Re: Probability of picking a positive rational number at random

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- *From*: Tim Little <tim@xxxxxxxxxxxxxxxxxxxxxxxxxxx>
- *Date*: Sat, 15 Mar 2008 08:51:55 −0000

On 2008−03−15, Ross A. Finlayson <raf@xxxxxxxxxxxxxxx> wrote:

> Maybe that's a misperception. Maybe it just is so that there's an infinitesimal iota, greatest among infinitesimals

I'm sure such a thing could be defined, but I bet you wouldn't be able to do arithmetic with it. Is iota+iota infinitesimal?

> The notion is basically about using uniformity and symmetry as first principles in describing densities for probability density functions, instead of standard measure theoretic ones.

Good luck with that. The rest of us like being able to prove things like P(A or B) = P(A) + P(A but not B).

> Now, that's rather unstructured but those are actually technical words with specific meanings.

There's a word for sentences that use technical words with specific meanings in ways that contradict those meanings: technobabble.

> In general, given a well− ordering of R, there is absolutely no idea, no algorithm to conclude, what ordinal o maps to each element of r.

You already went way beyond the bounds of algorithms in the first step. But just for laughs, let's see how we get from our real number to a natural number.

> So, by sampling a real (and figuring the order type of c was the same
> as the order type of the set of distributions, where having it not be
> is funny)

Fortunately the cardinality of distributions over N is c, so it is at least *possible* to have the same order type. Though the two well−orderings are completely unnecessary: any bijection will do. Requiring well−ordering just obfuscates what's going on.

> Then, using the distribution that happens to be marked by that
> ordinal in a "random" well−ordering of the distributions of the
> naturals

So now you're going from a probability distribution over [0,1] defined by Lebesgue measure to a completely undefined probability distribution over the set of all well−orderings of distributions of natural numbers? How do you know that one with the properties you want even exists?

− Tim
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