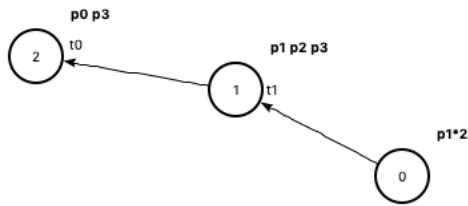


## Petri Nets

Nom :

Prénom:

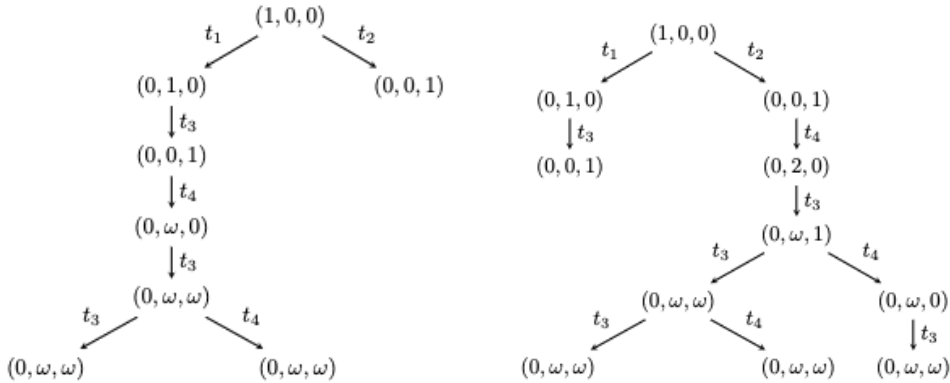
### Q2: Priority arcs/inhibitor arcs



Q2: delete the priority between  $t1$  and  $t0$  or the priority arc between  $t0$  and  $t3$ . inverse the priority order between  $t1$  and  $t0$  ( arc from  $t0$  to  $t1$ )

Q3:  $\text{Post}(p3, t1) = 0$  or set  $M_0(P_1) = 1$  or delete the inhibitor arc others solutions are possible.

### Q2: Coverability Graph



Q3: unbounded (wmarkings) P1 bounded

Q4: none

Q5:  $t_3 t_4$  from  $\langle 010 \rangle$

Q6: none

Q7: yes.  $s = t_4 t_3$  is a repetitive sequence from  $M = [001]$

Q8: No. building the SCG on can see a SCG without output arc that does not include  $T1$ .  $T1$  is not live, the net is not live

**Q3: Structural analysis**

$$C = \begin{bmatrix} -1 & 1 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ -1 & 0 & 0 & 1 \\ 0 & 1 & -1 & 0 \\ 0 & 0 & -1 & 1 \\ 0 & 0 & 1 & -1 \end{bmatrix} \text{ then } f_0 = f_{Storage}; f_{P_{ready}} = f_{P_{Idle}} + f_0; f_{accepted} = f_{C_{Ready}} + f_{Storage}$$

$$M(P_{Idle}) + M(P_{ready})$$

$$M(C_{Ready}) + M(accepted) = 1$$

$$M(P_{ready}) + M(p0) + M(Storage) + M(accepted) = N$$

the net is conservative => the net is bounded

$$\text{Q2: } M(p0) = 0$$

$$M(P_{ready}) + M(Storage) + M(accepted) = N$$

markings:

$$\begin{array}{l} P_{Idle} \\ P_{ready} \\ p0 \\ Storage \\ C_{Ready} \\ accepted \end{array} \begin{bmatrix} 0 \\ 1 \\ 0 \\ N-2 \\ 0 \\ 1 \end{bmatrix} \cdot \begin{bmatrix} 0 \\ 1 \\ 0 \\ N-1 \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ 0 \\ N \\ 1 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ 0 \\ N-1 \\ 0 \\ 1 \end{bmatrix}$$