Characterization of Probability Distributions through Conditional Expectation of Pair of Generalized Order Statistics

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Abstract : In this article, first a relation for conditional expectation is developed and then is used to characterize a general class of distributions $F(x) = 1-e^{-ah(x)}$ through conditional expectation of difference of pair of generalized order statistics. Some results are reduced for particular cases. In the end, a list of distributions is presented in the form of table that are compatible with the given general class.