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# Pattern matching for (213, 231)-avoiding permutations

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**Abstract:** Given permutations  $\sigma \in S_k$  and  $\pi \in S_n$ , the *pattern containment* problem is to decide whether  $\pi$  contains  $\sigma$  as an order-isomorphic subsequence. We give a linear-time algorithm in case both  $\pi$  and  $\sigma$  avoid 213 and 231. For the special where only  $\sigma$  avoids 213 and 231, we present a  $O(kn^2)$  time algorithm. We extend our research to (213, 231)-avoiding bivincular pattern and present a  $O(kn^3)$  time algorithm.