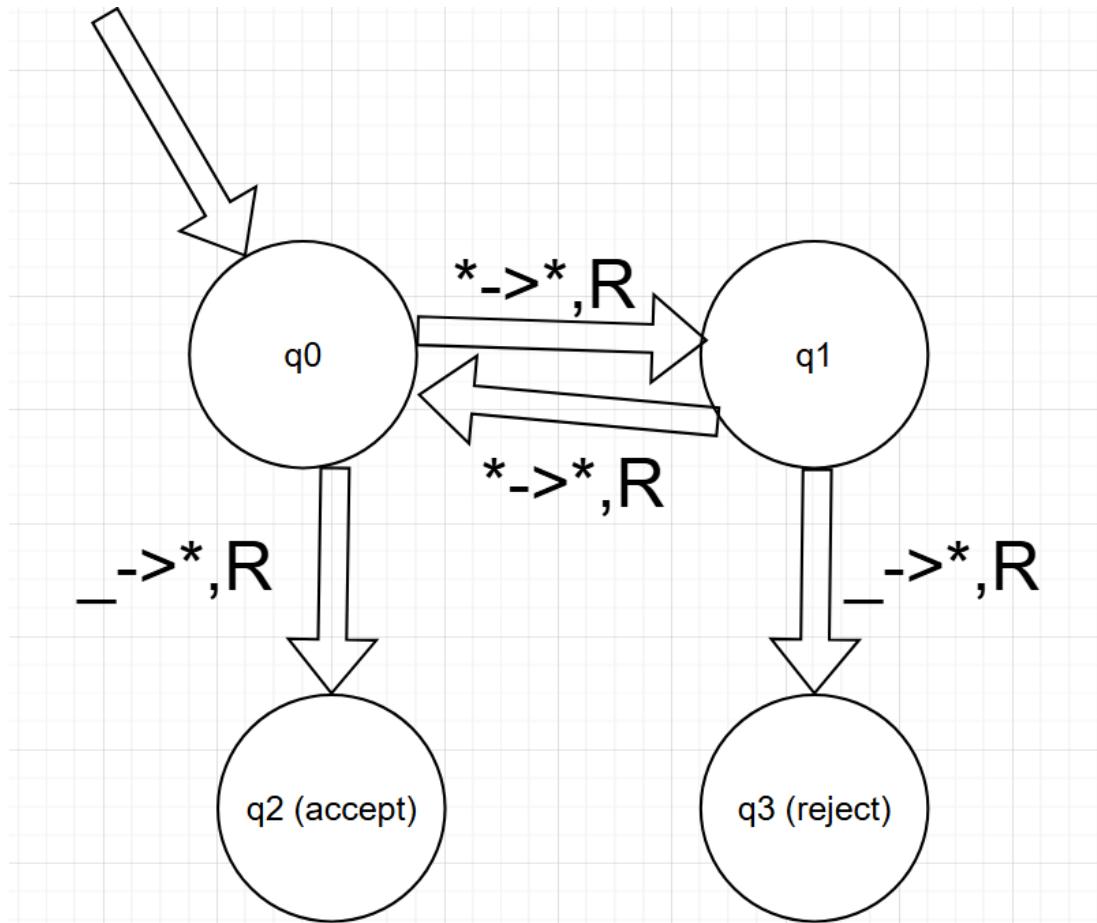


Bryan Dong  
TM-EVEN-CHECK

1. This machine is a decider that decides if the length of a string made out of the alphabet  $\{0,1\}$  (because we need to specify a specific alphabet) is even. If the word is even, it will be accepted and if the word is odd the word will be rejected. This should never loop. Errors may happen if the input is larger than max tape size.
2. I thought up the problem because it's useful information that needs to be checked.
3. The input is loaded onto the tape. There are 4 states. The starting state is the even state. If it ever reads a blank as the current value, it goes to the accept state. If it reads anything else, it goes to the odd state and moves the head right. The odd state goes to the reject state if it reads a blank. Otherwise it goes to the even state and moves the head right. Because exact transitions take precedence over wildcards in my simulator (which makes sense), the language of the machine could be turned into anything without needing to modify the rules.



- 4.
5. I tried out the test cases in the test file. It's easy to manually compare the real answer to the answer the TM gives for this problem because manually calculating even length is doable.