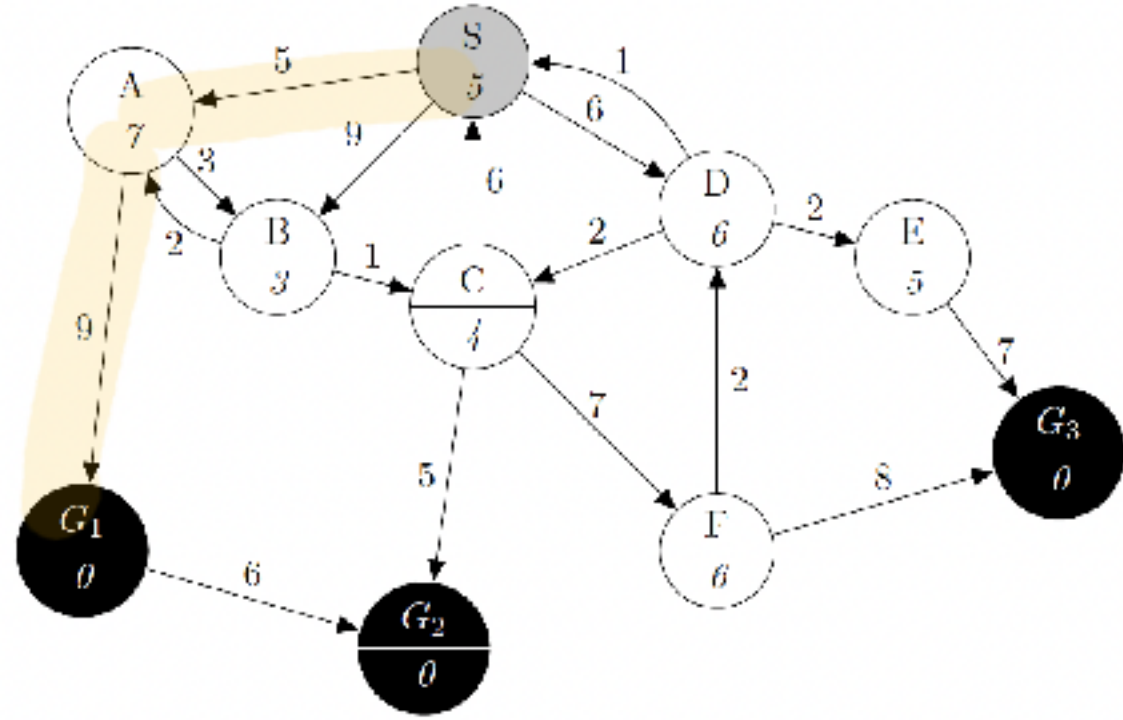


# 1. BÚSQUEDA EN ANCHURA



## ABIERTOS

~~(S, ∅)~~

~~(A, S)~~

(B, S)

(D, S)

(G1, A)

## CERRADOS

(S, ∅)

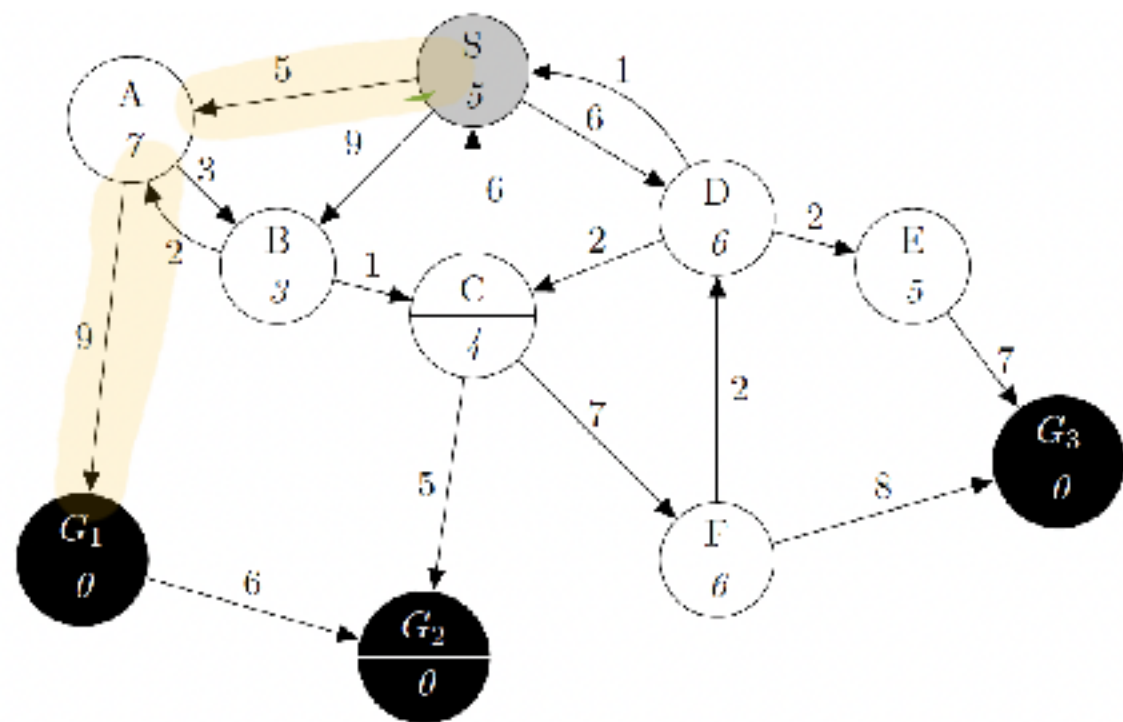
(A, S)

- Orden en que cerrados:  
S, A

- Objetivo alcanzado: G1

- Solución:  $S \rightarrow A \rightarrow G_1$

## 2. DESCENSO ITERATIVO



•  $G_1$

NIVEL 1:  $S \rightarrow A$

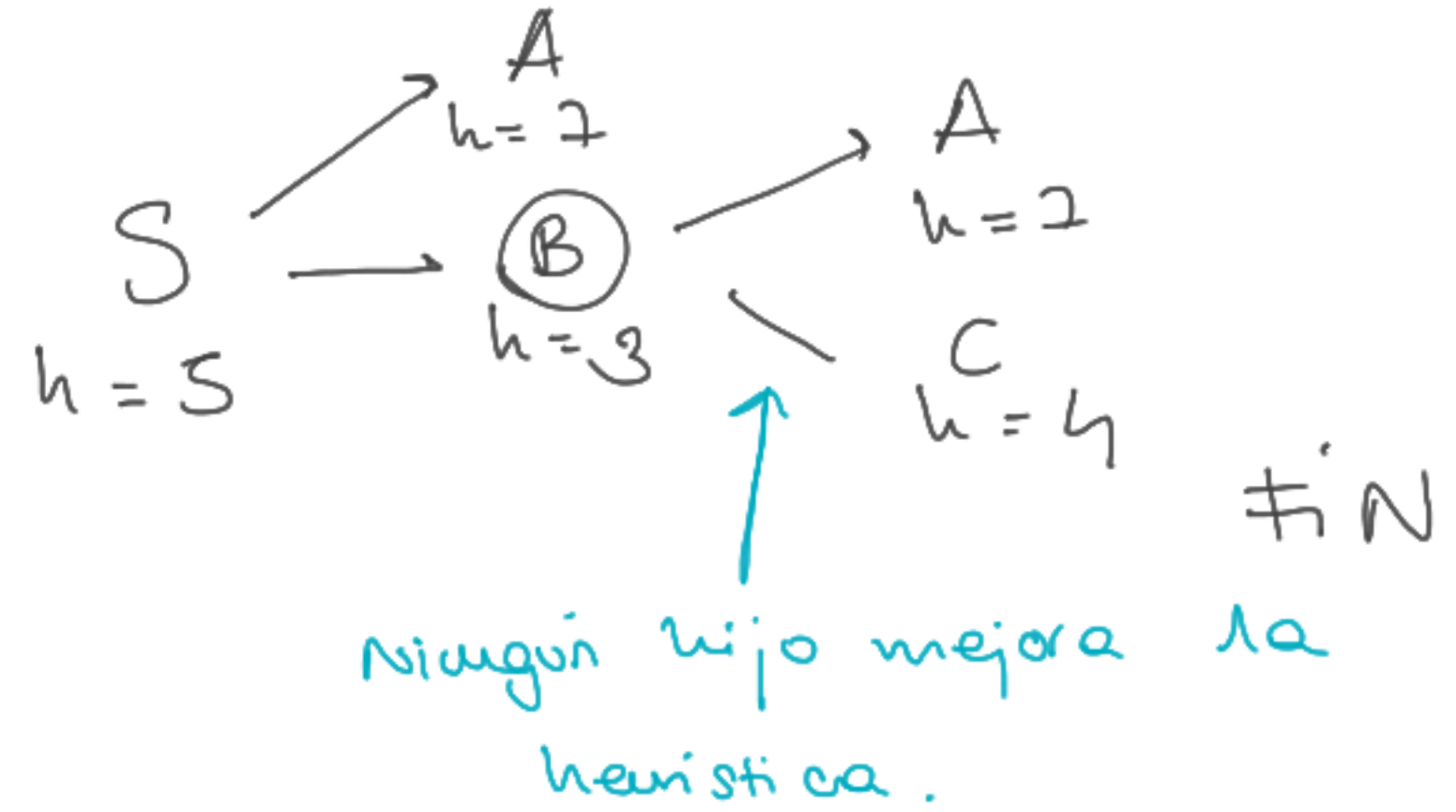
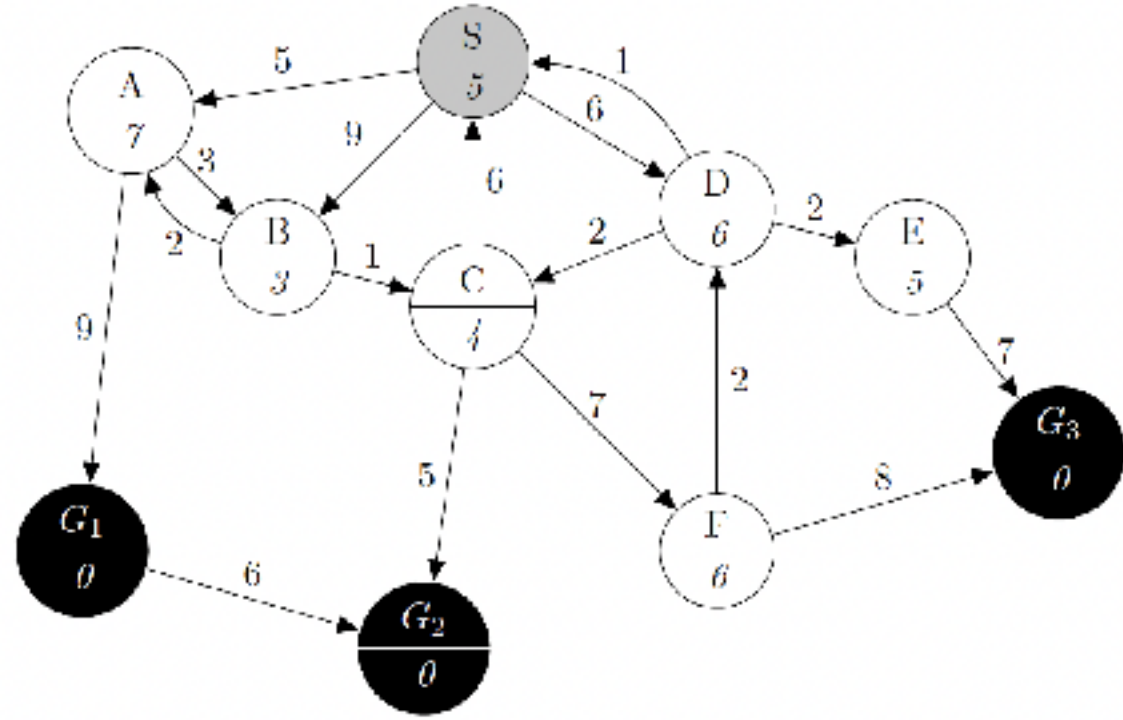
~~B~~

~~D~~

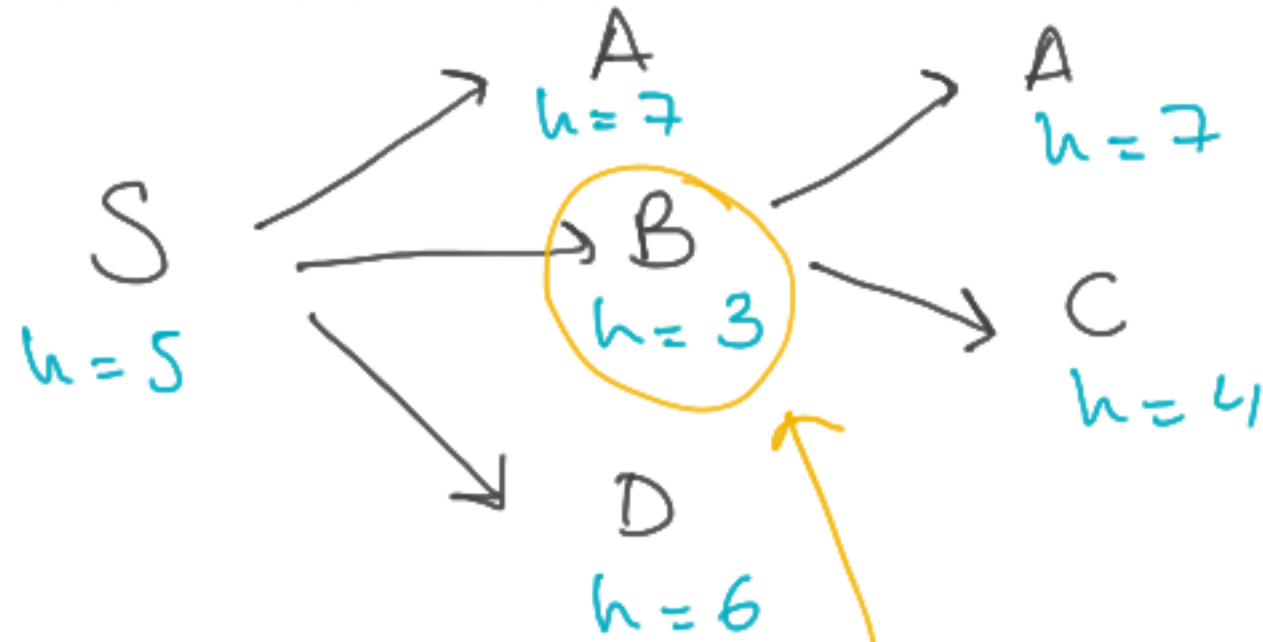
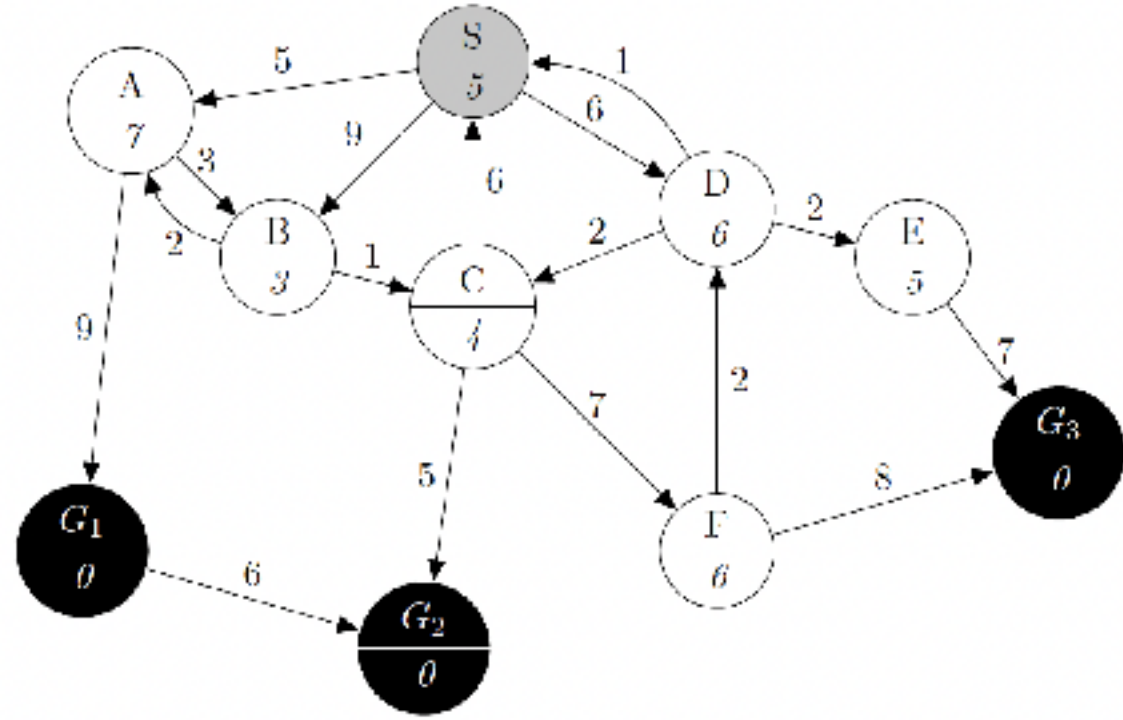
NIVEL 2:  $S \rightarrow A \rightarrow B$

$\rightarrow G_1$

### 3. ESCALADA SIMPLE

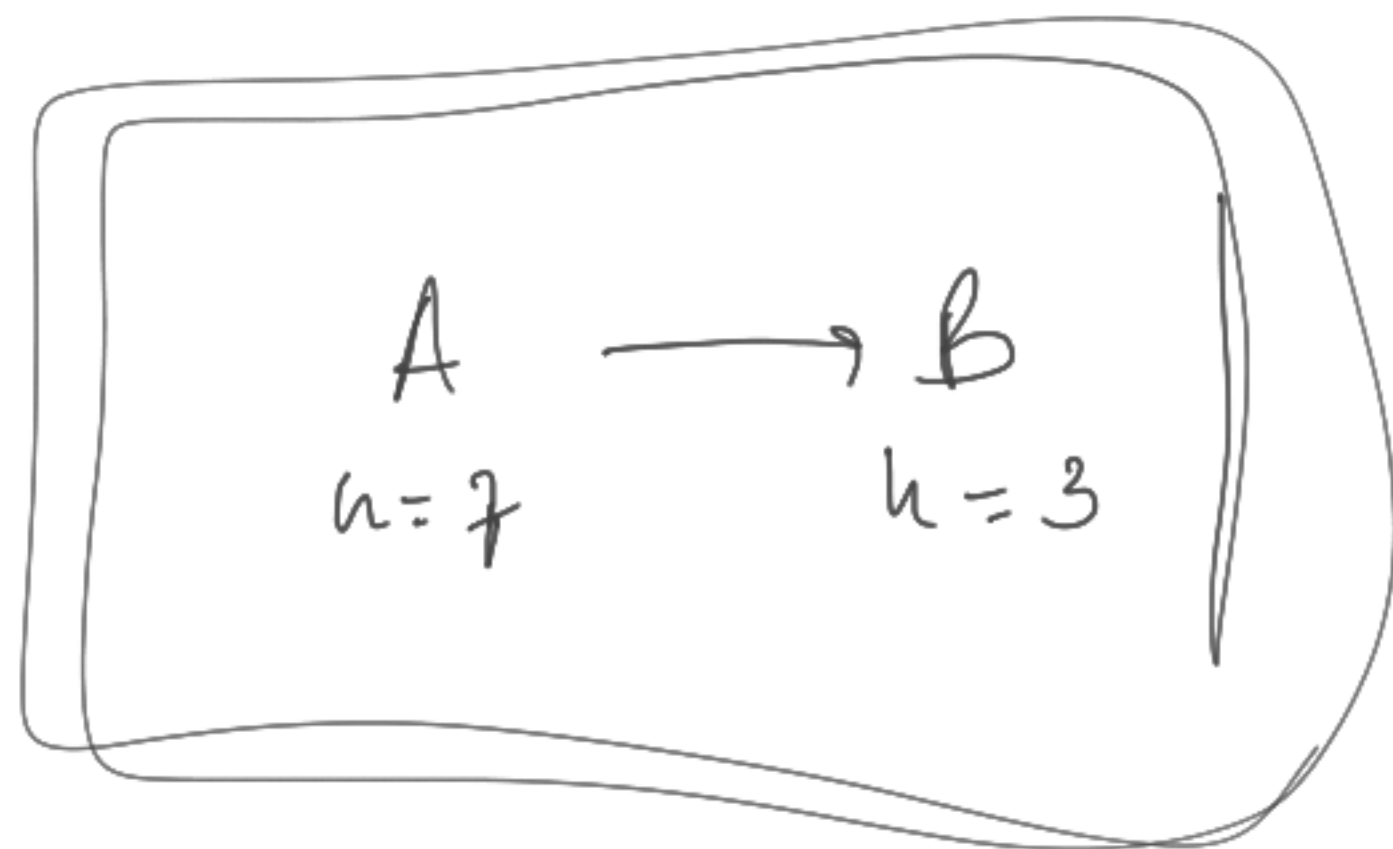


# 4. ESCALADA MÁXIMA PENDIENTE



FIN

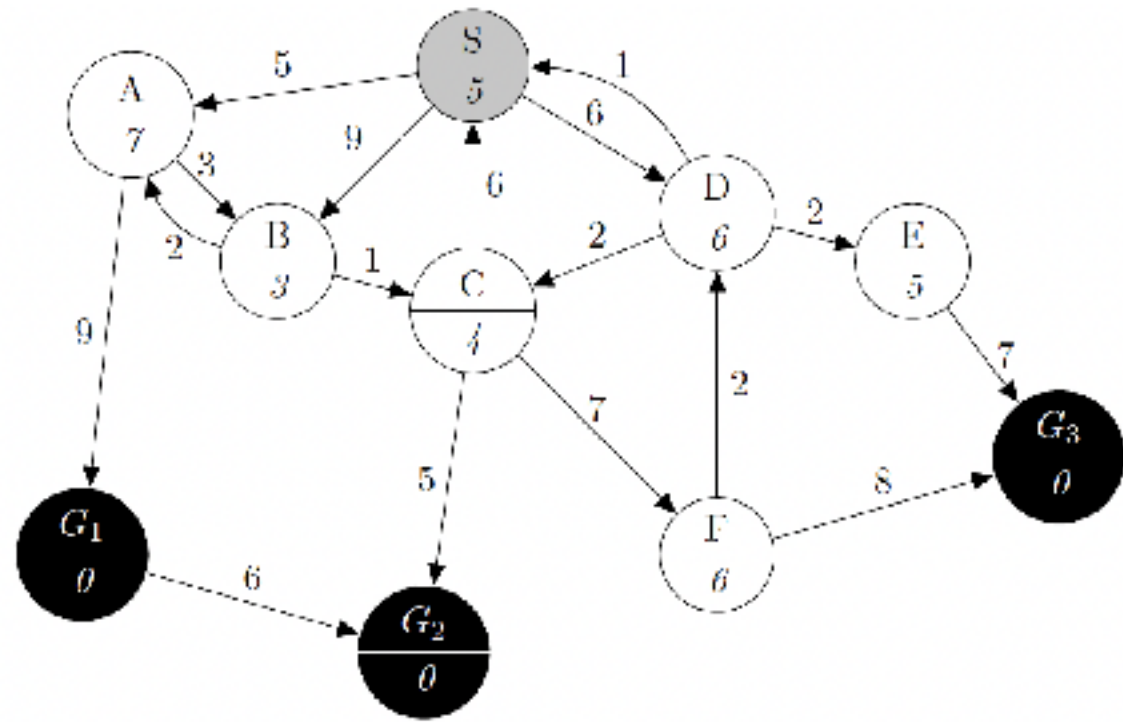
Expando todos los hijos  
y elijo el más prometedor.



$$e^{-\Delta e/\tau} = e^{-2/10} \approx 0.82$$

$$e^{4/10} =$$

5.  $A^*$

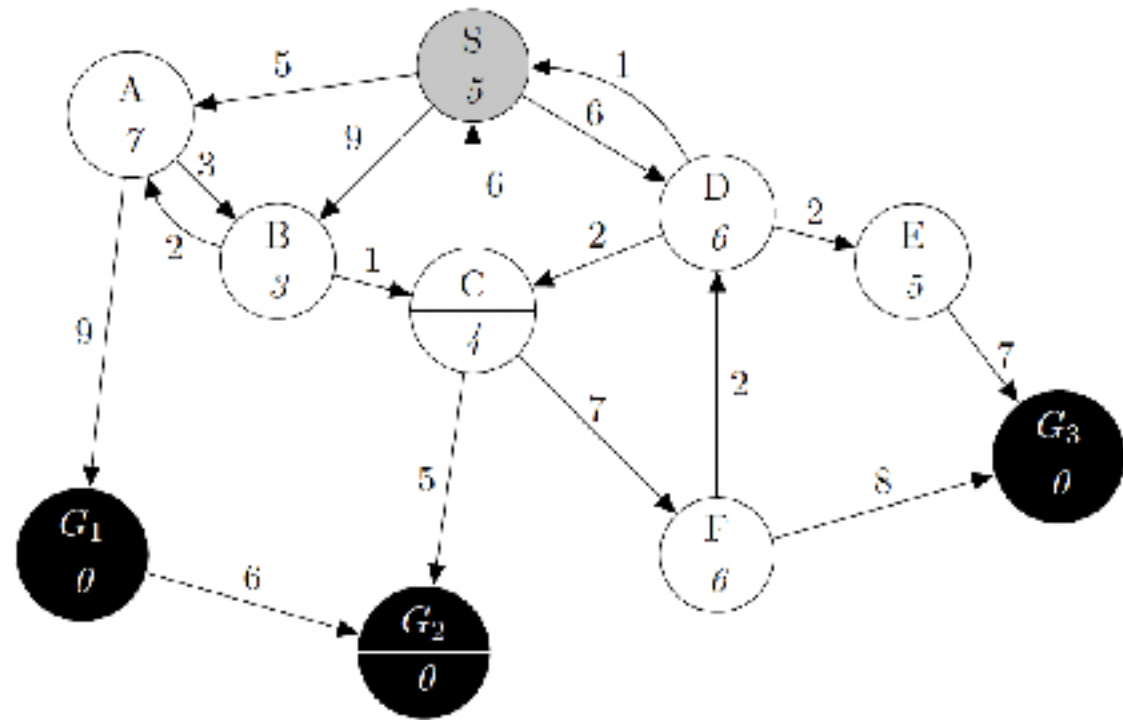


¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$$h(x) - h(y) \leq c(x, y)$$

5.  $A^*$



¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$$h(x) - h(y) \leq c(x, y)$$

NO A y B

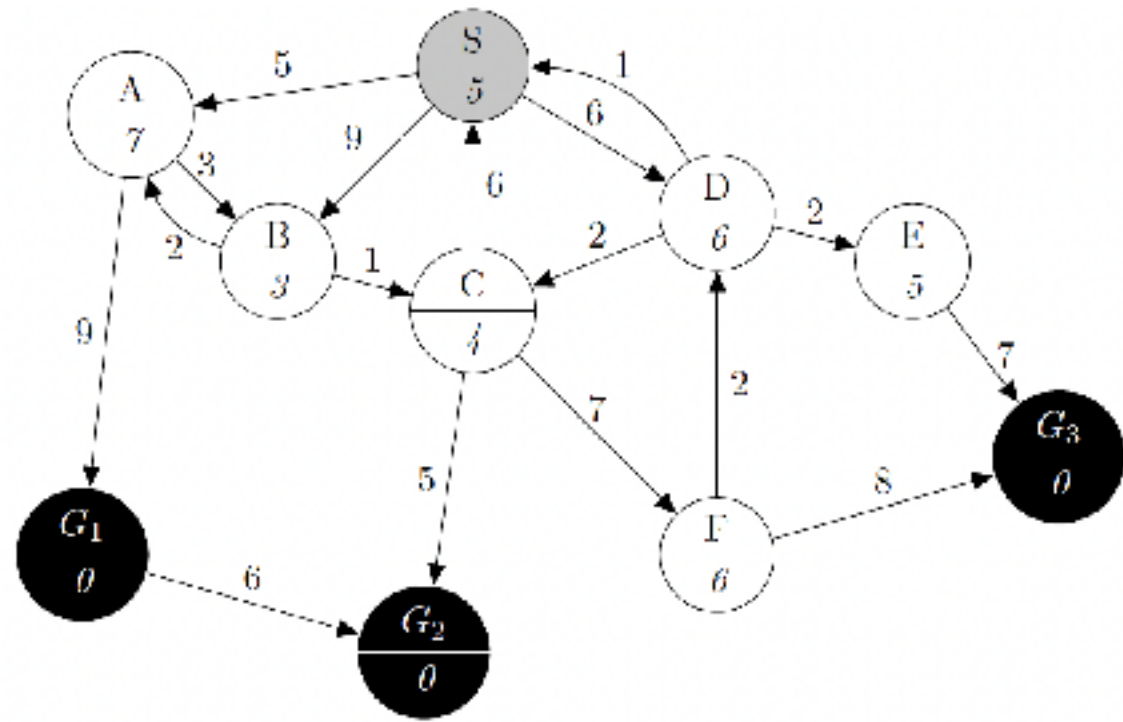
$$h(A) - h(B) \leq c(A, B)$$

$$7 - 3 = 4 \leq 3$$

5. A\*

ABIERTOS  
(S,  $\emptyset$ , 0, 5)

CERRADOS



¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$$h(x) - h(y) \leq c(x, y)$$

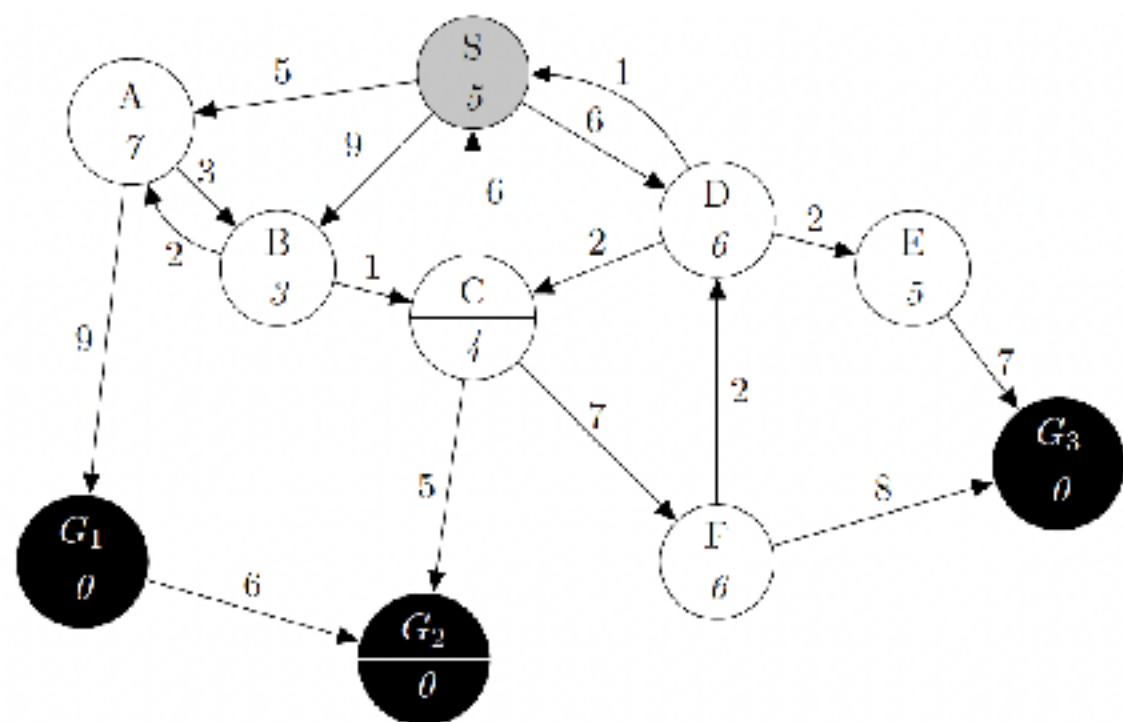
NO A y B

$$h(A) - h(B) \leq c(A, B)$$

$$7 - 3 = 4 \leq 3$$



5.  $A^*$



ABIERTOS

~~(S, 0, 0, 5)~~

(A, S, 5, 7)

(B, S, 9, 3)

(D, S, 6, 6)

CERRADOS

(S, 0, 0, 5)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

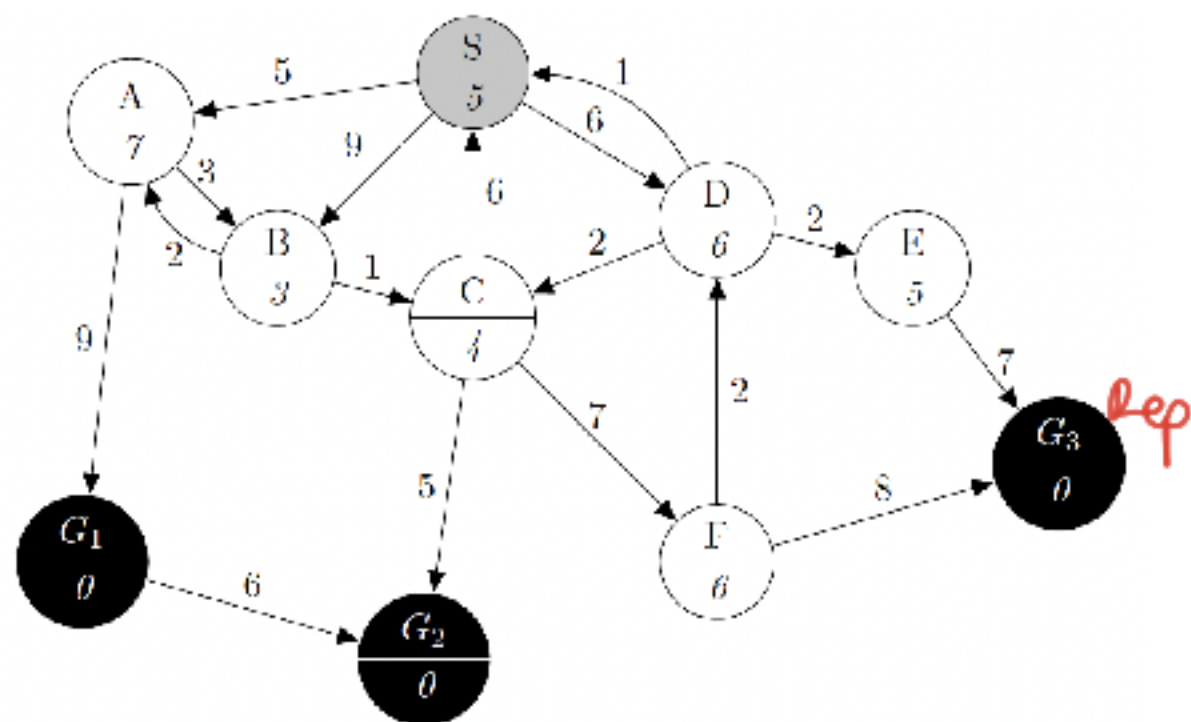
$$h(x) - h(y) \leq c(x, y)$$

NO A y B

$$h(A) - h(B) \leq c(A, B)$$

$$7 - 3 = 4 \leq 3$$

5.  $A^*$



ABIERTOS

~~(S,  $\emptyset$ , 0, 5)~~

~~(A, S, 5, 7)~~

(B, S, 9, 3)

(D, S, 6, 6)

(B, A, 8, 3)

(G1, A, 14, 0)

CERRADOS

(S,  $\emptyset$ , 0, 5)

(A, S, 5, 7)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

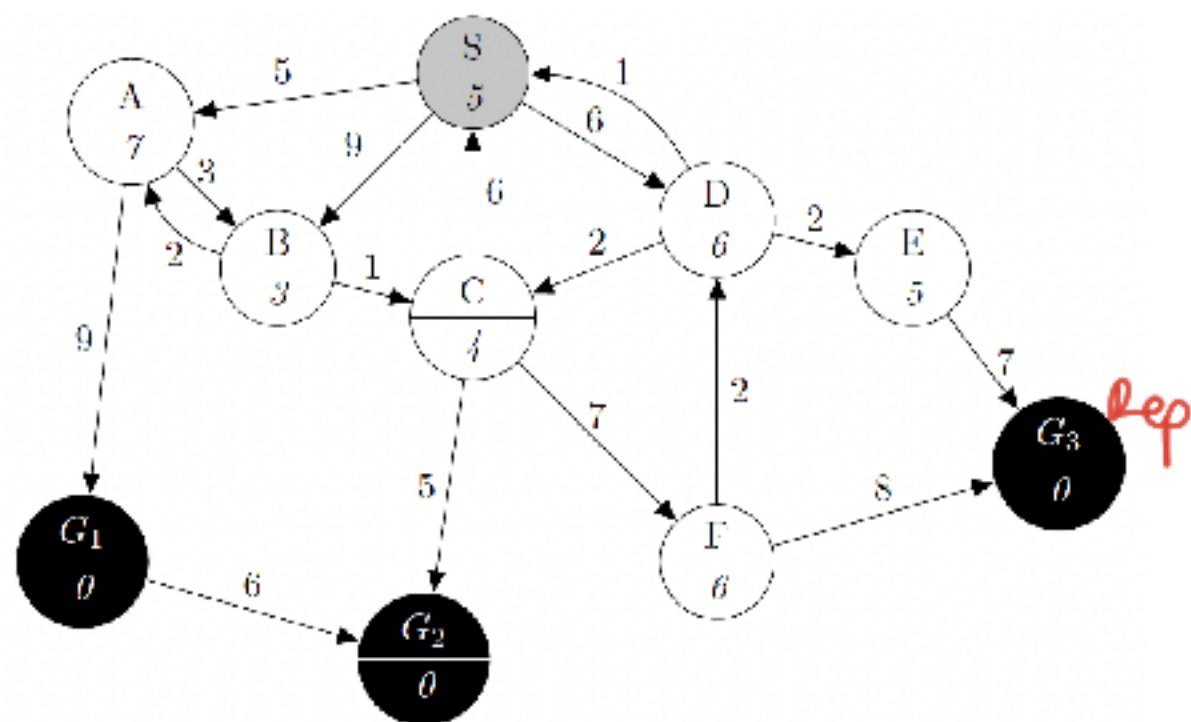
$$h(x) - h(y) \leq c(x, y)$$

NO A y B

$$h(A) - h(B) \leq c(A, B)$$

$$7 - 3 = 4 \leq 3$$

5.  $A^*$



ABIERTOS

~~(S,  $\emptyset$ , 0, 5)~~

~~(A, S, 5, 7)~~

~~(B, S, 9, 3)~~

(D, S, 6, 6)

~~(B, A, 8, 3)~~

(G1, A, 14, 0)

(C, B, 9, 4)

CERRADOS

(S,  $\emptyset$ , 0, 5)

(A, S, 5, 7) (A, B, 10, 7)

(B, A, 8, 3)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

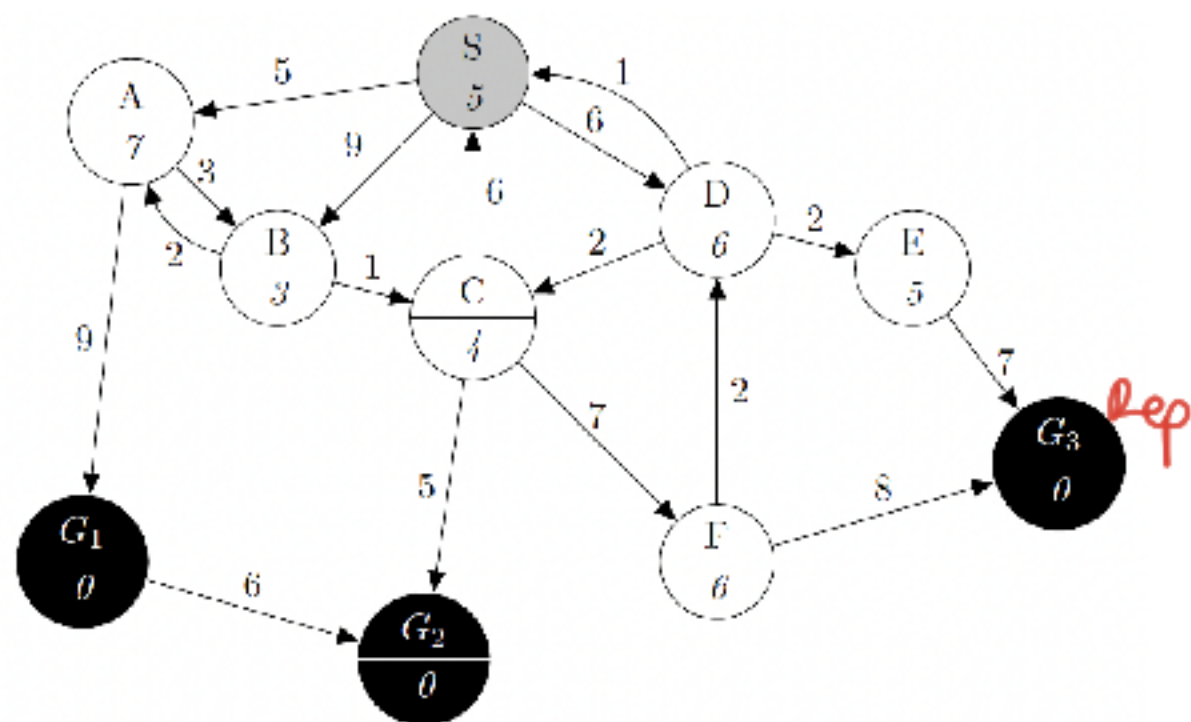
$$h(x) - h(y) \leq c(x, y)$$

NO A y B

$$h(A) - h(B) \leq c(A, B)$$

$$7 - 3 = 4 \leq 3$$

5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

(A, S, 5, 7)

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

(B, A, 8, 3)

(G1, A, 14, 0)

(C, B, 9, 4)

(C, D, 8, 4)

(E, D, 8, 5)

CERRADOS Ni falta

(S, ∅, 0, 5) (S, D, 7, 5)

(A, S, 5, 7) ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

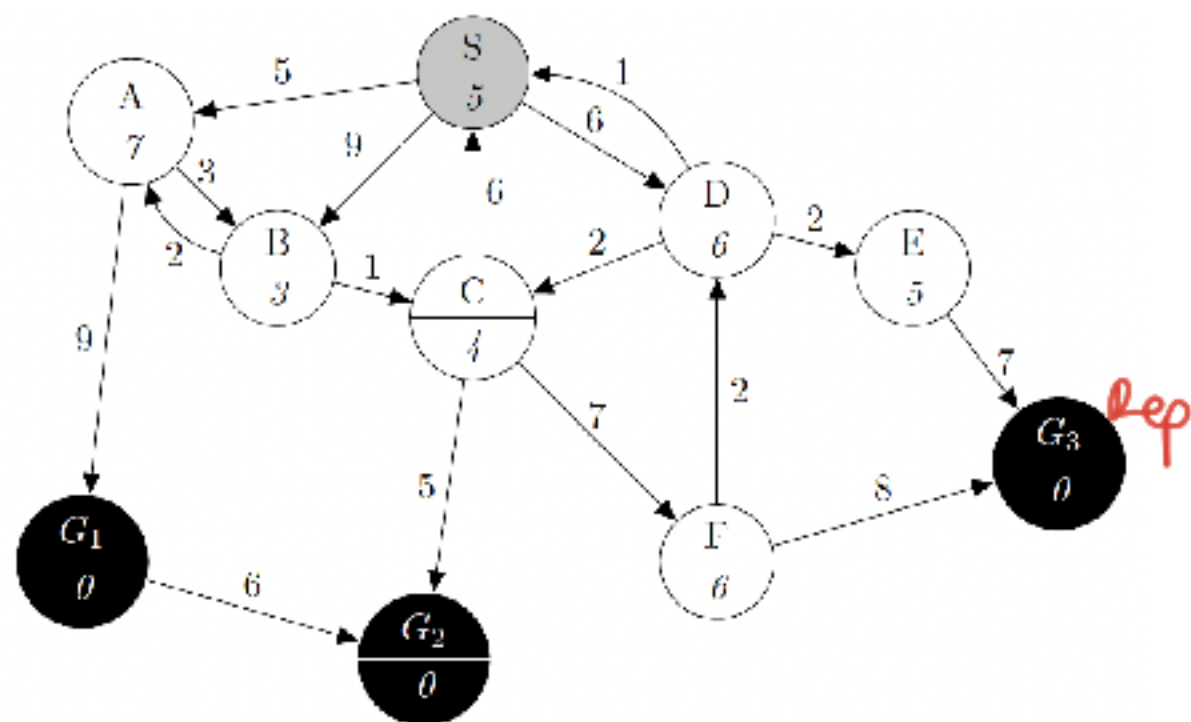
$h(x) - h(y) \leq c(x, y)$

NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$

5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

~~(A, S, 5, 7)~~

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

~~(B, A, 8, 3)~~

~~(G1, A, 14, 0)~~

~~(C, B, 9, 4)~~

~~(C, D, 8, 4)~~

~~(E, D, 8, 5)~~

CERRADOS Ni falta

~~(S, ∅, 0, 5)~~ ~~(S, D, 7, 5)~~

~~(A, S, 5, 7)~~ ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$h(x) - h(y) \leq c(x, y)$

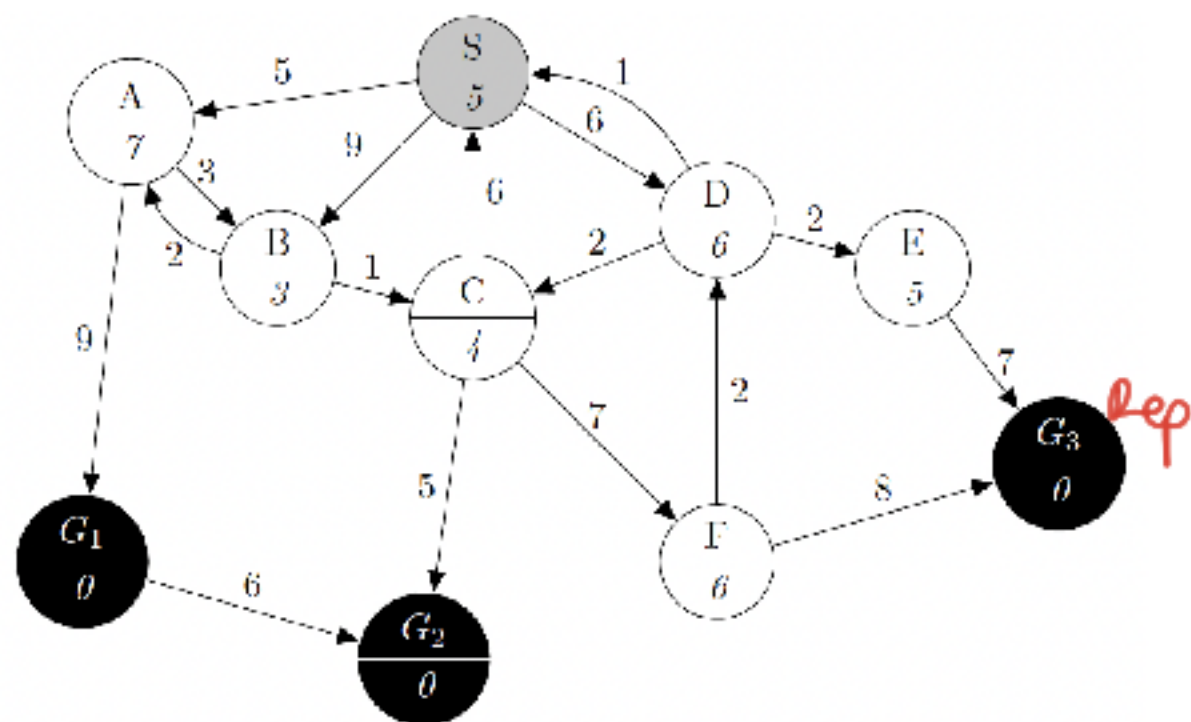
NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$



5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

(A, S, 5, 7)

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

(B, A, 8, 3)

(G1, A, 14, 0)

~~(C, B, 9, 4)~~

~~(C, D, 8, 4)~~

(E, D, 8, 5)

(G2, C, 13, 0)

(F, C, 15, 6)

CERRADOS Ni falta

~~(S, ∅, 0, 5)~~ ~~(S, D, 7, 5)~~

~~(A, S, 5, 7)~~ ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

(C, D, 8, 4)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

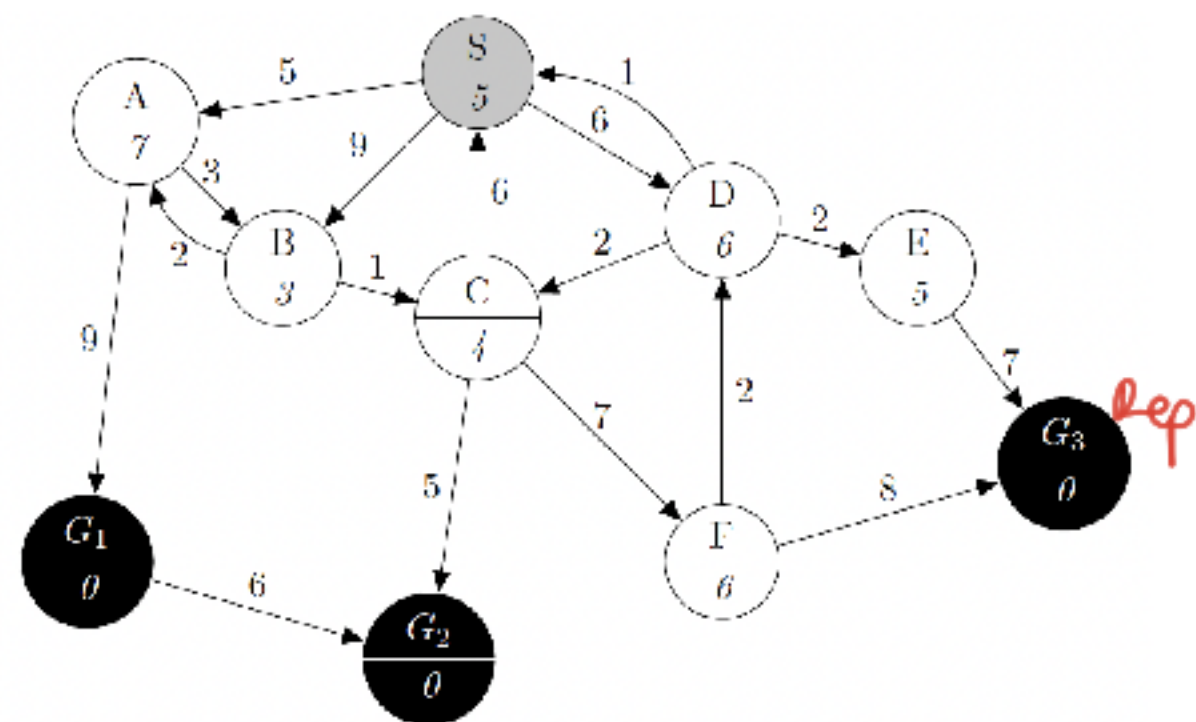
$h(x) - h(y) \leq c(x, y)$

NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$

5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

~~(A, S, 5, 7)~~

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

~~(B, A, 8, 3)~~

~~(G1, A, 14, 0)~~

~~(C, B, 9, 4)~~

~~(C, D, 8, 4)~~

~~(E, D, 8, 5)~~

~~(G2, C, 13, 0)~~

~~(F, C, 15, 6)~~

~~(G3, E, 15, 0)~~

CERRADOS Ni falta

~~(S, ∅, 0, 5)~~ ~~(S, D, 7, 5)~~

~~(A, S, 5, 7)~~ ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

(C, D, 8, 4)

(E, D, 8, 5)

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

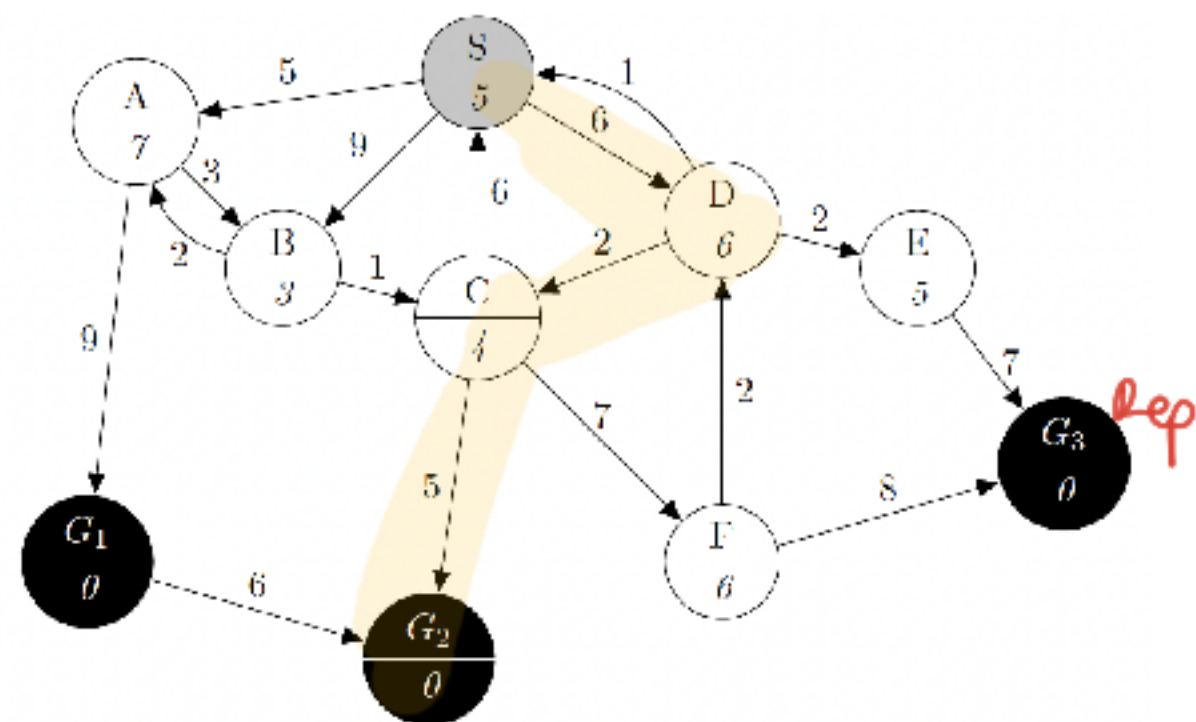
$h(x) - h(y) \leq c(x, y)$

NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$

5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

~~(A, S, 5, 7)~~

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

~~(B, A, 8, 3)~~

~~(G1, A, 14, 0)~~

~~(C, B, 9, 4)~~

~~(C, D, 8, 4)~~

~~(E, D, 8, 5)~~

~~(G2, C, 13, 0)~~

~~(F, C, 15, 6)~~

~~(G3, E, 15, 0)~~

CERRADOS Ni falta

~~(S, ∅, 0, 5)~~ ~~(S, D, 7, 5)~~

~~(A, S, 5, 7)~~ ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

(C, D, 8, 4)

(E, D, 8, 5)

**(G2, C, 13, 0)**

FIN

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$h(x) - h(y) \leq c(x, y)$

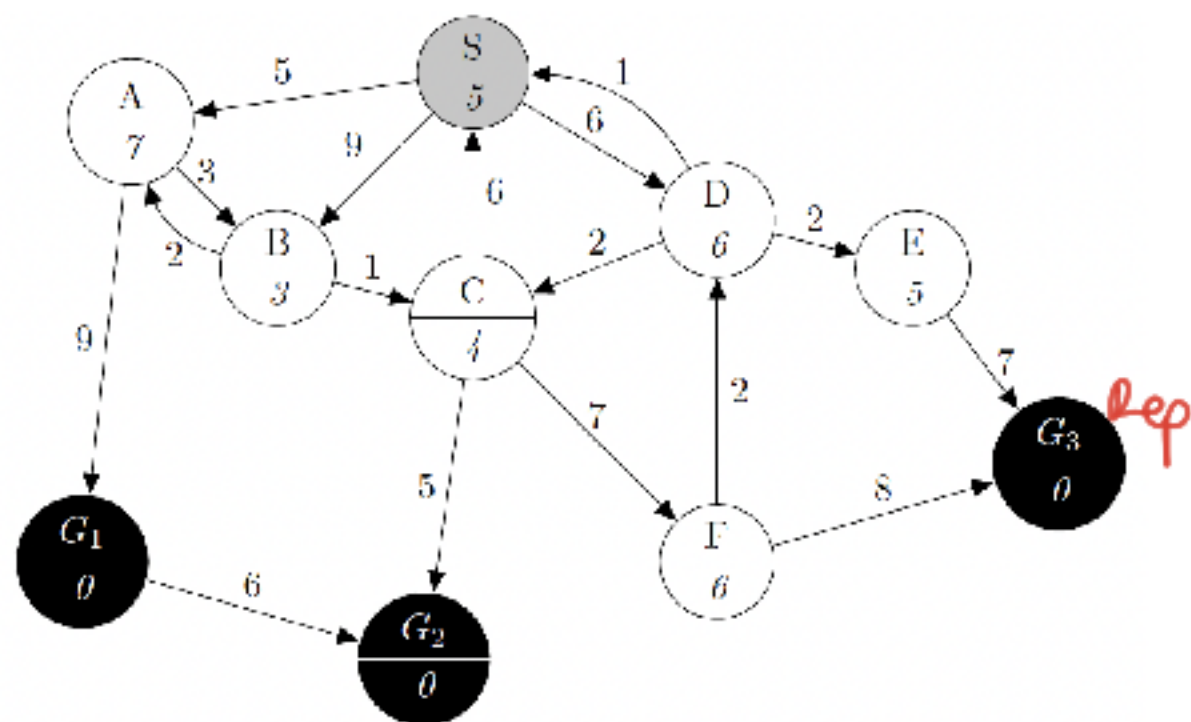
NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$



5. A\*



ABIERTOS

~~(S, ∅, 0, 5)~~

~~(A, S, 5, 7)~~

~~(B, S, 9, 3)~~

~~(D, S, 6, 6)~~

~~(B, A, 8, 3)~~

~~(G1, A, 14, 0)~~

~~(C, B, 9, 4)~~

~~(C, D, 8, 4)~~

~~(E, D, 8, 5)~~

~~(G2, C, 13, 0)~~

~~(F, C, 15, 6)~~

~~(G3, E, 10, 0)~~

CERRADOS Ni falta

~~(S, ∅, 0, 5)~~ ~~(S, D, 7, 5)~~

~~(A, S, 5, 7)~~ ~~(A, B, 10, 7)~~

(B, A, 8, 3)

(D, S, 6, 6)

(C, D, 8, 4)

(E, D, 8, 5)

**(G2, C, 13, 0)**

FIN

¿Admissible?  $h(x) \leq h^*(x)$

¿Monótona?

$h(x) - h(y) \leq c(x, y)$

NO A y B

$h(A) - h(B) \leq c(A, B)$

$7 - 3 = 4 \leq 3$