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Publication

## Measuring Abstraction Levels of Sculptural Objects

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### What is it about?

Fine art uses a linear continuum to rank artworks by abstraction level. Viewers assign works to ordered ranks such as 'realistic,' 'mixed,' and 'abstract.' This is subjective but fast. Conducted with many participants, results are reliable. Still, the framework can be improved; assign each rank a quantitative value that typifies viewership uncertainty (ambiguity) about works at that rank. One can then say, "This abstract piece is likely six times more ambiguous than that realistic portrait bust." Without values for ranks, comparisons involve only order: "This piece is the more abstract of the two." The catch is how to measure artwork uncertainty. For this, the investigation has been limited to sculpture.

A sculpture's uncertainty arises among its viewership. As a viewer scores a sculptural object for abstraction, they also write a caption stating what the piece reminds them of—its evocation. Variety among a sculpture's set of (simplified) captions indicates a level of collective (group) uncertainty. Realistic sculptures acquire many similar captions. Less variety indicates some viewer agreement. Highly abstract works have far fewer repeats. Variety is high. Various statistical metrics to characterize caption sets give different results. Nonetheless, three practical metrics demonstrate

that as ranks increase uncertainties generally rise as well. A rank can be calibrated as the median of uncertainties of works at that rank.

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