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Model Selection and Inference

Model selection has an important impact on subsequent inference. Ignoring the model selection step leads to invalid inference. We investigate risk and distributional properties of post-model-selection estimators and debunk some myths about model selection, in particular the myth that consistent model selection has no effect on subsequent inference asymptotically. We also provide an 'impossibility' result regarding the estimation of the finite-sample distribution of post-model-selection estimators. Related results for model averaging estimators and shrinkage-type estimators will also be discussed (if time permits).