COMPARISON THEOREMS FOR SMALL DEVIATIONS OF WEIGHTED SERIES

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Abstract: weighted series and obtain more refined versions of the known comparison results. In particular, the following consequence is obtained immediately from Theorem 2.1 of the paper.

Let a positive random variable $X$ belong to the domain of attraction of a stable law with an index greater than one and let its distribution function be regularly varying at zero with an exponent $\beta > 0$. If $\{X_n\}_{n \geq 1}$ are independent copies of $X$, and $\{a_n\}$ and $\{b_n\}$ are positive summable sequences such that $\sum_{n \geq 1} |1 - a_n/b_n| < \infty$, then as $r \to 0^+$

$$P\left( \sum_{n \geq 1} a_n X_n < r \right) \sim \left( \prod_{n \geq 1} b_n/a_n \right)^\beta P\left( \sum_{n \geq 1} b_n X_n < r \right).$$

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