



Dual-Pivot Quicksort: Optimality, Analysis and Zeros of Associated Lattice Paths

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Summary

We present an average-case analysis of a variant of dual-pivot quicksort. We show that the algorithmic partitioning strategy used is optimal, that is, it minimizes the expected number of key comparisons. For the analysis, we calculate the expected number of comparisons exactly as well as asymptotically; in particular, we provide exact expressions for the linear, logarithmic and constant terms.

An essential step is the analysis of zeros of lattice paths in a certain probability model. Along the way a combinatorial identity is proved.

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