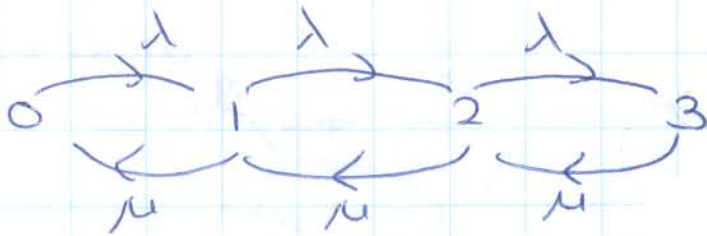


Opgave 1

$$\lambda = 3$$

$$\mu = \frac{60}{15} = 4$$



$$\lambda p_0 = \mu p_1$$

$$\lambda p_0 + \mu p_2 = \lambda p_1 + \mu p_1$$

$$\lambda p_1 + \mu p_3 = \lambda p_2 + \mu p_2$$

$$\lambda p_2 = \mu p_3$$

$$p_0 + p_1 + p_2 + p_3 = 1$$

$$p_1 = \frac{\lambda}{\mu} p_0 = \frac{3}{4} p_0$$

$$7 \cdot \frac{3}{4} p_0 = 3 p_0 + 4 p_2$$

$$2 \frac{1}{4} p_0 = 4 p_2$$

$$p_2 = \frac{9}{16} p_0$$

$$7 \cdot \frac{9}{16} p_0 = 3 \cdot \frac{3}{4} p_0 + 4 p_3$$

$$1 \frac{11}{16} p_0 = 4 p_3$$

$$\frac{27}{64} p_0 = p_3$$

$$3 \cdot \frac{9}{16} p_0 = 4 \cdot \frac{27}{64} p_0$$

$$1 \frac{11}{16} p_0 = 1 \frac{11}{16} p_0$$

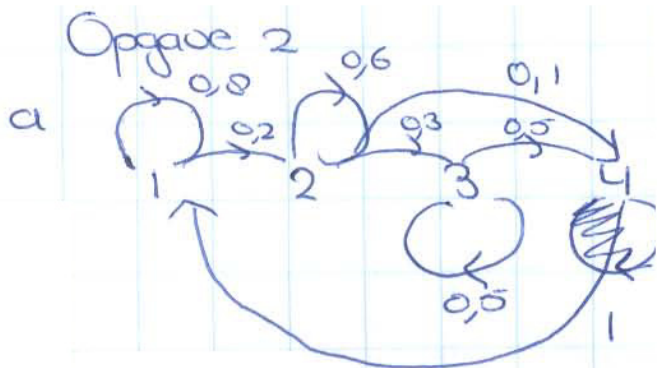
$$p_0 + \frac{3}{4} p_0 + \frac{9}{16} p_0 + \frac{27}{64} p_0 = 1$$

$$2 \frac{47}{64} p_0 = 1 \quad p_0 = \frac{64}{125}$$

$$p_0 = \frac{64}{125} \quad p_1 = \frac{48}{125} \quad p_2 = \frac{36}{125} \quad p_3 = \frac{27}{125}$$

$$(p_0, p_1, p_2, p_3) = \frac{1}{125} (64, 48, 36, 27)$$

$$c \mu(p_1 + p_2 + p_3) = 4 \cdot \frac{111}{175} = \frac{444}{175} = 2,54$$



$$P = \begin{pmatrix} 0,8 & 0,2 & 0 & 0 \\ 0 & 0,6 & 0,3 & 0,1 \\ 0 & 0 & 0,5 & 0,5 \\ 1 & 0 & 0 & 0 \end{pmatrix}$$

$$(x_1, x_2, x_3, x_4) \begin{pmatrix} 0,8 & 0,2 & 0 & 0 \\ 0 & 0,6 & 0,3 & 0,1 \\ 0 & 0 & 0,5 & 0,5 \\ 1 & 0 & 0 & 0 \end{pmatrix} = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{pmatrix}$$

$$0,8x_1 + x_4 = x_1$$

$$0,2x_1 + 0,6x_2 = x_2$$

$$0,3x_2 + 0,5x_3 = x_3$$

$$0,1x_2 + 0,5x_3 = x_4$$

$$0,2x_1 = 0,4x_2 \quad x_2 = \frac{1}{2}x_1$$

$$0,3x_2 = 0,5x_3 \quad x_3 = \frac{2}{5}x_2 = \frac{2}{5} \cdot \frac{1}{2}x_1 = \frac{1}{5}x_1$$

$$x_1 + x_2 + x_3 + x_4 = 1 \quad x_1 + \frac{1}{2}x_1 + \frac{1}{5}x_1 + \frac{3}{10}x_1 = 1$$

$$x_1 = \frac{10}{10} = 1$$

$$x_2 = \frac{1}{2} = 0,5$$

$$x_3 = \frac{1}{5} = 0,2$$

$$(p_1, p_2, p_3) = \frac{1}{10} (10, 5, 3)$$

$$b \quad 1000 \cdot \frac{5}{9} + 2000 \cdot \frac{5}{10} + 4000 \cdot \frac{1}{2} + 40000 \cdot 0,1 \frac{5}{10} + 40000 \cdot 0,5 \cdot \frac{5}{10}$$

page 3

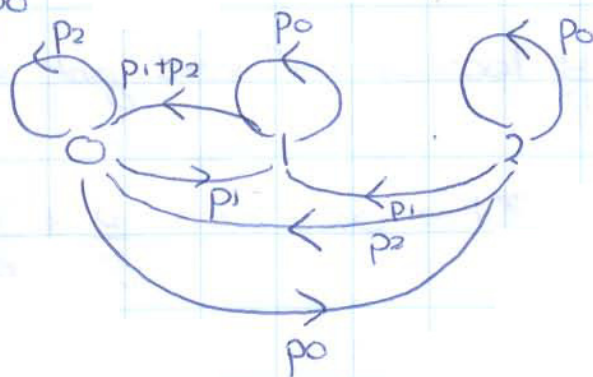
b

i j 0 1 2

0 p₂ p₁ p₀

1 p₁+p₂ p₀ 0

2 p₂ p₁ p₀



$$\pi_0 = p_2 \pi_0 + (p_1 + p_2) \pi_1 + p_2 \pi_2$$

$$\pi_1 = p_0 \pi_1 + p_1 \pi_2 + p_1 \pi_0$$

$$\pi_2 = p_0 \pi_2 + p_0 \pi_0$$

$$\pi_0 + \pi_1 + \pi_2 = 1$$

$$\pi_0 = 0,05 \pi_0 + 0,25 \pi_1 + 0,75 \pi_2$$

$$\pi_1 = 0,75 \pi_1 + 0,20 \pi_2 + 0,20 \pi_0$$

$$\pi_2 = 0,75 \pi_2 + 0,75 \pi_0$$

$$0,95 \pi_0 = 0,25 \pi_1 + 0,75 \pi_2$$

$$0,25 \pi_1 = 0,20 \pi_2 + 0,20 \pi_0$$

$$0,25 \pi_2 = 0,75 \pi_0$$

$$\pi_2 = 3 \pi_0$$

$$\pi_2 = 3 \pi_0$$

$$0,25 \pi_1 = 0,8 \pi_0$$

$$\pi_1 = 3,2 \pi_0$$

$$\pi_0 + 3\pi_0 + 3\frac{1}{5}\pi_0 = 1$$

$$\pi_0 = \frac{5}{36}$$

$$\pi_1 = \frac{4}{9}$$

$$\pi_2 = \frac{16}{36}$$

$\frac{5}{36}$ per dag bestellen telkoost $\frac{4}{9} \cdot 0,25$

$$100 \cdot \frac{5}{36} + \frac{4}{9} \cdot 0,25 \cdot 50 = 15$$