```
### Artificial example to illustrate tree models
library(BayesTree)
rm(list = ls(all = TRUE))
set.seed(123456)
n <- 1000
Tr <- rbinom(n,1,.5)
x <- runif(n,0,3)
y0 <- rnorm(n,0,0.5)
y1 <- y0 + Tr*(x*(x<=1)+(x>1)*(x-2)^2) + rnorm(n,0,.5) + .2
y <- y0
y[Tr==1] <- y1[Tr==1]

dip <- function(x){
 (x<=1)*x + (x>1)*(x-2)^2
 }

# BART fit
temp.X <- data.frame(Tr,x)
temp.S <- data.frame(c(rep(1,n),rep(0,n)), c(sort(x),sort(x)))
colnames(temp.S) <- colnames(temp.X)

out.bart <- bart(x.train = temp.X, y.train = y, ndpost = 1000, nskip =
 1000, keepevery = 1, ntree = 200, usequants = TRUE, keeptrainfits =
 FALSE, x.test = temp.S)

cat(dim(out.bart$yhat.test), "\n")


out.bart0 <- out.bart
out.bart1 <- out.bart

out.bart1$yhat.test <-
 out.bart$yhat.test[,1:(ncol(out.bart$yhat.test)/2)]
out.bart0$yhat.test <-
 out.bart$yhat.test[,((ncol(out.bart$yhat.test)/2)+1):ncol(out.bart$yhat
 .test)]


out <- matrix(NA,n,3)
out[,1] <- sort(x)
colnames(out) <- c("x value", "Y0", "Y1")

for(i in 1:n)   {
    out[i,2] <- mean(out.bart0$yhat.test[,i])
    out[i,3] <- mean(out.bart1$yhat.test[,i])
                }
```