The truthful art
MVE080/MMG640 Lecture 6

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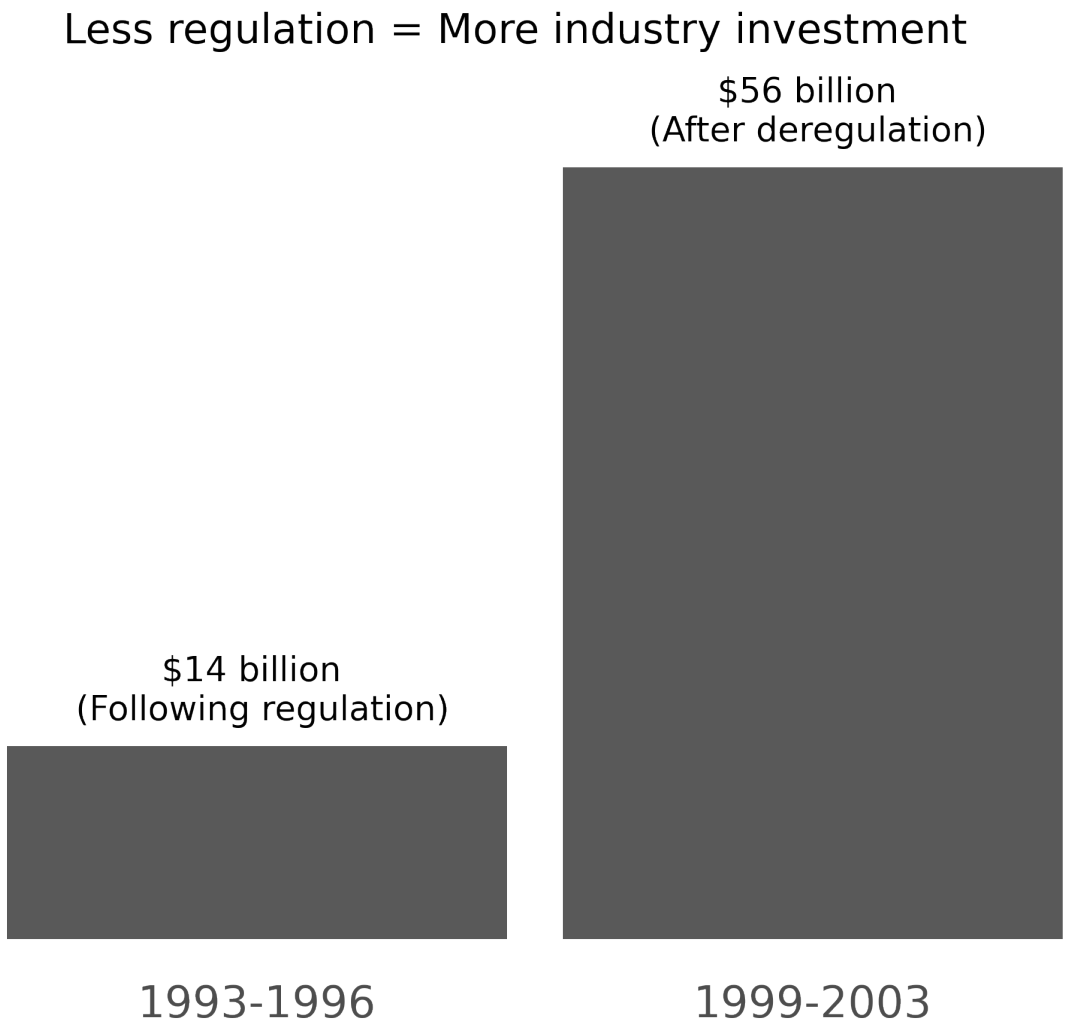
The exam will be in two parts

1. 24 hour take-home assignments on 2d-visualisation (Pass/Fail)
   - Suggested dates : 2022-12-13 (or after Christmas). See poll on Canvas.
2. Project in 3d-visualisation (Pass/G/VG)
   - Deadline during exam week

The truthful art

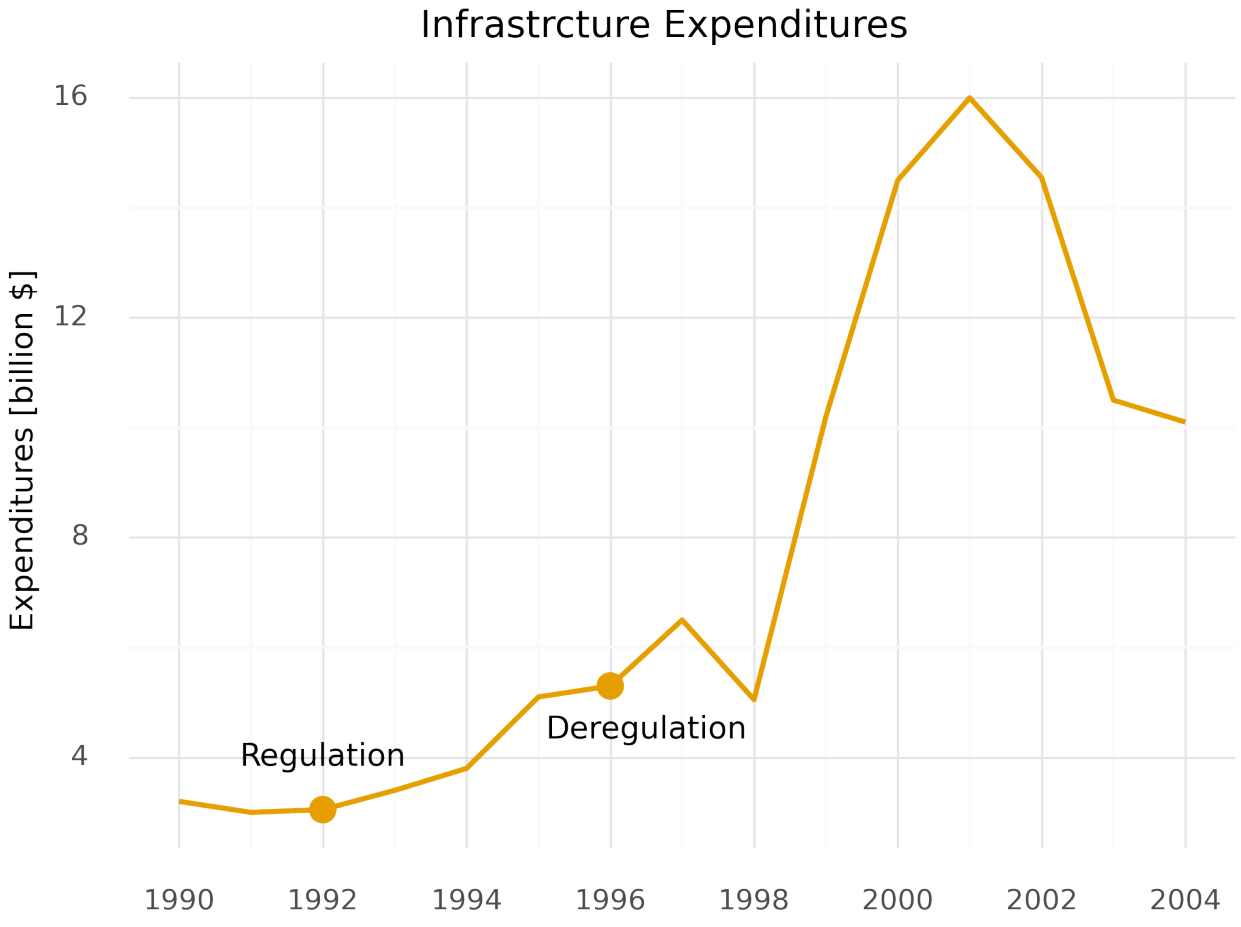
From last lecture ...

Why is this a bad visual?



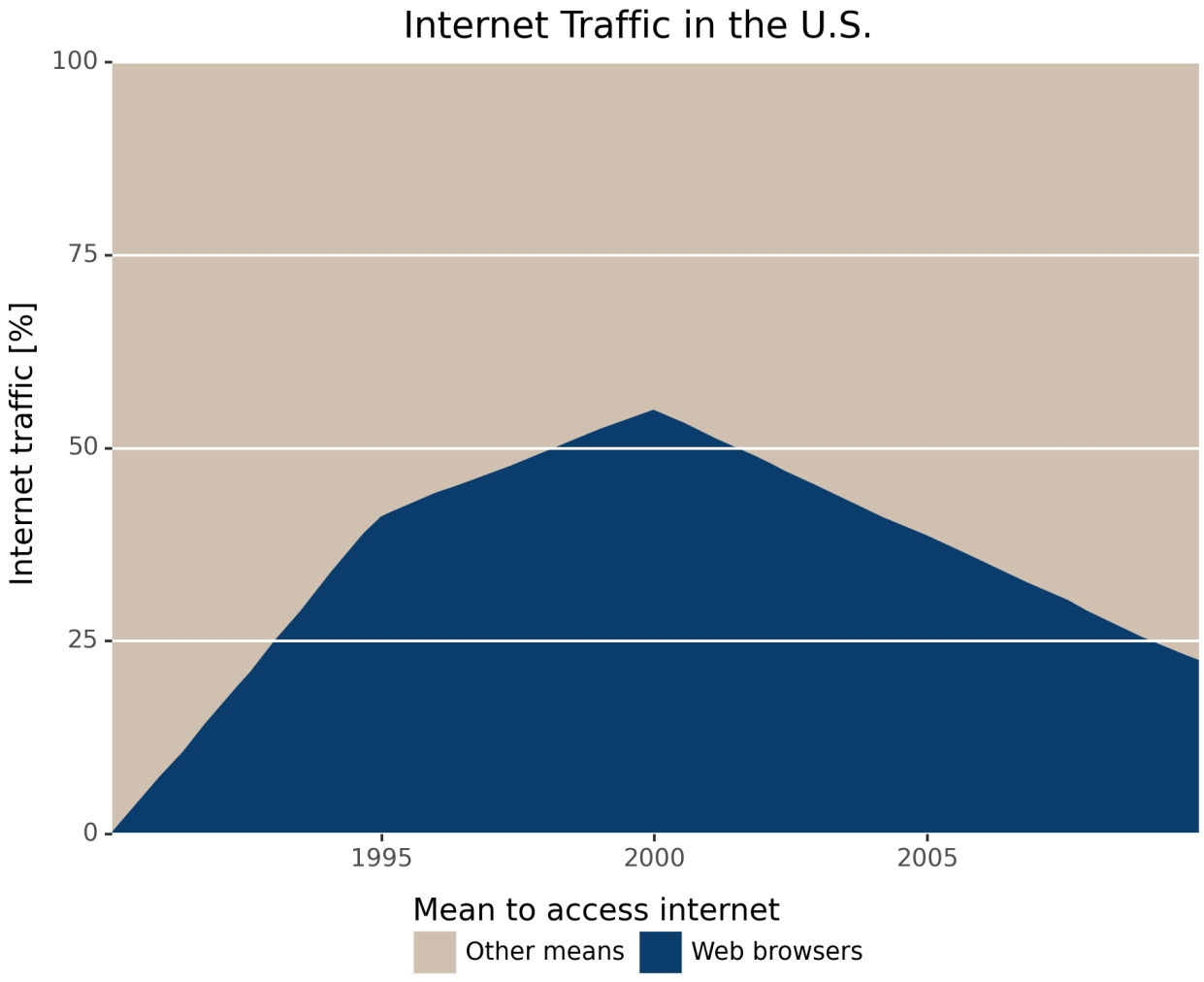
Always read the axes carefully

- If data is obviously missing then the authors of the visual are likelly trying to hide something



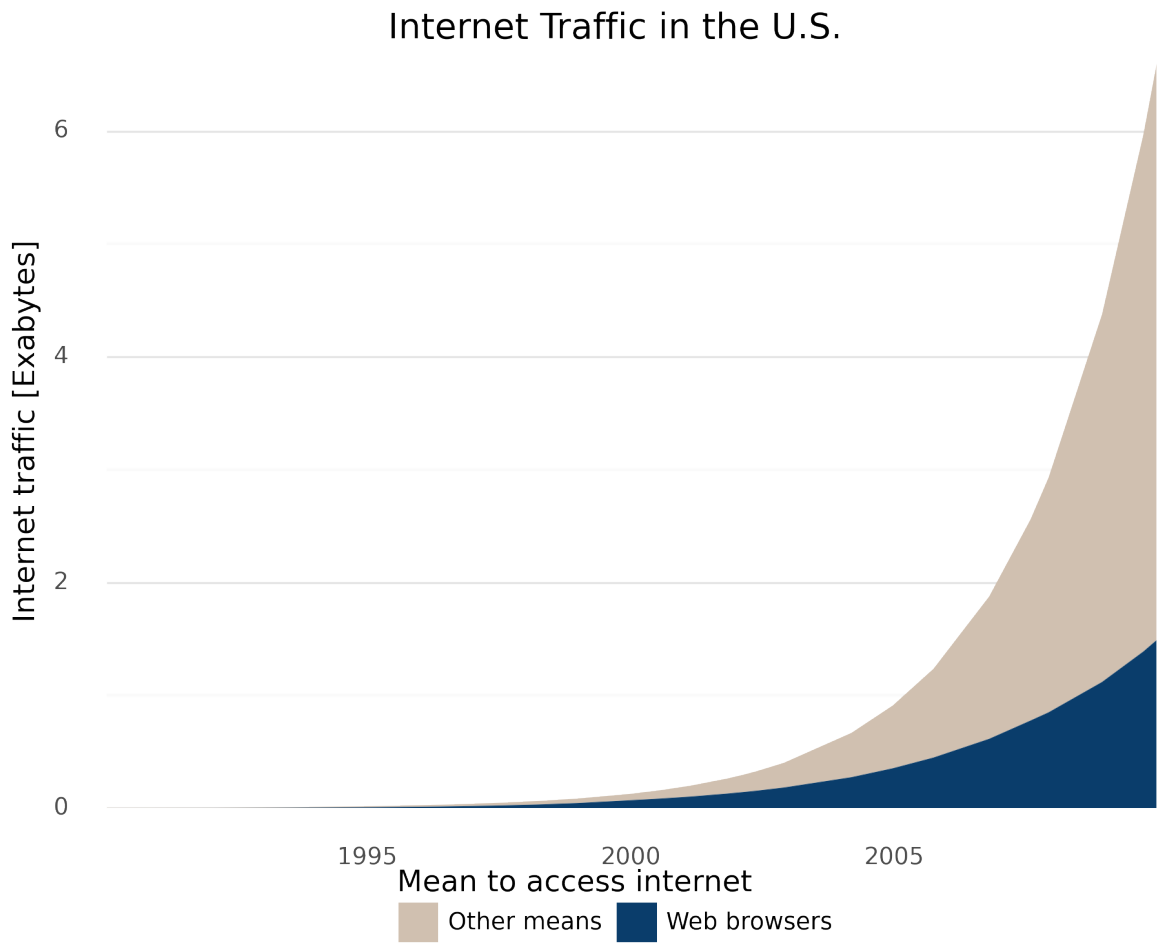
Internet is dead?

Why is this a bad visual?



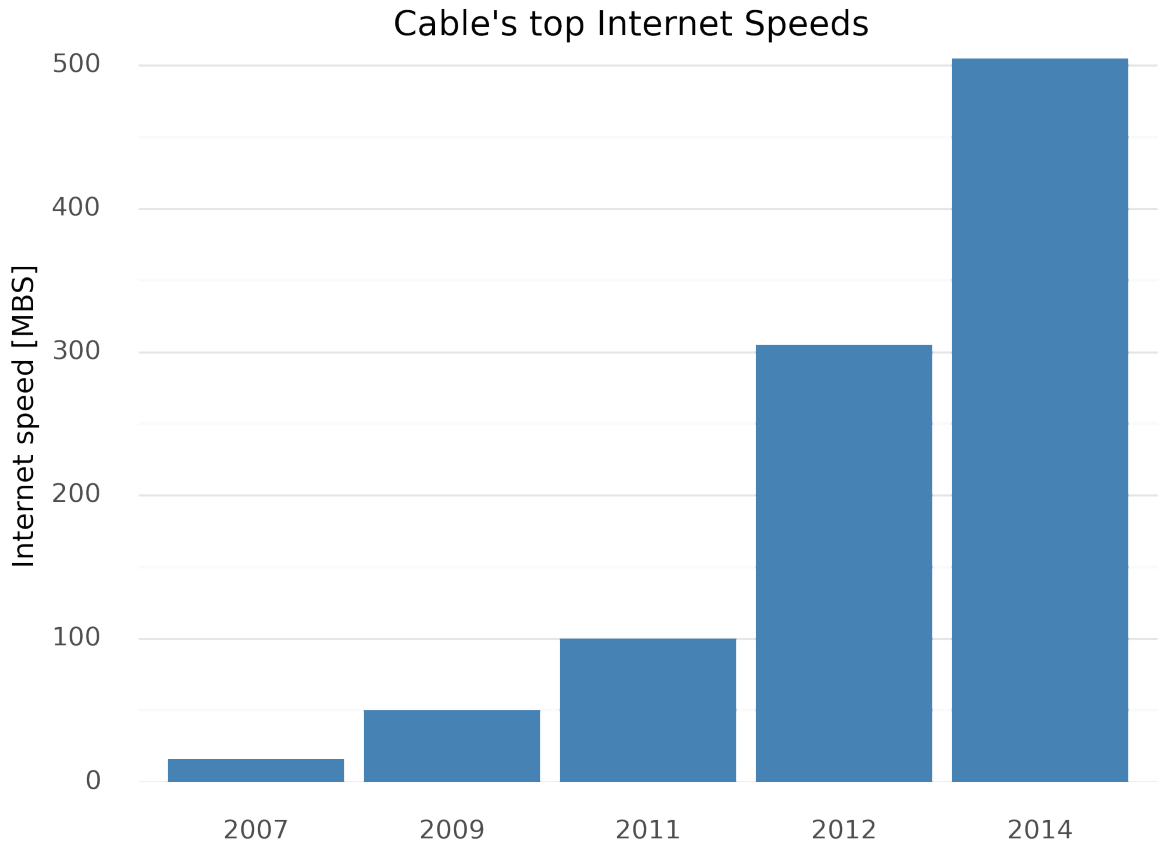
Internet is far from dead

- Be careful with proportions (and in general summary measures)



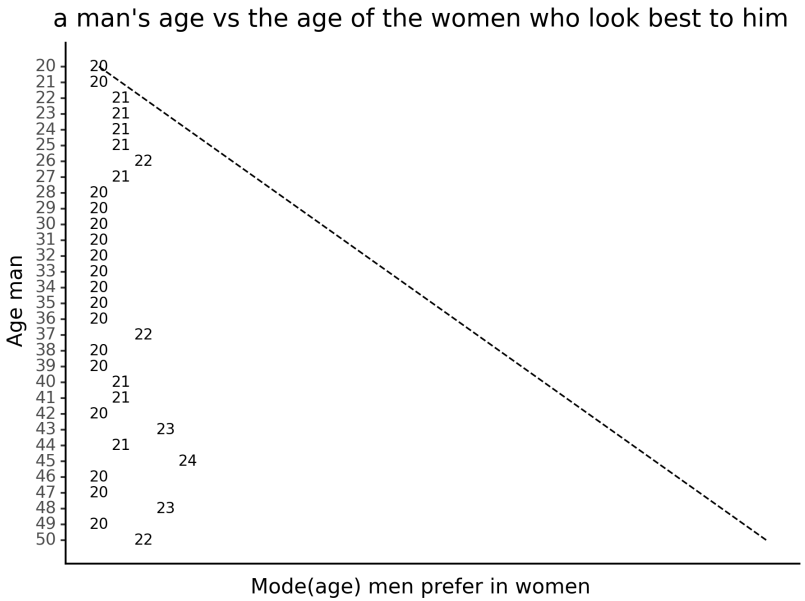
Internet speed is increasing?

- Always check what is being plotted
  - Top-speeds are not a good representative measure



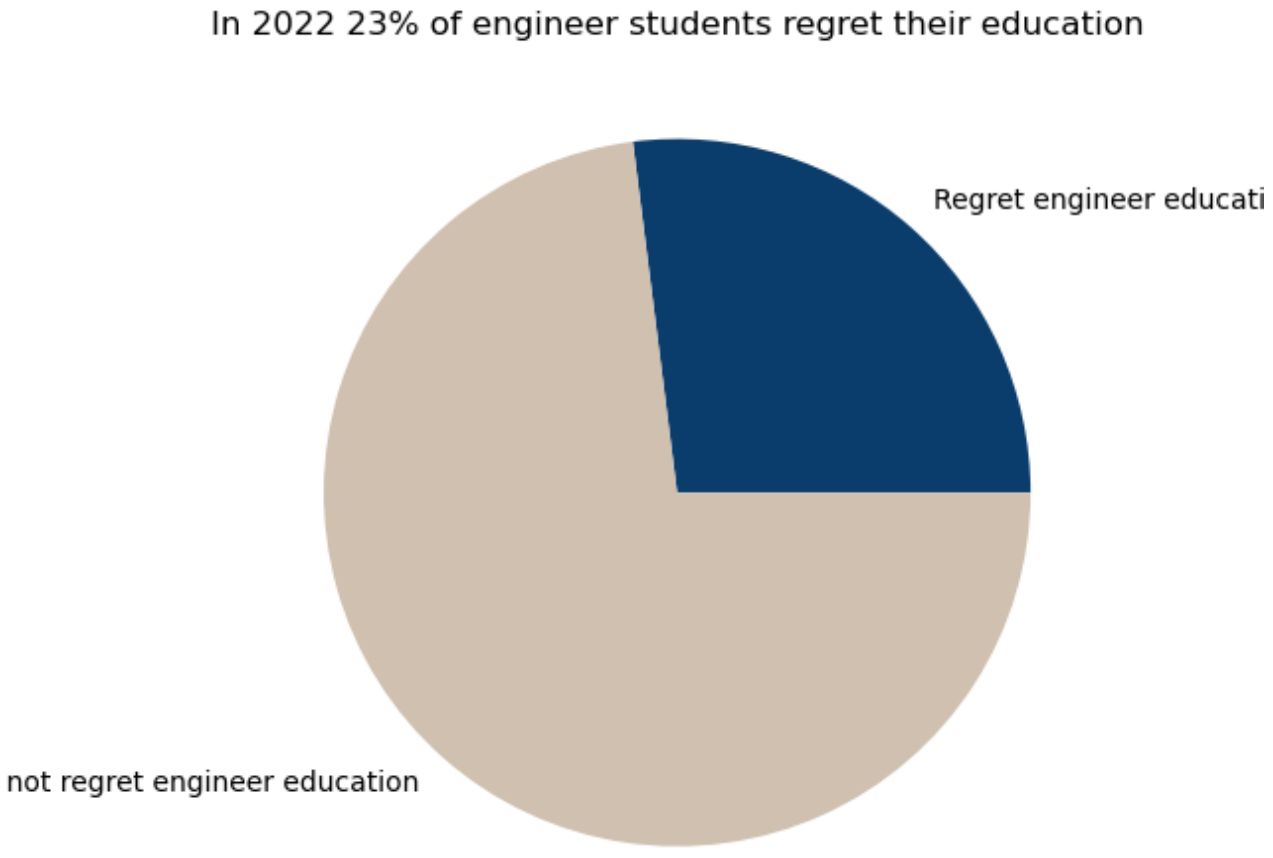
Never try to actively mislead

Actively misleading someone might earn attention in the short run but will harm your credibility in the long run.



Avoid engineering as the plague?

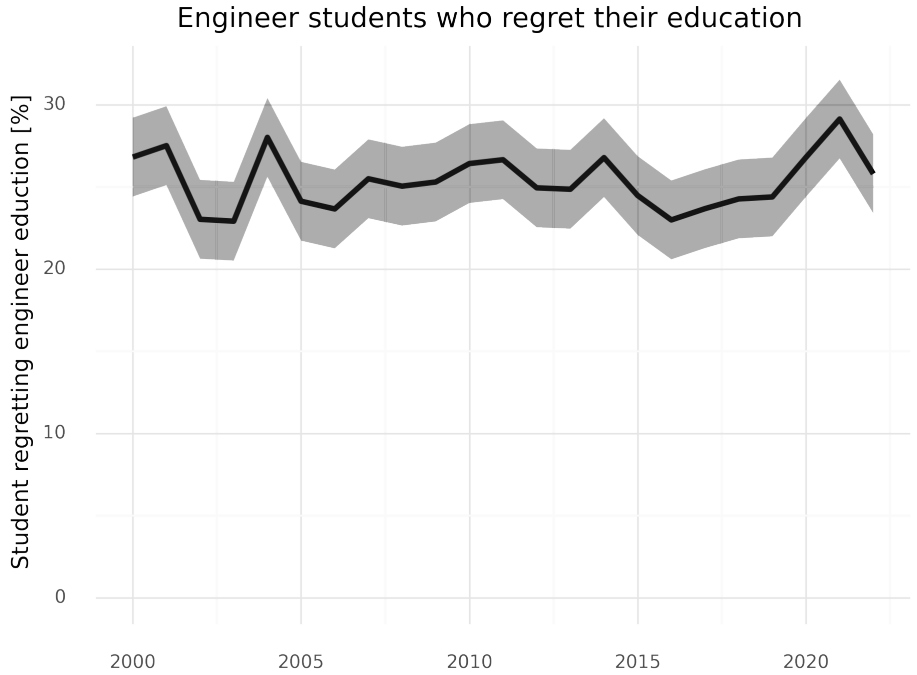
- How can we make this more truthful[1]?



[1] Made up data as an engineer I hope is not true :)

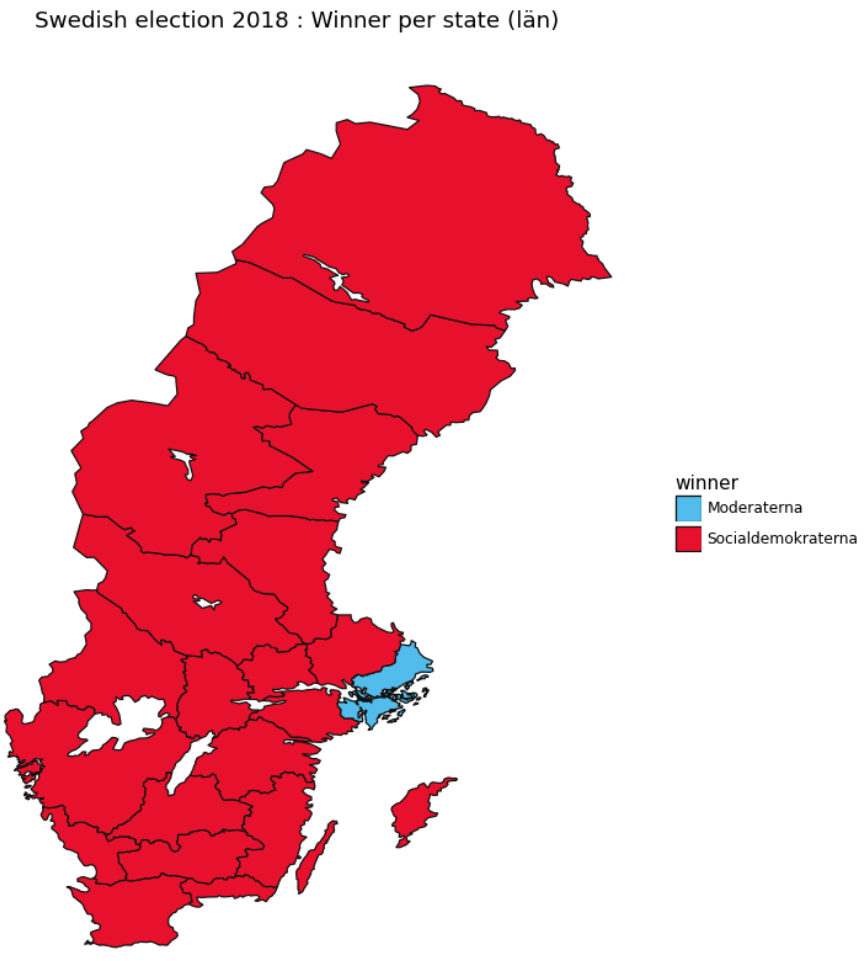
Avoid engineering as the plague?

- Include context such as trend over the years
- Include comparisons with other educations, salary data etc.
- Exclude what is obvious, and include what is not obvious



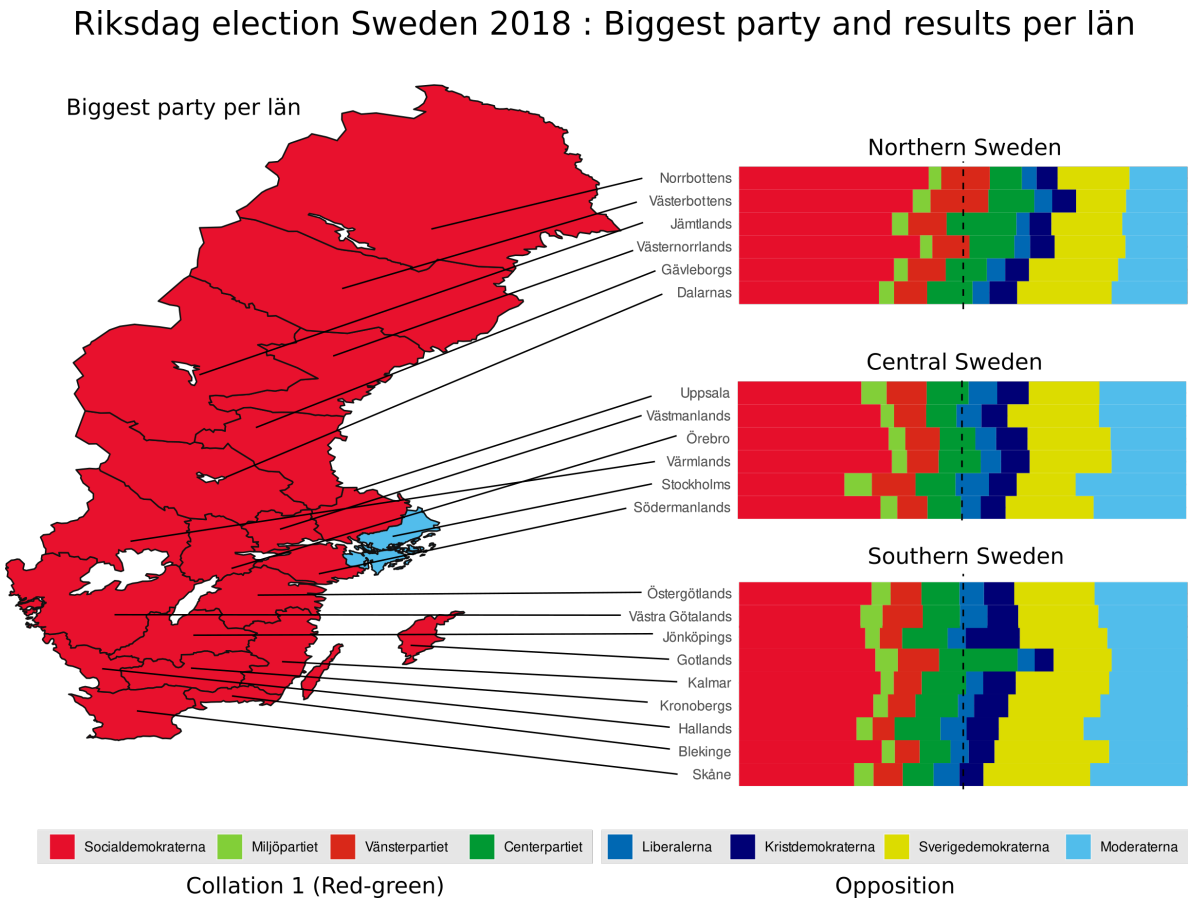
Swedish election data 2018

- Why should I not post this on Twitter?



Design to avoid miss-interpretation

- People will never interpret the data like you → design to avoid miss-interpretation
- Always keep the background of the audience in mind



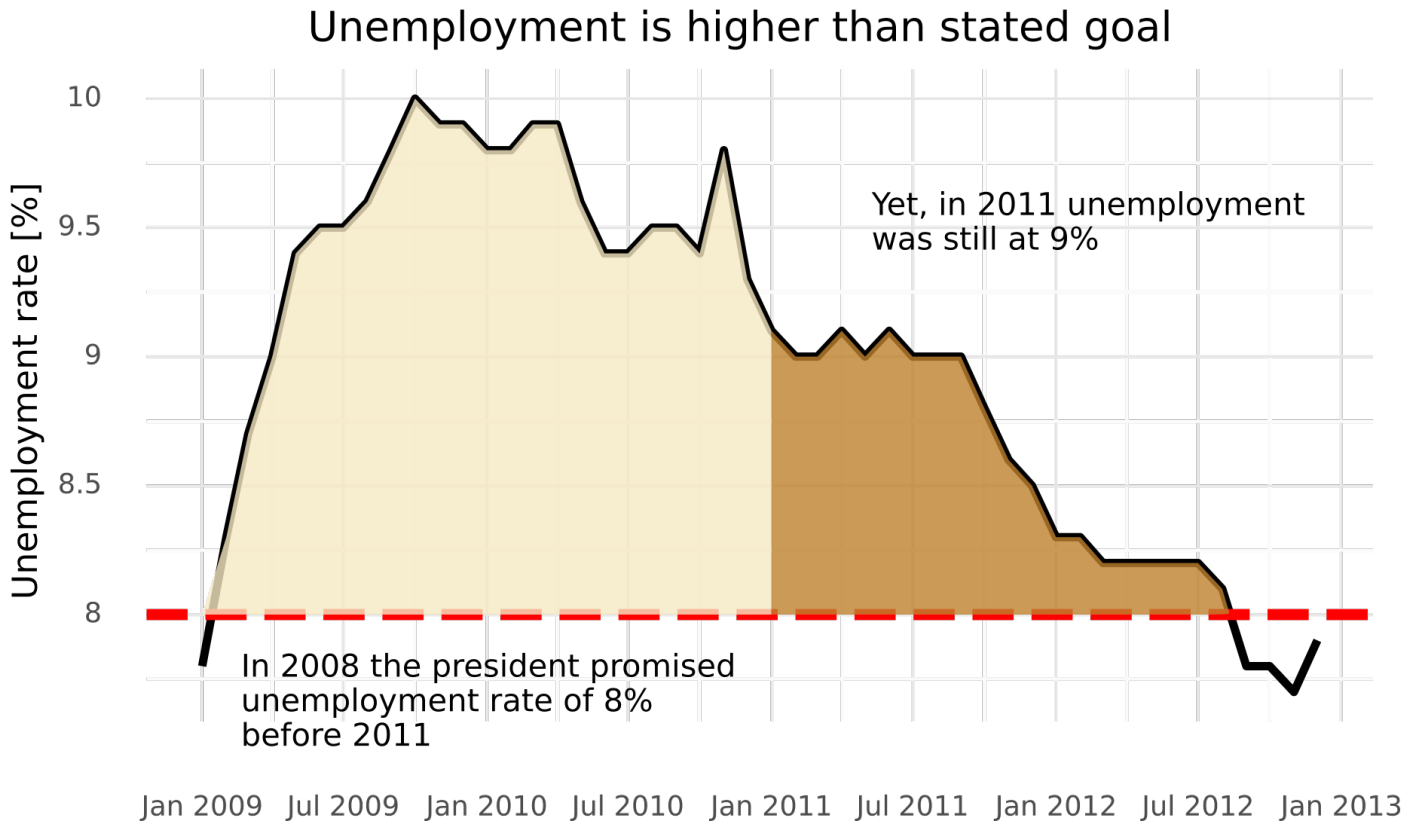
What causes unwilling misleading?

- Not keeping the audience's background in mind
  - You often know way wore about the data
- Storyteller's bias
  - Often we want to squeeze the data into fitting a story (e.g. internet is dead), instead of letting the data dictate the story
- Conformation bias
  - The visuals fits with our world view (see slide 13, and student data)
- Pattern bias
  - We have a tendency to extract patterns from random data

General tips

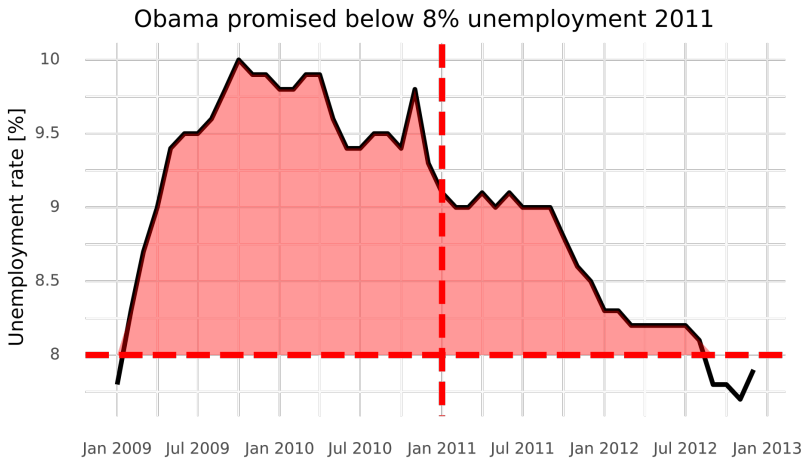
Use annotations to guide viewer to main message

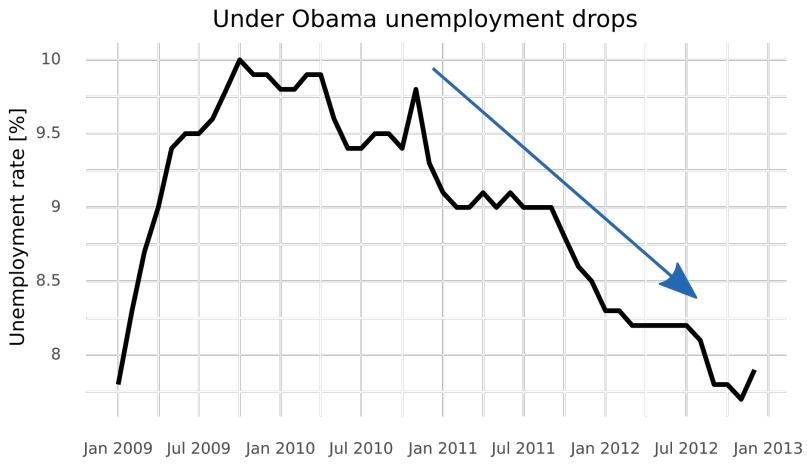
- Annotations are helpful as you understand the data better than the audience



With great annotations comes great responsibility

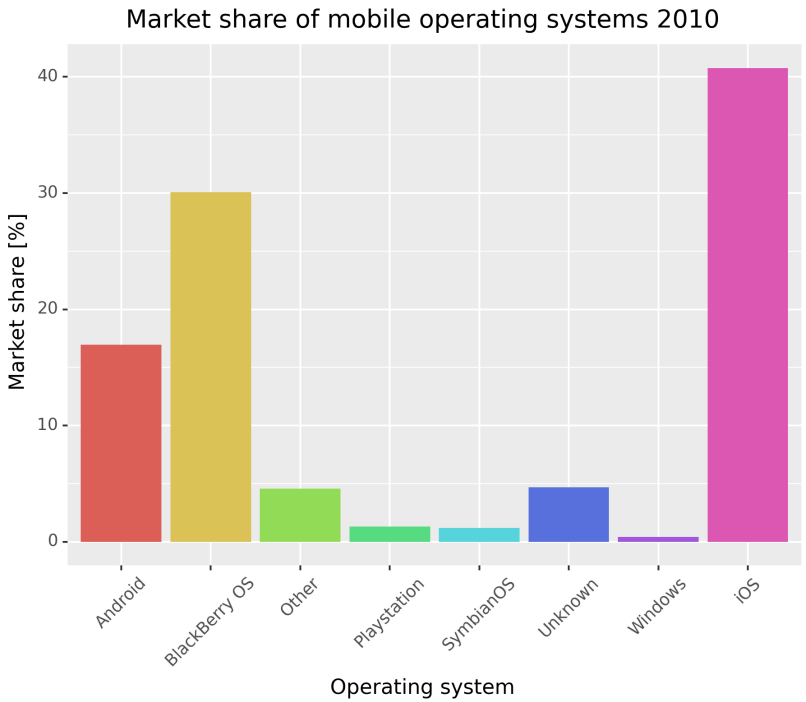
- When making annotations try to stay professional and keep the three biases (slide 11) in mind
  - Annotations and headlines are among the most remembered elements of a visual

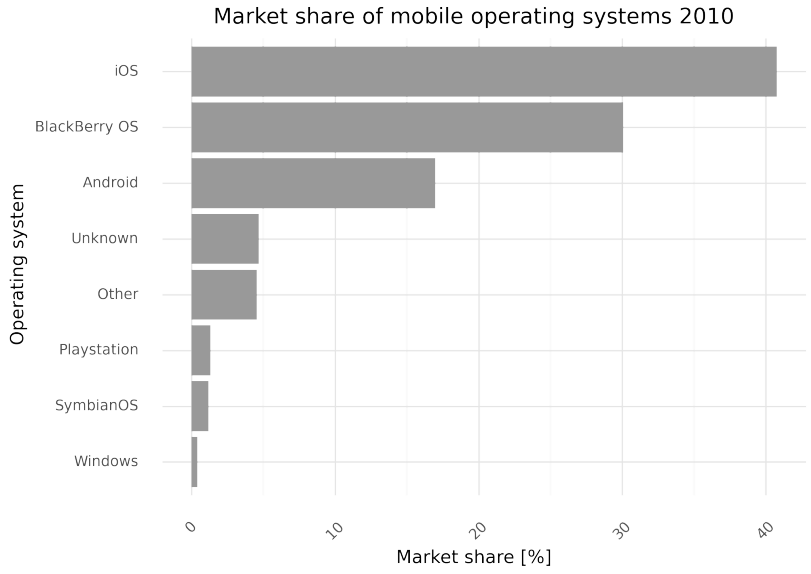




Try to make your visuals good-looking

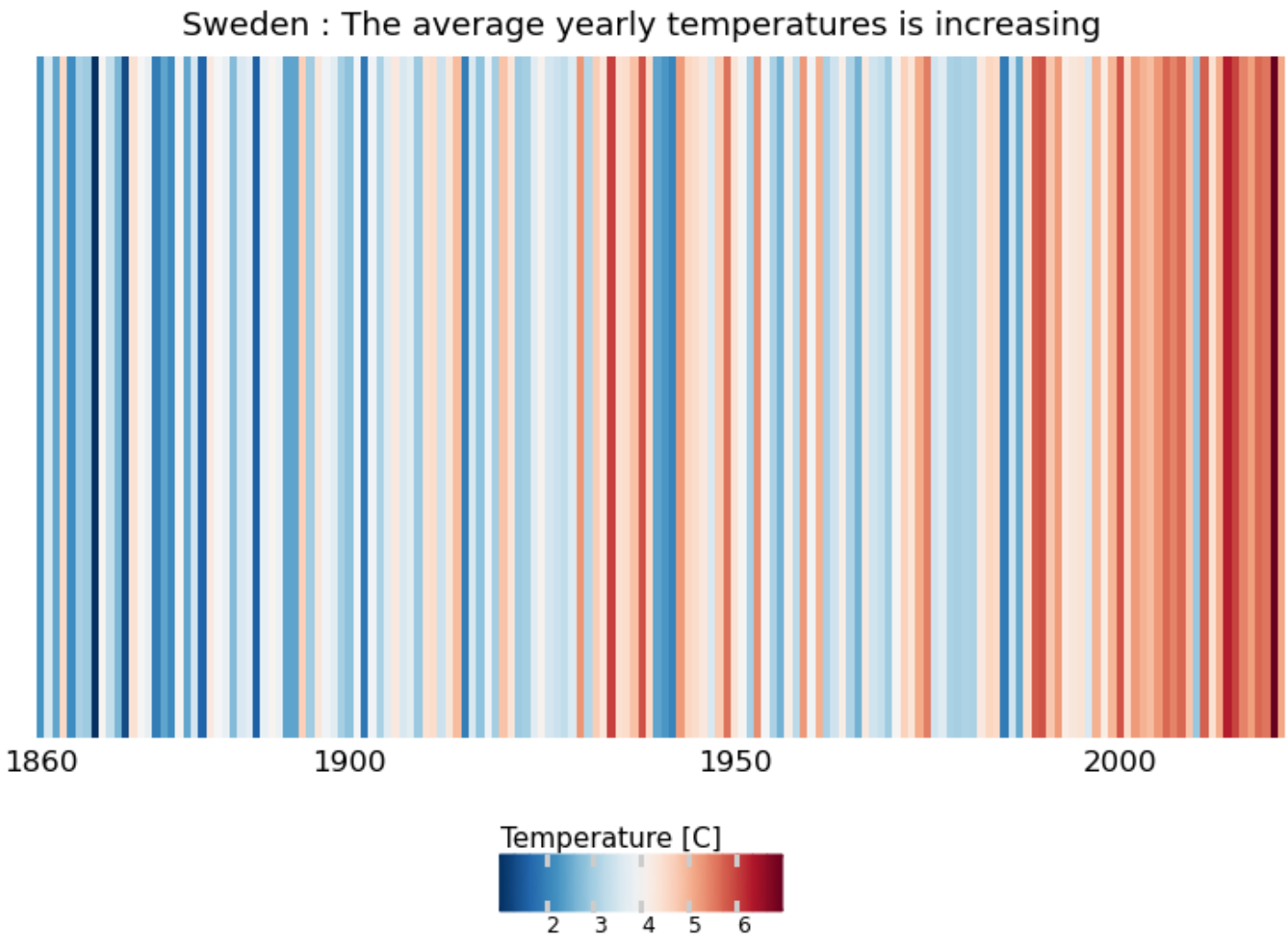
- The aesthetic appeal of a visual does not affect how well it can be read, but people are more likely to engage with good looking visual





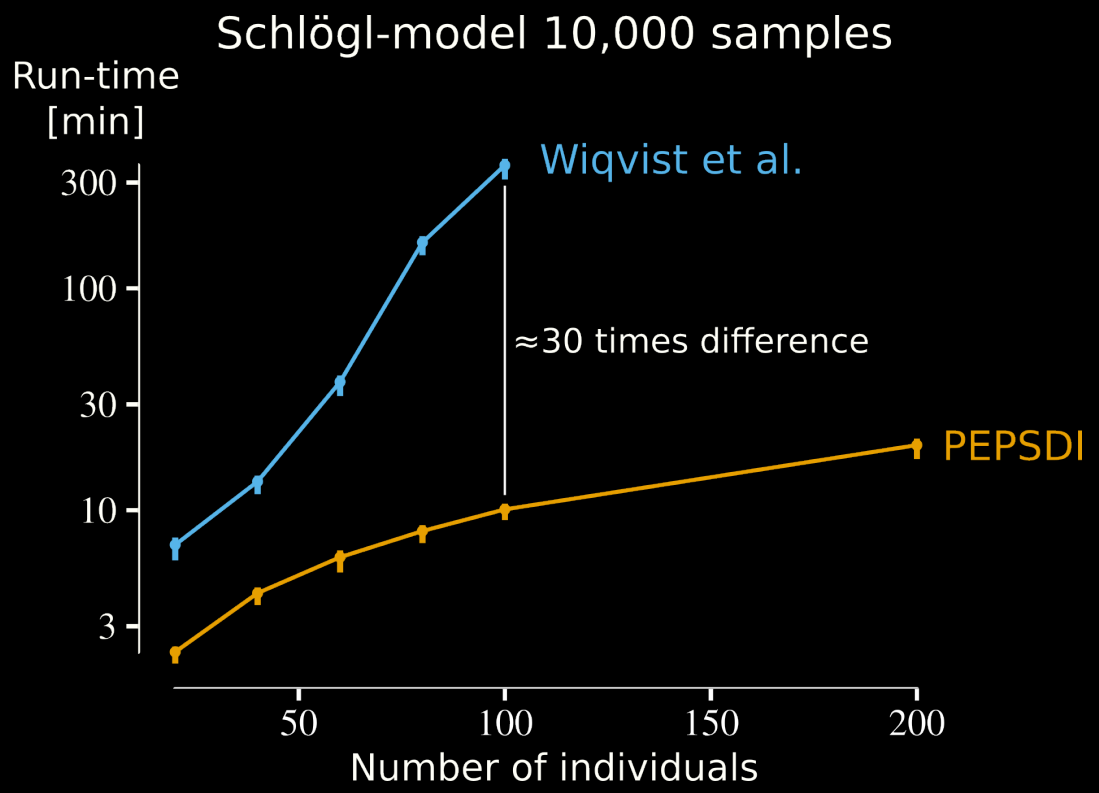
Try to make your visuals good-looking

- A creative visual can help engage people



For presentations consider a dark theme

- Less stressful for the eyes
- Better contrasts (elements in the graph are more visible)
- Makes you stand out :)



Further reading

- Wilke, Claus O. Fundamentals of data visualization: a primer on making informative and compelling figures. O'Reilly Media, 2019. *https://clauswilke.com/dataviz/*
- Cairo, Alberto. The truthful art: Data, charts, and maps for communication. New Riders, 2016.
- R for Data Science *https://r4ds.had.co.nz/* (Great resource for learning R)