

Variance of Linear Statistic for Plancherel Young Diagrams

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Abstract

Let \mathbb{Y}_n be the set of Young diagrams with n cells. Using representation-theoretic interpretation of Young diagrams one may construct a natural probability measure on \mathbb{Y}_n called the Plancherel measure. We are interested in the properties of this measure as $n \rightarrow \infty$. There is a way to represent a Young diagram using a sequence from $\{0,1\}^{\mathbb{Z}}$ (sequence of 'ascents' and 'descents'; following Vershik and Kerov, diagram is considered rotated by $\pi/4$). We compute the precise asymptotics of the variance of linear statistic of descents on a growing interval for Plancherel Young diagrams. We also give an example of a local configuration with linearly growing variance in a fixed regime and prove the central limit theorem for this configuration in the given regime.