

NYU Stern School of Business
Department of Information, Operations & Management Sciences
STATISTICS RESEARCH SEMINAR

TOPIC: Likelihood Methods for Measuring Statistical Evidence

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DATE: Friday, February 19th, 2010

TIME: 11:30 AM- 12:30PM

PLACE: KMC 5-90

ABSTRACT

Science looks to Statistics for an objective measure of the strength of evidence in a given body of observations. Unfortunately standard statistical assessments of evidence are beset with irresolvable controversies, such as those surrounding the proper use and interpretation of p-values or those concerning adjustments for multiple comparisons and multiple looks at data or those regarding the choice of prior distributions.

The Likelihood paradigm, however, avoids these controversies by using likelihood ratios to measure the strength of statistical evidence in data (instead of p-values or posterior probabilities). This is because likelihood methods distinguish between three evidential quantities: (1) a measure of the strength of evidence, (2) the probability that a particular study design will generate misleading or weak evidence, and (3) the probability that observed evidence is misleading. As a result, Likelihood methods retain the desirable properties of Bayesian and Frequentist methods (irrelevance of sample space, good performance probabilities) while shedding the undesirable ones (dependence on prior distributions, ad-hoc adjustments to control error probabilities). I will illustrate this, and the mechanics of likelihood methods, in the context of a simple example and two controversial clinical trials.