

# STAC51 RMarkdown Tutorial

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## Section 1

Hello World

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### S1 Subsection 1

This is a math equation  $a^2 + b^2 = c^2$

Likelihood function of  $\text{Bin}(n, \pi) : \ell(\pi | y) = \binom{n}{y} \pi^y (1 - \pi)^{n-y}$

$\$.. \$$  is a inline math mode.

This is a score CI:

$$z_{\alpha/2} \sqrt{\frac{\hat{\pi} \left( \frac{n}{n+z_{\alpha/2}^2} \right) + \frac{1}{2} \left( \frac{z_{\alpha/2}^2}{n+z_{\alpha/2}^2} \right) \pm \frac{1}{n+z_{\alpha/2}^2} \left[ \hat{\pi} (1 - \hat{\pi}) \frac{n}{n+z_{\alpha/2}^2} + \frac{1}{4} \left( \frac{z_{\alpha/2}^2}{n+z_{\alpha/2}^2} \right) \right]}$$

## Code chunks

```
dbinom(0:5, 5, p=1/4)
```

```
## [1] 0.2373046875 0.3955078125 0.2636718750 0.0878906250 0.0146484375
## [6] 0.0009765625
```

```
echo = F
```

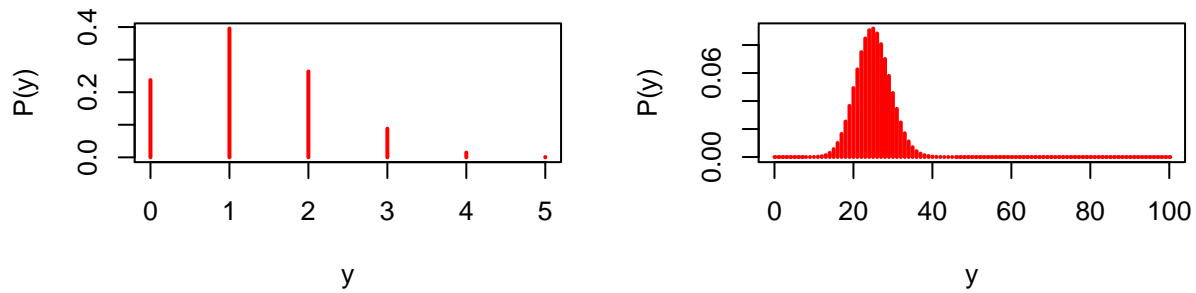
```
## [1] 0.2373046875 0.3955078125 0.2636718750 0.0878906250 0.0146484375
## [6] 0.0009765625
```

```
include = F
```

## Code Chunks with figures

```
par(mfrow=c(2,2))
plot(0:5, p1, type="h", xlab="y",
     ylab="P(y)", col="red", lwd=2)
plot(0:100, dbinom(0:100, 100, 1/4), type="h", xlab="y",
     ylab="P(y)", col="red", lwd=2)
pbinom(2, 5, 1/4)
```

```
## [1] 0.8964844
```



Simple way of attaching figure

More figure code chunk options

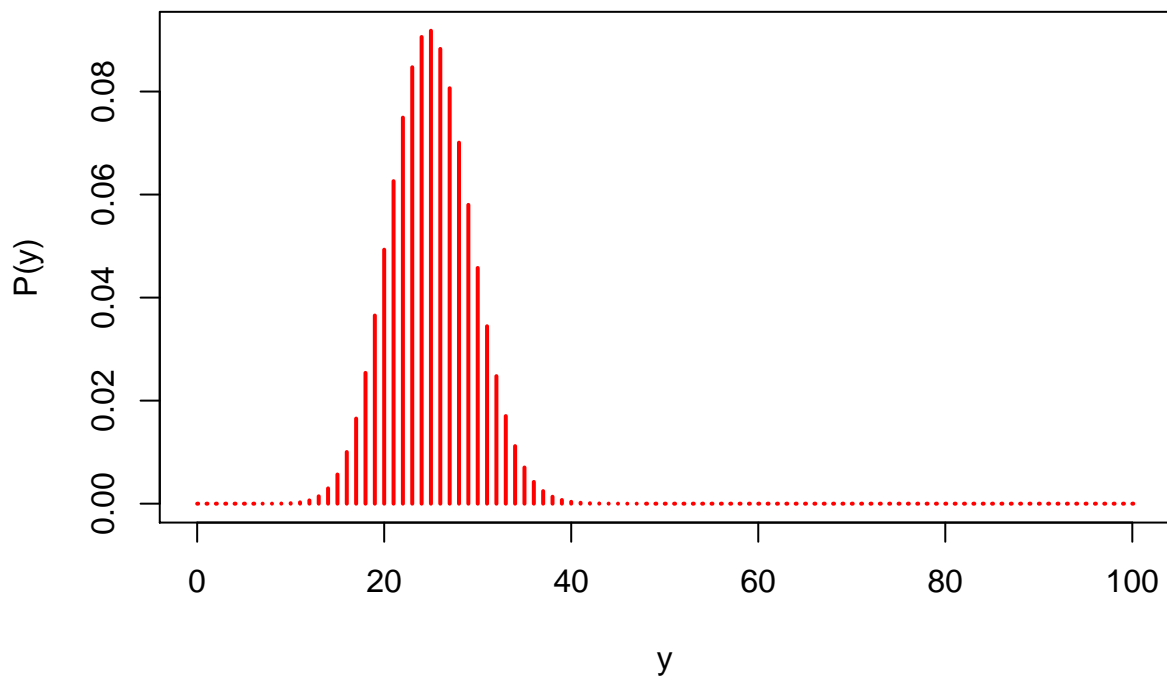


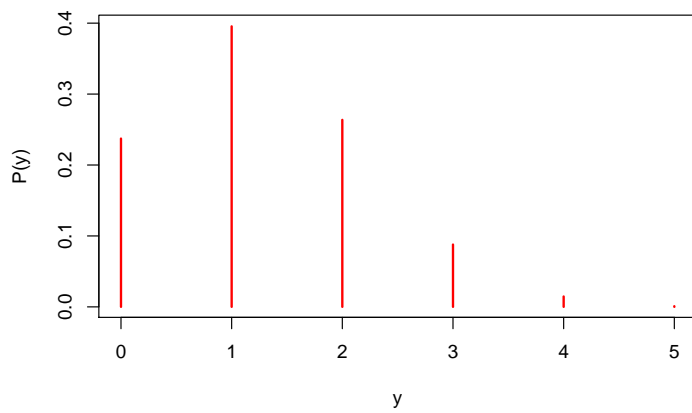
Figure 1: This is a figure caption.

Multiple figures with captions

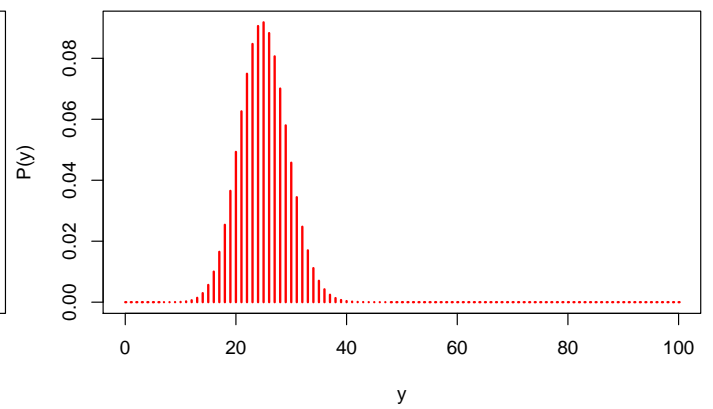
```
plot(0:5, dbinom(0:5, 5, 1/4), type="h", xlab="y",  
     ylab="P(y)", col="red", lwd=2)  
plot(0:100, dbinom(0:100, 100, 1/4), type="h", xlab="y",  
     ylab="P(y)", col="red", lwd=2)  
plot(cars, pch = 19)  
boxplot(Sepal.Width ~ Species, data = iris)
```

Tables

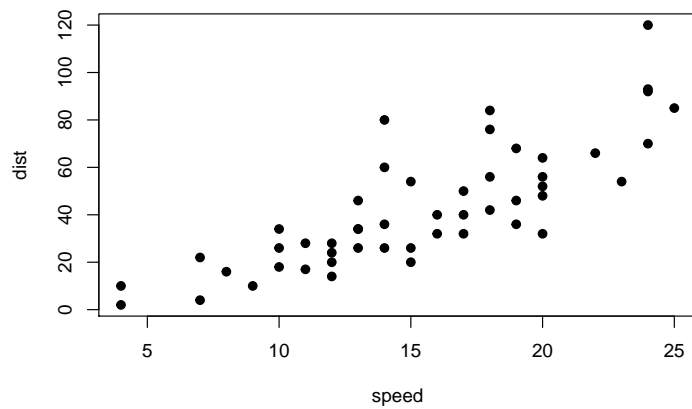
```
library(binom)  
knitr::kable(binom.confint(x=4, n=400, conf.level=.95, methods =c("ac", "wilson", "lrt", "exact")),
```



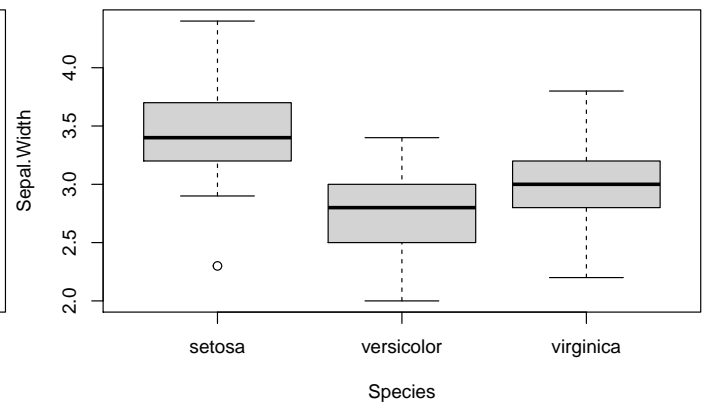
(a) Ff1



(b) Ff2



(c) Ff3



(d) Ff4

Figure 2: Combine multiple plots with subcaptions

Table 1: Example from Lec3 page 10

method	x	n	mean	lower	upper
agresti-coull	4	400	0.01	0.0029	0.0264
exact	4	400	0.01	0.0027	0.0254
lrt	4	400	0.01	0.0031	0.0231
wilson	4	400	0.01	0.0039	0.0254

```
format="latex",digits=4,caption = 'Example from Lec3 page 10')
```