



THE UNIVERSITY OF  
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Adaptive Shrinkage for Asymmetric Effect Distributions Using  
Truncated Normal Mixture Prior

WEDNESDAY, February 8, 2017, at 1:30 PM  
Jones 111, 5747 S. Ellis Avenue

#### ABSTRACT

This paper is an extension of *False Discovery Rates: A New Deal* (Stephens, 2016) which introduces an Empirical Bayesian approach for large-scale hypothesis testing, including estimating the False Discovery Rates (FDRs) and effect sizes. The contribution to the methodology is adding truncated normal mixtures as a prior option to the package. The long feature of tails of normal distributions alleviates problems generated from short tails of uniform distribution. Also the posterior distribution is more accurate and reasonable in many scenarios. The new feature is more powerful in terms of dealing with asymmetric effect that satisfies unimodal assumption. This improvement is reflected from the Confident Intervals coverage rate and other simulations.

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