Functional form

$$\mathcal{N}(x|\mu,\gamma^{-1}) = \frac{\sqrt{\gamma}}{\sqrt{2\pi}} e^{-\gamma \frac{(x-\mu)^2}{2}}$$

$$\mathcal{N}(x|\mu,\gamma^{-1}) \propto \gamma^{\frac{1}{2}} e^{-b\gamma}$$

$$p(\gamma) \propto \gamma^{a-1} e^{-b\gamma}$$

$$p(\gamma) = \Gamma(\gamma|a,b)$$