

# Re: infinity

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- *From:* [stephen@xxxxxxxxxxx](mailto:stephen@xxxxxxxxxxx)
  - *Date:* Thu, 13 Oct 2005 18:20:33 +0000 (UTC)
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Tony Orlow <aeo6@xxxxxxxxxxx> wrote:  
> stephen@xxxxxxxxxxx said:  
>> Tony Orlow <aeo6@xxxxxxxxxxx> wrote:  
>>> stephen@xxxxxxxxxxx said:  
>>>> Randy Poe <poespam-trap@xxxxxxxxxxx> wrote:  
>>>>>  
>>>>> Tony Orlow wrote:  
>>>>>> For any finite value you choose, you can find a larger finite value, which is  
>>>>>> still finite, so being larger than any finite value you can choose does not  
>>>>>> make a number infinite.  
>>>>>>  
>>>>>> What? You just managed to contradict yourself in a single  
>>>>>> sentence.  
>>>>>>  
>>>>>> "For any finite value you choose, you can find a larger finite  
>>>>>> value, which is still finite,"  
>>>>>> (so no finite number is larger than all other finite numbers)  
>>>>>>  
>>>>>> "so being larger than any finite value you can choose does not  
>>>>>> make a number infinite."  
>>>>>> (so some finite number is larger than all other finite numbers)  
>>>>>>  
>>>>>> If this number larger than all other finites isn't infinite,  
>>>>>> and by the first half of your sentence isn't finite, then  
>>>>>> what is it?  
>>>>>>  
>>>>>>  
>>>>>> This is just Tony's quantifer dyslexia. It is  
>>>>>> the most obvious example of his inability to understand  
>>>>>> the order of quantifiers.  
>>>>>>  
>>>>>> He says that if we pick any finite number y, we can  
>>>>>> find a finite number x such that  $x > y$ , therefore x is  
>>>>>> greater than any finite number y. So for example,  
>>>>>> if we pick the finite number 10, we can find a finite  
>>>>>> number 12 such that  $12 > 10$ , and it follows, according  
>>>>>> to Tony's logic, that 12 is greater than any finite  
>>>>>> number.  
>>>>>>>

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>> >> Stephen  
>> >>  
>> > Stephen, you're being a moron. I never said that.  
>>  
>> Yes you did say that. You said  
>> >>>For any finite value you choose, you can find a larger finite value, which is  
>> >>> still finite, so being larger than any finite value you can choose does not  
>> >>> make a number infinite.  
>>  
>> What does that mean? You are equating "being larger than any finite value  
>> you can choose" with "for any finite value you choose, you can find  
>> a larger finite value."  
>>  
>> If you meant something else, what did you mean?  
> I read those as being equivalent, and not meaning "larger than EVERY finite  
> number". you trying to make it look like I said "if for all x there exists y  
> s.t  $y > x$  then there exists y s.t for all x  $y > x$ . I never said that.

Everybody else reads "larger than any finite value you choose"  
as "larger than each and every finite value you choose".  
You have been told this before. I really do not see  
why you interpret "x is larger than any finite y"  
to just mean that "x is larger than some finite y". That  
is not what "any" means.

>>  
>> > I said the opposite, that  
>> > just because you can find a finite greater than any given finite, that greater  
>> > finite is still finite. If one claims that the set size is greater than any  
>> > finite you specify, that does NOT mean it's infinite, since there is always a  
>> > FINITE number greater than any finite you specify.  
>>  
>> You are making the same mistake. If I claim that X is larger than  
>> any finite Y you can specify, then there does not exist a finite  
>> larger than X. This is the exact opposite of the claim that  
>> I can find a finite Y larger than X.  
> No, you are equating "x is larger than any finite I specify" with "x is larger  
> than ALL finite values."

Yes we are, because that is what it means. For any y, x is larger.

> When you state the first, I say that doesn't mean x is  
> infinite, because there is always a larger finite value than any finite value  
> you specify. It doesn't prove that value is infinite, just that it's bigger  
> than any finite you specify.

But you have some strange non-standard interpretation "larger  
than any finite y". If Bob was "stronger than any other man  
on the planet" would you think that there was somebody  
stronger than Bob?

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>> If one claims that the set size is greater than any finite you  
>> specify, then it does mean its infinite. You name a finite  
>> number, and the set size is larger than that. The set size  
>> does not change from guess to guess. That cannot be true  
>> if the set size is a finite number.  
> Except that, for any finite number you specify, there is always a FINITE number  
> greater than it. This is why the largest finite can never be specified. It's  
> larger than any finite you do specify. It's still finite.

Which is why there is no largest finite number, and why  
that a number that is larger than any finite number cannot  
be infinite.

Again, you seem to have some unusual interpretation of  
"x is larger than any finite y". If you want to communicate  
with people you need to learn to use the language correctly.  
In mathematics, "x is larger than any finite y" is equivalent  
to "x is larger than every finite y". As far as I can see,  
they are equivalent in everyday English. Can you provide  
an example from everyday English where "x is blah than any y"  
means something different than "x is blah than every y"?  
The one ambiguity that pops up in everyday English is that  
"every" can mean a collective. Is that the source of the  
confusion?

>>

>> > I don't need you mal-  
>> > paraphrasing what I've said, thank you. You are obviously not an authority on  
>> > what I've said, since you are obviously not paying very close attention to what  
>> > it is I say. So, I'll thank you to stop trying to make my position look stupid.  
>> > It reflects more on you than on me.  
>>  
>> I am paying attention to the words you actually use. You  
>> apparently to do not know what the words you use mean.  
> I do but you don't seem to.

You are wrong about what "x is larger than any y" means.

>>

>> If X is greater than any finite number, then X cannot be  
>> finite. You claim this is false, but your argument only  
>> makes sense if you change the orders of the quantifiers.  
> No, if you say "x is greater than EVERY finite number", THEN it's infinite.  
> But, for any finite number, there is a greater finite number, which is NOT  
> infinite. It is you who are confusing your existential and universal  
> quantifiers, not I.

The two sentences mean the same thing.

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>> When we say that X is greater than any finite number Y,  
>> we mean that for any finite number Y you specify,  $X > Y$ .  
>> We do not change what X is everytime you pick a new Y.  
>> X is chosen first, and it does not change, and it is  
>> greater than every Y.

> Let's look at Randy's original statement:

>>> We would like to characterize the size of the set of finite  
>>> naturals. It is pretty clear that no finite value can serve  
>>> as that size, that whatever the size is, it's bigger than  
>>> any finite value you choose.  
> This is equivalent to saying, for any specific finite x, the set size y is  
> larger than x. If the statement were that the set size is larger than EVERY  
> finite value, then it would be equivalent to saying it's infinite. However, it  
> says something slightly different.

Not according to anybody else.

> Given any finite number, the set size is  
> larger than that number. I am saying that this statement is of the same form as  
> the statement that, given any finite number, there is a finite number that is  
> greater. If, for any finite number there is a greater finite number, then being  
> larger than any given finite number does not mean it's infinite. After all, the  
> largest finite is larger than any finite you can specify, and yet finite, and  
> this IS the set size.

But they are not the same. And there is no largest finite.  
Tony you are just being stupid at this point.

Look, for any y I can find an x larger than y.  
For example if  $y=5$ , then  $x=10$  is larger than y.  
It is utterly perverse however to claim that 10 is larger than  
any y. It is larger than the specific value of y we chose,  
but 5 is not "any y", is a particularly value.

The closest sensible thing I can think of for your interpretation  
of "x is larger than any y" is "x is larger than a y".  
The two sentences mean different things.

>>

>> When we say that for any finite Y there is a finite X greater  
>> than Y, we can choose a new X for each Y. You say what  
>> why is, and then we pick an X that is greater than Y.  
>> There is no single X that is greater than any Y. X  
>> is a function of Y.  
> The size is also not greater than every finite element in the set. It is equal  
> to one of them.

Forget about the size. I am just talking about what the phrase

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"x is larger than any finite y"  
means. You are reading that phrase in a very non-standard  
fashion that contradicts the way it is used in mathematics  
and in normal English.

>>

>> It might help you if you "Skolemize" the formulas.

>> 'for any finite Y there is a finite X greater than Y'

>> would become something like

>> 'there exists a function f such that for any finite Y

>> f(Y) is finite and f(Y)>Y'

>> This might help you from continually making the mistake

>> of thinkg that there is a single entity X that is greater

>> than any Y.

> Ummmm, isn't that what YOU are saying, when you say the set size is larger than

> any/every finite natural? Isn't X your set size?

We are saying that the set size is larger than any finite number.  
There is a single set size, and it is larger than any finite number.

In other words,

"X is larger than any finite Y".

I know you think that means something else, but you  
are simply wrong.

You are claiming that

a) "for any finite Y there exists a finite X larger than Y"  
is equivalent to

b) "there exists a finite X such that for any finite Y  
X is larger than Y".

It is not. Reread my advice to you. a) can be written as  
"there exists a function f such that for any finite Y  
f(Y) is finite and larger than Y"

It cannot be written as

"there exists a finite X such that for any finite Y  
X is larger than Y".

Stephen

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• *Follow-Ups:*

◆ ***Re: infinity***

◇ *From:* Tony Orlow

◆ ***Re: infinity***

◇ *From:* stephen

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- **References:**

- ◆ **Re: infinity**

- ◆ *From:* Jonathan Hoyle

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