

Re: S. Petersburg paradox

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-02/5669.html>

examachine_at_gmail.com

Date: 02/15/05

Date: 15 Feb 2005 06:30:46 -0800

beda pietanza wrote:

> <*examachine_at_gmail.com*> *ha scritto nel messaggio*
> *news:1108389275.221128.238670@g14g2000cwa.googlegroups.com...*
> > *This is not a paradox AFAICT.*
> >
> > *It's simply that the casino proof works only asymptotically, I*
think
> > *it's in the introductory chapters of a common textbook for*
randomized
> > *algorithms. So, don't sit at a roulette table thinking of this.*
> >
> > *Cheers,*
> >
> > --
> > *Eray*
> >
> *Can you explain it better: what is the casino proof ???*
>

Well, I suppose you want to increase the amount invested in a binary bet, like in the red/black game on the roulette table. What happens if you double the bet every time you *_lose_*? You would definitely win the game at some unknown distant horizon. The unfortunate thing is that such a strategy is worthless in practice, because you can double your bet only so few times.

Given that you don't have unbounded wealth, and that there is non-zero probability of losing, the odds aren't good that you are going to "actually" win. (Even if you have more wealth than the house!) An interesting problem would be of course to study "unfair" roulette tables on which multiple games are going on at once. In some ways, this is reminiscent to certain underinvestigated stock market prediction problems which depend on huge computational power to accomplish (I think). There are interesting possibilities for a computer player when it goes online, I believe. (But I'd rather not go into details)

The relation to randomized algorithms is not too clear to me either, a friend had mentioned it, I don't think I read that textbook, but in

sci.math: Re: S. Petersburg paradox

this case, it seems plain expected cost analysis, it doesn't even have much to do with algorithms, but surely similar ideas are used frequently in the analysis of randomized / amortized algorithms... This is the simplest mathematical idea that $\sum_{k=0}^n 2^k + 1 = 2^{k+1}$, no you wouldn't even win a lot, even if you won, so of course doubling the money probably isn't a good idea if you want to win a huge amount of money (which kind of runs contrary to the idea of a casino :) On newsgroups, I'd heard that "counting cards" was illegal in some US states, so figure...

The conclusion, if you like gambling with dice: make sure you absolutely know how to trick the dice. :)

Cheers,

--

Eray

PS: I'm not a gambler, as you can tell. I can't take that many risks.