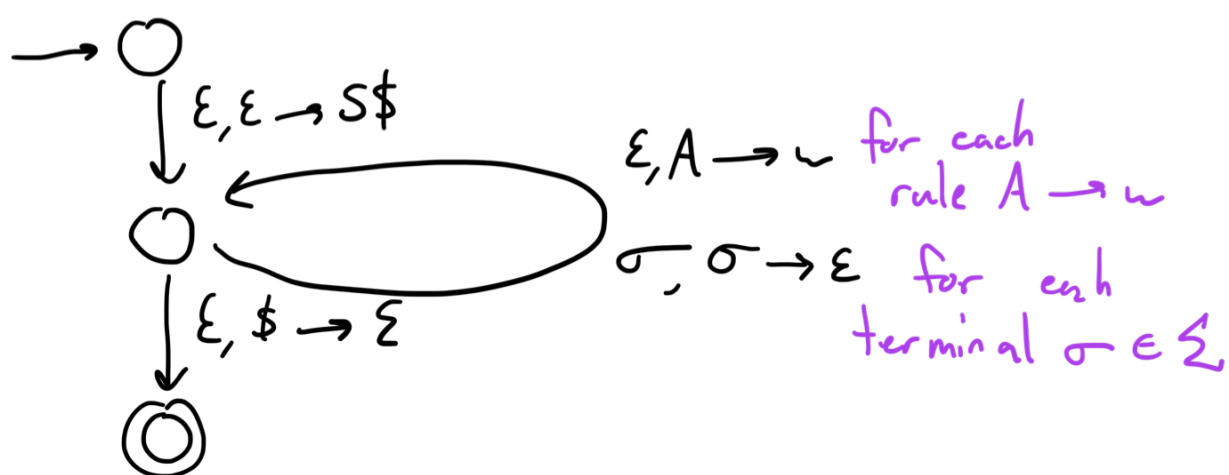


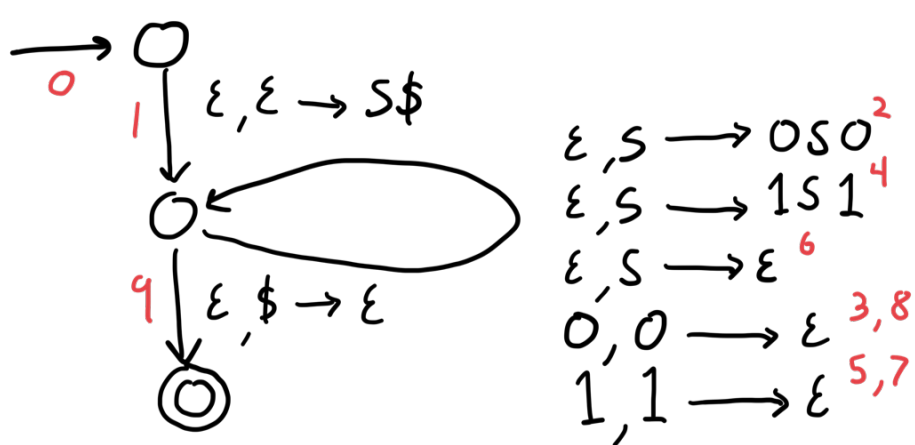
Lemma 2.21 - If a language is context-free then some PDA recognizes it.

Proof. We will create a PDA from a given CFG with 3 primary states as follows:



- This machine non-deterministically generates every possible string in the stack while processing no input.
- As the accept state can only be reached with an empty stack, any accepting computation corresponds to a string generated by the grammar.
- So, this machine accepts a string iff it was generated by the grammar.

$$S \rightarrow OSO / 1S1 / \epsilon$$



$$w = 0110$$

