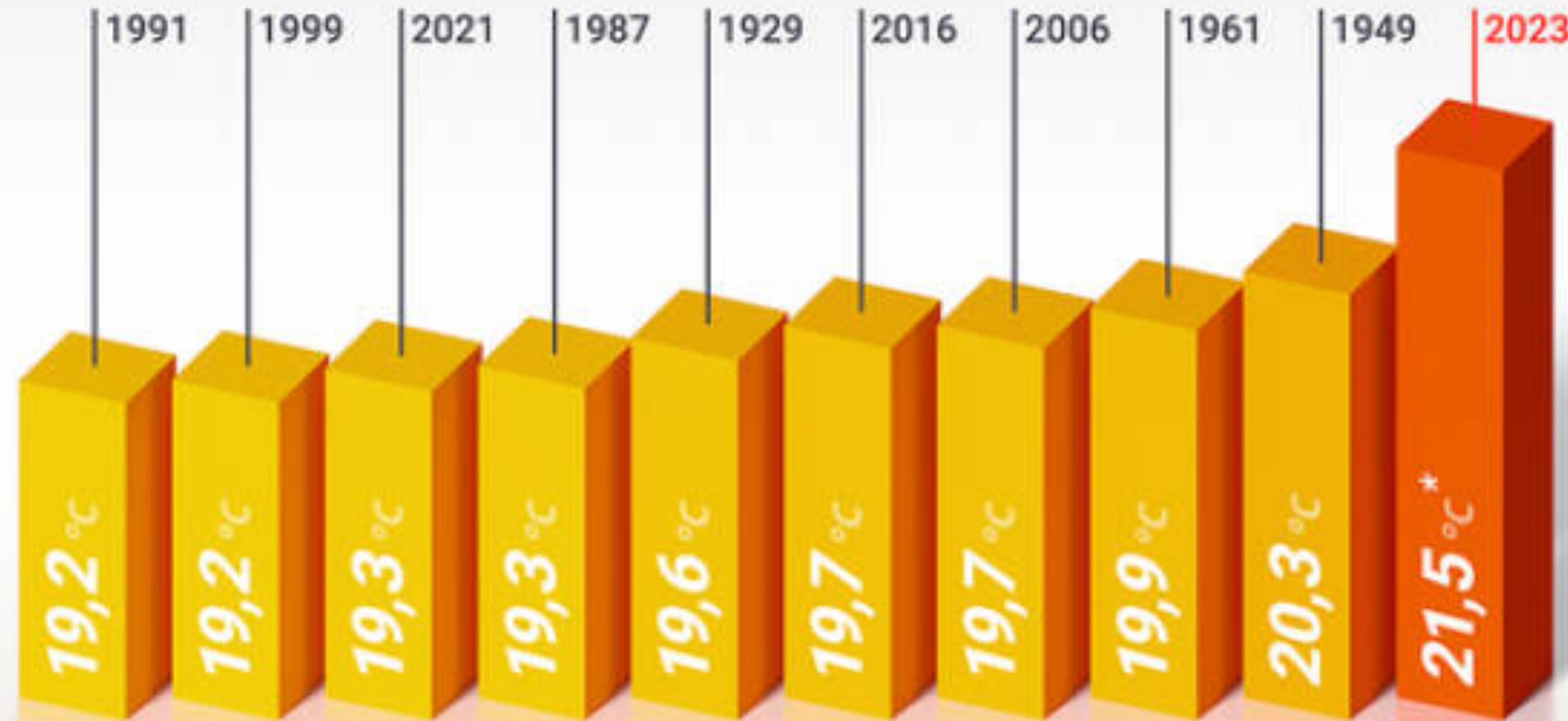


Focused visualisations

LES 10 MOIS DE SEPTEMBRE LES PLUS CHAUDS EN FRANCE DEPUIS 1900



* pour septembre 2023 : valeur provisoire au 25 septembre

METEO FRANCE

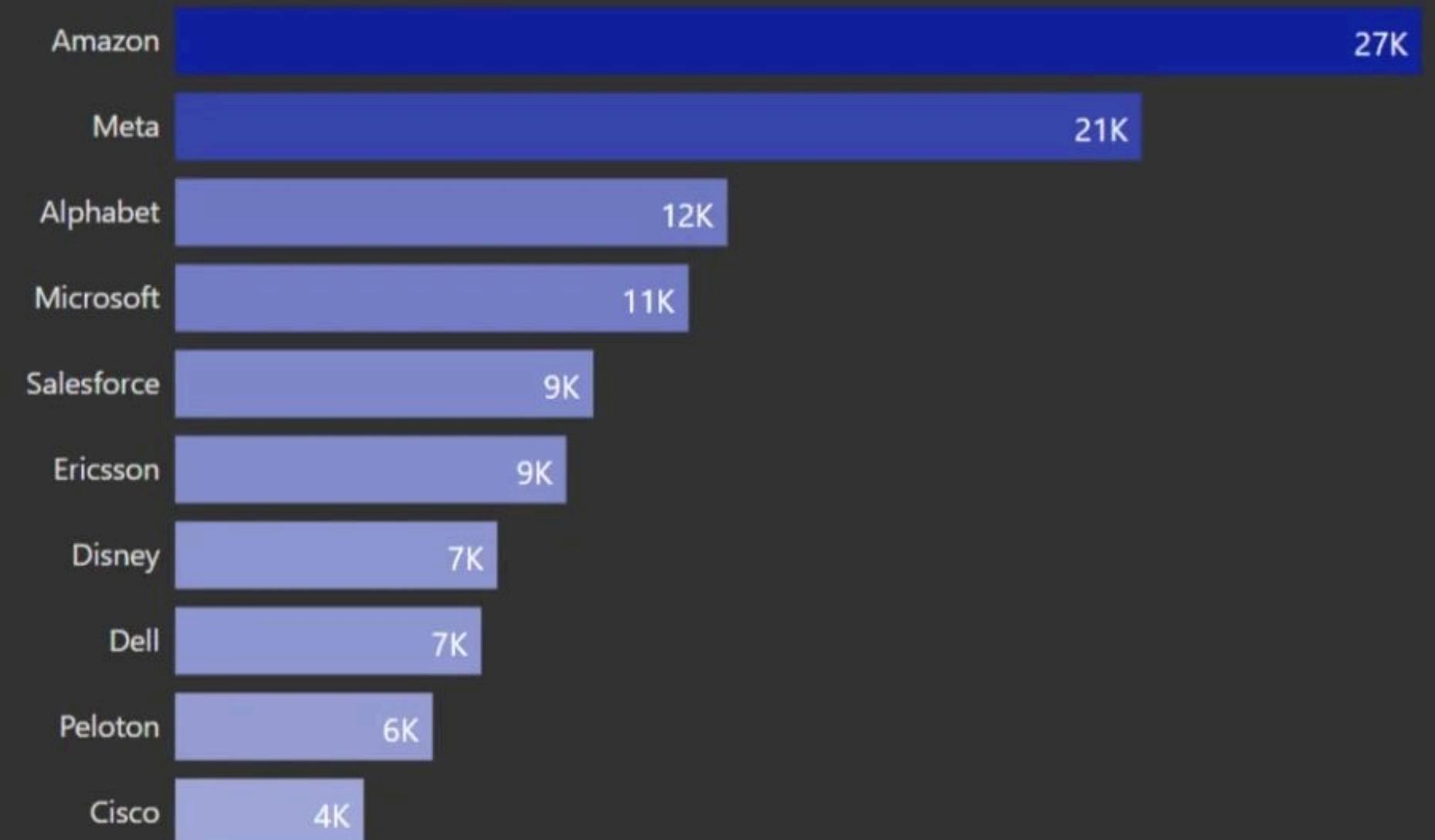


From **dataisbeautiful** community on **Reddit**



Ten companies were responsible for 44% of reported layoffs over the last 2 years

Top 10 companies by layoffs, 2022 - 2023 YTD



Source: Crunchbase

More charts at fetchcharts.substack.com



Image filters and effects performance

 M3 MacBook Pro (14-inch)

 M2 MacBook Pro (13-inch)

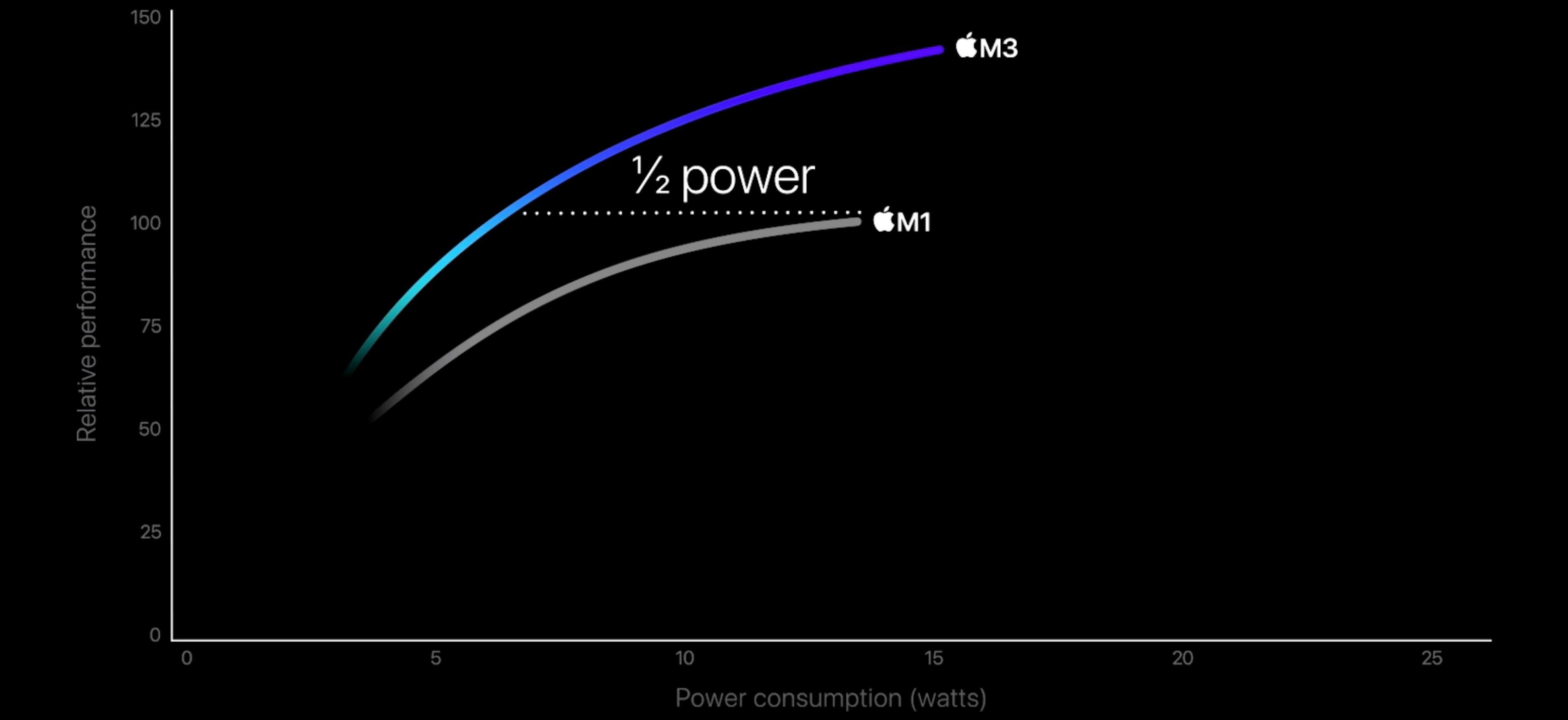
40% faster

 M1 MacBook Pro (13-inch)

60% faster

source: Apple

M3 CPU performance



Cognitive load

Cognitive load can be thought of as the mental effort that's required to learn new information.

Humans' brains have a finite amount of this mental processing power. We want to be smart about how we use our audience's brain power.

In general, think about minimizing the perceived cognitive load for your audience.

Clutter

Clutter can make something feel more complicated than it actually is.

Remember that we choose the graph that is easiest for your audience to understand

Clutter

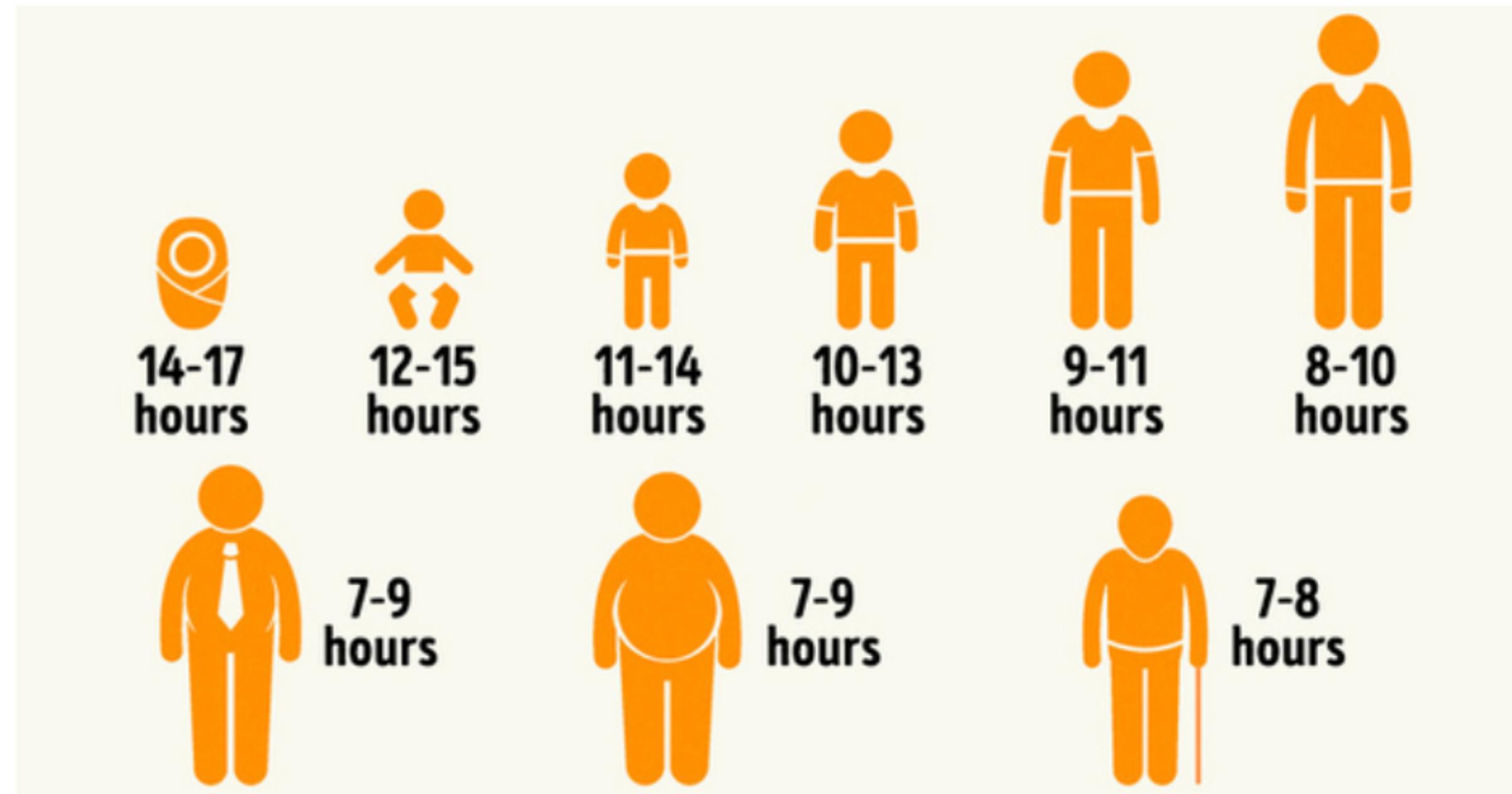
What is your brain doing in the following visualisations?

Try notice and describe how it is trying to decode the graph

HOW MUCH SLEEP WE NEED AT EACH AGE:



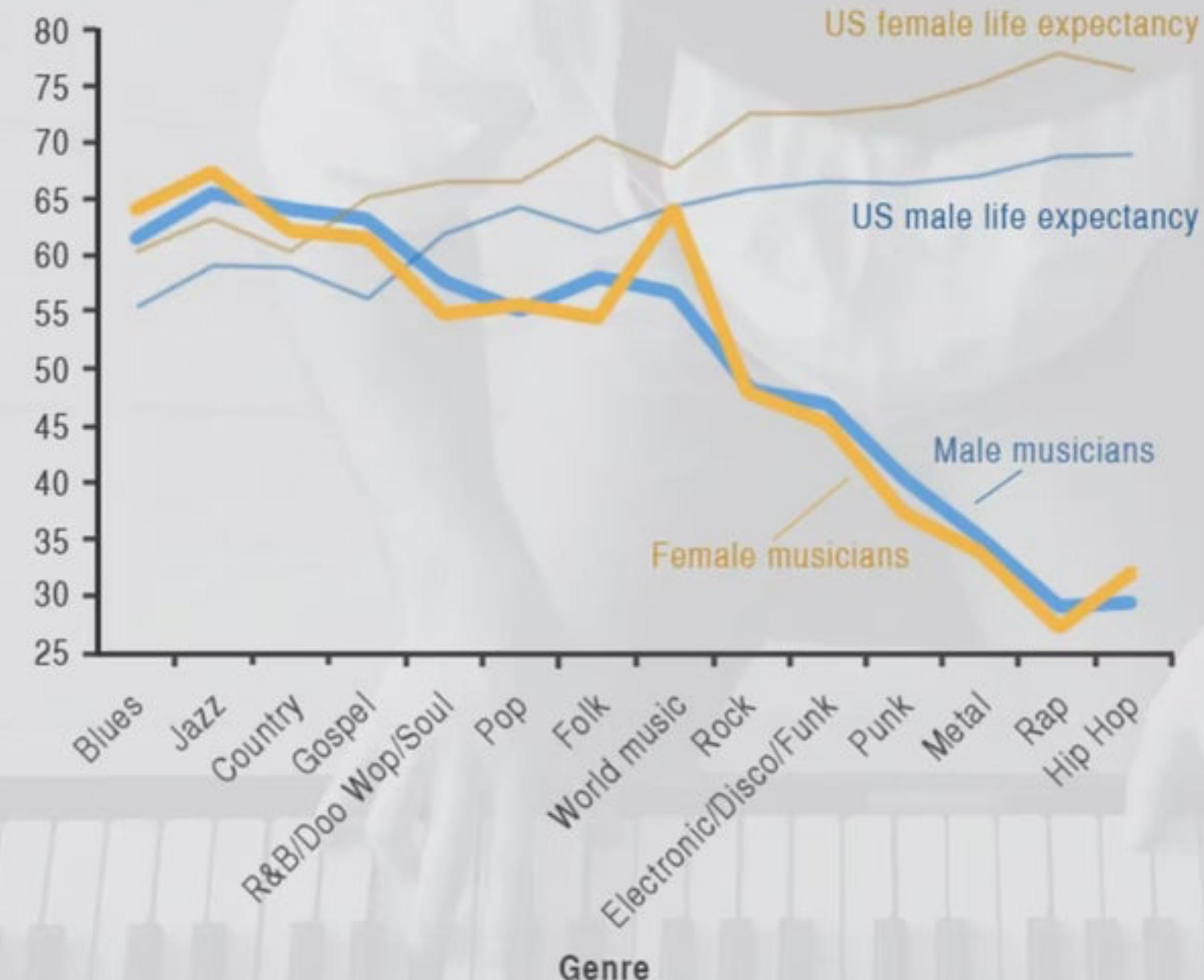
© BRIGHTSIDE



Age of death and musical genre

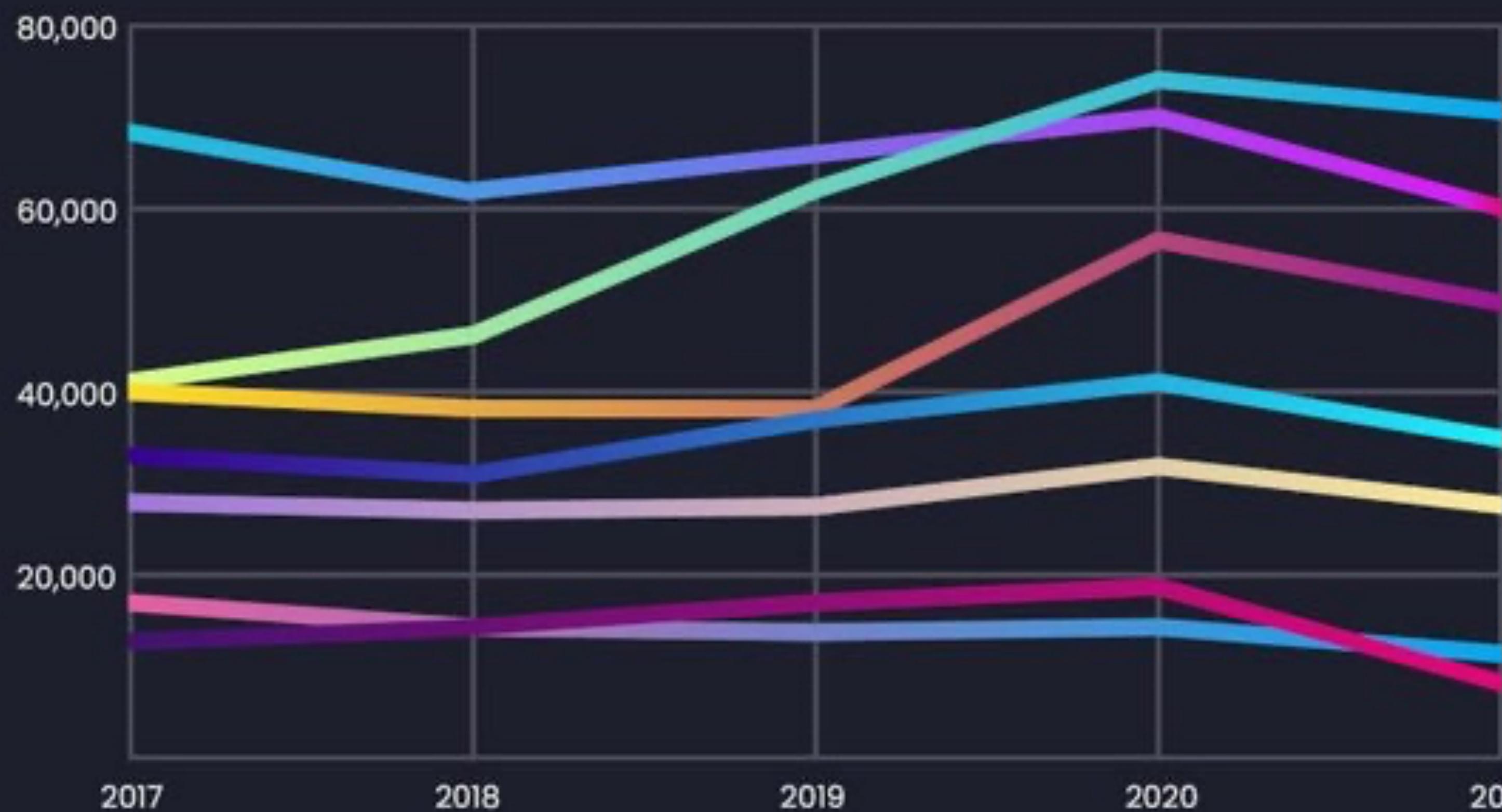
Average age of death for popular musicians by genre and sex

Average age at death



Life expectancy data from: <http://demog.berkeley.edu/~andrew/1918/figure2.html>

Number of Java jobs for grabs



Java



Python



JavaScript



C++



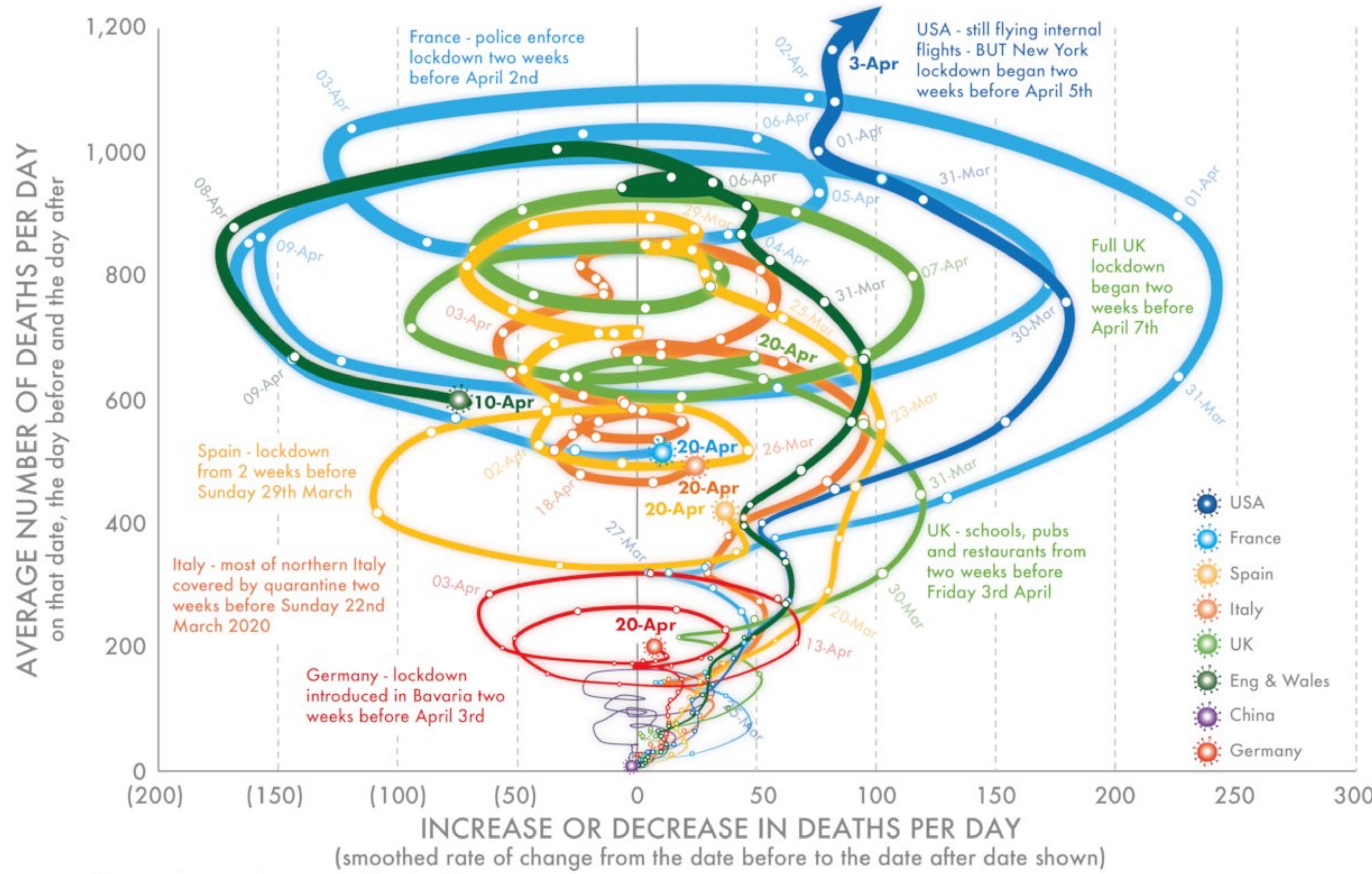
C#



Perl



PHP



Clutter

Notice that feeling when looking at a data vis

When you feel like that something in your graph or another graph is not so good

(The same feeling applies to code actually)

Gestalt laws

In the 1920s, a group of German psychologists developed theories around how people perceive the world around them, called Gestalt principles.

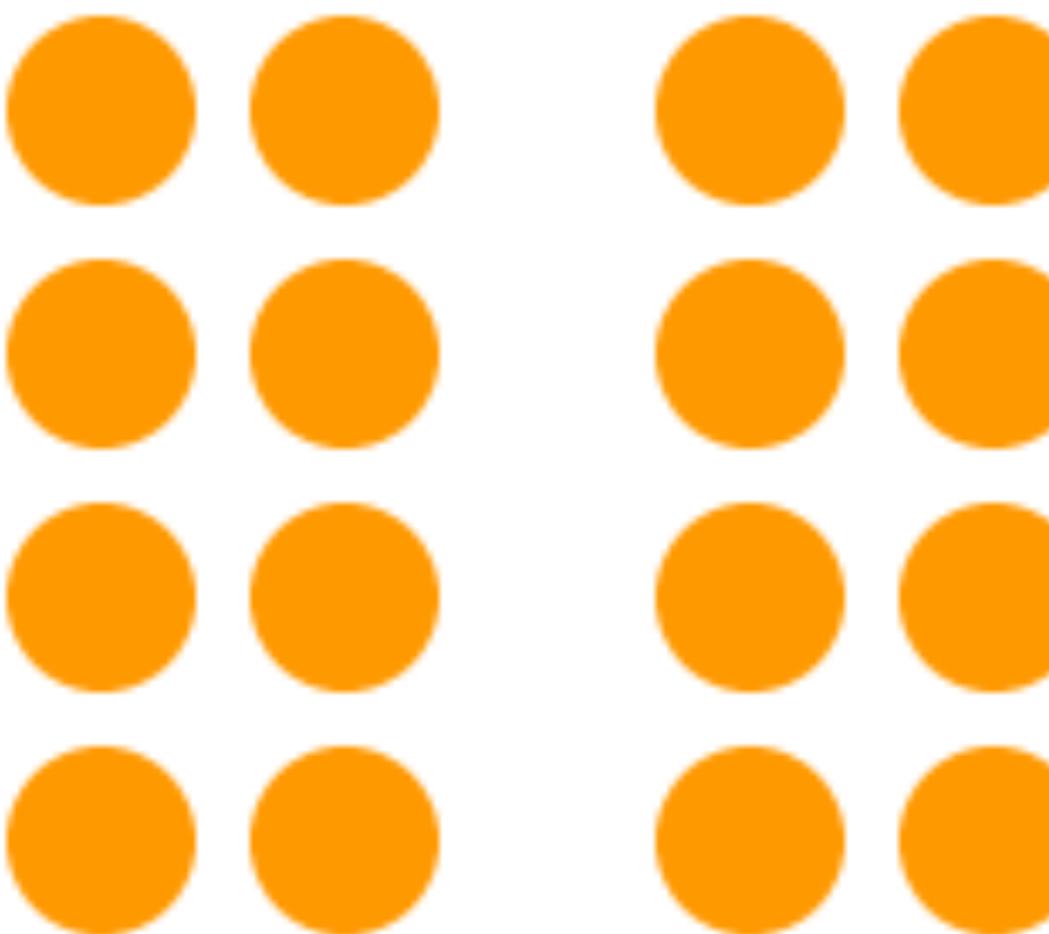
Detail how our brains create structure by default

Proximity

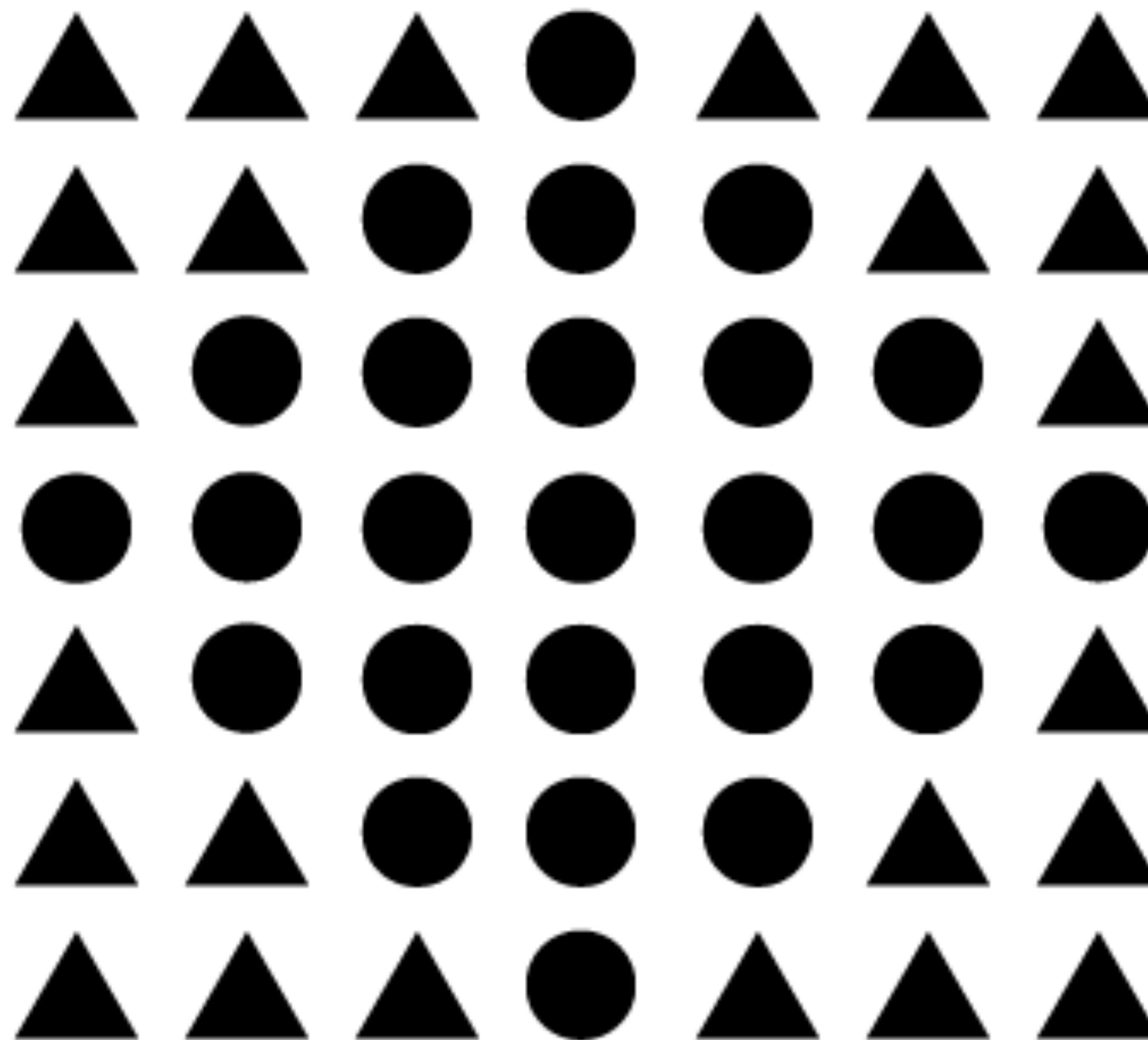
This is perceived to be one group and the components somehow related to each other.



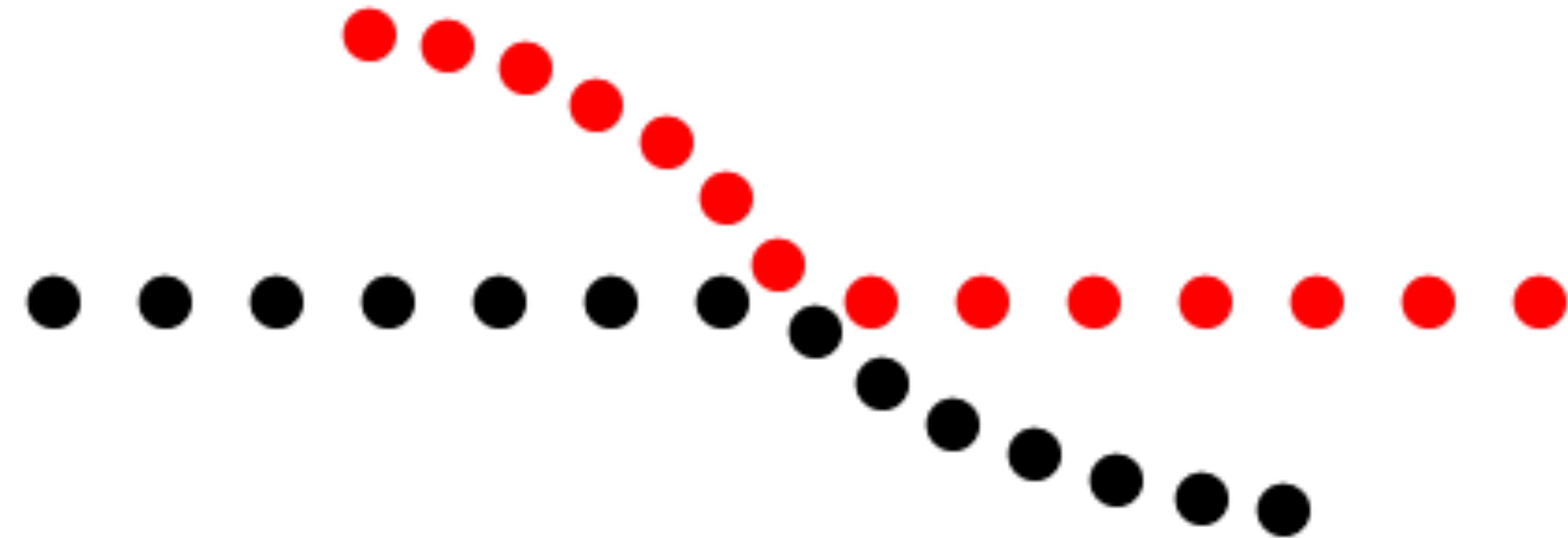
We perceive two groups here, and understand that there are differences between them.



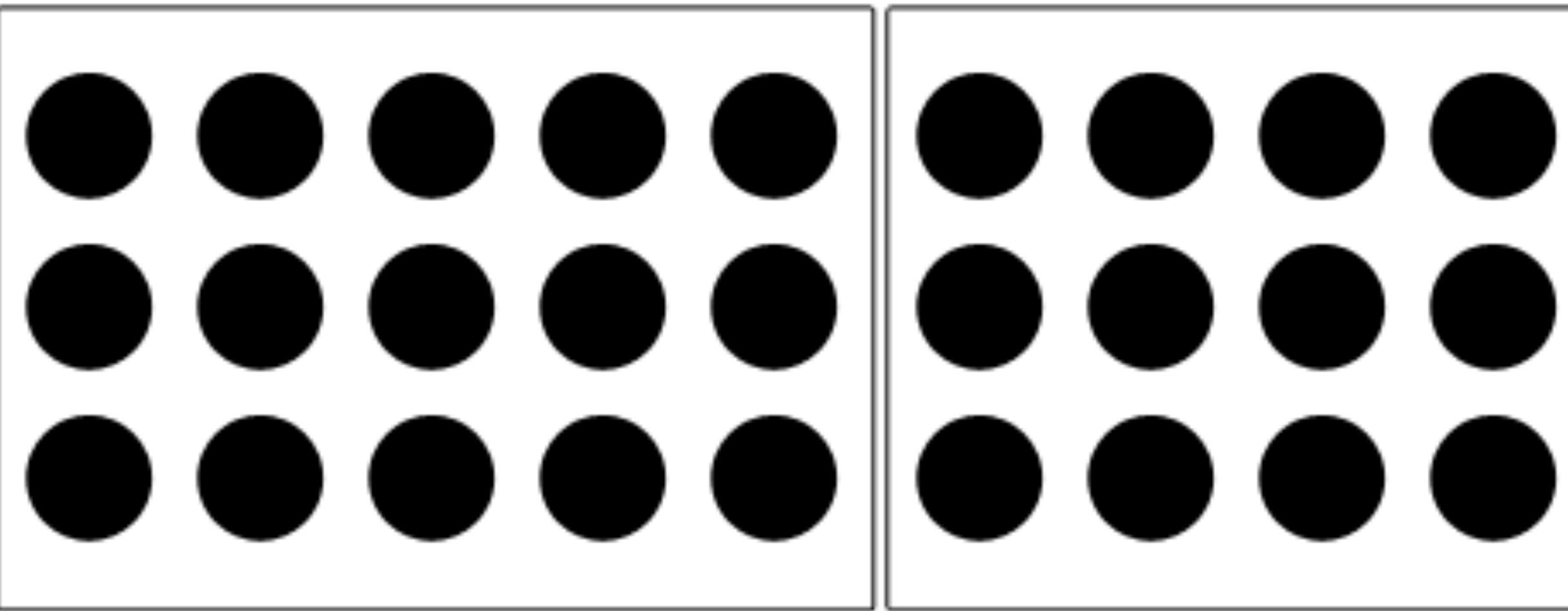
Similarity



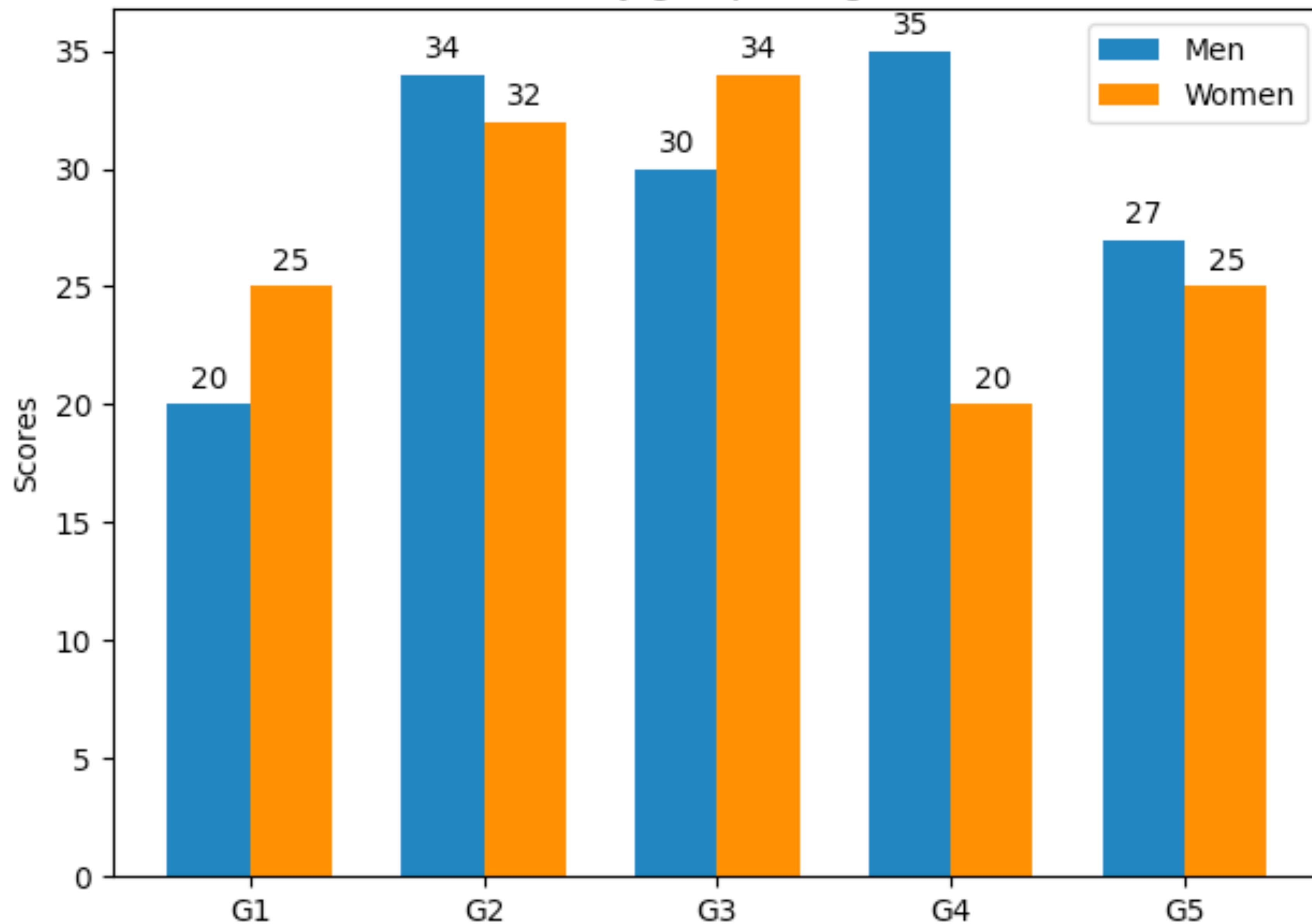
Continuity



Enclosure (Common region)



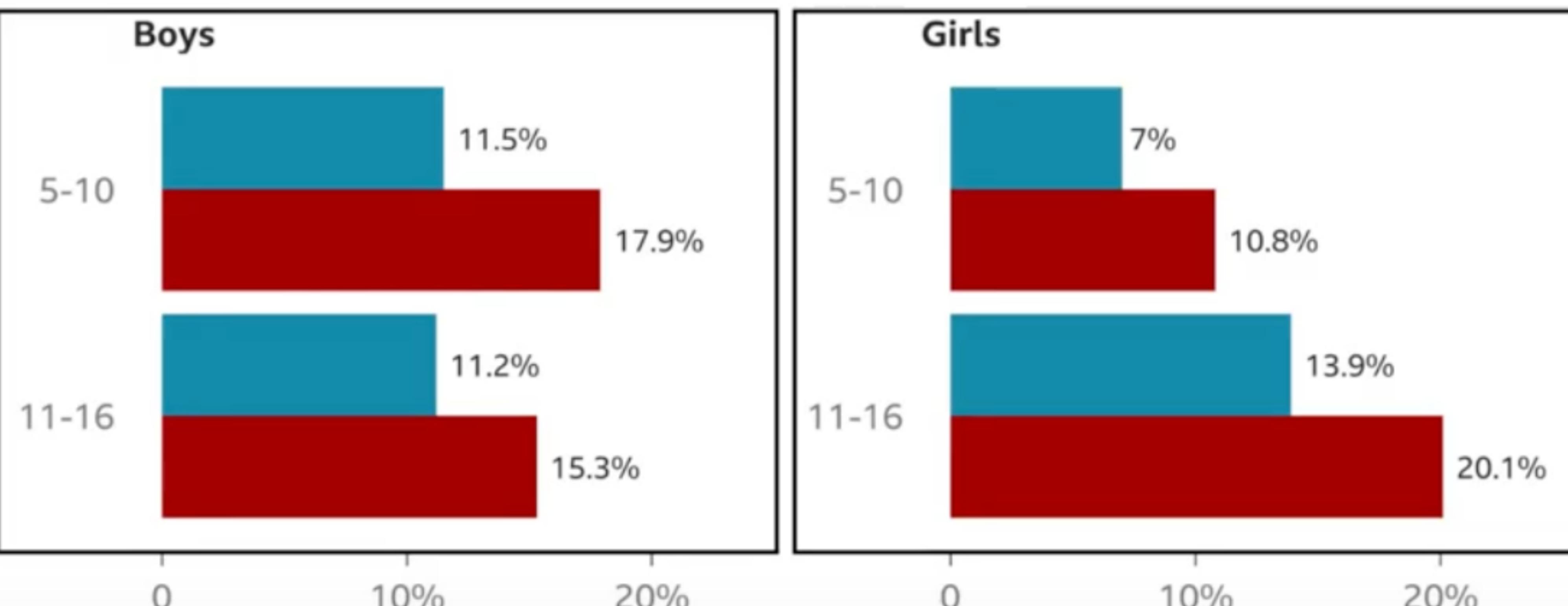
Scores by group and gender



Mental health in children has worsened

% of children with probable mental health problems by age-group, England

■ 2017 ■ 2020



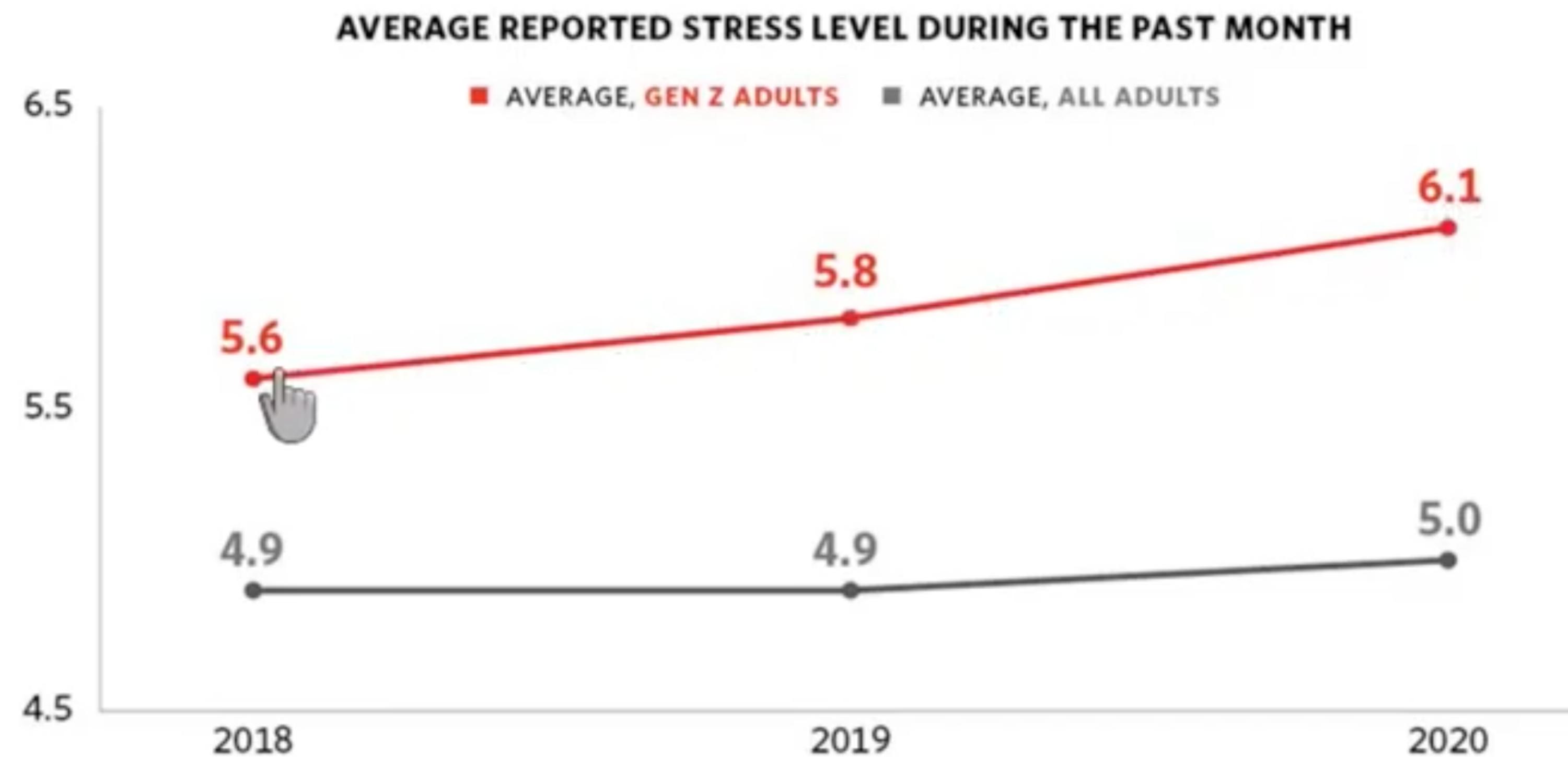
Source: NHS Digital

BBC

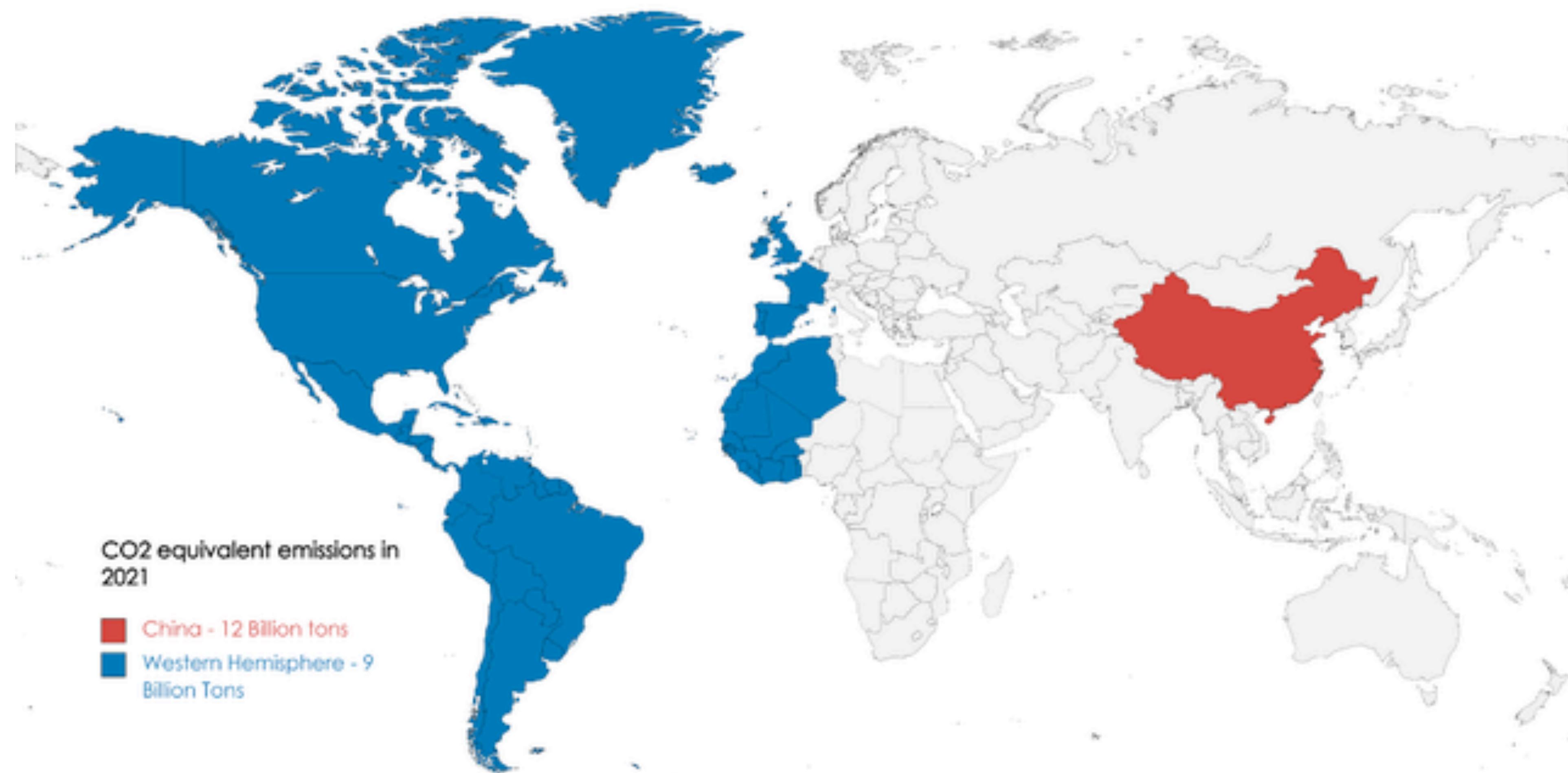
Lets take some examples

STRESS IN AMERICA 2020: A NATIONAL MENTAL HEALTH CRISIS

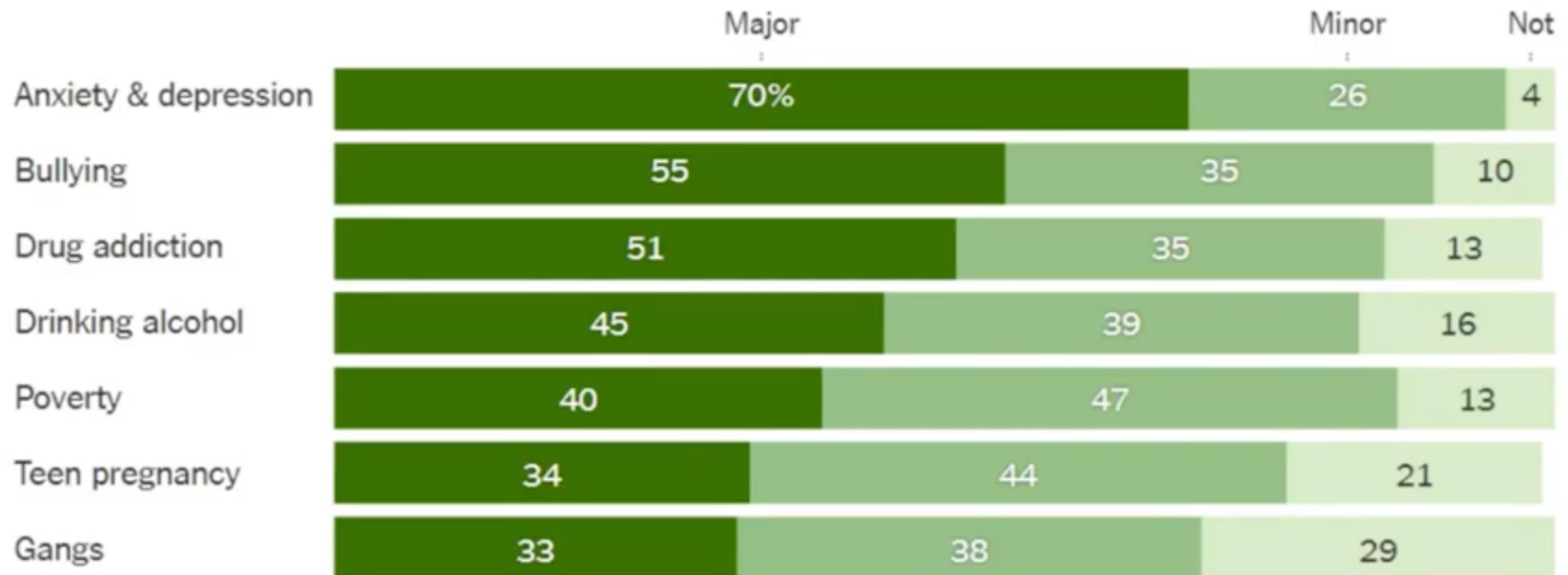
Gen Z Adults: Generation Stress



China emits more CO₂ than the entire Western hemisphere



*Countries spanning both Western and Eastern hemispheres are included
China and the Western hemisphere each have a total population of about 1.4 billion*



Source: <https://www.nytimes.com/2020/03/12/learning/whats-going-on-in-this-graph-mental-health-of-teenagers.html>

Recipe for cleaning datavis

1. Remove chart border
2. Remove gridlines
3. Remove datamarker
4. Clean up axis labels
5. Label data directly
6. Use consistent colors

Recipy for cleaning datavis

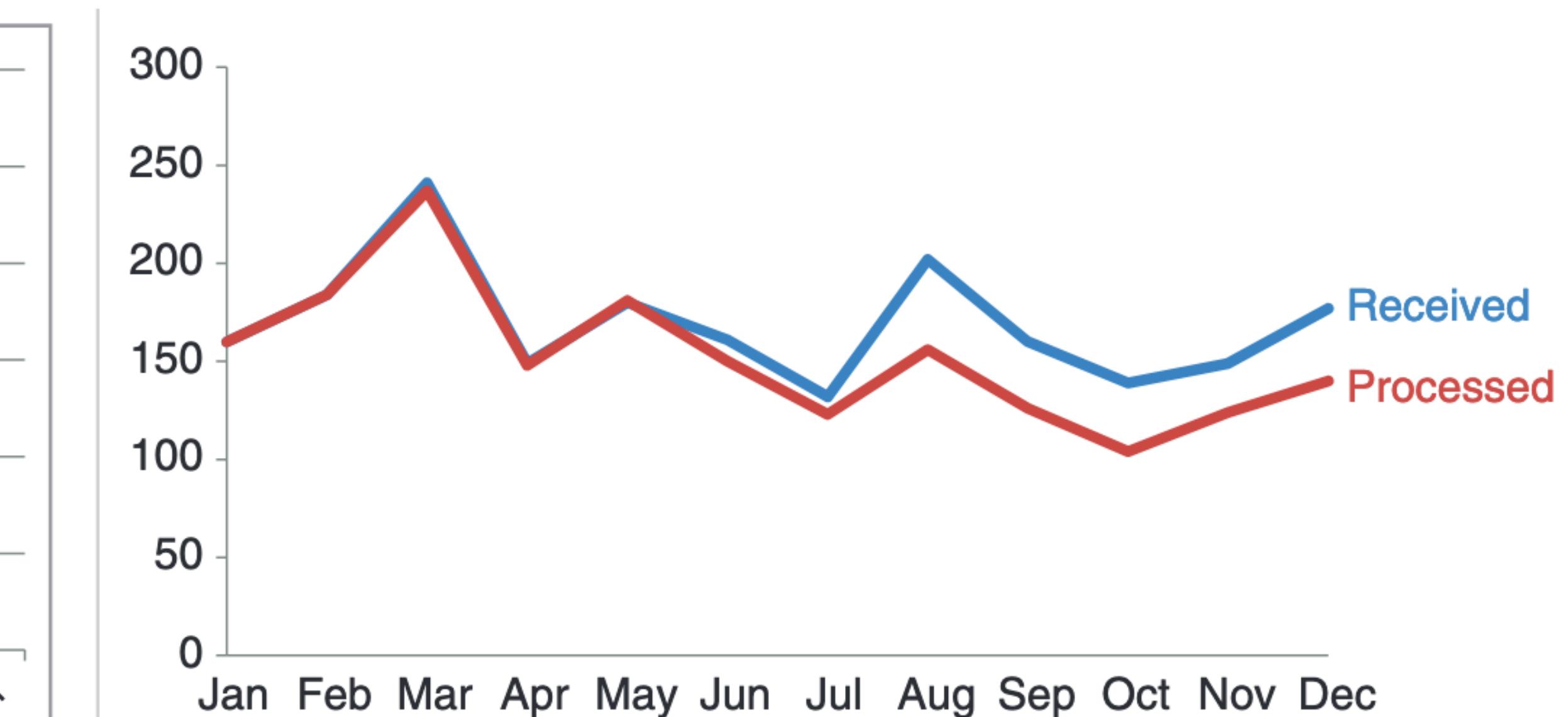
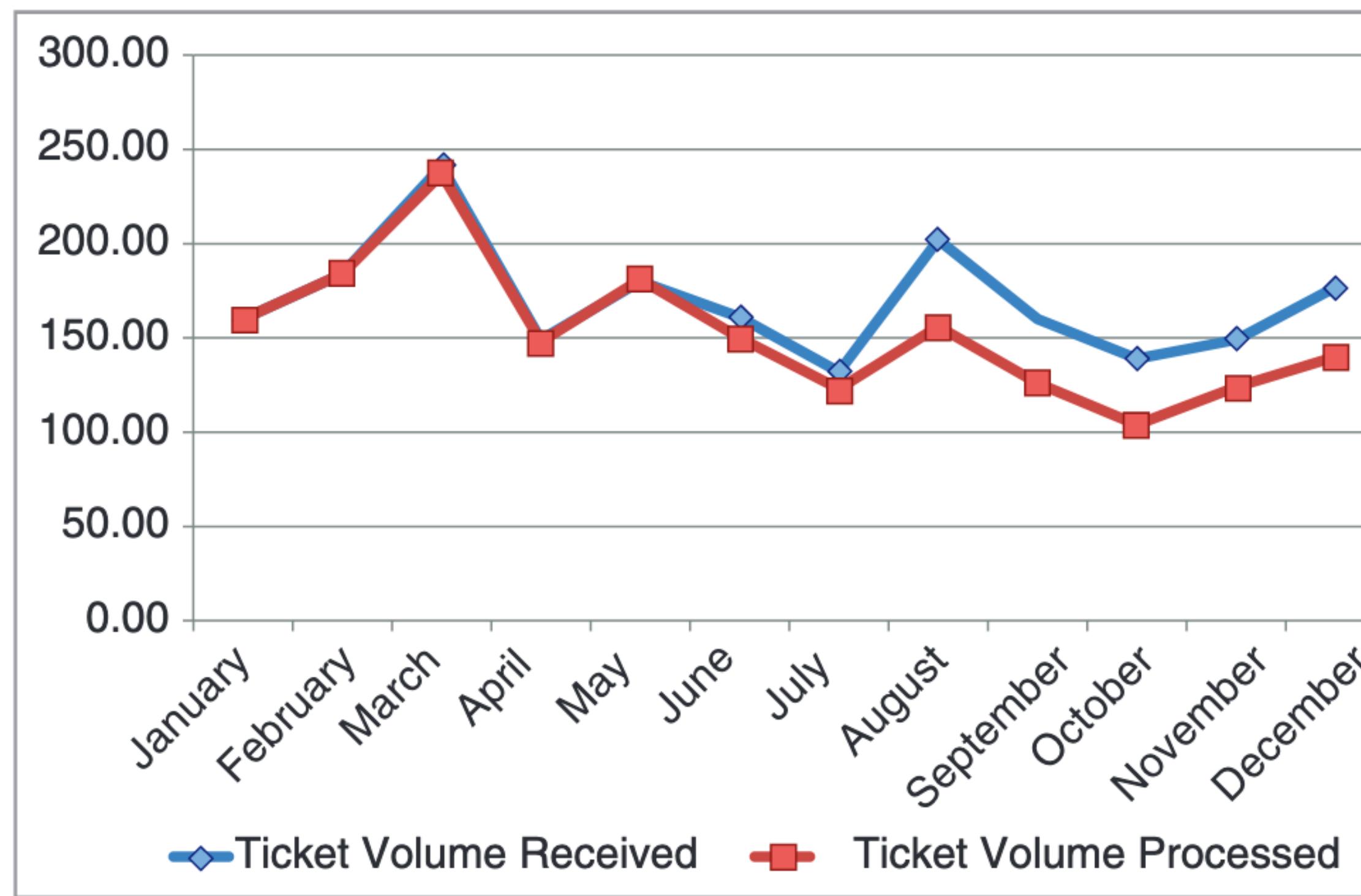


FIGURE 3.24 Before-and-after

Memory

- Iconic memory - Super fast, extremely short-term
- Short-term memory - 7 +- 2 elementer i hjernen
- Long-term memory - When memory leaves short-term memory it either disappears or goes into long-term memory

Why does this matter for us data vis creators?

Memory

<https://brainconnection.brainhq.com/brain-games/word-list-recall/>

Focusing your audiences attention

When telling a story with data we want to control where our users are pointing their attention

We can do that with **pre attentive attributes**

Preattentive attributes

Information we can process visually almost immediately, before sending the information to the attention processing parts of our brain

It means that, if we use preattentive attributes strategically, they can help us enable our audience to see what we want them to see before they even know they're seeing it!

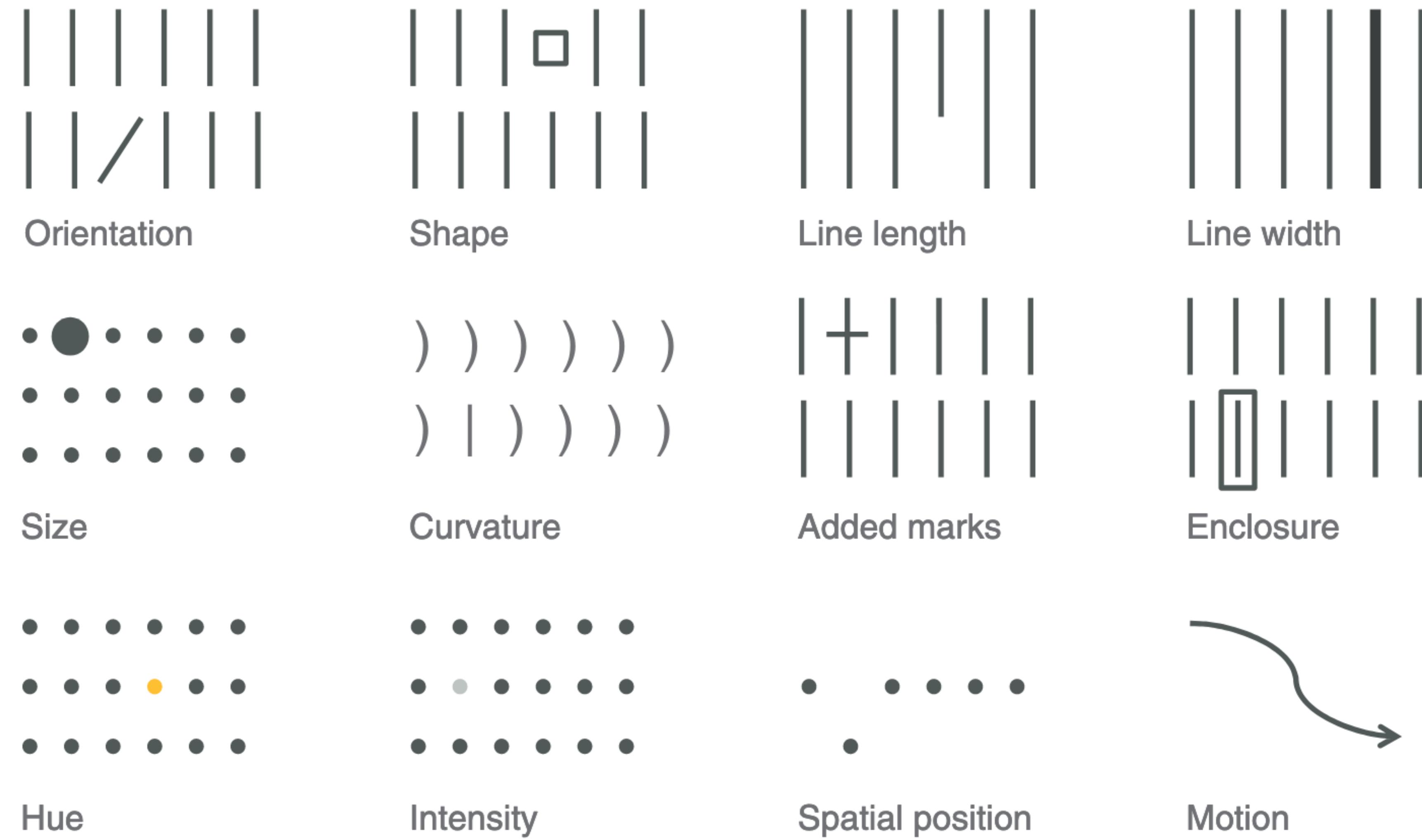


FIGURE 4.4 Preattentive attributes

Source: Adapted from Stephen Few's *Show Me the Numbers*, 2004.

No preattentive attributes

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Color

What are we doing well? Great Products. **These products are clearly the best in their class.**

Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Bold

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Italics

What are we doing well? Great Products. These products are clearly the best in their class. *Replacement parts are shipped when needed.* You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Size

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent gaskets **without me having to ask.** Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours. You have a great company – keep up the good work!

Outline (enclosure)

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The **account manager even called to check in** after normal business hours.

You have a great company – keep up the good work!

Separate spatially

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours. You have a great company – keep up the good work!

Underline (added marks)

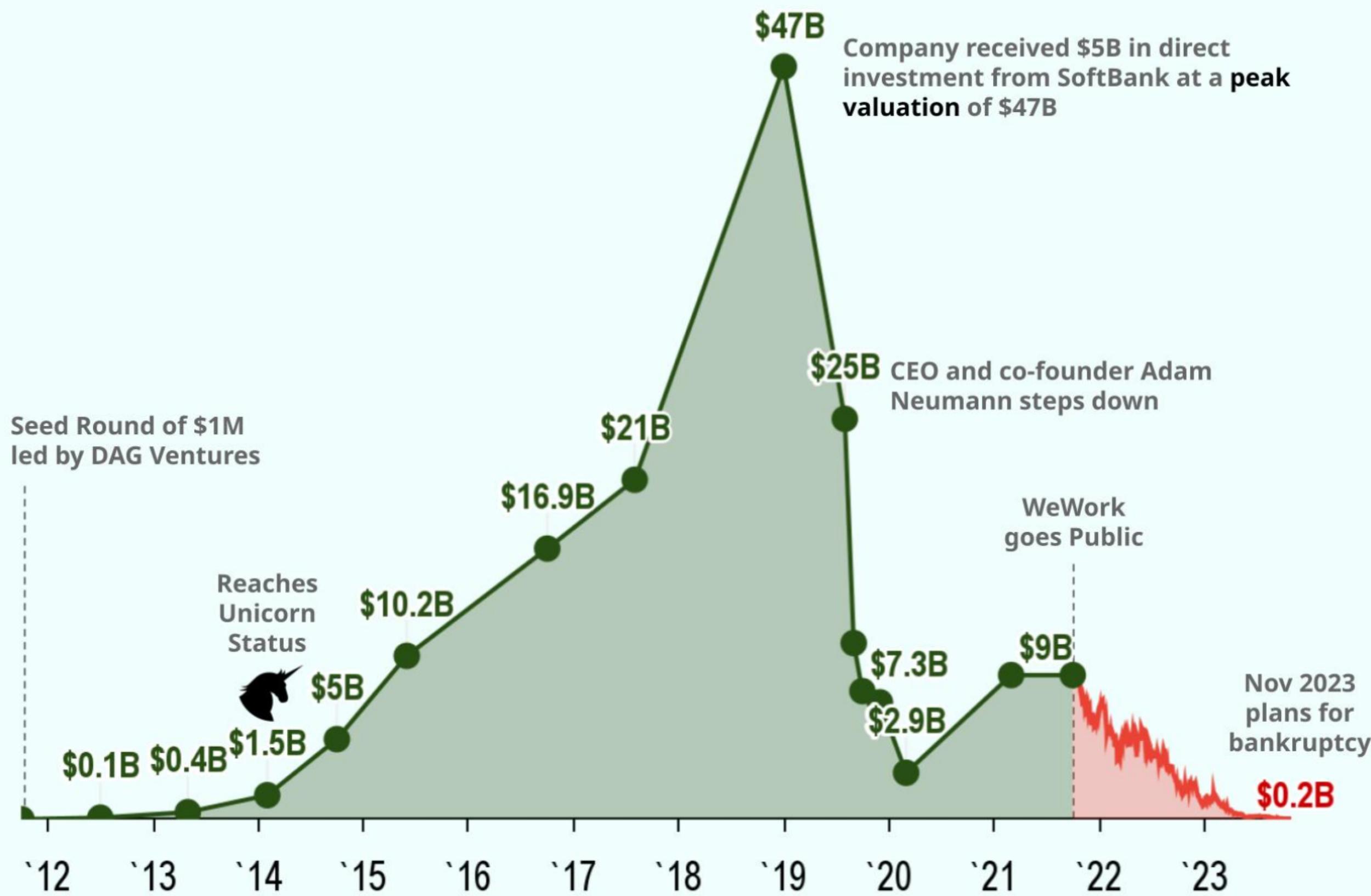
What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

wework

wecrashed

The Rise & Fall of the flexible office space provider with an astronomical valuation

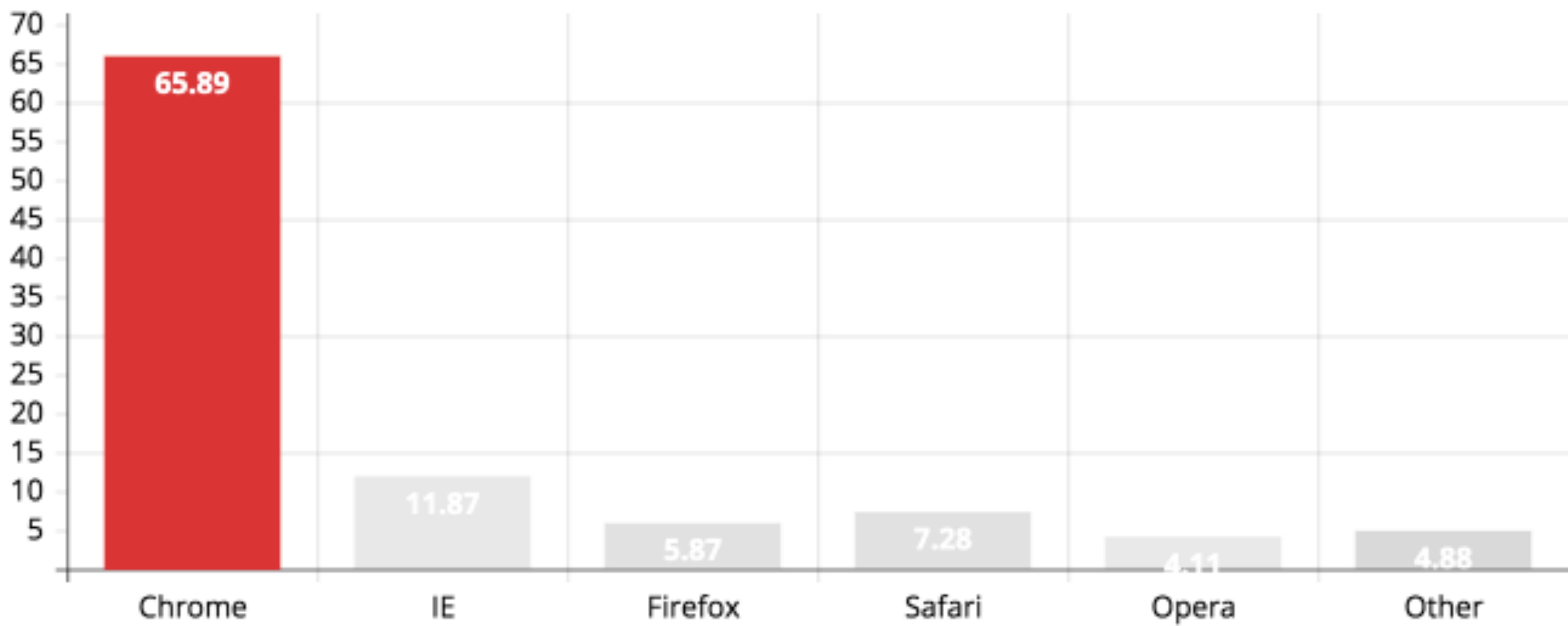


Source: Visual Capitalist and Google Finance



Chrome is the best browser

The statistics says it all



Colorblind colors

- <https://colorbrewer2.org/>
- Be aware of cultural colors
- Test your visualisation here: <https://www.color-blindness.com/coblis-color-blindness-simulator/>

Takeaway

- Make clear visualisations with minimal clutter
- Use Gestalt laws to group elements together
- Think about the number of points you want to communicate
- Use preattentive attributes to guide a users focus

Exercise time

Work with the Tableau Workbook found at 05-focused-visualisation/youtube views.twbx. The dataset is about YouTube videos

1. Open the Workbook in Tableau
2. Create some data analysis using Tableau to find an interesting point
3. Who do you want to communicate to?
4. What do you want to say to them?
5. Create a focused and non cluttered data visualisation