Re: Infinite Meet or no−meets

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- *From*: "Jesse F. Hughes" <jesse@xxxxxxxxxxxxx>
- *Date*: Tue, 09 May 2006 06:28:57 +0200

"Pubkeybreaker" <Robert_silverman@xxxxxxxxxxxx> writes:

> Jesse F. Hughes wrote:
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> > "Pubkeybreaker" <Robert_silverman@xxxxxxxxxxxx> writes:
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> > > Guy L. wrote:
> > >
> > > > I am a bit perplexed by the following
> > > > problem.
> > > >
> > > > Suppose a set of aleph_0 many people are
> > > > given. Show there is an
> > > > infinite subset of that set such that either all
> > > > the people in the
> > > > subset have met one another or all the people
> > > > in the subset have not
> > > > met one another.
> > > >
> > > > How does one go about to prove the above
> > > > problem? I would ask my
> > > > teachers, but none of my teachers at my high
> > > > school would know...
> > >
> > > Let S be your set. Partition it into two disjoint subsets A and
> > > B. So
> > > S = A U B.
> > > Let A be the set of people who have not met one another.
> >
> > I don't see that your set A is well defined. Suppose that our set
> > consists only of three people (rather than aleph_0). Suppose persons
> > 1 and 2 have met, but no other pair of persons have met.
> >
> > Then 1 hasn't met 3, so I guess both 1 and 3 are in the set. But 2
> > hasn't met 3 either, so is 2 in the set or not?

> A is the set of all people such that each person in the set has not met all others in the set. So 2 is in the set. In your example, 1,2, and 3 are in the set since none of them have met all the others. It does not matter if some people in the set have met some of the others.

But the problem says that we need to find an infinite set such that either (1) everyone in that set has met everyone else in the set or (2) no one in the set has met anyone else in the set.

I don't see that your partition helps us do that.

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"Sure, maybe I have a tiresome task that is nearly impossible, but part of who I am is an endless amount of energy as long as there is hope. Without hope, I find that I start to lose focus, and feel, just, well, hopeless." −− James S. Harris
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