HITS Iterative Algorithm

Initialize for all $p \in S$: $a_p = h_p = 1$

For i = 1 to k:

   For all $p \in S$: $a_p = \sum\limits_{q:q \to p} h_q$ (*update auth. scores*)

   For all $p \in S$: $h_p = \sum\limits_{q:p \to q} a_q$ (*update hub scores*)

   For all $p \in S$: $a_p = a_p/c$ c: $\sum\limits_{p \in S} (a_p/c)^2 = 1$ (*normalize* **a**)

   For all $p \in S$: $h_p = h_p/c$ c: $\sum\limits_{p \in S} (h_p/c)^2 = 1$ (*normalize* **h**)

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PageRank Algorithm

Let S be the total set of pages.

Let $\forall p \in S$: $E(p) = \alpha/|S|$ (for some $0<\alpha<1$, e.g. 0.15)

Initialize $\forall p \in S$: $R(p) = 1/|S|$

Until ranks do not change (much) (*convergence*)

      For each $p \in S$:

$$R'(p) = \left[(1-\alpha) \sum_{q:q \to p} \frac{R(q)}{N_q} \right] + E(p)$$

$$c = 1/\sum_{p \in S} R'(p)$$

      For each $p \in S$: $R(p) = cR'(p)$ (*normalize*)

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