$\{0^n 1^m : n \le m \le 2n\}$

0011

00111

1 — 0?

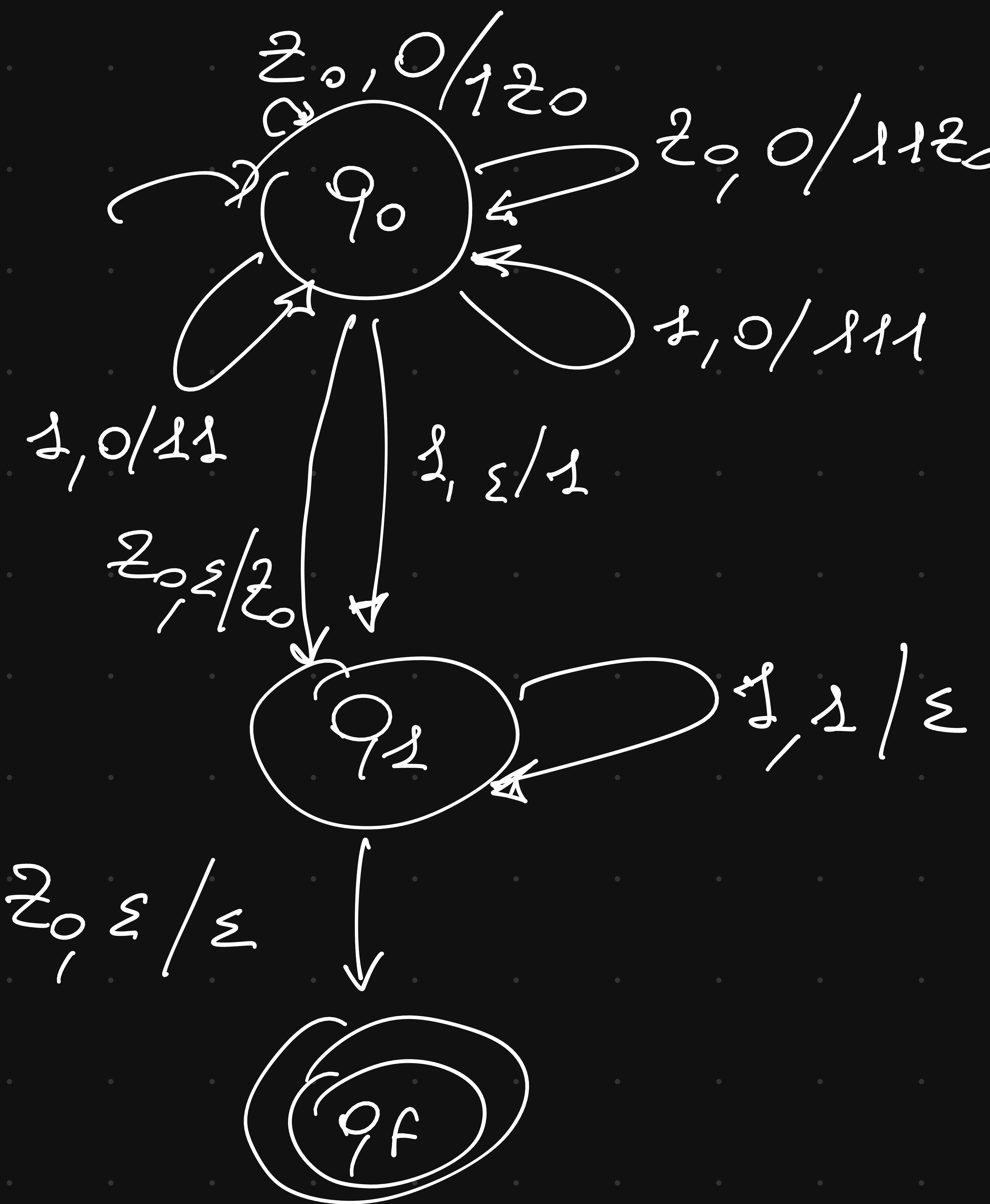
1 — 0?

1 — 0?

1 — 0?

1 / 0?

1 / 0?



L è regolare allora $\exists n_0 > 0$: per ogni parola $w \in L$
sufficientemente lunga, esiste $w = xyz$
t.c. $|xy| \leq n_0$ e $\forall i \geq 0$ $xy^iz \in L$

$\{0^n 1^{3n} : n \geq 0\}$

$\forall k$, $\exists w(k)$, $|w(k)| \geq k$, $\forall$ decomposizione $w = xyz$
t.c. $|xy| \leq k$ e $|y| \neq \varepsilon$, $\exists i : xy^iz \notin L$

$w(k) = 0^k 1^{3k}$ $\forall w = xyz$ $x = 0^i$ $y = 0^j$ $z = 0^{k-i-j} 1^{3k}$

$i = 0$ $xy^0z = 0^i 0^{k-i-j} 1^{3k} = 0^{k-j} 1^{3k}$

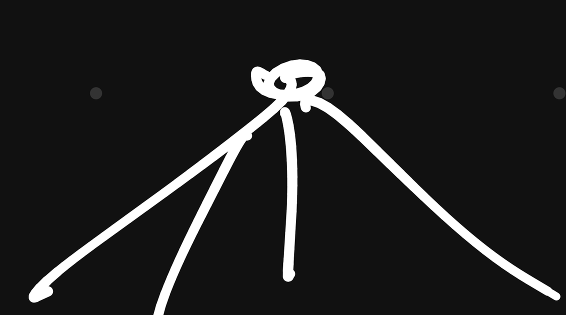
Pumping Lemma per CFL

Se L è CFL, $\exists\, n_0$ t.c. per ogni parola w, $|w| \geq n_0$

per ogni decomposizione $w = uvxyz$
t.c. $|vxy| \leq n_0$, $vy \neq \varepsilon$

Allora

$uv^i x y^i z \in L \quad \forall i \geq 0$



Forme Normali per CFG

Forma normale di Chomsky

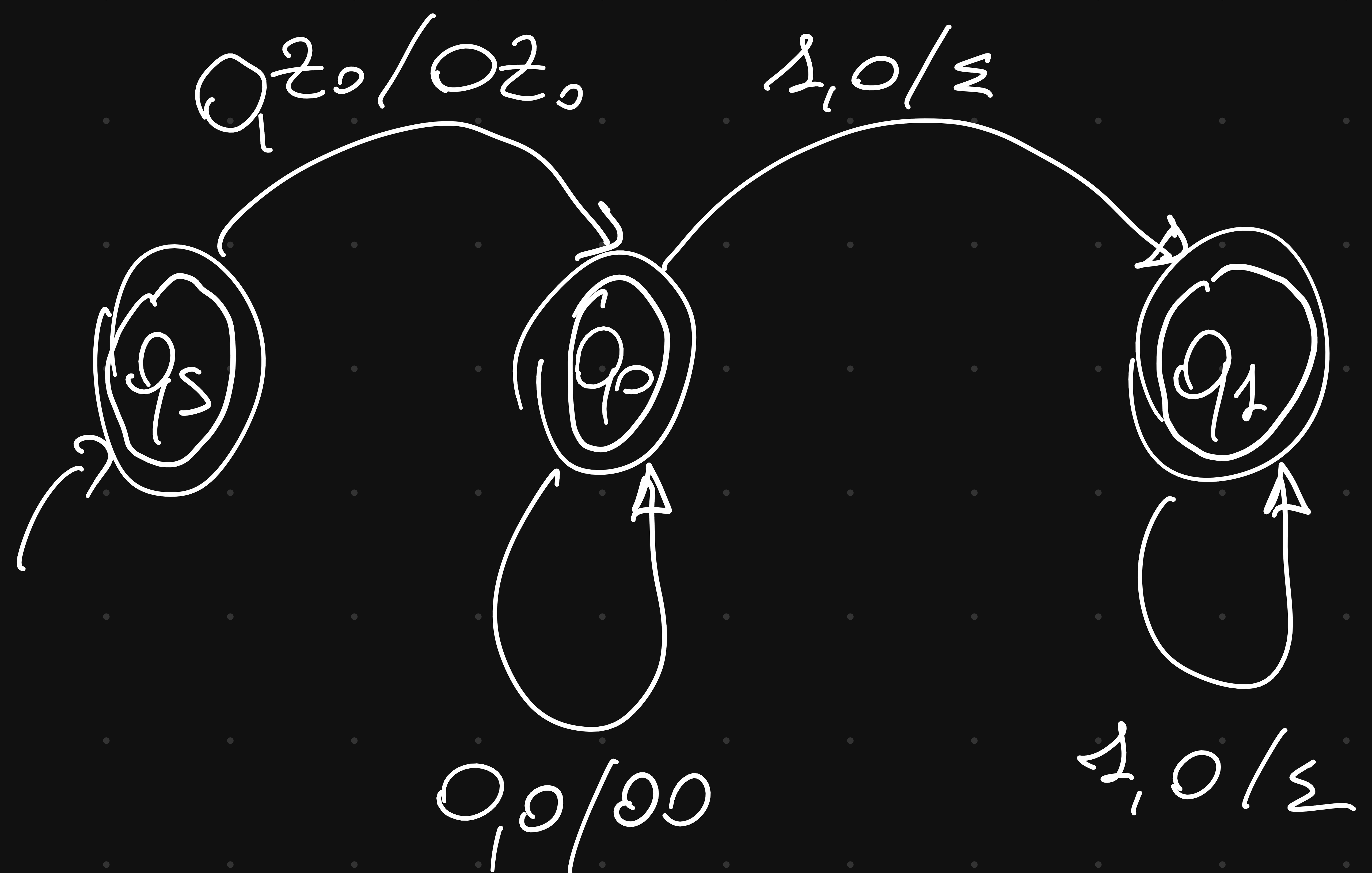
$A \to BC$ $\quad$ A, B, C variabili

$A \to a$ $\quad$ a terminale

Forma normale di Greibach

$A \to a\alpha$ $\quad$ a terminale $\quad$ α forma sentenziale

$\{0^n 1^m : n \geq m\}$ descrivere un DPDA che lo riconosce



$11 \notin L$

$0101 \notin L$