Re: infinity

Source: http://sci.tech−archive.net/Archive/sci.math/2005−09/msg01568.html

- *From*: Tony Orlow (aeo6) <aeo6@xxxxxxxxxxx>
- *Date*: Wed, 7 Sep 2005 13:52:48 −0400

William Hughes said:
>
> Tony Orlow (aeo6) wrote:
> > William Hughes said:
> > >
> > > Tony Orlow (aeo6) wrote:
> > > > William Hughes said:
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> > > > > stephen@xxxxxxxxxx wrote:
> > > > > > William Hughes <wpihughes@xxxxxxxxxxx> wrote:
> > > > > > > Tony Orlow (aeo6) wrote:
> > > > > > > >> No, it's really not. This problem is couched as an infinity problem. The
> > > > > > > >> infinite set of natural numbers requires infinite values. Cantorian thought
> > > > > > > >> purports to talk about infinity, but then limits itself to finite numbers so as
> > > > > > > >> to avoid the topic. I said IF you limit yourself to finite numbers, THEN you
> > > > > > > >> could have an empty vase at noon, although this answer still makes no sense
> > > > > > > >> given the constantly increasing sum. This is one of the reasons NOT to limit
> > > > > > > >> the naturals to finite values. There is no well−defined size of this set,
> > > > > > > >> despite the fact that it must be finite, logically.
> > > > > >
> > > > > > > I assumed, wrongly, that you accepted the existence of the
> > > > > > > finite integers. Your contention that "it [the size of this
> > > > > > > set] must be finite, logically", is one of your strangest and
> > > > > > > silliest. Why can't there be an infinite set of finite things?
> > > > > > > Does the fact that we have an infinite number of ping pong
> > > > > > > balls mean some of them must be of infinite size?. Yes, assuming
> > > > > > > that there are a finite number of finite integers leads to a
> > > > > > > contradiction, as there are clearly an infinite number of them.
> > > > > >
> > > > > > Tony refuses to precisely define what he means by 'infinite'
> > > > > > or 'finite'. Apparently the set of finite integers is finite,
> > > > > > or perhaps it is undefined. I think Tony's math allows a set
> > > > > > to be neither finite or infinite.
> > > > > >
> > > > > > Clearly the number of finite integers cannot be a finite
> > > > > > integer. Let F be the number of finite integers.
> > > > > > Tony agrees that if F is a finite integer, then F+1 is
> > > > > > a finite integer. That means that the set {1, 2, 3 ..... F, F+1}
> > > > > > contains F+1 finite integers, which contradicts the claim

> > > > > > that there were F finite integers.
> > > > > >
> > > > >
> > > > > This uses the fact that a finite set must have a largest element.
> > > > > TO (at least implicitely) does not accept this. According
> > > > > to TO
> > > > >
> > > > > −the set of finite integers contains a finite
> > > > > number of elements
> > > > >
> > > > > −there is no largest finite integer
> > > > >
> > > > > TO appears bothered by this contradiction, his conclusion is that
> > > > > the set of finite integers doesn't exist!
> > > > >
> > > > > > Perhaps in Tonymatics a set can still be finite even
> > > > > > if the number of the elements in the set is not finite.
> > > > > >
> > > > >
> > > > > Consistency is not TO's strong suit.
> > > > >
> > > > > −William Hughes
> > > > >
> > > > >
> > > > The only contradiction arises from your obsession with a last element, and
> > > > conflation of it with finiteness for a set. I do not accept that a last element
> > > > necessarily indicates a finite set, therefore I see no contradiction between
> > > > the set of finite naturals being finite and not having a last element.
> > >
> > > As stated above I realize you believe that there are only a finite
> > > number of finite integers, and there is no largest finite integer.
> > > You avoid an explicit contradiction only by refusing to define what
> > > you mean by infinite. When I said that "TO appears bothered by this
> > > contradiction" I was refering to your statment "There is no
> > > well−defined size of this set [the finite integers]
> > > despite the fact that it must be finite, logically."
> > >
> > > −William Hughes
> > >
> > >
> > Why should a poorly defined set size necessarily be infinite? What is the
> > contradiction between saying the size is not well defined, although it is known
> > to be finite? The number of printed words on Earth is also known to be finite,
> > though not a well defined number, and without any upper bound.
> >
> > When I say a number is infinite, one definition might be to say that counting
> > to it, using a constant finite unit of time per iteration, would take forever.
> > I am not sure how to defined it to your satisfaction, but I think we all know
> > what we are talking about. A finite number is one we could count to, and an
> > infinite number is greater than any finite number.
>

> This is not quite what we need. We need a way to tell if a set has
> a finite or infinite number of elements. We might use something like
> "if we remove one element using a constant finte unit of time per
> iteration,
> we will always exhaust a set with a finite number of elements,
> but never exhaust a set with an infinite number of elements".
> Unfortunately, this leads immediately to the observation that any
> set of integers with a finite number of elements has a largest element
> (just take any integer from the set, then take the rest one by one,
> always keeping the largest found so far. If the set has a finite
> number
> of elements this process must terminate. When it does you have your
> largest element). So with this definition either:
>
> −there are an infinite number of finite integers
>
> or
>
> −there is a largest finite integer
>
>
> > I think we agree that if x
> > and y are finite, then x+y, x*y, x^y are all finite.
>
> The trouble is that "x,y finite implies x+y finite" leads immediately
> to the fact that the sum of a finite number of integers is finite.
> So:
>
> Let K be the set of finite integers. Assume K has a finite number of
> elements. Let n be the sum of all the elements of K. Then n is a
> finite integer. But n is not an element of K. Contradiction.
> Therefore K has an infinite number of elements [1]
>
> −William Hughes
>
> [1] this specific argument was presented by Daryl McCullough
>
>
Yes, I saw it. It's basically the "largest finite" argument. If I claim n is
the largest finite I get a contradiction too. This comes from any claim to have
identified and enumerated all the finite naturals, since for any one you
identify, you can always identify a larger one. The set is unbounded, but not
infinite unless it has infinite elements.
−−
Smiles,

Tony
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- ***Follow−Ups***:
    - ***Re: infinity***
        - *From:* Virgil
    - ***Re: infinity***
        - *From:* William Hughes

- ***References***:
    - ***Re: infinity***
        - *From:* William Hughes
    - ***Re: infinity***
        - *From:* aeo6
    - ***Re: infinity***
        - *From:* William Hughes

- Prev by Date: ***Re: 'and' or 'or'***
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