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Glenn Hurlbert* (hurlbert@asu.edu), Department of Mathematics and Statistics, Arizona State University, Tempe, AZ 85287-1804. *On Shadows in Posets.*

The shadow $\partial\mathcal{F}$ of a family elements \mathcal{F} in a poset P is the family of elements $\partial\mathcal{F} = \{y \mid y \triangleleft x, \text{ some } x \in \mathcal{F}\}$, where $y \triangleleft x$ means that $y < x$ and no z satisfies $y < z < x$. In the case that P is the subset lattice, the Kruskal-Katona Theorem gives a tight lower bound on $|\partial\mathcal{F}|$ in terms of $|\mathcal{F}|$, and Lovász gave an approximate version that is easier to compute. With Bekmetjev, Brightwell, and Czygrinow, we proved analogous results for the multiset lattice. In this preliminary report, we consider other partial orders that may have nice shadow theorems. (Received March 10, 2008)