**Homework 01**

For each of the regular grammars below, classify them as either left or right linear and then answer yes/no whether each word can be generated from the grammar (if you answer yes, show the sequence of productions to generate the word).

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1. G = ({S, A, B}, {a, b}, P, S)

P = {S → aA, A → bB | ε, B → aA} Right Linear

a

Yes: S -> aA -> a ε -> a

aba

Yes: S -> aA -> abB -> abaA -> aba ε -> aba

bb

No

abb

No

1. G = ({S, A}, {0, 1}, P, S)

P = {S → A0, A→A01|ε} Left Linear

00

No

ϵ

No

010

Yes: S -> A0 -> A010 -> ε010 -> 010

0101010

Yes: S -> A0 -> A010 -> A01010 -> A0101010 -> ε0101010 -> 0101010