Re: Calculus XOR Probability

Source: http://sci.tech−archive.net/Archive/sci.math/2006−04/msg04678.html

- *From*: imaginatorium@xxxxxxxxxxxxx

- *Date*: 25 Apr 2006 09:02:43 −0700

Tony Orlow wrote:

> imaginatorium@xxxxxxxxxxxxx said:
>
> > Tony Orlow wrote:
> >
> > > David R Tribble said:
> > >
> > > > Tony Orlow wrote: [on NaN]
> > > >
> > > > > So, it's just a placeholder for
> > > > > where you might have a
> > > > > number, but you don't
> > > > > have a number, so it's NaN.
> > > > > Real great. What kind of
> > > > > math can you do on a Java
> > > > > NaN?
> > > >
> > > > Pretty much the same arithmetic operations
> > > > you can do on Math.INFINITY
> > > > in Java. An arithmetic operation involving a
> > > > NaN results in a NaN, and
> > > > similarly any operation involving an infinity
> > > > operand results in either
> > > > an infinity or a NaN.
> > > >
> > > > But you're not using Java floating−point
> > > > arithmetic as a basis to
> > > > explain abstract mathematics, are you?
> > >
> > > Why don't you ask Brian why he compared infinite set sizes
> > > to NaNs in Java?
> >
> > Sorry, I probably just introduced extra confusion − not something
> > you're exactly short on, Tony.

> You described counting the size of a finite set. OK. No problem.
> You suggested that *in the sense of counting a finite set*, an infinite
> set does not have such a "size". Also OK − no problem.
>
> In handling numerical calculations in Javascript and other such
> languages, it is possible to give a variable any of a (very) large
> number of numerical values, and also the non−numerical value
> represented by the atomic symbol "NaN". In just the same way one could
> identify the size of any finite set as the numerical value obtained
> from a counting process, and for any set that is not a finite set, use
> a "placeholder" (if you like) value which is not a size (number), but
> is an atomic symbol (e.g.) 'NaS' for not−a−size.
>
> I wondered if this might help, but it doesn't look like it.

Well, that sounds almost like what the standard theory does, doesn't it? And, what I've been advocating is a more numeric approach to infinity. I see infinity as a quantitative concept, and seek to treat it more consistently with the rest of math, and not as some kind of magical exception to every rule. So, thanks for the suggestion, but it's not very satisfying, because NaS seems like Not an Answer, and answers are there to be found.

OK, can you then explain your comment in the post just up this thread
(here's a googlink):
http://groups.google.com/group/sci.math/browse_frm/thread/c5e8522696fb2b97?scoring=d

Tony Orlow wrote:

> imaginator...@xxxxxxxxxxxx said:
>
> > Tony Orlow wrote:

<snip>

> > > Because that's what a number IS. You have a set of objects,
> > > and you ask what
> > > the size is. How do you measure this? For finite sets, you
> > > COUNT the objects,
> > > and the answer is a NUMBER.
>
> > Right. Which 'NUMBER' in particular? I suggest the one at which the
> > count stops (because it has reached the end of the finite set). In the
> > familiar method of counting by reciting a ditty, this answer is thus
> > the last number shouted out.

> Right, so generally if there is no well defined end, there is no well defined size.

Sometimes you seem to agree that (for example) the sequence of pofnats (0, 1, 2, ...) has no end, and almost always you agree it has no well−defined end. You say this means it "has no well defined size", yet you (now) say you advocate "a more numeric approach to infinity", which appears to mean you insist it must have a "size". It doesn't bother you that these two claims appear to contradict each other?

Brian Chandler
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