

Re: Cantor Confusion

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Newberry wrote:

paths edges
 level 1: 2 = 2¹ 2
 level 2: 4 = 2² 6
 level 3: 8 = 2³ 14

level n: 2ⁿ (not sure what the formula is)

Does the ratio edges/paths converge to 2 for n --> infinity?

Yes, as WM is fond of repeating ad nauseum.

It certainly makes it highly counterintuitive that there are more paths than edges although I do not know if it generates a flat contradiction.

Yes, it is counterintuitive (depending on your intuition). No, there is no contradiction. You can't take limits without justification. Here is a nice fallacy of WM's from page 5 of <http://www.arxiv.org/pdf/math.GM/0403238>: Group the natural numbers greater than 1 as follows.

(2) (3 4) (5 6 7 8) ...

If we number the groups starting with zero, then there are 2ⁿ numbers in group n. So, for finite n, we must have

$$|N| \geq |\text{group } n| = 2^n.$$

Now, let n go to infinity to get

$$\aleph_0 \geq 2^{\aleph_0}.$$

—
David Marcus