

$$L(\theta^{(t+1)}) \geq \underline{\mathcal{L}(\theta^{(t+1)}, q^{(t+1)})}$$

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$$L(\theta^{(t)}) = \underline{\mathcal{L}(\theta^{(t)}, q^{(t+1)})}$$

$$\underline{\mathcal{L}(\theta^{(t+1)}, q^{(t+1)})}$$

choose

$$\theta^{(t+1)} = \operatorname{argmax}_{\theta} \mathcal{L}(\theta, q^{(t+1)})$$

*M-step*

$$\underline{\mathcal{L}(\theta^{(t)}, q^{(t)})}$$

$$\text{choose } q^{(t+1)} := p(Z | X, \theta^{(t)})$$

$$= \operatorname{argmax}_q \mathcal{L}(\theta^{(t)}, q)$$

*E-step*