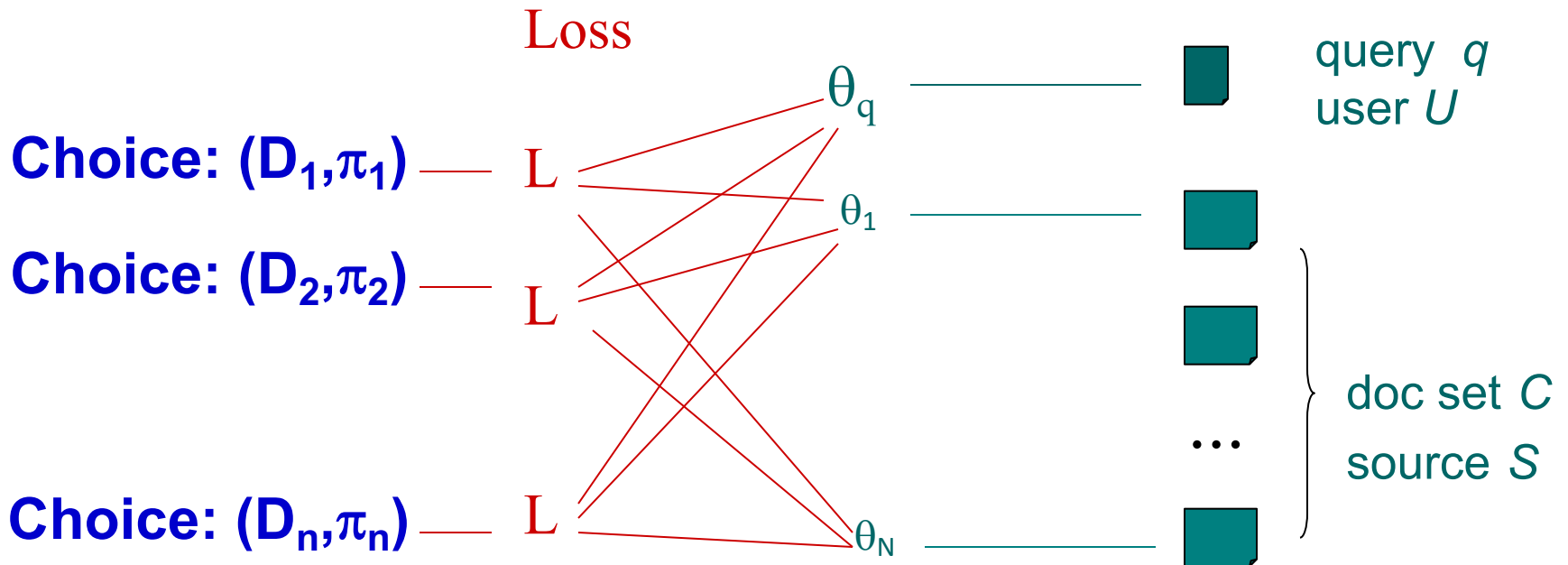


Applying Bayesian Decision Theory



$$(D^*, \pi^*) = \arg \min_{D, \pi} \int_{\Theta} \underbrace{L(D, \pi, \theta)}_{\text{loss}} \underbrace{p(\theta | q, U, C, S)}_{\text{hidden observed}} d\theta$$

Metric to be optimized Available ranking features

RISK MINIMIZATION

Bayes risk for choice (D, pi)