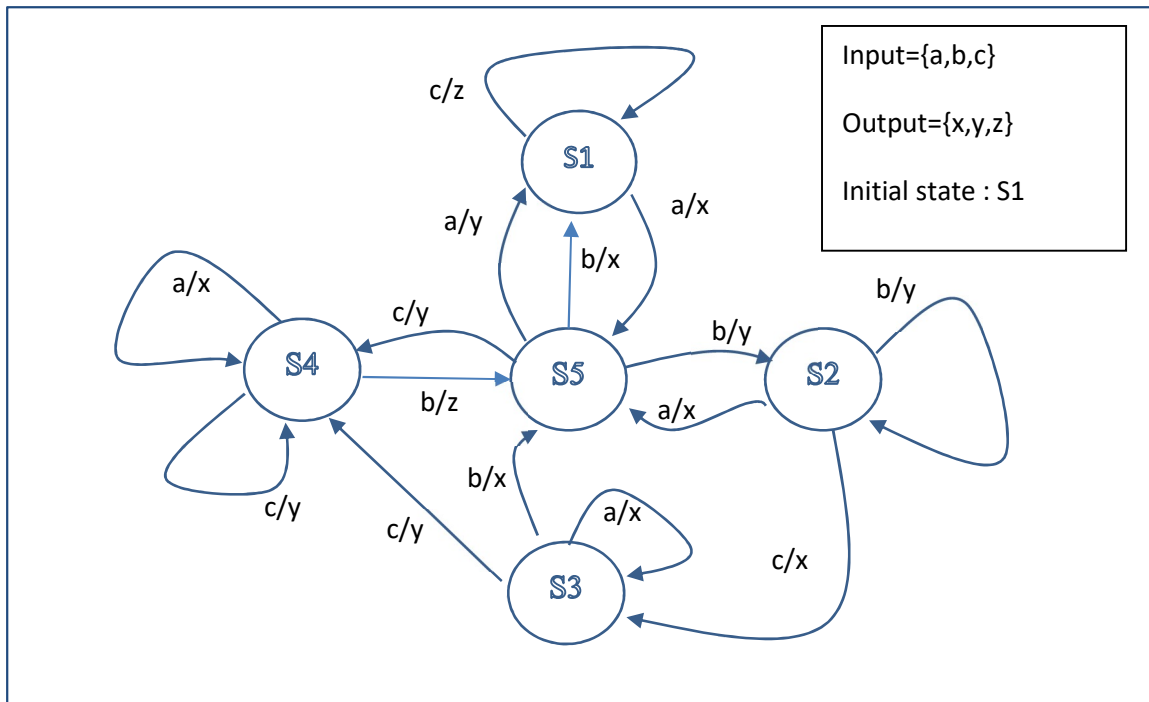


SW Engineering with FM

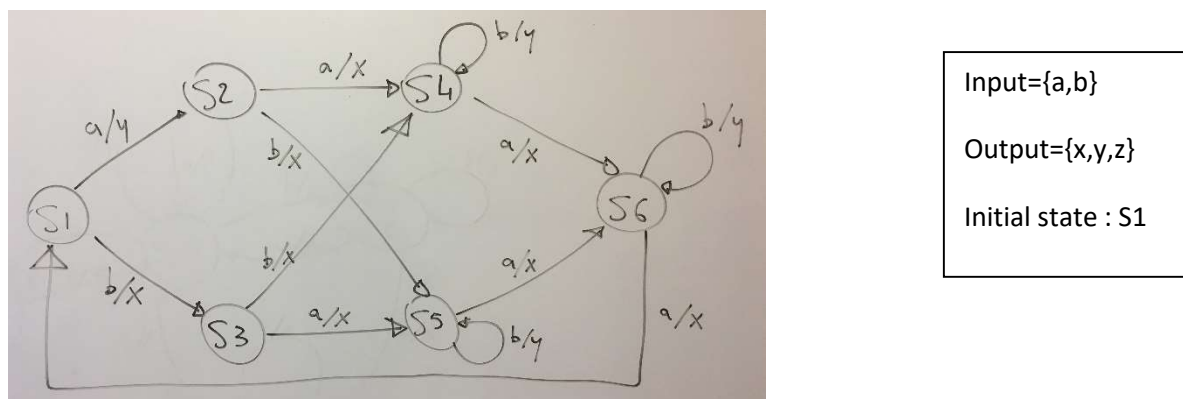
Testing Exercises

- 1- Consider this below illustrated FSM.
- a. Find the W set and the (P)UIO sequence for all states.



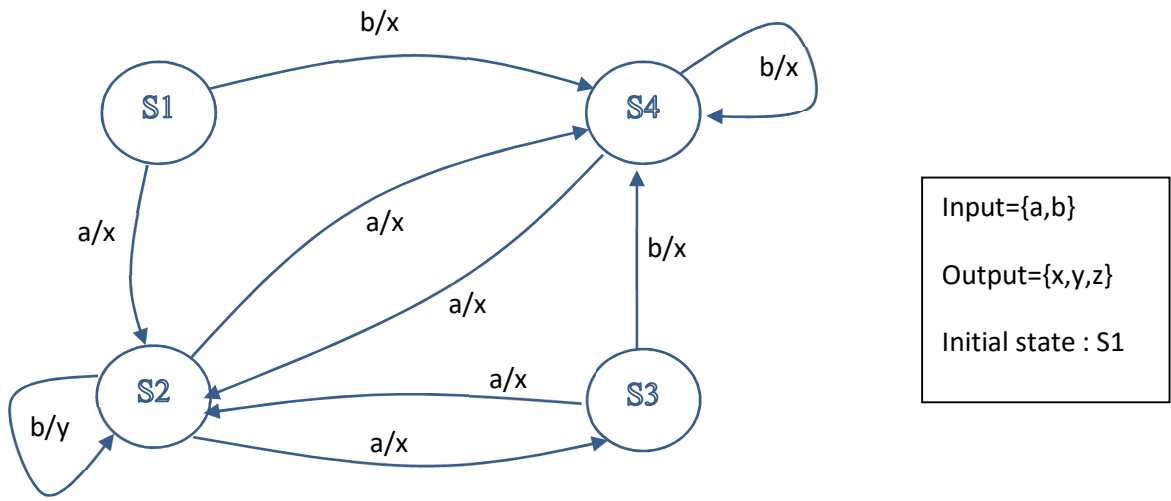
b- From the previous question and the strategy of your choice, determine a TS for (S2, b/y, S2).

- 2- Consider this below illustrated FSM.



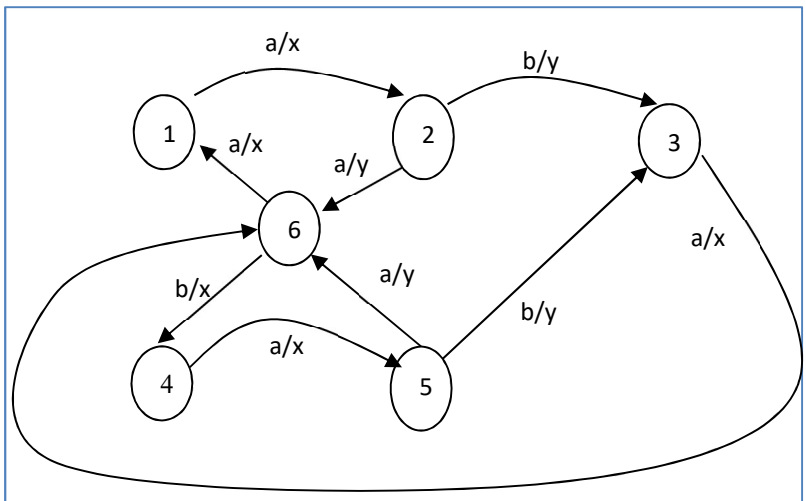
- a. Find the W set and the (P)UIO sequence for all states.
- b. From the previous question and the strategy of your choice, determine a TS for (S1, a/y, S2).

3- Consider this below illustrated FSM.



- a. Determine a DS (if it does not exist, use a W approach) for this state machine.
- b. Using the above used strategy, write a TS for (S2, b/y, S2).
- c. After the execution of such a TS, the Test System answers: *NULL, y, y, x, x*. What would be the testing verdict?

4- A) 1 is the initial state, inputs={a,b}, outputs={x,y}. After having guaranteed the main testing hypotheses regarding the state machine (remember deterministic>minimization), determine a W and (P)UIO for all states.



- B) Write a test sequence TS for the following behavior: (1, a/x, 2).(2, b/y, 3).
- C) A Tester execute such a TS and obtain the answers: *xyxyyx*. Please provide the testing verdicts.
- D) Still using TS, write a execution on IUT leading to a mixed error.

5)

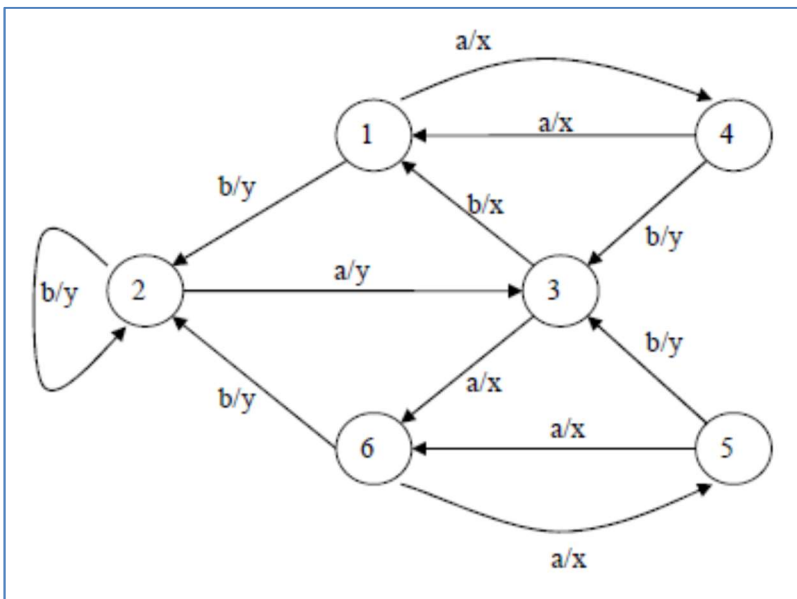
a- Determiner, if it exists, the DS, the W set and the (P)UIOs.

b- From the previous question, write 2 different test sequences for the transition (4,a/x, 1). You will briefly explain your choices and differences.

c- In using one of these sequences, provide 2 outputs sequences, 1 leading to a fail, another to an INC.

d- By using one of these test sequences, could we block the used testing architecture?

Justify.



Input={a,b}
Output={x,y,z}
Initial state : 1

6) Determine the (P)UIO of all states of the following finite state machine. 1 is the initial state, the inputs belong to {a,b,c}, the outputs to {x,y}. Then, using the (P)UIO, determine a test sequence for the transition (1,a/x,3).

