Choosing an effective visual.

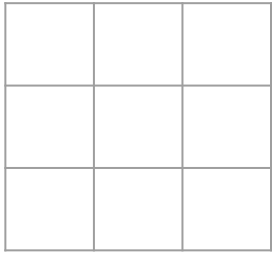
Knaflic Chapter 2

Simple Text

- When you only have a number or two to share.
- Use the number, make it prominent and add a few supporting words

vs Simple Text:

Tables



- There must be a better way.
- Tables interact with our verbal system, which means we read them.
- As your audience reads the tables in a presentation, you lose their ears and attention.

Which one do you prefer?

Heavy borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

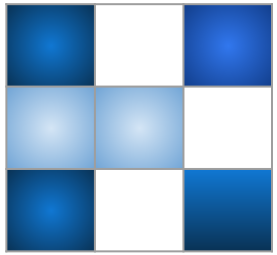
Light borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

Minimal borders

Group	Metric A	Metric B	Metric C
Group 1	$X.X	Y%	Z,ZZZ
Group 2	$X.X	Y%	Z,ZZZ
Group 3	$X.X	Y%	Z,ZZZ
Group 4	$X.X	Y%	Z,ZZZ
Group 5	$X.X	Y%	Z,ZZZ

Let the data take center stage. Let design fade into the background.



Heatmaps

- Color saturation helps our eyes pick up the tails of the spectrum - the lowest and the highest numbers

Color saturation provides visual cues.

The higher the number, the higher the saturation of blue.

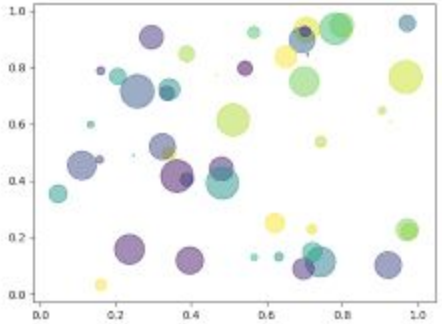
Table

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%

Heatmap

LOW-HIGH

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%



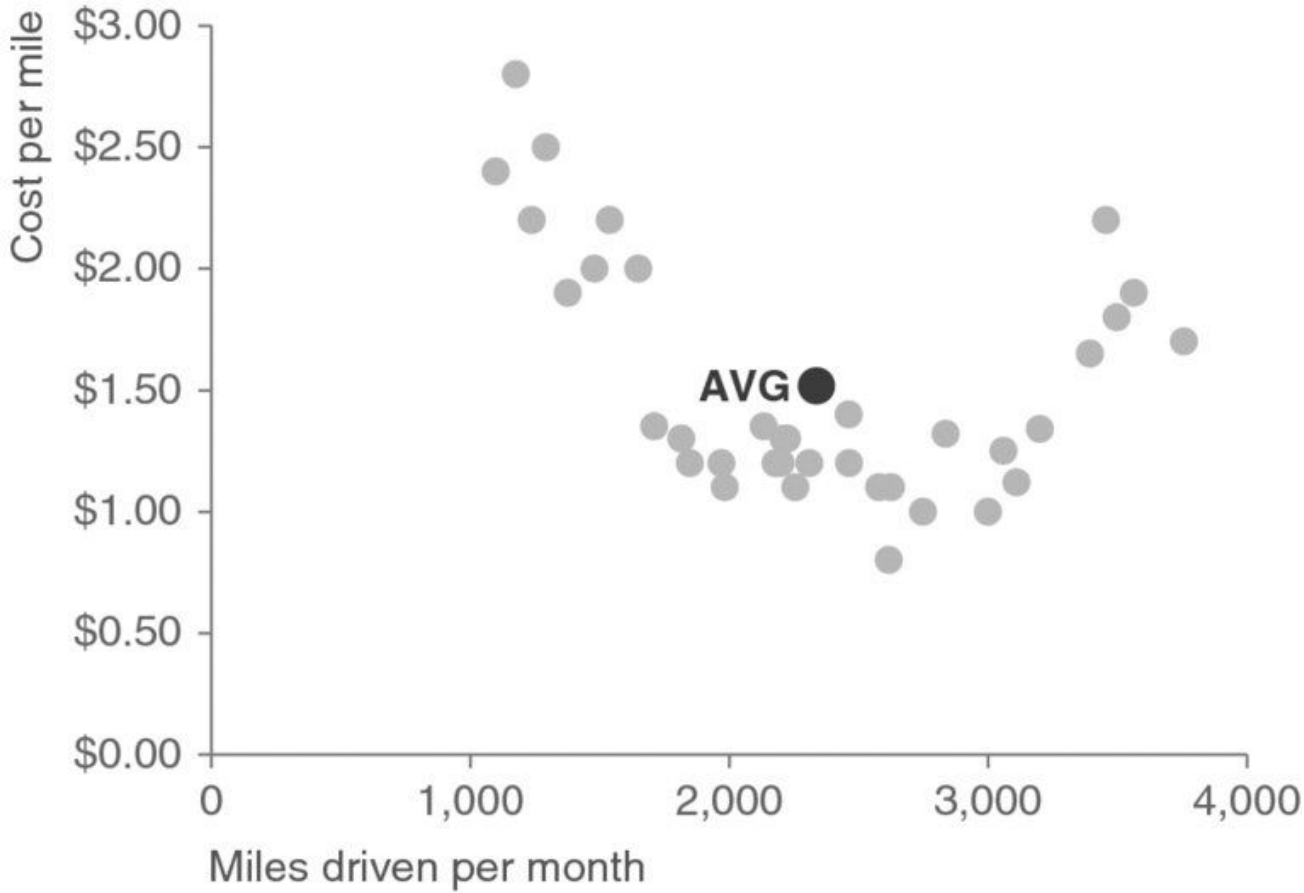
Scatterplots

- Can be useful for showing the relationship between two variables since they use horizontal and vertical axis to plot data points.
- The relationship between two variables is called their correlation.

Bus Fleet Scatterplot

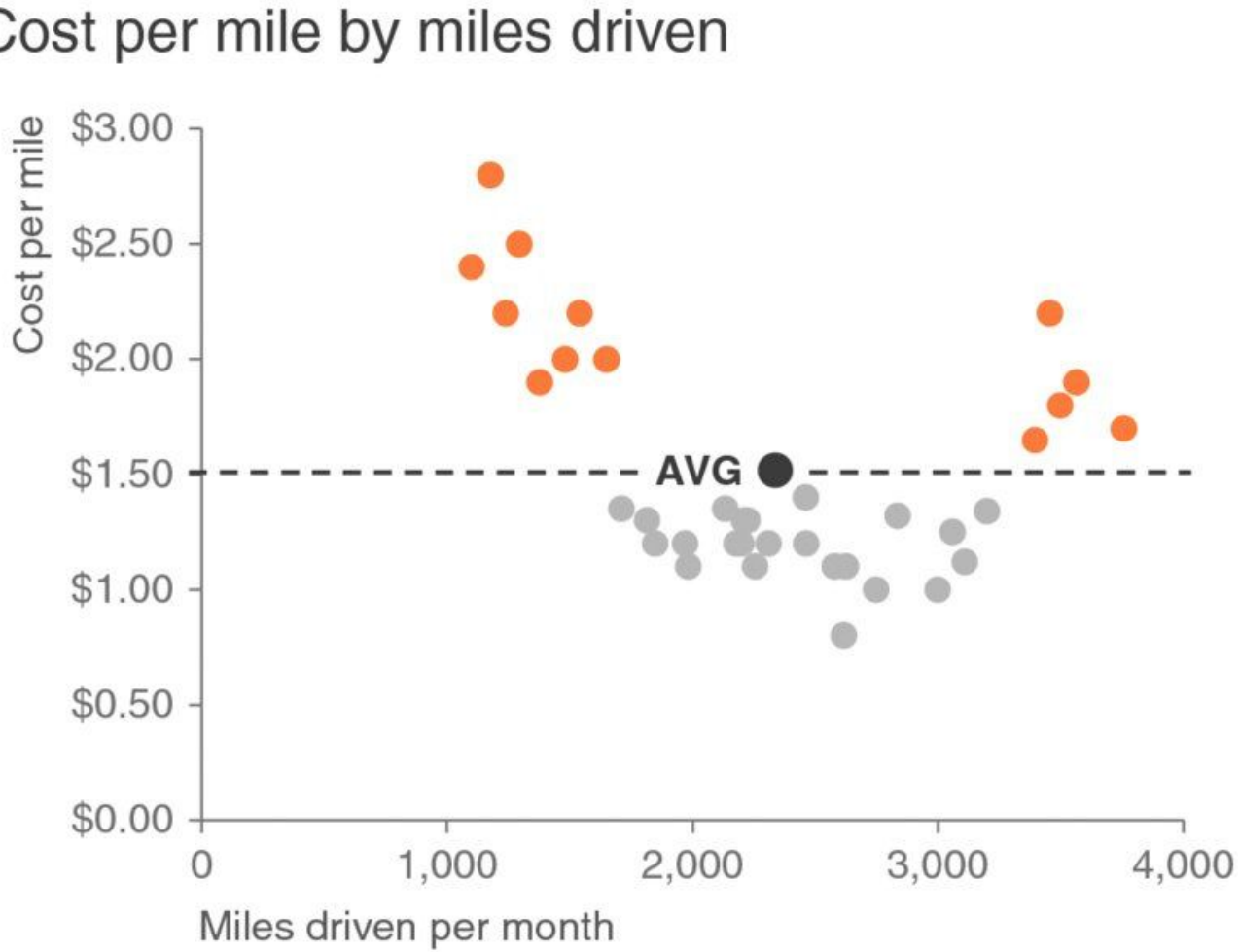
Cost per mile **by** miles driven.

Cost per mile by miles driven



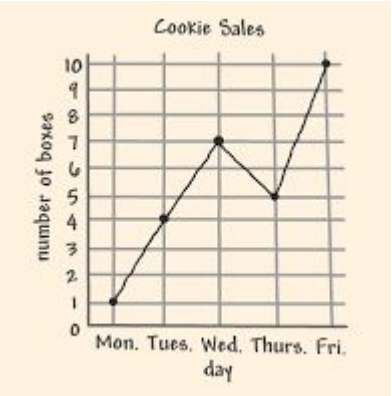
New focus.

Where was cost per mile higher than average?



Less than 1,700 miles

or more than 3,300

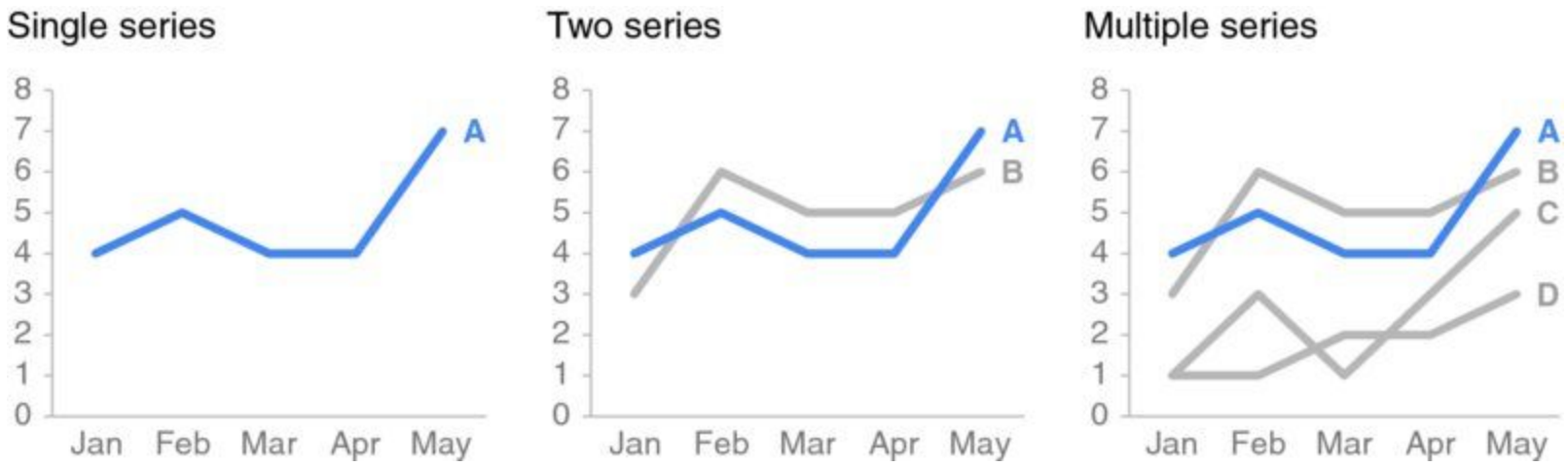


Line Graphs

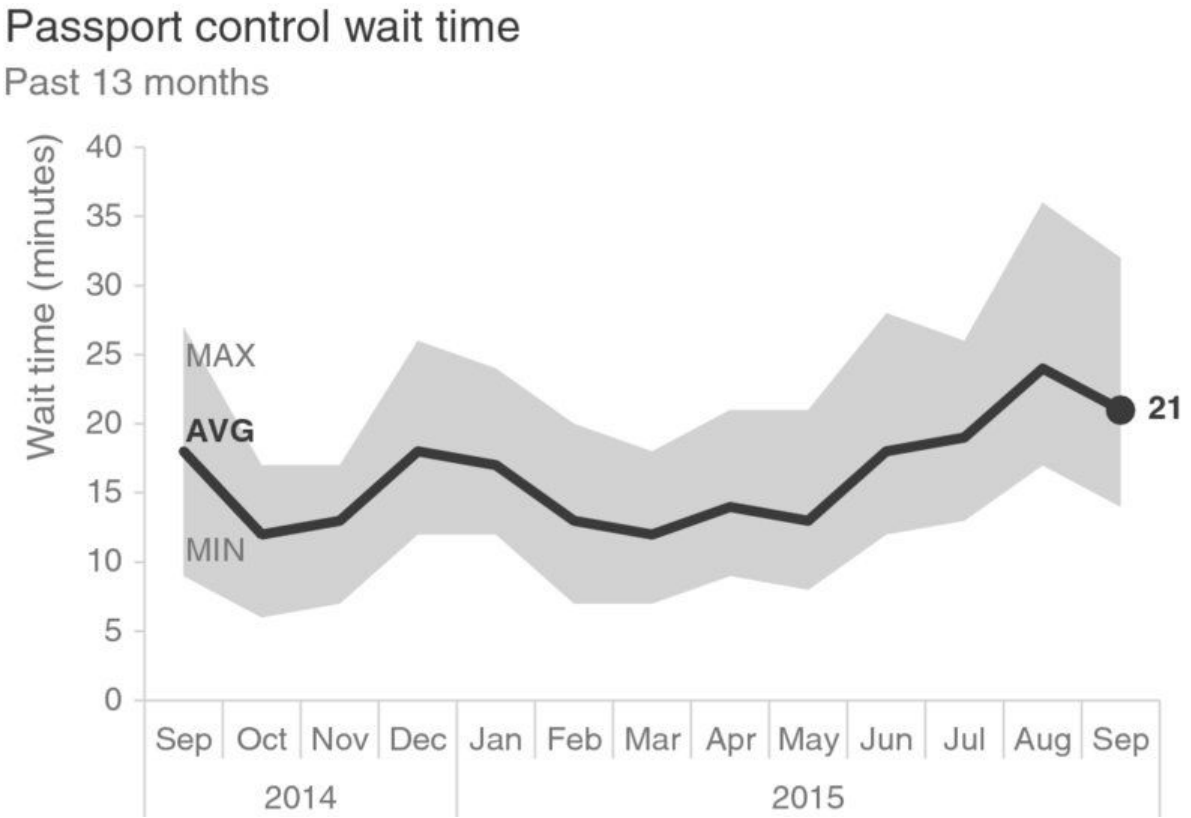
- Most commonly used graphs for continuous data

The standard line graph

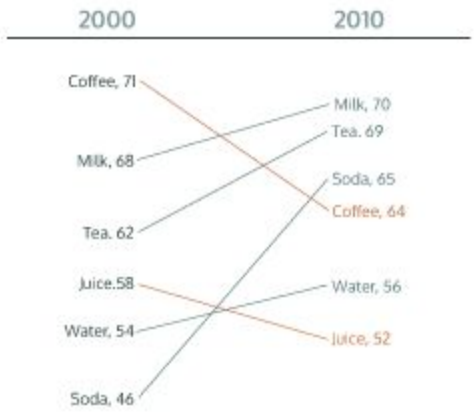
The line graph can show a single series of data, two series of data, or multiple series.



Showing average within a range in a line graph

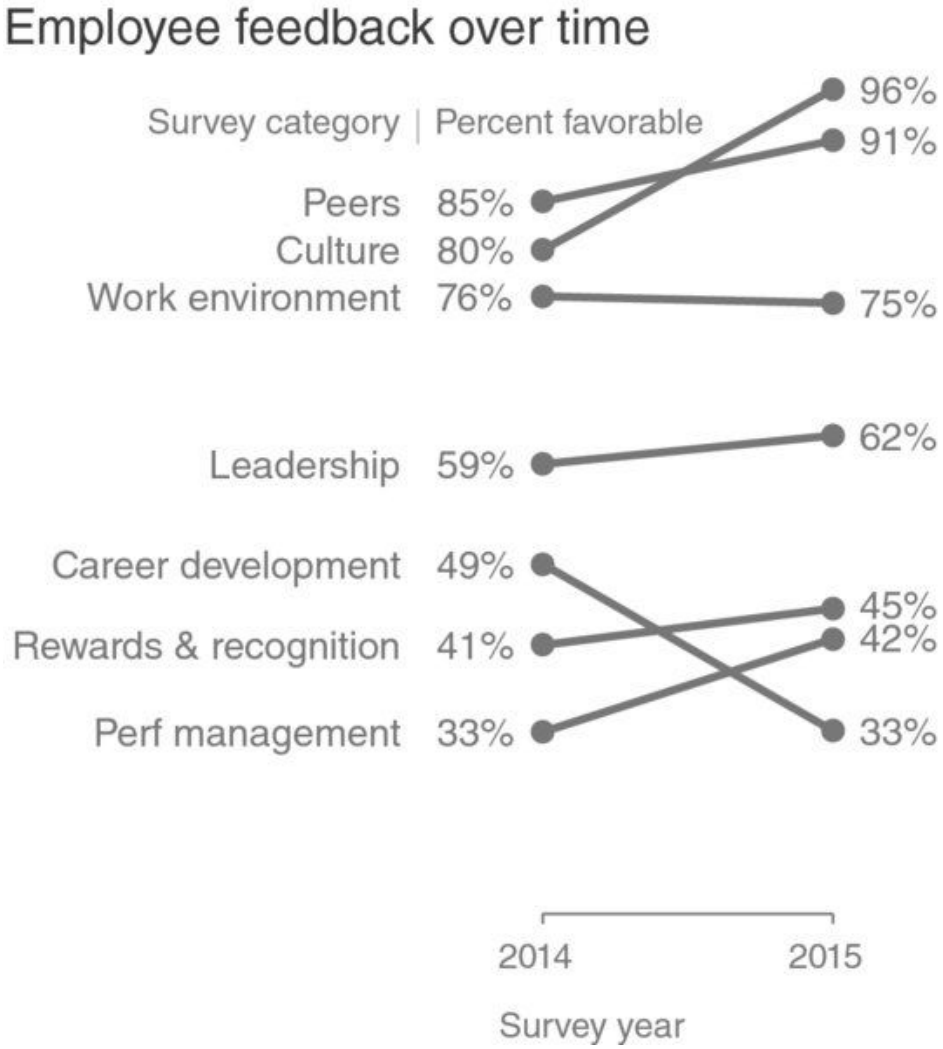


Slopegraph

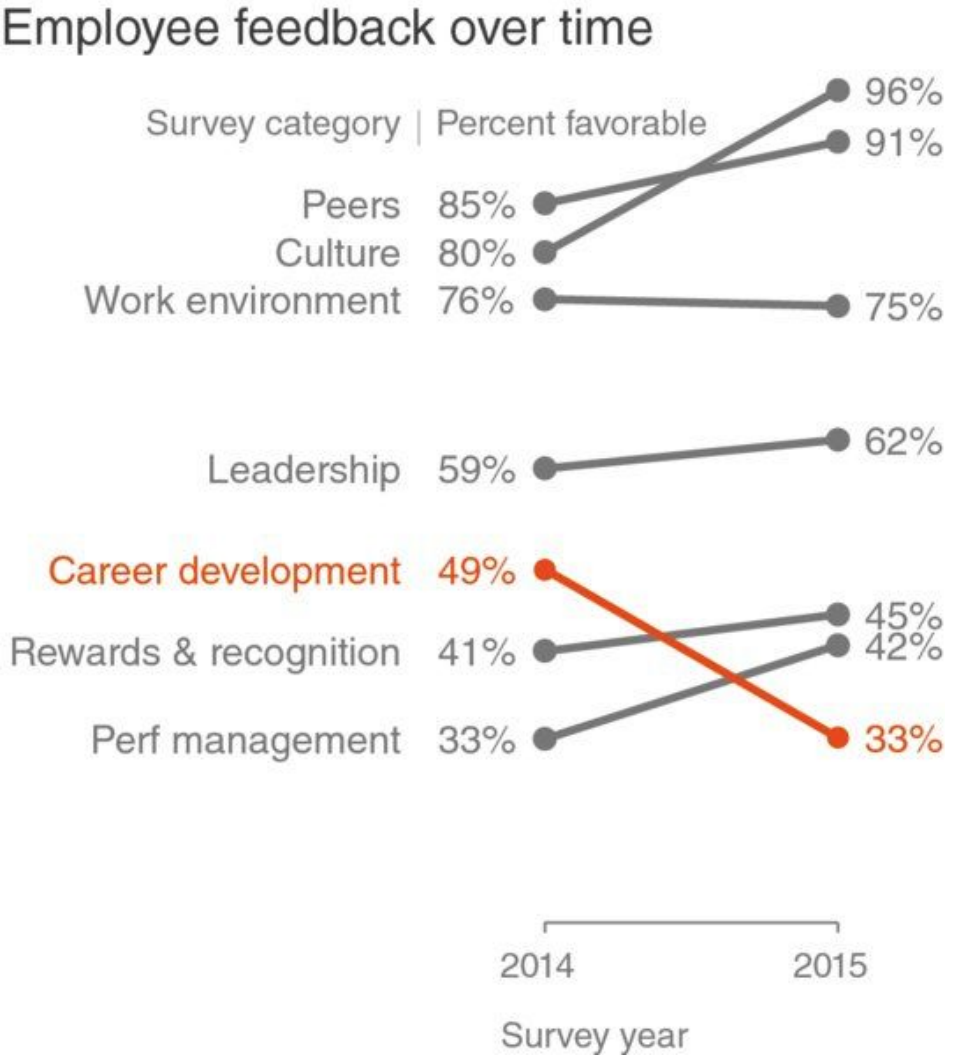


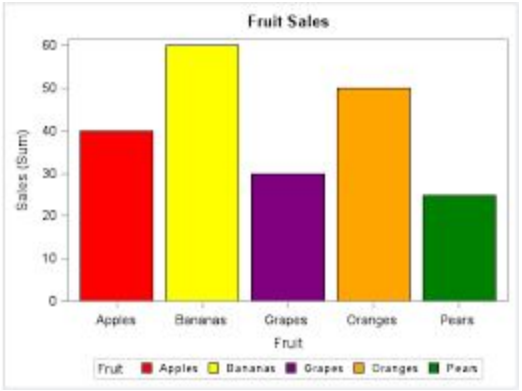
- Useful when you have two time periods (or two other points of comparison).
- Can be used to show ‘before and after’ story of different values.
- The related values are connected by slopes to quickly show increases (decreases) in value.

Employee Feedback Survey Results



New Accent


Employee feedback over time
Survey category
Percent favorable
Peers
Culture
Work environment
Leadership
Career development
Rewards & recognition
Perf management
85%
80%
76%
59%
49%
41%
33%
96%
91%
75%
62%
45%
42%
33%
2014
2015
Survey year

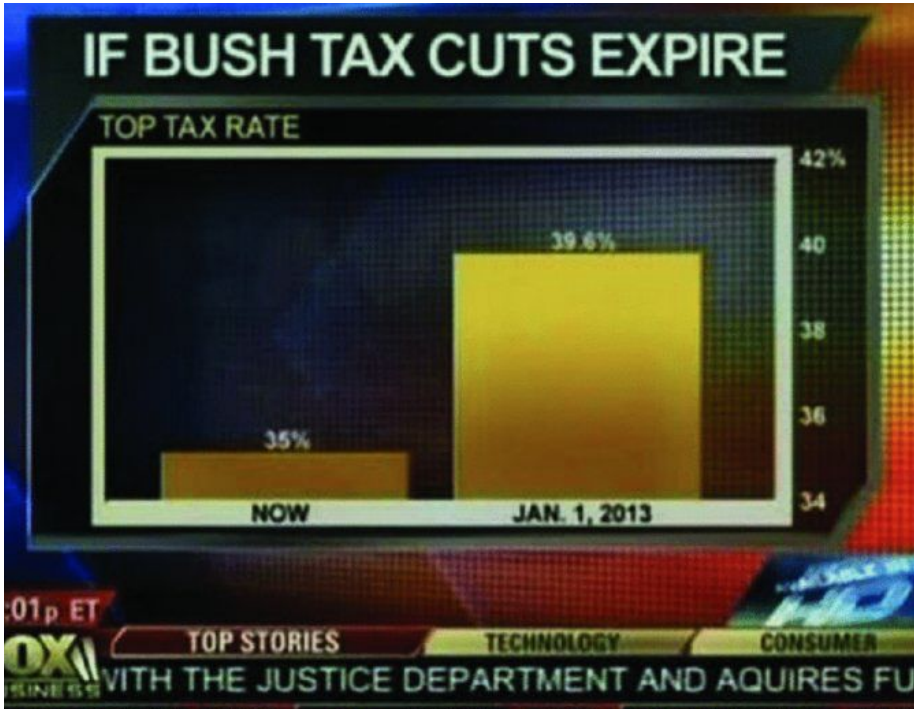


Bar Charts

- Our eyes compare the relative **end points** of the bars, so it's easy to see which category is the biggest, the smallest and the incremental difference between the categories.

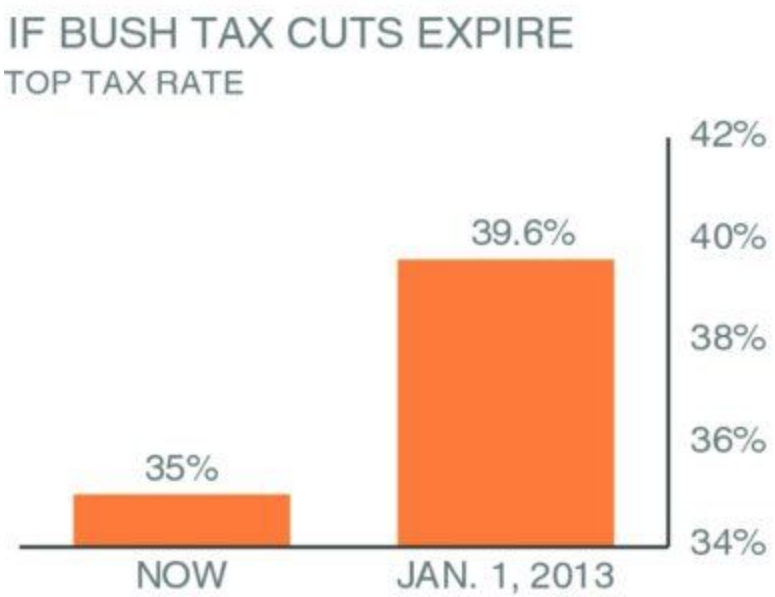
Fox News Bar Chart

Bar charts should have zero base line (**where x-axis crosses the y-axis at 0**), otherwise you get a false visual comparison.

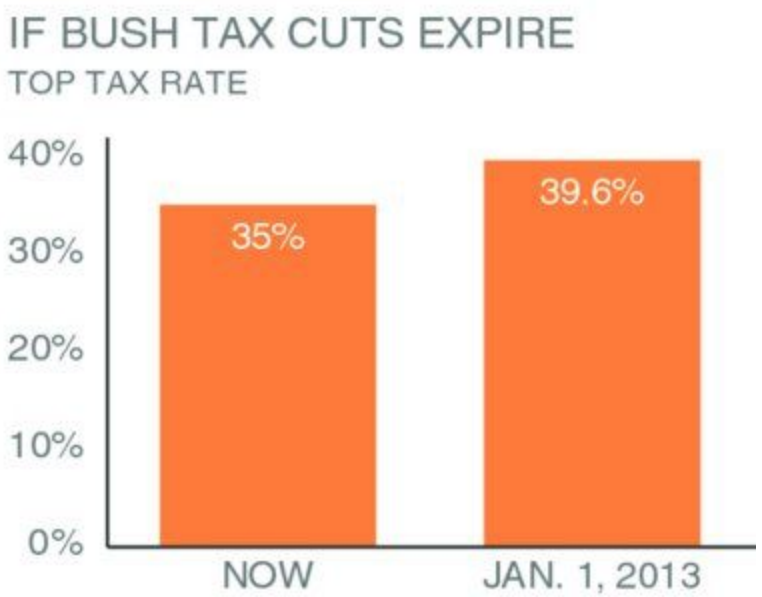


Visual comparison: 460% vs actual 13%

Non-zero baseline: as originally graphed

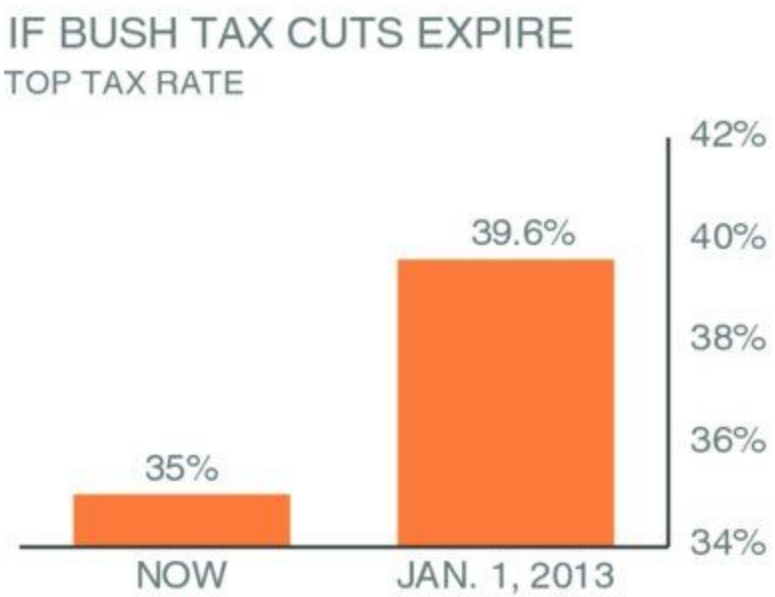


Zero baseline: as it should be graphed

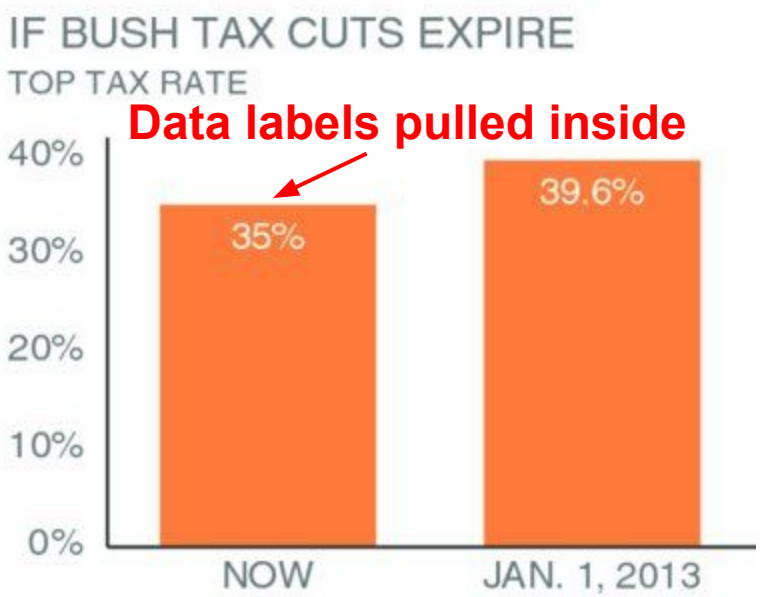


What changes were made to reduce the clutter?

Non-zero baseline: as originally graphed



Zero baseline: as it should be graphed



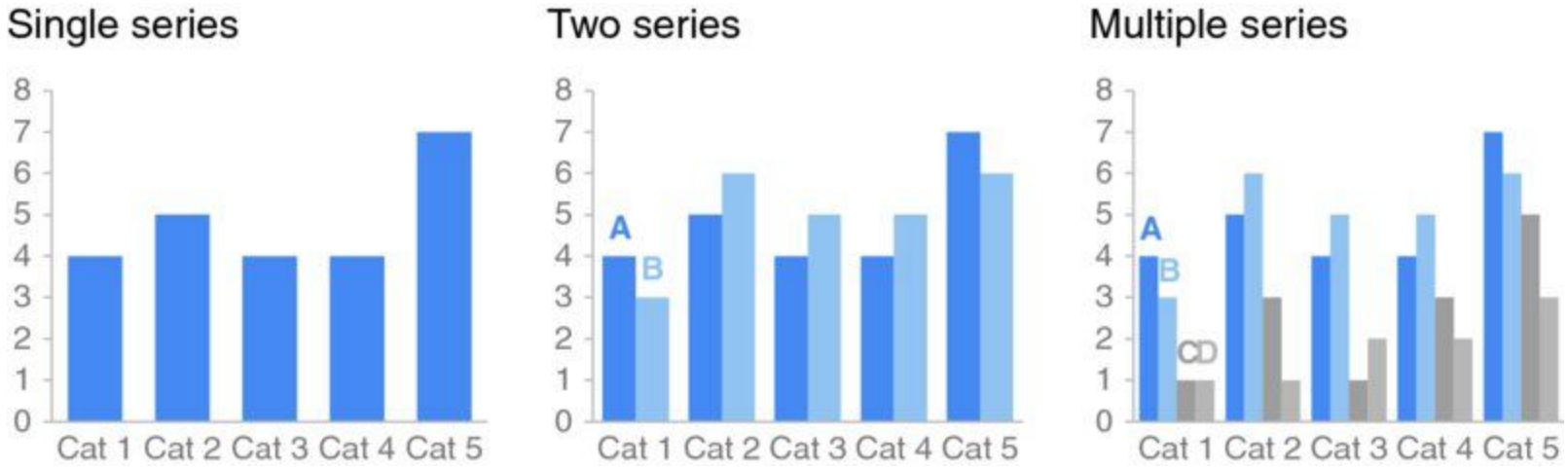
y-axis moved to the left

Vertical bar chart - bar width.

The bars should be wider than the white space between the bars.

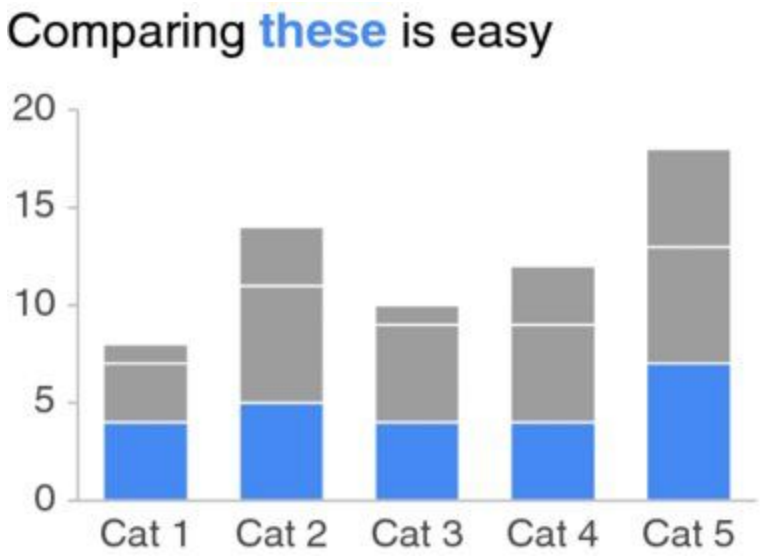
Vertical bar charts can be multiple series.

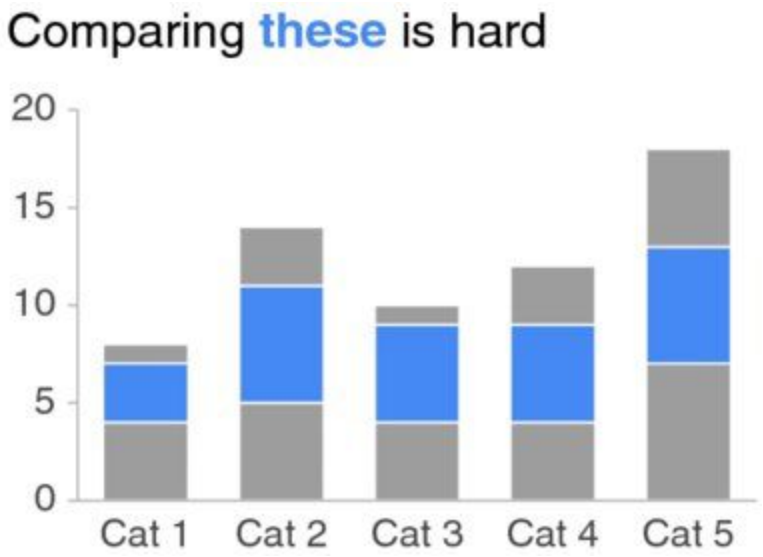
As you add more series, it becomes more difficult to focus on one at a time. Use multiple series bar charts with caution.



Stacked vertical bar chart

allows you to compare totals across categories and also see subcomponent pieces. Can quickly become visually overwhelming.





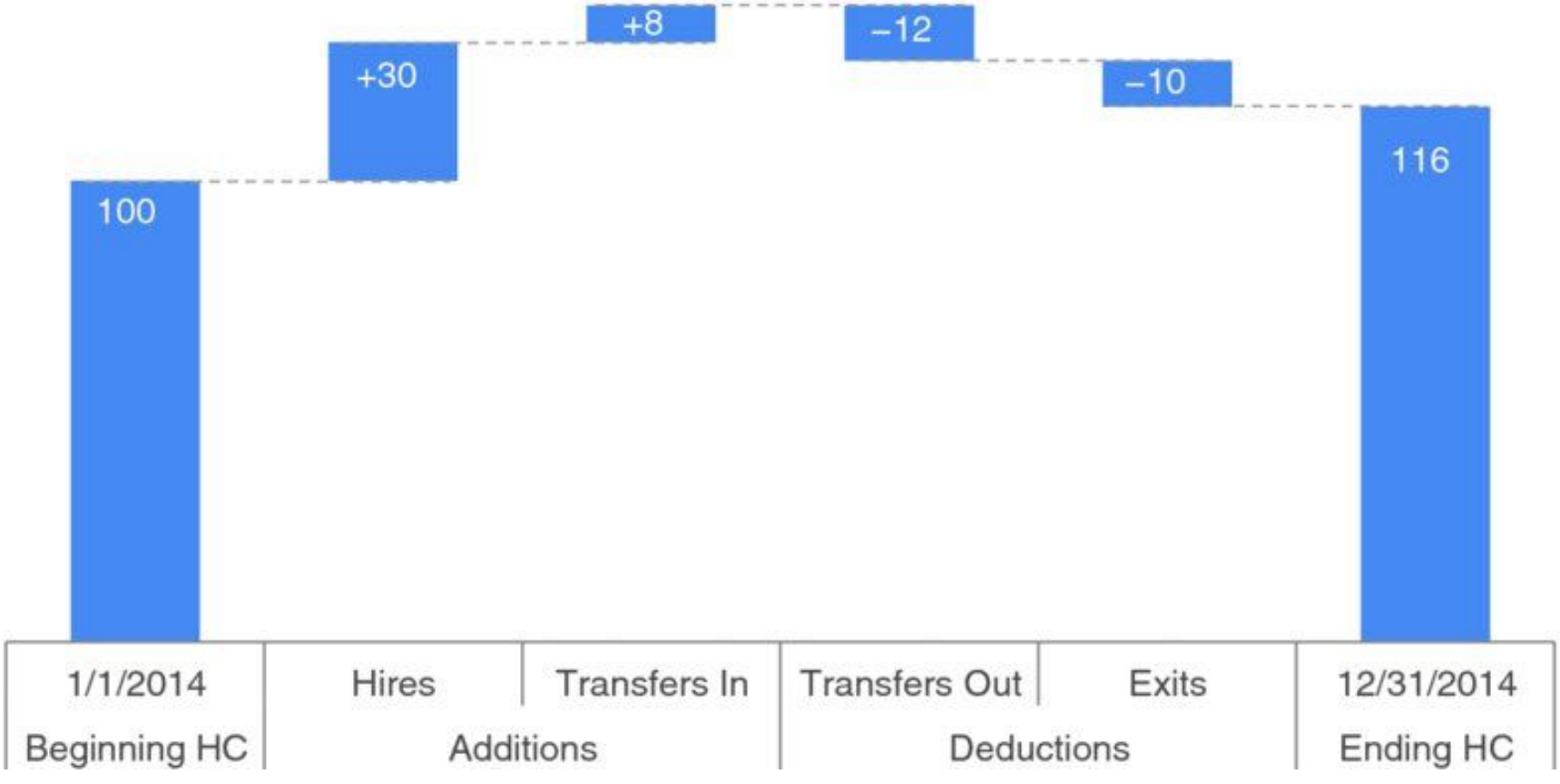
Waterfall chart

Can be used:

1. **To pull apart** the pieces of a stacked bar chart (to focus on one at a time)
2. To show a starting point, increases and decreases, and the resulting ending point.

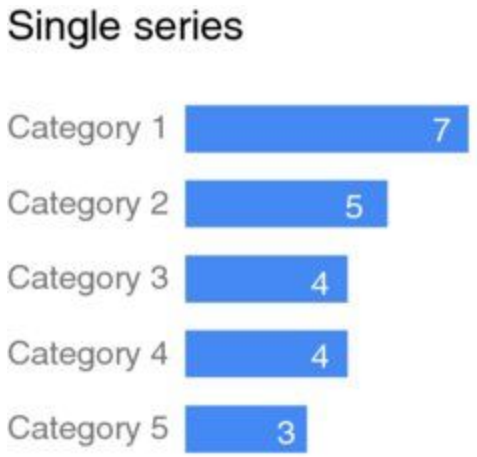
2014 Headcount math

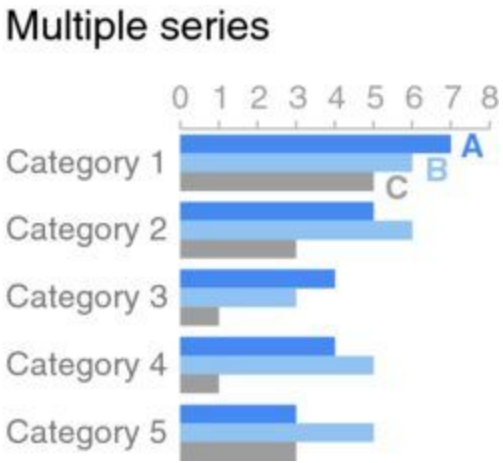
Though more employees transferred out of the team than transferred in,
aggressive hiring means overall headcount (HC) increased 16% over the course of the year.



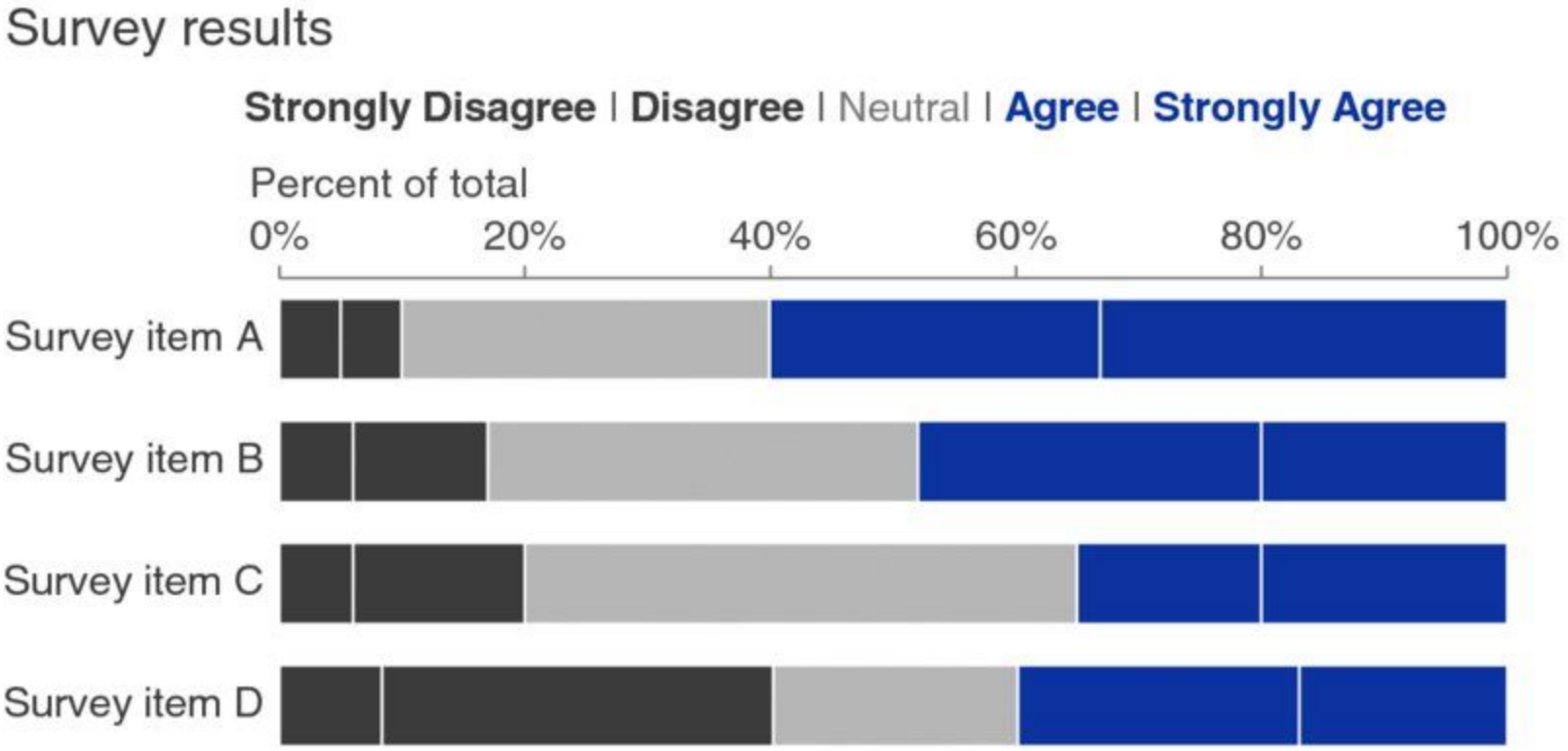
Horizontal bar chart

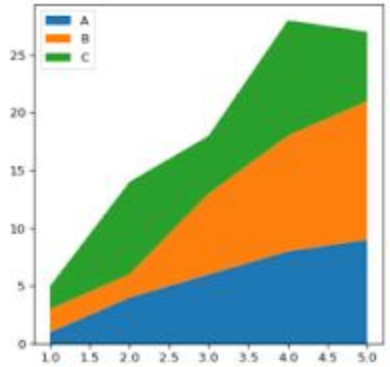
is extremely easy to read.





Stacked horizontal bar chart.

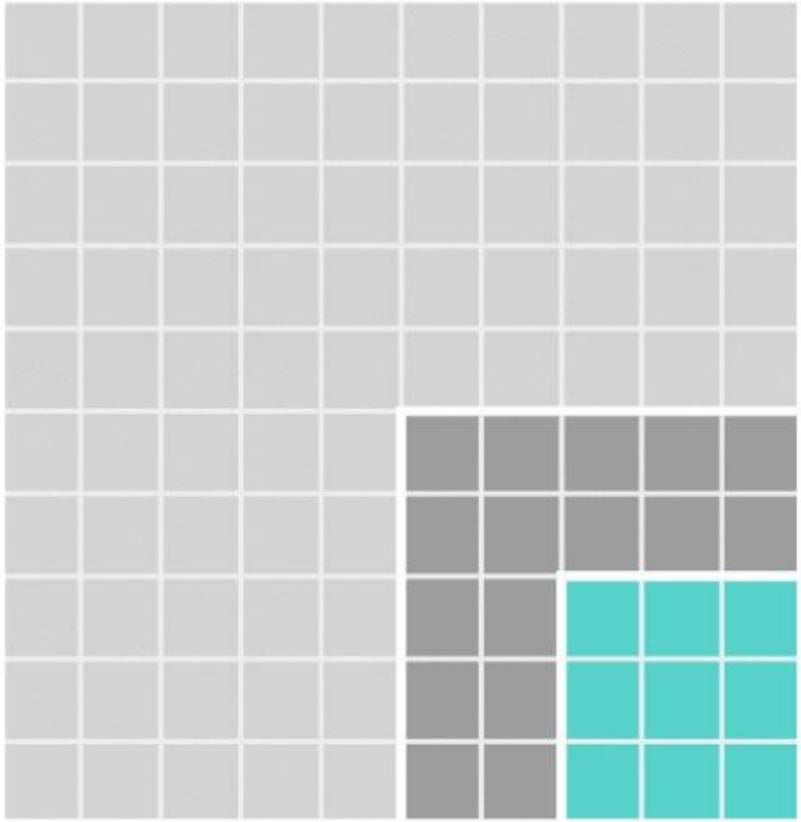




Area

- Avoid this difficult to read graph.
- Use to visualize numbers of vastly different magnitudes.

Interview breakdown



Out of every **100 phone screens**...

we bring **25 candidates onsite** for interviews...

and **extend 9 offers.**

To be avoided...

Pie Charts

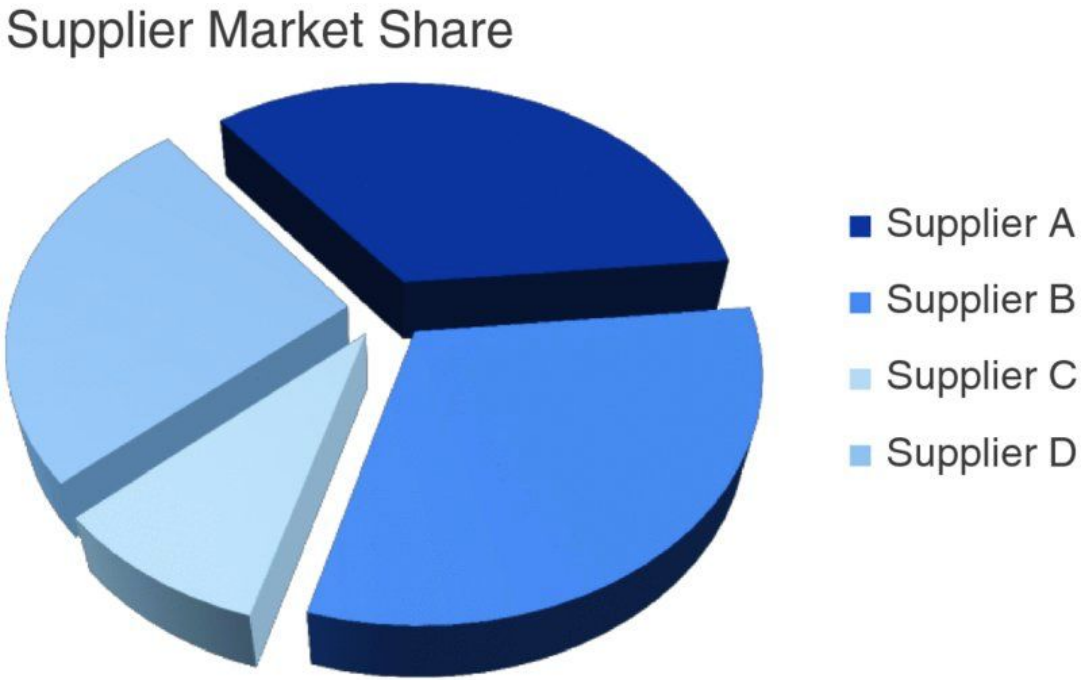
Donut Charts

3D

Secondary y-axis

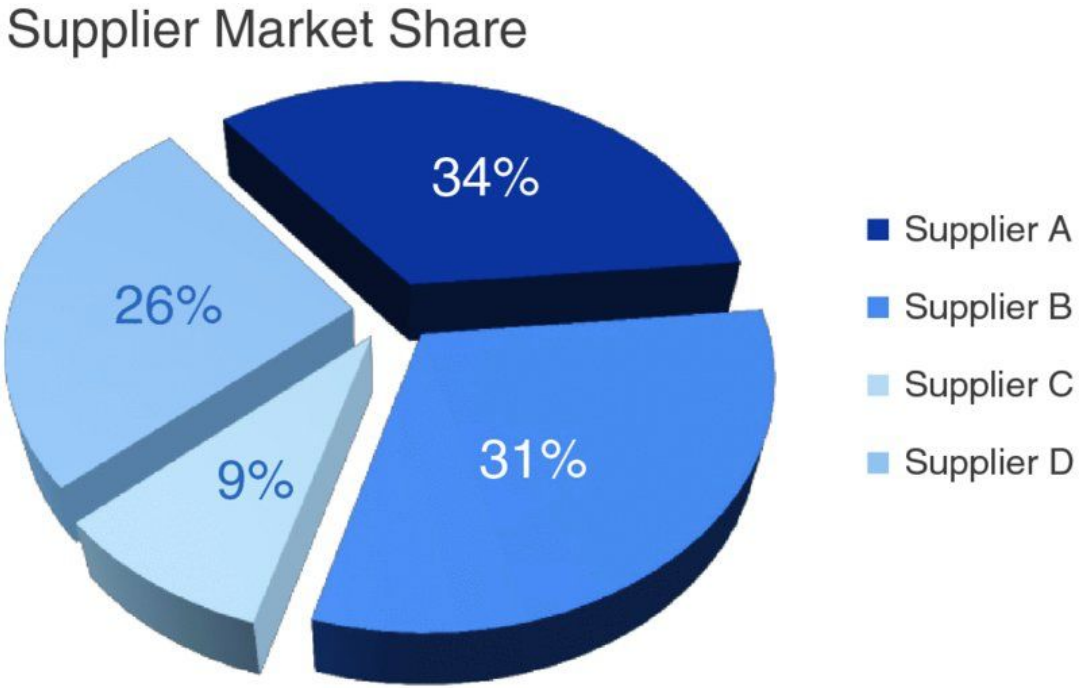
What supplier is the largest?

What proportion does supplier B makes up of the overall market?

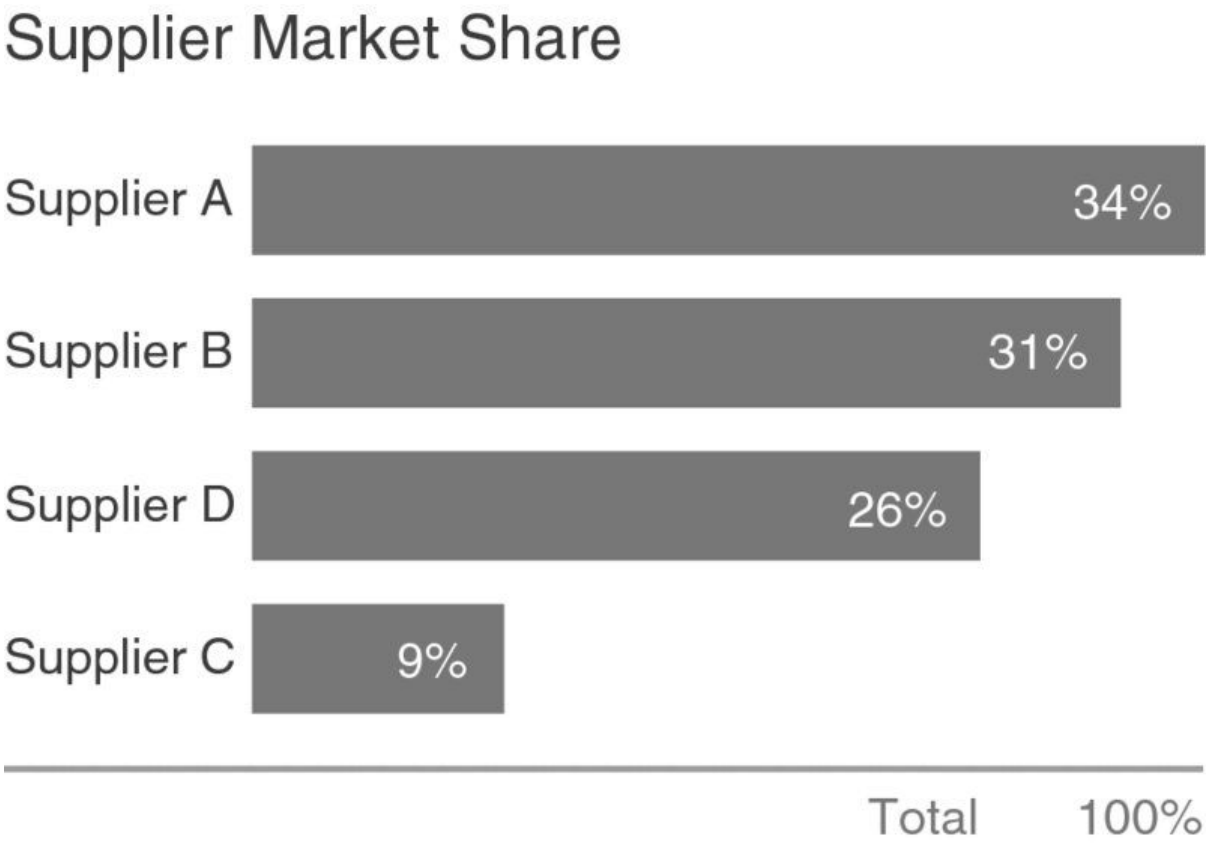


Supplier B is smaller.

3D perspective makes the pieces at the top appear farther away and thus smaller than they actually are.

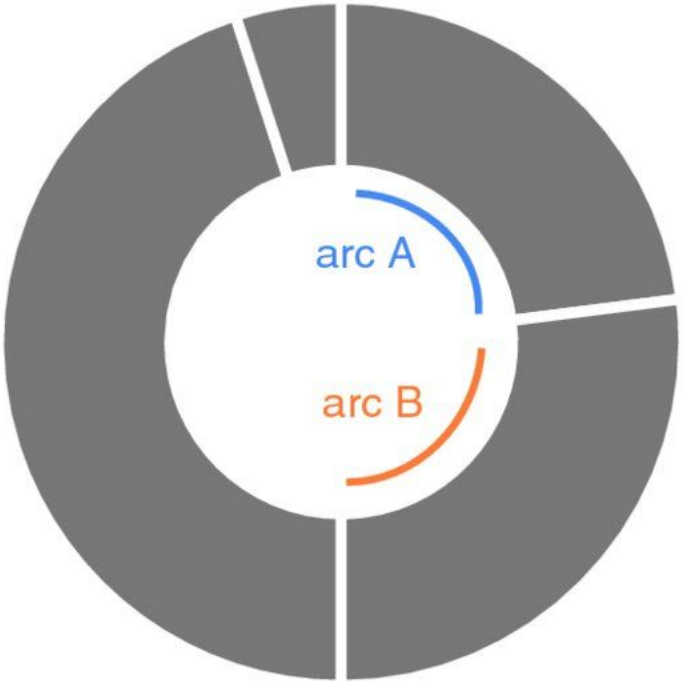


A better graph - horizontal bar chart.



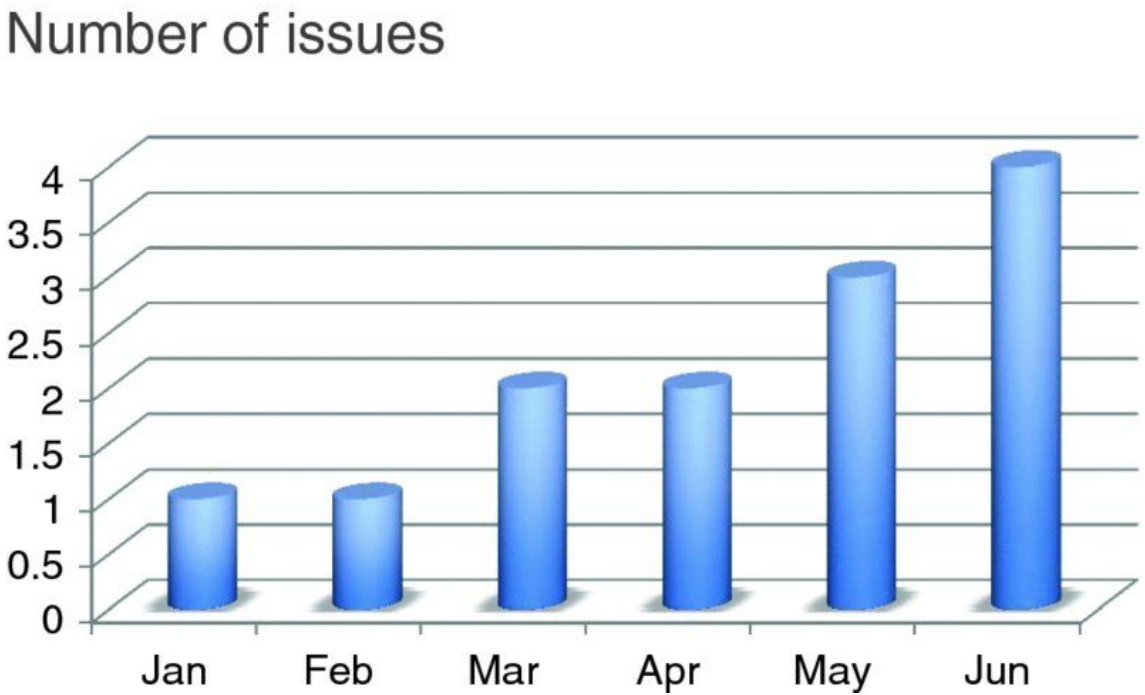
To be avoided: the donut chart.

Donut chart requires us to compare one arc length to another arc length.



3D Concerns: How many issues for Jan, Feb?

Excel plotted a single issue

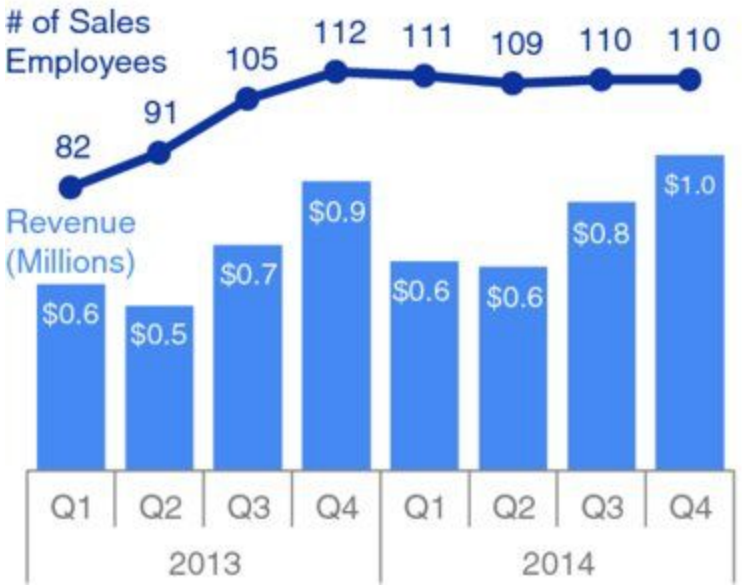


Secondary y-axis: generally not a good idea.

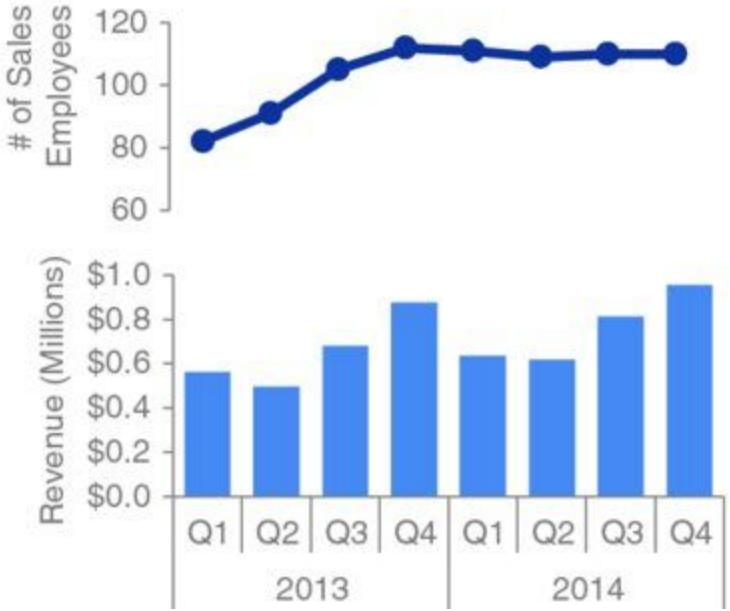
x-axis is the same for both graphs.

Better options.

Alternative 1: **label directly**



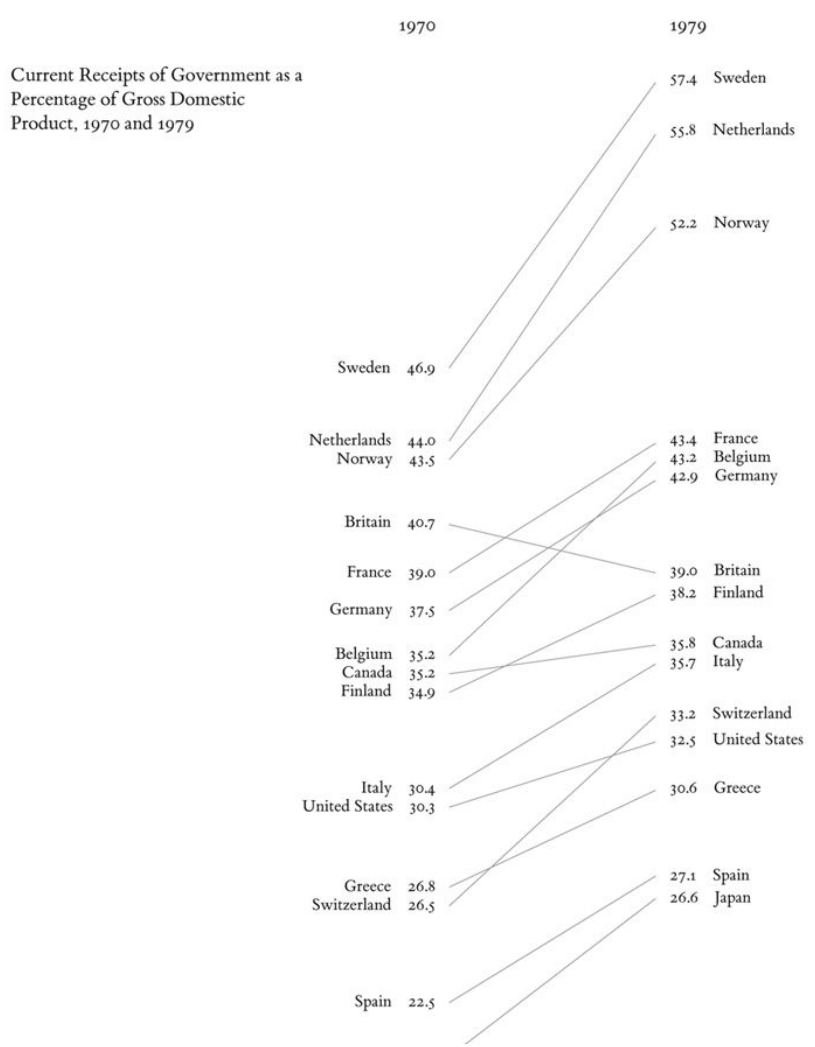
Alternative 2: **pull apart vertically**



What’s the right graph for my situation?

Whatever is the easiest for your audience to read.

Name the visual:



Slopegraph by Tufte

15 countries

by government tax collections

More vis

http://seeingdata.org/sections/inside-the-chart/