Assessing Model Accuracy.

Say, we have our "usual" regression model

$$Y = f(X) + \varepsilon$$

Say, we fit our model on some training data:

$$Tr = \{(x_i, y_i) : i = 1, \dots, N\}$$

Let $\hat{f}$ be the fit of the model to our Tr.

$$MSE_{Tr} := \underset{i \in \{1..N\}}{Ave} (y_i - \hat{f}(x_i))^2 = \frac{1}{N} \sum_{i=1}^{N} (y_i - \hat{f}(x_i))^2$$

We propose to look @ other data

$$Te = \{(x_j, y_j) : j = 1, \dots, M\}$$

These are our testing data.

We calculate

$$MSE_{Te} := \underset{j \in \{1..M\}}{Ave} (y_j - \hat{f}(x_j))^2 = \frac{1}{M} \sum_{j=1}^{M} (y_j - \hat{f}(x_j))^2$$