ST 705 Linear models and variance components
Homework problem set 7

March 10, 2021

1. Prove that if $\lambda^{(1)'}\beta, \ldots, \lambda^{(k)'}\beta$ are estimable, then so is

$$\sum_{j=1}^{k} d_j \lambda^{(j)'}\beta,$$

for any scalar constants $d_1, \ldots, d_k$.

2. Show that if the least squares estimator $\lambda'\widehat{\beta}$ is the same for all solutions $\widehat{\beta}$ to the normal equations, then $\lambda'\beta$ is estimable.

3. Exercise 3.7 from Monahan.

4. Cute picture of an otter: