

Re: Platonism

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Lester Zick wrote:

> *On Fri, 03 Dec 2004 18:57:18 GMT, patty <pattyNO@SPAMicyberspace.net>*

>

>>*Point of information: regardless of whether we are talking within the
>>context of contemporary mathematics or within the context of natural
>>language, it seems to me that if we can distinguish between the
>>cardinals and the ordinals, well then sets of those things cannot be
>>identical. But certainly they can map one to one. What am i missing?*

>

> *I don't see how first, second, third, etc. can possibly map one to one
> to one, two, three because the intervals involved cannot be assumed
> the same, which is the whole point of cardinal numbers.*

An ordinal is a total well-ordered (no infinite descending chains) set.

The cardinalities of two sets are the same if there is a one-to-one correspondence (an isomorphism) between the two sets.

The ordinals of two sets are the same if there is a one-to-one order-preserving correspondence between the two sets (and associated -total- orderings; you can't compare two sets ordinally without an order).

So technically, cardinals are not ordinals.

But, consider a finite ordinal, say one with three elements (yes, having cardinality 3). Then, for all six possible total orderings of these three elements (the 6 possible ways of making an ordinal out of it), there is an obvious order preserving isomorphism, between any pair (lowest to lowest, middle to middle, highest to highest).

So there is exactly one ordinal for any finite cardinal. Is the finite ordinal identical to its corresponding finite cardinal? Technically, no, but the correspondence tells you they act pretty much the same and can be easily converted one to the other.

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Mitch Harris
(remove q to reply)

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