Expected time down, i.e. average waiting time in the system, W,

$$L = \sum_{n=0}^{4} n \cdot p_n \approx 0{,}3628$$

$$\bar{\lambda} = \sum_{n=0}^{4} \lambda_n p_n = 4\lambda p_0 + 3\lambda p_1 + 2\lambda p_2 + \lambda p_3 + 0 \cdot p_4 \approx 0{,}0301$$

<u>Little's formula:</u> $W = \frac{L}{\bar{\lambda}} \approx 12{,}05 < 13$ ok

- Two or more computers broken at the same time

$P(\#\text{ broken machines} \geq 2) = p_2 + p_3 + p_4 = 0{,}045 < 5\%$

OK

Before different situation, indep. markov processes.

c) If a computer is down the time before it receives service must not exceed four hours.

Want $E[W_q \mid W_q > 0]$

Waiting time in queue

Note:

$$E[W_q] = \overbrace{E[W_q \mid W_q = 0]}^{=0} \cdot p(W_q = 0) + E[W_q \mid W_q > 0] \cdot p(W_q > 0)$$

$$\Rightarrow E[W_q \mid W_q > 0] = \frac{E[W_q]}{P(W_q > 0)}$$

Know

$$E[W_q] = W_q = W - \frac{1}{\mu} = 0{,}05$$

$$P(W_q > 0) = P(\#\text{ broken machines} \geq 3) = p_3 + p_4 = 0{,}0042$$

$$\Rightarrow E[W_q \mid W_q > 0] = 11{,}9 > 4$$

Not fulfilled