CS445 03/28/19

SLR(1) Parsing §4.7

LL(1) LR(1)

Subset Construction: NFA → DFA

0. S → E
1. E → E + T
2. E → T
3. T → T * F
4. T → F
5. F → (E)
6. F → ID

Leftmost / rightmost

E ⇒ T
⇒ T * F
⇒ F * F
⇒ ID * F
⇒ ID * ID

E ⇒ T
⇒ T * F
⇒ T * ID
⇒ F * ID
⇒ ID * ID

bottom-up

top-down

LR(0) item:

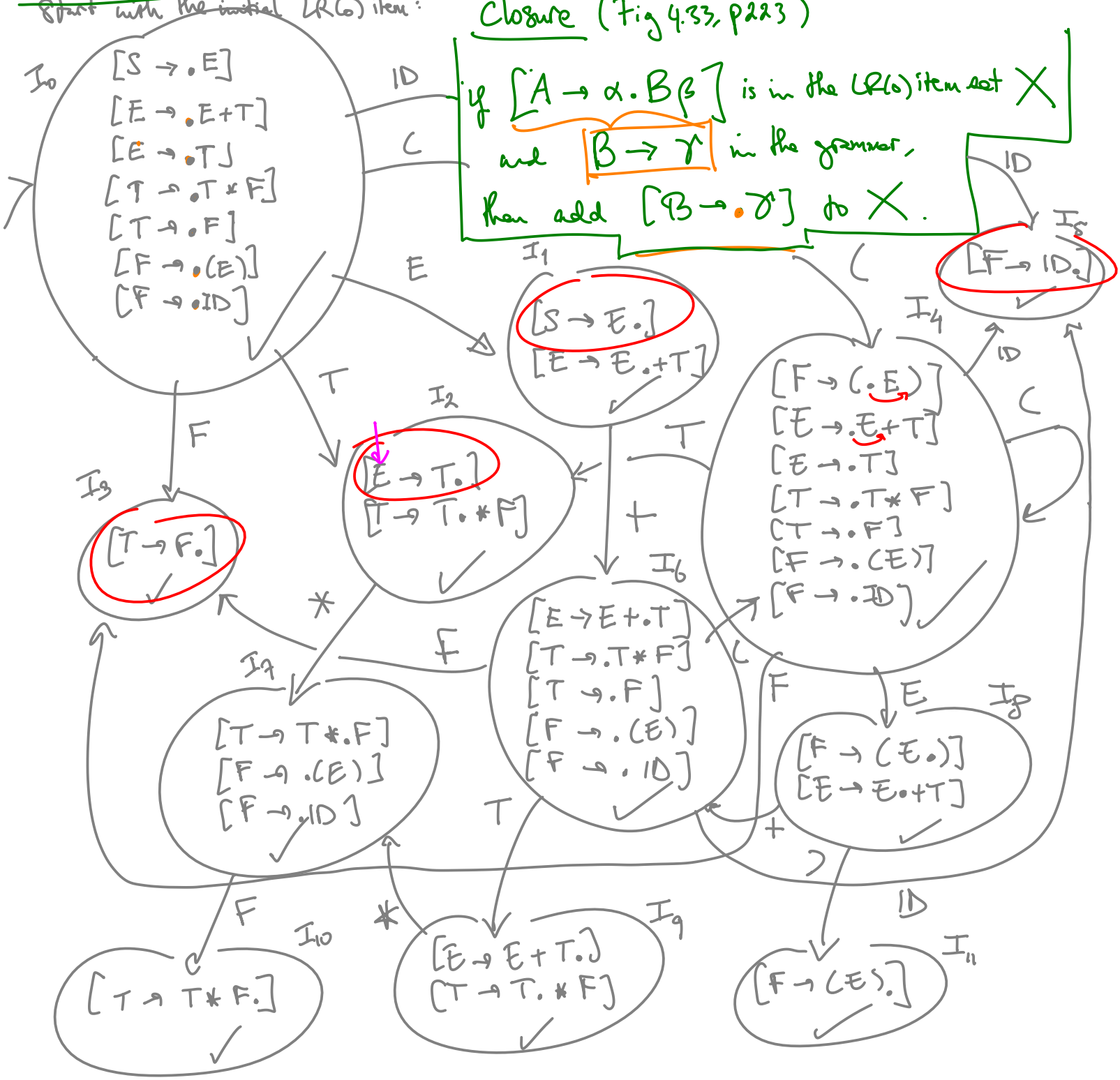
[T → ⊙T * F]
[T → T⊙* F]
[T → T*⊙F]
[T → T*F⊙]

Sets-of-Items Construction (Fig 4.34, p224)

Start with the initial LR(0) item:

Closure (Fig 4.33, p223)

if [A → α . B β] is in the LR(0) item set X
and B → γ in the grammar,
then add [B → . γ] to X.



Construction of the SLR(1) Parsing Table : Alg. 4.8 p227 (Table in p219, Fig 4.31)

	Action						Goto		
	ID	+	*	(	)	$	E	T	F
0	S5			S4			1	2	3
1		S6				ACC			
2		R2	S7		R2	R2			
3		R4	R4		R4	R4			
4	S5			S4			8	2	3
5		R6	R6		R6	R6			
6									
7									
8									
9									
10									
11									

0. S → E
1. E → E + T
2. E → T
3. T → T * F
4. T → F
5. F → (E)
6. F → ID

	FIRST	FOLLOW
S	(, ID	$
E	(, ID	$, +,)
T	(, ID	$, +,), *
F	(, ID	$, +,), *