**R Code for Examples in the book**



***“Statistics: The Art and Science of Learning from Data”***

**by Agresti, Franklin and Klingenberg, 5th edition**

**Chapter 10**

**Example 5: TV Watching - Significance Test Comparing Two Proportions**

## Reading in the data

x\_1 <- 5  
n\_1 <- 88  
x\_2 <- 154  
n\_2 <- 619

## To compute the sample proportions

phat\_1 <- x\_1 / n\_1  
phat\_2 <- x\_2 / n\_2

## Setting null hypothesis

p\_0 <- 0

## Computing pooled estimate of the common proportion p under the null hypothesis

phat <- (x\_1 + x\_2) / (n\_1 + n\_2)

## To compute the standard error for the test

se\_0 <- sqrt(phat \* (1 - phat) \* ((1 / n\_1) + (1 / n\_2)))

## To find the test statistic

z <- ((phat\_1 - phat\_2) - p\_0) / se\_0

## To compute the p value of the two sided hypothesis test

2 \* pnorm(z)

## [1] 5.439141e-05

## 

## Alternatively, you can use the prop.test() function

prop.test(c(5, 154), c(88, 619), correct = FALSE)

##   
## 2-sample test for equality of proportions without continuity  
## correction  
##   
## data: c(5, 154) out of c(88, 619)  
## X-squared = 16.289, df = 1, p-value = 5.439e-05  
## alternative hypothesis: two.sided  
## 95 percent confidence interval:  
## -0.2511242 -0.1328162  
## sample estimates:  
## prop 1 prop 2   
## 0.05681818 0.24878837