



***A PROBABILITY PROGRAMMING LANGUAGE:  
DEVELOPMENT AND APPLICATIONS***

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Abstract

A probability programming language is developed and presented; applications illustrate its use. Algorithms and generalized theorems used in probability are encapsulated into a programming environment with the computer algebra system Maple to provide the applied community with automated probability capabilities. Algorithms of procedures are presented and explained, including detailed presentations on three of the most significant procedures. Applications that encompass a wide range of applied topics including goodness-of-fit testing, probabilistic modeling, central limit theorem augmentation, generation of mathematical resources, and estimation are presented.