**From analysis to communication**

## Thought 1

There's no difference between visualisation and modelling:

* Models are limited as evidence: many subjective decisions go into their design and generation, and they are open to "interpretation".
* There is no formal beginning, process, or end to the modelling process.
* The provenance of modelling is too complex and ad hoc to be useful.

All (good) analysis fundamentally requires human intervention. And that's a strength, not a weakness.

## Thought 2

If you look at your data before analysis, your p-values are wrong because you've spent researcher degrees of freedom. If you don't look at your data before analysis, your p-values are wrong because your model is wrong.

If every real analysis involves some exploratory component as your prior beliefs about reality are confronted and forced to change. How do you ensure that you're not overly confident in your results when your final quantitative models are guided by your qualitative exploration?

## Thought 3

Yes, ideally we'd perform many possible analyses, carefully considering and recording each analysis choice, meticulously exploring the combinations, then generating a final conclusion through a weighted combination of all analyses. But no one is ever going to have the time to do this, so what are the highest impact steps that we can persuade researchers to perform? How do we find the Pareto frontier in order to give data scientists the maximal benefit for minimal work? How can we help researchers reflexively confront the decisions that have most critically affected their analyses?