Subsampling, Symmetrization, and Robust Interpolation

Authors: **Dimitris N. Politis, Joseph P. Romano, and Michael Wolf**

Technical Report number (Dept. of Statistics, Stanford University): **1999-9**

Date: **May 1999**

Abstract:

The recently developed subsampling methodology has been shown to be valid for the construction of large-sample confidence regions for a general unknown parameter θ under very minimal conditions. Nevertheless, in some specific cases — e.g. in the case of the sample mean of i.i.d. data — it has been noted that the subsampling distribution estimators underperform as compared to alternative estimators such as the bootstrap or the asymptotic normal distribution (with estimated variance). In the present report we investigate the extent to which the performance of subsampling distribution estimators can be improved by a (partial) symmetrization technique, while at the same time retaining the robustness property of consistent distribution estimation even in nonregular cases; both i.i.d. and weakly dependent (mixing) observations are considered.