

**SE 4367 (Software Testing)**  
**Homework #9, FSM Testing Tree**

Given a finite state machine with

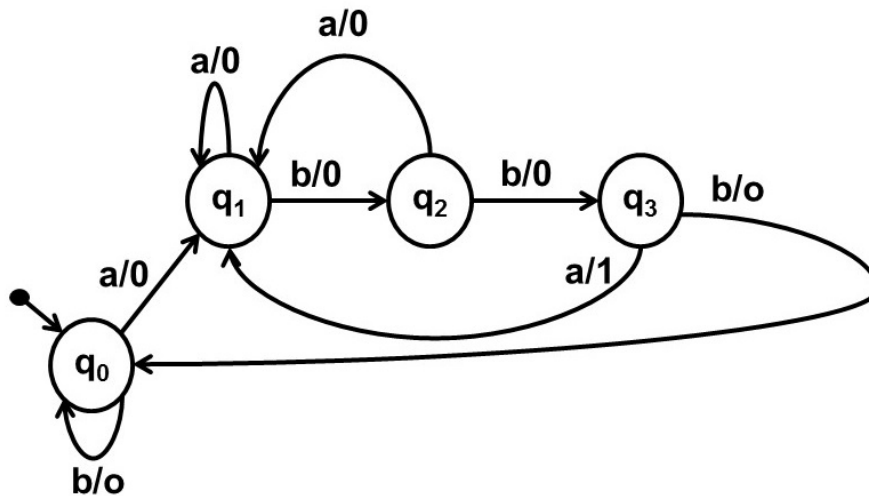
- input alphabet {a, b}
- output alphabet {0,1}

that will recognize the substring **abba**.

It outputs 0's until recognizing a substring, then outputs a 1.

It recognizes overlapping substrings.

The FSM does not terminate. The initial state is  $q_0$ .



Current state	Next state / Output	
	a	b
$q_0$	$q_1/0$	$q_0/0$
$q_1$	$q_1/0$	$q_2/0$
$q_2$	$q_1/0$	$q_3/0$
$q_3$	$q_1/1$	$q_0/0$

a) Draw the FSM's testing tree using the notation from Mathur's Example 5.11.

b) What is the transition cover set for the FSM?

### Grading Rubric

Each of the two parts is worth a maximum of 50 points.

- a) each wrong node or transition in the testing tree is worth -3 points
- b) each wrong or missing path in the transition cover set is -5 points

Missing the class, assignment, or your name at the beginning of your submission or in the filename, -5 points each