Errata for First Printing

## Last Update: 3-June-2006

General Notes:

- Lines count from the top of the page and include headings and equations but not figures, tables, or captions.
- Brackets [] enclose clarifying comments and are not meant to be direct text replacements or additions.
- Equations, tables, and figures are referenced by numbered description.

Page	Reference	Is	Should be
47		All orthogonal matrices have	Orthogonal matrices with nonzero elements
	Line 14	nonzero elements exclusively	exclusively along the principal diagonal are
		along the principal diagonal.	orthogonal.
	Eqn 1.33a	$\mathbf{X}^{T} = \mathbf{D}\mathbf{X}^{T}$	$\mathbf{X}^{I} = \sqrt{\mathbf{D}\mathbf{X}^{-1}}$
48	Line 6	$\dots \mathbf{X}^{T}\mathbf{X} = \mathbf{D}\mathbf{X}^{T}\mathbf{X} = \mathbf{D} = \dots$	$\dots \mathbf{X}^{T} \mathbf{X} = \sqrt{\mathbf{D}} \mathbf{X}^{-1} \mathbf{X} \sqrt{\mathbf{D}} = \mathbf{D} = \dots$
-10	Eqn 1.34a	$\mathbf{X}^{T} = \mathbf{X}^{-1}$	$\mathbf{X}^{I} = \sqrt{\mathbf{c}}\mathbf{X}^{I}$
	Line 15	$\dots \mathbf{X}^{T} \mathbf{X} = \mathbf{c} \mathbf{X}^{T} \mathbf{X} = \mathbf{c} \mathbf{I} = \dots$	$\dots \mathbf{X}^{T} \mathbf{X} = \sqrt{\mathbf{c}} \mathbf{X}^{-1} \mathbf{X} \sqrt{\mathbf{c}} = \mathbf{c} \mathbf{I} = \dots$
	Eqn 1.46	$n = \Sigma k = 1^{T} 1$	$n = \Sigma(1_k) = 1^{T} 1$
56	Eqn 1.47	$\frac{1}{n} = \frac{1}{\sum k} = \left(1^{T}1\right)^{-1}$	$\frac{1}{n} = \frac{1}{\sum (1_k)} = (1^{T} 1)^{-1}$
71	Fig 1.14	[caption] $A(x) = a_0 + a_1 x + a_2 x_2$	$\dots A(x) = a_0 + a_1 x + a_2 x^2$
73	Fig 1.15	[caption] Moving from left to right	Moving from right to left
83	Line 9	$\dots$ and $g(x)$ are the sum $\dots$	and $g(x)$ is the sum
87	Eqn 1.99	$y = a_1 e^{\left(\frac{x - m_1}{\sqrt{2}s_1}\right)} + a_2 e^{\left(\frac{x - m_2}{\sqrt{2}s_2}\right)}$ where $a_1 = 1, m_1 = 0, s_1 = 1/2, a_2 = 1, m_2 = 2$ and $s_2 = 2$ .	$y = a_1 e^{-\left(\frac{x-m_1}{\sqrt{2}s_1}\right)} + a_2 e^{-\left(\frac{x-m_2}{\sqrt{2}s_2}\right)}$ where $a_1 = 1, m_1 = 0, s_1 = 1/\sqrt{2},$ $a_2 = 1, m_2 = 2, \text{ and } s_2 = \sqrt{2}.$
88	Fig 1.16	[Incorrect Figure]	[see "Extras" for proper figure]
102	Line 13	A process heater is	A process unit is
113	Egn 2.1	$CH_{yy} + 2 H_2O \rightarrow CO + \psi/2 H_2$	$CH_4 + 2 H_2O \rightarrow CO_2 + 4 H_2$
137	Lines 4, 5	9.9 kg/mol 9.52 kg/mol	9.9 kgmol 9.52 kgmol
142	Fig 2.21	Knowing $\psi_{H2O}$ and $\psi_{CO2}$ , dry, one may	Knowing $y_{H2O}$ and $y_{CO2,dry}$ , one may
145	Line 13	a 50/50 mixture of CO <sub>2</sub> and H <sub>2</sub> O	a 50/50 mixture of CO <sub>2</sub> and CH <sub>4</sub>
146	Line 4	The ratio $\sqrt{W_f/W_a}$ is known as	The ratio $W_f/W_a$ is known as
158	Fig 2.25	Time Constant, Q/V	Time Constant, $\dot{V}/V$
223	Fig 3.6	[Caption]5 rows of 5 trees	5 rows of 4 trees
250	Table 3.15	$s = \sqrt{SSE}$	$s = \sqrt{MSE}$
258	Line 3	are the <i>standard errors</i> for each coefficient	are the squares of the <i>standard errors</i> for each coefficient
268	Table 3.27	$r^2 = 86.9\%$	$[r^2 \text{ should include the block entry}]$ $r^2 = 99.9\%$
277	Line 11	$m = \frac{\sum x_k^2 / n}{n}$	$m = \sum \frac{x_k^2}{n}$

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320	Eqn 4.40b	$\mathbf{y} = \mathbf{a}_0 + \mathbf{u}^{\mathrm{T}} \mathbf{\Lambda} \mathbf{u}$	$\mathbf{y} = \mathbf{u}^{\mathrm{T}} \mathbf{A} \mathbf{u}$
323	Line 9	from Equation 4.40a, we may	from Equation 4.43, we may
324	Line 3	$y = a_0 +$	[omit first term: $a_0 + ]$
341	Figure 4.9	[Caption] If the two data points were added at $(\pm\sqrt{2}, 0)$ rather than $(\pm 1, 0)$ for $(x_1 = x_2, x_3)$ 	If the last two data points were added at $(\pm \sqrt{3/2}, \pm \sqrt{3/2}, 0)$ rather than $(\pm 1, \pm 1, 0)$
355	Line 7	the 24 interactions	the 24-interaction
368	Table 4.25	[Superfluous asterisks]	[Remove asterisks from the following row x columns: $x_2 \times x_1 x_3, x_2 \times x_2 x_3, x_1 x_3 \times x_2 x_3$ ]
371	Table 4.26	[Missing and superfluous asterisks]	[Add asterisks to the following row X columns: $x_1x_3$ X $x_1x_2x_3$ , $x_1x_3$ X $r:x_1x_2x_3$ , $x_1x_2x_3$ X $x_1x_2x_3$ , and $x_1x_2x_3$ X $r:x_1x_2x_3$ ] [Remove asterisks from the following row X columns: $x_1x_2$ X $x_1x_3$ , $x_1x_2$ X $x_2x_3$ , $x_1x_3$ X $x_2x_3$ ]
375	Table 4.30	[Superfluous asterisks]	[Remove asterisks from the following row x columns: $Kx_1 \times Kx_2, Kx_1 \times x_1x_2, Kx_2 \times x_1x_2$ ]
385	Lines 3, 4	We call Equation 4.78 the <i>logit</i> transformation and Equation 4.79 the <i>logistic regression</i> model. The functions are inverses. The <i>probit</i> transformation converts p to XA and the logit transformation does the inverse.	We call Equation 4.78 the <i>logit</i> transformation or <i>logistic regression</i> model and we call Equation 4.79 the <i>probit</i> transformation. The functions are inverses. The logit transformation converts $\pi$ to <b>Xa</b> and the logit transformation does the inverse.
390	Last two equations	[The label $b_{12}$ is incorrectly repeated]	[The proper labels to the left of the = sign are, in order: $b_1$ , $b_{12}$ , $b_{13}$ , $b_{23}$ , and $b_{123}$ .
391	Eqn 4.95	$[b_3 \text{ (third) term omits } z_3]$	$\dots + b_{3Z_3} + \dots$
404	Line 22	and $s_{H-H}$ represents the number of moles of H–H bonds	and $s_{C-C}$ represents the number of moles of C–C bonds
432	Line 13	per million BTUs (lbm/MMBtuh).	per million BTUs (lbm/MMBtu).
448	Figure 5.4	$[\dot{m}_r + \dot{m}_g \text{ is shown in two places,}]$ above and below the caption "Stack."	[Omit $\dot{m}_r + \dot{m}_g$ above the caption "Stack."]
453	Figure 5.5	$[\dot{m}_r + \dot{m}_g \text{ is shown in two places,}]$ above and below the caption "Stack."	[Omit $\dot{m}_r + \dot{m}_g$ above the caption "Stack."]
455	Line 18	$\dots(2/3)(3\%) = 2.33\%$	$\dots (2/3)(3\%) = 2\%$
462	Line 11	$\alpha_s$ is any factor steam injection.	$\alpha_{steam}$ is any factor steam injection.
	Line 15	$\alpha_t$ is any factor water injection.	$\alpha_{water}$ is any factor water injection.

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475	Line 4	$\frac{y_{NO}}{y_{NO,0}} = \ln \left[ \frac{(M-1)e^{-k\theta(M-1)y_{NO,0}}}{1-e^{-k\theta(M-1)y_{NO,0}}} \right]$	$\frac{y_{NO}}{y_{NO,0}} = \frac{(M-1)e^{-k\theta(M-1)y_{NO,0}}}{1-e^{-k\theta(M-1)y_{NO,0}}} $ (5.98) [Note: derivation for Eqn 5.98 now becomes superfluous]
476	Line 8	negative log of the initial	initial
495	Line 17	However, the values $y_0$ and $Y_1$ represent	However, the values $y_0$ and $Y_0$ represent
	Line 25, 26	DFM = 11, and DFE = $2$ .	DFM = 2, and DFE = $11$ .
521	Line 27	Ammonium bisulfate	Ammonium bisulfite