Error Probability Law Selection of Location-Scale Models by Modified Profile Likelihood

by

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Abstract

By treating error probability law as a parameter of interest, location and scale as nuisance parameters in location-scale model, this paper suggests that modified profile likelihood (MPL), considered as quasi-likelihood function of the error probability law, be used for its selection. This model selection method is proved to be consistent and achieves minimax rate optimality. Simulations show its well performance for finite sample sizes. The author believes that modified profile likelihood is a promising method for general model selection problems.