Re: Cantor Confusion

Source: http://sci.tech−archive.net/Archive/sci.math/2007−03/msg03537.html

- *From*: mueckenh@xxxxxxxxxxxxxxxxx
- *Date*: 16 Mar 2007 07:23:21 −0700

On 16 Mrz., 15:15, Carsten Schultz <cars...@xxxxxxxxx> wrote:

> mueck...@xxxxxxxxxxxxxxxxx schrieb:
>
> > On 16 Mrz., 14:35, Carsten Schultz <cars...@xxxxxxxxx> wrote:
> >
> > > mueck...@xxxxxxxxxxxxxxxxx schrieb:
> > >
> > > > On 16 Mrz., 01:31, Virgil
> > > > <vir...@xxxxxxxxxxx> wrote:
> > > >
> > > > > In article
> > > > > <1173954799.919385.61...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
> > > > > For even binary trees (
> > > > > where even here means all
> > > > > paths are of equal
> > > > > length),
> > > >
> > > > Only those are under discussion here.
> > > >
> > > > > the number of paths
> > > > > increases exponentially with
> > > > > number of
> > > > > levels (lengths of a path).
> > > > > Adding 1 to the number of
> > > > > levels doubles the
> > > > > number of paths.
> > > >
> > > > > The tree is
> > > > > continuous
> > > > > because its
> > > > > nodes are

> > connected
> > by paths.
>
> That is a distinctly
> non−standard meaning for
> "continuous" in
> mathematics.
>
> It shows, however, that the number of paths
> cannot jump from finite to
> uncountable.

Using a word does not constitute proof.

> And indeed sup_{n<aleph_0} 2^n = aleph_0 < 2^aleph_0,
> so in this sense the function kappa |−> 2^kappa is not
> continuous. If
> you can prove (not claim!) by using your tree that it is, then
> you will
> finally have succeeded in showing that ZF is inconsistent.

Have fun,

> I had already quite a lot.

I can imagine.

> The function of all cross sections, f: n |−−> 2^n, is "continuous" in
> the sense that never a jump by more than a factor 2 can occur because
> the nodes of the tree are connected by an untearable network. The
> domain is the same as the range, namely N. That is fact, not by claim
> but by construction of the tree. That's why I constructed it.

You constructed the tree to show that 2^{n+1} <= 2*2^n ? Well, that really must have been fun. Ok, I agree on this. Now we know a property of the function

f : N −> N
n |−> 2^n.

This does not tell us anything about 2^aleph_0.

aleph_0 is not a natural number.

Don't mistake the infinite number of finite paths with infinite paths. In the union of all fiite trees every path has a finite length, given by a natural number of nodes. Presently we are considering the union of all such finite paths. (The union of all finite natural numbers is an infinite union − nevertheless this union cotains only finite numberrs.)

Regards, WM

.