

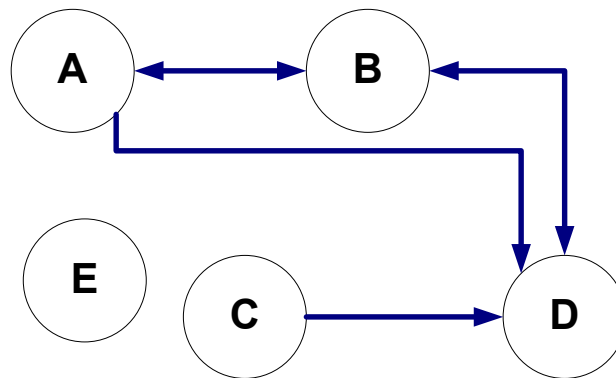
Foundations of Information Retrieval

Exercise 10

Exercise session: 25.01.2018
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1. Link analysis with PageRank

1. Given is the following graph:



- Order the nodes in the graph based on the estimated PageRank values (You do not have to compute PageRank now!). Justify your answer.
- Create the link matrix A' with teleportation for this graph. Use the teleportation probability of 25%.
- Given the PageRank formula:

$$\vec{x}^{k+1} = (1 - c)\vec{x}^k A + \frac{c}{N}\vec{e}$$

\vec{e} is $\vec{1}$. In \vec{x}_0 the random walk is uniformly distributed. Compute the vector \vec{x} for the first five iterations of the PageRank formula ($k = 0..4$) for this graph. Round to 5 decimal places!

Remark: make use of the link matrix with teleporation A'