

1. Show that

a) $\sum_{i=1}^n h_{ii} = p'$.

b) When the mean function includes an intercept, $\sum_{i=1}^n h_{ij} = \sum_{j=1}^n h_{ij} = 1$.

c)

$$\frac{1}{n} \leq h_{ii} \leq \frac{1}{r} \quad \text{for } i = 1, \dots, n$$

where r is the number of rows of \mathbf{X} that are the same as the i th row.

2. From ALR 9.8

3. From ALR 9.16