

Today Regular expressions, equivalence to FSAs, nonregular languages. § 1.3, 1.4.

Next class HW due before class. Context-free grammars; push-down automata. § 2.{0, 1, 2}

1. List the members of your group below. Underline your name.

2. Prove or disprove the regularity of each of the following languages.
 - (a) Alphanumeric strings that do not have boo as a substring.
 - (b) $\{0^n 1^n \mid 0 \leq n \leq 3\}$
 - (c) Binary strings with an equal number of 01 and 10 substrings.
 - (d) Strings of the form sss , for all binary strings s .

[additional space for answering the earlier question]

3. Provide FSAs equivalent to $a(d \cup a)^*$ and $(a \cup b \cup c)^*(ab \cup ba)$. Ensure you can provide DFAs, but NFAs are OK for now.

4. Use the textbook method (see proof of Lemma 1.60) to compute regular expressions equivalent to the automata defined below in the homework's *Lexaard* language.

```
fsa
m1 very small
    a   b
*q1  q1 q2
    q2 q2 q1
```

```
fsa
m2 a bit larger
    a   b   c
  q1  q2  q1  q1
*q2  q1  q2  q3
  q3  q2  q1  q3
```