

Orthogonal Contrasts

Predictor set 1 from the Multicollinearity example

$x_1$	10	10	10	10	15	15	15	15
$x_2$	10	10	15	15	10	10	15	15

	10	15
$x_1$	10	15
	$n=2$	$n=2$
	15	$n=2$

all the cross-classified category (treatment) sample sizes are equal  $\Rightarrow$  this a balanced experimental design

$\Rightarrow$  orthogonal contrasts

( $x_1, x_2$  variables uncorrelated & order in the ANOVA table in a multiple will be unimportant)

for more info  $\rightarrow$  see either

STAT3015/4030/7030 GLMs

or STAT3012/4029/7029 Design of Experiments & Surveys

Variance Inflation Factor (for variable  $X_j$ )

$\uparrow$  in the set  $X_1, X_2, \dots, X_j, \dots, X_k$

$$VIF_j = \frac{1}{1 - R_j^2}$$

where  $R_j^2$  is the  $R^2$  for the regression of  $X_j$  on

$X_1, X_2, \dots, X_{j-1}, X_{j+1}, \dots, X_k$

$\uparrow$   
 $X_j$  not included