A New Lower Bound for Deterministic Pop-Stack-Sorting

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The pop-stack-sorting process is a variation of the stack-sort process that sorts a permutation. In each iteration, all decreasing runs in the permutation are reversed. This repeats until the result is the identity permutation. It was conjectured in 2020 that for large *n*, it takes n(1 - o(n)) iterations. We provide a new lower bound of (3/5)n for the average number of sorts to fully sort a uniformly randomly chosen permutation via a useful lemma.

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