Re: The Double or One Half Paradox

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From: David C. Ullrich (*ullrich_at_math.okstate.edu*)
Date: 07/05/04

Date: Mon, 05 Jul 2004 14:42:09 −0500

On Mon, 5 Jul 2004 14:10:54 −0400, Carl Cotner
<cfc−usenet@tau.aauetiu.net> wrote:

>On 2004−07−05, David C Ullrich <ullrich@math.okstate.edu> wrote:
>>>
>>>Below is a proof[*] that the first claim you made with respect to this
>>>puzzle
>>>
>>> If you don't know anything about the distribution of the "random"
>>> amounts then clearly [there is no strategy which allows for a better
>>> expected outcome that just choosing one envelope at random]
>>>
>>>is incorrect (the proof does not assume that there exists a
>>>distribution of the "random" amounts).
>>
>> Unless I'm missing something,
>
>Yes, that's correct.
>
>> the proof below depends on looking
>> inside the first box; if the first box contains d dollars you
>> switch with probability f(d). But the statement of the problem
>> _explicitly_ ruled out looking inside the first box:
>>
>> "There are two boxes on a table, one of which contains twice as much
>> money as the other. You are allowed to take one. You do so, but
>> before you open it you are allowed to switch boxes. Should you
>> switch?"
>>
>> Note the words "before you open it".
>
>Among other things you are missing the article that started this
>sub−thread, and your response:

Uh, yes, I'd forgotten about that, sorry. Yes, you're right
what I said about that was false, and yes you gave a valid
proof that it was false.

> On Sun, 4 Jul 2004 07:57:51 −0400, Carl Cotner
> <cfc−usenet@tau.aauetiu.net> wrote:
> >
> >Here's a more interesting question:
> >
> >Suppose you are allowed to open one envelope to see how much money it
> >contains before possibly choosing the other. Is there any strategy
> >which allows for a better expected outcome than just choosing one
> >envelope at random?
>
> If you don't know anything about the distribution of the "random"
> amounts then clearly not.
>
>Note the words "Here's a more interesting question:" and "Suppose you
>are allowed to open one envelope to see how much money it contains
>before possibly choosing the other".
>
>My last post was specifically addressing the words "Is there any
>strategy which allows for a better expected outcome than just choosing
>one envelope at random?" and your response "If you don't know anything
>about the distribution of the 'random' amounts then clearly not."
>
>> My claim was that "x is random but follows no particular
>> distribution" is meaningless.
>
>No, that's not correct. Your actual claim was
>
> But things don't just happen. The distribution of the amount
> is determined by whatever method was used to determine what
> the amount should be. (Which includes asking someone to make
> up a number at random − there there's no way to know what the
> distribution _is_, but that's very different from saying
> there's no distribution.)

That's not the claim I was referring to. The claim I was
referring to was... oops, it wasn't stated as a "claim"
at all:

">>>(Note: The problem doesn't assume any particular distribution
>>>on the possible amounts of money in the envelopes; indeed, it
>>>doesn't assume the possible amounts follow any distribution at all.)
>>
>> ??? If the amounts don't follow _some_ distribution then what
>> do we mean when we say that they're "random"?"

That was intended as a rhetorical question; in asking it
my intent was to claim what I falsely claimed I claimed.

>These seem to be quite different claims (although possibly both are
>incorrect). Amoung other things, the first seems to be a statement
>about definitions (semantics), the other about the physical world

>(physics) and perhaps mathematics.
>
>In any case, you are also missing the discussion of the definition of
>the word "random", in which I gave it a standard definition that does
>not depend on the word or concept "distribution".

I didn't miss the definition you quoted from the OED. I
don't see how that definition has any mathematical
content − you said you assume that the word "random"
usually means something like that in a colloquial
description of a problem, but I don't think it
usually does, I think it usually refers to
the notion as in probabilty. (Or to a fuzzy
understanding of that notion.)

>There is more, but it seems silly at this point.
>
>Regards,
>Carl

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David C. Ullrich