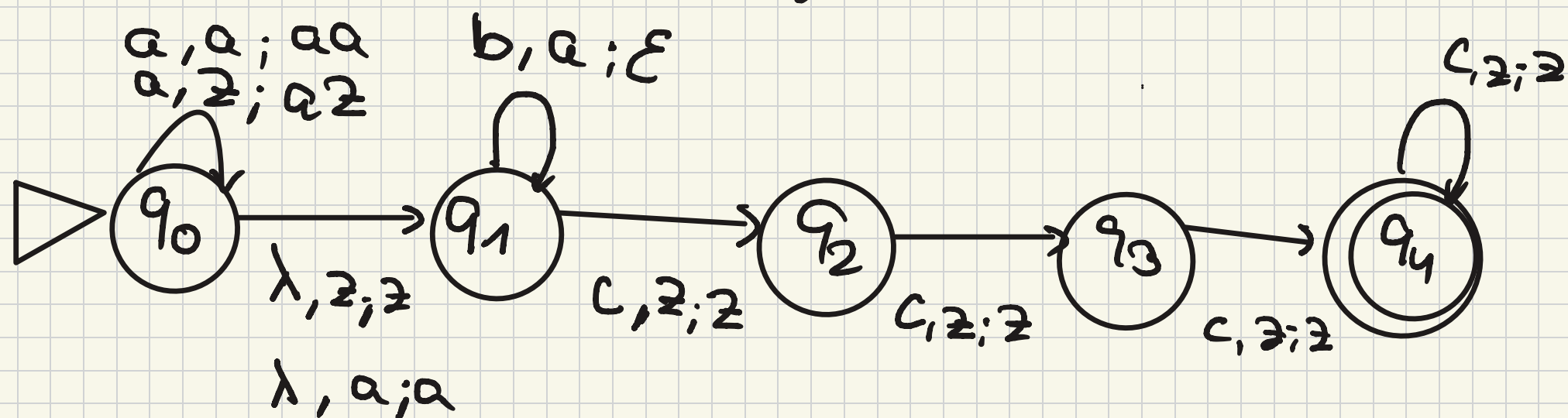


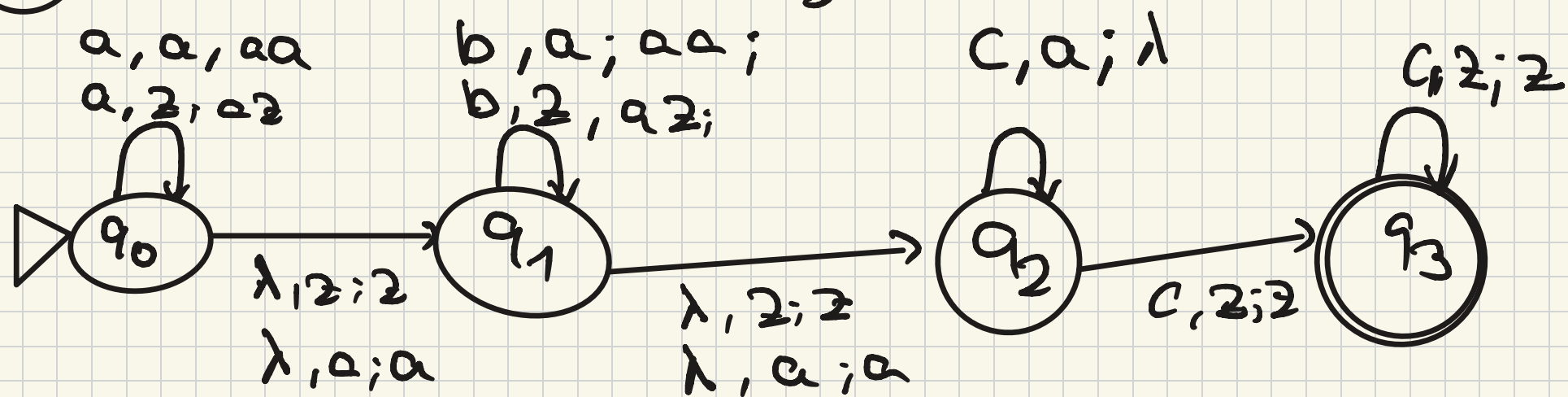


① $a, x; y$

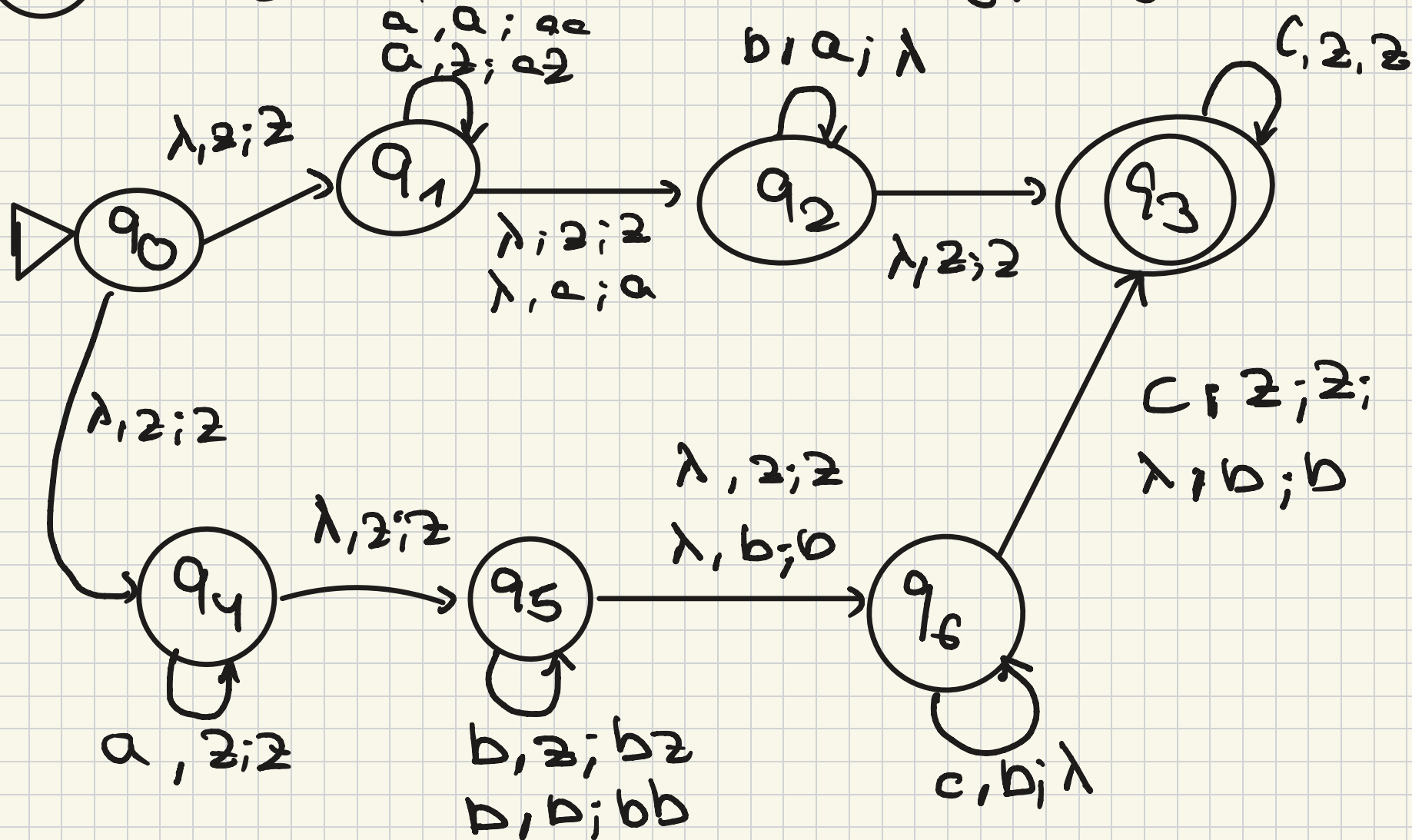
$$L = \{ a^i b^j c^k \mid k \geq 3 \}$$



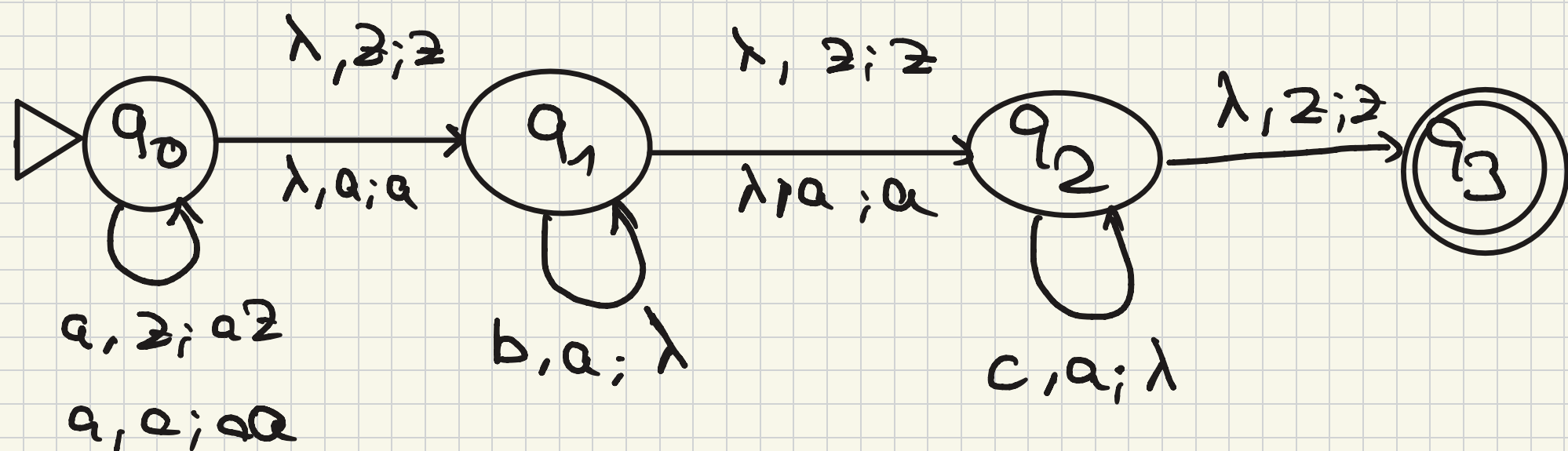
② $L = \{ a^i b^j c^k \mid k > i + j \}$



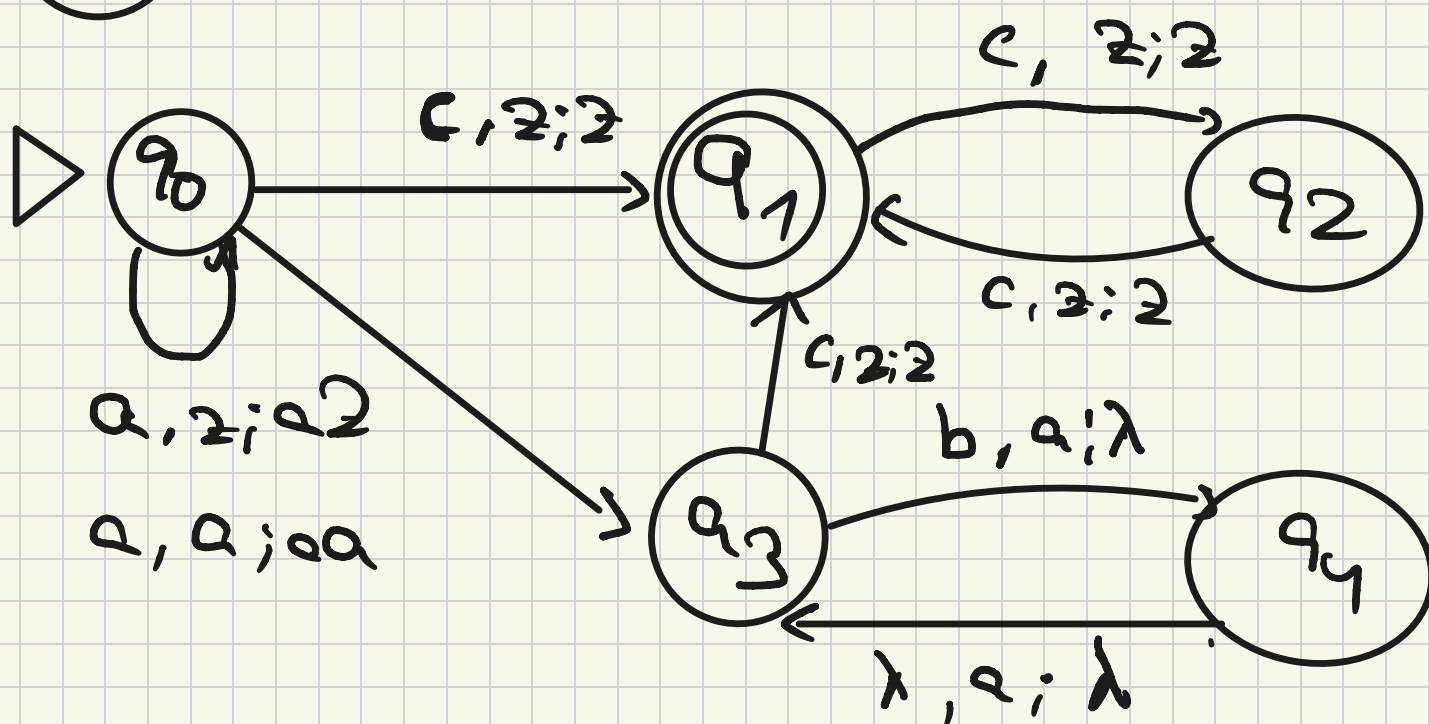
③ $L = \{ a^i b^j c^k \mid i = j \text{ or } j \neq k \}$



4) $L = \{ a^i b^j c^k \mid k = i - j, i, j, k \geq 0 \}$

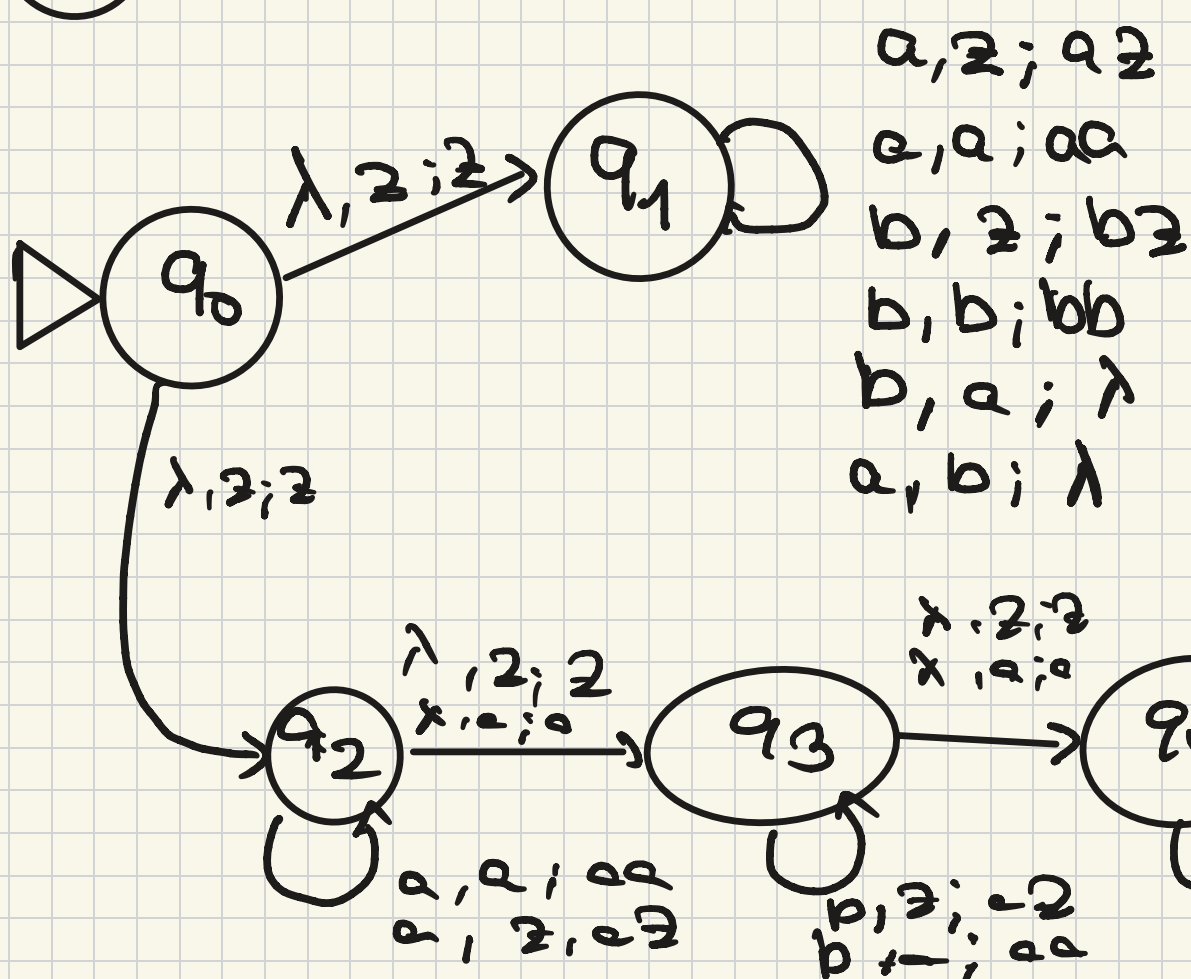


5) $L = \{ a^i b^j c^k \mid N(a) = 2N(b) \wedge N(c) \text{ is even} \}$



6) a) $N(c) = N(a) - N(b)$

b) $a^i b^j c^k \mid k - i \leq j$

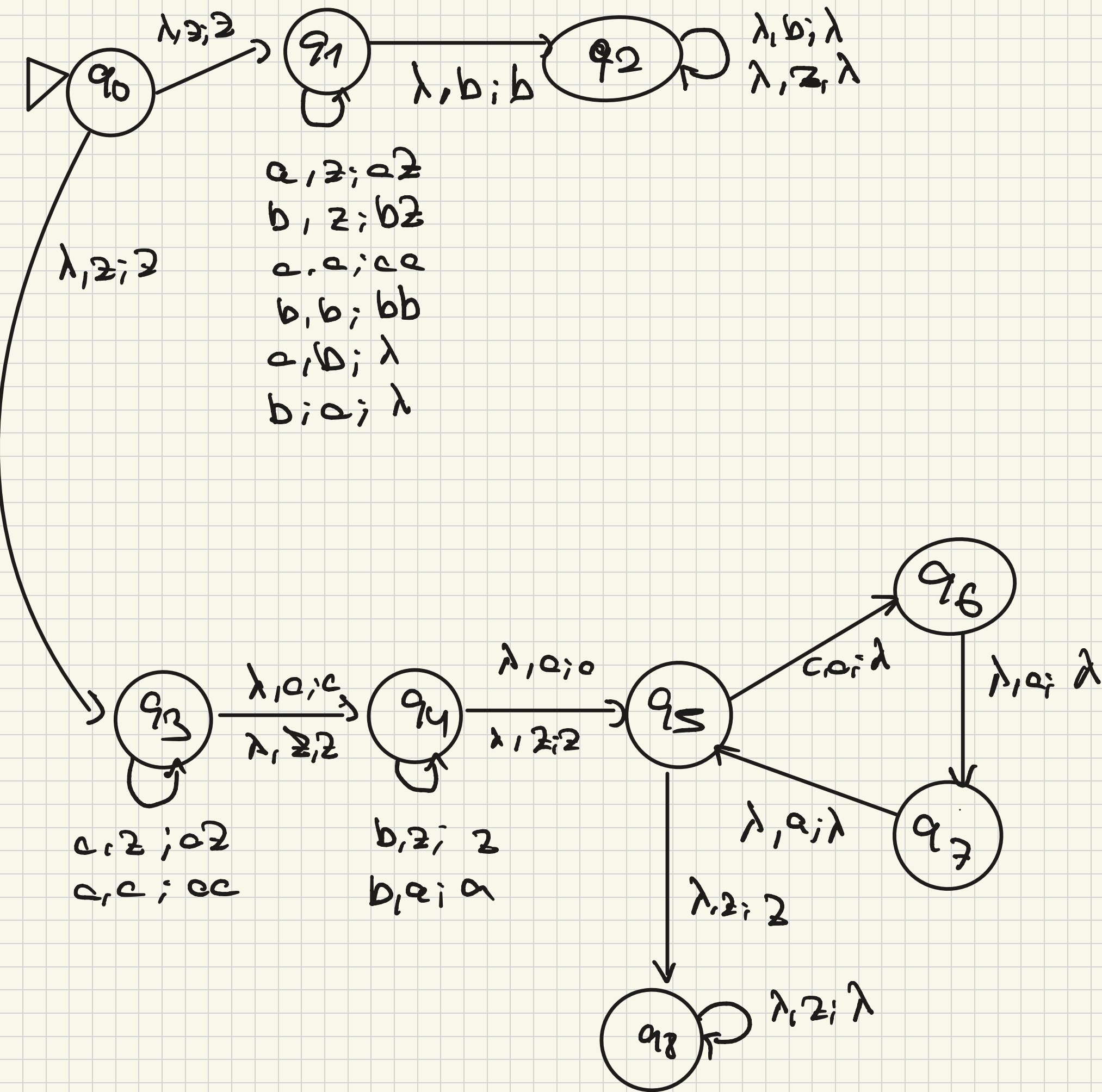


$c, a; \lambda$
 $c, b; bb$
 $c, z; bz$
 $\lambda, z; \lambda$

$N(a) = N(b)$
 $+ N(c)$

7. c) $N(a) < N(b)$

d) $a^i b^j c^k \mid \exists k \geq i$



8) e) $a^i b^j c^k d^m \mid i+k=j+m$ f) $a^i b^j c^k d^m \mid i+m=j+k$

