AdaRank: a boosting algorithm for information retrieval
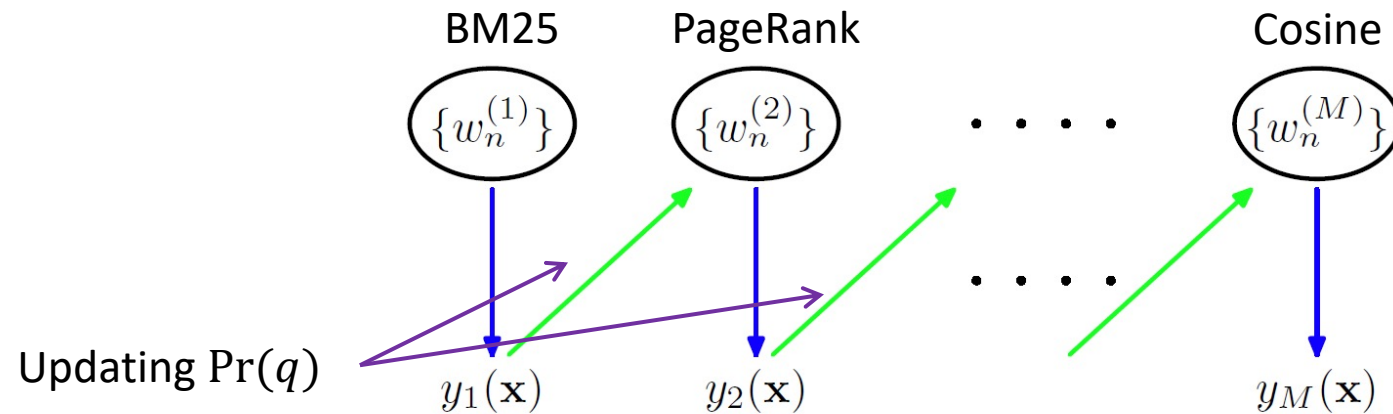
Jun Xu & Hang Li, SIGIR'07

- Loss defined by IR metrics

  $- \sum_{q \in Q} Pr(q) exp[-O(q)]$

  Target metrics: MAP, NDCG, MRR

  – Optimizing by boosting

BM25   PageRank   Cosine

$\{w_n^{(1)}\}$ $\{w_n^{(2)}\}$ . . . . . $\{w_n^{(M)}\}$

Updating $Pr(q)$

$y_1(\mathbf{x})$ $y_2(\mathbf{x})$ $y_M(\mathbf{x})$

Credibility of each committee member (ranking feature)

$Y_M(\mathbf{x}) = sign\left(\sum_{m}^{M} \alpha_m y_m(\mathbf{x})\right)$

from Pattern Recognition and Machine Learning, P658