

Department of Applied Mathematics and Statistics
The Johns Hopkins University

STUDENT SEMINAR

Ana Pavasovic
Dept. of Applied Mathematics & Statistics
The Johns Hopkins University

April 1, 2004
304 Whitehead Hall
4:00 p.m.

GAPS IN LOTTERIES

ABSTRACT

Consider a sample of size m drawn without replacement from a population of size n , where we assume that $m \ll n$. Various researchers have studied “coincidences” in lottery situations, such as when two consecutive numbers are drawn among the winning combination. We generalize several previous results of this type by studying (i) the distribution of the number X_0 of consecutive pairs; (ii) the distribution of the number X_r of pairs separated by an amount r ; and, last but not least, (iii) the distribution of the multivariate statistic (X_0, X_1, \dots, X_b) . In each case, the Stein–Chen method is used to derive a one- or multi-dimensional Poisson approximation.