```
## getting value of score statistic for each possible y:
> sapply(0:12, function(x)
sqrt(prop.test(x,12,p=0.3,correct=FALSE)$statistic))
X-squared X-squared X-squared X-squared X-squared
2.2677868 1.6378460 1.0079053 0.3779645 0.2519763
X-squared X-squared X-squared X-squared X-squared
0.8819171 1.5118579 2.1417987 2.7717395 3.4016803
X-squared X-squared X-squared
4.0316210 4.6615618 5.2915026
There were 13 warnings (use warnings() to see them)
# getting binomial probabilities for each possible y
> dbinom(0:12,12, prob=0.3)
 [1] 1.384129e-02 7.118376e-02 1.677903e-01 2.397004e-01
 [5] 2.311397e-01 1.584958e-01 7.924790e-02 2.911147e-02
 [9] 7.797716e-03 1.485279e-03 1.909645e-04 1.488035e-05
[13] 5.314410e-07
> round(dbinom(0:12,12, prob=0.3),4)
 [1] 0.0138 0.0712 0.1678 0.2397 0.2311 0.1585 0.0792
 [8] 0.0291 0.0078 0.0015 0.0002 0.0000 0.0000
> proby = round(dbinom(0:12,12, prob=0.3),4)
> score.z = sapply(0:12, function(x)
sqrt(prop.test(x,12,p=0.3,correct=FALSE)$statistic))
# Make a barplot of the exact distribution of the score test statistic:
> require("ggplot2")
Loading required package: ggplot2
> ggplot(data=data.frame(x=score.z, y=proby), aes(x=x,y=y)) +
geom_bar(stat="identity")
# Getting exact P-value for score statistic:
> pval.exact = dbinom(0,12,0.3) + sum(dbinom(7:12,12,0.3))
> prop.test(7,12,p=0.3,correct=FALSE)$p.value
[1] 0.03220969
Warning message:
In prop.test(7, 12, p = 0.3, correct = FALSE) :
  Chi-squared approximation may be incorrect
> pval.exact
[1] 0.05244213
#binom test does exact test, but uses null probabilities to sort sample space
# (may result in slightly different ordering of possible outcomes than with
score statistic
> binom.test(7,12,p=0.3)
        Exact binomial test
data:  7 and 12
number of successes = 7, number of trials = 12,
p-value = 0.05244
alternative hypothesis: true probability of success is not equal to 0.3
95 percent confidence interval:
 0.2766697 0.8483478
sample estimates:
probability of success
             0.5833333
#endpoints of Clopper-Pearson confidence interval are quantiles of beta
distribution:
>  qbeta(0.025,7,12-7+1)
[1] 0.2766697
>  qbeta(1-0.025,7+1,12-7)
[1] 0.8483478
```