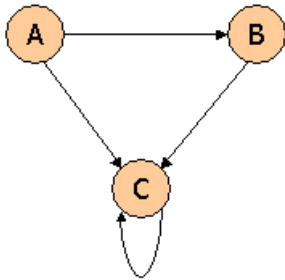


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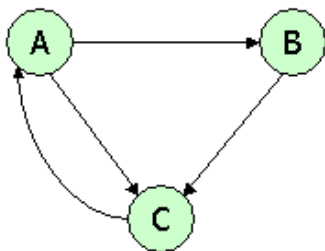
Tutorial 7: Large Graph Processing I

1. Consider three Web pages with the following links:



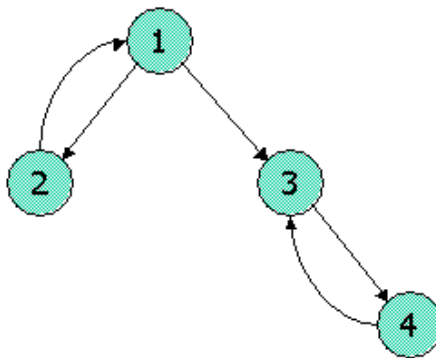
Suppose we compute PageRank with a β of 0.7, and we introduce the additional constraint that the sum of the PageRanks of the three pages must be 3, to handle the problem that otherwise any multiple of a solution will also be a solution. Compute the PageRanks a , b , and c of the three pages A, B, and C, respectively.

2. Consider three Web pages with the following links:



Suppose we compute PageRank with $\beta=0.85$. Write the equations for the PageRanks a , b , and c of the three pages A, B, and C, respectively.

3. Consider the following link topology.



Compute the Topic-Specific PageRank for the following link topology. Assume that pages selected for the teleport set are nodes 1 and 2 and that in the teleport set, the weight assigned for node 1 is twice that of node 2. Assume further that the teleport probability, $(1 - \beta)$, is 0.3.