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Given CFG

$$S \rightarrow aTb \mid b$$
$$T \rightarrow Ta \mid \varepsilon$$

Rule 1 For each variable. S and T.

$\delta(q, \varepsilon, S) = (q, \beta)$... where S and $T \rightarrow \beta$ is a production in grammar

$\delta(q, \varepsilon, T) = (q, \beta)$ ...

Rule 2 For each Terminal. a and b

$\delta(q, a, a) = (q, \varepsilon)$ which have to pop

$\delta(q, b, b) = (q, \varepsilon)$

Here, $\delta(q, \varepsilon, A) = (q, \beta)$ where $A \rightarrow B$ is a production rule of grammar.

q: state, ε: input, A: variable, q: state

In this case,
Our variable S and T
and Terminals a, b.

Now,
1st we write down production rule
and pop rule.

① $\delta(q_0, \varepsilon, \varepsilon) = (q_0, \varepsilon)$

② $\delta(q_0, \varepsilon, S) = (q_0, aTb)$

③ $\delta(q_0, \varepsilon, S) = (q_0, b)$

④ $\delta(q_0, \varepsilon, T) = (q_0, Ta)$

⑤ $\delta(q_0, \varepsilon, T) = (q_0, \varepsilon)$

⑥ $\delta(q_0, a, a) = (q_0, \varepsilon)$

⑦ $\delta(q_0, b, b) = (q_0, \varepsilon)$

$S \rightarrow aTb \mid b$

$T \rightarrow Ta \mid \varepsilon$

aTb

$aTab$

$a\varepsilon ab$

aab

suppose this is our input.

unread input

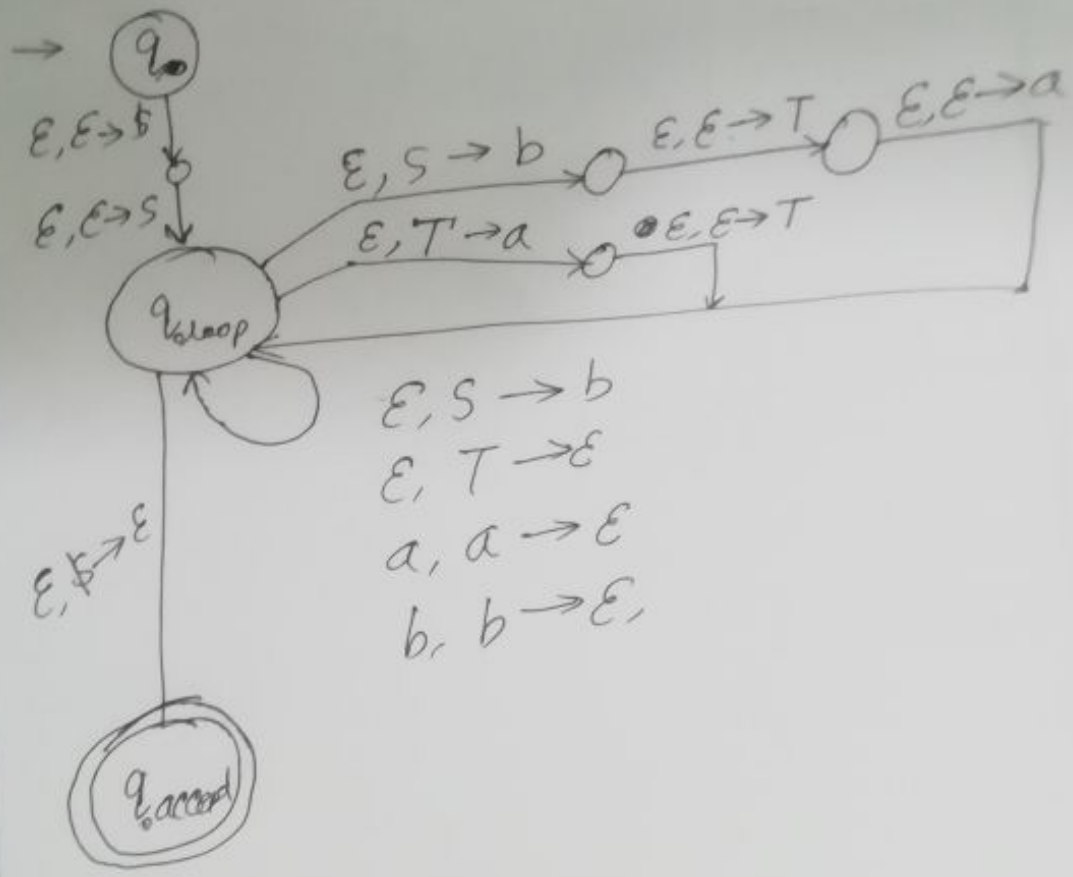
ε 1.

S 2.

aTb

Now Transition table

S. No	state	unread input	stack	transition no
1	q_0	aab	ε	1.
2.	q_0	aab	S	1.
3.	q_0	aab	aTb	2
4.	q_0	aab	aTb	3.
5.	q_0	ab	Tb	4.
6.	q_0	ab	Tab	4.
7.	q_0	ab	ab	5.
8.	q_0	ab	ab	6.
9.	q_0	b	b	
10.	q_0	b	b	7.
11.	q_0	ε	ε	Accept


q_0
$\varepsilon, \varepsilon \to \$$
$\varepsilon, \varepsilon \to S$
$\varepsilon, S \to b$
$\varepsilon, \varepsilon \to T$
$\varepsilon, \varepsilon \to a$
$\varepsilon, T \to a$
$\varepsilon, \varepsilon \to T$
q_{sloop}
$\varepsilon, S \to b$
$\varepsilon, T \to \varepsilon$
$a, a \to \varepsilon$
$b, b \to \varepsilon$
$\varepsilon, \$ \to \varepsilon$
q_{accept}