Chapter 2 Single-parameter Models

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Let's import ggplot2 for plotting.

```
library(ggplot2)
theme_set(theme_minimal())
```

Probability of a girl birth given placenta previa

437 girls and 543 boys have been observed. Calculate and plot the posterior distribution of the proportion of girls θ, using uniform prior on θ.

Analysis using a uniform prior distribution

Under a uniform prior distribution for the probability of a girl birth, the posterior distribution is Beta(438, 544).
`seq` creates evenly spaced values as follows:

```
df1 <- data.frame(theta = seq(0.375, 0.525, 0.001))
a <- 438
b <- 544
head(df1)
```

```
##   theta
## 1 0.375
## 2 0.376
## 3 0.377
## 4 0.378
## 5 0.379
## 6 0.380
```

dbeta computes the posterior density.

```
df1$p <- dbeta(df1$theta, a, b)
head(df1)
```

```
##   theta           p
## 1 0.375 0.0008507679
## 2 0.376 0.0011418738
## 3 0.377 0.0015257278
## 4 0.378 0.0020295190
## 5 0.379 0.0026876416
## 6 0.380 0.0035433725
```