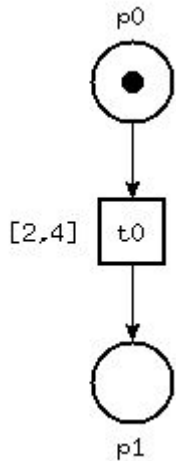


# TWIONA

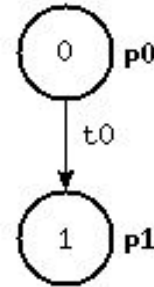
construction d'espaces d'états  
abstrait pour l'intersection de langages

Eric LUBAT

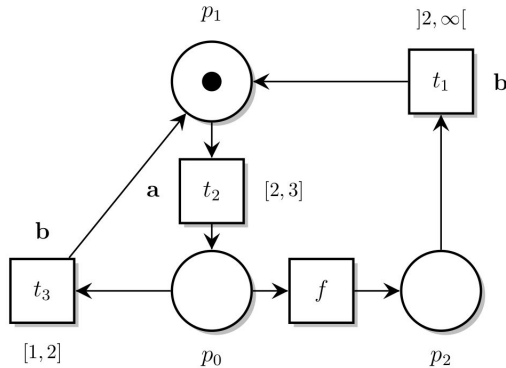
# Contexte



- Edition de TPN
- Construction d'espace d'états
- Intersection de langages



# TW NA

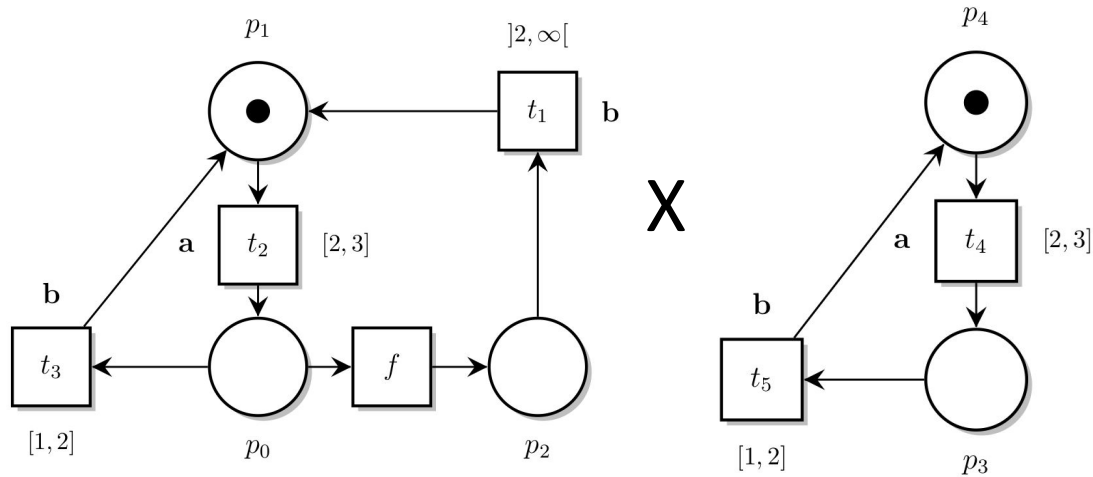


- Intersection de langages temporisés
- Utilisation des labels
- Application : Vérification, diagnostic, ...

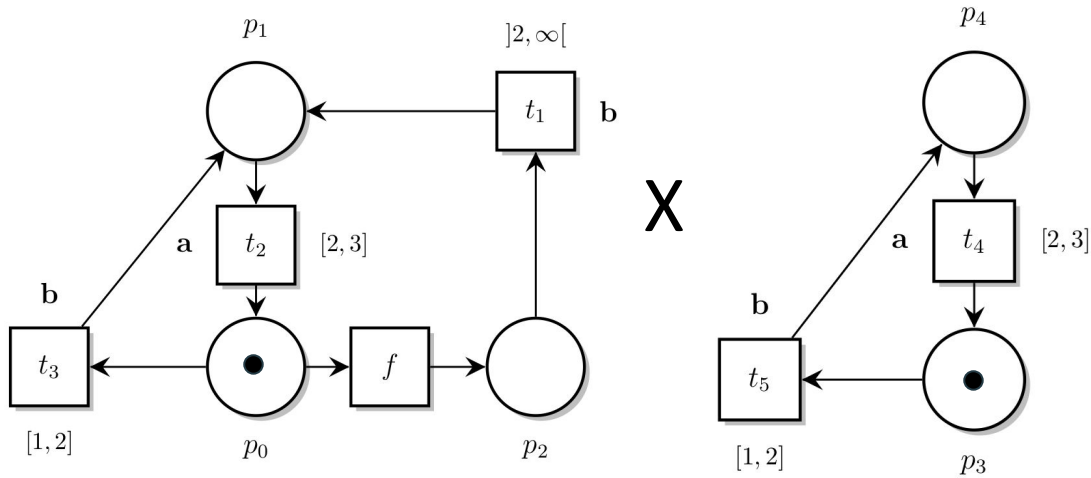
```
eubat@cid:~/Bureau/MSR2019/ex2$ twina -twin -diag --fault=f ex2_diag.net
```

# Exemple 1

Trace:



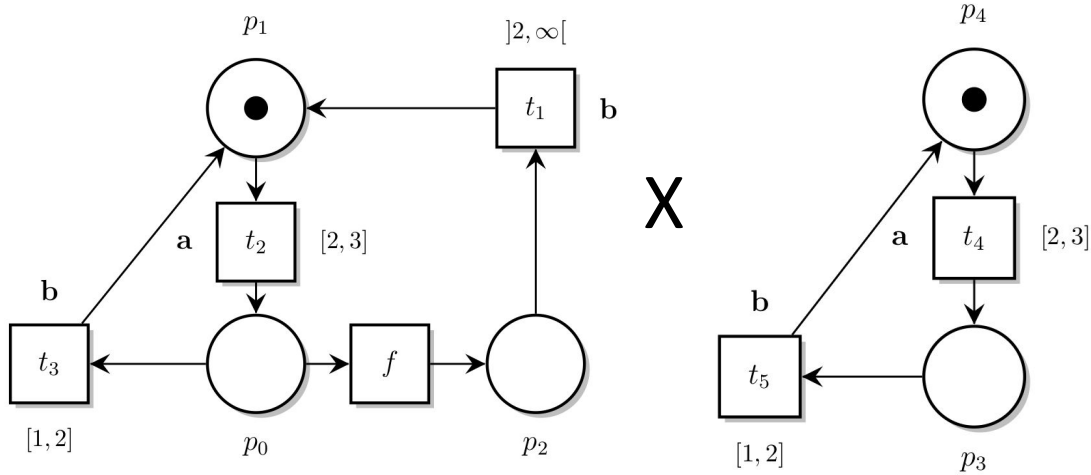
# Exemple 1



Trace:

$2\{t_2, t_4\}, \dots$

# Exemple 1

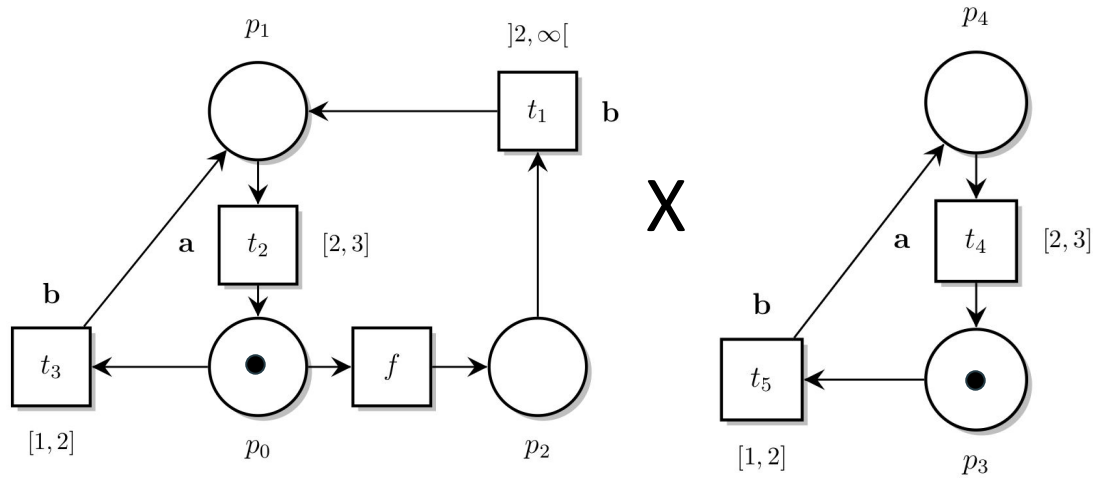


Trace:

$2\{t_2, t_4\}, \dots$

$2\{t_2, t_4\}, 1\{t_3, t_5\}, \dots$

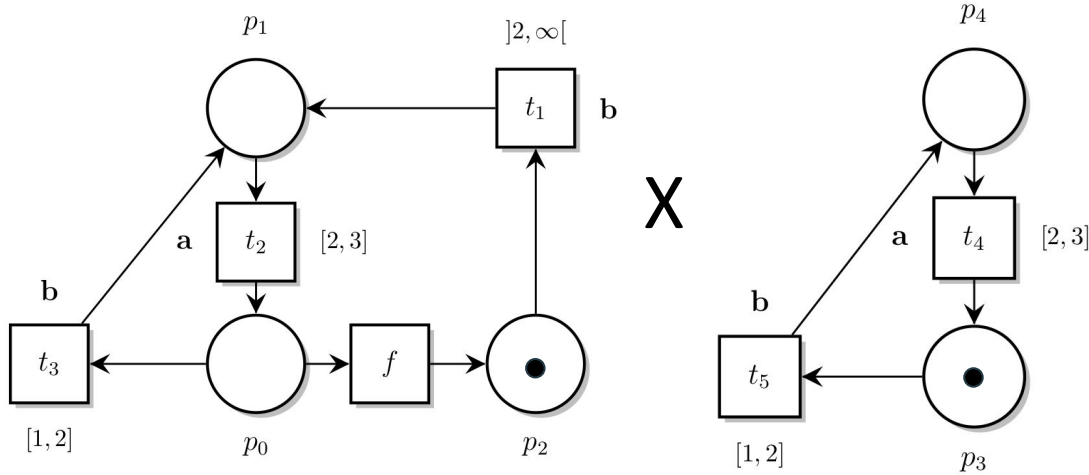
# Exemple 2



Trace:

$2\{t_2, t_4\}, \dots$

# Exemple 2



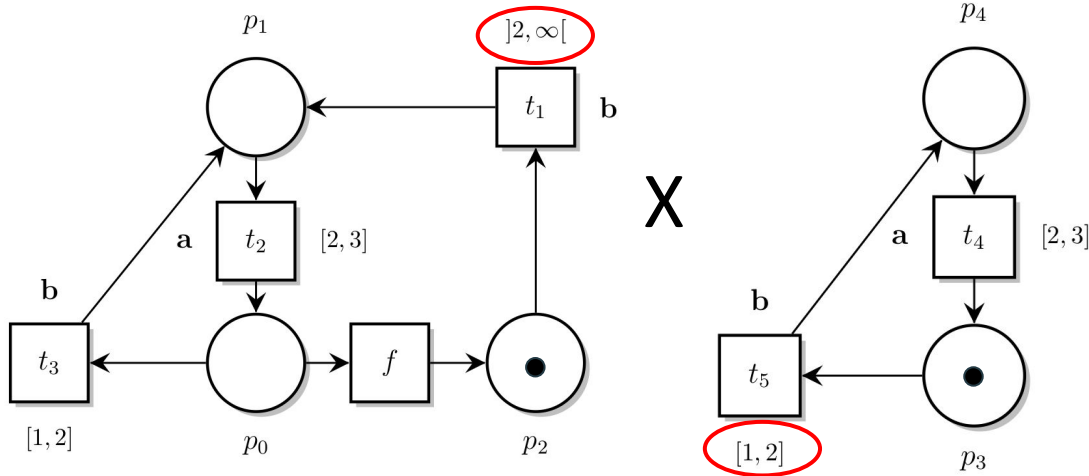
Trace:

$2\{t_2, t_4\}, \dots$

$2\{t_2, t_4\}, 0f, \dots$



# Exemple 2



Trace:

$2\{t_2, t_4\}, \dots$

$2\{t_2, t_4\}, 0f, \dots$

Timelock

# Informations sur TW NA

- Test sur réseaux plus important
- Evolution vers de la détection de motif
- Codé en GO

Merci de votre attention

# Bibliographie:

- [1] : Berthomieu, B., Ribet, P.O., Vernadat, F.: The tool TINA-construction of abstract state spaces for Petri nets and time Petri nets. *Int. J. Prod. Res.* **42**(14), 2741–2756 (2004)
- [2] : Lubat É., Dal Zilio S., Le Botlan D., Pencolé Y., Subias A. (2019) A State Class Construction for Computing the Intersection of Time Petri Nets Languages. In: André É., Stoelinga M. (eds) *Formal Modeling and Analysis of Timed Systems. FORMATS 2019.* Lecture Notes in Computer Science, vol 11750. Springer, Cham
- [3] : F. Basile, M. P. Cabasino and C. Seatzu, "State Estimation and Fault Diagnosis of Labeled Time Petri Net Systems With Unobservable Transitions," in *IEEE Transactions on Automatic Control*, vol. 60, no. 4, pp. 997-1009, April 2015.