13-A

串

ADT

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术语
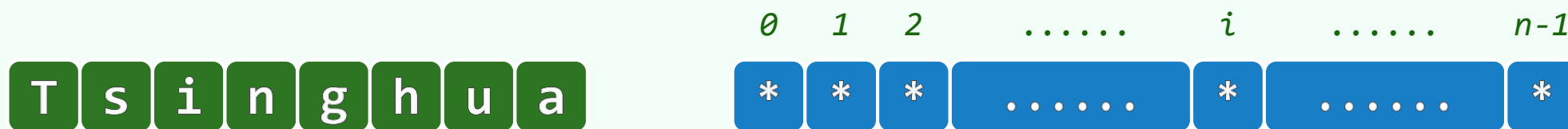
$$S.substr(i, k) = S[i, i+k), \ 0 \leq i < n, \ 0 \leq k$$

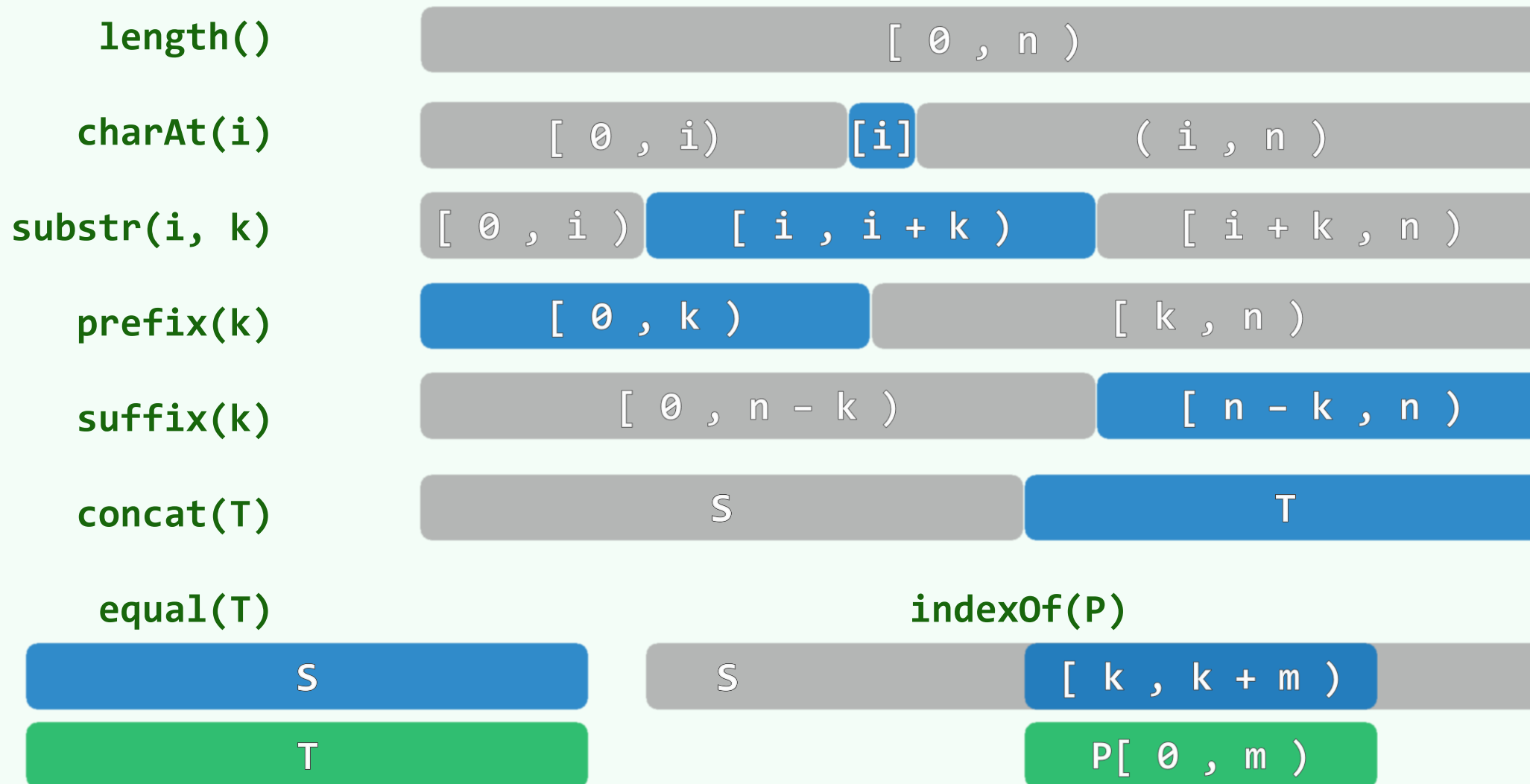| [0, i) | [i, i+k) | [i+k, n) |

$$S.prefix(k) = S.substr(0, k) = S[0, k), \ 0 \leq k \leq n$$

| [0, k) | [k, n) |

$$S.suffix(k) = S.substr(n - k, k) = S[n - k, n), \ 0 \leq k \leq n$$

| [0, n-k) | [n-k, n) |

$$S.substr(i, k) = S.prefix(i + k).suffix(k) = S.suffix(n - i).prefix(k)$$

ADT

length()	[0 , n)
charAt(i)	[0 , i) **[i]** (i , n)
substr(i, k)	[0 , i) **[i , i + k)** [i + k , n)
prefix(k)	**[0 , k)** [k , n)
suffix(k)	[0 , n – k) **[n – k , n)**
concat(T)	S **T**

equal(T)   **indexOf(P)**

S   S   **[k , k + m)**

T   **P[0 , m)**

实例

❖ "data structures".length() = 15   "data structures".charAt(5) = 's'

   "data structures".prefix(4) = "data"   "data structures".suffix(10) = "structures"

   "data structures".concat(" & algorithms") = "data structures & algorithms"

   "algorithms".equal("data structures") = false

   "data structures and algorithms".indexOf("string") = -1

   "data structures and algorithms".indexOf("algorithm") = 20

❖ <string.h>中的对应功能：strlen()、strcpy()、strcat()、strcmp()、strstr()

❖ 以下，直接利用字符数组实现字符串，转而重点讨论串匹配算法