Re: Cantor Confusion

Source: http://sci.tech−archive.net/Archive/sci.math/2007−04/msg00057.html

- *From*: mueckenh@xxxxxxxxxxxxxxxxx
- *Date*: 1 Apr 2007 01:04:34 −0700

On 30 Mrz., 21:07, Virgil <vir...@xxxxxxxxxxx> wrote:

> In article <1175261756.864645.326...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
>
> mueck...@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.

Every countable sequence can be indexed the naturals. In my application here is no problem.

>>> 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.

That is not a problem at all. We can work like the cleaning service of Hilbert hotel: For the first sequence of transposition use half an hour, for the second sequence use quarter an hour and so on.

> 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

Nevertheless it cannot be applied to the n−th digit unless the positions 1 to n−1 are known. Because otherwise position n is unknown. This may be masked, for small n, by your knowledge acquired at school but it will become manifest at larger n.

Regards, WM

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