1086-K5-1069 **Ben S. Baumer*** (bbaumer@smith.edu), 217 Prospect St, Northampton, MA 01060, and **James Piette** and **Brad Null**. *Parsing the Relationship between Baserunning and Batting Abilities within Lineups.*

A baseball team's offensive prowess is a function of two types of abilities: batting and baserunning. While each has been studied extensively in isolation, the effects of their interaction is not well understood. We model offensive output as a scalar function f of an individual player's batting and baserunning profile z. Each of these profiles is in turn estimated from Retrosheet data using heirarchical Bayesian models. We then use the SimulOutCome simulation engine as a method to generate values of $f(z)$ over a fine grid of points. Finally, for each of several methods of taking the extra base, we graphically depict the surface $f(z)$ over changes in the probability of advancing via that method. This framework allows us to draw conclusions both about optimal baserunning strategies in general, and about how particular offensive profiles affect a player's optimal baserunning strategy. We present many informative visualizations and analyze specific aspects of several well-known Major League players. (Received September 18, 2012)