



Automata Formal Languages & Logic

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Department of Computer Science & Engineering

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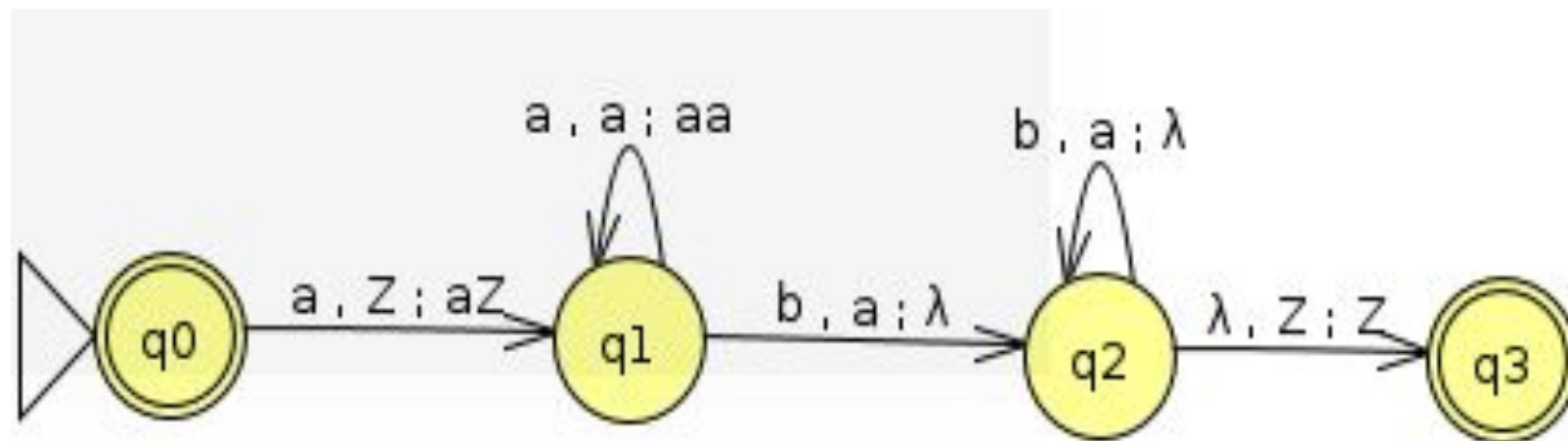
Unit 3

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1. Construct a PDA for language $L = \{a^n b^n \mid n \geq 0\}$

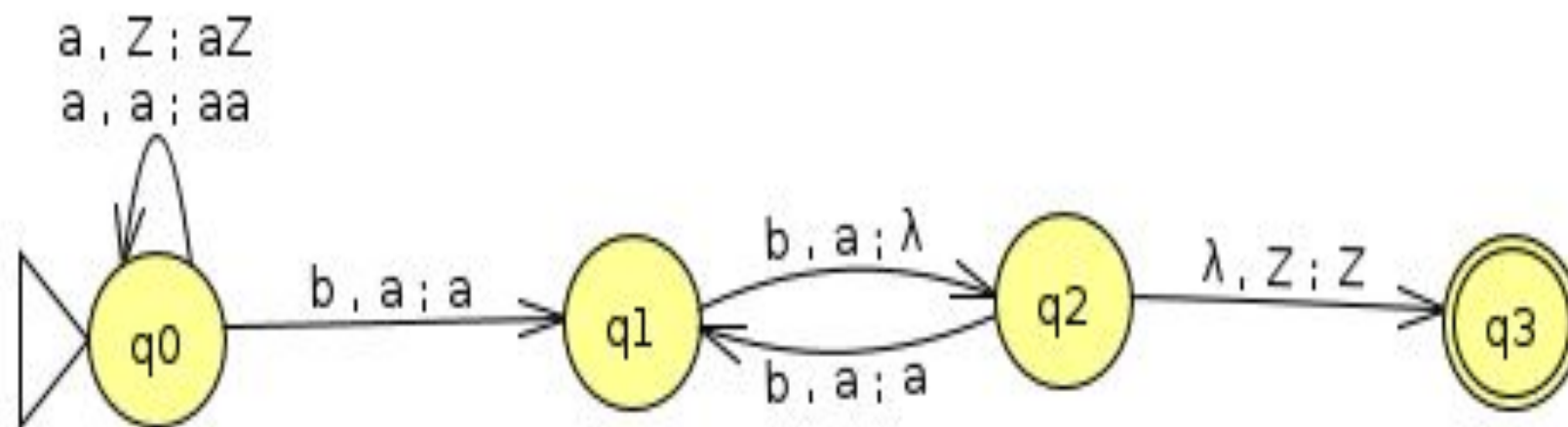
Solution :



2. Construct a PDA for language $L = \{a^n b^{2n} \mid n \geq 1\}$

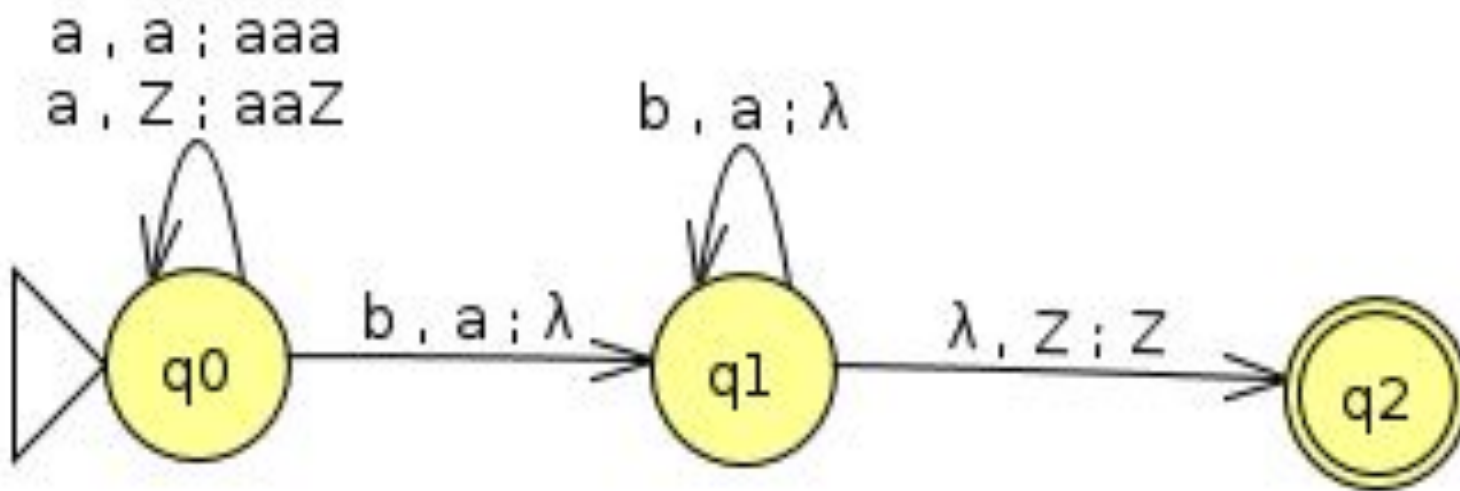
Solution : Two ways of solving the above language

- For every 2 b's pop one a



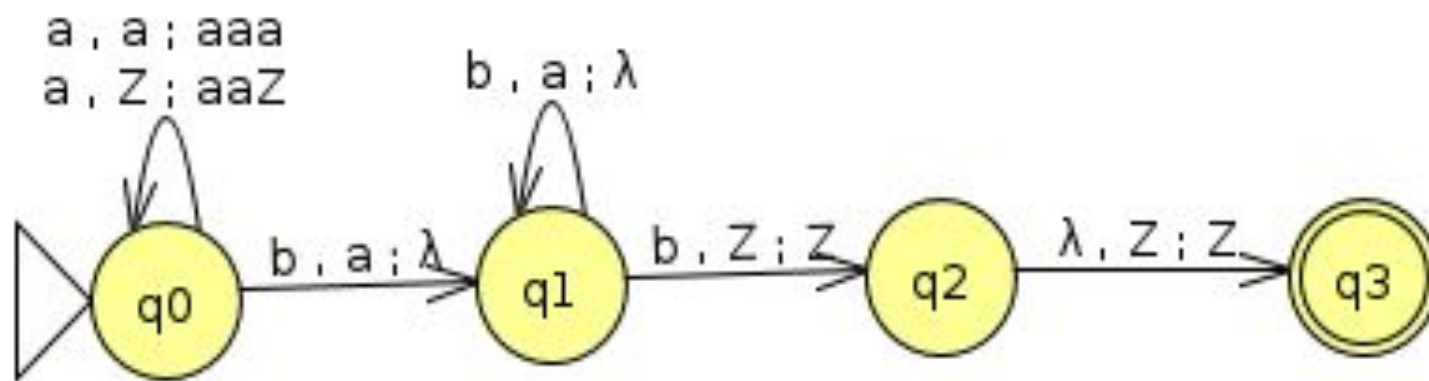
Solution:

- Push 2 a's by encountering one a



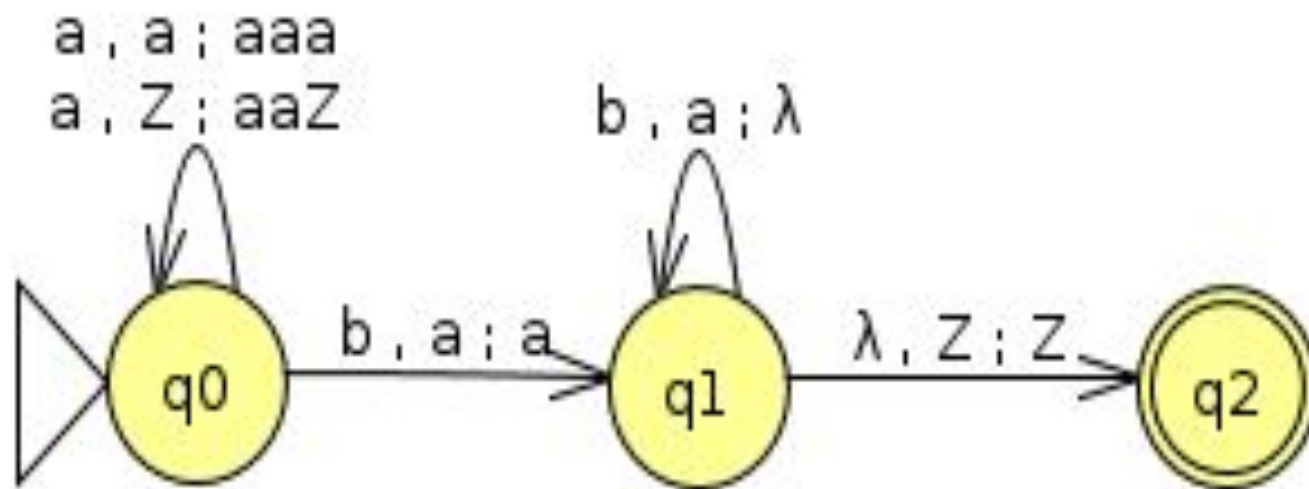
3. Construct a PDA for language $L = \{a^n b^{2n+1} \mid n \geq 1\}$

Solution :



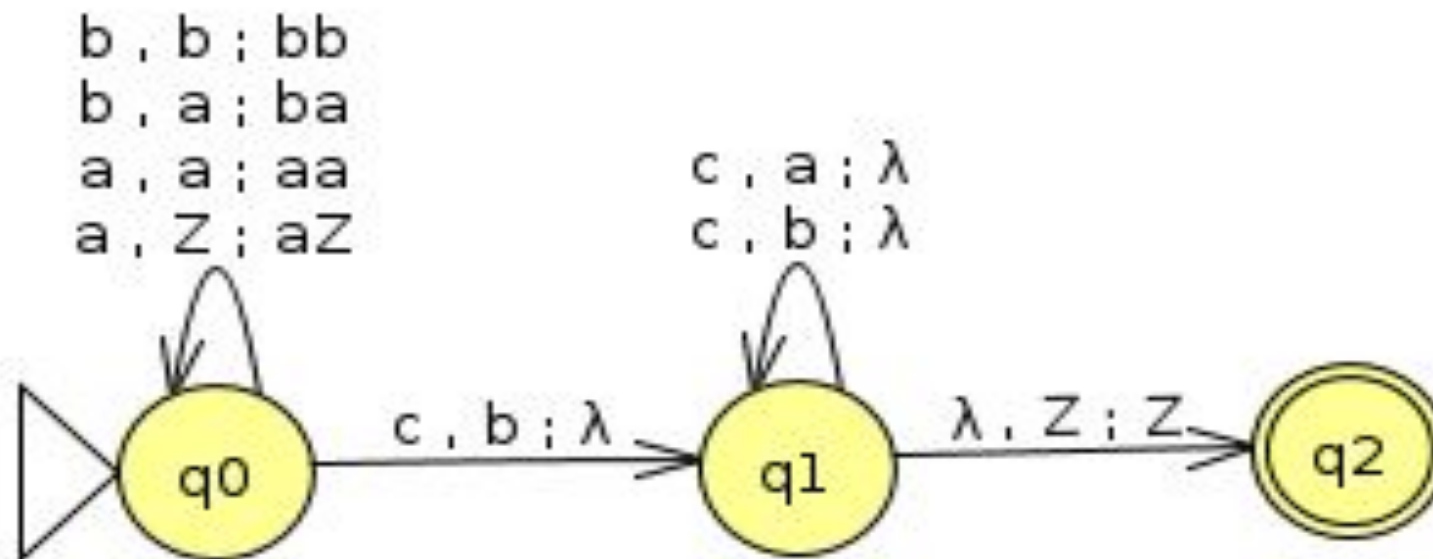
4. Construct a PDA for language $L = \{a^n b b^n \mid n \geq 1\}$

Solution :



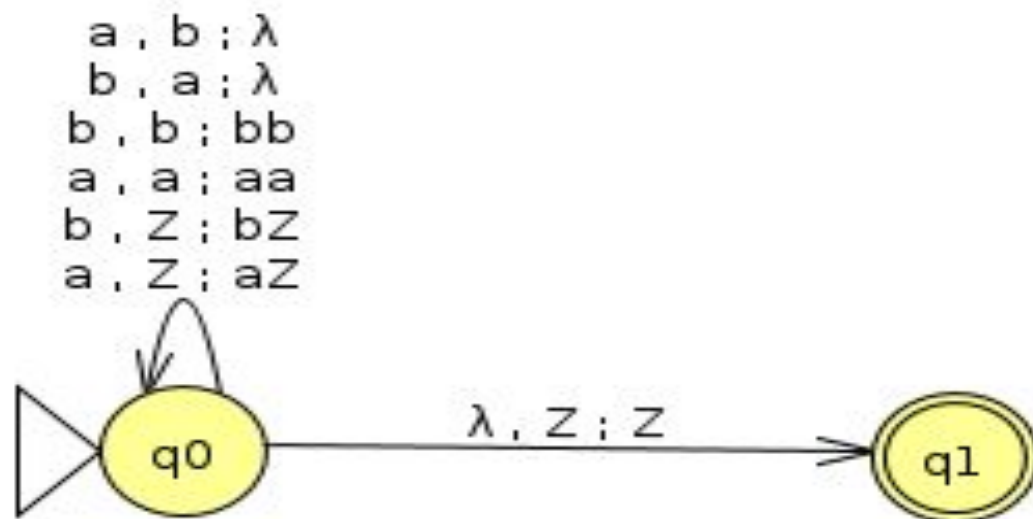
5. Construct a PDA for language $L = \{a^n b^m c^{m+n} \mid m, n \geq 1\}$

Solution :



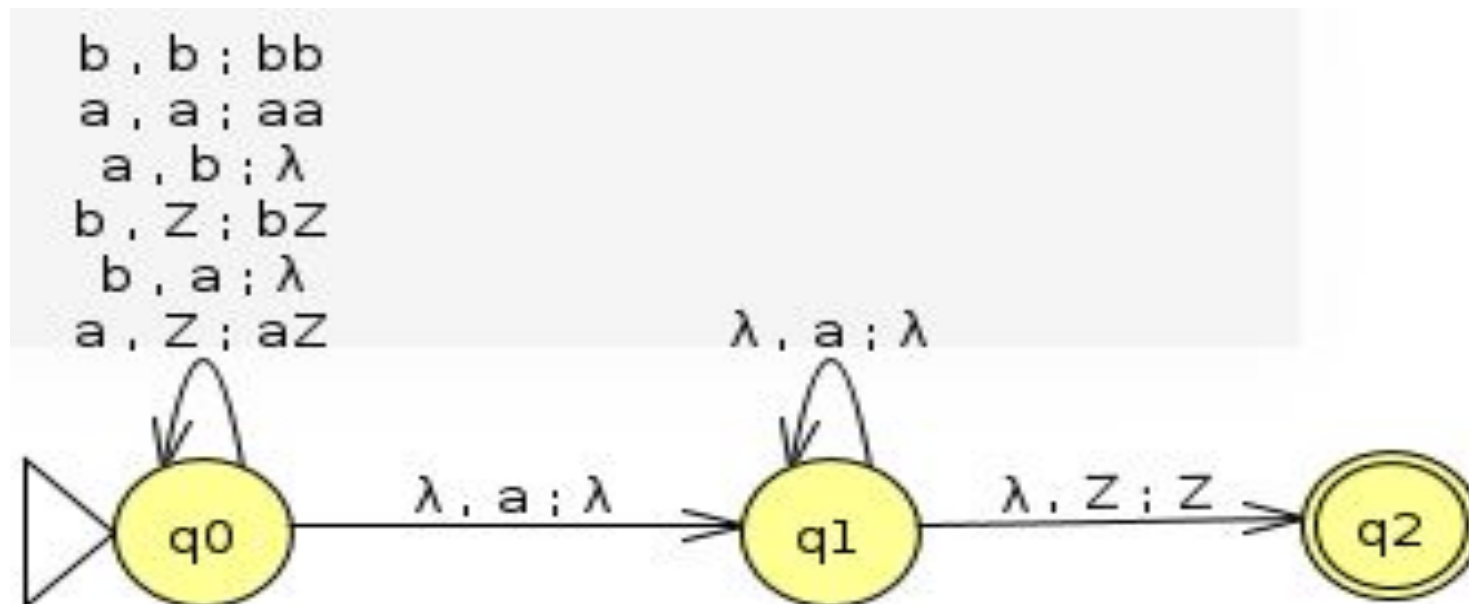
6. Construct a PDA for language $L = \{w \mid n_a(w) = n_b(w)\}$
where $w \in \{a, b\}^*$

Solution :



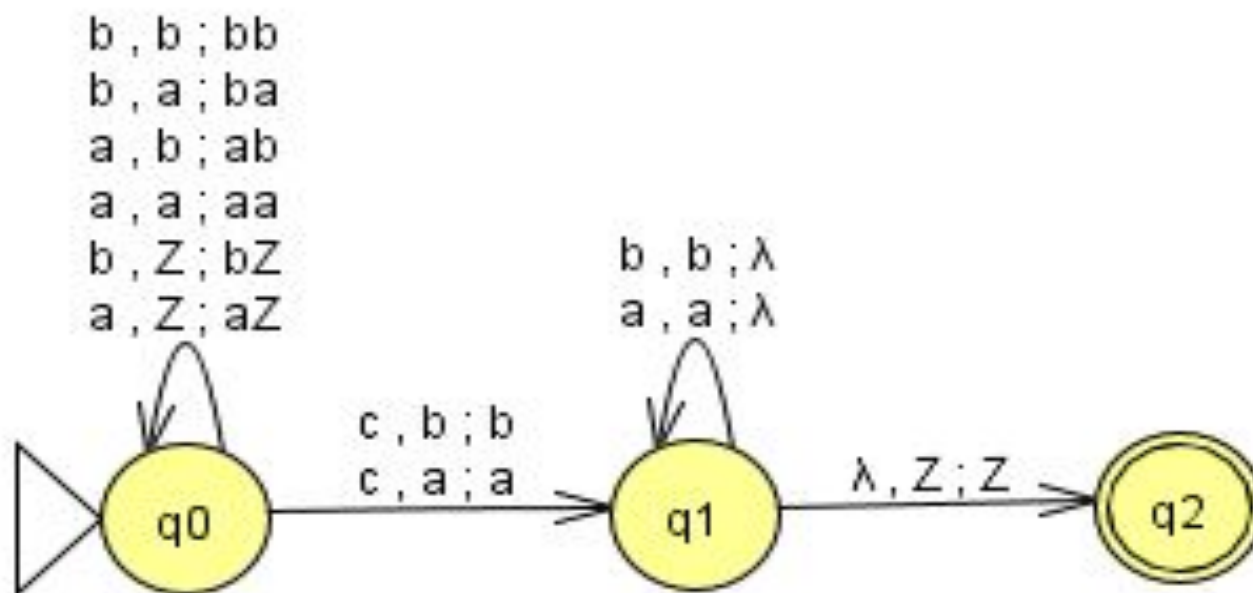
7. Construct a PDA for language $L = \{n_a(w) > n_b(w)\}$
where $w \in \{a,b\}^*$

Solution :



8. Construct PDA for language $L = \{wcw^R \mid w \in \{a,b\}^*\}$

Solution :





THANK YOU

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