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Date: 27/03/2023

The given CFG is,

$$S \rightarrow aTb \mid b$$

$$T \rightarrow Ta \mid \epsilon$$

The rules for this CFG, are applied as,

$$\delta(q, \epsilon, S) = (q, B) \quad \text{where } S \text{ and } T \rightarrow B \text{ is production grammar.}$$

$$\delta(q, \epsilon, T) = (q, B)$$

These are applied for each S and T

For each terminal a and b,

$$\delta(q, a, a) = (q, \epsilon) \quad \text{which have to be popped}$$

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

Let's explain,

$$\delta(q, \epsilon, A) = (q, B)$$

So, Variables = S and T State Input Variable State Production rule of grammar
Terminals = a and b

First the production and pop rules as follows:

$$\textcircled{i} \delta(q_0, \epsilon, \epsilon) = (q_0, \epsilon)$$

$$\textcircled{ii} \delta(q_0, \epsilon, S) = (q_0, aTb)$$

$$\textcircled{iii} \delta(q_0, \epsilon, S) = (q_0, b)$$

$$\textcircled{iv} \delta(q_0, \epsilon, T) = (q_0, Ta)$$

$$\textcircled{v} \delta(q_0, \epsilon, T) = (q_0, \epsilon)$$

$$\textcircled{vi} \delta(q_0, a, a) = (q_0, \epsilon)$$

$$\textcircled{vii} \delta(q_0, b, b) = (q_0, \epsilon)$$

So the input would be

$$aTb = aTab = \cancel{aab} a\epsilon ab = aab$$

$$\left\{ \begin{array}{l} S \rightarrow aTb \mid b \\ T \rightarrow Ta \mid \epsilon \end{array} \right.$$

Transition Table:

<u>Serial</u>	<u>State</u>	<u>Unread input</u>	<u>Stack</u>	<u>Transition</u>
1	q_0	aab	ϵ	1
2	q_0	aa b	S	1
3	q_0	na b	aTb	2
4	q_0	aab	aTb	3
5	q_0	ab	Tb	
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

So the pda,

