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HW 3

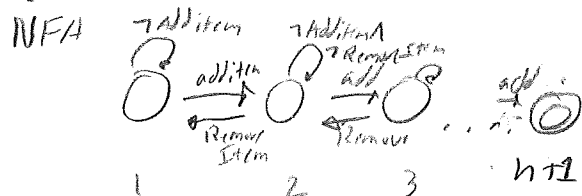
CS 486

1)

a) type = safety

counter example = an item was added and it was the n+1 item in the buffer.

Regular = if n is a macro (bounded at automata construction time) then yes



b) type = liveness

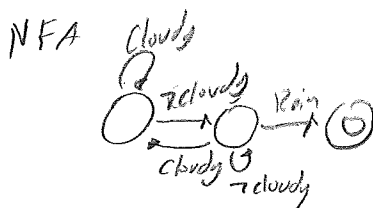
counter example = I'm blocked and I look forward and am blocked forever.

c) liveness

counter ex: A client takes a resource and at no point in the future returns it

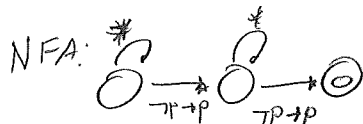
d) Safety - Regular

counter = it rains and it wasn't sunny just before.



e) Safety - Regular

counter = I transition from  $\neg p$  to  $p$  and I have done it before

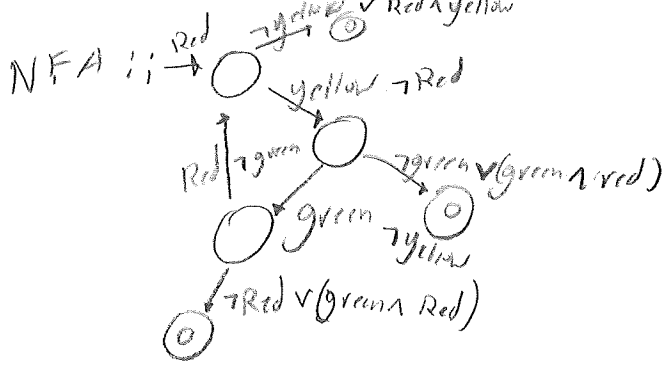


f) liveness

counter: There is a bound on the number of transitions

g) Safety - Regular

counter: I make a transition not in the list, or more than one light is on



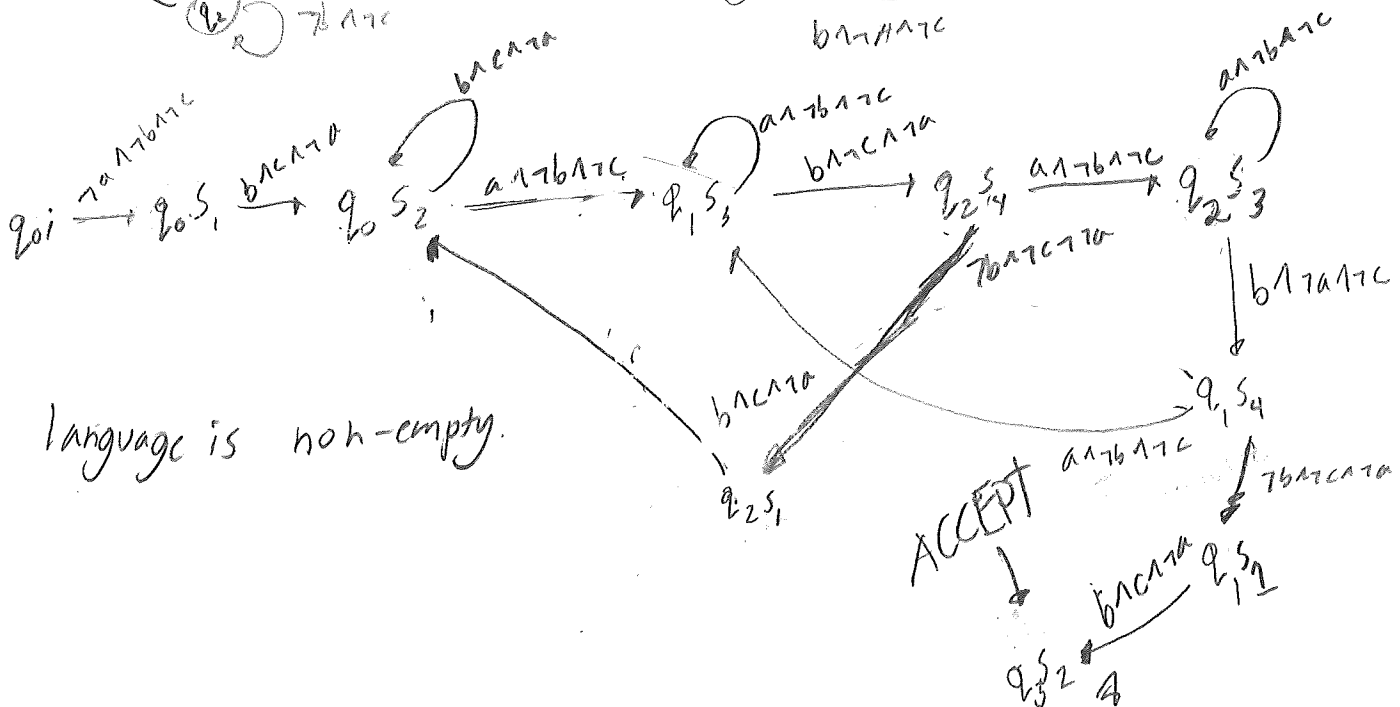
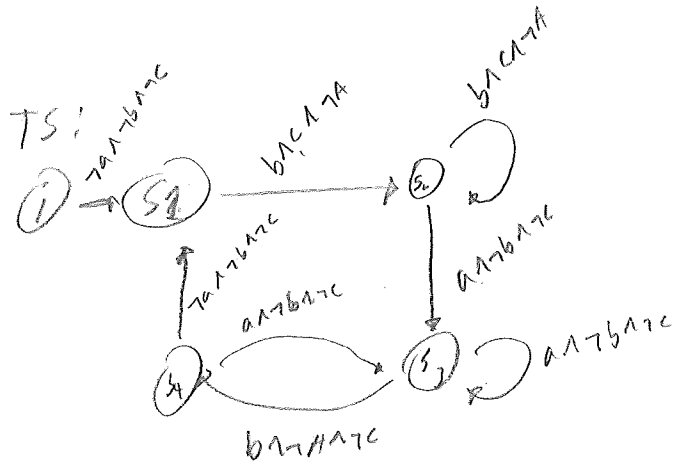
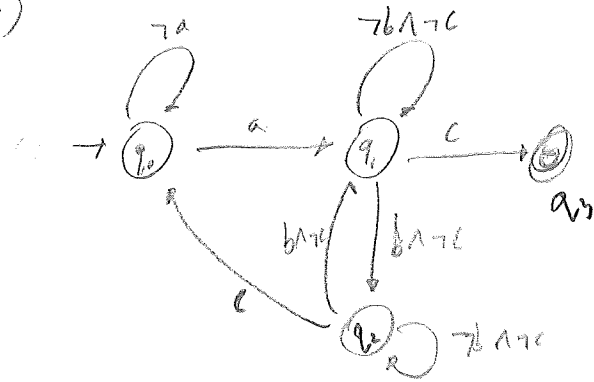
h) Type i Saffery  
 Counter:  $p$  holds in a state and that state  $k$  is  $k < j$ .  
 Not regular

2) Sec 2, PML

3) - Sec 3<sup>rd</sup>, PML

4) - Sec 4, PML

5)



The language is non-empty.

ACCEPT