

1106-05-395

Austin Mohr* (amohr@nebrwesleyan.edu). *Checking Hats with the Lopsided Lovász Local Lemma*. Preliminary report.

The famous Hatcheck Problem imagines n men checking their hats at a restaurant and each receiving a randomly chosen hat after dinner. What is the probability that no man receives his own hat? We will explore a new proof that this probability tends to $\frac{1}{e}$ with n . The proof makes use of the lopsided Lovász local lemma and is striking for two reasons. First, there is a precise sense in which the original local lemma is wholly unsuited for the task, yet the seemingly mild generalization found in the lopsided version allows it to fully circumvent this difficulty. Second, the probabilistic content of the proof is readily transformed into a simple injection argument. The proof therefore demonstrates how one may wield a more powerful version of the local lemma through elementary means. (Received August 26, 2014)