Re: infinity

Source: http://sci.tech−archive.net/Archive/sci.math/2005−08/msg03297.html

- *From*: Tony Orlow (aeo6) <aeo6@xxxxxxxxxxx>
- *Date*: Wed, 17 Aug 2005 16:03:56 −0400

Virgil said:
> In article <MPG.1d6bead21e3b369b98a0da@xxxxxxxxxxxxxxxxxxxxxxxxx>,
> Tony Orlow (aeo6) <aeo6@xxxxxxxxxxx> wrote:
>
> > David R Tribble said:
> > > Tony Orlow (aeo6) wrote:
> > > >> What consistency! What was the contradiction in the notion that
> > > >> [0,1) is half the size of [0,2) again?
> > > >
> > > David R Tribble said:
> > > >> If you're right, you should be able to name twice as many points
> > > >> from [0,2) than I can name from [0,1).
> > > >>
> > > >> But while you can name two points in [0,2) for every point I
> > > >> choose in [0,1), I can also name two points in [0,1) for every
> > > >> point you choose in [0,2).
> > > >>
> > > >> b = a x 2, for all a in [0,1)
> > > >> and b in [0,2)
> > > >>
> > > >> c = d / 2, for all d in [0,2)
> > > >> and c in [0,1)
> > > >
> > > Tony Orlow (aeo6) wrote:
> > > > Your mapping function demonstrates the ratio of 2 between these
> > > > two sets of reals.
> > >
> > > Well, it demonstrates the ratio between the numeric values of
> > > corresponding members of the two sets.
> > >
> > > It also demonstrates that the two sets have exactly the same number
> > > of members; any given member of one set will have a numeric value
> > > that is exactly twice or half of the corresponding member in the
> > > other set.
>
> > That's not at all the way I interpret it.
> The TO is wrong, again!
>
> > If the two sets have the

> > same range of values, then the one with the lower density or
> > frequency will have fewer members.
>
> If one can pair off a member from each with one from the other with none
> left out, how can there be MORE of either in any useful sense?
>
> > When you draw a bijection between
> > the two sets using a mapping function that doubles one to get the
> > other, you are also doubling the value range of the first to get the
> > value range of the second
>
> Then does TO equate range with "number of elements"?
Number of elements is the value of the inverse function at the top of the range minus the value of the inverse function at the bottom. Both ranghe and mapping function are involved in sets size measure.
>
> That would mean that {0,1} and [0,1] should have the same number of
> elements, as measured by range.
Open intervals in the reals are a special case, where we subtract a single element from the end. That is easily taken into account.
>
> Or is range irrelevant to "number of elements", so that {0,1} and {0,2}
> can have the same number of elements, regardless of the difference in
> ranges? If so, why not [0,1] and [0,2]?
No, range is always relevant. It's like asking whether size is always relevant to density, or whether density can depend only on mass. It's obviously a combination of the two.
>
>
> > , so you get the same number of elements in
> > twice the space. If the two sets cover the same range, then they will
> > not have the same number of elements.
>
> Then {0,1} does not contain the same number of elements as {0,1}?
Those have the same desnity and range so they're the same. If you look above at the context, you'll see I am talking about two sets with different densities.
>
> > >
> > > Unless, of course, you can provide members of one set that don't
> > > correspond to any members of the other set. Find a b that has no
> > > corresponding a, or a d that has no c.
>
>
> > if the two sets have the same range, then the second half of the
> > first set will have no corresponding members in the second set.
>
> That is only true if one sets some limits on how such correspondences
> may be set up, and any such limitations can be shown to cause comparisom
> problems with other pairs of sets.
Such as?
>

> One must allow abitrary bijections or set up extraordinarily complex
> rules about which ones can be used and when they can be used.
Not really. A few additional rules cover most cases.
>

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Smiles,

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

- ***References***:
  - ♦ ***Re: infinity***
    - ◊ *From:* Virgil
  - ♦ ***Re: infinity***
    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
    - ◊ *From:* Jesse F. Hughes
  - ♦ ***Re: infinity***
    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
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    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
    - ◊ *From:* Virgil
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    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
    - ◊ *From:* Randy Poe
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    - ◊ *From:* aeo6
  - ♦ ***Re: infinity***
    - ◊ *From:* David R Tribble
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  - ♦ ***Re: infinity***

- ◊ *From:* aeo6
- ♦ ***Re: infinity***
  - ◊ *From:* Virgil

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