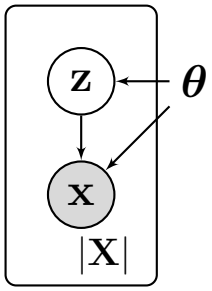
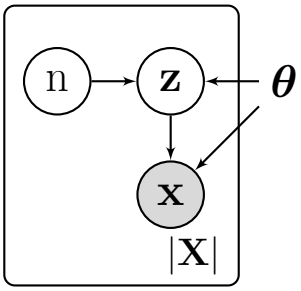


a) Standard VAE

$p_{\boldsymbol{\theta}}(\mathbf{x}) = \int p_{\boldsymbol{\theta}}(\mathbf{z}) p(\mathbf{x}|\mathbf{z}) d\mathbf{z}$



b) AIR

$p_{\boldsymbol{\theta}}(\mathbf{x}) = \sum_{n=1}^{N} p_N(n) \int p^{\mathbf{z}}_{\boldsymbol{\theta}}(\mathbf{z}|n) p^{\mathbf{x}}_{\boldsymbol{\theta}}(\mathbf{x}|\mathbf{z})$