

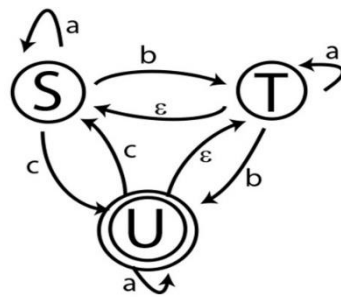
CS 383

HW 2

Due in class Monday, September 18

Again, you can do this one on paper if you do it neatly and legibly.

- Here is an ϵ -NFA. Convert it to a DFA and find all of the strings of length 2 accepted by it.



- Design an ϵ -NFA for the set of strings consisting of either 01 repeated 1 or more times or 010 repeated 1 or more times.
- Give a regular expression for the set of strings over the alphabet $\{a,b,c\}$ containing at least one a and at least one b.
- Give a DFA for the set of strings with an even number of zeros.
- Give a regular expression for the set of strings with an even number of zeros.
- Describe in English the language denoted by the regular expression $(1+\epsilon)(00^*1)^*0^*$
- Suppose we have a finite automaton with no transitions into the start state and none out of the final state. This automaton accepts language \mathcal{L} . If we modify the automaton by adding an ϵ -transition from the final state to the start state, what language will it accept?
- Convert the regular expression $(0+1)(01)^*$ into an ϵ -NFA using the construction we developed in class.
- Convert $(1+\epsilon)(00^*1)^*0^*$ into an ϵ -NFA any way you wish.
- Convert the following DFA into a regular expression using the construction we developed in class.

