Szpankowski, Wojciech; Rego, Vernon


Summary: We investigate the moments of the maximum of a set of i.i.d. geometric random variables. Computationally, the exact formula for the moments (which does not seem to be available in the literature) is inhibited by the presence of an alternating sum. A recursive expression for the moments is shown to be superior. However, the recursion can be both computationally intensive as well as subject to large round-off error when the set of random variables is large, due to the presence of factorial terms. To get around this difficulty we develop accurate asymptotic expressions for the moments and verify our results numerically.

MSC:

62E15 Exact distribution theory in statistics
65C99 Probabilistic methods, stochastic differential equations
62G30 Order statistics; empirical distribution functions
62E20 Asymptotic distribution theory in statistics

Keywords:

order statistics; binomial recurrence; program unification; concurrency enhancement; moments of the maximum; i.i.d. geometric random variables; alternating sum; recursive expression; accurate asymptotic expressions

Full Text: DOI

References:


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.