**Mutual information**

# where X and Y are two random variables

AMI<-function(X,Y,iter){

 library(infotheo)

 Vv<-rep(NA,iter)

 Xv<-discretize(X)

 Yv<-discretize(Y)

 Mr<-mutinformation(Xv,Yv,method='mm')

 EXv<-entropy(Xv,method='mm')

 EYv<-entropy(Yv,method='mm')

 MaxE<-max(c(EXv,EYv))

 for(i in 1:iter){

 Yvr<-sample(Yv$X)

 Vv[i]<-mutinformation(Xv,Yvr,method='mm')

 print(i)

 }

 MeanMI<-mean(Vv)

 AMI<-(Mr-MeanMI)/(MaxE-MeanMI)

 FIN<-matrix(c(EXv,EYv,Mr,MeanMI,AMI),nrow=1,ncol=5)

 NN<-c('H(X)','H(Y)','MI','E(MI)','AMI')

 colnames(FIN)<-NN

 print(FIN)

}