

# THE DISTRIBUTIONS OF THE ENTRIES OF A YOUNG TABLEAU

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## Abstract

Let  $T$  be a standard Young tableau of shape  $\lambda \vdash k$ . We show the probability that a Young tableau of  $n$  cells contains  $T$  as a subtableau is, in the limit  $n \rightarrow \infty$ , equal to  $f^\lambda/k!$ , where  $f^\lambda$  is the number of all tableaux of shape  $\lambda$ . In other words, the probability that a large tableau contains  $T$  is equal to the number of tableaux whose shape is that of  $T$ , divided by  $k!$ . We give several applications, to the probabilities that a set of prescribed entries will appear in a set of prescribed cells of a tableau, and to the probabilities that subtableaux of given shapes will occur. Our argument rests on a notion of quasirandomness of families of permutations, and we give sufficient conditions for this to hold. This is joint work of Brendan McKay, Jennifer Morse and myself.

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