

21.1: A Simple Example (Section 20.3)

```
bayes_df = data.frame(prior=NA,
                      likelihood=NA,
                      marginal_likelihood=NA,
                      posterior=NA)

bayes_df$prior <- 1/1000000

nTests <- 3
nPositives <- 3
0.99sensitivity <-
0.99specificity <-

0.99bayes_df$likelihood <- dbinom(nPositives, nTests, )

bayes_df$marginal_likelihood <-
  dbinom(
    x = nPositives,
    size = nTests,
    prob = sensitivity
  ) * bayes_df$prior +
  dbinom(
    x = nPositives,
    size = nTests,
    prob = 1 - specificity
  ) *
  (1 - bayes_df$prior)

bayes_df$posterior <-
  (bayes_df$likelihood * bayes_df$prior) /
  bayes_df$marginal_likelihood
```

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