

ERRATA, STYLE CORRECTIONS AND REFERENCE UPDATE  
TO THE 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, & 6<sup>th</sup> PRINTING OF  
THE ECONOMICS OF NETWORK INDUSTRIES

*by*  
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Remark:

Some (but not all, unfortunately) of the corrections on this file are minor style corrections which will not benefit the reader very much. They are brought here for the sake of completeness and in order to remind me (the author) to replace a few pages in subsequent printing of this book.

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## Chapter 1: Introduction to Network Economics

**p.5, line 22:** Add a comma after “...any information,”

**p.8, line 8:** “regulator” should be “regulators”

**p.8, line 15:** Add a comma after “turned out,”

## Chapter 2: The Hardware Industry

**p.24, line –12:** Replace (2.4) by (2.14)

**p.24, line –11:** Replace (2.3) by (2.13)

**p.24, line –11:** Replace “machine” by “machines”

**p.28, line 13:** “whereas” sticks out

**p.30, lines –4 and –3:** Replace “ $\geq$ ” by “=”

**p.32, lines –11 and –10:** Replace “ $\geq$ ” by “=”

**pp.33–34 Tables 2.1 & 2.2:** Replace Firm 1 & Firm 2 by Firms  $A$  &  $B$

**p.38, end of paragraph before Section 2.3.1 begins:** Delete the sentences “Finally, we assume...Formally, we let  $\beta \geq 4\delta$ .”

**p.39, Two-line equation should be:**

$$\begin{aligned}\pi_B^U &= p_{BB}^U \times 1 = \max \{ p_{AA}^U \times 2; (p_{AA}^U - 2\delta) \times 3 \} \\ \pi_A^U &= p_{AA}^U \times 2 = (p_{BB}^U - 2\delta) \times 3.\end{aligned}$$

Explanation: If  $p_{AA} = p_{BB}$ , then user  $AB$  is indifferent between purchasing System  $AA$  and  $BB$ . Hence, in order for firm  $B$  to mildly undercut firm  $A$  it merely has to set  $p_{BB} < p_{AA}^U$ .

**p.39, Lines –8 – 9:** Should be  $p_{BB} \leq p_{AA}$  (i.e., delete the  $-\delta$ )

**p.39, Line –5:** Should be  $p_{AA}^U \times 2 \geq (p_{AA}^U - 2\delta)3$  (i.e., delete the  $-\delta$ )

**p.39, Line –4:** Should be  $p_{AA}^U \leq 6\delta$

**p.39, Equation (2.31):** Should be

$$p_{AA}^I = \frac{3\delta}{2}, \quad p_{BB}^I = 3\delta, \quad \text{and} \quad \pi_A^I = \pi_B^I = 3\delta,$$

**p.40, Equation (2.32):** Should be

$$\begin{aligned} CS^I &\stackrel{\text{def}}{=} U_{AA} + U_{BB} + U_{AB} \\ &= \left(\beta - \frac{3\delta}{2}\right) + (\beta - 3\delta) + \left(\beta - \frac{3\delta}{2} - \delta\right) = 3\beta - 7\delta. \end{aligned}$$

**p.40, Equation (2.33):** Should be

$$W^I \stackrel{\text{def}}{=} \pi_A + \pi_B + CS^I = 3\delta + 3\delta + 3\beta - 7\delta = 3\beta - \delta.$$

**p.40, line –11:** Replace “incompatible” by “compatible”

**p.40, lines –5, –4, –2, and –1:** Replace “ $\geq$ ” by “=”

**p.42, Proposition 2.9:** parts (a) and (b) should be combined into: *The profit of each firm is higher when firms sell compatible components than when they sell incompatible components. Formally,  $\pi_i^C > \pi_i^I$  for  $i = A, B$ .*

**p.46, Exercise 1:** replace  $c$  by  $\mu$  (to obtain consistent notation)

**p.46, line –2:** Replace “and the that” by “and that the”

## Chapter 3: The Software Industry

**p.54, Proposition 3.1:** Replace “ $p_0$ ” by “ $p_0 > \mu$ ”

**p.59, equation (3.11):** Replace “ $\geq$ ” by “=” (twice)

**p.60, Proposition 3.5(b):** Should be “increase” with  $\phi$  (instead of “decrease”)

**p.63, equation (3.20), 2nd part:** Replace  $s_B + \rho_A(\gamma\eta_p - s_B)$  by  $s_B + \rho_B(\gamma\eta_p - s_B)$

**p.64, Figure 3.2:** It should be made clear (in the picture) that the vertical axes hit the horizontal axis at  $s_A = 0$  and  $s_B = 0$ , respectively.

**p.71, line –13:** Deneckere and McAfee (1994) should be (1996)

**p.72, Proposition 3.11:** “ $p_H = (1 + \theta)2\eta$ ” should be “ $p_H = (1 + \theta)\eta$ ”

**p.73:** The condition of Proposition 3.12 should be modified to If  $\phi_r < \min \{2\eta^2\theta; \eta^2(\theta + 3)\}$

**p.74, line 8:** Replace “The use the term” by “The use of the term”

**p.75, line –9:** Replace “the the” by “the”

**p.78, line 2:** (style) line sticks out

## Chapter 4: Technical Advance and Standardization

**p.86, Figure 4.1:** Style: Connect the thick dots with a dashed line

**p.86, Figure 4.1, top-left:** Replace “ $V_{t_g+1}$ ” by “ $V_{t_g+1}$ ”

**p.88:** Replace the word “are never” by “ may not be” twice: The caption of Figure 4.2, and the line below it.

**p.88, last line:** Replace “to  $\eta_{t-1}$  only” by “to  $\eta_t$  only”

**p.90, Definition 4.3(a):** Replace “ $\Delta g$ ” by “ $\Delta_g$ ” (twice)

**p.90, Definition 4.3(b):** Should be:  $\Delta \stackrel{\text{def}}{=} \Delta_g$  for all  $g = 1, 2, \dots$

**p.91, line 4 (equation):** Replace “ $\Delta_g$ ” by “ $\Delta$ ” (twice)

**p.93, equation (4.8):** add a reservation utility so that

$$U_i^k \stackrel{\text{def}}{=} \begin{cases} \alpha q_i - p_i & \text{if he buys brand } i \\ \alpha q_j - \delta - p_j & \text{if he buys brand } j \neq i \\ 0 & \text{if he does not buy any brand,} \end{cases}$$

**p.94:** The condition of Proposition 4.3 should be interpreted as the assumption of the entire model.

**p.95, line 4:** Replace “ $W^B = W^A$ ” by “ $W_B^{\text{MR}} = W_A^{\text{MR}}$ ,”

**p.95, last paragraph:** By the condition of Proposition 4.3,  $p_1^{\text{NR}} = 2\alpha\eta - \delta < 0$ , therefore, under mutual nonrecognition firm 1 does not sell to brand 2 oriented consumers. Thus, the entire analysis of this paragraph, including equation (4.12) on p.96 should be deleted.

**p.96, Proposition 4.4:** Add: “Under the condition of Proposition 4.3...” + fix a typo: “externalities”

**p.96, line –16:** Replace “number foreign” with “number of foreign”

**p.97, Exercise 1(b):** should be “on page 83” instead of page 82

## Chapter 5: Telecommunication

**p.105, Assumption 5.1:** Style correction: “monopoly” sticks out

**p.105, Assumption 5.1:** The last part could be made slightly stronger so that  $\phi < \min\{\eta(\alpha\eta - \mu), \eta(2\eta - \mu)\}$ . This would ensure that the entrant's profit,  $\pi^e$  in equation (5.7) on p.107, is strictly positive.

**p.105, line –3:** Replace “type  $L$  consumers” by “type  $H$  consumers”

**p.108, line 21:** Replace “Let  $q$  denote total the” by “Let  $q$  denote the total”

**p.114, 3 lines before (5.15):** should be:

“Substituting  $q^e = \eta\hat{x} = 2\eta/3$  and  $p = 2\eta/9$  into (5.8) implies that ...”

**p.116, eq.(5.20):** the middle expression should be:

$$p = \frac{\eta(13 - \sqrt{7})}{81} \approx 0.128\eta$$

**p.116, 3 lines below eq.(5.20):** Should be:  $p^E \approx 0.128\eta < 0.222\eta \approx p^I$

**p.118, line 17:** Style: “Telecomm-” sticks out

**p.121, line 10:** Replace “ $\pi^E = [p^I - \mu_E - (p^I - \mu^I)]d^E = \mu^I - \mu^E$ ” by

$$“\pi^E = [p^I - \mu^E - (p^I - \mu^I)]d^E = (\mu^I - \mu^E)d^E”$$

**p.122, Stage I: Should be:** ...  $a_{B\bar{A}}$  by company  $A$  and  $a_{A\bar{B}}$  by company  $B$ .

**p.124, eq.(5.30), top line:** Replace “ $4\beta_L$ ” by “ $4\eta\beta_L$ ”

**p.127, line before (5.32):** Replace “Thus,” with “If, in equilibrium,  $q_N = \eta_N$  and  $q_S = \eta_S$ , we have”

**p.131, Exercise 3:** Replace “ $(1 - x)q^e - p$ ” by “ $(2 - x)q^e - p$ ”

**p.132, Exercise 5:** (not an error) simply add: “We continue to assume that  $\eta_N > \eta_S$ ”

## Chapter 6: Broadcasting

**p.139, top 4-line equation, the left column be:**  $\pi_A(\tau - 2, \tau)$ ,  $\pi_A(\tau - 1, \tau)$ ,  $\pi_A(\tau + 1, \tau)$   
and  $\pi_A(\tau + 2, \tau)$

**p.142, line 8:** Replace “idea” by “ideal”

**p.144, Last paragraph:** Replace: “...The intuition...home early.” by “The intuition behind Proposition 6.4 is that each station will respond to an “early” schedule of the rival by setting its program to the latest possible, i.e., at  $\tau + 2$ , thereby capturing all viewers arriving home late. However, if the rival station schedules its program “very late,” i.e., at  $\tau + 1$  or  $\tau + 2$ , the station responds by broadcasting just before the rival’s program, i.e., at  $t = \tau$  or  $t = \tau + 1$ , respectively, thereby capturing all viewers arriving home early. Nilssen and...”

**p.145, 3rd paragraph:** 81% should be 86% (twice) and 19% should be 14% (twice). To see why this correction is needed let  $x$  be the percentage of those who like talk shows, hence  $1 - x$  is the percentage of those who like to watch the news. Now, the duopoly profit of each broadcaster (owning each 2 stations) must satisfy

$$\pi = \frac{x}{4} + \frac{x}{4} > \frac{x}{3} + (1 - x) \iff x > \frac{6}{7} \approx 0.86$$

**p.146, Proposition 6.5, Part (b):** Should be: If  $2\eta_2 < \eta_1 < 3\eta_2$ , then...

**p.146, Proposition 6.5, Part (c):** Should be: If  $\eta_1 < 2\eta_2$ , then...

## Chapter 7: Markets for Information

**p.163, line 1:** Style: “economists” sticks out

**p.168:** “providers.” sticks out of the right margin

**p.169:** The last paragraph “*Uncaptured*” surplus by information providers is incorrect since we assumed that consumers don’t pay for copies (they pay for originals which are excluded from Table 7.2). Hence, uncaptured surplus equals total consumer surplus. Therefore,

**p.169, line –5:** delete the sentence “In this case,...information”

**p.169, line –2:** Should be:  $UCD = \eta$ .

**p.170 top:** Should be

$$UCP = \rho + \rho^2 + \rho^3 + \dots + \rho^n = \frac{\rho(1 - \rho^n)}{1 - \rho}.$$

**p.170, lines 7–8:** The word “consumers” appears twice instead of once

**p.170, line 10:** Delete the entire sentence: “Thus, despite...is digital”

**p.171, lines 9,10:** Put a “.” after United States. Then replace “thereby adding values to VCRs,” by “These rental stores made VCRs even more popular,”

**p.172, line –11:** “,both,” should be “both” (i.e., delete two commas)

**p.177, eq.(7.5):** Should be:  $\sum_{j \neq i} q_j$  (instead of  $q_i$ )

**p.179, eq.(7.8):** Should be:  $\sum_{j \neq i} q_j$  (instead of  $q_i$ )

## Chapter 8: Banks and Money

**p.191, line –18:** “Kim, Kliger, and Vale (1999)” should be “Kim, Kliger, and Vale (2003)”

**p.193, line –7:** “Kim, Kliger, and Vale (1999)” should be “Kim, Kliger, and Vale (2003)”



**p.212:** Update reference: Kim, Kliger, and Vale. 2003. “Estimating Switching Costs: the case of banking.” *Journal of Financial Intermediation* 12: 25–56.

**p.213, reference update:** Shy, O., and J. Tarkka. 2002. “The Market for Electronic Cash Cards.” *Journal of Money, Credit, and Banking* 34: 299–314.

## Chapter 9: The Airline Industry

**p.229, Exercise 1(a):** Should be  $c(\eta) \stackrel{\text{def}}{=} \phi + \eta$

**p.230, Exercise 1(b):** Should be  $c(\eta) \stackrel{\text{def}}{=} \phi + \sqrt{\eta}$

## Chapter 10: Social Interaction

**p.235, line –4:** The first-order condition should be:  $0 = \frac{dW}{dx} = -2\eta\alpha x + \eta\beta$ .

## Chapter 11: Other Networks

**p.283, Exercise 6, 3rd line:** “or the road” should be “of the road”

## Appendix C: Undercut-Proof Equilibria

**p.309, Definition C.1:** Make it a strong inequality so that:  $p_i < p_j - \delta$

**p.311, Exercise 1:** replace  $c_A$  by  $\mu_A$  and  $c_B$  by  $\mu_B$  (to obtain consistent notation)

**p.311, Exercise 1:** Replace  $\eta$  by  $\delta$  [in parts (a) and (b)]

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**End of Errata File**