

REGRESSIONS FOR SUMS OF SQUARES OF SPACINGS

S. KIRMANI¹ AND J. WESOŁOWSKI²

¹*Department of Mathematics, Northern Iowa University, Cedar Falls, IA 50614-0506, U.S.A.*

²*Wydział Matematyki i Nauk Informacyjnych, Politechnika Warszawska, Warszawa 00-661, Poland*

(Received May 12, 2003; revised November 17, 2003)

Abstract. Starting with a new formula for the regression of sum of squares of spacings (SSS) with respect to the maximum we present a characterization of a family of beta type mixtures in terms of the constancy of regression of normalized SSS of order statistics. Related characterization for records describes a family of minima of independent Weibull distributions.

Key words and phrases: Sum of squares of spacings, regression characterizations, mixtures, beta distribution, Weibull distribution, order statistics, record values.