

# PROBABILITY INEQUALITIES AND LIMIT THEOREMS FOR GENERALIZED $L$ -STATISTICS

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## Abstract

We study the generalized  $L$ -statistics

$$A_n = \sum_{i=1}^n h_{ni}(U_{n:i}),$$

where  $\{U_{n:i}; i \leq n\}$  are order statistics based on a sample from the  $(0, 1)$ -uniform distribution,  $\{h_{ni}; i \leq n\}$  are arbitrary measurable functions on  $[0, 1]$ . For the first time,  $L$ -statistics of such a kind were introduced in [3] (for more details, see [1, 2]).

Exponential upper bounds are obtained for the introduced statistics. We also prove asymptotic normality of these statistics as well as that for  $L$ -statistics with decomposed kernels without any restrictions on the sample distribution type.

**Keywords:** Order statistics,  $L$ -statistics, integral-type statistics, exponential bounds, moment inequalities, probability inequalities in Banach spaces, asymptotic normality

**AMS 2000 subject classification:** 60E15, 62G30, 62E20, 60F05

## References

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