
WILL SAWIN, Columbia University

Measures from moments for random groups

In probability theory, it is useful to prove that a given measure is determined by its moments. In arithmetic statistics, we often want a result like this for a measure on groups, e.g. the Cohen-Lenstra measure on finite abelian ℓ -groups (which predicts the distribution of the ℓ -part of the class groups of imaginary quadratic fields). In this setting, "moments" are the expected number of surjections from a random group to a fixed group. I present a new approach to proving a measure is determined by its moments that works even for non-abelian groups, and is applicable in particular to the measure Liu, Wood, and Zureick-Brown used to predict the distribution of the Galois groups of the maximal unramified extension of a random number field.