

Reading Questions

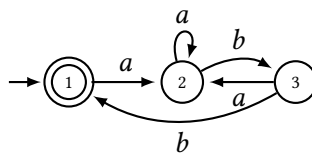
For class on October 9, read FHP lecture 8. Type up your own responses (plaintext is ideal) and submit electronically (TEACH) 24 hours before class time.

- (standard) 1. Write down some of your own explicit questions about the assigned reading, appropriate for class discussion. For example, was some new concept confusing? Did a new concept prompt any questions about old material? Was there anything that took several attempts to understand?
- (standard) 2. Reflect on the course in general. How are things going with the readings and assignments? How would you judge your engagement with the material?
- (standard) 3. Write down how much time you spent on the reading.
4. The authors say that a missing edge is the same as an edge with regular expression \emptyset . Equation (8.1) is how you must update the regular expression on an edge, when removing a state. Does this equation make sense when some of the regular expressions are \emptyset ?

Warm-up Exercises

Work on these exercises first individually, then with others if desired. Write up solutions *individually* (hand-written is fine) and bring them to class on the target date to be collected.

1. On page 58, there 4 constraints about a (G)NFA. Show that these constraints hold without loss of generality. That is, you can (easily) modify a (G)NFA to have the require properties.
2. Convert the following NFA to a regular expression, using the procedure provided. Show the intermediate steps, to help debug any mistakes.



3. Convert the same NFA but now remove the states in a different order. You will probably get a different regular expression. Try to write a justification for why they are equivalent (other than they both were generated from a process that we know is correct).
 4. Describe a general procedure for taking the complement of a regular expression (given a regular expression R , find another one that recognizes the complement of $L(R)$). How about finding the intersection of two regular expressions?
- (standard) 5. How much time did you spend on the warm-up exercises?