

Erratum to: The hitting distributions of a half real line for two-dimensional random walks

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In Theorem 1.1 of my paper [1] (p. 373) there is an erroneous statement. The formula (3) of the theorem expresses the asymptotic form of $H_x^-(s)$, the hitting distribution of the non-positive half line for a random walk on \mathbf{Z}^2 started at x . Its first statement, which is true, asserts that (3) holds for $x > 0$. The error is included in the second one, in which the validity of (3) is asserted also for $x < 0$ under the additional moment condition $E [|S^{(1)}|^2 \log |S^{(1)}|] < \infty$. For $x < 0$ however, the right-hand side of (3) must be multiplied by the ratio $(|x| + |s|)/2|x - s|$, namely the true statement must read: if $E [|S^{(1)}|^2 \log |S^{(1)}|] < \infty$ in addition, then for $x < 0$,

$$(3') \quad H_x^-(s) = \frac{\sigma^2}{\pi} \frac{(|x| + |s|)\nu(x)\mu(s)}{2|x - s|^2} (1 + o(1)).$$

The statement of Theorem 1.1 for the case $x < 0$ without the additional moment condition remains true, since it imposes a restriction on the manner of $|x - s|$ tending to ∞ that entails either $x/s \rightarrow 0$ or $s/x \rightarrow 0$, when (3) and (3') agree.

The formula (3') is obtained by setting $y = 0$ in the formula of Theorem 1.4 (p. 376). Although this special case is excluded in Theorem 1.4, it is verified essentially along the lines preceding it (see Section 5 of [2] for some ingredients of the proof that are not mentioned in [1]).

In addition there are simple errors on p. 376: the factor $(1 + o(1))$ is missing from the right-hand sides of (14) and the formula of Theorem 1.4.

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