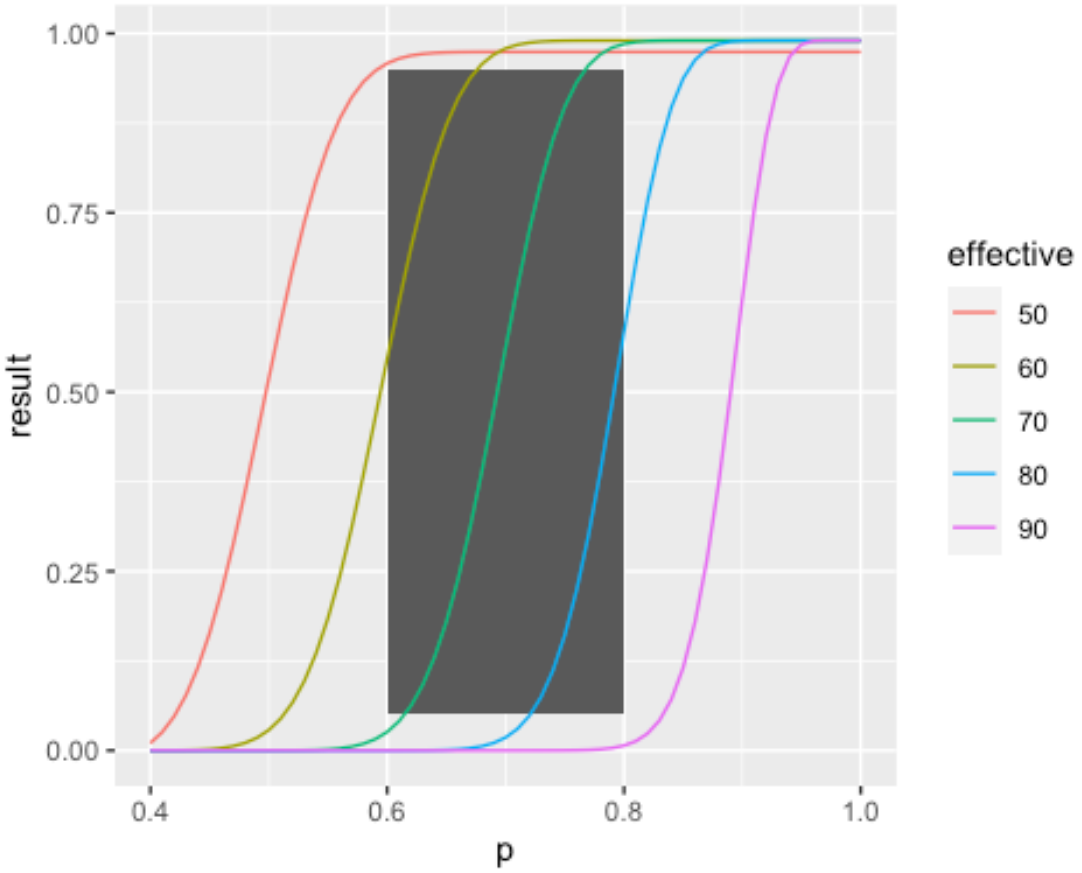
C&S 311

Research on the logic

```
n = 100
m = c(50, 60, 70, 80, 90)
p = seq(0.4, 1, 0.01)

for (i in m) {
  if (i == m[1]) {
    Total = data.frame(p, effective=as.character(i),result=cumsum(dbino
m(i,n,p)))
  }
  else {
     Total = rbind( Total, data.frame(p, effective=as.character(i), res
ult=cumsum(dbinom(i,n,p))))
  }
}


ggplot()+
  geom_rect(aes(xmin = 0.6, xmax = 0.8, ymin = 0.05, ymax = 0.95))+
  geom_line(aes(p, result, color = effective), Total)
```

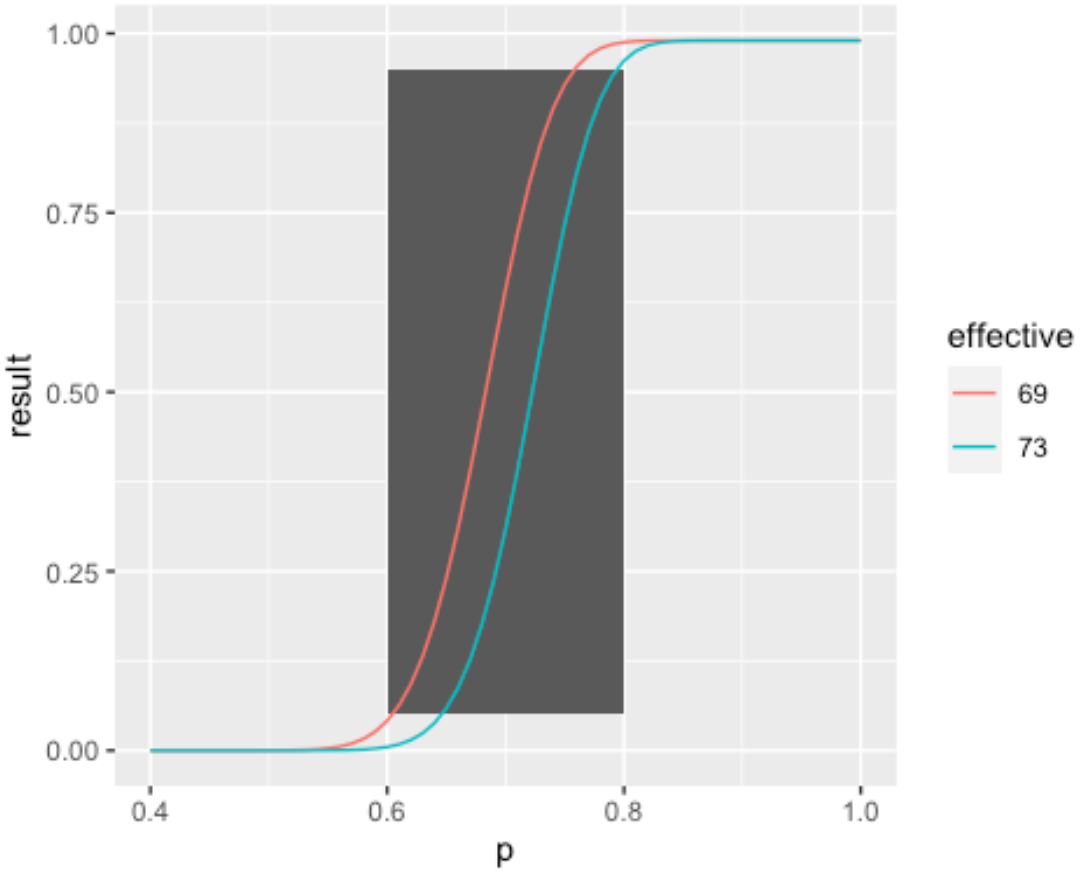


With total 100 sample size, the larger m will move the curve to further right. 5% type 1 error is shown by the bottom line and (1-95%) type 2 error is represented by top line .we need to find the line with smallest m cross the bottom of the box and the line with largest m cross with the top of the box.

Redo and explain

```
n = 100
m = c(69,73)
p = seq(0.4, 1, 0.01)
for (i in m) {
  if (i == m[1]) {
    Total = data.frame(p, effective=as.character(i),result=cumsum(dbino
m(i,n,p)))
  }
  else {
     Total = rbind( Total, data.frame(p, effective=as.character(i), res
ult=cumsum(dbinom(i,n,p))))
  }

}
ggplot()+
  geom_rect(aes(xmin = 0.6, xmax = 0.8, ymin = 0.05, ymax = 0.95))+
  geom_line(aes(p, result, color = effective),  Total)
```



Finding the line (red) with smallest m=69 cross the bottom of the box and the line(blue) with largest m=73 across with the top of the box. Therefor m between 69 and 73 is reliable.