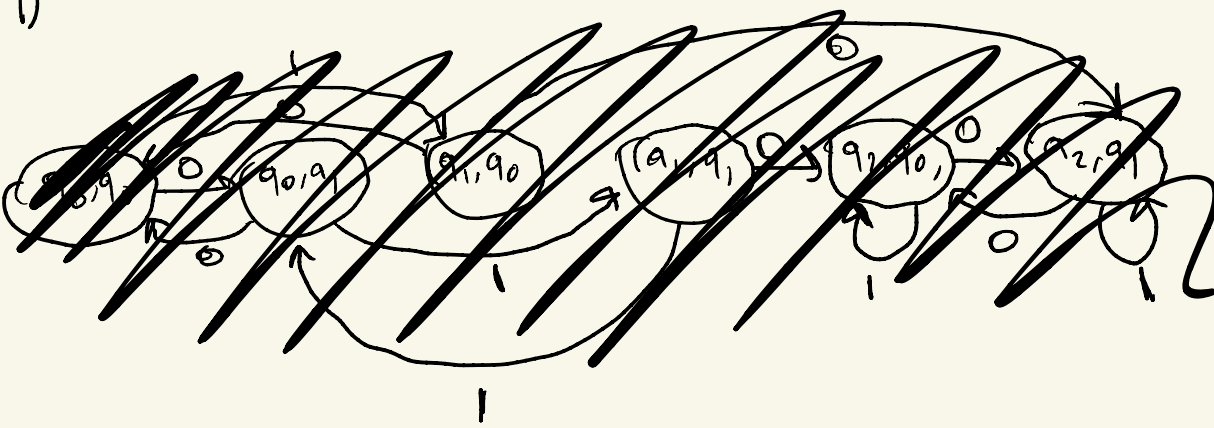
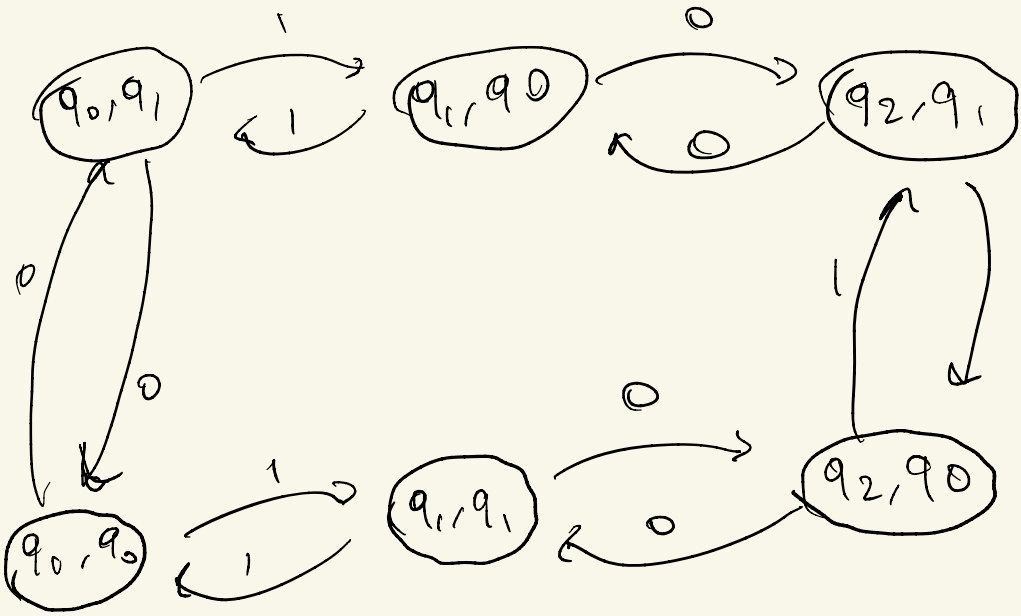
HW 3

1)





2) Proof by Contradiction

So let $s = 0^p 1^p$ $p > 0$

s can be decomposed as xyz

with $|y| > 0$, $|xy| \leq p$

Since the characters of $s = 0$ and y = positive then $y = 0^k$ for some $k = 1 \ldots p$.

Picking $i = 0$ you can apply it to $xy^i z = xz = 0^{p-k} 1^p$.

this results in fewer 0's than 1's

thus $xz \notin L$, so L has long nonpumpable strings thus its nonregular