Continuous weak selections on compact-like spaces

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Abstract A weak selection on an infinite set X is a function $\sigma : [X]^2 \to X$ such that $\sigma(\{x,y\}) \in \{x,y\}$ for each $\{x,y\} \in [X]^2 = \{\{x,y\} : x,y \in X\}$. σ is said to be *continuous* if it is continuous with respect to the relative Vietoris topology on $[X]^2$. Roughly speaking, under the existence of a continuous weak selection on a topological space X, compact-like properties (pseudo-compact, countably compact, locally compact and so on) on X induce order-like properties (orderable, sub-orderable and weak orderable) on X. In this talk, many such results are presented. Also we give an example; there is a space X which admits a continuous weak selection but whose covering dimension is n for any natural number n or even $n = \infty$. Note that the covering dimension of (sub-)orderable spaces is ≤ 1.