

Re: Cantor Confusion

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- *From:* "Dik T. Winter" <Dik.Winter@xxxxxx>
 - *Date:* Sun, 26 Nov 2006 03:32:30 GMT
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In article <962hm2tg9dqirfmerue74rasendvcggoll@xxxxxx> Lester Zick <dontbother@xxxxxxxxxxxx> writes:

On Sat, 25 Nov 2006 03:12:20 GMT, "Dik T. Winter" <Dik.Winter@xxxxxx> wrote:

....

You completely misunderstand what I wrote. I *start* with an Euclidean plane without measure (i.e. distance function). With that we can at most define a rectangle. Neither a square, nor a circle.

Actually I think I understand you very well. How is it exactly you start with a Euclidean plane?

The plane as defined by Euclides. With all his axioms (or postulates).

The fact that you start without a distance measure doesn't allow you to start with a plane Euclidean or otherwise.

Why not? Euclides did not have a distance function either.

If you begin by assuming this you wind up by assuming that and pretty soon you find yourself assuming what you were supposed to demonstrate in the first place, that square circles are conceivable.

Well the latter was not an assumption. There was an explicit question.

I do not use Euclidean metric at all. Where, above, do I use Euclidean metric?

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I suspect we're using the phrase "Euclidean metric" in different ways. When I use the term I'm referring not just to measures of distance but to all definitive characteristics which go into definitions of such things as dimensionality and geometric figures in addition to distance measures.

In that case you are using quite non-standard terminology.

For example I see no definition of yours for "plane" which I think would be impossible to define without a Euclidean metric.

See Euclides' postulates.

On the other hand if all you're describing are variable measures of distance then you'd have to explain how you obtain those measures without an underlying Euclidean metric and corresponding assumptions. You can't just assume them as modern mathematicians are wont to do.

You read more in the word "metric" than is in there.

For example is it possible to define plane squares with non Euclidean metrics?

Of course.

Well then let's see some definitions for planes, circles, and squares which don't explicitly or implicitly rely on Euclidean assumptions.

Now you require that without assumptions rather than metrics... That is something completely different. Let us recap the Euclidean postulates:

- (1) Two points determine a line
- (2) Any line segment can be extended in a straight line as far as desired, in either direction
- (3) Given any length and any point, a circle can be drawn having the length as radius and that point as center
- (4) All right angles are congruent
- (5) The parallel postulate

Now, that is precisely what I did use (after translation to analytical geometry).

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And can we define right angles without the parallel postulate
people simply ellide when operating with non Euclidean
geometries? No.

I think you can. But I used Euclidean geometry above.

But the problem here is what kind of definition for squares doesn't
rely on straight lines, right angles, planes, and so on?

See above, postulate (4).

When I
ask a question such as "why are square circles unimaginable"
the
defining metric for "squares" and "circles" is Euclidean and
not
Manhattan and I don't expect answers that if we look at
Euclidean
figures through some other metric we'll find they are
imaginable.

In that case you should use better formulations in your questions.

And you should use better formulations in your answers.

How could I give a better formulation than stating that in the Manhattan
measure it is possible? I did state that explicitly, while you did not
state that you did use Euclidian measure.

And
when I follow-up to point out that in the Manhattan measure all circles
are squares (but not the other way around) you should state that your
formulation was insufficient.

Except that your answer relies on non Euclidean assumptions that
circles are squares.

No. I show that with a particular measure all circles are squares. There
is no assumption.

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If I ask why one sided quadrangles are unimaginable and you reply that they aren't if you start counting from four would you consider your answer responsive to the question asked?

You are using a few words that you did not define, and again using some assumptions. Quadrangle I can understand. What is one-sided? Does it mean that the top side is different from the bottom side? In that case I can show you quadrangles on a Moebius strip that have only one side. On the other hand, I think you are referring to the edges. In that case, in topology a connected set (as a quadrangle is) has a single boundary.

All you're doing is answering a question that wasn't asked in terms employed by the original question.

The terms employed by the original question did not refer to Euclidean metric. So my answer was valid.

I can make up private definitions just like everyone else does but that doesn't make definitions true.

A definition can not be false. It can be the case that there is nothing (within the current context) that satisfies the definition, but it is still not false.

In fact my personal favorite private definition for distance metrics is one I made up for the real number line which runs 1, 2, e, 3, pi, 4, 5, . . . but I don't try to pretend that when I'm trying to analyze real numbers that that is a true definition.

That is not enough for a definition.

Besides as far as I can tell you still haven't answered my question as to whether there are any curves at all with the Manhattan measure. In fact I can't even find it reprinted above.

Pray define "curve".

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