The greedy sequences of Young diagrams produced by Markov processes on 2D and 3D Young graphs

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There are many properties important for asymptotic combinatorics and asymptotic representation theory which can be described by special Markov processes on such graded graphs. In particular, there is the Plancherel process [1] where probabilities of diagrams are directly proportional to the square of the number of paths to the diagram, i.e. the dimension of the diagram.

We present the results of computer investigations of special so-called greedy sequences of two- and three-dimensional Young diagrams. Such sequences correspond to Markov processes on graded graphs and present infinite paths with maximum transition probability for each step. Our papers [2, 3, 4] were devoted to studying these sequences for Plancherel Markov processes on two-dimensional Young and Schur graphs.

In this work we continue this investigation and generalize it to the case of Markov processes on three-dimensional Young graph. We discuss the probability distribution on the limit front of diagrams from the greedy sequence. This distribution has an interesting resonant structure. We also consider some problems related to the investigation of limit shape of diagrams from the greedy seqence discussed in [5].

References

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