Re: Cantor Confusion

Source: http://sci.tech−archive.net/Archive/sci.math/2007−03/msg03646.html

- *From*: Virgil <virgil@xxxxxxxxxxx>
- *Date*: Fri, 16 Mar 2007 14:31:24 −0600

In article <1174055000.972069.261630@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
mueckenh@xxxxxxxxxxxxxxxxx wrote:

> On 16 Mrz., 15:15, Carsten Schultz <cars...@xxxxxxxxx> wrote:
>
>> mueck...@xxxxxxxxxxxxxxxxx schrieb:
>>
>>> On 16 Mrz., 14:35, Carsten Schultz <cars...@xxxxxxxxx> wrote:
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>>>> 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.

Are you just discovering that?

> Don't mistake the infinite number of finite paths with infinite paths.

An infinite path corresponds to an infinite set of finite paths in the which the nodes of each path in the set are included as nodes in every longer path in the set. There is one such infinite path for each such maximal infinite set of finite paths and vice versa.

And the union of the infinite set f finite paths, as set of nodes will be the set of nodes of the infinite path. And that is using the legitimate meaning of union as in ZF or NBG.

> 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.)

The the mathematical union of the set of all finite paths is merely the set of nodes of the tree. But each infinite path requires a different infinite subset of the set of all finite trees, as described above.

So WM is faced with something like the power set of his set of all finite paths, not merely the set of finite paths itself. And WM cannot handle it.
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