

ERRATA
for
MATRIX ALGEBRA USEFUL FOR STATISTICS

BU-829-M

by
S. R. Searle

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Abstract

Corrections for *MATRIX ALGEBRA USEFUL FOR STATISTICS*,
S. R. Searle, Wiley, 1982.

Page/Line

- 11/4 up: $+^2_{mj}$ should be $+ a^2_{mj}$
- 14/2: Insert commas between a's in $\{a_1, a_2, \dots, a_n\}$ in two places
- 15/14: Section 2.7b should be Section 2.8b
- 18/1: Delete the first summation.
- 19/(e): $\sum_{j=1}^m$ should be $\sum_{j=1}^n$; (i.e., n not m)
- From $\sum_{j=1}^n (a^2_{1j})$ delete (
- 58/Exc. 21: Replace the first five words of the second sentence with
"In a particular ..."
- 59/Exc. 24: \tilde{x}_{s+1} and \tilde{x}_s should be x'_{s+1} and x'_s
 $\tilde{x}'_s \tilde{1} = \tilde{1}$ should be $x'_s \tilde{1} = 1$

63/7 up: 2.7e should be 2.8e

70/8 and 9: = $\underline{0}$ should be 0 (not bold face)

71/6: Replace Chapter 4 with Sec. 5.7d

77/8: Delete and

80/14a: positive semidefinite should be non-negative definite

85/5 of a: $\begin{bmatrix} 7 & 3 \\ 7 & 6 \end{bmatrix}$ should be $\begin{bmatrix} 7 & 3 \\ 4 & 6 \end{bmatrix}$ (i.e., a 7 should be a 4)

85/3 up: $\begin{vmatrix} a_{11} & a_{22} \\ a_{21} & a_{22} \end{vmatrix}$ should be $\begin{vmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{vmatrix}$

93/9: ax - by should be ay - bx

107: Equation numbered (7) should be (18)

108/6: (7) should be (18)

137/3 up: $1 + x + x^2 + \dots + x^n$ should be $1 + x + x^2 + \dots + x^{n-1}$

146: Equation (49) should be

$$\frac{1}{-.3} \begin{bmatrix} 3.0 & -2.5 \\ -2.5 & 2.0 \end{bmatrix} \begin{bmatrix} .45 \\ .55 \end{bmatrix} = \begin{bmatrix} -10 & 8.3 \\ 8.3 & -6.7 \end{bmatrix} \begin{bmatrix} .45 \\ .55 \end{bmatrix} = \begin{bmatrix} .1 \\ 0 \end{bmatrix}$$

149/Exc. 8(a): The -z should be +z.

153/Exc. 27(b): Delete the superscript -1.

153/Exc. 28: In the last line, \bar{y} should not be bold face.

159/3 up: Change vectors. to vectors, provided none is null.

166/before (i): Change for square \underline{X} : to for square \underline{X} that has no null columns:

209/Exc. 1(g): The lower right element $\frac{1}{2}$ in R^{-1} should be $\frac{1}{2}$.

- 217: The equation numbered (15) should be (16).
- 219/8: Section 8 should be Section 6.
- 219/Exc. (21): $-A_{11}^{-1}A_{12}A_{11}^{-1}$ should be $-A_{11}^{-1}A_{12}WA_{21}A_{11}^{-1}$
- 225/Exc. 30: Immediately preceding the second = sign, the \underline{X} should be
 \underline{X}'
- 253/Exc. (e): The 4 on the right-hand side should be -4.
- 255/Exc. 9: The 1 on the right-hand side should be -1.
- 256/Exc. 16: \underline{GAG} should be $\dot{\underline{G}}\dot{\underline{A}}\dot{\underline{G}}$ (First \underline{G} needs a dot.)
- 259/5 up: The upper left \underline{Q} should be 0.
- 263/3 lines below (24): In \underline{M}_1 , the final \underline{X}_1 should be \underline{X}'_1 (A prime is needed.)
- 263/5 lines below (24): In \underline{M}_2 , the final \underline{X}_2 should be \underline{X}'_2 (A prime is needed.)
- 266/2: Following d_2A , the two \times signs should be +
- 268/Exc. 4c: $|\underline{I} + \underline{xy}|$ should be $|\underline{I} + \underline{xy}'|$ (A prime is needed.)
- 270/Exc. 18: (vii) should be (viii)
- 278/12: Section 4.4 should be Section 4.6
- 304/1: $\underline{U}' = [\underline{h} \ \underline{QK}'_r]$ should be $\underline{U}' = [\underline{h} \ \underline{K}'_rQ]$
- 304/Exc. 31: \underline{A} must be symmetric
- 304/bottom: Add
35. Prove that eigenvalues of a skew-symmetric matrix are zero or imaginary.
- 308/8: Section 6.8 should be Section 6.7
- 317/10: $q \times (n - r)$ should be $q \times (q - r)$

318/6: The product of matrices should be:

$$\frac{1}{\sqrt{6}} \begin{bmatrix} \sqrt{2} & \sqrt{3} & 1 \\ \sqrt{2} & -\sqrt{3} & 1 \\ \sqrt{2} & 0 & -2 \end{bmatrix} \begin{bmatrix} \sqrt{12} & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 0 \end{bmatrix} \frac{1}{\sqrt{12}} \begin{bmatrix} \sqrt{3} & \sqrt{3} & \sqrt{3} & \sqrt{3} \\ \sqrt{6} & -\sqrt{6} & 0 & 0 \\ \sqrt{2} & \sqrt{2} & -2\sqrt{2} & 0 \\ 1 & 1 & 1 & -3 \end{bmatrix}$$

318/Eq. (29): In \underline{A} add a prime to \underline{M} and replace \underline{D}_r by $\underline{\Delta}_r$, and in \underline{A}^+ delete prime from \underline{M}' .

343/Exc. 11: In line 2 the pale face J_r should be bold face \underline{J}_r .

344/Exc. 22: $\underline{e}_i \underline{e}_j$ should be $\underline{e}_i \underline{e}'_j$ (A prime is needed.)

344/Exc. 24: $6x_1^2 x^2$ should be $6x_1^2 x_2$

345/Exc. 28: $\beta' \underline{X} \underline{t} \underline{t}' \underline{X}' \beta$ should be $\beta' \underline{X} \underline{t} \underline{t}' \underline{X} \beta$ (Delete 3'rd prime.)

351/2 up: $(\underline{C}_{\underline{N}} \underline{X}')'$ should be $(\underline{C}_{\underline{N}} \underline{X})'$ (Delete prime from \underline{X}' .)

417 (3 times): e.g. should be e.g., and should be close to μ

417/Footnote a: Λ_i should be λ_i

435/left column, last entry: Linear models, 392 should be
Linear models (Chapter 15), 392

437/left column, 15'th entry up: Regression, 363 should be
Regression (Chapter 14), 363