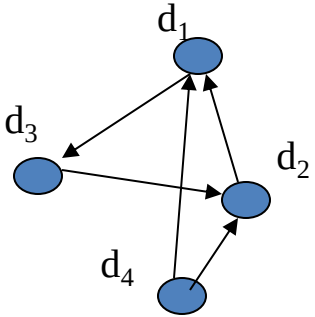
The HITS Algorithm



$$A = \begin{bmatrix} 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 \end{bmatrix}$$

"Adjacency matrix"

$$h(d_i) = \sum_{d_j \in OUT(d_i)} a(d_j)$$

$$a(d_i) = \sum_{d_j \in IN(d_i)} h(d_j)$$

Initial values: $a(d_i)=h(d_i)=1$

Iterate

Normalize:

$$\sum_i a(d_i)^2 = \sum_i h(d_i)^2 = 1$$

$$\vec{h} = A\vec{a}; \quad \vec{a} = A^T\vec{h}$$

$$\vec{h} = AA^T\vec{h}; \quad \vec{a} = A^TA\vec{a}$$