

# Re: abundance of irrationals!)

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- *From:* [mueckenh@xxxxxxxxxxxxxxxxxxxxx](mailto:mueckenh@xxxxxxxxxxxxxxxxxxxxx)
  - *Date:* 5 May 2005 13:46:08 -0700
- 

Virgil wrote:

- > > It is not a matter of understanding, but a matter of contradiction.
- >
- > WE have a number of axiom systems, such as the Zermelo-Frankel system,
- > in which infinite sets are REQUIRED by the axioms.

The axiom requires  $n+1$  for given  $n$ . That means  $A_n E_m$  with  $n < m$ . It does not require  $E_m A_n$   $n < m$ .

- > > 0. a b c ...
- > > 1 2 3
- > >
- > > The digit-positions of my listed numbers are enumerated by natural
- > > numbers. Can you find a number  $n \in \mathbb{N}$  which does not enumerate a
- > > digit-position? No. So *every* natural number enumerates a digit
- > > position. Two cases are conceivable:
- > > Either there are not infinitely many natural numbers, then there are
- > > not infinitely many digits.
- >
- > I can conceive of "infinitely many" natural numbers, each marking the
- >
- > last digit of one of your listed numbers, and none of your listed
- > numbers having more that finitely many non-zero digits.

Don't blather! Tell me one (1) digit of any real number  $r \in (0,1)$  which cannot be found in my list. Then claim it incomplete.

I can ask for that number  $n \in \mathbb{N}$  which is sufficient to have all digits of  $\sqrt{2}$  determined. How many digits are necessary to distinguish the number  $1/\sqrt{2}$  from each other real number? Is it not in my list because no one can answer that question. But it is given here: 0.7071... ???

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- >> Or there are infinitely many natural numbers, then there are infinitely
- >> many digit positions.
- >
- > There are infinitely many digit positions possible, but in WM's list,
  
- > each listed number uses only finitely many of them.

The great many comes at later positions.

- >
- > If this were not so, WM would be able to point to one which needs
- > infinitely many decimal places.

No. Nobody can point to such a number in binary or decimal representation. But in my list, I avoid the mistake of intermingling partial sums and limits. All partial sums are written down separately. I can tell you the position of every partial sum. You believe that such a series incorporates its limit by definition. Therefore, these limits are in my list. Wow, a list containing all reals of (0,1), well ordered and shown countable.

- >
- > Claims of existence, such as WM keeps making, require proofs. The most
- > direct proof of existence is to produce one of the things alleged to
- > exist.

Every serious mathematician will consider a number existing, if I can tell him the position of any digit he may ask for.

- > Does WM dispute this and claim there is an nth number in his list
  
- > requiring more than n decimal places? Again, let him produce such an n
- > and its corresponding number.

Of course, these numbers are written down somewhat later.

- >>
- >> Further I understand that Cantor exchanged the quantifiers, to obtain,
- >> from what today is called axiom of infinity or induction or
- >> Archimedean, grossly
- >>  $\exists n \forall m : n < m$ ,
- >> his
- >>  $\forall m \exists n : n < m$
- >> with m called aleph\_0.
- >> A typical quantifier mismatch.
- >
- > That is entirely WM's mishmash, and none of Cantor's.

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> Cantor NEVER claims that  $\aleph_0$  is a member of  $\mathbb{N}$ , that falsehood is  
> entirely WM's.

I did never claim that above  $m$  called  $\aleph_0$  is a member of  $\mathbb{N}$ . It is a  
whole number, according to Cantor. However, the axiom gives only  $\exists n < m$  :

>

>> And all of you who accused me to do so, all of you don't realize  
that.

>

> We realize that what ever you think you are talking about is riddled  
> with internal contradictions, but what we are talking about has been  
> examined by experts for decades without finding any internal  
> contradictions.

The fault is to believe that experts had examined that. Why should they  
examine such an "obvious" fact? Experts have said the earth it at rest,  
for 2000 years.

Regards, WM

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• *Follow-Ups:*

◆ **Re: abundance of irrationals!)**

◇ *From:* Virgil

• *References:*

◆ **Re: abundance of irrationals!)**

◇ *From:* W. Mueckenheim

◆ **Re: abundance of irrationals!)**

◇ *From:* Randy Poe

◆ **Re: abundance of irrationals!)**

◇ *From:* mueckenh

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