Topic Sensitive Page Rank

Let N_u be the number of outbound links of page u and let Rank(p) represent the importance of page p. Then then link (u, v) contributes $Rank(u) / N_u$ units of rank to v.

The initial $\overrightarrow{Rank}$ over all pages of web by initial value $1/N$. Let B_v be the set pointed to v in each iteration

$$\forall_v \; Rank_{i+1}(v) = \sum_{u \in B_v} Rank_i(u) / N_u$$

We do this until it reaches a steady state.

M with $1/N$ for $i \to j$

ODP (open directory project)
The first step is to generate a set of biased Page rank vectors using a set of "base" topics.
T_j be set of URLs C_j be topic vector
Instead of having a uniform damping we

$$\vec{p} = \left[\frac{1}{N}\right]_{N \times 1}$$ we use vector $\vec{P} = \vec{V_j}$

where

$$V_{ji} = \begin{cases} \frac{1}{|T_j|} & \text{if } i \in T_j \\ 0 & \end{cases}$$ vector of URLs values will be

The key difference PageRank gives preference to topics related to certain topics

The pagerank vector for topic C_j will be denoted $PR(\alpha, \vec{V_j})$