Re: Cantor Confusion

Source: http://sci.tech−archive.net/Archive/sci.math/2007−02/msg04507.html

- *From*: mueckenh@xxxxxxxxxxxxxxxxx
- *Date*: 24 Feb 2007 03:50:26 −0800

On 23 Feb., 22:54, Virgil <vir...@xxxxxxxxxxx> wrote:

> In article <1172267009.642042.165...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
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> mueck...@xxxxxxxxxxxxxxxxx wrote:
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> > On 23 Feb., 20:21, Virgil <vir...@xxxxxxxxxxx> wrote:
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> > > In article
> > > <1172253288.305584.116...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
> > >
> > > mueck...@xxxxxxxxxxxxxxxxx wrote:
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> > > > On 23 Feb., 14:35, "Dik T. Winter"
> > > > <Dik.Win...@xxxxxx> wrote:
> > > > Every tree T(n) contains only finite paths,
> > > > namely such with n nodes. There is no tree
> > > > containing an infinite
> > > > path.
> > >
> > > Then there can be no infinite trees.
> >
> > Correct!
> >
> > > > Every set of finite subsets of N is countable.
> > > > The set of all finite
> > > > subsets of N is countable.

> There are countably many
unions like U(p(n)).

Prove it.

If A is countable, then the set of all finite sequences of elements of A is countable.

But neither extends to the infinite subsets of A or infinite sequences of elements of A.

The theorem extends to the finite subsets or finite sequences of elements of of U(T(n)) . As in case of the tree all elements of P(oo) like p(oo) are unions of finite pathes, p(oo) = Up(n), q(oo) = Uq(m), r(oo) = Ur(i), and the sets of finite paths like p(n), are countable, the unions of sets of finite paths like U(p(n)) = p(oo) belong to a countable set.

In short: Everything in the countable union of finite nodes and finite paths of U(T(n)) is countable. Therefore the set of all possible unions of finite paths is countable too. P(oo) is a subset of this set of all possible unions of finite paths.

Then the complete infinite binary tree has paths not in the union of those finite binary trees,

It seems to be th consequence. There must be indexes of infinite, super−natural size to explain such super.natural paths. As I said already casually: There is no set of infinitely many numbers unless there are infinite numbers.

as the set of paths of the complete infinite binary tree has a distinct path for every possible endless binary string, and there are uncountably many such strings.

"Such" paths, which are not in the union of all finite trees, may be there as many as you like to imagine. Alas, I am not at all interested in thier presence.

Regards, WM

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