

Moore and Mealy Machines Mealy Machine Moore machine Mealy Machine A Mealy Machine is an FSM whose output depends on the present state as well as the present input. The state table of a Moore Machine is shown below – Present state Next State Output Input = 0 Input = 1 → a b c x2 b b d x1 c c d x2 d d d x3 The state diagram of the above Moore Machine is – Moore Machine State Diagram Mealy Machine vs. Moore Machine The following table highlights the points that differentiate a Mealy Machine from a Moore Machine. Step 1 & 2 – Present State Next State a = 0 a = 1 State Output State Output → a d b b a d c c c d b a Step 3 – Present State Next State a = 0 a = 1 State Output State Output ⇒ a d 1 b 0 b a 1 d 1 c c 0 c 0 d b 0 a 1 Mealy Machine to Moore Machine Algorithm 5 Input – Mealy Machine Output – Moore Machine Step 1 – Calculate the number of different outputs for each state (Qi) that are available in the state table of the Mealy machine. The state table of a Mealy Machine is shown below – Present state Next state input = 0 input = 1 State Output State Output → a b x1 c x1 b b x2 d x3 c d x3 c x1 d d x3 d x2 The state diagram of the above Mealy Machine is – State Diagram of Mealy Machine Moore Machine Moore machine is an FSM whose outputs depend on only the present state. In Moore machines, more logic is required to decode the outputs resulting in more circuit delays. Moore Machine to Mealy Machine Algorithm 4 Input – Moore Machine Output – Mealy Machine Step 1 – Take a blank Mealy Machine transition table format. Step 3 – Check the present states and their corresponding outputs in the Moore Machine state table; if for a state Qi output is m, copy it into the output columns of the Mealy Machine state table wherever Qi appears in the next state. is a finite set of symbols called the ?? (input alphabet. O is a finite set of symbols called the output alphabet. ?? Q