Re: ZFC in another shape.

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- *From*: "hagman" <google@xxxxxxxxxxxxx>
- *Date*: 7 Feb 2007 07:40:24 −0800

On 7 Feb., 04:10, "zuhair" <zaljo...@xxxxxxxxx> wrote:

> On Feb 6, 2:59 pm, "MoeBlee" <jazzm...@xxxxxxxxxxx> wrote:
>
> > On Feb 6, 11:20 am, "zuhair" <zaljo...@xxxxxxxxx> wrote:
> >
> > > Not only that. I discovered that The axiom of ordina
> > > succession I've
> > > made , is in reality a theorum in a theory consisting of the
> > > other six
> > > axioms. we can simply prove that using power and
> > > replacement alone.
> > > Since every ordinal subsets its power set, and is a member of
> > > its
> > > power set, then by replacement the the sucessor ordinal is a
> > > subset of
> > > the power set.
> > > what I want to say is that S(x) is a subset of P(x) for all x: x
> > > is an
> > > ordinal.
> > >
> > > Then the axiom of ordinal succession should be converted
> > > into the
> > > theorum of ordinal succession.
> >
> > You don't even need replacement. Power set with separation will do the
> > job.

> Meanwhile, I think you can find proofs that union is not derivable from the other axioms (if I'm not mistaken, in the usual treatments of the independence proofs). So your new theory is just ZFCR (ZFC with regularity) without union. So you've set up all this rigmarole just to state ZFCR without union.
>
> MoeBlee
> From all of that I deduce the following.

ZFC is in reality the following axioms.

1) Extensionality 2) Replacement (strong version)
3) Power 4) Union 5) Infinity

+− 6) Regularity and 7) Choice.

I have a question , can replacement be modefied in such a manner as to embrace union as well.

Example:

AxEy!(P(x,y))−>AaEbAy(yeb<−>Exea(P(x,y))).

Can't that be modified to:

AxEy!(P(x,y))−>AaAcEbAy(yeb<−>Ex((xea \/ xec)&P(x,y))).

To me this looks like your replacement produces {F(x): x in (a u c)}
instead of simply {F(x): x in a}.
Just as you get back the original Replacement by letting c={}, you get
finite union (a u c) by letting F=identity (or P(x,y)<−>x=y), so it
would be much better to split this into two axioms,
standard Replacement and finite union
AaAbEcAy(yec<−>(yea v yeb))
In general, you can obtain UX if X is finite.
But how do you suspect this to produce infinite unions?

> I am not sure if this can cover union. But having choice, I think we can always have a choice function that using this axiom can turn union into a theorum in a theory that consists of Extensionality,Replacement(my version),Power,Infinity, Regularity ,Choice.

I have repeatedly noticed that you seem to have some strange views

about choice functions.
Do you plan to come up with a theory where Union (or Power or whatever) follows from your axioms as a theorem, but does not follow if you drop AC?

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