

Se da una matriz T de transición y un vector inicial de probabilidades P_0 .
 Calcólese P_1, P_2, P_3 .

$$24) T = \begin{bmatrix} \frac{1}{8} & \frac{7}{8} \\ \frac{2}{3} & \frac{1}{3} \end{bmatrix}; \quad P_0 = \begin{bmatrix} \frac{2}{5} & \frac{3}{5} \end{bmatrix}$$

$$P_1 = P_0 T = \begin{bmatrix} \frac{2}{5} & \frac{3}{5} \end{bmatrix} \begin{bmatrix} \frac{1}{8} & \frac{7}{8} \\ \frac{2}{3} & \frac{1}{3} \end{bmatrix} = \begin{bmatrix} \left(\frac{2}{5}\right)\left(\frac{1}{8}\right) + \left(\frac{3}{5}\right)\left(\frac{2}{3}\right) & \left(\frac{2}{5}\right)\left(\frac{7}{8}\right) + \left(\frac{3}{5}\right)\left(\frac{1}{3}\right) \end{bmatrix}$$

$$= \begin{bmatrix} \frac{2}{40} + \frac{6}{15} & \frac{14}{40} + \frac{3}{15} \end{bmatrix} = \begin{bmatrix} \frac{9}{20} & \frac{11}{20} \end{bmatrix} // = P_1$$

$$P_2 = P_1 T = \begin{bmatrix} \frac{9}{20} & \frac{11}{20} \end{bmatrix} \begin{bmatrix} \frac{1}{8} & \frac{7}{8} \\ \frac{2}{3} & \frac{1}{3} \end{bmatrix} = \begin{bmatrix} \left(\frac{9}{20}\right)\left(\frac{1}{8}\right) + \left(\frac{11}{20}\right)\left(\frac{2}{3}\right) & \left(\frac{9}{20}\right)\left(\frac{7}{8}\right) + \left(\frac{11}{20}\right)\left(\frac{1}{3}\right) \end{bmatrix}$$

$$= \begin{bmatrix} \frac{9}{160} + \frac{22}{60} & \frac{63}{160} + \frac{11}{60} \end{bmatrix} = \begin{bmatrix} \frac{203}{480} & \frac{277}{480} \end{bmatrix} //$$

$$P_3 = P_2 T = \begin{bmatrix} \frac{203}{480} & \frac{277}{480} \end{bmatrix} \begin{bmatrix} \frac{1}{8} & \frac{7}{8} \\ \frac{2}{3} & \frac{1}{3} \end{bmatrix} = \begin{bmatrix} \left(\frac{203}{480}\right)\left(\frac{1}{8}\right) + \left(\frac{277}{480}\right)\left(\frac{2}{3}\right) & \left(\frac{203}{480}\right)\left(\frac{7}{8}\right) + \left(\frac{277}{480}\right)\left(\frac{1}{3}\right) \end{bmatrix}$$

$$= \begin{bmatrix} \frac{203}{3840} + \frac{554}{1440} & \frac{1421}{3840} + \frac{277}{1440} \end{bmatrix}$$

$$= \begin{bmatrix} \frac{5041}{11520} & \frac{6479}{11520} \end{bmatrix} // = P_3$$