

# Designing Impactful Data Visualization

By Thomas Portolano

# Workshop agenda

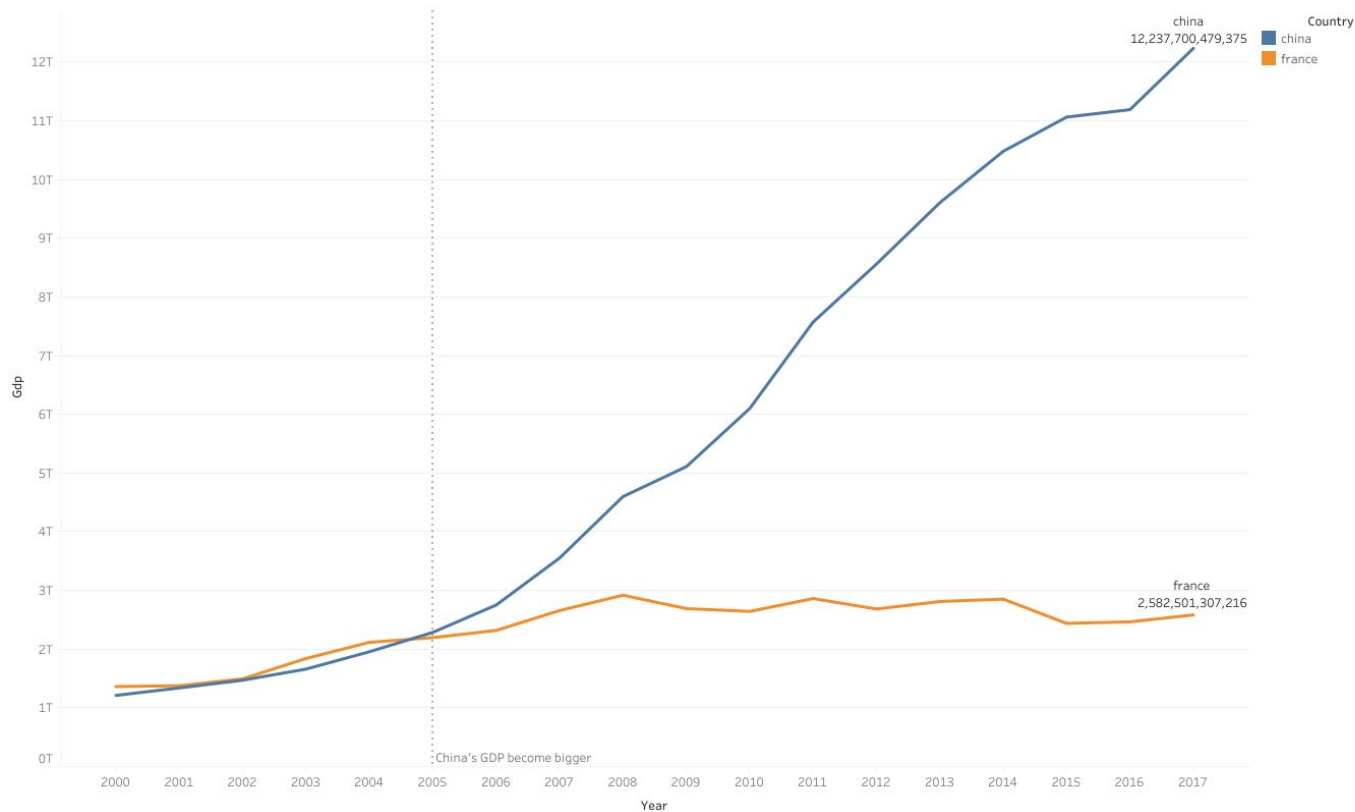
A picture is worth a thousand words	<b>3</b>
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**A picture is worth a thousand  
words**

# When did China's GDP overtake France's?

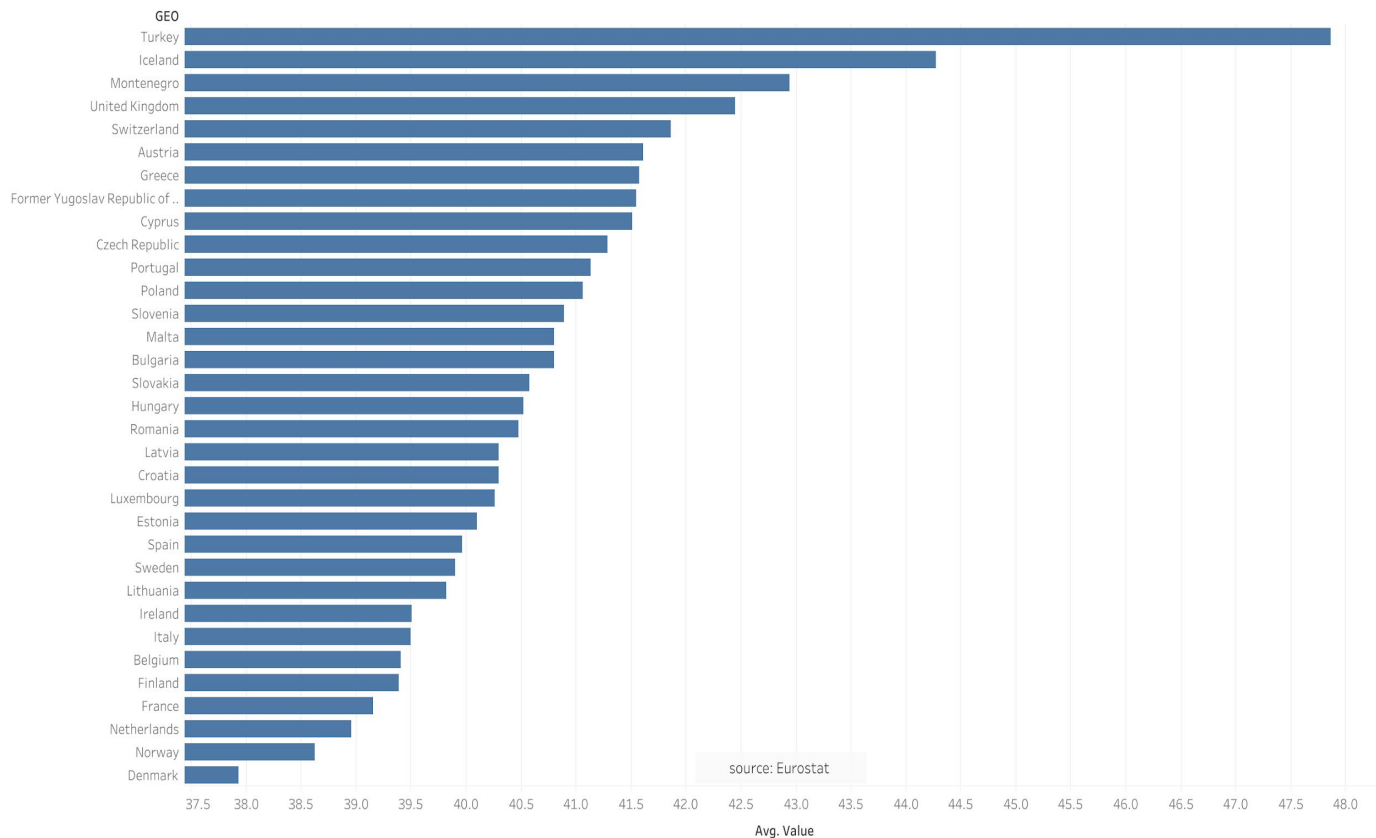
Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	1211346869605	1339395718865	1470550015081	1660287965662	1955347004963	2285965892360	2752131773355	3552182311652	4598206091384	5109953609257	6100620488867	7572553836875	8560547314679	9607224481532	10482372109961	11064666282625	11190992550229	12237700479375
France	1362248940482	1376465324384	1494286655373	1840480812641	2115742488204	2196126103718	2318593651988	2657213249384	2918382891460	2690222283967	2642609548930	2861408170264	2683825225092	2811077725703	2852165760630	2438207896251	2465134297438	2582501307216

# When did China's GDP overtake France's?



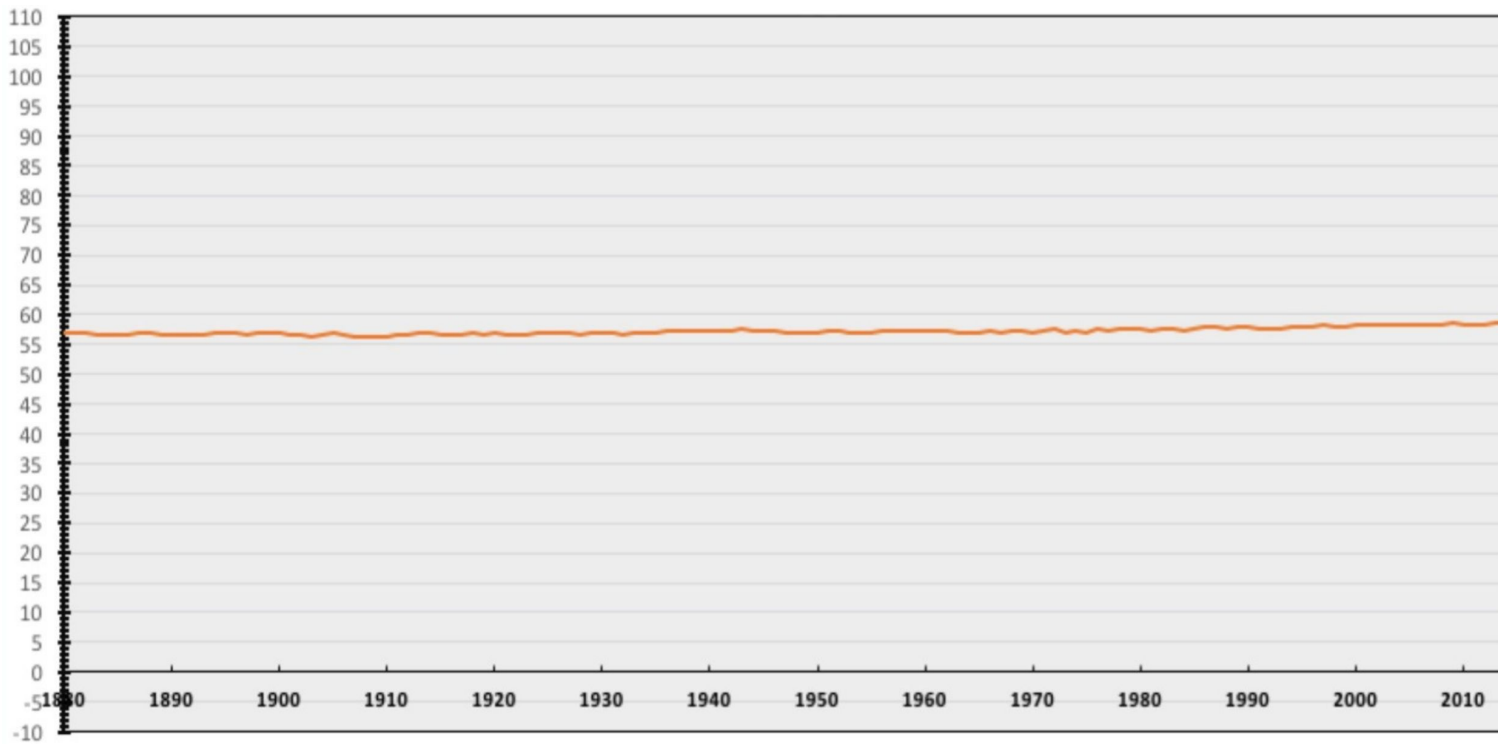
**Dataviz has become  
“convenient”**

# Are danish really that lazy?



# Is global warming total BS?

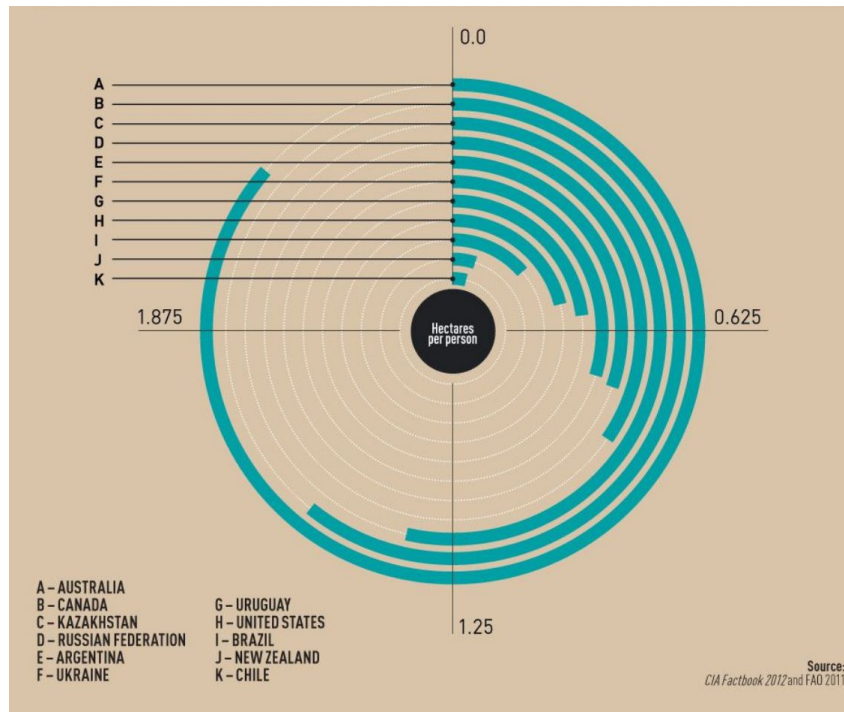
Average annual global temperature in Fahrenheit  
(1880-2015)





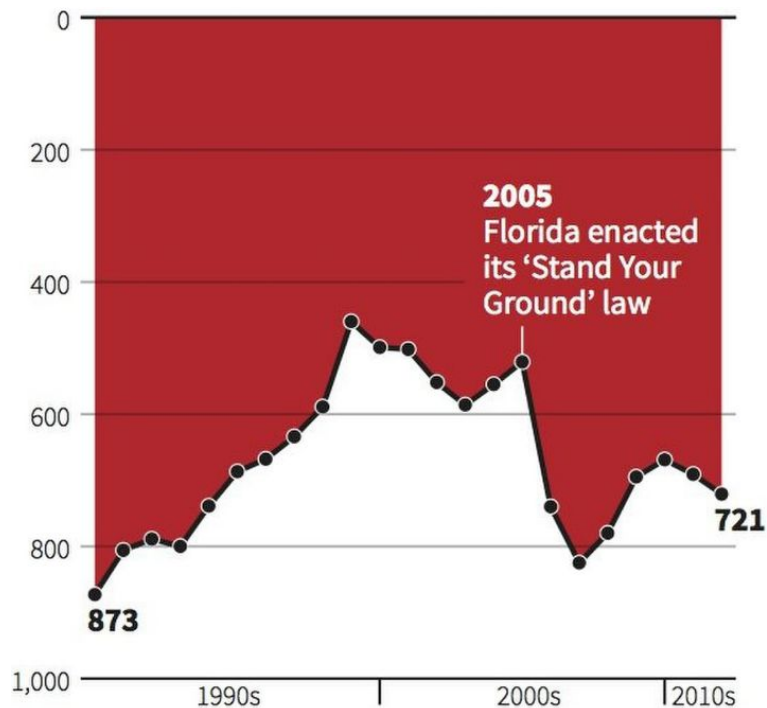
# Why you shouldn't dribbblify your data viz?

Arable land per capita  
(hectares per person)



# To the risk of misleading your readers

Gun deaths in Florida  
(Number of murders committed using firearms)



# Our ambition

# Initial questions

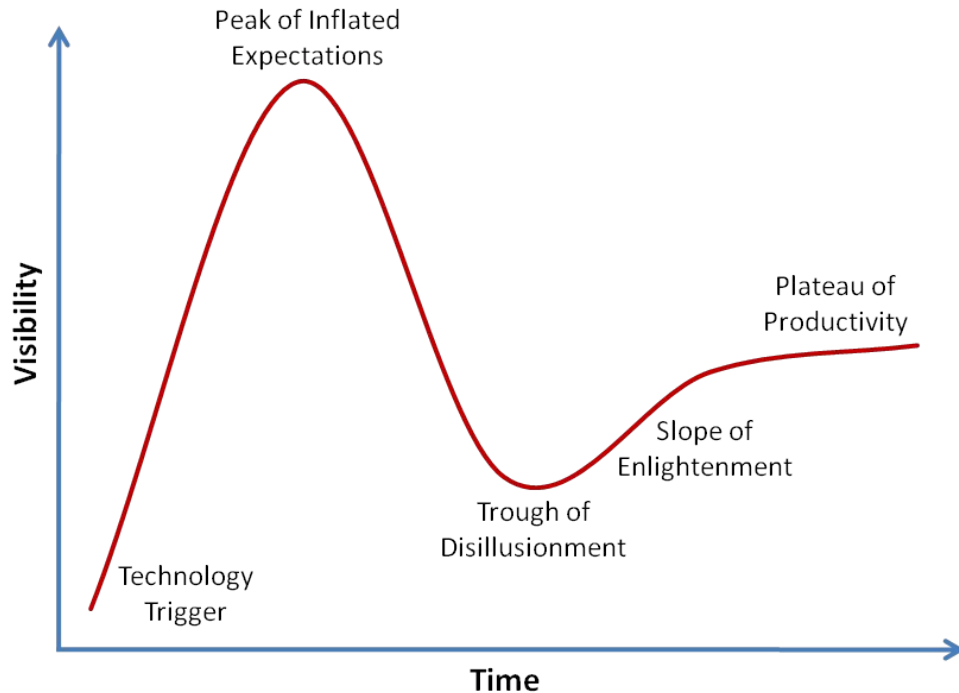
- Is the information conceptual or data driven?
- Am I declaring something or exploring something?

# Conceptual or data-driven

What's your material?

Thoughts? Qualitative data? Ideas?

Statistical and quantitative?



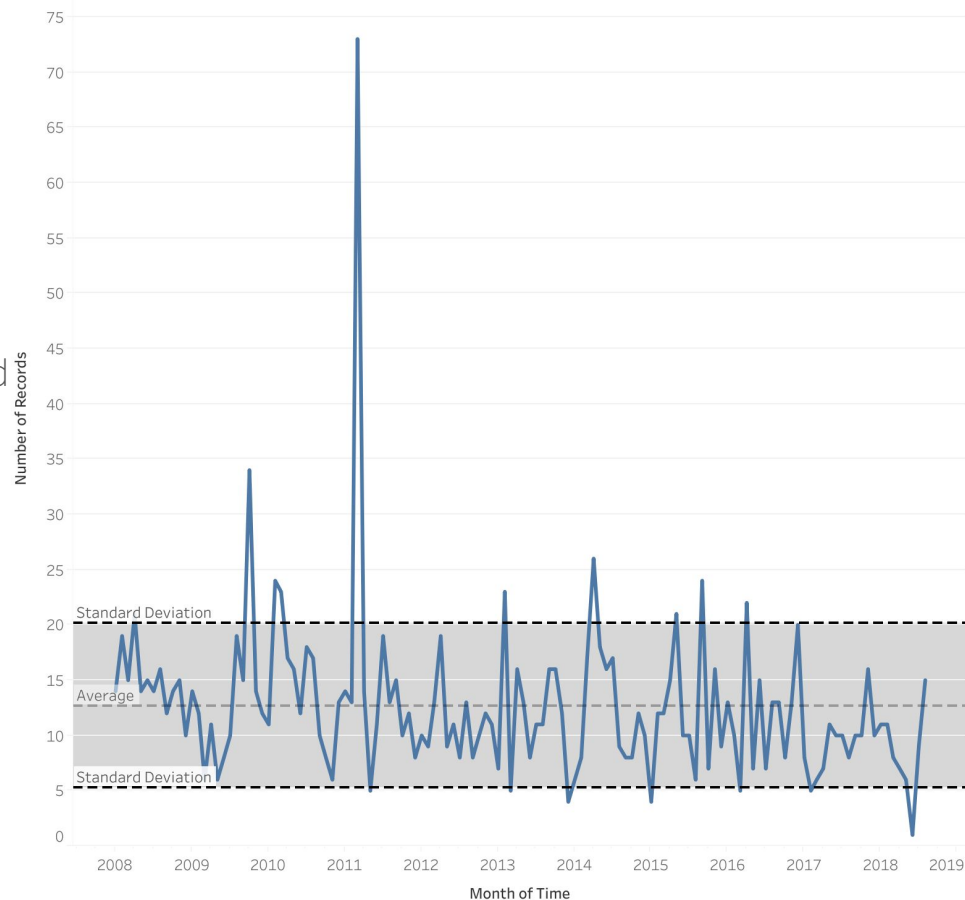
# Declarative vs Exploratory

Analysts can use a dataset to confirm or refute an hypothesis, or communicate a message.

In the first case, the key is **going fast, iterate**, try and refute.

In the second, **clarity, simplicity** and using the correct **codes**..

Earthquake variations



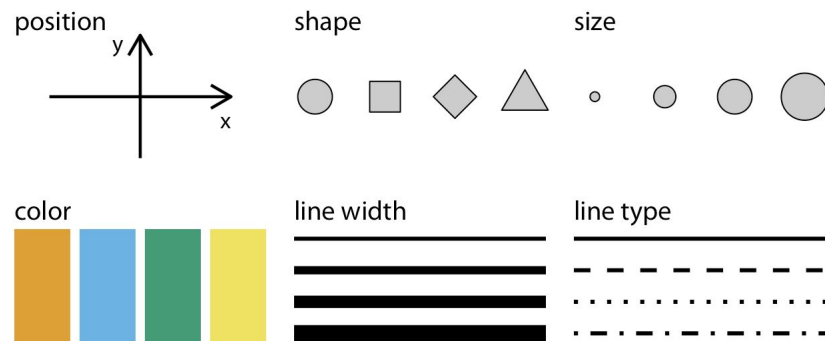
# Practice

# Know key design principles

- Principle of proportional ink
- Each type of data is preferably used with a specific plot
- Know your grammar and you're already half way there

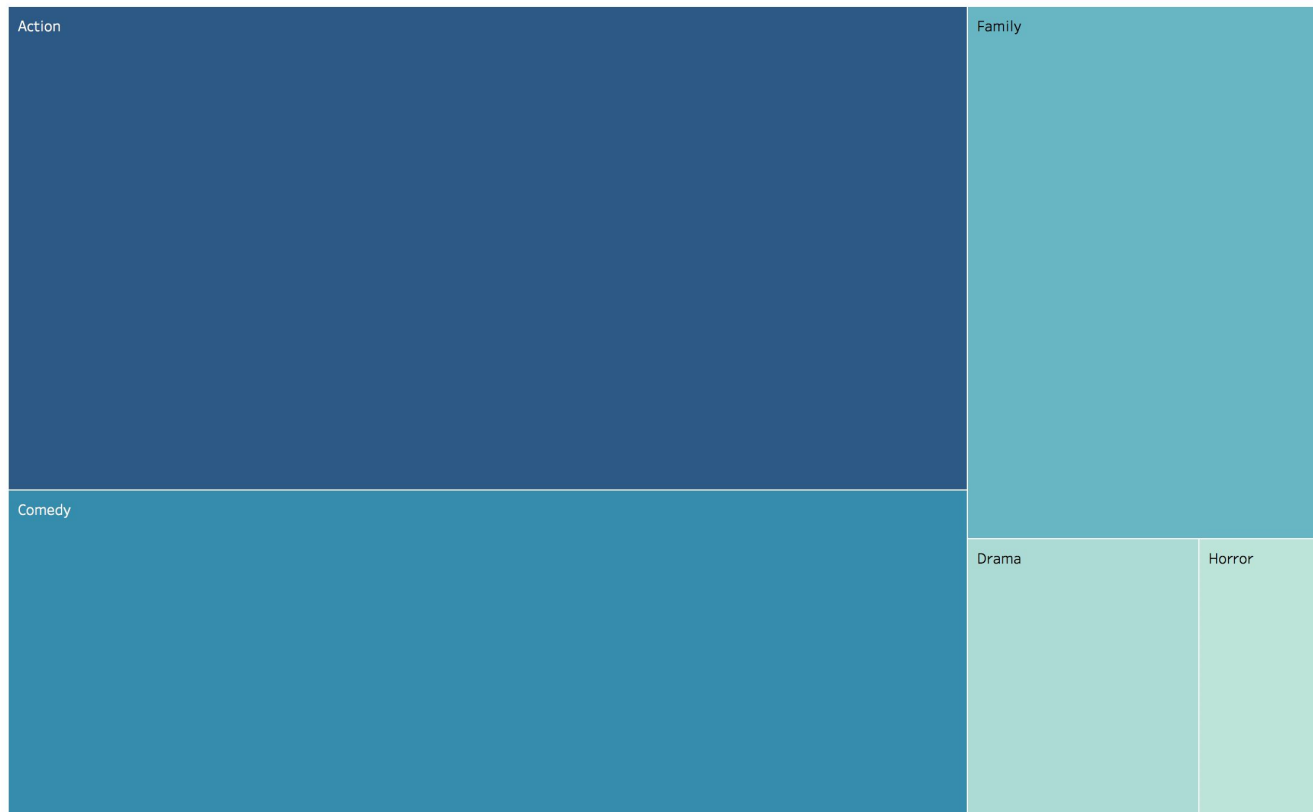


# Your toolbox

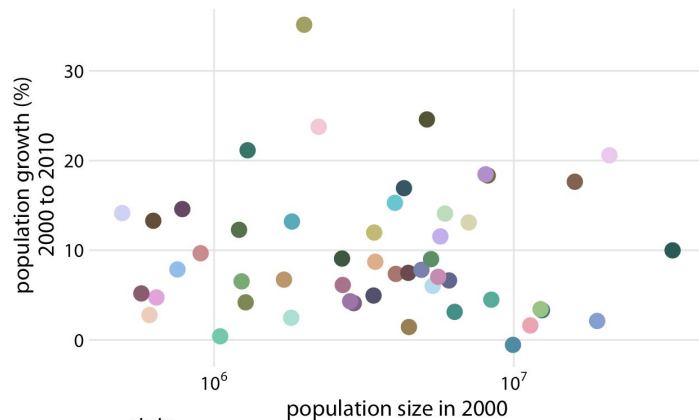


# Principle of proportional ink

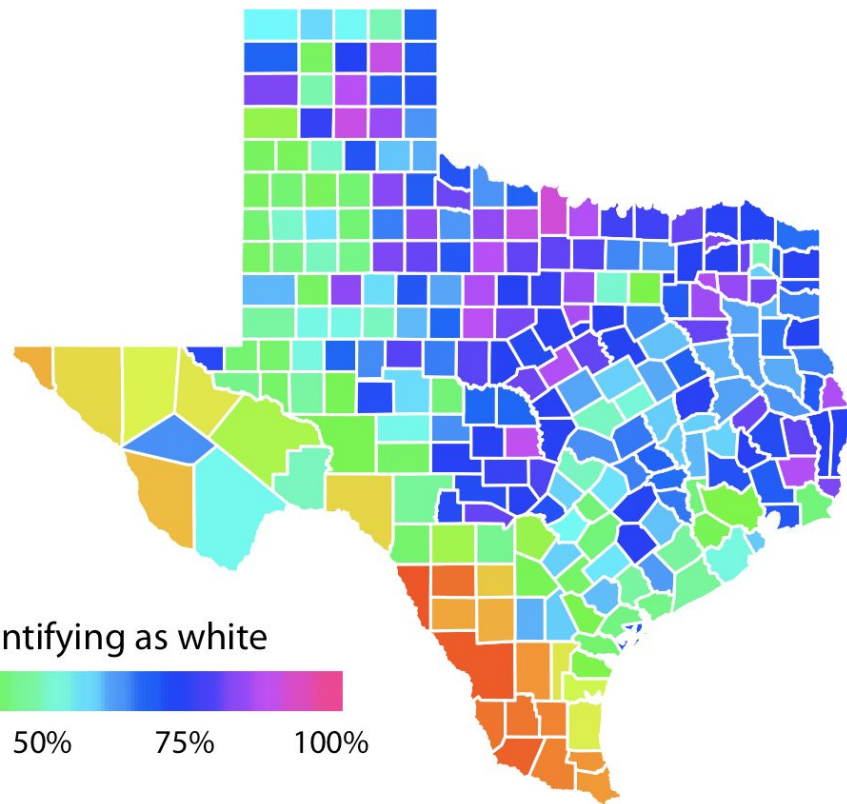
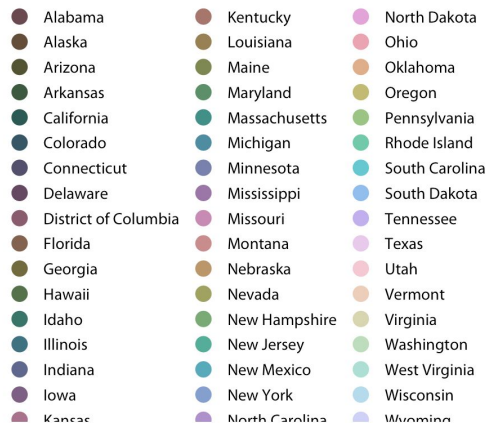
Weekend gross per movie style



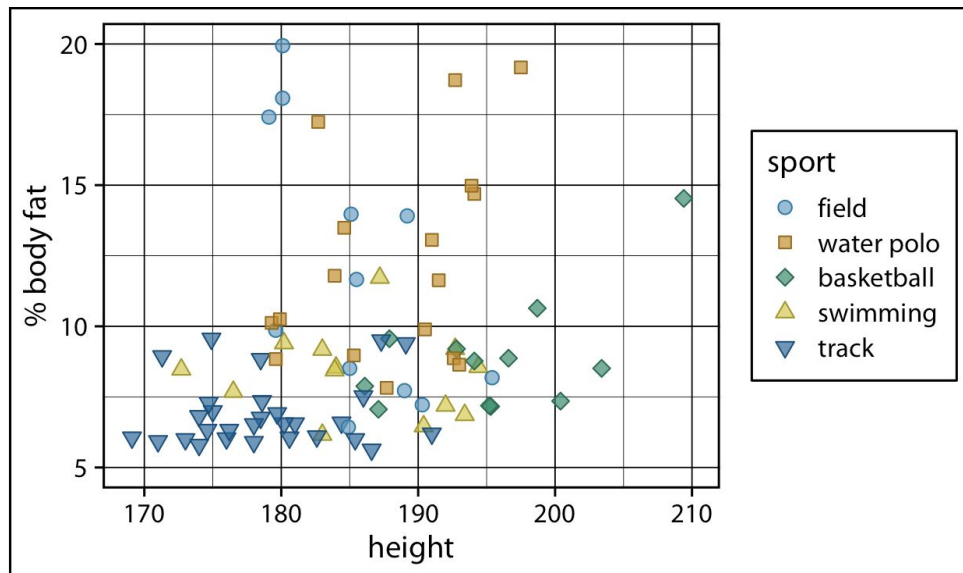
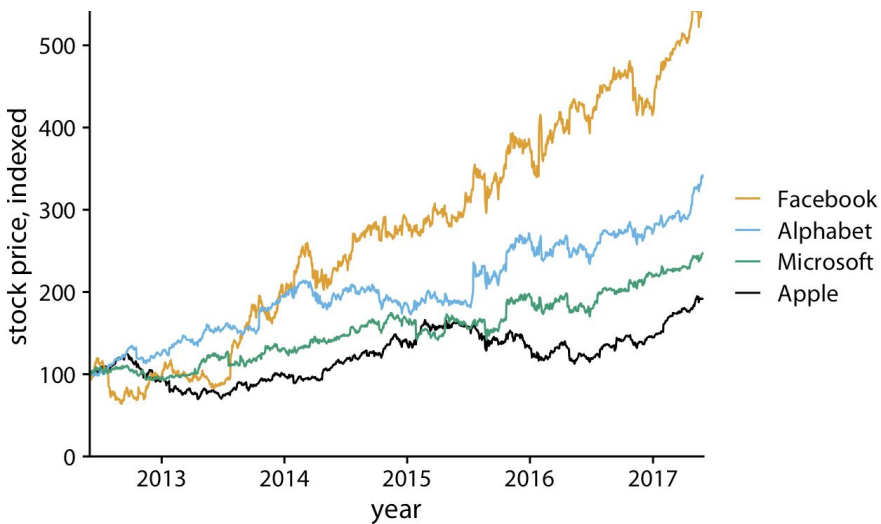
# Colors



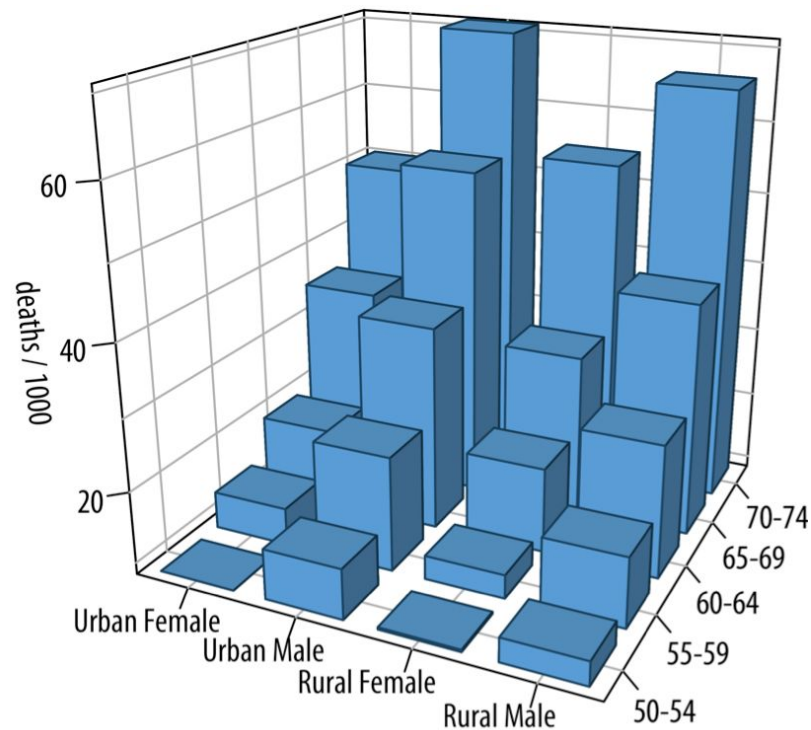
state



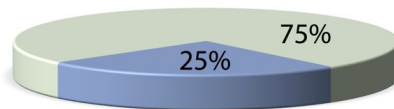
# Data ink ratio



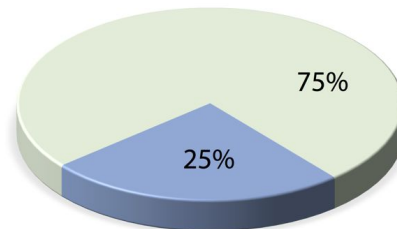
# Avoid 3D



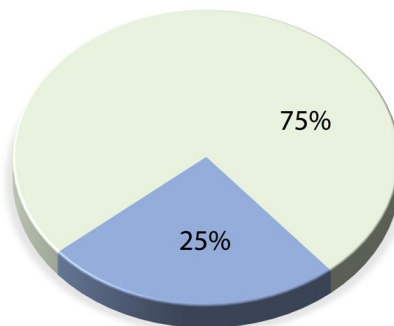
a



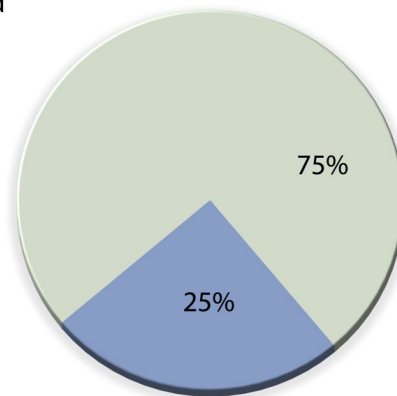
b



c



d

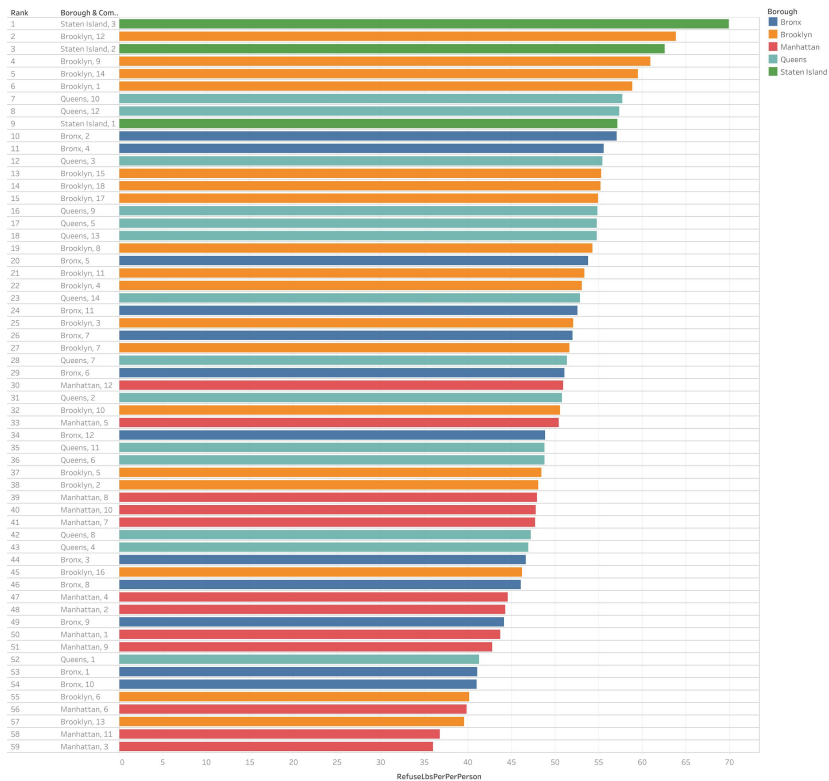


# Know your grammar

- Data visualization is a language
- For maximal impact, better to follow conventions
- Know your grammar and you're already half way there

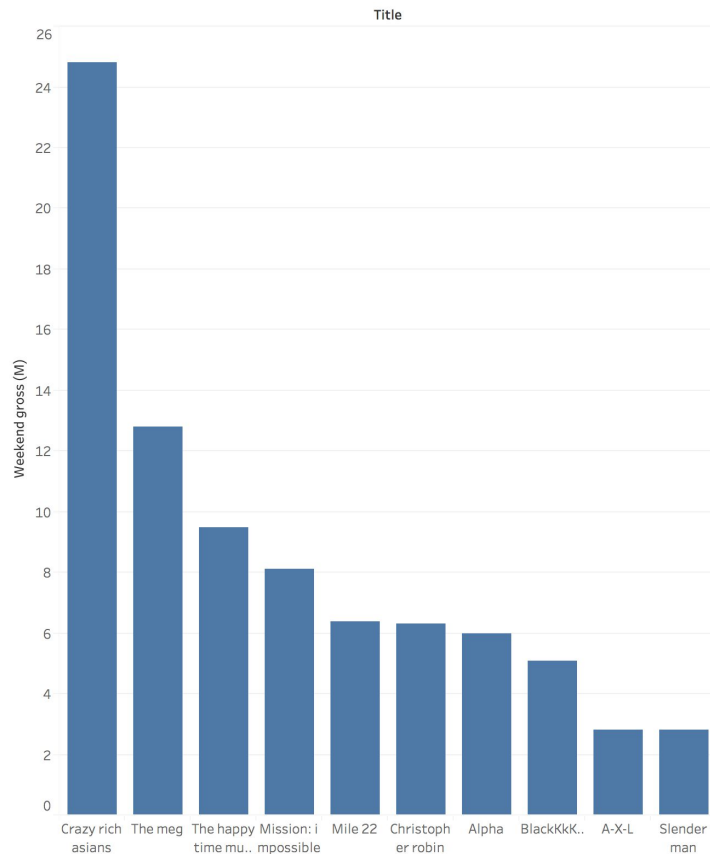
# Amounts

Horizontal bars



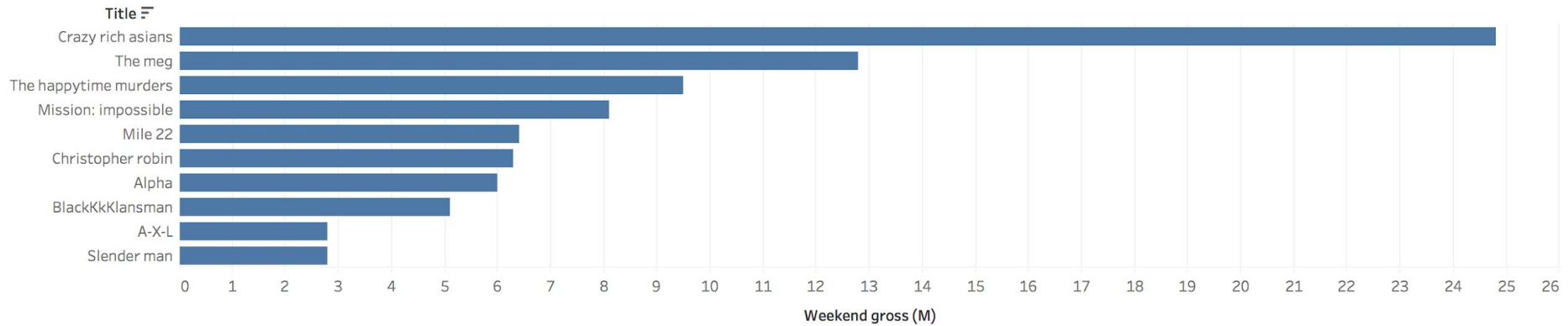
- Bar plot (horizontal or vertical)
- Grouped bars
- Stacked charts
- Gather charts per category serves a better purpose
- Dot plots

# Bar chart

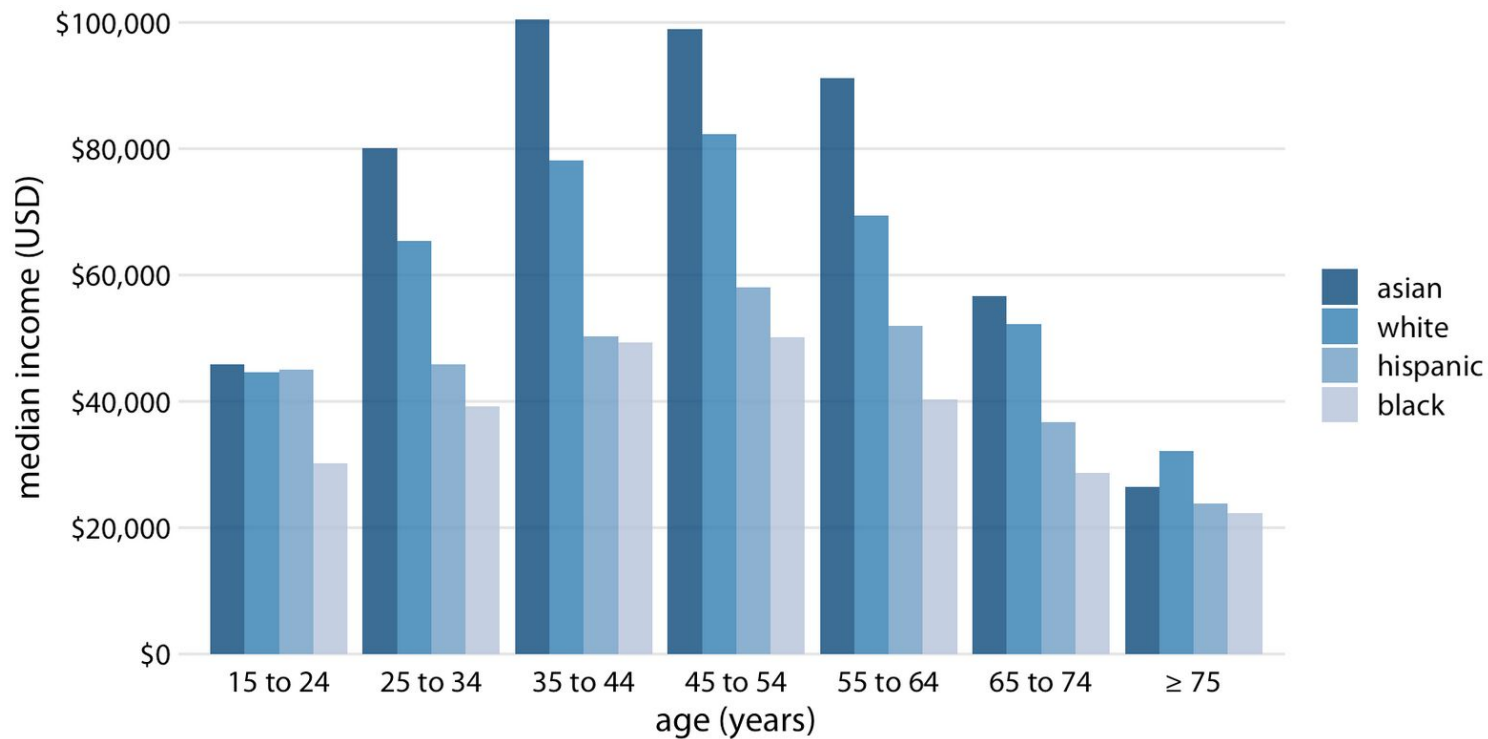




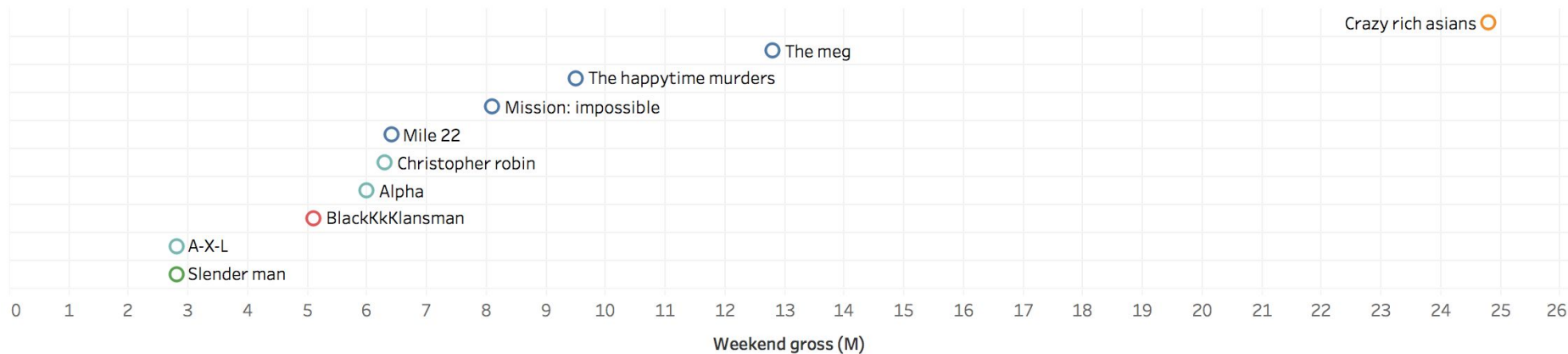
# Horizontal bar chart



# Grouped chart

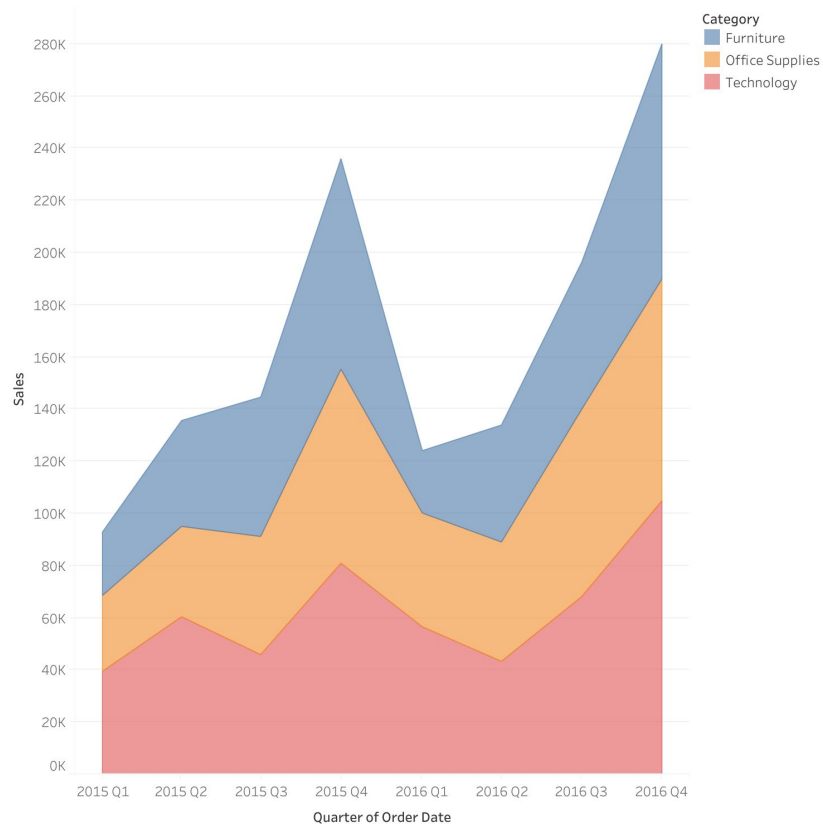


# Dot plot



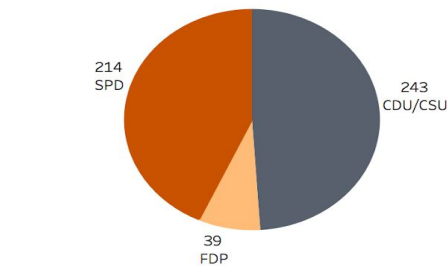
# Proportion

Quarterly Sales Trend

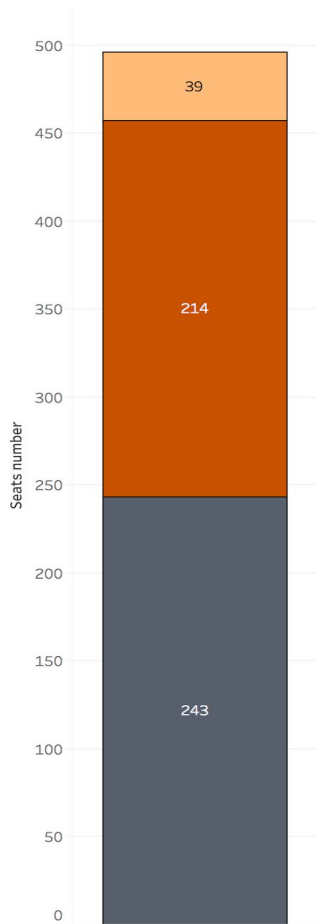


- Pie charts
- Stacked bars
- Side by side bars
- More advanced proportion visualizations

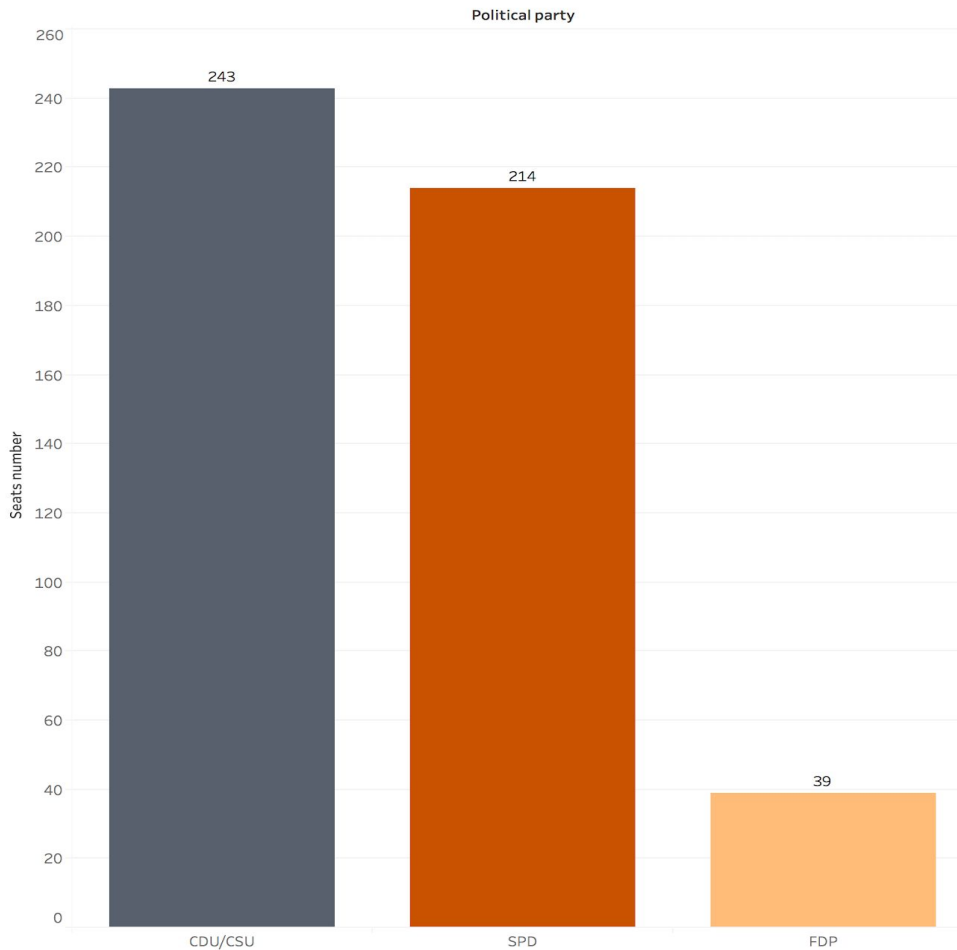
German assembly - Pie chart



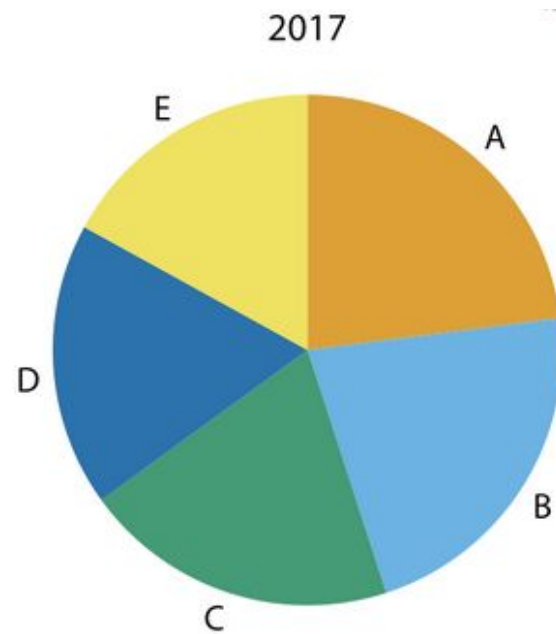
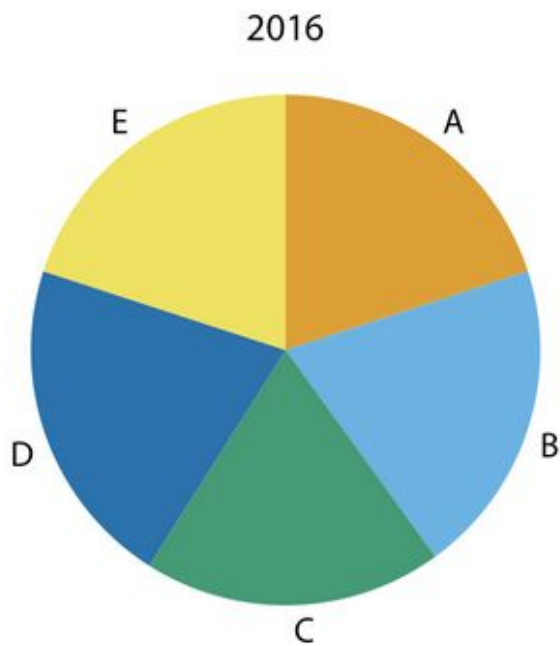
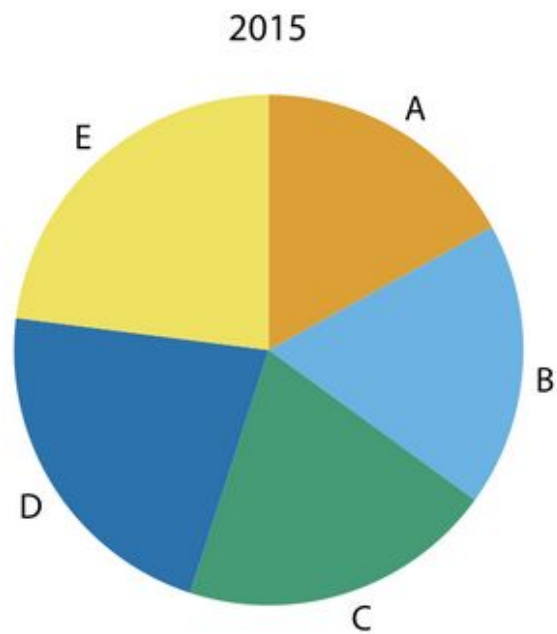
German assembly - Stacked chart



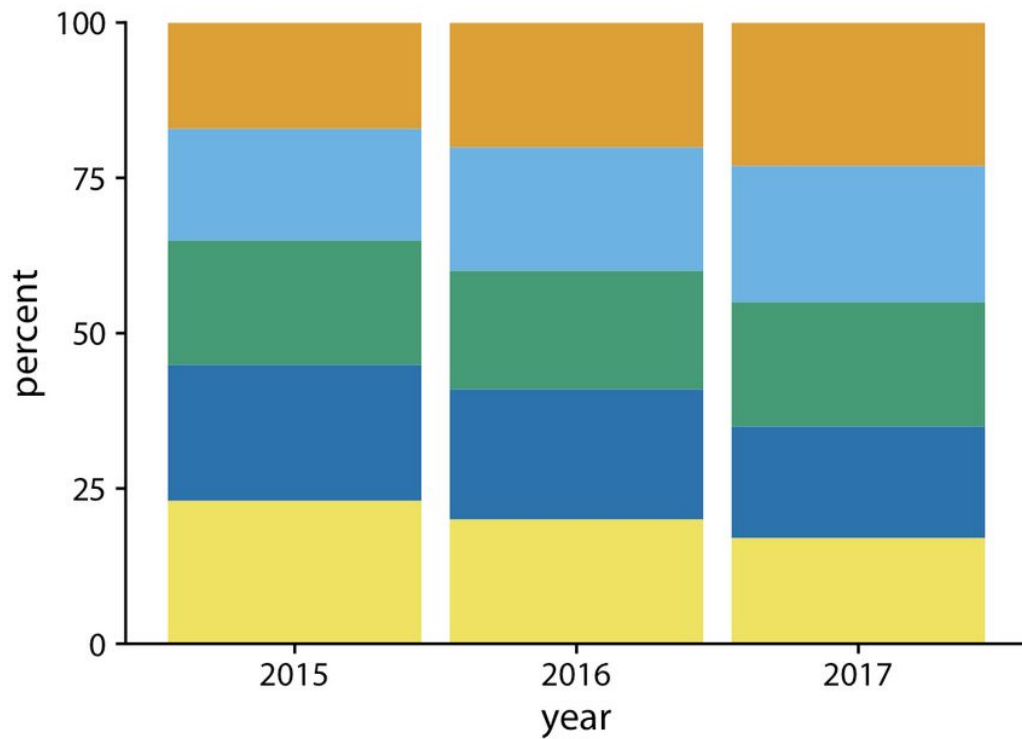
German assembly - Side by side chart



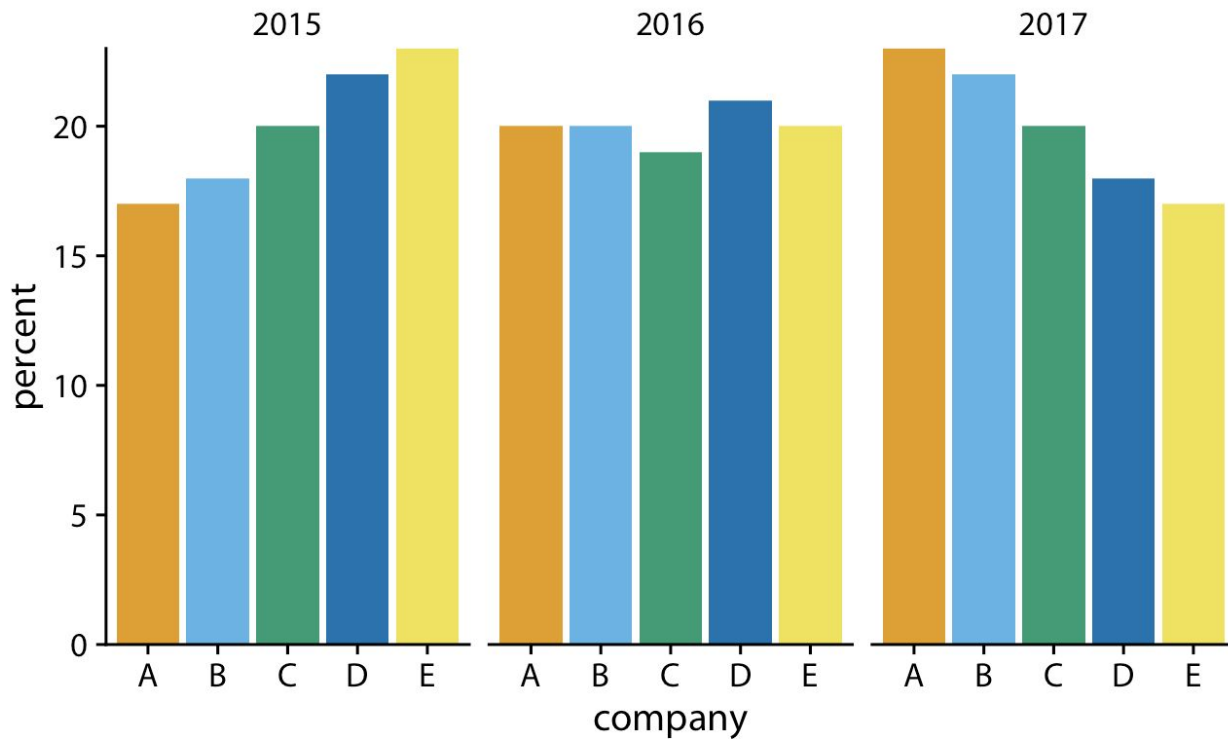
# Pie chart



# Stacked bars



# Side by side bars





**Pie chart****Stacked  
bars****Side-by-side  
bars**

Clearly visualizes the data as proportions of a whole



Allows easy visual comparison of the relative proportions



Visually emphasizes simple fractions, such as 1/2, 1/3, 1/4



Looks visually appealing even for very small datasets



Works well when the whole is broken into many pieces

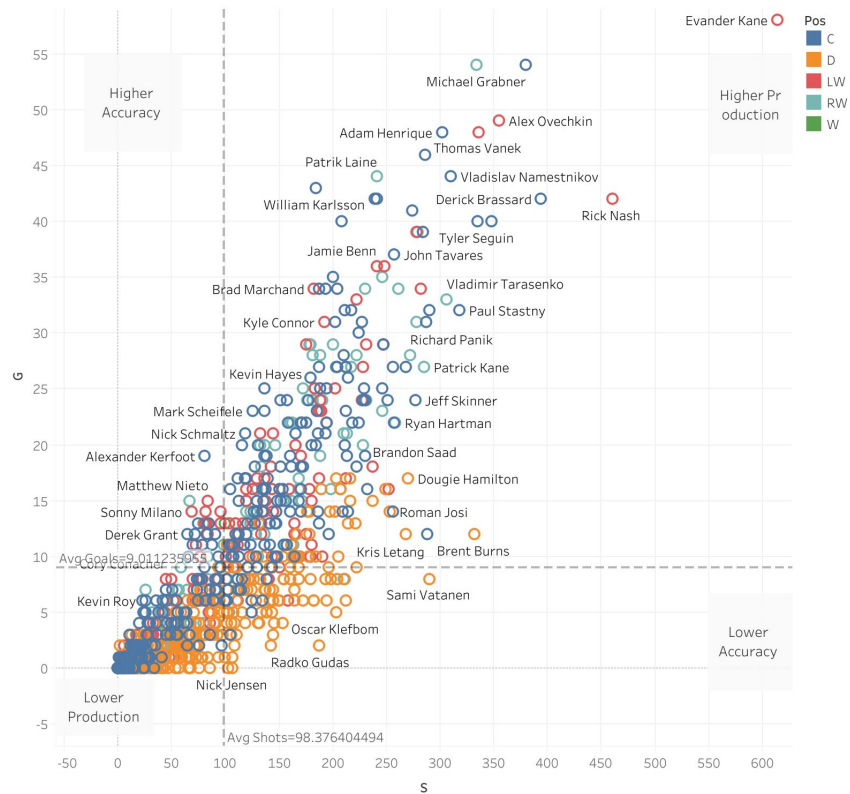


Works well for the visualization of many sets of proportions or time series of proportions



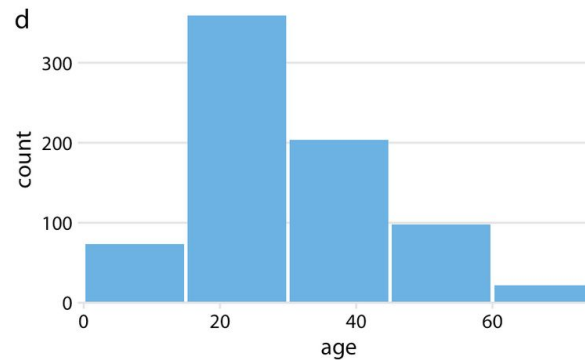
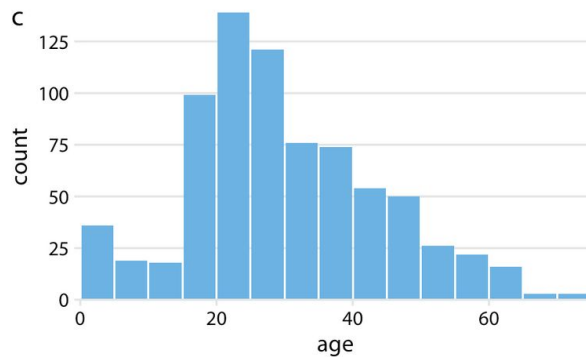
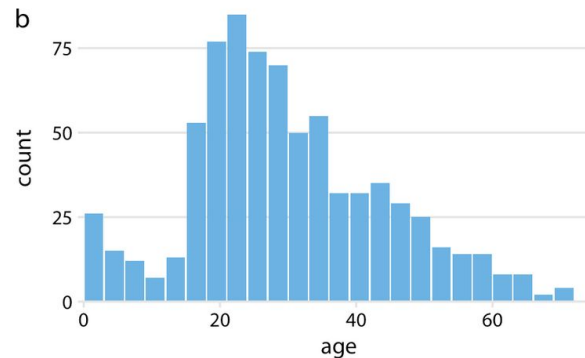
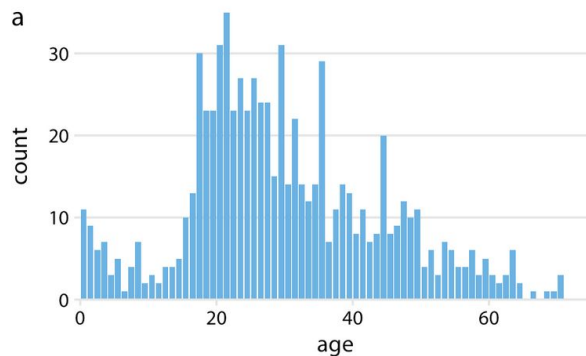
# Distribution

Accuracy in NHL div1

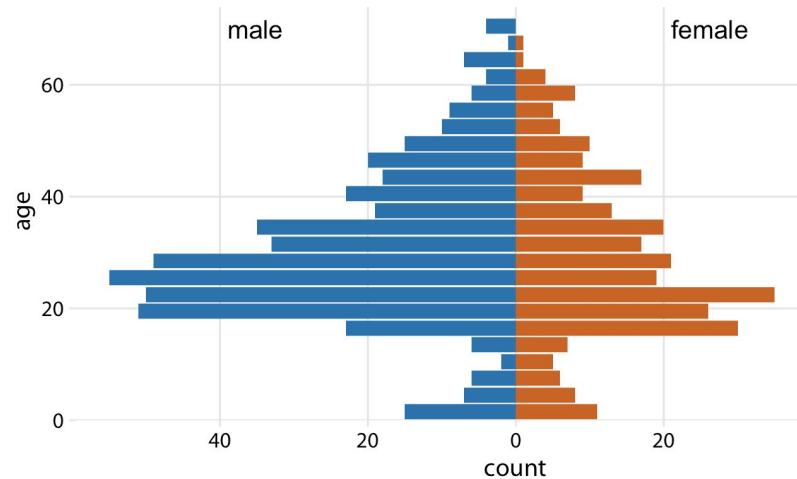
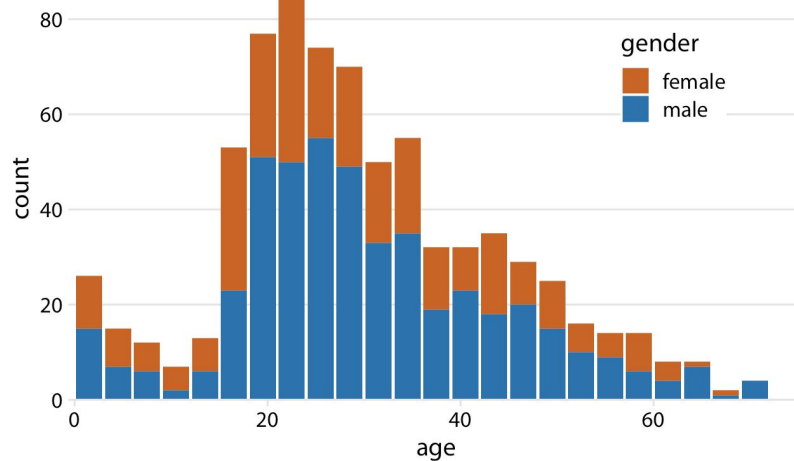


- Histogram
- Stacked histogram vs pyramid
- Scatter plot

# Histogram

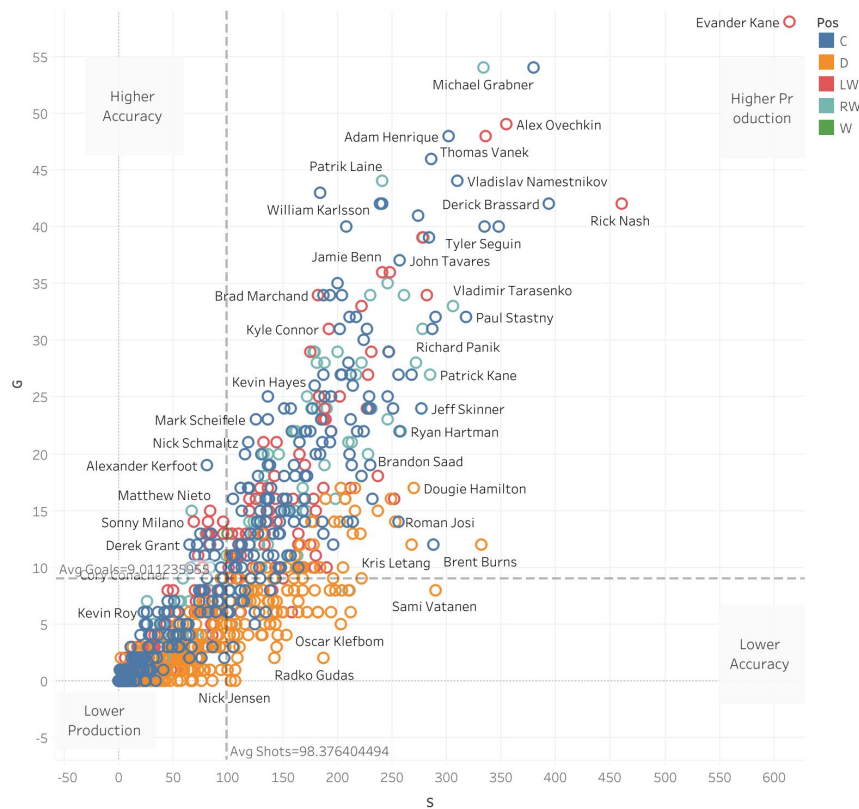


# Stacked vs Pyramid



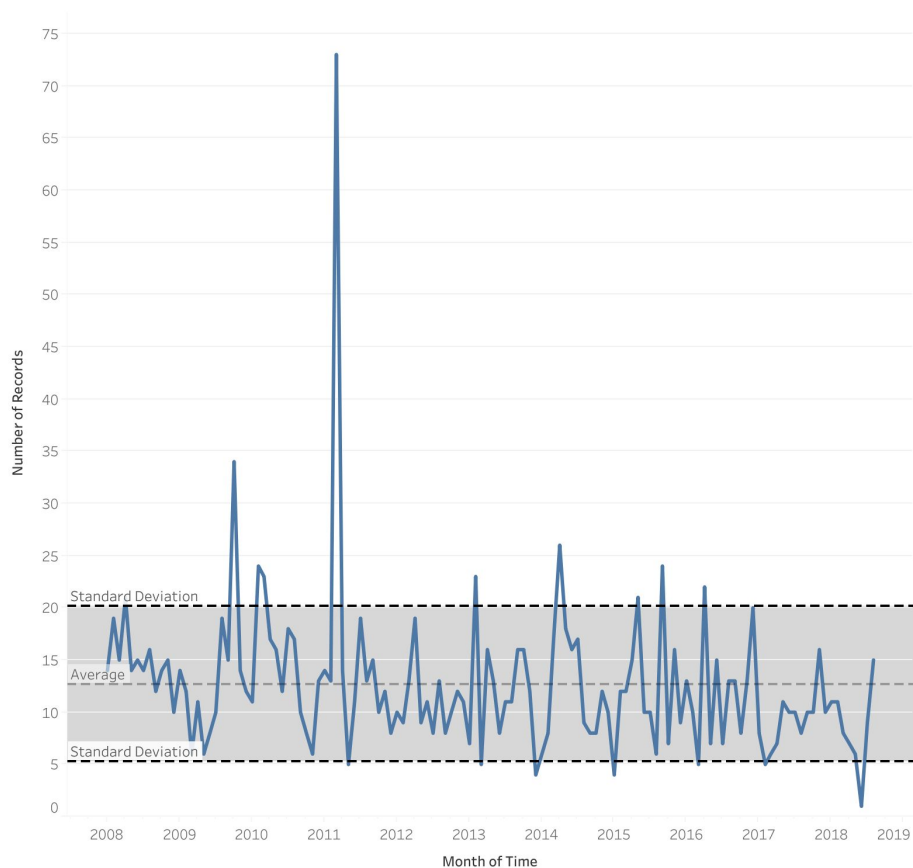
# Scatter plot

Accuracy in NHL div1



# Time series distribution

Earthquake variations



# Wrap-up

We're Wiredcraft.  
Thanks!

