CS112 (LFA): Lab 4

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Exercise 2.4 (Sipser – Chapter 2)

a.

$$S \rightarrow P|P|P|P$$

$$P \rightarrow 0P|1P|\varepsilon$$

b.

$$S \rightarrow 0P0|1P1|0|1$$

$$P \rightarrow 0P|1P|\varepsilon$$

c.

$$S \rightarrow 0|1|00S|01S|10S|11S$$

sau

$$S \rightarrow 0|1|0S0|0S1|1S0|1S1$$

d.

$$S \rightarrow 0|0S0|0S1|1S0|1S1$$

e.

$$S \rightarrow 0|1|0S0|1S1|\varepsilon$$

f.

$$S \to S$$

Exercise 2.6 (Sipser – Chapter 2)

a.

$$S \to AaA$$

$$A \to AA \mid aAb \mid bAa \mid a \mid \varepsilon$$

b.

$$S \to S_1 \mid S_2$$

$$S_1 \to aS_1b \mid T \mid U$$

$$S_2 \to RbaR$$

$$T \to aT \mid a$$

$$U \to Ub \mid a$$

$$R \to RR \mid a \mid b \mid \varepsilon$$

c.

$$R \to SX$$

$$S \to 0S0 \mid 1S1 \mid \#X$$

$$X \to XX \mid 1 \mid 0 \mid \varepsilon$$

d.

$R \rightarrow S \mid J\#S\# J \mid J\#S \mid S\#J$

$S \rightarrow aSa \mid bSb \mid \# \mid \#J\#$

$J \rightarrow aJ \mid bJ \mid \#J \mid \varepsilon$