The University of Chicago
Department of Statistics

STATISTICS COLLOQUIUM SERIES

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Chi-square and Classical Exact Tests Often Wildly Misreport Significance; The Remedy Lies in Computers

MONDAY, November 28, 2011, at 4:00 PM

133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110.

ABSTRACT

If a discrete probability distribution in a model being tested for goodness-of-fit is not close to uniform, then forming the Pearson chi-square statistic can involve division by nearly zero. This often leads to serious trouble in practice—even in the absence of round-off errors—as the talk will illustrate via numerous examples. Fortunately, with the now widespread availability of computers, avoiding all the trouble is simple and easy: without the problematic division by nearly zero, the actual values taken by goodness-of-fit statistics are not humanly interpretable, but black-box computer programs can rapidly calculate their precise significance. http://arxiv.org/abs/1108.4126 (joint work with Will Perkins and Rachel Ward)

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