Evaluate the Simulation Results

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Load packages

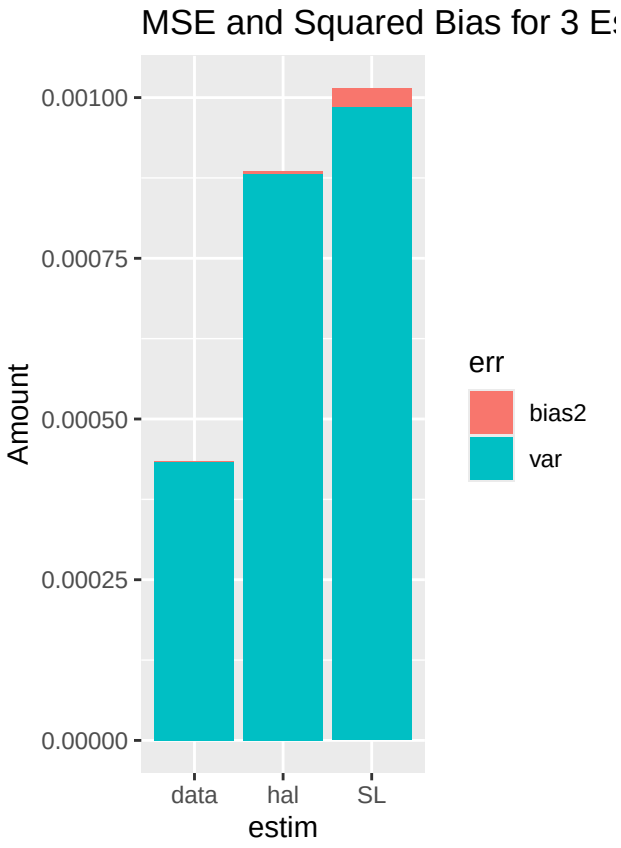
Simulation Code

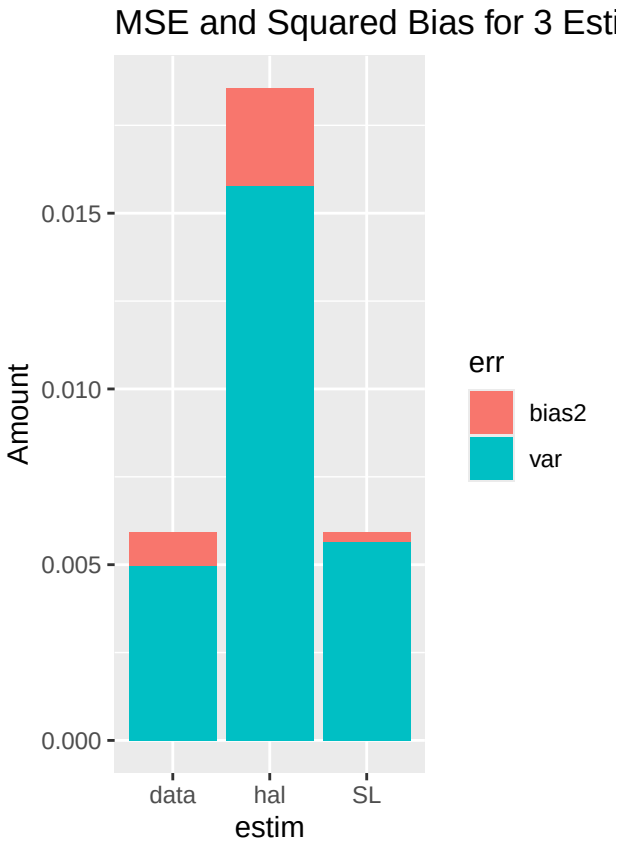
```
generate_data_simple <- function(N,Xranges=c(-1,1,-1,1),betaA=c(0,0.1,-0.4),
                                 betaY0=c(0,1,2,-1),betaC=c(1,7/5,5,3),sdy=1){
  # A simple data generating process
  X1 <- runif(N,Xranges[1],Xranges[2])
  X2 <- runif(N,Xranges[3],Xranges[4])
  pi0 <- plogis(betaA[1]+betaA[2]*X1*X2+betaA[3]*X1)
  A <- rbinom(N,1,prob=pi0)
  muY0 <- betaY0[1]+betaY0[2]*X1*X2 + betaY0[3]*X2^2 +betaY0[4]*X1
  CATE <- betaC[1]*X1^2*(X1+betaC[2]) + (betaC[3]*X2/betaC[4])^2
  muY = muY0+A*CATE
  Y <- rnorm(N,sd=sdy,mean= muY)
  return(tibble(X1=X1,X2=X2,A=A,Y=Y))
}
```

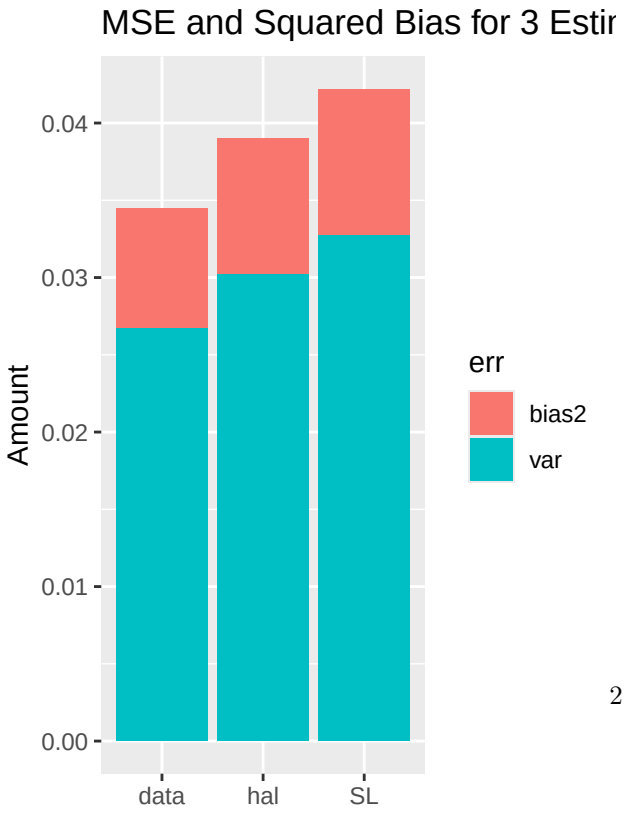
Load data

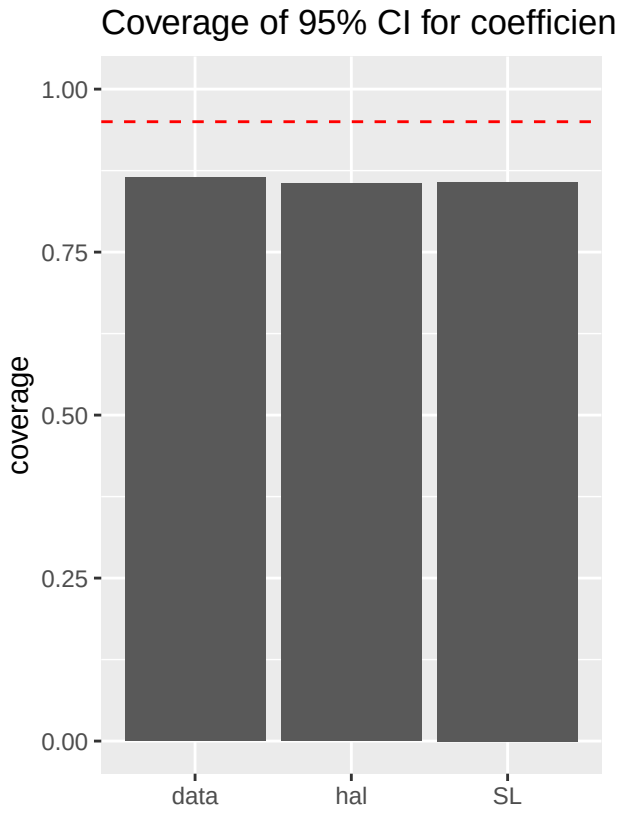
Get simple stats var, bias, MSE for proportions and same with coverage for coefficient estimates

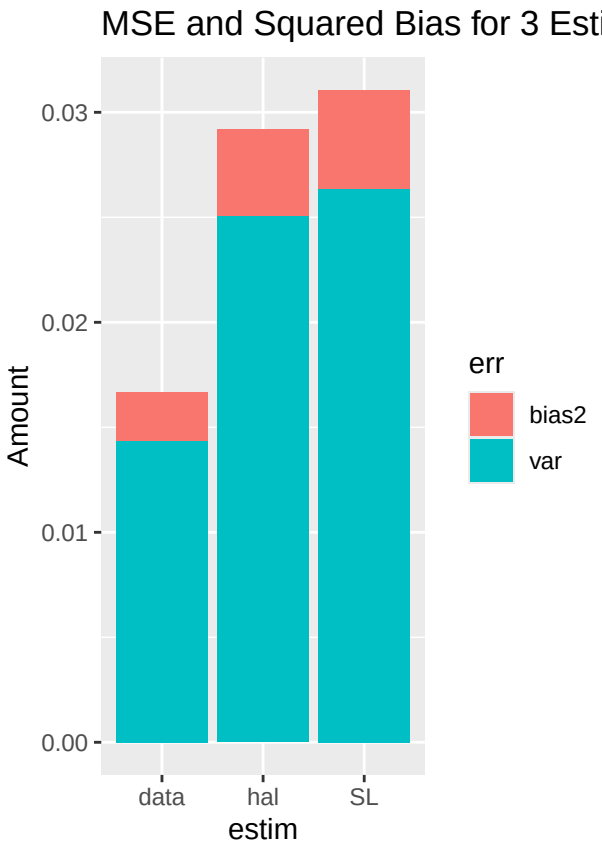
Results

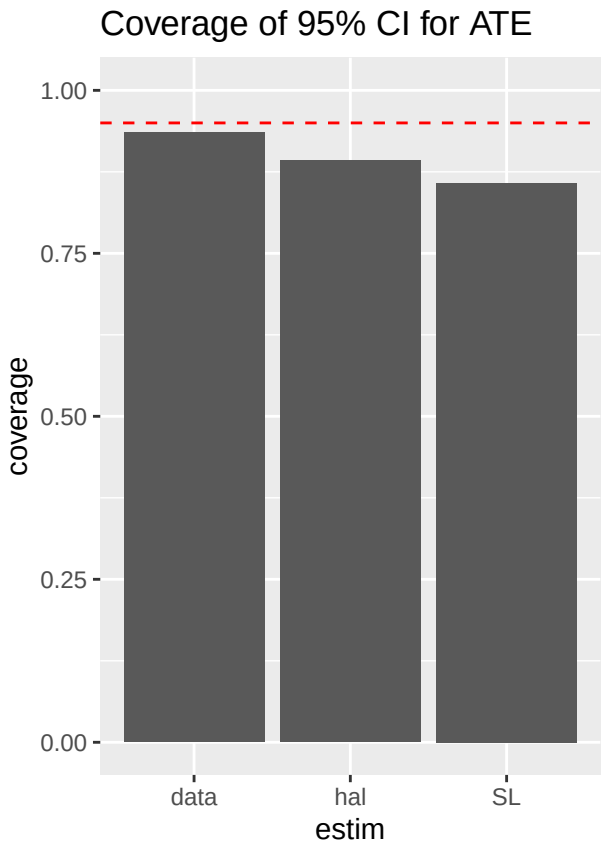









MSE and Squared Bias for 3 Estir
Amount
0.03
0.02
0.01
0.00
data
hal
SL
estim
err
bias2
var


Coverage of 95% CI for ATE
coverage
1.00
0.75
0.50
0.25
0.00
data
hal
SL
estim