



JOHNS HOPKINS
BLOOMBERG
SCHOOL of PUBLIC HEALTH

Department of Biostatistics

BIostatISTICS SEMINAR

A New Look at Bayes Factor and its Implication on Bayes Model Selection

Jason Liao Professor and Chief

Biostatistics and Bioinformatics Division

Penn State University College of Medicine

Abstract

The American Statistical Association recently issued statement on the limitation and frequent misuse of p-values in scientific inference. An alternative approach suggested is the Bayes factor. Unfortunately, Bayes factor also suffers from some fundamental difficulties. We present a new way of looking and studying Bayes factor that answers many basic questions such as ways to quantify its bias, its suitability as summary of statistical evidence, the asymmetry between null and alternative hypotheses, and the optimal choice of priors. Investigation of the Bayes information criterion (BIC) using this approach shows that the $p \cdot \log(n)$ penalty, where p is the dimension of the parameter and n the sample size, derived under the so called "unit information criterion" is not justified (as widely believed) as the "unit information criterion" introduces a bias that grows proportionally as p gets larger.

Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics

Monday, October 8, 2018, 12:15:1-15

Room W2008 (Refreshments 12:00pm)

Note: Taking photos during the seminar is prohibited

For disability access information or listening devices, please contact the Office of Support Services at 410-955-1197 or on the web www.jhsph.edu/SupportServices. EO/AA

Department of Biostatistics, 615 N. Wolfe Street, Suite E3527,
Baltimore, MD 21205