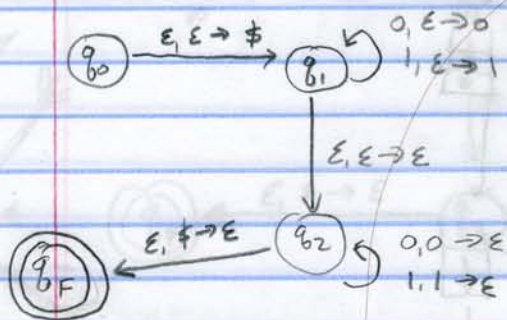


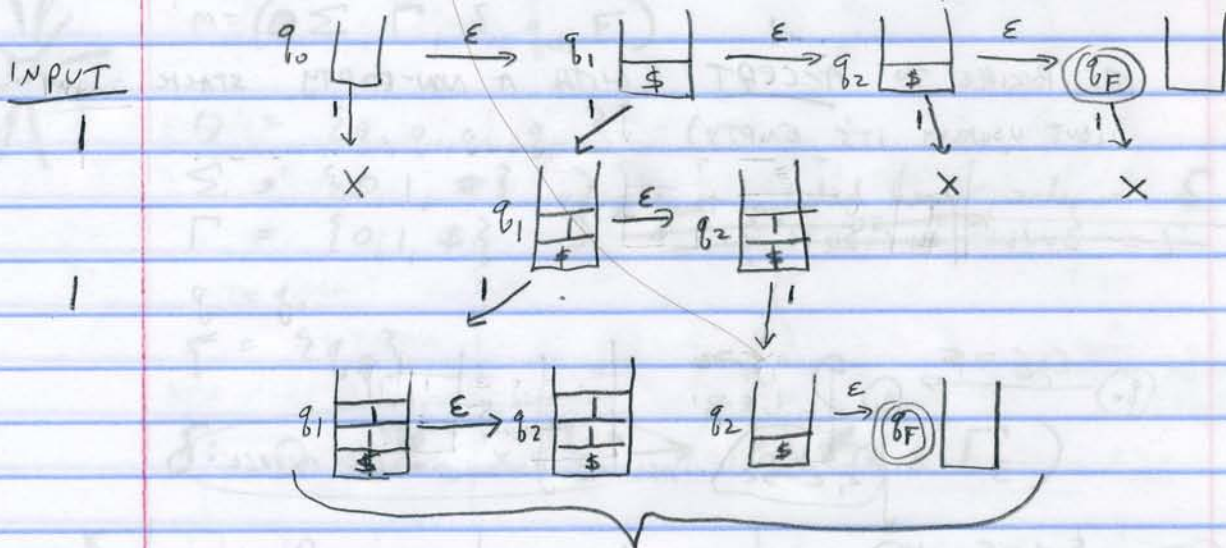
5/14/2010

$$L = \{ww^R \mid w \in \{0,1\}^*\}$$



← This empty transition can be thought of as a "guess" that we're in the middle of the string.

INPUT = 11



ARE ANY OF THESE FINAL STATES, ACCEPTING STATES?

YES → ACCEPT 11

$$L = \{ww^R \mid w \in \{0,1\}^*\}$$

$$\text{CFG } G: S \rightarrow 0S0 \mid 1S1 \mid \epsilon$$

Q. Can we convert CFG G to a PDA?

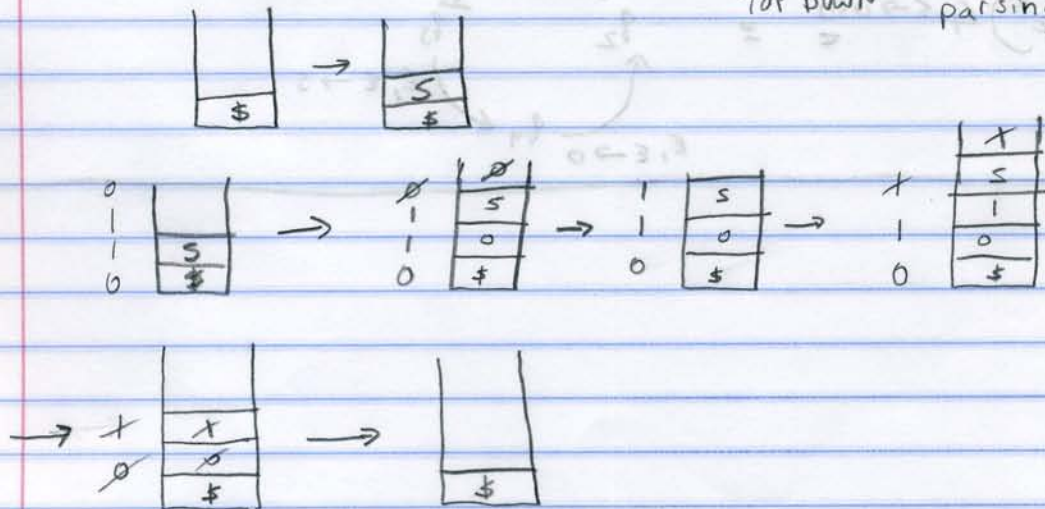
(Could you write a program to recognize the strings of a language using only the stack data structure?)

Recognizing the strings of a language is basically what a compiler does.

INPUT $x = 0110$

Parse x using G

This is an example of "TOP DOWN" parsing

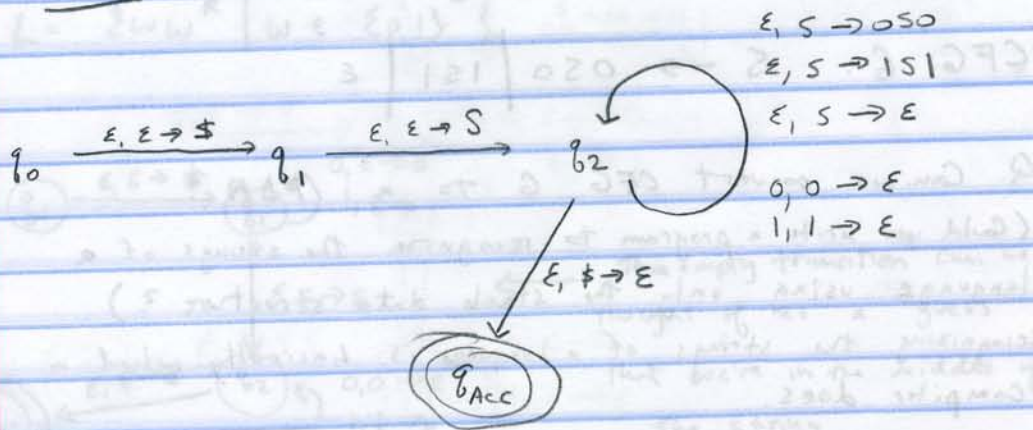


PROCESS:

- (1) PUSH THE START SYMBOL ONTO THE STACK
- (2) USE GRAMMAR RULES TO CONVERT STACK SYMBOLS TO ALL POSSIBLE STRINGS
- (3) WHEN THE NEXT INPUT SYMBOL MATCHES THE TOP OF THE STACK, POP AND MOVE TO NEXT INPUT SYMBOL
- (4) Repeat 2 and 3 until end of input

5/14/2010

PDA:



$E, S \rightarrow 0S0$ is shorthand for 3 pushes onto the stack

