

For each parameter we get a new density, then the parametric family of densities is the set of all such densities:

$$\mathcal{F}_{p_{\mathbf{x}}} := \{p_{\theta}(\mathbf{x}) \mid \forall \theta \in \Theta\} \quad (1)$$

where \mathbf{x} is a random variable.

After deciding which distribution \mathbf{z} and $\mathbf{x}|\mathbf{z}$ have the encoder and decoder approximate the posterior and likelihood by finding the best parameter within a chosen parameter space Θ .