

0.  $S' \rightarrow S$
1.  $S \rightarrow CC$
2.  $C \rightarrow cC$
3.  $C \rightarrow d$

✓ Example 4.42

$I_1 = \text{goto}(I_0, S)$

$S' \rightarrow S.$  ✗

$I_2 = \text{goto}(I_0, C)$

$S \rightarrow C.C$

$C \rightarrow .cC$

$C \rightarrow .d$  ✗

$I_3 = \text{goto}(I_0, c)$

$C \rightarrow c.C$

$C \rightarrow .cC$

$C \rightarrow .d$  ✗

$I_4 = \text{goto}(I_0, d)$

$C \rightarrow d.$  ✗

$I_5 = \text{goto}(I_2, C)$

$S \rightarrow CC.$  ✗

$I_6 = \text{goto}(I_3, C)$

$C \rightarrow cC.$  ✓

Test 2: Code Generation §9.10 →

Chy: LL(1)?, SLR(1)?

G LR(1)? → LA' R(1)

action

goto

	c	d	\$	S	C
0	S3	S4		1	2
1			ACC		
2	S3	S4			5
3	S3	S4			6
4	R3	R3	R3		
5			R1		
6	R2	R2	R2		

SLR(1):

$I_0 = \text{closure}(S' \rightarrow .S)$

$S' \rightarrow .S$

$S \rightarrow .CC$

$C \rightarrow .cC$

$C \rightarrow .d$  ✗

	FIRST	FOLLOW
$S'$	c, d	\$
$S$	c, d	\$
$C$	c, d	c, d, \$

→  $S' \rightarrow S$   
 $S \rightarrow CC$   
 $C \rightarrow cC$   
 $C \rightarrow d$

LR(1): SLR(1) → LR(1) items

$[S' \rightarrow .S, \$]$

extra info

$I_0 = \text{closure}([S' \rightarrow .S, \$])$

$S' \rightarrow .S, \$$

$S \rightarrow .CC, \$$

$C \rightarrow .cC, c/d$

$C \rightarrow .d, c/d$  ✗

$I_1 = \text{goto}(I_0, S)$

→  $[S' \rightarrow S., \$]$  ✗

$I_2 = \text{goto}(I_0, C)$

$S \rightarrow C.C, \$$

$C \rightarrow .cC, \$$

$C \rightarrow .d, \$$  ✗

→  $[A \rightarrow \alpha.B\beta, a]$

closure

→  $[B \rightarrow .\gamma, b]$

$b \in \text{FIRST}(\beta a)$

$S \rightarrow CC$   
 $B \rightarrow \gamma$  is a grammar rule

$I_3 = \text{goto}(I_2, c)$

$C \rightarrow c.C, c/d$

$C \rightarrow .cC, c/d$

$C \rightarrow .d, c/d$  ✗

$I_4 = \text{goto}(I_2, d)$

$C \rightarrow d., c/d$  ✗

$C \rightarrow .cC, \$$

$C \rightarrow .d, \$$  ✗

$I_5 = \text{goto}(I_2, C)$

$S \rightarrow CC., \$$  ✗

$I_6 = \text{goto}(I_3, C)$

$C \rightarrow cC., \$$  ✗

$C \rightarrow .cC, \$$

$C \rightarrow .d, \$$  ✗

$I_7 = \text{goto}(I_2, d)$

$C \rightarrow d., \$$  ✗

$I_8 = \text{goto}(I_3, C)$

$C \rightarrow cC., c/d$  ✗

$I_9 = \text{goto}(I_6, C)$

$C \rightarrow cC., \$$  ✗

	action			goto	
	a	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		

Example: 4.39

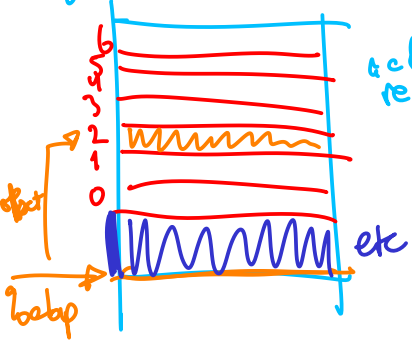
X := 13

static

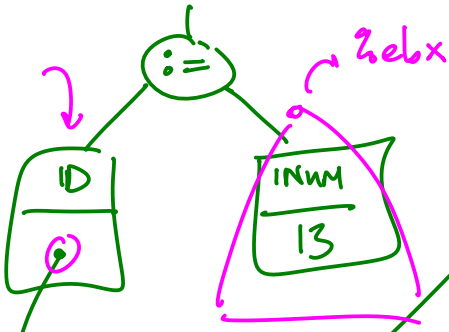
```
var a, b : integer;  
var x, y, z : integer;  
var u, v : integer
```



dynamic



activation  
record



Symbol table

