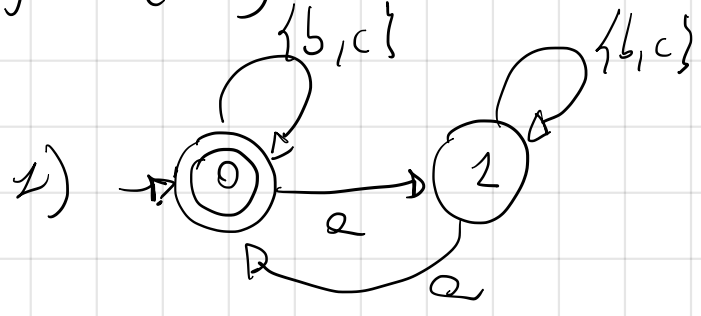


- 1) even number of "a" or zero
- 2) odd number of "b" or zero

$$\Sigma = \{a, b, c\}$$

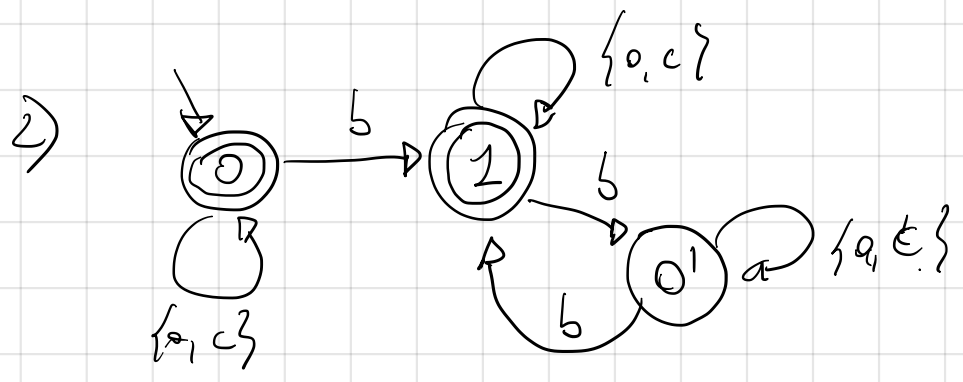
3) 1) and 2)



accept L_1
 ceacc
 baceb
 bace

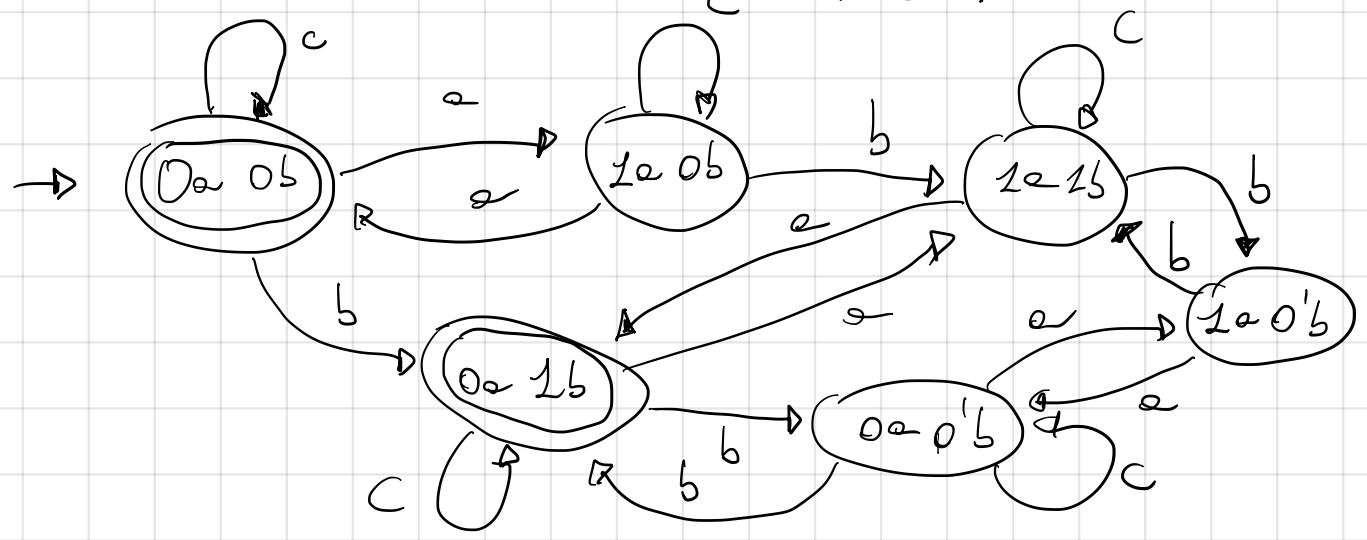
State 0 "no a's have been seen" or "I've just seen an even number of a's"

State 2) the number of "a"s seen so far is odd



accept L_2
 caacc
 bacas
 bace

3) accept $L_1 \cap L_2$



$$L = \{ (r a^* i^*)^n (t i^*)^m \mid n \geq 0 \}$$

$$\Sigma = \{ r, a, i, t \}$$

$$n=0 \quad \varepsilon \in L$$

$$n=1 \quad r a^* i^* t i^* \quad r t \in L$$

$$r a i t i i \in L$$

$$r i t \in L$$

$$n=2 \quad r a^* i^* r a^* i^* t i^* t i^* \quad r r t t \in L$$

$$r a a i i r t i i t \in L$$

⋮

$$n=3$$

$$\left[S \rightarrow a S b \mid \varepsilon \right] \text{ scheme}$$

$$S \rightarrow r A I S t I \mid \varepsilon$$

$$A \rightarrow a A \mid \varepsilon$$

$$I \rightarrow i I \mid \varepsilon$$

$$\text{FIRST}(S) = \{ \varepsilon, r \}$$

$$\text{FIRST}(A) = \{ \varepsilon, a \}$$

$$\text{FIRST}(I) = \{ \varepsilon, i \}$$

$$\text{FOLLOWS}(S) = \{ t, \$ \}$$

$$\text{FOLLOWS}(A) = \{ i, r, t \}$$

$$\text{FOLLOWS}(I) = \{ r, t, \$ \}$$

	r	a	i	t	$\$$
S	$S \rightarrow r A I S t I$			$S \rightarrow \varepsilon$	$S \rightarrow \$$
A	$A \rightarrow \varepsilon$	$A \rightarrow a A$	$A \rightarrow \varepsilon$	$A \rightarrow \varepsilon$	
I	$I \rightarrow \varepsilon$		$I \rightarrow i I$	$I \rightarrow \varepsilon$	$I \rightarrow \varepsilon$

The grammar is LL(2)

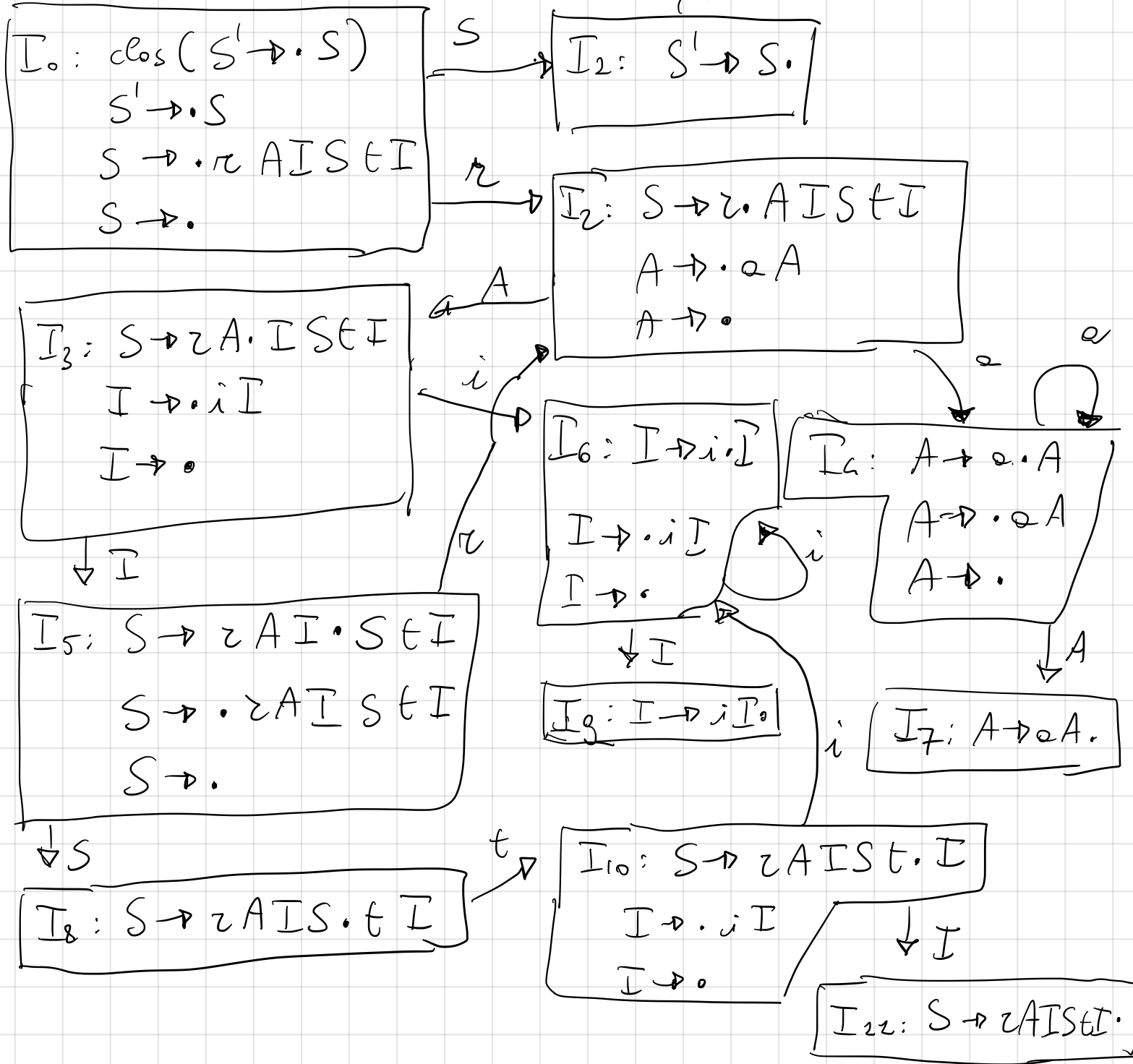
Let's check if the same grammar is also LR(1)

$S' \rightarrow S$
 $S \rightarrow z A I S t I \mid \epsilon$

$A \rightarrow a A \mid \epsilon$

$I \rightarrow i I \mid \epsilon$

Collection of Items LR(0) for checking if the grammar is SLR



PARSING TABLE

GOTO

	z	i	e	\$	S	A	I
0	S2		r2	r2	1		
1				acc			
2	r4	r4	S4	r4		3	
3	r6	S6		r6			5
4	r4	r4	S4	r4		7	
5	S2		r2	r2	8		
6	r6	S6		r6			9
7	r3	r3		r3			
8			S10				
9	r5		r5	r5			
10	r6	S6		r6			12
11			r2	r2			