CS 81 Logic and Computability

Fall 2007

HW 10 due 12/4/07

1. (20 pts) Hein problem 7.a., p.716

2. (20 pts) Hein problem 8, p. 716

3. (20 pts) Determine whether each of the following grammars is LL(k) for some k. If so, give the k.

    a. $S \rightarrow abS \mid abc$
    b. $S \rightarrow aSb \mid S', S' \rightarrow aS'a \mid \varepsilon \mid a$
    c. $S \rightarrow aS' \mid bS'', \; S' \rightarrow baS' \mid \varepsilon, \; S'' \rightarrow abS'' \mid \varepsilon$
    d. $S \rightarrow aSb \mid bSa \mid \varepsilon$
    e. $S \rightarrow Sa \mid Sb \mid c$

4. (25) For each grammar G in problem 3, find an equivalent grammar G′ such that G′ is LL(k) for the smallest possible k. Justify your answer. (Note: For some of these problems G′ will be the same as G.)

5. (15 pts) Hein problem 7, p.745