$$Waring(a, k, \rho) = NB(a, P) \underset{P}{\wedge} Beta\,(\rho, k)$$

$$Waring(a, k, \rho) = Poisson\,(\Lambda) \underset{\Lambda}{\wedge} Gamma\left(a, \frac{1-P}{P}\right) \underset{P}{\wedge} Beta\,(\rho, k)$$