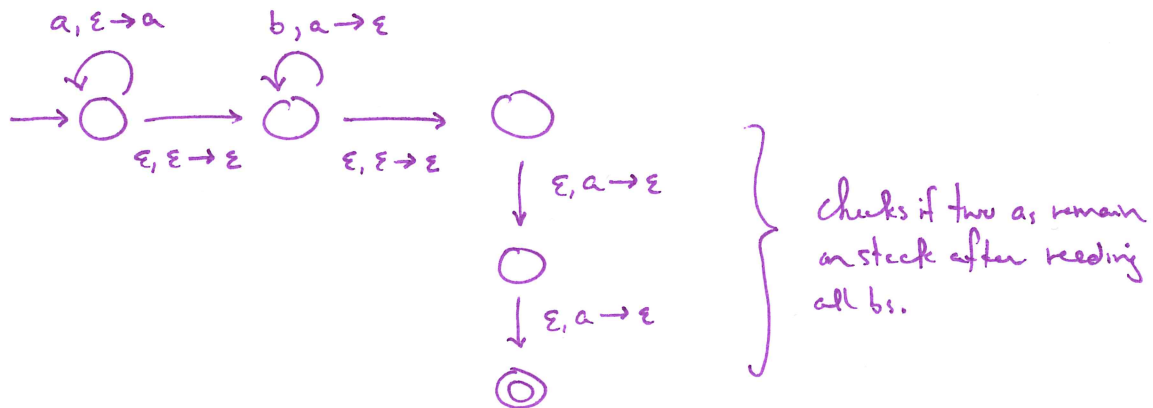


Name: Key

CS301 F6

1. (/4 pts) Provide the state diagram of a PDA which recognizes the language $A = \{a^j b^k \mid k \geq 0 \text{ and } j \geq k + 2\}$.



2. (/3 pts) Give an *informal English description* of a PDA which recognizes the language $B = \{a^r b^s a^t \mid r, s, t \geq 0 \text{ and } r - s = t\}$.

Note that $r - s = t$ if and only if $r = s + t$.

while reading initial a^r , push a only stack for each a read. Afterward, pop a from stack for each symbol remaining in input string. If stack is empty at the end accept, otherwise reject. Also reject if stack empties early.

3. (/3 pts) Convert the CFG $E \rightarrow Ea \mid bE \mid c$ to an equivalent PDA.

