Re: Cantor's definition of set

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- *From*: MoeBlee <jazzmobe@xxxxxxxxxxx>
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On Oct 25, 12:12 pm, John Jones <jonescard...@xxxxxxx> wrote:

> Cantor said:
>
> 'By a "set" we mean any collection M into a whole of definite, distinct objects m (which are called the "elements" of M) of our perception [Anschauung] or of our thought.'
>
> Further, except in a multiset, every element of a set must be unique− no two members may be identical.

Aside from Cantor's work and notions, I wonder whether such qualfications as you've made above stem from notational questions rather than anything more substantive than the axiom of extensionality, which stands clear enough. For example, that {0 0} = {0}, or even a general statement of such a thing, doesn't require much more than simply reminding as to the axiom of extensionality.

(By the way, the notion of a multiset is also easily captured in Z set theory.)

> My observation is this:
> Surely, these definitions disallow a set whose individual members are characterized by being sequenced, or heirarchical, or derive their properties from being in a collection.

I see no such sure inference as that. Though I'm not particularly loyal to Cantor's defintion, I don't see that having "definite, distinct objects" in any way precludes them from also having such properties as being in the ranges of certain sequences, etc.

> For how can we have a set of numbers if, from our definition above, no two members of a set can be identical?

What's stopping us from it?

> 1) If no two members are identical, then either a number is a composite (which may allow a heirarchy or sequence)

In set theoretical terms, what's a "composite" and whatever a "composite" is, why can't it be a definite, distinct object?

> or
> 2) if number is not a composite then without its members exhibiting a relationship, a set of numbers is simply a set of numerals.

A numeral is usually understood to be a certain kind of term in a language. A set may have numerals as members. But I don't see why you imagine that a number (no matter how you define 'number') can't be a member of a set without being also a numeral.

> My question is this: If the above objection against the concept of 'a set of numbers' (real numbers for example) stands, then how ought we to correctly define ' a set of numbers'?

The objection doesn't stand, so there's no problem any greater than just defininig 'number' however you like. Once you've done that, then 'a set of numbers' is defined as easily as:

x is a set of numbers iff for all n, if n is a member of x then n is a number.

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