



ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ



Course: Compilation

Group: I4-GIC-A

Name of Students

ID of Students

Score

LIM KITTY

e20221479

.....

Lecturer: Mr. OL Phearun

Academic year: 2025 ~ 2026

SLR-V2 Parsing (Table)

1. Grammar

$S' \rightarrow S$ (0)

$S \rightarrow CC$ (1)

$C \rightarrow cC \mid d$ (2, 3)

state	ACTION			GOTO	
	<i>c</i>	<i>d</i>	\$	<i>S</i>	<i>C</i>
0	s3	s4	–	1	2
1	–	–	acc	–	–
2	s6	s7	–	–	5
3	s3	s4	–	–	8
4	r3	r3	–	–	–
5	–	–	r1	–	–
6	s6	s7	–	–	9
7	–	–	r3	–	–
8	r2	r2	–	–	–
9	–	–	r2	–	–

Check input: cdc, ccdc, cdccd, cdccdc, cddccd,

2. Grammar

(1) $S \rightarrow h B e$

(2) $B \rightarrow B A$

(3) $B \rightarrow \epsilon$

(4) $A \rightarrow x$

(5) $A \rightarrow t$

State	ACTION					GOTO		
	h	x	t	e	\$	S	B	A
0	s2					1		
1					acc			
2		r3	r3	r3			3	
3		s6	s7	s4				5
4					r1			
5		r2	r2	r2				
6		r4	r4	r4				
7		r5	r5	r5				

Parsing the string: hxe, httxe, httxe, httxxe

3. Grammar

(1) $E \rightarrow E + T$

(2) $E \rightarrow T$

(3) $T \rightarrow T * F$

(4) $T \rightarrow F$

(5) $F \rightarrow (E)$

(6) $F \rightarrow id$

State	Action						Goto		
	id	+	*	()	\$	E	T	F
0	S5			S4			1	2	3
1		S6				accept			
2		R2	S7		R2	R2			
3		R4	R4		R4	R4			
4	S5			S4			8	2	3
5		R6	R6		R6	R6			
6	S5			S4				9	3
7	S5			S4					10
8		S6			S11				
9		R1	S7		R1	R1			
10		R3	R3		R3	R3			
11		R5	R5		R5	R5			

Parsing the string: id * id, id * (id), id + (id + id), (id + id) * id, id + (id * id)

1. Grammar

$S' \rightarrow S$ (0)

$S \rightarrow CC$ (1)

$C \rightarrow cC \mid d$ (2, 3)

state	ACTION			GOTO	
	c	d	\$	S	C
0	s3	s4	-	1	2
1	-	-	acc	-	-
2	s6	s7	-	-	5
3	s3	s4	-	-	8
4	r3	r3	-	-	-
5	-	-	r1	-	-
6	s6	s7	-	-	9
7	-	-	r3	-	-
8	r2	r2	-	-	-
9	-	-	r2	-	-

Check input: cdc, ccde, cdced, cdcedc, cddced,

. Check input:

+ cdc

State : $S_0 S_3 S_4 S_5 S_2 S_6$
 Symbol : $c d C C c$ error

+ ccde

State : $S_0 S_3 S_4 S_5 S_2 S_6$
 Symbol : $c d C C c$ error

+ cdced

State : $S_0 S_3 S_4 S_5 S_2 S_6 S_7 S_8 S_9 S_2$
 Symbol : $c d C C c d C C S$ Accept

+ cdcedc

State : $S_0 S_3 S_4 S_5 S_2 S_6 S_7$
 Symbol : $c d C C c d$ error

+ cdcedcd

State : $S_0 S_3 S_4 S_5 S_2 S_7$
 Symbol : $c d C C d$ error

2. Grammar

(1) $S \rightarrow h B e$

(2) $B \rightarrow B A$

(3) $B \rightarrow \varepsilon$

(4) $A \rightarrow x$

(5) $A \rightarrow t$

State	ACTION					GOTO		
	h	x	t	e	\$	S	B	A
0	s2					1		
1					acc			
2		r3	r3	r3			3	
3		s6	s7	s4				5
4					r1			
5		r2	r2	r2				
6		r4	r4	r4				
7		r5	r5	r5				

Parsing the string: hxe, httxe, httxe, httxxe

.Check input

+ ~~hxxe~~

state : ~~S₀ S₂ S₃ S₆ S₅ S₃ S₄ S₁~~
 symbol : ~~h B x A B e S~~ accept

+ ~~httxe~~

state : ~~S₀ S₂ S₃ S₇ S₅ S₃ S₇ S₅ S₃ S₆ S₅ S₃ S₄ S₁~~
 symbol : ~~h B t A B t A B x A B e S~~ accept

+ ~~httxe~~

state : ~~S₀ S₂ S₃ S₄ S₅ S₃ S₆ S₅ S₃ S₄ S₁~~
 symbol : ~~h B t A B x A B e S~~ accept

+ ~~httxxe~~

state : ~~S₀ S₂ S₃ S₇ S₅ S₂ S₇ S₆ S₃ S₆ S₅ S₃ S₆ S₅ S₃ S₄ S₁~~
 symbol : ~~h B t A B t A B x A B x A B e S~~ accept

3. Grammar

(1) $E \rightarrow E + T$

(2) $E \rightarrow T$

(3) $T \rightarrow T * F$

(4) $T \rightarrow F$

(5) $F \rightarrow (E)$

(6) $F \rightarrow \text{id}$

State	Action						Goto		
	id	+	*	()	\$	E	T	F
0	S5			S4			1	2	3
1		S6				accept			
2		R2	S7		R2	R2			
3		R4	R4		R4	R4			
4	S5			S4			8	2	3
5		R6	R6		R6	R6			
6	S5			S4				9	3
7	S5			S4					10
8		S6			S11				
9		R1	S7		R1	R1			
10		R3	R3		R3	R3			
11		R5	R5		R5	R5			

Parsing the string: $\text{id} * \text{id}$, $\text{id} * (\text{id})$, $\text{id} + (\text{id} + \text{id})$, $(\text{id} + \text{id}) * \text{id}$, $\text{id} + (\text{id} * \text{id})$

.Check input

$\text{id} * \text{id}$

State : $S_0 \xrightarrow{\text{id}} S_5 \xrightarrow{*} S_7 \xrightarrow{\text{id}} S_3 \xrightarrow{)} S_2 \xrightarrow{)} S_1 \xrightarrow{\$} S_4 \xrightarrow{\text{accept}}$

Symbol : $\text{id} \text{ } + \text{ } (\text{ } \text{id} \text{ } + \text{ }) \text{ } \text{accept}$

$\text{id} * (\text{id})$

State : $S_0 \xrightarrow{\text{id}} S_5 \xrightarrow{*} S_7 \xrightarrow{(} S_4 \xrightarrow{\text{id}} S_3 \xrightarrow{)} S_2 \xrightarrow{)} S_1 \xrightarrow{\$} S_4 \xrightarrow{\text{accept}}$

Symbol : $\text{id} \text{ } + \text{ } (\text{ } \text{id} \text{ } + \text{ }) \text{ } \text{accept}$

$\text{id} * (\text{id} * \text{id})$

State : $S_0 \xrightarrow{\text{id}} S_5 \xrightarrow{*} S_7 \xrightarrow{(} S_4 \xrightarrow{\text{id}} S_3 \xrightarrow{)} S_2 \xrightarrow{*} S_7 \xrightarrow{\text{id}} S_3 \xrightarrow{)} S_2 \xrightarrow{)} S_1 \xrightarrow{\$} S_4 \xrightarrow{\text{accept}}$

Symbol : $\text{id} \text{ } + \text{ } (\text{ } \text{id} \text{ } + \text{ }) \text{ } \text{accept}$

$\cdot (id \cdot id)^* id$

State : $S_0 \cancel{S_1} \cancel{S_2} \cancel{S_3} \cancel{S_4} \cancel{S_5} \cancel{S_6} \cancel{S_7} \cancel{S_8} \cancel{S_9} \cancel{S_{10}} \cancel{S_{11}} \cancel{S_{12}} \cancel{S_{13}} \cancel{S_{14}} \cancel{S_{15}} \cancel{S_{16}} \cancel{S_{17}} \cancel{S_{18}} \cancel{S_{19}} \cancel{S_{20}} \cancel{S_{21}}$
 Symbol : $(id \cdot id)^* id$ accept

$\cdot id \cdot (id \cdot id)^*$

State : $S_0 \cancel{S_1} \cancel{S_2} \cancel{S_3} \cancel{S_4} \cancel{S_5} \cancel{S_6} \cancel{S_7} \cancel{S_8} \cancel{S_9} \cancel{S_{10}} \cancel{S_{11}} \cancel{S_{12}} \cancel{S_{13}} \cancel{S_{14}} \cancel{S_{15}} \cancel{S_{16}} \cancel{S_{17}} \cancel{S_{18}} \cancel{S_{19}} \cancel{S_{20}} \cancel{S_{21}}$
 Symbol : $id \cdot (id \cdot id)^*$ accept