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Banach-Alaoglu theorem

 ${\bf Canonical\ name \quad Banach Alaoglu Theorem}$

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Synonym Alaoglu's theorem

Let X be a normed space, and let X^* be its dual. Then the closed unit ball of X^* ,

$$\{f\in X^*:\|f\|\leq 1\}$$

is compact in the weak-* topology.