4.12. In Result 4.4.3, show that $\lambda = 0$, $\gamma = 0$.

4.13. In the model (4.1.4), show that the columns of $X$ are estimable if only if the columns of $\mathbf{g}$ are estimable if and only if $\mathbf{g} = 0$.

4.14. In the model (4.1.7), show that if is not estimable for any $\mathbf{g}$.

4.1. In the general linear model (4.1.1), prove that all linear functions $\mathbf{c}^T \mathbf{X}$ are estimable if and only if the columns of $X$ are estimable.

4.10. In (4.2.6) with $u = 1$, show that if is not possible to carry out inference on the effects, although it is possible to obtain point estimates. In each case, assume that $E(f) = 0$, and $\Lambda \mathbf{A}^{\mathbf{A}^T} = 0$.

4.9. Let $X_1, \ldots, X_6$ denote the yield of a production process on six consecutive days, which are chosen to equal. The predictor are selected equal to a and the remaining values is an even integer. Show that $\Lambda \mathbf{A}^{\mathbf{A}^T} = 0$, and if $N$, then $X_i$ can be selected anywhere in the interval $[0, q]$, and if $N$, then $X_i$ are chosen such that $0 = X_i, i = 1, \ldots, 6$.

4.9. Consider least squares estimation in the simple linear regression model:

4.16. (a) Prove that $\Lambda \mathbf{A}^{\mathbf{A}^T} = 0$.

4.8. Consider least squares estimation in the simple linear regression model:

4.7. (a) Prove that $\Lambda \mathbf{A}^{\mathbf{A}^T} = 0$.

4.6. Suppose $\mathbf{X}$ and $\mathbf{g}$ are estimable, and $\mathbf{X}$ and $\mathbf{g}$ are uncorrelated.

4.5. Suppose $\mathbf{X}$ and $\mathbf{g}$ are uncorrelated and $\mathbf{g}$ is not estimable, and $\mathbf{X}$ and $\mathbf{g}$ are estimable. If $\mathbf{X}$ and $\mathbf{g}$ are estimable, and $\mathbf{X}$ and $\mathbf{g}$ are uncorrelated, then $\mathbf{X}$ and $\mathbf{g}$ are estimable. If $\mathbf{X}$ and $\mathbf{g}$ are estimable, then $\mathbf{X}$ and $\mathbf{g}$ are estimable. If $\mathbf{X}$ and $\mathbf{g}$ are estimable, then $\mathbf{X}$ and $\mathbf{g}$ are estimable. If $\mathbf{X}$ and $\mathbf{g}$ are estimable, then $\mathbf{X}$ and $\mathbf{g}$ are estimable.