

$$\frac{e^{-\lambda} \cdot \frac{\lambda^{-k}}{k!}}{e^{-\lambda} \cdot \frac{\lambda^{-k}}{k!} + (1 - \rho) \cdot e^{-\lambda} \cdot \sum_{i=0}^{k-1} \frac{\lambda^{-i}}{i!}} = \frac{Poisson(k, \lambda, 0)}{Poisson(k, \lambda, 0) + (1 - \rho) \cdot Poisson(k - 1, \lambda, 1)}$$