Re: infinity

Source: http://sci.tech−archive.net/Archive/sci.math/2005−09/msg01266.html

- *From*: Tony Orlow (aeo6) <aeo6@xxxxxxxxxxx>
- *Date*: Tue, 6 Sep 2005 15:22:06 −0400

imaginatorium@xxxxxxxxxxxxx said:
>
> Tony Orlow (aeo6) wrote:
> > Daryl McCullough said:
> > > Tony Orlow says:
>
> > Except that, as you just pointed out, for any set of consecutive naturals
> > starting from 1, the set size IS an element of the set. Therefore, if the set
> > is infinite, then it contains an infinite element. This is a contradiction. So
> > how do you resolve this?
>
> Very simply. Extremely simply, though obviously beyond you. We observe
> that any element of the set that is equal to the set size must be the
> largest element in the set. We deduce that in a set with no largest
> element, there is no largest element that could be equal to the set
> size.
Okay, then what is the size of the set? The proof shows also that the set size IS a member of the set. So, if the set size is infinite, then how can that number NOT be part of the set of whole numbers starting from 1? For any such set, the size IS an element. Do you disagree?
>
> > This is what I am trying to show you.
>
> No, you can't _show_ us anything, mathematically speaking, because you
> have simply no idea at all what a mathematical argument is. Do tell me:
> consider a binary tree in which there are only branching nodes − how
> many leaf nodes are there? Use Tinduction, or any other favourite tool.
What is the purpose of this question? The obvious answer, using plain logic, is that a tree with no leaf nodes has zero leaf nodes. However, an infinite binary tree really has infinite numbers of leaf nodes. For level n, starting with zero at the root node, there are 2^n nodes. If a tree is x levels deep, it has 2^x leaf nodes. If x is infinite, then 2^x is infinite as well. By pretending that somehow at x=oo all the leaf nodes disappear is inconsistent. But of course, you will say that there are infinite levels so we never get any leaf nodes. I am not sure how you reconcile this with the inductive argument that the number of leaf nodes of a tree with n levels is 2^n.
>
> Brian Chandler
> http://imaginatorium.org

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>

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Smiles,

Tony
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- ***Follow−Ups***:
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    - ◊ *From:* Virgil
  - ♦ ***Re: infinity***
    - ◊ *From:* imaginatorium

- ***References***:
  - ♦ ***Re: infinity***
    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
    - ◊ *From:* Daryl McCullough
  - ♦ ***Re: infinity***
    - ◊ *From:* imaginatorium

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