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ON THE COMPOUNDED BIVARIATE POISSON DISTRIBUTION: A UNIFIED TREATMENT

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Abstract. A unified treatment is presented here of compounding with the bivariate Poisson distribution. Exploiting the exponential nature of its probability generating function, it is shown that the pgf of the compound distribution is the moment generating function of the compounding random variable. This relationship leads to rather interesting general results. Particularly, the development of the conditional distribution is simplified. Four cases are presented in detail.

Key words and phrases: Bivariate Poisson distribution, probability generating function, bivariate-Hermite, -negative binomial, -Poisson-Inverse Gaussian, -Neyman Type A, conditional distributions.