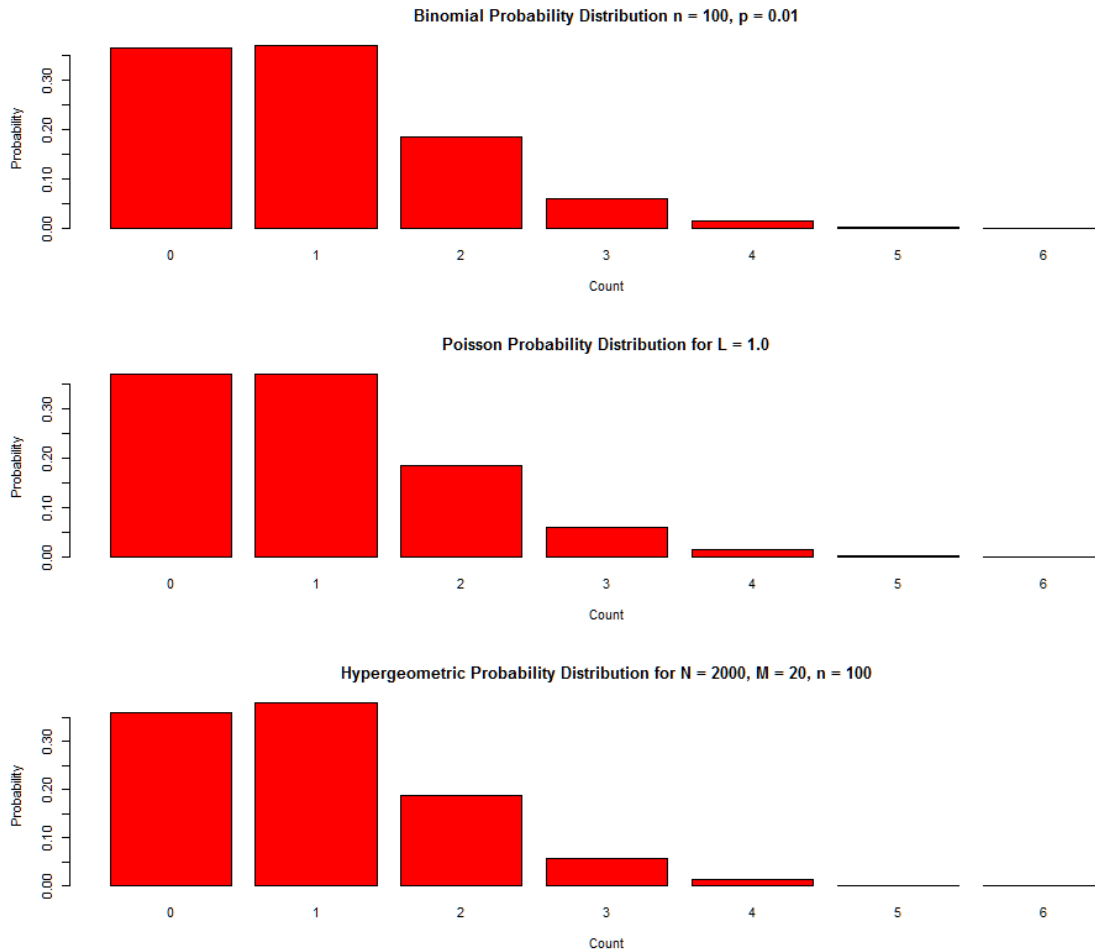


Binomial, Poisson and Hypergeometric Distributions



Under certain conditions, the three distributions are similar.

- 1) **Binomial and Poisson:** Small p and $n \geq 100$ with the mean of the Poisson distribution $= np \leq 10$.
- 2) **Binomial and Hypergeometric:** $M/N = p$, $N \geq 20n$ and $M = Np$.
(M = white balls, N = black balls, n = number of balls drawn)
- 3) **Poisson and Hypergeometric:** Combination of 1) and 2) $n(M/N) \leq 10$, $n \geq 100$, $N \geq 20n$ and $M = Np$.

```
x <- c(0, 1, 2, 3, 4, 5, 6)
dbinom(x, 100, 0.01, log = FALSE)
dpois(x, 1.0, log = FALSE)
dhyper(x, 20, 2000, 100, log = FALSE)
```