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Measuring Statistical Evidence Using Relative Belief.

Statistics is comprised of data collection and statistical inference. Given measurements based on a subset of a population, we believe this data contains evidence concerning questions we are interested in answering. Belief is measured by probability and when there is a change in belief, this is due to evidence. Relative belief is one of the few statistical inference theories that explicitly defines how we should measure statistical evidence. In my talk, I will discuss the reasons we need statistics, the ingredients we need to setup a statistical problem and the importance of checking the ingredients against the data. I will then introduce relative belief ratio as the measure of statistical evidence as well as measures of strength and accuracy. I will discuss the inferences based on Michael Evan (2016)'s relative belief ratios including hypothesis assessment, estimation, and prediction inferences. At last, I will talk about the issue of bias in statistical analyses as illustrated via the Jeffrey-Lindley's paradox. (Received September 15, 2018)