

# QUICKSORT: IMPROVED RIGHT-TAIL ASYMPTOTICS FOR THE LIMITING DISTRIBUTION, AND LARGE DEVIATIONS

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We substantially refine asymptotic logarithmic upper bounds produced by Svante Janson (2015) on the right tail of the limiting QuickSort distribution function  $F$  and by Fill and Hung (2018) on the right tails of the corresponding density  $f$  and of the absolute derivatives of  $f$  of each order. For example, we establish an upper bound on  $\log[1 - F(x)]$  that matches conjectured asymptotics of Knessl and Szpankowski (1999) through terms of order  $(\log x)^2$ ;