Probability Seminar

Title: Knuth's big-chooser matchbox process: the case of many match-boxes

Speaker: Andrew Mullins (UCD)

Date: Mon 19th January 2026 at 3:00PM

Location: E0.32 (beside Pi restaurant)

Abstract: Donald Knuth (of The Art of Computer Programming fame) wrote a paper considering a generalisation of Banach's matchbox problem. In Knuth's formulation, choosers (independently) take a match from one of two matchboxes. The matchbox that currently has more matches in it is chosen with probability p, the other with probability 1-p. The purpose of the paper is to determine the asymptotic behaviour of the expected number of matches remaining in one matchbox when the other is first emptied. The problem is tackled using generating functions and some interesting results are encountered along the way. In this talk, we will look at a further generalisation of the problem to the case of k matchboxes. This is joint work with Mark Dukes.