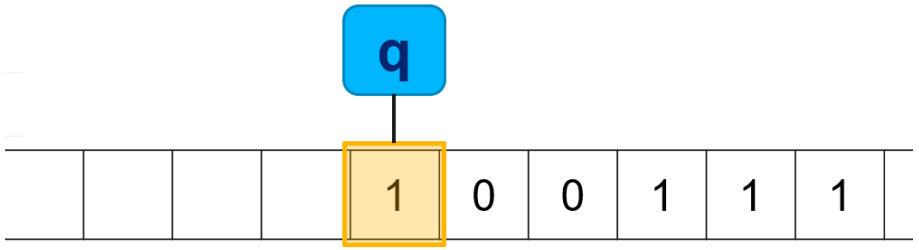
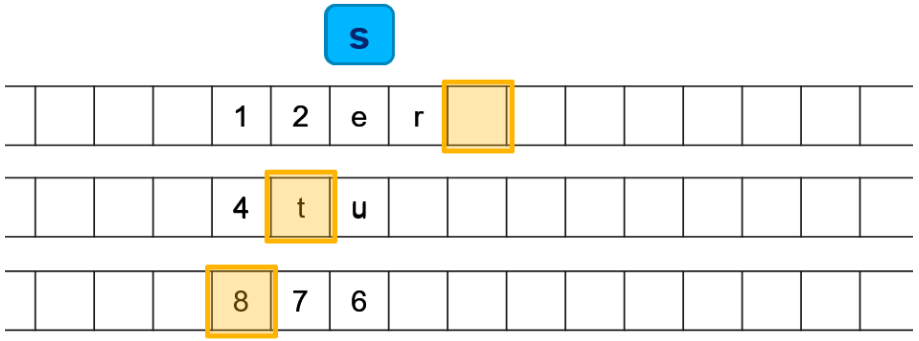
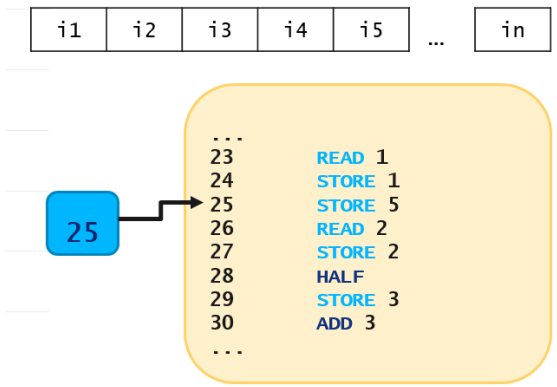
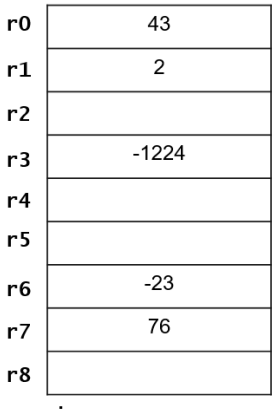








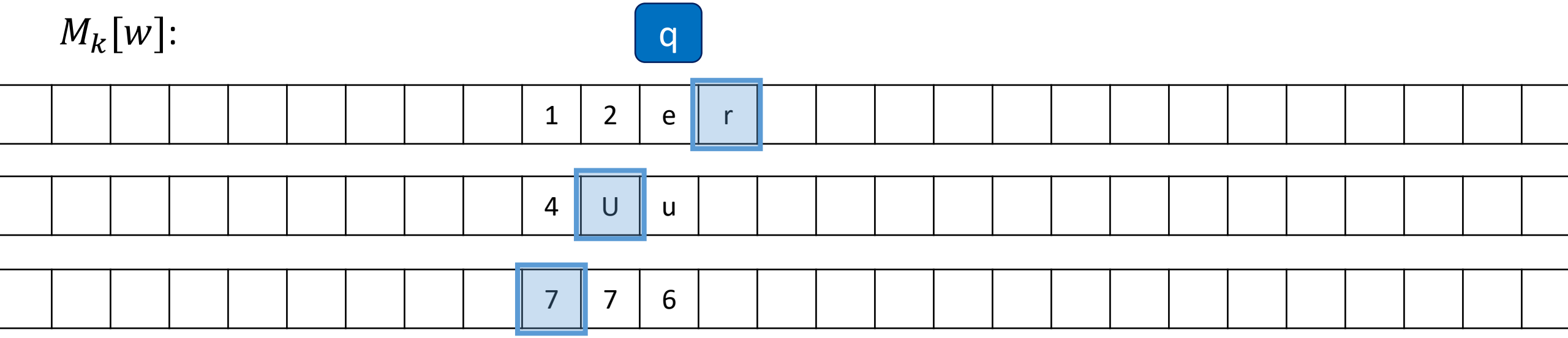
8

Complexity across computational models

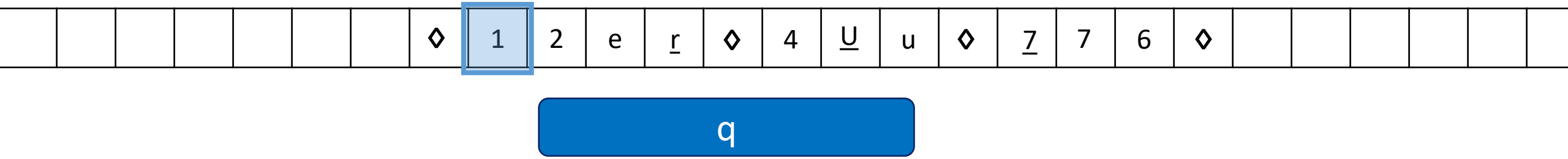
Analiza Algoritmilor

Single tape simulation – efficiency

$M_k[w]$:

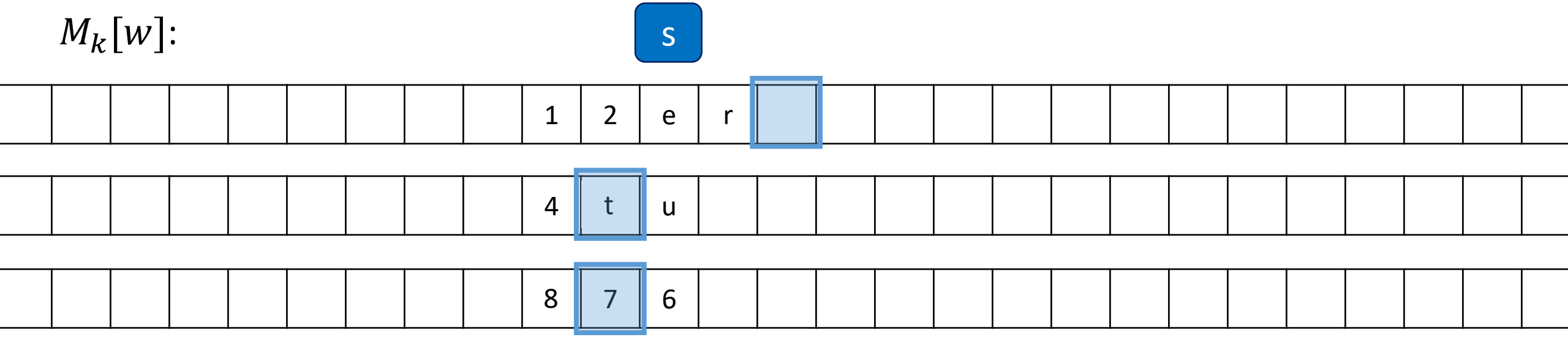


$M_1[w]$:

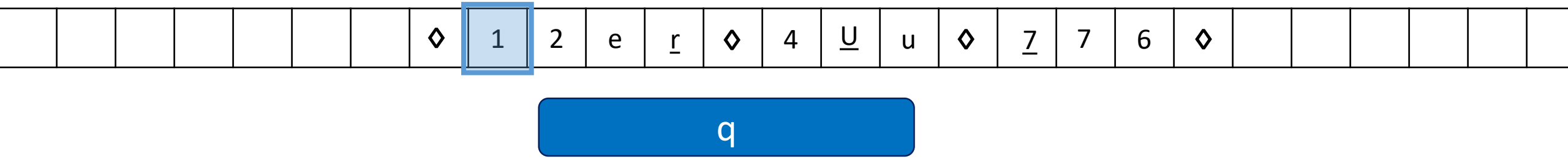


Single tape simulation – efficiency

$M_k[w]$:

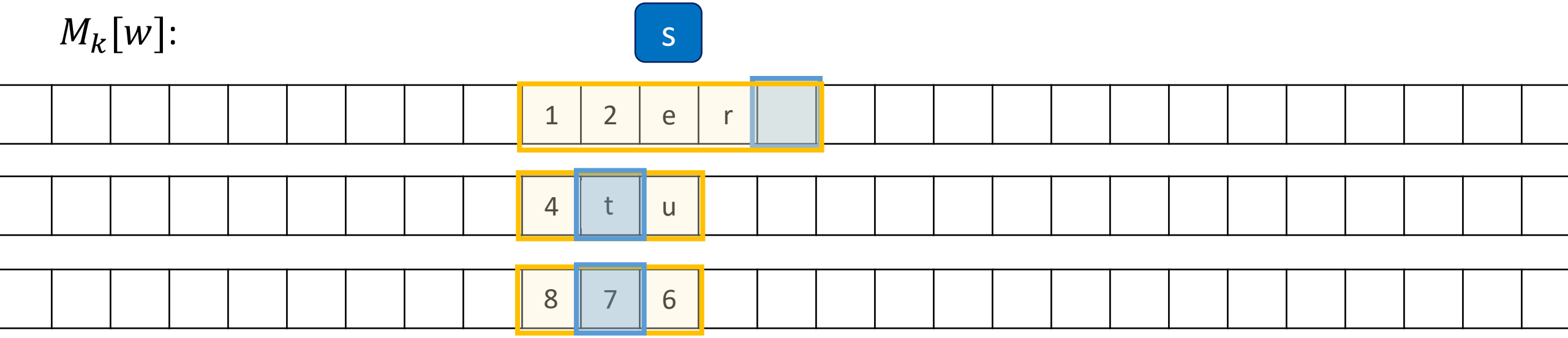


$M_1[w]$:



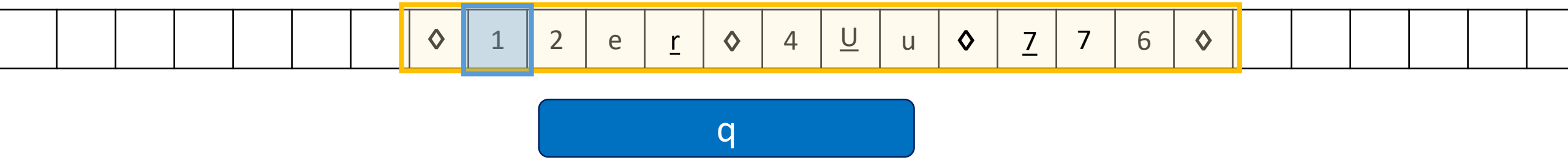
Single tape simulation – efficiency

$M_k[w]$:



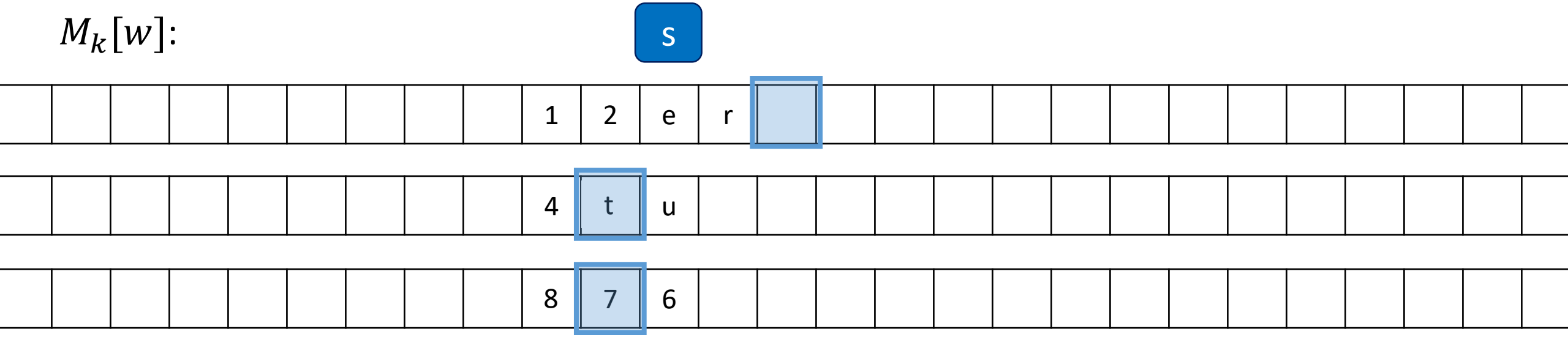
At most $\Theta(t_k(w))$ non-blank cells

$M_1[w]$:



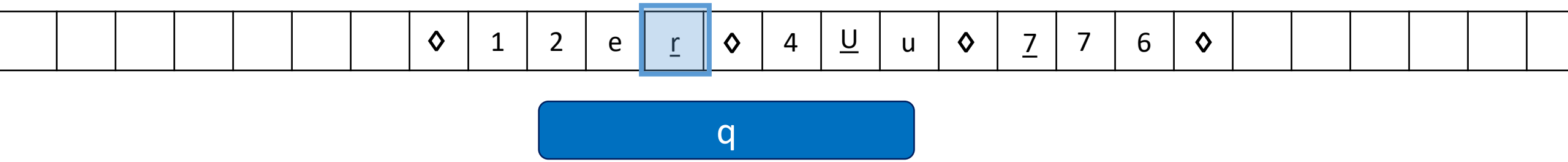
Single tape simulation – efficiency

$M_k[w]$:



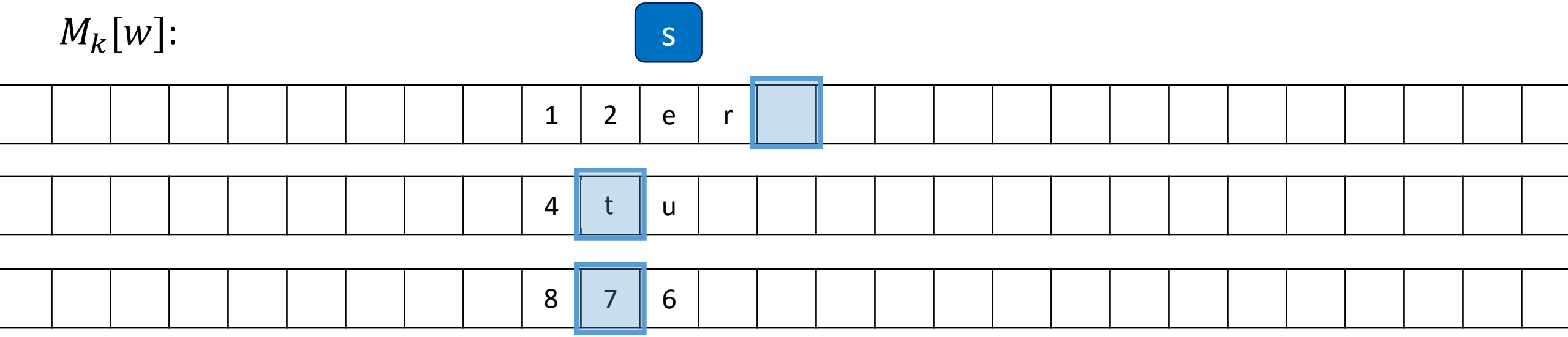
Searching for k underlined symbols: $\Theta(t(w))$

$M_1[w]$:



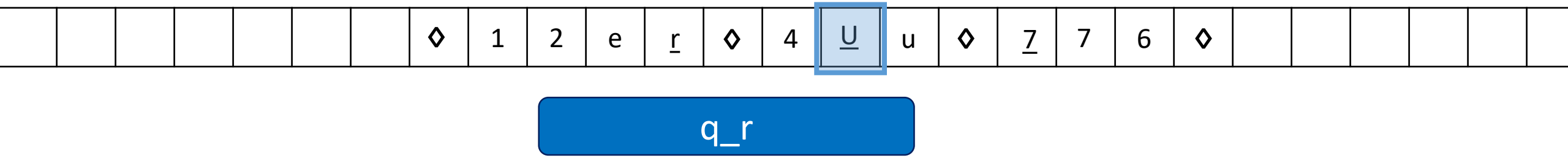
Single tape simulation – efficiency

$M_k[w]$:



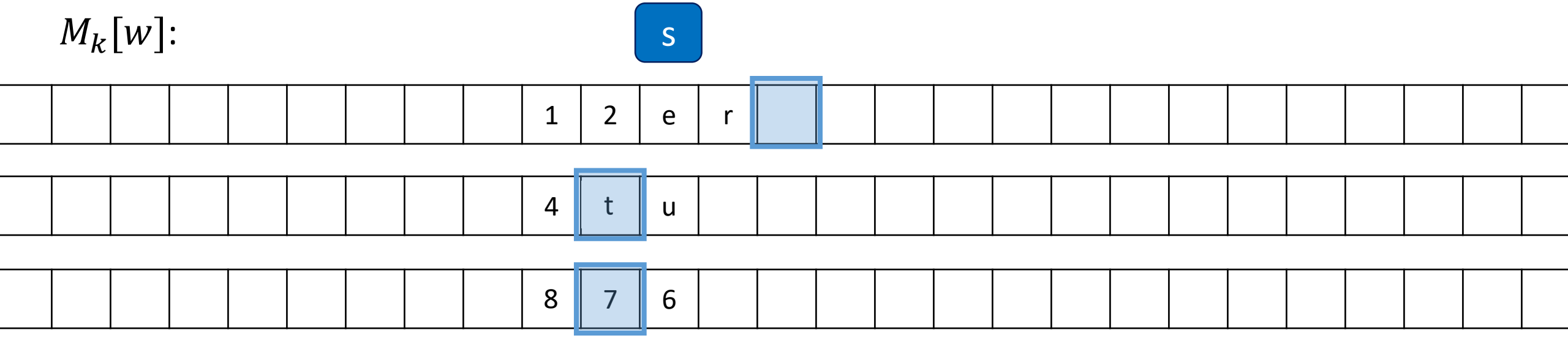
Searching for k underlined symbols: $\Theta(t(w))$

$M_1[w]$:



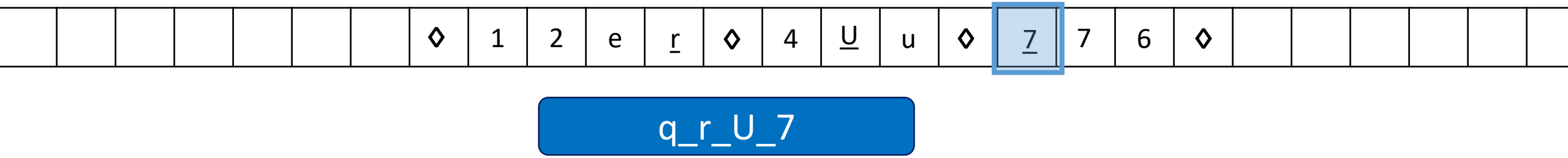
Single tape simulation – efficiency

$M_k[w]$:



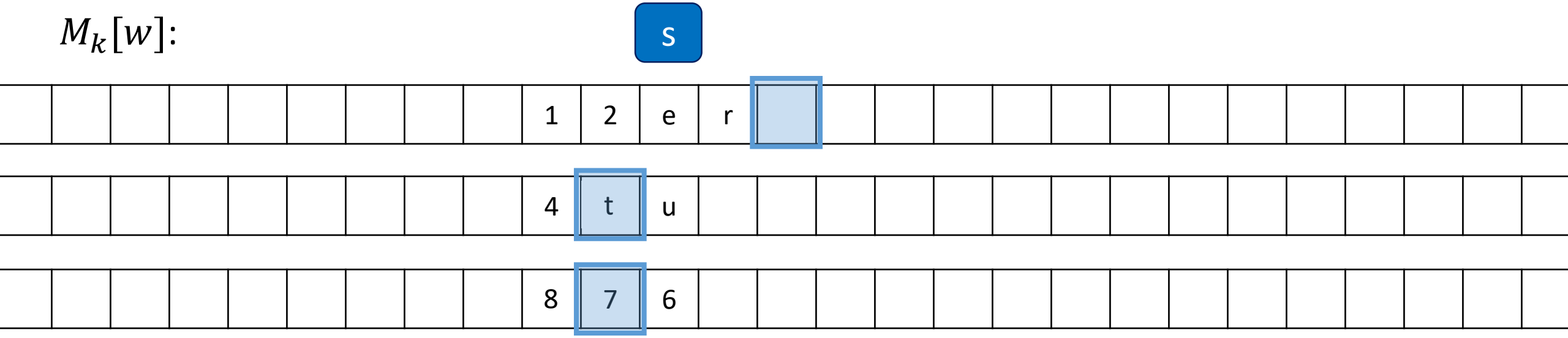
Searching for k underlined symbols: $\Theta(t(w))$

$M_1[w]$:



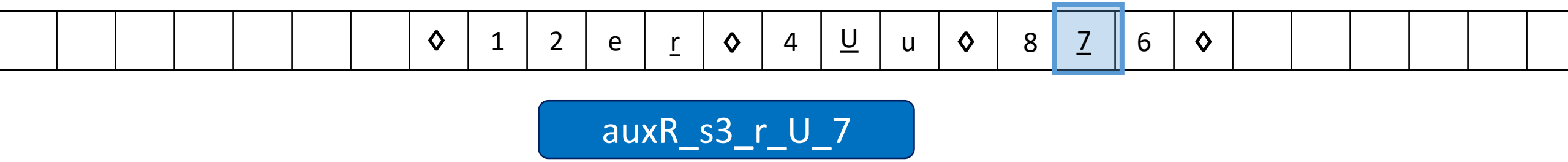
Single tape simulation – efficiency

$M_k[w]$:



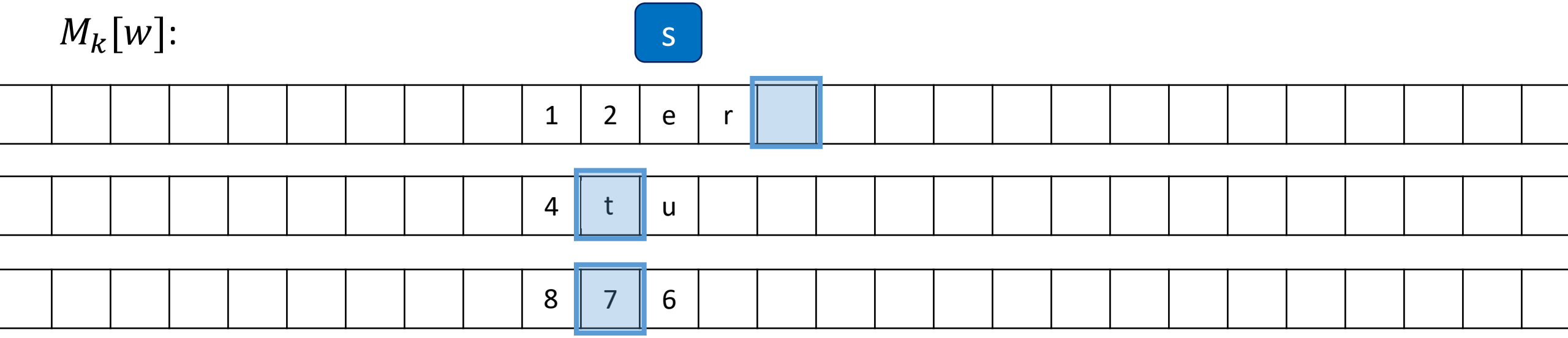
Performing an action; generally: $\Theta(1)$

$M_1[w]$:



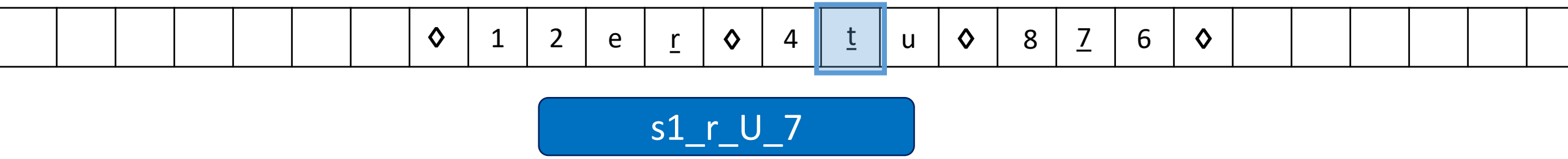
Single tape simulation – efficiency

$M_k[w]$:



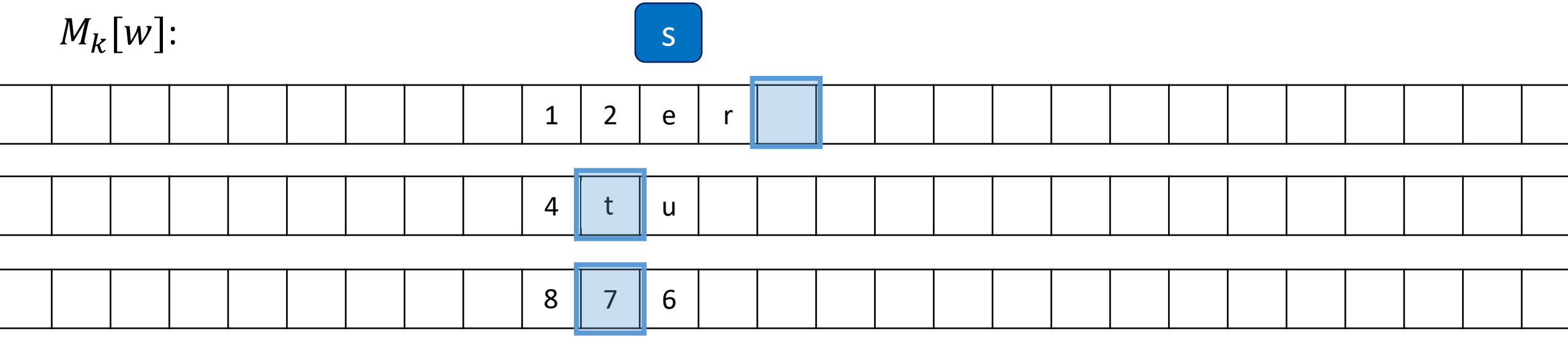
Performing an action; generally: $\Theta(1)$

$M_1[w]$:



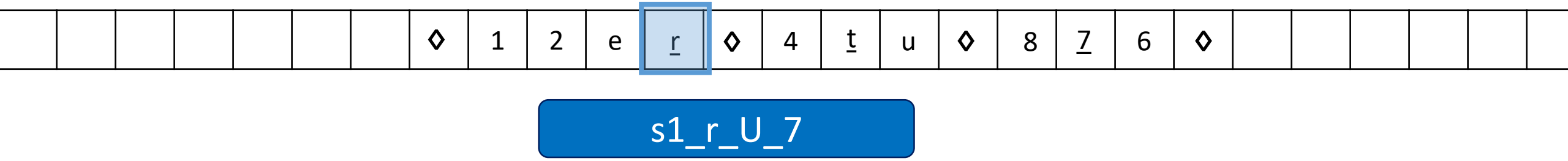
Single tape simulation – efficiency

$M_k[w]$:



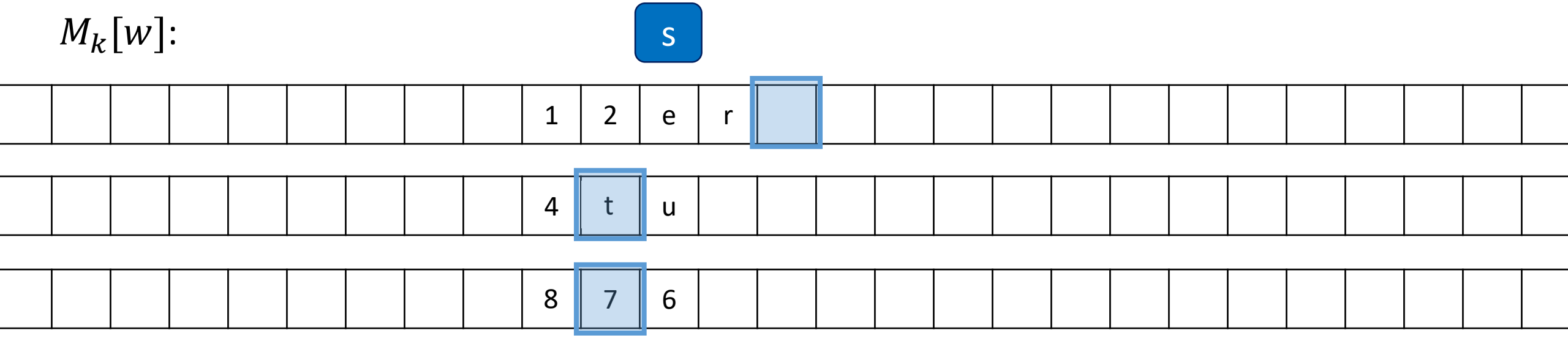
Performing an action; worst-case (shift tape contents): $\Theta(t_k(w))$

$M_1[w]$:



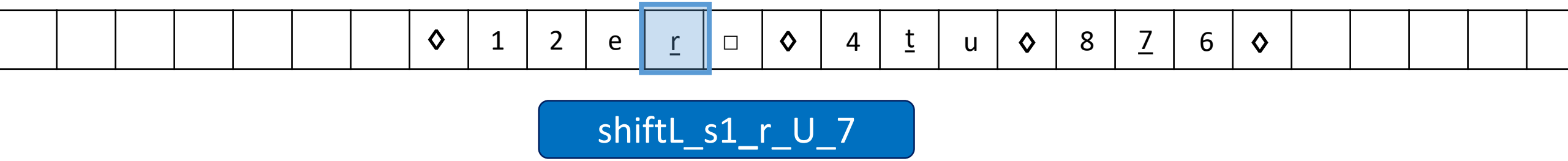
Single tape simulation – efficiency

$M_k[w]$:



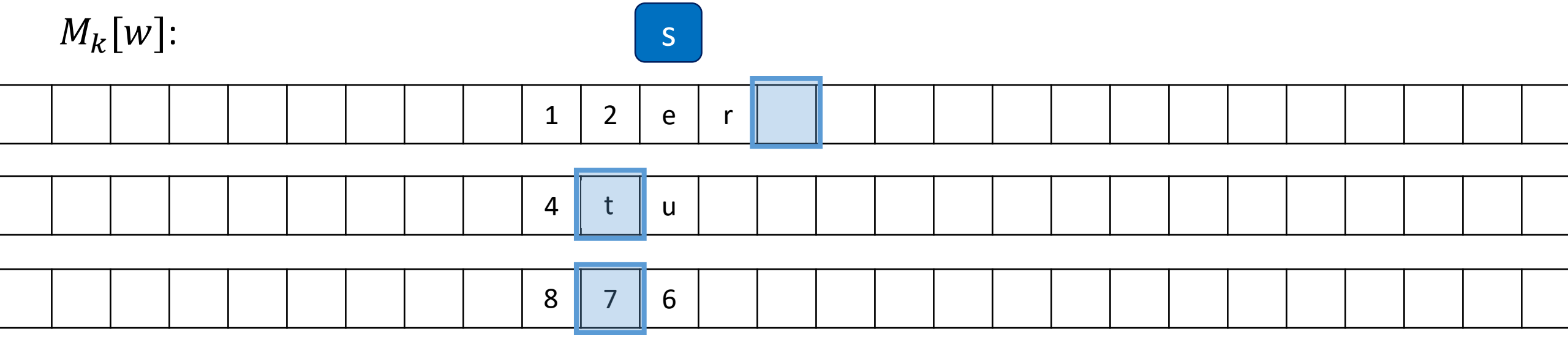
$M_1[w]$:

Performing an action; worst-case (shift tape contents): $\Theta(t_k(w))$

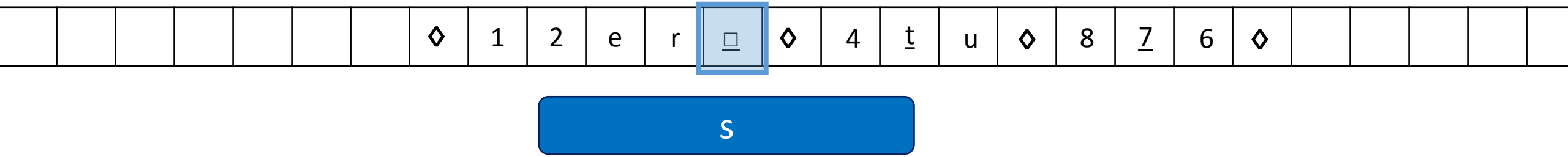


Single tape simulation – efficiency

$M_k[w]$:



$M_1[w]$:



The class P

$$P \stackrel{\text{def}}{=} \bigcup_{k \in \mathbb{N}} DTIME(n^k)$$

The class of tractable problems

Problems that can't be solved in polynomial time are ***intractable***