Re: Toplologies of the Hilbert cube

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From: David C. Ullrich (*ullrich_at_math.okstate.edu*)
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Date: Tue, 29 Mar 2005 07:41:44 −0600
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On Tue, 29 Mar 2005 04:17:48 −0800, William Elliot <marsh@privacy.net>
wrote:

>On Tue, 29 Mar 2005, Stephen J. Herschkorn wrote:
>
>> The product, uniform, and ell−2 toplogy on the Hilbert cube are equal. The
>> box topology on the Hilbert cube is finer that this.
>>
>> Is my conclusion correct?
>> Details:
>> The uniform topology on R^N is that generated by the metric d(x, y) =
>> sup(n, min(|x_n − y_n|, 1)).
>
>This is not the produce topology for it gives you open set
>(−1/2,1/2)^N = B(0^N,1/2)

Nobody said that this _was_ the produce topology, nor the product
topology. The assertion is that it induces the same topology on
the Hilbert cube.

>> The box topology on R^N is that for which the collection of all infinite
>> products of open intervals is a basis.
>>
>> Let L the set of all square−summable sequences in R. L is a subset of
>> R^N. The ell−2 metric determines a topology on L.
>>
>> H = product (n in N, [0, 1/(n+1)]). H is called the Hilbert cube. H is a
>> subset of L. Thus, as a subspace, it can have any one of the four
>> topologies.
>>
>> −−
>> Stephen J. Herschkorn sjherschko@netscape.net
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David C. Ullrich