

Re: Mathematicians are in deep shit for 2 reasons

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- *From:* Rupert <rupertmccallum@xxxxxxxx>
 - *Date:* Sat, 19 Apr 2008 19:36:54 -0700 (PDT)
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On Apr 20, 9:14 am, "elsiemelsi" <cyprin...@xxxxxxxxxxxxxxxx> wrote:

rupert says

And I gave you a patient, detailed explanation of exactly what you have to do to finish off the argument, to show that it actually **is** a contradiction. I suggest you go back and read it.

I asked you to prove that the Skolem paradox is

i say

lets take subers account

<http://www.earlham.edu/~peters/courses/logsys/low-skol.htm>

This strange situation is not hypothetical. There are systems of set theory (or number theory or predicate logic) that contain a theorem which asserts in the intended interpretation that the cardinality of the real numbers exceeds the cardinality of the naturals. That's good, because it's true.

Such systems therefore say that the cardinality of the reals is uncountable. So the cardinality of the reals must really be uncountable in all the models of the system, for a model is an interpretation in which the theorems come out true (for that interpretation).

Now one would think that if theorems about uncountable cardinalities are true for a model, then the domain of the model must have uncountably many members.

"One would think". But it is not actually true. And I explained why.

HERE IS THE CONTRADICTION

Re: Mathematicians are in deep shit for 2 reasons

But LST says this is not so. Even these systems, if they have models at all, have at least one countable model.

HERE IS THE CONTRADICTION

So the cardinality of the reals must really be uncountable in all the models of the system, but [in contradiction]these systems, if they have models at all, have at least one countable model.

AND YOUR SKOLEM RELATIVISM

IS NOT ACCEPTED AS A SOLUTION OF THAT CONTRADICTION

It *is* the correct solution in the sense that it shows why ZFC has not been proved to be inconsistent. The philosophical consequences of such relativism are another matter. It is perfectly fine to discuss those. They have nothing to do with the issue of whether ZFC is inconsistent. They are to do with the question of whether we have a philosophically acceptable view of the semantics of set theory.

It is time to retract your claim that ZFC has been proved to be inconsistent. Until you do, I'll just keep repeating:

I asked you to prove the Skolem paradox is a contradiction.

Please do so, or shut up.

But moving on...

AS IT GUTS SET THEORY

IE

This means that there simply are no sets whose cardinality is absolutely uncountable. For many, this view guts set theory, arithmetic, and analysis.

One *might* entertain a worldview on which there are no sets whose cardinality is absolutely uncountable. There is nothing in the Skolem paradox that *compels* us to do so. If Peter Suber thinks there is, it's your job to explain why.

Then we can have a conversation.

But note: This has nothing to do with the issue of whether ZFC has been proved to be inconsistent. ZFC has not been proved to be

Re: Mathematicians are in deep shit for 2 reasons

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inconsistent. No competent person thinks it has. It is time to retract your claim that it has. Until you do, I'll just keep repeating:

I asked you to prove the Skolem paradox is a contradiction.

Please do so, or shut up.

It is also clearly incompatible with mathematical Platonism which holds that the real numbers exist, and are really uncountable, independently of what can be proved about them.

This is also wrong. Suppose we decide to have a worldview on which no sets are absolutely uncountable. There is no reason why such a view should not be called "Platonist". There is no reason to think that the belief that the real numbers are really uncountable is essential to Platonism.

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