Re: abundance of irrationals!)

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- *From*: mueckenh@xxxxxxxxxxxxxxxxx (W. Mueckenheim)
- *Date*: 16 Apr 2005 03:12:24 −0700

Virgil − WM

The large number of contributions is welcome, but forces me to put
some together.

WM:
Not in that sum which stretches over all n.

V:
That "sum" is exactly like that excessively fecund woman who is every
man's mother, it does not exist.
Folgetext zu diesem Beitrag schreiben

WM:
Your example is completely missing the point (as usual), i.e. the SUM
in a linearly ordered set.
Form the (converging) SUM a_k over k = 1 to n.
Do this for every finite n, without leaving out any.
This implies that one of the sums includes all n e N.

If you disagree, tell me which n is left out.

V:
Nobody is saying that the number yoou create is not a real.

What we are saying is that any number with infinitely many 1s in it
created from a list in which each number has only finitely many 1s in
it
is not in the list. Which shows that your list is not a surjection
from
N to R.

WM
The digits of diagonal and bottom of each finite triangle

1
11
111

give the value diagonal / bottom = 1. Should this become false in "the infinite". Further, do you see that every 1 of the diagonal stems from a line?

There is no need for the limit os a convergent sequence of partial sums
to appear in the sequence itself. So the question is irrelevant.

WM:
It is exactly the same as with my number 0.111... which does neither appear in a line nor on the diagonal.

V:
If a given list is already known not to be surjective, no more is needed.

It is only for lists not initially known not to be surjective that anything more is needed.

WM:
Cantor's assertion does not refer to a particular list but to all lists.
Try to think better.

V:
But each and every sum_to_n omits infinitely many terms of the "infinite" sequence. Since every one omits infinitely many terms, they all omit infinitely many terms.

WM:
Therefore you must include all n > n_0.

V:
Not I.

WM:
Which one can be left out?

> 0.444...
> 0.2444...
> 0.224444...
> 0.222444...
> ...

V:
Since every number in the list you propose has only finitely many 2s

as
place values but has more than any finite number of 4s, then a number with no 4s and having more than any finite number of 2s is not in the list.

If there are no lines supplying ALL digits of the diagonal (each line one digit) then the diagonal cannot exist.

V:
So the Cantor costruction works for that list, as it does for every list.

WM:
By construction, it does not.

V:
What do you mean by "the other way around"?

WM:
First you take an epsilon, then you choose n_0.

> But the n do not depend on
> eps. The inequality must be shown for every n > n_0.

V:
And for each n the infinitely many terms beyond n are all omitted.

WM:
Which is omitted in every case?

V:
In every finite summation (of n terms), infinitely many terms MUST be omitted.

WM:
Which n is omitted n every case?

V:
And in every finite summation (of n terms), infinitely many terms MUST be omitted.

WM:
Which n is omitted n every case?

V:
You are arguing that since every man has a mother that every man must have the same mother.

WM:
Your example is missing the point, i.e. the SUM in a linearly ordered set.

Form the (converging) SUM a_k over k = 1 to n.
Do this for every finite n, without leaving out any.
This implies that one of the sums includes all n e N.

If you disagree, tell me which n is left out.

Regards, WM

V:
If you must have usefulness, of what use is a baby?

WM:
Natural numbers enumerate. If you are unable to say which of two comes first, you cannot enumerate by them. They are no numbers.

V:
For example, if one knows that the nth term of a series is always in
[0,
1/n^2] then one knows that the sequence of partial sums has a limit,
though one may be totally unable to "ennumerate" it by finding its
exact
value.

WM:
But the enumeration of the digits is impossible. 0.111... = 1/9 has, therefore, not only enumerated digits. But Cantor's lines are enumerated.

Regards, WM
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