

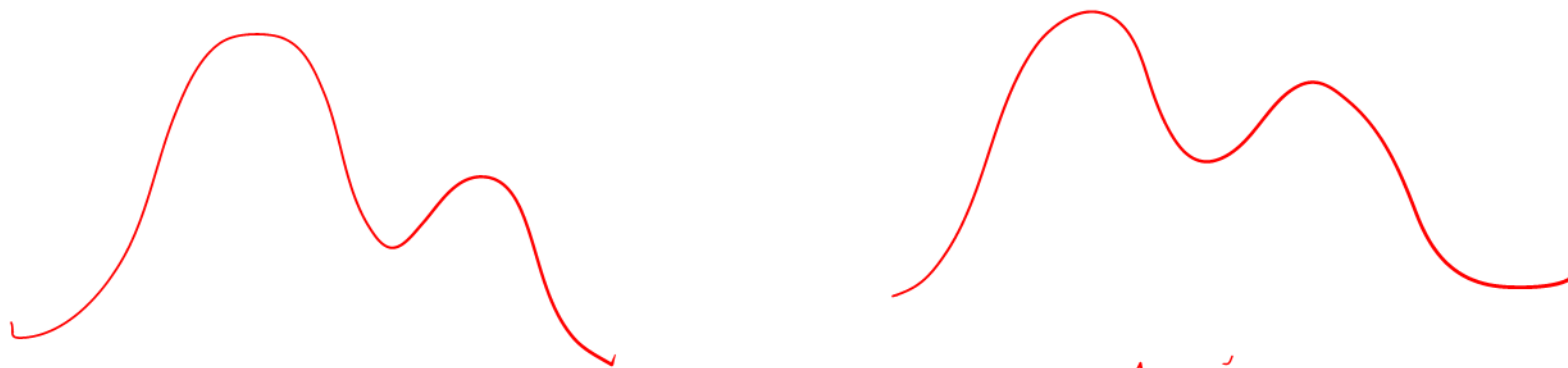
$$f_X(uv) f_Y[v(1-v)] |du| (u, v)$$

$$= \frac{\lambda^{\alpha_1}}{\Gamma(\alpha_1)} x^{\alpha_1-1} e^{-\lambda x} \frac{\lambda^{\alpha_2}}{\Gamma(\alpha_2)} y^{\alpha_2-1} e^{-\lambda y} u$$

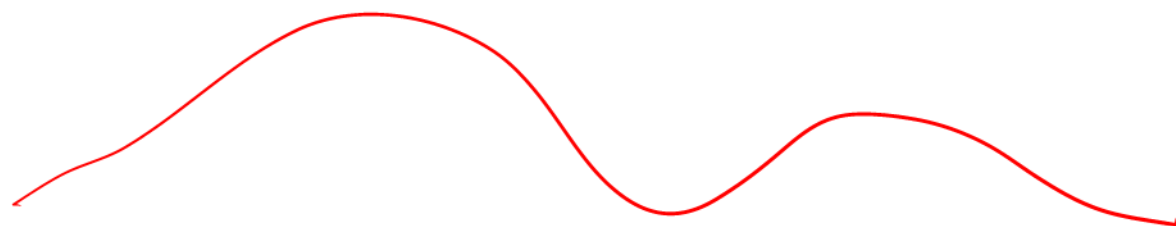
$$= \frac{\lambda^{\alpha_1} \lambda^{\alpha_2}}{\Gamma(\alpha_1) \Gamma(\alpha_2)} (uv)^{\alpha_1-1} e^{-\lambda uv} [u(1-v)]^{\alpha_2-1} \cdot u$$

$$\Gamma(\alpha + 1) = \alpha \Gamma(\alpha)$$

$$\begin{aligned}\Gamma(\alpha + 2) &= (\alpha + 1) \Gamma(\alpha + 1) \\ &= (\alpha + 1) \alpha \Gamma(\alpha)\end{aligned}$$



change location



change scale

$$Y = \mu + \sigma X$$

$$E(Y) = \mu + \sigma E(X)$$

$$\text{var}(Y) = \sigma^2 \text{var}(X)$$