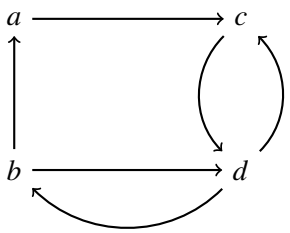
CS 170 Algorithms Fall 2014 David Wagner — Worksheet 12/05

Left side of the classroom: do Q1 then Q3 then Q2. Right side: do Q2 then Q3 then Q1.

Work with the following graph G:



1. PageWalk

Let $T(v)$ be the fraction of time spent at vertex v, in the graph G above, if you start at a random vertex in the graph and then do a random walk for a very long period. Fill in the table below with the value of $T(v)$ for each vertex in G. I filled in a few entries for you.

$T(a)$	$T(b)$	$T(c)$	$T(d)$
0.1			0.4

Hint if you get stuck: Start by finding $T(b)$. Take advantage of the entries I've already filled in for you.

2. PageVote

Let I_v be the importance PageVote assigns to vertex v, for the graph above. Write down linear equations for I_a, I_b, I_c, I_d, then solve them and fill in the table below with your solution. I filled in a few of them for you.

$$I_a =$$
$$I_b = I_d/2$$
$$I_c = I_a + I_d/2$$
$$I_d =$$
$$I_a + I_b + I_c + I_d + I_e = 1$$

I_a	I_b	I_c	I_d
	0.2		0.4

3. PageWalk vs PageVote: Which is better?

Which do you think would be a better system for ranking the importance and credibility of web pages: PageWalk, or PageVote? Why?