

1112-05-407

Roger Tian* (rgtian@math.ucdavis.edu). *Expansion Formulae for Top to Random Shuffling.*

Card shuffling is a much-studied topic in probability theory and combinatorics. In the top to random shuffle, the first a cards are removed from a deck of n cards $12 \dots n$ and then inserted back into the deck. I will analyze top to random shuffling from a combinatorial perspective, by deriving an expansion formula for these shuffles via a bijection and further generalizing the formula to the situation where each card in the deck has multiple faces. These expansion formulae can be used for enumeration and calculating probabilities. (Received August 10, 2015)