Tips and Tricks for

Publication Ready Figures

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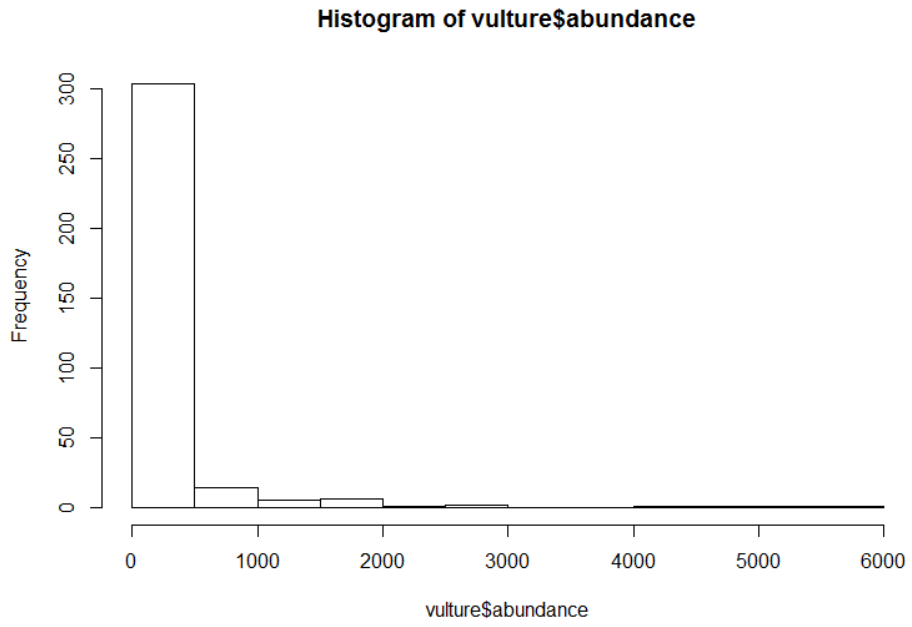
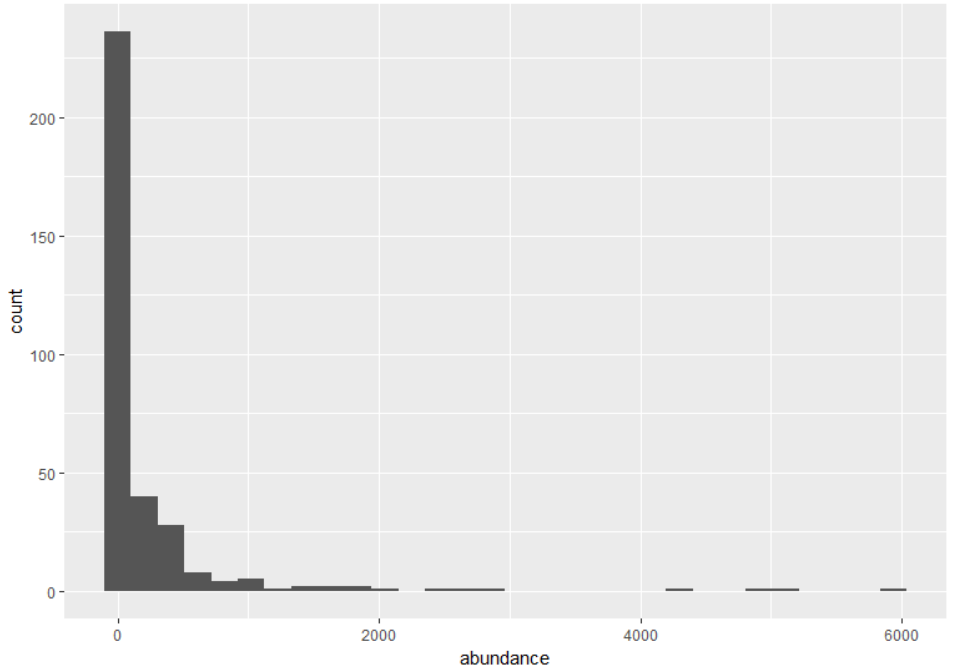
Hacky Hour 23 July 2020

Someone hands you a manuscript to read, what do you do?

Your figures communicate your science and advertise it

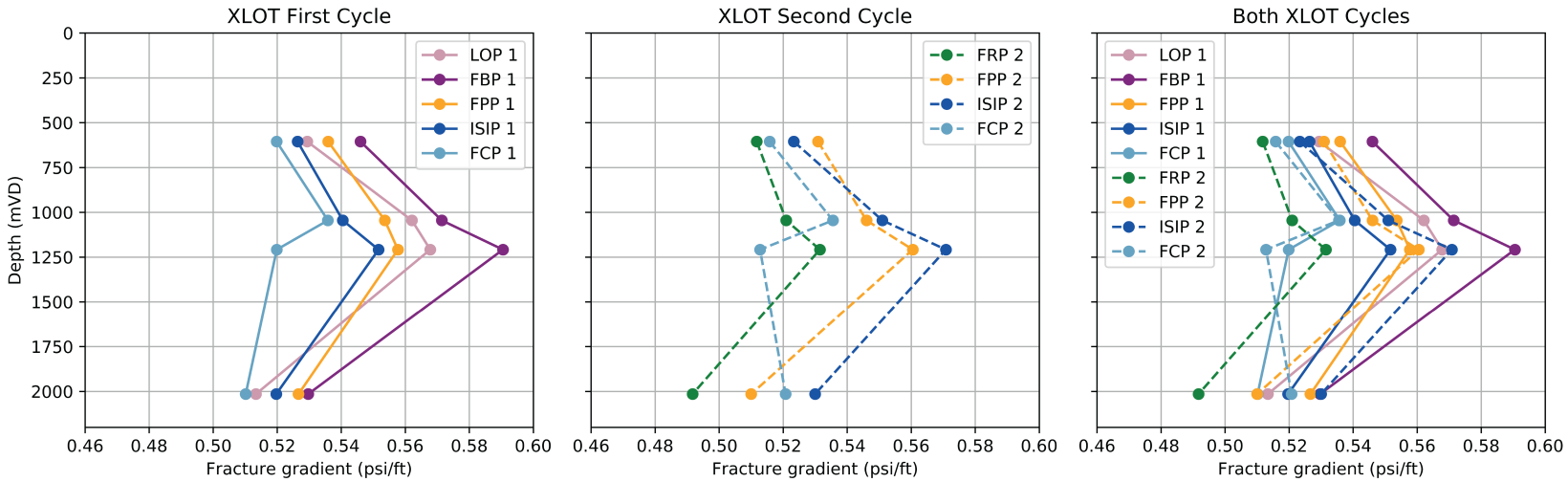
Good vs Bad Plots



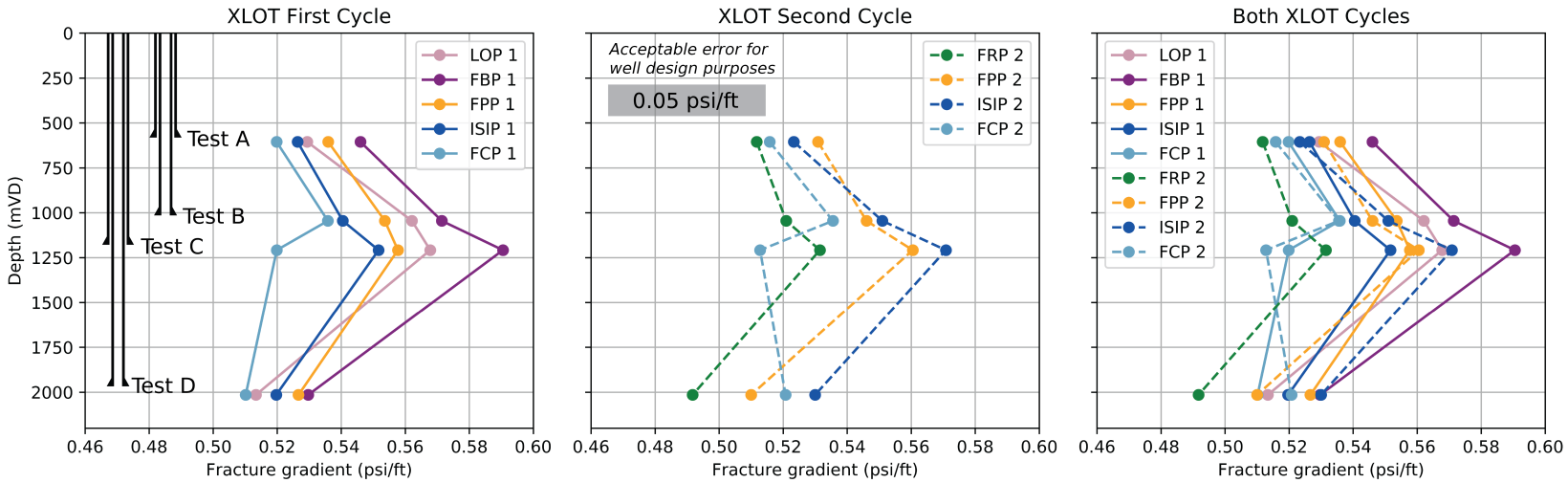


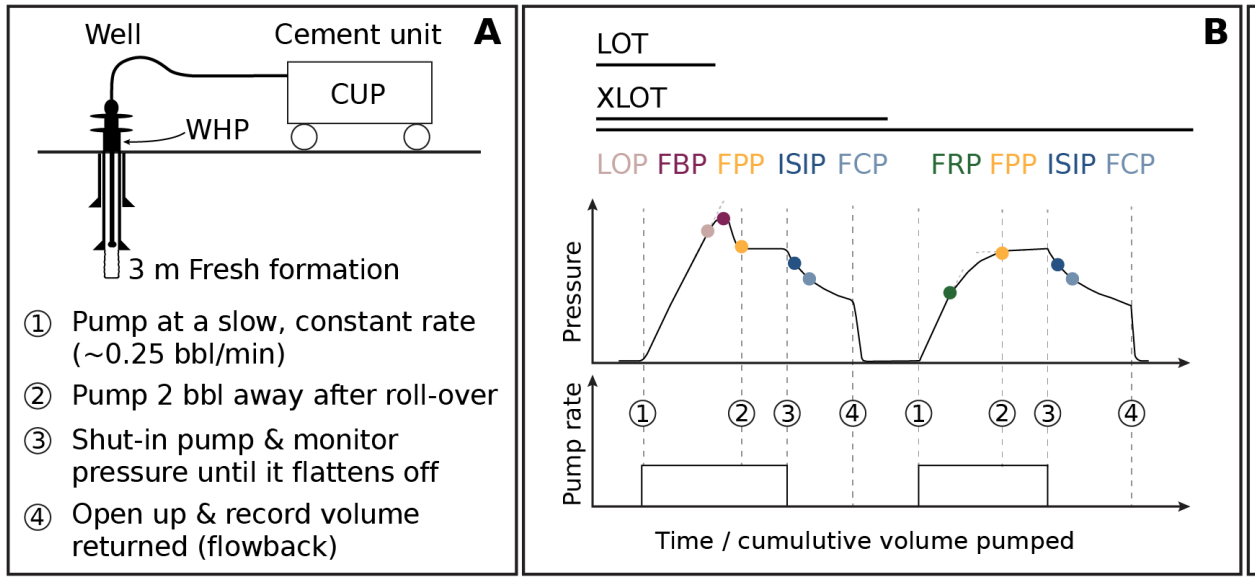
https://ourcodingclub.github.io/tutorials/datavis/

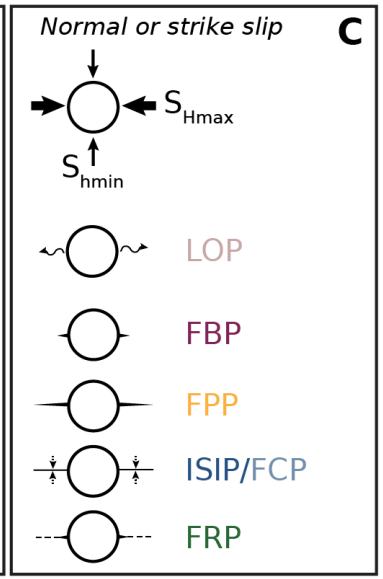
Plots vs Communication

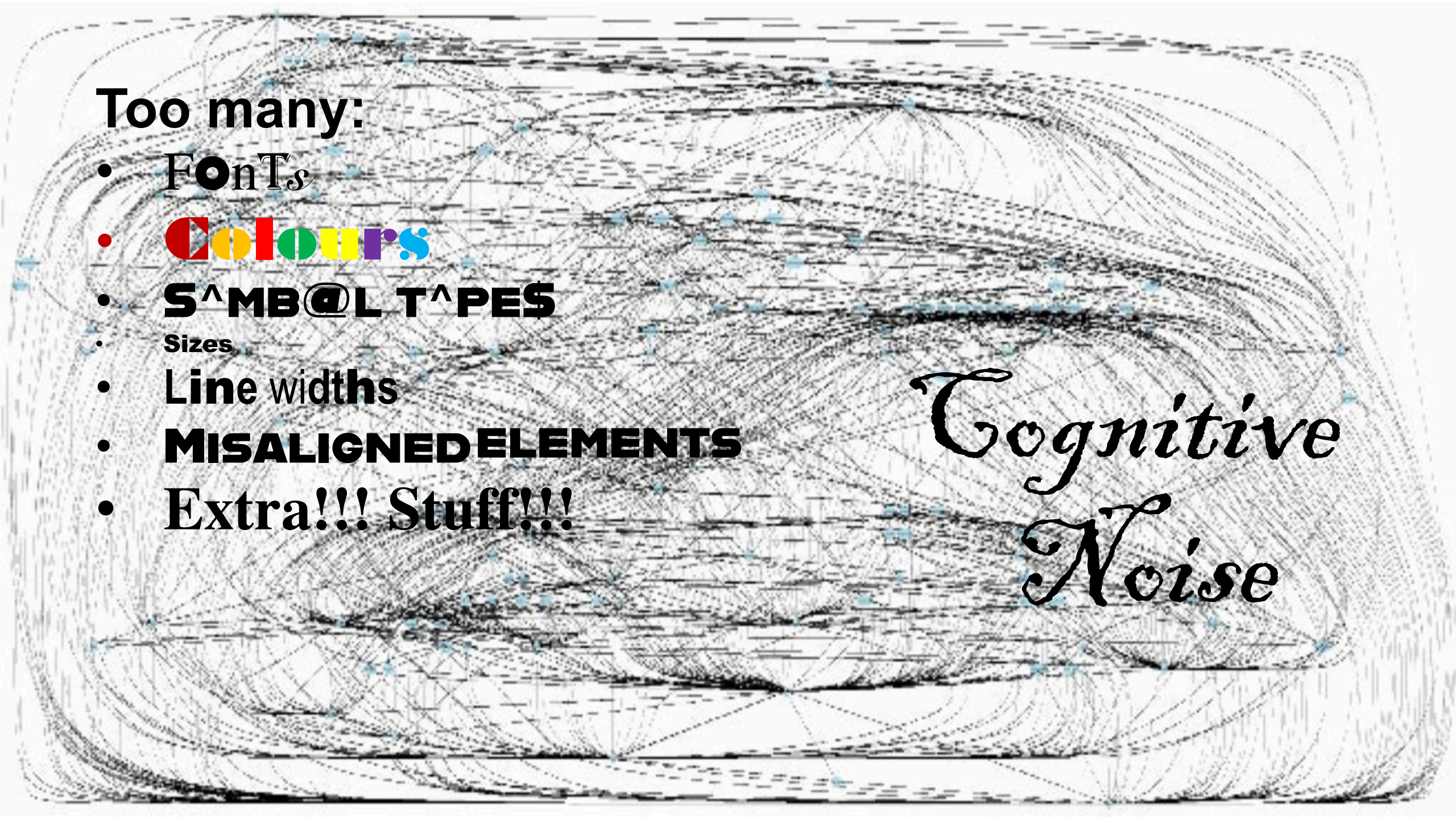


Plots vs Communication





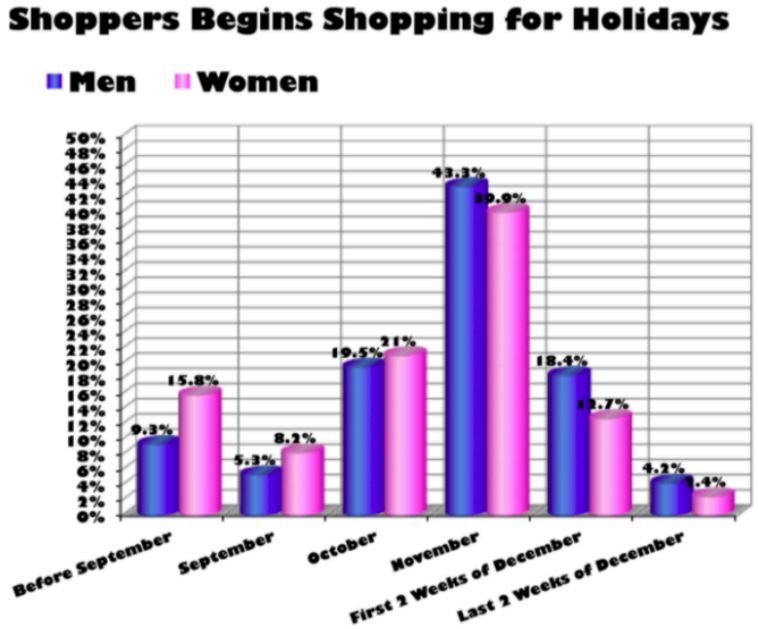


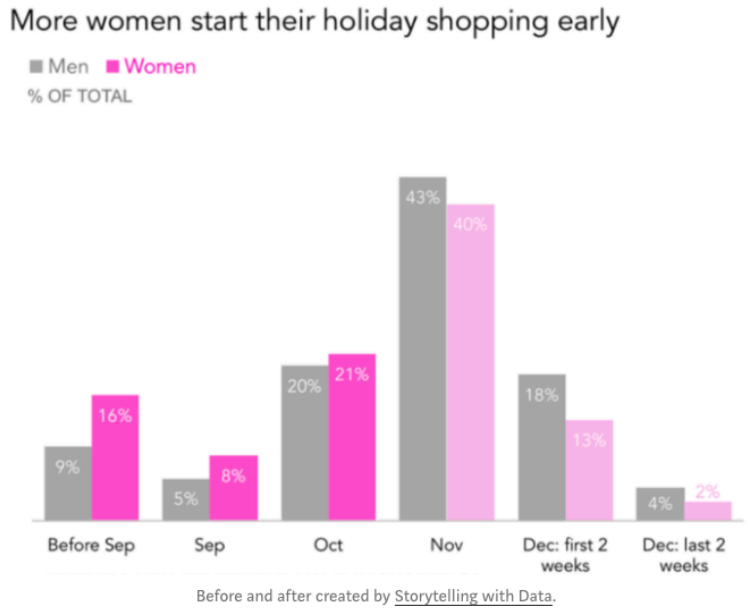

Too many:
FOnTs
Colours
S^MB@L T^PE$
Sizes
Line widths
MISALIGNEDELEMENTS
Extra!!! Stuff!!!
Cognitive Noise

Cognitive noise

Ask yourself…

- What am I trying to do: communicate my research or make it look fancy?
- What would make it easier/faster for my audience to understand me?
- What can I remove?





http://www.storytellingwithdata.com/blog/2017/3/29/declutter-this-graph

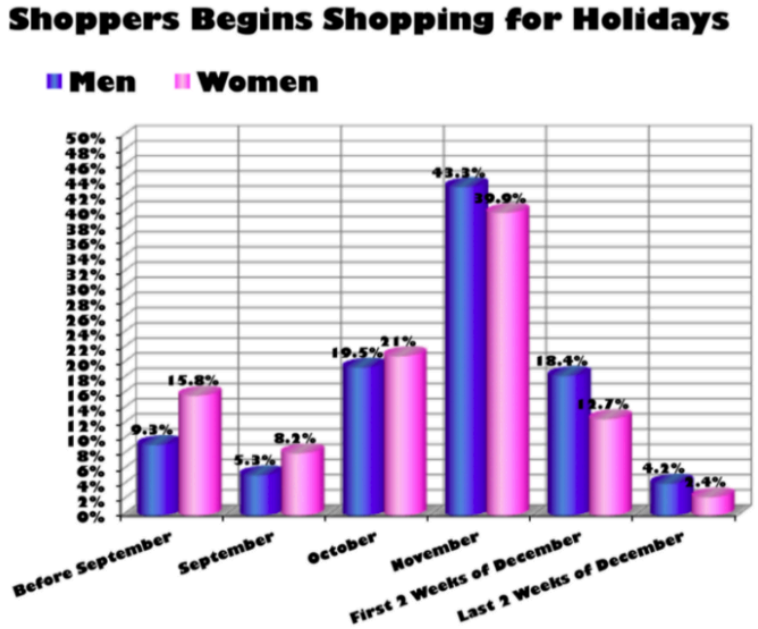
Cognitive noise

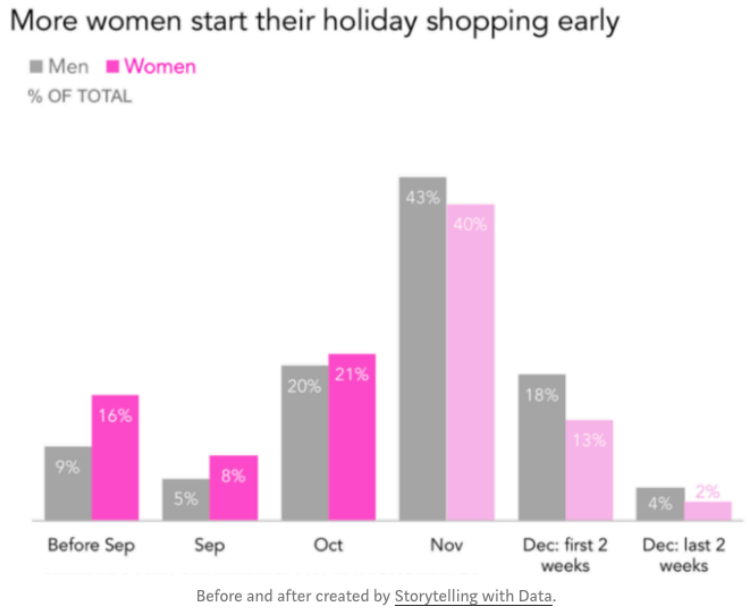
Tips

- Use whitespace: When you know your data, it's easy to digest but others need space to think
- Have a consistent style and colour palate throughout your paper/poster
- Use one font, preferably sans-serif

The default font for matplotlib is DejaVu Sans. This is not a standard font in graphics or word processing packages but can be downloaded and installed as a font pack.

https://dejavu-fonts.github.io/Download.html





Generate plot

Format and annotate

Share

research
Generate plot
Format and annotate
Share
plan to communicate
Plan plot
What is important?
Where? Who? Why?

Plan

- What do you want to communicate?

  You can’t include everything
- Who are you wanting to communicate with?

  Sketch an avatar
- Are there any restrictions?

  Medium (poster/paper/presentation) dictates general layout, colour etc

  Journal guidelines can be very specific about figures
- How much space to you have?

  Plan appropriate line weights and font sizes

Plan

Planning and making figures in advance can also make it easier to write a manuscript

A method my supervisor suggested that works for me:

1. Brainstorm a catchy title and whiteboard the outline
    - Headings
    - Description of each section
    - Figures and figure captions
2. Make the figures
3. Write to the figures and headings

Spend the time needed,
no more and no less

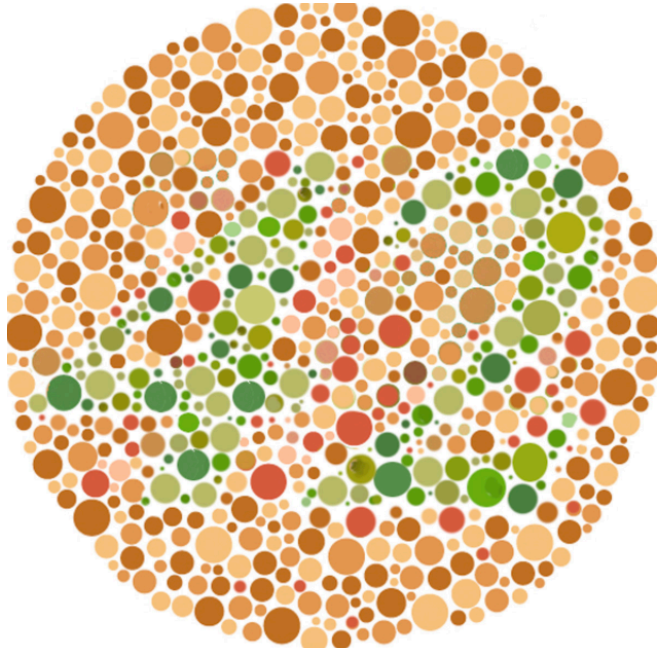
Colour

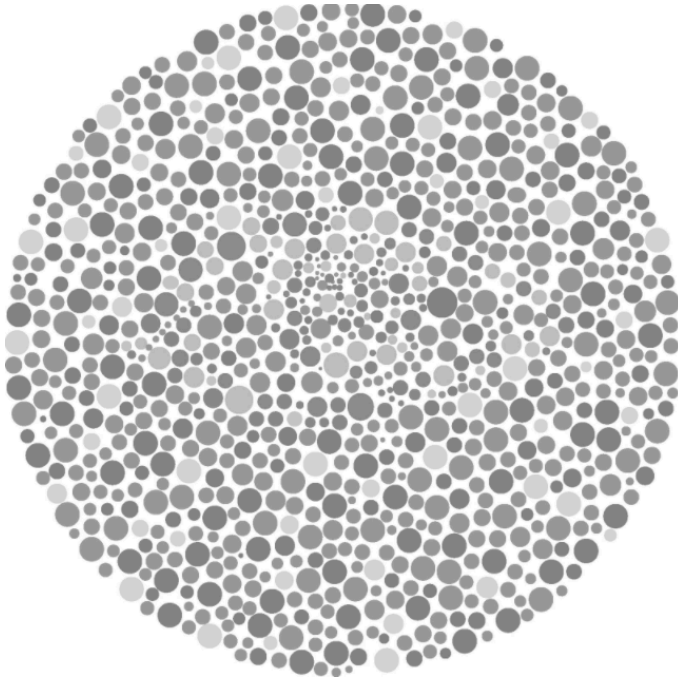
Considerations

- Requirements/cost (check journal guidelines)
- Communication & cognitive noise
- Colour blindness
- Printing in black and white

Colour palate demo

- Example (.txt and .ai)
- Making colours and converting between colour formats (Hex, RGB, CMYK etc)





Colour

Resources

- Colour blindness simulator https://www.color-blindness.com/coblis-color-oblindness-simulator/ (recommended)
- Colour brewer https://colorbrewer2.org/#type=sequential&scheme=BuGn&n=3
- Colour brewer https://learnui.design/tools/data-color-picker.html
- Hex colour viewer and brewer https://www.color-hex.com/ (recommended)
- Colour viewer and brewer https://color.adobe.com/create/color-wheel (recommended)
- Test a colour pallet https://projects.susielu.com/viz-palette
- Colour thief fun: Adobe capture app
- Colour thief fun: https://lokeshdhakar.com/projects/color-thief/
- Matplotlib named colours https://matplotlib.org/3.1.0/gallery/color/named_colors.html

Generate plot

Format and annotate

Share

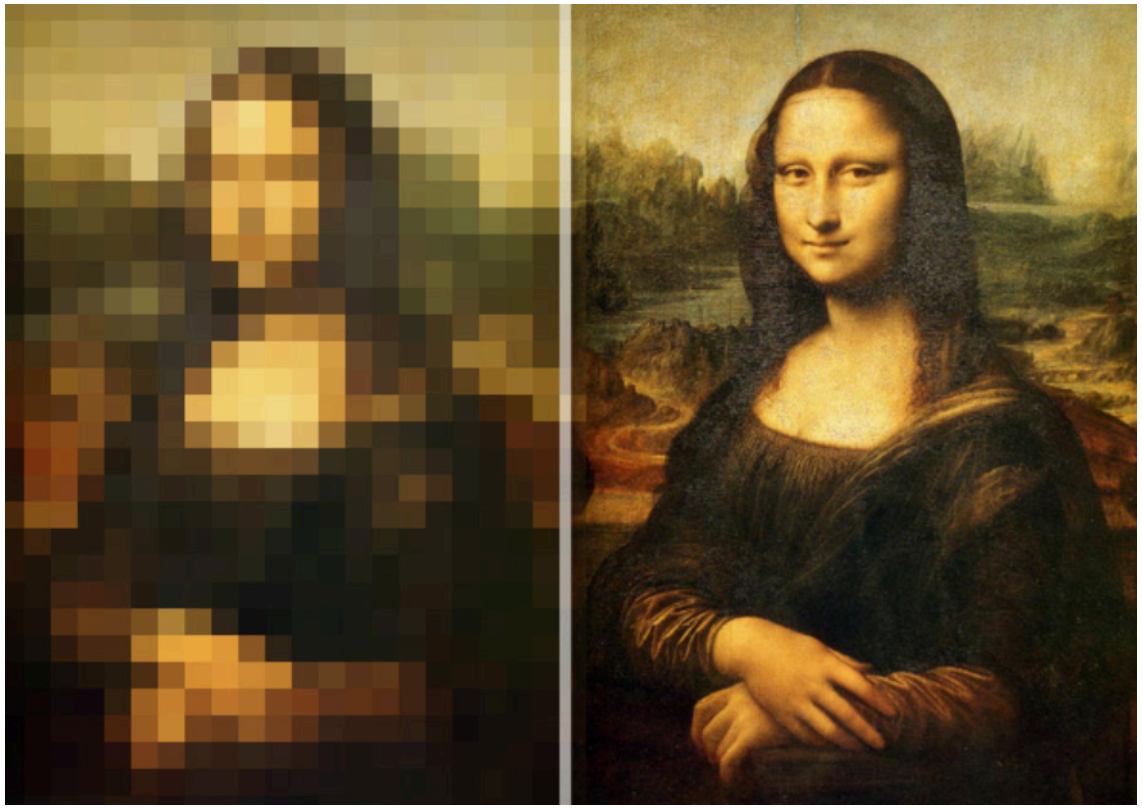
Demo

File -> Place

Image Format & Resolution

Match the format to the task

- png – recommended format for plots (large areas with a single colour) and is an open-source format that's widely accepted
- jpeg – recommended for photos (large amount of colour variation) but suffers loss and degradation when repletely edited
- tiff – often large files and typically used for raster data storage or high-quality printing, so avoid dropping tiff images into your document



Rules of thumb for png resolution

- 300 dpi general use
- 600+ dpi posters and within workflow
- Check journal guideline for manuscripts

Discussion / Questions