Profile Probability Distribution

New x_i position chosen by previous version of algorithm

Score A_j of substring starting at each position j.

left-out sequence
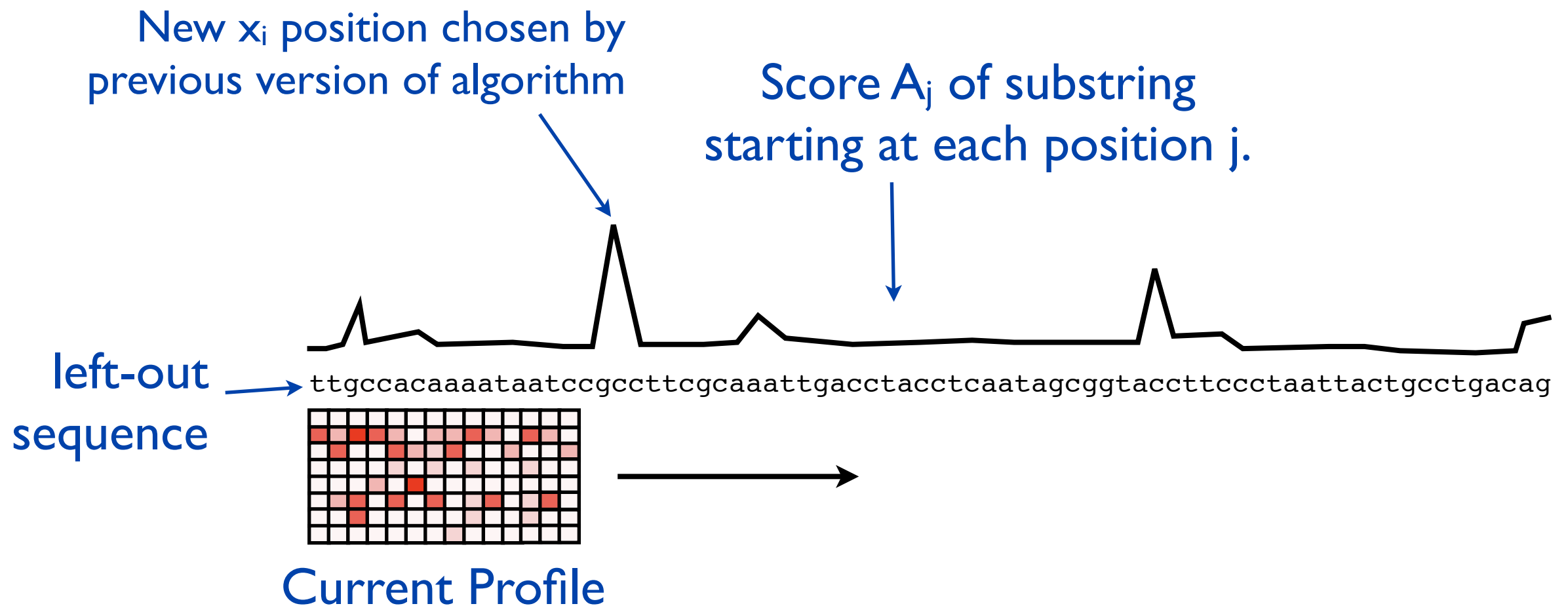
ttgccacaaaataatccgccttcgcaaattgacctacctcaatagcggtaccttccctaattactgcctgacag

Current Profile

Instead of choosing the position with the best match, choose a position randomly such that:

$$\text{Probability of choosing position } j = \frac{A_j}{\sum_i A_i}$$

(Lawrence, et al., *Science*, 1994)