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[1 paradox]Why 0.999... is not equal to 1?

Written in 2012

The current mathematic theory tells us, $1 > 0.9$, $1 > 0.99$, $1 > 0.999$, ..., but at last it says $1 = 0.999...$, a negation of itself (Proof $0.999... = 1$: $1/9 = 0.111...$, $1/9 \times 9 = 1$, $0.111... \times 9 = 0.999...$, so $1 = 0.999...$). So it is totally a paradox, name it as **【1 paradox】**. You see this is a mathematic problem at first, actually it is a philosophic problem. Then we can resolve it. Because math is an incomplete theory, only philosophy could be a complete one. The answer is that 0.999... is not equal to 1. Because of these reasons:

1. The infinite world and finite world.

We live in one world but made up of two parts: the infinite part and the finite part. But we develop our mathematic system based on the finite part, because we never entered into the infinite part. Your attention, God is in it.

0.999... is a number in the infinite world, but 1 is a number in the finite world. For example, 1 represents an apple. But then 0.999...? We don't know. That is to say, we can't use a number in the infinite world to plus a number in the finite world. For example, an apple plus an apple, we say it is $1+1=2$, we get two apples, but if it is an apple plus a banana, we only can say we get two fruits. The key problem is we don't know what is 0.999..., we can get nothing. So we can't say $9+0.999...=9.999...$ or 10, etc.

We can use "infinite world" and "finite world" to resolve some of zeno's paradox, too.

2. $\lim 0.999... = 1$, not $0.999... = 1$.

3. The indeterminate principle.

Because of the indeterminate principle, $1/9$ is not equal to $0.111...$

For example, cut an apple into nine equal parts, then every part of it is $1/9$. But if you use different measure tools to measure the volume of every part, it is indeterminate. That is to say, you may find the volume could not exactly be $0.111...$, but it would be 0.123 , 0.1142 , or 0.11425 , etc.

Now we end a biggest mathematical crisis. But most important is this standpoint tells us, our world is only a sample from a sample space. When you realized this, and that the current probability theory is wrong, when you find the Meta-sample-space, you would be able to create a real AI-system. It will indicate that there must be one God-system in the system, which is the controller. Look our world, there must be one God, as for us, only some robots. Maybe we are in a God's game, WHO KNOWS?

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