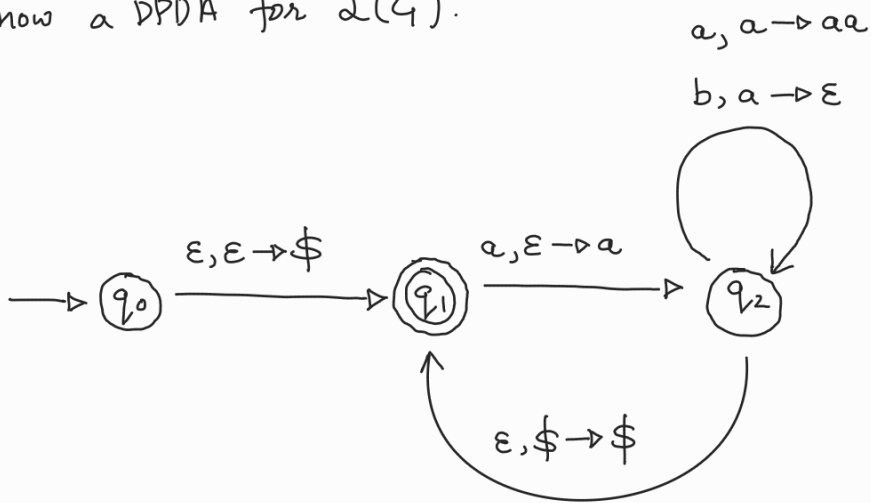


Option - C There is a deterministic PDA that accepts $L(G)$

Notice that $L(G)$ is a variant of the language of balanced parentheses. The grammar for balanced parentheses is a common example. We now show a DPDA for $L(G)$.



Why is this DPDA? In a DPDA, under any situation — comprising of current input symbol, top-of-stack symbol and current state, there will always be at most one way to proceed forward. This is unlike NPDA, which may have many ways to proceed forward, i.e., also called non-determinism.

For example, consider $S = aabbab$

Input aabbab (A) q_0 Stack Empty	(B) aabbab q_1 \$	(C) abbab q_2 a \$
(D) bbab q_2 a a \$	(E) bab q_2 a \$	(F) ab q_2 \$
(H) b q_2 a \$	(I) end of input q_2 \$	(J) end-of-input q_1 \$

At this point, we have reached end-of-input and are at a final state so accept the string.