

Mixture Model

You are given a mixture model with mixture components c_1, c_2, c_3 which are linked to geometric distributions with parameters $\theta_{c_1} = 0.2, \theta_{c_2} = 0.4, \theta_{c_3} = 0.6$. You observe the data set

$$\{0, 5, 2, 2, 4, 3\} .$$

Assume that the mixture components are i.i.d. per observation.

- a) What is the (marginal) likelihood of this data set under the model?
- b) Find the most likely mixture component for each data point.