DFA

	a	b
$[q_1 q_3]$	q_2	$q_4 q_6$
q_2	q_5	$q_1 q_3$
q_4, q_6	$q_1 q_3$	q_5
q_5	q_5	q_5

$\Pi_0 = \{ [q_1 q_3] \; \{q_2 q_4 q_5 q_6\} \}$

$\Pi_1 = \{ [q_1, q_3] \; [q_2] \; [q_5] \; [q_4 q_6] \}$

Reduce this pls

	0	1
q_0	q_1	q_5
q_1	q_6	q_2
q_2	q_0	q_2
q_3	q_2	q_6
q_4	q_5	q_5
q_5	q_7	q_6
q_6	q_6	q_4
q_7	q_6	q_2

Π_0: $\{ \{q_2\}, \{q_0 q_1 q_3 q_4 q_5 q_6 q_7\} \}$

Π_1: $\{ \{q_0, q_4, q_6\} \; [q_1 q_7] \; \{q_3 q_5\} \; \{q_2\} \}$

q_2 not even part of others in Π_0

Π_2: $\{ [q_0 q_4] \; \{q_6\} \; \{q_1 q_7\} \; \{q_3, q_5\}, \; [q_2] \}$

Π_3 is the same

Now draw state diagram

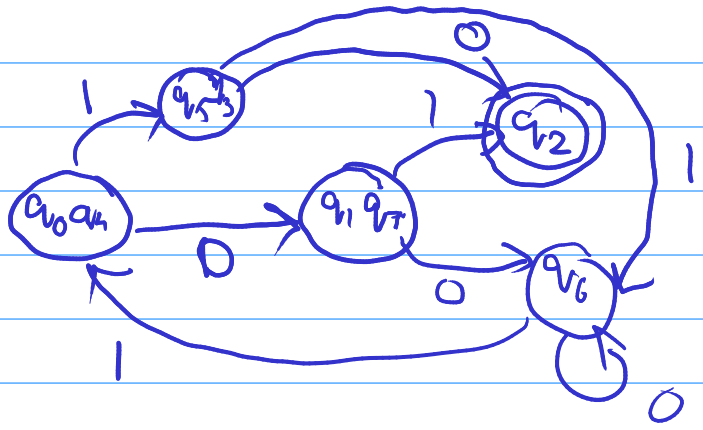
Then transitions belong to same partition

q_3 is unreachable

We can remove it from start or even during State minimization

$\Pi_3 = \Pi_2 = \{ \{q_2\} \{q_0, q_4\} \{q_3, q_5\} \{q_1, q_7\} \{q_6\} \}$

State	0	1	
$\{q_0 q_4\}$	$\{q_1 q_7\}$	$\{q_5\} \Rightarrow \{q_3 q_5\}$	(equiv)
$\{q_1 q_7\}$	$\{q_6\}$	$\{q_2\}$	
$\{q_2\}$	$\{q_0 q_4\}$	$\{q_2\}$	
$\{q_3 q_5\}$	$\{q_2\}$	$\{q_6\}$	
$\{q_6\}$	$\{q_6\}$	$\{q_0 q_4\}$	



This takes DFA as input & gives Minimized DFA

Valid: 01, 10, 11110

Invalid: 00

$\Sigma (a \in \Sigma) \cup \{(,), *, \cup, \phi\}$

(Concatenation is implicit, and is an operation)

ab

$(a \cup \phi) b^*$

$a^s b^s$ all as first, all bs next
but number should be same

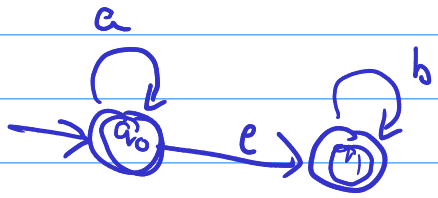
$\Sigma = \{a, b\}$ $L\{ w | w = xy \text{ @ } x \in a^* \rightarrow a^*b^* \quad y \in b^* \}$

a

but $|x| = |y|$ isn't there

You can't have a finite automata
of $a^s b^s$

but a^*b^* yes



aa

Language generators that are more powerful are required
a^*b These are context free grammars.

Language Generators

- That device begins when a signal to start is given to construct the string.
- It operation determined by a set of rules.
- Eventually this process halts and produces the completed string.
- The language defined by the device is set of all strings that it can produce.
- It is difficult to produce a recognizer for English language.