

UNIQUE PROPERTIES OF SOME DISTRIBUTIONS AND THEIR APPLICATIONS

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ABSTRACT

In many practical situations bivariate probability distributions are used whose marginals are of the same form. Sometimes however, in cases of a not too good fit, one of the marginals appears to describe the corresponding observed data exceptionally well while the other provides a rather poor fit. The bivariate model then has to be questioned. This paper suggests ways in which characterization theorems can be used to explain this paradox and also guide the investigator's choice towards possible alternative models that might provide a better fit.

Key words and Phrases: Poisson Distribution, Negative Binomial Distribution, Binomial Distribution, Compounding, Characterization, Accident Statistics.