1083-54-90 **Iván Martínez-Ruiz*** (imartinez@fcfm.buap.mx), Calle 4 B 13, Bosques de San Sebastian, 72310 Puebla, Mexico. *Weak selections and Tournaments.*

Let X be a nonempty set. A weak selection for X is a function $\varphi : X \times X \to X$ that satisfies the following properties for any $x, y \in X$:
(a) $\varphi(x, y) = \varphi(y, x)$,
(b) $\varphi(x, y) \in \{x, y\}$.

If X is a topological space, we say that φ is a continuous weak selection if it is continuous with respect to the product topology. If we restrict our attention to the collection of pairs $(x, y) \in X \times X$, with $x \neq y$, we can naturally define a tournament $G = (X, V)$, where $(x, y) \in V$ whenever $\varphi(x, y) = x$ and, equivalently, it is possible to define a relation $<_\varphi$ on $X \times X$ by $x <_\varphi y$ if $\varphi(x, y) = x$. On the other hand, it is possible to realize a study of weak selections from another point of view. Starting from a weak selection φ on a given set X, we consider the topology generated by the relation $<_\varphi$.

The main idea of this talk is to present some of the applications of directed graphs and tournaments in the study of weak selections and topological properties of spaces. (Received August 21, 2012)