

A survey of the applications of certain minimax theorems



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Abstract

In this lecture, I intend to offer an overview of the various applications of certain minimax theorems, among which there is the following:

Theorem. *Let X be a topological space, let Y be a convex set in a vector space and let $f : X \times Y \rightarrow \mathbb{R}$ be a function which is concave in Y , and lower semicontinuous and inf-compact in X .*

Then, at least one of the following assertions holds:

(a) $\sup_Y \inf_X f = \inf_X \sup_Y f$;

(b) *there exists $\tilde{y} \in Y$ such that the function $f(\cdot, \tilde{y})$ has at least two global minima in X .*