

TD  
TR6 2

07.12.11 III - Chemin de + count

602

Dijkstra

$h=1$

Bellman

$CC = \{0\}$   $M = \{1, 2, 3, 4, 5\}$

$\pi(3) = 1$   $\pi(2) = 7$   $\pi(1) = +\infty$   $\pi(4) = +\infty$   
 $\pi(5) = +\infty$

$\pi(2) = 7$

$\pi(3) = 1$

$h=2$

$\pi(4) = 7 + 4 = 11$

$\pi(1) = 7 + 1 = 8$

$\pi(1) = 1 + 7 = 8$

$\pi(2) = 1 + 5 = 6$

$\pi(5) = 1 + 2 = 3$

$h=3$

$\pi(4) = 6 + 4 = 10$

$\pi(1) = 6 + 1 = 7$

$\pi(2) = 3 + 2 = 5$

$\pi(1) = 3 + 3 = 6$

$h=4$

$\pi(5) = 10 + 15 = \infty$

$\pi(2) = 5 + 1 = 6$

$\pi(4) = 5 + 4 = 9$

$M = \{1, 2, 4, 5\}$

$\pi(2) = 6$

$\pi(5) = 3$

$\pi(1) = 8$

$M = \{1, 2, 4\}$

$\pi(2) = 3 + 2 = 5$

$\pi(1) = 3 + 3 = 6$

$M = \{1, 4\}$

$\pi(1) = 5 + 1 = 6$

$\pi(4) = 5 + 4 = 9$

\*

$\pi(1) = 6$

$\pi(2) = 5$

$\pi(3) = 1$

$\pi(4) = 9$

$\pi(5) = 3$

\*

✓

615

valeurs  $< 0 \Rightarrow D \otimes$

$h=1$

$\pi(1) = 1$

$\pi(2) = 2$

$h=2$

$\pi(3) = 1 + 4 = 5$

$\pi(1) = 2 + 3 = 5 \otimes$

$\pi(4) = 2 + 5 = 7$

$h=3$

$\pi(2) = 5 + (-10) = -5$

|   | 0         | 1        | 2        | 3        | 4        | 5        |
|---|-----------|----------|----------|----------|----------|----------|
| 0 | 0         | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ |
| 1 | 0         | 1; 0     | 2; 0     | $\infty$ | $\infty$ | $\infty$ |
| 2 | 0         | 1; 0     | 2; 0     | 5; 1     | 7; 2     | $\infty$ |
| 3 | 0         | 1; 0     | -5; 3    | 5; 1     | 7; 2     | 5; 3     |
| 4 | 0         | -2; 2    | -5; 3    | 5; 1     | 0; 2     | 5; 3     |
| 5 | 0         | -2; 2    | -5; 3    | 2; 1     | 0; 2     | 2; 3     |
| 6 | $\otimes$ | -2; 2    | -5; 3    | 2; 1     | 0; 2     | 2; 3     |

$\pi(1) = \pi(0) + 1$  |  $\pi(2) + 3$

$\pi(2) = \pi(0) + 2$  |  $\pi(3) - 10$

$\pi(3) = \pi(1) + 4$

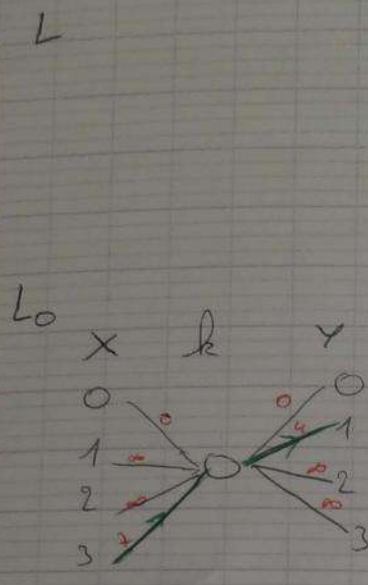
$\pi(4) = \pi(2) + 5$

$\pi(5) = \pi(3) + 0$  |  $\pi(4) + 6$

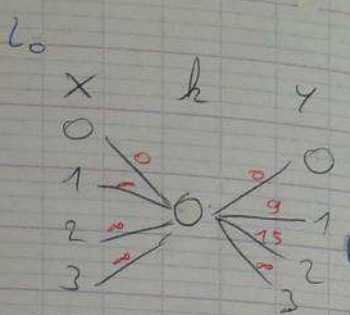
101 Floyd

L

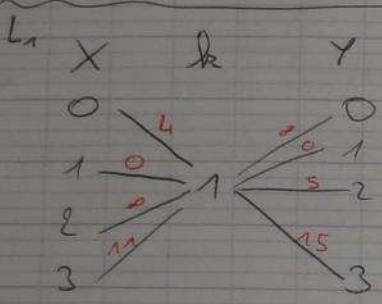
|   | 0        | 1        | 2        | 3        |
|---|----------|----------|----------|----------|
| 0 | 0        | 4        | $\infty$ | $\infty$ |
| 1 | $\infty$ | 0        | 5        | 15       |
| 2 | $\infty$ | $\infty$ | 0        | 6        |
| 3 | 7        | $\infty$ | $\infty$ | 0        |



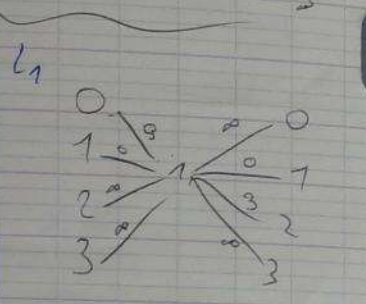
|   | 0        | 1        | 2  | 3        |
|---|----------|----------|----|----------|
| 0 | 0        | 9        | 15 | $\infty$ |
| 1 | $\infty$ | 0        | 3  | $\infty$ |
| 2 | $\infty$ | $\infty$ | 0  | -1       |
| 3 | $\infty$ | $\infty$ | -1 | 0        |



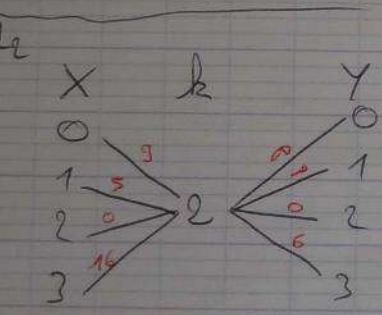
|   | 0        | 1        | 2        | 3        |
|---|----------|----------|----------|----------|
| 0 | 0        | 4        | $\infty$ | $\infty$ |
| 1 | $\infty$ | 0        | 5        | 15       |
| 2 | $\infty$ | $\infty$ | 0        | 6        |
| 3 | 7        | 11       | $\infty$ | 0        |



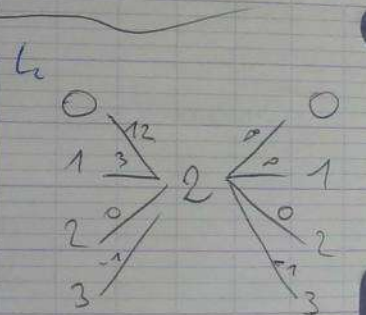
|   | 0        | 1        | 2  | 3        |
|---|----------|----------|----|----------|
| 0 | 0        | 9        | 15 | $\infty$ |
| 1 | $\infty$ | 0        | 3  | $\infty$ |
| 2 | $\infty$ | $\infty$ | 0  | -1       |
| 3 | $\infty$ | $\infty$ | -1 | 0        |



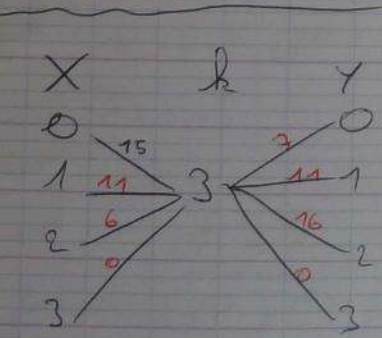
|   | 0        | 1        | 2  | 3  |
|---|----------|----------|----|----|
| 0 | 0        | 4        | 9  | 19 |
| 1 | $\infty$ | 0        | 5  | 15 |
| 2 | $\infty$ | $\infty$ | 0  | 6  |
| 3 | 7        | 11       | 16 | 0  |



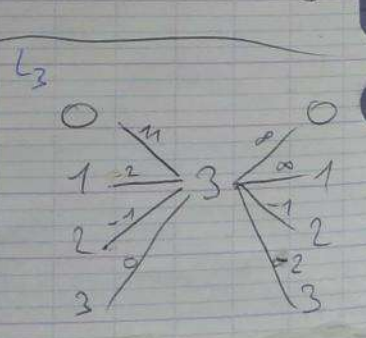
|   | 0        | 1        | 2  | 3        |
|---|----------|----------|----|----------|
| 0 | 0        | 9        | 12 | $\infty$ |
| 1 | $\infty$ | 0        | 3  | $\infty$ |
| 2 | $\infty$ | $\infty$ | 0  | -1       |
| 3 | $\infty$ | $\infty$ | -1 | 0        |



|   | 0        | 1        | 2  | 3  |
|---|----------|----------|----|----|
| 0 | 0        | 4        | 9  | 15 |
| 1 | $\infty$ | 0        | 5  | 11 |
| 2 | $\infty$ | $\infty$ | 0  | 6  |
| 3 | 7        | 11       | 16 | 0  |

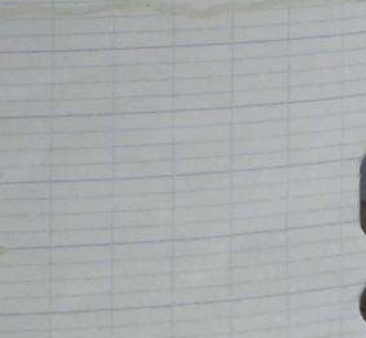


|   | 0        | 1        | 2  | 3  |
|---|----------|----------|----|----|
| 0 | 0        | 9        | 12 | 11 |
| 1 | $\infty$ | 0        | 3  | -2 |
| 2 | $\infty$ | $\infty$ | 0  | -1 |
| 3 | $\infty$ | $\infty$ | -1 | -2 |



|   | 0  | 1  | 2  | 3  |
|---|----|----|----|----|
| 0 | 0  | 4  | 9  | 15 |
| 1 | 18 | 0  | 5  | 11 |
| 2 | 13 | 17 | 0  | 6  |
| 3 | 7  | 11 | 16 | 0  |

|   | 0        | 1        | 2  | 3  |
|---|----------|----------|----|----|
| 0 | 0        | 9        | 10 | 9  |
| 1 | $\infty$ | 0        | 1  | 0  |
| 2 | $\infty$ | $\infty$ | -2 | -3 |
| 3 | $\infty$ | $\infty$ | -3 | -4 |



G16

|   | 0        | 1        | 2  |
|---|----------|----------|----|
| 0 | 0        | 9        | 5  |
| 1 | $\infty$ | 0        | 3  |
| 2 | $\infty$ | $\infty$ | -2 |

Floyd

nb < 0 ds la diago  
 $\Rightarrow$  circuit absorbant  
 Donc STOP

|   | 0 | 1        | 2        |
|---|---|----------|----------|
| 0 | 0 | $\infty$ | $\infty$ |
| 1 | 0 | 9        | 5        |
| 2 | 0 | 9        | 3        |
| 3 | 0 | 9        | 1        |

Bellman

$$\begin{cases} \pi(0)+9 \\ \pi(1)+3 \\ \pi(2)-2 \end{cases}$$

G26

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 1 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 1 |   |   |
| 1 | 1 | 1 |   |   |
| 2 | 2 | 2 |   |   |
| 3 | 3 | 3 |   |   |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 |

G25

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 0 | 3 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 0 | 1 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 2 |
| 1 | 1 | 1 | 1 | 2 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 0 | 1 | 3 |

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 2 |
| 1 | 3 | 1 | 1 | 2 |
| 2 | 3 | 0 | 2 | 2 |
| 3 | 2 | 1 | 1 | 2 |

seul chgt ds  $L_0$

$P_1$  le préfixe de 0 à 2  
 c'est 1.

$$P_1[0,3] = P_1[1,3]$$

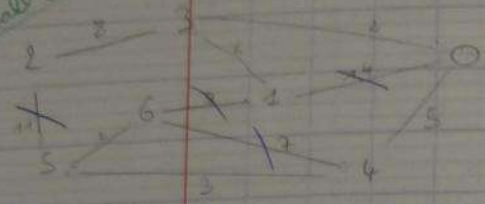
$$\begin{aligned} P_2[0,3] &= P_2[2,3] \\ P_2[1,3] &= P_2[2,3] \end{aligned}$$

$$\begin{aligned} P_3[1,0] &= P_2[3,0] \\ P_3[2,0] &= P_2[3,0] \end{aligned}$$

$\pi(1)$   
 $\{0, 4\}$   
 $\pi(5)$   
 $\{0\}$   
 $\pi(6)$   
 $\pi(2)$   
 $\{0\}$   
 $\pi(1)$   
 $\pi(6)$   
 $\{0\}$   
 $\pi$

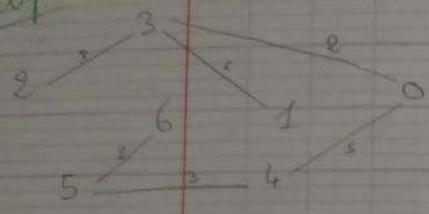
601  
Kruskal's algorithm

# V. 2) Arbres Couvrants



01, 25, 61, 23⊗, 64.

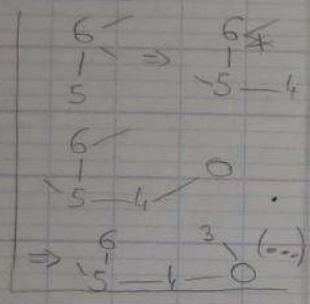
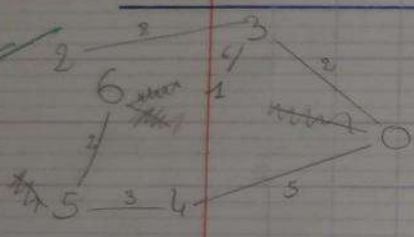
constructif



- 03
- 65
- 54
- 04
- 31
- 23

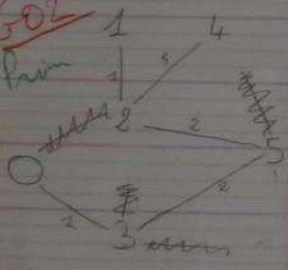
$n$  sommets  $\Rightarrow n-1$  arêtes.

Prim

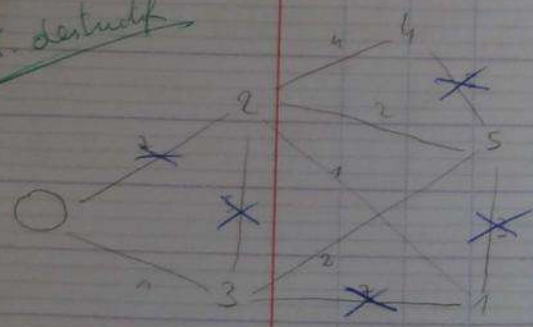


602

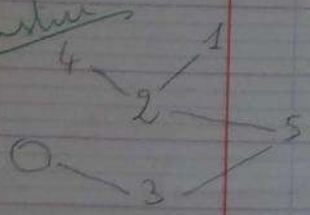
Prim



K. destructif



K constructif



03 - 21 - 25 - 35  
~~54~~ - 24