Probabilistic thinking, Stan installation

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Probabilistic thinking

We wrote down three questions from your everyday life that we often reply to with an uncertain answer. We answered those questions uncertainly with natural language and using probabilistic answers that roughly correspond to the natural language questions.

Q1: **How many ants you see in the anthill?**

About 1000. Probabilistic answer is ceil(T), $T \sim N(1000, 10)$.

Q2: **What proportion of the dough mixture is water to make the bread very soft?**

Around 30 percentage. Probabilistic answer could be Unif($0.2, 0.4$).

Q3: **Will I be attending lectures next Tuesday?**

Probably yes. Probabilistic answer could be Bernoulli(0.9).

Stan installation

Also, we ran the Bernoulli toy example from the installation instructions of Stan. We plotted posterior distribution of the Bernoulli's distribution parameter Θ in the Figure 1 and calculated the following probabilities: $P(\Theta > 0.3) = 0.29325$ and $P(|\Theta - 0.5| < 0.001) = 0.00175$.

Figure 1: Posterior distribution of the Bernoulli's distribution parameter Θ.