

P2.E1.6

$$\begin{cases} L_0 = 1.L_0 \mid 0.L_1 \mid \lambda \\ L_1 = 1.L_1 \mid 0.L_0 \end{cases}$$

$$L_0 = \underbrace{1.L_0}_{\alpha} \mid \underbrace{0.L_1 \mid \lambda}_{\beta} \xRightarrow{\text{ARDEN}} L_0 = 1^* \beta = 1^* (0.L_1 \mid \lambda) \\ = 1^* 0.L_1 \mid 1^* \lambda \\ = 1^* 0.L_1 \mid 1^*$$

$\lambda \notin L(\alpha)$

$$L_1 = 1.L_1 \mid 0.L_0 = 1.L_1 \mid 0(1^* 0.L_1 \mid 1^*) \\ = 1.L_1 \mid 01^* 0.L_1 \mid 01^* \\ = \underbrace{(1 \mid 01^* 0)}_{\alpha} L_1 \mid \underbrace{01^*}_{\beta} \xRightarrow{\text{ARDEN}} L_1 = (1 \mid 01^* 0)^* 01^*$$

$\lambda \notin L(\alpha)$

$$ER = (1 \mid 01^* 0)^* 01^*$$