

Re: Can Events of Zero Probability Happen?

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- *From:* Robert Israel <israel@xx>
 - *Date:* Tue, 15 Jan 2008 02:36:45 -0600
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David C. Ullrich <ullrich@xxxxxxxxxxxxxxxx> writes:

On Sun, 13 Jan 2008 21:37:23 -0800 (PST), Shubee <e.Shubee@xxxxxxxx> wrote:

On Jan 12, 10:05 am, David C. Ullrich <ullr...@xxxxxxxxxxxxxxxx> wrote:

If you're interested in resolving the difference between you and the physicist you'd ask what I suggested you ask and see what he says. Because it's possible that he'd have no problem with "choose a real between 0 and 1 at random", and in that case you could explain why he's simply wrong about the impossibility of events of probability zero happening.

Sure, on the face of it, it seems possible to reason with a physicist that believes that conceptualizing events that occur with zero probability is unfathomable. The problem is, he explicitly said that even an event of incredibly small probability can't happen.

First, if he said that why didn't you say so? There's a big difference between that and saying that events of zero probability can't happen.

Second, again you should simply ask him a question. First ask him for an $\epsilon > 0$ such that an event of probability $< \epsilon$ can't happen. Second, calculate an N such that $2^{(-N)} < \epsilon$. Third, ask him to flip a coin N times and tell you what sequences of heads and tails resulted. Then point out that the probability of that sequence of heads and tails is $< \epsilon$.

Of course, if he's clever he'll take ϵ so small that he won't be able to flip a coin N times.

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Third, no he didn't say that! He said "Probabilities this low are generally taken to mean the event could not have happened." That's true.

Yes it is. Suppose I tell you that I was watching a glass of water the other day, and with no outside energy applied it just happened that half of it froze solid while the other half boiled away. Would you believe me?

You'd need a heck of a lot of coin flips to get a probability that small.

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