EMPIRICAL POLITICAL RESEARCH

Presentation of Data/ Tutorial 6 by Aleksandra Butneva

WHY DO WE NEED GRAPHS?

Main purpose: communicate your findings (=scientific knowledge gained throughout your research)

Simplify - our theories and the complexity behind the data

Compare - can make comparisons across variables, space or time

Identify trends - we can tell a story if we use the right visualisation tool

- however, graphs could be misused (which happens quite often)

It's too abstract for anyone to understand.
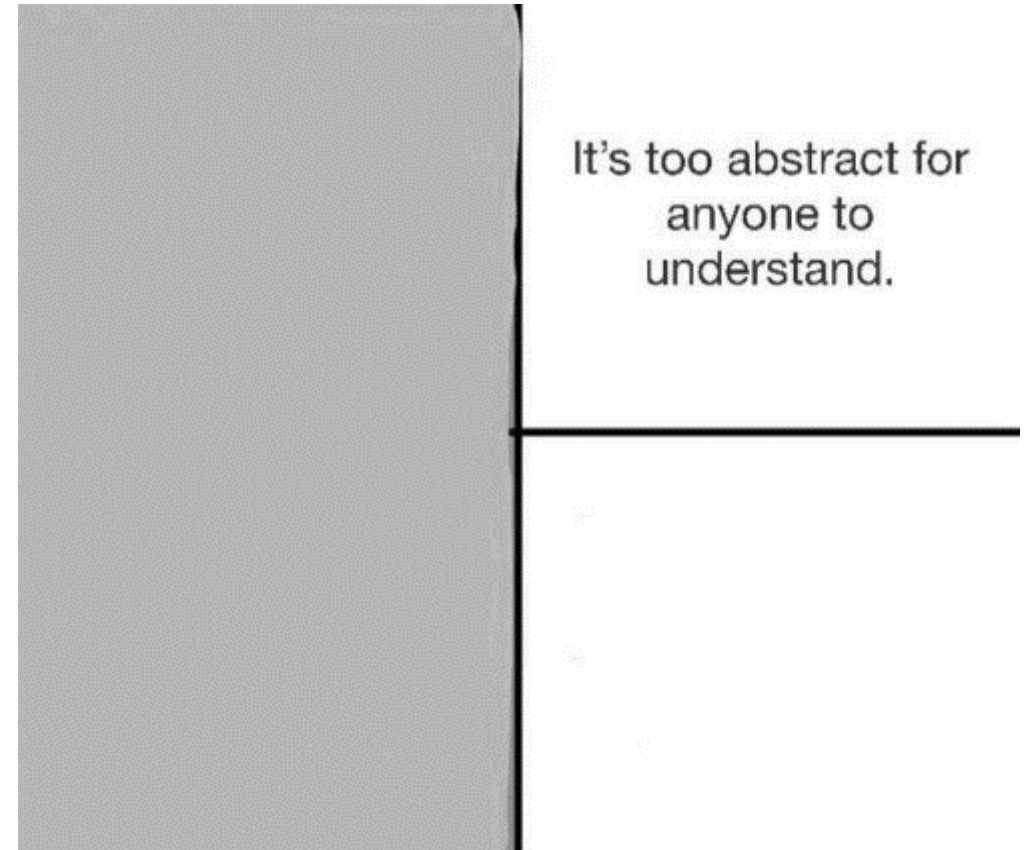
Can they understand?

HOW DO YOU GET THERE? EXPERT OPINIONS ABOUT GOOD GRAPHS GATHERED…

Draw only necessary lines and shapes

Avoid redundancy: do not repeat what has already been said

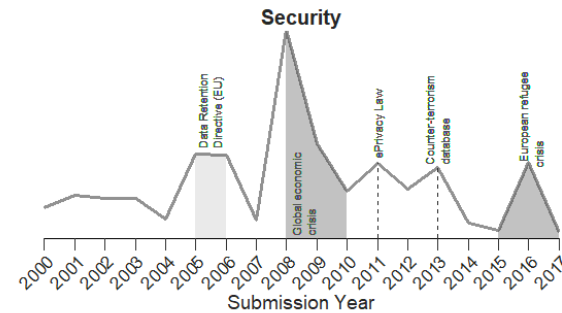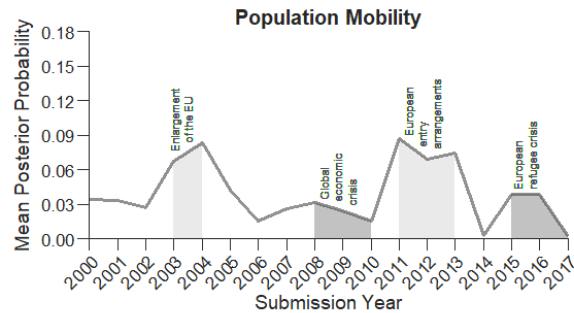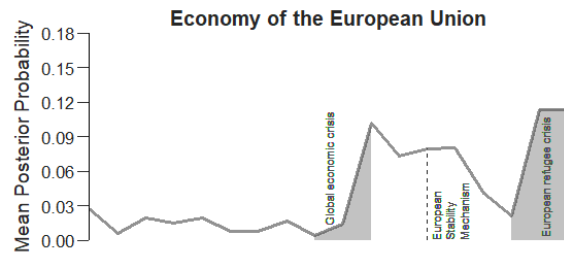Work in black-and-white (you have to pay for colours in publications)

No chart-junk; 3D-effects are dangerous

Be intuitive and consise, get your message across

HOW ARE GRAPHS BORN?

What you see:

What I see:

GUIDELINES FOR CREATING PUBLISHABLE GRAPHS
(NOT FUNNY GRAPHS)

**Data content:** it does not make sense to use graphs to display very small amounts of data.

Relevance: graphs are only as good as the data they display

Complexity: avoid unnecessary complexity

Distortion: graph should not distort the values it portrays

Clear labelling: titles, axes, legends, data labels, etc.

That's Jake...he's always been something of an outlier.

cos(y) function

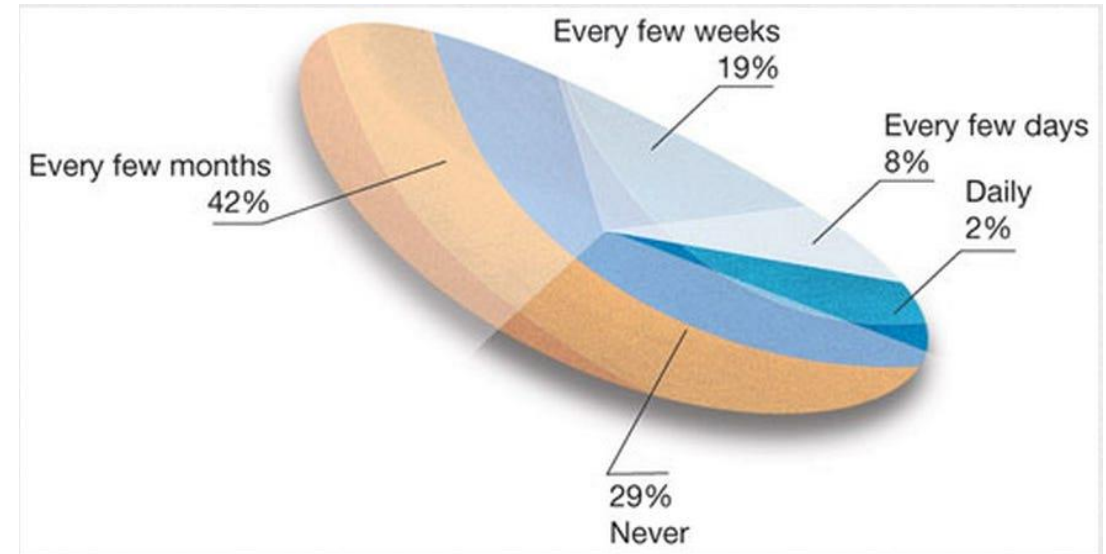spikeomann.com
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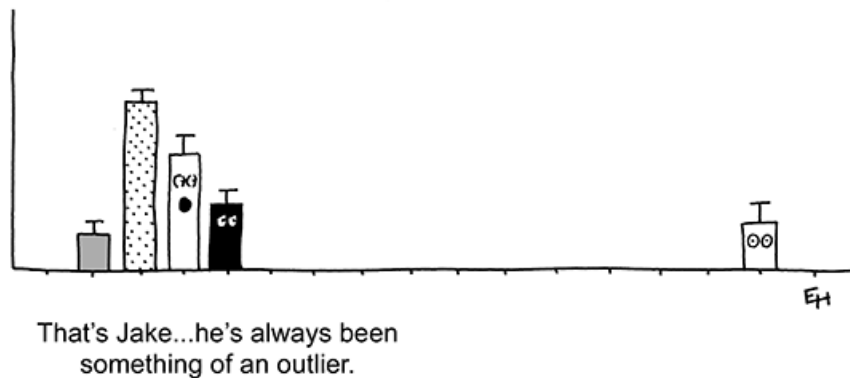
GRAPH TYPES: PIE CHARTS

Presenting small amounts of data

Values need to sum to 100 %

You need to have variation between values

Rarely effective

What is wrong with this one?

GRAPH TYPES: BAR CHARTS

What is wrong with this one?

When you need to visualize the frequency of your data

Used for nominal and ordinal variables

You can compare across quantities

Read more here:
https://www.businessinsider.com/the-27-worst-charts-of-all-time-2013-6?r=DE&IR=T#but-hey-were-bipartisan-here-heres-a-chart-from-president-obamas-2013-state-of-the-union-address-that-isnt-a-venn-diagram-but-certainly-tries-to-look-like-one-it-also-compares-apples-and-oranges--china-and-the-us-have-wildly-different-energy-needs--while-not-exactly-drawing-the-contrast-or-comparison-that-the-president-actually-wanted-really-bad-chart-14
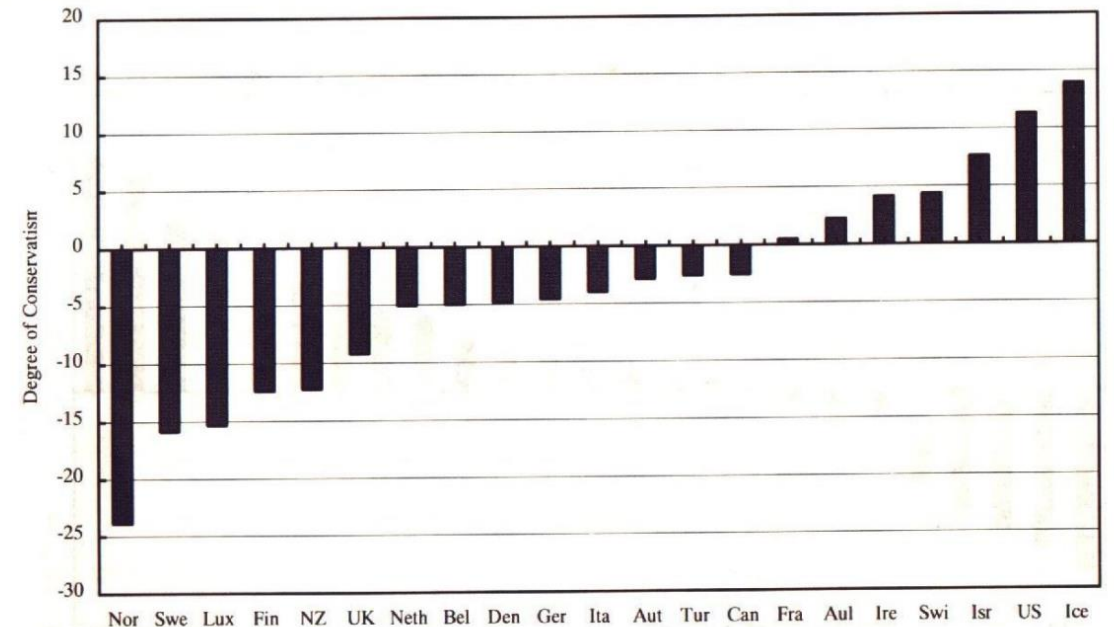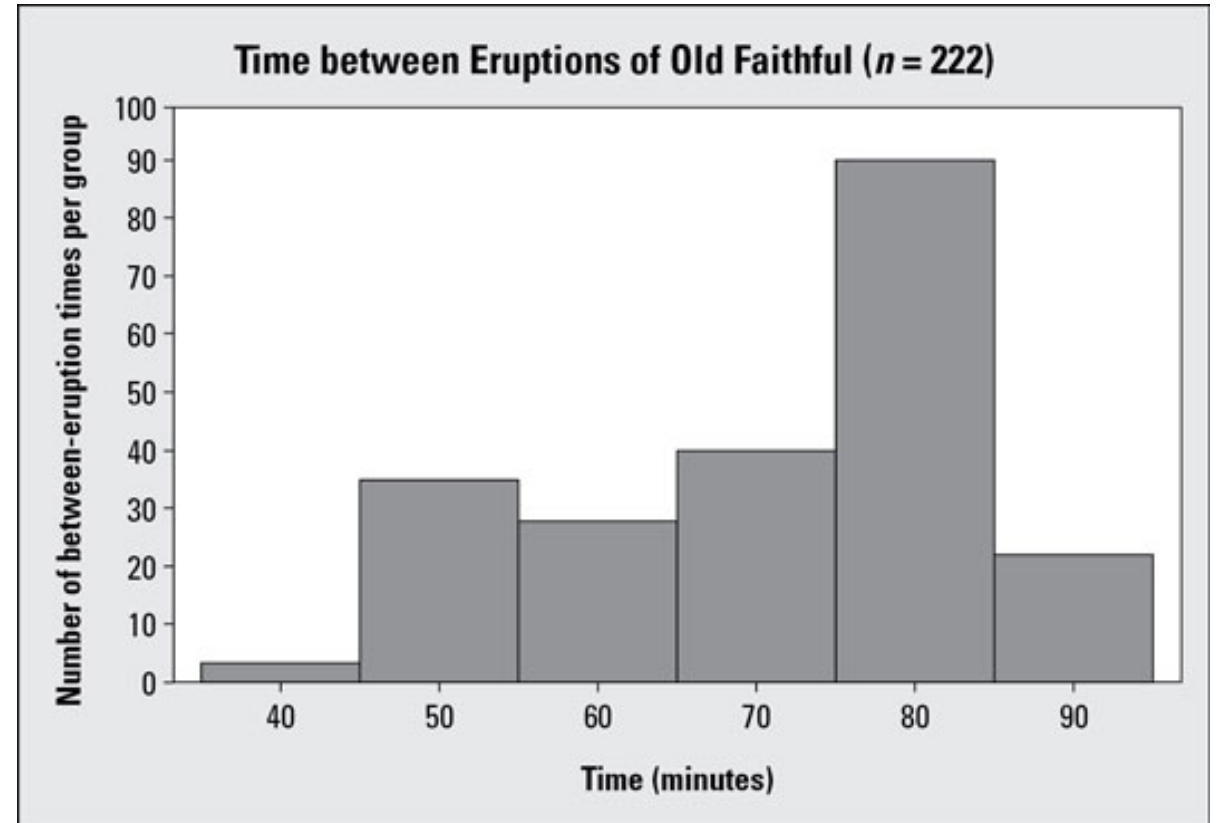
GRAPH TYPES: HISTOGRAMS

Show distribution of our variables

Range needs to be divided in equally spaced intervals, number of cases are counted in bins
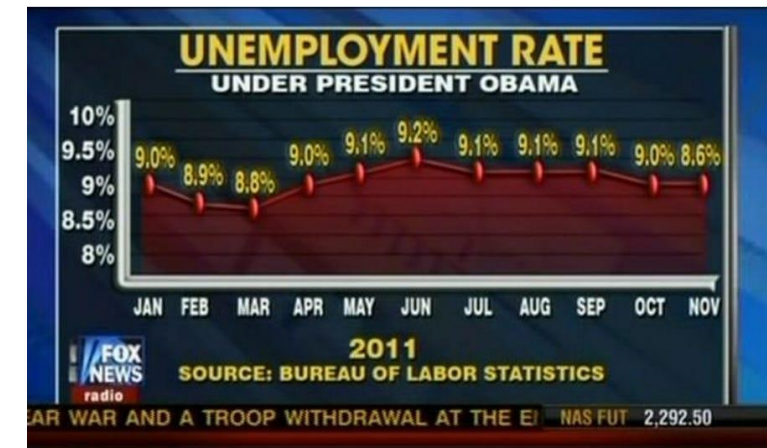

What is wrong with this one?
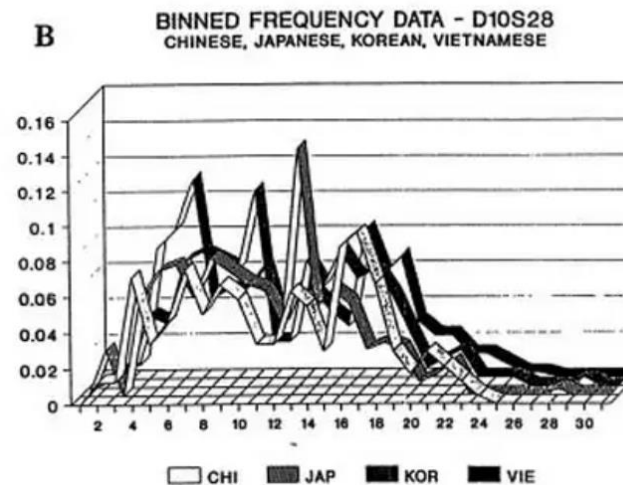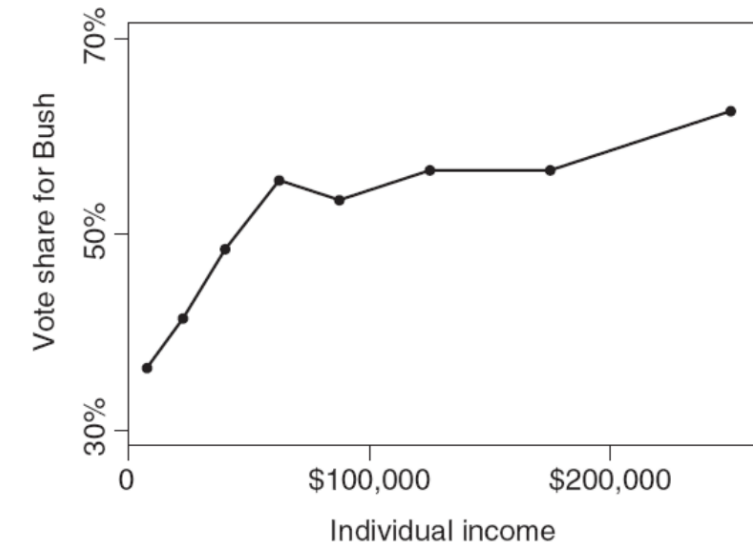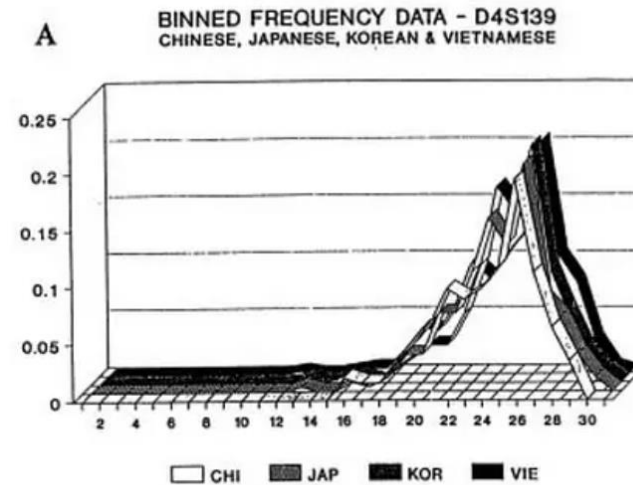

Read more here:

https://www.dummies.com/education/math/statistics/how-histograms-can-misrepresent-statistical-data/
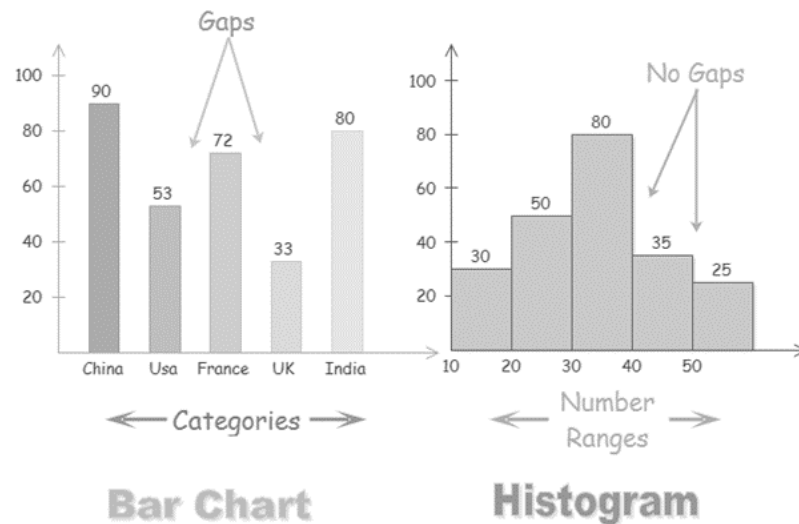
GRAPH TYPES: LINE GRAPHS

What is wrong with this all these graphs?

Connect a line through the several points of an indicator

Useful if you need to visualise a trend across data
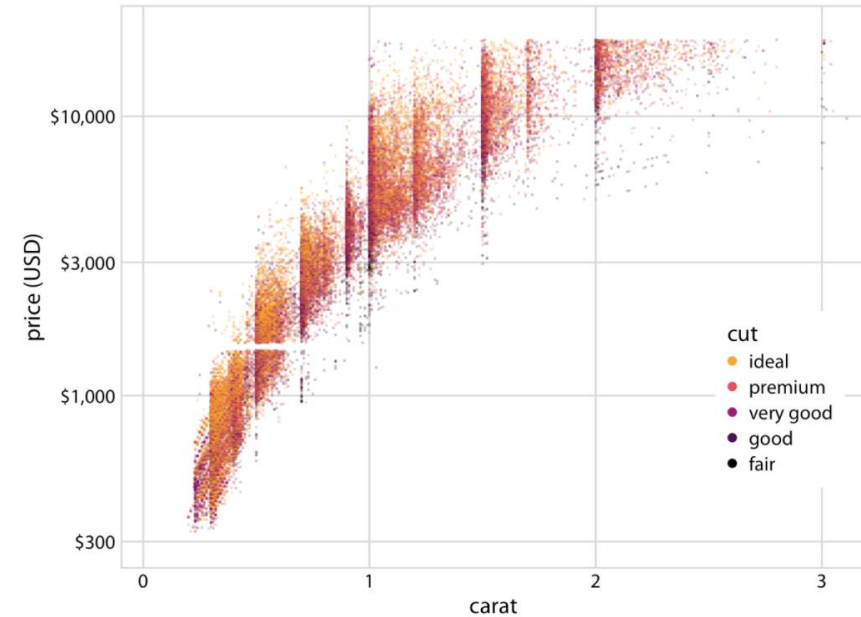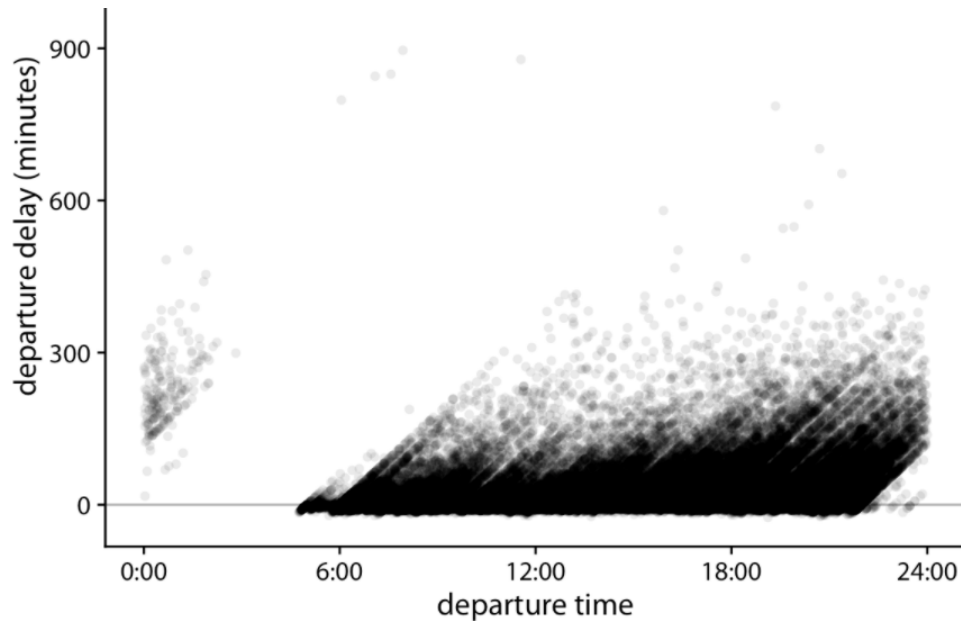
GRAPH TYPES: SCATTERPLOTS

You can visualise the relationship between two interval variables that you are interested in

DV is plotted on the y-axis,

IV is depicted on the x-axis

You can identify outliers (=deviations)

What is wrong with these graphs?

Read more here: https://clauswilke.com/dataviz/

GRAPH TYPES: BOXPLOTS

Try to understand this one:
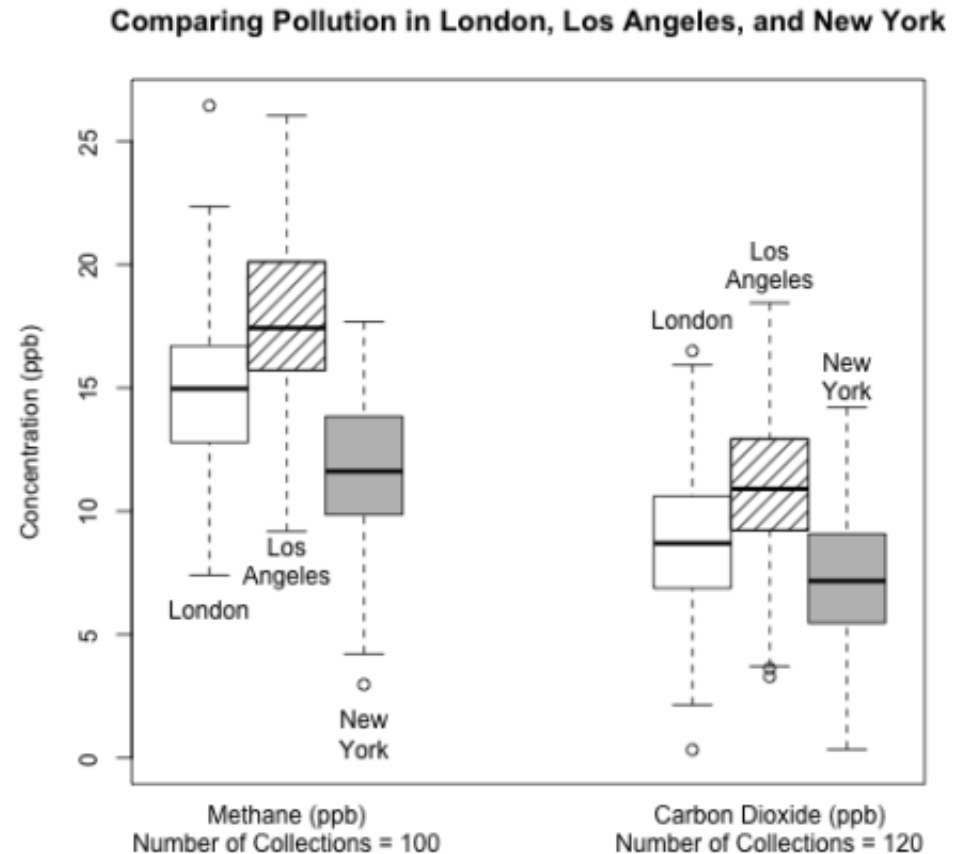
Display the distribution of different categories

Visual summary of descriptive statistics

Centre line = median

Boxes = interquartile range (25th to 75th percentile)

The 'whiskers' extend to ±1.5 ! IQR

Points more extreme than these values (outliers) are represented with dot

Comparing Pollution in London, Los Angeles, and New York

Source: https://www.r-bloggers.com/2014/04/side-by-side-box-plots-with-patterns-from-data-sets-stacked-by-reshape2-and-melt-in-r/