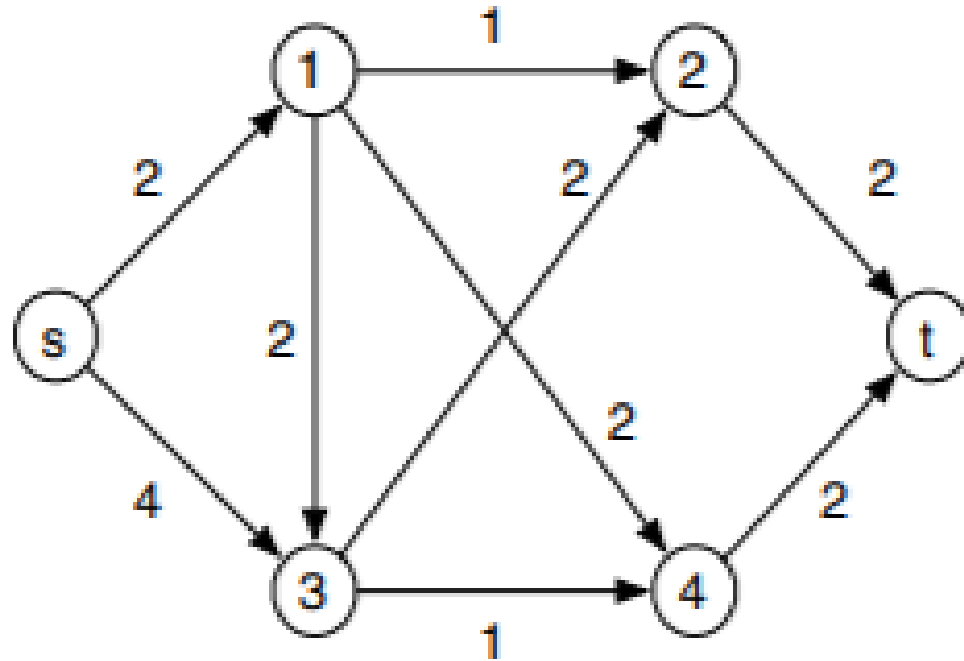
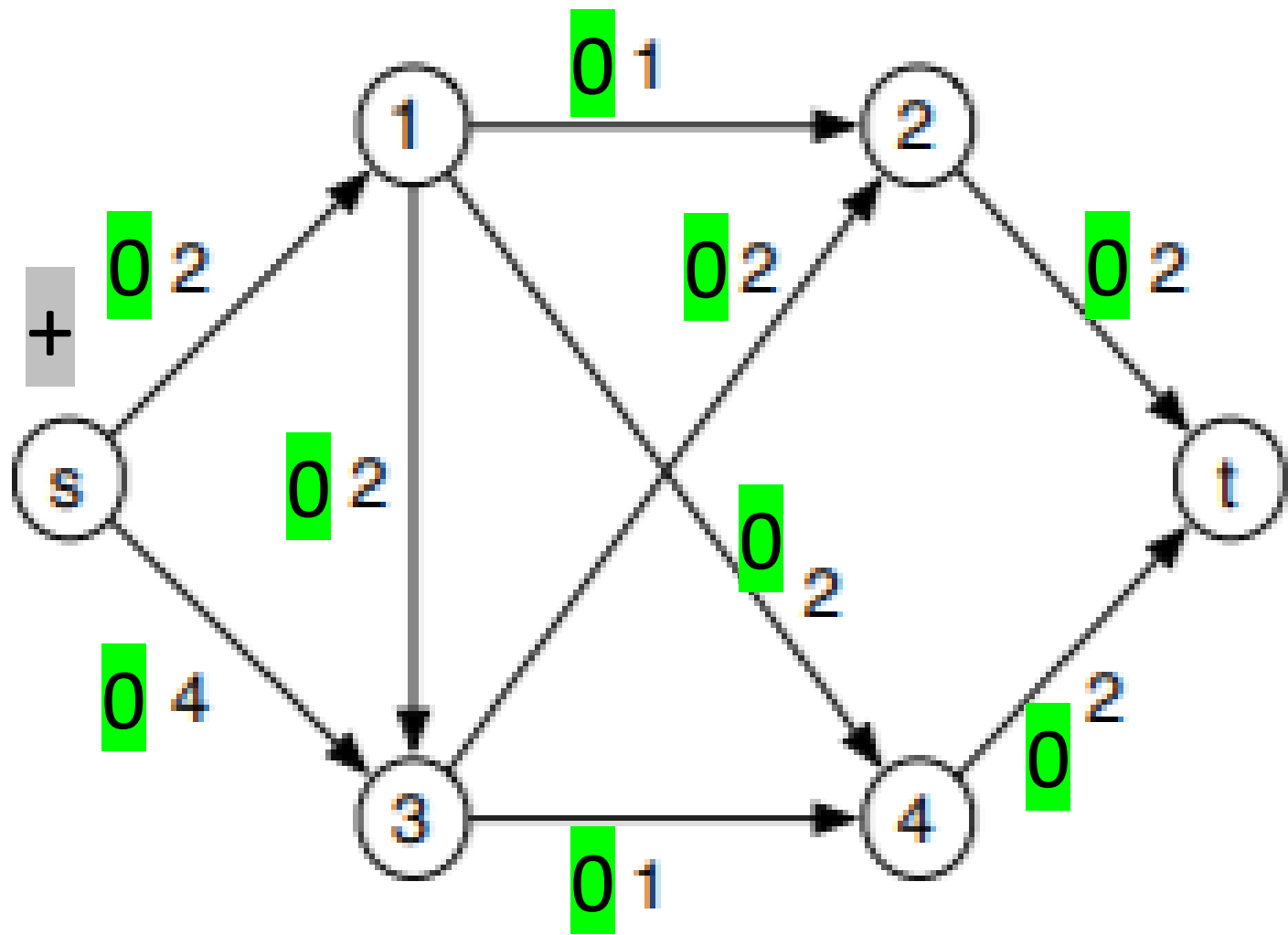
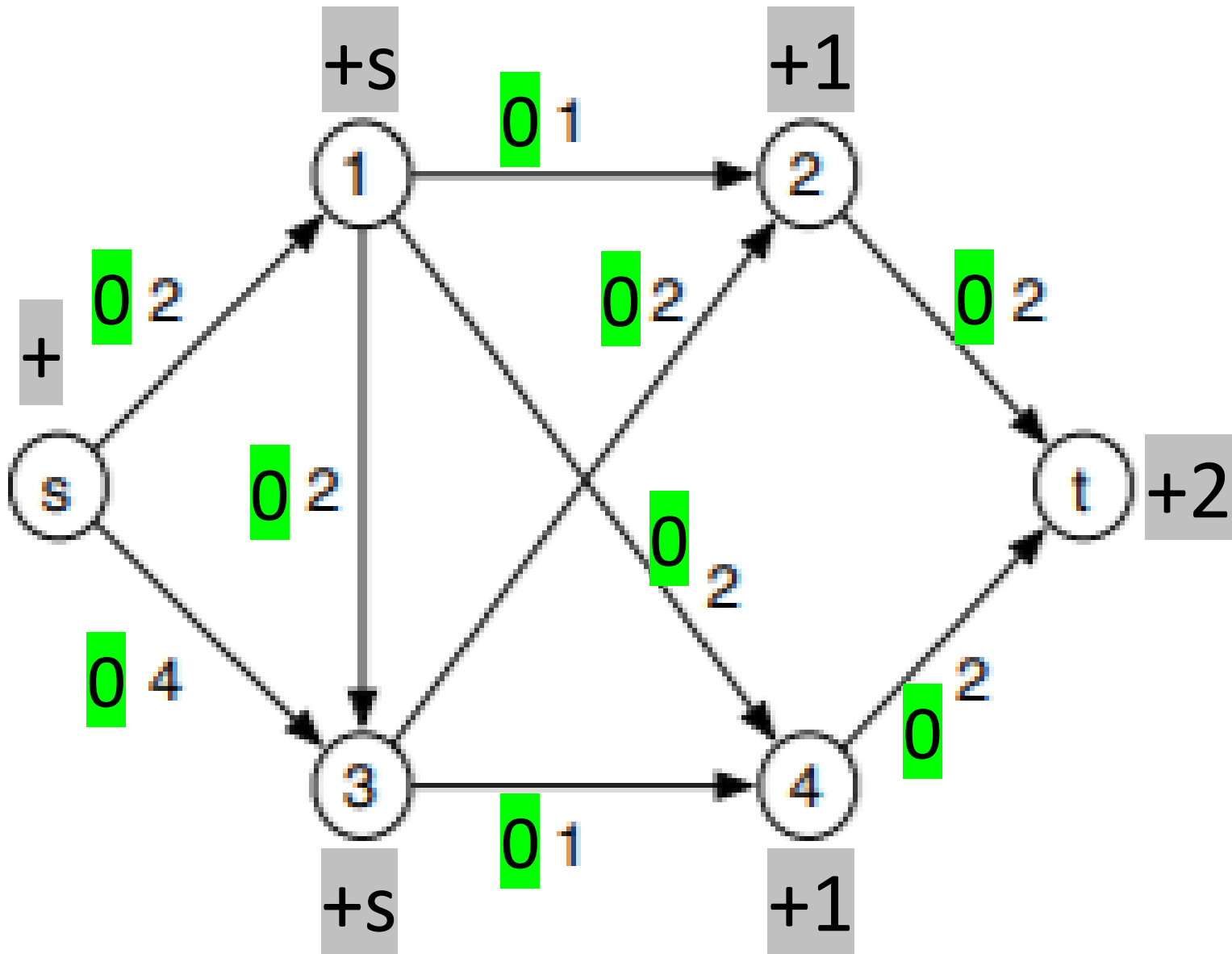


Exercice 1

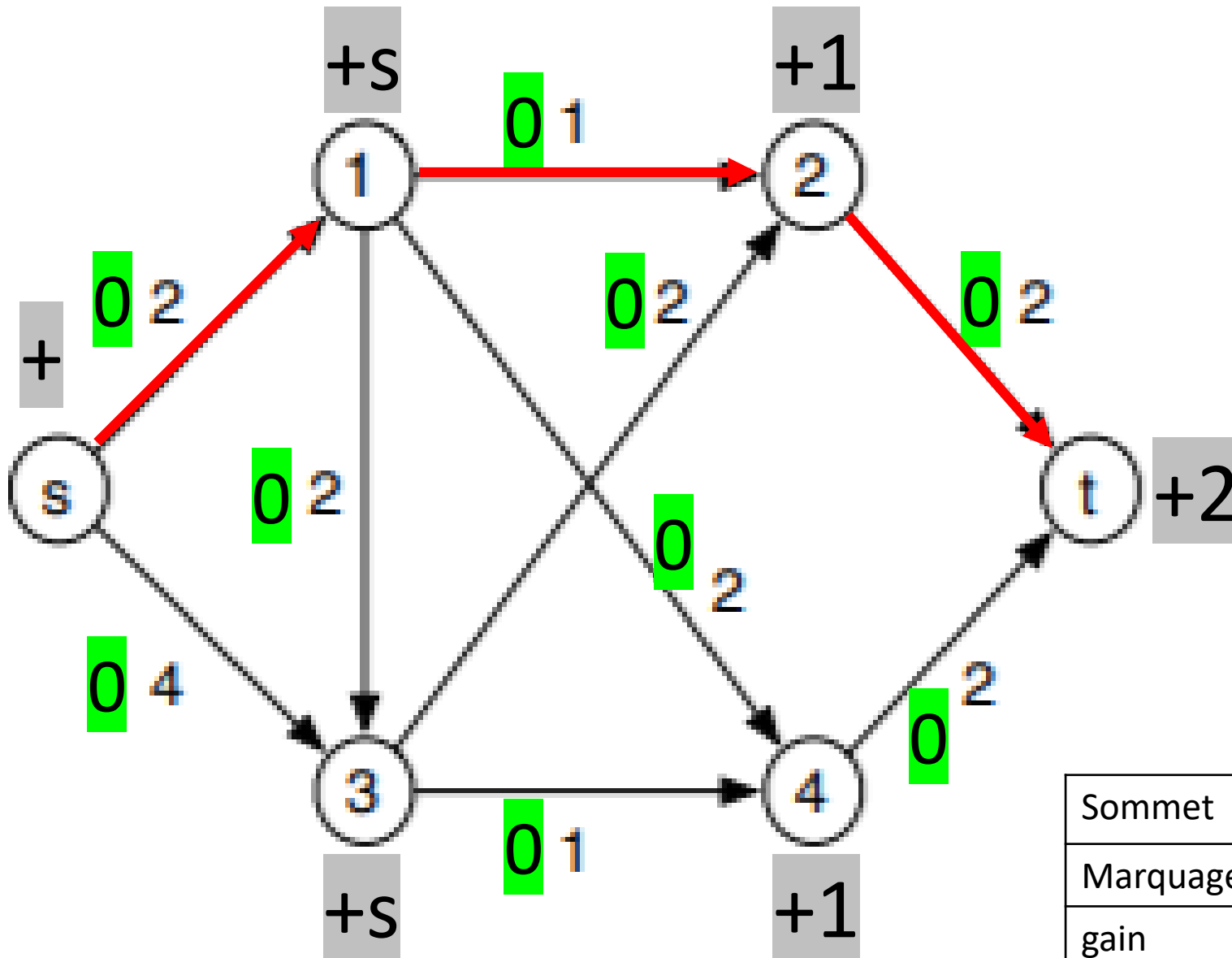
- Calculer un flot maximum en utilisant la méthode de Ford-Fulkerson sur le graphe de la figure 2 dont les capacités sont données sur tous les arcs.







Marquage

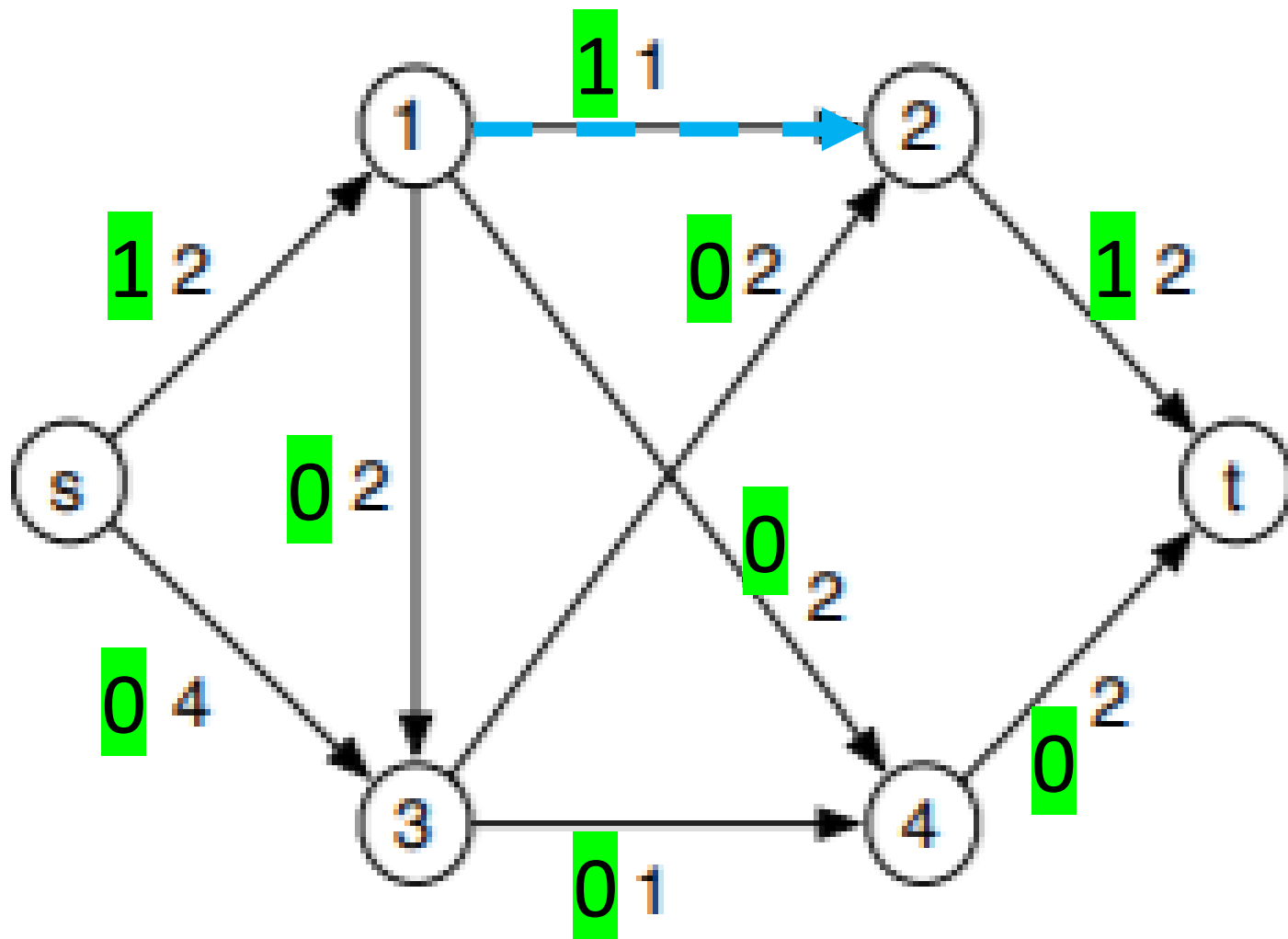


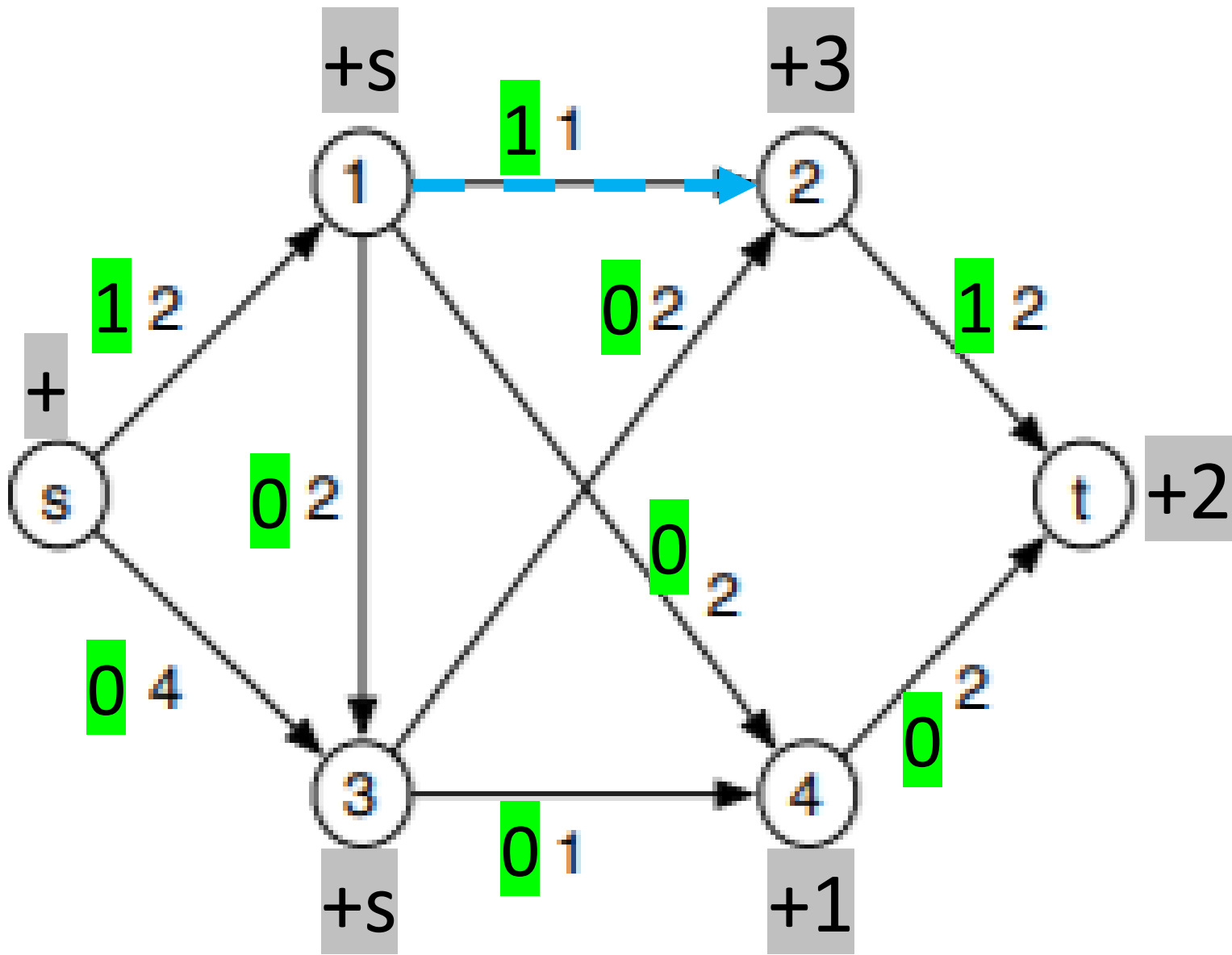
Chaîne améliorante :

$S \xrightarrow{+2} 1 \xrightarrow{+1} 2 \xrightarrow{+2} t$

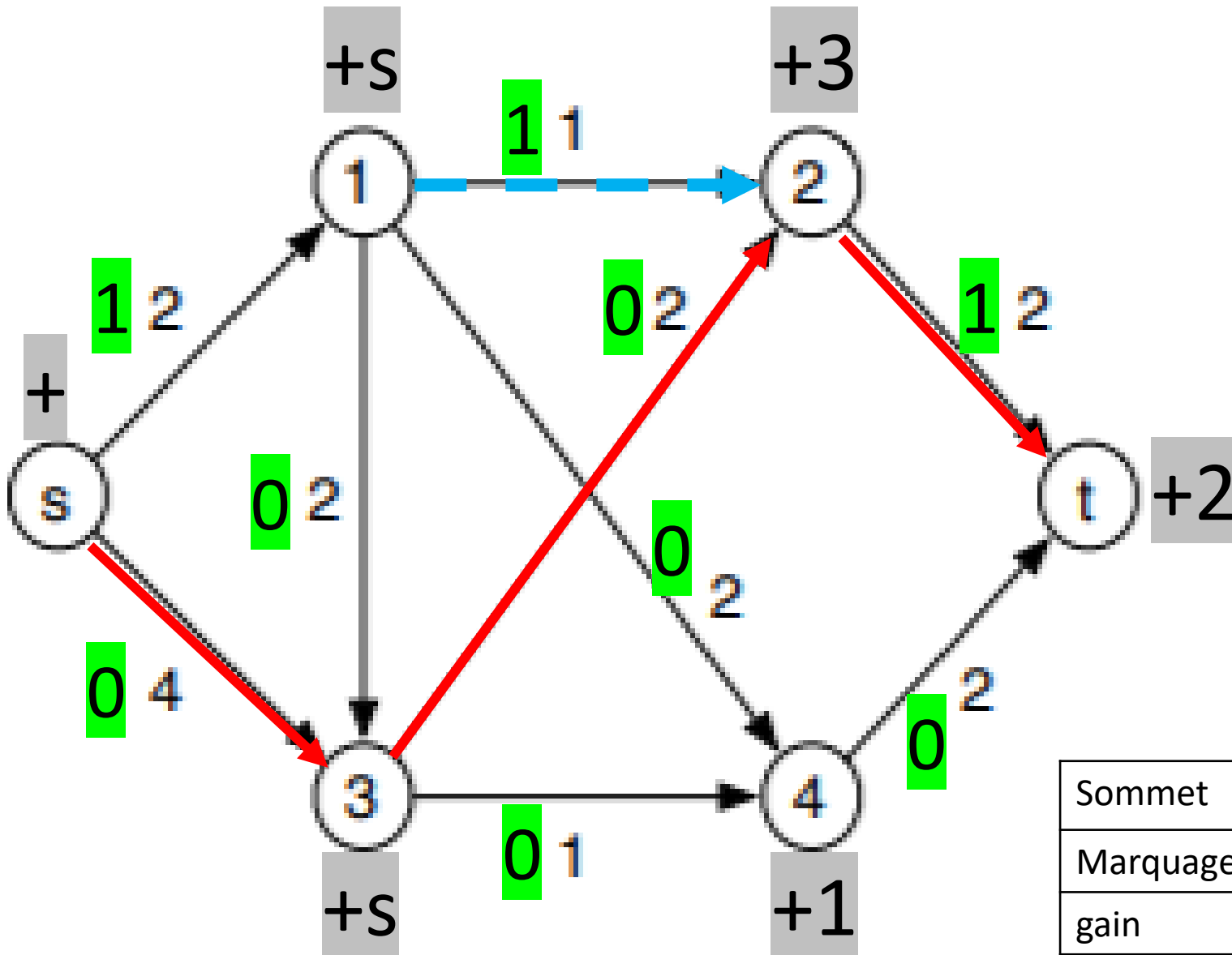
$\epsilon = \min(2, 1, 2) = 1$

| | | | | | | |
|----------|---|----|----|----|----|----|
| Sommet | S | 1 | 3 | 2 | 4 | P |
| Marquage | | +S | +S | +1 | +1 | +2 |
| gain | | +2 | +4 | +1 | +2 | +2 |





Marquage

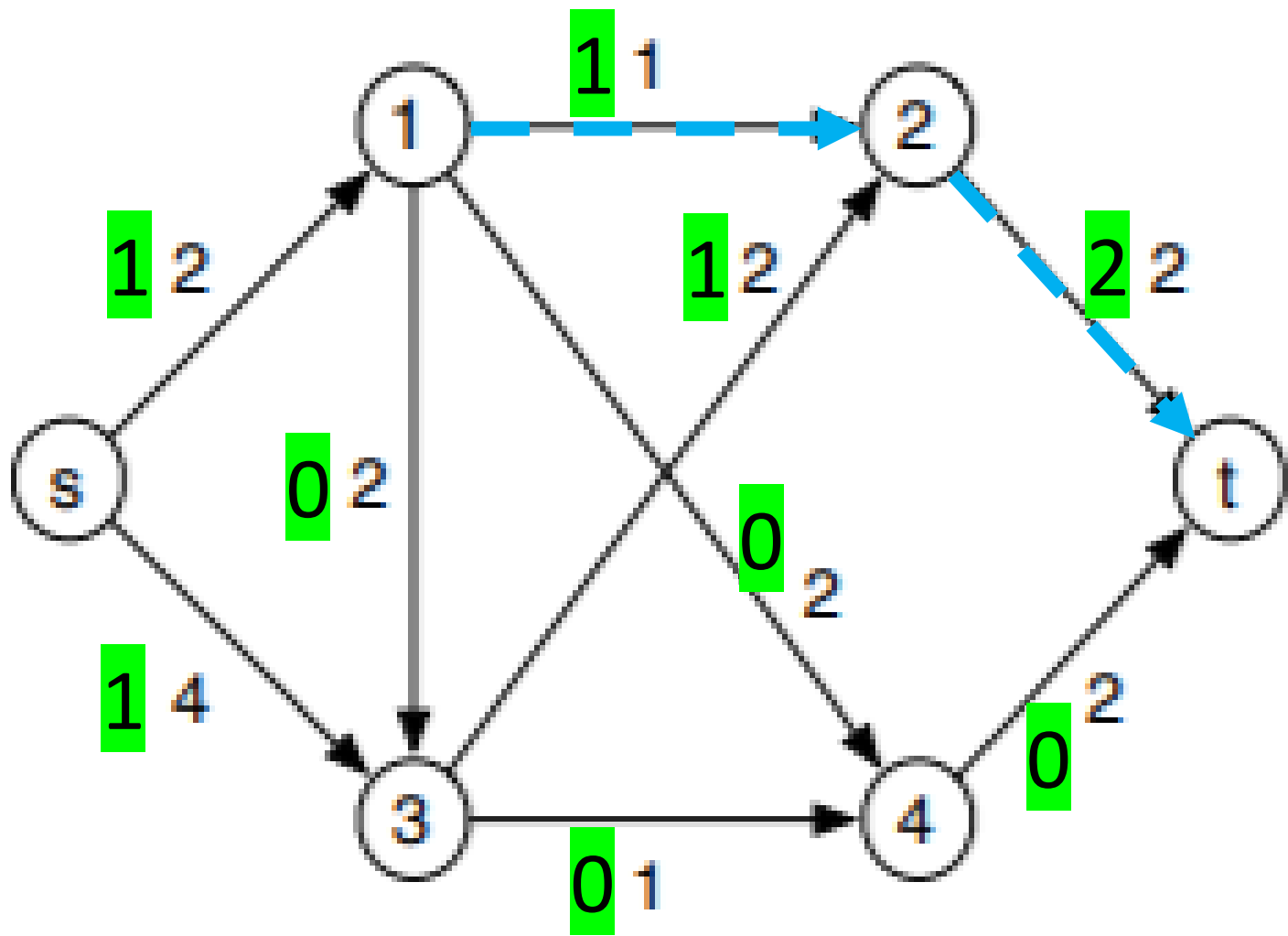


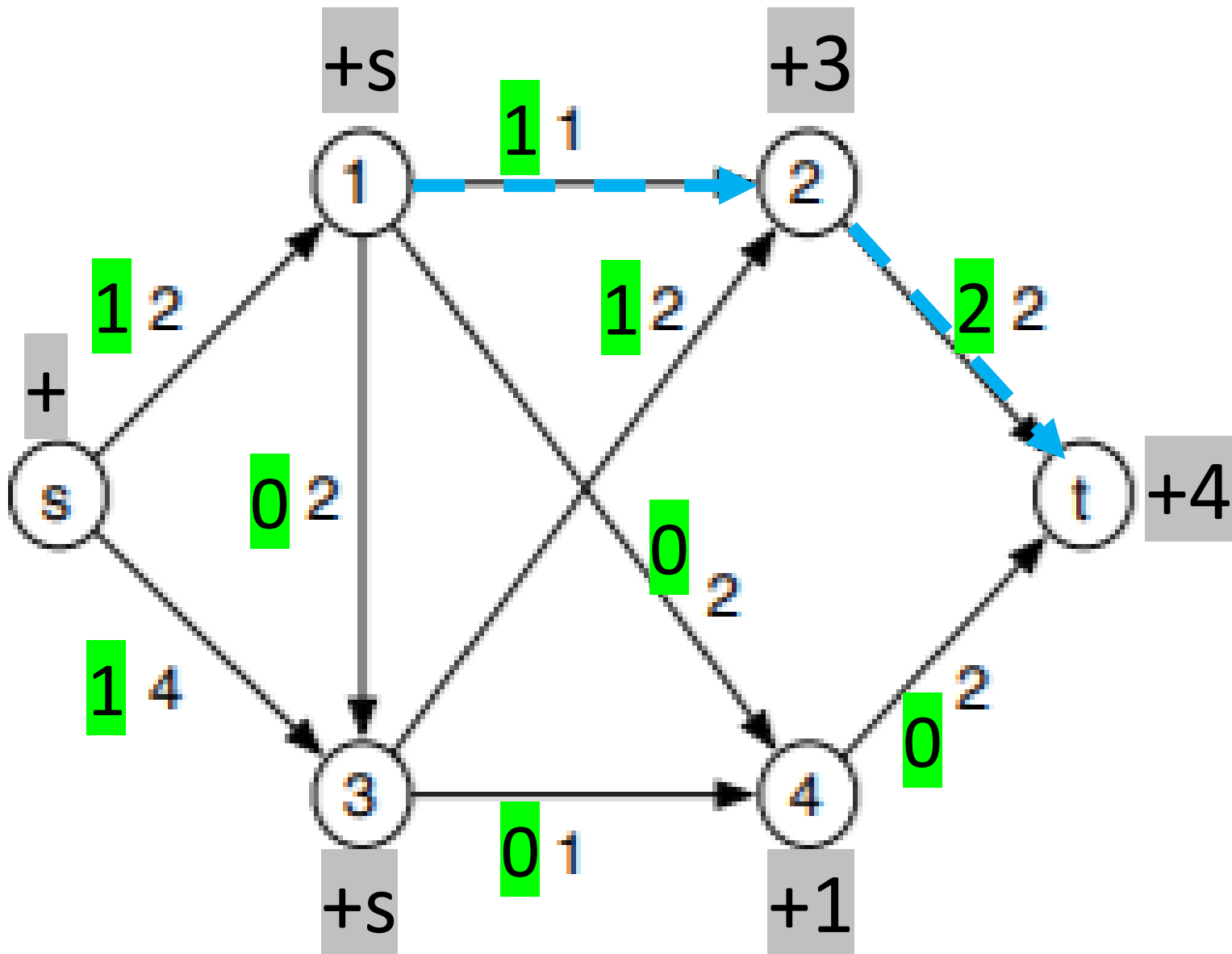
Chaîne améliorante :

$\begin{matrix} +4 & +2 & +1 \\ S & - 3 & - 2 & - t \end{matrix}$

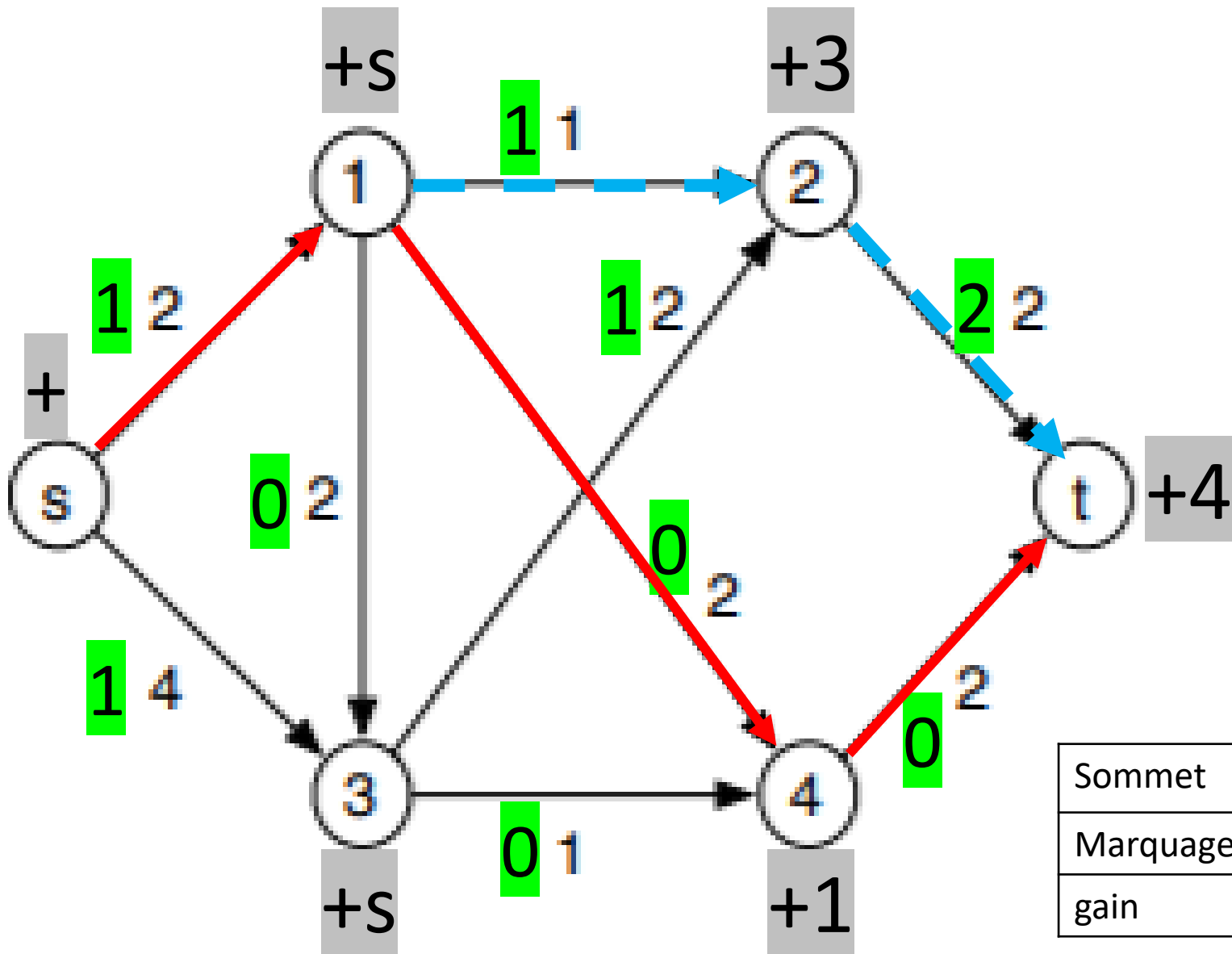
$\epsilon = \min(4, 2, 1) = 1$

| | | | | | | |
|----------|---|----|----|----|----|----|
| Sommet | S | 1 | 3 | 4 | 2 | P |
| Marquage | | +S | +S | +1 | +3 | +2 |
| gain | | +1 | +4 | +2 | +2 | +1 |





Marquage

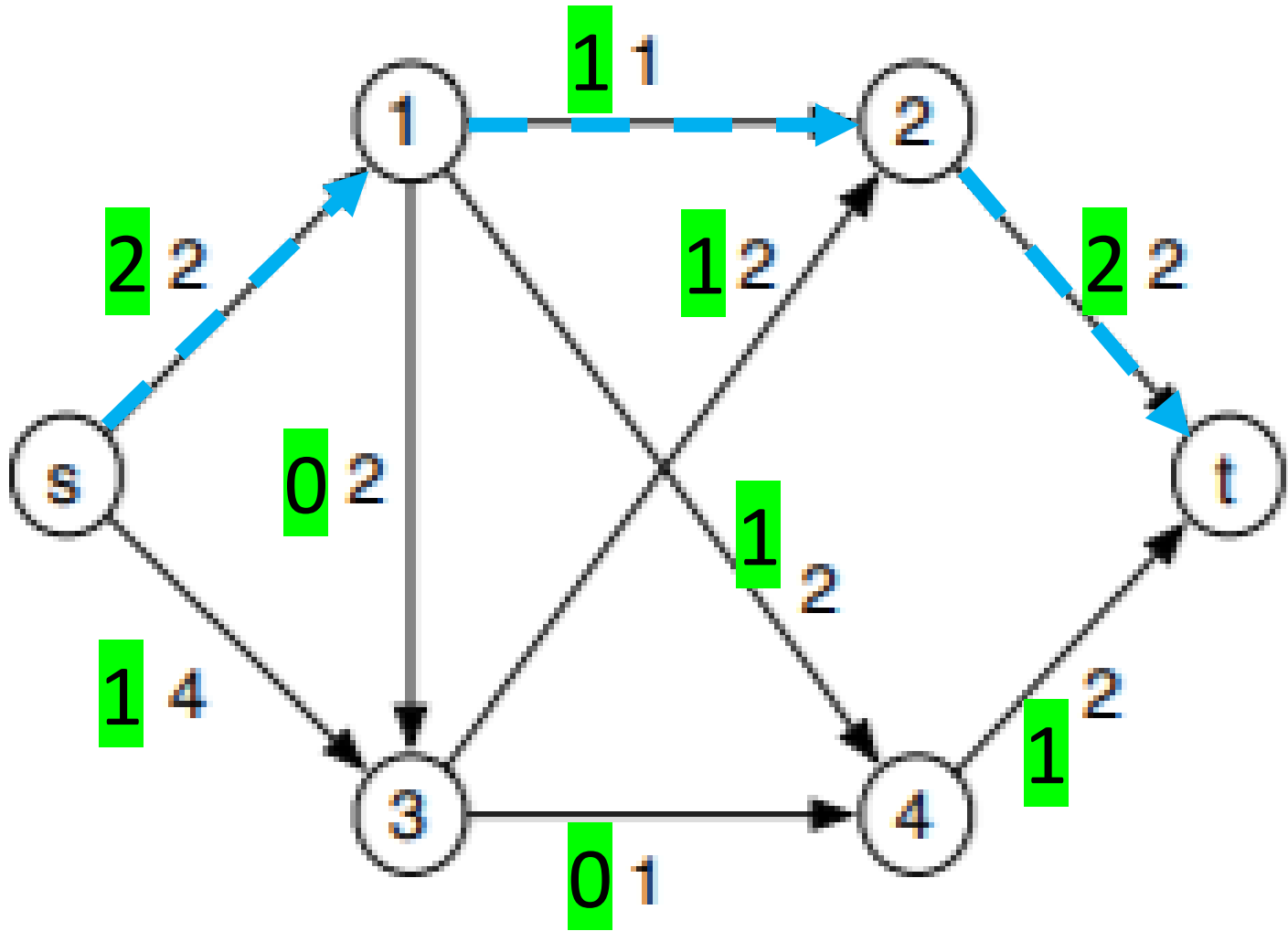


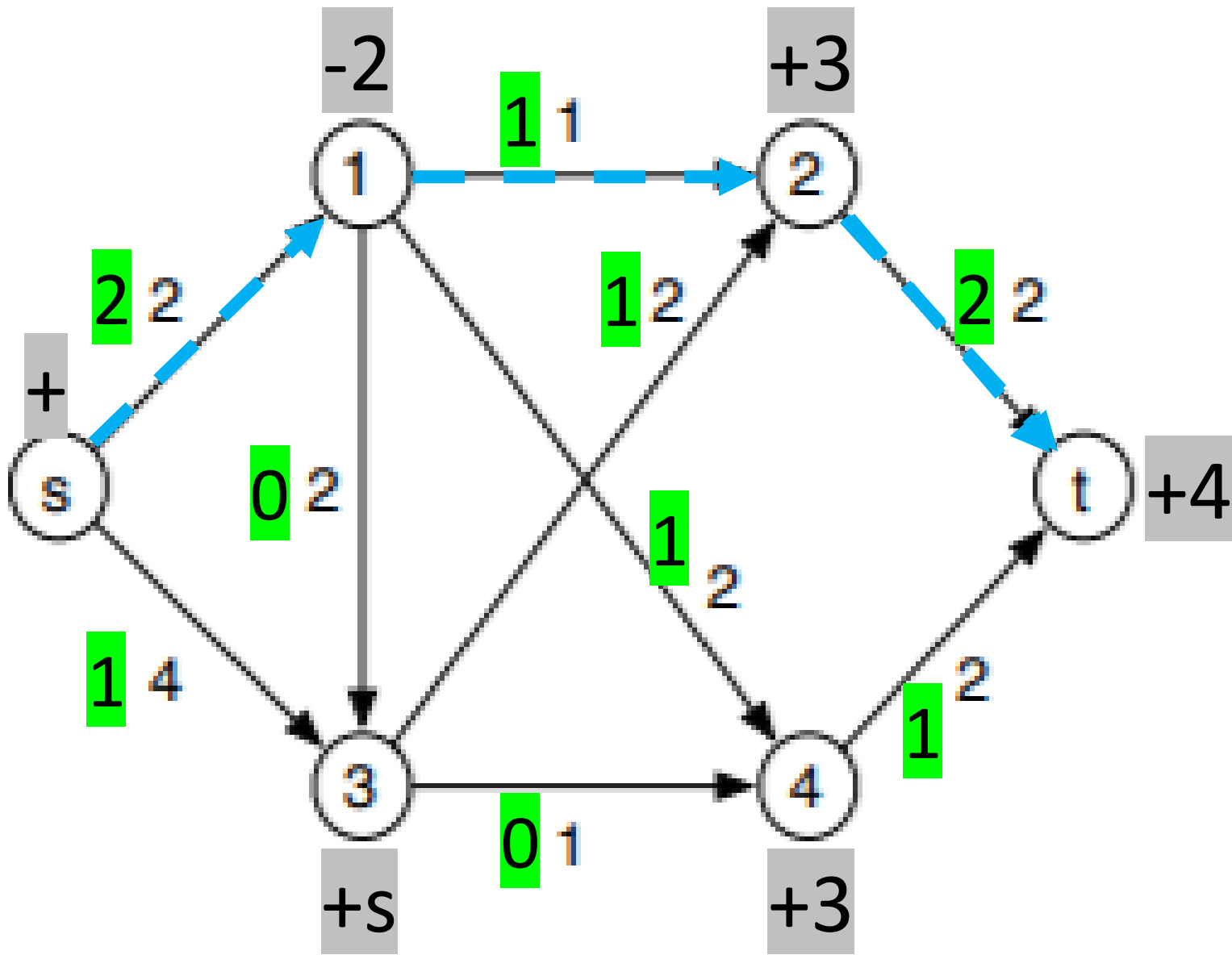
Chaîne améliorante :

$$S \overset{+1}{-} 1 \overset{+2}{-} 4 \overset{+2}{-} t$$

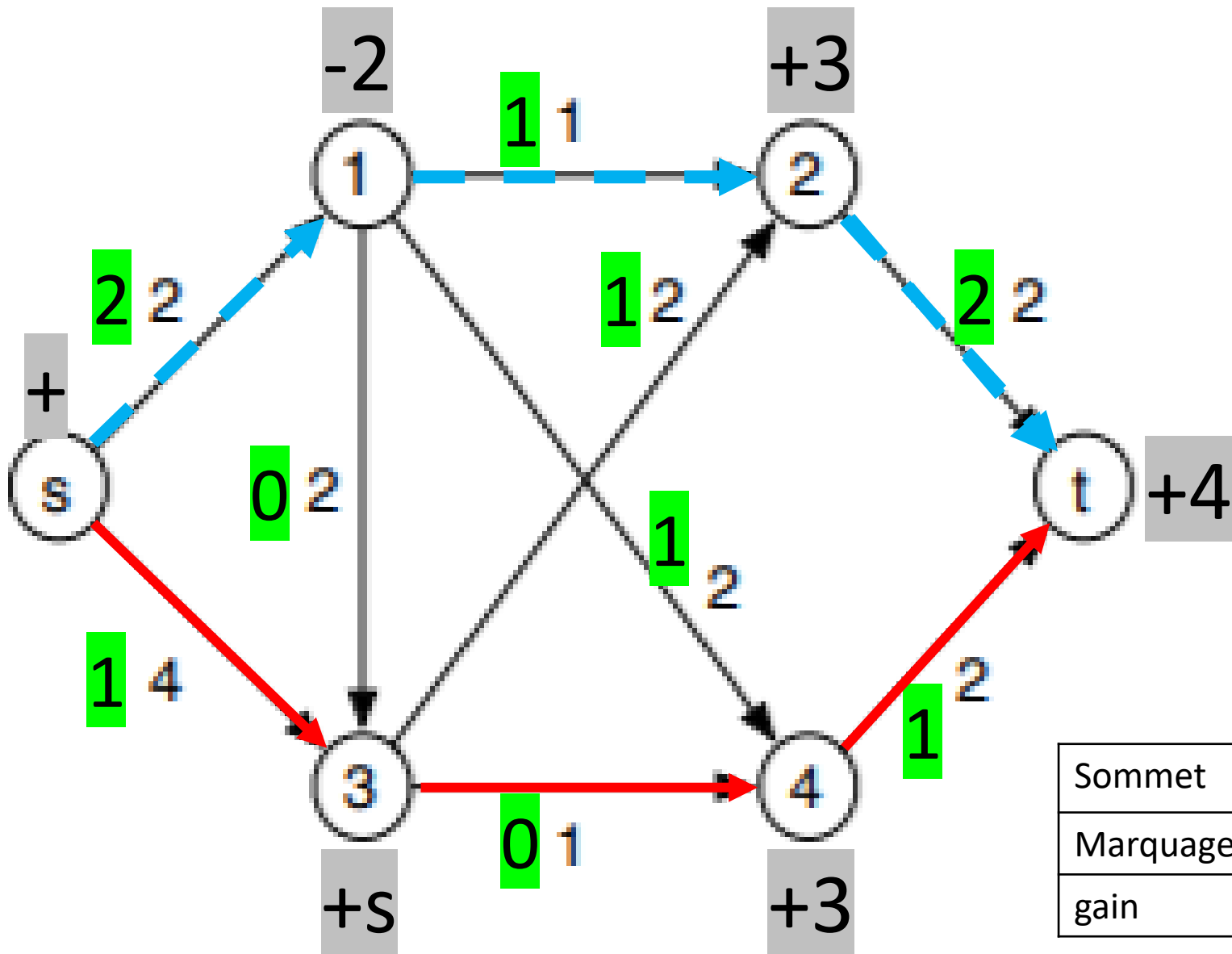
$$\varepsilon = \min(1, 2, 2) = 1$$

| | | | | | | |
|----------|---|----|----|----|----|----|
| Sommet | S | 1 | 3 | 4 | 2 | P |
| Marquage | | +S | +S | +1 | +3 | +4 |
| gain | | +1 | +3 | +2 | +1 | +2 |





Marquage

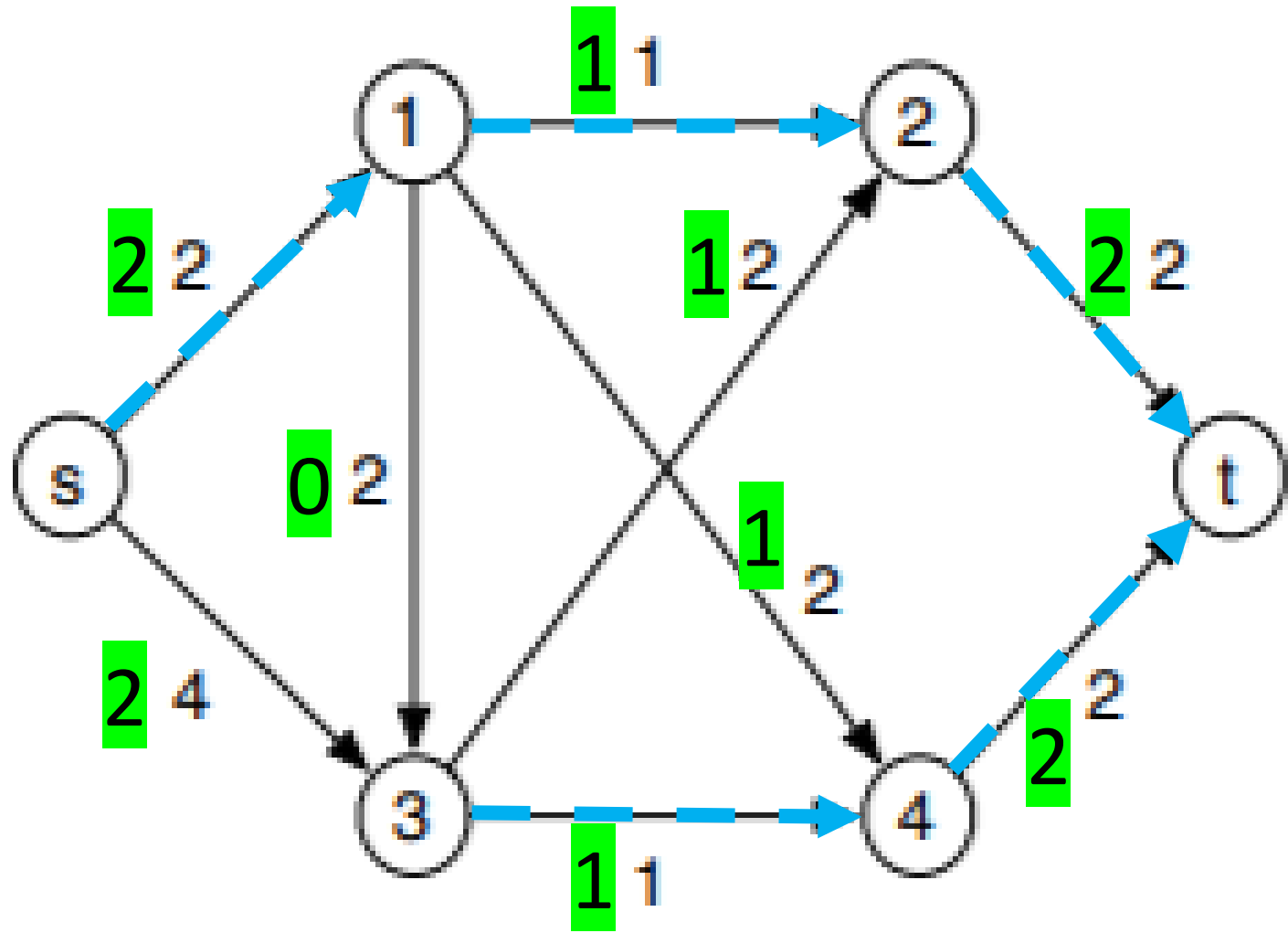


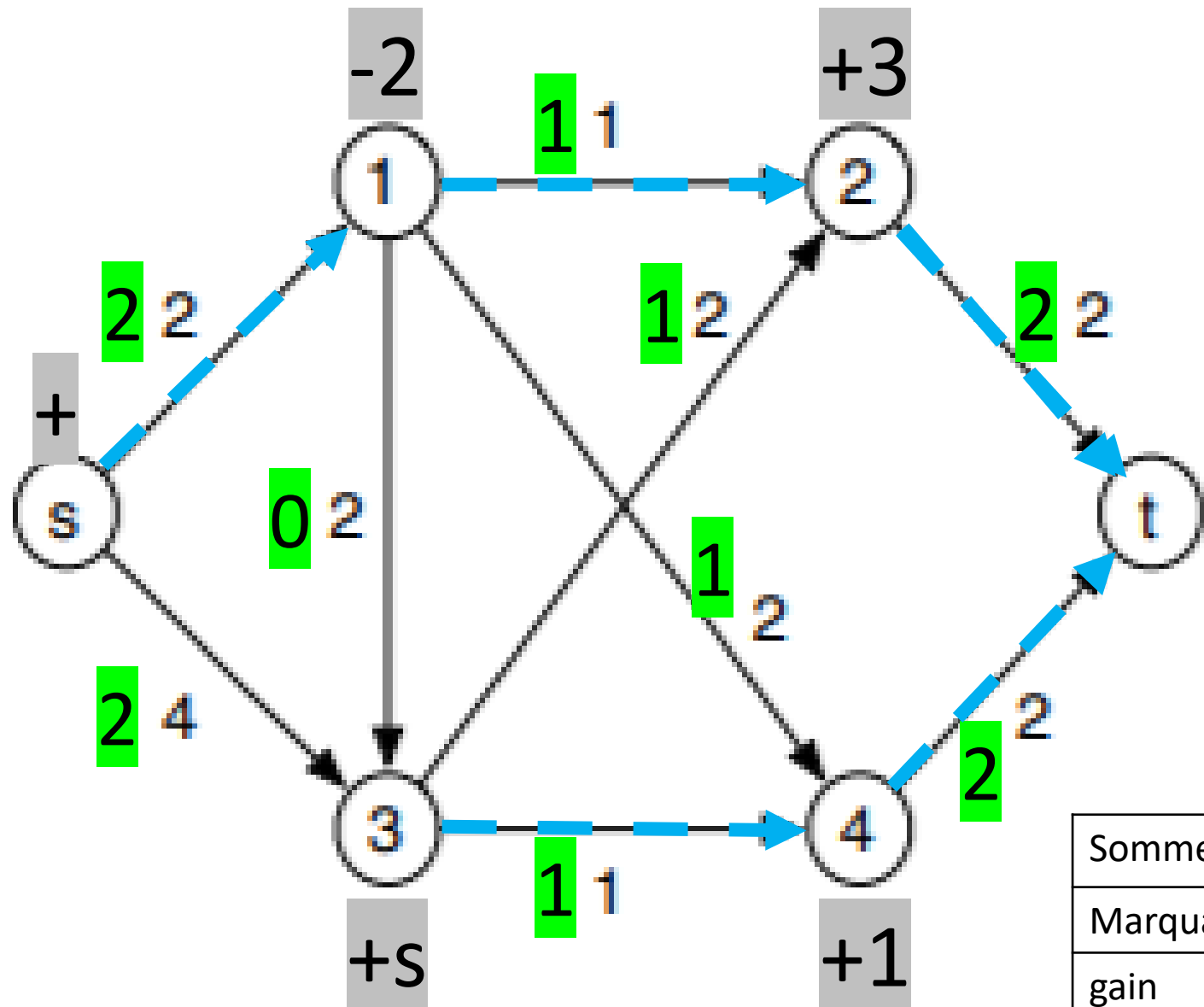
Chaîne améliorante :

$\begin{matrix} +3 & +1 & +1 \\ S - 3 - 4 - t \end{matrix}$

$\epsilon = \min(3, 1, 1) = 1$

| | | | | | | |
|----------|---|----|----|----|----|----|
| Sommet | S | 3 | 2 | 4 | 1 | P |
| Marquage | | +S | +3 | +3 | -2 | +4 |
| gain | | +3 | +1 | +1 | -1 | +1 |





Marquage

Pas de chaîne améliorante

| | | | | | |
|----------|---|----|----|----|----|
| Sommet | s | 3 | 2 | 1 | 4 |
| Marquage | | +S | +3 | -2 | +1 |
| gain | | +2 | +1 | -1 | +1 |