

Exercise 1.

Consider the following grammar G:

$$\begin{aligned} \mathbf{P:} \quad \mathbf{A} &\rightarrow \mathbf{Ba} \mid \mathbf{bBc} \mid \mathbf{dc} \mid \mathbf{bda} \\ \mathbf{B} &\rightarrow \mathbf{d} \end{aligned}$$

- a) Construct the set of LR(0) items.
- b) Construct the SLR(1) parsing table.
- c) Analyze the string: **bdca** .

Exercise 2.

Consider the following grammar G:

$$\begin{aligned} \mathbf{P:} \quad \mathbf{A} &\rightarrow \mathbf{Ba} \mid \mathbf{bBc} \mid \mathbf{dc} \mid \mathbf{bda} \\ \mathbf{B} &\rightarrow \mathbf{d} \end{aligned}$$

- a) Construct the set of LR(1) items.
- b) Construct the LR(1) parsing table.
- c) Analyze the string: **bdca** .

Exercise 3.

Consider the grammar G of C pointers, whose numbered productions are given below:

- (0) $S' \rightarrow S$
- (1) $S \rightarrow L = R$
- (2) $S \rightarrow R$
- (3) $L \rightarrow * R$
- (4) $L \rightarrow a$
- (5) $R \rightarrow L$

- a) Show that G is **not SLR(1)** but is **LR(1)** and **LALR(1)**.
- b) Using both the **LR(1)** and **LALR(1)** methods, parse the string ***a=a**
- c) Using both the **LR(1)** and **LALR(1)** methods, parse the string **a=aa**

Exercise 4.

Consider the following grammar G:

$$\mathbf{P:} \quad \mathbf{A} \rightarrow \mathbf{a A a} \mid \mathbf{b A b} \mid \mathbf{\epsilon}$$

- a) Show that grammar G is neither SLR(1), nor LR(1), nor LALR(1).