

Testing Statistical Graphics

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Introduction

Graphics research is conducted across a wide range of research areas, from statistics and computer science to psychology, marketing, and communications. This section will discuss the different approaches to graphics research and design. Specifically, we will discuss the different approaches to graphical design: aesthetics, utility, experimental validation, and pragmatism. We will also highlight the grammar of graphics as an important development which facilitates analysis of statistical graphics from a scientific and experimental perspective.

Testing Methods

- Psychophysics - method of adjustment/limits
- Standard psychology paradigms
 - Cleveland & McGill style straight estimation
 - * heavily depends on the exact questions asked
 - Think-aloud (more qualitative)
 - Eye Tracking
 - Preattentive judgements a la Healey
 - * don't obviously translate to how graphics are actually used
- Visual Inference
 - removes the exact question problem (mostly)
 - visual system conducts a ton of tests simultaneously
 - powerful when combined with grammar of graphics
 - can test salience of data features with two-target design

Actual conclusions about best graphical practice

Potential Topics

- Bar Charts
- Shading
- Maps - choropleth, hex, etc.?
- Polar coordinate systems are (mostly) bad
- Double encoding vs. chartjunk
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Current open questions

References