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Corey M Manack* (cmanack@amherst.edu), 58 S East St, Apt 2, Amherst, MA 01002. *A new method for comparing chains of order statistics.* Preliminary report.

Fix $k \leq m \leq n$, and let $X_1, \dots, X_m, Y_1, \dots, Y_n$ be continuous, independent and identically distributed random variables. Inspired by dice resolutions from the RISK board game, we derive a new probability distribution that compares the top k performers from the sets $X = \{X_1, \dots, X_m\}, Y = \{Y_1, \dots, Y_n\}$. Specifically, we find, for each l between 0 and k , the probability that there are exactly l instances when the i -th top performer from X is greater than the i -th top performer from Y . By virtue of uniformity, we may recast this method of comparison into counting lattice paths of a certain type, invoking the Chung-Feller Theorem and Ballot Numbers in our derivation. Salient and surprising features of the distribution will be discussed, as well as possible applications, if time permits. (Received September 21, 2011)