Modeling Concurrent and Probabilistic Systems

Summer Term 09

– Series 4 –

Hand in until May 27 before the exercise class.

Exercise 1 (4 points)

Employ the partition algorithm as discussed in the lecture to show that the two specifications of the two place buffer are not strongly bisimilar.

Exercise 2 (2 points)

Show that for a process Q strongly simulating process P it holds: $\text{Tr}(P) \subseteq \text{Tr}(Q)$.

Exercise 3 (3 points)

Show that the following pairs of CCS models are (not) weakly bisimilar:

a) $a.\tau.b.\mathsf{nil}$ $a.b.\mathsf{nil}$

b) $a.(b.\mathsf{nil} + \tau.c.\mathsf{nil})$ $a.(b.\mathsf{nil} + c.\mathsf{nil})$

c) $a.(b.\mathsf{nil} + \tau.c.\mathsf{nil})$ $a.(b.\mathsf{nil} + \tau.c.\mathsf{nil}) + a.c.\mathsf{nil}$

d) $a.\mathsf{nil} + b.\mathsf{nil} + \tau.b.\mathsf{nil}$ $a.\mathsf{nil} + \tau.b.\mathsf{nil}$

e) $a.\mathsf{nil} + b.\mathsf{nil} + \tau.b.\mathsf{nil}$ $a.\mathsf{nil} + b.\mathsf{nil}$

f) $a.(b.\mathsf{nil} + \tau.b.\mathsf{nil})$ $a.b.\mathsf{nil}$