

Solutions for Assignment #9

Assignment Information

Maximum grade 20

Due date November 18, 2004

Instructions Textbook: Page 180

Problems:

5.1.1 (c) and (d)

5.1.2 5.1.2 (b) and (c)

5.1.1.c)

$S \rightarrow AB \mid BA \mid A \mid B$

$A \rightarrow aAa \mid aAb \mid bAa \mid bAb \mid a$

$B \rightarrow aBa \mid aBb \mid bBa \mid bBb \mid b$

$G = (\{S, A, B\}, \{a, b\}, P, S)$

5.1.1.d)

$S \rightarrow S0S0S1S \mid S0S1S0S \mid S1S0S0S \mid \epsilon$

$G = (\{S\}, \{0, 1\}, P, S)$

5.1.2. b) 1001

Leftmost: $S \rightarrow A1B \rightarrow 1B \rightarrow 10B \rightarrow 100B \rightarrow 1001B \rightarrow 1001$

Rightmost: $S \rightarrow A1B \rightarrow A10B \rightarrow A100B \rightarrow A1001B \rightarrow A1001 \rightarrow 1001$

5.1.2. c) 00011

Leftmost: $S \rightarrow A1B \rightarrow 0A1B \rightarrow 00A1B \rightarrow 000A1B \rightarrow 0001B \rightarrow 00011B \rightarrow 00011$

Rightmost: $S \rightarrow A1B \rightarrow A11B \rightarrow A11 \rightarrow 0A11 \rightarrow 00A11 \rightarrow 000A11 \rightarrow 00011$