MTAT.03.083 – Systems Modeling

Exercises: Plain Petri nets (session 2)

Exercise 1 (Insurance claims handling workflow) – taken from www.workflowcourse.com

Insurance company X processes claims which result from traffic accidents with cars where customers of X are involved in. Therefore, it uses the following procedure for the processing of the insurance claims. Every claim, reported by a customer, is registered by an employee of department CD (CD = Car Damages). After the registration of the claim, the insurance claim is classified by a claim handler of rank A or B within CD. There are two categories: simple and complex claims. For simple claims two tasks need to be executed: check insurance and phone garage. These tasks are independent of each other. The complex claims require three tasks to be executed: check insurance, check damage history and phone garage. These tasks need to be executed sequentially in the order specified. Both for the simple and complex claims, the tasks are done by employees of department CD. After executing the two respectively three tasks a decision is made. This decision is made by a claim handler of rank A and has two possible outcomes: OK (positive) or NOK (negative). If the decision is positive, then insurance company X will pay. An employee of the finance department handles the payment. In any event, the insurance company sends a letter to the customer who sent the claim. An employee of the department CD writes this letter.

Capture the above process as a Petri nets (using the "Workflow net" shortcuts available in Woped).

Try to run a simulation of this workflow using Woped.

Exercise 2 (Two Switches)

Consider a room with two switches and one light. The light is **on** or **off**. The switches are in state **up** or **down**. At any time any of the switches can be used to turn the light on or off.

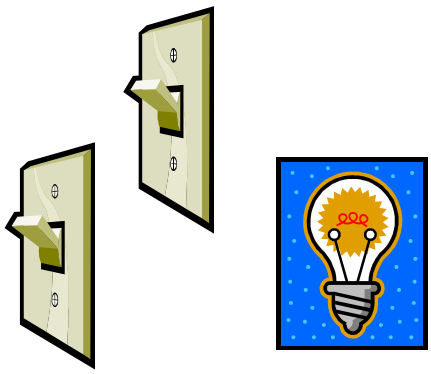

Figure 1: Two switches, one light

Tasks

1) Model this as a Petri net.
2) Give the reachability graph.

Exercise 3 (The philosophers problem)

Five philosophers sitting around the table share five chopsticks: chopsticks are located in-between philosophers. A philosopher is either in state eating or thinking and needs two chopsticks to eat. Model the behaviour of the philosophers as a Petri net. Compute the reachability graph of this net. What can you conclude from it?