lec4q17

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```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(binom)
```

1.

```
library(PropCIs)
alpha <- 0.05

#Time-out group
w.v <- 10
n.v <- 16
#No Time-out group
w.p <- 22
n.p <- 26
```

a.

```
wald2ci(x1=w.v, n1=n.v, x2=w.p, n2=n.p, conf.level = 0.95, adjust = "Wald")
```

```
##
##
##
## data:
##
## 95 percent confidence interval:
##  -0.49593538  0.05362769
## sample estimates:
## [1] -0.2211538
```

```
wald2ci(x1=w.v, n1=n.v, x2=w.p, n2=n.p, conf.level = 0.95, adjust = "AC")
```

```
##
##
##
## data:
##
## 95 percent confidence interval:
##  -0.47648115  0.05584623
## sample estimates:
## [1] -0.2103175
```

```
diffscoreci(x1=w.v, n1=n.v, x2=w.p, n2=n.p, conf.level = 0.95)
```

```
##
##
##
## data:
##
## 95 percent confidence interval:
##  -0.49174585  0.04592923
```

For each type of interval: we expect 95% of all similarly constructed intervals to contain the true value of the difference between probabilities of success of 2 strategy groups.

b.

```
#score
prop.test(x=c(w.v, w.p), n=c(n.v, n.p), alternative="less", correct=FALSE)
```

```
## Warning in prop.test(x = c(w.v, w.p), n = c(n.v, n.p), alternative =
## "less", : Chi-squared approximation may be incorrect
```

```
##
##  2-sample test for equality of proportions without continuity
##  correction
##
## data:  c(w.v, w.p) out of c(n.v, n.p)
## X-squared = 2.6704, df = 1, p-value = 0.05111
## alternative hypothesis: less
## 95 percent confidence interval:
##  -1.000000000  0.009450086
## sample estimates:
##    prop 1    prop 2
## 0.6250000 0.8461538
```

Based on large p value, we fail to reject H0: pi1 = pi2.

```
#LR
kicmat <- matrix(data=c(w.v, w.p, n.v-w.v, n.p-w.p), nrow=2)
library(vcd)
```

```
## Loading required package: grid
```

```
assocstats(kicmat)
```

```
##                     X^2 df P(> X^2)
## Likelihood Ratio 2.6106  1  0.10615
## Pearson          2.6704  1  0.10223
##
## Phi-Coefficient   : 0.252
## Contingency Coeff.: 0.245
## Cramer's V        : 0.252
```

We cannot reject H0 using LR test, as p value is greater than alpha = 0.05.