

G. Farin

**Homework # 3***due: 4/4, midnight*

1. For this problem, use the DFA from HW 2, problem 1. The DFA will accept the string  $u = abbbab$ . Identify two pumpable substrings in  $u$  and show the strings resulting from pumping them twice.
2. We saw that, for an alphabet with  $n$  characters and an NFA with  $k$  states and  $l$  arcs, an equivalent DFA has at most  $2^k$  states. What is the limit on the number of arcs of that DFA?
3. Find a PDA (submit a JFLAP file) accepting the language

$$L = \{a^i c^j b^i \mid i, j > 0\}.$$

4. Find a PDA (submit a JFLAP file) accepting the language

$$L = \{a^i b^{2i} \mid i > 0\}.$$