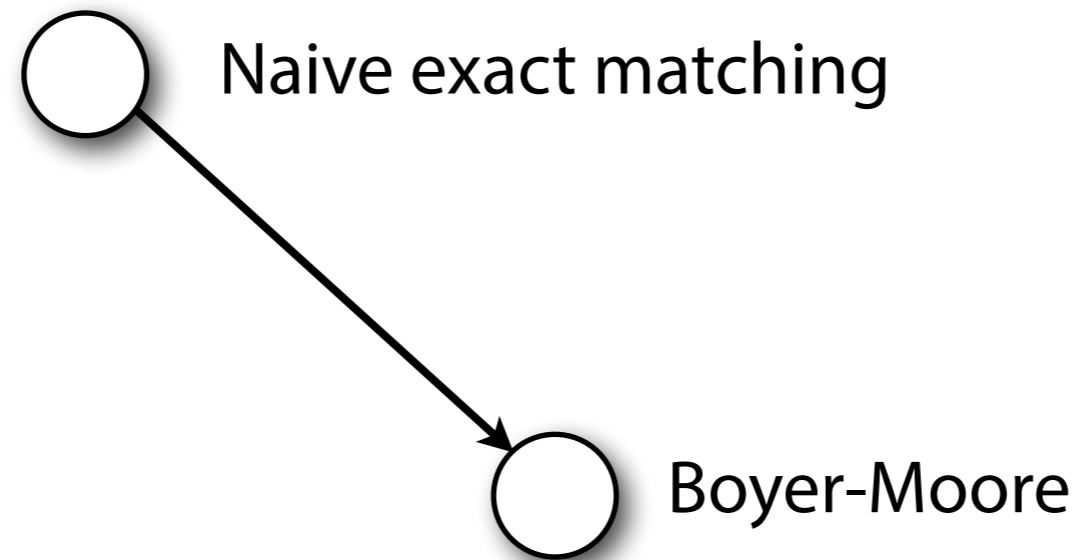


Boyer-Moore



Exact matching: better naïve algorithm

P : word

T : There would have been a time for such a word



u doesn't occur in P , so we can skip next two alignments

P : word

T : There would have been a time for such a word



Boyer-Moore

Learn from character comparisons to skip pointless alignments

Try alignments in left-to-right order, and try character comparisons in right-to-left order

P: word

T: There would have been a time for such a word

.....word.....
 ←-----

Boyer, RS and Moore, JS. "A fast string searching algorithm."
Communications of the ACM 20.10 (1977): 762-772.

Boyer-Moore: Bad character rule

Upon mismatch, skip alignments until (a) mismatch becomes a match, or (b) P moves past mismatched character

Step 1:
 T : G C T T **C** T G C T A C C T T T T G C G C G C G C G C G G A A
 P : **C** C T T **T** T G C

Step 2:
 T : G C T T C T G C T **A** C C T T T T G C G C G C G C G C G G A A
 P : C C T T T T **G** C

Step 3:
 T : G C T T C T G C T A C C T T T T G C G C G C G C G C G G A A
 P : C C T T T T G C

Boyer-Moore: Good suffix rule

Let t = substring matched by inner loop; skip until (a) there are no mismatches between P and t or (b) P moves past t

Step 1:

T : CGTGCCCTTACTTACTTACTTACTTACTTACGCGAA
 P : CTTACTTAC

Step 2:

T : CGTGCCCTTACTTACTTACTTACTTACTTACGCGAA
 P : CTTACTTAC

Step 3:

T : CGTGCCCTTACTTACTTACTTACTTACTTACGCGAA
 P : CTTACTTAC