

# Re: Multiple infinities – one more look

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On Dec 6, 7:02 pm, Venkat Reddy <vred...@xxxxxxxx> wrote:

multiple infinities – lets check them "really"

I was reading about cardinalities and the diagonal argument.

For me, here is how things are. For integer sequences such as 1,2,3,.. and 2,3,4,... there is a possibility that one can always insert a new number at the end.

No, then you no longer have a sequence. You can insert a new number at the BEGINNING of a sequence and the result is a sequence: insert 1 at the beginning of  
2, 3, 4, ... and get  
1, 2, 3, 4, ...

But 2, 3, 4, ..., 1 is not a sequence. Sequences have a first member but no last member.

2, 3, 4, ... has no last member.

2, 3, 4, ..., 1 has a last member, namely 1.

See [http://en.wikipedia.org/wiki/Ordinal\\_number](http://en.wikipedia.org/wiki/Ordinal_number)

The order type of a sequence is omega (the greek letter that looks like a w). The order type when you "insert a new number at the end" of a sequence is omega + 1

That's one of the differences between finite and infinite sets: Any way you order a finite set, the order structure is the same (order isomorphic). An infinite set has many different possible orderings with different order structures.

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