Correction to “Limit theorems for a generalized St. Petersburg game”

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Peter Kevei has drawn my attention to the fact that formula (3.1) in my paper [2] is not correct. The aim of this note is to point out this fact and to make the necessary corrections.

The model behind the game is a sequence of i.i.d. random variables $X, X_1, X_2, \ldots$ with

$$P(X = sr^{(k-1)/\alpha}) = pq^{k-1}, \quad k = 1, 2, \ldots,$$

where $p + q = 1, s = p^{-1}, r = q^{-1} = (1 - p)^{-1}$, and $\alpha > 0$.

The correct expression for the tail probability is

$$P(X > x) = q^{[\alpha \log_r (x/s)]+1},$$

instead of (3.1) in my paper [2]; see [1], formula (1). The tail probabilities are not regularly varying.

This invalidates Theorem 2.1(ii) and (iii) of [2].

For further results that in this context one may consult [3].

Finally, the limits in (6.2) and (6.3) should be $-\log_{1/q} b$ (not $-\log_{1/q} b/\alpha$).

Acknowledgement

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References


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