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KIEFER'S LAW OF THE ITERATED LOGARITHM FOR THE VECTOR OF UPPER ORDER STATISTICS

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Abstract: Let $\{X_n\}$ be a sequence of independent identically distributed random variables with a common continuous distribution function and let $M_{j,n}$ denote the jth upper order statistic among $X_1, X_2, \ldots, X_n$, $n \geq j$. For a large class of distributions, we obtain the law of the iterated logarithm for $\left\{M_{1,n}, M_{2,n}\right\}$, properly normalized. As a consequence, we establish a law of the iterated logarithm for the spacings $\left\{M_{1,n} - M_{2,n}\right\}$.

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