

RSTAN - Bernoulli Trial - Estimation of P

Load the packages

```
library(rstan)
```

Model

$$y \sim \text{Bernoulli}(p)$$
$$p \sim \text{beta}(1,1)$$

Data

10번 시행, 7번 성공

```
N <- 10  
y <- c(1,1,0,0,1,0,1,1,1,1)  
data1 <- list(N=N, y=y)
```

STAN Code

```
data {  
  int N;  
  int<lower = 0, upper =1> y[N];  
}  
  
parameters {  
  real<lower = 0, upper = 1> p;  
}  
  
model {  
  for(n in 1:N)  
    y[n] ~ bernoulli(p); // likelihood  
    // y ~ bernoulli(p);  
    p ~ beta(1,1); //prior (non-informative)  
}
```

Fitting

```
fit1 <- stan(file = 'bernoulli.stan', data=data1, seed=123)  
fit1
```

Plot

```
traceplot(fit1, inc_warmup = TRUE)  
plot(fit1)  
plot(fit1, show_density = TRUE)
```