Re: Distinct linear orderings on Z

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From: aeo6 (*aeo6_at_cornell.edu*)
Date: 03/24/05

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Jesse F. Hughes said:
> Tony Orlow (aeo6) <aeo6@cornell.edu> writes:
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> > Jesse F. Hughes said:
> >> Tony Orlow (aeo6) <aeo6@cornell.edu> writes:
> >>
> >> > Anyway, I need to refine what I am thinking with regard to simpler
> >> > sets before I start trying to generalize.
> >>
> >> Great! Start refining here, if you don't mind. I posted this in
> >> another thread (in reply to a different poster), but surely you can
> >> answer these questions, too. Just replace "number of elements" with
> >> "bigulosity".
> >>
> >>
> >> If S is a set of natural numbers then let f(S) = { 2n | n in S }.
> >> For instance:
> >>
> >> f({0,1}) = {0,2}
> >> f({13, 200, 210}) = {26, 400, 420}
> >>
> >> Let's write #(S) for the number of elements in S, so that we avoid the
> >> notation for cardinality.
> >>
> >> (1) Do you agree that for every finite set S, it is the case that
> >>
> >> #(f(S)) = #(S)?
> > For any given set S of numbers such as this, buglulosity is defined as the
> > product of the set domain and the set density. When you apply f to a finite
> > set, you double the domain (range, if you prefer), and halve the density,
> > therefore they are the same size.
>
> This is really bizarre to me. I have to return to it.
Good.
>
> Question: Is there or is there not an operator #:Set −> P for some
> linear ordered class P such that #(S) < #(T) iff S is smaller than T?
If I understand the question properly, that measure is under development as we

speak.

>

> *Can we or can we not compare sizes of arbitrary sets or do you believe*

> *that we can only compare sets of numbers to sets of numbers?*

Can you compare arbitrary sets of things that are non numeric without resorting to some numeric translation? I don't think I have seen this trick yet, or at least I haven't complained about the results.

>

> *Let h(S) = { {n} | n in S }, so*

>

> *h({ 0, 1 }) = { {0}, {1} }.*

>

> *What is your brilliant method of comparing the sizes of these two*

> *sets?*

What is there to compare? The size of S is the size of h(S) as far as I can tell. It's also not infinite. Do you have a point, besides trying to distract from the point I am making before you even understand what it is?

>

> *Can you compare the sizes of the set of even numbers with the set of*

> *all continuous functions f:R −> R?*

The mapping functions are used internally within domains. The reals are abviously infinitely more bigulous than the naturals, and continuous functions of the reals more bigulous yet. This requires a strict system of unit infinities drectly related to finite units.

>

> *Can you compare the sizes of the set of curves in R^2 with the set of*

> *partial orders with finite domain?*

>

> *Or is your "bigulosity" defined piecemeal and ad hoc so that this is*

> *impossible?*

>

>

And what does cardinalty have to say about all these? aleph2! gesundheit!

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Smiles,
Tony
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