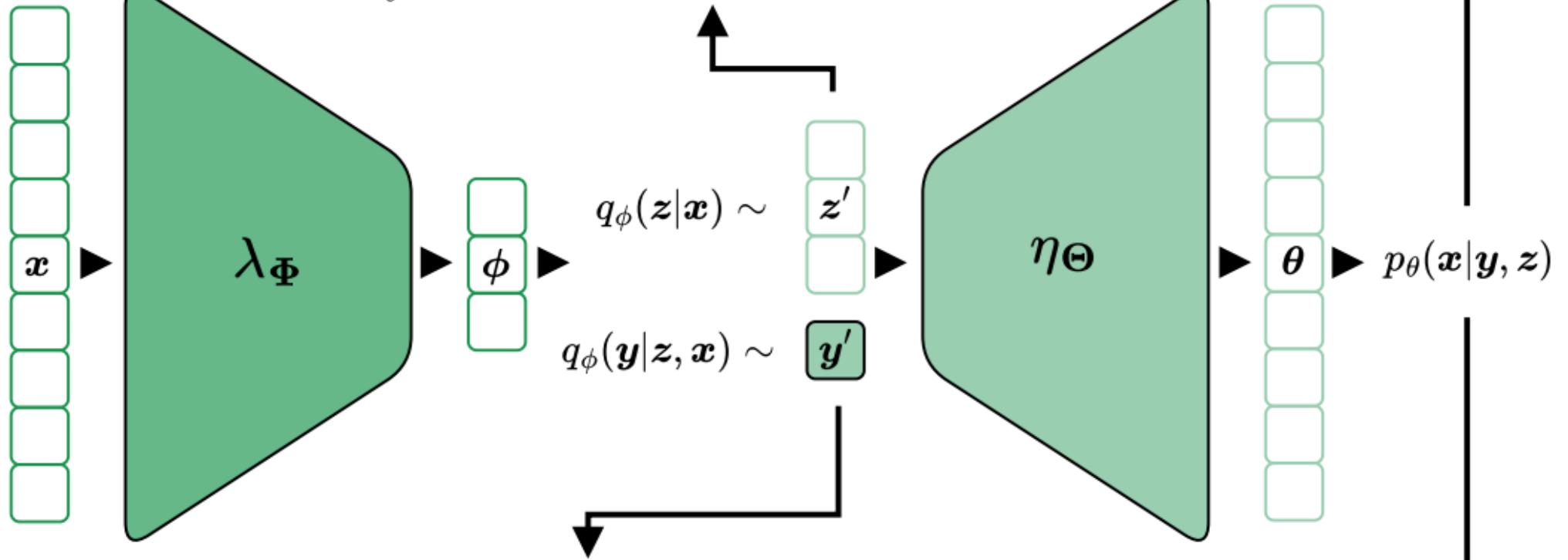


$$\mathcal{L}_U(\theta, \phi; x) = \sum_y q_\phi(y|x) \left( \mathbb{E}_{q_\phi(z|x,y)} \left[ \log \frac{p_\theta(x,y,z)}{q_\phi(z|x,y)} \right] \right) + \mathcal{H}(q_\phi(y|x))$$



$$\mathcal{L}_S(\theta, \phi, \mathbf{x}^m, \mathbf{y}^m) = (1 + \alpha) \log q_\phi(y|x) + \mathbb{E}_{q_\phi(z|x,y)} \left[ \log \frac{p_\theta(x,y,z)}{q_\phi(y,z|x)} \right]$$