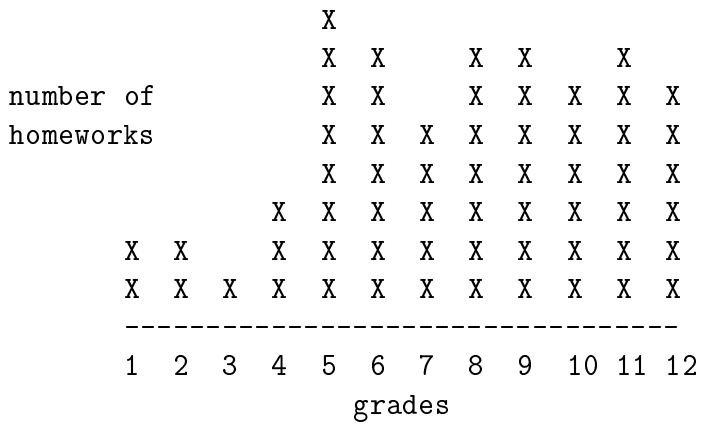
# Automata Theory: Solutions 9

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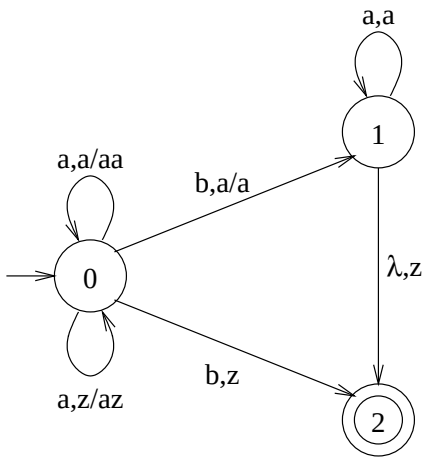
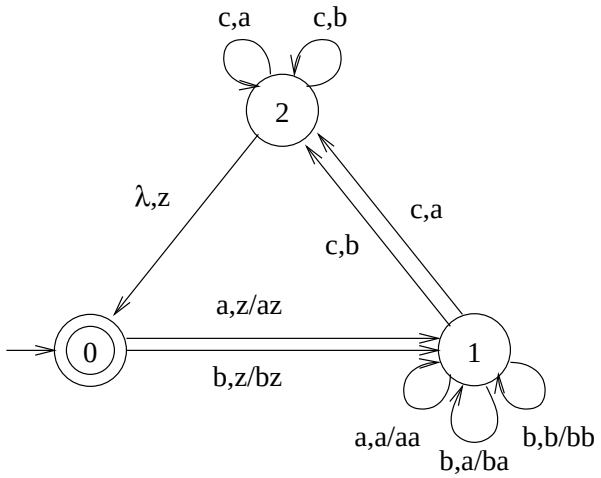
**Problem 1**

Construct deterministic PDAs for the following languages:

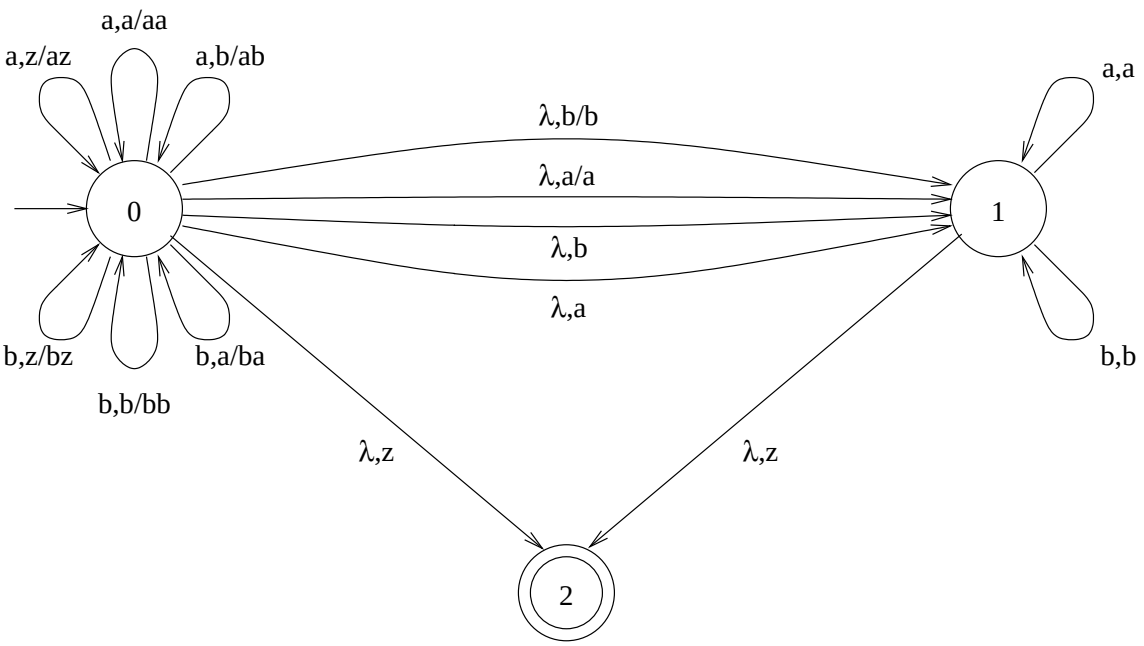
**(a)** $\{a^n b a^n : n \geq 0\}$




**(b)** $\{a^n b^m c^{n+m} : n \geq 0, m \geq 0\}$



**Problem 2**

Construct a nondeterministic PDA for the following language on the alphabet $\Sigma = \{a, b\}$:

$\{w : \ w = w^R\}$