

3.45 The FSM in Figure 3.89 has two problems: one state has two transitions whose conditions could simultaneously evaluate to true, and another state has transitions that

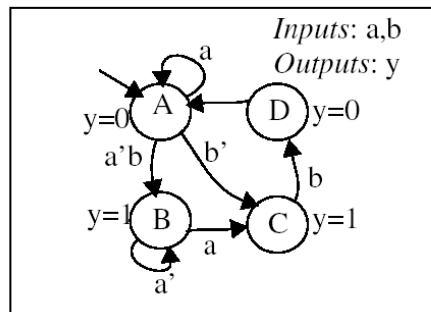


Figure 3.89: FSM for Exercise 3.45

aren't guaranteed to have at least one of the transition conditions true. By ORing and ANDing the conditions for each state's transitions, prove that these problems exist. Then, fix these problems by refining the FSM, taking your best guess as to what was the FSM creator's intent.

If we AND each pair of transitions with each other in state A, we notice one pair does not evaluate to 0: $a*a'b$. This shows that more than one condition can be true simultaneously.

Furthermore, if we OR all the conditions from state C, we notice that the expression does not evaluate to 1: b . This shows that there may be a combination of inputs in which one condition from state C is not true.

We can address both of these problems with the following changes:

