

Stochastic optimization relies heavily on scenario generation, which has a large impact on the tractability of optimization methods and the quality of obtained solutions. Despite its importance, scenario generation for discrete data is rarely studied and even when it is, it often involves a problem-oriented method. However, the development of these methods is resource-intensive, resulting in a situation where viable easy-to-use alternatives to sampling are missing. In this work, we attempt to remedy the situation by proposing a new copula-based scenario generation method for discrete data. The method is based on extending discrete random variables and subsequent use of the so-called extension copula. We demonstrate the effectiveness of this method on the stochastic knapsack problem by using several metrics like in-sample stability, out-of-sample evaluation gap, and optimality gap. The results show that our method outperforms sampling and can serve as a more challenging benchmark for problem-oriented methods.