

# Multi-collinearity Slides

$$\begin{array}{cccccccc} x_1 & 10 & 10 & 10 & 10 & 15 & 15 & 15 & 15 \\ x_2 & 10 & 10 & 15 & 15 & 10 & 10 & 15 & 15 \end{array}$$

Handwritten diagram illustrating a mapping between two sets of numbers:

- $\alpha_1$  contains the numbers 10 and 15.
- $\alpha_2$  contains the numbers 10, 2, 2, 15, 2, 2.
- Arrows indicate a mapping from  $\alpha_1$  to  $\alpha_2$ :
  - An arrow points from 10 in  $\alpha_1$  to the first 10 in  $\alpha_2$ .
  - An arrow points from 15 in  $\alpha_1$  to the first 15 in  $\alpha_2$ .

## Orthogonal contrasts

- balanced experimental design

→ see stat of STAT 3015 GLMs