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Weak topology on a topological vector space

Let X be a k -vector space and $V \leq X^*$ be a vector space of separating linear functionals on X . Then the V -topology $\mathfrak{T}_V$ makes X into a locally convex space such that

$$X^\star \cong V$$

Definition. Weak topology on a topological vector space

Let $(X, \mathfrak{T}_X)$ be a topological vector space whose dual $(X, \mathfrak{T}_X)^*$ separates points on X . Then the $X^\star$ -topology on X is the **weak topology** on X .

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 - Topological vector spaces over $\mathbb{R}$ or $\mathbb{C}$
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