

una matriz T de transición y un vector inicial de probabilidades p_0 . 03-07-2020
 calcular P_1, P_2, P_3

$$T = \begin{pmatrix} 0 & 1 & 0 \\ 1/2 & 0 & 1/2 \\ 1/3 & 1/3 & 1/3 \end{pmatrix}; P_0 = \begin{pmatrix} 1/2 & 3/8 & 1/8 \end{pmatrix}$$

$$P_1 = P_0 T = \begin{bmatrix} 1/2 & 3/8 & 1/8 \end{bmatrix} \begin{bmatrix} 0 & 1 & 0 \\ 1/2 & 0 & 1/2 \\ 1/3 & 1/3 & 1/3 \end{bmatrix}$$

$$= \begin{bmatrix} (1/2)(0) + 3/8(1/2) + 1/8(1/3) & 1/2(1) + 3/8(0) + 1/8(1/3) & 1/8(0) + 3/8(1/2) + 1/8(1/3) \end{bmatrix}$$

$$= \begin{bmatrix} (0 + 3/16 + 1/24) & (1/2 + 0 + 1/24) & (0 + 3/16 + 1/24) \end{bmatrix}$$

$$= \begin{bmatrix} 11/48 & 13/24 & 11/48 \end{bmatrix} \leftarrow P_1$$

$$P_2 = P_1 T = \begin{bmatrix} 11/48 & 13/24 & 11/48 \end{bmatrix} \begin{bmatrix} 0 & 1 & 0 \\ 1/2 & 0 & 1/2 \\ 1/3 & 1/3 & 1/3 \end{bmatrix}$$

$$= \begin{bmatrix} 11/48(0) + 13/24(1/2) + 11/48(1/3) & 11/48(1) + 13/24(0) + 11/48(1/3) & 11/48(0) + 13/24(1/2) + 11/48(1/3) \end{bmatrix}$$

$$= \begin{bmatrix} (0 + 13/48 + 11/144) & (11/48 + 0 + 11/144) & (0 + 13/48 + 11/144) \end{bmatrix}$$

$$= \begin{bmatrix} 25/72 & 11/36 & 25/72 \end{bmatrix} \leftarrow P_2$$

$$P_3 = P_2 T = \begin{bmatrix} 25/72 & 11/36 & 25/72 \end{bmatrix} \begin{bmatrix} 0 & 1 & 0 \\ 1/2 & 0 & 1/2 \\ 1/3 & 1/3 & 1/3 \end{bmatrix}$$

$$= \begin{bmatrix} 25/72(0) + 11/36(1/2) + 25/72(1/3) & 25/72(1) + 11/36(0) + 25/72(1/3) & 25/72(0) + 11/36(1/2) + 25/72(1/3) \end{bmatrix}$$

$$= \begin{bmatrix} (0 + 11/72 + 25/216) & (25/72 + 0 + 25/216) & (0 + 11/72 + 25/216) \end{bmatrix}$$

$$= \begin{bmatrix} 29/108 & 25/54 & 29/108 \end{bmatrix} \leftarrow P_3$$