

Review of: "A trial-dependent game with N-player"

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Potential competing interests: No potential competing interests to declare.

I have a few quick comments about this research note.

1. The title has an error. I suggest: write either 'A trial-dependent N-player game', or 'A trial-dependent game with N players'. The first is preferable. Another possible title would be "The N-players' gambler's ruin problem revisited". After all the trials are independent, so I am not sure what the term "trial-dependent" contribute. Of course the outcome depends on the trials.
2. The term "game" is questionable, since there is no decision making. In some respect it is a 0-player game, that is, a random automaton. However, I would like to reserve the term "game" to situations where players make strategic decisions. In fact, some of the literature instead describes this as "The gambler's ruin problem".
3. The first paragraph is not well written. Each player starts with an initial budget, a_i . At each stage, player i is chosen as the winner with probability p_i . They receive one dollar from each other player. The trials continue until one player is broke. Of interests are the expected time until ruin and the probability of ruin of each player.
4. The author suggests a variation of the problem, where the trials stop whenever some player reaches the minimal initial budget. Without reading further, this decision does not seem to make sense, because the trials would be terminated at the 0-th round. I will read further, to see where/if I misunderstood the author.
5. The author has chosen α to be the minimal initial budget. Then in Section 2.2 they reuse α to bound the number of trials. Please find another greek letter. Moreover they change from x_i to X_i , within the same paragraph of this section, which is confusing.
6. The propositions and corollaries in this section have no proofs. Please include, or/and give appropriate references.
7. I have not yet been able to resolve the issue in 5. In the next iteration, I would advice the author to clarify this definition, and to motivate their choice of termination of trials.