On the limit theorem for life time distribution connected with some reliability systems and their validation by means of the Monte Carlo method

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Abstract

We prove the limit theorem for life time distribution connected with reliability systems when their life time is a Pascal Convolution of independent and identically distributed random variables. We show that, in some conditions, such distributions may be approximated by means of Erlang distributions. As a consequnce, survival functions for such systems may be, respectively, approximated by Erlang survival functions. By using Monte Carlo method we experimantally confirm the theoretical results of our theorem.