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*A Random Group with Local Data*

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**Abstract:** The Cohen–Lenstra heuristics describe the distribution of  $\ell$ -torsion in class groups of quadratic fields as corresponding to the distribution of certain random  $p$ -adic matrices. These ideas have been extended to using random groups to predict the distributions of more general unramified extensions in families of number fields (see work by Boston–Bush–Hajir, Liu–Wood, Liu–Wood–Zureick-Brown). Via the Galois correspondence, the distribution of unramified extensions is a specific example of counting number fields with prescribed ramification and bounded discriminant. As of yet, no constructions of random groups have been given in the literature to predict the answers to famous number field counting conjectures such as Malle’s conjecture. We construct a “random group with local data” bridging this gap, and use it to describe new heuristic justifications for number field counting questions.

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