

## Introduction

This Model form is a short description of the Lamport's fast mutual exclusion algorithm model that comes, for the Model Checking Contest @ Petri Nets, with: a set of PNML files, a set of properties to be checked (possibly one file per model instance) and an optional set of properties concerning the model (invariants, etc. – possibly one file per model instance). For Coloured Nets, equivalent PNML P/T net files are proposed too.

## Lamport's fast mutual exclusion algorithm

### Presentation

**Description:** This net models Lamport's fast mutual exclusion algorithm designed for multi-processor architectures with a shared memory.

The pseudo code of this algorithm is given in file `code.pdf`. Each transition of the net has a name of the form XXX\_N where XXX is a description of the statement executed and N is the corresponding line number of the statement in the pseudo-code of the algorithm.

**Origin:** J.B. Jorgensen and L.M Kristensen. *Computer aided verification of Lamport's fast mutual exclusion algorithm using colored Petri nets and occurrence graphs with symmetries*. In *IEEE Transactions on Parallel and Distributed Systems*, Volume 10, Issue 7. IEEE Computer Society, 1999.

#### Scaling parameter

Name	Description	Values
N	Number of processes competing for accessing to critical section.	2,3,4,5,6,7,8

### Information about the Model

#### Data on the Model

Number of places	Number of transitions	Number of arcs	Scaling parameter value
18	17	68	NA

### Stated Properties

safe	✓	free choice	✗	event graph	✗
deadlock	✗	state machine	✗	reversible	✗