$X_1, \dots, X_n \sim Poiss(\lambda)$, $\mathbb{E}[X_i] = var[X_i] = \lambda$

$$\hat{\lambda} = \bar{X} \sim N\left(\lambda, \frac{\lambda}{n}\right)$$

$$\lambda \in \left\{ \hat{\lambda} \pm z_{1-\frac{\alpha}{2}} \cdot \sqrt{\frac{\hat{\lambda}}{n}} \right\}$$

$X_1, \dots, X_{n_x} \sim Poiss(\lambda_x)$

$Y_1, \dots, Y_{n_y} \sim Poiss(\lambda_y)$

$$\hat{\lambda}_x - \hat{\lambda}_y = \bar{X} - \bar{Y} \sim N\left(\lambda_x - \lambda_y, \frac{\lambda_x}{n_x} + \frac{\lambda_y}{n_y}\right)$$

$$\mathbb{P}(X = x) = \frac{e^{-\lambda} \cdot \lambda^x}{x!}$$

$$\mathbb{P}(X = x)\Big|_\lambda' = \frac{1}{x!}\left(-e^{-\lambda} \cdot \lambda^{x-1+1} + e^{-\lambda} \cdot x \cdot \lambda^{x-1}\right) =$$

$$= \underbrace{\frac{1}{x!} e^{-\lambda} \cdot \lambda^{x-1} \cdot (x - \lambda)}$$

$$\hat{\lambda} = \bar{X}$$

$$\widehat{\mathbb{P}(X=x)} = \frac{1}{x!} e^{-\hat{\lambda}} \cdot \hat{\lambda}^{(x-1)} \cdot (x - \hat{\lambda}) \sim N\left(\quad , \frac{\lambda}{n} \cdot (\quad)^2\right)$$

$$g(\hat{\lambda}) \sim N\left(g(\lambda), \frac{\lambda}{n} \cdot [g_\lambda'(\lambda)]^2\right)$$