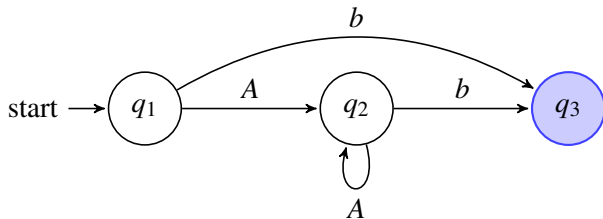
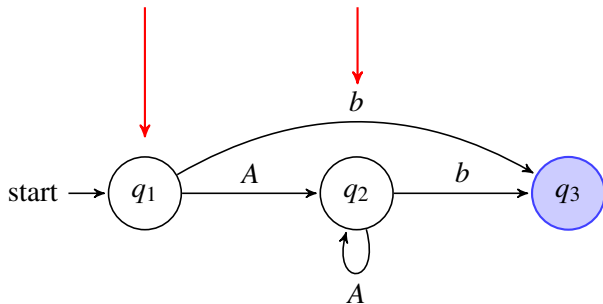


# Automata Basics

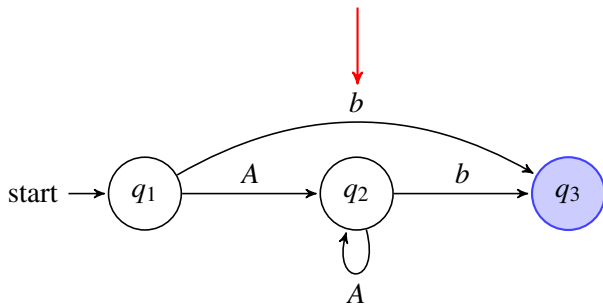
Joseph Paul Cohen



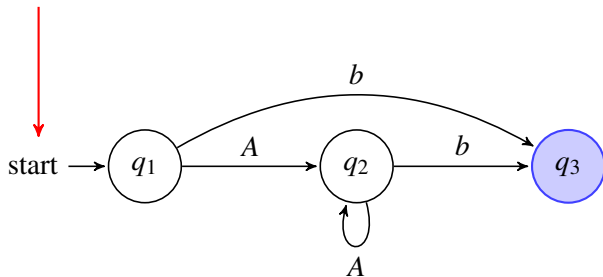
An automata is a diagram of a process or sequence



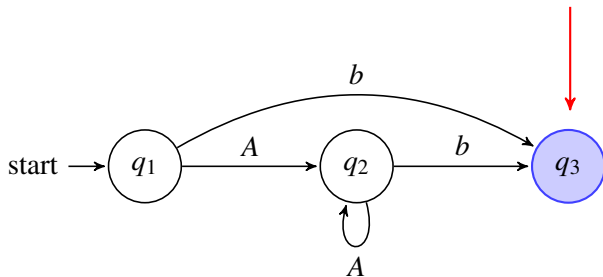
Automata consist of states and transitions



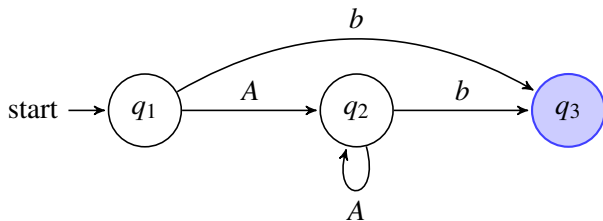
Each transition has a symbol or action



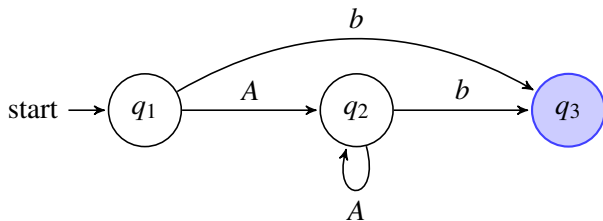
Automata have one or more start states



Automata have one or more final states

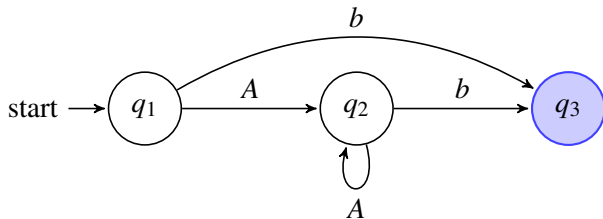


Here the automata represents the language of strings consisting of  
 $b, Ab, AAb, AAAb, \dots$

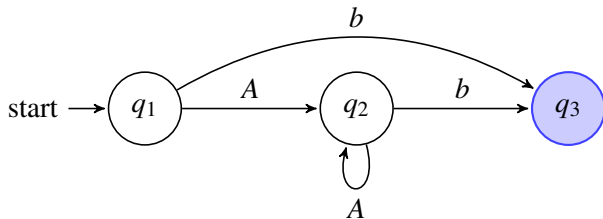


For some input string such as  $Ab$  we look at the first element of the string which is  $A$ .

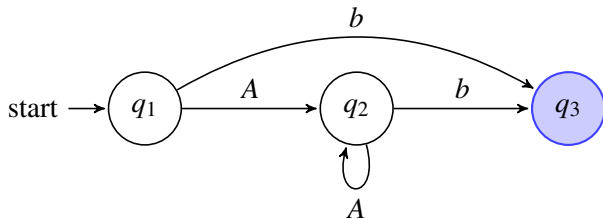




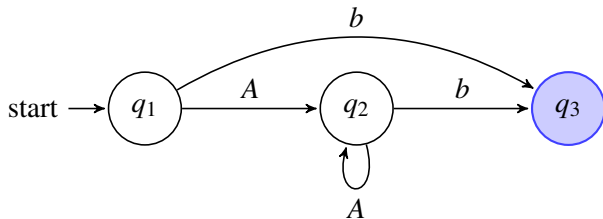
Starting from the state  $q_1$  we travel to  $q_2$  using the  $A$ .



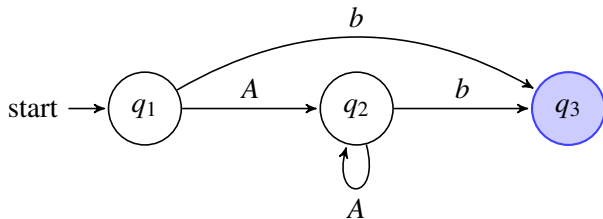
The remaining string is  $b$ . We use it to travel to  $q_3$



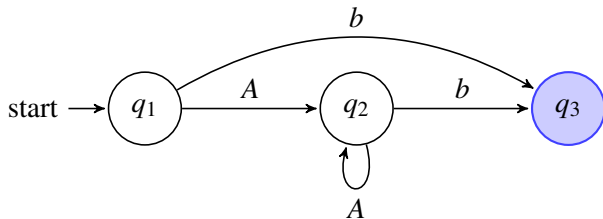
$q_3$  is an accept state so we say that  $Ab$  is accepted.



$q_1$  and  $q_2$  are not accept states. Is the string  $AAA$  accepted?



$AAA$  ends up in state  $q_2$  and can't go anywhere else so it isn't accepted



Is  $Abb$  accepted? The extra  $b$  has no place to go so we don't accept it.