1009-52-38 **J. Goodman**, **A Holmsen**, **R Pollack**, **K Ranestad** and **F Sottile***, Department of Mathematics, Mailstop 3368, Texas A&M University, College Station, TX 77843. *The convexity behind Santaló's Helley-type Theorem.*

In 1940, Luis Santaló proved a Helly-type theorem for line transversals to boxes in $\mathbb{R}^d$. An analysis of his proof reveals a convexity structure for ascending lines in $\mathbb{R}^d$ that is isomorphic to the ordinary notion of convexity in a convex subset of $\mathbb{R}^{2d-2}$. This isomorphism is through a Cremona transformation on the Grassmannian of lines in $\mathbb{P}^d$, which enables a precise description of the convex hull and affine span of up to d ascending lines: the lines in such an affine span turn out to be the rulings of certain classical determinantal varieties. (Received July 20, 2005)