

FUNDAMENTOS TEÓRICOS DA COMPUTAÇÃO

--- MÁQUINAS DE TURING ---

Exemplo (2)

$$a^{2^n}$$

Considere a linguagem $M = \{\omega \in \{a^{2^n}\}\}$



Use o arsenal que você tem e seja criativo!

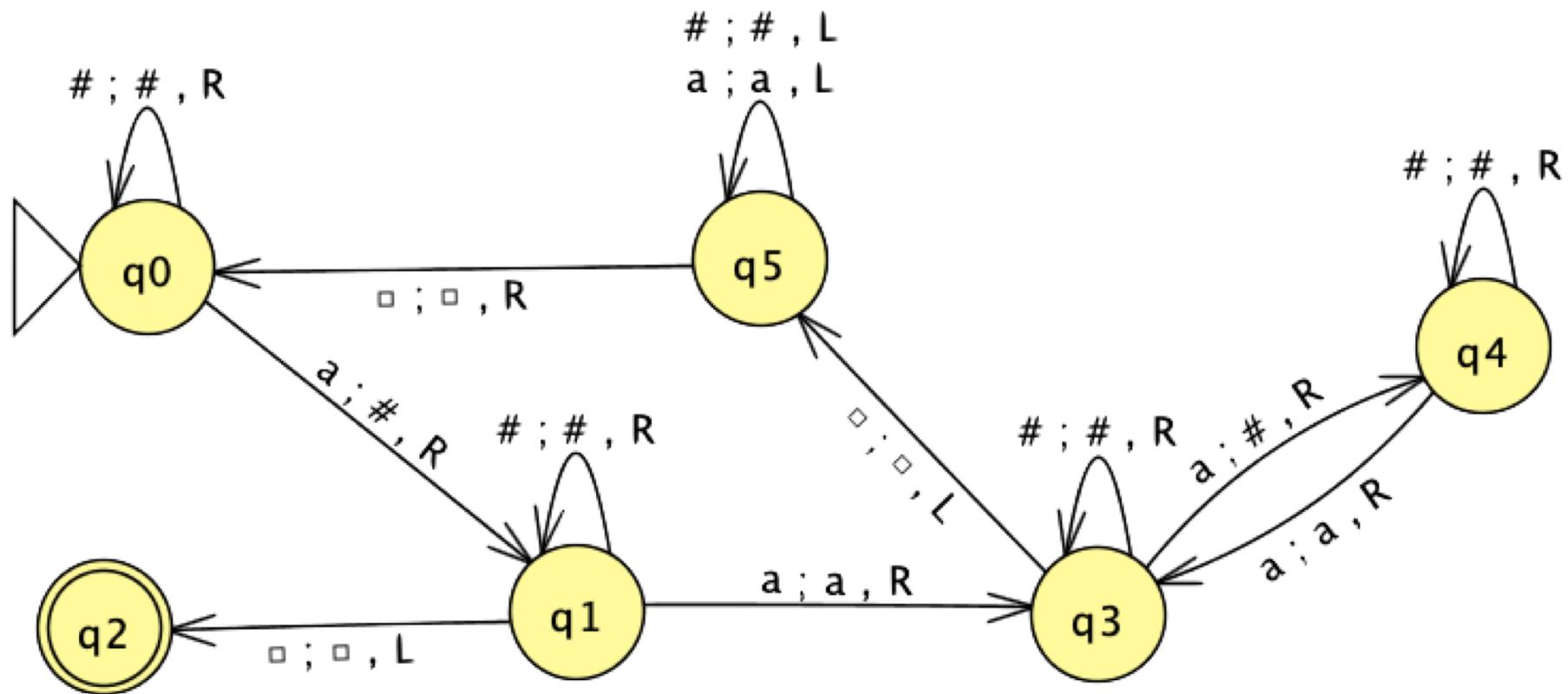
$$a^{2^n}$$

M = Sobre a cadeia ω de entrada:

- 1) Varre a palavra do início ao fim, marcando um "a" sim e outro não
- 2) Retorna o cabeçote ao início da fita
- 3) Quando **retornar** o cabeçote e restar **somente um** "a", então passa para o estado de **aceitação**
- 4) Caso contrário, varre novamente a palavra até o fim, trocando **somente a metade** dos "a" por "#"

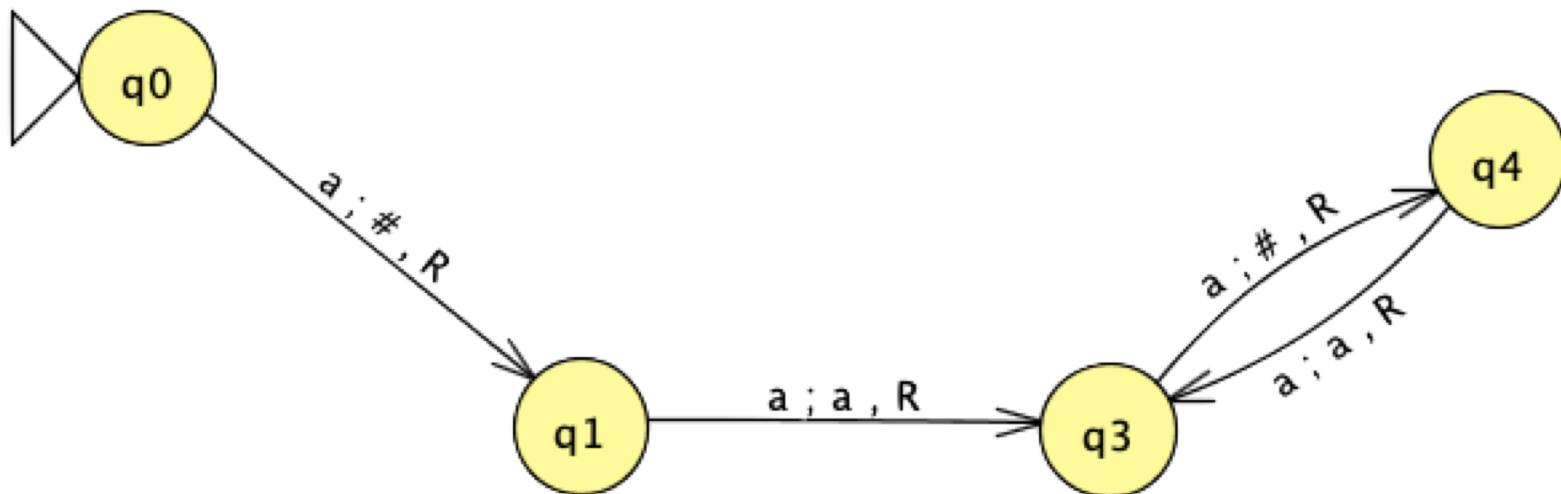
$$a^{2^n}$$

Máquina de Turing final que implementa a estratégia



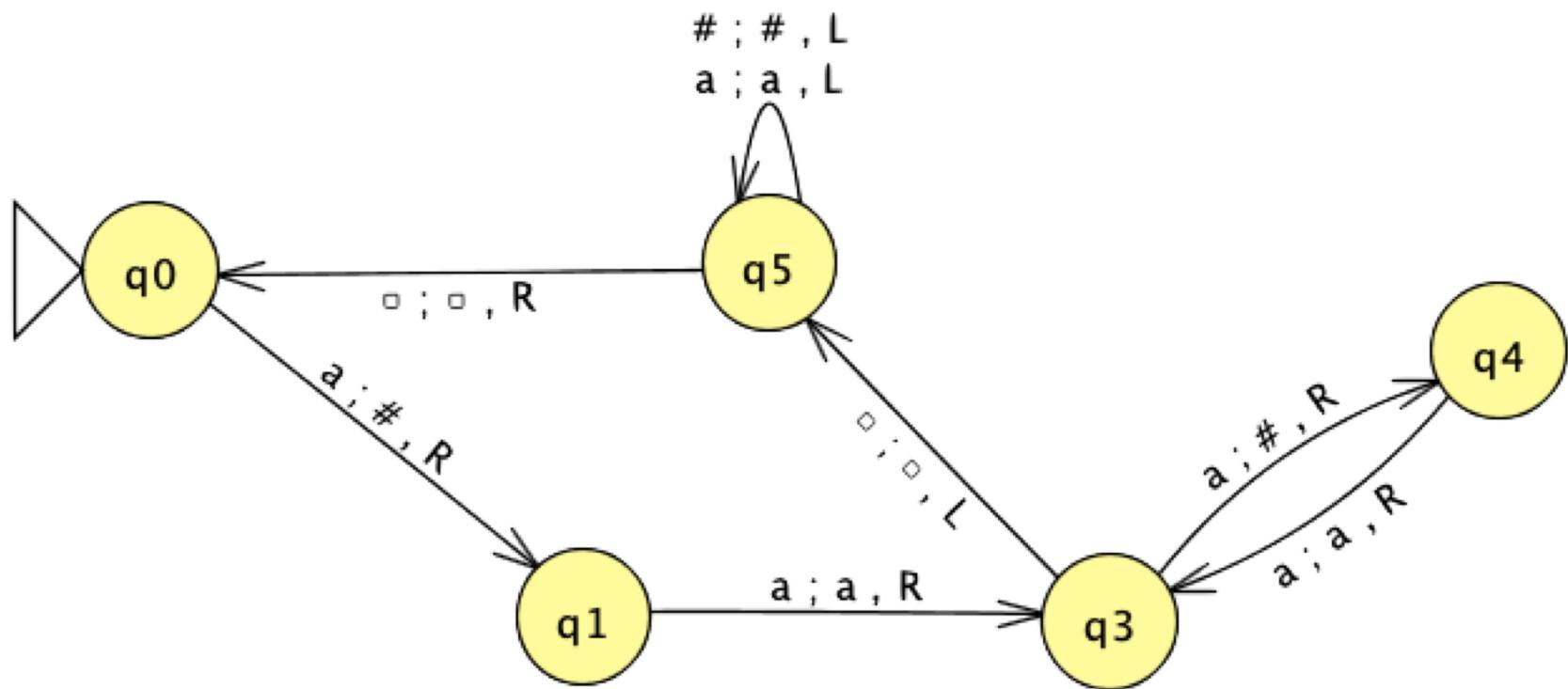
$$a^{2^n}$$

Varre a palavra do início ao fim, trocando somente a metade dos "a" por "#"



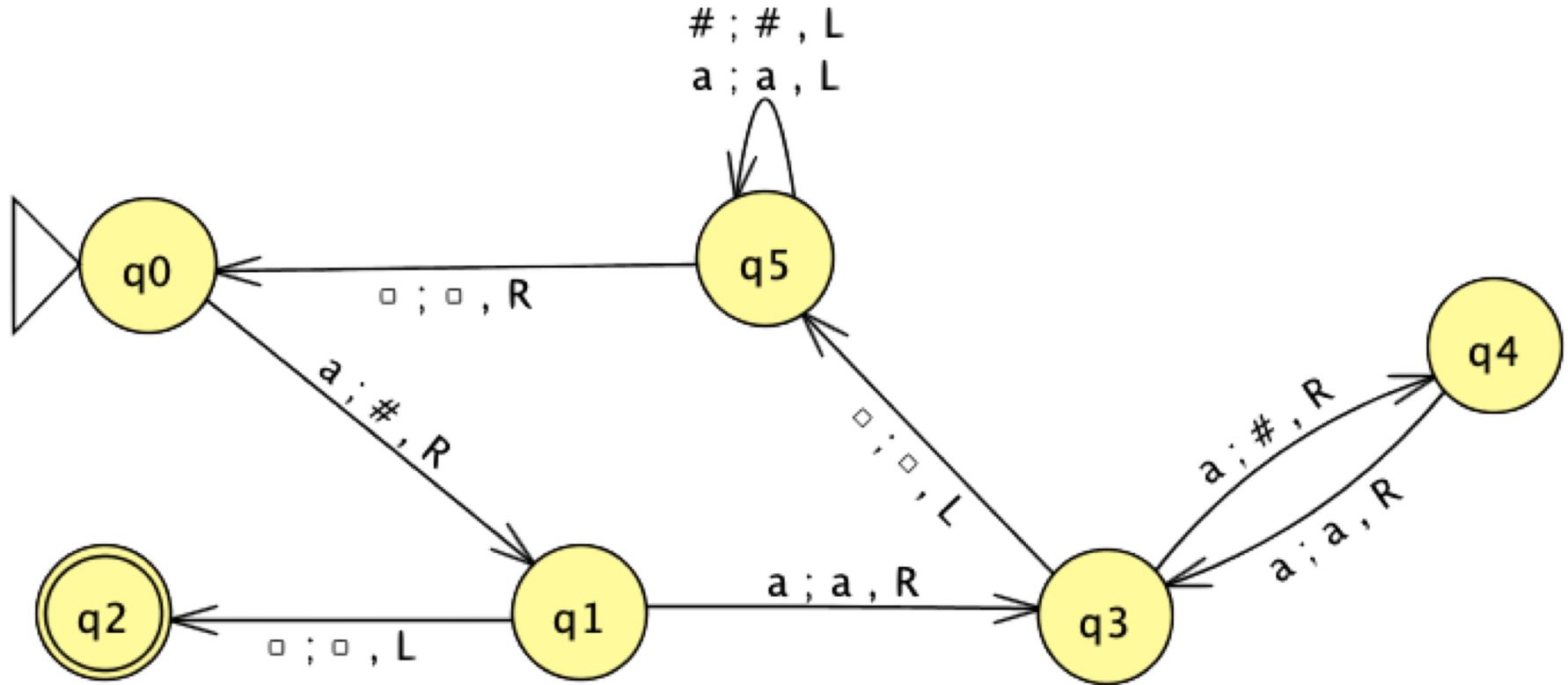
$$a^{2^n}$$

Retorna o cabeçote ao início da fita. Note que em q5 a transição de loop ($\#; \#, R$) serve para **ignorar os $\#$'s** que foram incluídos anteriormente



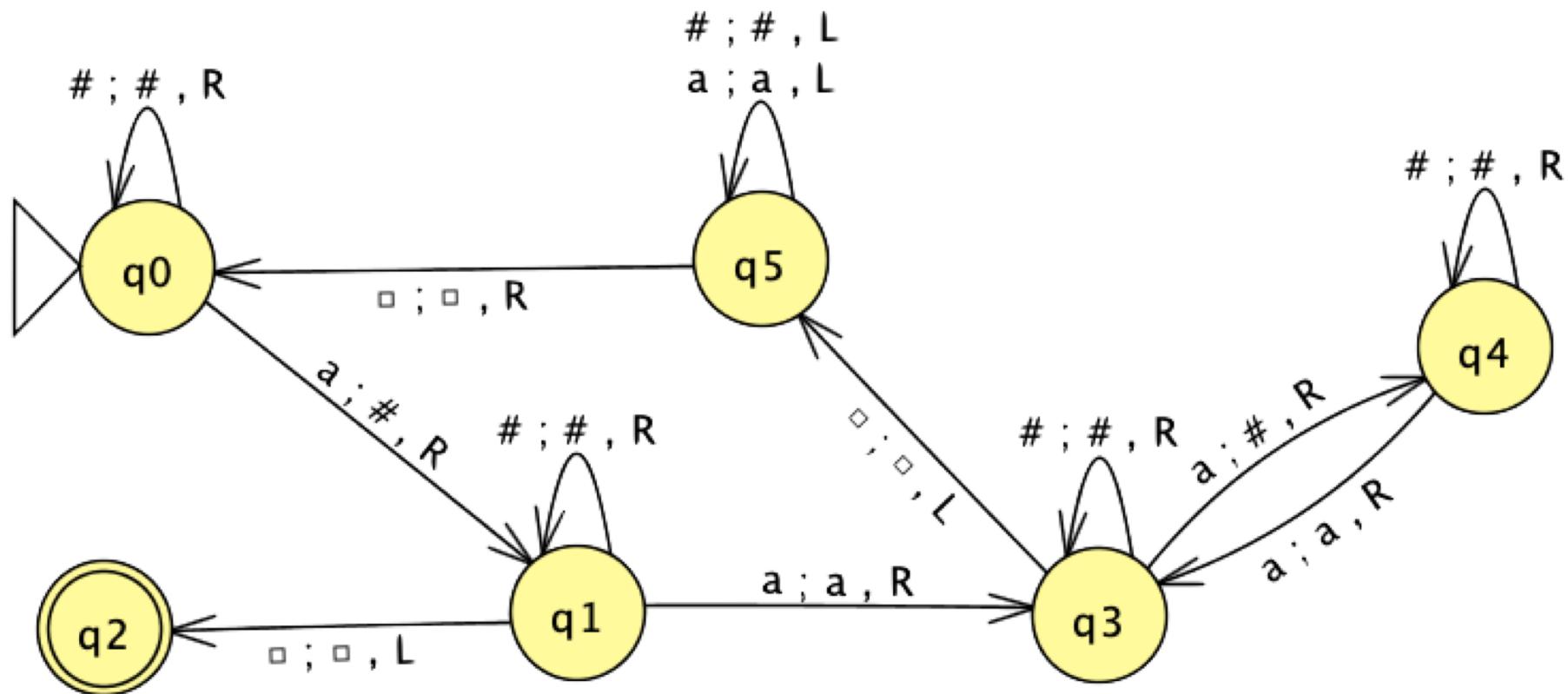
$$a^{2^n}$$

Quando restar somente um "a", então passa para o **estado de aceitação**



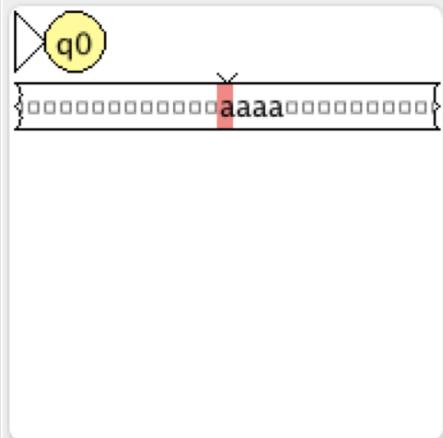
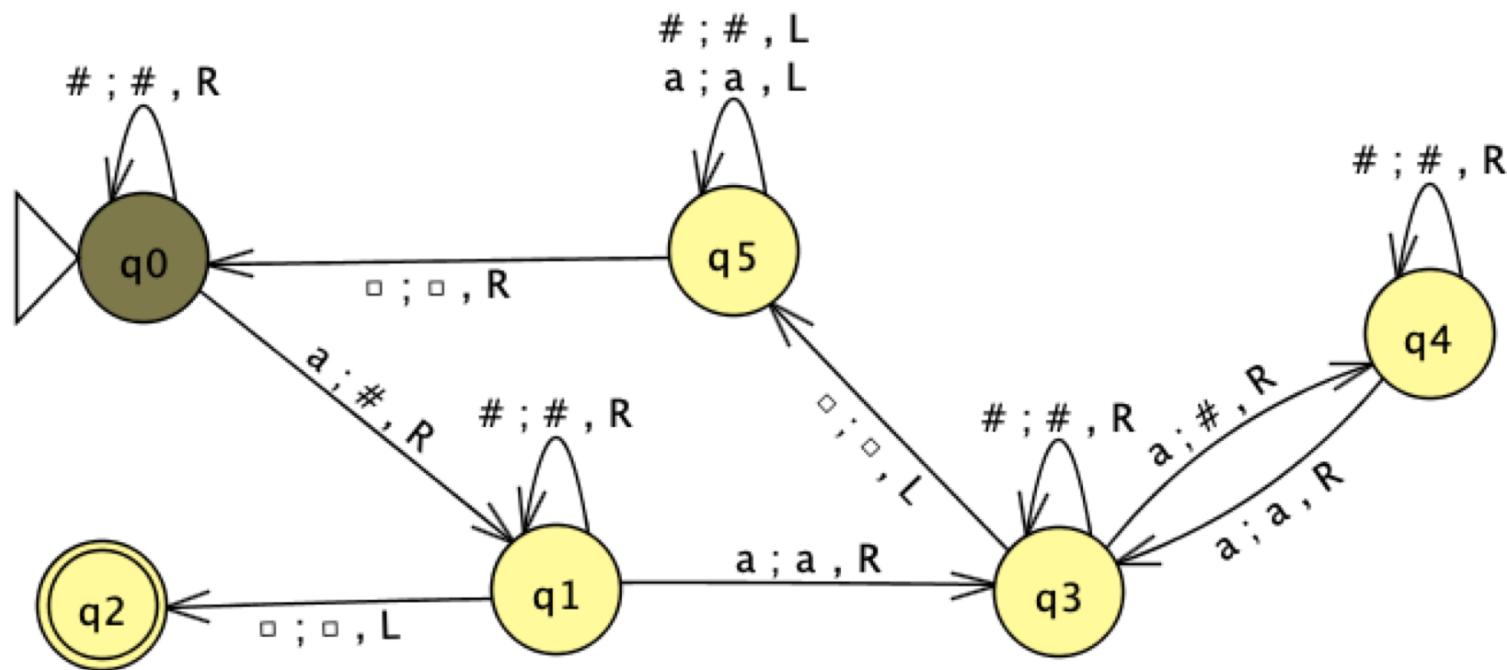
$$a^{2^n}$$

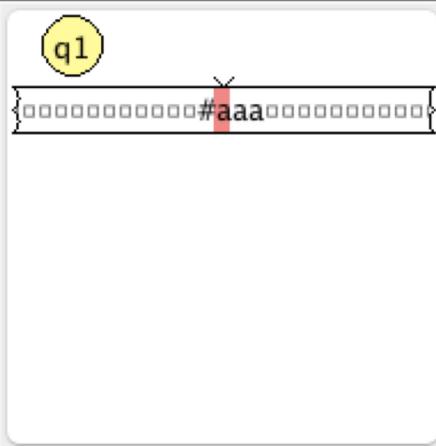
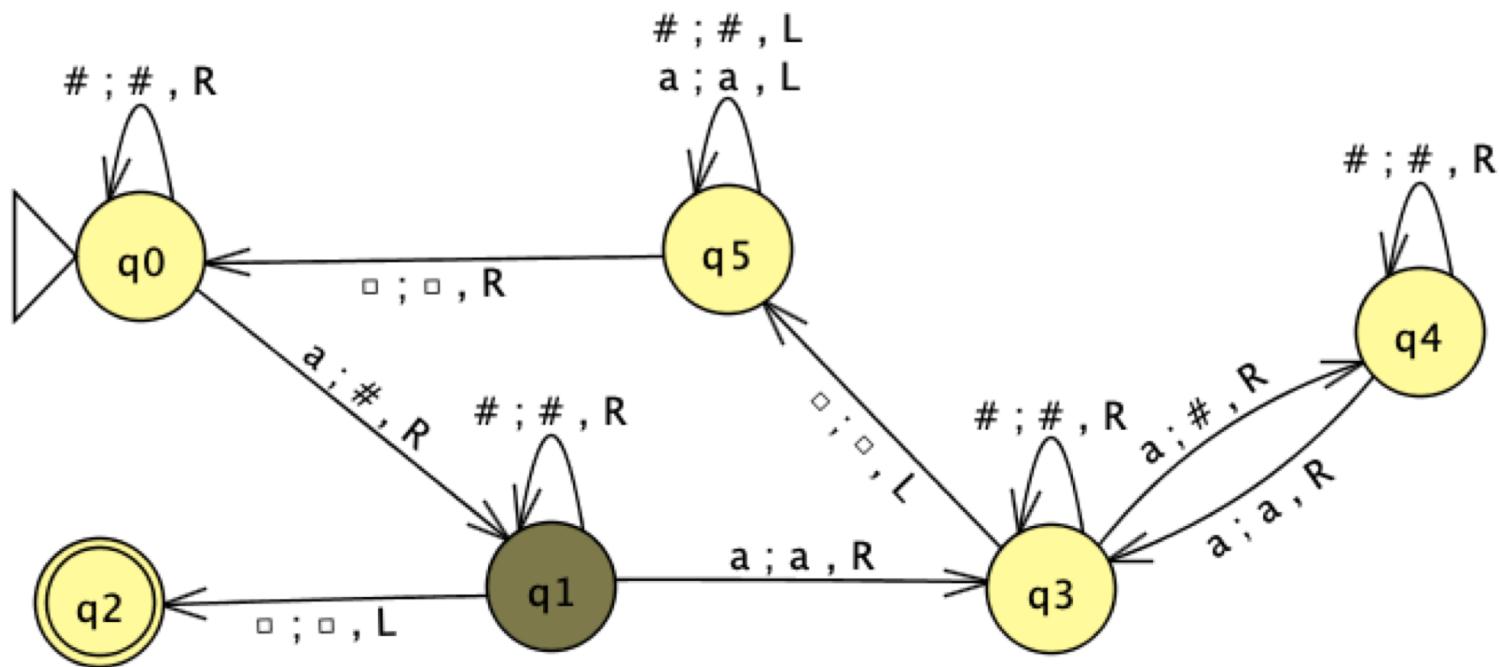
As transições de **loop** em q_0 , q_1 , q_3 e q_4 ($\# ; \#, R$) servem para **ignorar os $\#$'s** que foram incluídos anteriormente

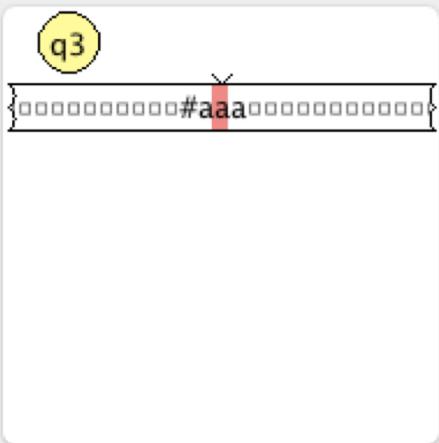
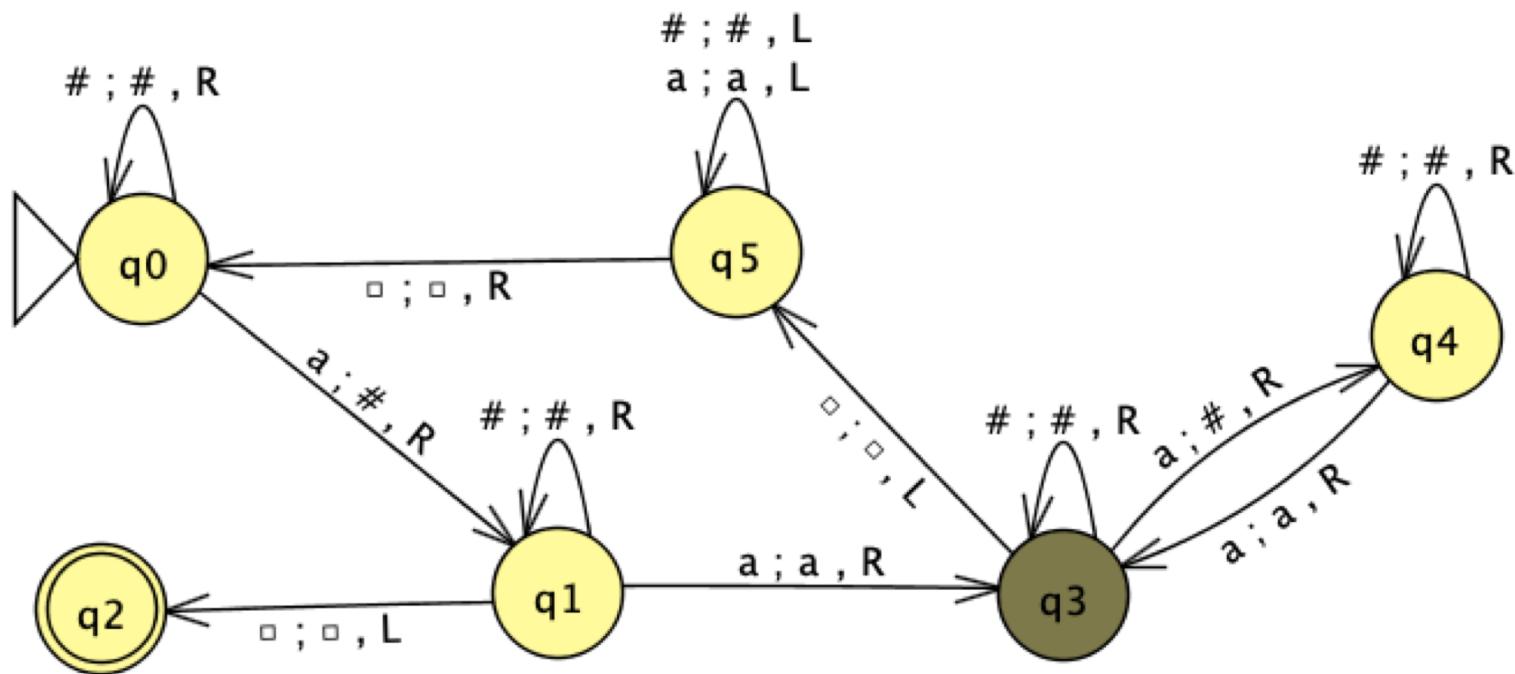


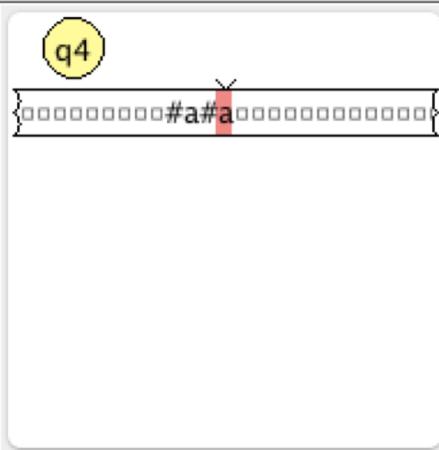
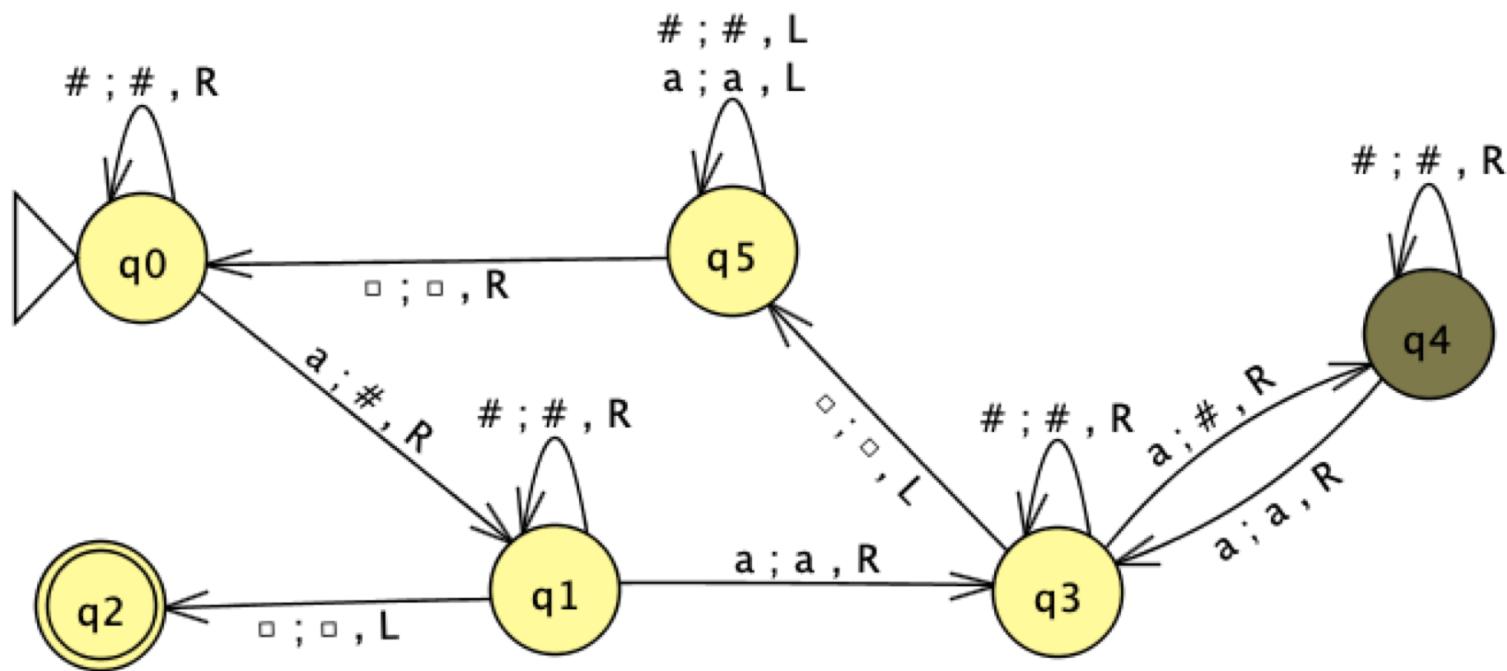


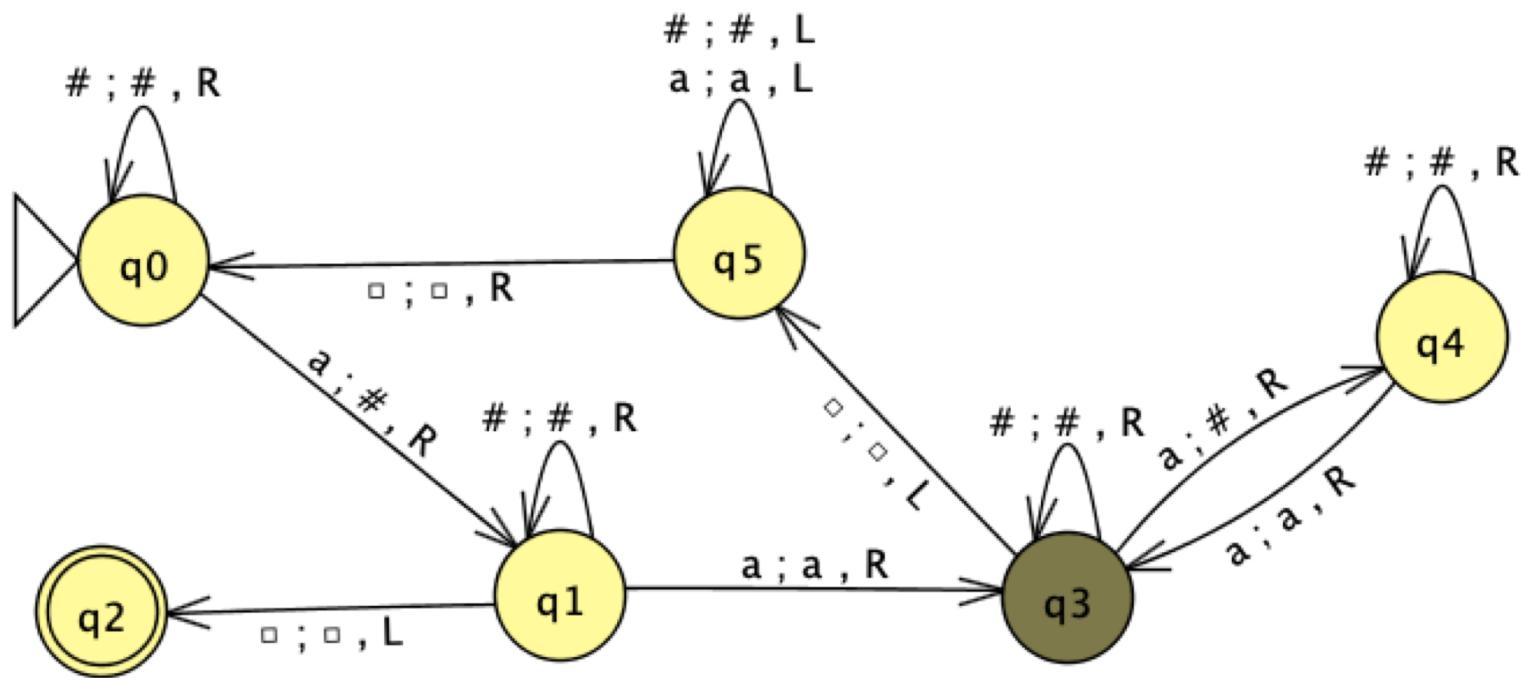
Simulação de cadeia aceita

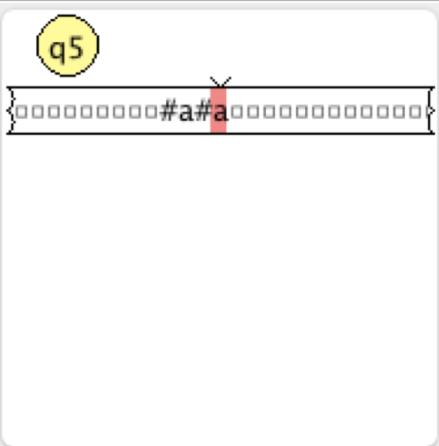
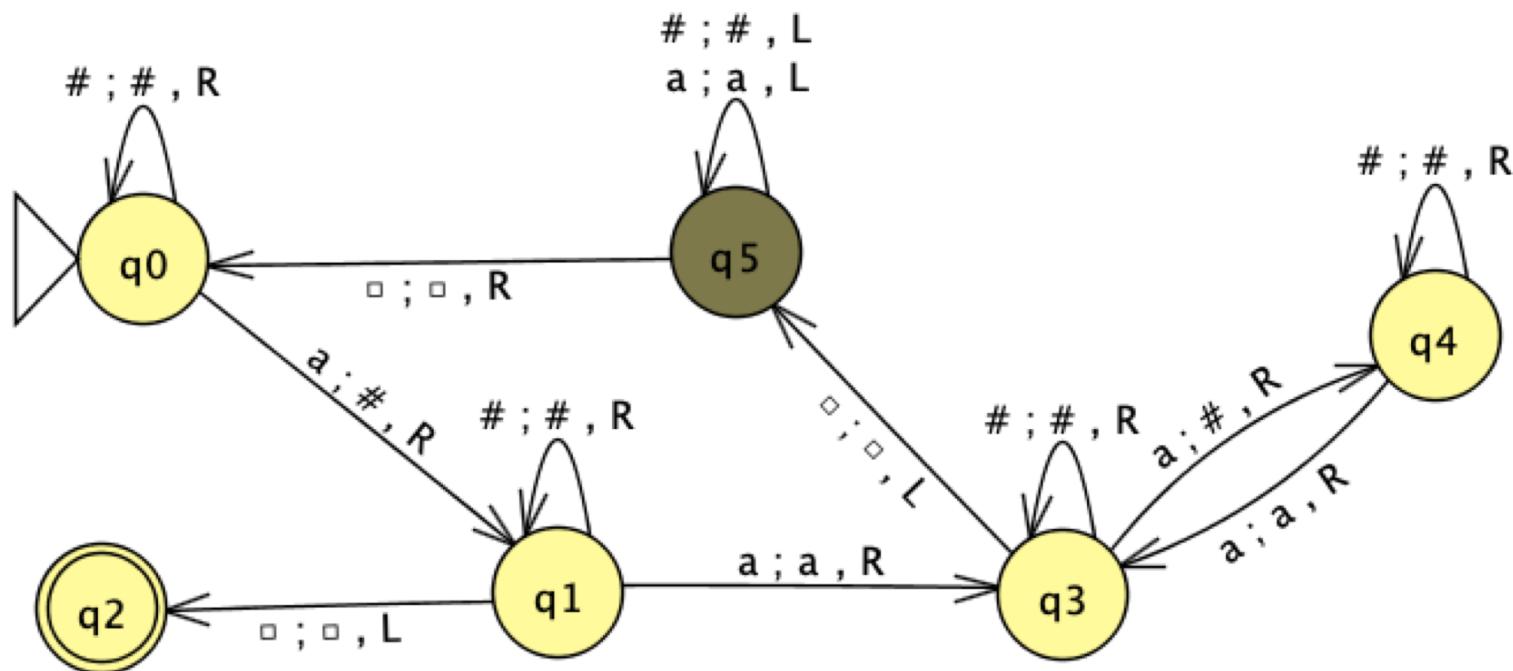


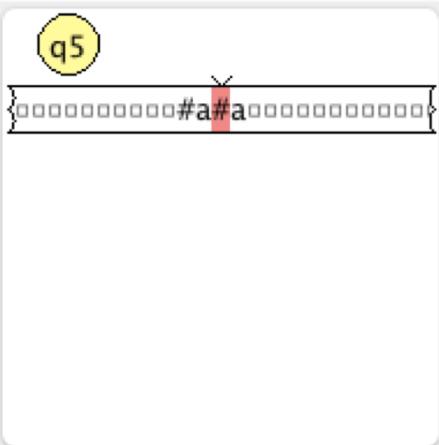
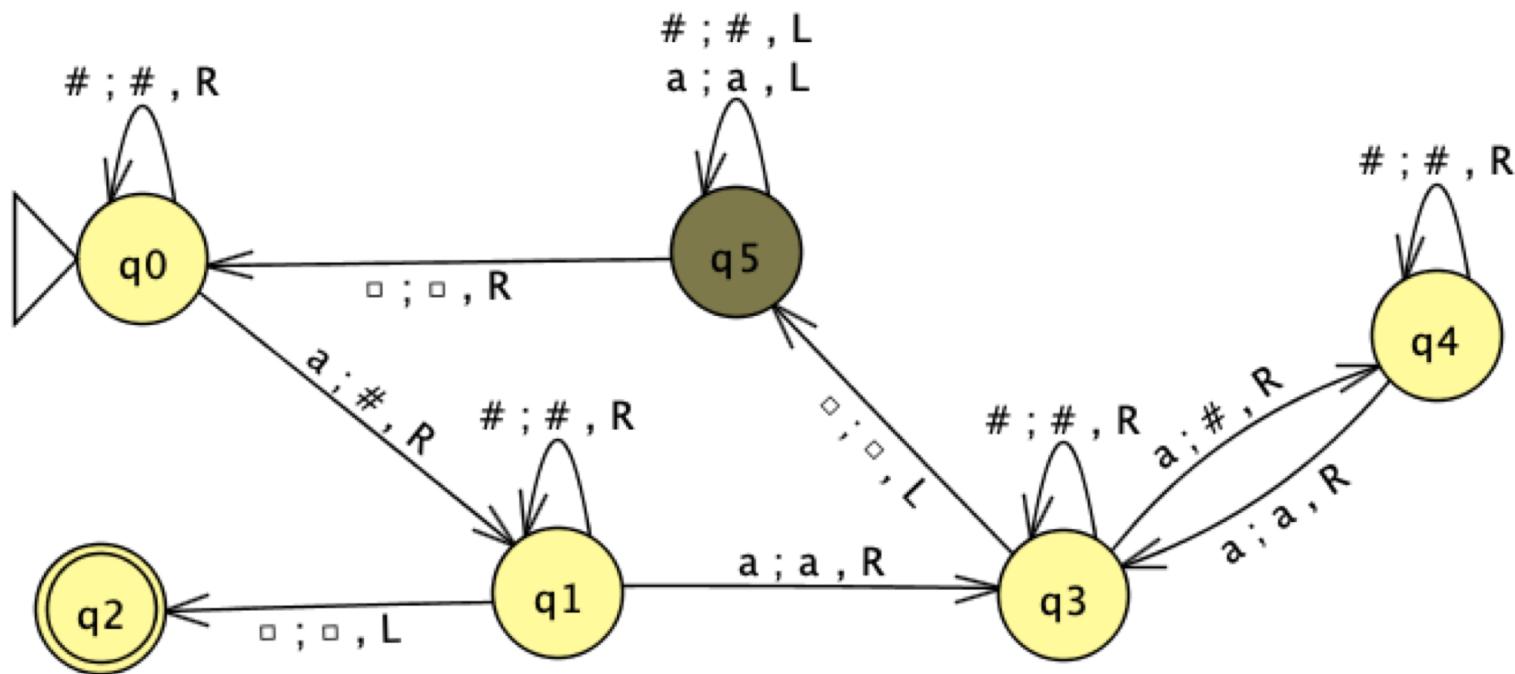


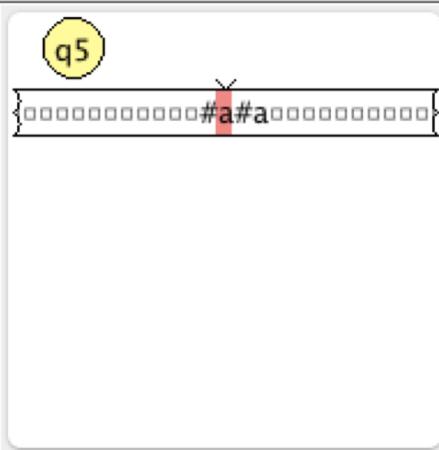
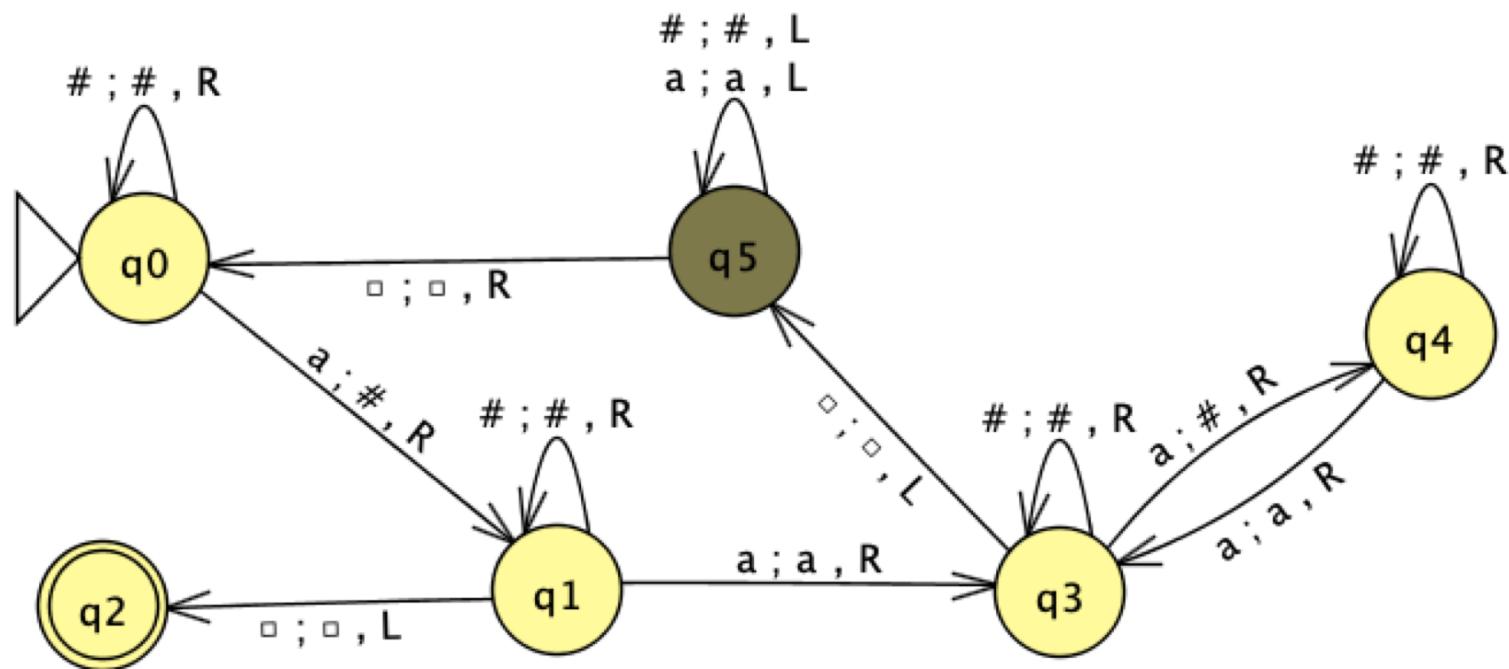


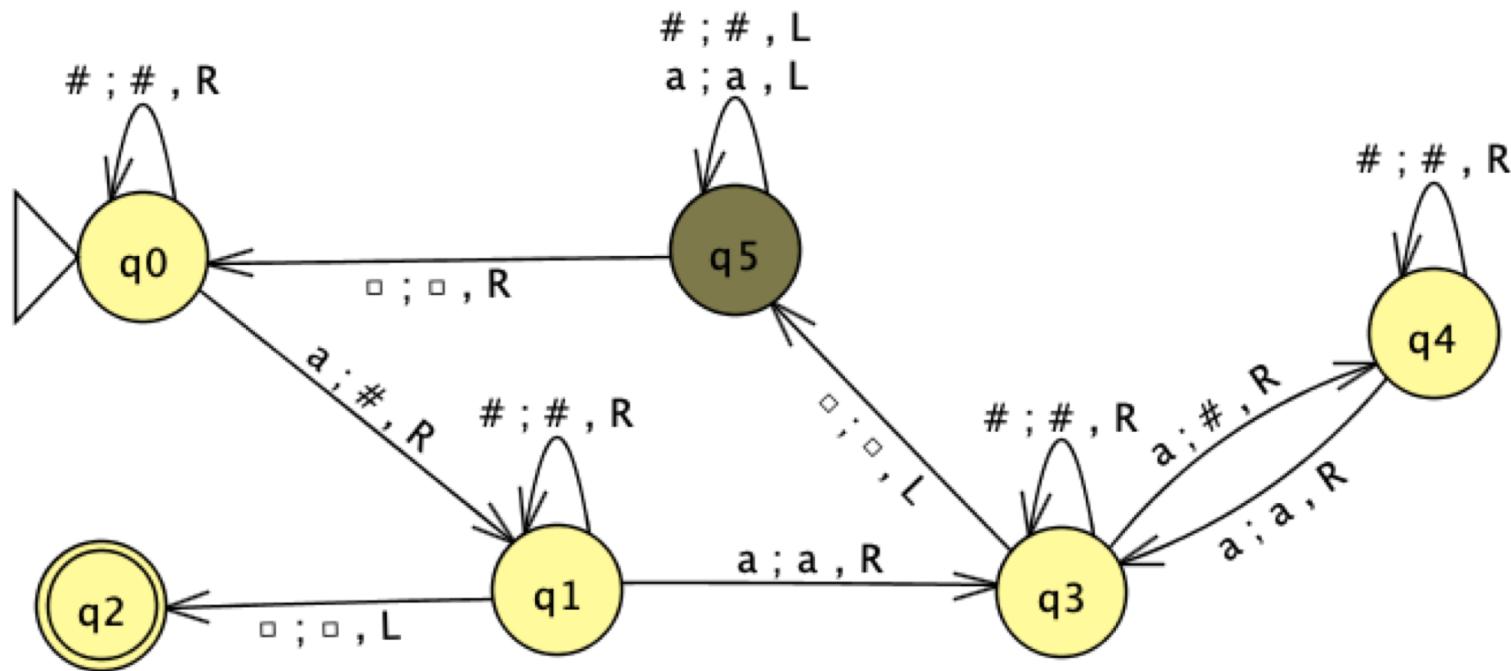


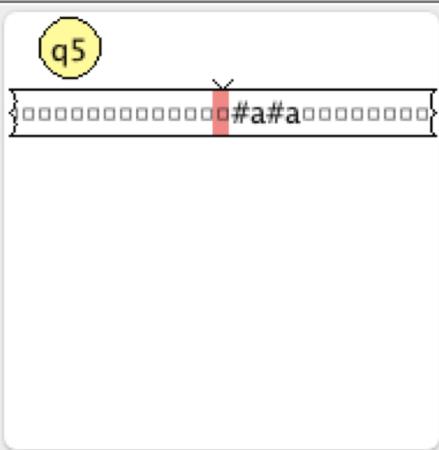
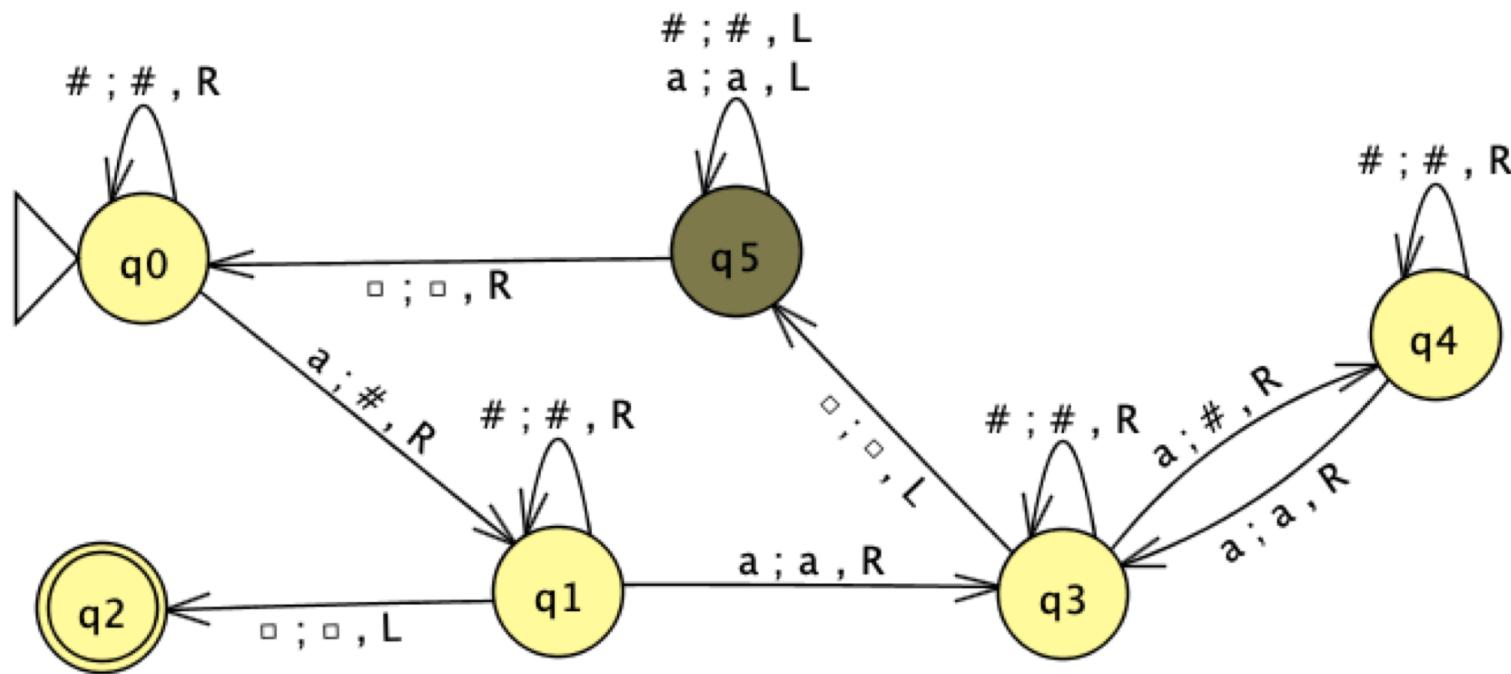


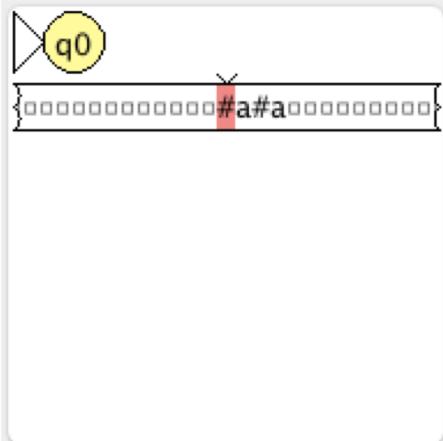
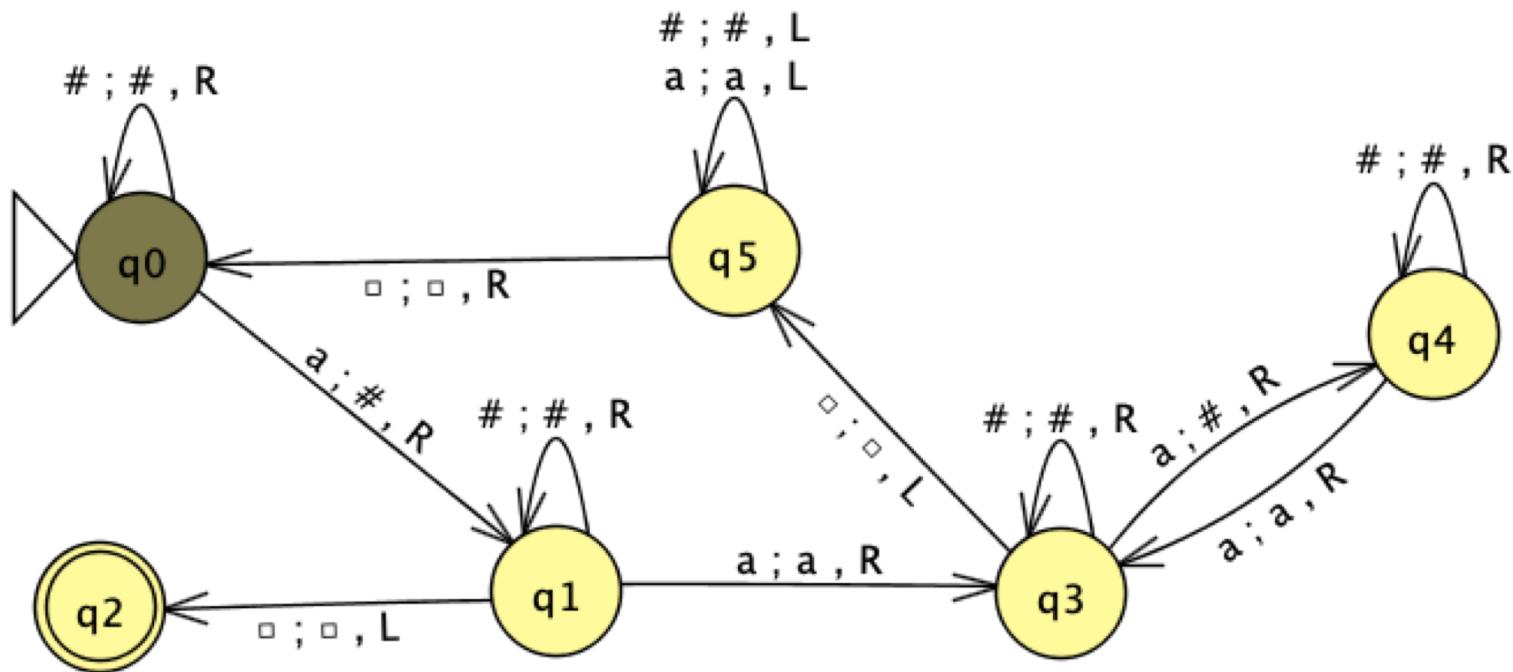


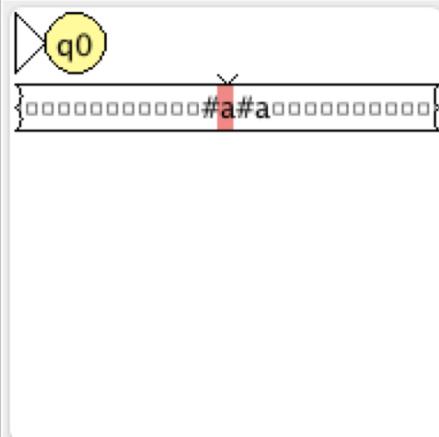
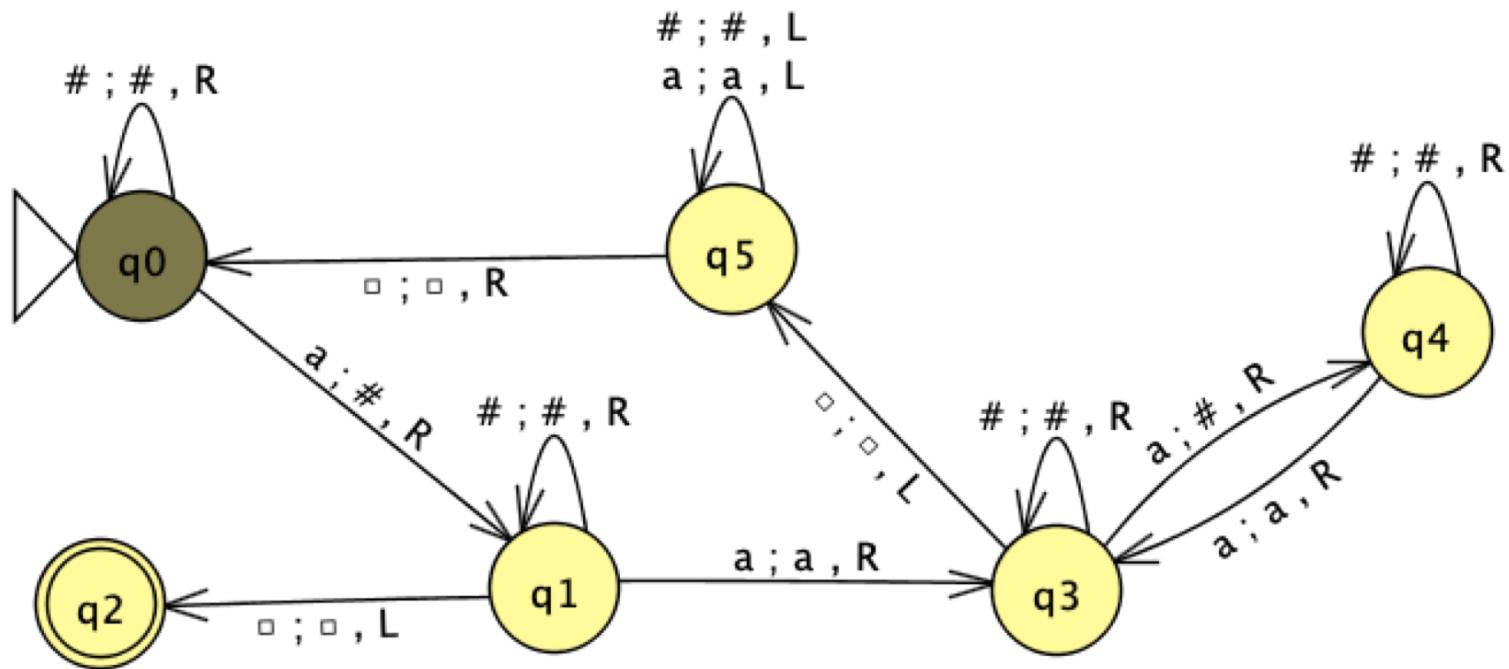


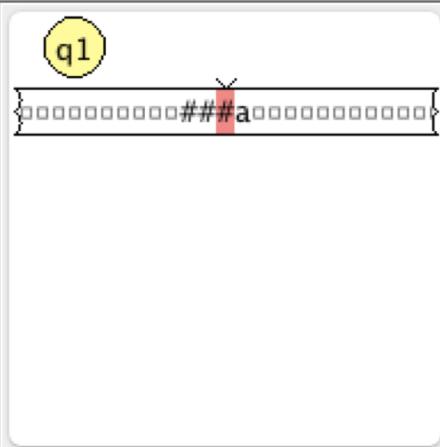
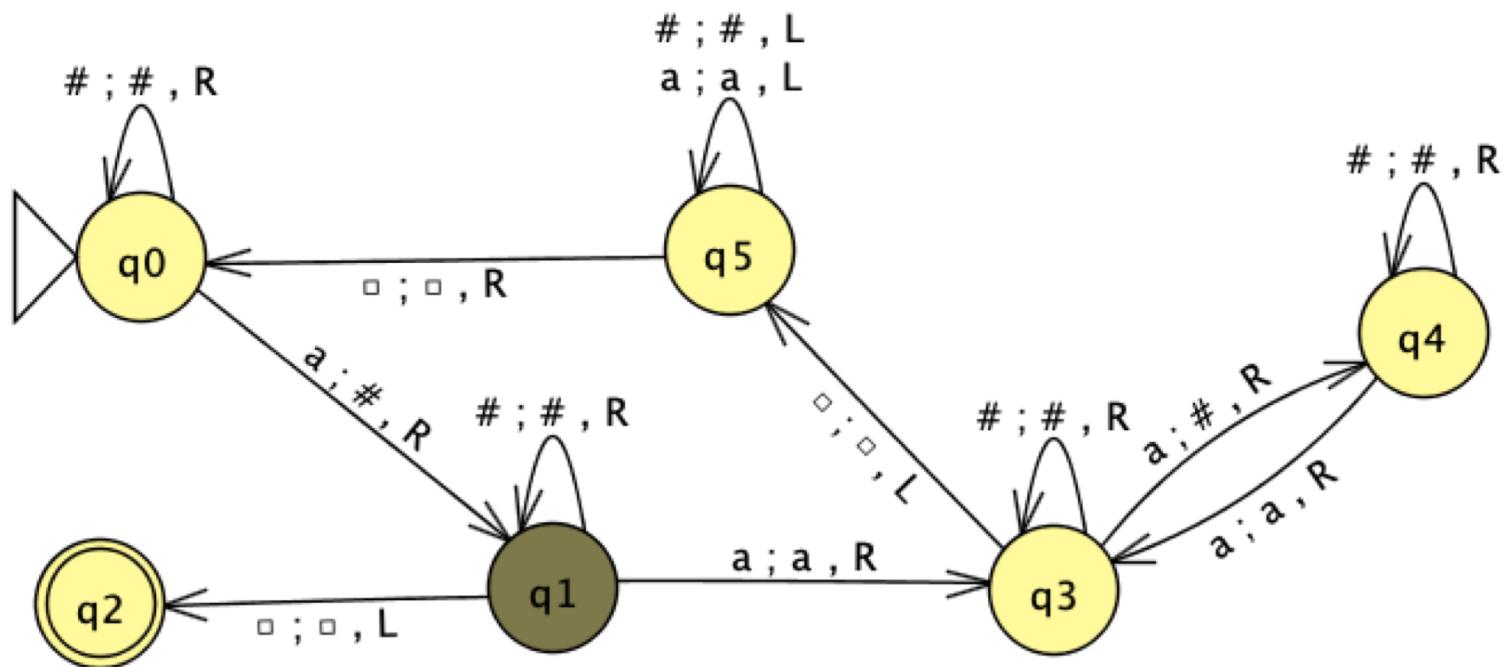


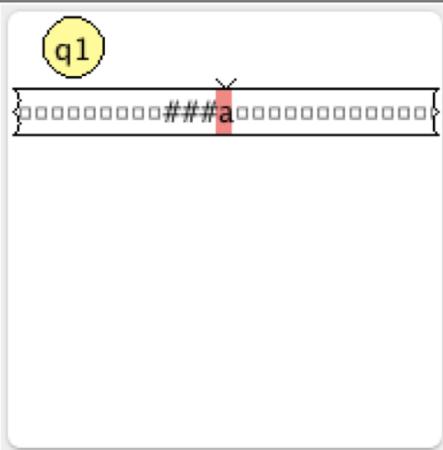
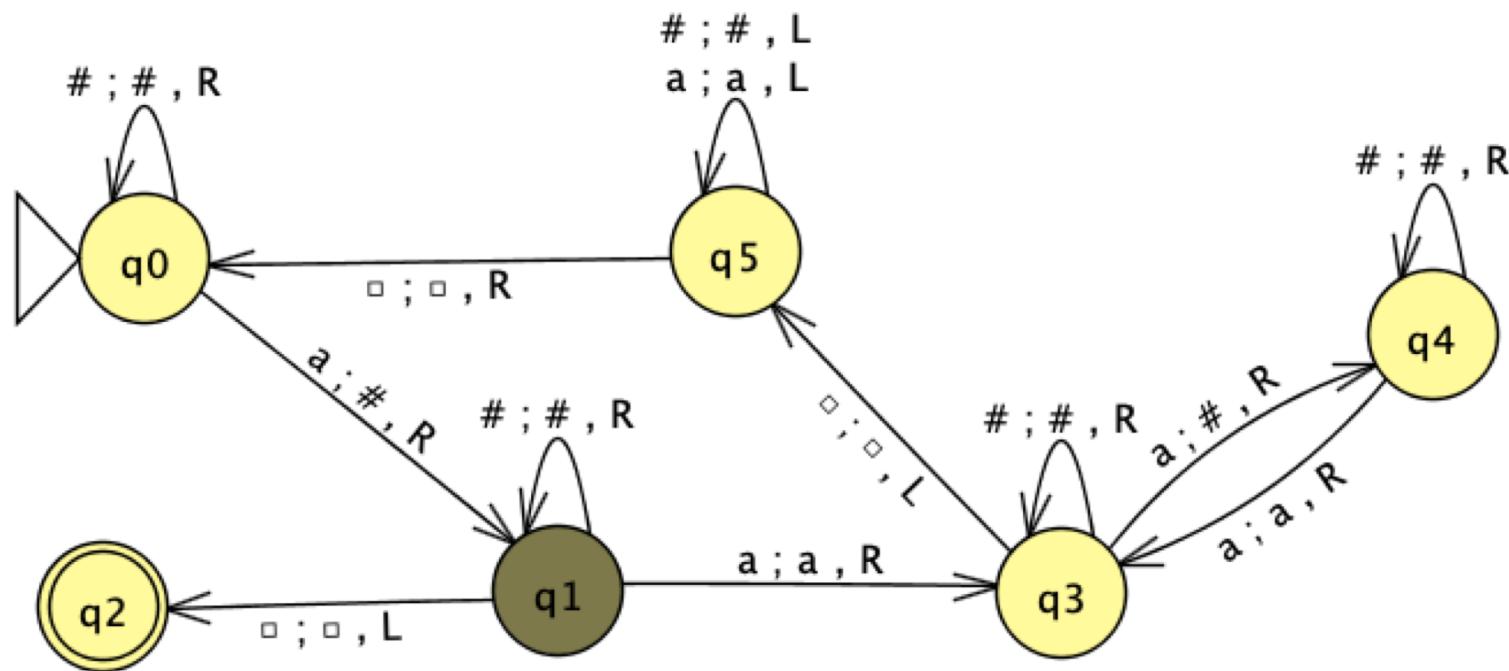


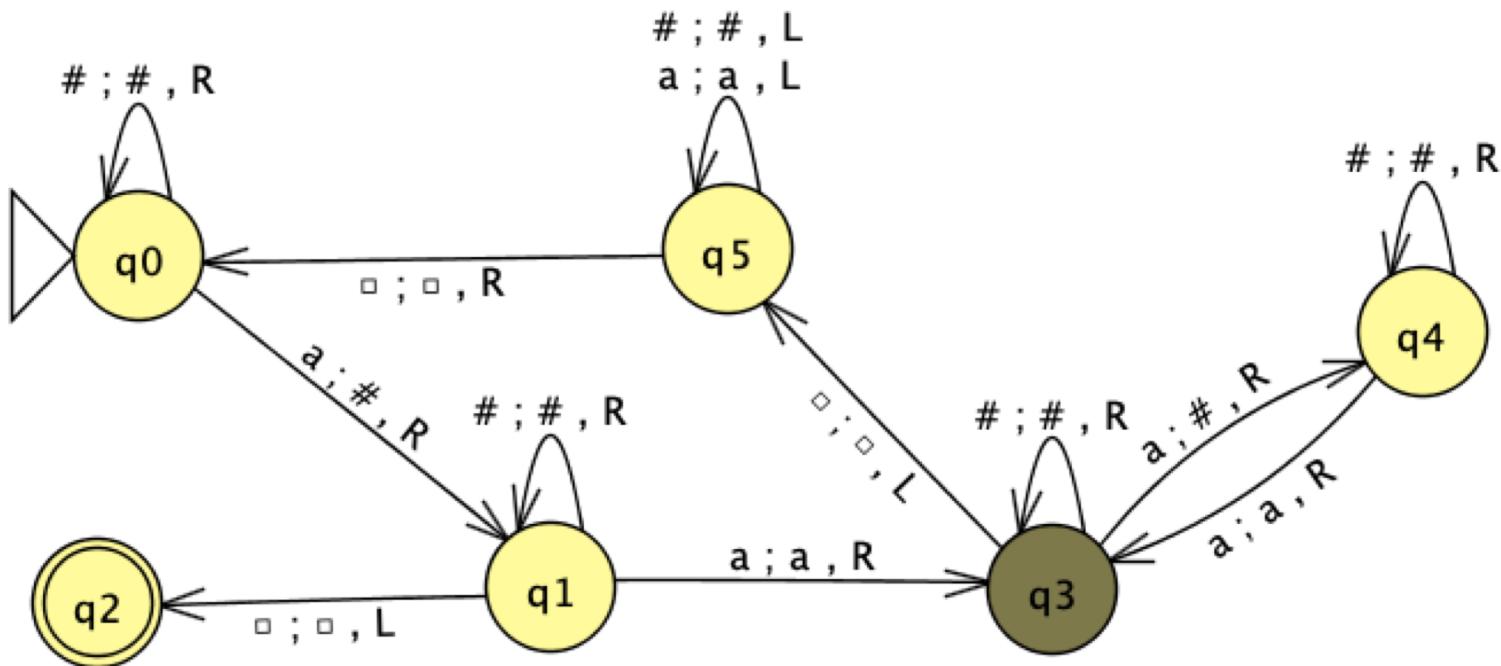


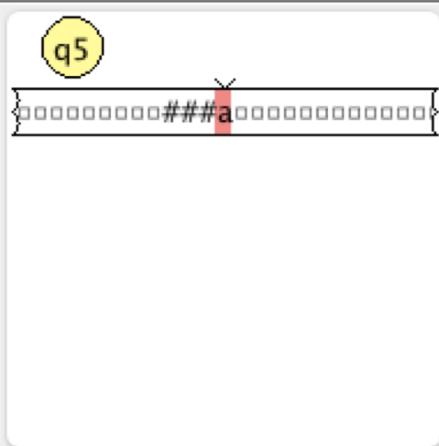
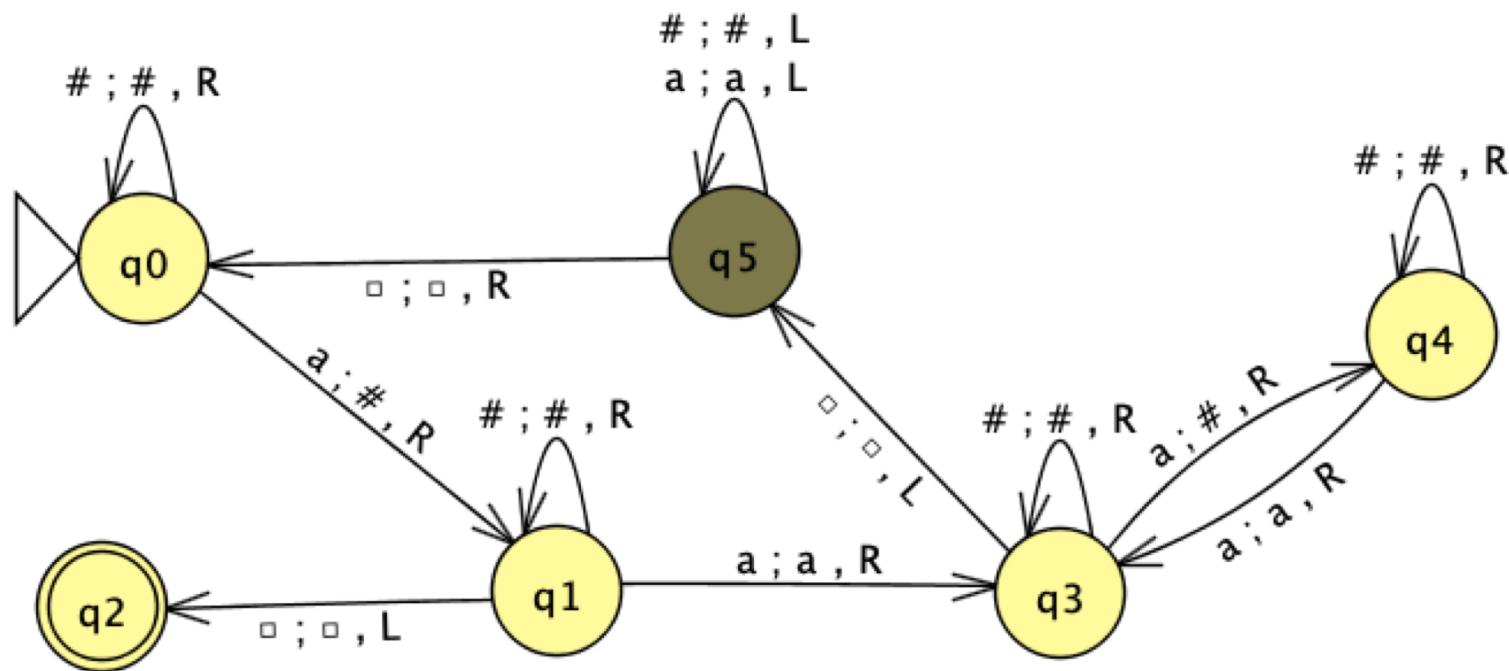


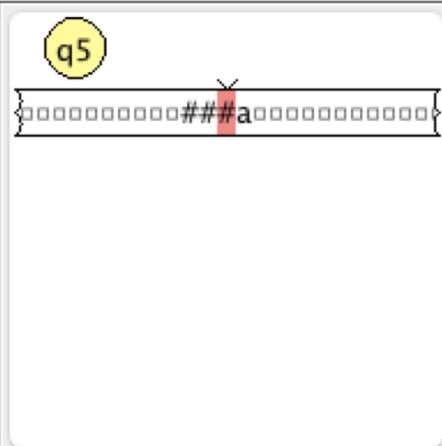
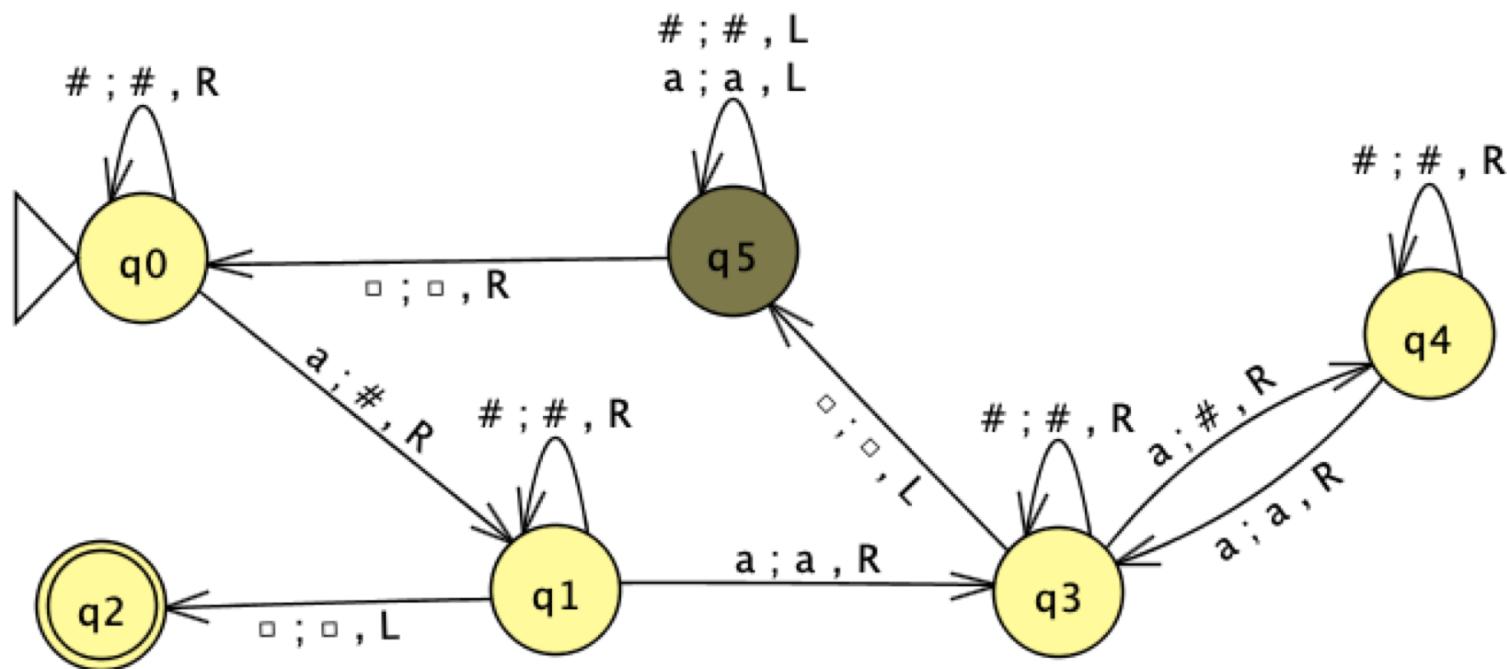


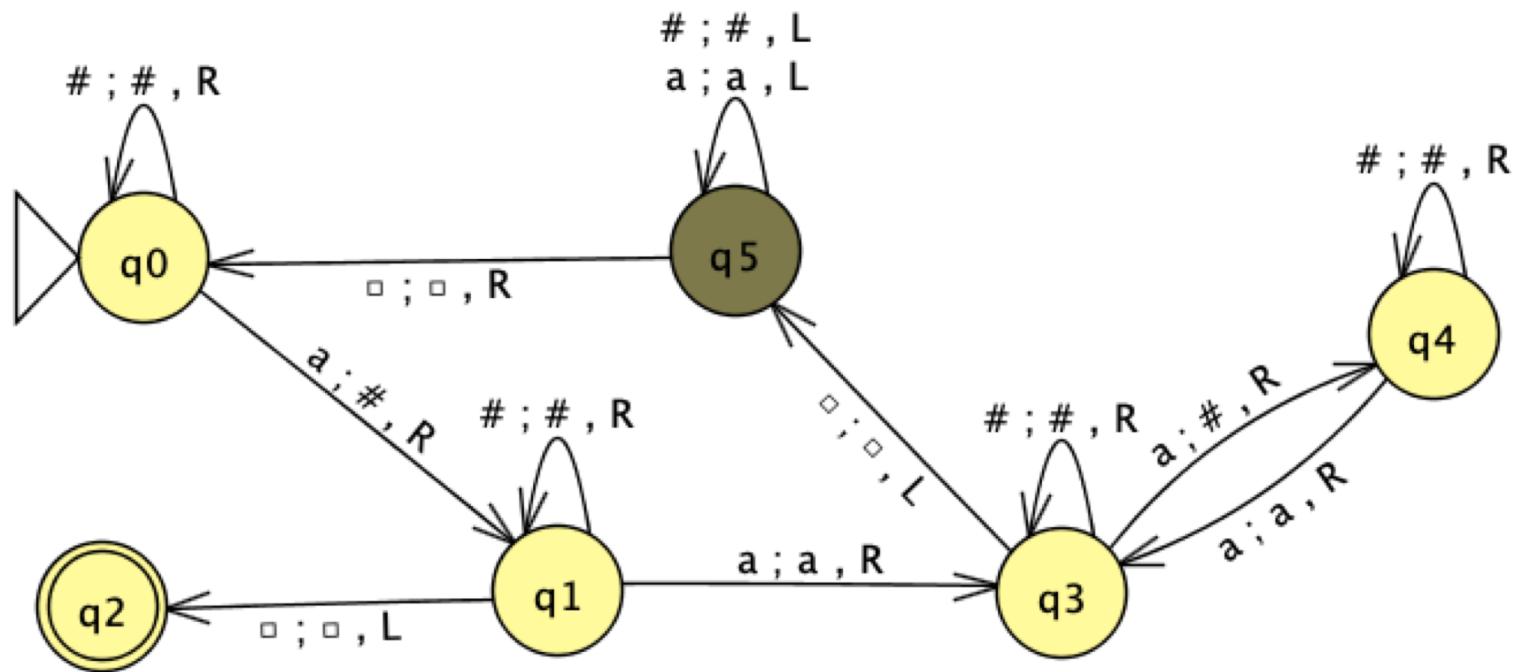






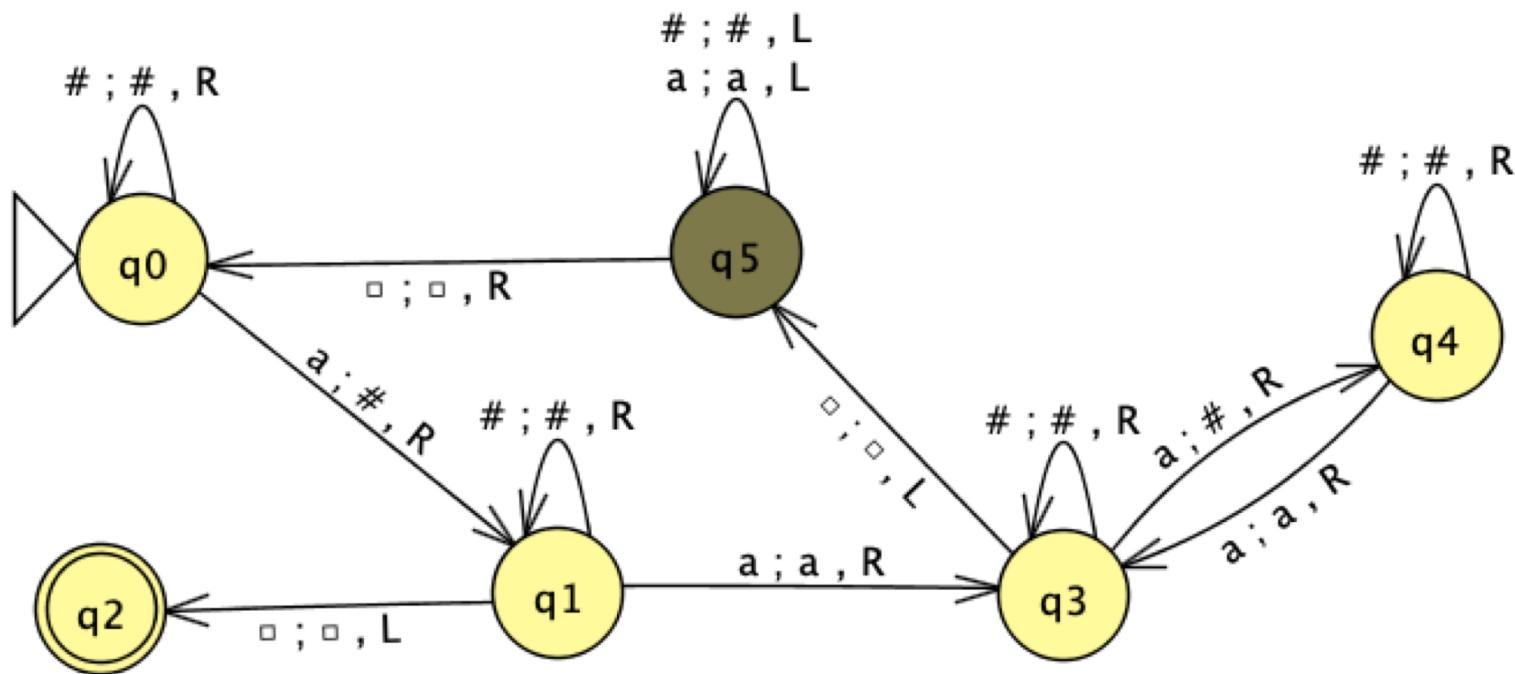


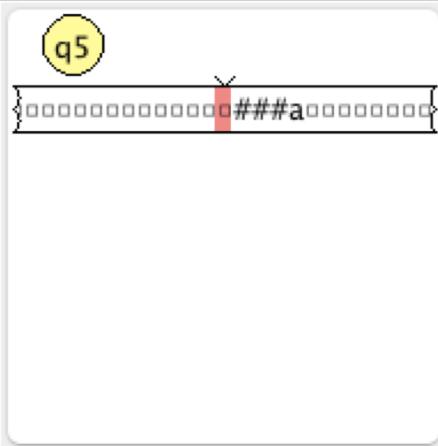
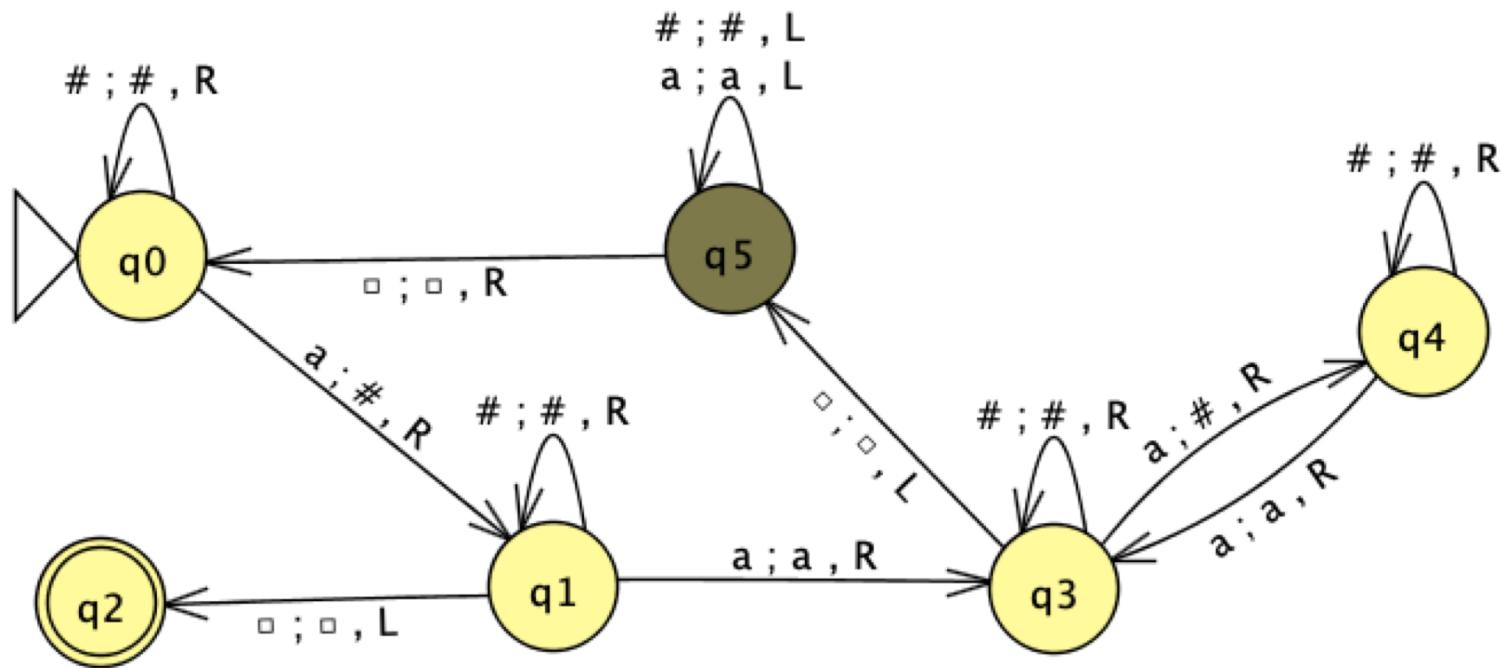


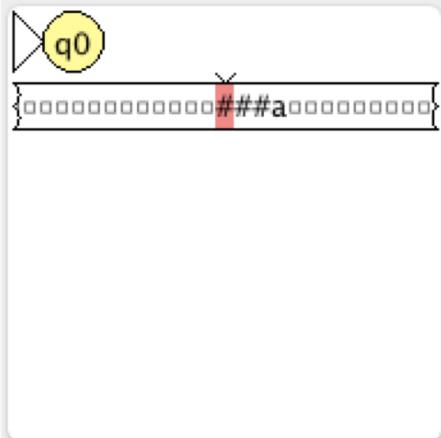
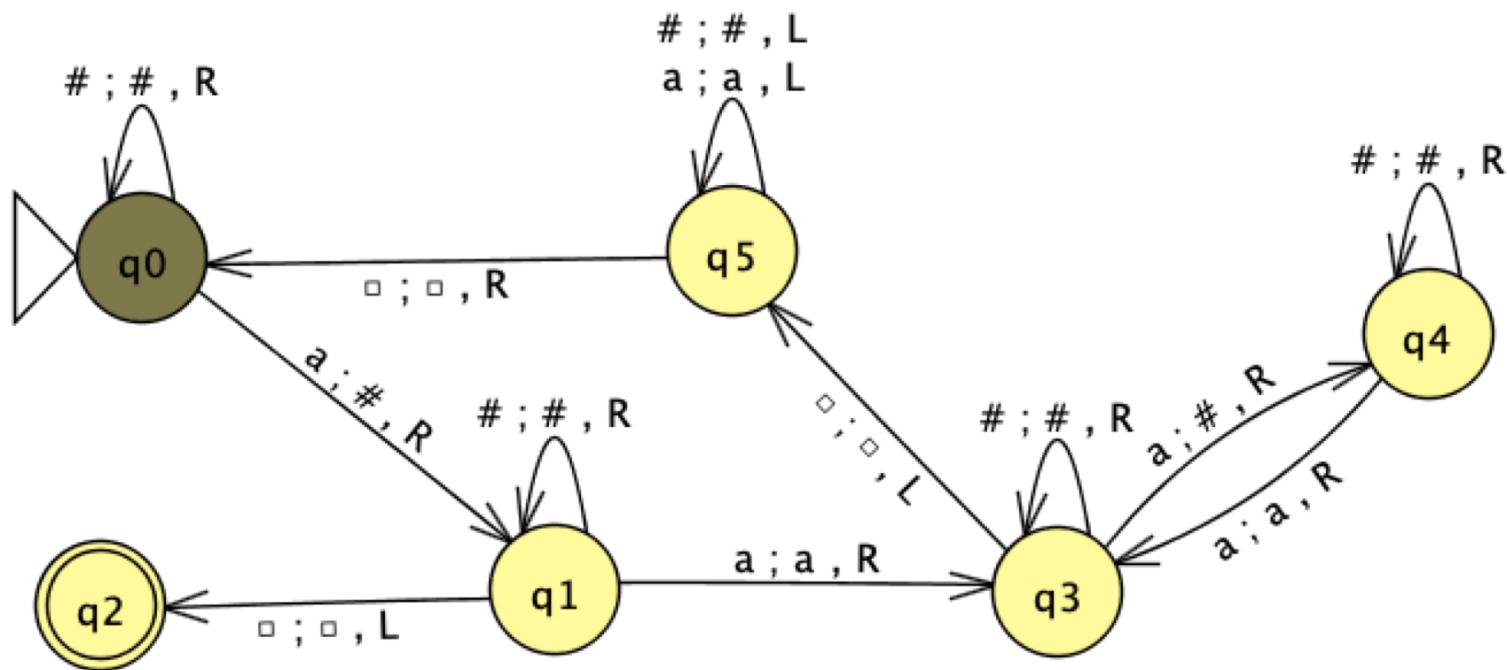


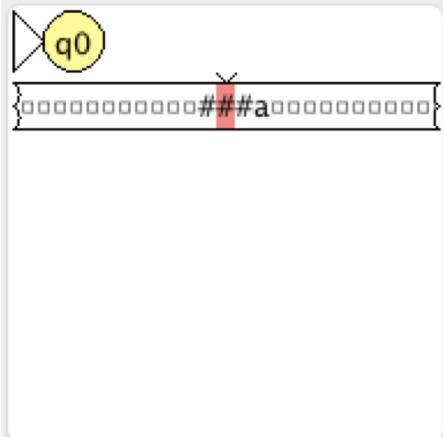
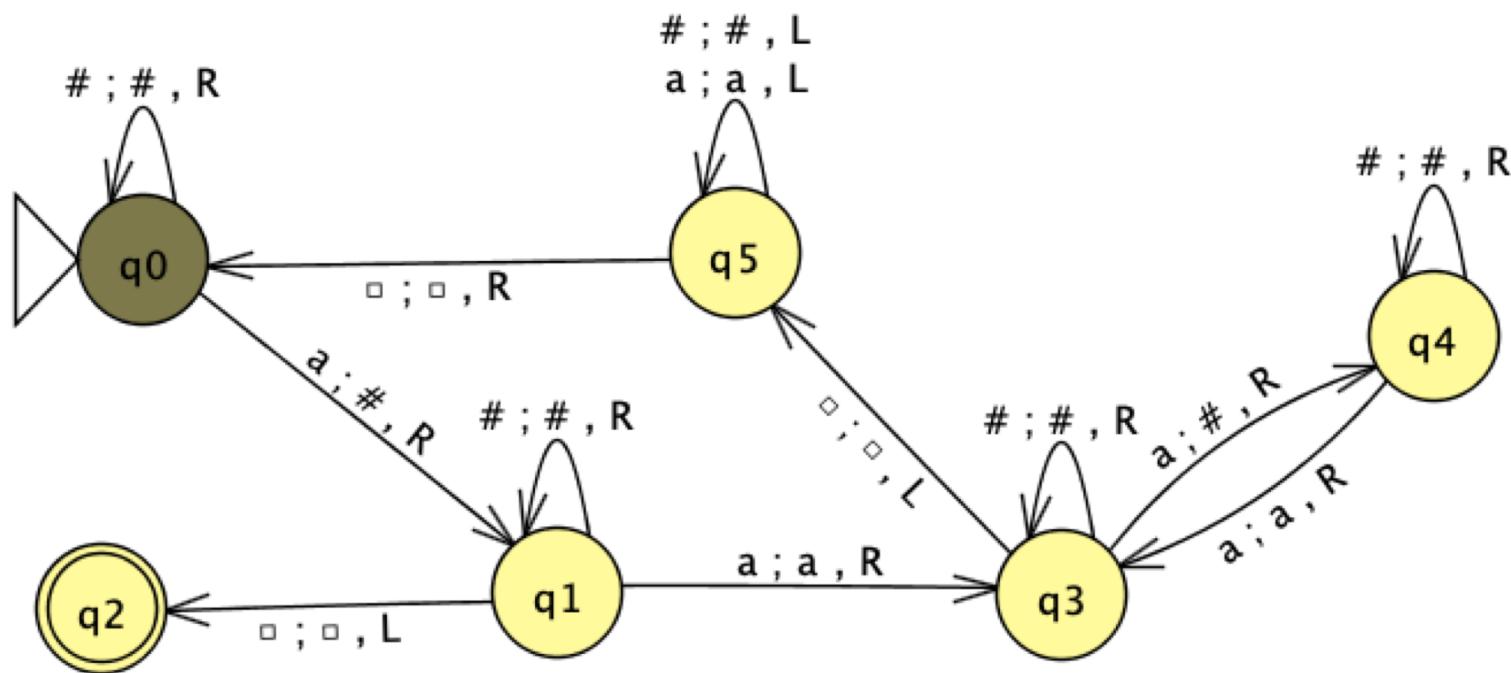
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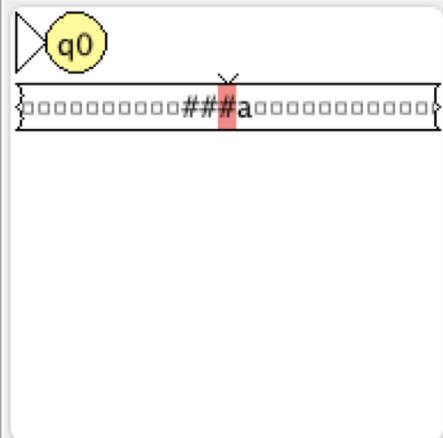
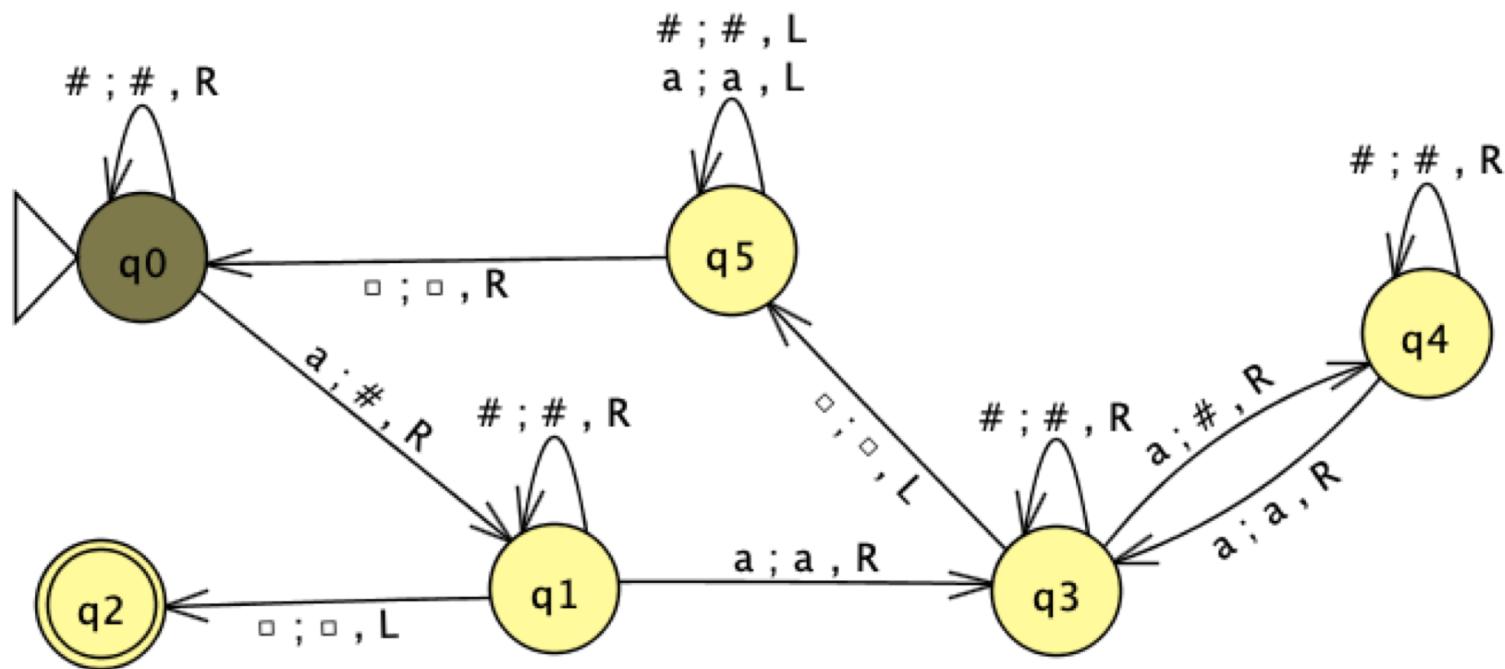
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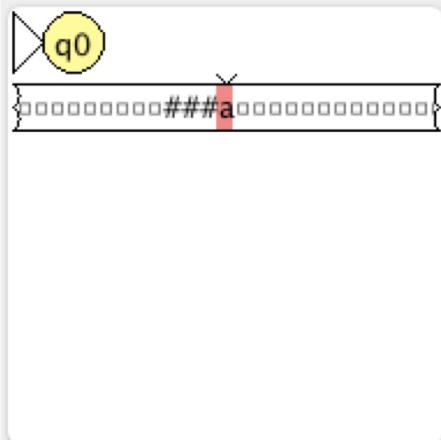
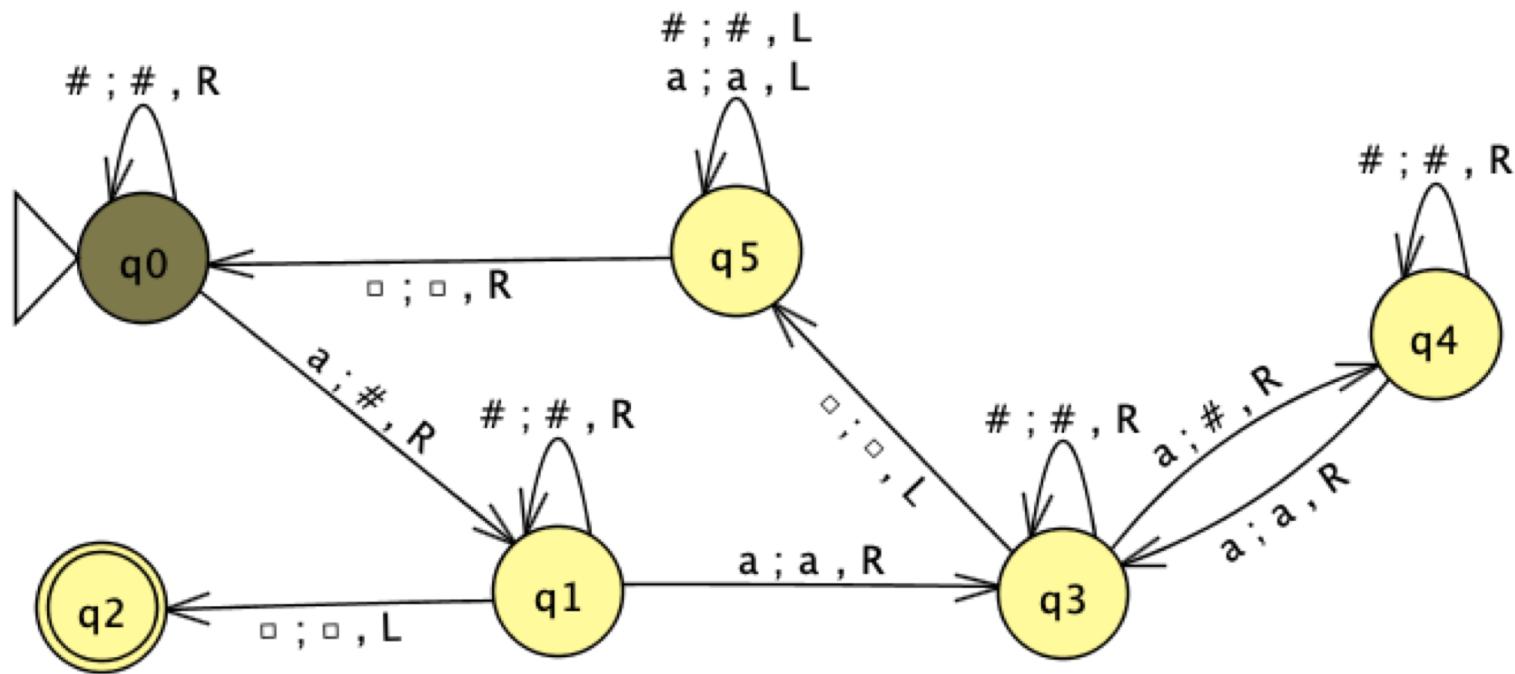


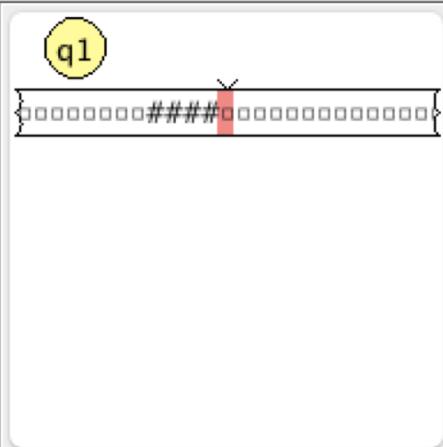
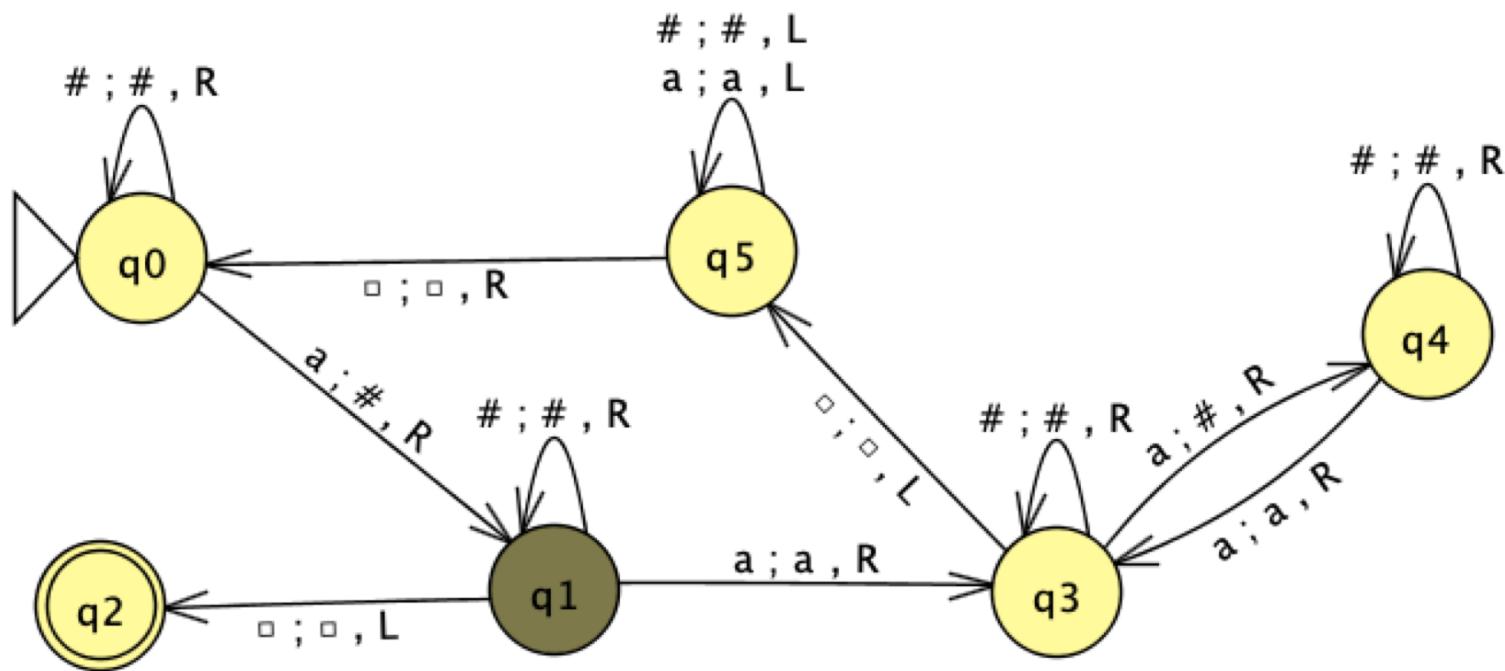


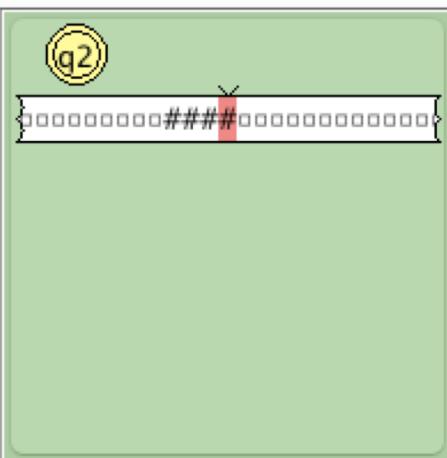
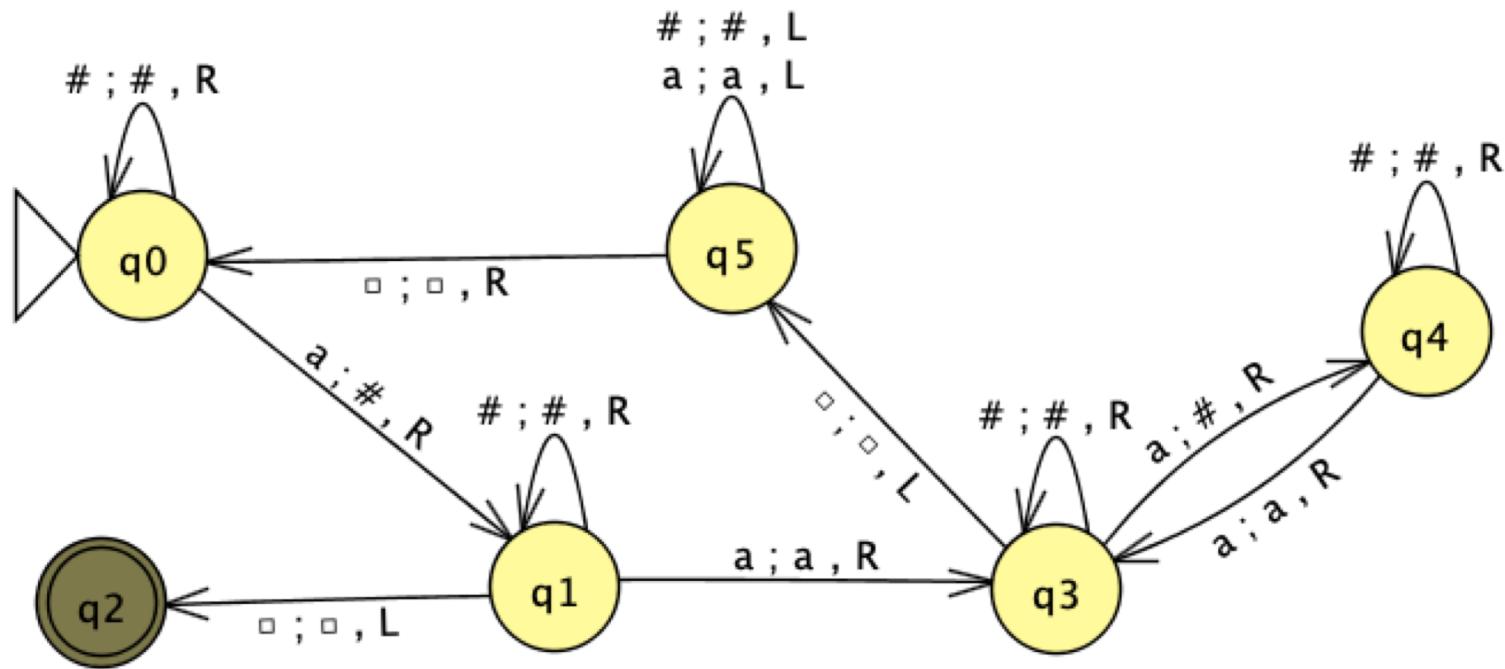












Simulação de cadeia rejeitada

