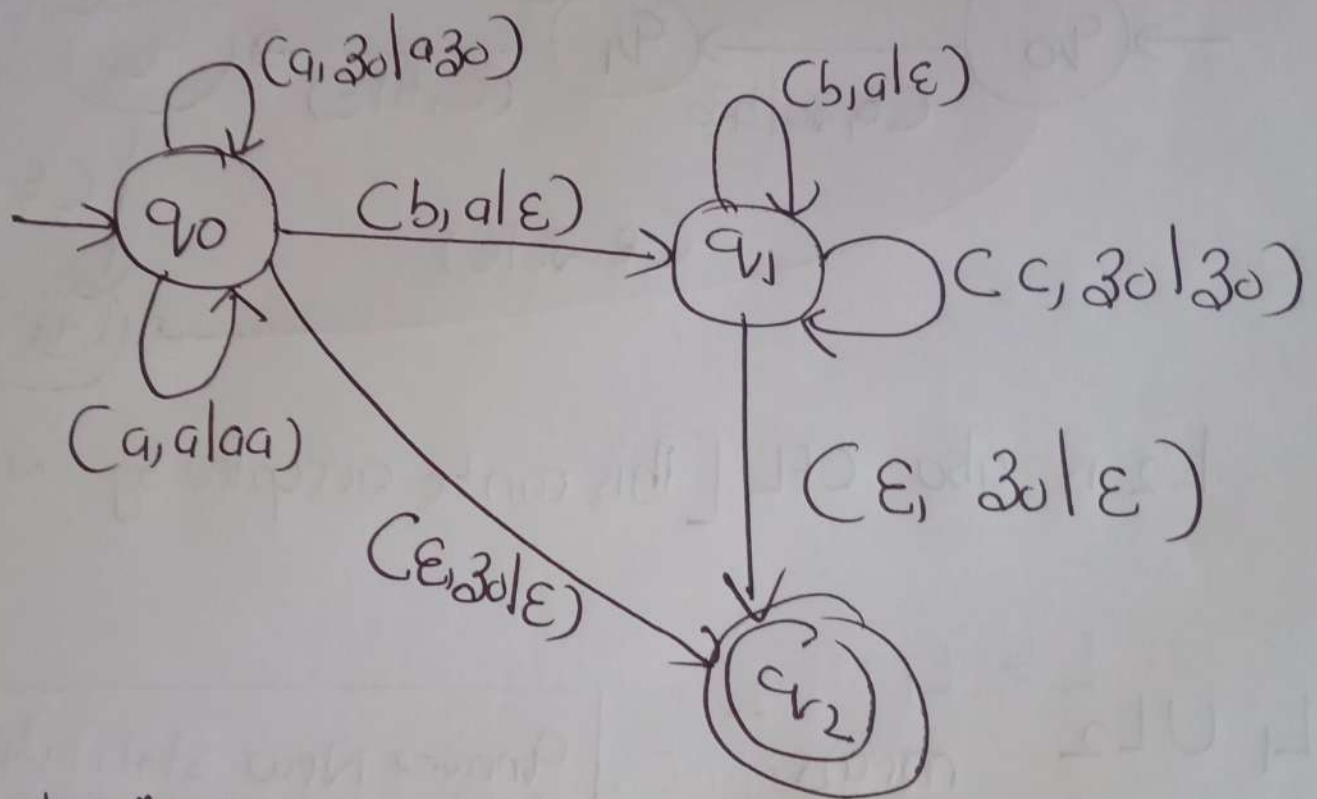


$$L1 = \{ a^n b^n c^m \mid m, n \geq 0 \}$$

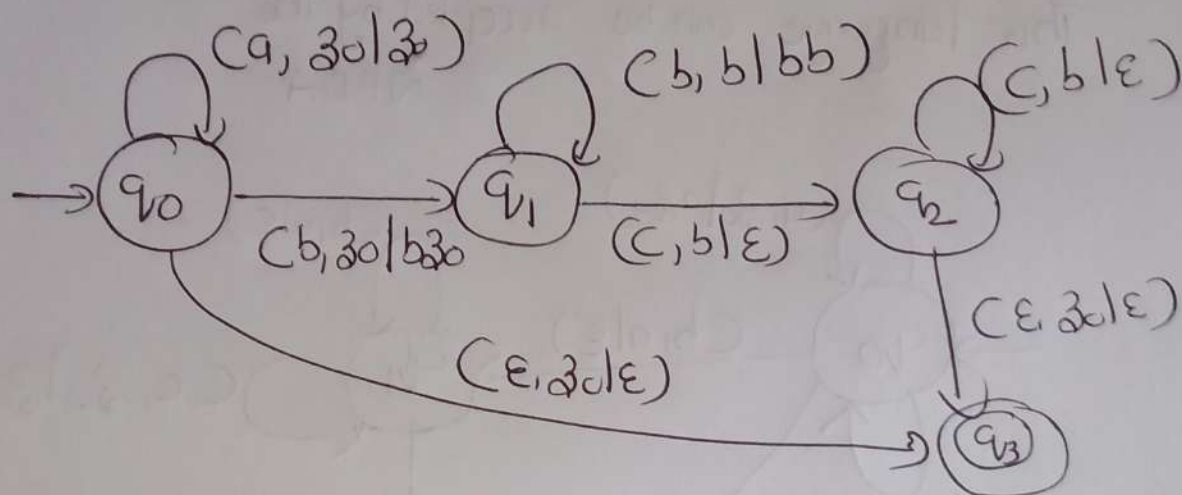
This language can be accepted by the NPDA



Clearly this is CFL not DCFL

[Since "for the same stack symbol, there is ϵ of input transitions defined]

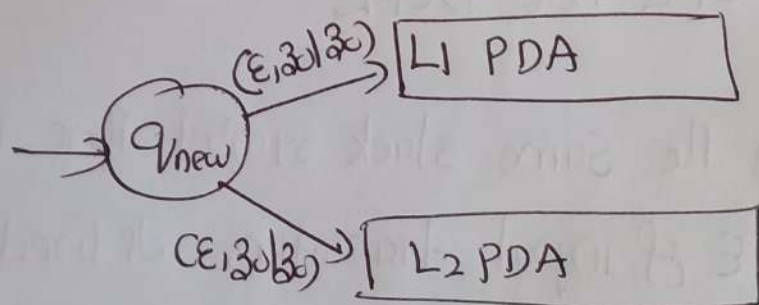
$$L_2 = \{ a^m b^n c^n \mid m, n \geq 0 \}$$



L_2 is also CFL [This can be accepted by NPDA.]

$L_1 \cup L_2$ means

$q_{\text{new}} \rightarrow \text{'New start state'}$



Hence this also CFL

"For the same string sometimes L_1 PDA or L_2 PDA will work. That leads to ambiguity."

(2)

$$L_1 \cap L_2$$

From the language it is evident that

$$L_1 \cap L_2 = \{ \epsilon, abc, aabbcc, \dots \}$$

Equal no of a's followed by equal number of b's followed
by equal number of c's

Hence it cannot be accepted by any NPDA

[Clearly NPDA (PDA) is stronger than DPDA]

Hence the given language $L_1 \cap L_2$ is not CFL
