1026-52-14 **Diethard Ernst Pallaschke*** (lh09@rz.uni-karlsruhe.de), Institute for Statistics and Math. Economics, University of Karlsruhe (Geb. 11.40), D-76128 Karlsruhe, Germany, and **Ryszard Urbanski** (rich@amu.edu.pl), Faculty of Mathematics and Computer Sciences, Adam Mickiewicz University Poznan, Ul. Umultowska 87, PL-61-614 Poznan, Poland. *Pairs of compact convex sets.*

Let $X = (X, \tau)$ be a topological vector space and $\mathcal{K}(X)$ the family of all nonempty compact convex subsets of X. Endowed with the Minkowski addition $A+B = \{a+b \mid a \in A,\ b \in B\}$ the set $\mathcal{K}(X)$ is a commutative semigroup with cancellation property.

An equivalence relation on $\mathcal{K}^2(X) = \mathcal{K}(X) \times \mathcal{K}(X)$ is given by $(A, B) \sim (C, D)$ iff $A + D = B + C$ and an ordering by: $(A, B) \le (C, D)$ iff $A \subset C$ and $B \subset D$.

A pair $(A, B) \in \mathcal{K}^2(X)$ is called minimal if there exists no equivalent pair (C, D) with $(C, D) < (A, B)$. In 2-dimensions equivalent minimal pairs are uniquely determined up to translation. This is not longer true for higher dimensions.

We consider also minimal pairs of closed bounded sets and minimality under constraints. A separation law for compact convex sets is proved, which is equivalent to the cancellation law.

Within the frame of an ordered commutative semigroup, pairs of compact convex sets correspond to fractions and minimal pairs to relative prime fractions. (Received December 18, 2006)