

INF2270, exercise in sequential logic

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Abstract

Another task in sequential logic design.

Task

Implement the state transition diagram with three states and two input bits using combinational logic and 2 D-flipflops. Note the following points:

1. Using D-flipflops one needs to make sure explicitly that a state does not change, when none of the transition conditions are met. Thus the arrow back on itself of state $s=00$, but be aware that such an arrow is usually not explicitly drawn in the state transition graph!!!
2. if not all possible states are used (here $s=11$, the dashed circle), it is smart to make sure that if these states occur by mistake a dedicated 'legal' state is reached within one clock cycle. Note that also this is usually not explicitly drawn in the state transition diagram!!!

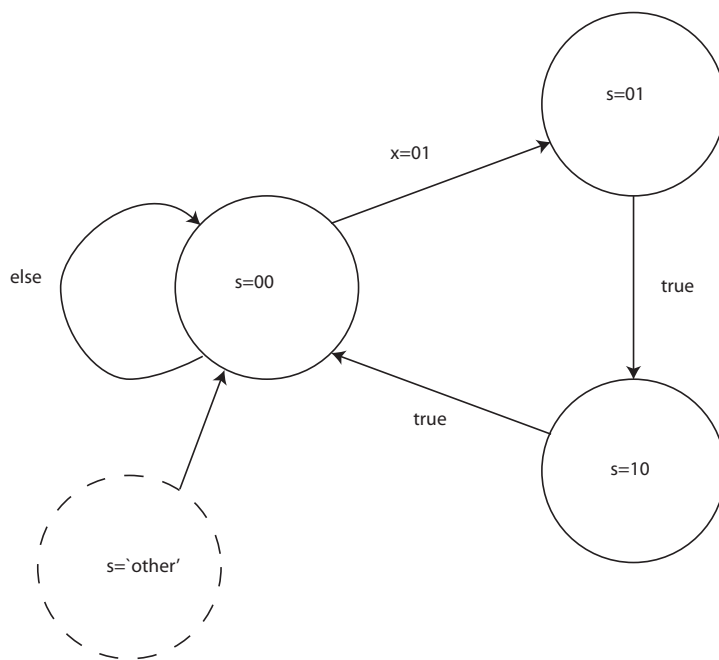


Figure 1: A simple state machine