

Asymptotics of the Overflow in Urn Models

Paweł Hitczenko (Drexel University and the National Science Foundation)

We consider a finite or infinite collection of urns, each with capacity r , and balls distributed among them according to a given distribution. An overflow is the number of balls that would fall to urns that already contain r balls. When r is 1 this is a well studied quantity, namely the number of balls landing in non-empty urns. We use martingale methods to study the asymptotics of the overflow in the general situation, i.e. for arbitrary r . In particular, we provide sufficient conditions for both Poissonian and normal asymptotics for the overflow.

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