Exponential Families

Exponential families and completeness

Example

Suppose that $X_1, \ldots, X_n \overset{iid}{\sim} Bernoulli(p)$.

- ✚ Show the the Bernoulli is an exponential family distribution
- ✚ Find a complete, sufficient statistic
- ✚ Use the complete, sufficient statistic to find a best unbiased estimator of p

Example

Suppose that $X_1, \ldots, X_n \overset{iid}{\sim} N(\mu, \sigma^2)$.

+ Show the the normal is an exponential family distribution
+ Find a complete, sufficient statistic
+ Use the complete, sufficient statistic to find a best unbiased estimator of σ^2