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Group: \_\_\_\_\_

Assignment 6

Name: \_\_\_\_\_

**Formal Models**

Matr.Nr.: \_\_\_\_\_

Summer Semester 2010

Points: \_\_\_\_\_

**Due: 29.04.2010 08:30**

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### **Exercise 21**

Draw the LTS for the *incorrect* version of Milner's Scheduler (lecture slide 32) for  $n = 2$ .

### **Exercise 22**

Draw the LTS for the *correct* version of Milner's Scheduler (lecture slide 33) for  $n = 2$ .

### **Exercise 23**

Let  $A = \text{coin}.(tea.A + \text{coin.coffee}.A)$  and  $B = \text{coin.tea}.B + \text{coin.coin.coffee}.B$  be PA-Terms modelling two versions of a simple beverage vending machine. Justify your answers in the following.

- Draw the LTS for  $A$  and  $B$ .
- Interpret  $A$  and  $B$  as finite automata  $A_{FA}$  and  $B_{FA}$ , assuming that the initial state is the only final state. Is  $L(A_{FA}) = L(B_{FA})$ ?
- Does the behaviour of  $A$  and  $B$  differ from the perspective of a user when buying a drink?

### **Exercise 24**

Demonstrate that PA-operator  $+$  is associative: given  $P_1 = (Q + R) + S$  and  $P_2 = Q + (R + S)$ , show that  $P_1 \xrightarrow{a} P'_1$  if, and only if  $P_2 \xrightarrow{a} P'_2$  by applying the semantical rules of  $+$ .