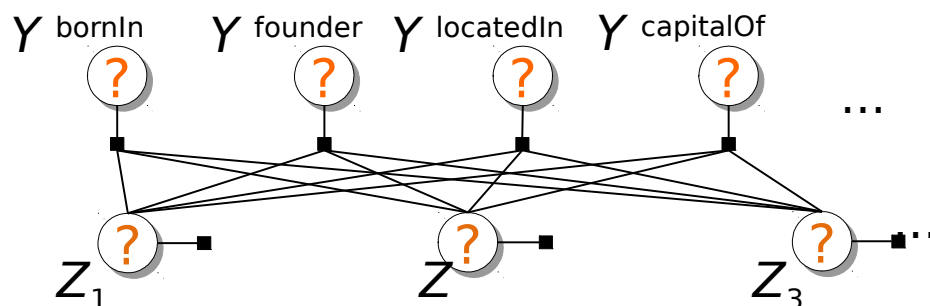


Inference

Need:

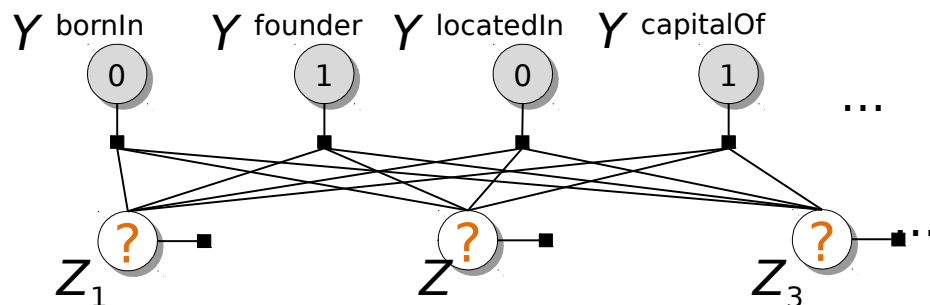
- Most likely sentence labels:



$$\arg \max_{\mathbf{y}, \mathbf{z}} p(\mathbf{y}, \mathbf{z} | \mathbf{x}; \theta)$$

Easy

- Most likely sentence labels *given* facts:



$$\arg \max_{\mathbf{z}} p(\mathbf{z} | \mathbf{x}, \mathbf{y}; \theta)$$

Challenging