

# Questions for the Course on Bayesian Modeling: Set I, Chapter 3

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## Questions Chapter 3

Print out your answers to these exercises and bring them with you next Monday. Before you concentrate on the exercises first work through chapter 3.

1. Consider the `Rate_1` script. Set  $k = 3$  and  $n = 10$ . What is the probability that  $\theta$  lies between 0.10 and 0.20? What is the probability that it is higher than 0.30? Explain how you got to the answer.
2. Consider the `Rate_1` script again. Instead of assigning  $\theta$  a Beta(1,1) prior, we also could have assigned  $\theta$  a Gaussian distribution with mean 0.5 and a large variance. Mention two advantages of the beta approach over the Gaussian approach.
3. The `Rate_4` script features the posterior predictive `postpredk`. This posterior predictive expresses the combined influences of two sources of uncertainty. (1) Which are these? (2) Which source of uncertainty depends on the size of the observed data? Which source of uncertainty depends on the size of the prospective data?