The Theory of Computation

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Solution Manual
Chapter 3, Problem 3.10

If the FA does not accept ε, nothing needs to be done. If the FA does accept ε, one could conceivably make the start state (and any state reachable from it through an ε transition) non-accepting, but that will only work if none of these states is part of a loop that can lead to acceptance. So, a general method is to duplicate the start state and all states reachable from it through ε transitions, keeping the original accepting or not as they were, but making all duplicates rejecting. The new start state is the duplicate (nonaccepting) and moves through ε transitions, if any, to duplicates; any transition on an input symbol from a duplicate goes to an original state.