Tutorial on Syntax Analysis - part 1

March 4, 2022

1. For the grammar $S \to 0S1|01$, indicate the handle in each of the following right-sentential form:

   (a) 000111

   (b) 00S11

   Note that right-sentential form is a sentential form that occurs in the rightmost derivation of some sentence.

2. Show that the following grammar:

$$\begin{array}{l} S \to SA|a \\ A \to a \end{array}$$

   But for TopDown/Predictive/LL1 we need transformations.

   is neither $SLR(1)$ nor $LL(1)$. Observe that left-recursive grammar can be accepted by bottom-up parsing method without any transformations.

3. Show that the following grammar:

$$\begin{array}{l} S \to SA|A \\ A \to a \end{array}$$

   is not $LL(1)$, but is $SLR(1)$.

4. Consider the following grammar.

$$\begin{array}{l} S \to CcCd|DdDc \\ C \to \epsilon \\ D \to \epsilon \end{array}$$

   Check whether the grammar is $LL(1)$ or $SLR(1)$

5. Show that the following grammar:

$$E \to E + E$$
$$E \to E * E$$
$$E \to id$$

is neither $LL(1)$ nor $SLR(1)$