

Re: Is continuum completely filled up?

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If all infinite decimals have distinct value, why is it that $0.999... = 1$, because all numbers have the same right? We can not know whether irrationals have distinct value or not.

It seems like that rationals don't fill a line. Can we say that irrationals are the limit of rationals? In traditional set theory, infinite set of naturals exist, but infinite size of natural number doesn't exist.

Infinite number of rationals exist, but rational number which have infinitely long unit of random digits doesn't exist. The unit of repetition is finite, and its size can be regarded as natural number.

The circumstances is the same as that naturals have infinite member, but don't have infinite size of member.

Naturals and rationals are partially treated, but reals are not.

Can we compare their amount in this condition? Line cannot be filled only by rationals, therefore we must assume that it is filled with reals already.

Digits of decimals don't have the least. Then what decide their value?

Geometrically square root 2 has definite position on coordinate.

Square root 2 is proven not to be rational number. In finite condition, reals > rationals > naturals are clearly distinguished. But if the unit of repetition become large unlimitedly, where is boundary between reals and rationals?

If a sequence of rationals and its limit is infinitely apart (as the explanation of zeno), there is a gap between them. If a sequence is smoothly

changed and connected to the limit, probably we can choose out them individually. But is it possible that a sequence smoothly translate to the limit?

The unit of repetition become large limitlessly like naturals.

Is it possible to cut off omega from infinite sequence of naturals, like to remove a point from a line? Omega - 1 is not natural number, and there are no natural number which becomes omega by adding 1.

Then why naturals is infinite? If one accept N being infinite, then should omega be included in N too? And the boundary between rationals and reals would be lost.

We don't need to take in account of uncomputable numbers, because we don't need to consider reals to be uncountable. It doesn't matter whether we assume them or not.

The existence of diagonal number in the proof of Cantor shows that reals are uncomputable except those which can be listed.

..Moreover when line is constructed only with computable number, I assume

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that they cannot be distinguishable at the limit of decreasing distance.
And when we think reals in this way, the explanation about that $0.999... = 1$
is easy.

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