Let's talk about visual clarity

With Lucy & Freya

Let's talk about visual clarity

With Lucy & Freya

(and David)

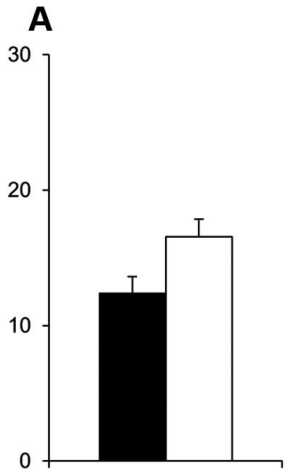
Resources

- Weissgerber et al. (2015). Beyond bar and line graphs: time for a new data presentation paradigm. *PLoS biology*, doi: 10.1371/journal. Pbio.1002128
- Weissgerber et al. (2019). Reveal, don't conceal: transforming data visualization to improve transparency. *Circulation*, doi: 10.1161/CIRCULATIONAHA.118.037777
- Midway (2020). Principles of effective data visualization. *Patterns*, doi: 10.1016/j.patter.2020.100141
- Hehman & Xie (2021). Doing better data visualization. *Advances in Methods and Practices in Psychological Science*, doi: 10.1177/25152459211045334.

Some principles for visualising data …

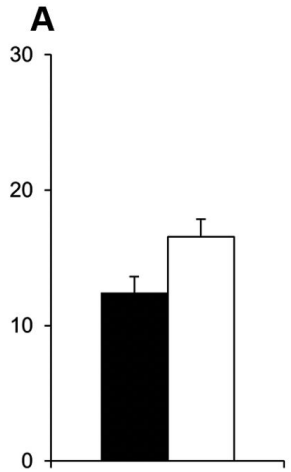
1. Show the data
2. But don’t show too much
3. Uncertainty is important
4. And so is colour
5. Consider your audience
6. Get another opinion!

Weissgerber
et al., 2015



Show the data

Weissgerber
et al., 2015



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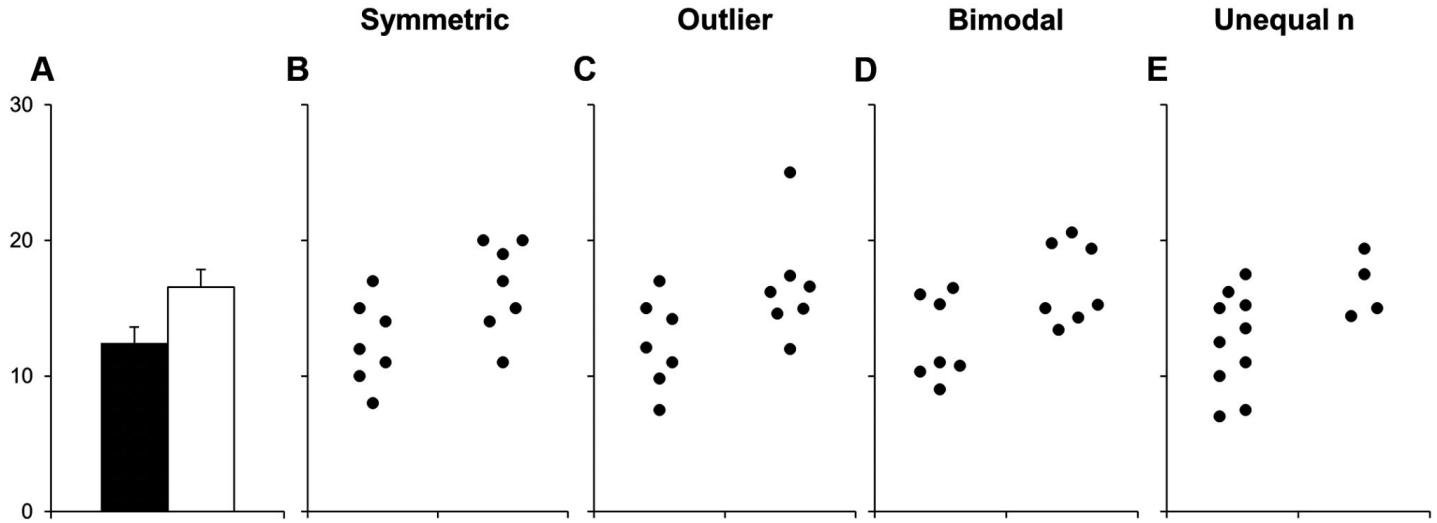
Weissgerber et al., 2015



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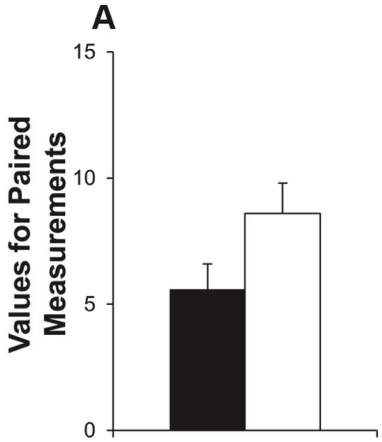

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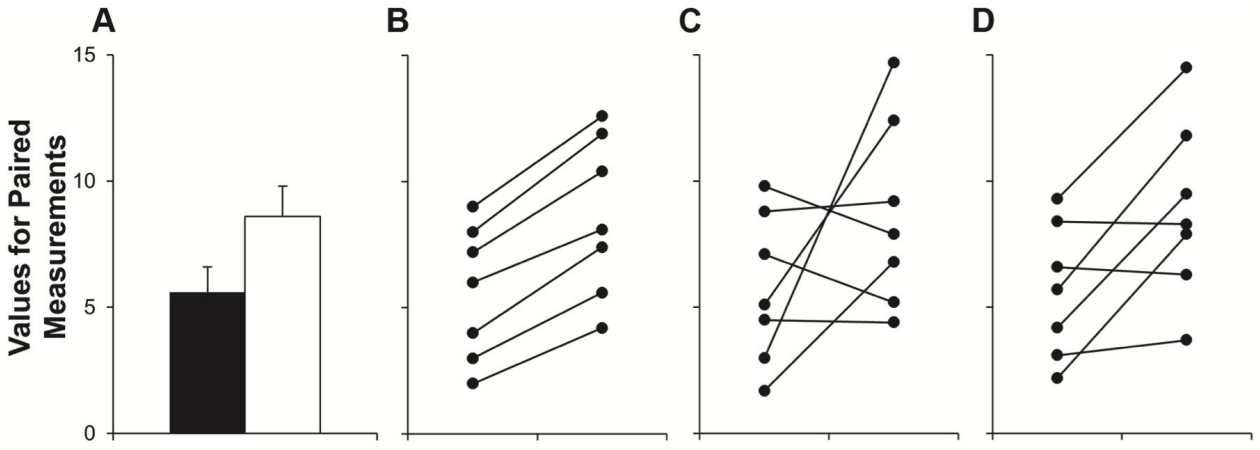

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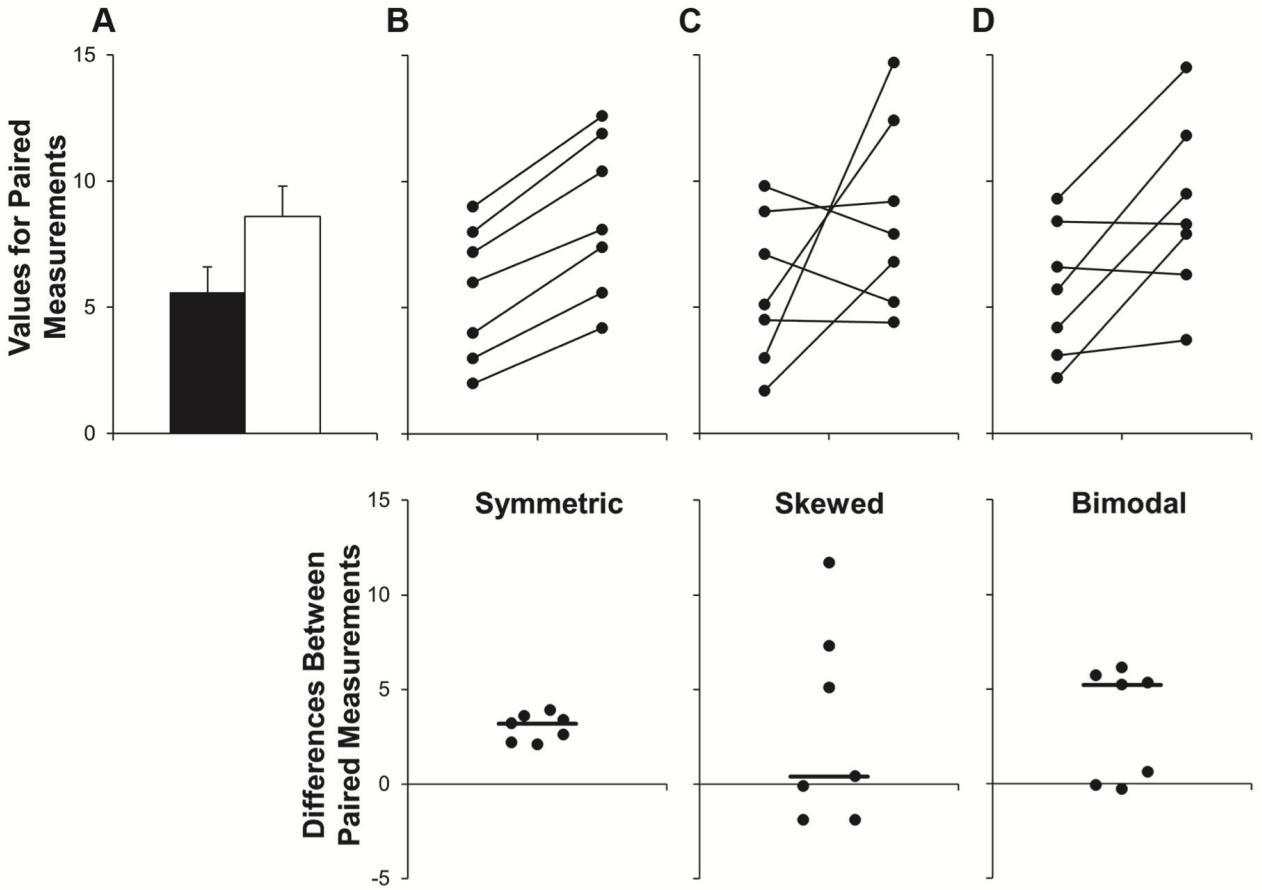

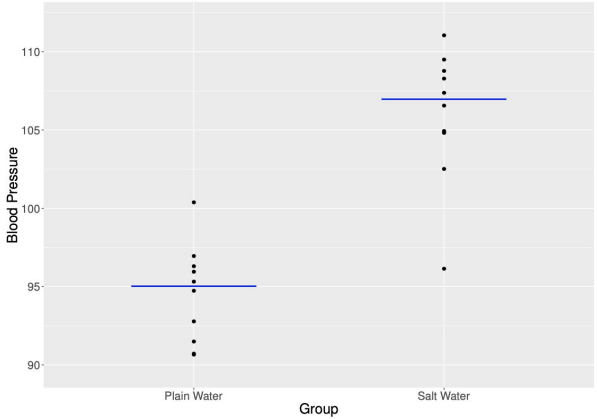
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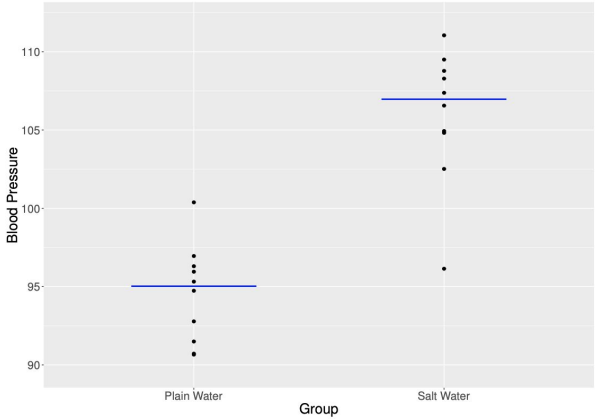
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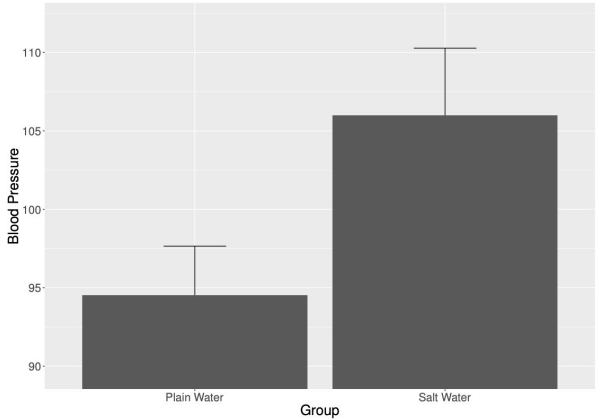
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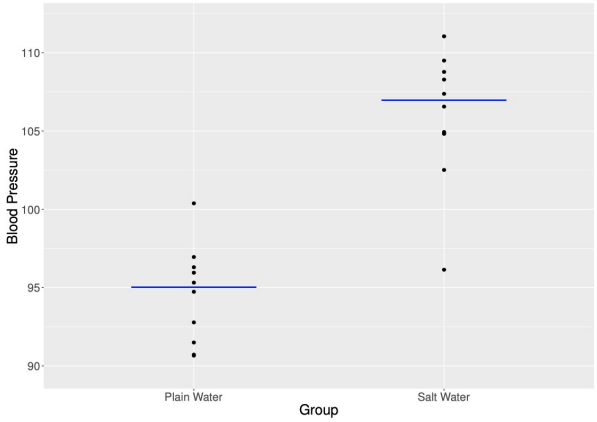
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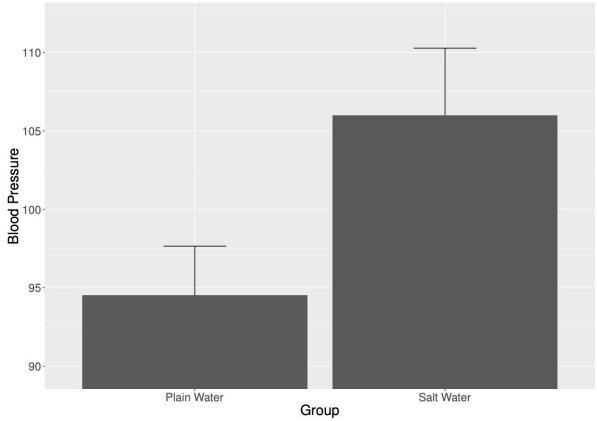
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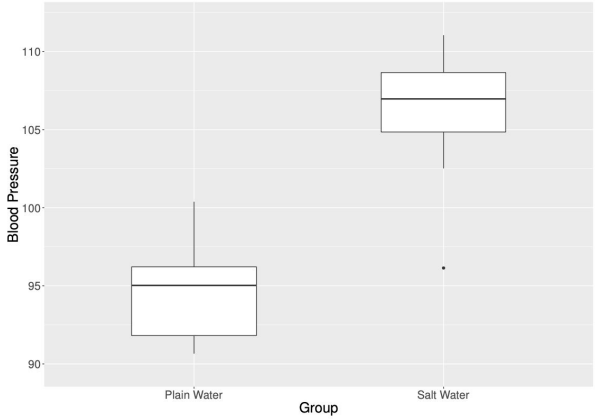
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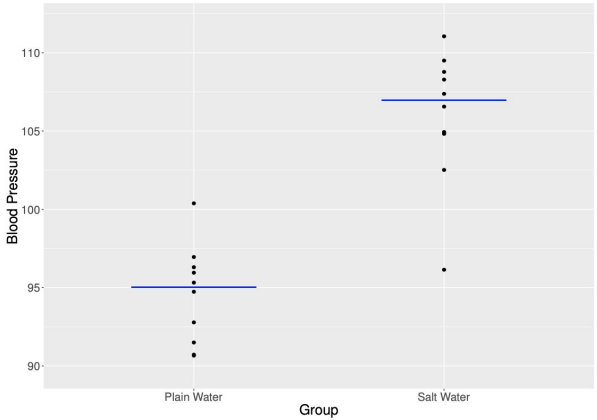
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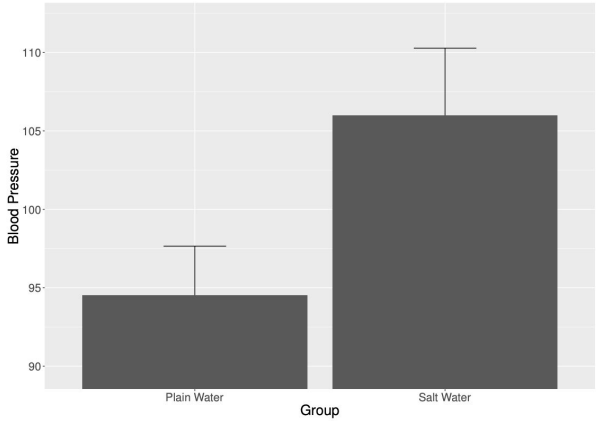
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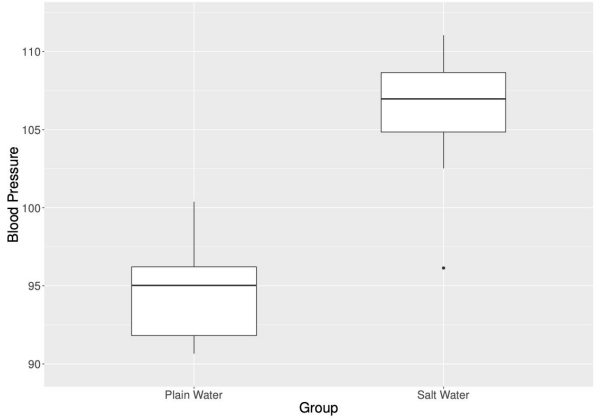
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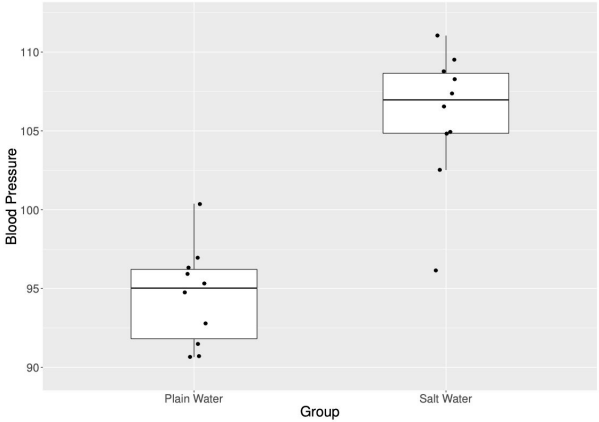
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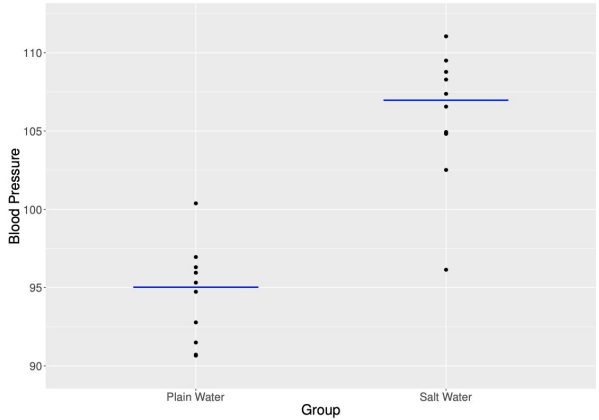
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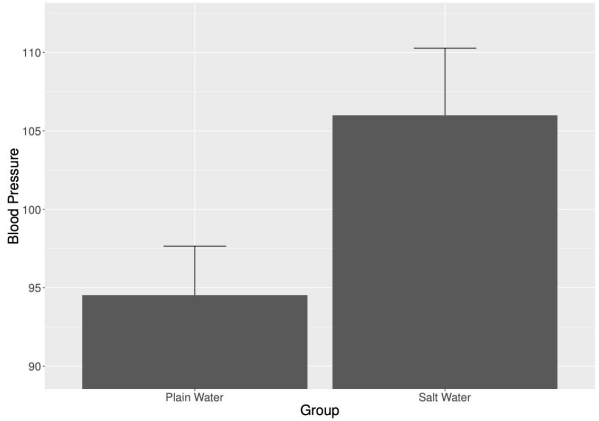
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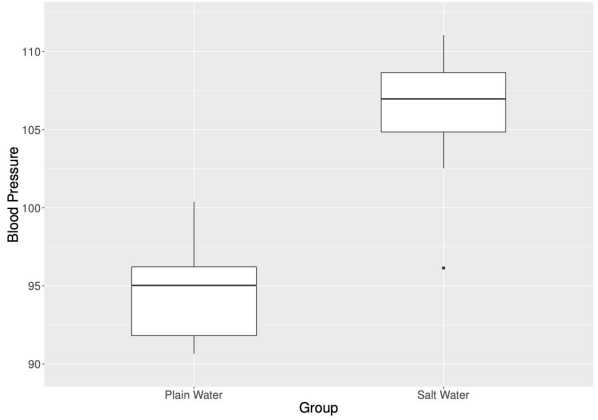
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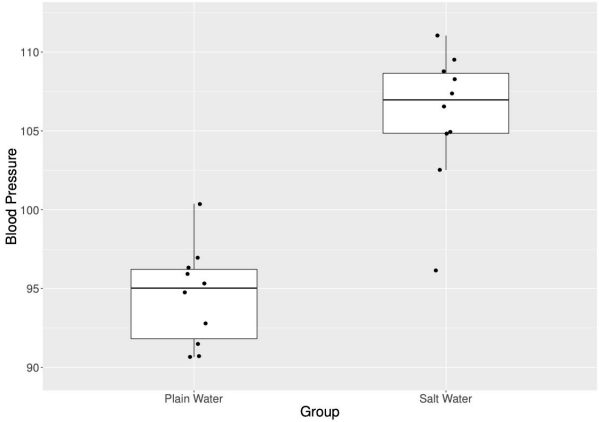
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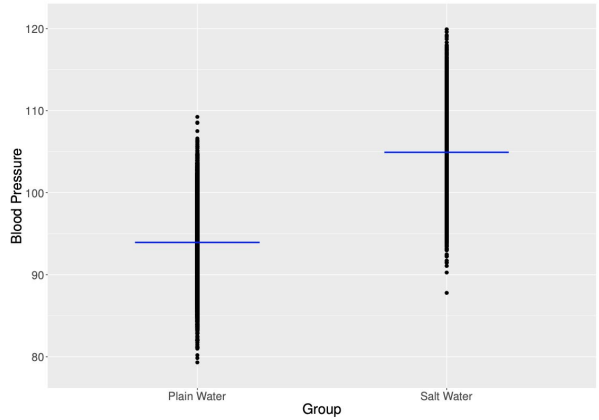
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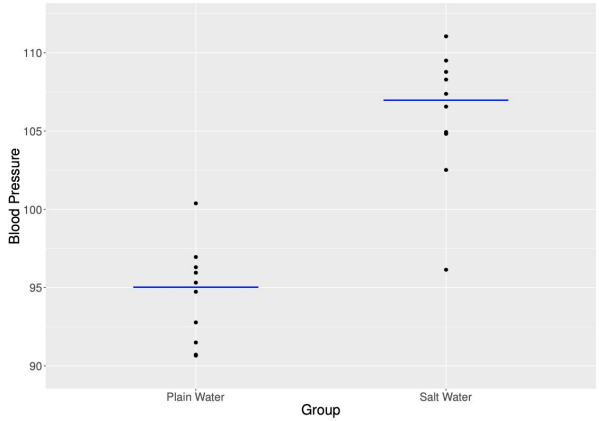
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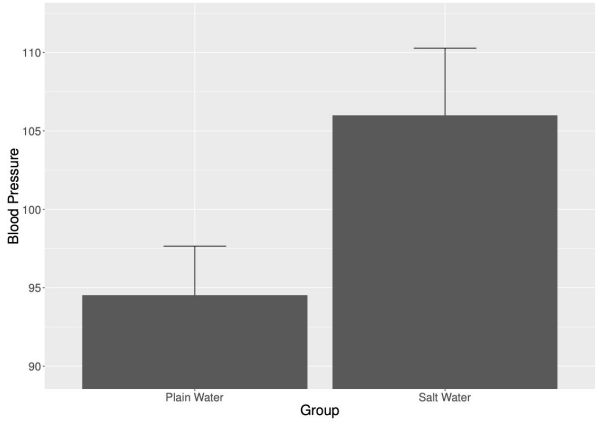
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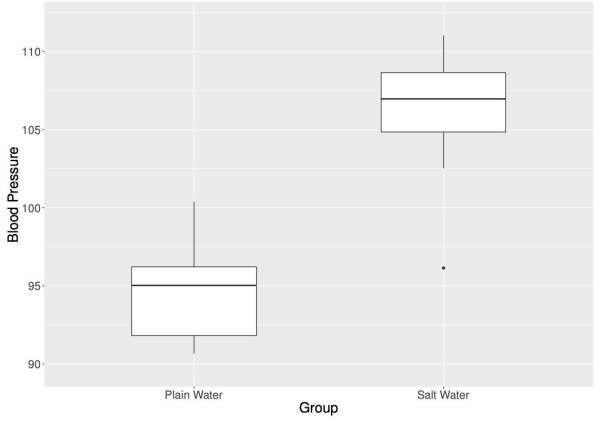
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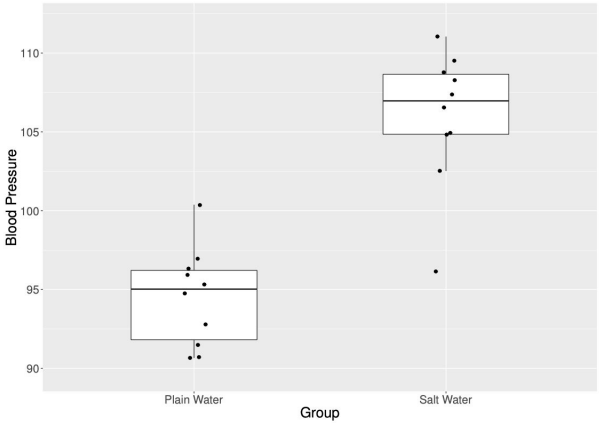
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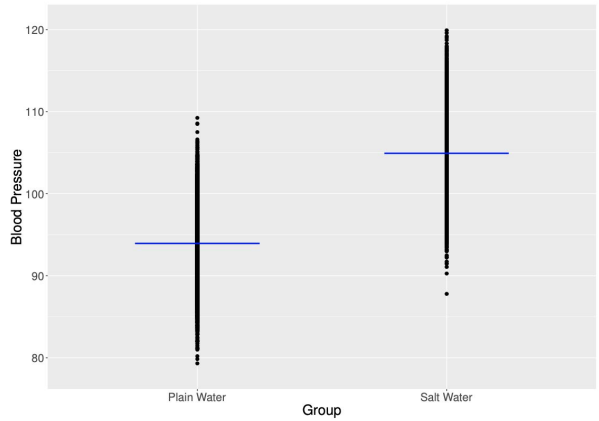
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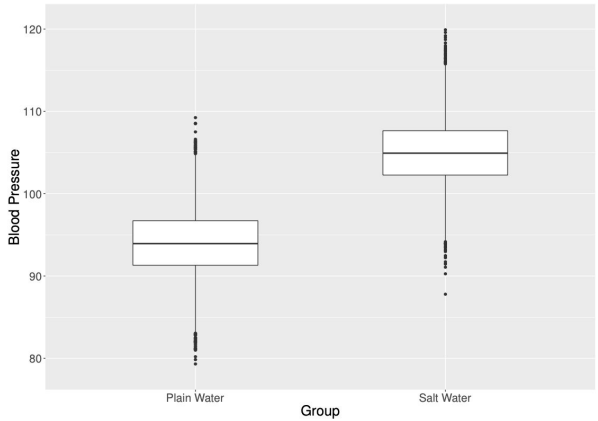
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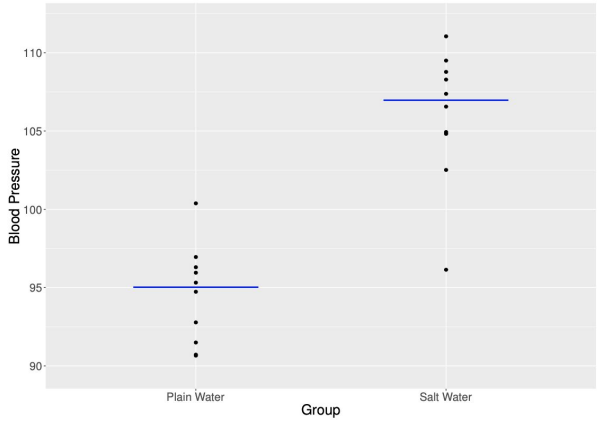
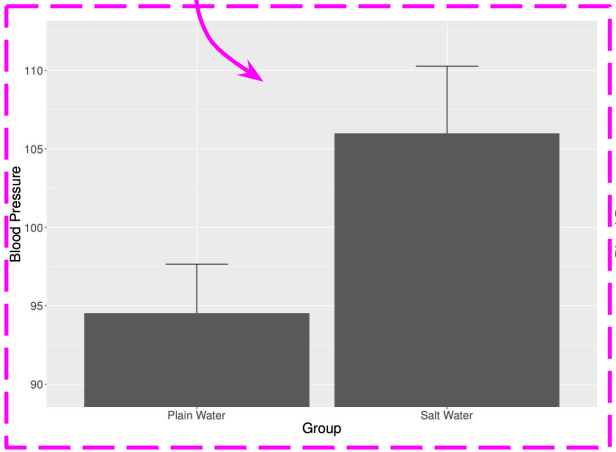
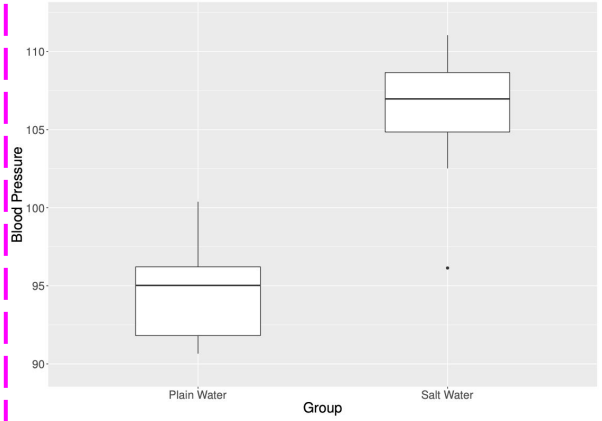
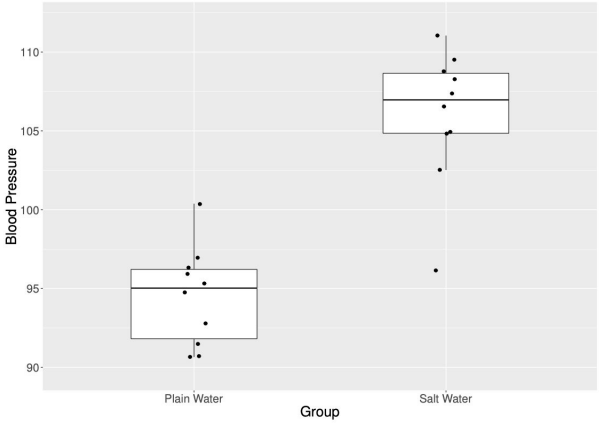
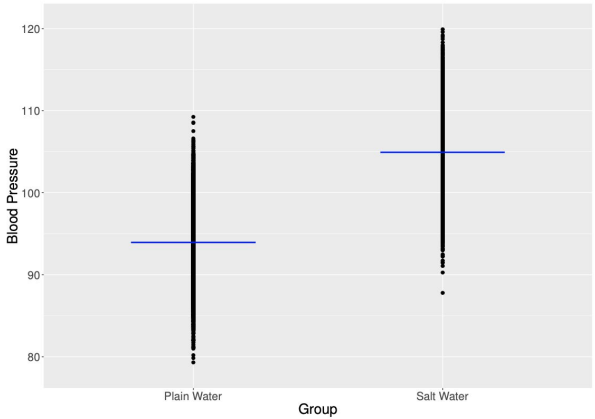
Do NOT show these to David !

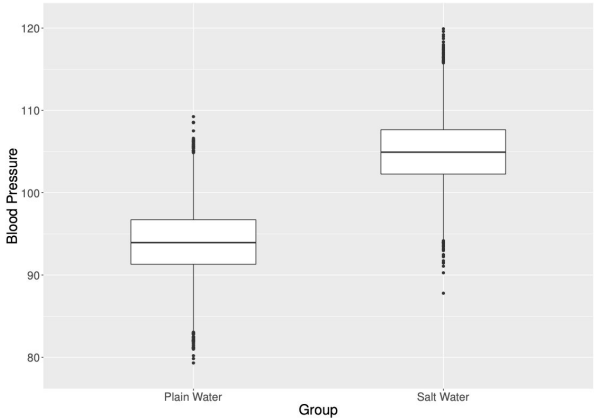




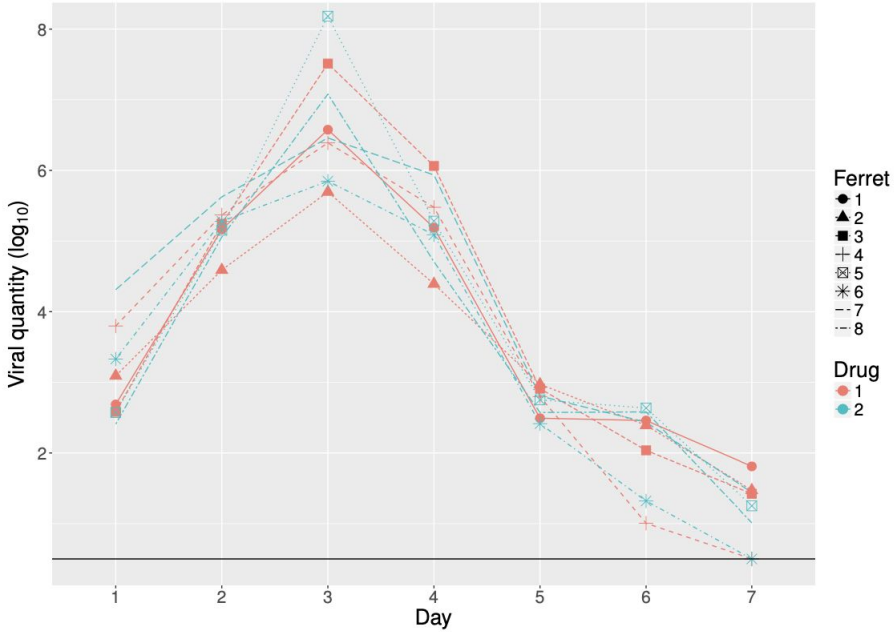








Less may be more



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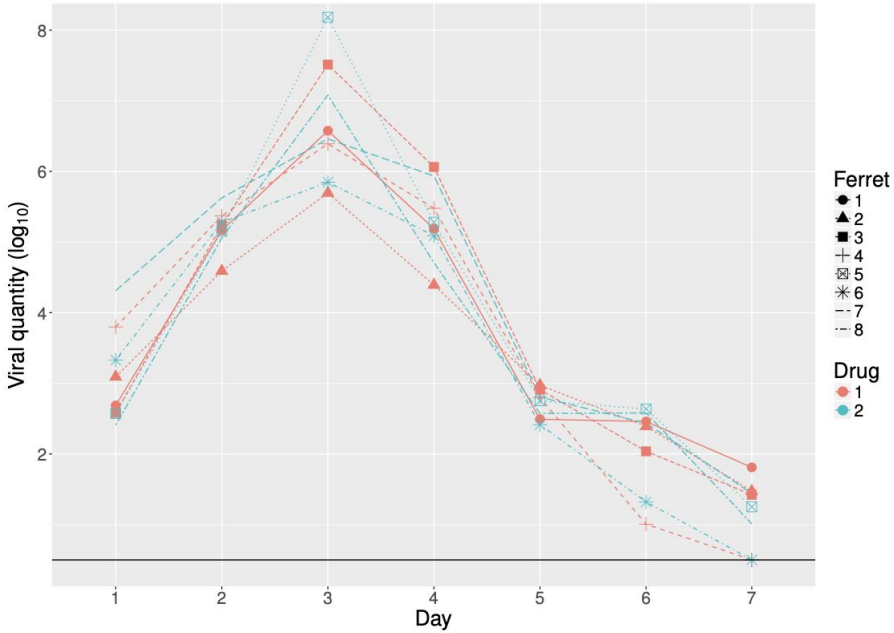

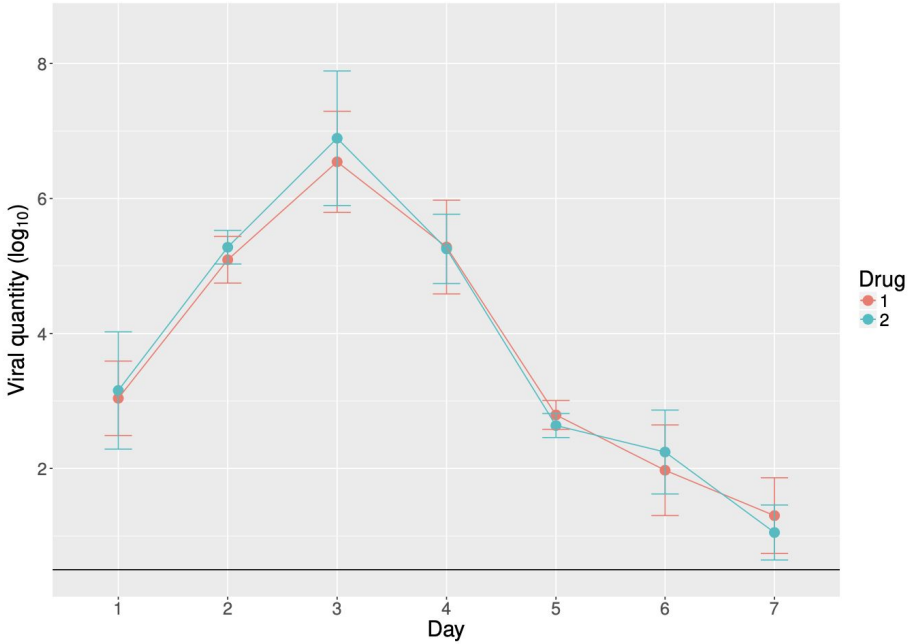

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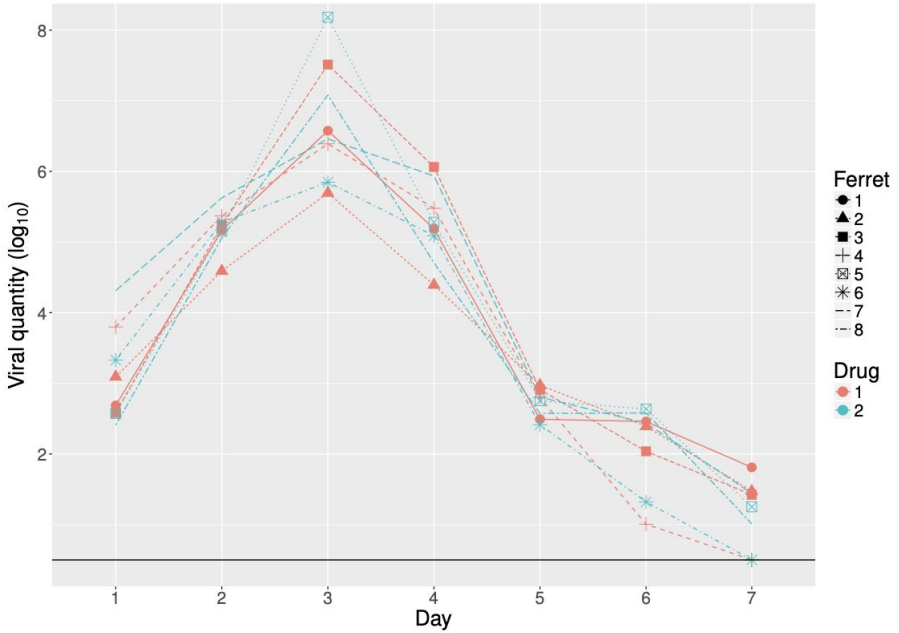
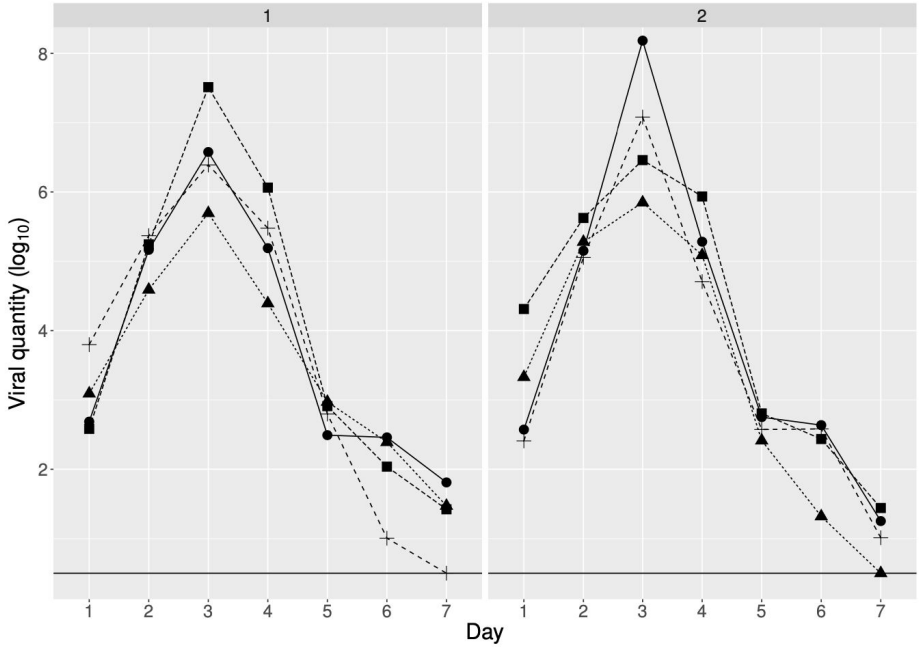
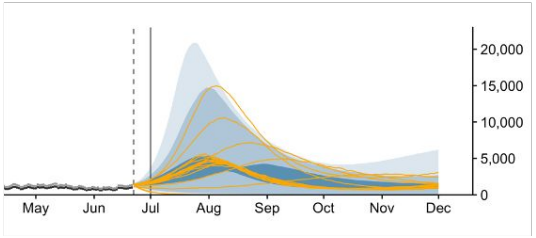
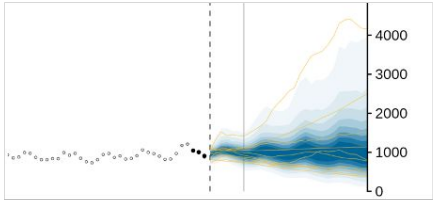
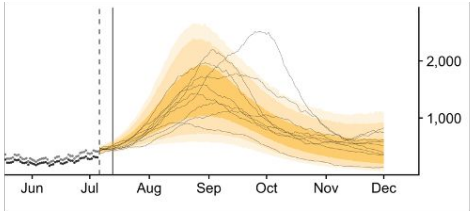


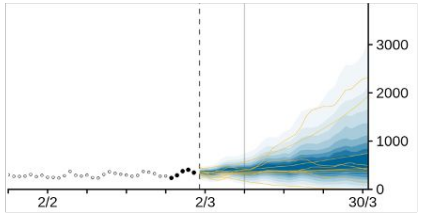


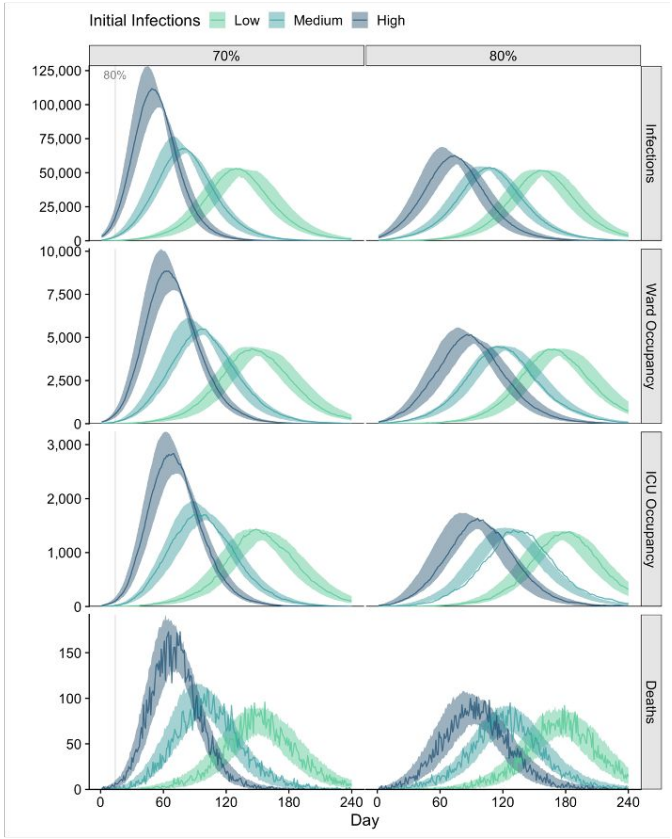
Quantiles can be misleading











Summarising your data (e.g. “detonator plots”) can remove information

Show the data

Hehman & Xie, 2021

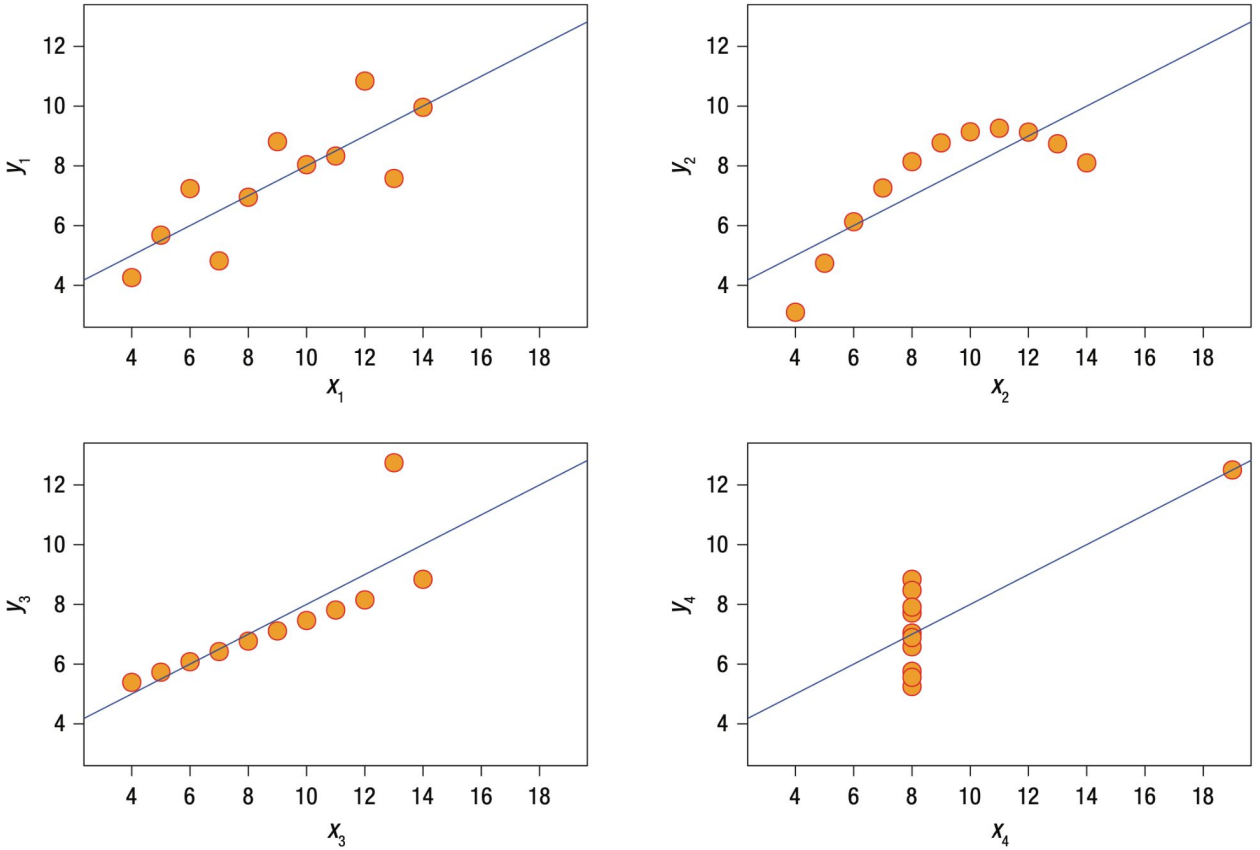
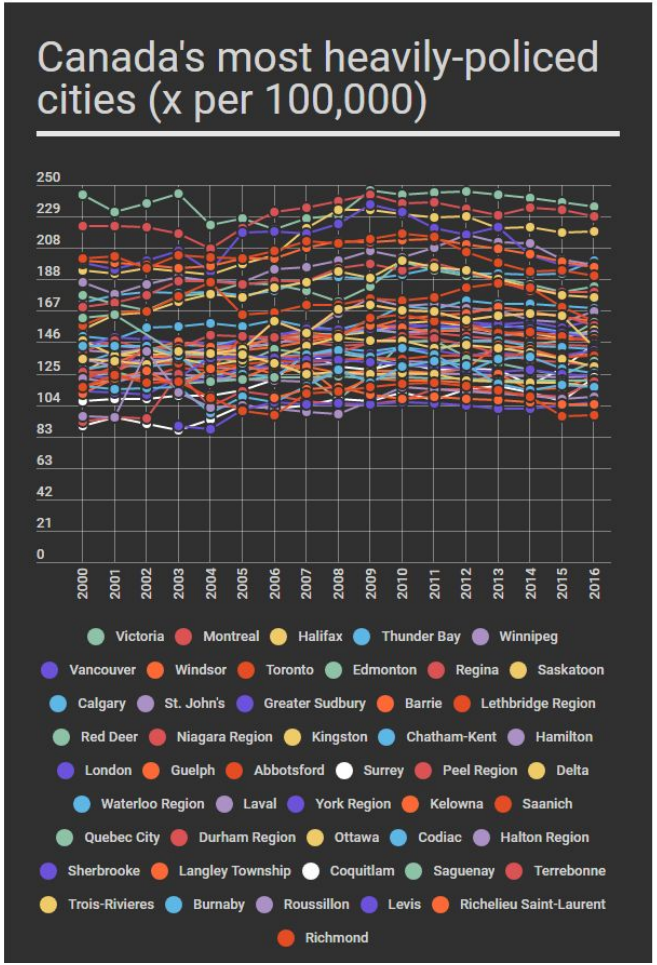


Fig. 1. Anscombe's quartet. In all four data sets depicted, the mean of x is 9, the variance of x is 11, the mean of y is 7.5, the variance of y is 4.12, and the correlation between x and y is .82. Important features of the data are hidden unless the individual observations are visualized.

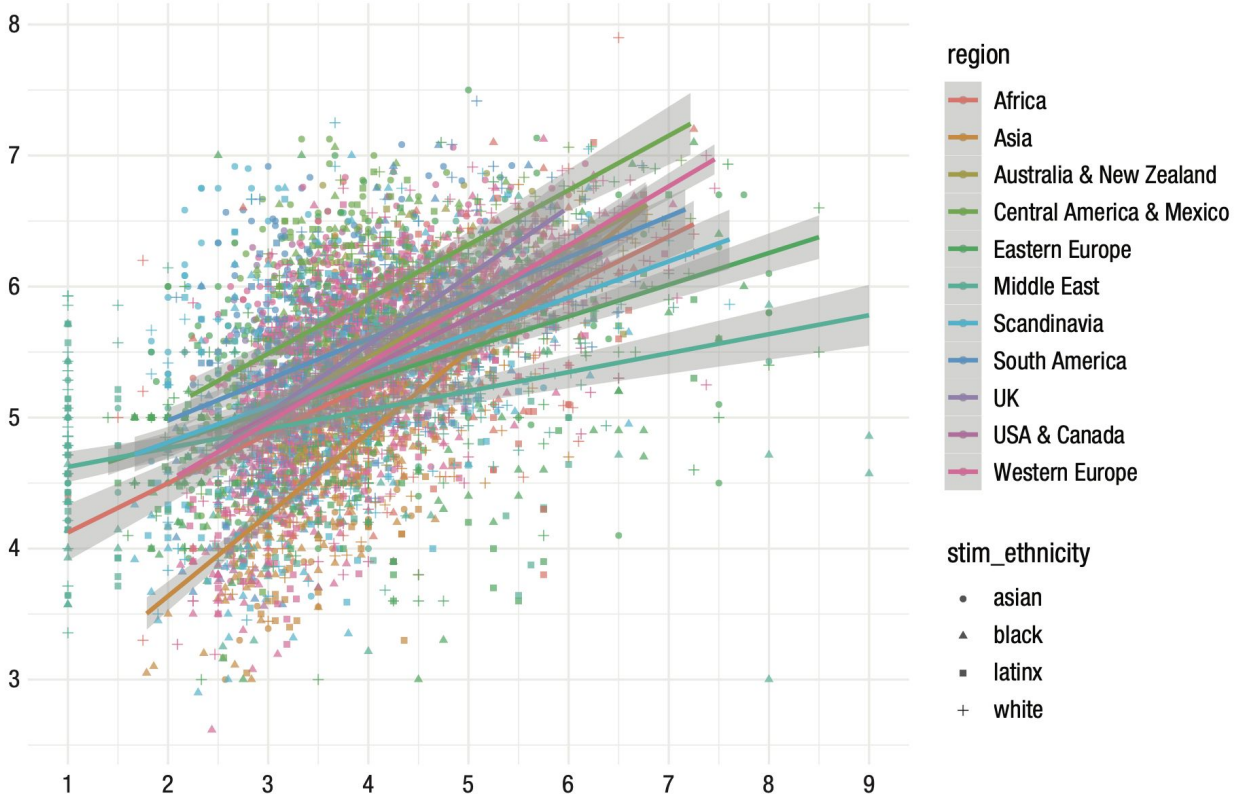
Keep it simple



(i found this on reddit)

Keep it simple

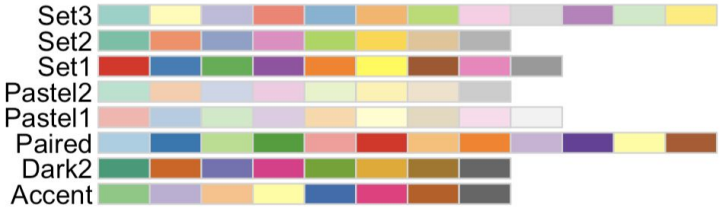
Hehman & Xie, 2021



Colour is important!

Colour is important!

- Categorical / qualitative

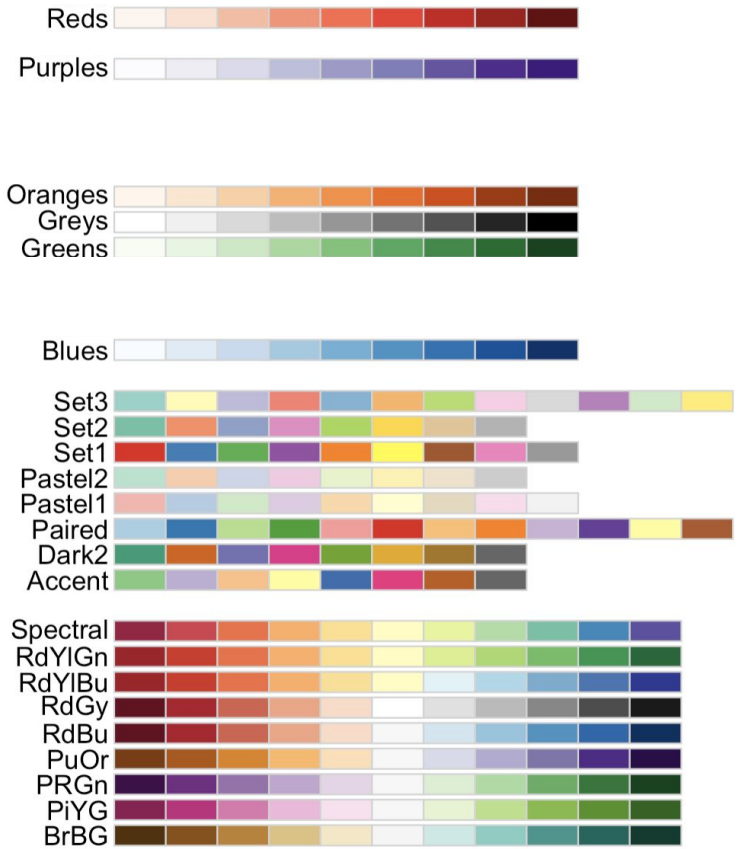


Colour is important!

- Categorical / qualitative
- Continuous
  - Diverging

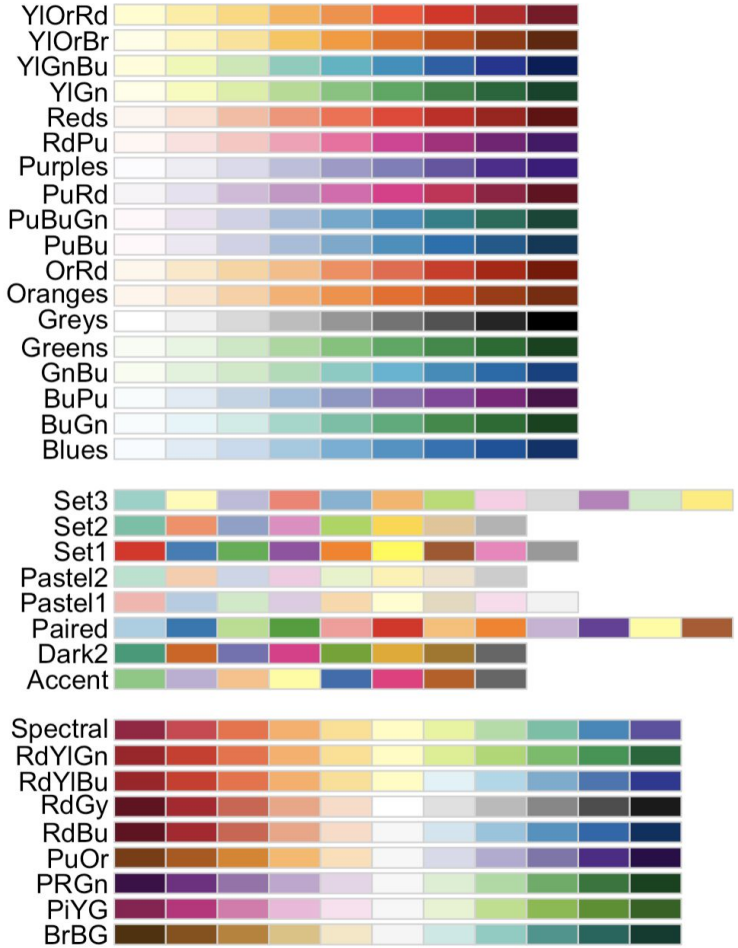
Colour is important!

- Categorical / qualitative
- Continuous
  - Diverging
  - Sequential
    - Single hue



Colour is important!

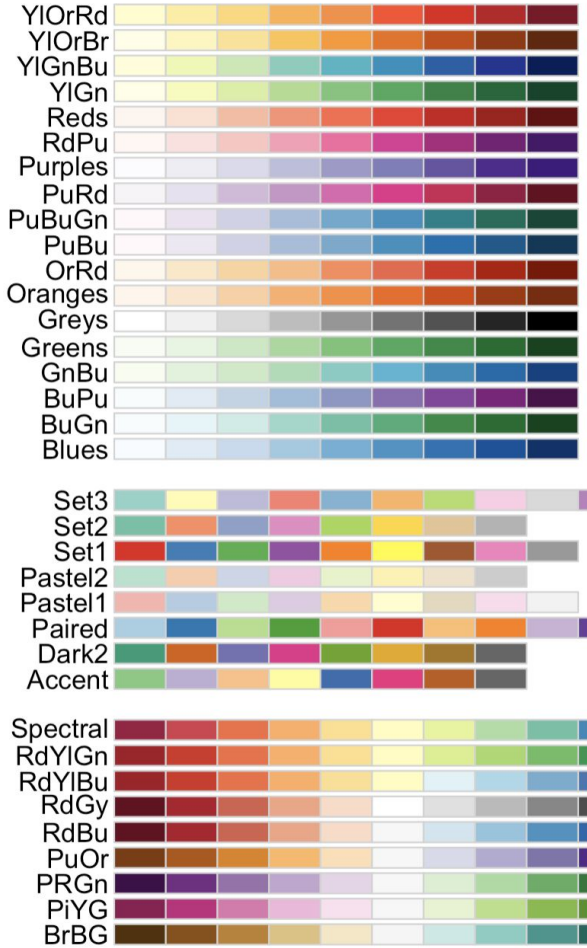
- Categorical / qualitative
- Continuous
  - Diverging
  - Sequential
    - Single hue
    - Multi-hue



Colour is important!

Bonus: Viridis

https://cran.r-project.org/web/packages/viridis/vignettes/intro-to-viridis.html



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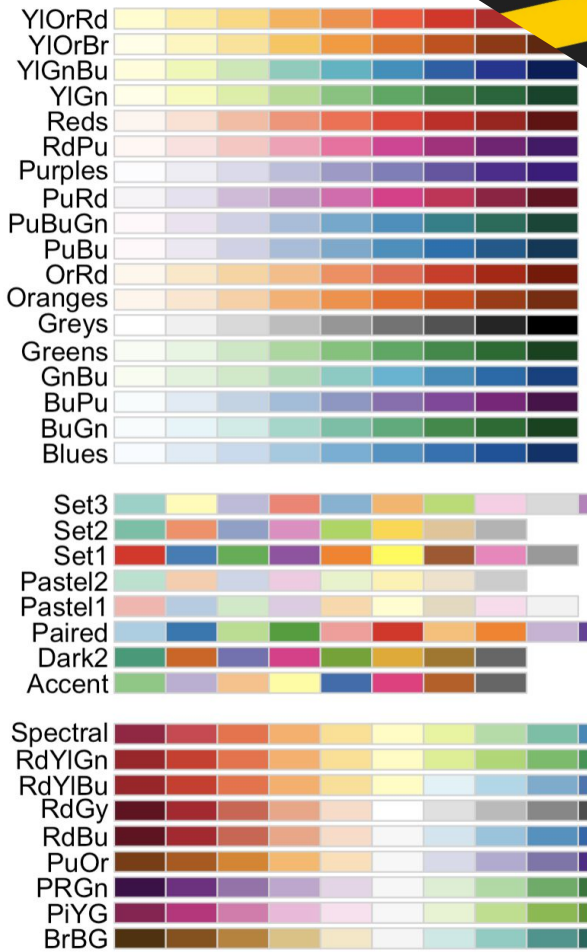
Bonus: Viridis

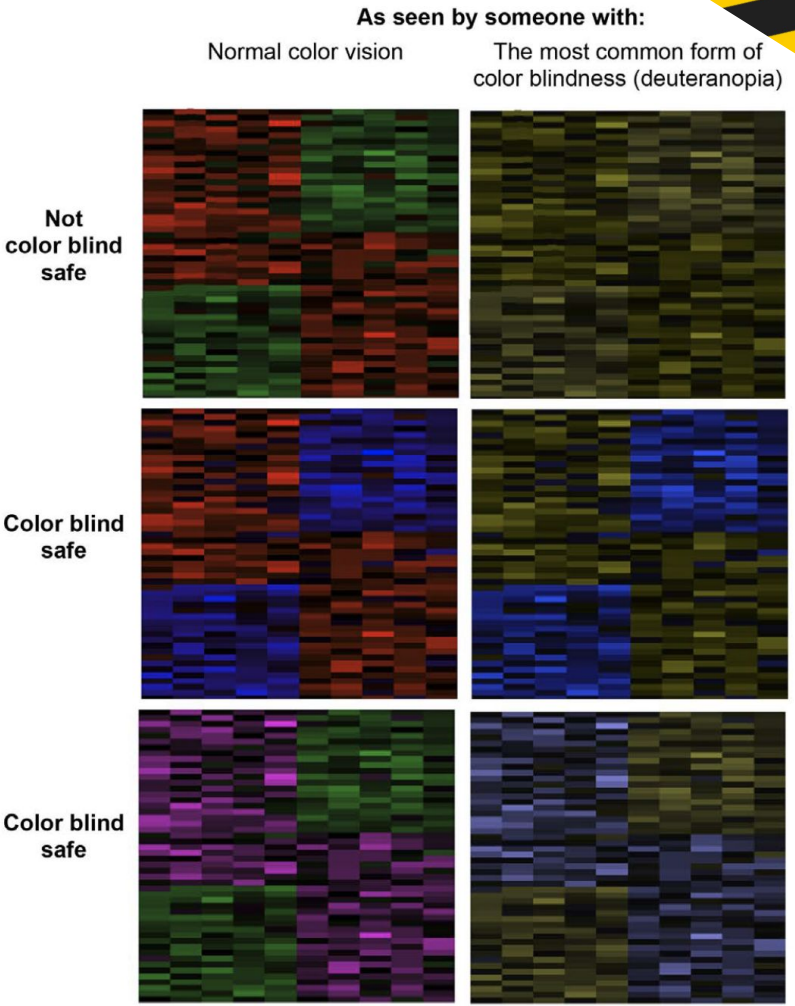
https://cran.r-project.org/web/packages/viridis/vignettes/intro-to-viridis.html



Colour is important!

Weissgerber et al., 2019
(using Color Oracle)
https://colororacle.org

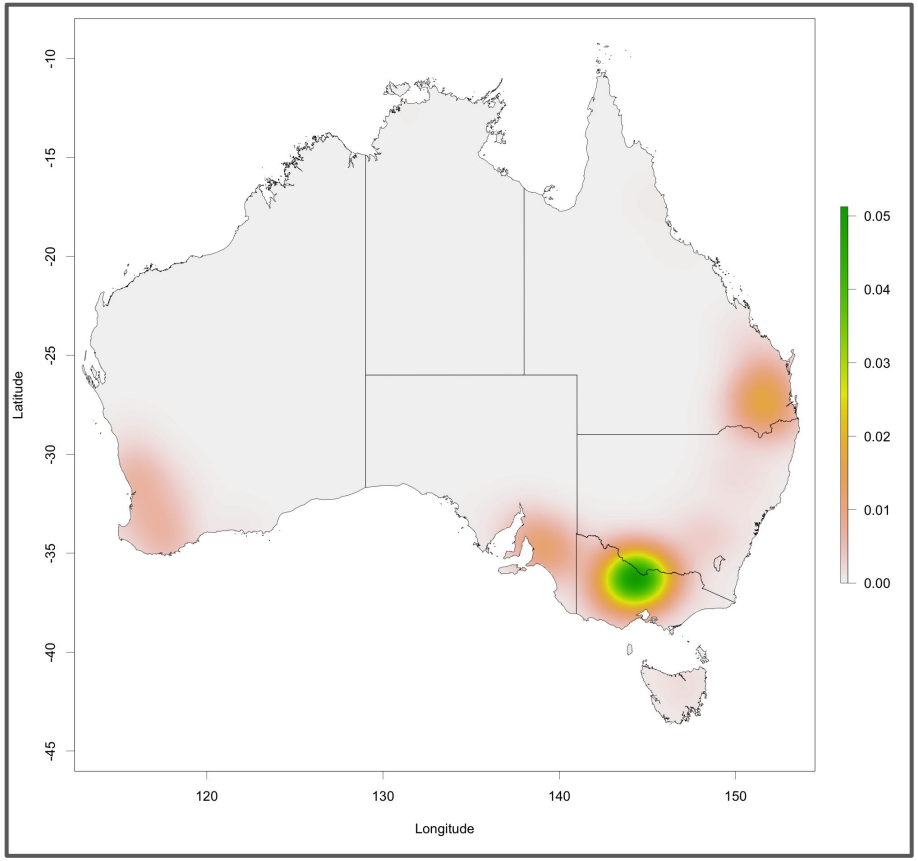
Color brewer:
https://colorbrewer2.org



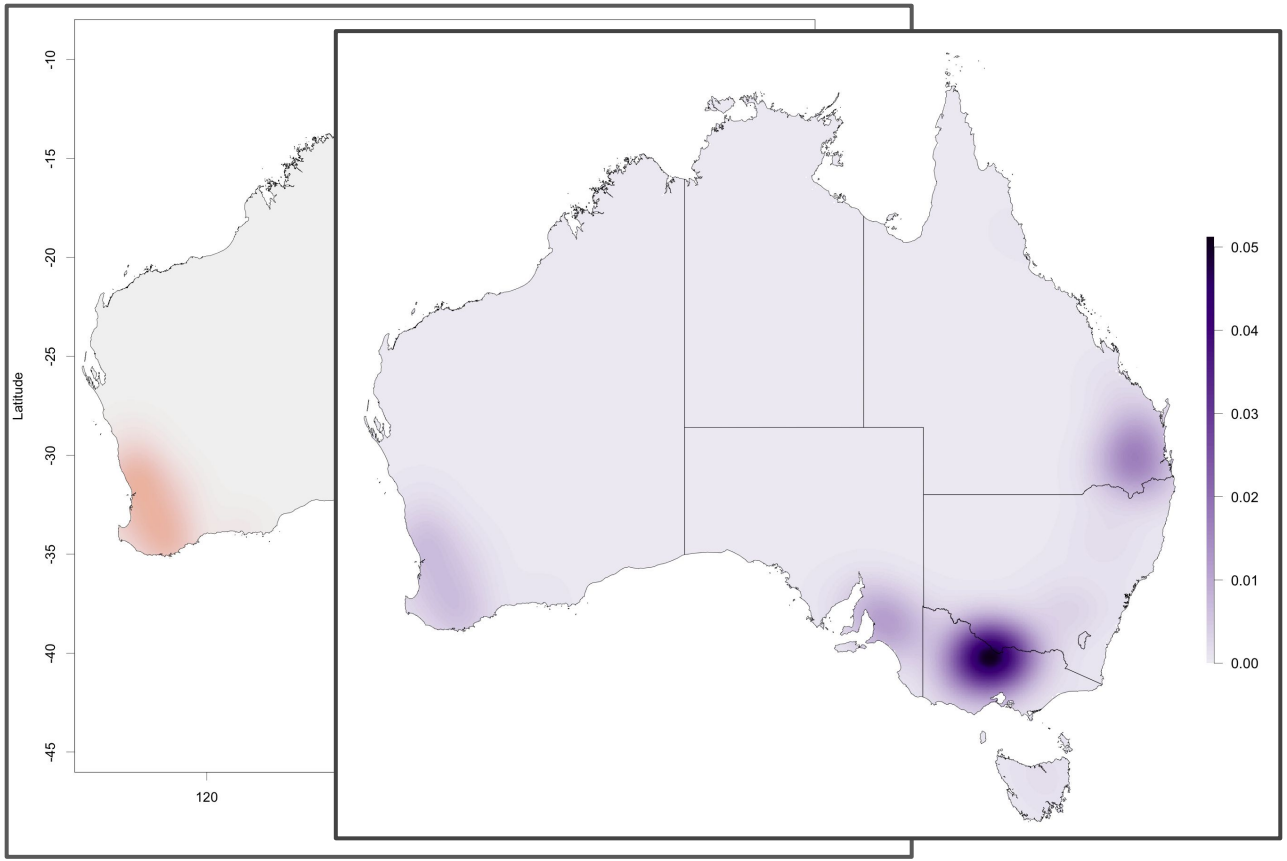
A little diversion: I love maps

- Background should be distinct
- Beware blue
- Keep track of scale, projection + aggregation
- And all of the other rules apply too

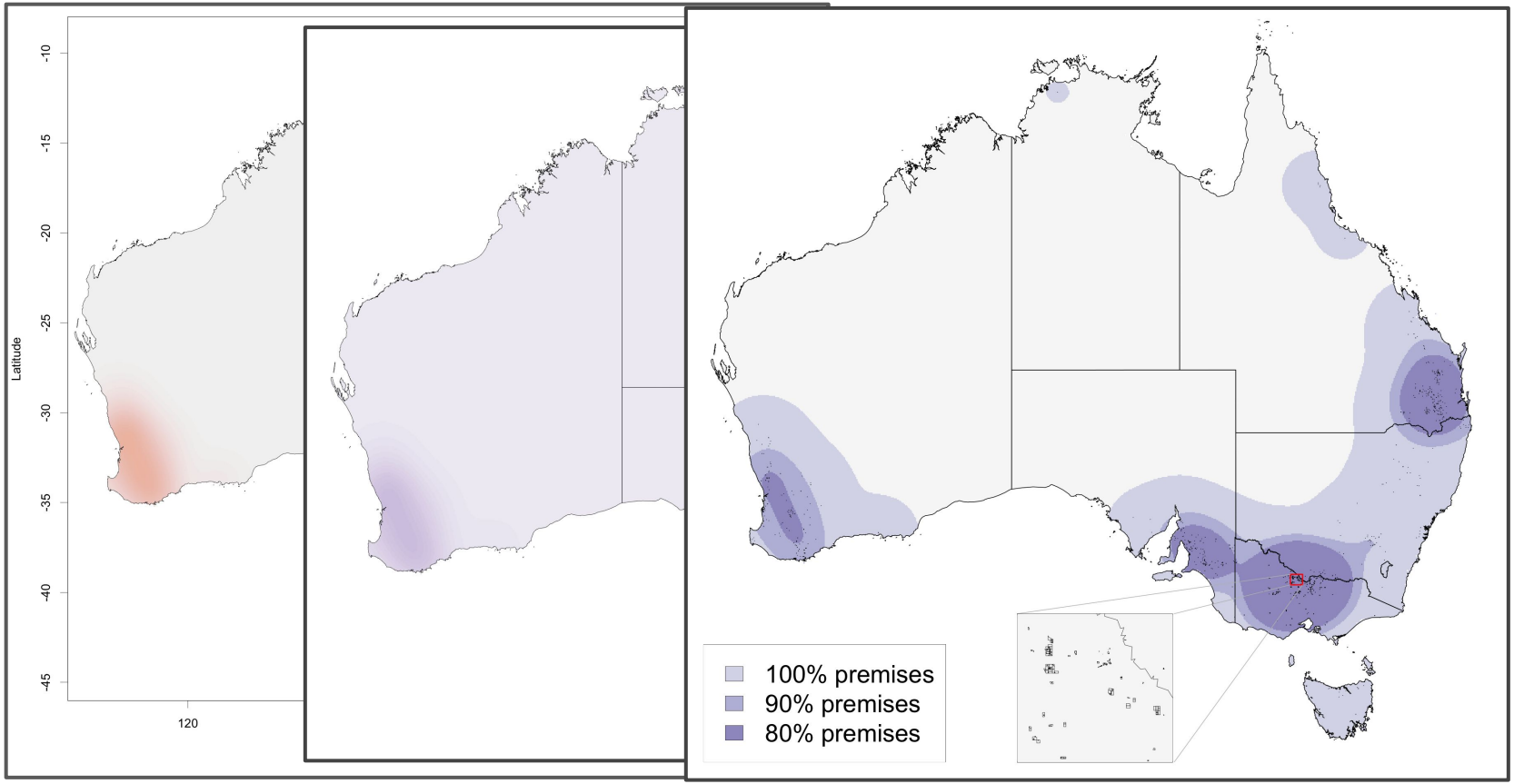
A little diversion: You love maps



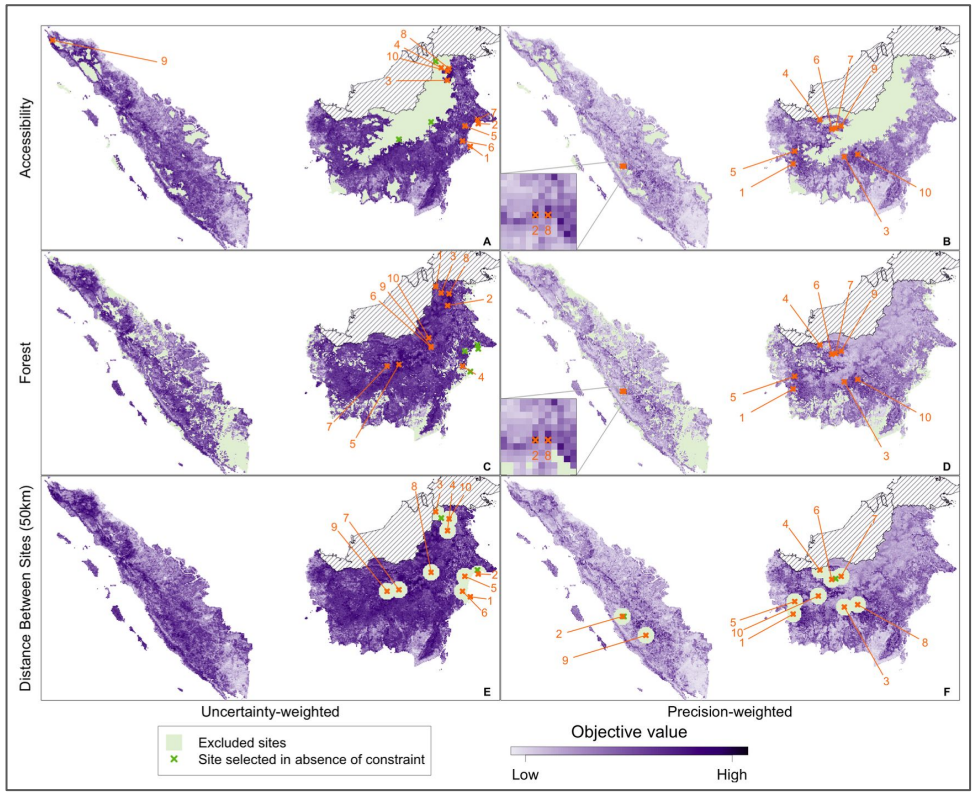
A little diversion: We love maps



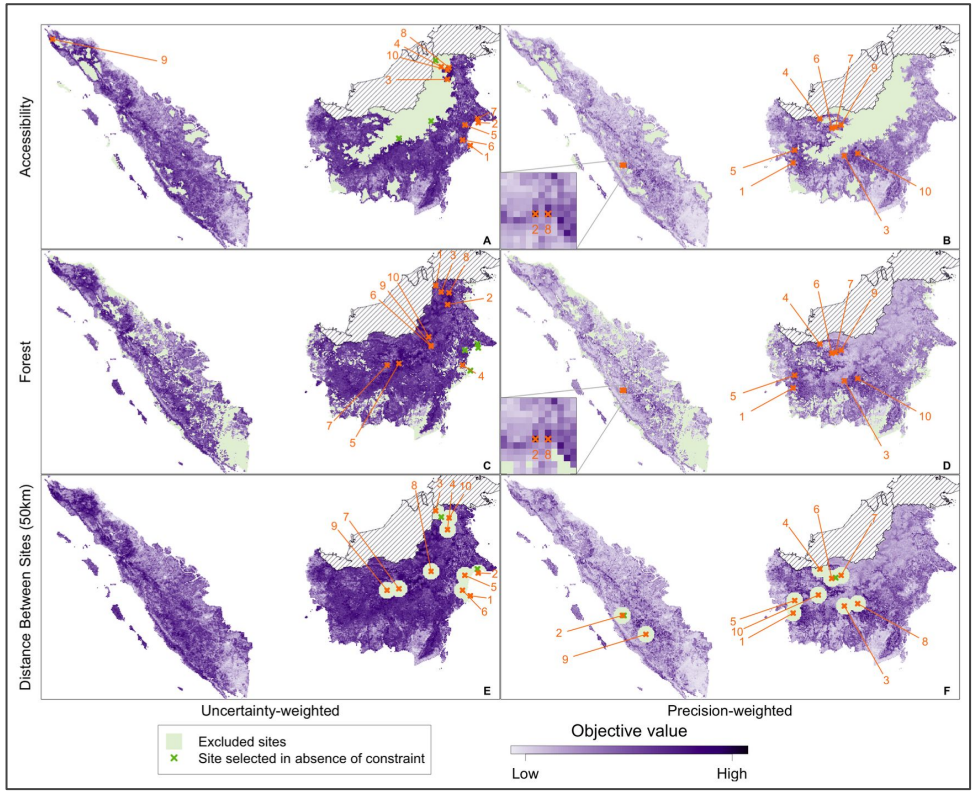
A little diversion: We love maps !!

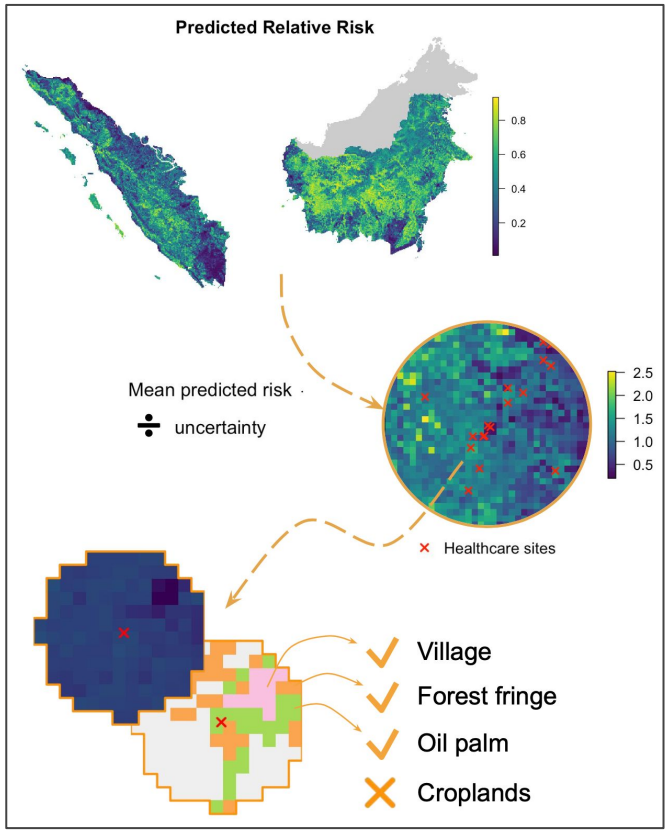


Consider your audience!



Consider your audience!



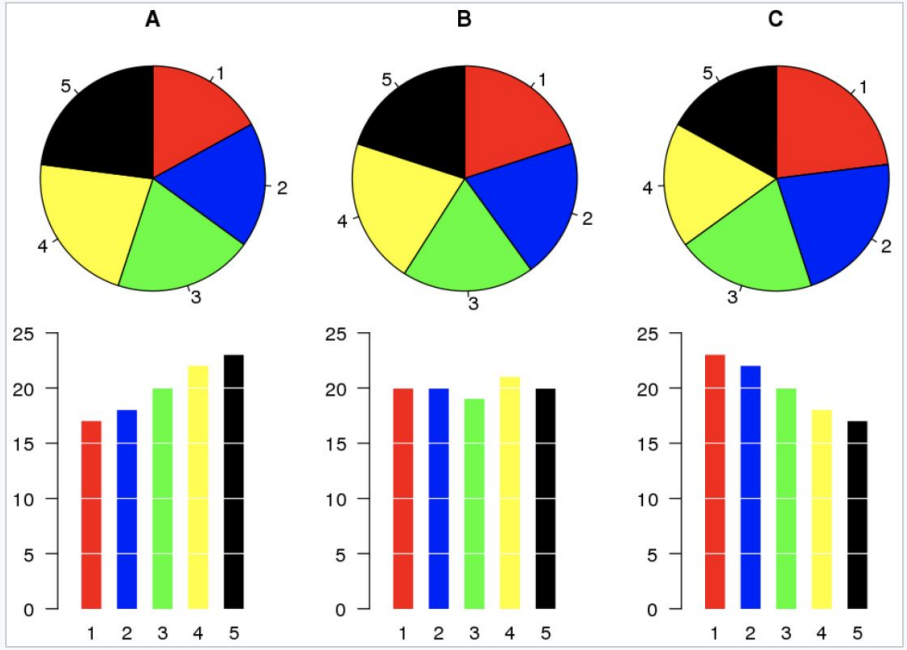


Finally, if in doubt …

Finally, if in doubt …

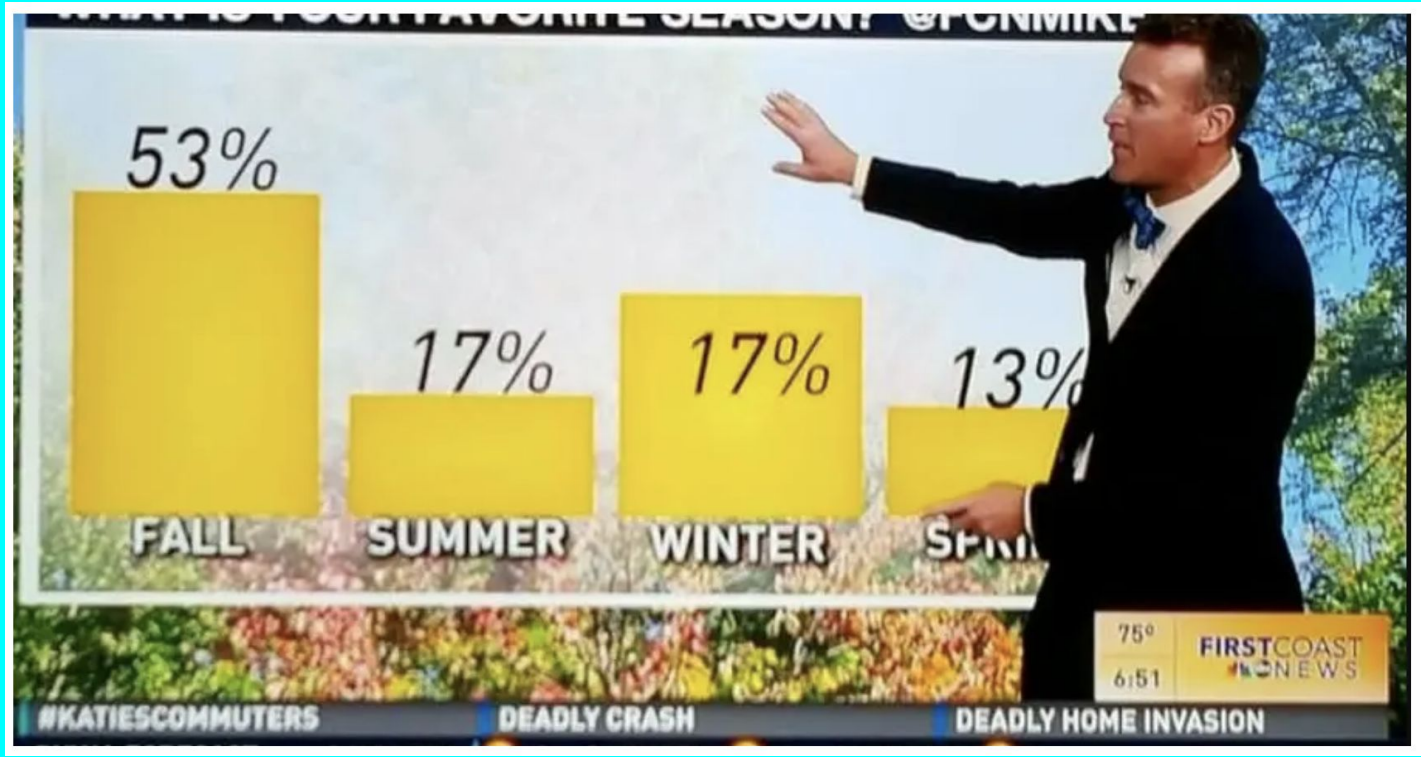
… get another opinion!

… and reconsider that pie chart!



Three sets of percentages, plotted as both piecharts and barcharts. Comparing the data on barcharts is generally much easier.

In summary ..

1. Show the data
2. But keep it simple
3. Uncertainty is important
4. And so is colour
5. Consider your audience
6. Get another opinion!

~ Let's compare notes ~