Maximum Likelihood Estimation Procedure

Is the sample space independent of the parameter(s)?

i.e., does the possible range of the data depend on the parameter(s)?

NO **YES**

Calculus approach

1. Calculate the likelihood function
2. Calculate $\frac{d}{d\theta}\{L(\theta|\boldsymbol{x}\} = 0$.
3. Solve for θ to identify a candidate MLE.
4. Calculate $\frac{d^2}{d\theta^2}\{L(\theta|\boldsymbol{x}\}$.
5. Show that $\frac{d^2}{d\theta^2}\{L(\theta|\boldsymbol{x}\} < 0$ for all values of θ.

Graphical approach

1. Graph the function to identify the MLE.
2. Optional (recommended): Confirm the accuracy of your drawing by differentiating over the continuous portion(s) of the graph.