TABLE 8.13-2 Analysis of Variance Table for Type SPF-*pru.q* Design

	Source	Regular df	Unweighted-means df	F (A, B, C, and D Fixed Effects, Subjects Random)
1	Between subjects	$npru - 1$	$N - 1$	
2	A	$p - 1$	$p - 1$	$[\frac{2}{9}]$
3	C	$r - 1$	$r - 1$	$[\frac{3}{9}]$
4	D	$u - 1$	$u - 1$	$[\frac{4}{9}]$
5	AC	$(p - 1)(r - 1)$	$(p - 1)(r - 1)$	$[\frac{5}{9}]$
6	AD	$(p - 1)(u - 1)$	$(p - 1)(u - 1)$	$[\frac{6}{9}]$
7	CD	$(r - 1)(u - 1)$	$(r - 1)(u - 1)$	$[\frac{7}{9}]$
8	ACD	$(p - 1)(r - 1)(u - 1)$	$(p - 1)(r - 1)(u - 1)$	$[\frac{8}{9}]$
9	Subj w.groups	$pru(n - 1)$	$N - pru$	
10	Within subjects	$npru(q - 1)$	$N(q - 1)$	
11	B	$q - 1$	$q - 1$	$[\frac{11}{10}]$
12	AB	$(p - 1)(q - 1)$	$(p - 1)(q - 1)$	$[\frac{12}{10}]$
13	BC	$(q - 1)(r - 1)$	$(q - 1)(r - 1)$	$[\frac{13}{10}]$
14	BD	$(q - 1)(u - 1)$	$(q - 1)(u - 1)$	$[\frac{14}{10}]$
15	ABC	$(p - 1)(q - 1)(r - 1)$	$(p - 1)(q - 1)(r - 1)$	$[\frac{15}{10}]$
16	ABD	$(p - 1)(q - 1)(u - 1)$	$(p - 1)(q - 1)(u - 1)$	$[\frac{16}{10}]$
17	BCD	$(q - 1)(r - 1)(u - 1)$	$(q - 1)(r - 1)(u - 1)$	$[\frac{17}{10}]$
18	$ABCD$	$(p - 1)(q - 1)(r - 1)(u - 1)$	$(p - 1)(q - 1)(r - 1)(u - 1)$	$[\frac{18}{10}]$
19	$B \times$ subj w.groups	$pru(n - 1)(q - 1)$	$(N - pru)(q - 1)$	
20	Total	$npqru - 1$	$Nq - 1$	

8.14 COMPUTATIONAL PROCEDURES FOR TYPE SPF-*p.qr* DESIGN

A split-plot design can be used in research situations requiring repeated measures on two or more treatments. One variation of this design, called a type SPF-$p.qr$ design, is described here. This design has one between-block treatment (A) and two within-block treatments (B, C). The design requires np samples of subjects who are randomly assigned to treatment A, with n subjects (blocks) in each level. The sequence of administration of the BC treatment combinations within an np block is randomized independently for each subject. An alternative to using repeated measures