$K = \{s, q, f\}$ $\Sigma = \{a, b\}$

$\Gamma = \{a, b, c\}$ $F = \{f\}$

1 $(s\ e\ e)(q\ c)$
2 $(q, a, c)(q, ac)$
3 $(q\ a\ a)(q, aa)$
4 $(q, a, b)(q, e)$
5 $(q, b, c)(q, bc)$
6 $(q, b, b)(q, bb)$
7 $(q, b, a)(q, e)$
8 $(q, e, c)(f, e)$

			Current transition state
s	abbaab	e	
q	abbaab	c	1
q	bbaab	ac	2
q	baab	c	7
q	aab	bc	5
q	ab	c	4
q	b	ac	2
q	e	c	7
f	e	e	8

* Configuration of a finite automata

$a^n b^m$

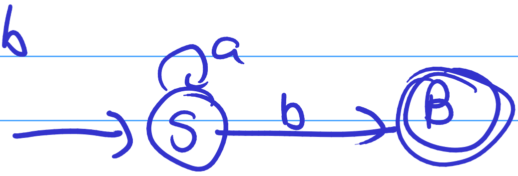
PDA (Current state, remaining, entire stack)

$$K \times \Sigma^* \times \Gamma^*$$

final config $(q \in F, e, e)$

Every regular language is a context free language

a^*b

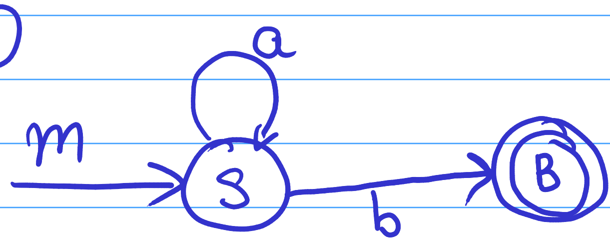


$(K, \Sigma, \Delta, s, F)$

$(K, \Sigma, \Phi, \Delta', s, F)$

where $\Delta' = \{((p, u, e), (q, e)) : (p, u, q) \in \Delta\}$

$L(M)$



Stack is ignored lol   bas x D

$((s, a, e), (s, e))$

State	String	stack	Tr
s	aab	e	
s	ab	e	1
s	b	e	1
b	e	e	

The class of language accepted by PDA is exactly the class of Context-free languages

If $G=(V,\Sigma,R,S)$

We must be able to convert M such that

$L(M)=L(G)$

$M=(\{p,q\},\Sigma,V,\Delta,p,\{q\})$

Where -

$\Delta=$ (1) $((p,e,e),(q,S))$

(2) $((q,e,A),(q,x))$

For each rule in $A \to X$ in R

$(q,a,a),(q,e)$

for each $a\in\Sigma$

If G= (V, ∑, R, S)

We must be able to construct M such that L(M)=L(G)

M= ({p,q}, ∑ , V, Δ , p, {q})

Where-

Δ = (1) ((p,e,e), (q,S))

(2) ((q,e,A), (q, x))

for each rule A→X in R

(3) ((q,a,a), (q,e))

for each a∈∑

$S\to aS$
$S\to bB$
$B\to e$

G: $S\to aS$, $S\to bB$, $B\to e$ (R)

$V=\{S,B,a,b\}$
$\Sigma=\{a,b\}$
$S=S$

PDA

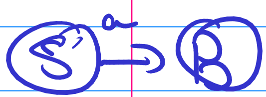
$M=(\{p,q\},\{a,b\},\{SBab\},\Delta,p,\{q\})$

1. $((p,e,e)\ (q,S))$
2. $((q,e,S)\ (q,aS))$ } N.D.
3. $((q,e,S)\ (q,bB))$ }
4. $((q,e,B)\ (q,e))$

$S\to aS$ (A, x)

$(q\,a\,a)\ (q\,e)$

$(q\,b\,b)\ (q\,e)$



PDA formed can be either Deterministic & Non det

Till Pg 137 Sec 3-4

$S\to aB$
$B\to e$

$((p\,e\,e),(q\,S))$ $((q\,e\,B),(q\,e))$

$((q\,e\,S),(q,aB))$ $((q,a\,a),(q,B))$