

## Re: Cantor's diagonal proof wrong?

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**From:** Curt Welch ([curt\\_at\\_kcwc.com](mailto:curt_at_kcwc.com))

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trimble1@optonline.net (Todd Trimble) wrote:

> *On 20 Nov 2004, Curt Welch wrote:*

> *I've said it before; I'll say it again: your objections are*

> *philosophical, not mathematical. Yes, the problem is \*language\*;*

Yeah, that's right on the money. I see that now. I was confused because the problem didn't show up in math as a problem until you got all the way through all the lower level math and started working on this infinite set issue. It seemed logical to me that if the problem happened here, that's where I would find the break in logic.

But in fact, the problem is buried deep down in the language. It just doesn't produce any differences until you start to play infinity in the right (or wrong) way. So it's taken me some time to trace the contradiction down to the definition of math (which actually is where from other things I already knew it was but it's just taken me a few days to see the obvious).

> *<Sigh> Well, that's why we have formal languages in mathematics,*  
> *so that such philosophical issues, interesting though they may be,*  
> *are beside the point in deciding validity of mathematical arguments.*  
> *But to argue in an intelligent and informed manner about this,*  
> *one has to understand formal deductions in a logical calculus*  
> *(e.g., Gentzen sequent calculus), and I don't believe you've*  
> *quite come to grips with this (your great strides in the past*  
> *few days notwithstanding).*

Yeah, I've seen many web pages referencing all sorts of complex work in the various types of logical calculus such as the different orders, and more names and theorems than I can remember. I chuckle when other people post in this thread that it's all so "simple" that I should be able to master it in seconds. :) There's lots of language there that I need to master before I really will understand the history and depth of what has been explored in the past 100 years.

> *One can represent relational (and in particular functional)*  
> *composition by a first-order formula such as*

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>

> *Exists\_{y}*  $R(x, y) \ \& \ S(y, z)$

I think that alone shows where problems starts. It's the understanding of what "exists" means. In my universe, NOTHING can EXIST without a processes being involved to bring