

ch-4

LinMod

Tuesday, September 16, 2014

Ex 4-1 Estimate the true probability of having a disease, given that you tested positive.

```
D <- 1/1000 # Probability of disease
TD <- 0.99
T_not_D <- 0.05

post <- (TD*D)/(TD*D + T_not_D*(1-D))
```

The probability that you have the disease, given that you test positive, is 0.0194. Now, we perform the same procedure, but this time, the prior distribution is the posterior from our previous calculation.

Now, given that you tested negative, the probability that you have the disease is 2.0859×10^{-4} .