ERRATA for VARIANCE COMPONENTS (1st Printing)
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ABSTRACT
Corrections to a book.

Page/Line
vii/16: After restricted add (or residual) [There is room on the line.]
7/2: Penultimate word: fitted should be filled [ll not tt].
17/Table 1.6, line 7 of body of table: delete space in \( \alpha_i E(e_{ij}) \) so as to have
\[ E(e_{ij}; \alpha_i) = \alpha_i E(e_{ij}) = 0 \]
45/5: referred should be referred.
64/6, equation (68), before the equal sign: \( \text{var}(\hat{\sigma}^2_e) \) should be \( \text{var}(\hat{\sigma}^2_{\alpha}) \) [subscript \( \alpha \) not e].
64/7, equation (69), the last symbol: \( \sigma^2_e \) should be \( \sigma^4_e \) [superscript 4 not 2].
64/11, equation (71), the last symbol: \( \sigma^2_e \) should be \( \sigma^4_e \) [superscript 4 not 2].
64/13, equation (72), the last symbol: \(-2\hat{\sigma}^2_e \) should be \(-2\hat{\sigma}^4_e \) [superscript 4 not 2].
65/4 up, the right-most expression: \( \frac{F}{F_U} - 1 \) should be \( \frac{F}{F_L} - 1 \) [on denominator \( F \) subscript \( L \) not \( U \)].
74/15, equation (96), numerator: \( -2\hat{\sigma}^2_e \) should be \( -2\hat{\sigma}^4_e \) [superscript 4 not 2].
75/3, equation (101), middle term: \( \sigma^2_e \) should be \( \sigma^4_e \) [superscript 4 not 2].
75/8, equation (102), right-most terms: \( \sigma^4_{\alpha} \) should be \( \sigma^4_{\alpha} \).
86/9 up: \(-[E(\hat{\sigma}^2_e)]^2 \) should be \(-[E(\hat{\sigma}^2_e)]^2 \) [tilde not hat, i.e., \( \tilde{\not{\hat{\sigma}}}^2 \)].
87/12 up, equation (132c): \( \sum \) should be \( \sum_i \) [subscript \( i \)] — TWICE.
\[ \text{in second term, denominator } \lambda_i^2 \text{ should be } 2\lambda_i^2 \] [add 2].
89/Table 3.10:

3rd line, 1st term: \( \frac{1}{\mu, \sigma^2_e} \) should be \( \frac{1}{\mu, \sigma^2} \) [on the subscript \( \sigma^2 \), subscript \( \alpha \) not \( e \)].

4th line, 3rd term after = sign: \( \bar{y} \) should be \( \bar{y}_1 \). [on \( \bar{y} \) superscript \( i \) not \( . \)].

5th line, 2nd term after = sign: \( n_i(\bar{y}_i - \mu)^2 \) should be \( n_i^2(\bar{y}_i - \mu)^2 \) [\( n_i^2 \) not \( n_i \)].

92/15: Move the (146) up to be level with the line of space that is between the two “displayed” lines.

In the first of those “displayed” lines the > should be ≥ .

In the second of those “displayed” lines the ≤ should be < .

94/12 up, the equation which follows the partial line of text that comes after equation (150):

underneath (150): add (151) so as to have

\[ \tilde{\sigma} = (1 - 1/n)s^2 \] (151)

110/1: Derive \( L(\mu, \sigma^2 s^2) \) should be Derive \( L(\sigma^2 s^2) \) [delete \( \mu \)].

110/18, 2nd line of (a) of E3.24: estimators should be estimates .

110/E3.25, line 2, last symbol: 0 should be bold [bold zero].

line 3, after a,: add: and with every \( e_i \) and \( e_i \) having zero covariance,

lines 4, 5, and 6: align (i), (ii) and (iii) to the right

align the corresponding var(\( e_i \)) to the left so as to have

(i) \( \text{var}(e_i) = \)

(ii) \( \text{var}(e_i) = \)

(iii) \( \text{var}(e_i) = \)

115/last, last expression: \( wabc \) (Rule 8) should be \( wabc \) (Rule 8) - 1 [add -1].

117/4 up: MS(A:B) should be MS(A:B) [delete :].

154/7, after the first = sign: \( 1_s' \) should be \( 1_s \) [delete prime].

163/19, equation (107): \( X(X'X) - X'y \) should be \( X(X'X)^{-1}X'y \)

[Must be identical to (107) on page 159.]

163/20, equation (110): \( X(X'V - X)^{-1}X'V^{-y} \) should be \( X(X'V^{-1}X)^{-1}X'V^{-1}y \)

[Must be identical to (110) on page 160.]
164/9, part (c) of E4.4: $\beta_j^2$ should be $\dot{\beta}_j^2$ [dot above $\beta$, not superscript prime].

166/exercise E4.18:

Delete all 3 lines of part (c).

Relabel part (d) as part (c).

After item (ii) of part (d) [which is now (c)] add:

(iii) Write down the terms of $\mathbf{V} = \text{var}(\mathbf{y})$ that involve the variance components $\sigma^2_{M:CB}$, $\sigma^2_{F:C}$, and $\sigma^2_{FM:CB}$. Use Kronecker products of $I$-matrices and $J$-matrices.

171/equation (4): Delete the penultimate $+$ sign and close up so as to have $\begin{bmatrix} b \\ j \end{bmatrix}_{j=1} \begin{bmatrix} a \\ i \end{bmatrix}_{i=1} v + e$.

178/equation (23), after the $=$ sign, first row, second term:

$-2\sigma^2_e$ should be $-2\sigma^4_e$ [superscript 4 not 2].

219/equation (144), the 1st denominator: a should be b.

the 2nd denominator: b should be a.

251/last, just prior to the 3rd $=$ sign: $Z_j Z_j \sigma_j^2$ should be $Z_j Z_j' \sigma_j^2$ [add a prime].

259/8, 3rd word: normally should be normal [delete ly].

261/4, last term: $\mathbf{DZ}'$ should be $\mathbf{ZD}$.

262/10: Change this line to be: $E_y\{(\bar{u} - u_0)'\mathbf{A}(u_0 - u_0)\} = 0$ [Delete $E_u$, delete square brackets, use round parentheses, add a prime, zero is to be bold.]

262/11: Change this line to be: since, given $\mathbf{y}$, only $u|\mathbf{y}$ is not fixed with $E_u(u|\mathbf{y}) = u_0$. Therefore

Note to editor: If this is too much for the one available line then cut the “with $E_u(u|\mathbf{y}) = u_0$.”

290/6 of Section 8.1: (28) should be (27a).

(103) should be (89).

(104) should be (90).

303/7 up: $\mathbf{B}^{-1} \rightarrow 0$ should be $\mathbf{B}^{-1} \rightarrow \mathbf{0}$ [bold zero].

308/7, equation (42), 1st term: $u'_i u_1$ should be $u'_i u_1$ [subscript i not 1].

314/exercise E8.7, second line: $\text{tr}(Z_i' \mathbf{PZ}_i) \leq \text{tr}(Z_i' \mathbf{VZ}_i)$ should be $\text{tr}(Z_i' \mathbf{PZ}_i) \leq \text{tr}(Z_i' \mathbf{V}^{-1} Z_i)$

[On each side of the $\leq$ sign, prime should be on 1st $Z_i$ not the last.]

367/9 of 2nd paragraph: $P_i$ should be $p_i$ [lower case, italic].
372/equation under (10): subscript to \( f \) should be \( y | p \) not \( p | y \).

378/3 up, after the 1st = sign: \( \sigma^2_{a_1} I_a \) should be \( \sigma^2_{a_1} I_a \)

[On \( \sigma^2 \), the subscript \( \alpha \) needs a subscript 1 (one), akin to the subscript 2 in the last line.]

384/2, first term: \( 2 l^2 \beta \) should be \( 2 l^2 \beta \) [\( l \) should not be bold – see (24)].

390/Table 11.1, footnote: Hooking should be Hocking [oc not oo].

395/4 up, equation (52): \( \{ d \) should be \( \{ r \) [\( r \) not \( d \)].

397/equation (59), immediately after = sign: \( \{ d \) should be \( \{ c \) [\( c \) not \( d \)].

398/equation (60), immediately after = sign: \( \{ d \) should be \( \{ c \) [\( c \) not \( d \)].

407/equation (8): \( \sigma^2 \) should not be bold.

407/two lines above equation (10): the middle E should be feint italic not bold Roman.

410/4 up, equation (22): \( T_A \) should be \( T_4 \) [4 not \( A \)].

421/5 up: In Brown (1976), 1978) should be Brown (1976, 1978) [No parens before the comma.]

445/8 up: Move the \( a_k \) to the right to be under the zeros.

448/4 below equation (6): (ii) should be (iii).

449/2 below equation (17): theorem should be theorem.

453/Equation (29), right-hand side of the = sign: the + should be –

the – should be +

Thus the equation will be

\[
(D + \lambda t t')^{-1} = D^{-1} - \frac{D^{-1} t t' D^{-1}}{1/\lambda + t D^{-1} t}
\]

453/3, equation (27), immediately after + sign:

\[
\begin{bmatrix}
-A^{-1} \\
0
\end{bmatrix}
\text{ should be }
\begin{bmatrix}
-A^{-1} B \\
-0
\end{bmatrix}
\text{ [add B]}

\text{ [I not } 0]
\]

480/6 up, last name VonKrosig should be von Krosigk [lower case v, space after von, add final k].