

Practice Problems – Parsing Sample Solution

1.

Stack	Input	Action
0	aaabb\$	s5
0, a, 5	aabb\$	s5
0, a, 5, a, 5	abb\$	s5
0, a, 5, a, 5, a, 5	bb\$	r3
0, a, 5, a, 5, A, 6	bb\$	r2
0, a, 5, A, 6	bb\$	r2
0, A, 2	bb\$	s3
0, A, 2, b, 3	b\$	s7
0, A, 2, b, 3, b, 7	\$	r4
0, A, 2, B, 4	\$	r1
0, S, 1	\$	<i>accept</i>

2. Since this grammar does not have a start symbol that only appears in one production, we need to add a new start symbol to the grammar:

0. $S' \rightarrow S$
1. $S \rightarrow aSa$
2. $S \rightarrow B$
3. $B \rightarrow Bbb$
4. $B \rightarrow c$

The resulting DFA is shown in Figure 1.

3. The resulting DFA is shown in Figure 2. There are no introduced parsing conflicts.

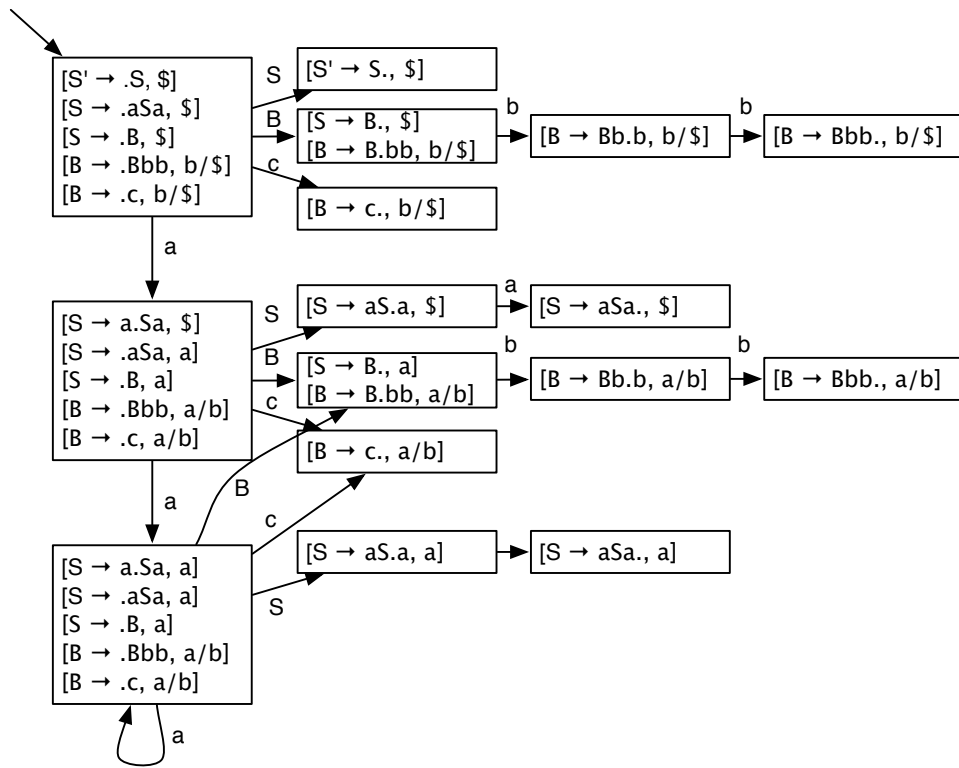


Figure 1: DFA for problem 2.

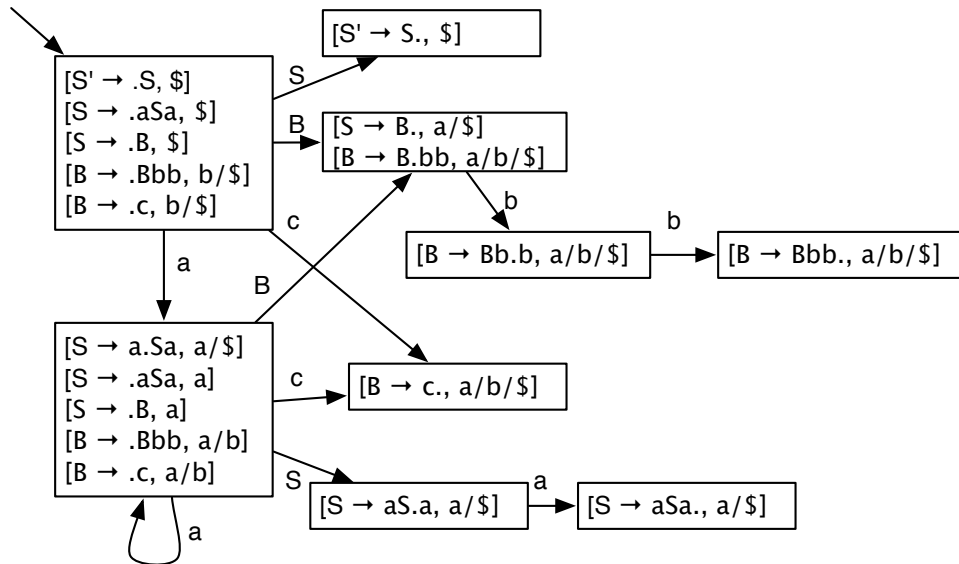


Figure 2: DFA for problem 3.