(R2 q.3 u2) cs

Calcular un vector fijo de probabilidades para T

$$T = \begin{pmatrix} 2/3 & 1/6 & 1/6 \\ 1/4 & 1/2 & 1/4 \\ 0 & 0 & 1 \end{pmatrix} \quad (x, y, z)$$

$$tT = (x\ y\ z)\begin{pmatrix} 2/3 & 1/6 & 1/6 \\ 1/4 & 1/2 & 1/4 \\ 0 & 0 & 1 \end{pmatrix}$$

$$= \left(2/3\,x + 1/4\,y,\ 1/6\,x + 1/2\,y,\ 1/6\,x + 1/4\,y + z\right)$$

$$\Rightarrow \begin{cases} 2/3\,x + 1/4\,y = x \\ 1/6\,x + 1/2\,y = y \\ 1/6\,x + 1/4\,y + z = z \end{cases} \Rightarrow \begin{aligned} x + y + z &= 1 \\ -1/3\,x + 1/4\,y &= 0 \\ 1/6\,x - 1/2\,y &= 0 \\ 1/6\,x + 1/4\,y &= 0 \end{aligned}$$

$$\left(\begin{array}{ccc|c} 1 & 1 & 1 & 1 \\ -1/3 & 1/4 & 0 & 0 \\ 1/6 & -1/2 & 0 & 0 \\ 1/6 & 1/4 & 0 & 0 \end{array}\right)$$

$R_2 - (1/3)R_1 \Rightarrow R_2$
$R_3 - (1/6)R_1 \to R_3$
$R_4 - (1/6)R_1 \to R_4$

$$\left(\begin{array}{ccc|c} 1 & 1 & 1 & 1 \\ 0 & 7/12 & 1/3 & 1/3 \\ 0 & -2/3 & -1/6 & -1/6 \\ 0 & 1/12 & -1/6 & -1/6 \end{array}\right)$$

$R_3 - (-8/7)R_2 \to R_3$
$R_4 - (1/7)R_2 \to R_4$

$$\sim \left(\begin{array}{ccc|c} 1 & 1 & 1 & 1 \\ 0 & 7/12 & 1/3 & 1/3 \\ 0 & 0 & 3/14 & 3/14 \\ 0 & 0 & -3/14 & -3/14 \end{array}\right)$$

$R_4 - (-1)R_3 \to R_4$

$$\left(\begin{array}{ccc|c} 1 & 1 & 1 & 1 \\ 0 & 7/12 & 1/3 & 1/3 \\ 0 & 0 & 3/14 & 3/14 \\ 0 & 0 & 0 & 0 \end{array}\right)$$

$$x + y + z = 1$$
$$7/12\,y + 1/3\,z = 0/3$$
$$3/14\,z = 3/14$$

$$\Rightarrow \quad z = 1$$

$$7/12\,y + 1/3\,z = 0/3$$
$$7/12\,y + 1/3\,(1) = 0/3$$
$$7/12\,y + 1/3 = 0/3\,(1)$$
$$7/12\,y = 1/3 - 1/3\,(1)$$
$$y = 0$$

$$x + y + z = 0$$
$$x + 0 + 1 = 0$$
$$x = 0$$

$$\therefore t = (0, 0, 1)$$