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On asymptotic behavior of local probabilities of nonlinear boundary crossing by a random walk. (English) Zbl 1359.60039

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Summary: In the paper a theorem on asymptotic behavior of the density of joint distribution of the first passage time and overshoot for a nonlinear boundary in the random walk, is proved. Limit behavior of the marginal and conditional density of the overshoot and also of the law of distribution of the first passage time are studied by means of this theorem.

MSC:

60F05 Central limit and other weak theorems
60G50 Sums of independent random variables; random walks

Keywords:

random walk; first passage time; overshoot; local limit theorem; joint distribution; density

