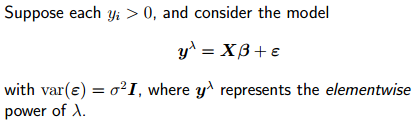
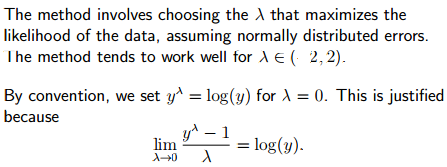
**1. If the model has non-linearity, we can use log transformation or other transformations**

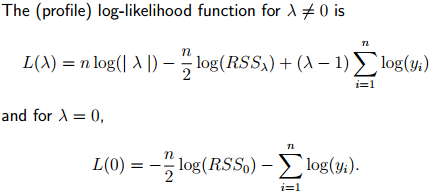
**2. Box-Cox transformation: reduces nonlinearity and heteroscedasticity**

**3. Crossover Design: a type of longitudinal design in which each subject is given a treatment in each of several successive time periods (with possibly different treatments in different time periods).**

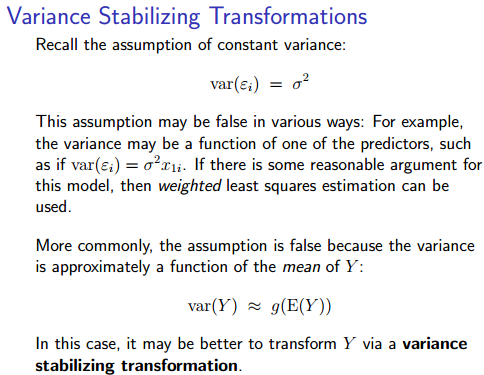
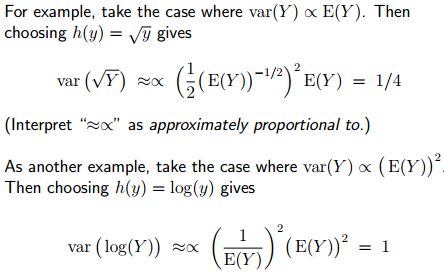


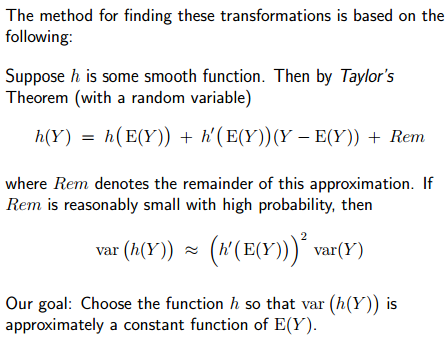


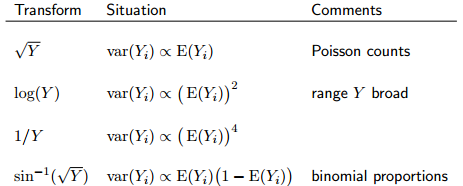


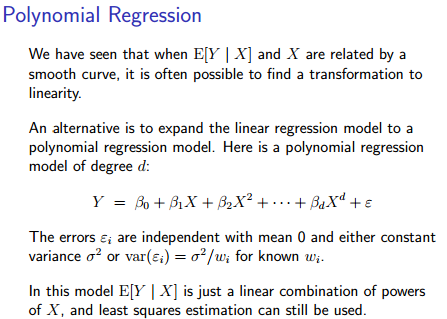




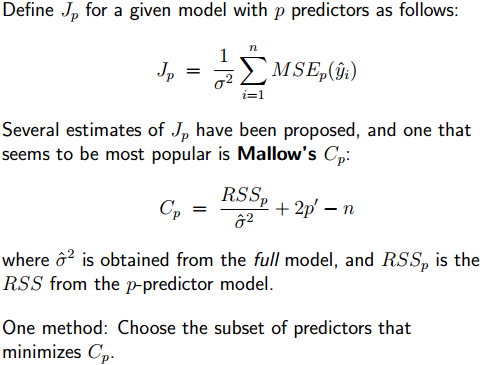


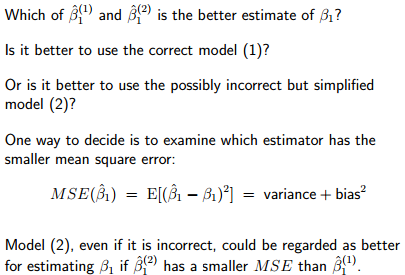




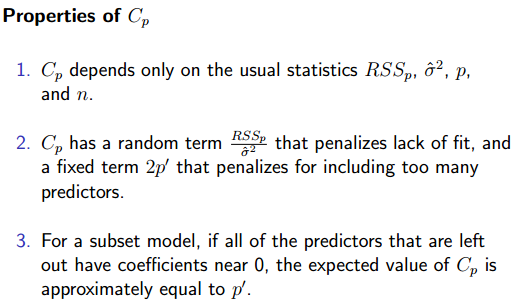


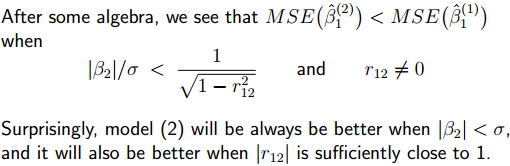
**General conclusion: Transformations of X (including polynomials) can effectively treat the problem of curvature in the mean function, but not the problem of variance inhomogeneity (heteroscedasticity). A transformation of Y can treat the problem of heteroscedasticity. Transformation of both X and Y may be needed to treat both a problem of curvature and a problem of heteroscedasticity**

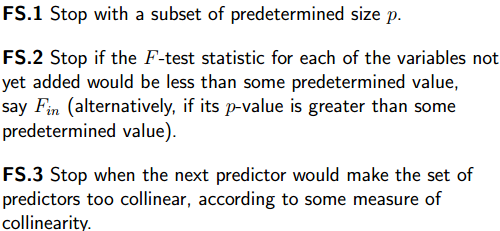


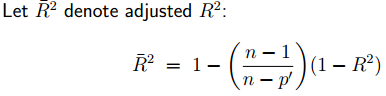


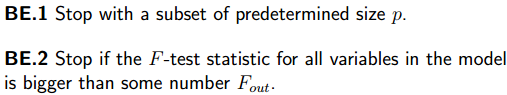


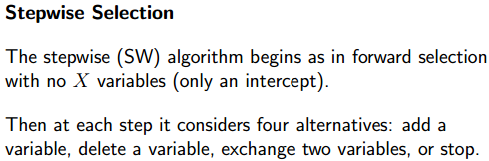




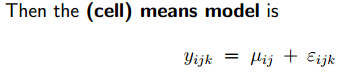


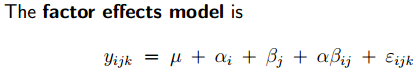












**Main effects model**: The model that does not have the interaction term

