Psych 610 Handout #20
Prof. Moore

Partitions as Sets of Contrasts

A standard anova of a two-way design is really a partition that can be expressed as a set of orthogonal contrasts. Subsets of the SS for the contrasts are summed to form the SS for the two main effects and interaction in score in 3 x 3 design.

	A_1			A_2			A_3				
	B_1	B_2	B_3	B_1	B_2	B_3	B_1	B_2	B_3	Contrast #	
Main	2	2	2	-1	-1	-1	-1	-1	-1	1	Standard
Effect A	0	0	0	1	1	1	-1	-1	-1	2	Partition
Main	2	-1	-1	2	-1	-1	2	-1	-1	3	
Effect B	0	1	-1	0	1	-1	0	1	-1	4	
A x B	4	-2	-2	-2	1	1	-2	1	1	5	
	0	0	0	2	-1	-1	-2	1	1	6	
	0	2	-2	0	-1	1	0	-1	1	7	
	0	0	0	0	1	-1	0	-1	1	8	
B @ A_1	2	-1	-1	0	0	0	0	0	0	1'	
	0	1	-1	0	0	0	0	0	0	2'	
B @ A_2	0	0	0	2	-1	-1	0	0	0	3'	
	0	0	0	0	1	-1	0	0	0	4'	
B @ A_3	0	0	0	0	0	0	2	-1	-1	5'	
	0	0	0	0	0	0	0	1	-1	6'	

The simple main effects of B @ each level of A are given as contrasts in the bottom portion of the table. Because there are 6 contrasts, they use 6 df.

Notice that the contrasts in the top can be expressed as linear functions of the contrasts in the bottom, and vice versa.

Example: #3 = 1' + 3' + 5'
#5 = 2(1') + (-1)(3') + (-1)(5')
#1' = (#3) + (-1)(#6)
#6' = _[(2)(#4) – (#7) – (#8)]

Main Effect A contrasts <u>are</u> orthogonal to #s 1'-6'.