

# Practice Problems – Parsing

This short set of practice problems will help you review your understanding of LR(1) parsing.

1. Consider the following grammar and corresponding action and goto tables:

0.	$S' \rightarrow S$	<i>state</i>	<i>action</i>			<i>goto</i>		
1.	$S \rightarrow AB$	0	$s\bar{5}$		\$	$S$	$A$	$B$
2.	$A \rightarrow aA$	1		<i>accept</i>		1	2	
3.	$A \rightarrow a$	2	$s\bar{3}$					4
4.	$B \rightarrow bb$	3	$s\bar{7}$					
		4			<i>r1</i>			
		5	$s\bar{5}$	$r\bar{3}$			6	
		6		$r\bar{2}$				
		7			<i>r4</i>			

Give a table, following the format on slide 39 of the lexing and parsing lectures, showing the stack, input, and action at each step of parsing the string *aaabb*.

2. Draw the LR(1) parsing DFA (following slide 55) for the following grammar:

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

3. Draw the LALR(1) parsing DFA for the grammar above. Does switching from LR(1) to LALR(1) parsing introduce any parsing conflicts?