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DLI Accelerated Data Science Teaching Kit

Lecture 7.4 - Chart Basics



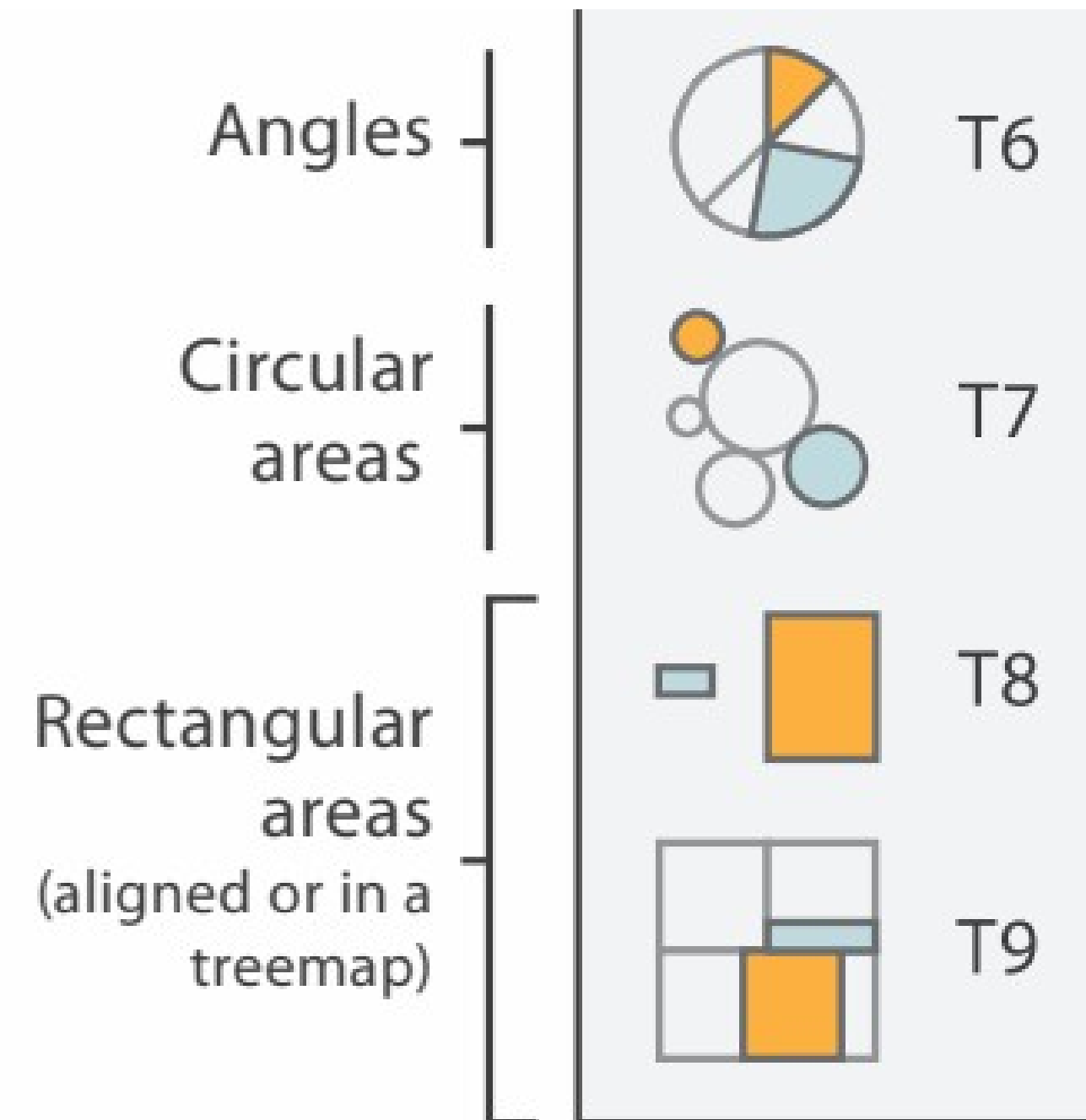
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Pre-Attentive Processing

Gestalt Laws

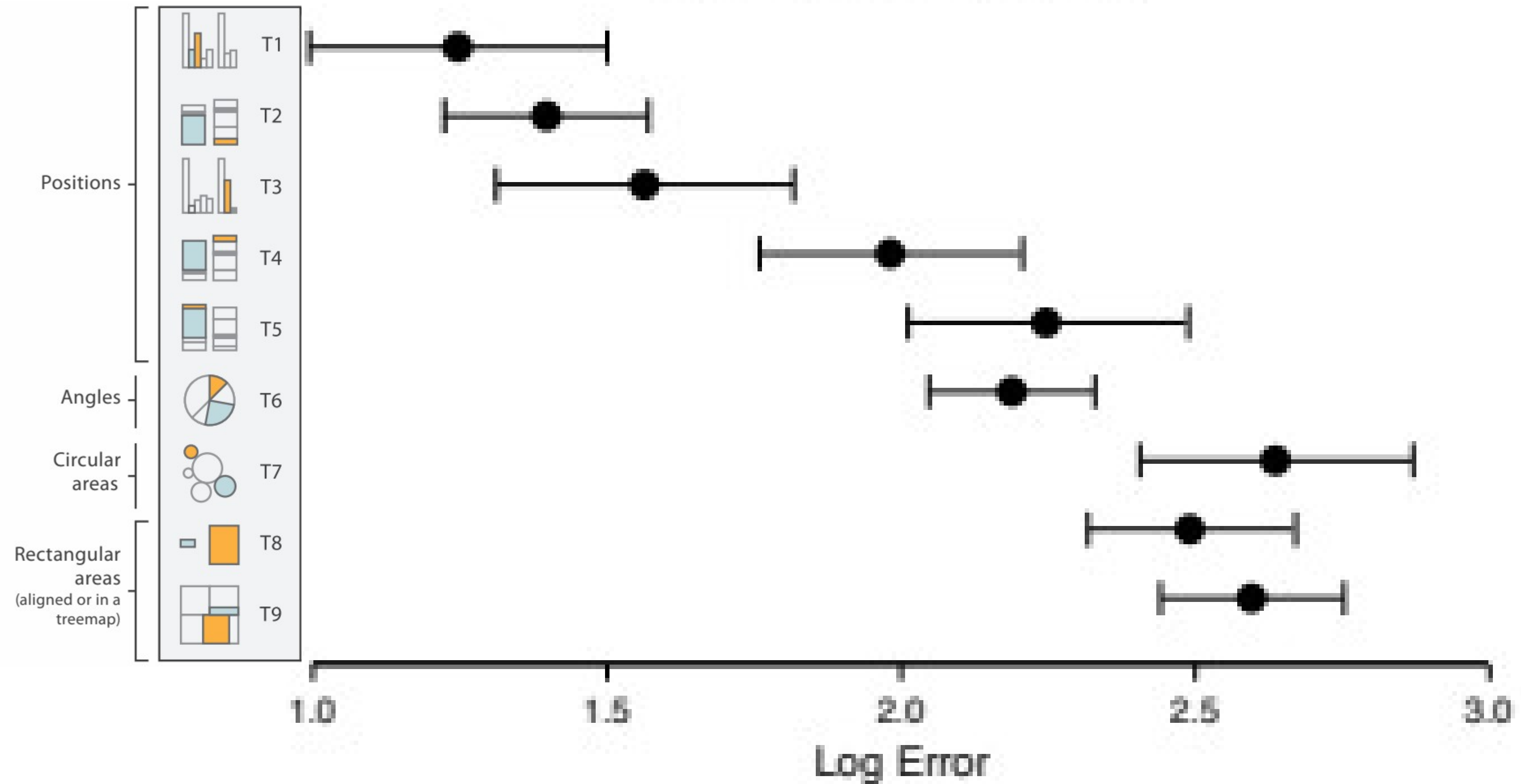
Detect quickly **does NOT mean
detect accurately**

Ideally you want both.

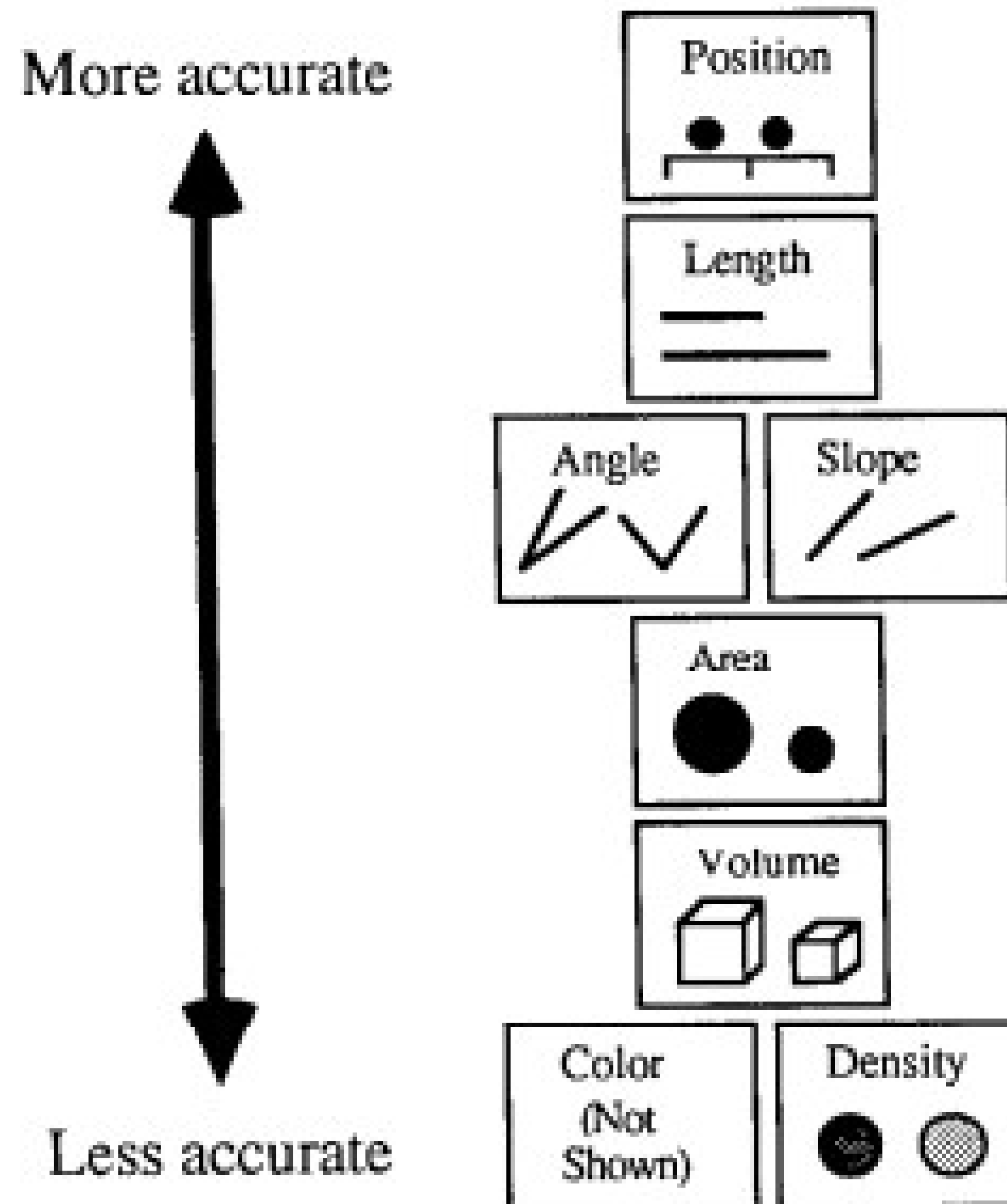


Crowdsourcing Graphical Perception: Using Mechanical Turk to Assess Visualization Design. Heer and Bostock. Proc ACM Conf. Human Factors in Computing Systems (CHI) 2010, p. 203–212.

Crowdsourced Results



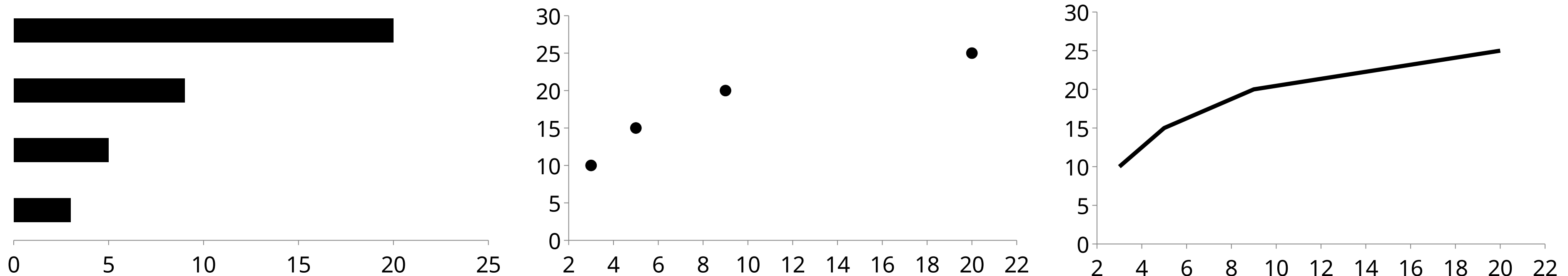
Crowdsourcing Graphical Perception: Using Mechanical Turk to Assess Visualization Design. Heer and Bostock. Proc ACM Conf. Human Factors in Computing Systems (CHI) 2010, p. 203–212.



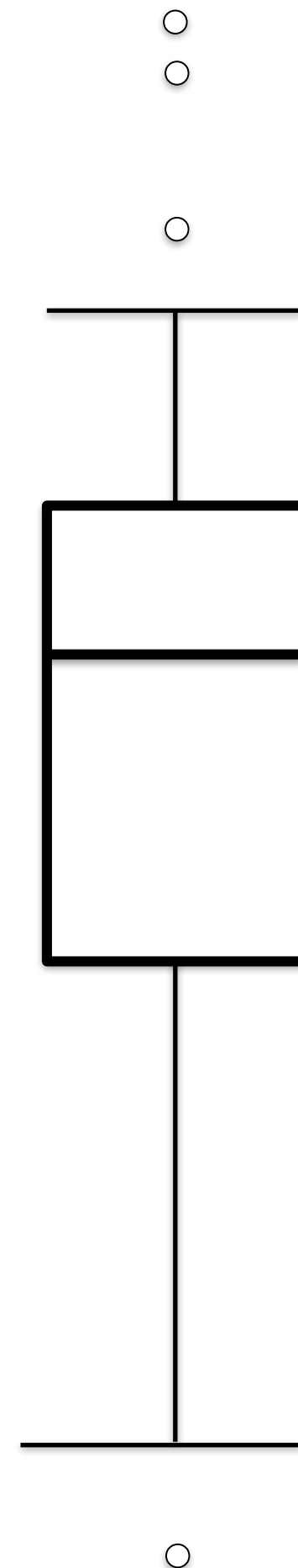
Mackinlay, L. (1986). Echo of applause. Leicester: Ulverscroft.

What does this tell us?

Barcharts, scatterplots, and line charts are really effective for quantitative data



(and for statistical distributions) Tukey Box Plots



Outliers

Largest $< Q3 + 1.5 \text{ IQR}$

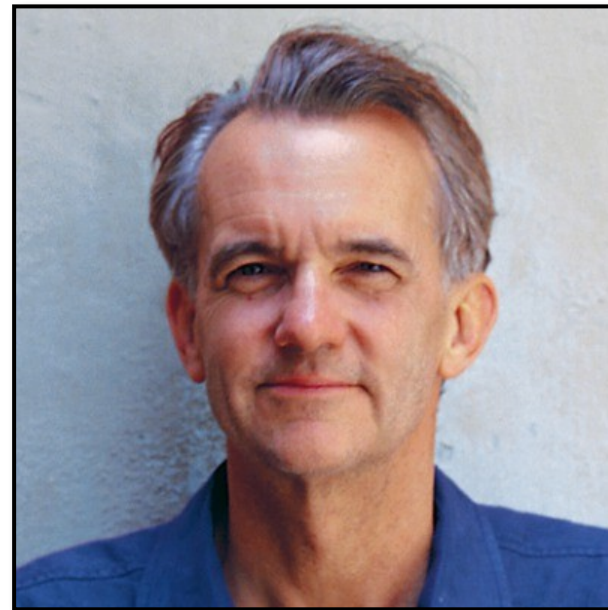
Largest $< Q3$

Median

Smallest $> Q1$

Smallest $> Q1 - 1.5 \text{ IQR}$

Tufte's Chart Principles



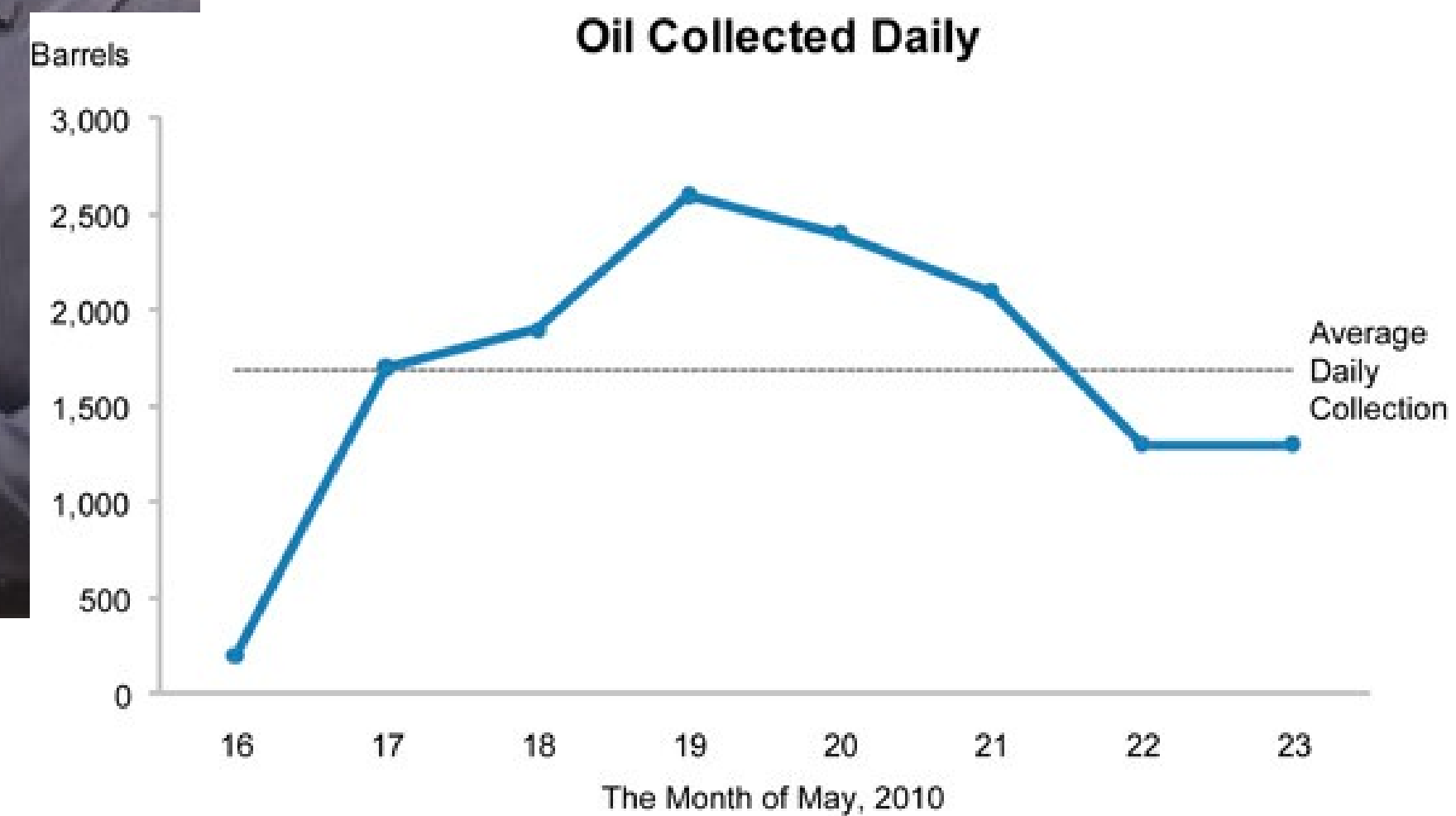
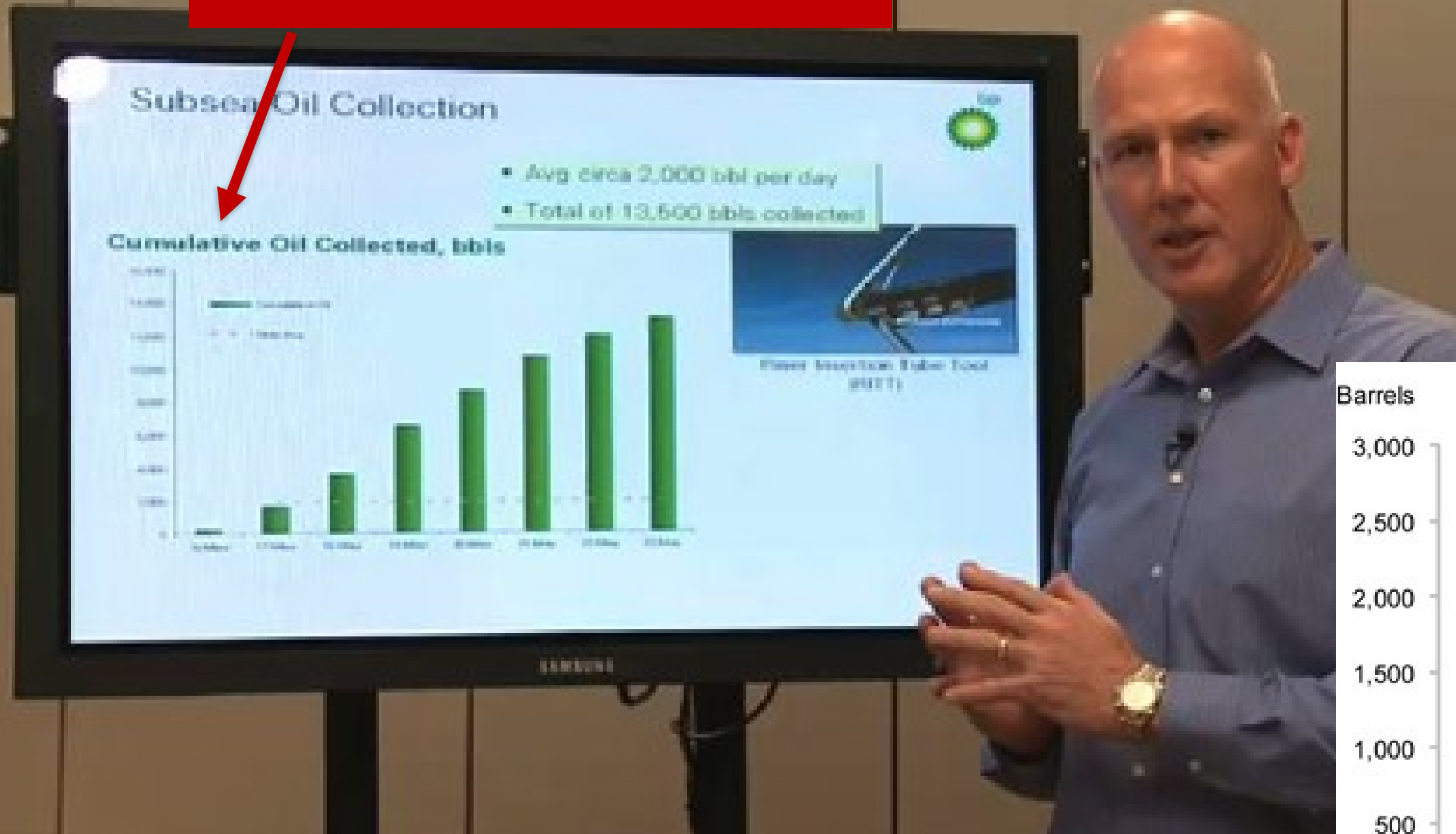
Edward Tufte

Tufte, Edward. (n.d.). In Wikipedia. Retrieved November 30, 2017. from https://en.wikipedia.org/wiki/Edward_Tufte

Tufte's Chart Principles

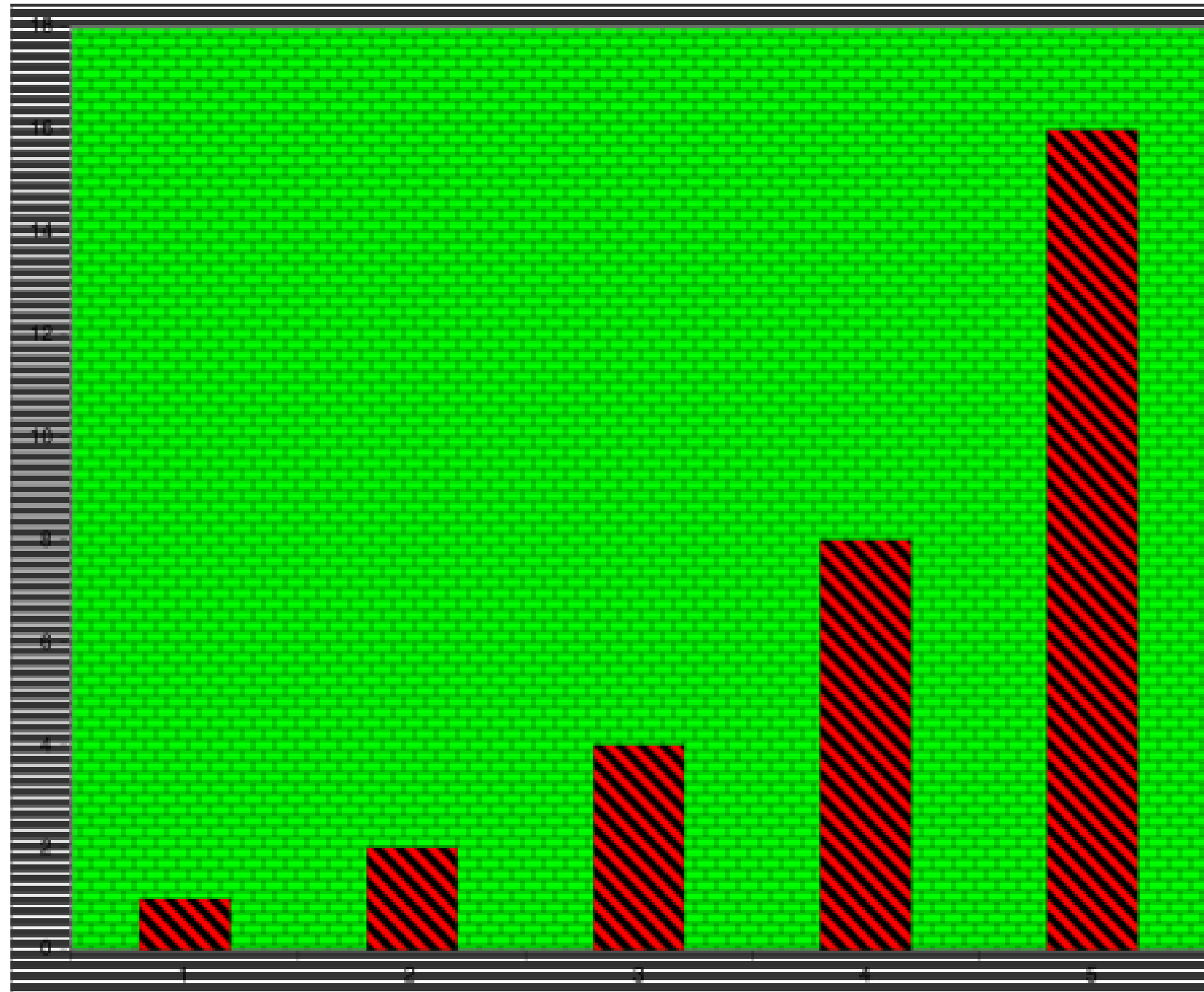
- **DO NOT LIE!**
 - Maximize Data-Ink Ratio
 - Minimize Chart Junk

“Cumulative”



Tufte's Chart Principles

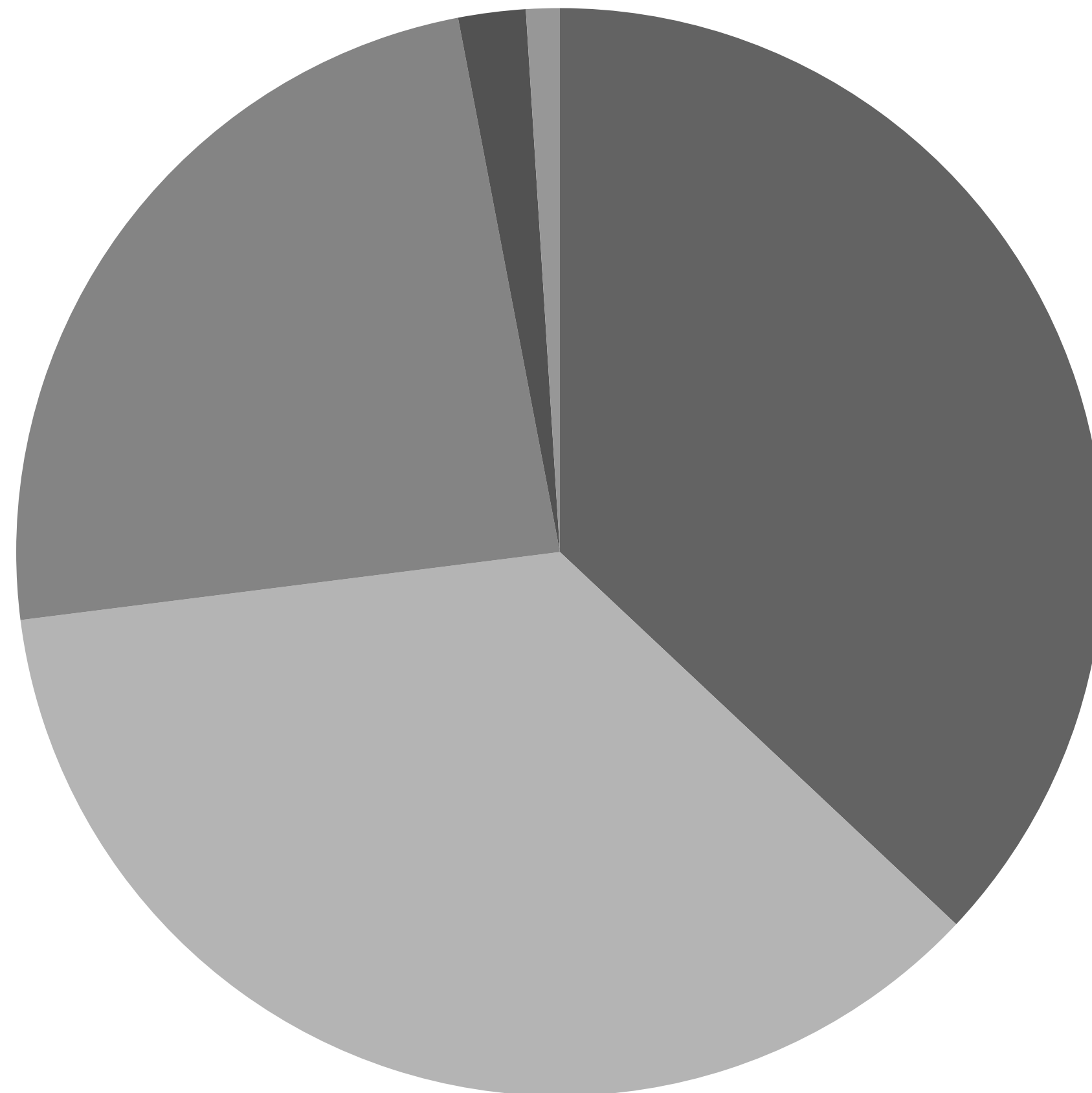
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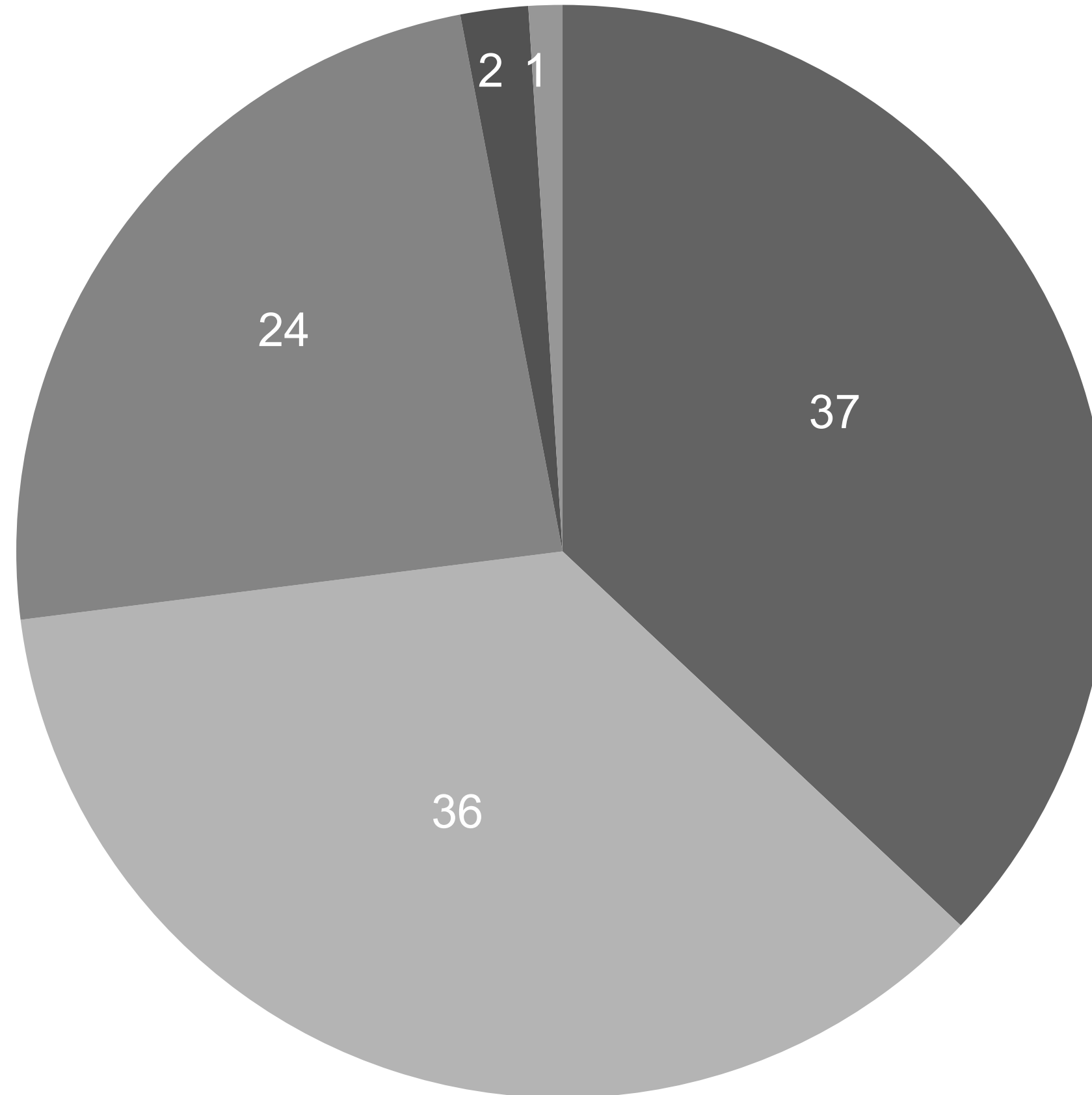


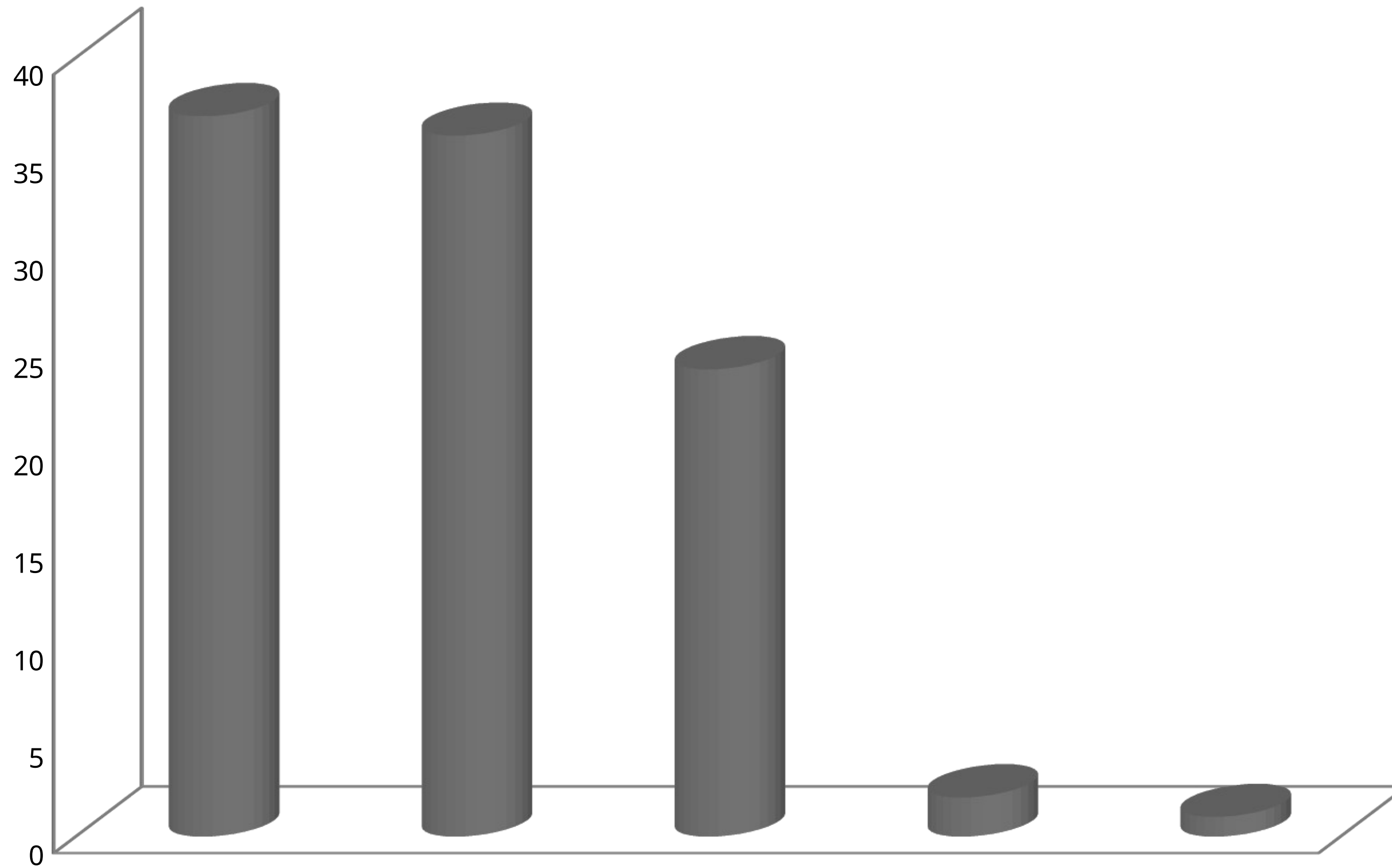
Retrieved: <https://en.wikipedia.org/wiki/Chartjunk>

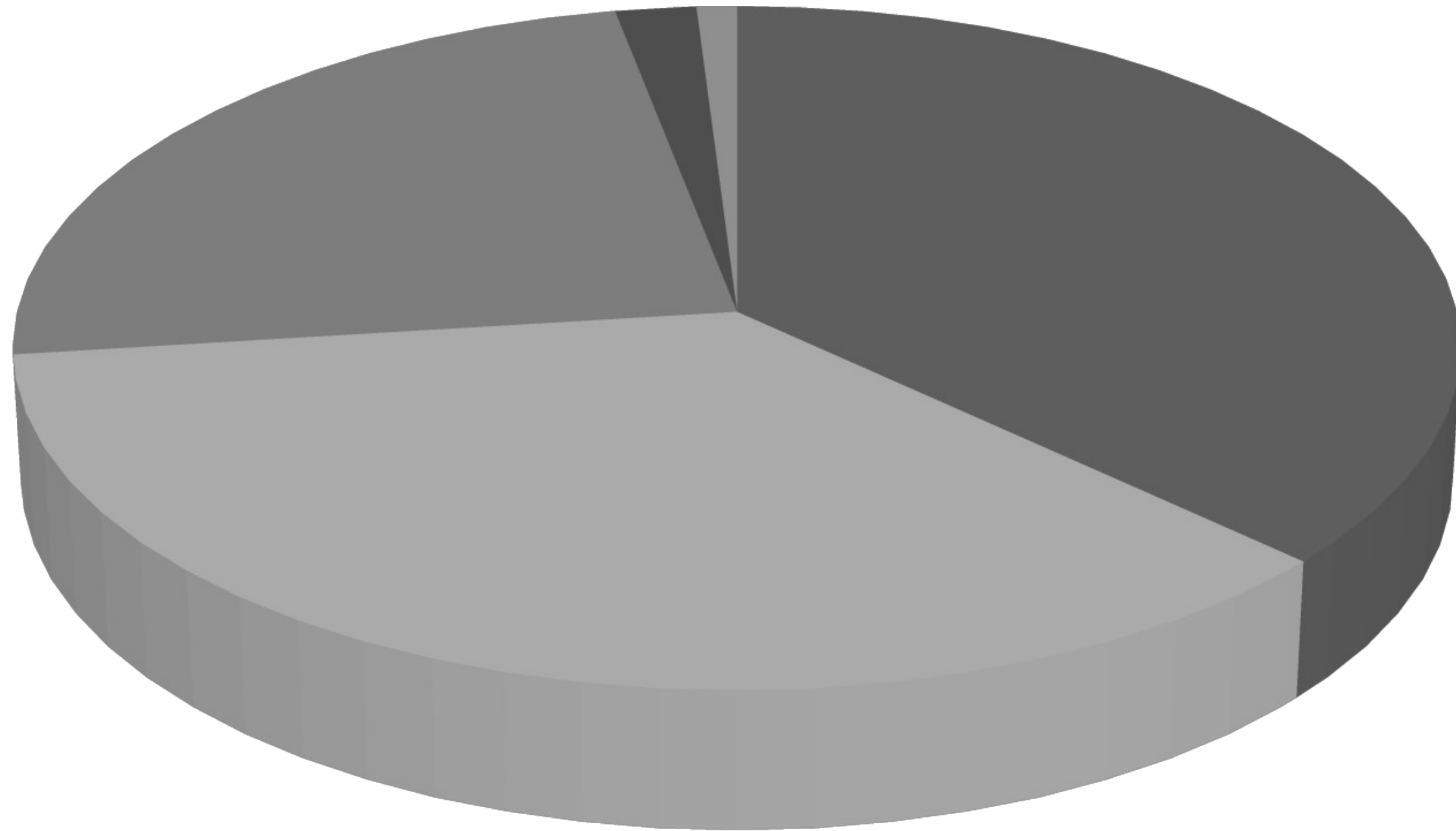
Please...

**No pie charts.
No 2.5D charts.**

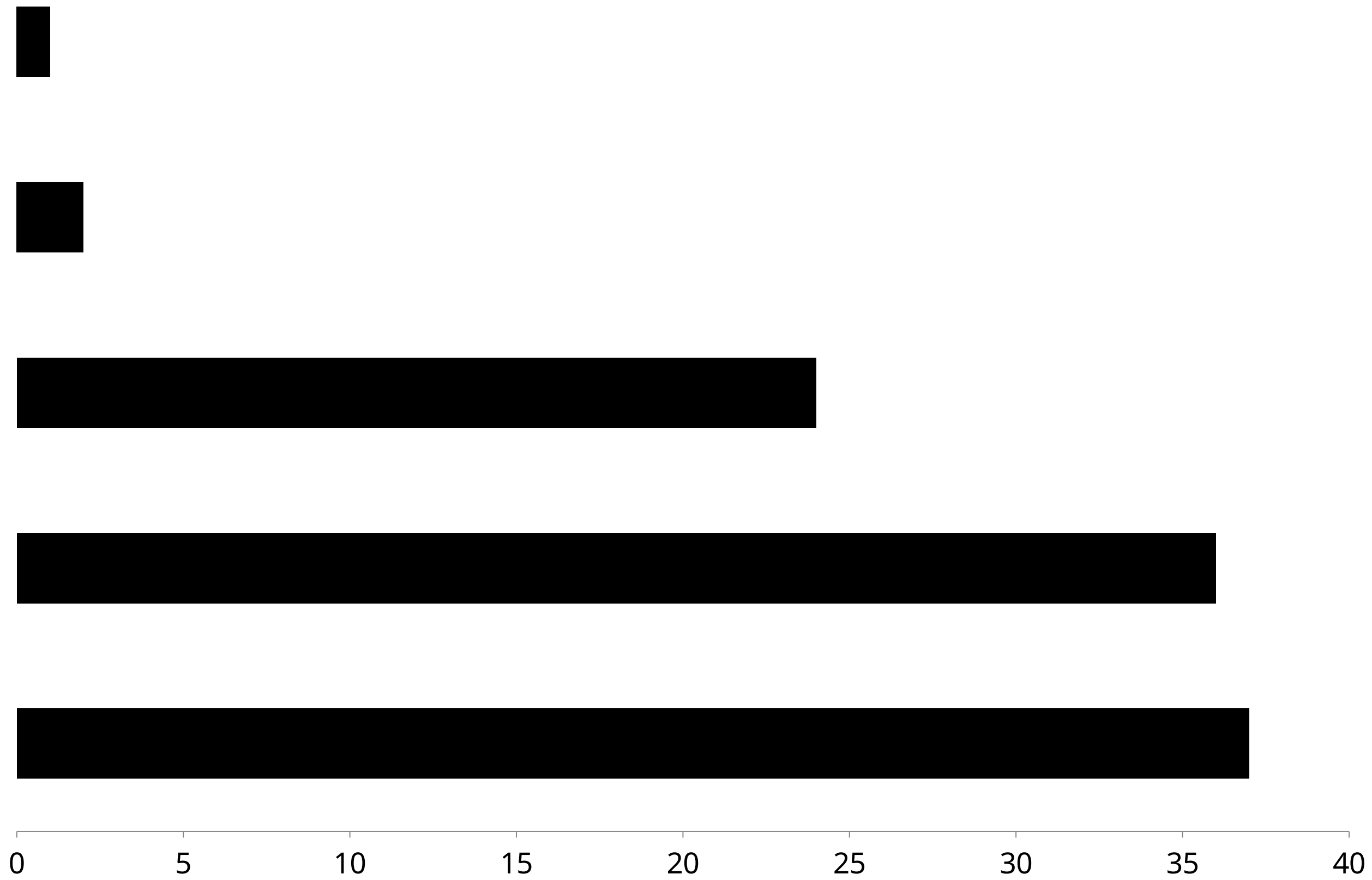














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Thank You