

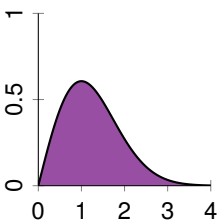
Probability Density Function (PDF)

PDF when $\sigma = 1$

Rayleigh

$$f(r, \theta; \sigma) = \frac{1}{2\pi} \frac{r}{\sigma^2} e^{\frac{-r^2}{2\sigma^2}}$$

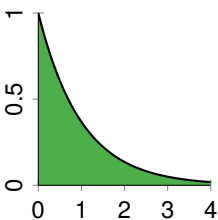
$$r \geq 0$$



Exponential

$$f(r, \theta; \sigma) = \frac{1}{2\pi} \frac{1}{\sigma} e^{\frac{-r}{\sigma}}$$

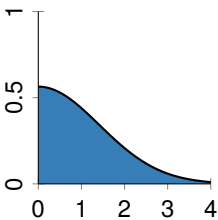
$$r \geq 0$$



Half-Normal

$$f(r, \theta; \sigma) = \frac{1}{2\pi} \frac{1}{\sigma\sqrt{\pi}} e^{\frac{-r^2}{4\sigma^2}}$$

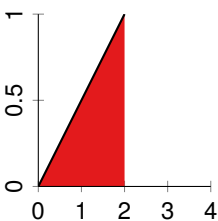
$$r \geq 0$$



Triangular

$$f(r, \theta; \sigma) = \frac{1}{2\pi} \frac{r}{2\sigma^2}$$

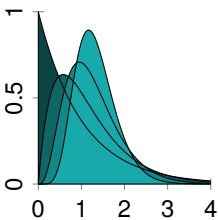
$$0 \leq r \leq 2\sigma$$



Gamma

$$f(r, \theta; \sigma, \alpha) = \frac{1}{2\pi} \frac{\left(\frac{\sqrt{a(a+1)}}{\sqrt{2}\sigma}\right)^\alpha}{\Gamma(a)} r^{\alpha-1} e^{-r\frac{\sqrt{a(a+1)}}{\sqrt{2}\sigma}}$$

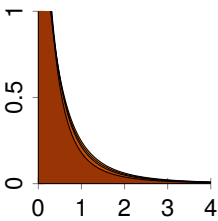
$$\alpha = 1, 2, 4, 8; \quad r \geq 0$$



Lomax

$$f(r, \theta; \sigma, \alpha) = \frac{1}{2\pi} \frac{\alpha \left(1 + \frac{r}{\sqrt{\sigma^2(\alpha-2)(\alpha-1)}}\right)^{-(\alpha+1)}}{\sqrt{\sigma^2(\alpha-2)(\alpha-1)}}$$

$$\alpha = 2.4, 2.6, 2.8, 3.0; \quad r \geq 0$$



Pareto

$$f(r, \theta; \sigma, \alpha) = \frac{1}{2\pi} \frac{\alpha \sqrt{\frac{2\sigma^2(\alpha-2)}{\alpha}}}{r^{\alpha+1}}$$

$$\alpha = 2.4, 2.6, 2.8, 3.0; \quad r \geq \sqrt{2\sigma^2(\alpha-2)/\alpha}$$

