

UNIT 6: BOTTOM-UP PARSING TECHNIQUES

1. OBTAIN THE SLR(1) FOR THE GRAMMAR.

$$G = \Sigma_N = \{ S, A, B, C \}, \Sigma_T = \{ 0, 1, 2 \}, S, \emptyset$$

$$\emptyset = \left\{ \begin{array}{l} S ::= B 2 A \\ A ::= 0 A \mid 0 \\ B ::= 1 C \mid \lambda \\ C ::= 2 A \mid 1 \end{array} \right\}$$

SOLUTION:

Set of states LR(0). Augmented grammar with $S' \rightarrow S$

l_0 $S' \rightarrow \bullet S$ $S \rightarrow \bullet B 2 A$ $B \rightarrow \bullet 1 C$ $B \rightarrow \bullet$	l_3 $B \rightarrow 1 \bullet C$ $C \rightarrow \bullet 2 A$ $C \rightarrow \bullet 1$	l_6 $C \rightarrow 2 \bullet A$ $A \rightarrow \bullet 0 A$ $A \rightarrow \bullet 0$	l_9 $A \rightarrow 0 \bullet A$ $A \rightarrow 0 \bullet$ $A \rightarrow \bullet 0 A$ $A \rightarrow \bullet 0$
l_1 $S' \rightarrow S \bullet$	l_4 $S \rightarrow B 2 \bullet A$ $A \rightarrow \bullet 0 A$ $A \rightarrow \bullet 0$	l_7 $C \rightarrow 1 \bullet$	l_{10} $C \rightarrow 2 A \bullet$
l_2 $S \rightarrow B \bullet 2 A$	l_5 $B \rightarrow 1 C \bullet$	l_8 $S \rightarrow B 2 A \bullet$	l_{11} $A \rightarrow 0 A \bullet$

	ACTION				GO TO			
	0	1	2	\$	S	A	B	C
l_0		D l_3	R($B \rightarrow \lambda$)		l_1		l_2	
l_1				ACPT				
l_2			D l_4					
l_3		D l_7	D l_6					l_5
l_4	D l_9					l_8		
l_5			R($B \rightarrow 1 C$)					
l_6	D l_9					l_{10}		
l_7			R($C \rightarrow 1$)					
l_8				R($S \rightarrow B 2 A$)				
l_9	D l_9		R($A \rightarrow 0$)	R($A \rightarrow 0$)		l_{11}		
l_{10}			R($C \rightarrow 2 A$)					
l_{11}			R($A \rightarrow 0 A$)	R($A \rightarrow 0 A$)				