

$$P_r (X(1) Y(2) Z(3) = 4), \text{ Poisson Process, } \lambda=1$$

$$= P_r (P_0 [X(1) Y(2) Z(3) = 4])$$

$$= P_r \left(P_0 \left[\frac{X(1) Y(2) Z(3)}{4} = 0 \right] \right)$$

$$= P_r \left(P_0 \left[\frac{4}{4} (X(1) Y(2) Z(3)) = 0 \times 4 \right] \right)$$

$$= P_r \left(P_0 [X(1) Y(2) Z(3) = 0] \right)$$

$$= P_r (P_0 (X(1)=0) \cdot P_0 (Y(2)=0) \cdot P_0 (Z(3)=0))$$

$$= \sum_{k=0}^{\infty} \left(\frac{1^k e^{-1}}{k!} \right) \cdot \left(\frac{1^k e^{-2}}{k!} \right) \left(\frac{1^k e^{-3}}{k!} \right)$$

$$= \sum_{k=0}^{\infty} \frac{e^{-6}}{(k!)^3}$$