Re: Complement of zero dimensional space

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- *From*: "Tim BandTech.com" <tttpppggg@xxxxxxxxx>
- *Date*: Sun, 28 Jun 2009 16:22:57 −0700 (PDT)

On Jun 28, 4:20 pm, Denis Feldmann <feldmann.denis.asuppri...@xxxxxxx>
wrote:

> victor_meldrew_...@xxxxxxxxxxx a écrit :
>
>> On 28 June, 18:01, "Dim BandTech.con" <tttppp...@xxxxxxxxx> wrote:
>>
>>>>> A topological space has
>>>>> topological dimension n if
>>>>> and only if it can
>>>>> be written as the union of
>>>>> n+1 sets of dimension zero
>>>>> and cannot be
>>>>> written as the union of n sets
>>>>> of dimension zero.
>>>>
>>>> This is ridiculous. Which are the 3 sets (of
>>>> dimension 0) whose union
>>>> is R^2 ? Why dont you use *boundaries* ?
>>>> (seehttp://en.wikipedia.org/wiki/Inductive_dimension)
>>>
>>> Polysign numbers do answer this question directly, though
>>> the term
>>> 'union' is not quite the proper construction.
>>
>> Can you define the three sets of dimension zero needed to
>> cover the complex plane (your P_3) using your polysigns?
>>
>> Or are you just lying again?
>
> Lying is not the right word. Spam would be more like it

Every question that anyone asks can be contextually corrected within the answer. Dimension is a discrete behavior. for instance we do not generally observe 2.12 dimensional spaces do we? The ray as a simpler form than the line is a very simplistic perspective regardless of polysign. The fact remains that three rays will represent 2D space accurately. In that the real line as one dimensional has two rays, then beneath lays a single ray space and while it is not immediately apparent from traditional math, extending the behaviors of the two ray and three ray systems downward onto that single ray do imply that it is zero dimensional. This is nearly a description without polysign, yet in hindsight we have just built the fundamentals for generalizing sign from the perspective of geometry. Nicely the unification of space and time is possible due to the graphical nature of the unidirectional ray as time. Yes, three of these rays do form the fundament of the plane, but their joinery must be enforced via
(1, 1, 1) = 0
or more generally
(x, x, x) = 0
or in polysign
− x + x * x = 0
which states that the three rays are in balance and thus do form the plane as a vector space. Again, stepping back to the two−signed numbers (the reals) we see the traditional definition of dimension built upon two rays. The idea that two components might compose the real number is a point of contention for some, however the usual representation can always be gotten to since the two rays cancel each other so that for instance
− 3 + 5 = (− 3 + 3) + 2 = 0 + 2 = + 2 .
The same is true of each dimension. Whether there is some utility to the additional components is something I revisit occasionally, but there is no inherent conflict with either interpretation, much as an integer might be cast into a real without contention.

Anyway in terms of the title of this thread I do not know how to complement the one−signed numbers. In the context of three−signed numbers which are 2D and somehow have become a focus there is an argument that taking away one ray then yields the real numbers, but there is likewise support for a claim that this construction represents one third of the plane. I don't care for either of these constructions. Any requirement of a union as in set theory here does not seem appropriate.

Whether cartesian 'products' are really superpositions or products is also a thorny issue from my perspective. Neither of these words truly embodies the cartesian product since by definition there is no operation between those independent components. This independence is troubling, for upon declaring independence what right has one to enforce any relation between them? Claiming a functional relationship breaks the symmetry badly. I'm not about to argue that all of mathematics which relies upon cartesian products is broken, but I do

feel that since an alternative exists that such considerations are
only natural to run through in order to assess the situation.

− Tim
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