

Re: Distinct linear orderings on Z

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-03/7695.html>

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Date: 03/22/05

Date: Tue, 22 Mar 2005 10:17:29 -0500

Dave Seaman said:

> *On Mon, 21 Mar 2005 20:37:59 GMT, Lester Zick wrote:*

>> *On Mon, 21 Mar 2005 17:50:25 +0000 (UTC), Dave Seaman*

>

>> *You might be interested in a collateral reply to Tony on this subject.*

>> *Cardinality in universal terms means exactly the same as number of*

>> *elements.*

>

> *A definition that works only for finite sets is not "universal".*

>

>> *When cardinality is applied to undefined numbers of elements*

>> *the modern mathematical meaning of bijective mapping simply refers to*

>> *the slope or tangent of the set instead of the set itself, which is a*

>> *restricted parochial definition and not universal. In other words, the*

>> *modern math approach to set analysis in terms of cardinality is done*

>> *in non universal terms whereas the conventional interpretation of*

>> *cardinality in ordinary mathematics is universal in nature.*

>

> *Cardinality applies to arbitrary sets. How do you compute the "tangent"*

> *of the set of all continuous mappings $f: [0,1] \rightarrow \mathbb{R}^n$, to take an example*

> *that recently came up in sci.math? Or how about the "tangent" of the set*

> *of all subsets of \mathbb{R} ? I have quoted you the definition of cardinality,*

> *and it says nothing at all about "tangents".*

I think what Lester is referring to is the idea that the rate of increase of the members in a set defined by a function is inversely related to the size of the infinity. For instance the evens are defined by the function $f(x)=2*x$ on the integers, which has twice the slope of $f(x)=x$, and therefore represents half as large an infinity. When the ratio is ∞/∞ or $0/0$ for $x=\infty$, one should be able to apply L'Hospital's rule to resolve the slope and calculate a tangent.

>

>> *Basically what I'm saying is that cardinality and number of elements*

>> *are identical concepts in universal terms of ordinary mathematics and*

>> *only become different when cardinality is interpreted in terms of*

>> *slopes or tangents as it is in bijective matching in set theory in*

>> *modern math. And of course it is this bifurcation between universal*

>> *and parochial applications of the single term, cardinality, that leads*

>> *directly to the nominally counterintuitive results in modern math.*

>

sci.math: Re: Distinct linear orderings on \mathbb{Z}

- > *As best I can understand it, you are using "universal" to mean "applies*
- > *only to finite sets", and "parochial" to mean "applies to all sets,*
- > *whether finite or infinite". Huh?*

I think "parochial" is Lester's poetic way of saying "local", perhaps referring to local limits determining slopes! Or maybe not....

>
>
>

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Smiles,
Tony