Re: Cantor's diagonal proof wrong?

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From: W. Mueckenheim (*mueckenh_at_rz.fh−augsburg.de*)
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reinhard.neuwirth@optus.com.au (Reinhard) wrote in message
news:<ce3c181d.0411262138.7d988d6@posting.google.com>...
> curt@kcwc.com (Curt Welch) wrote in message news:<20041114013915.877$0a@newsreader.com>...

Curt, This should be an easy one for you, then. I give you the
> (irrational) real 0.1 2 3 4 5 6 7 8 9 10 11 12 13 14... which is
> constructed by concatanating all the integers after the decimal point,
> ad infinitem. I firstly appeal to you to recognise that the length of
> that (irrational) real is the kind of infinity you said you are
> familiar with and which you accept. Secondly I appeal to you to
> recognise that this is indeed an irrational, the recipe (algorithm) of
> its construction ensures there is no repetition anywhere after the
> decimal point (this can be proven rigorously but I don't think we need
> to bother). Being an irrational I would now kindly ask you to write
> this real down in your reverse fashion. What is the first digit?
> Another example, there are algorithms for the construction of Pi =
> 3.14159... ad infinitum, non repeating, truly irrational, but cannot
> be as easily proven as the number stated above.

Excuse me, could you tell me whether the digit number 10^10^100 of pi
(or of your number given above) is an even one or an odd one? Do you
believe such a number to exist, although no one will ever be able to
answer this question?
> At one
> stage I grasped 'infinity' as a serious of steps, which I could choose
> to let never end (as a mind game), and I have since been perfectly at
> ease with Peano's axioms and inductive reasoning,

That is the so−called potential infinity, which marks a direction, but
never causes us to leave the finite domain.

> > Lets create a table of integers like this:
> >
> > ...000000
> > ...000001
> > ...000002
> >
> > ...000010

> >
> > *...000123*
> >
> > *It's just a normal list of integers, but instead of following the normal*
> > *convention of leaving off the leading zeros (which we all know are implied*
> > *even if we don't write them) I include them in that table.*

Your ideas are perfectly reasonable, if you add the remark that an infinite sequence of digits (which would not form a natural number) could only emerge from a list with at least one line enumerated by omega or infinity. All other numbers are natural numbers and, hence, are finite. But in a line enumerated by omega, also Cantor could not find and exchange the diagonal element. Thís very idea of the diagonal of the naturals can be found in my preprint arxiv.org/abs/math.GM/0305310

> >
> > *So lets use Cantor's logic on this table and see if we can construct a*
> > *number which is not in the table. We take the numbers from the diagonal,*
> > *and construct the number ...111111 just like we did above.*
> >
> > *Since we construct this number by changing a digit from every row, we know,*
> > *by Cantor's logic, that the resulting number can not be in the table.*
> > *Therefore, with the wisdom of Cantor, I've proved that the number of*
> > *integers is greater than the number of integers. There are some integers*
> > *which are simply not in the list of all integers.*
> >
> > *Ok, so if Cantor was wrong, why was he wrong?*
> >
> > *The answer is one already well known to mathematicians. They just never*
> > *realized how it applied here. You can't use infinity as if it existed. It*
> > *doesn't exist. "infinity" is only a name for something which can not*
> > *exist.*

In particular actual infinity, the same as "finished infinity", is obviously a contradiction.

> > *Has any one else put forth this same argument (or others) that Cantor's*
> > *proof is invalid?*

Here are some other preprints: arxiv.org/abs/math.GM/0408089 arxiv.org/abs/math.GM/0403238

Regards, WM