A Large Deviations View of Asymptotic Efficiency for Simulation Estimators

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Consider a simulation estimator α(c) based on expending c units of computer time, to estimate a quantity α. One measure of efficiency is to attempt to minimize P(|α(c)−α|>ε) for large c. This helps identify estimators with less likelihood of witnessing large deviations. In this article we establish an exact asymptotic for this probability when the underlying samples are independent and a weaker large deviations result under more general dependencies amongst the underlying samples.