Abstract

Dixon's theorem states that the group generated by two random permutations of a finite set is generically either the whole symmetric group or the alternating group. In the context of random generation of finite groups, this means that it is hopeless to wish for a uniform distribution—or even a non-trivial one—by drawing random permutations and looking at the generated group. Mealy automata are a powerful tool to generate groups, including all finite groups and many interesting infinite ones, whence the idea of generating random finite groups by drawing random Mealy automata. In this paper we show that, for a special class of Mealy automata that generate only finite groups, the distribution is far from being uniform since the obtained groups are generically a semi-direct product between a direct product of alternating groups and a group generated by a tuple of transpositions.