Mandatory Exercise: The k-mismatch problem in linear time

Hjalte Wedel Vildhøj

1 Patterns with many different symbols   Let P be a pattern of length m, and let Σ be the set of different symbols in P. Show that for $k \leq |\Sigma|/2$, the k-mismatch problem can be solved in $O(n)$ time on a text of length n. What happens to your algorithm under the weaker assumption that $k \leq |\Sigma|$?
Hint: Use techniques from the paper "Faster Algorithms for String matching with k Mismatches".