

Estructura de Datos: FIFO

2019-2

FIFO (First In – First Out)

La cola implementa la política First - In, First – Out (FIFO), esto es, el primer elemento que se agregó es el primero que se elimina.

El ejemplo mas sencillo es la fila de las tortillas.



Operaciones

- Queue (Encolar)
- Dequeue (Desencolar)



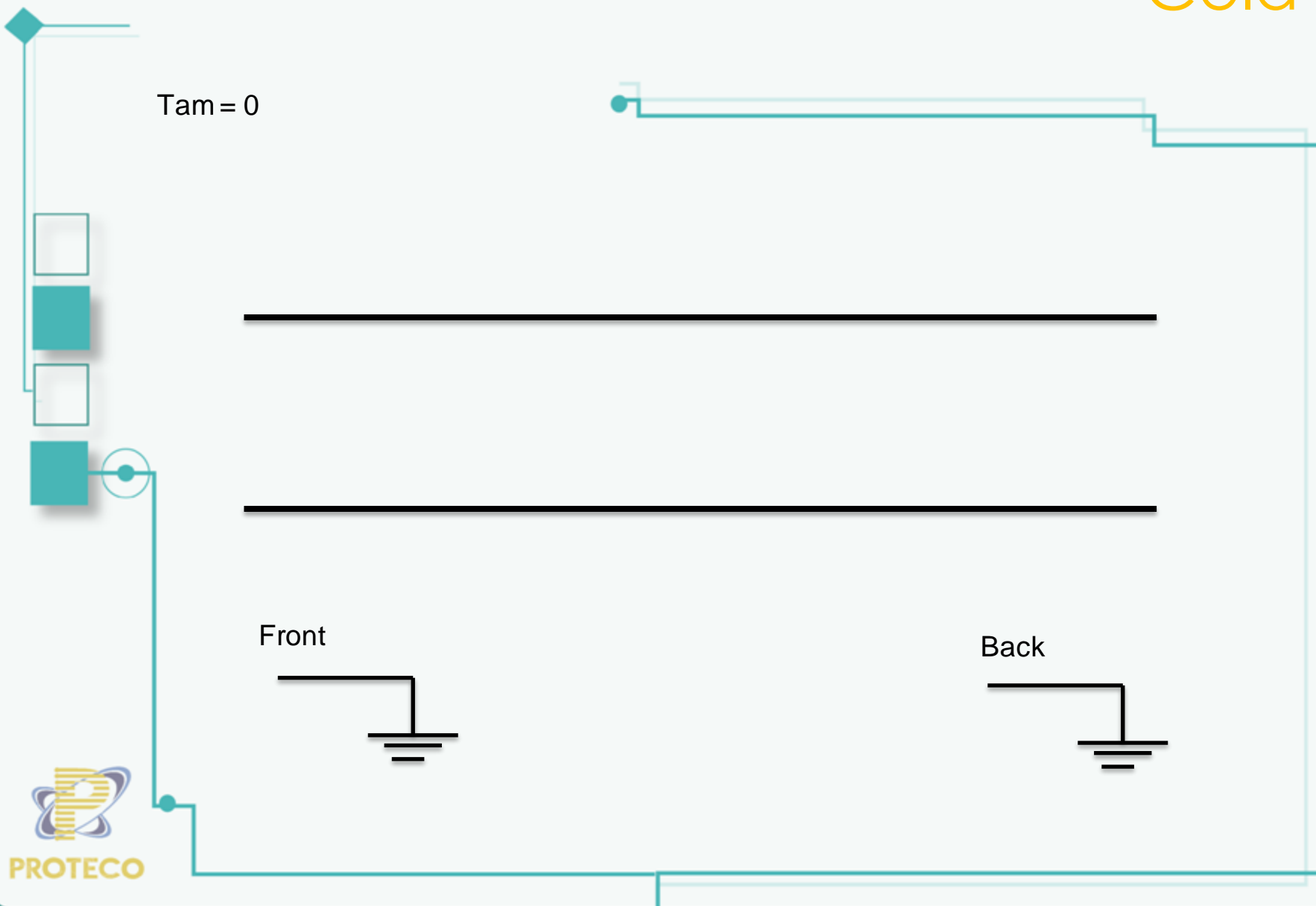
Casos



- Cola Vacía
- Cola con Elementos

Cola

Tam = 0



Queue

Tam = 0

¿La cola esta vacia?

Front

Back

Queue

Tam = 0

¿La cola esta vacia?

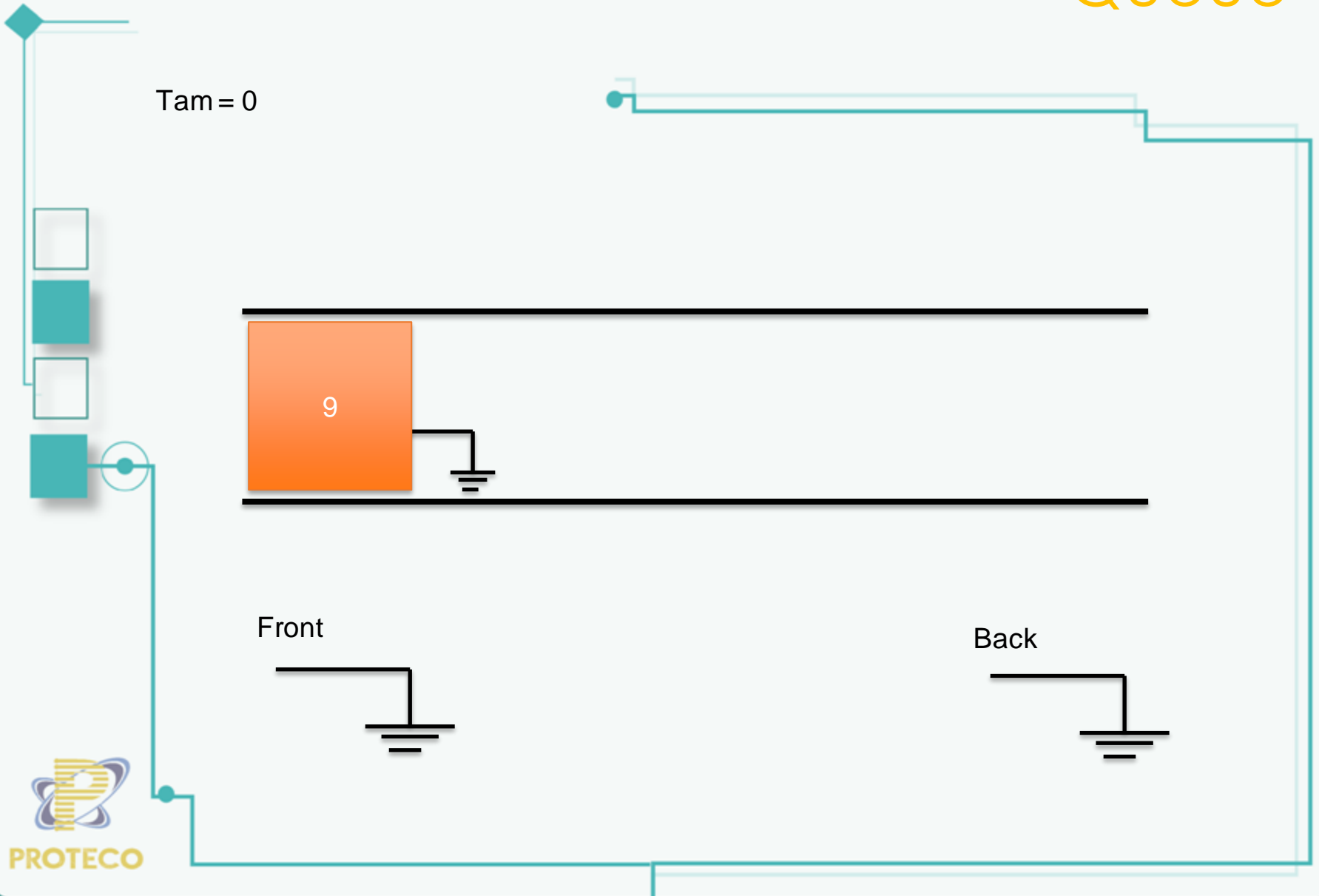
Front

Back

9

Queue

Tam = 0



Queue

Tam = 1

Front



9

Back



Queue

Tam = 1

Front
↓

¿La cola esta vacia?

9

↑
Back

Queue

Tam = 1

Front



9



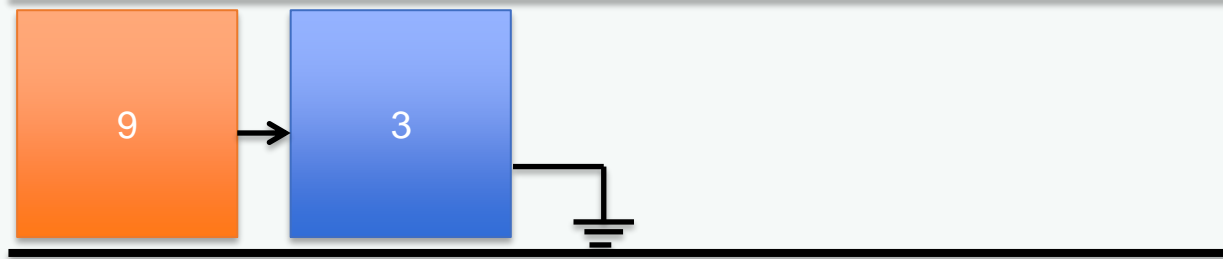
Back

3

Queue

Tam = 1

Front
↓

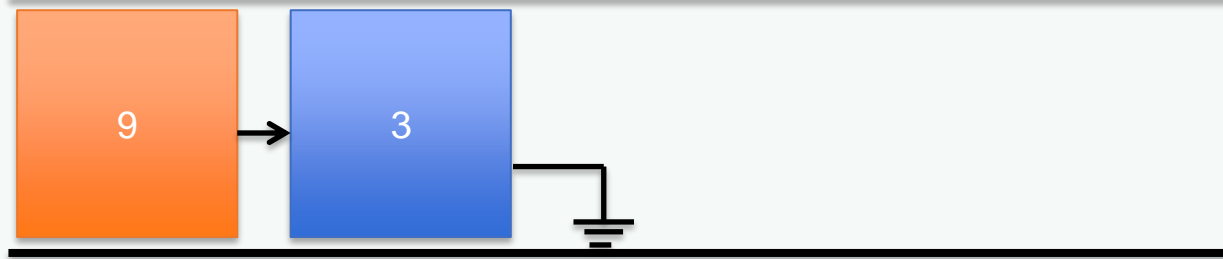


Back
↑

Queue

Tam = 2

Front
↓



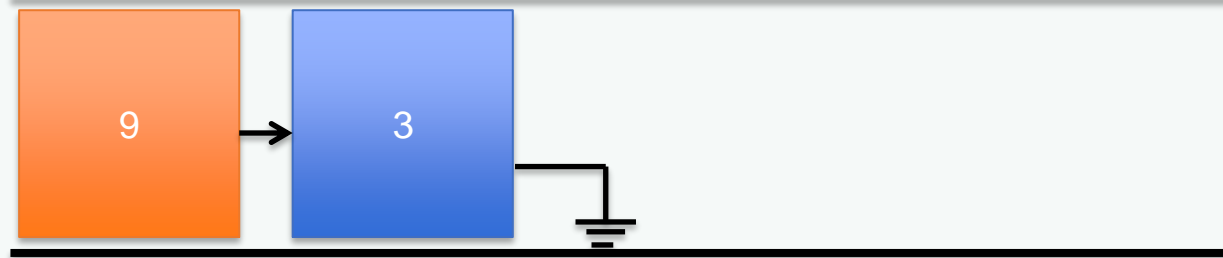
Back
↑

Queue

Tam = 2

Front
↓

¿La cola esta vacia?

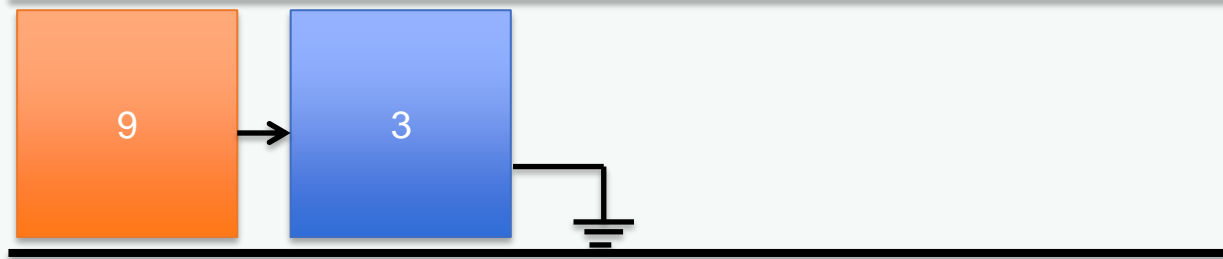


Back
↑

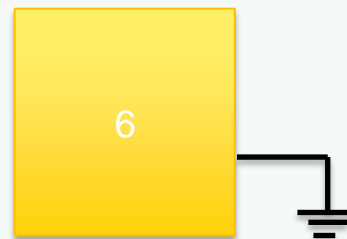
Queue

Tam = 2

Front
↓



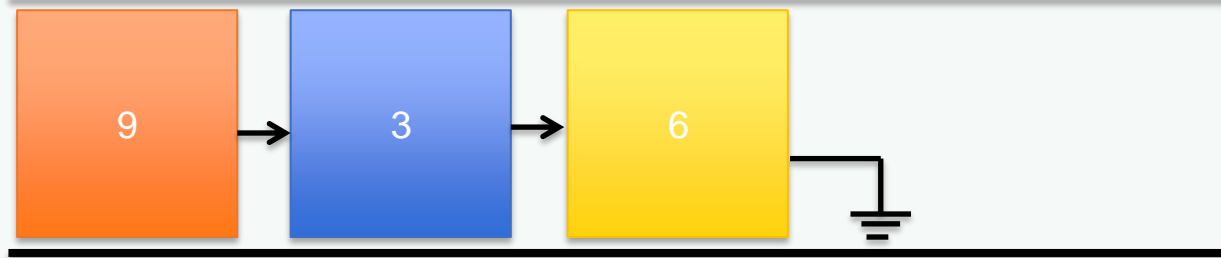
Back
↑



Queue

Tam = 2

Front
↓

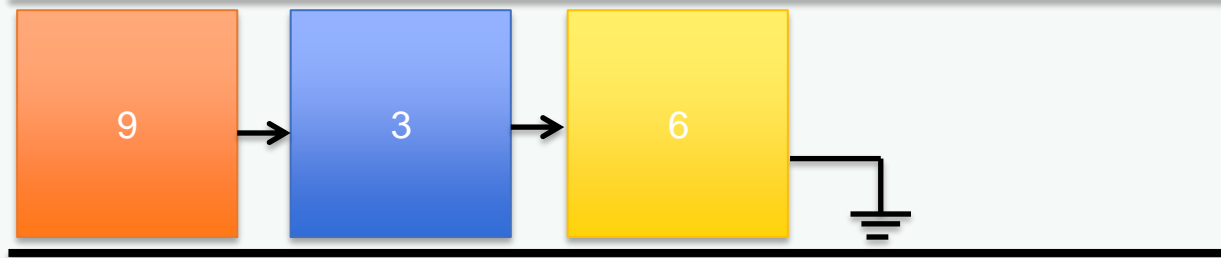


Back
↑

Queue

Tam = 3

Front
↓



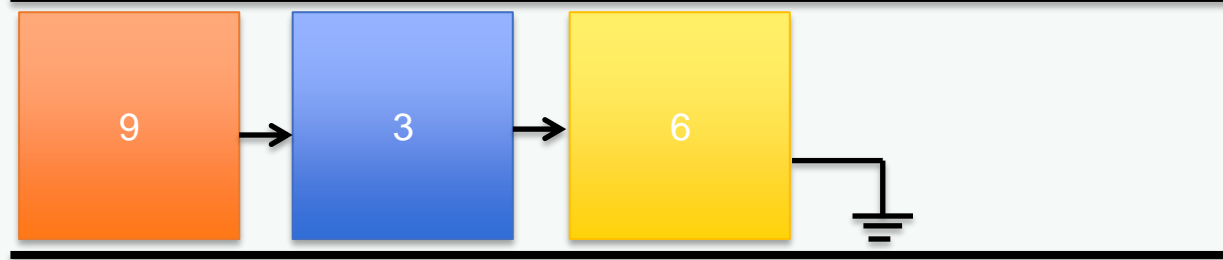
Back
↑

Queue

Tam = 3

Front
↓

¿La cola esta vacia?

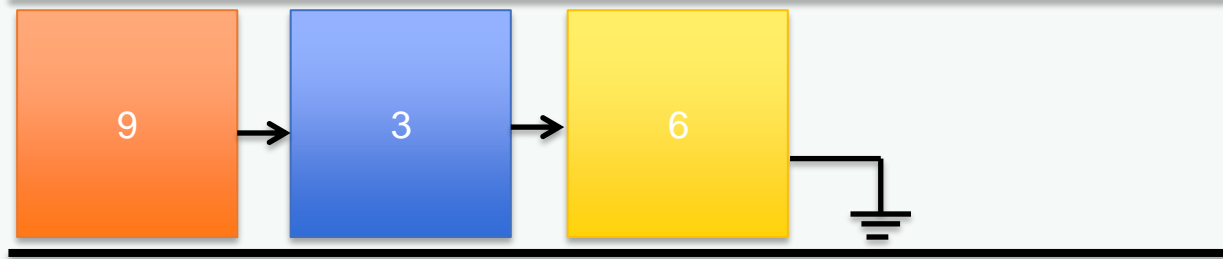


Back
↑

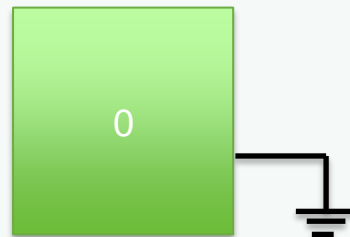
Queue

Tam = 3

Front
↓



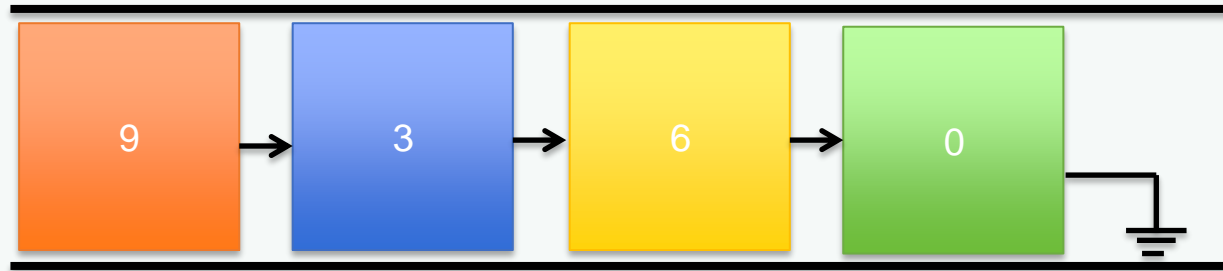
Back
↑



Queue

Tam = 3

Front
↓

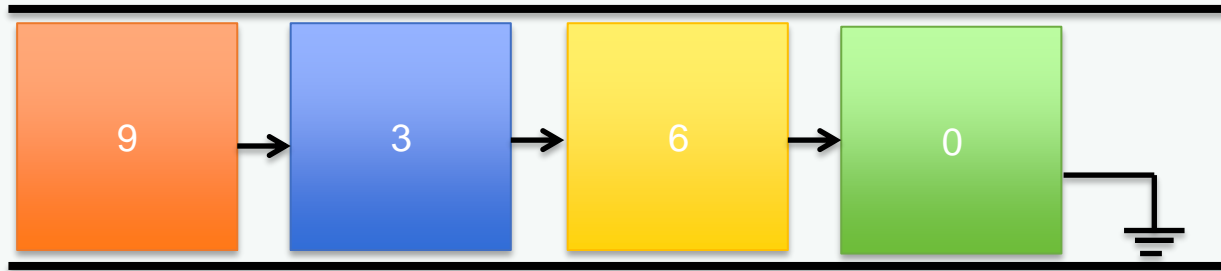


↑
Back

Queue

Tam = 4

Front
↓



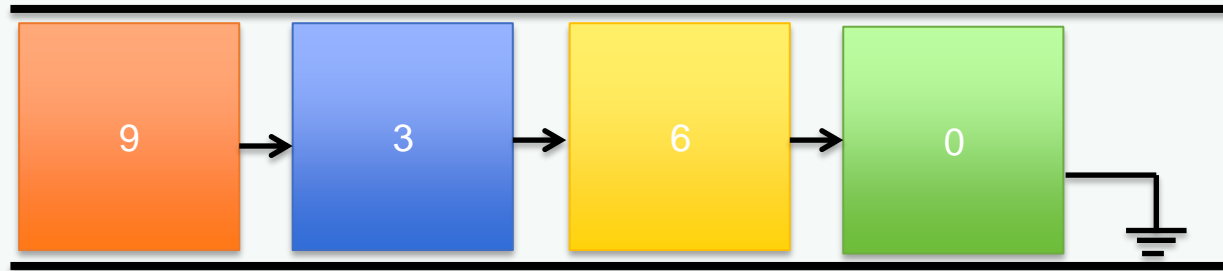
Back
↑

Deque

Tam = 4

Front
↓

¿La cola esta vacia?

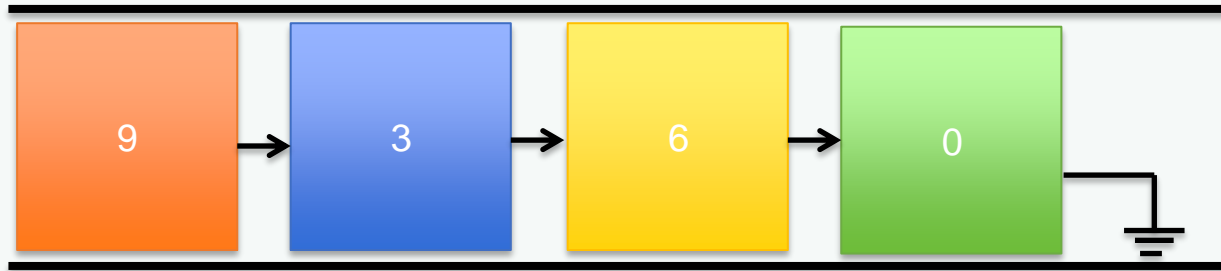


Back
↑

Deque

Tam = 4

Front
↓



aux



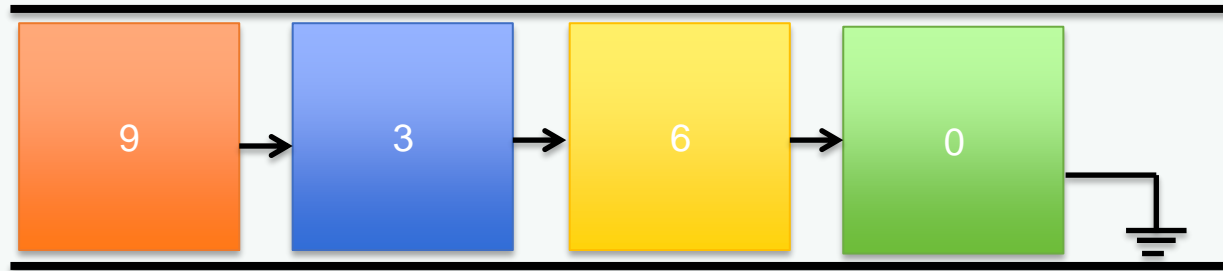
Back
↑

Deque

Tam = 4

Front
↓

¿Front==Back?



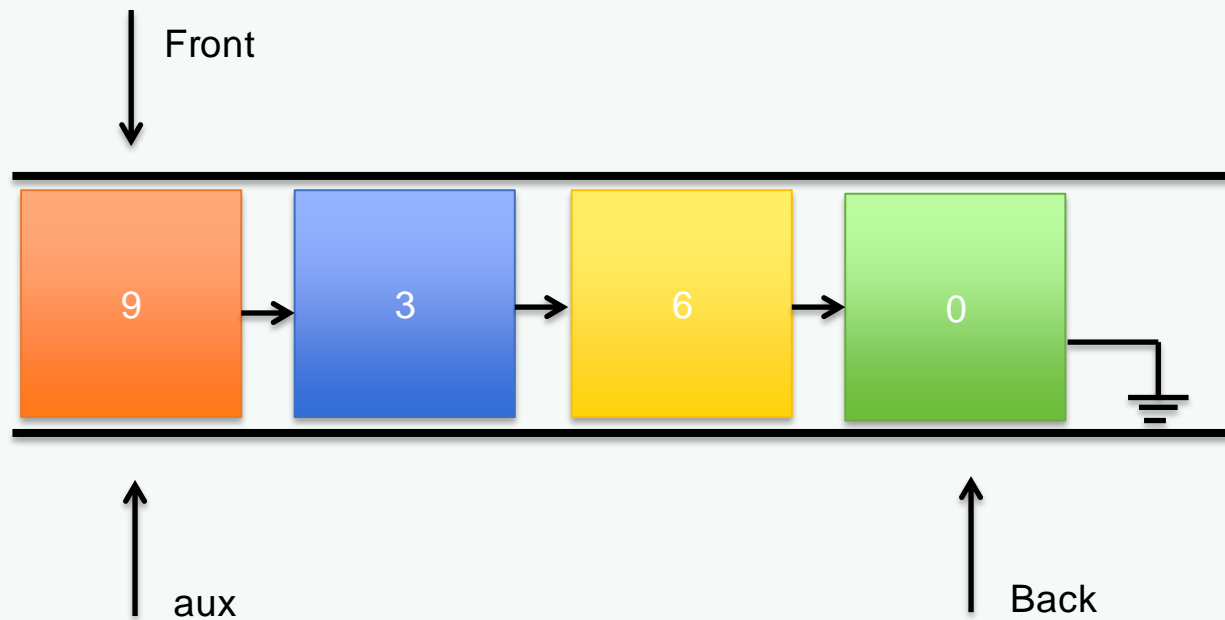
aux



Back
↑

Deque

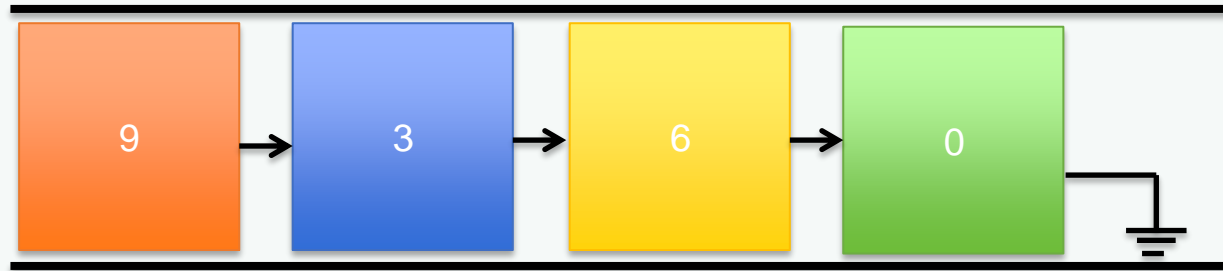
Tam = 4



Deque

Tam = 4

Front

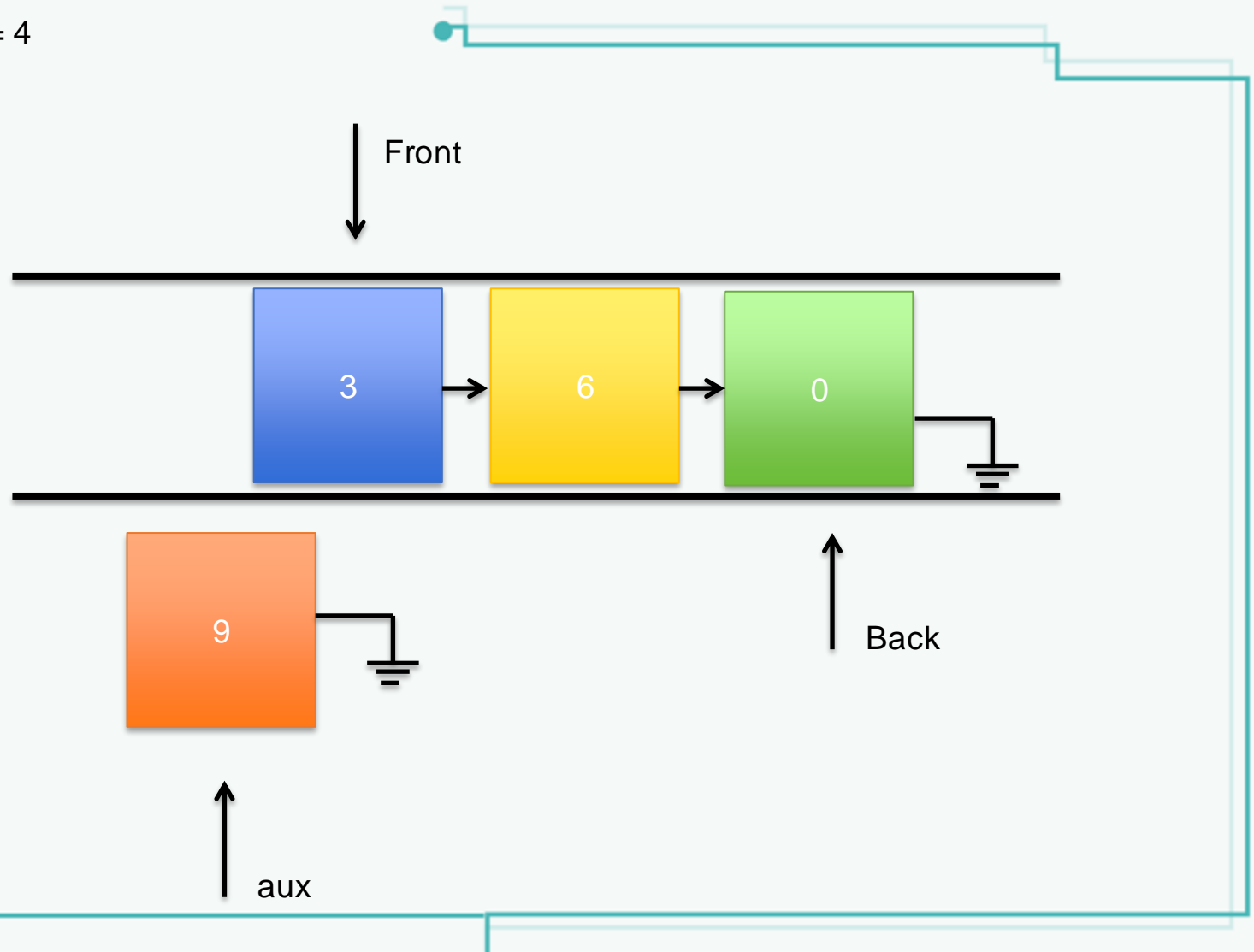


aux

Back

Deque

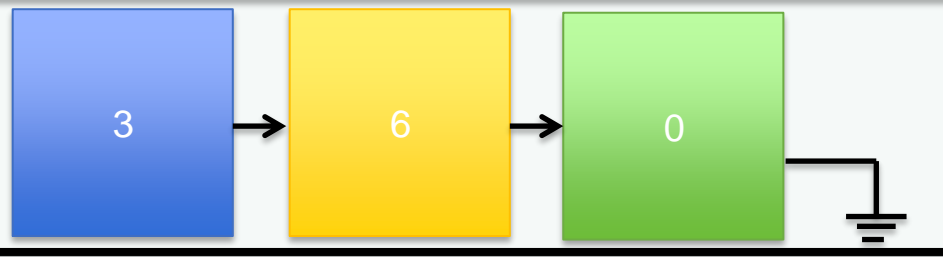
Tam = 4



Deque

Tam = 4

Front
↓

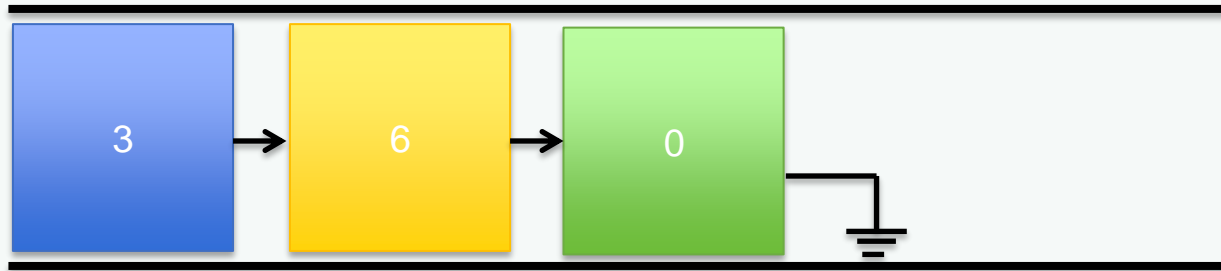


Back
↑

Deque

Tam = 3

Front
↓



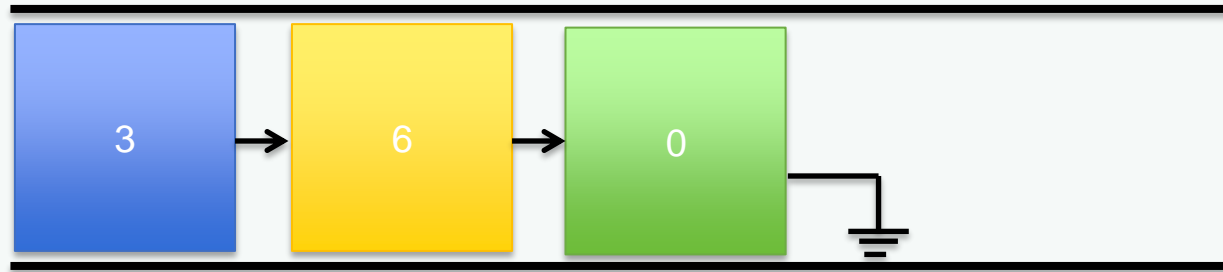
Back
↑

Dequeue

Tam = 3

Front
↓

¿La cola esta vacia?

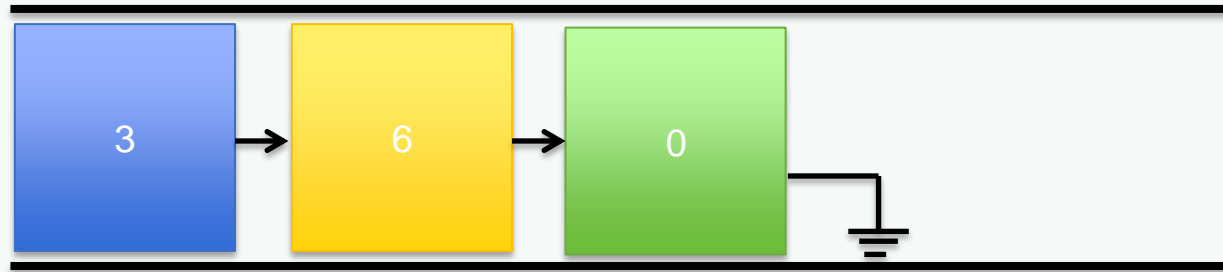


↑
Back

Deque

Tam = 3

Front
↓



aux



Back
↑



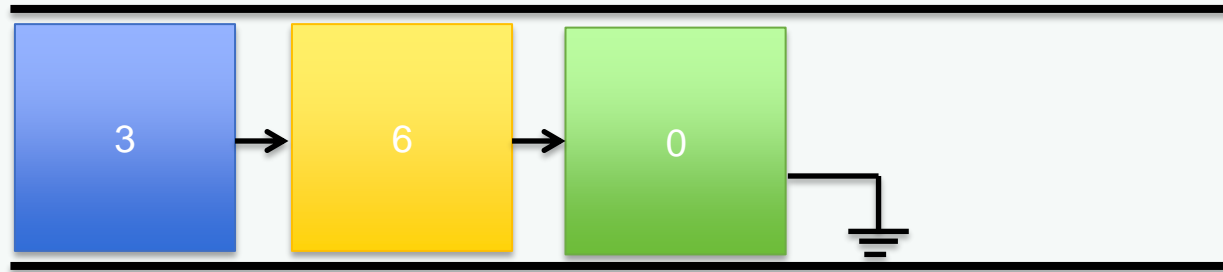
PROTECO

Deque

Tam = 3

Front
↓

¿Front==Back?



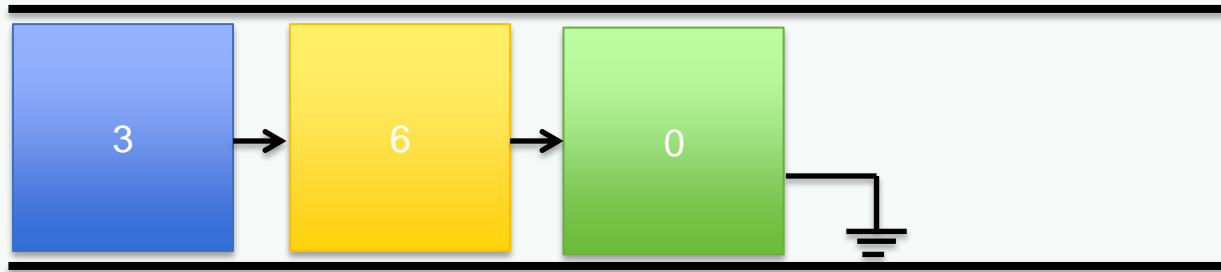
aux

Back

Deque

Tam = 3

Front
↓



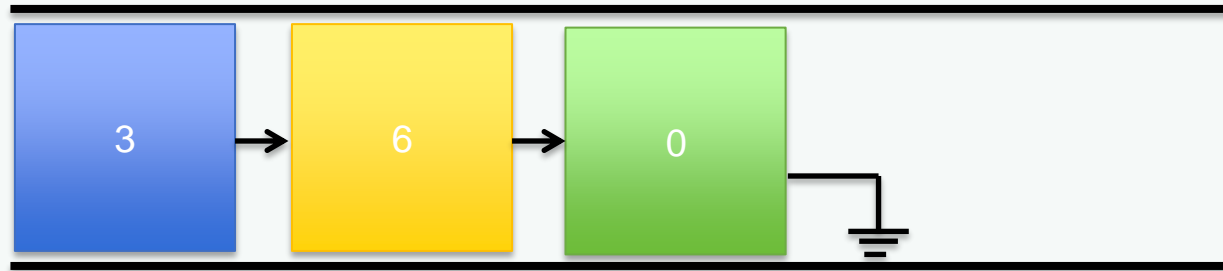
aux
↑

Back
↑

Deque

Tam = 3

Front
↓

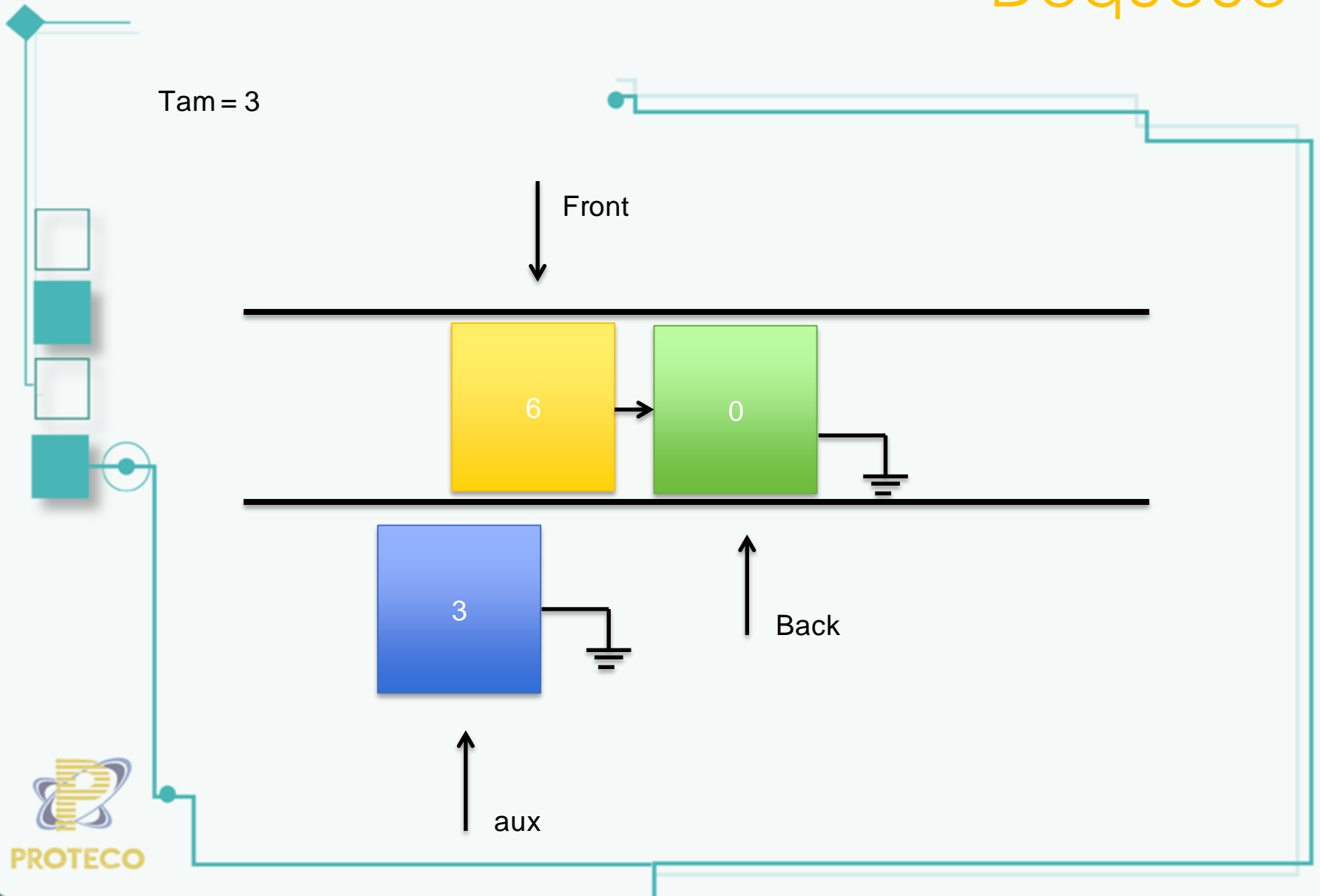


↑
aux

↑
Back

Deque

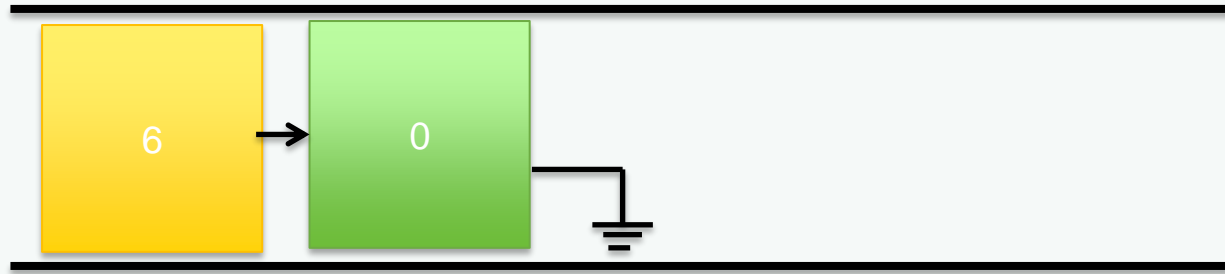
Tam = 3



Deque

Tam = 2

Front
↓



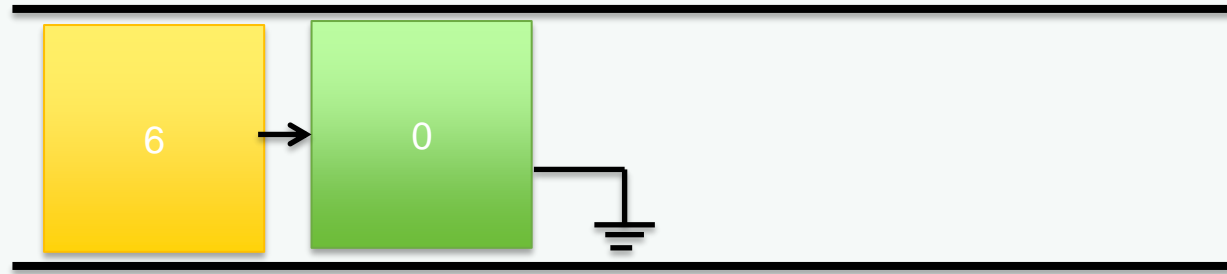
↑
Back

Deque

Tam = 2

Front
↓

¿La cola esta vacia?

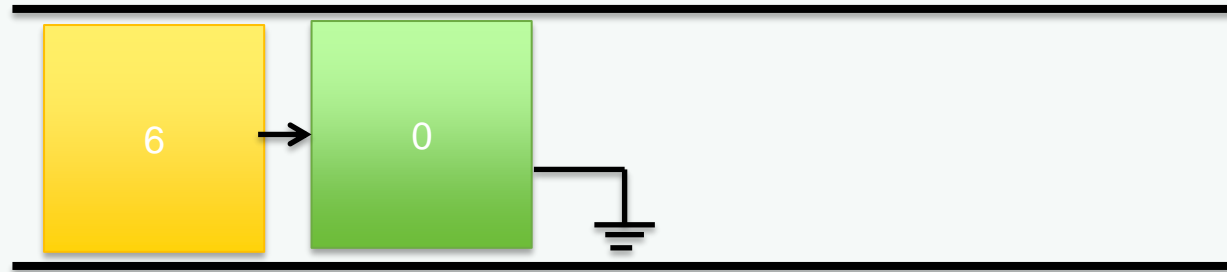


Back
↑

Deque

Tam = 2

Front
↓



aux

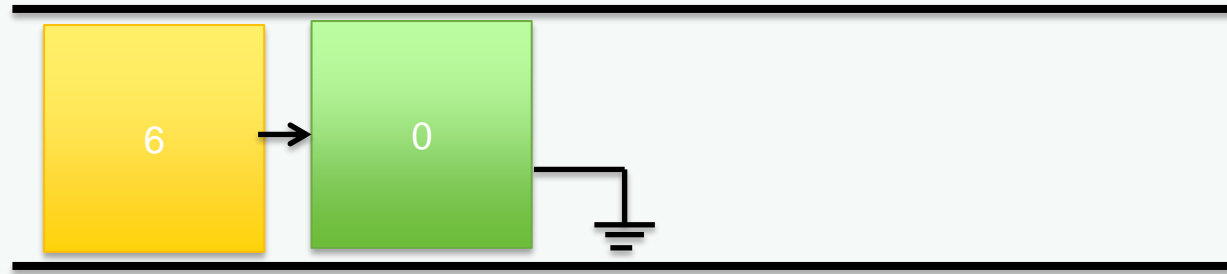
Back
↑

Deque

Tam = 2

Front
↓

¿Front==Back?



aux

Back
↑



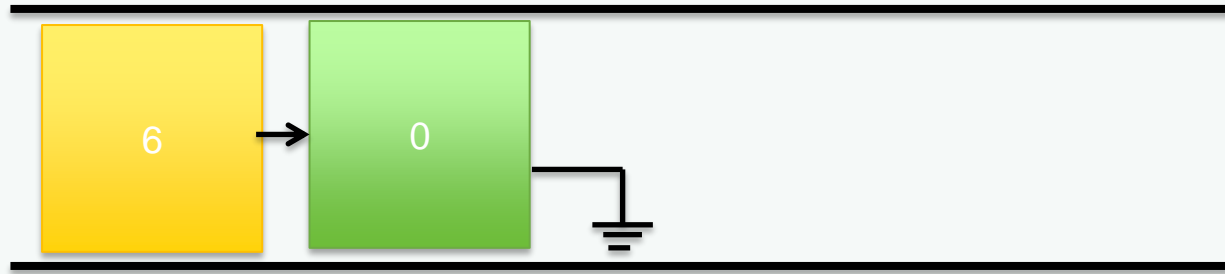
PROTECO

Deque

Tam = 2

Front
↓

¿Front==Back?

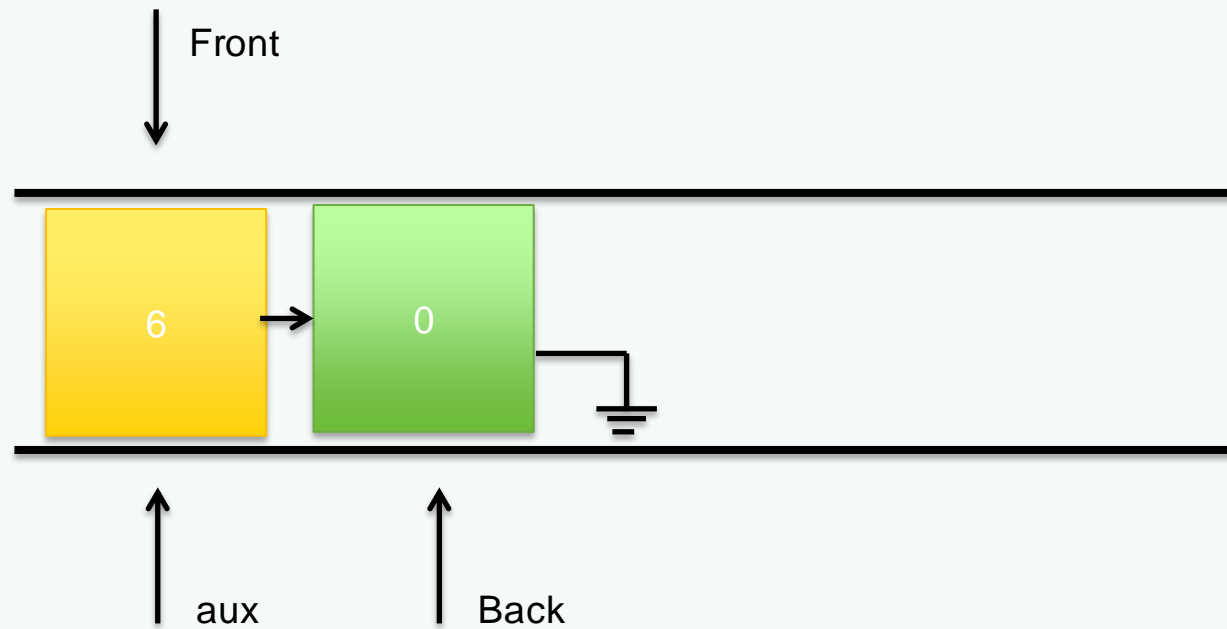


aux

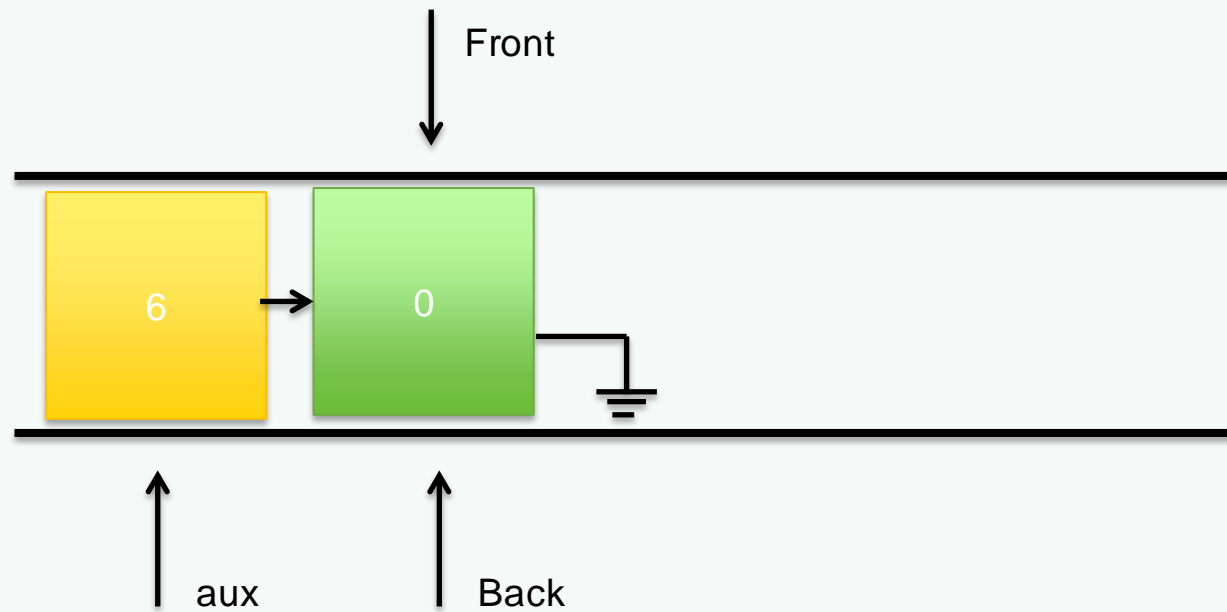
Back

Deque

Tam = 2

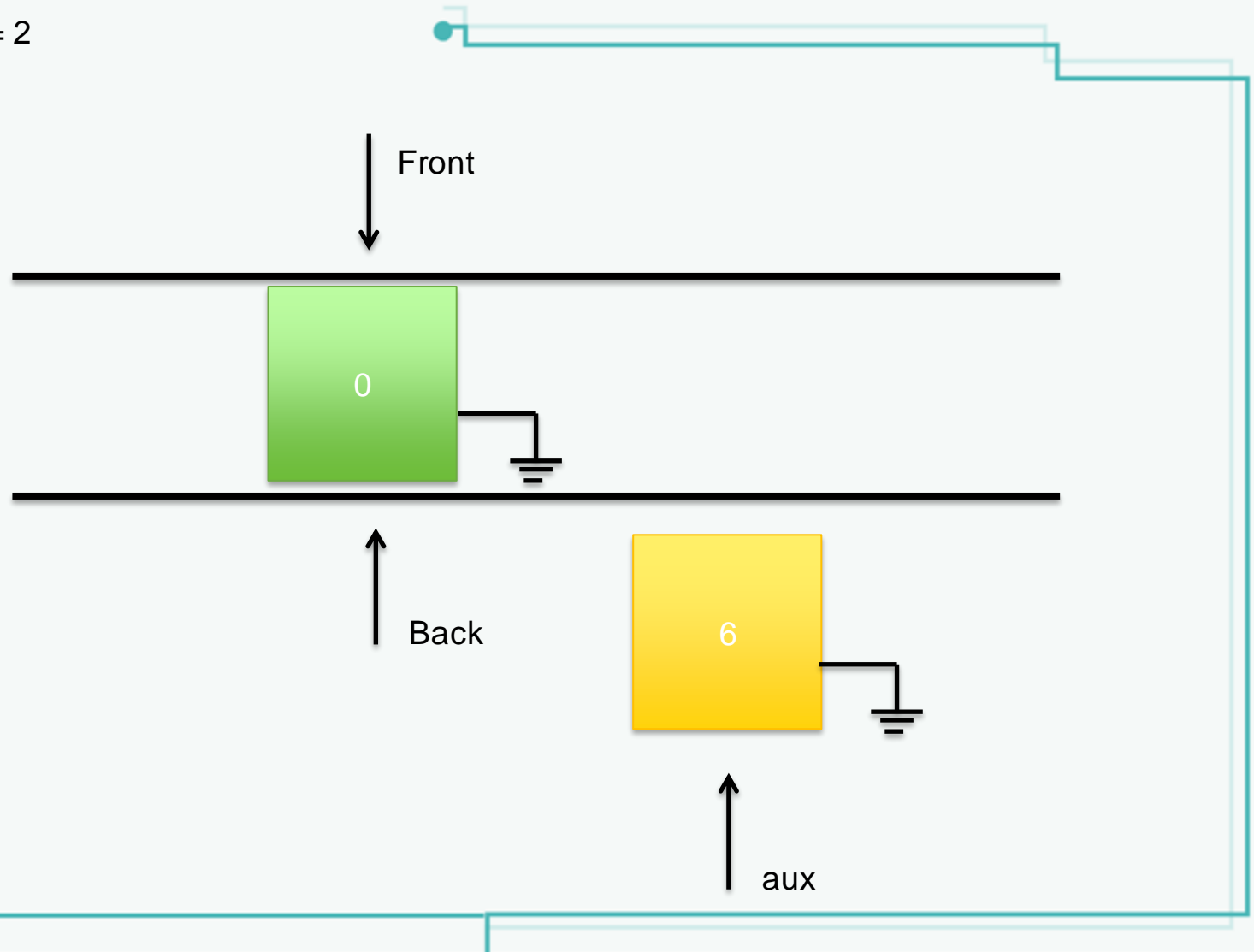


Deque

$$T_{am} = 2$$


Deque

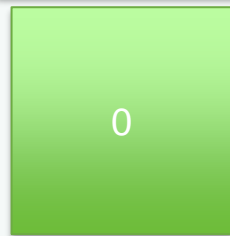
Tam = 2



Deque

Tam = 1

Front
↓



↑
Back

Dequeue

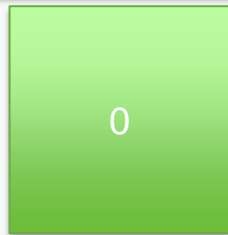
Tam = 1

¿La cola esta vacia?

Front



Back



0



Deque

Tam = 1

Front
↓

0

↑
Back

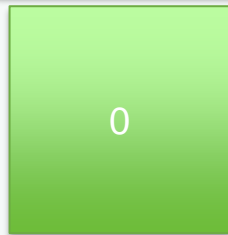
aux
⏏

Dequeue

Tam = 1

¿Front==Back?

Front



0



Back

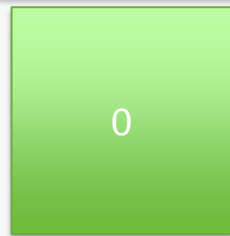
aux



Deque

Tam = 1

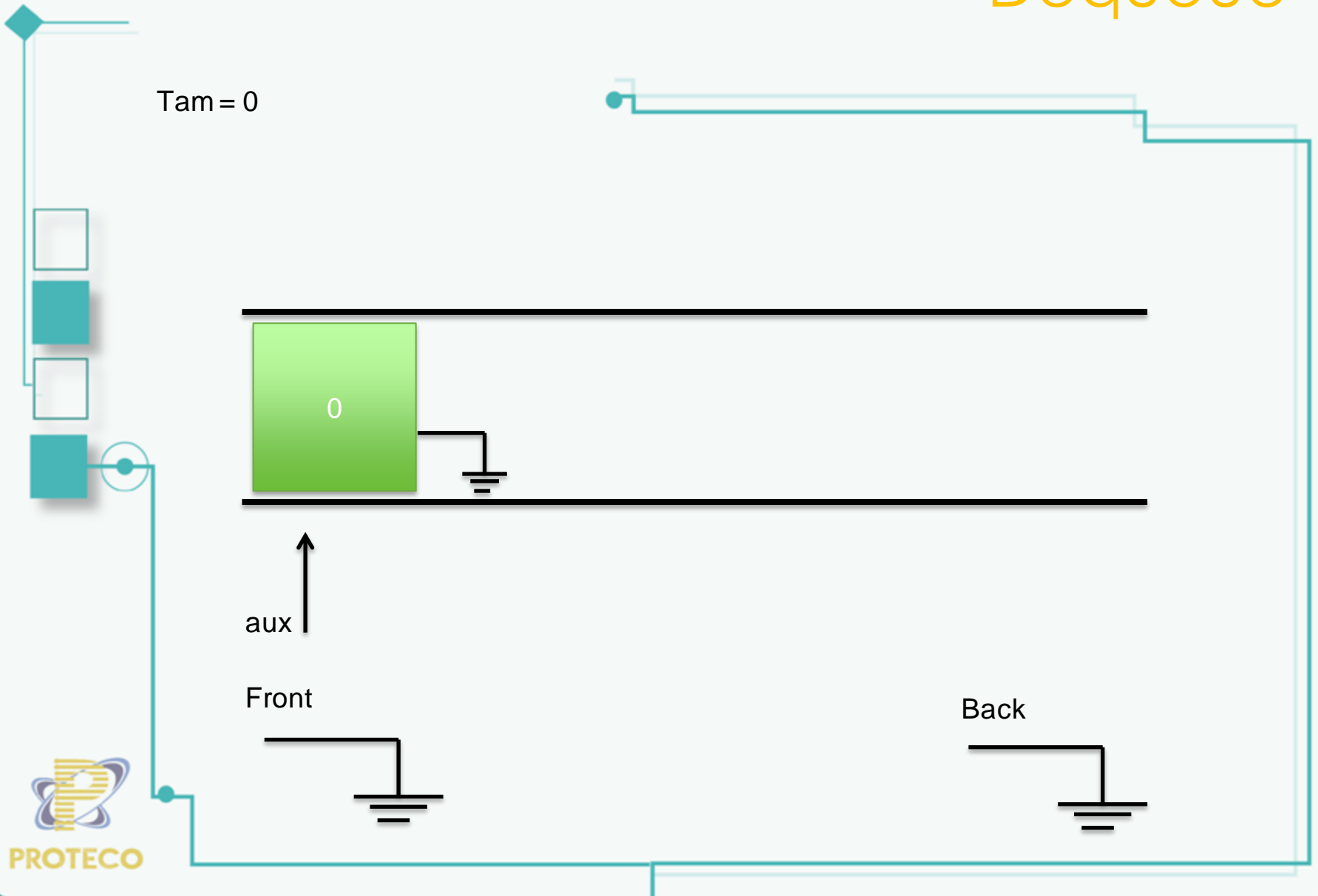
Front
↓



aux ↑ ↑ Back

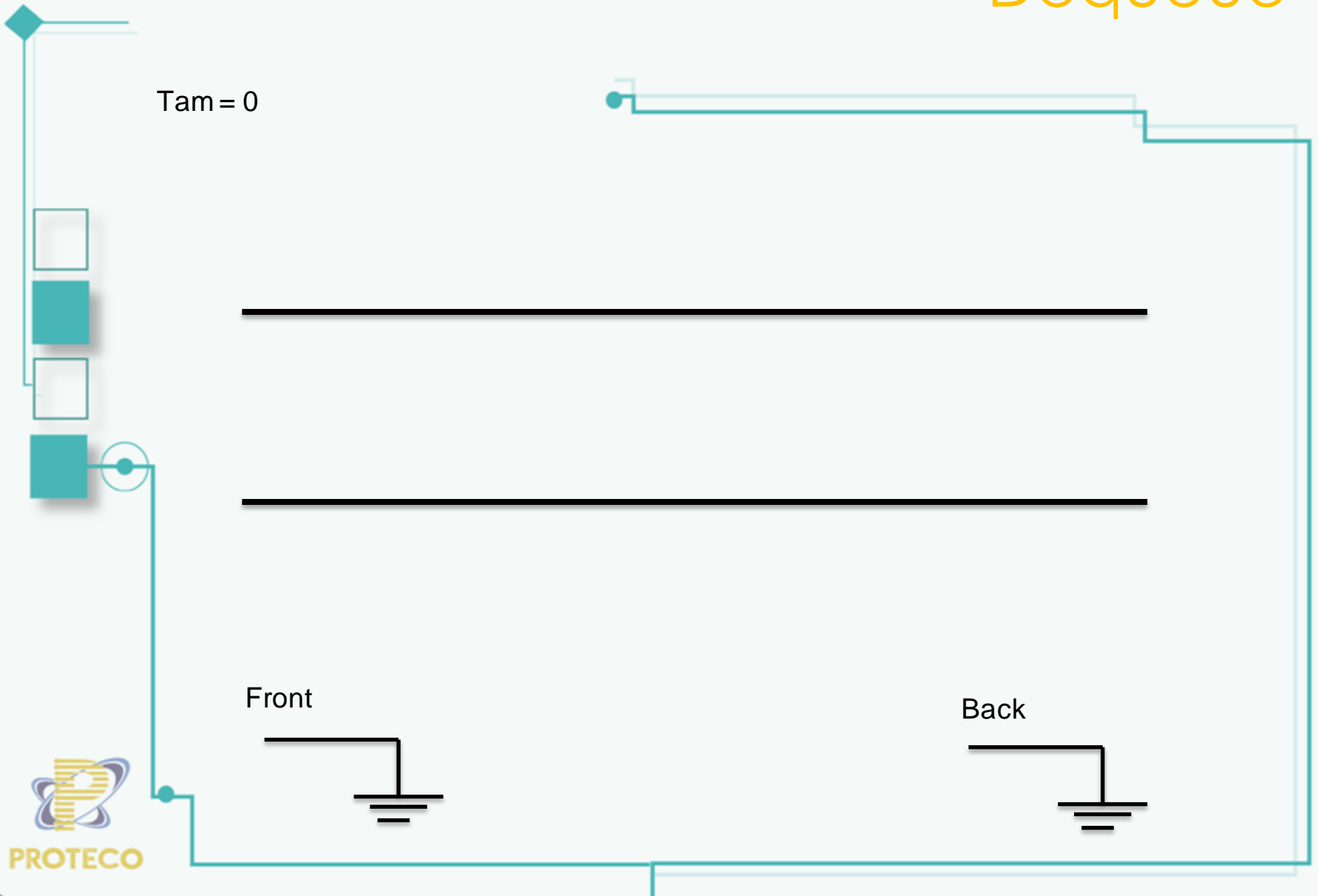
Deque

Tam = 0



Deque

Tam = 0



Dequeue

Tam = 0

¿La cola esta vacia?



Front

Back

Deque

Tam = 0

