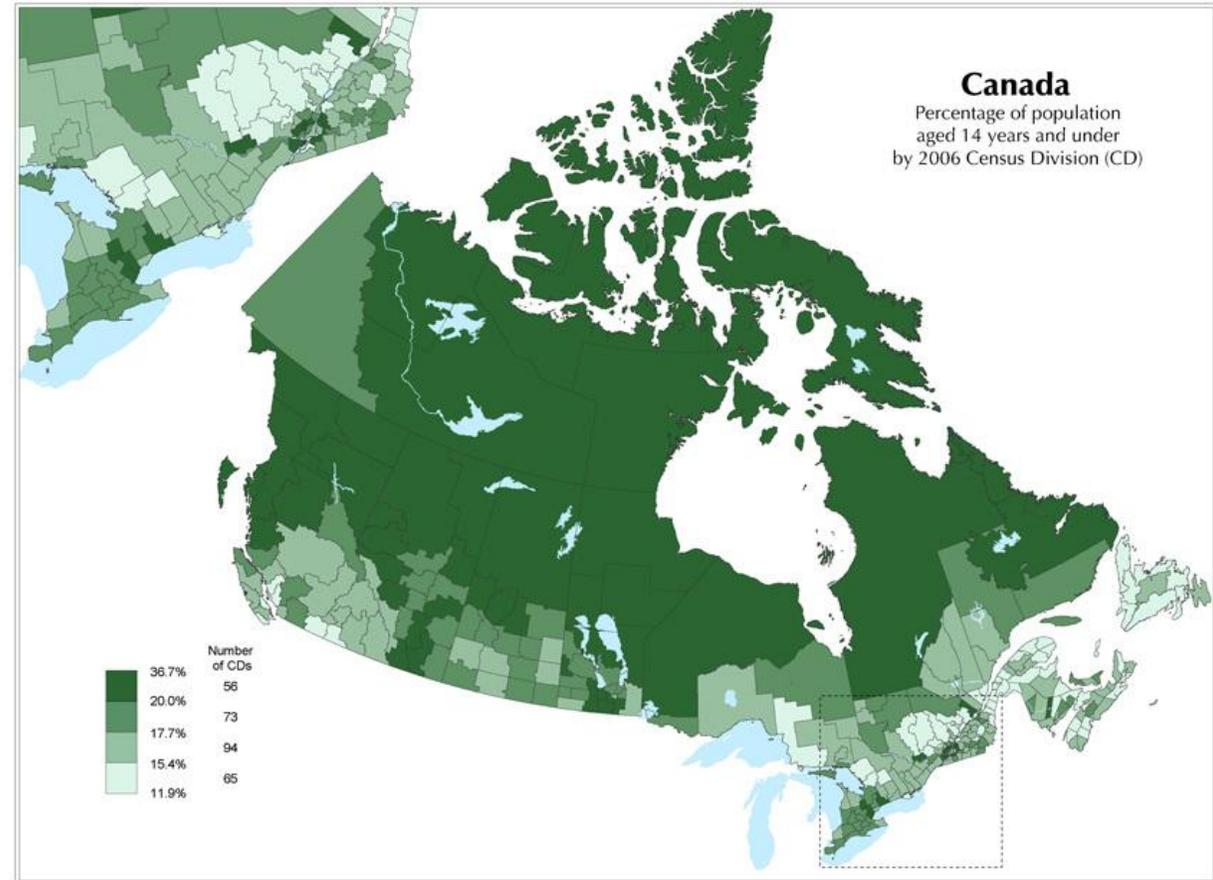
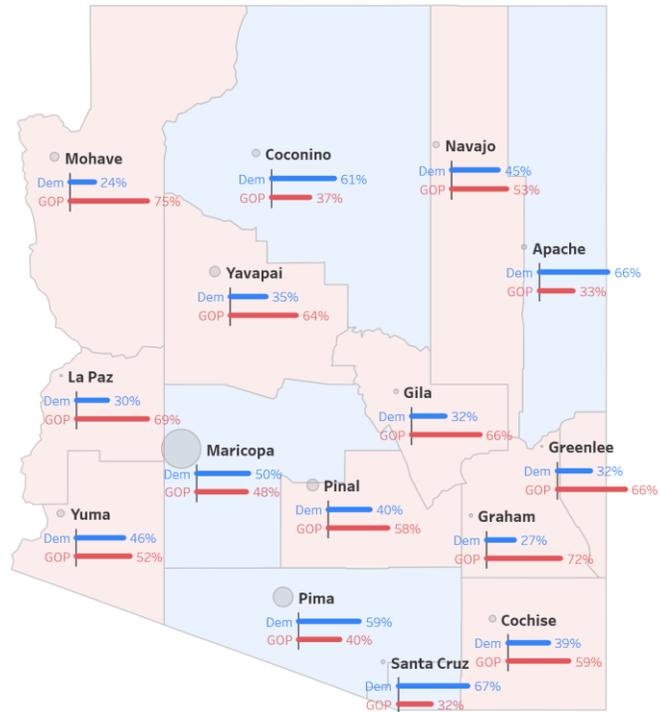


# HEAT MAPS (CHOROPLETHS)

## 2020 Arizona Presidential Election Results by County

County color = 2020 winner. Blue = Dem. Red = GOP. Source NY Times

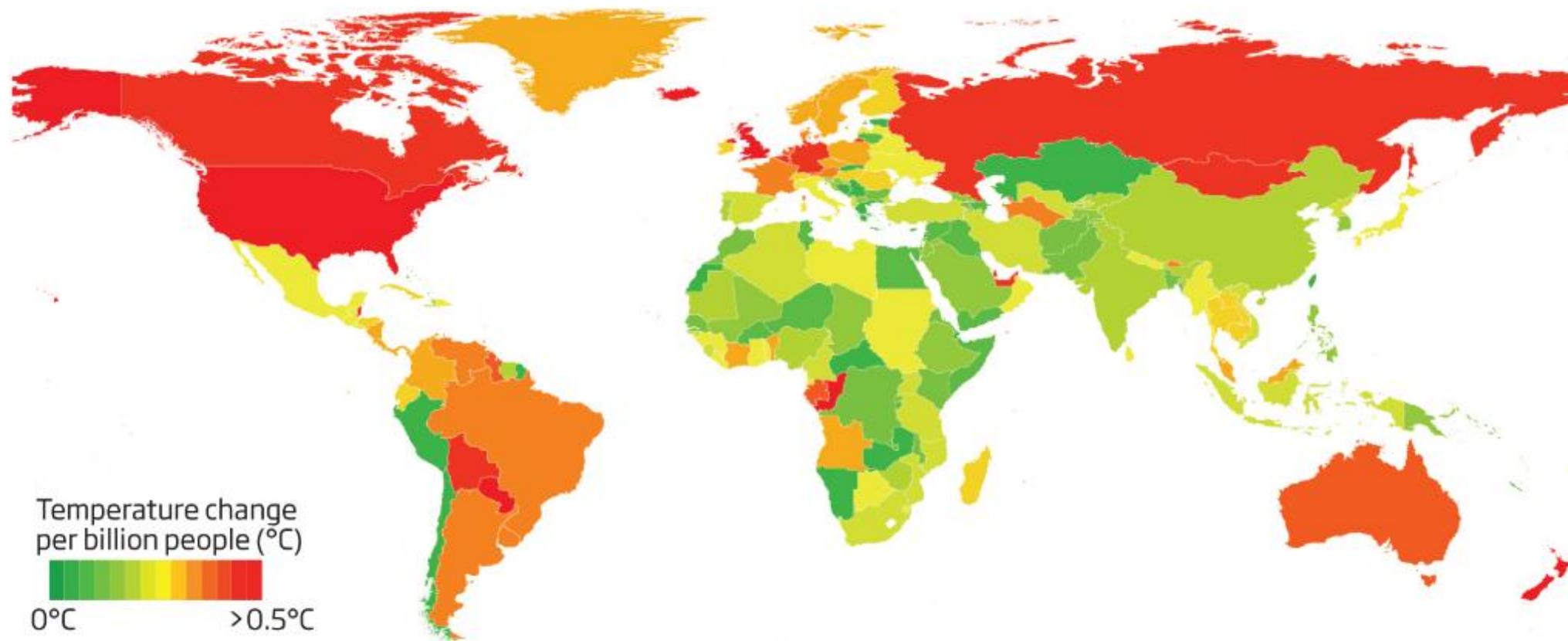
Change Year —●— 2020



# GEOGRAPHICAL MAPS

## Global warming culprits, judged by population

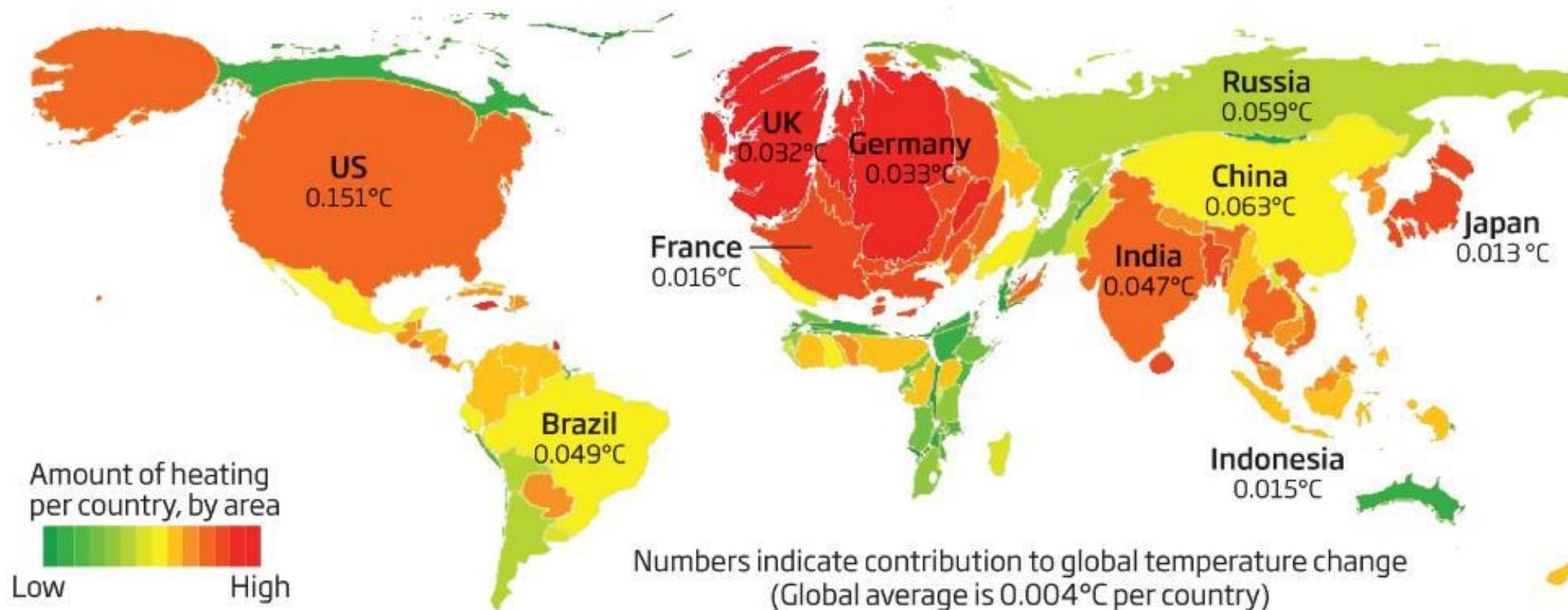
Countries that have caused more global warming per billion people are coloured red and low-emitters are dark green



# DISTORTED GEOGRAPHICAL MAPS

## Global warming culprits, judged by size

Countries that have caused disproportionately more global warming than their area would suggest are shown swollen, while low-emitters in relation to their size are shrunken

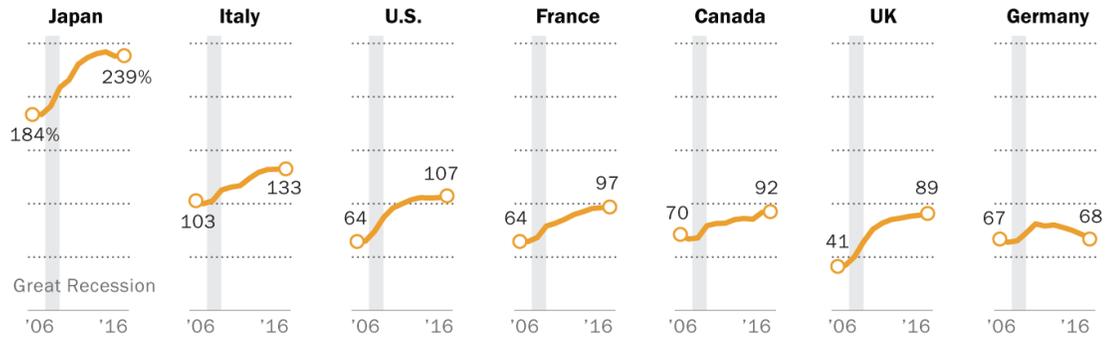




# SMALL MULTIPLES

## After Great Recession, debt increased substantially in most G-7 economies

Total gross debt as a share of GDP in the Group of Seven nations

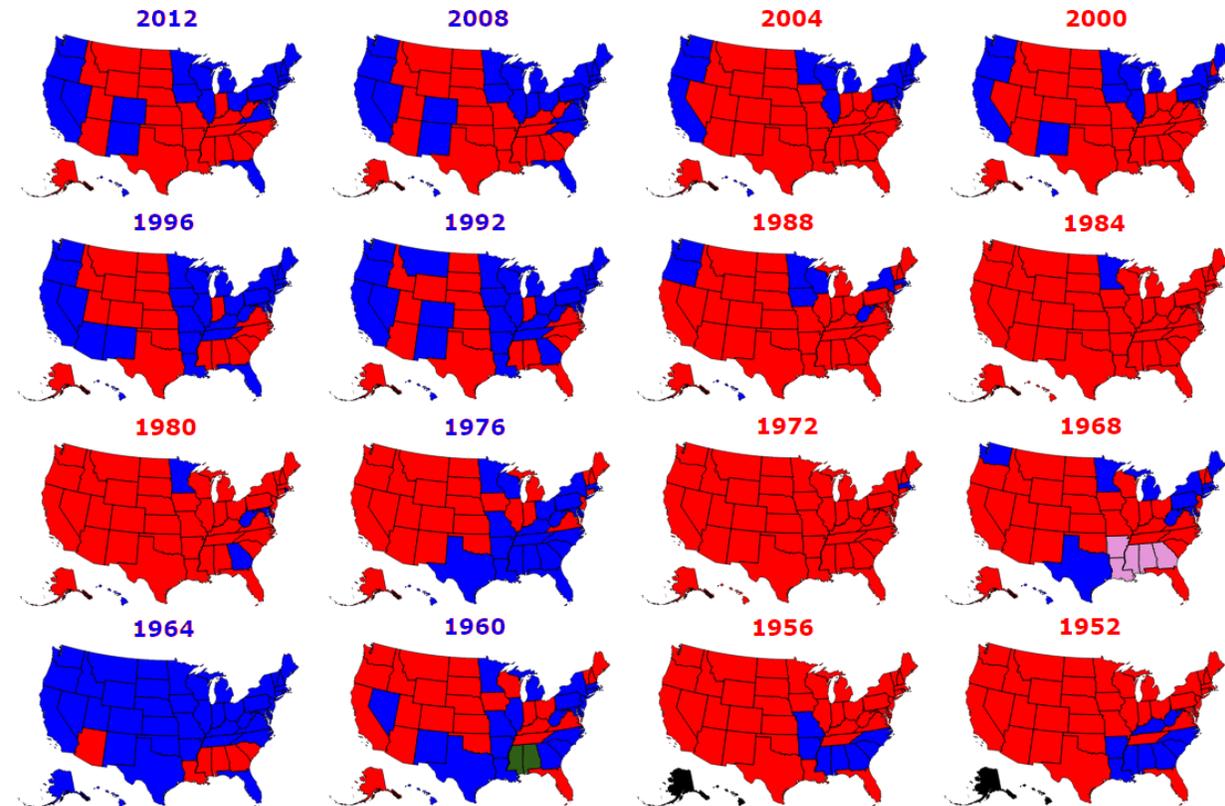


Note: Gross debt represents total liabilities of all levels and units of government — national, state/provincial and local — less liabilities held by other levels or units of government, unless otherwise noted by source.

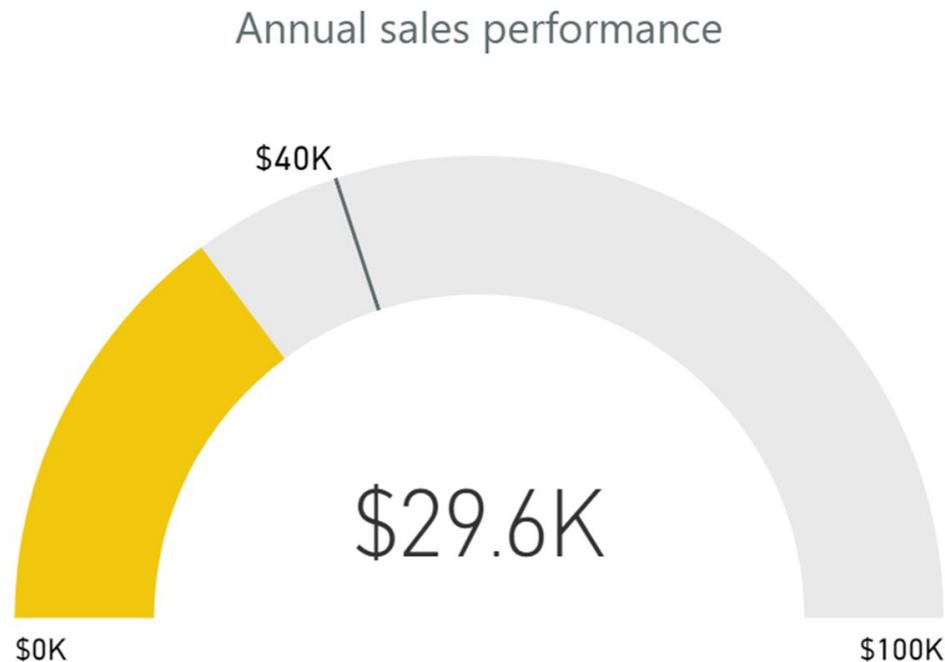
Source: The International Monetary Fund, World Economic Outlook, accessed Sept 7, 2017.

PEW RESEARCH CENTER

## U.S. Electoral College Results 1952 – 2012



# GAUGE CHARTS



Often used as a dashboard component (with or without needle).

Displays single value measures towards goal / KPI.

Great to show progress (a bit of a management fad, though...)

Displays information that can be quickly **scanned** and **understood**.

# INTERACTIVE & ANIMATED VISUALIZATIONS

“There is always a danger that if certain types of visualization techniques take over, the kinds of questions that are particularly well-suited to providing data for these techniques will come to dominate the landscape, which will then affect data collection techniques, data availability, future interest, and so on.” (P. Boily)

Even when done well, 85% of users don't bother with interactive viz (NY Times).

**Take-Away:** explore the data and try different methods

# CHARTS TO AVOID

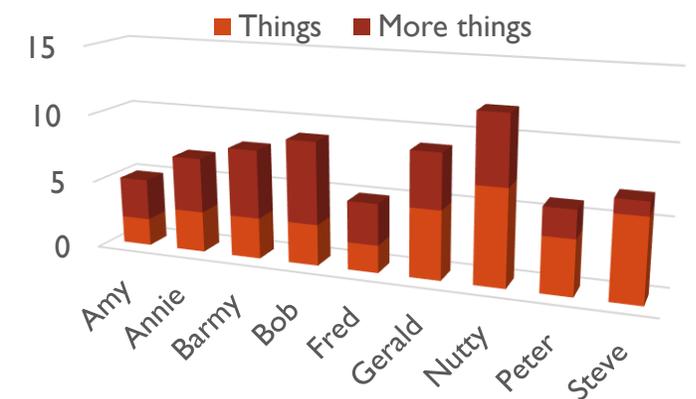
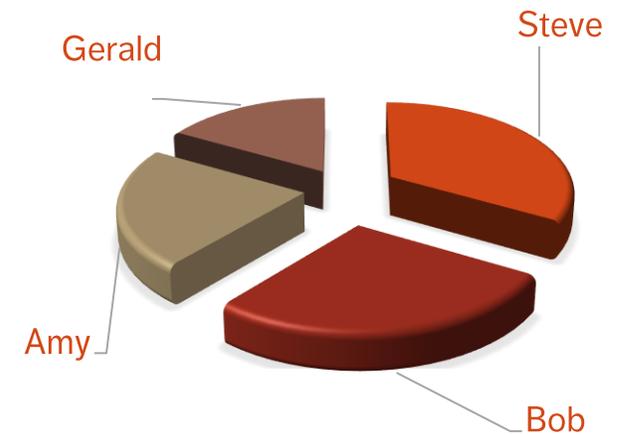
**ANYTHING** with an arc (except gauge)

- pie
- donut

Brain cannot compare arcs and they can be misleading:  
how different are Steve & Bob in the pie chart?

**ALL 3D IS EVIL!**

- as with arc, we cannot easily visually compare data series
- adds way too much clutter



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