

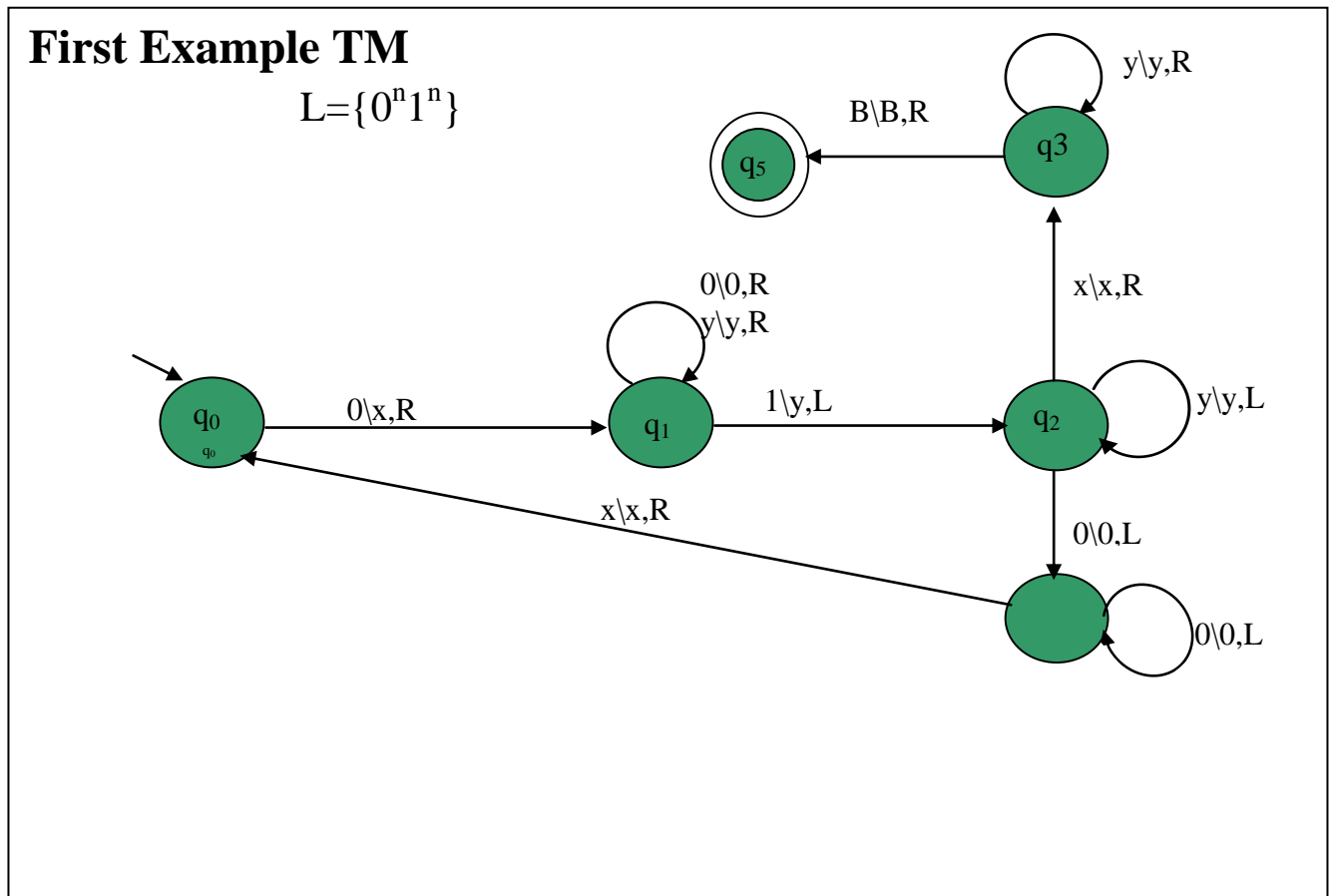
**Two way DFA (2 DFA)**

In comparison, DFA and 2DFA differ in that an input can be read only once from left to right by a DFA, whereas A 2DFA can read the input back and front with no limit on how many times an input symbol can be read.

Definition A 2DFA over  $\Sigma$  is a system  $A=(Q,\delta,q_0,F)$  as in DFA with the difference that now  $\delta$  is a function from  $Q \times \Sigma$  into  $Q \times D$  where  $D=\{L,R,S\}$

Example:

Design A 2DFA that accept “101” and go back to the beginning of the tape



My Best Wishes  
**Mohamed U. Mahdi**