Random elements of large groups: Discrete case

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The automorphism groups of countable homogeneous structures are usually interesting objects from group theoretic and set theoretic perspective. The description of typical (with respect to category) elements of such groups is a flourishing topic with a wide range of applications. A natural question is that whether there exist measure theoretic analogues of these results. An obvious obstacle in this direction is that such automorphism groups are often non-locally compact, hence there is no natural translation invariant measure on them.

Christensen introduced the notion of Haar null sets in non-locally compact Polish groups which is a well-behaved generalisation of the null ideal to such groups. Using Christensen's Haar null ideal it makes sense to consider the properties of a random element of the group. We investigate these properties, giving a full description of random elements in the case of the automorphism group of the random graph and the rational numbers (as an ordered set).