

JSM 2021 STUDENT PAPER AWARD (ASA SECTIONS ON STATISTICAL COMPUTING AND STATISTICAL GRAPHICS)

Perception of exponentially increasing data displayed on a log scale

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ARTICLE HISTORY

Compiled October 20, 2020

ABSTRACT

Log scales are often used to display data over several orders of magnitude within one graph. During the COVID pandemic, we've seen both the benefits and the pitfalls of using log scales to display data. This paper aims to...

KEYWORDS

Exponential; Log; Visual Inference; Perception

Emily and Reka, when we get into the editing stage, I've found this strategy to be useful: basically, when you add new text, use your color (feel free to change the command, for now yours are set to `\er` and `\rh`). The way this usually works is that when e.g. I read over a document that Emily has recently edited, I will remove her flagged text to indicate that I've seen/accepted the changes (and vice versa - I'll edit text and highlight it with my color, and you can accept/modify and flag yours too) – sometimes modifications happen first and then all of the color in a paragraph gets taken out once we've moved on. This not only leads to a nice rainbow effect, but you can quickly spot changes, too. If you're changing some slight phrasing/wording that doesn't change meaning, it's not necessary to highlight those changes - highlight content changes, not e.g. verb tenses. If something is a comment and has been addressed, comment it out initially and then delete the line after a couple of weeks.

1. Introduction

(Buja et al. 2009; VanderPlas and Hofmann 2017)

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2. Data Generation

2.1. *Model Generation and Simulation*

2.2. *Parameter Selection*

3. Study Design

3.1. *Lineup Setup*

3.2. *Participant Recruitment*

3.3. *Task Description*

4. Results

4.1. *Effect of Curvature*

4.2. *Effect of Variability*

4.3. *Linear vs Log*

4.4. *Participant Reasoning*

5. Discussion

5.1. *Conclusion*

5.2. *Future Research*

Supplementary Materials

Acknowledgement(s)

References

- Buja, Andreas, Dianne Cook, Heike Hofmann, Michael Lawrence, Eun-Kyung Lee, Deborah F. Swayne, and Hadley Wickham. 2009. "Statistical inference for exploratory data analysis and model diagnostics." *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 367 (1906): 4361–4383. Accessed 2020-10-06. <https://royalsocietypublishing.org/doi/10.1098/rsta.2009.0120>.
- VanderPlas, Susan, and Heike Hofmann. 2017. "Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics." *Journal of Computational and Graphical Statistics* 26 (2): 231–242. Accessed 2020-02-28. <https://www.tandfonline.com/doi/full/10.1080/10618600.2016.1209116>.