

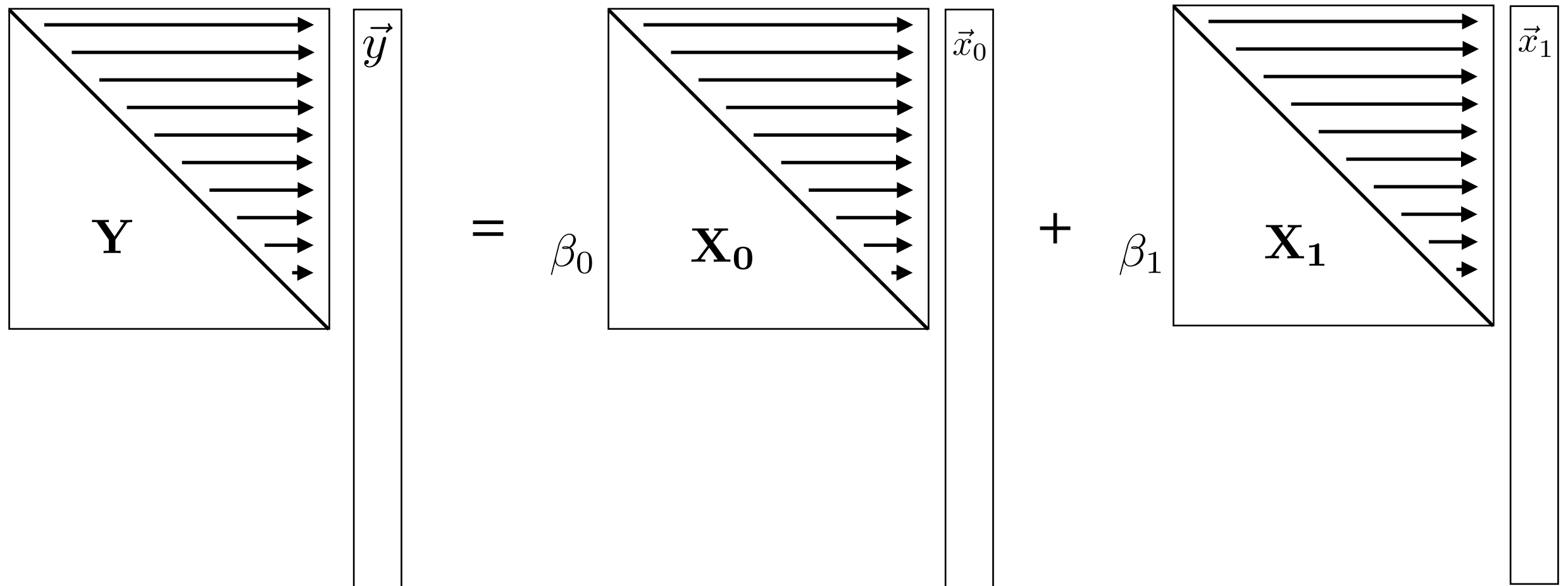
# MRRM Approaches

Building a regression model from distance matrices

- Permutation for significance
- Deploy linear regression

# Multiple Regression on Matrices

Builds regression model on distance matrices



The diagram illustrates a multiple regression model on distance matrices. It consists of three main parts: a response matrix  $\mathbf{Y}$  and a vector  $\vec{y}$ , an equals sign, a predictor matrix  $\mathbf{X}_0$  and a vector  $\vec{x}_0$ , a plus sign, and another predictor matrix  $\mathbf{X}_1$  and a vector  $\vec{x}_1$ . Each matrix is represented by a square with a diagonal line from the top-left to the bottom-right, and horizontal arrows of varying lengths pointing to the right, representing distance values. The vectors are represented by vertical rectangles.

$$\begin{matrix} \mathbf{Y} \\ \vec{y} \end{matrix} = \beta_0 \begin{matrix} \mathbf{X}_0 \\ \vec{x}_0 \end{matrix} + \beta_1 \begin{matrix} \mathbf{X}_1 \\ \vec{x}_1 \end{matrix}$$