Re: Cantor and the binary tree

Source: http://sci.tech−archive.net/Archive/sci.math/2005−05/msg05522.html

- *From*: "Dik T. Winter" <Dik.Winter@xxxxxx>
- *Date*: Mon, 30 May 2005 13:59:56 GMT

In article <1117432107.613540.297700@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
mueckenh@xxxxxxxxxxxxxxxx writes:
> Dik T. Winter wrote:
> > In article <1117381085.891784.283560@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
mueckenh@xxxxxxxxxxxxxxxx writes:
> > > Examples.
> > > Path 0,1000...is mapped on the node on level n = 0.
> > > Path 0,01000... is mapped on the left node on level n = 1.
> > > In this way all numbers (except 0 = 0.000...) which differ from all
> > > other numbers by at least one digit are mapped on the nodes.
> >
> > Oh. On what node is 0,010101010... mapped? The numbers mapped on nodes
> > at level n = 0 are of the form k/2, with k odd. The numbers mapped on
> > nodes at level n = 1 are of the form k/4, with k odd. In general, the
> > numbers mapped on the nodes of some level n are of the form k/(2^n),
> > with k odd. On what level is there a node on which 1/3 is mapped?
>
> I don't know how many bits the number 1/3 has.

Infinitely many, and that is not a natural number.

> But if it is a number
> then it has a path in my tree. And if it has a path in my tree then it
> has a node to be mapped on.

Right for the first, wrong for the second.

> You must know, there are infinitely many
> nodes in my tree.

That does not matter, an infinite (i.e. unending path) as that which
1/3 corresonds to does not have a node on it that corresponds to 1/3.
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    - ◊ *From:* mueckenh

- ***References***:
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    - ◊ *From:* mueckenh
  - ♦ ***Re: Cantor and the binary tree***
    - ◊ *From:* Dik T. Winter
  - ♦ ***Re: Cantor and the binary tree***
    - ◊ *From:* mueckenh

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