

Tail probabilities of a random walk on an interval

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Abstract

If a random walk starts at the center of a symmetric discrete interval $I = \{-r, \dots, -1, 0, 1, \dots, r\}$ and we condition on being in I until a given time t , then for any fixed $s, 0 \leq s \leq r$, the probability that at time t we are in the tail $\{-r, \dots, -s\} \cup \{s, \dots, r\}$ is non-decreasing in t if we assume that either t is always even or t is always odd.