

Quiz 2

Problem 1. True or False (no justification needed):

- A. There is a regular expression for the language $(a \cup ab)^* \cap \text{noprefix}(b^*c)$ where noprefix was defined in problem set 3.
- B. The DFA-acceptable languages are closed under complement, but the NFA-acceptable languages are not.
- C. A subset of a regular language is necessarily regular.
- D. Every finite language is regular.

Problem 2. Using the procedure seen in class, convert the regular expression $(ab \cup b)$ into an NFA. Don't "simplify" the machine.

Problem 3. By the conventions of your text and lecture, an **NFA** is a 5-tuple $M = (Q, \Sigma, \delta, q_0, F)$ where function δ maps to . (*Fully specify the domain and range*)

Problem 4 What is the **product construction** and what is it used to show?