Estimation of the Weighted Integrated Square Error of the Grenander Estimator by the Kolmogorov-Smirnov Statistic

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Resume. We consider in this paper the Grenander estimator of unbounded, in general, nonincreasing densities on the interval [0,1] without any smoothness assumptions. For fixed number n of i.i.d. random variables X1, X2,…Xn with values in [0,1] and the nonincreasing density function f(x), $0 < x < 1$, we prove an inequality bounding the weighted integrated square error of the Grenander estimator with probability one by the classical Kolmogorov-Smirnov statistic. Further, we consider some interesting implications of the latter inequality.