

## Social and Economic Networks Typos, Corrections, and Clarifications

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**page 27**, the tree should have at least two nodes to have at least two leaves.

**page 29**, figure 2.7, was redrawn incorrectly - the original figure appears at the end of this document.

**page 31**, Figure 2.8: was redrawn incorrectly - the labels of Poisson and Scale-free were reversed.

**page 48**, The proof of Theorem 2.3: to clarify the labeling of the nodes, the longest path that we begin (just listing the nodes in order) is  $i, \dots, k-2, k-1, k, k+1, \dots, j$ . The cycle is then constructed as  $i, k, k+1, \dots, j, k-1, k-2, \dots, i$ .

**page 52**, Exercise 2.2, assume that the tree has involves at least two nodes.

**page 61**, Paragraph 2: it should be 2.56 not -2.56 (it is  $-\gamma$  that is -2.56).

**page 85**, Paragraph 4 states “As argued above, the probability that...” that argument was moved to the exercises (see Exercise 4.1).

**page 109**, the last displayed equation should read  $G'_H(1) = 1 + \frac{(n-1)p}{1-(n-1)p}$ , and then following sentence should have 3 replaced by 2 and 11 replaced by 10.

**page 110**, The Riemann zeta function is incorrectly listed as  $z(\gamma) = \sum_1^\infty \frac{1}{\gamma}$ , the correct expression is given on page 30 footnote 12 and is  $z(\gamma) = \sum_{n=1}^\infty \frac{1}{n^\gamma}$ .

**page 111**, on the definition of  $e$ , the subscript on the summation should be  $n$  instead of  $i$ .

**page 118**, the second line, in the definition of  $\pi_2(k)$ , the subscript on the summation should be  $i = 0$  rather than  $k = 0$ .

**page 124**, “state networks” should be “static networks”

**page 132**, “this is the fraction  $m^2/d^2$ ” should be “this is the fraction  $1 - m^2/d^2$ ”

**page 132**, Figure 5.1 the link between 6 and 4 should be deleted and the labels for 1 and 4 should be reversed.

**page 150** Exercise 5.1  $\log(d)/(t-1)$  should be  $\log_2(d)/t$ .

**page 166**, Let me explain why it is true that “Thus  $|A_{ij}| \geq \frac{c}{2d}$ . This implies that any given node  $i$  can have at most  $2dn/c$  non-bridge links.” Recall that the sets  $|A_{ij}|$  are disjoint across  $j \neq i$ , and so if node  $i$  has  $x$  such non-bridge links  $ij$ , then their union contains at least  $\frac{xc}{2d}$  nodes which must be less than  $n$ , and so  $x < 2dn/c$ .

**page 167**, where it says “ $u_i(g) = 1$  if  $d_i(g) = 0$ ” it should say “ $u_i(g) = 0$  if  $d_i(g) = 0$ ”. The proposition is true either way, but the proof would require some adjustments.

**page 180** Exercise 6.5 (b) and (c) should refer to cases where efficient networks are nonempty and involve at least four players and ask about stars with at least four players, as any single link, or two adjacent links, trivially form a star. (c) should allow for the benefit to  $i$  of being at distance  $\ell(i, j)$  from  $j$  to be  $\delta_{ij}^{\ell(i, j)}$ , and this parameter  $\delta_{ij}$  to differ across pairs of players.

**page 187**, The second paragraph refers to  $m - F(t - 1)$ , but as noted in footnote 3,  $m$  is omitted from the model by setting it equal to 1, and so the expression should be  $1 - F(t - 1)$ .

**page 196**, last paragraph:  $\beta$  should be  $\nu$ .

**page 222**, Exercise 7.5  $\rho$  should be  $\theta$  in the displayed expression.

**page 232**, The first line of  $T^3$  should be 0, 1/2, 1/2 not 1/2, 1/2, 0.

**page 233**, The last line of  $T$  should have the 1/3 and 2/3 reversed.

**page 241** line after (8.2) “headed” should be “trusted”

**page 251** The description in Example 8.14 should match the figure: have agents place weight  $\delta$  on the next *higher* agent, and  $1 - \delta$  on the lower, with agent 1 having self-weight of  $1 - \delta$  and agent  $n$  having self-weight  $\delta$ .

**page 254**, second line from bottom: “and so chooses A” should be “and so chooses B”.

**page 255**, Exercise 8.8. The claim is not true as stated (an easy counter-example is three agents, arranged in a directed cycle: each who only pays attention to the next, and starting with beliefs (1,0,1)). The exercise should have included a random ordering over the agents’ updating in each period. So, agents update one by one in each period, but who goes first, second, ..., last, is randomly drawn with a positive probability over each ordering. Then the claim to be proven is that there is convergence, almost surely.

**page 265**, The second paragraph that states “and a probability  $\varepsilon_i(0)$  that  $i$  chooses 1” should read “and a probability  $\varepsilon_i(0)$  that  $i$  chooses 0”

**page 284**, The arrow in Figure 9.10 refers to the shift in the distributions (not the threshold).

**page 286**, The term “wheel” is that used by Bala and Goyal [31] and should not be confused with the standard graph theoretic definition of a “wheel”: an (undirected) simple cycle with the addition of one node connected to all others.

**page 304**, third paragraph “finite time” should be “a reasonable time (e.g., polynomial in relevant parameters of the game)”

**page 316**, the last displayed equation should not have the  $+\mu_1(R)$  on the right hand side, so the solution adjusts to be  $\mu_1(L) = 1/3$ ,  $\mu_1(R) = 2/3$ . The discussion is for payoffs of (0,1) in the RR entry.

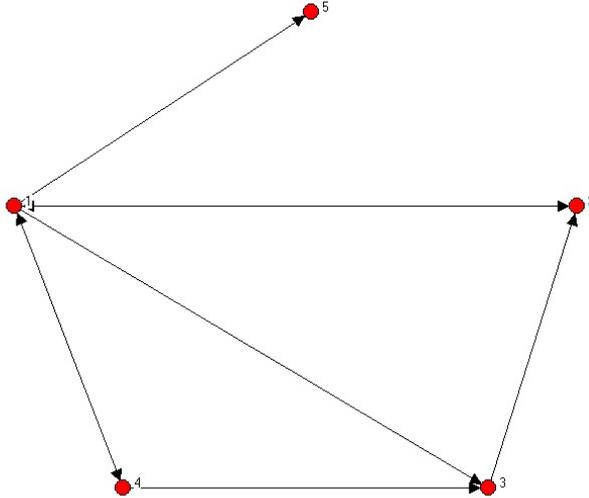


Figure 1: Original Figure 2.7: A Directed Network on Five Nodes, Node 1 has In-Degree 2 and Out-Degree 4.

**page 323**, exercise 9.17, the last two q's should be 1-q.

**page 385**, Proposition 11.4, parts 3 and 4, the  $(n - 2)/2$  should be  $(n - 2)$ .

**page 408**, Exercise 11.10 Note that (2) should be corrected to read "there is no pair of disconnected players who are both below their capacity". Also, presume that the setting is nondegenerate so that there are at least two types and capacities have some bite:  $d_i \leq n - 2$  for each  $i$ .

**page 413**, Examples 12.1 and 12.3 need odd  $n$  to be simple games.

**page 453**, Second sentence, third paragraph should have  $\eta_{\pi_i \pi_j}$  instead of  $\eta_{\pi_i} \pi_j$ .

**page 472**, Citation [264]'s title is "Trade Networks with Transfers."

**page 473**, Citation [285]'s authors are S. Chakrabarti and S.P. Gilles