

$$\prod_{i=1}^k \frac{\mu_i^{x_i} e^{-\mu_i}}{x_i!}$$

~~$$\sum_{i=1}^k \frac{\mu_i^{x_i} e^{-\mu_i}}{x_i!}$$~~

$$\frac{\mu^n}{n!} e^{-\mu}$$

9-12

marginal
joint

conditional

Poisson

indep. Poisson

multinomial

9-13

given

\vec{p}

multinomial

$$\mu = E(X_1 + \dots + X_n)$$

$$\begin{pmatrix} M_{11} & 0 \\ 0 & M_{22} \end{pmatrix} \begin{pmatrix} M_{11}^{-1} & 0 \\ 0 & M_{22}^{-1} \end{pmatrix}$$

$$= \begin{pmatrix} M_{11} M_{11}^{-1} & 0 \\ 0 & M_{22} M_{22}^{-1} \end{pmatrix}$$