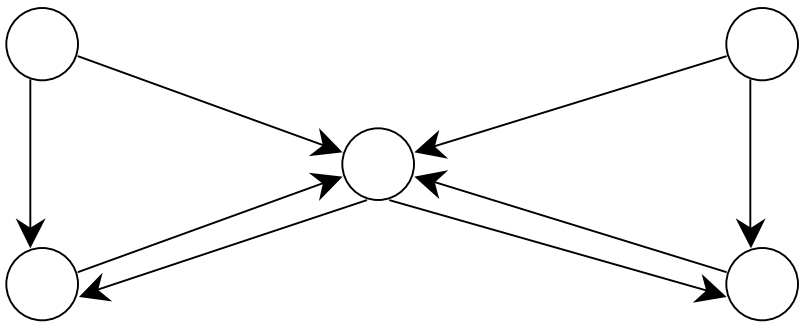
FRS 117: Google and Ye Shall Find???
Fall 2007
Assignment 3
Due Friday, October 12 at 5PM

Technical Exercises:

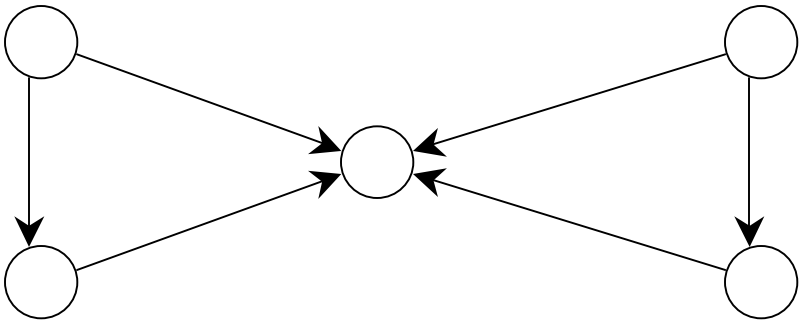
Problem 1:
Recall that the PageRank algorithm is:

1. Assign every node PageRank = 1. This is its *current PageRank.*
2. Repeat the following four steps as a group until the values of PageRank are not changing very much:
   - i. for each node calculate the *OutgoingValue* of the node by dividing the current PageRank of the node by the number of links (edges) out of the node. (I didn't break this out as a separate step in class, but it is easier to calculate this way.)
   - ii. for each node, calculate the *IncomingValue* by adding up the *OutgoingValues* of all nodes with links pointing to the node.
   - *iii.* for each node, calculate the *new PageRank* as
     0.15 + (0.85 X *IncomingValue* of the node)
   - *iv.* for each node, the *new PageRank* value just calculated becomes its *current PageRank value* for the next repetition of *steps i thru iv.*

Execute the PageRank algorithm by hand for the graph shown below, **but only do three repetitions of** steps *i thru* iv rather than repeating until the values "are not changing very much".



Problem 2:
Repeat Problem 1 but for the slightly altered graph shown below. What has happened?



Blog entry: see html page at
http://www.cs.princeton.edu/courses/archive/fall07/frs117/Assignments/3_blog.html