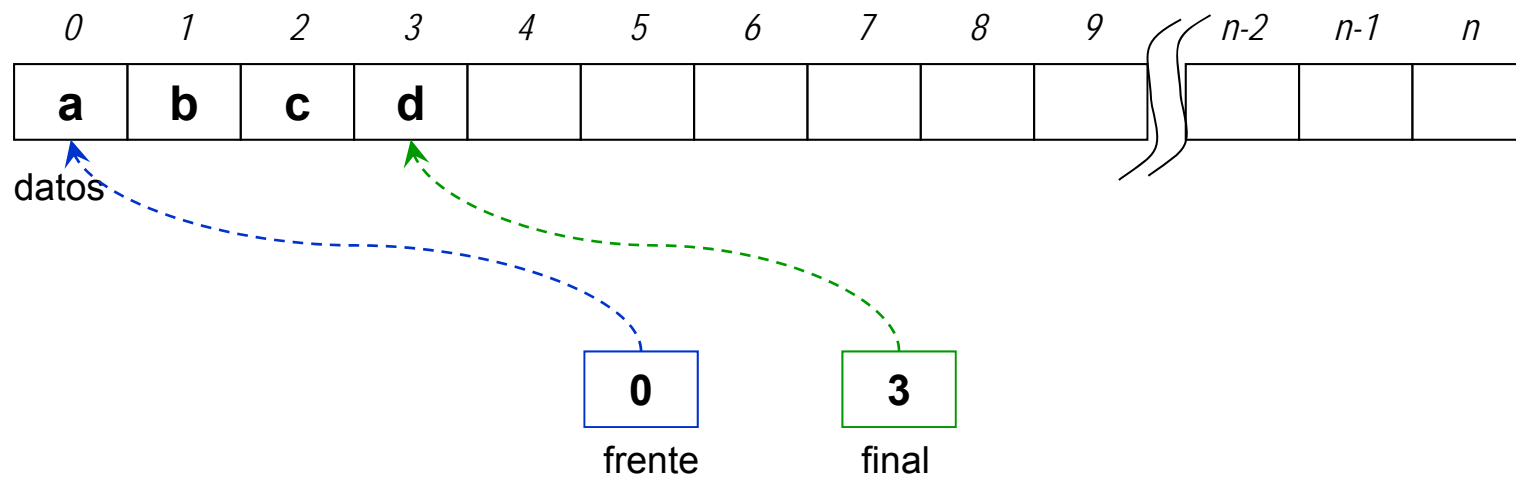
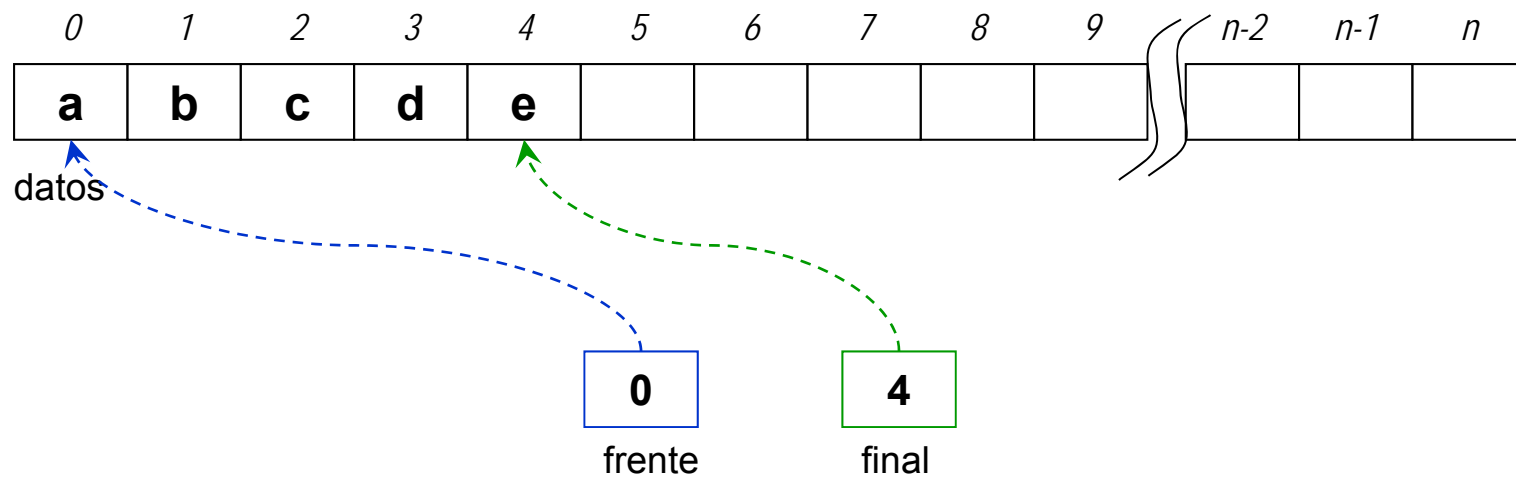
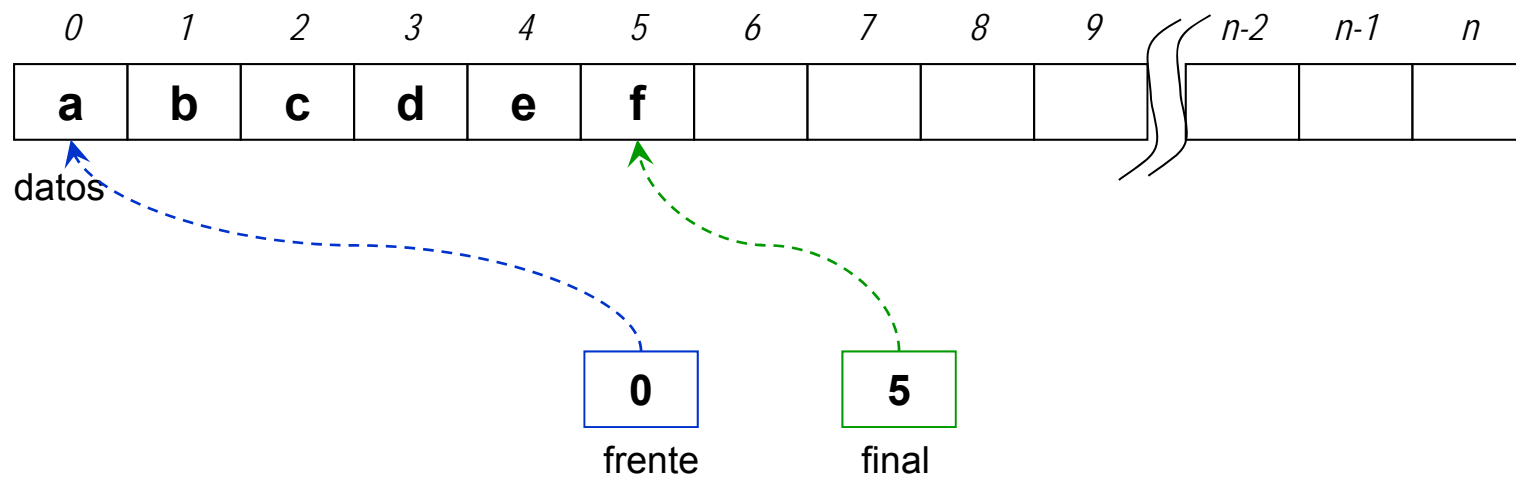
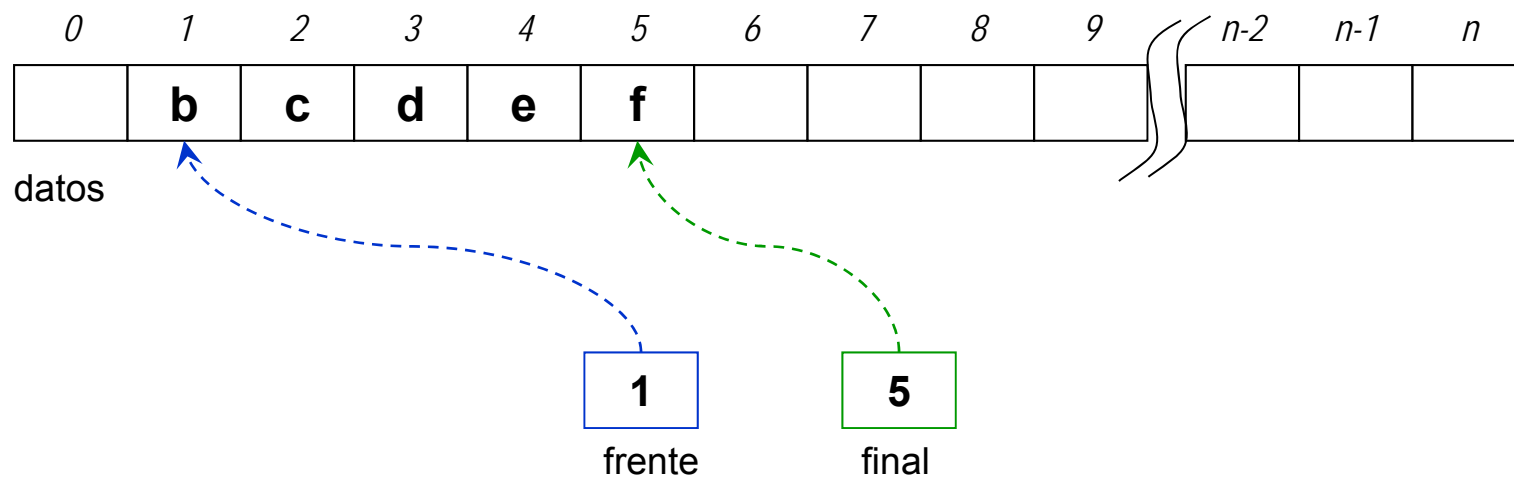


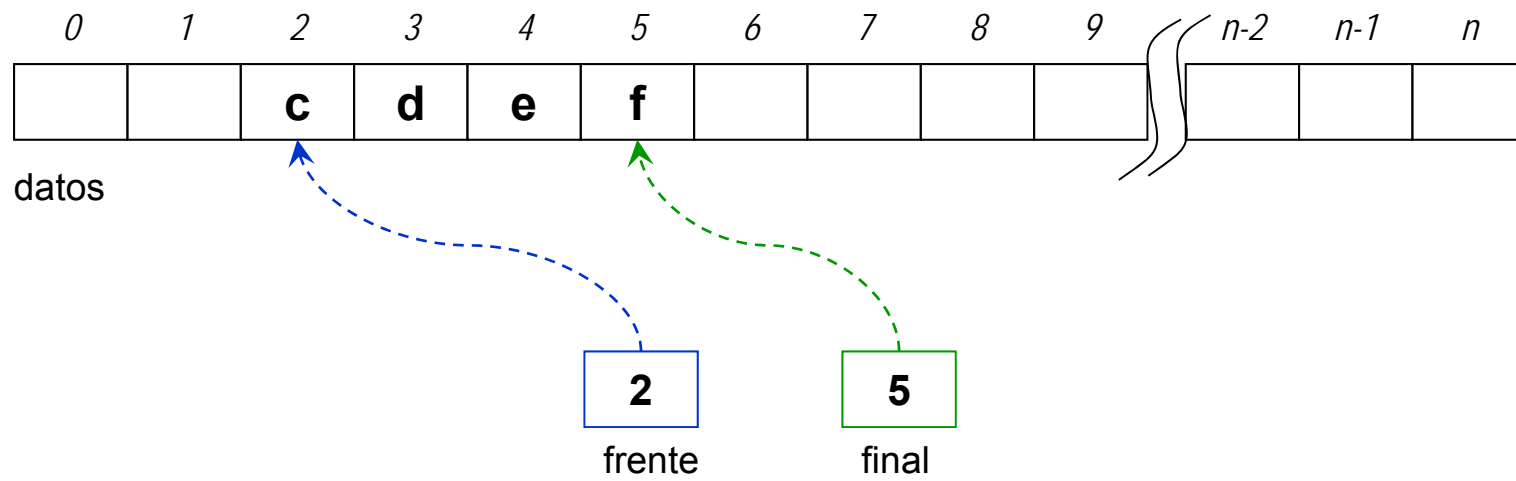
Cola

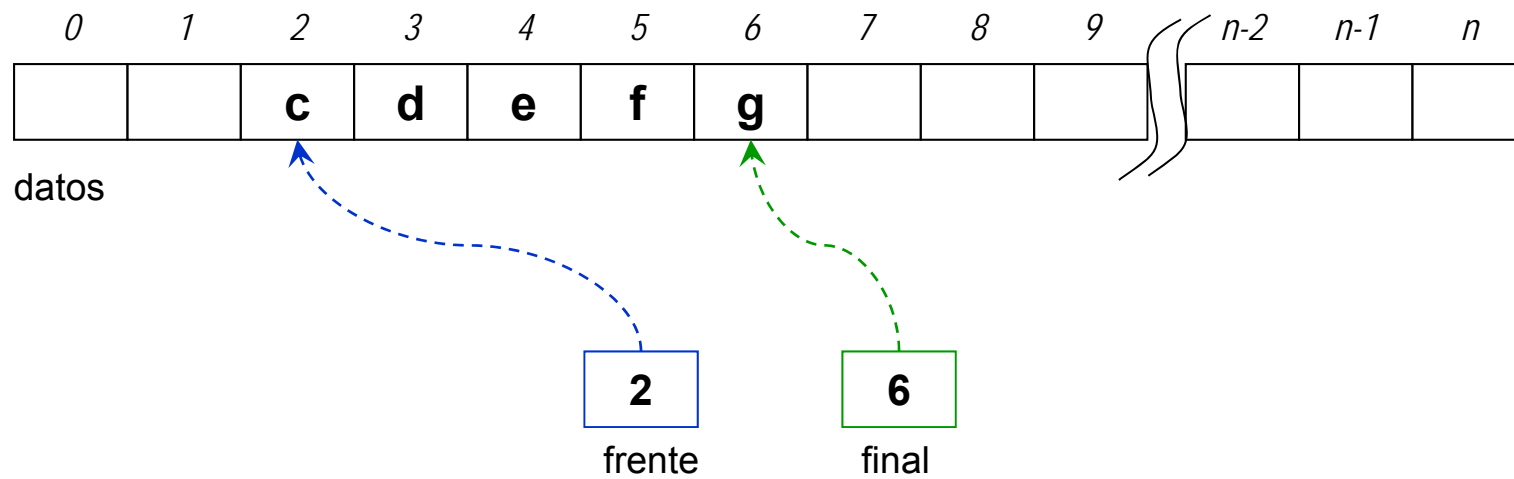


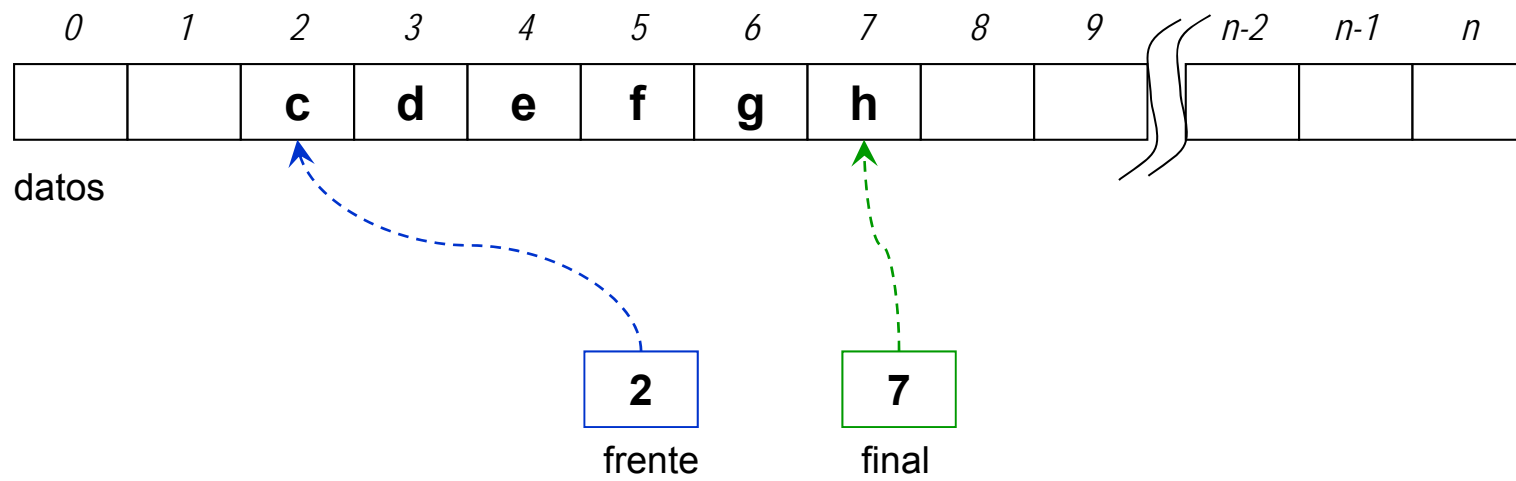


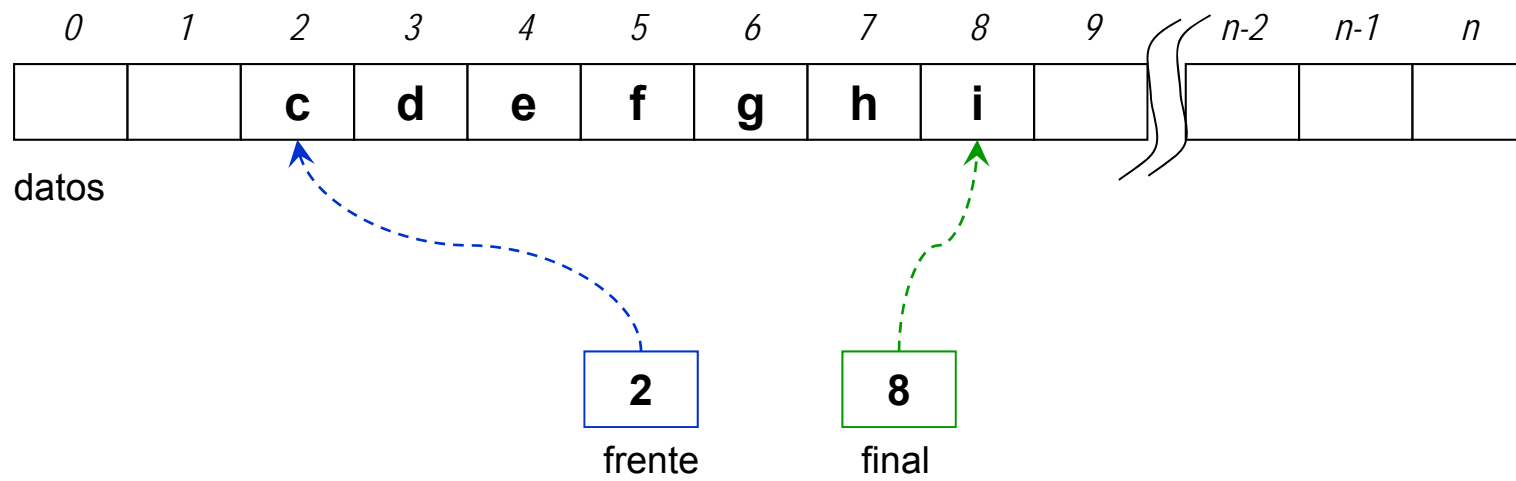


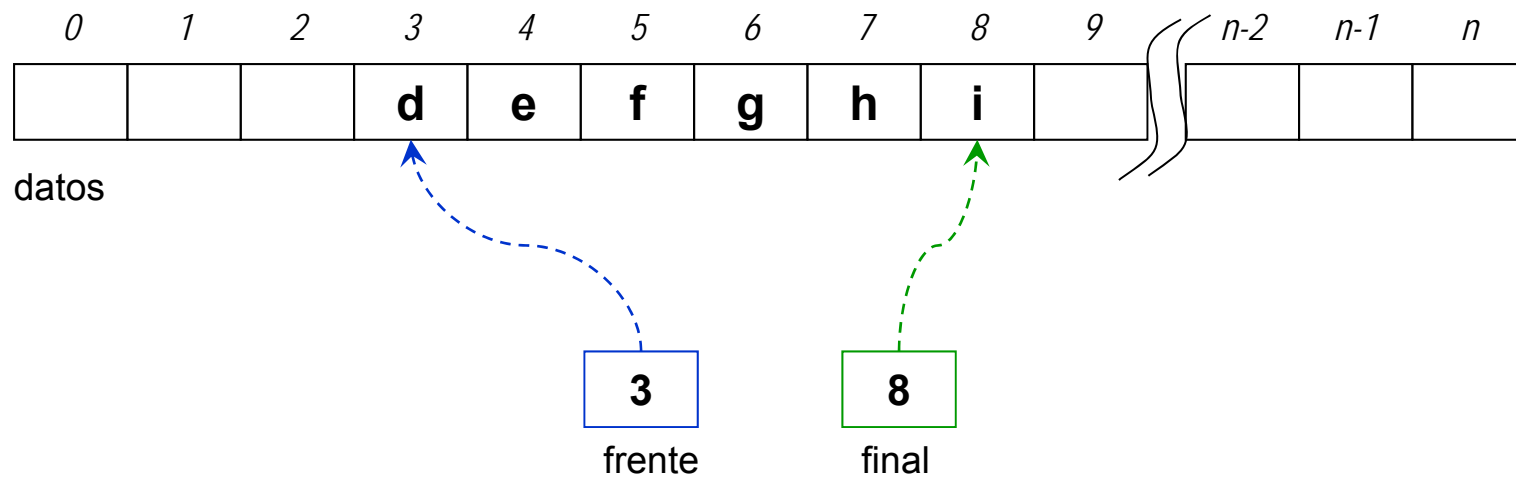


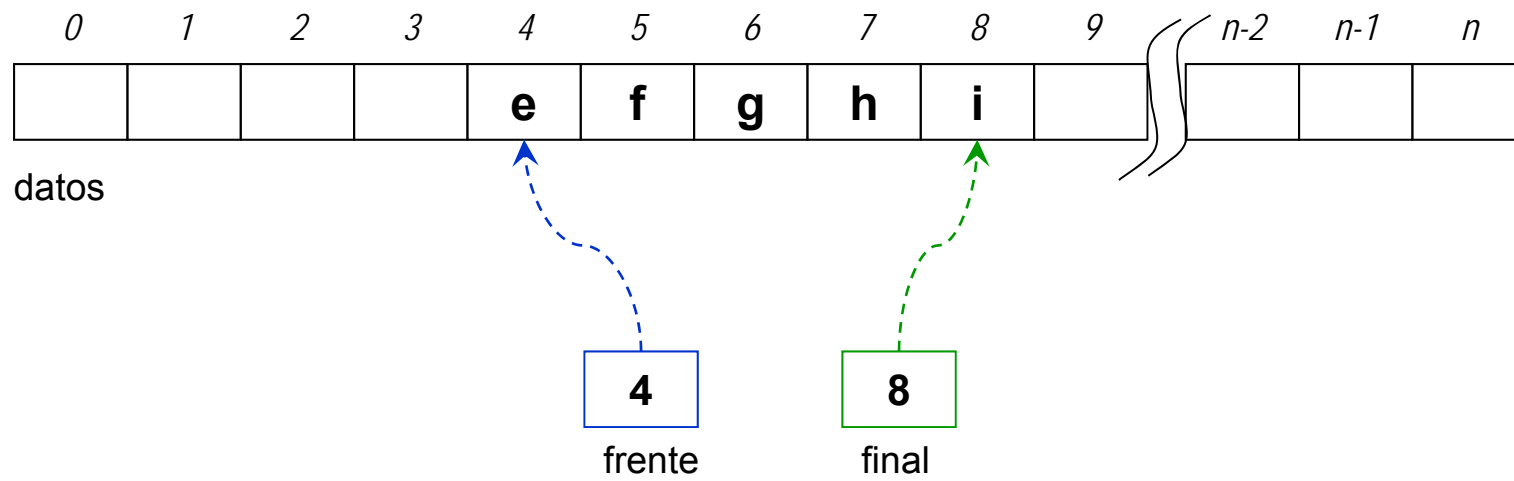


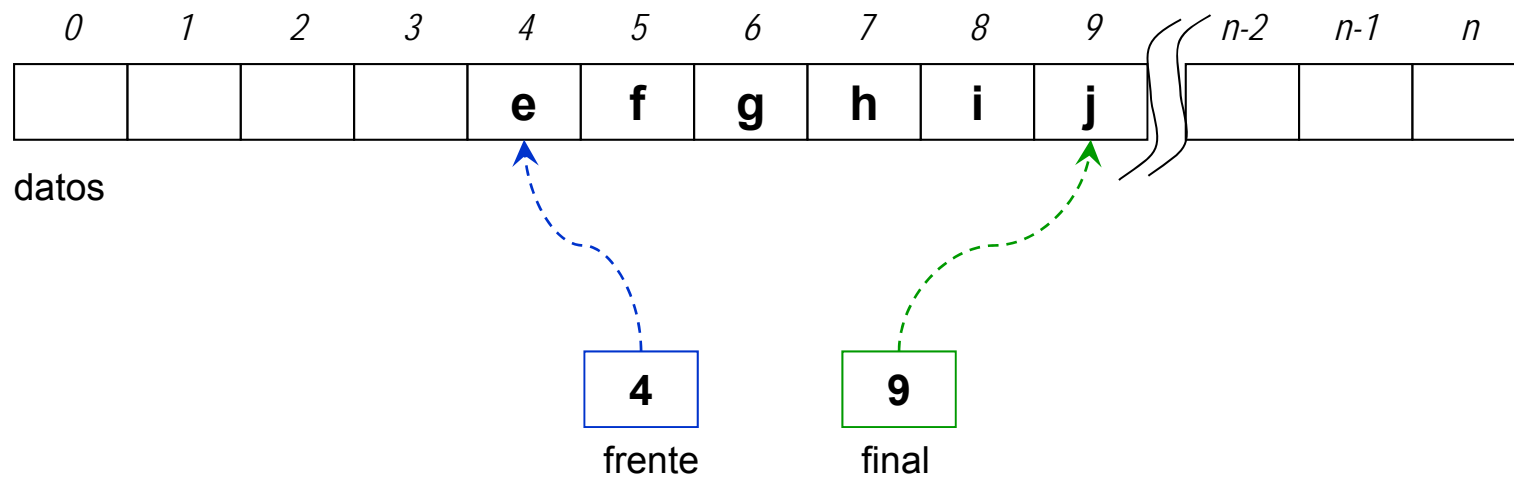


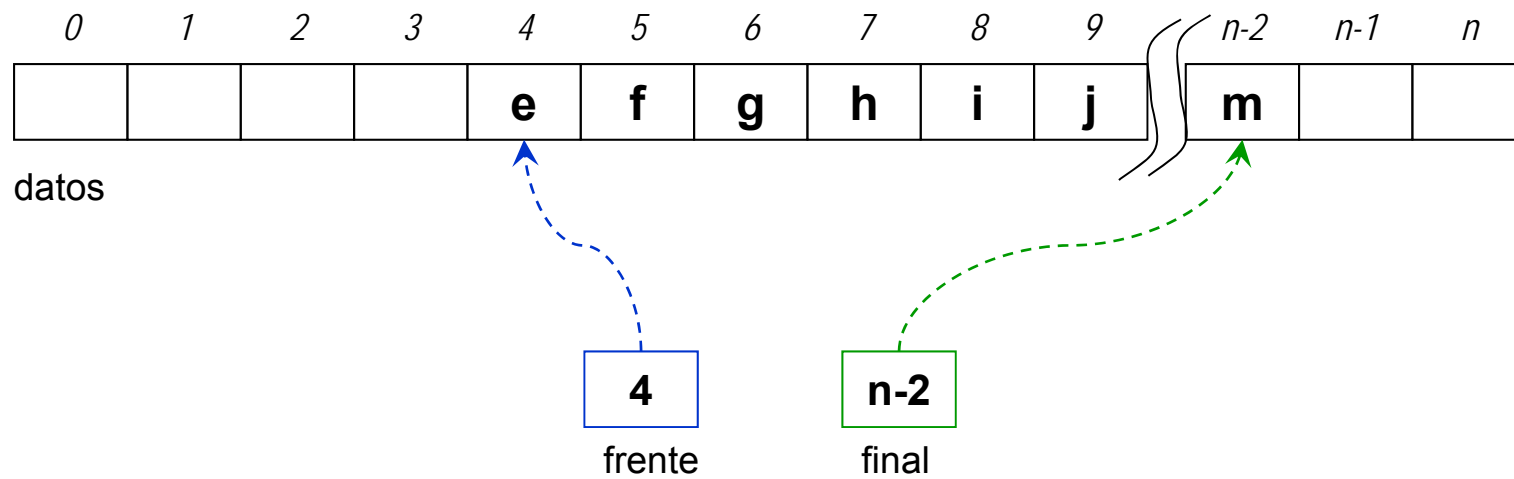


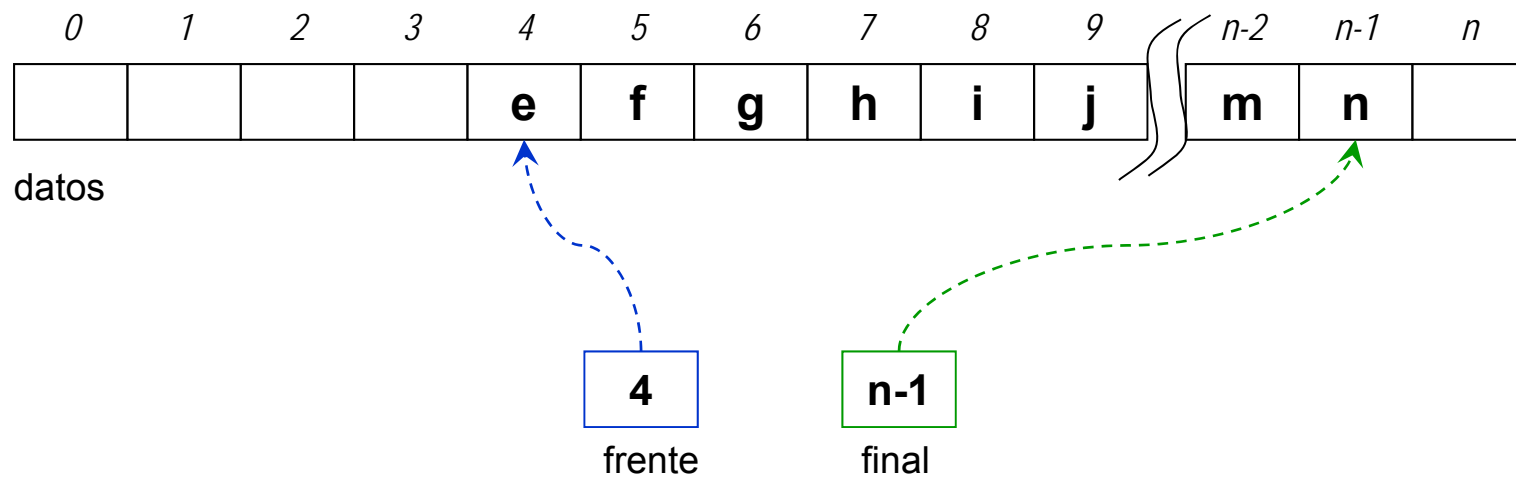


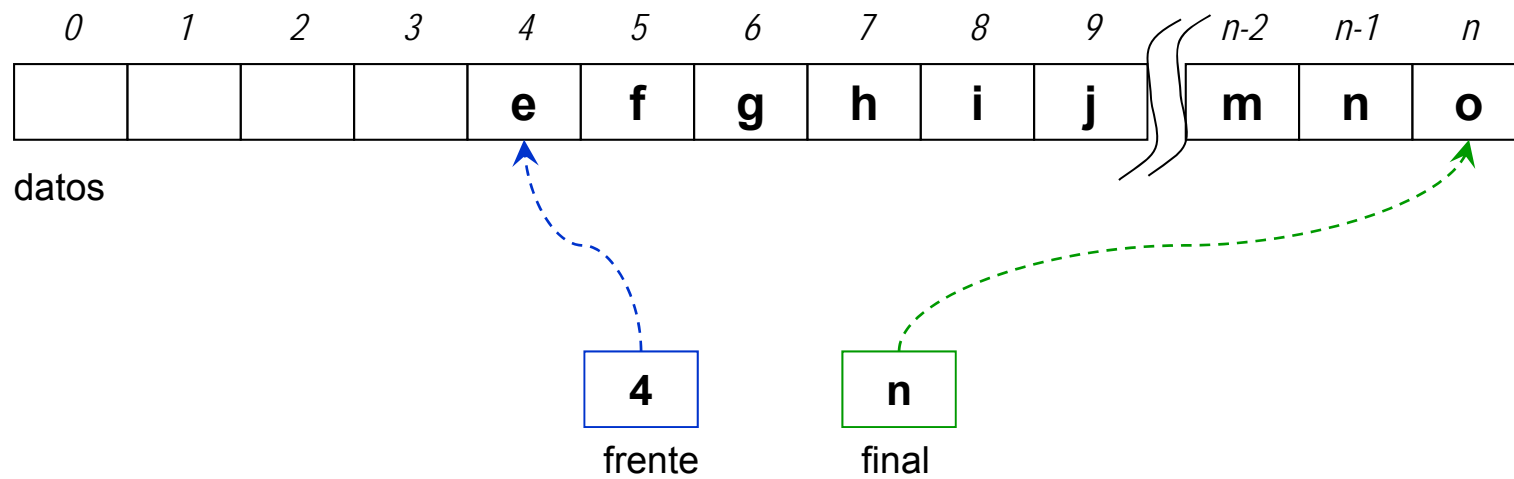


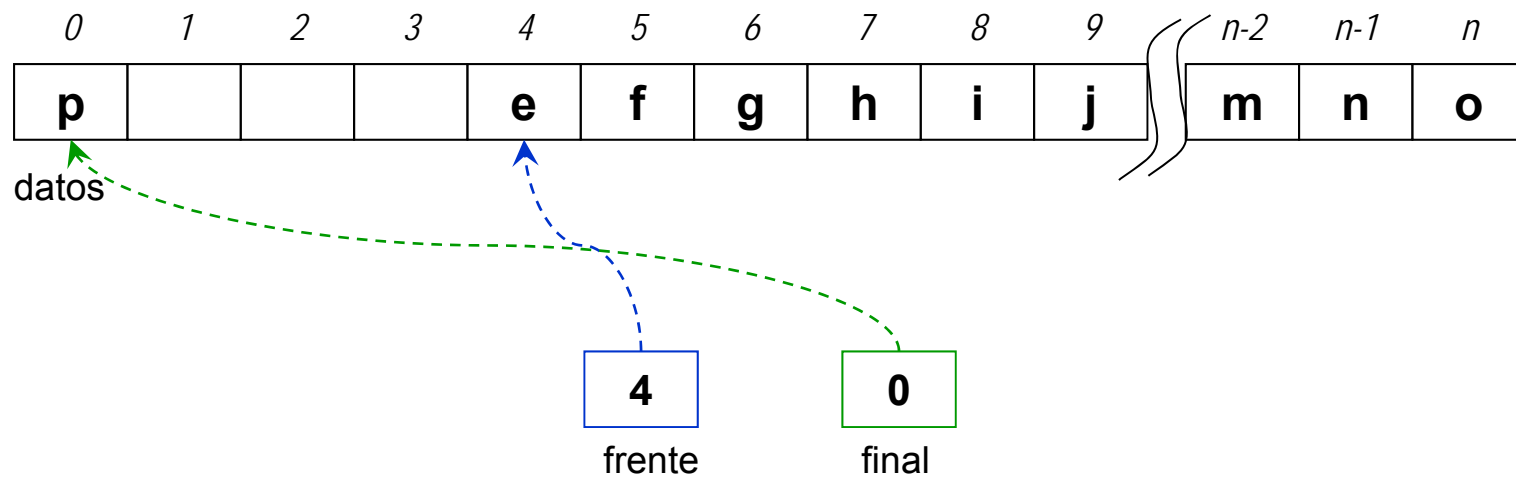


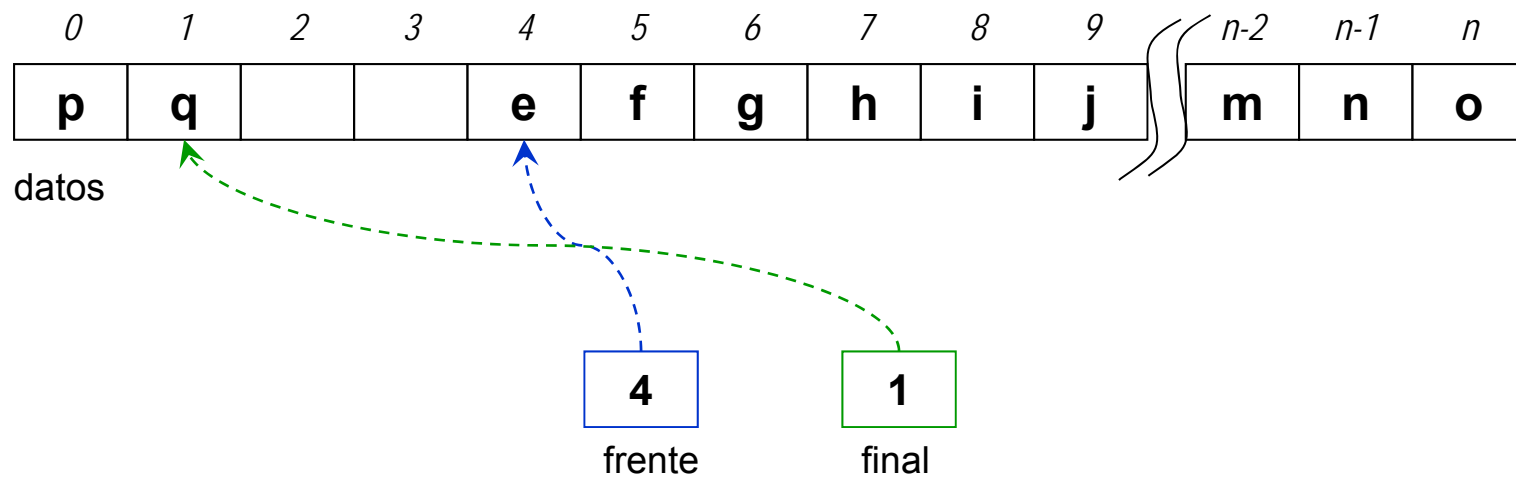


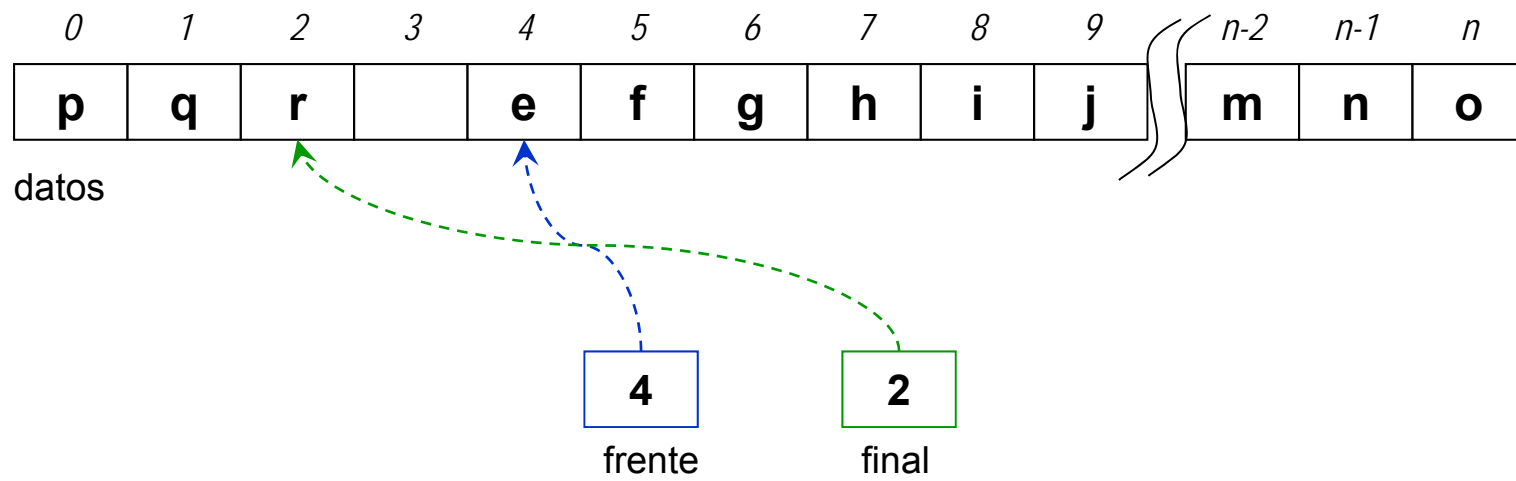


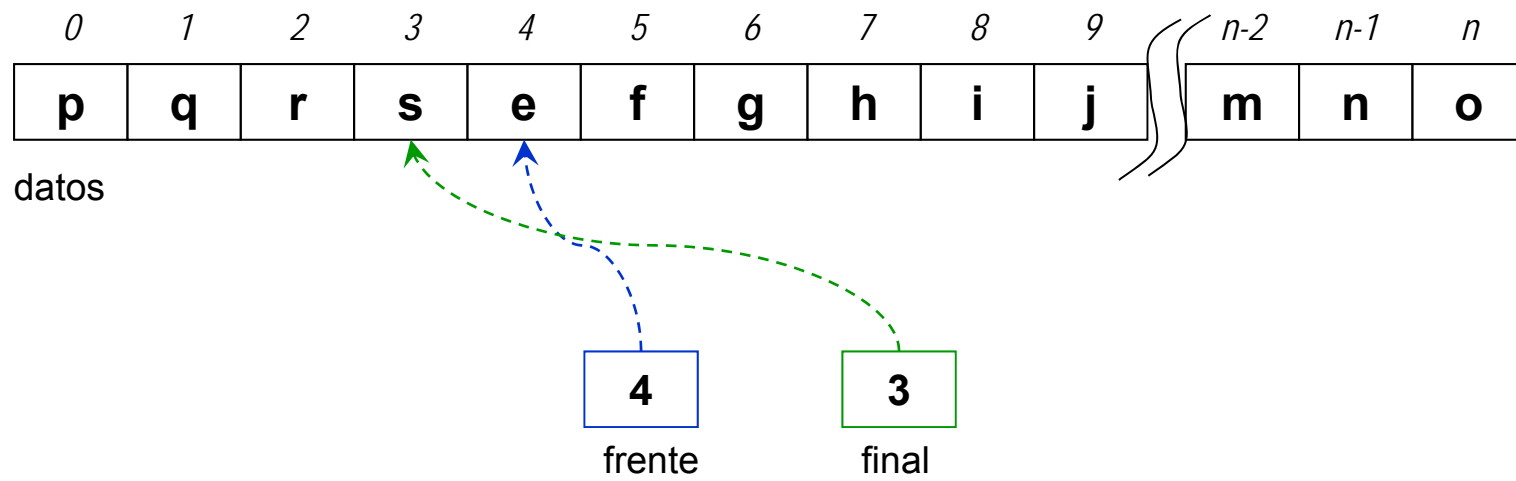


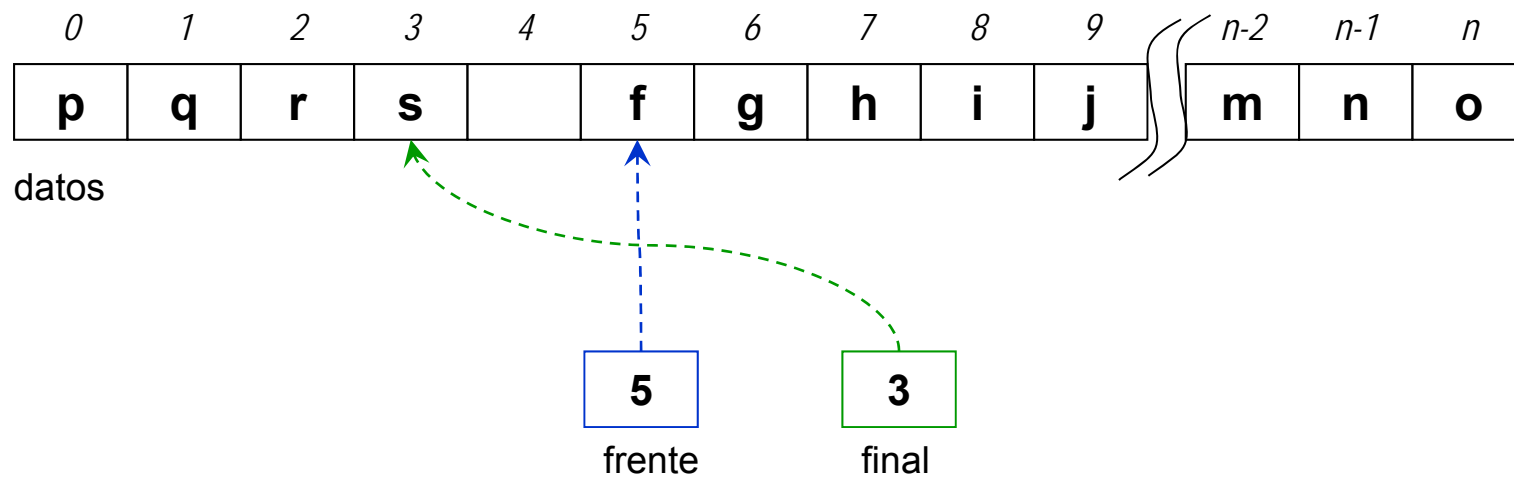


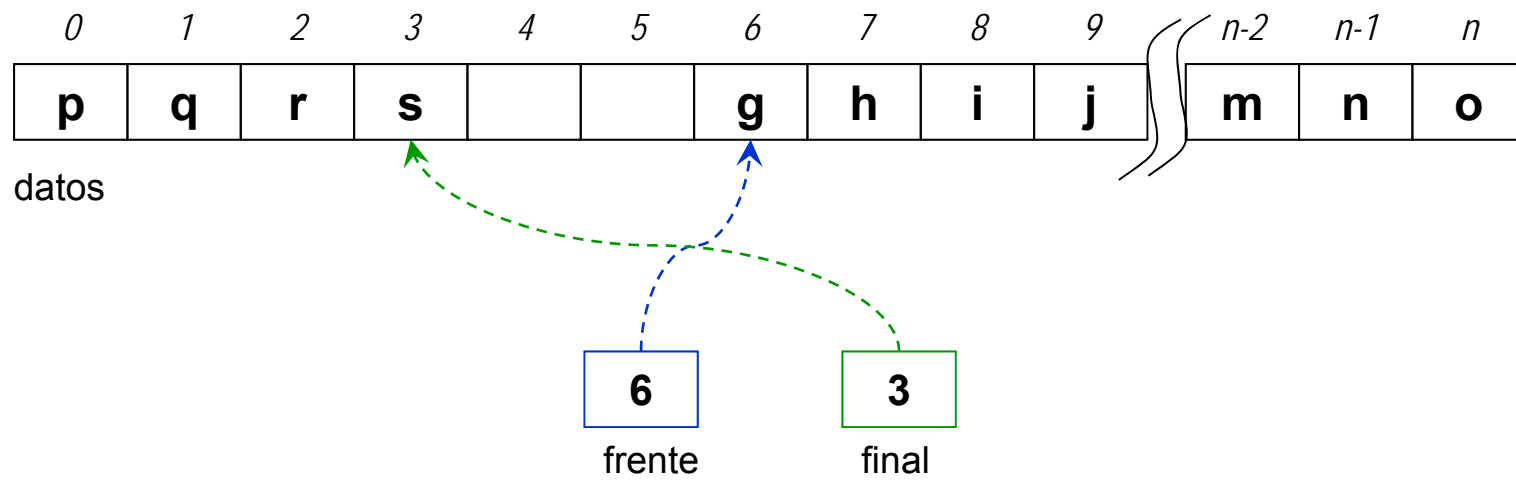


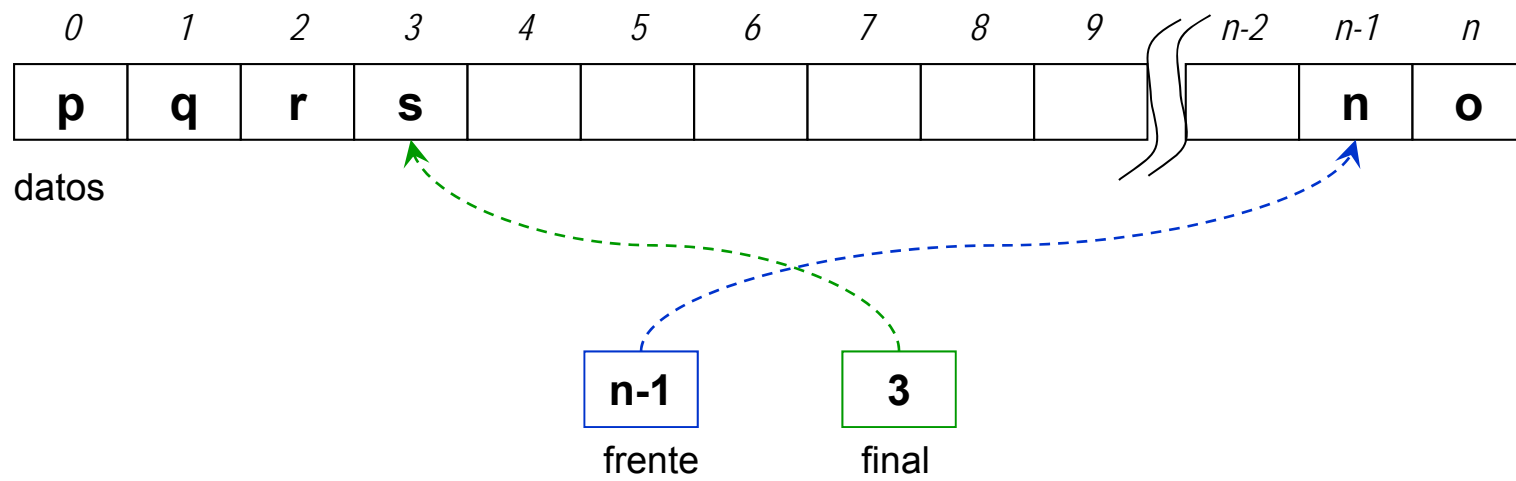


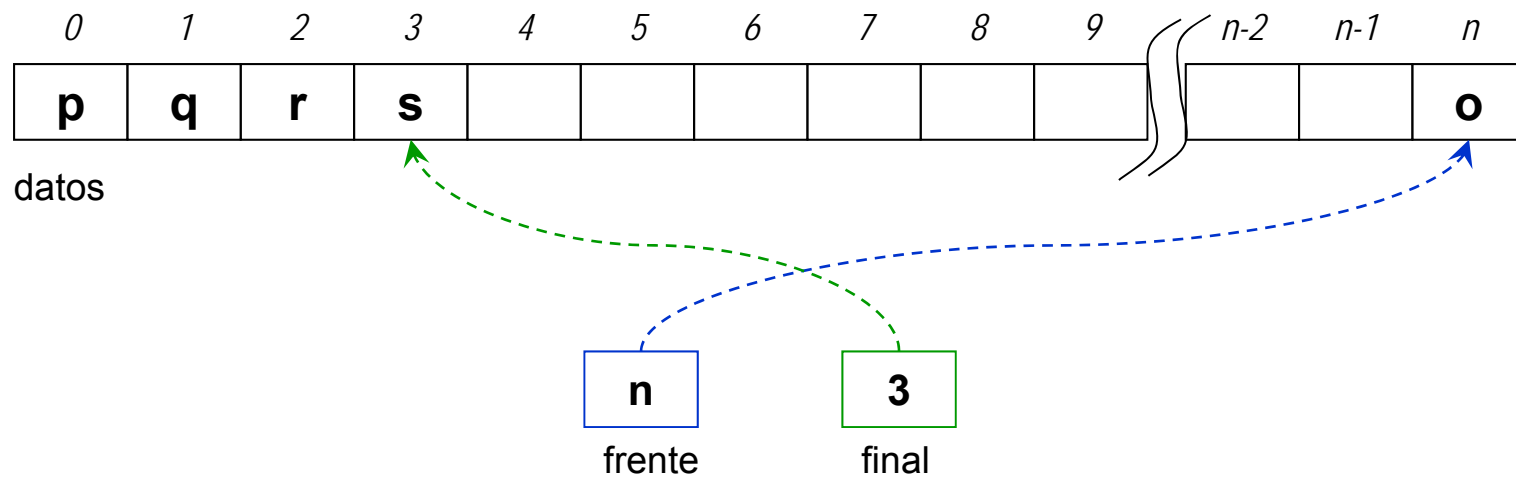


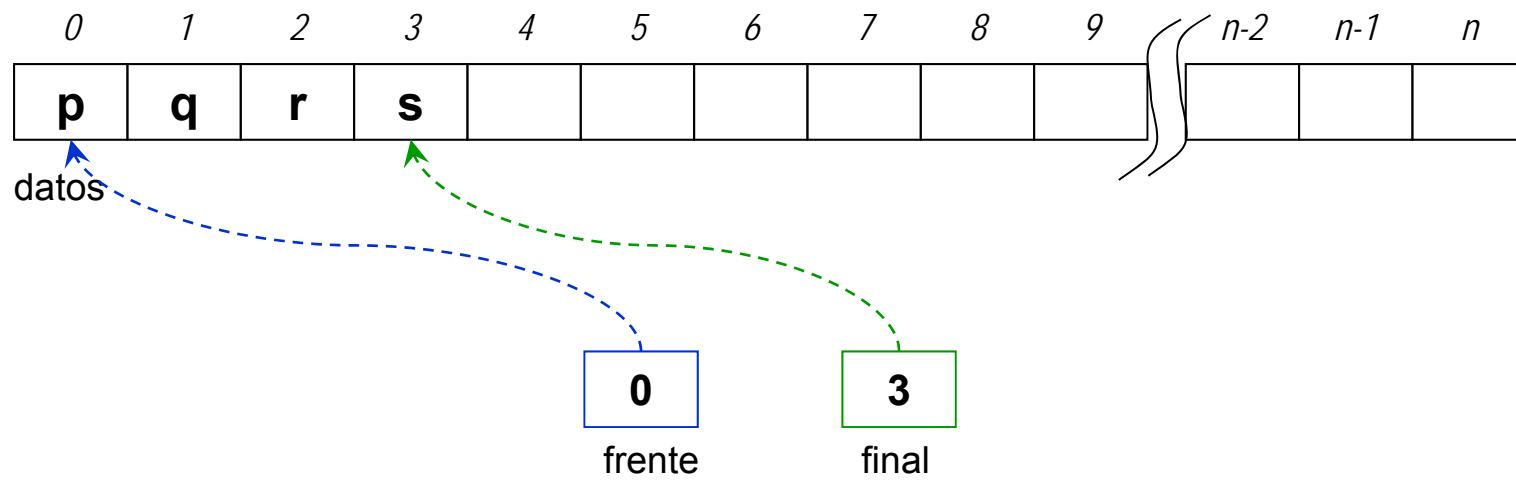


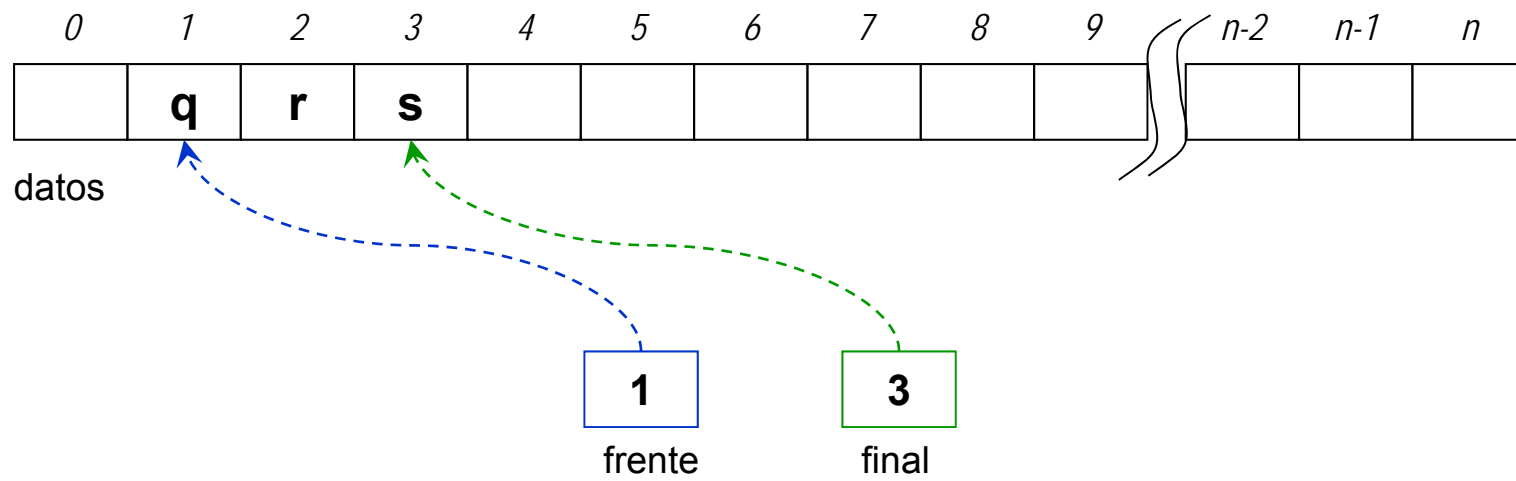


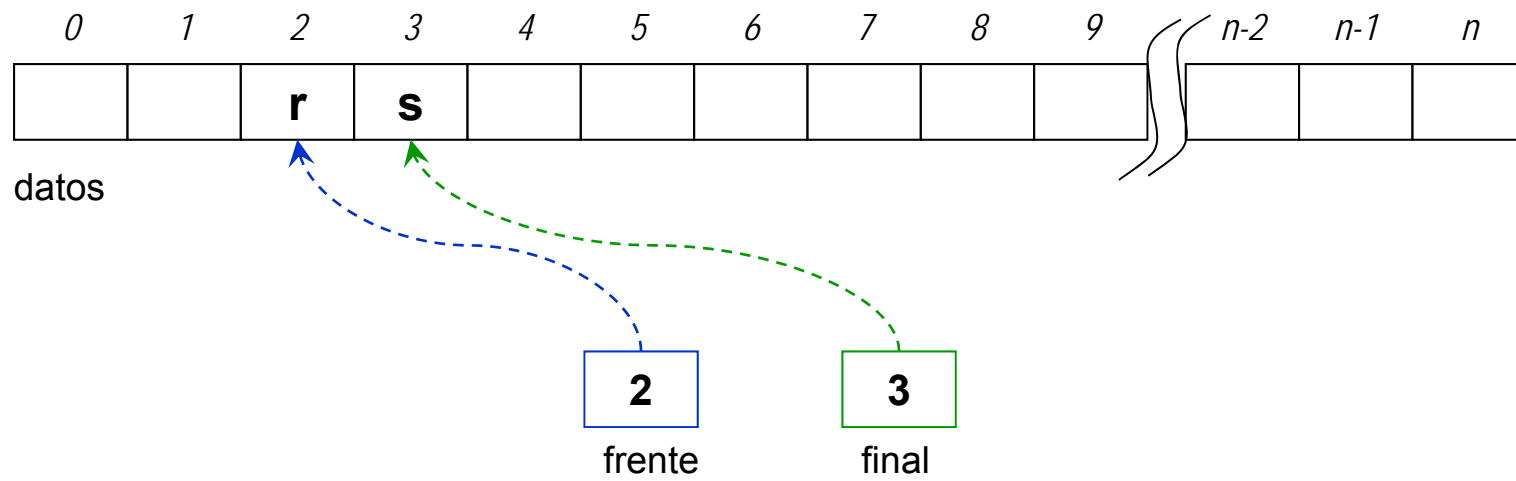


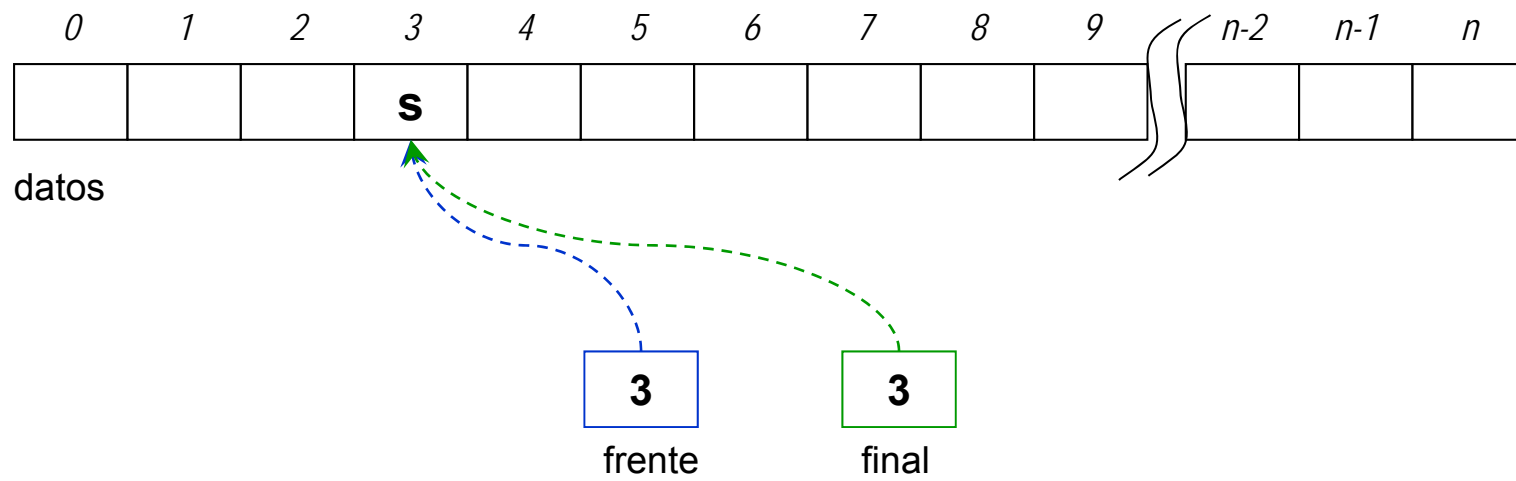


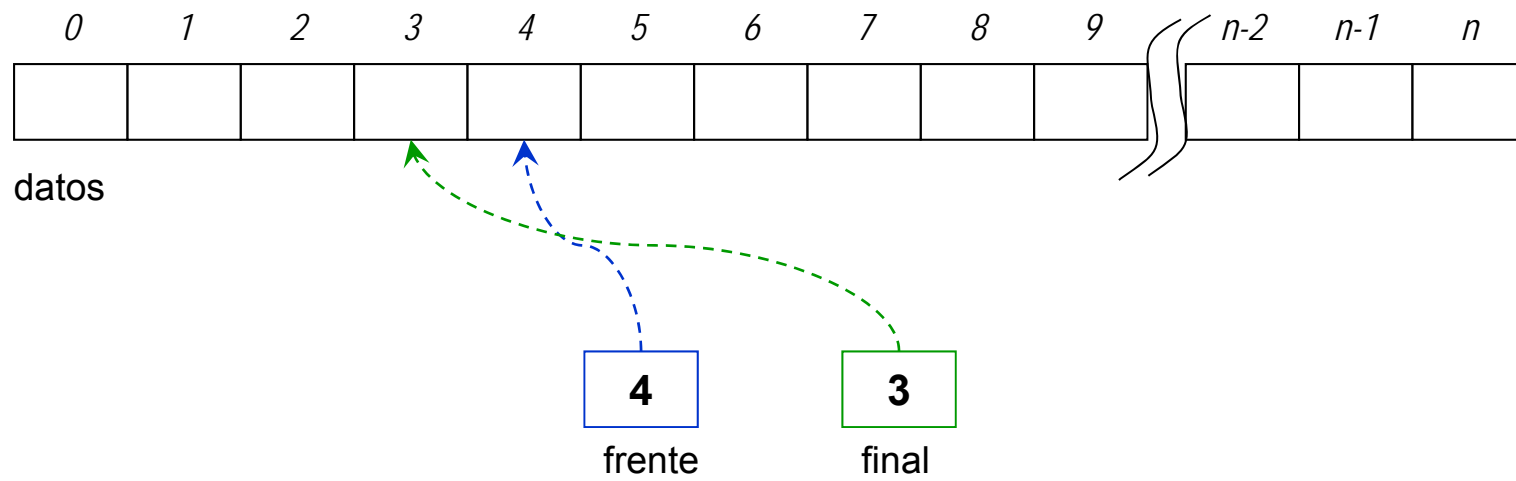


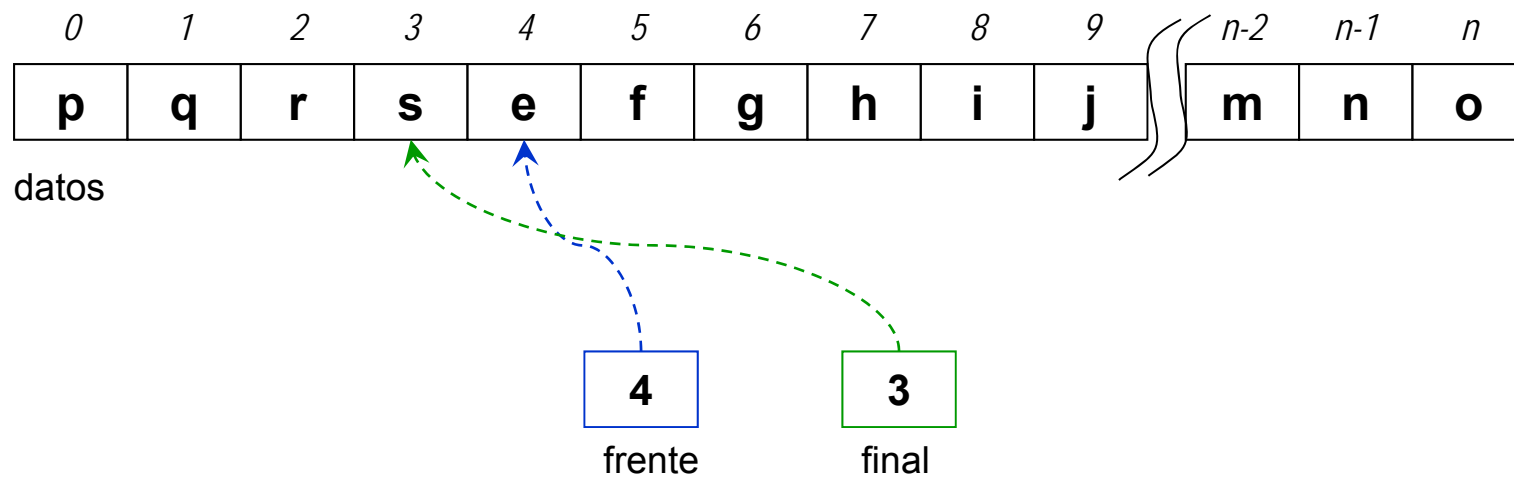


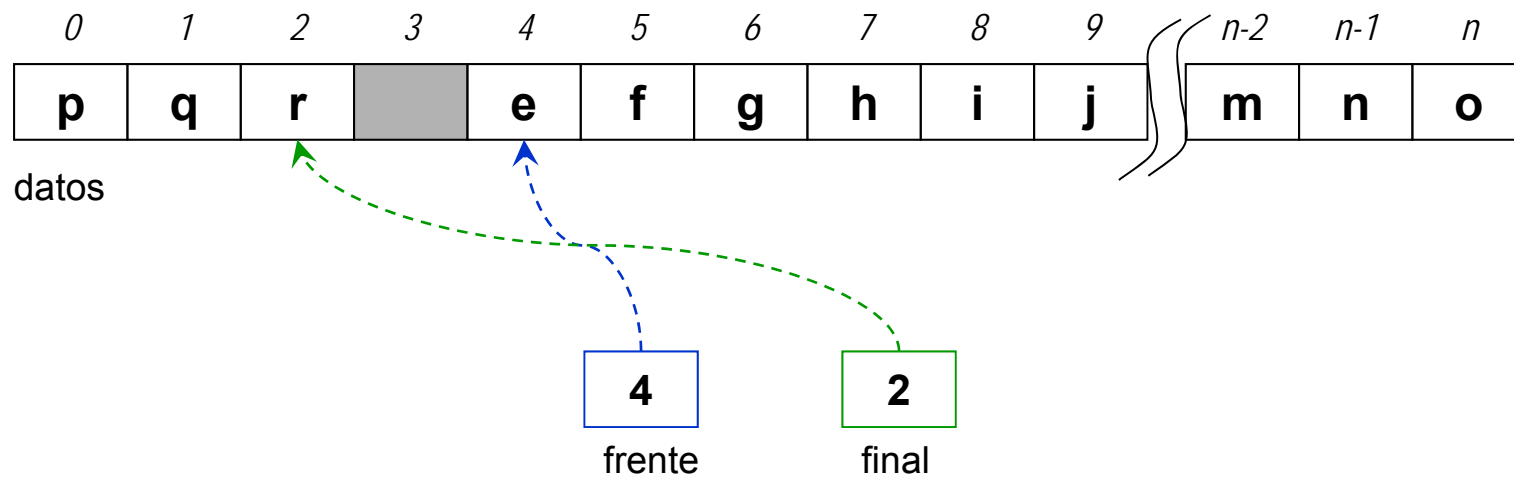






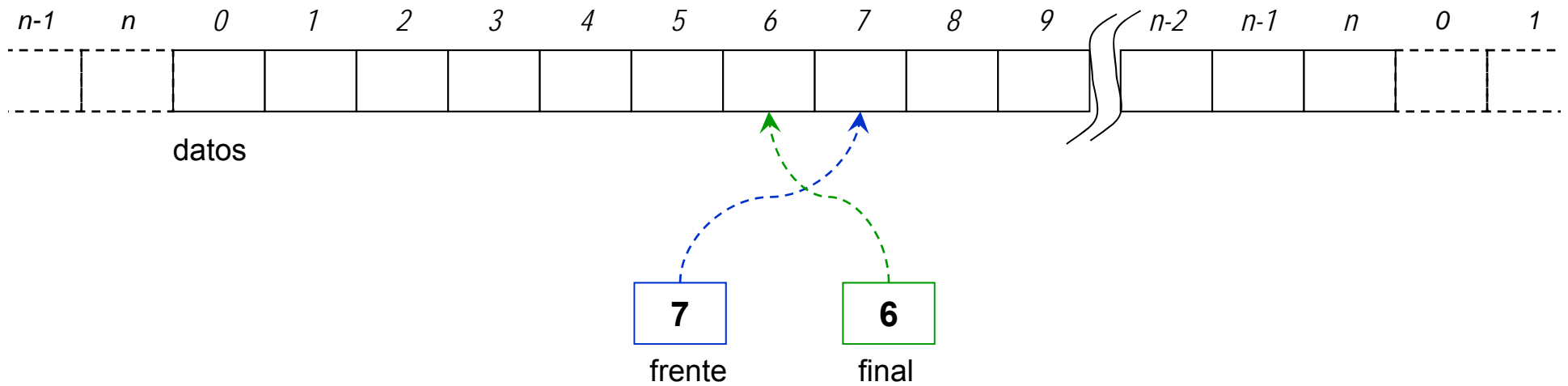






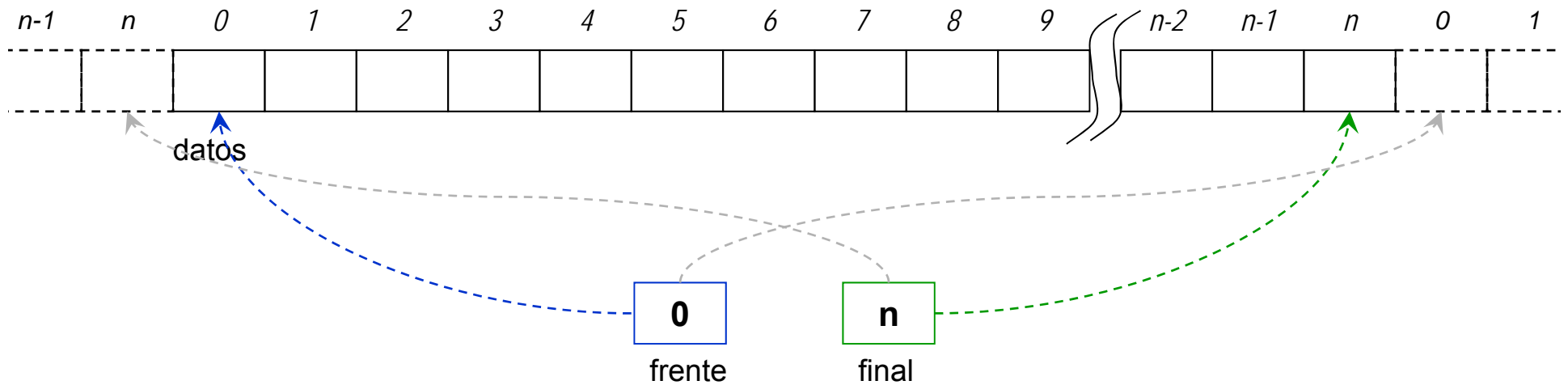
Vacía: $\text{frente} = \text{final} + 1$
Llena: $\text{frente} = \text{final} + 2$

Cola vacía



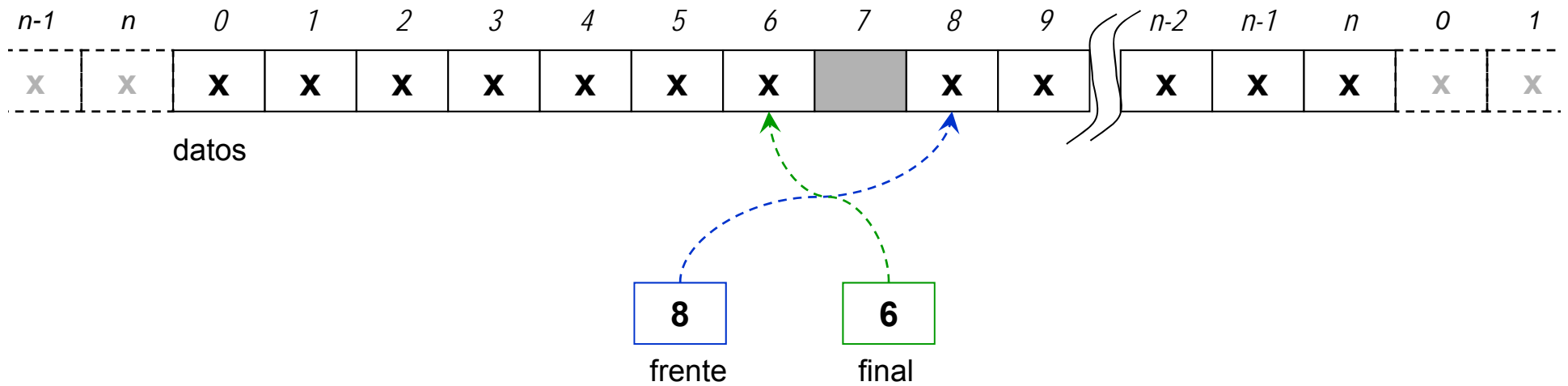
Vacía: $\text{frente} = \text{final} + 1$

Cola recién inicializada
Cola vacía



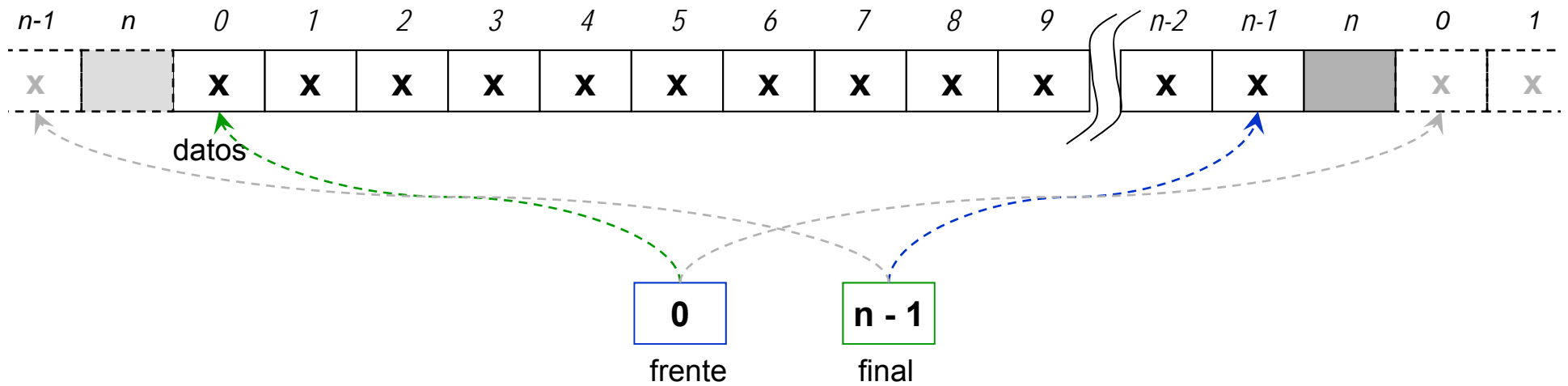
Vacía: $\text{frente} = \text{final} + 1$
 $\text{frente} = 0$ y $\text{final} = n$

Cola llena



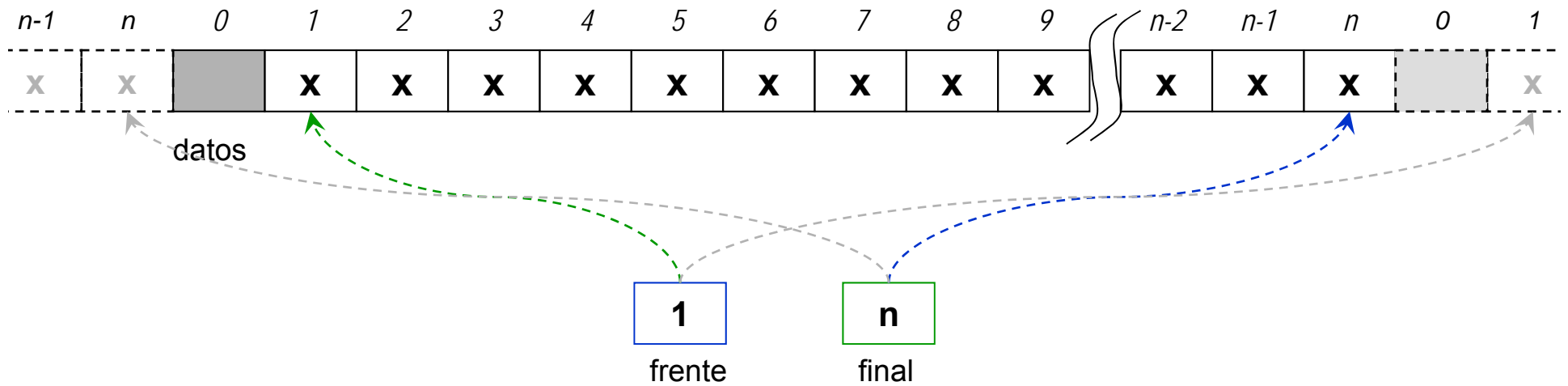
Llena: $\text{frente} = \text{final} + 2$

Cola llena

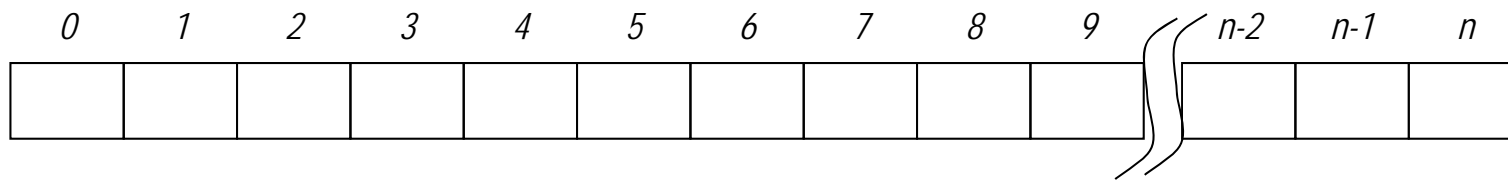


Llena: $\text{frente} = \text{final} + 2$
 $\text{frente} = 0$ y $\text{final} = n - 1$

Cola Ilena



Llena: frente = final + 2
 frente = 0 y final = n - 1
 frente = 1 y final = n

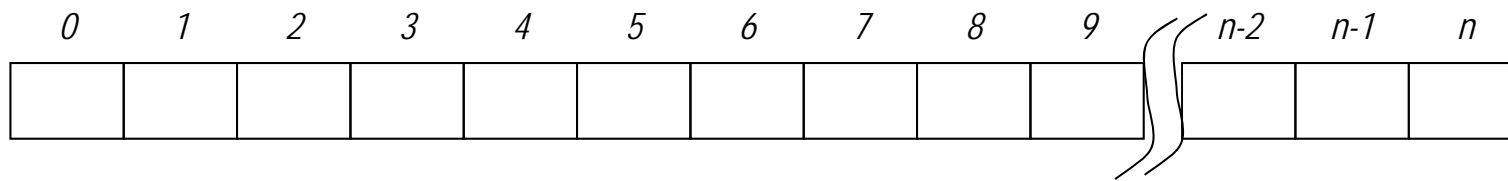


frente

final

función: **inicializa**
 recibe: *cola(datos[], frente, final)*
 regresa: nada

$frente = 0$
final = tamaño_del_arreglo - 1



frente

final

función: **vacía**

recibe: *cola(datos[], frente, final)*

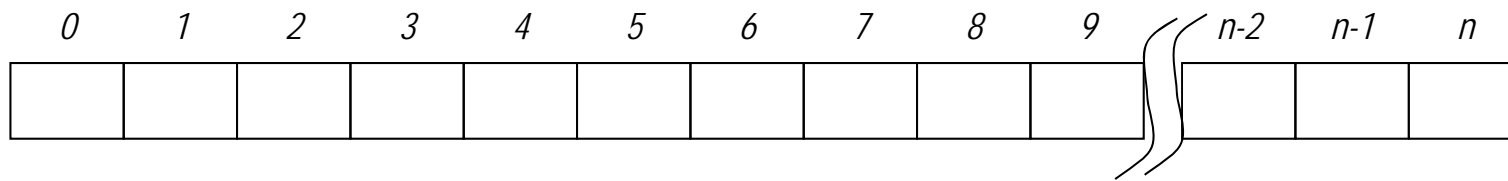
regresa: booleano

$\neg(frente = final + 1)$

ó $(frente = 0 \text{ y } final = \text{tamaño_del_arreglo} - 1)$?

Sí: regresar: verdadero

No: regresar: falso



frente

final

función: **llena**

recibe: *cola(datos[], frente, final)*

regresa: booleano

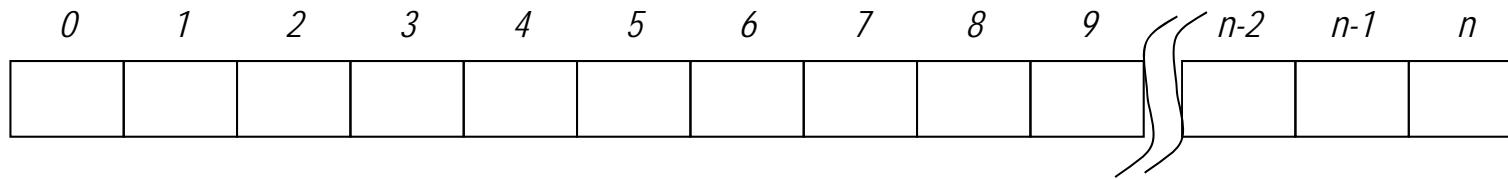
$\neg(frente = final + 2)$

ó $(frente = 0 \text{ y } final = \text{tamaño_del_arreglo} - 2)$

ó $(frente = 1 \text{ y } final = \text{tamaño_del_arreglo} - 1)?$

Sí: regresar: *verdadero*

No: regresar: *falso*



frente

final

función: **enqueue**

recibe: *elem*, *cola(datos[], frente, final)*

regresa: nada

¿llena(*cola*)?

Sí: Desplegar mensaje de error
desbordamiento de datos

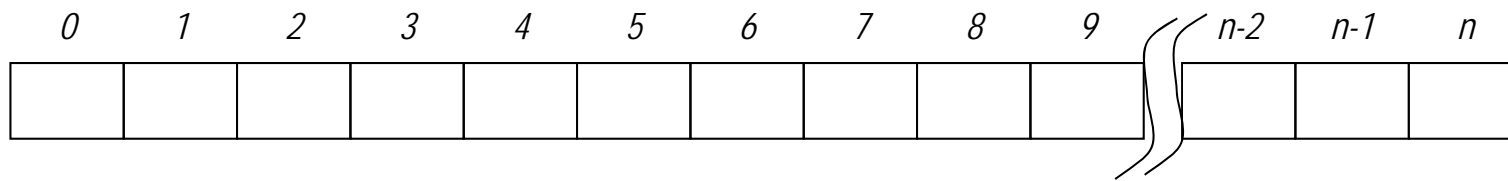
Terminar

No: $final = final + 1$

$¿final = tamaño_del_arreglo?$

Sí: $final = 0$

$datos[final] = elem$



función: **dequeue**

recibe: *cola(datos[], frente, final)*

regresa: nada

¿**vacía**(cola)?

Sí: Desplegar mensaje de error

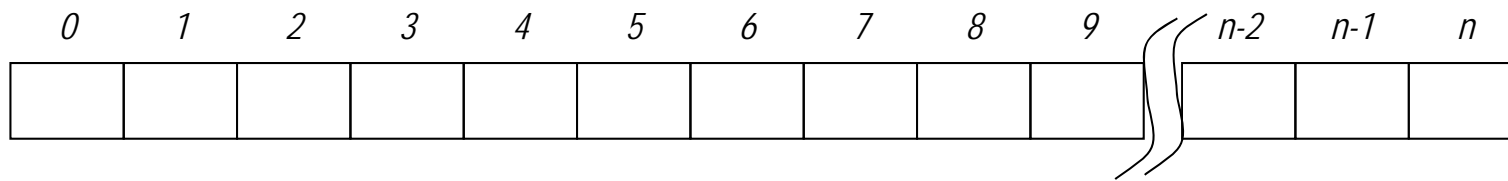
Insuficiencia de datos

Terminar

No: $frente = frente + 1$

¿ $frente = tamaño_del_arreglo$?

Sí: $frente = 0$



frente

final

función: **front**

recibe: *cola(datos[], frente, final)*

regresa: elemento

¿vacía(*cola*)?

Sí: ¡Error de excepción!
Insuficiencia de datos
Terminar



No: regresar: *datos[frente]*