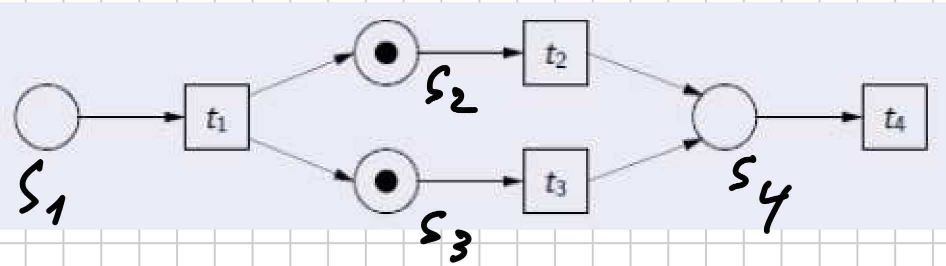
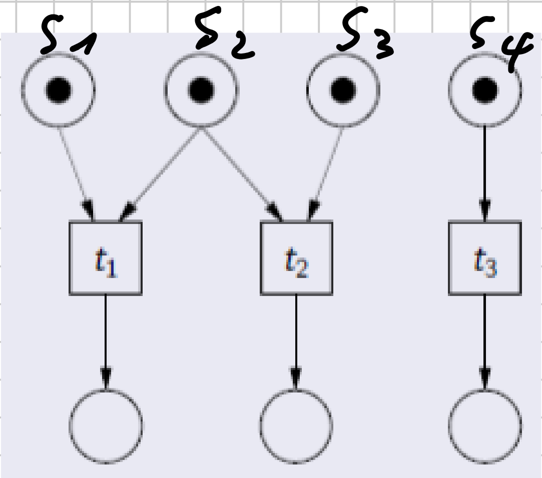
Modellierung 12.11.14

Notiztitel 12.11.2014



$m = (0,1,1,0)$

- $\bullet t_2 = (0,1,0,0)$
- $\bullet t_3 = (0,0,1,0)$
- $\bullet t_2 \oplus \bullet t_3 = (0,1,1,0) \leq m$



$m = (1,1,1,1)$

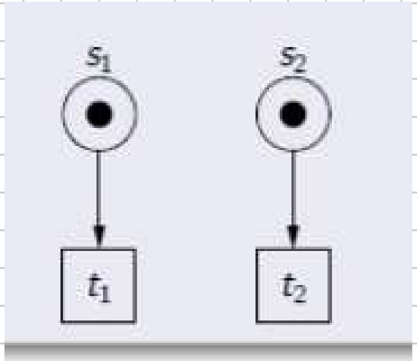
- $\bullet t_1 = (1,1,0,0)$
- $\bullet t_2 = (0,1,1,0)$
- $\bullet t_3 = (0,0,0,1)$

$m[t_1 t_3 > m'$

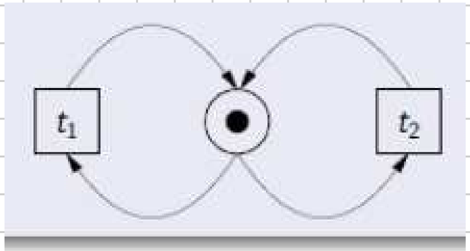
$m[t_3 t_1 > m'$

$m' = (0,0,1,0,1,0,1)$

- $\bullet t_1 \oplus \bullet t_3 = (1,1,0,1) \leq m$
- $\bullet t_1 \oplus \bullet t_2 = (1,2,1,0) \not\leq m$



$$\begin{array}{ccc} (1,1) & \xrightarrow{t_1} & (0,1) \\ \downarrow t_2 & & \downarrow t_2 \\ (1,0) & \xrightarrow{t_1} & (0,0) \end{array}$$



$m = (1)$

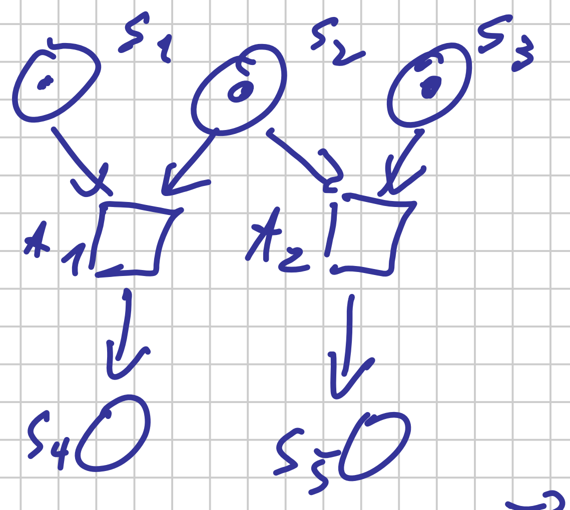
$\bullet t_1 = (1)$

$\bullet t_2 = (1)$

$\bullet t_1 \oplus \bullet t_2 = (2) \nleq m$

$\neg$ nebenläufig

t_1, t_2 stehen in Konflikt

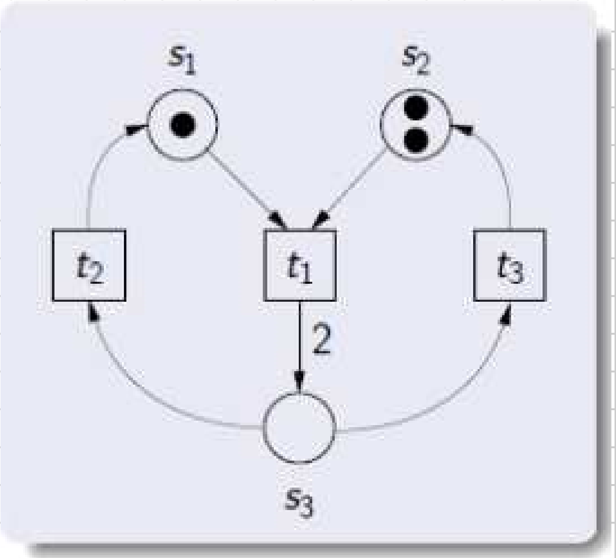


$$\vec{m} = \begin{pmatrix} 1 \\ 1 \\ 1 \\ 0 \\ 0 \end{pmatrix} \quad m[t_1\rangle m' \quad \vec{m}' = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \\ 0 \end{pmatrix}$$

$$\vec{u} = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix} \quad \vec{v} = \begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix} \quad \vec{u} + \vec{v} = \begin{pmatrix} 2 \\ 3 \\ 3 \end{pmatrix}$$

$$C \cdot \vec{u} = \begin{pmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \end{pmatrix} \cdot \begin{pmatrix} u_1 \\ u_2 \\ u_3 \end{pmatrix} = \begin{pmatrix} c_{11}u_1 + c_{12}u_2 + c_{13}u_3 \\ c_{21}u_1 + c_{22}u_2 + c_{23}u_3 \end{pmatrix}$$

$$u \cdot C = (u_1\ u_2) \cdot \begin{pmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \end{pmatrix} = (u_1c_{11} + u_2c_{21},\ u_1c_{12} + u_2c_{22},\ u_1c_{13} + u_2c_{23})$$



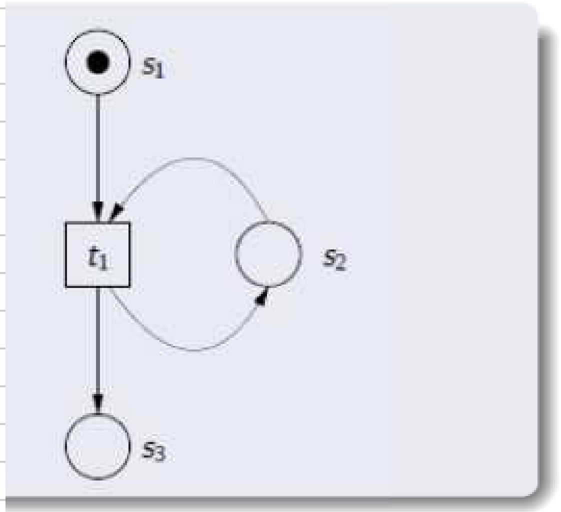
$$\begin{array}{c|ccc} & t_1 & t_2 & t_3 \\ \hline s_1 & 0-1 & 1-0 & 0-0 \\ s_2 & 0-1 & 0-0 & 1-0 \\ s_3 & 2-0 & 0-1 & 0-1 \end{array}$$

$$C = \begin{pmatrix} -1 & 1 & 0 \\ -1 & 0 & 1 \\ 2 & -1 & -1 \end{pmatrix}$$

$$\vec{u}_1 = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix} \begin{matrix} t_1 \\ t_2 \\ t_3 \end{matrix} \qquad C \cdot \vec{u}_1 = \begin{pmatrix} -1 \cdot 1 + 1 \cdot 0 + 0 \cdot 0 \\ -1 \cdot 1 + 0 \cdot 0 + 1 \cdot 0 \\ 2 \cdot 1 + (-1) 0 + (-1) 0 \end{pmatrix} = \begin{pmatrix} -1 \\ -1 \\ 2 \end{pmatrix}$$

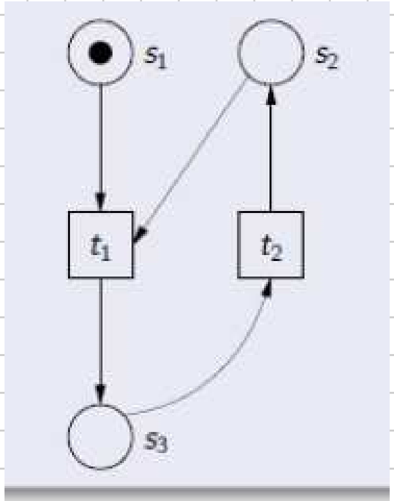
$$\vec{u}_2 = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} \begin{matrix} t_1 \\ t_2 \\ t_3 \end{matrix} \qquad C \cdot \vec{u}_2 = \begin{pmatrix} -1 \cdot 0 + 1 \cdot 1 + 0 \cdot 0 \\ -1 \cdot 0 + 0 \cdot 1 + 1 \cdot 0 \\ 2 \cdot 0 + -1 \cdot 1 + -1 \cdot 0 \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ -1 \end{pmatrix}$$

$$\begin{pmatrix} -1 & 1 & 0 \\ -1 & 0 & 1 \\ 2 & -1 & -1 \end{pmatrix} \cdot \begin{array}{c} \begin{pmatrix} 2 \\ 2 \\ 1 \end{pmatrix} \end{array} \begin{array}{c} t_1 \\ t_2 \\ t_3 \end{array} = \begin{pmatrix} -1\cdot 2 + 1\cdot 2 + 0\cdot 1 \\ -1\cdot 2 + 0\cdot 2 + 1\cdot 1 \\ 2\cdot 2 + -1\cdot 2 + -1\cdot 1 \end{pmatrix} = \begin{pmatrix} 0 \\ -1 \\ 1 \end{pmatrix}$$



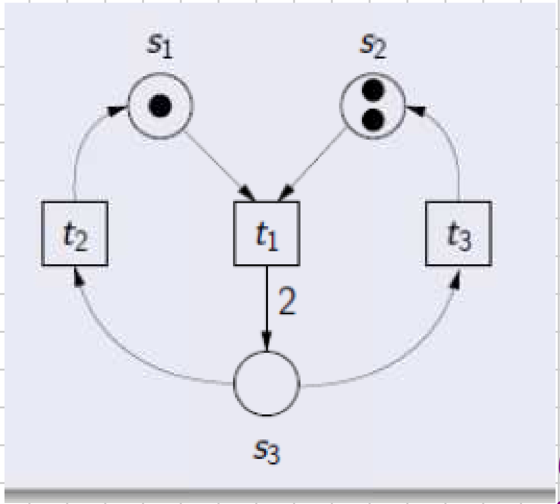
$$C = \begin{pmatrix} -1 \\ 0 \\ 1 \end{pmatrix}$$

$$\underbrace{\begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}}_{\vec{m}_0} + \begin{pmatrix} -1 \\ 0 \\ 1 \end{pmatrix} \cdot (1) = \begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix}$$



$$\begin{pmatrix}1\\0\\0\end{pmatrix} + \begin{array}{c|cc} & t_1 & t_2 \\ \hline s_1 & -1 & 0 \\ s_2 & -1 & 1 \\ s_3 & 1 & -1 \end{array} \begin{pmatrix}1\\1\end{pmatrix}\begin{matrix}t_1\\t_2\end{matrix} = \begin{pmatrix}-1\cdot 1 + 0\cdot 1\\ -1\cdot 1 + 1\cdot 1\\ 1\cdot 1 + -1\cdot 1\end{pmatrix} + \begin{pmatrix}1\\0\\0\end{pmatrix} = \begin{pmatrix}0\\0\\0\end{pmatrix}$$

aber: Markierung nicht erreichbar



$$\underbrace{\begin{pmatrix}2\\2\\0\end{pmatrix}}_{\vec{m}} = \underbrace{\begin{pmatrix}1\\2\\0\end{pmatrix}}_{\vec{m}_0} + \underbrace{\begin{pmatrix}-1 & 1 & 0\\ -1 & 0 & 1\\ 2 & -1 & -1\end{pmatrix}}_{C} \cdot \begin{pmatrix}u_1\\u_2\\u_3\end{pmatrix}$$

(1) $2 = 1 - u_1 + u_2$

(2) $2 = 2 - u_1 + u_3$

(3) $0 = 0 + 2u_1 - u_2 - u_3$

(1)+(2)+(3): $4 = 3$ ↯

$\vec{m}$ nicht erreichbar!