

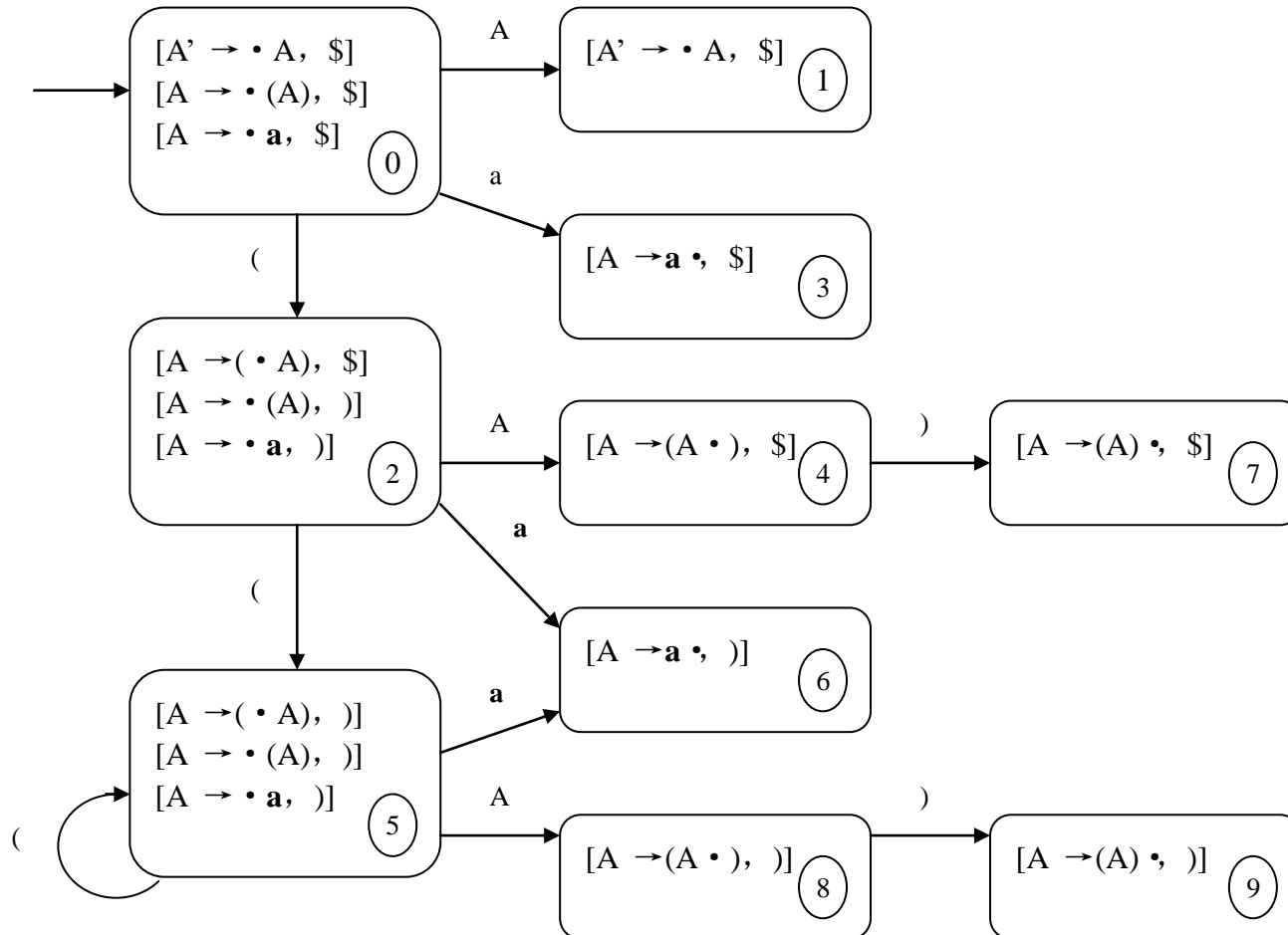


CANONICAL LR(1)

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$A \rightarrow (A) \mid a$

LR(1) DFA



The Grammar:

(1) $A \rightarrow (A)$

(2) $A \rightarrow a$

Parse table

State	Input				Goto
	(a)	\$	A
0	s2	s3			1
1				accept	
2	s5	s6			4
3				r2	
4			s7		
5	S5	S6			8
6			r2		
7				r1	
8			s9		
9			r1		

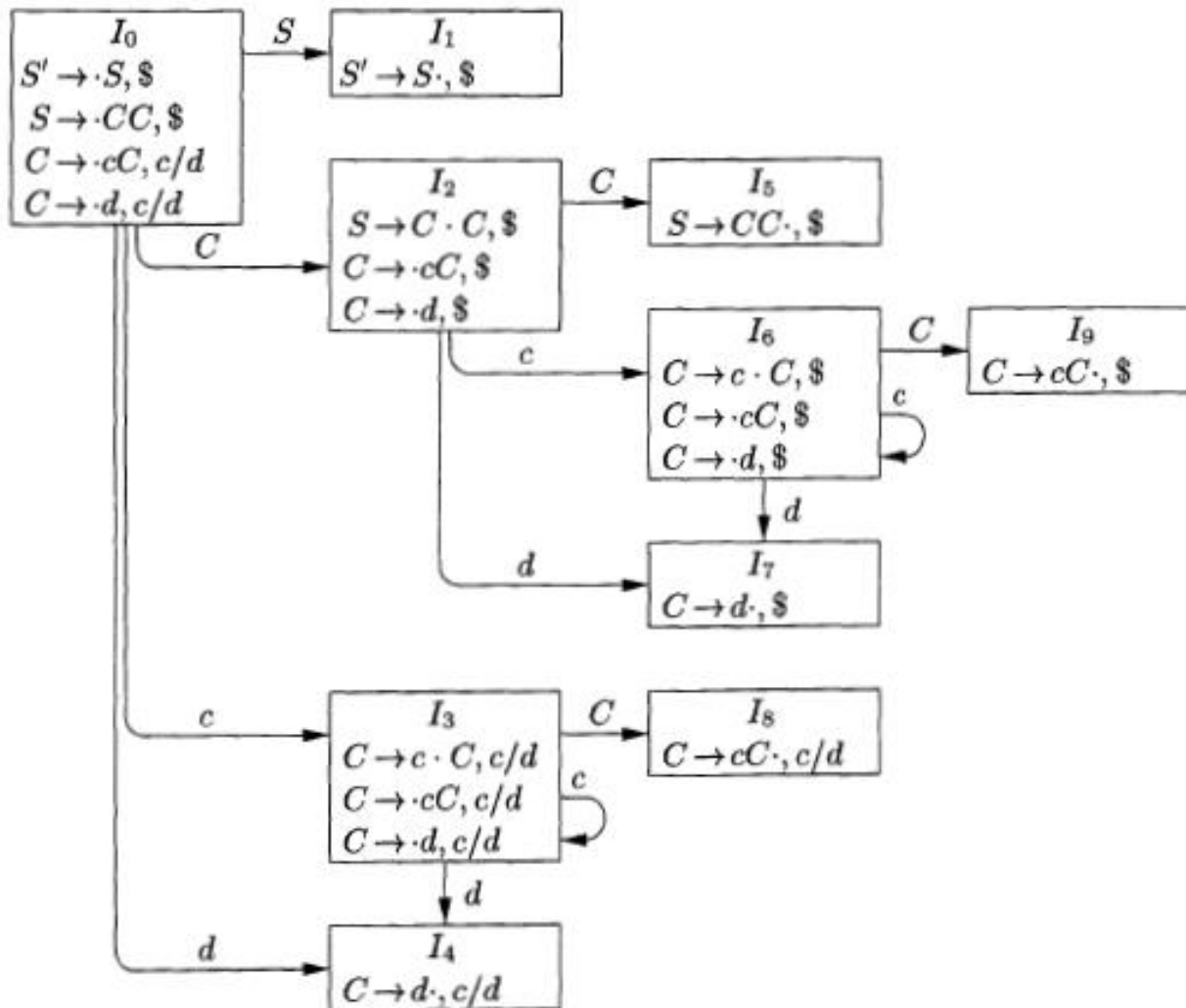
PARSING ACTION

Stack	Symbols	Input	Action
\$0		(a)\$	shift
\$02	(a)\$	Shift
\$026	(a)\$	Reduce A->a
\$02 <u>4</u>	(<u>A</u>)\$	Shift
\$0247	(A)	\$	Reduce A->(A)
\$0 <u>1</u>	<u>A</u>	\$	accept

$S \rightarrow CC$

$C \rightarrow cC \mid d$

LR(1) DFA



PARSE TABLE

STATE	ACTION			GOTO	
	<i>c</i>	<i>d</i>	<i>\$</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		

PARSING ACTION

Stack	Symbols	Input	Action
\$0		ccdd\$	Shift
\$03	c	cdd\$	shift
\$033	cc	dd\$	shift
\$0334	ccd	d\$	reduce C->d
\$033 <u>8</u>	cc <u>C</u>	d\$	reduce C->cC
\$0 <u>3</u> 8	c <u>C</u>	d\$	reduce c->cC
\$0 <u>2</u>	<u>C</u>	d\$	shift
\$027	Cd	\$	reduce C->d
\$02 <u>5</u>	<u>CC</u>	\$	reduce S->CC
\$0 <u>1</u>	<u>S</u>	\$	Accept

SLR(1)

$S \rightarrow L=R$

$S \rightarrow R$

$L \rightarrow *R$

$L \rightarrow id$

$R \rightarrow L$

$I_0: S' \rightarrow .S$

$S \rightarrow .L=R$

$S \rightarrow .R$

$L \rightarrow .*R$

$L \rightarrow .id$

$R \rightarrow .L$

$I_1: S' \rightarrow S.$

$I_2: S \rightarrow L.=R$

$R \rightarrow L.$

$I_3: S \rightarrow R.$

$I_4: L \rightarrow *.R$

$R \rightarrow .L$

$L \rightarrow .*R$

$L \rightarrow .id$

$I_5: L \rightarrow id.$

$I_6: S \rightarrow L=.R$

$R \rightarrow .L$

$L \rightarrow .*R$

$L \rightarrow .id$

$I_9: S \rightarrow L=R.$

$I_7: L \rightarrow *.R.$

$I_8: R \rightarrow L.$

Problem

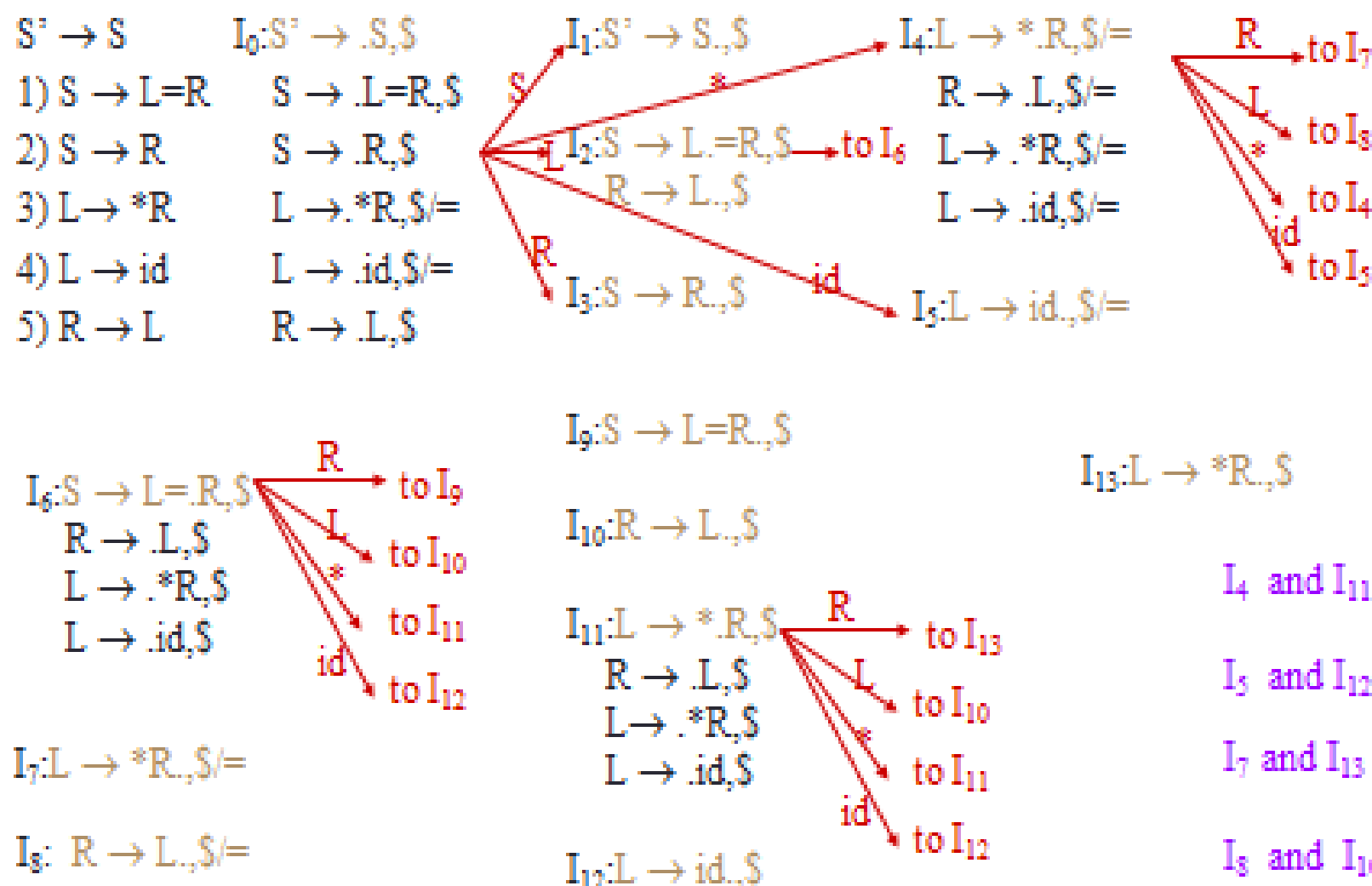
$FOLLOW(R) = \{=, \$\}$

= shift 6

→ reduce by $R \rightarrow L$

shift/reduce conflict

Canonical LR(1) Collection



	id	*	=	\$	S	L	R
0	s5	s4			1	2	3
1				acc			
2			s6	r5			
3				r2			
4	s5	s4				8	7
5			r4	r4			
6	s12	s11				10	9
7			r3	r3			
8			r5	r5			
9				r1			
10				r5			
11	s12	s11				10	13
12				r4			
13				r3			

