**Theorem** [UNDER CONSTRUCTION!] The limiting distribution of the generalized gamma($\alpha, \beta, \gamma$) distribution is the log normal($\mu, \sigma$) distribution, as $\beta \to \infty$, $\alpha \to \infty$, $\gamma \to 0$, $\gamma^2 \beta \to 1/\sigma^2$, and $\alpha \beta^{(1/\gamma)} \to \mu$.

**Proof** [UNDER CONSTRUCTION!] Let the random variable $X$ have the generalized gamma($\alpha, \beta, \gamma$) distribution with probability density function

$$f(x) = \frac{\gamma x^{\gamma \beta - 1} e^{-(x/\alpha)^\gamma}}{\alpha^{\gamma \beta} \Gamma(\beta)} \quad x > 0.$$ 

Taking the limit as $\beta \to \infty$ yields

$$\lim_{\beta \to \infty} \frac{\gamma x^{\gamma \beta - 1} e^{-(x/\alpha)^\gamma}}{\alpha^{\gamma \beta} \Gamma(\beta)} =$$