Theory of Computation

Exercise 9: (Context-free grammar part 2)

1. Show that L(G1) ≠ L(G2).

G1 = ({S}, {a, b}, S, P1)
P1: $S \rightarrow aSb | SS | \lambda$

G2 = ({S}, {a, b}, S, P2)
P2: $S \rightarrow aSb | abS | \lambda$

2. Find CFG for the language L.

$$L = \{ a^i b^j c^k : j = i + k \}$$

*3. Use CYK algorithm to find whether **abab** ∈ L(G). (Homework 7)

G: $S \to AB$

$\mathrm{A} \to BB$

$\mathrm{A} \to a$

$\mathrm{B} \to AB$

$\mathrm{B} \to b$