Re: ** says: Definition: sum{i in N} i = 0

Source: http://sci.tech−archive.net/Archive/sci.math/2007−06/msg05361.html

- *From*: WM <mueckenh@xxxxxxxxxxxxxxxxx>
- *Date*: Fri, 29 Jun 2007 04:36:04 −0700

On 28 Jun., 19:42, Virgil <vir...@xxxxxxxxxxx> wrote:

> Does WM deny that for every finite binary tree in which all paths are of equal length that there is a different path for every subset of the set of all non−terminal levels defined by having for every set of levels a path branching left from those levels and right from every other level?
>
> I.e., Does WM deny that for such finite trees there is a bijection between the power set of the set of non−terminal levels and the set of paths?

What has this assumption to do with the following proof according to which there are not more such distinguishable subsets than natural numbers?

1−1+1−1+1−1+−... = oo (*)

can be defined, then it is of no use to continue this discussion at all. If however you can follow my arguing that this sum without any further definition can be restricted to

−2 < 1−1+1−1+1−1+−... < 2

then you cannot maintain set theory, as the binary tree given below shows. This means: belief in set theory forces belief in such equations as (*). I refer to drop such belief.

Let [x] = n <= x such that n + 1 > x, i.e. n is the largest integer <= x.
Let]x[= n >= x such that n − 1 < x, i.e. n is the smallest integer

> = x.

n in N, x in R.

```
|0 0.
| / \
|1 0 1
| / \ / \
|2 0 1 0 1
| /\ /\ /\ /\
v x
```

At height x the number of nodes is K(x) = 2^[x+1] − 1.
At height x the number of separated path bunches is P(x) = 2^]x[.

In height x the quotient q(x) = P(x)/K(x) = (2^]x[) / (2^[x+1] − 1)

In the whole tree we can calculate two limit points, namely 1/2 and 1.
For every epsilon > 0 we can find an n_0 such that for x > n_0 there
is no q(x) outside of the interval (0, 3/2). That means: There is a
correct mathematical proof that the number of different path−bunches
including the number of path existing in the whole infinite tree is
never larger than twice the number of nodes.

P/K = lim_{x −−> oo} (2^]x[) / (2^[x+1] − 1) < 2.

> And why does WM argue that such a correspondence should suddenly fail
> when the tree becomes infinite, when it clearly does not.

Because calculating the infinite does unavoidably fail. You can see it
by simple examples:
n + n = 2n for every finite number n. But oo + oo = oo or 2oo or 3oo
or even 0 (according to Dik T. Winter).
So it is small wonder that different results can be obtained in the
matter of infinite sets and their power sets.

And now repeat, like a broken record, your saying which we all know.

Regards, WM

.