

COMP 310 Homework 2

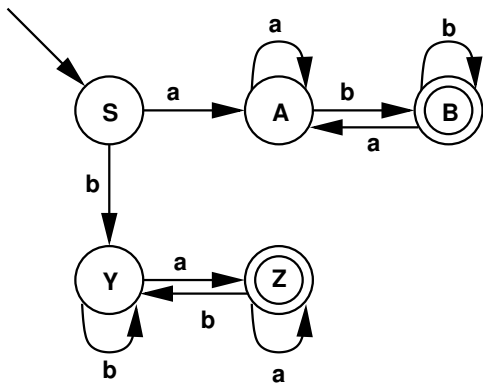
Solve the following problems, type them up, convert into a pdf file, and submit via moodle by 2355 on Monday 6/13. Clearly submissions made by the deadline are counted as on time, but additionally submissions made **before** I begin grading the item are also counted as on time. If moodle allows you to submit then I have not begun grading the item. My suggestion would be to submit something by the deadline and if you improve your answers then resubmit. Homework is not accepted after I begin to grade it. A subset of the questions will be graded. While your score will primarily be determined by whether your answers are correct, a portion of the score will be determined by the appearance of your submission and whether you followed directions. For example, submitting a word document instead of a pdf will cause you to lose some points.

Problem 1. (10 points) Construct a DFA which accepts the language $\{w \in \{a, b\}^* : \text{does not contain 3 consecutive } a's\}$.

Problem 2. (10 points) Construct a DFA which accepts the language $\{a^i b^j : i \text{ is odd or } j \text{ is even}\}$.

Problem 3. (10 points) Construct a DFA which accepts the language $\{w \in \{a, b\}^* : \text{every } b \text{ is followed by 2 } a's\}$.

Problem 4. (10 points) What language is accepted by the DFA below?



Problem 5. (10 points) Convert the NFA below into an equivalent DFA.

