Quiz 1

**Show that the class of regular languages is closed under reversal.**

**Proof**: Construction. Consider an arbitrary regular language with an associated DFA , and its reversal . We can create a DFA called ’ that recognizes and show that the class of regular languages is closed under reversal.

We construct where:

where the new states are the states of the original regular language but reversed

where the alphabet is the same

where the transition directions are the original reversed

where the start state is the final state(s) of the original regular language

where the final state is the start state of the original regular language

Essentially, we reverse direction of the original transitions and swap the accept state(s) with the start state(s) and we get a new regular language that is the reverse of the original one.