



I'm not robot



I am not robot!

Mealy Machine Outputs depend on state and present inputs A Moore machine has two inputs (X_1, X_2) and one output (Z). Mealy Machine. A Mealy Machine is an FSM whose output depends on the present state as well as the present input. Example: Design a sequence detector that searches for a series of binary inputs to satisfy the pattern $[0^*]1$, where $[0^*]$ is any number of consecutive zeroes. Mealy Machine) Write output and next-state tables. STEP Obtain the FF-input and required output equations (e.g., D_2, D_1, D_0 and output Z) perhaps using K-Maps to obtain MSOP. The objectives of this lesson are Study Mealy and Moore machines Comparison of the two machine types Timing diagram and state machines Mealy Machine In a Mealy machine, the outputs are a function of the present state and the value of the inputs as shown in Figure 1 Moore Machine. Σ is a finite set of symbols called the input alphabet. Determine logic equations for next state and outputs Mealy Machine, which we have seen so far Moore Machine. Encode states, inputs, and outputs as bits. Moore Machine. Mealy Machine. O is a finite set of symbols called the output alphabet – Moore: outputs = $f(\text{state})$ only – Mealy outputs = $f(\text{state and input})$ – Mealy outputs generally occur one cycle earlier than a Moore: Compared to a Moore FSM, a Mealy FSM might – Be more difficult to conceptualize and design – Have fewer states P L State Clock Mealy: immediate assertion of P P L State[0] Clock Moore: delayed Canonical Form: Mealy and Moore Machines C1 C2 CLK $x(t)$ $y(t)$ Mealy Machine C1 C2 CLK Example: Given inputs and initial state, derive output sequence Pick FFs and use excitation table(s) to generate required FF. inputs (more columns in next-state table) •. Output changes at the clock edges. expressions More and Mealy machines Generalized FSM model: Moore and Mealy Combinational logic computes next state and outputs Next state is a function of current state and inputs Outputs are functions of output Outputs are functions of Current state (Moore machine) Current state and inputs (Mealy machine) CSE, Lect2 Inputs Outputs In a Mealy Comparison of Mealy and Moore machines Mealy machines tend to have less states different outputs on arcs (n^2) rather than states (n) Moore machines are safer to use INPUT/OUTPUT. The output (Z) should become true every time the sequence is found) Draw a State Diagram (Mealy) and then assign binary State Identifiers Strategy: $s' = b + \bar{s} + bs + abs$. Q is a finite set of states. Input change can cause change in output change as soon as logic is done Our aim in this lecture is to show that a DFA is equivalent to a Moore machine with binary output and then convert this DFA to a Mealy machine DFA, Moore and Mealy Moore and Mealy Machines Today Sequential logic technologies Vending machine: Moore to synch. Comparison of the two machine types. + abs. Draw a state diagram (e.g. Goals for Today STEP State Diagram This comes in two flavors: Moore Machine Outputs depend only on present state. Generally, it has more states than Mealy Machine. Timing diagram and state machines. Mealy OPEN = $Q_1 Q_0$ creates a combinational delay after Q_1 and Q • Types of FSMs: Mealy and Moore Machines Examples: Serial Adder and a Digital Door Lock. The output remains a constant value unless one of the following input sequence occurs: The input sequence The objectives of this lesson are: Study Mealy and Moore machines. It can be described by a tuple $(Q, \Sigma, O, \delta, X, q_0)$ where –.