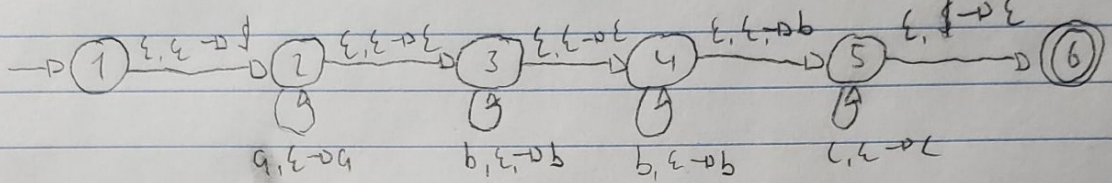
Alex Jacob
Prof. Cao

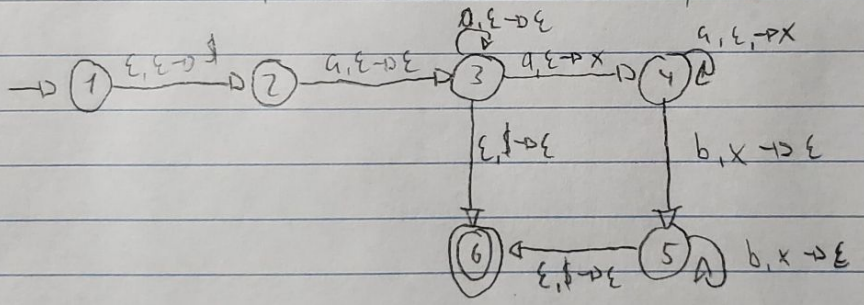
HW #8
10/26/20

1) $L \in CFL$ and $\bar{L} \notin CFL$, however $\Sigma^* / L = \bar{L}$.
Since both Σ^* and L are context-free, then the CFL is not closed under difference.

2) $L = \{ a^i b^j c^k \mid j > i+k \} \Rightarrow L = a^i b^i b^k b c^k$



3) $L = \{ w \in \{a,b\}^* \mid w$ has twice as many a's as b's $\}$



4) a) The recognized language is $L = \{ 0^i 1^j 0^k 1^l \mid i,j,k,l \geq 0 \}$

b) The recognized language is $L = \{ 0^i 1^j 0^k 1^l \mid i,j,k,l \geq 0, j \geq k, i \geq 1 \}$

c) L is a Context Free Language.