

Homework K 19

Problem 19.1

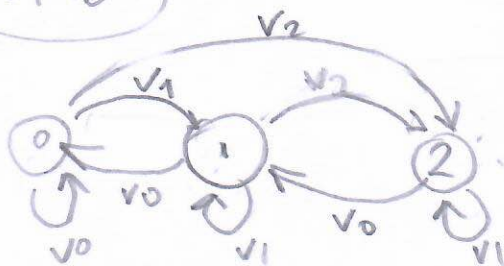
19.1.A

$$\lambda = \frac{1}{2}$$

$$v_i = \int_0^{\infty} \frac{(\frac{1}{2}x)^i}{i!} e^{-\frac{x}{2}} dx$$

$$v_i = \frac{(\frac{1}{2})^i}{i!} e^{-\frac{1}{2}}$$

19.1.B



$$v_0 = 0.61 \quad v_1 = 0.30 \quad v_2 = 0.09$$

$P =$

	0	1	2
0	0.61	0.3	0.09
1	0.61	0.30	0.09
2	0	0.61	0.30

$$\pi_0^d (v_2 + v_1) = \pi_1^d v_0 \Rightarrow \pi_0^d 0.31 = \pi_1^d 0.61 \Rightarrow \pi_0^d = \pi_1^d 1.97$$

$$\pi_1^d (v_0 + v_2) = \pi_2^d v_0 \Rightarrow \pi_1^d 0.62 = \pi_2^d 0.61 \Rightarrow \pi_1^d 1.02 = \pi_2^d$$

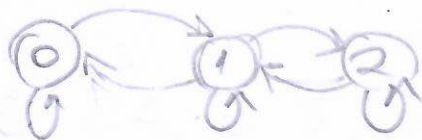
$$\pi_1^d = \frac{1}{1 + 0.62 + 1.97} = 0.28$$

$$\pi_0^d = 0.55 \quad \pi_2^d = 0.29$$

Problem 19.2

19.2.A

i = # in the system



$$p_{01} = \frac{\lambda}{2\lambda} = \frac{1/2}{1} = \frac{1}{2}$$

$$p_{00} = \frac{1}{2}$$

$$p_{12} = e^{-\lambda} = 0.61$$

$$p_{10} = 1 - \frac{\lambda}{2\lambda} = \frac{1}{2}$$

$$p_{11} = 0.11$$

$$p_{22} =$$

I know i need to calculate the probs. but i don't know how.

After this I would do π_i^c and calculating

$$\pi_i = \frac{\pi_i^c E[H_i]}{\sum \pi_i^c E[H_i]} \quad \text{it is } \pi_i^d$$