

51. The computations shown on page 509 are correct but there are a couple of errors in the formulas (each occurring twice) in the table and one error in the formula just below the table. These are detailed below. First, in the next to last row of the Table (i.e., in the row labeled “B/A”), in both the third and fourth columns the denominator **to the right of the equals sign** should be just “*n*” not “*bn*”. Second, in the last row of the Table (i.e., in the row labeled “A”), in both the second and third columns the denominator on the left of the equals sign should be just “*a*” not “*a - 1*”.

T A B L E 10.10 Estimates of Variance Components for Two-Factor Designs with Nesting
(Showing erroneous “*bn*” and “*a - 1*” denominators as they appear in the printed book)

Effect	A & B both Fixed	A Fixed, B Random	A & B both Random
Error	$\hat{\sigma}_{\epsilon}^2 = MS_W$	$\hat{\sigma}_{\epsilon}^2 = MS_W$	$\hat{\sigma}_{\epsilon}^2 = MS_W$
B/A	$\frac{\sum_j \sum_k \beta_{kj}^2}{ab} = \frac{(b-1)}{b} \frac{(MS_{B/A} - MS_W)}{n}$	$\hat{\sigma}_{\beta}^2 = \frac{MS_{B/A} - MS_W}{bn}$	$\hat{\sigma}_{\beta}^2 = \frac{MS_{B/A} - MS_W}{bn}$
A	$\frac{\sum_j \alpha_j^2}{a-1} = \frac{(a-1)}{a} \frac{MS_A - MS_W}{bn}$	$\frac{\sum_j \alpha_j^2}{a-1} = \frac{(a-1)}{a} \frac{MS_A - MS_{B/A}}{bn}$	$\hat{\sigma}_{\alpha}^2 = \frac{MS_A - MS_{B/A}}{bn}$

The table with the needed corrections incorporated appears on the following page.

T A B L E 10.10 Estimates of Variance Components for Two-Factor Designs with Nesting
(Incorporating corrections)

Effect	A & B both Fixed	A Fixed, B Random	A & B both Random
Error	$\hat{\sigma}_\epsilon^2 = MS_W$	$\hat{\sigma}_\epsilon^2 = MS_W$	$\hat{\sigma}_\epsilon^2 = MS_W$
B/A	$\frac{\sum_j \sum_k \hat{\beta}_{kj}^2}{ab} = \frac{(b-1)(MS_{B/A} - MS_W)}{bn}$	$\hat{\sigma}_\beta^2 = \frac{MS_{B/A} - MS_W}{n}$	$\hat{\sigma}_\beta^2 = \frac{MS_{B/A} - MS_W}{n}$
A	$\frac{\sum_j \hat{\alpha}_j^2}{a} = \frac{(a-1)MS_A - MS_W}{bn}$	$\frac{\sum_j \hat{\alpha}_j^2}{a} = \frac{(a-1)MS_A - MS_{B/A}}{bn}$	$\hat{\sigma}_\alpha^2 = \frac{MS_A - MS_{B/A}}{bn}$

Finally, in the first equation appearing in the text below Table 10.10, just before the second equals sign, the MS_W should be $MS_{B/A}$

Text on page 509 immediately below Table 10.10, showing the incorrect MS_W :

components would be estimated as follows:

$$\frac{\sum \hat{\alpha}_j^2}{a} = \frac{(a-1)(MS_A - MS_W)}{a \quad bn} = \frac{(2-1)(1176-118)}{2 \cdot 3 \cdot 4} = \frac{1058}{24} = 44.083$$

$$\hat{\sigma}_\beta^2 = \frac{MS_{B/A} - MS_W}{n} = \frac{118 - 45.556}{4} = 72.444/4 = 18.111$$

$$\hat{\sigma}_\epsilon^2 = MS_W = 45.556$$

Text on page 509 immediately below Table 10.10, incorporating needed correction:

components would be estimated as follows:

$$\begin{aligned}\frac{\sum \hat{\alpha}_j^2}{a} &= \frac{(a-1)(MS_A - MS_{B/A})}{a \quad bn} = \frac{(2-1)(1176-118)}{2 \cdot 3 \cdot 4} = \frac{1058}{24} = 44.083 \\ \hat{\sigma}_\beta^2 &= \frac{MS_{B/A} - MS_W}{n} = \frac{118 - 45.556}{4} = 72.444/4 = 18.111 \\ \hat{\sigma}_\epsilon^2 &= MS_W = 45.556\end{aligned}$$