Re: Is the empty set a number?

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- *From*: jonas.thornvall@xxxxxxxxxxx
- *Date*: Wed, 9 Apr 2008 20:25:21 −0700 (PDT)

On 10 Apr, 04:48, jonas.thornv...@xxxxxxxxxxx wrote:

> On 9 Apr, 00:05, lwal...@xxxxxxxxx wrote:
>
> > > On Apr 7, 2:26 pm, jonas.thornv...@xxxxxxxxxxx wrote:.
> > >
> > > > Can you tell me if two empty sets equals one empty set i would be
> > > > greatful for an answer.
> > >
> > > By the Axiom of Extensionality in ZFC, all empty sets are equal.
> > >
> > > It appears that the OP has one of two concerns:
> > >
> > > 1. Is zero really a number?
> > > 2. Is the empty set really a set?
> > >
> > > And these two questions have distinct answers.
> > >
> > > 1. Many of the others have already discussed to which objects
> > > we assign the property of numberhood in this thread. But the
> > > bottom line is that any ring must have an additive identity,

> and that element is zero. Indeed, every semigroup can be made into a monoid by simply attaching such a neutral element.
>
> To standard mathematicians, the unqualified word "number" refers to an element of C, the set of complex numbers. Thus zero is a number since 0eC.
>
> One might ask what the set of all numbers is to the OP. If we let J (for Jonas) be the set of all numbers that the OP accepts, then clearly J is a proper subset of C, since 0eC but yet ~0eJ.
>
> So what numbers are in J? I doubt that the OP accepts the existence of negative numbers, since then one would have to wonder what −1+1 is.

Well that would be dent to no accept negative numbers of course i do. What i say is that the result from the transaction 1−1 is not a number, and that is quite another issue. If you accept this and build your numbersystem and architecture supporting this. You do not have to think about division by zero. And it still will give perfectly valid result for any calculation.

> Historically the Greeks and Romans,
> just like the OP, denied the existence of zero, but the Sumerians, Mayans, and Hindus all had symbols for zero.

Yes i am aware of that, and i think it ís a problem inherited by our logic to want to put number to nothing. Because nothing really do not have a *value*.

Representing a number as base dependent postional value sets works very good for any base.

Here is some expamples in "DECIMAL" base using positional value representation and as you can guess 0 is missing representation in this system.

−2000500009=−{[A,2][5,5][1,9]}
9000020005={[A,9][5,2][1.6]}

0,50000000009=ooops again{[−1,5][−B,9]}should of course be A1,9

−1.90005=−{[1,1][−1,9][−5,5]}

> The largest set one can have without the existence of zero is the set of unsigned reals R+, which is labeled by a script P in Metamath. Notice how Metamath develops the unsigned fractions and unsigned reals via Dedekind cuts well before developing zero and signed numbers. This matches the historical development, where Pythagoras discovered sqrt(2) over 2000 years before Cardano introduced negative numbers.

> Kronecker said that "God created the integers" −− but it's uncertain whether he meant the positive natural numbers or the signed integers. But of course, one trick is simply to let a signed integer simply be an equivalence class of ordered pairs of natural numbers, as is usually done, so that 0 = {(1,1),(2,2),(3,3),...}.

> 2. But if you deny the existence of the empty set, then you have a deeper problem than if you merely deny the numberhood of zero. For the Axiom of Foundation (AKA Regularity) states that every set is based on the empty set, in that every set has the empty set as an element of its transitive closure. So if you don't want an empty set then you must deny Foundation/Regularity.

> One sci.logic poster, Zuhair, also wanted to come up with a set theory once in which there is no empty set. But unfortunately, he was not able to come up with such a theory in a way that it would be consistent.

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