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Perception of exponentially increasing data displayed on a log scale

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ARTICLE HISTORY

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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

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>.