The Fair Lottery

Summary

The fair lottery is a thought experiment of a fictitious lottery. Each participant in the lottery is indistinguishable from any other entrant into the lottery. The probability of each entrant winning is uniformly distributed, regardless of the amount of tickets purchased.

Rules of the Fair Lottery

1. All participants are indistinguishable
2. The number of participants is unknown
3. All participants must obtain at least one ticket
4. Each participant has equal chance of winning the lottery regardless of the tickets they hold
5. Winners of the lottery must be greater than 1 and less than the number of tickets sold

Notes

I. Tickets can be free or sold

II. Lottery drawing can rely on provided entropy but is not required

III. A participant is not discrete and can collude or collaborate with n other participants. A participant is abstract and represents a unified holder of tickets in the lottery.

Appendix

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](https://mathoverflow.net/users/45864/muis)

Is a fair lottery possible?

pr.probability, st.statistics, game-theory

asked by

Muis on 12:59PM - 22 Jan 14 UTC