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# Some Remarks on Lower Bounds of Chebyshev's Type for Half-lines

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**Abstract:**

We prove that for any r.v. $X$ such that $E\{X\} = 0$, $E\{X^2\} = 1$, and $E\{X^4\} = \mu$, and for any $\varepsilon \geq 0$

$$P(X \geq \varepsilon) \geq \frac{K_0}{\mu} - \frac{K_1}{\sqrt{\mu}}\varepsilon + \frac{K_2}{\mu\sqrt{\mu}}\varepsilon,$$

where absolute constants $K_0 = 2\sqrt{3} - 3 \approx 0.464$, $K_1 = 1.397$, and $K_2 = 0.0231$. The constant $K_0$ is sharp for $\mu \geq \frac{3}{\sqrt{3}+1} \approx 1.09$. Some other bounds and examples are given.

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