**TABLE 8.14-5 Formulas for Testing Simple Effects**

| | *Error Term* (*A, B, and C Fixed Effects, Subjects Random*) |
|---|---|
| (i) *AB* interaction significant: | |
| $SS_A \text{ at } b_1 = \sum_1^p \frac{(AB_{i1})^2}{nr} - \frac{\left(\sum_1^p B_{i1}\right)^2}{npr}$ | $\frac{MS_{\text{subj w.groups}} + MS_{B\times\text{subj w.groups}}(q-1)}{q}$ |
| $SS_B \text{ at } a_1 = \sum_1^q \frac{(AB_{1j})^2}{nr} - \frac{\left(\sum_1^q A_{1j}\right)^2}{nqr}$ | $MS_{B\times\text{subj w.groups}}$ |
| (ii) *AC* interaction significant: | |
| $SS_A \text{ at } c_1 = \sum_1^p \frac{(AC_{i1})^2}{nq} - \frac{\left(\sum_1^p C_{i1}\right)^2}{npq}$ | $\frac{MS_{\text{subj w.groups}} + MS_{C\times\text{subj w.groups}}(r-1)}{r}$ |
| $SS_C \text{ at } a_1 = \sum_1^r \frac{(AC_{1k})^2}{nq} - \frac{\left(\sum_1^r A_{1k}\right)^2}{nqr}$ | $MS_{C\times\text{subj w.groups}}$ |
| (iii) *BC* interaction significant: | |
| $SS_B \text{ at } c_1 = \sum_1^q \frac{(BC_{j1})^2}{np} - \frac{\left(\sum_1^q C_{j1}\right)^2}{npq}$ | $\frac{MS_{B\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(r-1)}{r}$ |
| $SS_C \text{ at } b_1 = \sum_1^r \frac{(BC_{1k})^2}{np} - \frac{\left(\sum_1^r B_{1k}\right)^2}{npr}$ | $\frac{MS_{C\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(q-1)}{q}$ |
| (iv) *ABC* interaction significant: | |
| $SS_A \text{ at } bc_{11} = \sum_1^p \frac{(ABC_{i11})^2}{n} - \frac{(BC_{11})^2}{np}$ | $MS_{\text{w.cell}}$ |
| $SS_B \text{ at } ac_{11} = \sum_1^q \frac{(ABC_{1j1})^2}{n} - \frac{(AC_{11})^2}{nq}$ | $\frac{MS_{B\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(r-1)}{r}$ |
| $SS_C \text{ at } ab_{11} = \sum_1^r \frac{(ABC_{11k})^2}{n} - \frac{(AB_{11})^2}{nr}$ | $\frac{MS_{C\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(q-1)}{q}$ |
| $SS_{AB} \text{ at } c_1 = \left[\sum_1^p\sum_1^q \frac{(ABC_{ij1})^2}{n} - \frac{\left(\sum_1^p C_{i1}\right)^2}{npq}\right] - SS_A \text{ at } c_1 - SS_B \text{ at } c_1$ | $\frac{MS_{B\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(r-1)}{r}$ |
| $SS_{AC} \text{ at } b_1 = \left[\sum_1^p\sum_1^r \frac{(ABC_{i1k})^2}{n} - \frac{\left(\sum_1^p B_{i1}\right)^2}{npr}\right] - SS_A \text{ at } b_1 - SS_C \text{ at } b_1$ | $\frac{MS_{C\times\text{subj w.groups}} + MS_{BC\times\text{subj w.groups}}(q-1)}{q}$ |
| $SS_{BC} \text{ at } a_1 = \left[\sum_1^q\sum_1^r \frac{(ABC_{1jk})^2}{n} - \frac{\left(\sum_1^q A_{1j}\right)^2}{nqr}\right] - SS_B \text{ at } a_1 - SS_C \text{ at } a_1$ | $MS_{BC\times\text{subj w.groups}}$ |