

Erratum to: Nonseparable closed vector subspaces of separable topological vector spaces

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All our formal Theorems, Propositions, Corollaries, Examples are correct. One of our main results is

Theorem 2 *Let I be an index set and E_i an lcs for each $i \in I$. If at least \mathfrak{c} of the E_i are not in $\mathfrak{V}(\mathbb{R})$, or equivalently do not have the weak topology, then the product $\prod_{i \in I} E_i$ has a nonseparable closed vector subspace.*

However, some statements in the Abstract and elsewhere claim too much.

Thanks to e-mail from Stephen A. Saxon, we realized that the product $E^{\mathfrak{c}}$ may have a nonseparable closed vector subspace even when lcs E has the weak topology. Take

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E to be the lcs of our Example 1; then this E has the weak topology, is separable and contains a nonseparable closed vector subspace. Our erroneous claim appears after Problem 2, after Theorem 2, and in the Abstract. In particular, we have not given a complete answer to Problem 2.

Also, in the last sentence of the fifth paragraph of the Introduction, “a compact X ” should be replaced by “a separable compact X ”.