

Homework Day #36  
COMP 2230  
Spring 2024  
Prof. Stucki

- 1) Construct a Turing Machine with no more than three states that accepts the language  $a(a+b)^*$ .
- 2) Construct a Turing Machine over  $\Sigma = \{a, b\}$  that begins in state  $q_0$  with the read/write head at the leftmost character on the tape and makes a copy of the input string. In other words if the initial configuration is  $q_0w$  then the machine halts with in the configuration  $q_0ww$ , where  $w$  is an arbitrary string from  $\Sigma^*$ .
- 3) Construct a Turing Machine over  $\Sigma = \{a, b\}$  that halts with a string on the tape that is the reverse of the string that was on the tape when it began.