

# On the Asymptotic Behavior of Allocation Scheme with Geometric Distributions

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## Abstract

Consider an allocation scheme of  $n$  indistinguishable balls independently distributed into  $N$  different boxes with equal probability. Then the contents of the boxes follow the multinomial distribution, which is a usual allocation scheme. A generalization of this scheme was introduced by Kolchin (See Kolchin [1] and Pavlov [2]), allowing the allocation probability to be unequal. In this talk, we will focus on Kolchin's model with the allocation probability driven by geometric distributions. We will show the asymptotic behavior of the order statistics of the numbers of balls allocated to boxes.

Keywords: allocation scheme, Discrete Gamma Distribution, Converge in Distribution

## Reference

- [1] V. F. Kolchin, *Random Graphs*, Encyclopedia Math. Appl. 53, Cambridge Univ. Press, Cambridge, 1999.
- [2] Yu. L. Pavlov, Random forests. *Probabilistic Methods in Discrete Mathematics* (Petrozavodsk, 1996), VSP, Utrecht, 1997, pp. 11–18.