THE ASYMPTOTIC DISTRIBUTION OF PARAMETERS IN RANDOM WEIGHTED STAIRCASE TABLEAUX

ABSTRACT. Staircase tableaux are combinatorial objects that were introduced due to their connections with the asymmetric simple exclusion process (ASEP) and Askey-Wilson polynomials. Due to these connections, staircase tableaux have been the object of study in many recent papers. In particular, the distribution of various parameters in random staircase tableaux has been studied. There have been interesting results on parameters along the main diagonal, however, no such results have appeared for other diagonals. It was conjectured that the distribution of the number of symbols along the kth diagonal is asymptotically Poisson as k and the size of the tableau tend to infinity. Our results are a partial proof of this conjecture; more specifically we prove it for fixed k.

2010 *Mathematics Subject Classification.* 60C05 (05A15, 05E99, 60F05).