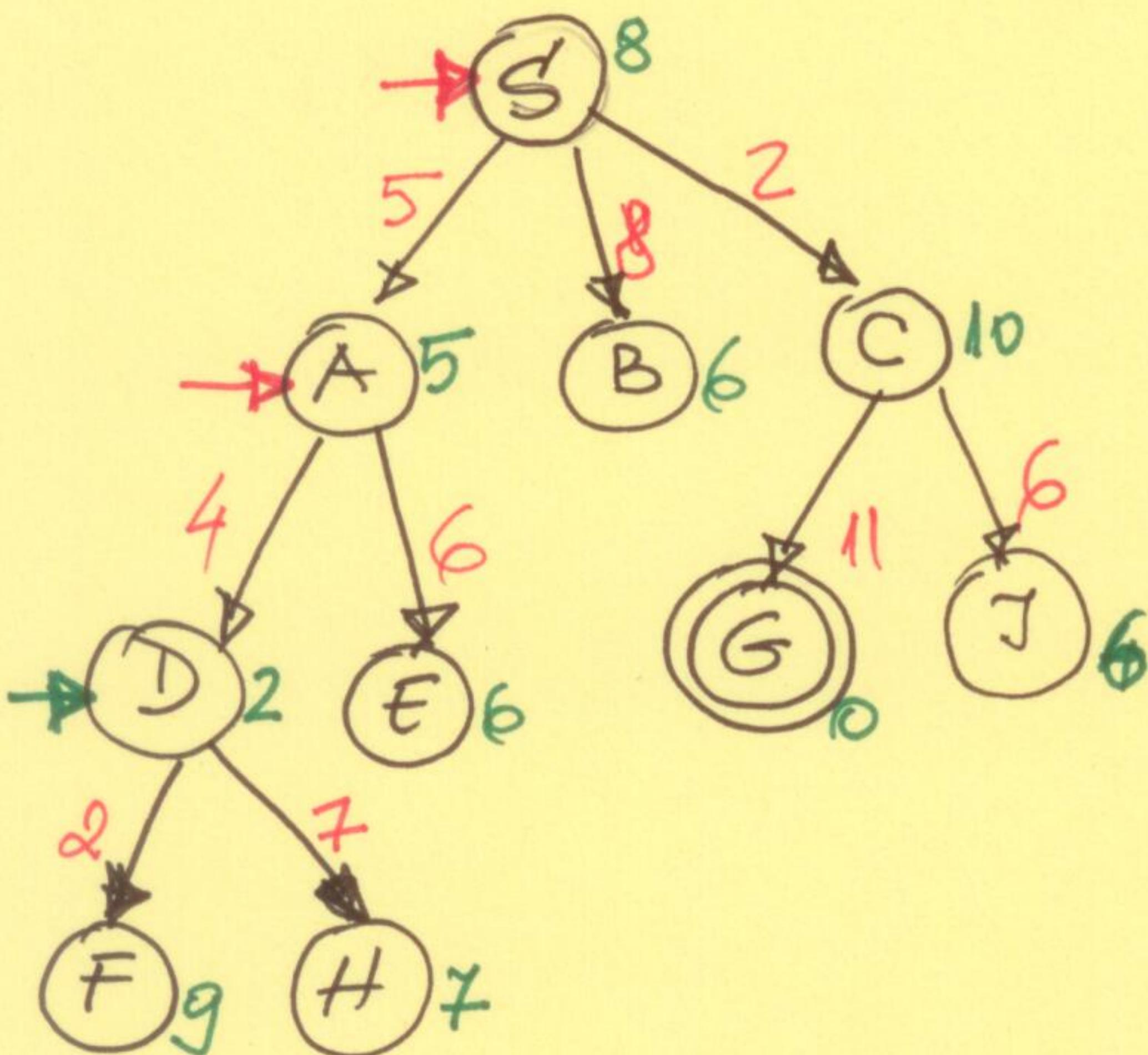


User: Recursive-Best
First-search RBFS
to find a solution
from S to G.



Step 1 :

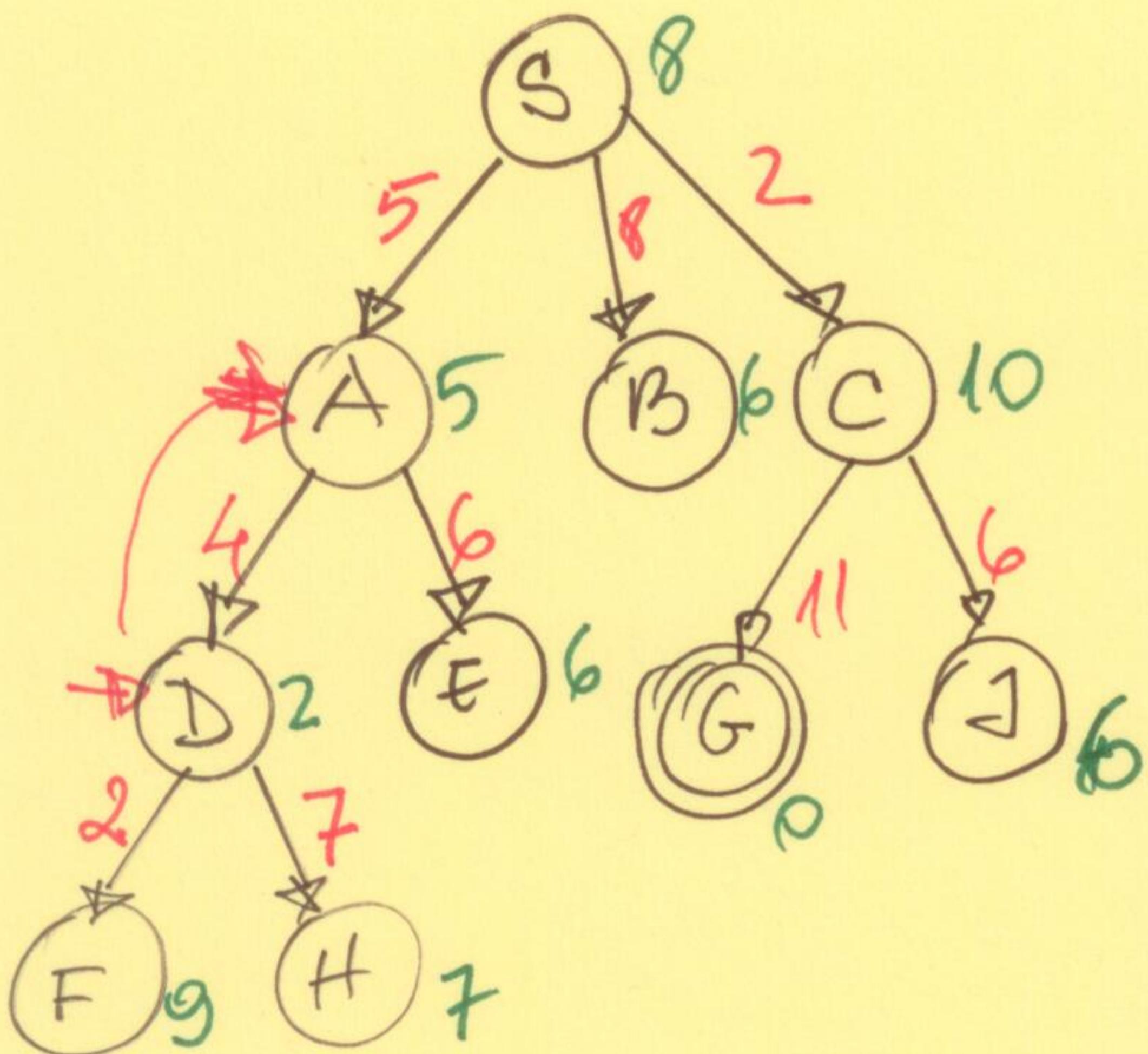
	Step 1	Step 2
f limit	∞	12
best	$f(A) = 10$	11
alternative	$f(C) = 12$	17
Node	S	A
Best successor	X	D

$$\boxed{\begin{cases} f(A) = 5 + 5 = 10 \\ f(B) = 8 + 6 = 14 \\ f(C) = 2 + 10 = 12 \\ f(D) = 9 + 2 = 11 \\ f(E) = 11 + 6 = 17 \\ f(F) = 11 + 9 = 20 \\ f(H) = 16 + 7 = 23 \\ f(G) = 12 + 0 = 12 \\ f(J) = 8 + 6 = 14 \end{cases}}$$

	Step 1	Step 2	Step 3
f-limit	∞	12	14
f(best)	10	11	20
alternative	12	17	23
Node	S	A	D
successor	A	D	F

$f(\text{best}) > f\text{-limit}$
 $11 > 14$
backtrack

$$f(D) = \max(f(D), f(\text{best})) \\ = \max(11, 20) = 20$$



$$f(A) = 5 + 5 = 10$$

17

$$f(B) = 8 + 6 = 14$$

$$f(C) = 2 + 10 = 12$$

$$f(D) = 9 + 2 = 11$$

20

$$f(E) = 11 + 6 = 17$$

$$f(F) = 16 + 9 = 25$$

$$f(H) = 16 + 7 = 23$$

$$f(G) = 13 + 0 = 13$$

$$f(J) = 8 + 6 = 14$$

	Step 1	Step 2	Step 3	
f-limit	∞	12	(17)	
f(best)	10	11	(20)	17
alternative	12	17	23	
node	S	A	D	A
successor	A	D	F	E

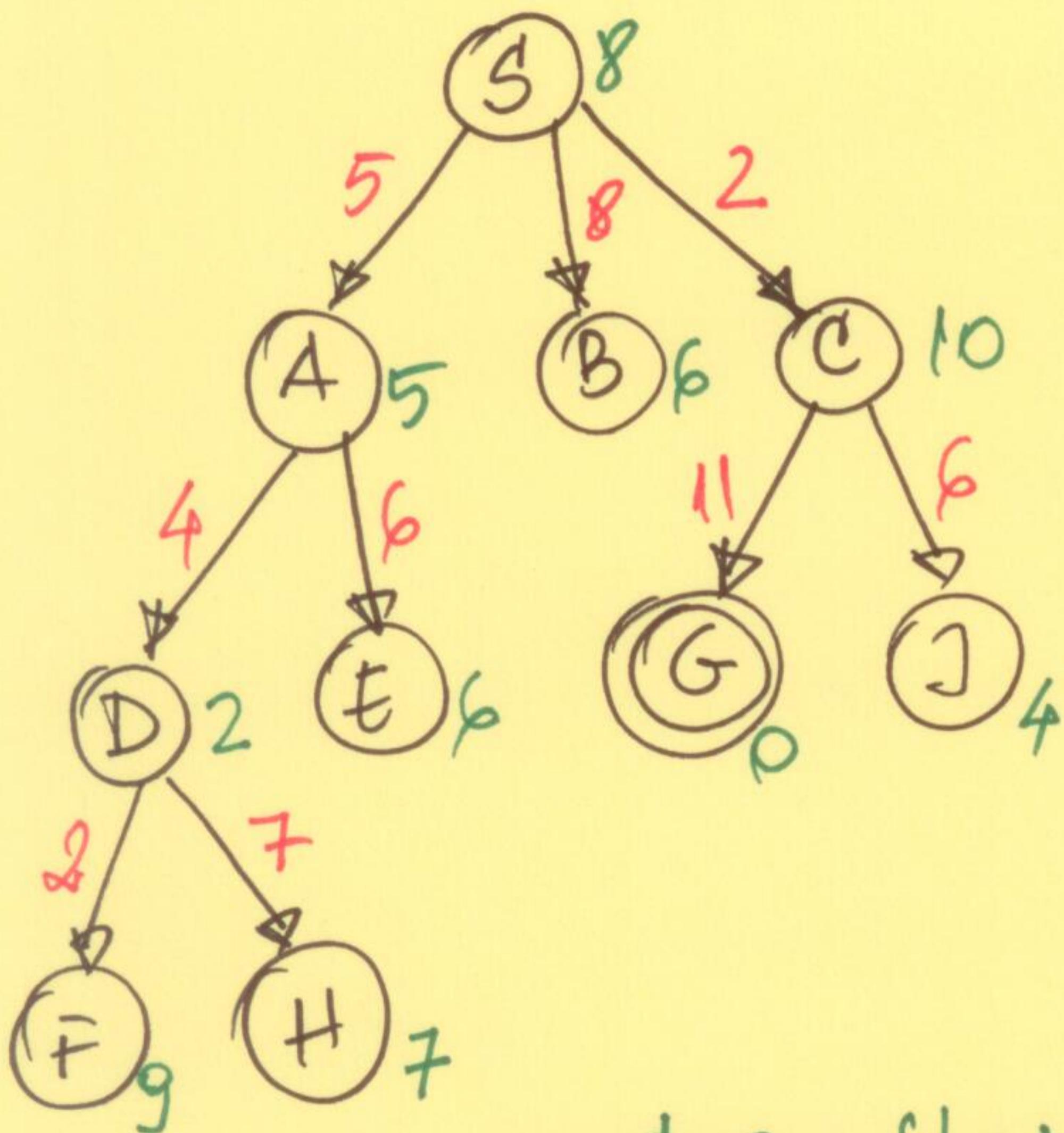
Step 4

$$f(\text{best}) > f\text{-limit}$$

17 > 12
backtrack!

$$f(A) = \max(f(A), f(\text{best}))$$

$$= \max(10, 17) = 17$$



$$\left\{ \begin{array}{l} f(A) = 5 + 5 = 10 \quad [17] \\ f(B) = 8 + 6 = 14 \\ f(C) = 2 + 10 = 12 \\ f(D) = 9 + 2 = 11 \quad [20] \\ f(E) = 11 + 6 = 17 \\ f(F) = 11 + 9 = 20 \\ f(H) = 16 + 7 = 23 \\ f(G) = 13 + 0 = 13 \\ f(J) = 8 + 6 = 14 \end{array} \right.$$

3

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6 (Step 7)
f_{limit}	∞	12	17	12	∞	14
$f(\text{best})$	10	11	20	17	12	13
alternative	12	17	23	20	14	13
node	S	A	D	A	S'	C
successor	A	D	F	E	C	G

\nearrow pool

Solution $A \rightarrow C \rightarrow G$

$$\text{Cost} = 2 + 11 = \underline{13}$$