S_{t+1} = .9S_t + .2C_t and C_{t+1} = .1S_t + .8C_t. Using matrix notation we obtain

$$\begin{bmatrix} S_{t+1} \\ C_{t+1} \end{bmatrix} = \begin{bmatrix} .9 & .2 \\ .1 & .8 \end{bmatrix} \begin{bmatrix} S_t \\ C_t \end{bmatrix}$$