962-46-1283 **Michael P Prophet*** (prophet@math.uni.edu), University of Northern Iowa, Mathematics Department, Cedar Falls, IA 50614, and **Bruce L Chalmers** (blc@math.uni.edu), University of California, Math Department, Riverside, CA. *Simplicial cones and the existence of shape-preserving operators.*

Let X denote a Banach space and V an n-dimensional subspace of X. A cone is said to be *simplicial* if the set of its extreme rays forms an 'independent' set. Let S^* be a simplicial, weak*-closed pointed cone in X^*. Let $S = \{f \in X \mid \langle f, u\rangle \geq 0 \ \forall u \in S^*\}$. We say that a linear operator $P : X \rightarrow V$ is *shape-preserving* (with respect to S^*) if $PS \subset S$. In this paper we investigate the conditions for which existence of shape-preserving operators necessitates $S^*_{|V}$ simplicial. This generalizes known results for projection operators. (Received October 03, 2000)