Warsztaty badawcze - projekt 6

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3 Grudnia 2014

Pytanie 1

```
nBinomial( p1 = 0.45, p2 = 0.3, alpha = 0.05, n = 200,
           outtype = 2, sided = 2)
```

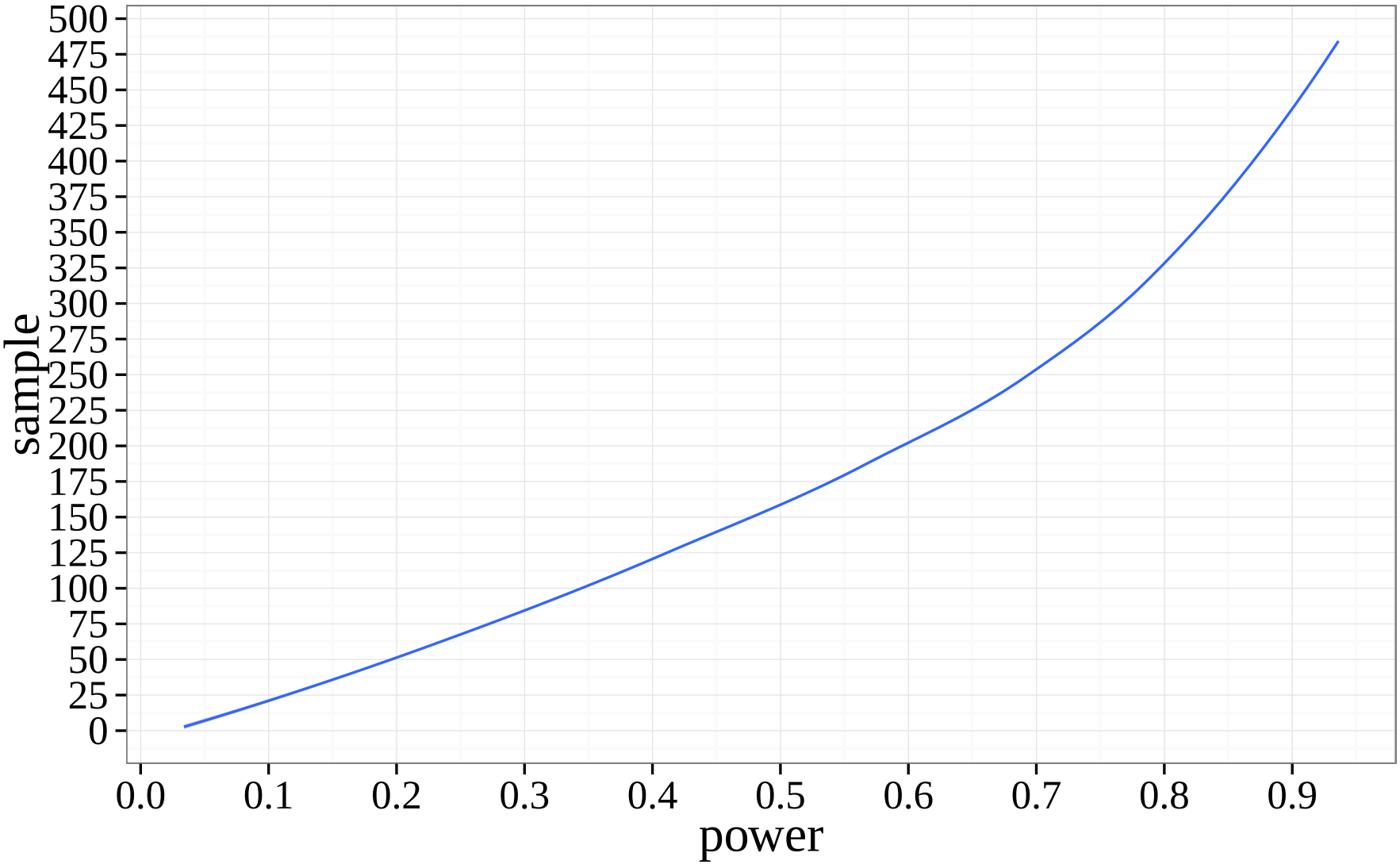
```
   n1  n2      Power
1 100 100 0.5924098
```

```
bpower( 0.45, 0.3, n = 200, n1 = 100, n2 = 100, alpha = 0.05)
```

```
    Power
0.592423
```

```
# pakiet Hmisc daje podobną moc
```

Pytanie 1


sample
500
475
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
power

Pytanie 2

```
var <- function(x){ 6.5^2*sqrt(x) }
var(52) # wariancja w 52 tyg
```

```
[1] 304.6691
```

```
dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
   (15 - qnorm( 0.7 )*sqrt( var(52) ))

nNormal( delta1 = dif, delta0 = 0, n = 200, alpha = 0.05,
         side = 2, sd = sqrt( var(52) ), ratio = 1,
         outtype =2 )
```

```
   n1  n2     Power
1 100 100 0.8049808
```

Pytanie 2

```r
# rownoważne hipotezy, a test dla średnich ma dużo
# wiekszą moc niż chi^2

sigma <- sqrt( var(52)*(1/100+1/100) ) # sigma efektu

beta <- pnorm( qnorm(1-0.05/2), dif/sigma ) -
   pnorm( qnorm(0.05/2), dif/sigma )
(1-beta) # zgadza sie z nNormal (wow!)
```

```
[1] 0.8049817
```

Pytanie 3

```
var(26)
```

```
[1] 215.4336
```

```
dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
   (15 - qnorm( 0.7 )*sqrt( var(52) ))
nNormal( delta1 = dif/2, delta0 = 0, n = 200,
         alpha = 0.05, side = 2, sd = sqrt( var(26) ),
         ratio = 1, outtype = 2)
```

```
   n1  n2     Power
1 100 100 0.3884074
```

Pytanie 4

```
(dif <- 15 - qnorm( 0.55 )*sqrt( var(26) ) - 6.6)
```

```
[1] 6.555586
```

```
nNormal( delta1 = dif, delta0 = 0, n = 200,
         alpha = 0.05, side = 2, sd = sqrt( var(26) ),
         ratio = 1, outtype = 2)
```

```
   n1  n2     Power
1 100 100 0.8845877
```

Pytanie 5

rANOVA

Pytanie 6

```r
var(52) # wariancja w 52 tyg
```

```
[1] 304.6691
```

```r
(dif <- 15 - qnorm( 0.55 )*sqrt( var(52) ) -
    (15 - qnorm( 0.7 )*sqrt( var(52)) ))
```

```
[1] 6.959901
```

```r
nNormal( delta1 = 0, delta0 = -dif, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1       n2
1 77.77148 77.77148
```

Pytanie 6

```
2*( qnorm( 0.8 ) + qnorm( 0.95) )^2/(
   dif/sqrt( var(52) ))^2
```

```
[1] 77.77148
```

```
# reczne sprawdzenie, OK
```

Ptanie 7

```
nNormal( delta0 = -5, delta1 = 0, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1        n2
1 150.6907 150.6907
```

```
2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/( 5/sqrt( var(52) ))^2
```

```
[1] 150.6907
```

```
# reczne sprawdzenie, OK
```

Pytanie 8

```
nNormal( delta0 = -dif, delta1 = 0, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2,
         ratio = 1/2 )
```

```
        n1       n2
1 116.6572 58.32861
```

```
n <- 3*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
   dif/sqrt( var(52) ))^2
# reczne sprawdzenie, OK
c(n,0.5*n)
```

```
[1] 116.65722  58.32861
```

Pytanie 9

```
nNormal( delta0 = -5, delta1 = -2, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1       n2
1 418.5853 418.5853
```

```
(n <- 2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
   (-2+5)/sqrt( var(52) ))^2)
```

```
[1] 418.5853
```

Pytanie 10

```
nNormal( delta0 = -5, delta1 = 3, sd = sqrt( var(52) ),
         alpha = 0.05, beta = 0.2, outtype = 2)
```

```
        n1       n2
1 58.86356 58.86356
```

```
(n <- 2*( qnorm( 0.8 ) + qnorm( 0.95 ))^2/(
   (3+5)/sqrt( var(52) ))^2)
```

```
[1] 58.86356
```