Re: Cantor Confusion

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- *From*: Virgil <virgil@xxxxxxxxxxx>
- *Date*: Fri, 30 Mar 2007 13:07:15 −0600

In article <1175261756.864645.326740@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
mueckenh@xxxxxxxxxxxxxxxxx wrote:

> On 30 Mrz., 05:14, "Dik T. Winter" <Dik.Win...@xxxxxx> wrote:
>
>> Yes, because you can revert finite sequences without consequence. You
>> do not even need convergence for that.
>
> And if the series is absolutely converging, then you can exchange all
> terms you like. The result is independent of the order.

But only if the result is an infinite sequence with terms indexable by,
and therefore ordered by, the naturals.

>> But in mathematics sequences
>> are defined as having a first element. On the other hand, I wonder how
>> you prove that the series of interchanges on the initial sequence lead
>> to your final "sequence".
>
> It is the same as Cantor's "proof" that he gets ready.

The transposition of the first and second terms of a sequence followed
by the transposition of the first and third produces a different result
than the transposition of the first and third followed by the
transposition of the first and second.

abc −> bac −> cab versus abc −> cba −> bca

Thus the order of application of transpositions makes a difference.

The replacement of members of a sequence by a rule depending only on the value and not position of the member being replaced is independent of the order of operations. let the rule be to replace any lower case letter by its upper case equivalent.

abc−> Abc −> ABc −> ABC is the same as abc −> abC −> AbC −> ABC even though the operations were differently ordered.

So the Cantor rule for building an antidiagonal for a list of binary sequences can be applied independently to different digits whereas WM's sequence of transpositions depends on the order of application, at lest if any two transpositions involve the same index position.

So that WM's theories are, as usual, based on assumptions contrary to fact.

You cannot say: "there is a real number that is not in the complete list" unless you have searched the complete list.

In a sequence of binary strings, if one can say of some given string that it differs from each member of the sequence in at least one index position, then one can say that the given string is not in the sequence.

The Cantor rule shows that there exists just such a string.

You are wrong here. And what you state is *not* a definition. Pray start to distinguish "definition" from "theorem".

That distinction depends on the axioms chosen. It is not absolute.

Then give us a system of axioms in which what you allege becomes only a definition and not a theorem.

We have given you systems in which it is false.

> >
> > Why should I? To perform the n−th exchange in Cantor's process you do
> > *not* have to do the first n−1 preceding exchanges first.
>
> How would you know which element the n−th element is.

By putting n in the mapping given.

The mapping given includes and requires the counting.

But does not require that one do the exchange for any m < n before doing the exchange for n.

For each n, we can count to n and do the exchange for that n independently of having done, or not done, the same for any other n.

Why WM insists that we have to replace the digit in position n before working on position n+1, is not apparent, as it is not the case.

On the other hand, the same independence of order of application does NOT hold for two transpositions where the same index is involved in both.

> Therefore we know that only countably many are there.

A proof, please, for once.

Every separation takes place at a separation point.

Does WM claim that P(N), the power set of N, is countable?
Does WM dispute the bijection between paths and members of P(N)?

Since both or these are eminently provable in ZF and NBG, and no doubt most other set theories, WM has a hard row to hoe.

No separation

takes place at any other point. There are only countably many separation points. And there is only one initial separate path.

Regards, WM

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