

```

K <- 50
phi <- function(t,k) {
  if (k==1) val <- rep(1,length(t))
  else val <- sqrt(2)*cos((k-1)*pi*t)
  val
}
iiphi <- function(t,k) {
  if (k==1) val <- t*t/2
  else val <- sqrt(2)*(1-cos((k-1)*pi*t))/(((k-1)*pi)^2)
  val
}
beta0 <- function(t) {
  val <- 0
  for (k in 1:K) val <- val + 4*(-1)^(k+1)/(k*k)*phi(t,k)
  val
}
zeta <- sapply(1:K,function(k)(-1)^(k+1)*k^(-nu/2))
xmat <- iixmat <- mu.true <- yy <- NULL
Zmat <- matrix(runif(K*n,-sqrt(3),sqrt(3)),n,K)
for (i in 1:n) {
  val <- iival <- cval <- 0
  for (k in 1:K) {
    val <- val + zeta[k]*Zmat[i,k]*phi(xquad$pt,k)
    iival <- iival + zeta[k]*Zmat[i,k]*iiphi(xquad$pt,k)
    cval <- cval + 4*(-1)^(k+1)/(k*k)*zeta[k]*Zmat[i,k]
  }
  xmat <- cbind(xmat,val)
  iixmat <- cbind(iixmat,iival)
  muwk <- sum(xquad$wt*val*beta0(xquad$pt))
  mu.true <- c(mu.true,muwk)
  yy <- c(yy, rbinom(1,1,1/(1+exp(-muwk))))
}
yy <- cbind(yy,1-yy)

```