E3

```
rm(list = ls())
library(rjags)
library(coda)
library(pander)
setwd("c:/e/brucebcampbell-git/bayesian-learning-with-R/E3")
load("heatwaves.RData")
n.chains = 2
nSamples = 20000
load("HWD2.RData")
```

Fit JAGS Poisson Random Effects

```
######################################## Fit JAGS Poisson
model_pois = '
model
{
    ## Likelihood
    for(i in 1:N){
      for(j in 1:9){
        Y[i,j] ~ dpois(lambda[i,j])
        log(lambda[i,j]) <- mu[i,j]
        mu[i,j] <- alpha[j] + beta[j]*t[i]
      }
    }

  ## Priors
  for(i in 1:9){
    alpha[i] ~ dnorm(0,taus[i])
    taus[i] ~ dgamma(0.1,0.1)
  }

  # Slopes
  for(i in 1:9){
    beta[i] ~ dnorm(mu.beta,taus.beta[i])
    taus.beta[i] ~ dgamma(0.1,0.1)
  }

  ## Posterior Predictive Checks
  for(i in 1:N){
    for(j in 1:9){
        Y2[i,j] ~ dpois(lambda[i,j])
    }
  }

  for(j in 1:9){
    Dm[j] <- mean(Y2[,j])
    Dsd[j] <- sd(Y2[,j])
  }
```

```
  #Prediction
  for(i in 1:N){
    for(j in 1:9){
      Yp[i,j] ~ dpois(lambdap[i,j])
      log(lambdap[i,j]) <- mup[i,j]
      mup[i,j] <- alpha[j] + beta[j]*t[i]
    }
  }
}
'


  # Set up the data
  model_data = list(N = 41, t=seq(1:41),Y=X.num,mu.beta=0,tau.beta=.0001,mu.intercept=0,tau.intercept=.
  # Choose the parameters to watch
  model_parameters =  c("beta", "alpha","Dm", "Dsd", "Yp")
  model_pois <- jags.model(textConnection(model_pois),data = model_data,n.chains = n.chains)#Compile Mo
```

```
## Compiling model graph
##    Resolving undeclared variables
##    Allocating nodes
## Graph information:
##    Observed stochastic nodes: 369
##    Unobserved stochastic nodes: 774
##    Total graph size: 2322
##
## Initializing model
```

```
  update(model_pois, nSamples, progress.bar="none"); # Burnin
  out.coda  <- coda.samples(model_pois, variable.names=model_parameters,n.iter=2*nSamples)
  #plot(out.coda)
  so <-summary(out.coda)
  #assess the posteriors??? stationarity, by looking at the Heidelberg-Welch convergence diagnostic:
  heidel.diag(out.coda)
```

```
## [[1]]
##
##          Stationarity start     p-value
##          test         iteration
## Dm[1]    passed           1     0.16706
## Dm[2]    passed           1     0.24433
## Dm[3]    passed           1     0.52504
## Dm[4]    passed           1     0.81536
## Dm[5]    passed           1     0.23659
## Dm[6]    passed           1     0.97214
## Dm[7]    passed           1     0.45550
## Dm[8]    passed           1     0.06671
## Dm[9]    passed           1     0.35143
## Dsd[1]   passed        4001     0.16656
## Dsd[2]   passed           1     0.92637
## Dsd[3]   passed           1     0.97857
## Dsd[4]   passed           1     0.38812
## Dsd[5]   passed           1     0.14173
## Dsd[6]   passed           1     0.19615
## Dsd[7]   passed           1     0.15519
```

```
## Dsd[8]   passed        4001     0.15946
## Dsd[9]   passed           1     0.67523
## Yp[1,1]  passed           1     0.59749
## Yp[2,1]  passed           1     0.35739
## Yp[3,1]  passed           1     0.29665
## Yp[4,1]  passed           1     0.44811
## Yp[5,1]  passed        4001     0.13869
## Yp[6,1]  passed           1     0.80856
## Yp[7,1]  passed           1     0.95449
## Yp[8,1]  passed           1     0.58850
## Yp[9,1]  passed           1     0.83662
## Yp[10,1] passed           1     0.90948
## Yp[11,1] passed           1     0.30880
## Yp[12,1] passed           1     0.51301
## Yp[13,1] passed           1     0.56332
## Yp[14,1] passed           1     0.48025
## Yp[15,1] passed           1     0.99639
## Yp[16,1] passed           1     0.73866
## Yp[17,1] passed           1     0.97926
## Yp[18,1] passed           1     0.91268
## Yp[19,1] passed           1     0.36488
## Yp[20,1] passed           1     0.42481
## Yp[21,1] passed           1     0.74879
## Yp[22,1] passed           1     0.62146
## Yp[23,1] passed           1     0.11442
## Yp[24,1] passed           1     0.51442
## Yp[25,1] passed           1     0.36291
## Yp[26,1] passed           1     0.86505
## Yp[27,1] passed           1     0.55359
## Yp[28,1] passed           1     0.28673
## Yp[29,1] passed           1     0.65124
## Yp[30,1] passed           1     0.18105
## Yp[31,1] passed           1     0.43734
## Yp[32,1] passed           1     0.63355
## Yp[33,1] passed           1     0.62434
## Yp[34,1] passed           1     0.54631
## Yp[35,1] passed           1     0.26252
## Yp[36,1] passed           1     0.43397
## Yp[37,1] passed           1     0.84194
## Yp[38,1] passed           1     0.26031
## Yp[39,1] passed           1     0.87439
## Yp[40,1] passed           1     0.67120
## Yp[41,1] passed           1     0.68803
## Yp[1,2]  passed           1     0.94107
## Yp[2,2]  passed           1     0.87774
## Yp[3,2]  passed           1     0.32969
## Yp[4,2]  passed           1     0.87210
## Yp[5,2]  passed           1     0.53962
## Yp[6,2]  passed           1     0.69413
## Yp[7,2]  passed           1     0.55755
## Yp[8,2]  passed           1     0.98928
## Yp[9,2]  passed           1     0.20635
## Yp[10,2] passed           1     0.66728
## Yp[11,2] passed           1     0.23782
```

```
## Yp[12,2] passed          1     0.10355
## Yp[13,2] passed          1     0.30566
## Yp[14,2] passed          1     0.11349
## Yp[15,2] passed          1     0.79335
## Yp[16,2] passed          1     0.82451
## Yp[17,2] passed          1     0.56720
## Yp[18,2] passed          1     0.98488
## Yp[19,2] passed          1     0.68728
## Yp[20,2] passed          1     0.74235
## Yp[21,2] passed          1     0.83035
## Yp[22,2] passed          1     0.48404
## Yp[23,2] passed          1     0.19344
## Yp[24,2] passed          1     0.67487
## Yp[25,2] passed          1     0.75164
## Yp[26,2] passed          1     0.49752
## Yp[27,2] passed          1     0.58241
## Yp[28,2] passed          1     0.46321
## Yp[29,2] passed          1     0.27737
## Yp[30,2] passed          1     0.96076
## Yp[31,2] passed          1     0.56829
## Yp[32,2] passed          1     0.27303
## Yp[33,2] passed          1     0.16693
## Yp[34,2] passed          1     0.96639
## Yp[35,2] passed          1     0.13496
## Yp[36,2] passed          1     0.87910
## Yp[37,2] passed          1     0.91789
## Yp[38,2] passed          1     0.28993
## Yp[39,2] passed          1     0.87877
## Yp[40,2] passed          1     0.31591
## Yp[41,2] passed          1     0.77639
## Yp[1,3]  passed          1     0.49667
## Yp[2,3]  passed          1     0.17578
## Yp[3,3]  passed          1     0.88225
## Yp[4,3]  passed          1     0.11234
## Yp[5,3]  passed          1     0.76013
## Yp[6,3]  passed          1     0.48972
## Yp[7,3]  passed          1     0.33878
## Yp[8,3]  passed          1     0.64808
## Yp[9,3]  passed          1     0.70259
## Yp[10,3] passed          1     0.62218
## Yp[11,3] passed          1     0.25246
## Yp[12,3] passed          1     0.24860
## Yp[13,3] passed          1     0.96631
## Yp[14,3] passed          1     0.37600
## Yp[15,3] passed          1     0.83488
## Yp[16,3] passed          1     0.87214
## Yp[17,3] passed          1     0.87205
## Yp[18,3] passed          1     0.32750
## Yp[19,3] passed          1     0.83858
## Yp[20,3] passed          1     0.18258
## Yp[21,3] passed          1     0.38783
## Yp[22,3] passed          1     0.66580
## Yp[23,3] passed          1     0.71050
## Yp[24,3] passed          1     0.28180
```

```
## Yp[25,3] passed           1     0.50856
## Yp[26,3] passed           1     0.20492
## Yp[27,3] passed           1     0.55284
## Yp[28,3] passed           1     0.64587
## Yp[29,3] passed       16001     0.09062
## Yp[30,3] passed           1     0.96485
## Yp[31,3] passed           1     0.38025
## Yp[32,3] passed           1     0.66330
## Yp[33,3] passed           1     0.20764
## Yp[34,3] passed           1     0.49117
## Yp[35,3] passed           1     0.33830
## Yp[36,3] passed           1     0.82052
## Yp[37,3] passed           1     0.30792
## Yp[38,3] passed           1     0.29550
## Yp[39,3] passed           1     0.64902
## Yp[40,3] passed           1     0.93639
## Yp[41,3] passed           1     0.97477
## Yp[1,4]  passed           1     0.84524
## Yp[2,4]  passed           1     0.82486
## Yp[3,4]  passed           1     0.86726
## Yp[4,4]  passed           1     0.66176
## Yp[5,4]  passed        8001     0.06887
## Yp[6,4]  passed           1     0.28514
## Yp[7,4]  passed           1     0.95769
## Yp[8,4]  passed           1     0.16051
## Yp[9,4]  passed           1     0.91712
## Yp[10,4] passed           1     0.74604
## Yp[11,4] passed           1     0.09889
## Yp[12,4] passed           1     0.84768
## Yp[13,4] passed           1     0.29861
## Yp[14,4] passed           1     0.69952
## Yp[15,4] passed        8001     0.06380
## Yp[16,4] passed           1     0.38315
## Yp[17,4] passed        8001     0.25283
## Yp[18,4] passed           1     0.22598
## Yp[19,4] passed           1     0.71600
## Yp[20,4] passed           1     0.22564
## Yp[21,4] passed           1     0.35494
## Yp[22,4] passed           1     0.42291
## Yp[23,4] passed           1     0.71707
## Yp[24,4] passed           1     0.50511
## Yp[25,4] passed           1     0.06245
## Yp[26,4] passed           1     0.75332
## Yp[27,4] passed           1     0.99263
## Yp[28,4] passed        4001     0.08128
## Yp[29,4] passed           1     0.28314
## Yp[30,4] passed           1     0.62822
## Yp[31,4] passed           1     0.37478
## Yp[32,4] passed           1     0.87607
## Yp[33,4] passed           1     0.98047
## Yp[34,4] passed           1     0.74805
## Yp[35,4] passed           1     0.92948
## Yp[36,4] passed           1     0.53625
## Yp[37,4] passed           1     0.17508
```

```
## Yp[38,4] passed        8001     0.16941
## Yp[39,4] passed           1     0.59290
## Yp[40,4] passed           1     0.43546
## Yp[41,4] passed           1     0.63948
## Yp[1,5]  passed           1     0.97828
## Yp[2,5]  passed           1     0.58722
## Yp[3,5]  passed        4001     0.14280
## Yp[4,5]  passed           1     0.81979
## Yp[5,5]  passed           1     0.39385
## Yp[6,5]  passed           1     0.84401
## Yp[7,5]  passed           1     0.86795
## Yp[8,5]  passed           1     0.20568
## Yp[9,5]  passed           1     0.17543
## Yp[10,5] passed           1     0.89366
## Yp[11,5] passed       16001     0.05430
## Yp[12,5] passed           1     0.10466
## Yp[13,5] passed           1     0.88390
## Yp[14,5] passed           1     0.27285
## Yp[15,5] passed           1     0.49946
## Yp[16,5] passed           1     0.98307
## Yp[17,5] passed           1     0.39269
## Yp[18,5] passed           1     0.07209
## Yp[19,5] passed           1     0.17227
## Yp[20,5] failed          NA     0.00453
## Yp[21,5] passed           1     0.21558
## Yp[22,5] passed           1     0.57847
## Yp[23,5] passed           1     0.35905
## Yp[24,5] passed           1     0.87059
## Yp[25,5] passed           1     0.60436
## Yp[26,5] passed           1     0.94989
## Yp[27,5] passed           1     0.16295
## Yp[28,5] failed          NA     0.00758
## Yp[29,5] passed           1     0.24896
## Yp[30,5] passed           1     0.94765
## Yp[31,5] passed           1     0.59487
## Yp[32,5] passed           1     0.09350
## Yp[33,5] passed           1     0.10647
## Yp[34,5] passed           1     0.16941
## Yp[35,5] passed           1     0.23264
## Yp[36,5] passed           1     0.35940
## Yp[37,5] passed           1     0.84227
## Yp[38,5] passed           1     0.74616
## Yp[39,5] passed           1     0.75596
## Yp[40,5] passed           1     0.68627
## Yp[41,5] passed           1     0.49475
## Yp[1,6]  passed           1     0.72043
## Yp[2,6]  passed           1     0.88185
## Yp[3,6]  passed           1     0.80320
## Yp[4,6]  passed           1     0.77052
## Yp[5,6]  passed           1     0.53402
## Yp[6,6]  passed           1     0.65467
## Yp[7,6]  passed           1     0.89778
## Yp[8,6]  passed           1     0.51488
## Yp[9,6]  passed           1     0.96042
```

```
## Yp[10,6] passed          1     0.08960
## Yp[11,6] passed          1     0.82535
## Yp[12,6] passed          1     0.63108
## Yp[13,6] passed          1     0.97007
## Yp[14,6] passed          1     0.65409
## Yp[15,6] passed          1     0.40948
## Yp[16,6] passed          1     0.52119
## Yp[17,6] passed          1     0.25887
## Yp[18,6] passed          1     0.22499
## Yp[19,6] passed          1     0.60064
## Yp[20,6] passed          1     0.68730
## Yp[21,6] passed          1     0.77288
## Yp[22,6] passed          1     0.91508
## Yp[23,6] passed          1     0.89186
## Yp[24,6] passed          1     0.59953
## Yp[25,6] passed          1     0.53500
## Yp[26,6] passed          1     0.19550
## Yp[27,6] passed          1     0.58114
## Yp[28,6] passed          1     0.84110
## Yp[29,6] passed          1     0.58793
## Yp[30,6] passed          1     0.69984
## Yp[31,6] passed          1     0.25451
## Yp[32,6] passed          1     0.78163
## Yp[33,6] passed          1     0.76760
## Yp[34,6] passed          1     0.07431
## Yp[35,6] passed          1     0.52186
## Yp[36,6] failed         NA     0.00909
## Yp[37,6] passed          1     0.50569
## Yp[38,6] passed          1     0.66173
## Yp[39,6] passed          1     0.68679
## Yp[40,6] passed          1     0.90312
## Yp[41,6] passed          1     0.63165
## Yp[1,7]  passed          1     0.51599
## Yp[2,7]  passed          1     0.59519
## Yp[3,7]  passed          1     0.55041
## Yp[4,7]  passed          1     0.36603
## Yp[5,7]  passed          1     0.33090
## Yp[6,7]  passed          1     0.56489
## Yp[7,7]  passed          1     0.39433
## Yp[8,7]  passed          1     0.69170
## Yp[9,7]  passed          1     0.07164
## Yp[10,7] passed          1     0.40497
## Yp[11,7] passed          1     0.41999
## Yp[12,7] passed          1     0.73817
## Yp[13,7] passed          1     0.93782
## Yp[14,7] passed          1     0.90800
## Yp[15,7] passed          1     0.41730
## Yp[16,7] passed          1     0.81523
## Yp[17,7] passed          1     0.94626
## Yp[18,7] passed          1     0.35315
## Yp[19,7] passed          1     0.35715
## Yp[20,7] passed          1     0.40319
## Yp[21,7] passed          1     0.25166
## Yp[22,7] passed          1     0.35569
```

```
## Yp[23,7] passed          1     0.68172
## Yp[24,7] passed       8001     0.09933
## Yp[25,7] passed          1     0.74722
## Yp[26,7] passed          1     0.18483
## Yp[27,7] passed          1     0.28729
## Yp[28,7] passed          1     0.70389
## Yp[29,7] passed          1     0.58021
## Yp[30,7] passed          1     0.61973
## Yp[31,7] passed          1     0.59971
## Yp[32,7] passed          1     0.51363
## Yp[33,7] passed          1     0.30892
## Yp[34,7] passed          1     0.47988
## Yp[35,7] passed          1     0.70395
## Yp[36,7] passed          1     0.73528
## Yp[37,7] passed          1     0.76121
## Yp[38,7] passed          1     0.63762
## Yp[39,7] passed          1     0.14047
## Yp[40,7] passed          1     0.18876
## Yp[41,7] passed          1     0.37547
## Yp[1,8]  passed       4001     0.36761
## Yp[2,8]  passed          1     0.14141
## Yp[3,8]  passed          1     0.17329
## Yp[4,8]  passed          1     0.19272
## Yp[5,8]  passed          1     0.15194
## Yp[6,8]  passed          1     0.09442
## Yp[7,8]  passed          1     0.62735
## Yp[8,8]  passed          1     0.09927
## Yp[9,8]  passed          1     0.55994
## Yp[10,8] passed          1     0.21005
## Yp[11,8] passed          1     0.43028
## Yp[12,8] passed          1     0.80944
## Yp[13,8] passed          1     0.06594
## Yp[14,8] passed          1     0.24675
## Yp[15,8] passed          1     0.48524
## Yp[16,8] passed          1     0.30533
## Yp[17,8] passed          1     0.58090
## Yp[18,8] passed          1     0.42957
## Yp[19,8] passed          1     0.31827
## Yp[20,8] passed          1     0.19086
## Yp[21,8] passed          1     0.21599
## Yp[22,8] passed          1     0.77543
## Yp[23,8] passed          1     0.16907
## Yp[24,8] passed          1     0.60014
## Yp[25,8] passed          1     0.21243
## Yp[26,8] passed          1     0.56480
## Yp[27,8] passed          1     0.37444
## Yp[28,8] passed          1     0.41575
## Yp[29,8] passed          1     0.65432
## Yp[30,8] passed          1     0.13504
## Yp[31,8] passed          1     0.33717
## Yp[32,8] passed          1     0.67209
## Yp[33,8] passed          1     0.16738
## Yp[34,8] passed          1     0.72496
## Yp[35,8] passed          1     0.34626
```

```
## Yp[36,8] passed          1     0.68545
## Yp[37,8] passed          1     0.15996
## Yp[38,8] passed          1     0.97145
## Yp[39,8] passed          1     0.12100
## Yp[40,8] passed          1     0.07331
## Yp[41,8] passed          1     0.06217
## Yp[1,9]  passed          1     0.11495
## Yp[2,9]  passed          1     0.42010
## Yp[3,9]  passed          1     0.42717
## Yp[4,9]  passed          1     0.52242
## Yp[5,9]  passed          1     0.91860
## Yp[6,9]  passed          1     0.81892
## Yp[7,9]  passed          1     0.78479
## Yp[8,9]  passed          1     0.49558
## Yp[9,9]  passed          1     0.47962
## Yp[10,9] passed          1     0.43156
## Yp[11,9] passed          1     0.53623
## Yp[12,9] passed          1     0.68899
## Yp[13,9] passed       8001     0.43271
## Yp[14,9] passed          1     0.64584
## Yp[15,9] passed          1     0.88168
## Yp[16,9] passed          1     0.76690
## Yp[17,9] passed      12001     0.07960
## Yp[18,9] passed          1     0.47012
## Yp[19,9] passed          1     0.37929
## Yp[20,9] passed          1     0.95541
## Yp[21,9] passed          1     0.63486
## Yp[22,9] passed          1     0.80257
## Yp[23,9] passed          1     0.32749
## Yp[24,9] passed          1     0.70744
## Yp[25,9] passed          1     0.90456
## Yp[26,9] passed          1     0.61222
## Yp[27,9] passed          1     0.63903
## Yp[28,9] passed          1     0.47500
## Yp[29,9] passed          1     0.62023
## Yp[30,9] passed          1     0.19566
## Yp[31,9] passed          1     0.55976
## Yp[32,9] passed          1     0.08822
## Yp[33,9] passed          1     0.65830
## Yp[34,9] passed          1     0.89722
## Yp[35,9] passed          1     0.64082
## Yp[36,9] passed          1     0.86755
## Yp[37,9] passed          1     0.99566
## Yp[38,9] passed          1     0.91595
## Yp[39,9] passed          1     0.30035
## Yp[40,9] passed          1     0.83248
## Yp[41,9] passed          1     0.64221
## alpha[1] passed          1     0.14664
## alpha[2] passed          1     0.92938
## alpha[3] passed          1     0.74001
## alpha[4] passed          1     0.69956
## alpha[5] passed          1     0.91668
## alpha[6] passed          1     0.87614
## alpha[7] passed          1     0.47288
```

```
## alpha[8] passed           1     0.24622
## alpha[9] passed           1     0.76377
## beta[1]  passed           1     0.15146
## beta[2]  passed           1     0.93199
## beta[3]  passed           1     0.80360
## beta[4]  passed           1     0.56082
## beta[5]  passed           1     0.86907
## beta[6]  passed           1     0.92046
## beta[7]  passed           1     0.36594
## beta[8]  passed           1     0.27618
## beta[9]  passed           1     0.82514
##
##          Halfwidth Mean     Halfwidth
##          test
## Dm[1]    passed     0.73229 0.001870
## Dm[2]    passed     1.92600 0.003060
## Dm[3]    passed     1.05974 0.002303
## Dm[4]    passed     0.85915 0.002114
## Dm[5]    passed     0.92340 0.002517
## Dm[6]    passed     1.68918 0.002911
## Dm[7]    passed     0.63186 0.001751
## Dm[8]    passed     0.51202 0.001784
## Dm[9]    passed     0.87441 0.002113
## Dsd[1]   passed     0.86064 0.001733
## Dsd[2]   passed     1.52096 0.003178
## Dsd[3]   passed     1.03509 0.001682
## Dsd[4]   passed     0.95197 0.002092
## Dsd[5]   passed     1.07100 0.002686
## Dsd[6]   passed     1.33166 0.002076
## Dsd[7]   passed     0.80937 0.001769
## Dsd[8]   passed     0.71190 0.001520
## Dsd[9]   passed     0.94152 0.001598
## Yp[1,1]  passed     1.00815 0.012428
## Yp[2,1]  passed     0.97825 0.011709
## Yp[3,1]  passed     0.95752 0.011774
## Yp[4,1]  passed     0.94625 0.010940
## Yp[5,1]  passed     0.93203 0.011292
## Yp[6,1]  passed     0.91305 0.010552
## Yp[7,1]  passed     0.89035 0.010146
## Yp[8,1]  passed     0.88555 0.010408
## Yp[9,1]  passed     0.86100 0.009794
## Yp[10,1] passed     0.85145 0.009995
## Yp[11,1] passed     0.83365 0.009409
## Yp[12,1] passed     0.82278 0.009227
## Yp[13,1] passed     0.81330 0.009469
## Yp[14,1] passed     0.79695 0.008880
## Yp[15,1] passed     0.78210 0.008771
## Yp[16,1] passed     0.77675 0.008765
## Yp[17,1] passed     0.75453 0.008554
## Yp[18,1] passed     0.74280 0.008528
## Yp[19,1] passed     0.73577 0.008681
## Yp[20,1] passed     0.71975 0.008525
## Yp[21,1] passed     0.71257 0.008323
## Yp[22,1] passed     0.69895 0.008328
```

```
## Yp[23,1] passed     0.68717 0.008272
## Yp[24,1] passed     0.68075 0.008196
## Yp[25,1] passed     0.67365 0.008199
## Yp[26,1] passed     0.65895 0.007993
## Yp[27,1] passed     0.65973 0.008205
## Yp[28,1] passed     0.64458 0.008020
## Yp[29,1] passed     0.63513 0.008049
## Yp[30,1] passed     0.62375 0.007925
## Yp[31,1] passed     0.62435 0.008088
## Yp[32,1] passed     0.60930 0.007925
## Yp[33,1] passed     0.60977 0.008146
## Yp[34,1] passed     0.60257 0.007987
## Yp[35,1] passed     0.59183 0.008489
## Yp[36,1] passed     0.57573 0.008331
## Yp[37,1] passed     0.57390 0.007978
## Yp[38,1] passed     0.56810 0.008117
## Yp[39,1] passed     0.56005 0.008479
## Yp[40,1] passed     0.55390 0.008333
## Yp[41,1] passed     0.55235 0.008537
## Yp[1,2]  passed     1.06333 0.012345
## Yp[2,2]  passed     1.08852 0.012724
## Yp[3,2]  passed     1.12763 0.013101
## Yp[4,2]  passed     1.15195 0.014077
## Yp[5,2]  passed     1.19128 0.013377
## Yp[6,2]  passed     1.20590 0.013233
## Yp[7,2]  passed     1.25505 0.013176
## Yp[8,2]  passed     1.29747 0.013133
## Yp[9,2]  passed     1.31323 0.012809
## Yp[10,2] passed     1.34075 0.013445
## Yp[11,2] passed     1.38975 0.013036
## Yp[12,2] passed     1.43643 0.012892
## Yp[13,2] passed     1.46295 0.012823
## Yp[14,2] passed     1.50313 0.013110
## Yp[15,2] passed     1.53943 0.012495
## Yp[16,2] passed     1.58163 0.013312
## Yp[17,2] passed     1.61855 0.012988
## Yp[18,2] passed     1.67193 0.013020
## Yp[19,2] passed     1.70775 0.013650
## Yp[20,2] passed     1.76850 0.013685
## Yp[21,2] passed     1.81553 0.013343
## Yp[22,2] passed     1.86805 0.013918
## Yp[23,2] passed     1.92245 0.013771
## Yp[24,2] passed     1.97985 0.014066
## Yp[25,2] passed     2.01925 0.014100
## Yp[26,2] passed     2.09035 0.014332
## Yp[27,2] passed     2.14867 0.014825
## Yp[28,2] passed     2.20883 0.014823
## Yp[29,2] passed     2.28645 0.015094
## Yp[30,2] passed     2.33758 0.015232
## Yp[31,2] passed     2.39085 0.015645
## Yp[32,2] passed     2.47883 0.015831
## Yp[33,2] passed     2.54030 0.016127
## Yp[34,2] passed     2.60840 0.017074
## Yp[35,2] passed     2.69245 0.016716
```

```
## Yp[36,2] passed     2.77950 0.017943
## Yp[37,2] passed     2.85467 0.018216
## Yp[38,2] passed     2.93573 0.020008
## Yp[39,2] passed     3.00920 0.019978
## Yp[40,2] passed     3.09448 0.021726
## Yp[41,2] passed     3.21530 0.022606
## Yp[1,3]  passed     0.89633 0.011586
## Yp[2,3]  passed     0.89592 0.012199
## Yp[3,3]  passed     0.90938 0.011478
## Yp[4,3]  passed     0.90858 0.011292
## Yp[5,3]  passed     0.90912 0.011107
## Yp[6,3]  passed     0.93270 0.011385
## Yp[7,3]  passed     0.92463 0.010877
## Yp[8,3]  passed     0.92868 0.010820
## Yp[9,3]  passed     0.94288 0.010920
## Yp[10,3] passed     0.95178 0.010471
## Yp[11,3] passed     0.96580 0.010816
## Yp[12,3] passed     0.97078 0.010361
## Yp[13,3] passed     0.97250 0.010942
## Yp[14,3] passed     0.98255 0.010102
## Yp[15,3] passed     0.99405 0.010475
## Yp[16,3] passed     0.99992 0.010334
## Yp[17,3] passed     1.00002 0.009984
## Yp[18,3] passed     1.01418 0.009997
## Yp[19,3] passed     1.01210 0.009949
## Yp[20,3] passed     1.04192 0.010105
## Yp[21,3] passed     1.04710 0.010111
## Yp[22,3] passed     1.05765 0.010236
## Yp[23,3] passed     1.05785 0.010264
## Yp[24,3] passed     1.06828 0.010199
## Yp[25,3] passed     1.07330 0.010233
## Yp[26,3] passed     1.09895 0.010429
## Yp[27,3] passed     1.09280 0.010421
## Yp[28,3] passed     1.11563 0.010458
## Yp[29,3] passed     1.12204 0.013687
## Yp[30,3] passed     1.13857 0.010843
## Yp[31,3] passed     1.16197 0.010850
## Yp[32,3] passed     1.16290 0.010774
## Yp[33,3] passed     1.18142 0.011310
## Yp[34,3] passed     1.18585 0.011112
## Yp[35,3] passed     1.20490 0.011915
## Yp[36,3] passed     1.22033 0.012106
## Yp[37,3] passed     1.22015 0.011863
## Yp[38,3] passed     1.24758 0.013209
## Yp[39,3] passed     1.25877 0.013051
## Yp[40,3] passed     1.27465 0.012996
## Yp[41,3] passed     1.28585 0.014259
## Yp[1,4]  passed     1.34315 0.014975
## Yp[2,4]  passed     1.29278 0.013998
## Yp[3,4]  passed     1.26523 0.013618
## Yp[4,4]  passed     1.22340 0.013437
## Yp[5,4]  passed     1.19863 0.014592
## Yp[6,4]  passed     1.17430 0.012356
## Yp[7,4]  passed     1.13720 0.011952
```

```
## Yp[8,4]  passed     1.10165 0.011428
## Yp[9,4]  passed     1.09197 0.011061
## Yp[10,4] passed     1.06000 0.010889
## Yp[11,4] passed     1.03612 0.010484
## Yp[12,4] passed     1.01408 0.009997
## Yp[13,4] passed     0.99465 0.009929
## Yp[14,4] passed     0.96555 0.009925
## Yp[15,4] passed     0.93600 0.010738
## Yp[16,4] passed     0.91600 0.009443
## Yp[17,4] passed     0.89275 0.010527
## Yp[18,4] passed     0.88220 0.009299
## Yp[19,4] passed     0.85805 0.009277
## Yp[20,4] passed     0.83925 0.009088
## Yp[21,4] passed     0.81322 0.008869
## Yp[22,4] passed     0.80230 0.008836
## Yp[23,4] passed     0.79025 0.008827
## Yp[24,4] passed     0.76377 0.008666
## Yp[25,4] passed     0.75540 0.008809
## Yp[26,4] passed     0.72623 0.008365
## Yp[27,4] passed     0.71030 0.008578
## Yp[28,4] passed     0.69147 0.008958
## Yp[29,4] passed     0.68668 0.008474
## Yp[30,4] passed     0.67632 0.008508
## Yp[31,4] passed     0.65875 0.008177
## Yp[32,4] passed     0.64250 0.008290
## Yp[33,4] passed     0.63125 0.008092
## Yp[34,4] passed     0.62518 0.008170
## Yp[35,4] passed     0.60718 0.008389
## Yp[36,4] passed     0.59455 0.007949
## Yp[37,4] passed     0.58465 0.008263
## Yp[38,4] passed     0.57906 0.009089
## Yp[39,4] passed     0.56263 0.008355
## Yp[40,4] passed     0.55458 0.008078
## Yp[41,4] passed     0.54000 0.008227
## Yp[1,5]  passed     0.34500 0.008706
## Yp[2,5]  passed     0.35465 0.009295
## Yp[3,5]  passed     0.37133 0.009281
## Yp[4,5]  passed     0.39360 0.008914
## Yp[5,5]  passed     0.39950 0.009099
## Yp[6,5]  passed     0.41957 0.009107
## Yp[7,5]  passed     0.43762 0.009019
## Yp[8,5]  passed     0.45700 0.009556
## Yp[9,5]  passed     0.47697 0.009339
## Yp[10,5] passed     0.49360 0.009552
## Yp[11,5] passed     0.50462 0.011621
## Yp[12,5] passed     0.53622 0.009819
## Yp[13,5] passed     0.56317 0.010300
## Yp[14,5] passed     0.59170 0.009700
## Yp[15,5] passed     0.61598 0.009677
## Yp[16,5] passed     0.63595 0.009322
## Yp[17,5] passed     0.66815 0.009327
## Yp[18,5] passed     0.69605 0.010350
## Yp[19,5] passed     0.72605 0.010190
## Yp[20,5] <NA>            NA       NA
```

```
## Yp[21,5] passed     0.79515 0.010035
## Yp[22,5] passed     0.82790 0.009367
## Yp[23,5] passed     0.85875 0.009411
## Yp[24,5] passed     0.90648 0.009470
## Yp[25,5] passed     0.94435 0.009779
## Yp[26,5] passed     0.99387 0.010041
## Yp[27,5] passed     1.04030 0.010231
## Yp[28,5] <NA>            NA       NA
## Yp[29,5] passed     1.13495 0.010595
## Yp[30,5] passed     1.18110 0.010906
## Yp[31,5] passed     1.25280 0.011158
## Yp[32,5] passed     1.30703 0.011375
## Yp[33,5] passed     1.37495 0.011938
## Yp[34,5] passed     1.43843 0.012079
## Yp[35,5] passed     1.50228 0.012555
## Yp[36,5] passed     1.57492 0.015110
## Yp[37,5] passed     1.66640 0.015257
## Yp[38,5] passed     1.74168 0.015694
## Yp[39,5] passed     1.82498 0.017721
## Yp[40,5] passed     1.92380 0.020862
## Yp[41,5] passed     2.00533 0.021592
## Yp[1,6]  passed     1.27455 0.015015
## Yp[2,6]  passed     1.28795 0.014340
## Yp[3,6]  passed     1.31218 0.014947
## Yp[4,6]  passed     1.32360 0.014380
## Yp[5,6]  passed     1.34112 0.014385
## Yp[6,6]  passed     1.34587 0.013881
## Yp[7,6]  passed     1.37690 0.014281
## Yp[8,6]  passed     1.38217 0.013173
## Yp[9,6]  passed     1.40552 0.012920
## Yp[10,6] passed     1.42162 0.013475
## Yp[11,6] passed     1.43578 0.013104
## Yp[12,6] passed     1.46568 0.013185
## Yp[13,6] passed     1.47685 0.013024
## Yp[14,6] passed     1.49798 0.013068
## Yp[15,6] passed     1.52608 0.012879
## Yp[16,6] passed     1.54735 0.012375
## Yp[17,6] passed     1.56543 0.012755
## Yp[18,6] passed     1.58537 0.012946
## Yp[19,6] passed     1.60860 0.012761
## Yp[20,6] passed     1.63025 0.012697
## Yp[21,6] passed     1.66043 0.012690
## Yp[22,6] passed     1.68665 0.012901
## Yp[23,6] passed     1.70412 0.012841
## Yp[24,6] passed     1.72562 0.012949
## Yp[25,6] passed     1.75810 0.013150
## Yp[26,6] passed     1.78025 0.013253
## Yp[27,6] passed     1.80645 0.013388
## Yp[28,6] passed     1.82032 0.013843
## Yp[29,6] passed     1.85030 0.013677
## Yp[30,6] passed     1.88600 0.013675
## Yp[31,6] passed     1.91510 0.014045
## Yp[32,6] passed     1.94138 0.014010
## Yp[33,6] passed     1.96995 0.014518
```

```
## Yp[34,6] passed     2.01290 0.014758
## Yp[35,6] passed     2.02747 0.015621
## Yp[36,6] <NA>            NA       NA
## Yp[37,6] passed     2.08807 0.016563
## Yp[38,6] passed     2.13037 0.016257
## Yp[39,6] passed     2.18003 0.017152
## Yp[40,6] passed     2.19800 0.017134
## Yp[41,6] passed     2.22755 0.018820
## Yp[1,7]  passed     1.00753 0.012156
## Yp[2,7]  passed     0.97598 0.011767
## Yp[3,7]  passed     0.94725 0.011215
## Yp[4,7]  passed     0.93205 0.011382
## Yp[5,7]  passed     0.90272 0.010263
## Yp[6,7]  passed     0.87597 0.010275
## Yp[7,7]  passed     0.85488 0.009960
## Yp[8,7]  passed     0.83147 0.009760
## Yp[9,7]  passed     0.80180 0.009623
## Yp[10,7] passed     0.79370 0.009355
## Yp[11,7] passed     0.77163 0.008888
## Yp[12,7] passed     0.75182 0.008698
## Yp[13,7] passed     0.72528 0.008605
## Yp[14,7] passed     0.70757 0.008605
## Yp[15,7] passed     0.68985 0.008316
## Yp[16,7] passed     0.68032 0.008156
## Yp[17,7] passed     0.65825 0.008161
## Yp[18,7] passed     0.64655 0.008022
## Yp[19,7] passed     0.63380 0.007876
## Yp[20,7] passed     0.61462 0.007934
## Yp[21,7] passed     0.59698 0.007727
## Yp[22,7] passed     0.57788 0.007614
## Yp[23,7] passed     0.56763 0.007442
## Yp[24,7] passed     0.55188 0.008439
## Yp[25,7] passed     0.54358 0.007245
## Yp[26,7] passed     0.52953 0.007247
## Yp[27,7] passed     0.52053 0.007215
## Yp[28,7] passed     0.50705 0.007056
## Yp[29,7] passed     0.49447 0.007018
## Yp[30,7] passed     0.48640 0.006931
## Yp[31,7] passed     0.48230 0.007053
## Yp[32,7] passed     0.46630 0.007049
## Yp[33,7] passed     0.45693 0.006880
## Yp[34,7] passed     0.45132 0.007111
## Yp[35,7] passed     0.43955 0.007324
## Yp[36,7] passed     0.42755 0.007000
## Yp[37,7] passed     0.41915 0.007024
## Yp[38,7] passed     0.40735 0.006786
## Yp[39,7] passed     0.40258 0.006952
## Yp[40,7] passed     0.39190 0.006723
## Yp[41,7] passed     0.38532 0.007106
## Yp[1,8]  passed     0.47914 0.009858
## Yp[2,8]  passed     0.47308 0.009390
## Yp[3,8]  passed     0.47678 0.009374
## Yp[4,8]  passed     0.47185 0.009030
## Yp[5,8]  passed     0.47330 0.008581
```

```
## Yp[6,8]  passed     0.47153 0.008712
## Yp[7,8]  passed     0.47120 0.008260
## Yp[8,8]  passed     0.47010 0.008262
## Yp[9,8]  passed     0.46850 0.008401
## Yp[10,8] passed     0.47525 0.008042
## Yp[11,8] passed     0.48063 0.008119
## Yp[12,8] passed     0.47960 0.007777
## Yp[13,8] passed     0.47520 0.007870
## Yp[14,8] passed     0.48142 0.007548
## Yp[15,8] passed     0.48297 0.007144
## Yp[16,8] passed     0.48830 0.007317
## Yp[17,8] passed     0.48410 0.007031
## Yp[18,8] passed     0.48452 0.007085
## Yp[19,8] passed     0.49155 0.007050
## Yp[20,8] passed     0.50120 0.007256
## Yp[21,8] passed     0.49615 0.007097
## Yp[22,8] passed     0.50000 0.007019
## Yp[23,8] passed     0.50423 0.007044
## Yp[24,8] passed     0.50760 0.007087
## Yp[25,8] passed     0.50925 0.007073
## Yp[26,8] passed     0.51007 0.007122
## Yp[27,8] passed     0.52448 0.007232
## Yp[28,8] passed     0.52620 0.007212
## Yp[29,8] passed     0.53878 0.007326
## Yp[30,8] passed     0.53068 0.007283
## Yp[31,8] passed     0.53935 0.007354
## Yp[32,8] passed     0.54085 0.007864
## Yp[33,8] passed     0.54532 0.007633
## Yp[34,8] passed     0.55955 0.007856
## Yp[35,8] passed     0.55897 0.007880
## Yp[36,8] passed     0.56217 0.008265
## Yp[37,8] passed     0.57483 0.008763
## Yp[38,8] passed     0.58083 0.008533
## Yp[39,8] passed     0.59360 0.009583
## Yp[40,8] passed     0.59430 0.009603
## Yp[41,8] passed     0.60277 0.009405
## Yp[1,9]  passed     0.70230 0.011442
## Yp[2,9]  passed     0.70825 0.010953
## Yp[3,9]  passed     0.71857 0.011355
## Yp[4,9]  passed     0.71152 0.010620
## Yp[5,9]  passed     0.72845 0.010039
## Yp[6,9]  passed     0.72890 0.010193
## Yp[7,9]  passed     0.73700 0.010312
## Yp[8,9]  passed     0.74418 0.010032
## Yp[9,9]  passed     0.74915 0.010136
## Yp[10,9] passed     0.76170 0.010010
## Yp[11,9] passed     0.76055 0.009764
## Yp[12,9] passed     0.77435 0.009348
## Yp[13,9] passed     0.78563 0.010445
## Yp[14,9] passed     0.79187 0.009343
## Yp[15,9] passed     0.80250 0.009322
## Yp[16,9] passed     0.81598 0.009217
## Yp[17,9] passed     0.80632 0.010622
## Yp[18,9] passed     0.81540 0.009203
```

```
## Yp[19,9] passed     0.83903 0.009186
## Yp[20,9] passed     0.85045 0.009359
## Yp[21,9] passed     0.85903 0.009650
## Yp[22,9] passed     0.86905 0.009299
## Yp[23,9] passed     0.88465 0.009317
## Yp[24,9] passed     0.88325 0.009315
## Yp[25,9] passed     0.90135 0.009351
## Yp[26,9] passed     0.90905 0.009605
## Yp[27,9] passed     0.92697 0.009609
## Yp[28,9] passed     0.93550 0.009552
## Yp[29,9] passed     0.94065 0.009682
## Yp[30,9] passed     0.96522 0.009876
## Yp[31,9] passed     0.97050 0.010258
## Yp[32,9] passed     0.98693 0.010247
## Yp[33,9] passed     1.00040 0.010168
## Yp[34,9] passed     1.01170 0.010231
## Yp[35,9] passed     1.03900 0.010905
## Yp[36,9] passed     1.03927 0.011100
## Yp[37,9] passed     1.04955 0.011372
## Yp[38,9] passed     1.07537 0.012170
## Yp[39,9] passed     1.09407 0.013200
## Yp[40,9] passed     1.10783 0.012837
## Yp[41,9] passed     1.11880 0.013119
## alpha[1] failed    -0.02497 0.008257
## alpha[2] failed     0.00866 0.008352
## alpha[3] passed    -0.16039 0.009449
## alpha[4] passed     0.27225 0.007850
## alpha[5] passed    -1.20784 0.022787
## alpha[6] passed     0.19989 0.008260
## alpha[7] failed    -0.00933 0.008259
## alpha[8] passed    -0.85719 0.017666
## alpha[9] passed    -0.42143 0.012219
## beta[1]  passed    -0.01578 0.000387
## beta[2]  passed     0.02774 0.000312
## beta[3]  passed     0.00916 0.000385
## beta[4]  passed    -0.02319 0.000382
## beta[5]  passed     0.04566 0.000765
## beta[6]  passed     0.01414 0.000324
## beta[7]  passed    -0.02505 0.000402
## beta[8]  failed     0.00642 0.000688
## beta[9]  passed     0.01198 0.000481
##
## [[2]]
##
##          Stationarity start     p-value
##          test         iteration
## Dm[1]    passed           1     0.22130
## Dm[2]    passed           1     0.81987
## Dm[3]    passed           1     0.32771
## Dm[4]    passed           1     0.46639
## Dm[5]    passed       12001     0.18589
## Dm[6]    passed           1     0.19510
## Dm[7]    passed           1     0.65003
## Dm[8]    passed           1     0.22037
```

```
## Dm[9]    passed          1     0.47257
## Dsd[1]   passed          1     0.55493
## Dsd[2]   passed          1     0.61295
## Dsd[3]   passed          1     0.83731
## Dsd[4]   passed          1     0.52637
## Dsd[5]   passed          1     0.56882
## Dsd[6]   passed          1     0.61053
## Dsd[7]   passed          1     0.74612
## Dsd[8]   passed          1     0.41064
## Dsd[9]   passed          1     0.23951
## Yp[1,1]  passed          1     0.42067
## Yp[2,1]  passed          1     0.98716
## Yp[3,1]  passed          1     0.28365
## Yp[4,1]  passed          1     0.06722
## Yp[5,1]  passed          1     0.88772
## Yp[6,1]  passed       4001     0.13132
## Yp[7,1]  passed          1     0.63939
## Yp[8,1]  passed          1     0.65214
## Yp[9,1]  passed          1     0.54124
## Yp[10,1] passed          1     0.63196
## Yp[11,1] passed          1     0.85491
## Yp[12,1] passed          1     0.53467
## Yp[13,1] passed          1     0.41633
## Yp[14,1] passed          1     0.20220
## Yp[15,1] passed          1     0.66166
## Yp[16,1] passed          1     0.59761
## Yp[17,1] passed          1     0.79424
## Yp[18,1] passed          1     0.67204
## Yp[19,1] passed          1     0.41581
## Yp[20,1] passed          1     0.21559
## Yp[21,1] passed          1     0.37470
## Yp[22,1] passed          1     0.57524
## Yp[23,1] passed          1     0.52499
## Yp[24,1] passed          1     0.97836
## Yp[25,1] passed          1     0.58337
## Yp[26,1] passed          1     0.38172
## Yp[27,1] passed          1     0.12410
## Yp[28,1] passed          1     0.35621
## Yp[29,1] passed          1     0.08878
## Yp[30,1] passed          1     0.98986
## Yp[31,1] passed          1     0.18903
## Yp[32,1] passed          1     0.84889
## Yp[33,1] passed          1     0.56930
## Yp[34,1] passed          1     0.57796
## Yp[35,1] passed          1     0.46635
## Yp[36,1] passed          1     0.68196
## Yp[37,1] passed          1     0.84321
## Yp[38,1] passed          1     0.54815
## Yp[39,1] passed          1     0.29991
## Yp[40,1] passed          1     0.65431
## Yp[41,1] passed          1     0.19351
## Yp[1,2]  passed          1     0.85075
## Yp[2,2]  passed          1     0.54417
## Yp[3,2]  passed          1     0.53623
```

```
## Yp[4,2]  passed          1     0.84135
## Yp[5,2]  passed          1     0.28670
## Yp[6,2]  passed          1     0.05473
## Yp[7,2]  passed          1     0.20305
## Yp[8,2]  passed          1     0.86685
## Yp[9,2]  passed          1     0.87899
## Yp[10,2] passed          1     0.88656
## Yp[11,2] passed          1     0.42001
## Yp[12,2] passed          1     0.26150
## Yp[13,2] passed          1     0.15256
## Yp[14,2] passed          1     0.35901
## Yp[15,2] passed          1     0.55400
## Yp[16,2] passed          1     0.85849
## Yp[17,2] passed          1     0.42589
## Yp[18,2] passed          1     0.44873
## Yp[19,2] passed          1     0.71361
## Yp[20,2] passed          1     0.29921
## Yp[21,2] passed          1     0.64660
## Yp[22,2] passed       4001     0.07683
## Yp[23,2] passed          1     0.73620
## Yp[24,2] passed          1     0.42763
## Yp[25,2] passed       8001     0.05941
## Yp[26,2] passed          1     0.20174
## Yp[27,2] passed          1     0.53967
## Yp[28,2] passed          1     0.70146
## Yp[29,2] passed          1     0.05038
## Yp[30,2] passed          1     0.11054
## Yp[31,2] passed          1     0.90574
## Yp[32,2] passed          1     0.60404
## Yp[33,2] passed          1     0.29483
## Yp[34,2] passed          1     0.52655
## Yp[35,2] passed          1     0.62756
## Yp[36,2] passed          1     0.66685
## Yp[37,2] passed          1     0.91401
## Yp[38,2] passed          1     0.11933
## Yp[39,2] passed          1     0.37954
## Yp[40,2] passed          1     0.39193
## Yp[41,2] passed          1     0.55456
## Yp[1,3]  passed          1     0.45706
## Yp[2,3]  passed          1     0.06096
## Yp[3,3]  passed          1     0.46558
## Yp[4,3]  passed          1     0.20672
## Yp[5,3]  passed          1     0.49939
## Yp[6,3]  passed          1     0.85674
## Yp[7,3]  passed          1     0.70223
## Yp[8,3]  passed          1     0.18786
## Yp[9,3]  passed          1     0.18486
## Yp[10,3] passed          1     0.14115
## Yp[11,3] passed          1     0.18482
## Yp[12,3] passed          1     0.97652
## Yp[13,3] failed         NA     0.00269
## Yp[14,3] passed          1     0.18733
## Yp[15,3] passed          1     0.06958
## Yp[16,3] passed          1     0.72086
```

```
## Yp[17,3] passed           1     0.06991
## Yp[18,3] failed          NA     0.00665
## Yp[19,3] passed           1     0.40127
## Yp[20,3] passed        4001     0.07048
## Yp[21,3] passed           1     0.47085
## Yp[22,3] passed           1     0.69256
## Yp[23,3] passed           1     0.76583
## Yp[24,3] passed           1     0.59272
## Yp[25,3] passed           1     0.99741
## Yp[26,3] passed           1     0.71396
## Yp[27,3] passed           1     0.31366
## Yp[28,3] passed           1     0.05834
## Yp[29,3] passed           1     0.10474
## Yp[30,3] passed           1     0.97336
## Yp[31,3] passed           1     0.66631
## Yp[32,3] passed           1     0.62463
## Yp[33,3] passed           1     0.39095
## Yp[34,3] passed        4001     0.16542
## Yp[35,3] passed           1     0.35531
## Yp[36,3] passed           1     0.42040
## Yp[37,3] passed           1     0.24205
## Yp[38,3] passed           1     0.24428
## Yp[39,3] passed           1     0.46639
## Yp[40,3] passed           1     0.40070
## Yp[41,3] passed           1     0.29277
## Yp[1,4]  passed           1     0.42854
## Yp[2,4]  passed       12001     0.13037
## Yp[3,4]  passed           1     0.96940
## Yp[4,4]  passed           1     0.94968
## Yp[5,4]  passed           1     0.64989
## Yp[6,4]  passed           1     0.30716
## Yp[7,4]  passed           1     0.79657
## Yp[8,4]  passed           1     0.42130
## Yp[9,4]  passed           1     0.14862
## Yp[10,4] passed           1     0.08464
## Yp[11,4] passed           1     0.76116
## Yp[12,4] passed           1     0.37905
## Yp[13,4] passed           1     0.61027
## Yp[14,4] passed           1     0.65046
## Yp[15,4] passed           1     0.97011
## Yp[16,4] passed           1     0.39519
## Yp[17,4] passed           1     0.64359
## Yp[18,4] passed           1     0.08961
## Yp[19,4] passed           1     0.17072
## Yp[20,4] passed           1     0.48479
## Yp[21,4] passed           1     0.80471
## Yp[22,4] passed           1     0.91884
## Yp[23,4] passed           1     0.42609
## Yp[24,4] passed           1     0.64155
## Yp[25,4] passed           1     0.36101
## Yp[26,4] passed           1     0.33415
## Yp[27,4] passed           1     0.89194
## Yp[28,4] passed           1     0.12414
## Yp[29,4] passed           1     0.97644
```

```
## Yp[30,4] passed          1     0.65221
## Yp[31,4] passed          1     0.25846
## Yp[32,4] passed      12001     0.15349
## Yp[33,4] passed          1     0.16959
## Yp[34,4] passed          1     0.23385
## Yp[35,4] passed          1     0.61230
## Yp[36,4] passed       8001     0.19549
## Yp[37,4] passed          1     0.89349
## Yp[38,4] passed          1     0.25343
## Yp[39,4] passed          1     0.17872
## Yp[40,4] passed          1     0.46489
## Yp[41,4] passed          1     0.55121
## Yp[1,5]  passed          1     0.25242
## Yp[2,5]  passed          1     0.22552
## Yp[3,5]  passed          1     0.10095
## Yp[4,5]  passed          1     0.88946
## Yp[5,5]  passed          1     0.72589
## Yp[6,5]  passed          1     0.48087
## Yp[7,5]  passed          1     0.23431
## Yp[8,5]  passed          1     0.40785
## Yp[9,5]  passed          1     0.92742
## Yp[10,5] passed          1     0.06709
## Yp[11,5] passed          1     0.60536
## Yp[12,5] passed          1     0.16269
## Yp[13,5] passed          1     0.29459
## Yp[14,5] passed          1     0.38174
## Yp[15,5] passed          1     0.29413
## Yp[16,5] failed         NA     0.01091
## Yp[17,5] passed          1     0.36044
## Yp[18,5] passed          1     0.65531
## Yp[19,5] passed          1     0.49601
## Yp[20,5] passed          1     0.86516
## Yp[21,5] passed          1     0.78602
## Yp[22,5] passed          1     0.35681
## Yp[23,5] passed          1     0.93972
## Yp[24,5] passed          1     0.92233
## Yp[25,5] passed          1     0.83814
## Yp[26,5] passed          1     0.85175
## Yp[27,5] passed          1     0.69764
## Yp[28,5] passed          1     0.44693
## Yp[29,5] passed          1     0.11432
## Yp[30,5] passed          1     0.34868
## Yp[31,5] passed          1     0.50873
## Yp[32,5] passed          1     0.14145
## Yp[33,5] passed          1     0.20887
## Yp[34,5] passed          1     0.32817
## Yp[35,5] passed          1     0.82812
## Yp[36,5] passed          1     0.18584
## Yp[37,5] passed          1     0.85985
## Yp[38,5] passed          1     0.84255
## Yp[39,5] passed          1     0.15232
## Yp[40,5] passed          1     0.14388
## Yp[41,5] passed          1     0.81238
## Yp[1,6]  passed          1     0.05055
```

```
## Yp[2,6]  passed          1     0.68217
## Yp[3,6]  passed          1     0.12630
## Yp[4,6]  passed          1     0.78660
## Yp[5,6]  passed          1     0.64583
## Yp[6,6]  passed          1     1.00000
## Yp[7,6]  passed          1     0.42293
## Yp[8,6]  passed          1     0.86000
## Yp[9,6]  passed          1     0.63312
## Yp[10,6] passed          1     0.71120
## Yp[11,6] passed          1     0.49490
## Yp[12,6] passed          1     0.08241
## Yp[13,6] passed          1     0.17281
## Yp[14,6] passed          1     0.41115
## Yp[15,6] passed          1     0.51853
## Yp[16,6] passed          1     0.75839
## Yp[17,6] passed          1     0.07276
## Yp[18,6] passed          1     0.72584
## Yp[19,6] passed          1     0.87665
## Yp[20,6] passed          1     0.49761
## Yp[21,6] passed          1     0.98408
## Yp[22,6] passed          1     0.27713
## Yp[23,6] passed          1     0.62500
## Yp[24,6] passed          1     0.54749
## Yp[25,6] passed          1     0.98006
## Yp[26,6] passed          1     0.20042
## Yp[27,6] passed          1     0.20703
## Yp[28,6] passed          1     0.14309
## Yp[29,6] passed          1     0.25862
## Yp[30,6] passed          1     0.86118
## Yp[31,6] passed          1     0.38473
## Yp[32,6] passed          1     0.38594
## Yp[33,6] passed          1     0.93780
## Yp[34,6] passed          1     0.89154
## Yp[35,6] passed          1     0.51390
## Yp[36,6] passed          1     0.76827
## Yp[37,6] passed          1     0.20229
## Yp[38,6] passed          1     0.33789
## Yp[39,6] passed          1     0.91858
## Yp[40,6] passed          1     0.87027
## Yp[41,6] passed          1     0.64374
## Yp[1,7]  passed          1     0.29773
## Yp[2,7]  passed          1     0.39500
## Yp[3,7]  passed          1     0.60664
## Yp[4,7]  passed          1     0.82770
## Yp[5,7]  passed          1     0.17733
## Yp[6,7]  passed       8001     0.07718
## Yp[7,7]  passed          1     0.75845
## Yp[8,7]  passed          1     0.96629
## Yp[9,7]  passed          1     0.81403
## Yp[10,7] passed          1     0.80066
## Yp[11,7] passed          1     0.69324
## Yp[12,7] passed          1     0.77205
## Yp[13,7] passed          1     0.24861
## Yp[14,7] passed          1     0.59068
```

```
## Yp[15,7] passed          1     0.90527
## Yp[16,7] passed          1     0.56265
## Yp[17,7] passed          1     0.48324
## Yp[18,7] passed          1     0.50629
## Yp[19,7] passed          1     0.96533
## Yp[20,7] passed          1     0.63185
## Yp[21,7] passed          1     0.65222
## Yp[22,7] passed          1     0.83944
## Yp[23,7] passed          1     0.18055
## Yp[24,7] passed          1     0.96702
## Yp[25,7] passed          1     0.98856
## Yp[26,7] passed          1     0.84408
## Yp[27,7] passed          1     0.12197
## Yp[28,7] passed          1     0.15580
## Yp[29,7] passed          1     0.18211
## Yp[30,7] passed          1     0.74999
## Yp[31,7] passed          1     0.92458
## Yp[32,7] passed          1     0.75535
## Yp[33,7] passed          1     0.26014
## Yp[34,7] passed          1     0.21808
## Yp[35,7] passed          1     0.13228
## Yp[36,7] passed          1     0.71053
## Yp[37,7] passed          1     0.53825
## Yp[38,7] passed          1     0.65430
## Yp[39,7] passed          1     0.42572
## Yp[40,7] passed          1     0.75115
## Yp[41,7] passed          1     0.44490
## Yp[1,8]  passed          1     0.53596
## Yp[2,8]  passed          1     0.76574
## Yp[3,8]  passed          1     0.37910
## Yp[4,8]  passed          1     0.61062
## Yp[5,8]  passed          1     0.15721
## Yp[6,8]  passed          1     0.10456
## Yp[7,8]  passed          1     0.57642
## Yp[8,8]  passed          1     0.84018
## Yp[9,8]  passed          1     0.46568
## Yp[10,8] passed          1     0.12888
## Yp[11,8] passed          1     0.66570
## Yp[12,8] passed          1     0.87704
## Yp[13,8] passed          1     0.18803
## Yp[14,8] passed          1     0.39864
## Yp[15,8] passed          1     0.14519
## Yp[16,8] passed          1     0.45695
## Yp[17,8] passed          1     0.05948
## Yp[18,8] passed          1     0.15851
## Yp[19,8] passed          1     0.62154
## Yp[20,8] passed       4001     0.11308
## Yp[21,8] passed          1     0.42842
## Yp[22,8] passed          1     0.15481
## Yp[23,8] passed          1     0.71320
## Yp[24,8] passed          1     0.56288
## Yp[25,8] passed          1     0.70716
## Yp[26,8] passed          1     0.55772
## Yp[27,8] passed          1     0.25082
```

```
## Yp[28,8] passed          1     0.76382
## Yp[29,8] passed          1     0.64419
## Yp[30,8] passed          1     0.39369
## Yp[31,8] passed          1     0.81768
## Yp[32,8] passed          1     0.83941
## Yp[33,8] passed          1     0.46574
## Yp[34,8] passed          1     0.11724
## Yp[35,8] passed          1     0.12725
## Yp[36,8] passed          1     0.74797
## Yp[37,8] passed          1     0.39953
## Yp[38,8] passed          1     0.57521
## Yp[39,8] passed          1     0.46266
## Yp[40,8] passed          1     0.14261
## Yp[41,8] passed          1     0.34967
## Yp[1,9]  passed          1     0.57249
## Yp[2,9]  passed          1     0.40988
## Yp[3,9]  passed          1     0.31518
## Yp[4,9]  passed          1     0.41477
## Yp[5,9]  passed          1     0.58638
## Yp[6,9]  passed          1     0.21979
## Yp[7,9]  passed          1     0.36278
## Yp[8,9]  passed          1     0.72167
## Yp[9,9]  passed          1     0.50284
## Yp[10,9] passed          1     0.65105
## Yp[11,9] passed          1     0.66864
## Yp[12,9] passed          1     0.06770
## Yp[13,9] passed      12001     0.06752
## Yp[14,9] passed          1     0.38185
## Yp[15,9] passed       8001     0.05147
## Yp[16,9] failed         NA     0.00836
## Yp[17,9] passed          1     0.17662
## Yp[18,9] passed          1     0.60689
## Yp[19,9] passed          1     0.83363
## Yp[20,9] passed          1     0.40884
## Yp[21,9] passed          1     0.61330
## Yp[22,9] passed          1     0.86532
## Yp[23,9] passed          1     0.92187
## Yp[24,9] passed          1     0.95243
## Yp[25,9] passed          1     0.81861
## Yp[26,9] passed          1     0.90412
## Yp[27,9] passed          1     0.89147
## Yp[28,9] passed          1     0.29464
## Yp[29,9] passed          1     0.29495
## Yp[30,9] passed          1     0.63982
## Yp[31,9] passed          1     0.90257
## Yp[32,9] passed          1     0.95076
## Yp[33,9] passed          1     0.40779
## Yp[34,9] passed          1     0.50785
## Yp[35,9] passed          1     0.48462
## Yp[36,9] passed          1     0.51431
## Yp[37,9] passed          1     0.49368
## Yp[38,9] passed          1     0.58175
## Yp[39,9] passed          1     0.65747
## Yp[40,9] passed          1     0.66016
```

```
## Yp[41,9] passed           1     0.33247
## alpha[1] passed           1     0.84857
## alpha[2] passed           1     0.73922
## alpha[3] passed           1     0.19190
## alpha[4] passed           1     0.87409
## alpha[5] passed           1     0.20955
## alpha[6] passed           1     0.60892
## alpha[7] passed           1     0.67347
## alpha[8] passed           1     0.40526
## alpha[9] passed           1     0.42454
## beta[1]  passed           1     0.74109
## beta[2]  passed           1     0.70326
## beta[3]  passed           1     0.23036
## beta[4]  passed           1     0.92049
## beta[5]  passed           1     0.23059
## beta[6]  passed           1     0.56289
## beta[7]  passed           1     0.66680
## beta[8]  passed           1     0.43852
## beta[9]  passed           1     0.41911
##
##          Halfwidth Mean     Halfwidth
##          test
## Dm[1]    passed     0.73533 0.001891
## Dm[2]    passed     1.92354 0.003102
## Dm[3]    passed     1.05944 0.002281
## Dm[4]    passed     0.85917 0.002074
## Dm[5]    passed     0.92113 0.002772
## Dm[6]    passed     1.68955 0.002897
## Dm[7]    passed     0.63342 0.001777
## Dm[8]    passed     0.51287 0.001876
## Dm[9]    passed     0.87469 0.002207
## Dsd[1]   passed     0.86405 0.001707
## Dsd[2]   passed     1.52317 0.003166
## Dsd[3]   passed     1.03385 0.001635
## Dsd[4]   passed     0.95183 0.002116
## Dsd[5]   passed     1.07317 0.003003
## Dsd[6]   passed     1.32913 0.002054
## Dsd[7]   passed     0.81125 0.001754
## Dsd[8]   passed     0.71340 0.001419
## Dsd[9]   passed     0.94185 0.001584
## Yp[1,1]  passed     0.99962 0.012147
## Yp[2,1]  passed     0.97713 0.012057
## Yp[3,1]  passed     0.96460 0.011686
## Yp[4,1]  passed     0.95847 0.011512
## Yp[5,1]  passed     0.93258 0.010903
## Yp[6,1]  passed     0.90994 0.011119
## Yp[7,1]  passed     0.89610 0.010268
## Yp[8,1]  passed     0.88328 0.010272
## Yp[9,1]  passed     0.86895 0.009626
## Yp[10,1] passed     0.85505 0.009586
## Yp[11,1] passed     0.83400 0.009385
## Yp[12,1] passed     0.82983 0.009380
## Yp[13,1] passed     0.80840 0.009311
## Yp[14,1] passed     0.79750 0.009096
```

```
## Yp[15,1] passed     0.77920 0.008864
## Yp[16,1] passed     0.76870 0.008731
## Yp[17,1] passed     0.75170 0.008605
## Yp[18,1] passed     0.74503 0.008569
## Yp[19,1] passed     0.73952 0.008568
## Yp[20,1] passed     0.72155 0.008441
## Yp[21,1] passed     0.71790 0.008364
## Yp[22,1] passed     0.70760 0.008274
## Yp[23,1] passed     0.68668 0.008160
## Yp[24,1] passed     0.68683 0.008233
## Yp[25,1] passed     0.68395 0.008288
## Yp[26,1] passed     0.66945 0.008133
## Yp[27,1] passed     0.65592 0.007899
## Yp[28,1] passed     0.65168 0.008207
## Yp[29,1] passed     0.63907 0.008003
## Yp[30,1] passed     0.63165 0.008125
## Yp[31,1] passed     0.62330 0.008189
## Yp[32,1] passed     0.60518 0.008071
## Yp[33,1] passed     0.60588 0.008035
## Yp[34,1] passed     0.59252 0.008275
## Yp[35,1] passed     0.58860 0.008173
## Yp[36,1] passed     0.57900 0.007990
## Yp[37,1] passed     0.57060 0.008266
## Yp[38,1] passed     0.57352 0.008301
## Yp[39,1] passed     0.55875 0.007876
## Yp[40,1] passed     0.56027 0.008111
## Yp[41,1] passed     0.54707 0.008431
## Yp[1,2]  passed     1.04878 0.012789
## Yp[2,2]  passed     1.08207 0.014092
## Yp[3,2]  passed     1.10895 0.013210
## Yp[4,2]  passed     1.14468 0.012900
## Yp[5,2]  passed     1.17505 0.013900
## Yp[6,2]  passed     1.21723 0.013010
## Yp[7,2]  passed     1.23463 0.012623
## Yp[8,2]  passed     1.26525 0.012644
## Yp[9,2]  passed     1.30773 0.013577
## Yp[10,2] passed     1.35395 0.013506
## Yp[11,2] passed     1.38213 0.012977
## Yp[12,2] passed     1.42115 0.014170
## Yp[13,2] passed     1.46915 0.013088
## Yp[14,2] passed     1.49945 0.013563
## Yp[15,2] passed     1.52645 0.012807
## Yp[16,2] passed     1.58228 0.013034
## Yp[17,2] passed     1.62160 0.013024
## Yp[18,2] passed     1.65795 0.013769
## Yp[19,2] passed     1.71463 0.013007
## Yp[20,2] passed     1.76630 0.013902
## Yp[21,2] passed     1.81835 0.013341
## Yp[22,2] passed     1.85353 0.014141
## Yp[23,2] passed     1.92447 0.013749
## Yp[24,2] passed     1.97815 0.014250
## Yp[25,2] passed     2.02431 0.015676
## Yp[26,2] passed     2.08743 0.014283
## Yp[27,2] passed     2.14890 0.014630
```

```
## Yp[28,2] passed     2.20140 0.014907
## Yp[29,2] passed     2.28495 0.015045
## Yp[30,2] passed     2.32485 0.015362
## Yp[31,2] passed     2.40020 0.015588
## Yp[32,2] passed     2.45655 0.015912
## Yp[33,2] passed     2.54865 0.016929
## Yp[34,2] passed     2.62605 0.016815
## Yp[35,2] passed     2.69160 0.017960
## Yp[36,2] passed     2.75827 0.017835
## Yp[37,2] passed     2.87775 0.018973
## Yp[38,2] passed     2.95455 0.020170
## Yp[39,2] passed     3.02557 0.020691
## Yp[40,2] passed     3.11910 0.021906
## Yp[41,2] passed     3.21338 0.022534
## Yp[1,3]  passed     0.89238 0.011909
## Yp[2,3]  passed     0.90095 0.012122
## Yp[3,3]  passed     0.91143 0.011680
## Yp[4,3]  passed     0.91085 0.011333
## Yp[5,3]  passed     0.92380 0.011330
## Yp[6,3]  passed     0.92420 0.011240
## Yp[7,3]  passed     0.93758 0.010920
## Yp[8,3]  passed     0.94470 0.010616
## Yp[9,3]  passed     0.93688 0.010660
## Yp[10,3] passed     0.95732 0.011024
## Yp[11,3] passed     0.95980 0.010616
## Yp[12,3] passed     0.95850 0.010524
## Yp[13,3] <NA>            NA       NA
## Yp[14,3] passed     0.98170 0.010333
## Yp[15,3] passed     0.98247 0.010394
## Yp[16,3] passed     0.99725 0.010329
## Yp[17,3] passed     1.01080 0.009977
## Yp[18,3] <NA>            NA       NA
## Yp[19,3] passed     1.02395 0.010084
## Yp[20,3] passed     1.03411 0.010603
## Yp[21,3] passed     1.03525 0.010120
## Yp[22,3] passed     1.05418 0.010185
## Yp[23,3] passed     1.06543 0.010227
## Yp[24,3] passed     1.08308 0.010348
## Yp[25,3] passed     1.07580 0.010508
## Yp[26,3] passed     1.09248 0.010376
## Yp[27,3] passed     1.09838 0.010407
## Yp[28,3] passed     1.12498 0.010564
## Yp[29,3] passed     1.12462 0.010591
## Yp[30,3] passed     1.13853 0.010622
## Yp[31,3] passed     1.14613 0.010701
## Yp[32,3] passed     1.16980 0.011176
## Yp[33,3] passed     1.17205 0.011504
## Yp[34,3] passed     1.18136 0.011778
## Yp[35,3] passed     1.19950 0.011488
## Yp[36,3] passed     1.21487 0.011770
## Yp[37,3] passed     1.23172 0.012277
## Yp[38,3] passed     1.23618 0.012841
## Yp[39,3] passed     1.25257 0.012425
## Yp[40,3] passed     1.28182 0.013422
```

```
## Yp[41,3] passed     1.28547 0.013604
## Yp[1,4]  passed     1.33045 0.015107
## Yp[2,4]  passed     1.31264 0.016569
## Yp[3,4]  passed     1.26845 0.014001
## Yp[4,4]  passed     1.22380 0.013290
## Yp[5,4]  passed     1.20057 0.013036
## Yp[6,4]  passed     1.17140 0.012097
## Yp[7,4]  passed     1.14775 0.011946
## Yp[8,4]  passed     1.11495 0.010809
## Yp[9,4]  passed     1.09167 0.010954
## Yp[10,4] passed     1.05205 0.010944
## Yp[11,4] passed     1.03730 0.010593
## Yp[12,4] passed     1.00800 0.009992
## Yp[13,4] passed     0.99218 0.009891
## Yp[14,4] passed     0.96435 0.010050
## Yp[15,4] passed     0.93930 0.009679
## Yp[16,4] passed     0.91290 0.009377
## Yp[17,4] passed     0.89620 0.009337
## Yp[18,4] passed     0.87492 0.009277
## Yp[19,4] passed     0.85737 0.009212
## Yp[20,4] passed     0.84530 0.009243
## Yp[21,4] passed     0.81647 0.009022
## Yp[22,4] passed     0.79863 0.008890
## Yp[23,4] passed     0.78587 0.008825
## Yp[24,4] passed     0.76823 0.008497
## Yp[25,4] passed     0.75218 0.008590
## Yp[26,4] passed     0.73337 0.008599
## Yp[27,4] passed     0.72055 0.008544
## Yp[28,4] passed     0.70532 0.008357
## Yp[29,4] passed     0.68510 0.008390
## Yp[30,4] passed     0.67955 0.008216
## Yp[31,4] passed     0.65375 0.008160
## Yp[32,4] passed     0.65093 0.009839
## Yp[33,4] passed     0.63438 0.008233
## Yp[34,4] passed     0.62197 0.008261
## Yp[35,4] passed     0.60588 0.008248
## Yp[36,4] passed     0.59213 0.009018
## Yp[37,4] passed     0.58470 0.008246
## Yp[38,4] passed     0.56785 0.008118
## Yp[39,4] passed     0.55773 0.008147
## Yp[40,4] passed     0.55273 0.008108
## Yp[41,4] passed     0.53805 0.008217
## Yp[1,5]  passed     0.34587 0.008564
## Yp[2,5]  passed     0.35680 0.009139
## Yp[3,5]  passed     0.36462 0.008701
## Yp[4,5]  passed     0.38195 0.008679
## Yp[5,5]  passed     0.40190 0.009006
## Yp[6,5]  passed     0.42633 0.008770
## Yp[7,5]  passed     0.43585 0.009089
## Yp[8,5]  passed     0.45243 0.008970
## Yp[9,5]  passed     0.47077 0.008913
## Yp[10,5] passed     0.49055 0.009607
## Yp[11,5] passed     0.51158 0.009437
## Yp[12,5] passed     0.53578 0.009671
```

```
## Yp[13,5] passed     0.55530 0.009525
## Yp[14,5] passed     0.58860 0.009205
## Yp[15,5] passed     0.60588 0.008906
## Yp[16,5] <NA>            NA       NA
## Yp[17,5] passed     0.66768 0.009363
## Yp[18,5] passed     0.69998 0.009546
## Yp[19,5] passed     0.72770 0.009398
## Yp[20,5] passed     0.76005 0.010145
## Yp[21,5] passed     0.79455 0.009609
## Yp[22,5] passed     0.82385 0.009169
## Yp[23,5] passed     0.86318 0.009863
## Yp[24,5] passed     0.90270 0.009637
## Yp[25,5] passed     0.94750 0.009845
## Yp[26,5] passed     0.99262 0.009883
## Yp[27,5] passed     1.04127 0.010127
## Yp[28,5] passed     1.08587 0.010334
## Yp[29,5] passed     1.13050 0.010551
## Yp[30,5] passed     1.20680 0.010936
## Yp[31,5] passed     1.25477 0.011260
## Yp[32,5] passed     1.30963 0.011510
## Yp[33,5] passed     1.37367 0.011756
## Yp[34,5] passed     1.43650 0.012591
## Yp[35,5] passed     1.50978 0.013251
## Yp[36,5] passed     1.58117 0.013968
## Yp[37,5] passed     1.65490 0.015740
## Yp[38,5] passed     1.75263 0.015942
## Yp[39,5] passed     1.82685 0.017995
## Yp[40,5] passed     1.93718 0.019183
## Yp[41,5] passed     2.01750 0.022457
## Yp[1,6]  passed     1.29205 0.014394
## Yp[2,6]  passed     1.30018 0.014686
## Yp[3,6]  passed     1.32075 0.014060
## Yp[4,6]  passed     1.33865 0.013971
## Yp[5,6]  passed     1.34530 0.013956
## Yp[6,6]  passed     1.37037 0.014132
## Yp[7,6]  passed     1.39243 0.014252
## Yp[8,6]  passed     1.40980 0.013233
## Yp[9,6]  passed     1.42552 0.013500
## Yp[10,6] passed     1.43615 0.013313
## Yp[11,6] passed     1.45588 0.013600
## Yp[12,6] passed     1.46372 0.013434
## Yp[13,6] passed     1.48460 0.013791
## Yp[14,6] passed     1.51090 0.012810
## Yp[15,6] passed     1.52668 0.012846
## Yp[16,6] passed     1.55615 0.012643
## Yp[17,6] passed     1.56400 0.012637
## Yp[18,6] passed     1.60118 0.012757
## Yp[19,6] passed     1.61710 0.012798
## Yp[20,6] passed     1.63390 0.012881
## Yp[21,6] passed     1.65380 0.012729
## Yp[22,6] passed     1.66835 0.012805
## Yp[23,6] passed     1.69968 0.012992
## Yp[24,6] passed     1.72768 0.013200
## Yp[25,6] passed     1.75405 0.013144
```

```
## Yp[26,6] passed     1.77848 0.013187
## Yp[27,6] passed     1.80145 0.013278
## Yp[28,6] passed     1.83940 0.013616
## Yp[29,6] passed     1.85262 0.014381
## Yp[30,6] passed     1.88360 0.013621
## Yp[31,6] passed     1.90017 0.014128
## Yp[32,6] passed     1.93443 0.014346
## Yp[33,6] passed     1.96707 0.014568
## Yp[34,6] passed     1.99968 0.014487
## Yp[35,6] passed     2.02508 0.015627
## Yp[36,6] passed     2.05583 0.016178
## Yp[37,6] passed     2.09805 0.015868
## Yp[38,6] passed     2.12745 0.016857
## Yp[39,6] passed     2.16208 0.017434
## Yp[40,6] passed     2.17475 0.017298
## Yp[41,6] passed     2.21545 0.017452
## Yp[1,7]  passed     1.01218 0.012556
## Yp[2,7]  passed     0.98487 0.012027
## Yp[3,7]  passed     0.95360 0.011593
## Yp[4,7]  passed     0.93515 0.010930
## Yp[5,7]  passed     0.89943 0.011025
## Yp[6,7]  passed     0.88381 0.011420
## Yp[7,7]  passed     0.85608 0.009929
## Yp[8,7]  passed     0.83250 0.009579
## Yp[9,7]  passed     0.81025 0.009911
## Yp[10,7] passed     0.78787 0.009170
## Yp[11,7] passed     0.77325 0.009078
## Yp[12,7] passed     0.75460 0.008961
## Yp[13,7] passed     0.73282 0.008492
## Yp[14,7] passed     0.71760 0.008428
## Yp[15,7] passed     0.69525 0.008311
## Yp[16,7] passed     0.67855 0.008240
## Yp[17,7] passed     0.65933 0.008055
## Yp[18,7] passed     0.64218 0.007964
## Yp[19,7] passed     0.62857 0.007833
## Yp[20,7] passed     0.61872 0.007781
## Yp[21,7] passed     0.60690 0.007715
## Yp[22,7] passed     0.58537 0.007547
## Yp[23,7] passed     0.57908 0.007583
## Yp[24,7] passed     0.55947 0.007577
## Yp[25,7] passed     0.54258 0.007347
## Yp[26,7] passed     0.53355 0.007220
## Yp[27,7] passed     0.51700 0.007224
## Yp[28,7] passed     0.50950 0.007454
## Yp[29,7] passed     0.50030 0.007170
## Yp[30,7] passed     0.48278 0.006925
## Yp[31,7] passed     0.47668 0.007221
## Yp[32,7] passed     0.46187 0.006858
## Yp[33,7] passed     0.45303 0.007164
## Yp[34,7] passed     0.44882 0.007140
## Yp[35,7] passed     0.43955 0.006969
## Yp[36,7] passed     0.42650 0.006863
## Yp[37,7] passed     0.41670 0.006830
## Yp[38,7] passed     0.41278 0.006865
```

```
## Yp[39,7] passed     0.40768 0.006792
## Yp[40,7] passed     0.39608 0.006865
## Yp[41,7] passed     0.38645 0.006844
## Yp[1,8]  passed     0.46510 0.009807
## Yp[2,8]  passed     0.46665 0.009624
## Yp[3,8]  passed     0.46618 0.009233
## Yp[4,8]  passed     0.46830 0.008964
## Yp[5,8]  passed     0.46637 0.009274
## Yp[6,8]  passed     0.47100 0.009172
## Yp[7,8]  passed     0.47090 0.008601
## Yp[8,8]  passed     0.47347 0.008413
## Yp[9,8]  passed     0.47450 0.008549
## Yp[10,8] passed     0.47468 0.007973
## Yp[11,8] passed     0.46885 0.007551
## Yp[12,8] passed     0.47463 0.008101
## Yp[13,8] passed     0.47818 0.007753
## Yp[14,8] passed     0.48528 0.007407
## Yp[15,8] passed     0.48505 0.007796
## Yp[16,8] passed     0.48440 0.007250
## Yp[17,8] passed     0.48528 0.007369
## Yp[18,8] passed     0.49112 0.006920
## Yp[19,8] passed     0.49320 0.006981
## Yp[20,8] passed     0.49656 0.007343
## Yp[21,8] passed     0.50265 0.007053
## Yp[22,8] passed     0.50597 0.007116
## Yp[23,8] passed     0.50095 0.006974
## Yp[24,8] passed     0.50767 0.007043
## Yp[25,8] passed     0.51065 0.007099
## Yp[26,8] passed     0.51223 0.007088
## Yp[27,8] passed     0.51955 0.006956
## Yp[28,8] passed     0.52167 0.007007
## Yp[29,8] passed     0.52907 0.007252
## Yp[30,8] passed     0.53617 0.007293
## Yp[31,8] passed     0.53625 0.007294
## Yp[32,8] passed     0.55132 0.007792
## Yp[33,8] passed     0.55760 0.008145
## Yp[34,8] passed     0.56098 0.008220
## Yp[35,8] passed     0.56830 0.008794
## Yp[36,8] passed     0.57845 0.008250
## Yp[37,8] passed     0.57980 0.008548
## Yp[38,8] passed     0.58168 0.009188
## Yp[39,8] passed     0.59723 0.009680
## Yp[40,8] passed     0.59765 0.009495
## Yp[41,8] passed     0.61072 0.010141
## Yp[1,9]  passed     0.69168 0.010849
## Yp[2,9]  passed     0.70340 0.010685
## Yp[3,9]  passed     0.70350 0.011160
## Yp[4,9]  passed     0.72198 0.010709
## Yp[5,9]  passed     0.72683 0.010784
## Yp[6,9]  passed     0.73660 0.010337
## Yp[7,9]  passed     0.73638 0.009997
## Yp[8,9]  passed     0.73882 0.009964
## Yp[9,9]  passed     0.74352 0.009545
## Yp[10,9] passed     0.76387 0.010144
```

```
## Yp[11,9] passed     0.76697 0.009737
## Yp[12,9] passed     0.76282 0.009593
## Yp[13,9] passed     0.78550 0.011232
## Yp[14,9] passed     0.78658 0.009713
## Yp[15,9] passed     0.79706 0.010290
## Yp[16,9] <NA>           NA       NA
## Yp[17,9] passed     0.82015 0.009197
## Yp[18,9] passed     0.82322 0.009325
## Yp[19,9] passed     0.83137 0.009470
## Yp[20,9] passed     0.84623 0.009153
## Yp[21,9] passed     0.86077 0.009169
## Yp[22,9] passed     0.86165 0.009201
## Yp[23,9] passed     0.87672 0.009287
## Yp[24,9] passed     0.89087 0.009395
## Yp[25,9] passed     0.90197 0.009503
## Yp[26,9] passed     0.90953 0.009353
## Yp[27,9] passed     0.92678 0.009607
## Yp[28,9] passed     0.93742 0.009604
## Yp[29,9] passed     0.94537 0.009679
## Yp[30,9] passed     0.96195 0.010001
## Yp[31,9] passed     0.98372 0.009935
## Yp[32,9] passed     0.99067 0.009985
## Yp[33,9] passed     1.01310 0.010638
## Yp[34,9] passed     1.01480 0.010610
## Yp[35,9] passed     1.04365 0.011253
## Yp[36,9] passed     1.04317 0.011040
## Yp[37,9] passed     1.06465 0.011172
## Yp[38,9] passed     1.07800 0.012128
## Yp[39,9] passed     1.10555 0.012554
## Yp[40,9] passed     1.11567 0.012719
## Yp[41,9] passed     1.13758 0.013492
## alpha[1] failed    -0.02466 0.008190
## alpha[2] failed     0.00156 0.009002
## alpha[3] passed    -0.15980 0.009292
## alpha[4] passed     0.27472 0.007667
## alpha[5] passed    -1.21530 0.021948
## alpha[6] passed     0.21097 0.008055
## alpha[7] failed    -0.00254 0.008221
## alpha[8] passed    -0.86515 0.018581
## alpha[9] passed    -0.42917 0.012500
## beta[1]  passed    -0.01570 0.000388
## beta[2]  passed     0.02797 0.000339
## beta[3]  passed     0.00911 0.000382
## beta[4]  passed    -0.02333 0.000365
## beta[5]  passed     0.04594 0.000746
## beta[6]  passed     0.01374 0.000324
## beta[7]  passed    -0.02531 0.000411
## beta[8]  failed     0.00690 0.000729
## beta[9]  passed     0.01234 0.000485
```

```
  # check that our chain???s length is satisfactory.
  raftery.diag(out.coda)
```

```
## [[1]]
##
```

```
## Quantile (q) = 0.025
## Accuracy (r) = +/- 0.005
## Probability (s) = 0.95
##
##           Burn-in  Total  Lower bound  Dependence
##           (M)      (N)    (Nmin)       factor (I)
##  Dm[1]    2        4013   3746          1.070
##  Dm[2]    2        4225   3746          1.130
##  Dm[3]    3        5165   3746          1.380
##  Dm[4]    2        3946   3746          1.050
##  Dm[5]    2        4123   3746          1.100
##  Dm[6]    2        4533   3746          1.210
##  Dm[7]    3        5924   3746          1.580
##  Dm[8]    2        5542   3746          1.480
##  Dm[9]    3        5327   3746          1.420
##  Dsd[1]   2        3938   3746          1.050
##  Dsd[2]   2        3720   3746          0.993
##  Dsd[3]   2        3793   3746          1.010
##  Dsd[4]   2        3927   3746          1.050
##  Dsd[5]   2        3781   3746          1.010
##  Dsd[6]   2        3770   3746          1.010
##  Dsd[7]   2        4031   3746          1.080
##  Dsd[8]   2        4198   3746          1.120
##  Dsd[9]   2        3855   3746          1.030
##  Yp[1,1]  3        39621  3746         10.600
##  Yp[2,1]  2        38407  3746         10.300
##  Yp[3,1]  2        38017  3746         10.100
##  Yp[4,1]  2        38531  3746         10.300
##  Yp[5,1]  2        38622  3746         10.300
##  Yp[6,1]  2        37569  3746         10.000
##  Yp[7,1]  2        38784  3746         10.400
##  Yp[8,1]  2        38959  3746         10.400
##  Yp[9,1]  2        37923  3746         10.100
##  Yp[10,1] 2        38784  3746         10.400
##  Yp[11,1] 2        38635  3746         10.300
##  Yp[12,1] 2        38393  3746         10.200
##  Yp[13,1] 2        38936  3746         10.400
##  Yp[14,1] 2        38553  3746         10.300
##  Yp[15,1] 1        38287  3746         10.200
##  Yp[16,1] 2        38531  3746         10.300
##  Yp[17,1] 2        37524  3746         10.000
##  Yp[18,1] 1        38365  3746         10.200
##  Yp[19,1] 1        38234  3746         10.200
##  Yp[20,1] 2        38942  3746         10.400
##  Yp[21,1] 2        37908  3746         10.100
##  Yp[22,1] 2        38114  3746         10.200
##  Yp[23,1] 2        38707  3746         10.300
##  Yp[24,1] 2        38195  3746         10.200
##  Yp[25,1] 1        38460  3746         10.300
##  Yp[26,1] 2        37941  3746         10.100
##  Yp[27,1] 2        38490  3746         10.300
##  Yp[28,1] 1        38331  3746         10.200
##  Yp[29,1] 2        38974  3746         10.400
##  Yp[30,1] 1        37995  3746         10.100
```

```
##  Yp[31,1] 2        38388  3746        10.200
##  Yp[32,1] 2        39217  3746        10.500
##  Yp[33,1] 2        38777  3746        10.400
##  Yp[34,1] 2        38496  3746        10.300
##  Yp[35,1] 2        39589  3746        10.600
##  Yp[36,1] 2        39011  3746        10.400
##  Yp[37,1] 2        38529  3746        10.300
##  Yp[38,1] 2        38734  3746        10.300
##  Yp[39,1] 2        39236  3746        10.500
##  Yp[40,1] 2        38598  3746        10.300
##  Yp[41,1] 2        38660  3746        10.300
##  Yp[1,2]  2        36266  3746         9.680
##  Yp[2,2]  2        37020  3746         9.880
##  Yp[3,2]  2        35721  3746         9.540
##  Yp[4,2]  2        34343  3746         9.170
##  Yp[5,2]  2        34947  3746         9.330
##  Yp[6,2]  2        34156  3746         9.120
##  Yp[7,2]  2        33148  3746         8.850
##  Yp[8,2]  2        32144  3746         8.580
##  Yp[9,2]  2        31474  3746         8.400
##  Yp[10,2] 2        30917  3746         8.250
##  Yp[11,2] 2        29652  3746         7.920
##  Yp[12,2] 2        28599  3746         7.630
##  Yp[13,2] 2        28638  3746         7.640
##  Yp[14,2] 2        27295  3746         7.290
##  Yp[15,2] 1        26270  3746         7.010
##  Yp[16,2] 2        25315  3746         6.760
##  Yp[17,2] 2        25040  3746         6.680
##  Yp[18,2] 2        23939  3746         6.390
##  Yp[19,2] 1        23275  3746         6.210
##  Yp[20,2] 2        21854  3746         5.830
##  Yp[21,2] 2        20991  3746         5.600
##  Yp[22,2] 2        20616  3746         5.500
##  Yp[23,2] 2        19687  3746         5.260
##  Yp[24,2] 2        18870  3746         5.040
##  Yp[25,2] 2        17881  3746         4.770
##  Yp[26,2] 2        17367  3746         4.640
##  Yp[27,2] 2        16479  3746         4.400
##  Yp[28,2] 2        15680  3746         4.190
##  Yp[29,2] 2        14785  3746         3.950
##  Yp[30,2] 2        13964  3746         3.730
##  Yp[31,2] 2        13435  3746         3.590
##  Yp[32,2] 2        12293  3746         3.280
##  Yp[33,2] 1        11673  3746         3.120
##  Yp[34,2] 2        11152  3746         2.980
##  Yp[35,2] 1        10355  3746         2.760
##  Yp[36,2] 2        9879   3746         2.640
##  Yp[37,2] 2        9447   3746         2.520
##  Yp[38,2] 1        8824   3746         2.360
##  Yp[39,2] 2        8299   3746         2.220
##  Yp[40,2] 2        8033   3746         2.140
##  Yp[41,2] 2        6856   3746         1.830
##  Yp[1,3]  6        81810  3746        21.800
##  Yp[2,3]  4        80064  3746        21.400
```

```
##  Yp[3,3]  4        76782  3746         20.500
##  Yp[4,3]  2        39207  3746         10.500
##  Yp[5,3]  2        38506  3746         10.300
##  Yp[6,3]  2        38156  3746         10.200
##  Yp[7,3]  2        38264  3746         10.200
##  Yp[8,3]  2        37639  3746         10.000
##  Yp[9,3]  2        37918  3746         10.100
##  Yp[10,3] 2        37855  3746         10.100
##  Yp[11,3] 2        37397  3746          9.980
##  Yp[12,3] 2        37159  3746          9.920
##  Yp[13,3] 2        37235  3746          9.940
##  Yp[14,3] 2        36613  3746          9.770
##  Yp[15,3] 1        35973  3746          9.600
##  Yp[16,3] 2        36681  3746          9.790
##  Yp[17,3] 1        35851  3746          9.570
##  Yp[18,3] 2        35409  3746          9.450
##  Yp[19,3] 2        34903  3746          9.320
##  Yp[20,3] 2        35669  3746          9.520
##  Yp[21,3] 2        35680  3746          9.520
##  Yp[22,3] 2        34920  3746          9.320
##  Yp[23,3] 2        35522  3746          9.480
##  Yp[24,3] 2        36020  3746          9.620
##  Yp[25,3] 2        35071  3746          9.360
##  Yp[26,3] 2        33911  3746          9.050
##  Yp[27,3] 2        34867  3746          9.310
##  Yp[28,3] 2        33840  3746          9.030
##  Yp[29,3] 2        33770  3746          9.010
##  Yp[30,3] 2        34473  3746          9.200
##  Yp[31,3] 1        33294  3746          8.890
##  Yp[32,3] 2        33332  3746          8.900
##  Yp[33,3] 2        33266  3746          8.880
##  Yp[34,3] 2        33412  3746          8.920
##  Yp[35,3] 2        33426  3746          8.920
##  Yp[36,3] 2        33497  3746          8.940
##  Yp[37,3] 2        33374  3746          8.910
##  Yp[38,3] 2        33108  3746          8.840
##  Yp[39,3] 2        33568  3746          8.960
##  Yp[40,3] 2        33222  3746          8.870
##  Yp[41,3] 2        32824  3746          8.760
##  Yp[1,4]  4        65320  3746         17.400
##  Yp[2,4]  4        67098  3746         17.900
##  Yp[3,4]  2        33518  3746          8.950
##  Yp[4,4]  2        33850  3746          9.040
##  Yp[5,4]  2        34631  3746          9.240
##  Yp[6,4]  2        35191  3746          9.390
##  Yp[7,4]  2        35117  3746          9.370
##  Yp[8,4]  2        35144  3746          9.380
##  Yp[9,4]  2        35575  3746          9.500
##  Yp[10,4] 2        36593  3746          9.770
##  Yp[11,4] 1        35622  3746          9.510
##  Yp[12,4] 2        35579  3746          9.500
##  Yp[13,4] 2        36326  3746          9.700
##  Yp[14,4] 2        36709  3746          9.800
##  Yp[15,4] 2        36971  3746          9.870
```

```
##  Yp[16,4] 1        36992  3746         9.880
##  Yp[17,4] 2        37874  3746        10.100
##  Yp[18,4] 2        36657  3746         9.790
##  Yp[19,4] 2        38022  3746        10.200
##  Yp[20,4] 1        37902  3746        10.100
##  Yp[21,4] 2        38135  3746        10.200
##  Yp[22,4] 1        38089  3746        10.200
##  Yp[23,4] 2        38466  3746        10.300
##  Yp[24,4] 2        38074  3746        10.200
##  Yp[25,4] 2        38923  3746        10.400
##  Yp[26,4] 2        38725  3746        10.300
##  Yp[27,4] 2        38712  3746        10.300
##  Yp[28,4] 2        38583  3746        10.300
##  Yp[29,4] 2        39145  3746        10.400
##  Yp[30,4] 2        38920  3746        10.400
##  Yp[31,4] 2        38674  3746        10.300
##  Yp[32,4] 1        38102  3746        10.200
##  Yp[33,4] 2        38544  3746        10.300
##  Yp[34,4] 2        38681  3746        10.300
##  Yp[35,4] 2        38374  3746        10.200
##  Yp[36,4] 2        38264  3746        10.200
##  Yp[37,4] 2        38603  3746        10.300
##  Yp[38,4] 2        39196  3746        10.500
##  Yp[39,4] 2        38782  3746        10.400
##  Yp[40,4] 2        38885  3746        10.400
##  Yp[41,4] 2        38626  3746        10.300
##  Yp[1,5]  4        66682  3746        17.800
##  Yp[2,5]  4        67740  3746        18.100
##  Yp[3,5]  9       108417  3746        28.900
##  Yp[4,5]  6       106725  3746        28.500
##  Yp[5,5]  6        73242  3746        19.600
##  Yp[6,5]  9       112446  3746        30.000
##  Yp[7,5]  4        73880  3746        19.700
##  Yp[8,5]  4        75774  3746        20.200
##  Yp[9,5]  4        75056  3746        20.000
##  Yp[10,5] 4        77016  3746        20.600
##  Yp[11,5] 4        77606  3746        20.700
##  Yp[12,5] 2        38666  3746        10.300
##  Yp[13,5] 2        39318  3746        10.500
##  Yp[14,5] 2        39542  3746        10.600
##  Yp[15,5] 2        39615  3746        10.600
##  Yp[16,5] 2        39435  3746        10.500
##  Yp[17,5] 2        39241  3746        10.500
##  Yp[18,5] 2        39401  3746        10.500
##  Yp[19,5] 2        39806  3746        10.600
##  Yp[20,5] 2        39288  3746        10.500
##  Yp[21,5] 2        39005  3746        10.400
##  Yp[22,5] 1        37947  3746        10.100
##  Yp[23,5] 2        38100  3746        10.200
##  Yp[24,5] 2        37326  3746         9.960
##  Yp[25,5] 2        37358  3746         9.970
##  Yp[26,5] 2        36461  3746         9.730
##  Yp[27,5] 2        35495  3746         9.480
##  Yp[28,5] 1        34592  3746         9.230
```

```
##  Yp[29,5] 2        33454  3746          8.930
##  Yp[30,5] 2        33381  3746          8.910
##  Yp[31,5] 2        31535  3746          8.420
##  Yp[32,5] 2        31134  3746          8.310
##  Yp[33,5] 2        29937  3746          7.990
##  Yp[34,5] 2        28741  3746          7.670
##  Yp[35,5] 2        27506  3746          7.340
##  Yp[36,5] 2        26970  3746          7.200
##  Yp[37,5] 1        24902  3746          6.650
##  Yp[38,5] 2        23770  3746          6.350
##  Yp[39,5] 2        23373  3746          6.240
##  Yp[40,5] 2        21971  3746          5.870
##  Yp[41,5] 2        20736  3746          5.540
##  Yp[1,6]  2        33251  3746          8.880
##  Yp[2,6]  2        32909  3746          8.790
##  Yp[3,6]  2        32715  3746          8.730
##  Yp[4,6]  2        32031  3746          8.550
##  Yp[5,6]  4        62796  3746         16.800
##  Yp[6,6]  2        31158  3746          8.320
##  Yp[7,6]  2        31054  3746          8.290
##  Yp[8,6]  2        31155  3746          8.320
##  Yp[9,6]  2        29865  3746          7.970
##  Yp[10,6] 2        29426  3746          7.860
##  Yp[11,6] 2        28703  3746          7.660
##  Yp[12,6] 2        27974  3746          7.470
##  Yp[13,6] 2        28102  3746          7.500
##  Yp[14,6] 2        27603  3746          7.370
##  Yp[15,6] 2        27037  3746          7.220
##  Yp[16,6] 1        26185  3746          6.990
##  Yp[17,6] 1        25719  3746          6.870
##  Yp[18,6] 2        25034  3746          6.680
##  Yp[19,6] 1        25035  3746          6.680
##  Yp[20,6] 2        25217  3746          6.730
##  Yp[21,6] 2        23983  3746          6.400
##  Yp[22,6] 2        23426  3746          6.250
##  Yp[23,6] 2        23211  3746          6.200
##  Yp[24,6] 2        22406  3746          5.980
##  Yp[25,6] 2        21975  3746          5.870
##  Yp[26,6] 2        21826  3746          5.830
##  Yp[27,6] 2        21191  3746          5.660
##  Yp[28,6] 2        21638  3746          5.780
##  Yp[29,6] 2        21027  3746          5.610
##  Yp[30,6] 2        19941  3746          5.320
##  Yp[31,6] 1        19933  3746          5.320
##  Yp[32,6] 2        19878  3746          5.310
##  Yp[33,6] 2        19098  3746          5.100
##  Yp[34,6] 2        18984  3746          5.070
##  Yp[35,6] 2        18340  3746          4.900
##  Yp[36,6] 2        17927  3746          4.790
##  Yp[37,6] 2        17741  3746          4.740
##  Yp[38,6] 2        17453  3746          4.660
##  Yp[39,6] 2        16951  3746          4.530
##  Yp[40,6] 2        17239  3746          4.600
##  Yp[41,6] 2        16770  3746          4.480
```

```
##  Yp[1,7]  4        76896  3746         20.500
##  Yp[2,7]  2        39212  3746         10.500
##  Yp[3,7]  2        38703  3746         10.300
##  Yp[4,7]  4        76738  3746         20.500
##  Yp[5,7]  2        38412  3746         10.300
##  Yp[6,7]  2        39216  3746         10.500
##  Yp[7,7]  2        37897  3746         10.100
##  Yp[8,7]  2        38716  3746         10.300
##  Yp[9,7]  2        39335  3746         10.500
##  Yp[10,7] 2        38568  3746         10.300
##  Yp[11,7] 2        38976  3746         10.400
##  Yp[12,7] 2        38839  3746         10.400
##  Yp[13,7] 2        39321  3746         10.500
##  Yp[14,7] 2        38669  3746         10.300
##  Yp[15,7] 2        38900  3746         10.400
##  Yp[16,7] 1        38488  3746         10.300
##  Yp[17,7] 2        38758  3746         10.300
##  Yp[18,7] 2        38612  3746         10.300
##  Yp[19,7] 1        38169  3746         10.200
##  Yp[20,7] 2        38288  3746         10.200
##  Yp[21,7] 2        39067  3746         10.400
##  Yp[22,7] 2        38314  3746         10.200
##  Yp[23,7] 1        37674  3746         10.100
##  Yp[24,7] 1        37404  3746          9.990
##  Yp[25,7] 1        37184  3746          9.930
##  Yp[26,7] 1        37134  3746          9.910
##  Yp[27,7] 2        36493  3746          9.740
##  Yp[28,7] 2        36880  3746          9.850
##  Yp[29,7] 2        36039  3746          9.620
##  Yp[30,7] 1        36235  3746          9.670
##  Yp[31,7] 2        36677  3746          9.790
##  Yp[32,7] 2        36538  3746          9.750
##  Yp[33,7] 2        35702  3746          9.530
##  Yp[34,7] 2        36151  3746          9.650
##  Yp[35,7] 2        36242  3746          9.670
##  Yp[36,7] 2        34696  3746          9.260
##  Yp[37,7] 2        35637  3746          9.510
##  Yp[38,7] 2        35181  3746          9.390
##  Yp[39,7] 2        34999  3746          9.340
##  Yp[40,7] 2        34774  3746          9.280
##  Yp[41,7] 2        34884  3746          9.310
##  Yp[1,8]  4        77370  3746         20.700
##  Yp[2,8]  9       116970  3746         31.200
##  Yp[3,8]  4        76692  3746         20.500
##  Yp[4,8]  4        76164  3746         20.300
##  Yp[5,8]  4        73678  3746         19.700
##  Yp[6,8]  4        74456  3746         19.900
##  Yp[7,8]  4        73724  3746         19.700
##  Yp[8,8]  2        38163  3746         10.200
##  Yp[9,8]  6       110904  3746         29.600
##  Yp[10,8] 2        38188  3746         10.200
##  Yp[11,8] 2        37823  3746         10.100
##  Yp[12,8] 2        37535  3746         10.000
##  Yp[13,8] 2        37417  3746          9.990
```

```
##  Yp[14,8] 2        37057  3746          9.890
##  Yp[15,8] 2        37150  3746          9.920
##  Yp[16,8] 2        36594  3746          9.770
##  Yp[17,8] 2        36470  3746          9.740
##  Yp[18,8] 2        37241  3746          9.940
##  Yp[19,8] 2        36817  3746          9.830
##  Yp[20,8] 2        36413  3746          9.720
##  Yp[21,8] 2        36239  3746          9.670
##  Yp[22,8] 2        36303  3746          9.690
##  Yp[23,8] 2        36913  3746          9.850
##  Yp[24,8] 2        37376  3746          9.980
##  Yp[25,8] 2        37314  3746          9.960
##  Yp[26,8] 2        36307  3746          9.690
##  Yp[27,8] 2        37407  3746          9.990
##  Yp[28,8] 2        37205  3746          9.930
##  Yp[29,8] 1        37268  3746          9.950
##  Yp[30,8] 2        37372  3746          9.980
##  Yp[31,8] 2        37682  3746         10.100
##  Yp[32,8] 2        37924  3746         10.100
##  Yp[33,8] 2        38052  3746         10.200
##  Yp[34,8] 2        37770  3746         10.100
##  Yp[35,8] 2        38509  3746         10.300
##  Yp[36,8] 2        38754  3746         10.300
##  Yp[37,8] 2        38884  3746         10.400
##  Yp[38,8] 2        40092  3746         10.700
##  Yp[39,8] 2        40010  3746         10.700
##  Yp[40,8] 2        39389  3746         10.500
##  Yp[41,8] 2        39528  3746         10.600
##  Yp[1,9]  4        83416  3746         22.300
##  Yp[2,9]  6       120447  3746         32.200
##  Yp[3,9]  2        40661  3746         10.900
##  Yp[4,9]  2        41294  3746         11.000
##  Yp[5,9]  2        40148  3746         10.700
##  Yp[6,9]  2        40411  3746         10.800
##  Yp[7,9]  2        40315  3746         10.800
##  Yp[8,9]  2        40073  3746         10.700
##  Yp[9,9]  2        39784  3746         10.600
##  Yp[10,9] 2        39493  3746         10.500
##  Yp[11,9] 2        39805  3746         10.600
##  Yp[12,9] 2        39019  3746         10.400
##  Yp[13,9] 2        38801  3746         10.400
##  Yp[14,9] 2        38920  3746         10.400
##  Yp[15,9] 2        38888  3746         10.400
##  Yp[16,9] 2        38550  3746         10.300
##  Yp[17,9] 2        38184  3746         10.200
##  Yp[18,9] 2        38499  3746         10.300
##  Yp[19,9] 2        38639  3746         10.300
##  Yp[20,9] 2        38059  3746         10.200
##  Yp[21,9] 2        38007  3746         10.100
##  Yp[22,9] 1        37642  3746         10.000
##  Yp[23,9] 2        37823  3746         10.100
##  Yp[24,9] 2        37180  3746          9.930
##  Yp[25,9] 2        37543  3746         10.000
##  Yp[26,9] 2        37587  3746         10.000
```

```
##  Yp[27,9] 2        36222  3746          9.670
##  Yp[28,9] 1        36861  3746          9.840
##  Yp[29,9] 1        36780  3746          9.820
##  Yp[30,9] 2        37473  3746         10.000
##  Yp[31,9] 2        36675  3746          9.790
##  Yp[32,9] 2        36502  3746          9.740
##  Yp[33,9] 2        36538  3746          9.750
##  Yp[34,9] 2        36838  3746          9.830
##  Yp[35,9] 2        36701  3746          9.800
##  Yp[36,9] 2        35837  3746          9.570
##  Yp[37,9] 2        36058  3746          9.630
##  Yp[38,9] 2        36445  3746          9.730
##  Yp[39,9] 2        36279  3746          9.680
##  Yp[40,9] 4        73560  3746         19.600
##  Yp[41,9] 2        35968  3746          9.600
##  alpha[1] 20       21420  3746          5.720
##  alpha[2] 20       24644  3746          6.580
##  alpha[3] 24       24872  3746          6.640
##  alpha[4] 15       16944  3746          4.520
##  alpha[5] 35       39055  3746         10.400
##  alpha[6] 24       25512  3746          6.810
##  alpha[7] 20       23352  3746          6.230
##  alpha[8] 24       28956  3746          7.730
##  alpha[9] 21       22446  3746          5.990
##  beta[1]  12       15225  3746          4.060
##  beta[2]  18       19896  3746          5.310
##  beta[3]  16       20052  3746          5.350
##  beta[4]  16       19424  3746          5.190
##  beta[5]  25       29970  3746          8.000
##  beta[6]  18       18774  3746          5.010
##  beta[7]  12       15885  3746          4.240
##  beta[8]  15       17220  3746          4.600
##  beta[9]  15       17478  3746          4.670
##
##
## [[2]]
##
## Quantile (q) = 0.025
## Accuracy (r) = +/- 0.005
## Probability (s) = 0.95
##
##           Burn-in  Total  Lower bound  Dependence
##           (M)      (N)    (Nmin)       factor (I)
##  Dm[1]    2        5284   3746          1.41
##  Dm[2]    2        4544   3746          1.21
##  Dm[3]    2        4733   3746          1.26
##  Dm[4]    2        3981   3746          1.06
##  Dm[5]    2        4273   3746          1.14
##  Dm[6]    2        4548   3746          1.21
##  Dm[7]    2        5563   3746          1.49
##  Dm[8]    2        5687   3746          1.52
##  Dm[9]    2        4991   3746          1.33
##  Dsd[1]   2        3803   3746          1.02
##  Dsd[2]   2        3828   3746          1.02
```

```
##  Dsd[3]   2        3753   3746          1.00
##  Dsd[4]   2        3798   3746          1.01
##  Dsd[5]   2        3936   3746          1.05
##  Dsd[6]   2        3815   3746          1.02
##  Dsd[7]   2        3875   3746          1.03
##  Dsd[8]   2        4217   3746          1.13
##  Dsd[9]   2        3919   3746          1.05
##  Yp[1,1]  4        76968  3746         20.50
##  Yp[2,1]  4        75958  3746         20.30
##  Yp[3,1]  2        38954  3746         10.40
##  Yp[4,1]  2        38744  3746         10.30
##  Yp[5,1]  2        38434  3746         10.30
##  Yp[6,1]  4        79948  3746         21.30
##  Yp[7,1]  2        38707  3746         10.30
##  Yp[8,1]  2        38550  3746         10.30
##  Yp[9,1]  2        38404  3746         10.30
##  Yp[10,1] 2        38609  3746         10.30
##  Yp[11,1] 2        38448  3746         10.30
##  Yp[12,1] 2        38230  3746         10.20
##  Yp[13,1] 2        38555  3746         10.30
##  Yp[14,1] 2        38708  3746         10.30
##  Yp[15,1] 2        38952  3746         10.40
##  Yp[16,1] 1        38255  3746         10.20
##  Yp[17,1] 2        38724  3746         10.30
##  Yp[18,1] 2        38039  3746         10.20
##  Yp[19,1] 1        38322  3746         10.20
##  Yp[20,1] 1        38367  3746         10.20
##  Yp[21,1] 1        38325  3746         10.20
##  Yp[22,1] 1        38292  3746         10.20
##  Yp[23,1] 2        38084  3746         10.20
##  Yp[24,1] 2        37839  3746         10.10
##  Yp[25,1] 2        38830  3746         10.40
##  Yp[26,1] 2        38912  3746         10.40
##  Yp[27,1] 2        38719  3746         10.30
##  Yp[28,1] 1        38426  3746         10.30
##  Yp[29,1] 1        38144  3746         10.20
##  Yp[30,1] 2        39225  3746         10.50
##  Yp[31,1] 2        38447  3746         10.30
##  Yp[32,1] 1        37949  3746         10.10
##  Yp[33,1] 2        38824  3746         10.40
##  Yp[34,1] 2        39036  3746         10.40
##  Yp[35,1] 2        38748  3746         10.30
##  Yp[36,1] 2        38544  3746         10.30
##  Yp[37,1] 2        38854  3746         10.40
##  Yp[38,1] 2        38581  3746         10.30
##  Yp[39,1] 2        38932  3746         10.40
##  Yp[40,1] 2        38965  3746         10.40
##  Yp[41,1] 2        38594  3746         10.30
##  Yp[1,2]  4        75352  3746         20.10
##  Yp[2,2]  4        74388  3746         19.90
##  Yp[3,2]  2        36274  3746          9.68
##  Yp[4,2]  2        35281  3746          9.42
##  Yp[5,2]  2        34951  3746          9.33
##  Yp[6,2]  2        33594  3746          8.97
```

```
##  Yp[7,2]  2        32899  3746         8.78
##  Yp[8,2]  2        32837  3746         8.77
##  Yp[9,2]  2        31534  3746         8.42
##  Yp[10,2] 2        30645  3746         8.18
##  Yp[11,2] 2        29877  3746         7.98
##  Yp[12,2] 2        28850  3746         7.70
##  Yp[13,2] 2        28714  3746         7.67
##  Yp[14,2] 2        27575  3746         7.36
##  Yp[15,2] 2        26580  3746         7.10
##  Yp[16,2] 2        25536  3746         6.82
##  Yp[17,2] 1        24710  3746         6.60
##  Yp[18,2] 2        24715  3746         6.60
##  Yp[19,2] 2        23352  3746         6.23
##  Yp[20,2] 2        22413  3746         5.98
##  Yp[21,2] 2        21329  3746         5.69
##  Yp[22,2] 2        20654  3746         5.51
##  Yp[23,2] 2        19331  3746         5.16
##  Yp[24,2] 2        18802  3746         5.02
##  Yp[25,2] 1        17935  3746         4.79
##  Yp[26,2] 1        16981  3746         4.53
##  Yp[27,2] 2        16244  3746         4.34
##  Yp[28,2] 2        15459  3746         4.13
##  Yp[29,2] 2        14607  3746         3.90
##  Yp[30,2] 2        14463  3746         3.86
##  Yp[31,2] 2        13532  3746         3.61
##  Yp[32,2] 2        12660  3746         3.38
##  Yp[33,2] 2        11827  3746         3.16
##  Yp[34,2] 2        11232  3746         3.00
##  Yp[35,2] 2        10443  3746         2.79
##  Yp[36,2] 2        10443  3746         2.79
##  Yp[37,2] 2        9336   3746         2.49
##  Yp[38,2] 1        8363   3746         2.23
##  Yp[39,2] 2        8145   3746         2.17
##  Yp[40,2] 2        7647   3746         2.04
##  Yp[41,2] 2        7197   3746         1.92
##  Yp[1,3]  4        80568  3746        21.50
##  Yp[2,3]  4        79536  3746        21.20
##  Yp[3,3]  4        77476  3746        20.70
##  Yp[4,3]  2        39026  3746        10.40
##  Yp[5,3]  2        39375  3746        10.50
##  Yp[6,3]  2        38205  3746        10.20
##  Yp[7,3]  4        77122  3746        20.60
##  Yp[8,3]  2        38025  3746        10.20
##  Yp[9,3]  2        37879  3746        10.10
##  Yp[10,3] 2        36840  3746         9.83
##  Yp[11,3] 2        37303  3746         9.96
##  Yp[12,3] 2        37427  3746         9.99
##  Yp[13,3] 2        37537  3746        10.00
##  Yp[14,3] 2        37111  3746         9.91
##  Yp[15,3] 2        36950  3746         9.86
##  Yp[16,3] 2        36112  3746         9.64
##  Yp[17,3] 2        36170  3746         9.66
##  Yp[18,3] 2        36428  3746         9.72
##  Yp[19,3] 2        35615  3746         9.51
```

```
##  Yp[20,3] 1        35465  3746         9.47
##  Yp[21,3] 2        35145  3746         9.38
##  Yp[22,3] 2        35217  3746         9.40
##  Yp[23,3] 1        34740  3746         9.27
##  Yp[24,3] 2        35006  3746         9.34
##  Yp[25,3] 2        35513  3746         9.48
##  Yp[26,3] 1        34481  3746         9.20
##  Yp[27,3] 2        34076  3746         9.10
##  Yp[28,3] 2        34276  3746         9.15
##  Yp[29,3] 2        33771  3746         9.02
##  Yp[30,3] 2        33566  3746         8.96
##  Yp[31,3] 2        34040  3746         9.09
##  Yp[32,3] 2        34062  3746         9.09
##  Yp[33,3] 1        33289  3746         8.89
##  Yp[34,3] 2        33542  3746         8.95
##  Yp[35,3] 2        33561  3746         8.96
##  Yp[36,3] 2        33615  3746         8.97
##  Yp[37,3] 2        33811  3746         9.03
##  Yp[38,3] 2        32843  3746         8.77
##  Yp[39,3] 2        33690  3746         8.99
##  Yp[40,3] 2        33440  3746         8.93
##  Yp[41,3] 2        32843  3746         8.77
##  Yp[1,4]  4        65474  3746        17.50
##  Yp[2,4]  2        33316  3746         8.89
##  Yp[3,4]  2        33666  3746         8.99
##  Yp[4,4]  2        34148  3746         9.12
##  Yp[5,4]  2        34578  3746         9.23
##  Yp[6,4]  2        34198  3746         9.13
##  Yp[7,4]  2        34649  3746         9.25
##  Yp[8,4]  2        35234  3746         9.41
##  Yp[9,4]  2        35819  3746         9.56
##  Yp[10,4] 2        35672  3746         9.52
##  Yp[11,4] 2        35471  3746         9.47
##  Yp[12,4] 2        36043  3746         9.62
##  Yp[13,4] 1        36008  3746         9.61
##  Yp[14,4] 2        37253  3746         9.94
##  Yp[15,4] 2        37004  3746         9.88
##  Yp[16,4] 2        37316  3746         9.96
##  Yp[17,4] 1        37324  3746         9.96
##  Yp[18,4] 2        37977  3746        10.10
##  Yp[19,4] 1        37539  3746        10.00
##  Yp[20,4] 2        37141  3746         9.91
##  Yp[21,4] 2        38845  3746        10.40
##  Yp[22,4] 1        38024  3746        10.20
##  Yp[23,4] 2        38556  3746        10.30
##  Yp[24,4] 2        37860  3746        10.10
##  Yp[25,4] 2        38586  3746        10.30
##  Yp[26,4] 2        38774  3746        10.40
##  Yp[27,4] 2        38875  3746        10.40
##  Yp[28,4] 1        38503  3746        10.30
##  Yp[29,4] 2        38931  3746        10.40
##  Yp[30,4] 1        38410  3746        10.30
##  Yp[31,4] 2        38947  3746        10.40
##  Yp[32,4] 2        38465  3746        10.30
```

```
##  Yp[33,4] 2        39230  3746        10.50
##  Yp[34,4] 2        38756  3746        10.30
##  Yp[35,4] 2        39093  3746        10.40
##  Yp[36,4] 2        38995  3746        10.40
##  Yp[37,4] 2        38620  3746        10.30
##  Yp[38,4] 2        38974  3746        10.40
##  Yp[39,4] 2        39524  3746        10.60
##  Yp[40,4] 2        39115  3746        10.40
##  Yp[41,4] 2        38653  3746        10.30
##  Yp[1,5]  12       136472 3746        36.40
##  Yp[2,5]  8        137176 3746        36.60
##  Yp[3,5]  6        72162  3746        19.30
##  Yp[4,5]  4        70546  3746        18.80
##  Yp[5,5]  9        109758 3746        29.30
##  Yp[6,5]  4        73752  3746        19.70
##  Yp[7,5]  3        37748  3746        10.10
##  Yp[8,5]  2        37199  3746         9.93
##  Yp[9,5]  4        74262  3746        19.80
##  Yp[10,5] 4        76432  3746        20.40
##  Yp[11,5] 2        38377  3746        10.20
##  Yp[12,5] 4        77490  3746        20.70
##  Yp[13,5] 2        38559  3746        10.30
##  Yp[14,5] 2        39481  3746        10.50
##  Yp[15,5] 2        39872  3746        10.60
##  Yp[16,5] 2        39330  3746        10.50
##  Yp[17,5] 2        39479  3746        10.50
##  Yp[18,5] 2        38736  3746        10.30
##  Yp[19,5] 2        39286  3746        10.50
##  Yp[20,5] 2        39525  3746        10.60
##  Yp[21,5] 1        38211  3746        10.20
##  Yp[22,5] 2        38635  3746        10.30
##  Yp[23,5] 2        38650  3746        10.30
##  Yp[24,5] 1        37224  3746         9.94
##  Yp[25,5] 2        37155  3746         9.92
##  Yp[26,5] 2        36148  3746         9.65
##  Yp[27,5] 2        34896  3746         9.32
##  Yp[28,5] 1        34661  3746         9.25
##  Yp[29,5] 2        33173  3746         8.86
##  Yp[30,5] 2        33066  3746         8.83
##  Yp[31,5] 2        32194  3746         8.59
##  Yp[32,5] 2        31009  3746         8.28
##  Yp[33,5] 2        29987  3746         8.01
##  Yp[34,5] 2        29138  3746         7.78
##  Yp[35,5] 2        27699  3746         7.39
##  Yp[36,5] 2        26431  3746         7.06
##  Yp[37,5] 2        25489  3746         6.80
##  Yp[38,5] 2        23708  3746         6.33
##  Yp[39,5] 2        22306  3746         5.95
##  Yp[40,5] 2        21298  3746         5.69
##  Yp[41,5] 2        20614  3746         5.50
##  Yp[1,6]  2        32866  3746         8.77
##  Yp[2,6]  2        32502  3746         8.68
##  Yp[3,6]  4        64322  3746        17.20
##  Yp[4,6]  2        31174  3746         8.32
```

```
##  Yp[5,6]  2        31832  3746         8.50
##  Yp[6,6]  2        30766  3746         8.21
##  Yp[7,6]  2        30081  3746         8.03
##  Yp[8,6]  2        29318  3746         7.83
##  Yp[9,6]  2        29183  3746         7.79
##  Yp[10,6] 2        28773  3746         7.68
##  Yp[11,6] 2        29284  3746         7.82
##  Yp[12,6] 2        27911  3746         7.45
##  Yp[13,6] 2        27900  3746         7.45
##  Yp[14,6] 2        27822  3746         7.43
##  Yp[15,6] 2        26951  3746         7.19
##  Yp[16,6] 1        26001  3746         6.94
##  Yp[17,6] 2        26210  3746         7.00
##  Yp[18,6] 2        25193  3746         6.73
##  Yp[19,6] 2        25002  3746         6.67
##  Yp[20,6] 2        24782  3746         6.62
##  Yp[21,6] 2        24431  3746         6.52
##  Yp[22,6] 1        23927  3746         6.39
##  Yp[23,6] 2        23142  3746         6.18
##  Yp[24,6] 2        23216  3746         6.20
##  Yp[25,6] 2        22274  3746         5.95
##  Yp[26,6] 2        21679  3746         5.79
##  Yp[27,6] 2        21480  3746         5.73
##  Yp[28,6] 2        20912  3746         5.58
##  Yp[29,6] 2        21054  3746         5.62
##  Yp[30,6] 1        20257  3746         5.41
##  Yp[31,6] 2        20206  3746         5.39
##  Yp[32,6] 2        19356  3746         5.17
##  Yp[33,6] 2        19320  3746         5.16
##  Yp[34,6] 2        18908  3746         5.05
##  Yp[35,6] 2        18579  3746         4.96
##  Yp[36,6] 2        18774  3746         5.01
##  Yp[37,6] 2        18167  3746         4.85
##  Yp[38,6] 2        17743  3746         4.74
##  Yp[39,6] 2        17286  3746         4.61
##  Yp[40,6] 2        17402  3746         4.65
##  Yp[41,6] 2        16893  3746         4.51
##  Yp[1,7]  4        76242  3746        20.40
##  Yp[2,7]  2        38456  3746        10.30
##  Yp[3,7]  2        39128  3746        10.40
##  Yp[4,7]  2        38867  3746        10.40
##  Yp[5,7]  2        38923  3746        10.40
##  Yp[6,7]  2        38593  3746        10.30
##  Yp[7,7]  2        38980  3746        10.40
##  Yp[8,7]  2        38716  3746        10.30
##  Yp[9,7]  2        38961  3746        10.40
##  Yp[10,7] 2        39648  3746        10.60
##  Yp[11,7] 2        38681  3746        10.30
##  Yp[12,7] 1        38412  3746        10.30
##  Yp[13,7] 2        38134  3746        10.20
##  Yp[14,7] 2        39019  3746        10.40
##  Yp[15,7] 2        38725  3746        10.30
##  Yp[16,7] 2        39053  3746        10.40
##  Yp[17,7] 1        38456  3746        10.30
```

```
##  Yp[18,7] 1        38232  3746        10.20
##  Yp[19,7] 2        38570  3746        10.30
##  Yp[20,7] 1        38163  3746        10.20
##  Yp[21,7] 1        38091  3746        10.20
##  Yp[22,7] 1        37782  3746        10.10
##  Yp[23,7] 2        38087  3746        10.20
##  Yp[24,7] 2        38175  3746        10.20
##  Yp[25,7] 2        37628  3746        10.00
##  Yp[26,7] 2        37536  3746        10.00
##  Yp[27,7] 2        37091  3746         9.90
##  Yp[28,7] 2        37241  3746         9.94
##  Yp[29,7] 2        36544  3746         9.76
##  Yp[30,7] 2        36520  3746         9.75
##  Yp[31,7] 1        35858  3746         9.57
##  Yp[32,7] 2        35818  3746         9.56
##  Yp[33,7] 2        36694  3746         9.80
##  Yp[34,7] 2        36455  3746         9.73
##  Yp[35,7] 2        35347  3746         9.44
##  Yp[36,7] 2        36141  3746         9.65
##  Yp[37,7] 2        35607  3746         9.51
##  Yp[38,7] 2        34787  3746         9.29
##  Yp[39,7] 2        35304  3746         9.42
##  Yp[40,7] 2        34519  3746         9.21
##  Yp[41,7] 2        34936  3746         9.33
##  Yp[1,8]  6       112044 3746        29.90
##  Yp[2,8]  9       116604 3746        31.10
##  Yp[3,8]  6        78846  3746        21.00
##  Yp[4,8]  4        76170  3746        20.30
##  Yp[5,8]  9       116880 3746        31.20
##  Yp[6,8]  4        74426  3746        19.90
##  Yp[7,8]  4        76870  3746        20.50
##  Yp[8,8]  2        38302  3746        10.20
##  Yp[9,8]  2        37615  3746        10.00
##  Yp[10,8] 2        37317  3746         9.96
##  Yp[11,8] 2        36944  3746         9.86
##  Yp[12,8] 2        37897  3746        10.10
##  Yp[13,8] 2        37471  3746        10.00
##  Yp[14,8] 2        37248  3746         9.94
##  Yp[15,8] 2        37346  3746         9.97
##  Yp[16,8] 2        37081  3746         9.90
##  Yp[17,8] 2        37480  3746        10.00
##  Yp[18,8] 2        36803  3746         9.82
##  Yp[19,8] 2        36723  3746         9.80
##  Yp[20,8] 2        36262  3746         9.68
##  Yp[21,8] 1        36471  3746         9.74
##  Yp[22,8] 2        37406  3746         9.99
##  Yp[23,8] 2        37012  3746         9.88
##  Yp[24,8] 1        36767  3746         9.82
##  Yp[25,8] 1        36876  3746         9.84
##  Yp[26,8] 1        36773  3746         9.82
##  Yp[27,8] 2        36529  3746         9.75
##  Yp[28,8] 2        37583  3746        10.00
##  Yp[29,8] 2        37279  3746         9.95
##  Yp[30,8] 1        37192  3746         9.93
```

```
##  Yp[31,8] 2        37510  3746         10.00
##  Yp[32,8] 2        38161  3746         10.20
##  Yp[33,8] 2        37856  3746         10.10
##  Yp[34,8] 2        38260  3746         10.20
##  Yp[35,8] 2        38719  3746         10.30
##  Yp[36,8] 2        38295  3746         10.20
##  Yp[37,8] 2        38851  3746         10.40
##  Yp[38,8] 2        39818  3746         10.60
##  Yp[39,8] 4        79538  3746         21.20
##  Yp[40,8] 2        39301  3746         10.50
##  Yp[41,8] 4        78928  3746         21.10
##  Yp[1,9]  6        119328 3746         31.90
##  Yp[2,9]  4        81412  3746         21.70
##  Yp[3,9]  4        83420  3746         22.30
##  Yp[4,9]  2        41480  3746         11.10
##  Yp[5,9]  2        41443  3746         11.10
##  Yp[6,9]  2        39633  3746         10.60
##  Yp[7,9]  2        40518  3746         10.80
##  Yp[8,9]  4        81936  3746         21.90
##  Yp[9,9]  2        39987  3746         10.70
##  Yp[10,9] 2        40061  3746         10.70
##  Yp[11,9] 2        39732  3746         10.60
##  Yp[12,9] 2        39470  3746         10.50
##  Yp[13,9] 2        39338  3746         10.50
##  Yp[14,9] 2        38765  3746         10.30
##  Yp[15,9] 2        38717  3746         10.30
##  Yp[16,9] 2        38935  3746         10.40
##  Yp[17,9] 2        38539  3746         10.30
##  Yp[18,9] 2        38818  3746         10.40
##  Yp[19,9] 2        38473  3746         10.30
##  Yp[20,9] 2        37596  3746         10.00
##  Yp[21,9] 2        37328  3746          9.96
##  Yp[22,9] 1        37622  3746         10.00
##  Yp[23,9] 2        37128  3746          9.91
##  Yp[24,9] 1        37446  3746         10.00
##  Yp[25,9] 2        37543  3746         10.00
##  Yp[26,9] 2        36473  3746          9.74
##  Yp[27,9] 2        37411  3746          9.99
##  Yp[28,9] 2        36502  3746          9.74
##  Yp[29,9] 2        37113  3746          9.91
##  Yp[30,9] 2        37162  3746          9.92
##  Yp[31,9] 2        36711  3746          9.80
##  Yp[32,9] 2        36568  3746          9.76
##  Yp[33,9] 2        36458  3746          9.73
##  Yp[34,9] 2        37029  3746          9.88
##  Yp[35,9] 2        35993  3746          9.61
##  Yp[36,9] 2        36740  3746          9.81
##  Yp[37,9] 2        36389  3746          9.71
##  Yp[38,9] 2        35691  3746          9.53
##  Yp[39,9] 4        73500  3746         19.60
##  Yp[40,9] 2        36292  3746          9.69
##  Yp[41,9] 2        35714  3746          9.53
##  alpha[1] 15       18843  3746          5.03
##  alpha[2] 24       25784  3746          6.88
```

```
##  alpha[3] 18       20184  3746          5.39
##  alpha[4] 15       16098  3746          4.30
##  alpha[5] 35       39415  3746         10.50
##  alpha[6] 18       20013  3746          5.34
##  alpha[7] 15       17880  3746          4.77
##  alpha[8] 30       31585  3746          8.43
##  alpha[9] 25       27890  3746          7.45
##  beta[1]  15       17676  3746          4.72
##  beta[2]  25       25760  3746          6.88
##  beta[3]  15       18750  3746          5.01
##  beta[4]  12       14058  3746          3.75
##  beta[5]  24       28872  3746          7.71
##  beta[6]  20       25005  3746          6.68
##  beta[7]  12       14415  3746          3.85
##  beta[8]  12       16212  3746          4.33
##  beta[9]  15       18048  3746          4.82
```

```
  geweke.diag(out.coda)
```

```
## [[1]]
##
## Fraction in 1st window = 0.1
## Fraction in 2nd window = 0.5
##
##     Dm[1]     Dm[2]     Dm[3]     Dm[4]     Dm[5]     Dm[6]     Dm[7]
##  1.627352  1.840661 -0.340780  1.543875 -0.610004 -0.602065 -0.584457
##     Dm[8]     Dm[9]    Dsd[1]    Dsd[2]    Dsd[3]    Dsd[4]    Dsd[5]
## -1.379912 -0.349781  1.723464  1.043768 -0.769142  1.386081 -2.728968
##    Dsd[6]    Dsd[7]    Dsd[8]    Dsd[9]   Yp[1,1]   Yp[2,1]   Yp[3,1]
## -0.866170 -1.664887 -2.084094  1.604056 -0.399575  1.637993 -0.513243
##   Yp[4,1]   Yp[5,1]   Yp[6,1]   Yp[7,1]   Yp[8,1]   Yp[9,1]  Yp[10,1]
##  0.045156  2.437809  1.385176  0.333514  0.613078  0.612246 -1.290862
##  Yp[11,1]  Yp[12,1]  Yp[13,1]  Yp[14,1]  Yp[15,1]  Yp[16,1]  Yp[17,1]
##  0.804273  1.086945  0.828916  0.577559  0.254953 -1.172856  0.250350
##  Yp[18,1]  Yp[19,1]  Yp[20,1]  Yp[21,1]  Yp[22,1]  Yp[23,1]  Yp[24,1]
## -0.022988 -1.669373  0.387441  0.382516  0.996546 -1.046060 -0.977460
##  Yp[25,1]  Yp[26,1]  Yp[27,1]  Yp[28,1]  Yp[29,1]  Yp[30,1]  Yp[31,1]
## -0.810289 -0.259488  0.985201  0.330458 -0.104656 -0.966764  0.527749
##  Yp[32,1]  Yp[33,1]  Yp[34,1]  Yp[35,1]  Yp[36,1]  Yp[37,1]  Yp[38,1]
##  0.095053 -1.004472 -0.549516  0.077727 -0.954946 -0.084133  0.498197
##  Yp[39,1]  Yp[40,1]  Yp[41,1]   Yp[1,2]   Yp[2,2]   Yp[3,2]   Yp[4,2]
## -0.330325 -0.106641  0.070884 -0.203346 -0.259480  0.262063  0.357083
##   Yp[5,2]   Yp[6,2]   Yp[7,2]   Yp[8,2]   Yp[9,2]  Yp[10,2]  Yp[11,2]
##  1.429873  0.132934  1.192209 -0.085541  1.061897  0.602854  0.244864
##  Yp[12,2]  Yp[13,2]  Yp[14,2]  Yp[15,2]  Yp[16,2]  Yp[17,2]  Yp[18,2]
##  2.248439  1.143784  0.685811 -0.548827  0.395144  1.676489  0.007099
##  Yp[19,2]  Yp[20,2]  Yp[21,2]  Yp[22,2]  Yp[23,2]  Yp[24,2]  Yp[25,2]
## -0.475505  1.239934  0.350594 -1.005646 -0.092113  1.915613 -1.246975
##  Yp[26,2]  Yp[27,2]  Yp[28,2]  Yp[29,2]  Yp[30,2]  Yp[31,2]  Yp[32,2]
##  1.479262 -0.496512 -0.394957 -0.787733 -0.386147  0.145016  0.427653
##  Yp[33,2]  Yp[34,2]  Yp[35,2]  Yp[36,2]  Yp[37,2]  Yp[38,2]  Yp[39,2]
## -0.101825  0.805378 -2.214012 -0.222764  0.195243  0.407422 -0.381046
##  Yp[40,2]  Yp[41,2]   Yp[1,3]   Yp[2,3]   Yp[3,3]   Yp[4,3]   Yp[5,3]
## -1.339453 -0.341328  1.090257 -1.444612  0.031702  1.479474 -1.452633
##   Yp[6,3]   Yp[7,3]   Yp[8,3]   Yp[9,3]  Yp[10,3]  Yp[11,3]  Yp[12,3]
```

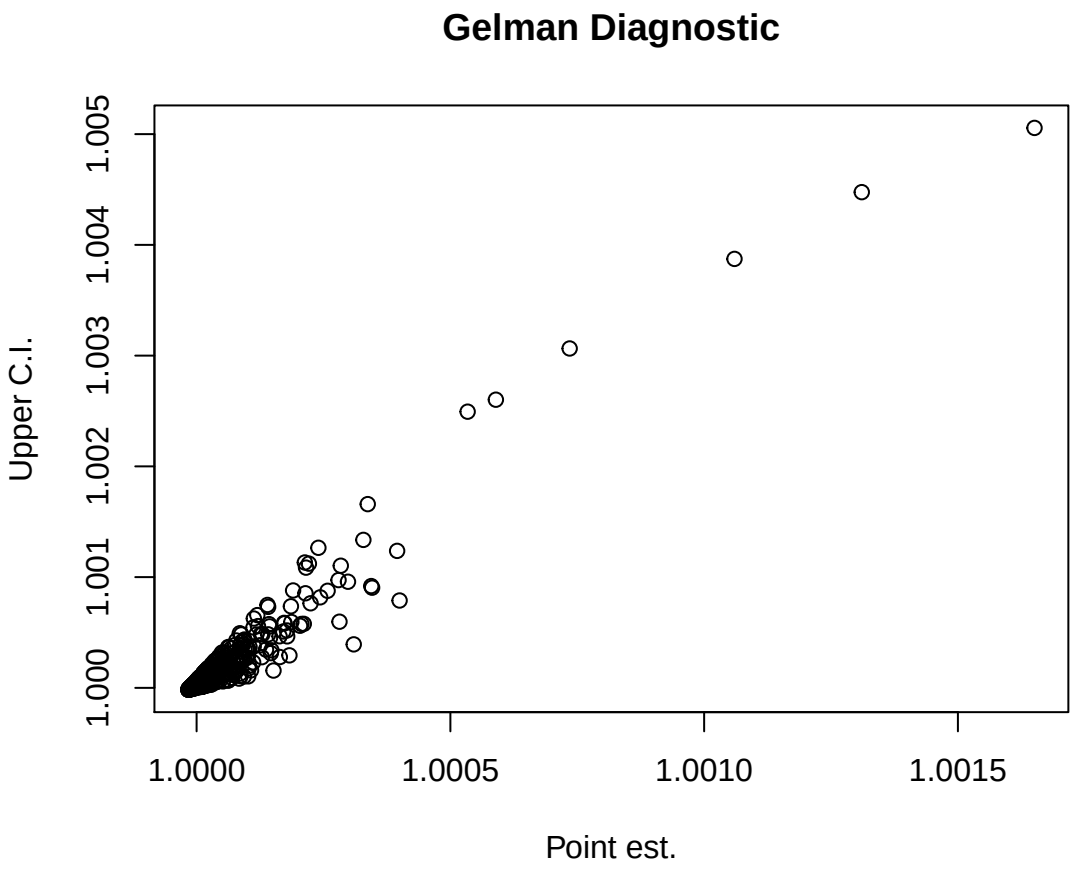
```
## -1.949481 -0.355799  1.350151  0.250973 -0.532545 -0.272613  0.878767
##  Yp[13,3]  Yp[14,3]  Yp[15,3]  Yp[16,3]  Yp[17,3]  Yp[18,3]  Yp[19,3]
##  0.392335 -1.933871  0.803009  0.937887  0.248851  0.053901 -0.112825
##  Yp[20,3]  Yp[21,3]  Yp[22,3]  Yp[23,3]  Yp[24,3]  Yp[25,3]  Yp[26,3]
##  1.157739 -0.774617  0.746197 -1.428086 -1.208861 -0.428087  1.318808
##  Yp[27,3]  Yp[28,3]  Yp[29,3]  Yp[30,3]  Yp[31,3]  Yp[32,3]  Yp[33,3]
##  0.042567  0.315197  2.204533 -0.373143  0.554533  0.238172 -0.480717
##  Yp[34,3]  Yp[35,3]  Yp[36,3]  Yp[37,3]  Yp[38,3]  Yp[39,3]  Yp[40,3]
## -1.876068 -1.275620 -1.916287 -0.229792 -0.502928  0.044680 -0.383818
##  Yp[41,3]   Yp[1,4]   Yp[2,4]   Yp[3,4]   Yp[4,4]   Yp[5,4]   Yp[6,4]
## -0.237519 -0.448892  0.377085  0.185334 -0.715773  1.238282 -1.281165
##   Yp[7,4]   Yp[8,4]   Yp[9,4]  Yp[10,4]  Yp[11,4]  Yp[12,4]  Yp[13,4]
## -0.319671  1.753156 -0.033266  0.585869 -0.861104  0.651730 -0.257377
##  Yp[14,4]  Yp[15,4]  Yp[16,4]  Yp[17,4]  Yp[18,4]  Yp[19,4]  Yp[20,4]
## -0.332874  1.666252 -1.149885 -1.311041 -0.800389 -0.804842  0.546760
##  Yp[21,4]  Yp[22,4]  Yp[23,4]  Yp[24,4]  Yp[25,4]  Yp[26,4]  Yp[27,4]
##  0.215967  0.339236  0.091513 -0.217685  2.617830 -0.059353 -0.374281
##  Yp[28,4]  Yp[29,4]  Yp[30,4]  Yp[31,4]  Yp[32,4]  Yp[33,4]  Yp[34,4]
##  1.618713 -0.217163 -1.010550 -0.043965 -0.476587 -0.051258  0.884941
##  Yp[35,4]  Yp[36,4]  Yp[37,4]  Yp[38,4]  Yp[39,4]  Yp[40,4]  Yp[41,4]
##  0.463227  0.223683 -1.710537 -1.393782  0.699901 -0.623297  0.076747
##   Yp[1,5]   Yp[2,5]   Yp[3,5]   Yp[4,5]   Yp[5,5]   Yp[6,5]   Yp[7,5]
##  0.390358  0.967432  1.968251  1.470181  0.572331  1.141037  0.918567
##   Yp[8,5]   Yp[9,5]  Yp[10,5]  Yp[11,5]  Yp[12,5]  Yp[13,5]  Yp[14,5]
##  1.949357  1.510755  0.571456  2.492372  2.309708  0.582890  2.441429
##  Yp[15,5]  Yp[16,5]  Yp[17,5]  Yp[18,5]  Yp[19,5]  Yp[20,5]  Yp[21,5]
## -0.033704 -0.417316  1.075224  3.012684  0.029973 -1.022389  1.455827
##  Yp[22,5]  Yp[23,5]  Yp[24,5]  Yp[25,5]  Yp[26,5]  Yp[27,5]  Yp[28,5]
##  0.011522  0.134327  0.605246  0.456418  0.082326 -0.453917  1.250357
##  Yp[29,5]  Yp[30,5]  Yp[31,5]  Yp[32,5]  Yp[33,5]  Yp[34,5]  Yp[35,5]
##  1.448603  0.881012  0.372114 -1.695119 -0.849429 -1.458279 -1.087344
##  Yp[36,5]  Yp[37,5]  Yp[38,5]  Yp[39,5]  Yp[40,5]  Yp[41,5]   Yp[1,6]
## -1.651349 -0.352485 -0.425383 -1.491653 -1.458348 -1.698916 -1.505550
##   Yp[2,6]   Yp[3,6]   Yp[4,6]   Yp[5,6]   Yp[6,6]   Yp[7,6]   Yp[8,6]
##  0.104911 -0.576351 -1.089395  0.890124 -0.785884 -0.027980 -1.758096
##   Yp[9,6]  Yp[10,6]  Yp[11,6]  Yp[12,6]  Yp[13,6]  Yp[14,6]  Yp[15,6]
##  0.106758 -1.699255 -0.567721 -0.374672 -0.377125  0.874210 -0.142695
##  Yp[16,6]  Yp[17,6]  Yp[18,6]  Yp[19,6]  Yp[20,6]  Yp[21,6]  Yp[22,6]
## -0.270192  0.914894  0.042266 -0.063140 -1.180205 -0.012706 -0.776141
##  Yp[23,6]  Yp[24,6]  Yp[25,6]  Yp[26,6]  Yp[27,6]  Yp[28,6]  Yp[29,6]
## -1.266235 -1.440874 -1.972250 -0.367250 -0.140792 -1.192183 -1.065826
##  Yp[30,6]  Yp[31,6]  Yp[32,6]  Yp[33,6]  Yp[34,6]  Yp[35,6]  Yp[36,6]
##  0.636987 -0.660647 -0.842691 -1.142032 -2.644709 -0.098709 -2.834624
##  Yp[37,6]  Yp[38,6]  Yp[39,6]  Yp[40,6]  Yp[41,6]   Yp[1,7]   Yp[2,7]
## -1.259197 -0.007949 -0.492944  0.682073 -0.720301 -0.207229 -1.511381
##   Yp[3,7]   Yp[4,7]   Yp[5,7]   Yp[6,7]   Yp[7,7]   Yp[8,7]   Yp[9,7]
##  0.363592  0.081829 -0.970898 -0.983795 -1.685828 -0.055881 -2.004796
##  Yp[10,7]  Yp[11,7]  Yp[12,7]  Yp[13,7]  Yp[14,7]  Yp[15,7]  Yp[16,7]
## -1.036067 -1.284304 -0.451971  0.518999 -0.032710 -0.765593 -0.542996
##  Yp[17,7]  Yp[18,7]  Yp[19,7]  Yp[20,7]  Yp[21,7]  Yp[22,7]  Yp[23,7]
##  0.171572  0.111862 -0.352617 -0.355195  0.621836  0.789079 -0.311637
##  Yp[24,7]  Yp[25,7]  Yp[26,7]  Yp[27,7]  Yp[28,7]  Yp[29,7]  Yp[30,7]
##  1.862402  1.230119  1.367327  1.426279  0.459376  0.762514  0.175240
##  Yp[31,7]  Yp[32,7]  Yp[33,7]  Yp[34,7]  Yp[35,7]  Yp[36,7]  Yp[37,7]
```

```
##  1.686494  0.535816  0.507485  1.759804 -0.254725  0.310508  0.255125
##  Yp[38,7]  Yp[39,7]  Yp[40,7]  Yp[41,7]   Yp[1,8]   Yp[2,8]   Yp[3,8]
##  0.564338  1.650831  1.551857  0.046514 -3.413932 -2.439151 -2.391846
##   Yp[4,8]   Yp[5,8]   Yp[6,8]   Yp[7,8]   Yp[8,8]   Yp[9,8]  Yp[10,8]
## -2.282068 -1.470933 -2.227508 -1.206607 -1.877723 -0.148414 -1.303492
##  Yp[11,8]  Yp[12,8]  Yp[13,8]  Yp[14,8]  Yp[15,8]  Yp[16,8]  Yp[17,8]
## -1.066297 -0.686473 -1.053805  1.650101  0.162132  0.171962 -0.898741
##  Yp[18,8]  Yp[19,8]  Yp[20,8]  Yp[21,8]  Yp[22,8]  Yp[23,8]  Yp[24,8]
## -1.812078 -0.989916  0.107964 -2.012018 -0.332394 -0.551497  0.827077
##  Yp[25,8]  Yp[26,8]  Yp[27,8]  Yp[28,8]  Yp[29,8]  Yp[30,8]  Yp[31,8]
## -0.637823  0.557259  0.468449  0.415776  0.611430  1.720295 -1.292060
##  Yp[32,8]  Yp[33,8]  Yp[34,8]  Yp[35,8]  Yp[36,8]  Yp[37,8]  Yp[38,8]
##  0.915295 -0.578487  1.197336  1.400991  1.555061  0.127853  0.305528
##  Yp[39,8]  Yp[40,8]  Yp[41,8]   Yp[1,9]   Yp[2,9]   Yp[3,9]   Yp[4,9]
## -0.573893  3.236989  1.979459 -0.497406 -0.465487 -1.480425  0.070063
##   Yp[5,9]   Yp[6,9]   Yp[7,9]   Yp[8,9]   Yp[9,9]  Yp[10,9]  Yp[11,9]
##  0.203544 -0.214782  0.074543 -0.989614  0.882339 -0.486494  0.844517
##  Yp[12,9]  Yp[13,9]  Yp[14,9]  Yp[15,9]  Yp[16,9]  Yp[17,9]  Yp[18,9]
## -1.292960 -0.417259  0.875879  0.470562 -0.040990  0.147136  0.425184
##  Yp[19,9]  Yp[20,9]  Yp[21,9]  Yp[22,9]  Yp[23,9]  Yp[24,9]  Yp[25,9]
##  1.512681 -0.268620  0.270026  0.186779 -0.732043  0.089887 -0.535506
##  Yp[26,9]  Yp[27,9]  Yp[28,9]  Yp[29,9]  Yp[30,9]  Yp[31,9]  Yp[32,9]
## -0.066049 -0.248063 -0.368030  1.686182  1.792833  0.058569 -0.740296
##  Yp[33,9]  Yp[34,9]  Yp[35,9]  Yp[36,9]  Yp[37,9]  Yp[38,9]  Yp[39,9]
## -1.020055 -0.417669 -0.685176  0.537750  0.391185  0.383571  2.039977
##  Yp[40,9]  Yp[41,9]  alpha[1]  alpha[2]  alpha[3]  alpha[4]  alpha[5]
## -0.058966  0.313514  1.268502  0.488662  0.104611  0.287644  1.285993
##  alpha[6]  alpha[7]  alpha[8]  alpha[9]   beta[1]   beta[2]   beta[3]
## -0.258558 -1.360147 -1.828509 -0.308384 -1.145219 -0.375342 -0.220018
##   beta[4]   beta[5]   beta[6]   beta[7]   beta[8]   beta[9]
## -0.194142 -1.386828 -0.018260  1.388647  1.848886  0.330262
##
##
## [[2]]
##
## Fraction in 1st window = 0.1
## Fraction in 2nd window = 0.5
##
##     Dm[1]     Dm[2]     Dm[3]     Dm[4]     Dm[5]     Dm[6]     Dm[7]
## -0.842008  1.496523 -0.047016 -2.122772  0.965959  0.426185 -0.523334
##     Dm[8]     Dm[9]    Dsd[1]    Dsd[2]    Dsd[3]    Dsd[4]    Dsd[5]
## -0.295642  1.995250 -0.202498  0.803064  0.017943 -1.247220  0.163250
##    Dsd[6]    Dsd[7]    Dsd[8]    Dsd[9]   Yp[1,1]   Yp[2,1]   Yp[3,1]
##  0.350222 -0.893162  0.859633  1.603890  1.469214  0.610021 -1.060674
##   Yp[4,1]   Yp[5,1]   Yp[6,1]   Yp[7,1]   Yp[8,1]   Yp[9,1]  Yp[10,1]
## -1.405951  1.344472  1.637090  1.106044  0.854054 -0.870731  0.389831
##  Yp[11,1]  Yp[12,1]  Yp[13,1]  Yp[14,1]  Yp[15,1]  Yp[16,1]  Yp[17,1]
## -0.132977 -0.887094  0.591986 -0.372634 -0.347417  1.661576 -2.076212
##  Yp[18,1]  Yp[19,1]  Yp[20,1]  Yp[21,1]  Yp[22,1]  Yp[23,1]  Yp[24,1]
##  1.576714 -0.447032 -1.775372 -0.016384 -0.377654  1.080773  0.173508
##  Yp[25,1]  Yp[26,1]  Yp[27,1]  Yp[28,1]  Yp[29,1]  Yp[30,1]  Yp[31,1]
## -0.252411 -1.877945 -2.011762 -0.547612 -1.447029 -0.170824 -0.338379
##  Yp[32,1]  Yp[33,1]  Yp[34,1]  Yp[35,1]  Yp[36,1]  Yp[37,1]  Yp[38,1]
## -1.324487 -0.070464 -2.167067 -0.342384 -0.849934  0.156561 -0.061995
```

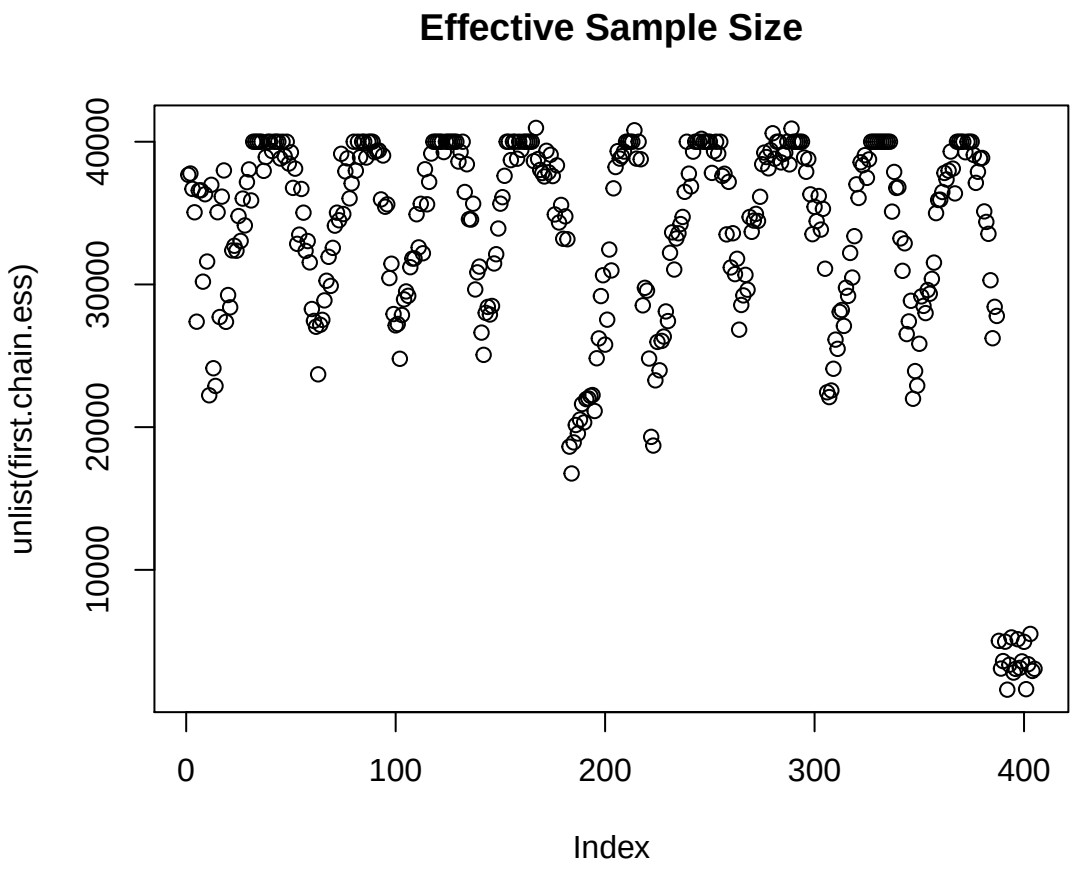
```
##  Yp[39,1]  Yp[40,1]  Yp[41,1]   Yp[1,2]   Yp[2,2]   Yp[3,2]   Yp[4,2]
## -1.885162 -1.207711 -0.712043 -0.095094  0.360284  0.501985  0.605373
##   Yp[5,2]   Yp[6,2]   Yp[7,2]   Yp[8,2]   Yp[9,2]  Yp[10,2]  Yp[11,2]
##  0.492274  0.504708  2.153814 -1.326203  0.600352  0.740959 -1.166101
##  Yp[12,2]  Yp[13,2]  Yp[14,2]  Yp[15,2]  Yp[16,2]  Yp[17,2]  Yp[18,2]
## -0.899801 -0.959961  1.690949 -0.975274  0.573895  1.297535 -0.582508
##  Yp[19,2]  Yp[20,2]  Yp[21,2]  Yp[22,2]  Yp[23,2]  Yp[24,2]  Yp[25,2]
##  0.362187  0.394029 -1.194466  2.098002  0.518715  0.455084  1.572903
##  Yp[26,2]  Yp[27,2]  Yp[28,2]  Yp[29,2]  Yp[30,2]  Yp[31,2]  Yp[32,2]
## -1.004402  0.184409 -0.798472 -0.777826  2.499632 -0.265455  0.439504
##  Yp[33,2]  Yp[34,2]  Yp[35,2]  Yp[36,2]  Yp[37,2]  Yp[38,2]  Yp[39,2]
## -1.411617  0.416058  0.117644 -1.135770  0.421699 -1.609722 -0.247441
##  Yp[40,2]  Yp[41,2]   Yp[1,3]   Yp[2,3]   Yp[3,3]   Yp[4,3]   Yp[5,3]
## -0.038512  0.888612 -0.132131 -1.180749 -0.151510 -2.170064  1.085015
##   Yp[6,3]   Yp[7,3]   Yp[8,3]   Yp[9,3]  Yp[10,3]  Yp[11,3]  Yp[12,3]
## -1.231321 -1.082490 -2.644096 -0.392320 -1.766926 -0.316508  0.549999
##  Yp[13,3]  Yp[14,3]  Yp[15,3]  Yp[16,3]  Yp[17,3]  Yp[18,3]  Yp[19,3]
## -1.497007 -0.387792 -1.268240 -1.003839 -1.442392 -0.295510  0.126651
##  Yp[20,3]  Yp[21,3]  Yp[22,3]  Yp[23,3]  Yp[24,3]  Yp[25,3]  Yp[26,3]
## -1.050937 -0.191263 -1.173765  0.098914 -0.772060  0.803396  0.785149
##  Yp[27,3]  Yp[28,3]  Yp[29,3]  Yp[30,3]  Yp[31,3]  Yp[32,3]  Yp[33,3]
##  1.047649 -1.455512 -0.129946  0.819375 -1.006410  0.184931 -0.202974
##  Yp[34,3]  Yp[35,3]  Yp[36,3]  Yp[37,3]  Yp[38,3]  Yp[39,3]  Yp[40,3]
##  2.695544  0.423187  0.960845  0.103494  0.020543  1.526633  0.256096
##  Yp[41,3]   Yp[1,4]   Yp[2,4]   Yp[3,4]   Yp[4,4]   Yp[5,4]   Yp[6,4]
##  0.547186  0.138418 -0.179725  0.379271 -0.278636 -1.511958 -0.040351
##   Yp[7,4]   Yp[8,4]   Yp[9,4]  Yp[10,4]  Yp[11,4]  Yp[12,4]  Yp[13,4]
## -0.909488 -0.659460 -0.389396 -0.467739 -1.464219 -2.224159 -0.002893
##  Yp[14,4]  Yp[15,4]  Yp[16,4]  Yp[17,4]  Yp[18,4]  Yp[19,4]  Yp[20,4]
##  1.246187 -0.265741 -0.704081  0.474287  0.284039  0.904021  1.620865
##  Yp[21,4]  Yp[22,4]  Yp[23,4]  Yp[24,4]  Yp[25,4]  Yp[26,4]  Yp[27,4]
## -1.249708  0.378655 -0.512134  0.119676 -1.345269 -0.052824 -0.444579
##  Yp[28,4]  Yp[29,4]  Yp[30,4]  Yp[31,4]  Yp[32,4]  Yp[33,4]  Yp[34,4]
## -2.327016 -0.711564 -1.728432 -0.246240 -1.740982  0.704710 -1.117250
##  Yp[35,4]  Yp[36,4]  Yp[37,4]  Yp[38,4]  Yp[39,4]  Yp[40,4]  Yp[41,4]
## -1.787877  0.870359 -0.374597 -0.709316 -1.035224 -2.249920 -1.283801
##   Yp[1,5]   Yp[2,5]   Yp[3,5]   Yp[4,5]   Yp[5,5]   Yp[6,5]   Yp[7,5]
##  0.002483 -1.252377  0.840221  0.738865 -0.288473  0.059990  0.100451
##   Yp[8,5]   Yp[9,5]  Yp[10,5]  Yp[11,5]  Yp[12,5]  Yp[13,5]  Yp[14,5]
##  1.052368  0.923675  0.228236 -1.063430  1.330386  0.746103  0.119260
##  Yp[15,5]  Yp[16,5]  Yp[17,5]  Yp[18,5]  Yp[19,5]  Yp[20,5]  Yp[21,5]
## -0.570084  0.629573 -1.733512 -1.126519 -1.676951  1.604724 -0.147054
##  Yp[22,5]  Yp[23,5]  Yp[24,5]  Yp[25,5]  Yp[26,5]  Yp[27,5]  Yp[28,5]
## -0.299853 -1.221855 -0.041279 -0.548902 -0.165528 -1.330242  0.423133
##  Yp[29,5]  Yp[30,5]  Yp[31,5]  Yp[32,5]  Yp[33,5]  Yp[34,5]  Yp[35,5]
##  1.798105  0.633608  1.177717  1.986093 -1.581456  0.366506  0.873485
##  Yp[36,5]  Yp[37,5]  Yp[38,5]  Yp[39,5]  Yp[40,5]  Yp[41,5]   Yp[1,6]
## -0.094403  1.127619 -0.758720 -0.600253 -0.671001 -0.546066 -0.617281
##   Yp[2,6]   Yp[3,6]   Yp[4,6]   Yp[5,6]   Yp[6,6]   Yp[7,6]   Yp[8,6]
## -0.262417  1.082778 -0.303567 -0.316611 -0.542475 -0.701465 -0.747047
##   Yp[9,6]  Yp[10,6]  Yp[11,6]  Yp[12,6]  Yp[13,6]  Yp[14,6]  Yp[15,6]
## -0.581130  1.402211  0.778776 -1.572513  0.452908 -1.258928 -0.834583
##  Yp[16,6]  Yp[17,6]  Yp[18,6]  Yp[19,6]  Yp[20,6]  Yp[21,6]  Yp[22,6]
## -0.551601  2.206342  0.288795  0.030300  0.455579 -0.209238 -1.113627
```

```
##  Yp[23,6]  Yp[24,6]  Yp[25,6]  Yp[26,6]  Yp[27,6]  Yp[28,6]  Yp[29,6]
## -0.352967 -0.172644  0.273833  0.126220 -1.606164  0.094478 -0.755428
##  Yp[30,6]  Yp[31,6]  Yp[32,6]  Yp[33,6]  Yp[34,6]  Yp[35,6]  Yp[36,6]
## -0.243167  0.175081  0.889754  0.750072 -0.559927 -0.015949  0.858915
##  Yp[37,6]  Yp[38,6]  Yp[39,6]  Yp[40,6]  Yp[41,6]   Yp[1,7]   Yp[2,7]
##  2.148634  0.031138 -0.247880 -0.386132  0.047894 -0.745128  0.094249
##   Yp[3,7]   Yp[4,7]   Yp[5,7]   Yp[6,7]   Yp[7,7]   Yp[8,7]   Yp[9,7]
## -1.048560  0.069161 -1.049158  1.311206 -1.263106  0.793233 -0.547106
##  Yp[10,7]  Yp[11,7]  Yp[12,7]  Yp[13,7]  Yp[14,7]  Yp[15,7]  Yp[16,7]
##  1.765396  0.215797 -0.147221  0.820722 -0.408053  0.297477  0.696155
##  Yp[17,7]  Yp[18,7]  Yp[19,7]  Yp[20,7]  Yp[21,7]  Yp[22,7]  Yp[23,7]
## -0.387163  0.109069 -0.192661  0.857840  0.853969 -0.346683  1.246559
##  Yp[24,7]  Yp[25,7]  Yp[26,7]  Yp[27,7]  Yp[28,7]  Yp[29,7]  Yp[30,7]
## -0.982563  0.056955 -0.410398 -2.423456 -3.066056  0.777386  0.139159
##  Yp[31,7]  Yp[32,7]  Yp[33,7]  Yp[34,7]  Yp[35,7]  Yp[36,7]  Yp[37,7]
##  0.707985  0.272685  0.167954 -0.003208 -0.679676 -1.106774  0.465783
##  Yp[38,7]  Yp[39,7]  Yp[40,7]  Yp[41,7]   Yp[1,8]   Yp[2,8]   Yp[3,8]
##  0.099284 -0.048338 -1.171177  0.539169  0.330853 -0.360154  0.276252
##   Yp[4,8]   Yp[5,8]   Yp[6,8]   Yp[7,8]   Yp[8,8]   Yp[9,8]  Yp[10,8]
##  0.144542 -0.533002  0.370706 -0.023700 -0.393857 -0.234102 -1.644864
##  Yp[11,8]  Yp[12,8]  Yp[13,8]  Yp[14,8]  Yp[15,8]  Yp[16,8]  Yp[17,8]
##  0.325075 -0.264289 -0.264528 -1.133046 -0.828177  1.721226 -0.742816
##  Yp[18,8]  Yp[19,8]  Yp[20,8]  Yp[21,8]  Yp[22,8]  Yp[23,8]  Yp[24,8]
##  1.006006  0.898147 -1.772842 -1.587802  0.729731  1.111783  1.423391
##  Yp[25,8]  Yp[26,8]  Yp[27,8]  Yp[28,8]  Yp[29,8]  Yp[30,8]  Yp[31,8]
## -0.095029 -0.794869  0.964469 -0.632106  0.003457 -0.227849  0.297634
##  Yp[32,8]  Yp[33,8]  Yp[34,8]  Yp[35,8]  Yp[36,8]  Yp[37,8]  Yp[38,8]
## -0.040692  0.203105  0.998445  2.481658  0.300321  0.204130  1.250691
##  Yp[39,8]  Yp[40,8]  Yp[41,8]   Yp[1,9]   Yp[2,9]   Yp[3,9]   Yp[4,9]
## -0.434668  1.515568 -1.248218  0.493783  2.612608  1.699495  0.890059
##   Yp[5,9]   Yp[6,9]   Yp[7,9]   Yp[8,9]   Yp[9,9]  Yp[10,9]  Yp[11,9]
##  1.262125  1.723190  0.655754  0.894015  1.219368  2.070962  0.710182
##  Yp[12,9]  Yp[13,9]  Yp[14,9]  Yp[15,9]  Yp[16,9]  Yp[17,9]  Yp[18,9]
##  0.034851  0.701794  0.514690 -0.045279  0.657595  2.580273  1.055286
##  Yp[19,9]  Yp[20,9]  Yp[21,9]  Yp[22,9]  Yp[23,9]  Yp[24,9]  Yp[25,9]
##  1.028633  0.740434  0.800436  0.037595  0.768934  0.106051  0.555062
##  Yp[26,9]  Yp[27,9]  Yp[28,9]  Yp[29,9]  Yp[30,9]  Yp[31,9]  Yp[32,9]
## -0.195856  0.192985 -1.297686 -1.520595 -1.469752 -0.608344 -0.922113
##  Yp[33,9]  Yp[34,9]  Yp[35,9]  Yp[36,9]  Yp[37,9]  Yp[38,9]  Yp[39,9]
##  0.540692 -2.063656 -0.716479 -1.079444 -1.549133 -0.248653 -1.113029
##  Yp[40,9]  Yp[41,9]  alpha[1]  alpha[2]  alpha[3]  alpha[4]  alpha[5]
## -1.812884 -1.130019  1.183486  0.738608 -0.686793 -0.054863  0.270695
##  alpha[6]  alpha[7]  alpha[8]  alpha[9]   beta[1]   beta[2]   beta[3]
## -0.445996 -0.146297 -0.385183  1.502172 -1.525089 -0.678604  0.801359
##   beta[4]   beta[5]   beta[6]   beta[7]   beta[8]   beta[9]
## -0.663497 -0.227089  0.569036  0.025904  0.473047 -1.489317
```

```
if(n.chains > 1)
{
 gelman.srf <-gelman.diag(out.coda)
 plot(gelman.srf$psrf,main = "Gelman Diagnostic")
}
```




```
chains.ess <- lapply(out.coda,effectiveSize)
first.chain.ess <- chains.ess[1]
plot(unlist(first.chain.ess), main="Effective Sample Size")
```




```
pval.m <- matrix(nrow = 9,ncol = 2)
for(k in 1:9){
  # Compute the test stats for the data
  D0   <- c(   mean(X.num[,k]),   sd(X.num[,k]))
  Dnames <- c("mean Y", "sd Y")
  # Compute the test stats for the models
  chain <- out.coda[[1]]
  D1   <- cbind(chain[,paste("Dm[",k,"]",sep='')],chain[,paste("Dsd[",k,"]",sep='')])
  pval1 <- rep(0,2)
  names(pval1)<-Dnames

  for(j in 1:2){
  pval1[j] <- mean(D1[,j]>D0[j])
  }
  pval.m[k,] <- pval1
}
colnames(pval.m)<-c("pval.mean","pval.sd")
pander(data.frame(pval.m), caption = "Baeysian p-values Poisson GLM")
```

Table 1: Baeysian p-values Poisson GLM

pval.mean	pval.sd
0.4521	0.2627

pval.mean	pval.sd
0.4674	0.413
0.4777	0.386
0.4117	0.2122
0.4919	0.6616
0.4426	0.5944
0.4395	0.09
0.5002	0.2876
0.4925	0.2089

```
  ####Predictions Median
  predictedMedian <- matrix(nrow = 41,ncol = 9)
  diff.pred.train <- matrix(nrow = 41,ncol = 9)
  for( i in 1:length(rownames(so$quantiles)) )
  {
    rn.so <- rownames(so$quantiles)[i]

    if(grepl("Yp",rn.so)  )
    {
      print(rn.so)
      idx <-gsub('Yp','',rn.so)
      idx <-gsub('\\[','',idx)
      idx<-gsub('\\]','',idx)
      strsplit(idx,",")
      idi <- as.numeric(strsplit(idx,",")[[1]][1])
      idj <- as.numeric(strsplit(idx,",")[[1]][2])
      predictedMedian[idi,idj] <- so$quantiles[i,][3]# 50% Quantiles for predicted
      diff.pred.train[idi,idj] <-  predictedMedian[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }
```

```
## [1] "Yp[1,1]"
## [1] "Yp[2,1]"
## [1] "Yp[3,1]"
## [1] "Yp[4,1]"
## [1] "Yp[5,1]"
## [1] "Yp[6,1]"
## [1] "Yp[7,1]"
## [1] "Yp[8,1]"
## [1] "Yp[9,1]"
## [1] "Yp[10,1]"
## [1] "Yp[11,1]"
## [1] "Yp[12,1]"
## [1] "Yp[13,1]"
## [1] "Yp[14,1]"
## [1] "Yp[15,1]"
## [1] "Yp[16,1]"
## [1] "Yp[17,1]"
## [1] "Yp[18,1]"
## [1] "Yp[19,1]"
```

```
## [1] "Yp[20,1]"
## [1] "Yp[21,1]"
## [1] "Yp[22,1]"
## [1] "Yp[23,1]"
## [1] "Yp[24,1]"
## [1] "Yp[25,1]"
## [1] "Yp[26,1]"
## [1] "Yp[27,1]"
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## [1] "Yp[30,1]"
## [1] "Yp[31,1]"
## [1] "Yp[32,1]"
## [1] "Yp[33,1]"
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## [1] "Yp[38,1]"
## [1] "Yp[39,1]"
## [1] "Yp[40,1]"
## [1] "Yp[41,1]"
## [1] "Yp[1,2]"
## [1] "Yp[2,2]"
## [1] "Yp[3,2]"
## [1] "Yp[4,2]"
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## [1] "Yp[29,2]"
## [1] "Yp[30,2]"
## [1] "Yp[31,2]"
## [1] "Yp[32,2]"
```

```
## [1] "Yp[33,2]"
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## [1] "Yp[35,2]"
## [1] "Yp[36,2]"
## [1] "Yp[37,2]"
## [1] "Yp[38,2]"
## [1] "Yp[39,2]"
## [1] "Yp[40,2]"
## [1] "Yp[41,2]"
## [1] "Yp[1,3]"
## [1] "Yp[2,3]"
## [1] "Yp[3,3]"
## [1] "Yp[4,3]"
## [1] "Yp[5,3]"
## [1] "Yp[6,3]"
## [1] "Yp[7,3]"
## [1] "Yp[8,3]"
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## [1] "Yp[10,3]"
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## [1] "Yp[32,3]"
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```

```
train.mse <- sum(diff.pred.train^2)/(41*9)
pander (train.mse, caption="training MSE - via posteriaor medians")
```

1.168

```
####Predictions Mode - don't need fancy mode fn since it's count data

Mode <- function(x) {
  ux <- unique(x)
  ux[which.max(tabulate(match(x, ux)))]
  }

chain <- out.coda[[1]]
predictedMode <- matrix(nrow = 41,ncol = 9)
diff.pred.train.mode <- matrix(nrow = 41,ncol = 9)
for( i in 1:ncol(chain) )
{
  colname <- colnames(chain)[i]
  if(grepl("Yp",colname)  )
  {
    idx <-gsub('Yp','',colname)
    idx <-gsub('\\[','',idx)
    idx<-gsub('\\]','',idx)
    strsplit(idx,",")
    idi <- as.numeric(strsplit(idx,",")[[1]][1])
    idj <- as.numeric(strsplit(idx,",")[[1]][2])
    samples <- chain[,i]
    predictedMode[idi,idj] <- as.numeric(Mode(samples))
```

```
      diff.pred.train.mode[idi,idj] <-  predictedMode[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }

  train.mse <- sum(diff.pred.train.mode^2)/(41*9)
  pander (train.mse, caption="training MSE - via posterior modes")
```

1.572

```
   ####Predictions Mean
  chain <- out.coda[[1]]
  predictedMean <- matrix(nrow = 41,ncol = 9)
  diff.pred.train.mean <- matrix(nrow = 41,ncol = 9)
  for( i in 1:ncol(chain) )
  {
    colname <- colnames(chain)[i]
    if(grepl("Yp",colname)  )
    {
      idx <-gsub('Yp','',colname)
      idx <-gsub('\\[','',idx)
      idx<-gsub('\\]','',idx)
      strsplit(idx,",")
      idi <- as.numeric(strsplit(idx,",")[[1]][1])
      idj <- as.numeric(strsplit(idx,",")[[1]][2])
      samples <- chain[,i]
      predictedMean[idi,idj] <- as.numeric(mean(samples))
      diff.pred.train.mean[idi,idj] <-  predictedMean[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }
  train.mse <- sum(diff.pred.train.mean^2)/(41*9)
  pander (train.mse, caption="training MSE - via posteriaor means")
```

1.108

Fit JAGS Negative Binomial Random Effects

```
######################################## Fit JAGS Negative Binomial Random Effects
model_nb = '
model
{
    ## Likelihood
    for(i in 1:N){
      for(j in 1:9){
        Y[i,j] ~ dnegbin(p[i,j],r[j])
        p[i,j] <- r[j]/(r[j]+lambda[i,j])
        log(lambda[i,j]) <- mu[i,j]
```

```
      mu[i,j] <- alpha[j] + beta[j]*t[i]
    }
  }

  ## Priors
  for(i in 1:9){
    alpha[i] ~ dnorm(0,taus[i])
    taus[i] ~ dgamma(0.1,0.1)
  }

  # Slopes
  for(i in 1:9){
    beta[i] ~ dnorm(mu.beta,taus.beta[i])
    taus.beta[i] ~ dgamma(0.1,0.1)
  }

  # r
  for(i in 1:9){
    r[i] ~ dunif(0,10)
  }

  ## Posterior Predictive Checks
  for(i in 1:N){
    for(j in 1:9){
        Y2[i,j] ~ dnegbin(p[i,j],r[j])
    }
  }

  for(j in 1:9){
    Dm[j] <- mean(Y2[,j])
    Dsd[j] <- sd(Y2[,j])
  }

  #Prediction
  for(i in 1:N){
    for(j in 1:9){
      Yp[i,j] ~ dnegbin(pp[i,j],r[j])
      pp[i,j] <- r[j]/(r[j]+lambdap[i,j])
      log(lambdap[i,j]) <- mup[i,j]
      mup[i,j] <- alpha[j] + beta[j]*t[i]
    }
  }
}
'
  # Set up the data
  model_data = list(N = 41, t=seq(1:41),Y=X.num,mu.beta=0,tau.beta=.0001,mu.intercept=0,tau.intercept=.
  # Choose the parameters to watch
  model_parameters =  c("r","beta", "alpha","Dm","Dsd","Yp")# model_parameters =  c("r")
  model_nb <- jags.model(textConnection(model_nb),data = model_data,n.chains = n.chains)#Compile Model
```

```
## Compiling model graph
##    Resolving undeclared variables
##    Allocating nodes
## Graph information:
```

```
##    Observed stochastic nodes: 369
##    Unobserved stochastic nodes: 783
##    Total graph size: 3070
##
## Initializing model
```

```
  update(model_nb, nSamples, progress.bar="none"); # Burnin
  out.coda  <- coda.samples(model_nb, variable.names=model_parameters,n.iter=2*nSamples)
  #plot(out.coda)
  #assess the posteriors??? stationarity, by looking at the Heidelberg-Welch convergence diagnostic:
  heidel.diag(out.coda)
```

```
## [[1]]
##
##          Stationarity start     p-value
##          test         iteration
## Dm[1]    passed           1     0.6935
## Dm[2]    passed           1     0.2544
## Dm[3]    passed           1     0.2148
## Dm[4]    passed           1     0.6360
## Dm[5]    passed           1     0.7762
## Dm[6]    passed           1     0.4562
## Dm[7]    passed           1     0.7780
## Dm[8]    passed           1     0.2717
## Dm[9]    passed           1     0.6917
## Dsd[1]   passed           1     0.5076
## Dsd[2]   passed           1     0.5534
## Dsd[3]   passed           1     0.5799
## Dsd[4]   passed           1     0.8046
## Dsd[5]   passed           1     0.4816
## Dsd[6]   passed           1     0.0991
## Dsd[7]   passed           1     0.7041
## Dsd[8]   passed           1     0.0934
## Dsd[9]   passed           1     0.0621
## Yp[1,1]  passed           1     0.1676
## Yp[2,1]  passed           1     0.5583
## Yp[3,1]  passed           1     0.4216
## Yp[4,1]  passed           1     0.2467
## Yp[5,1]  passed           1     0.1593
## Yp[6,1]  passed           1     0.5397
## Yp[7,1]  passed           1     0.6470
## Yp[8,1]  passed           1     0.7897
## Yp[9,1]  passed           1     0.5640
## Yp[10,1] passed           1     0.7385
## Yp[11,1] passed           1     0.8362
## Yp[12,1] passed           1     0.3598
## Yp[13,1] passed           1     0.3729
## Yp[14,1] passed           1     0.0663
## Yp[15,1] passed           1     0.9319
## Yp[16,1] passed           1     0.9306
## Yp[17,1] passed           1     0.1890
## Yp[18,1] passed           1     0.7256
## Yp[19,1] passed           1     0.6144
## Yp[20,1] passed           1     0.3376
## Yp[21,1] passed           1     0.8233
```

```
## Yp[22,1] passed          1     0.4600
## Yp[23,1] passed          1     0.5466
## Yp[24,1] passed          1     0.9505
## Yp[25,1] passed          1     0.4226
## Yp[26,1] passed          1     0.2705
## Yp[27,1] passed          1     0.2507
## Yp[28,1] passed          1     0.2775
## Yp[29,1] passed          1     0.6980
## Yp[30,1] passed          1     0.4966
## Yp[31,1] passed          1     0.6582
## Yp[32,1] passed          1     0.3855
## Yp[33,1] passed          1     0.3106
## Yp[34,1] passed          1     0.2681
## Yp[35,1] passed          1     0.2119
## Yp[36,1] passed      12001     0.2059
## Yp[37,1] passed          1     0.4014
## Yp[38,1] passed          1     0.7841
## Yp[39,1] passed          1     0.6037
## Yp[40,1] passed          1     0.6916
## Yp[41,1] passed          1     0.0778
## Yp[1,2]  passed          1     0.7668
## Yp[2,2]  passed          1     0.2602
## Yp[3,2]  passed          1     0.9744
## Yp[4,2]  passed          1     0.8440
## Yp[5,2]  passed          1     0.3035
## Yp[6,2]  passed          1     0.4178
## Yp[7,2]  passed          1     0.4160
## Yp[8,2]  passed          1     0.5715
## Yp[9,2]  passed          1     0.4457
## Yp[10,2] passed          1     0.3049
## Yp[11,2] passed          1     0.9729
## Yp[12,2] passed          1     0.1260
## Yp[13,2] passed          1     0.2563
## Yp[14,2] passed          1     0.1196
## Yp[15,2] passed          1     0.6018
## Yp[16,2] passed          1     0.7334
## Yp[17,2] passed          1     0.0960
## Yp[18,2] passed          1     0.5245
## Yp[19,2] passed          1     0.1774
## Yp[20,2] passed          1     0.9686
## Yp[21,2] passed          1     0.6320
## Yp[22,2] passed          1     0.9412
## Yp[23,2] passed          1     0.5954
## Yp[24,2] passed          1     0.8156
## Yp[25,2] passed          1     0.4691
## Yp[26,2] passed          1     0.4310
## Yp[27,2] passed          1     0.9853
## Yp[28,2] passed          1     0.5325
## Yp[29,2] passed          1     0.4770
## Yp[30,2] passed          1     0.3109
## Yp[31,2] passed       4001     0.0637
## Yp[32,2] passed          1     0.7243
## Yp[33,2] passed          1     0.3785
## Yp[34,2] passed          1     0.8099
```

```
## Yp[35,2] passed          1     0.6090
## Yp[36,2] passed          1     0.7178
## Yp[37,2] passed          1     0.1529
## Yp[38,2] passed          1     0.4522
## Yp[39,2] passed          1     0.9916
## Yp[40,2] passed          1     0.5303
## Yp[41,2] passed          1     0.7350
## Yp[1,3]  passed       4001     0.2649
## Yp[2,3]  passed          1     0.8386
## Yp[3,3]  passed          1     0.4134
## Yp[4,3]  passed       4001     0.3180
## Yp[5,3]  passed          1     0.4821
## Yp[6,3]  passed          1     0.5631
## Yp[7,3]  passed          1     0.5539
## Yp[8,3]  passed          1     0.6674
## Yp[9,3]  passed          1     0.5088
## Yp[10,3] passed          1     0.7312
## Yp[11,3] passed       4001     0.0964
## Yp[12,3] passed          1     0.4459
## Yp[13,3] passed          1     0.0661
## Yp[14,3] passed       4001     0.0835
## Yp[15,3] passed          1     0.2635
## Yp[16,3] passed          1     0.9353
## Yp[17,3] passed          1     0.9702
## Yp[18,3] passed          1     0.8208
## Yp[19,3] passed          1     0.4667
## Yp[20,3] passed          1     0.2057
## Yp[21,3] passed          1     0.5967
## Yp[22,3] passed          1     0.3085
## Yp[23,3] passed          1     0.9074
## Yp[24,3] passed          1     0.3681
## Yp[25,3] passed          1     0.4311
## Yp[26,3] passed          1     0.4334
## Yp[27,3] passed          1     0.3203
## Yp[28,3] passed          1     0.2618
## Yp[29,3] passed          1     0.2816
## Yp[30,3] passed          1     0.3071
## Yp[31,3] passed          1     0.1080
## Yp[32,3] passed          1     0.9521
## Yp[33,3] passed          1     0.3034
## Yp[34,3] passed          1     0.4191
## Yp[35,3] passed          1     0.4499
## Yp[36,3] passed          1     0.9013
## Yp[37,3] passed          1     0.6863
## Yp[38,3] passed          1     0.0909
## Yp[39,3] passed          1     0.2712
## Yp[40,3] passed          1     0.3205
## Yp[41,3] passed       4001     0.2063
## Yp[1,4]  passed          1     0.6448
## Yp[2,4]  passed          1     0.6019
## Yp[3,4]  passed          1     0.4406
## Yp[4,4]  passed          1     0.2875
## Yp[5,4]  passed          1     0.5027
## Yp[6,4]  passed          1     0.7003
```

```
## Yp[7,4]  passed          1     0.8438
## Yp[8,4]  passed          1     0.9840
## Yp[9,4]  passed          1     0.9270
## Yp[10,4] passed          1     0.1608
## Yp[11,4] passed          1     0.7721
## Yp[12,4] passed          1     0.6683
## Yp[13,4] passed          1     0.4735
## Yp[14,4] passed          1     0.6291
## Yp[15,4] passed          1     0.4086
## Yp[16,4] passed          1     0.7277
## Yp[17,4] passed       4001     0.4589
## Yp[18,4] passed          1     0.3489
## Yp[19,4] passed          1     0.4962
## Yp[20,4] passed          1     0.1238
## Yp[21,4] passed          1     0.2426
## Yp[22,4] passed          1     0.3244
## Yp[23,4] passed       4001     0.0711
## Yp[24,4] passed          1     0.7742
## Yp[25,4] passed          1     0.0800
## Yp[26,4] passed          1     0.2893
## Yp[27,4] passed          1     0.9368
## Yp[28,4] passed          1     0.5147
## Yp[29,4] passed          1     0.1359
## Yp[30,4] passed          1     0.7253
## Yp[31,4] passed      16001     0.0682
## Yp[32,4] passed          1     0.8634
## Yp[33,4] passed          1     0.9204
## Yp[34,4] passed          1     0.4536
## Yp[35,4] passed          1     0.2562
## Yp[36,4] passed          1     0.7917
## Yp[37,4] passed          1     0.9896
## Yp[38,4] passed          1     0.4033
## Yp[39,4] passed          1     0.5879
## Yp[40,4] passed          1     0.4044
## Yp[41,4] passed          1     0.3746
## Yp[1,5]  passed          1     0.8248
## Yp[2,5]  passed          1     0.9748
## Yp[3,5]  passed          1     0.1637
## Yp[4,5]  passed          1     0.1898
## Yp[5,5]  passed          1     0.9461
## Yp[6,5]  passed          1     0.8281
## Yp[7,5]  passed          1     0.5464
## Yp[8,5]  passed          1     0.5576
## Yp[9,5]  passed          1     0.4645
## Yp[10,5] passed          1     0.1462
## Yp[11,5] passed          1     0.6105
## Yp[12,5] passed          1     0.2888
## Yp[13,5] passed          1     0.8517
## Yp[14,5] passed          1     0.5178
## Yp[15,5] passed          1     0.5413
## Yp[16,5] passed          1     0.6184
## Yp[17,5] passed          1     0.2182
## Yp[18,5] passed          1     0.3463
## Yp[19,5] passed          1     0.4925
```

```
## Yp[20,5] passed           1     0.8087
## Yp[21,5] passed           1     0.1836
## Yp[22,5] passed           1     0.3307
## Yp[23,5] passed           1     0.4118
## Yp[24,5] passed           1     0.4712
## Yp[25,5] passed           1     0.8265
## Yp[26,5] passed           1     0.9126
## Yp[27,5] passed           1     0.3599
## Yp[28,5] passed           1     0.8764
## Yp[29,5] passed           1     0.1158
## Yp[30,5] passed           1     0.9829
## Yp[31,5] passed           1     0.7248
## Yp[32,5] passed           1     0.4698
## Yp[33,5] passed           1     0.4256
## Yp[34,5] passed       12001     0.2721
## Yp[35,5] passed           1     0.7028
## Yp[36,5] passed           1     0.9765
## Yp[37,5] passed           1     0.9291
## Yp[38,5] passed           1     0.4060
## Yp[39,5] passed           1     0.3704
## Yp[40,5] passed       16001     0.1604
## Yp[41,5] passed           1     0.6950
## Yp[1,6]  passed           1     0.8105
## Yp[2,6]  passed           1     0.8595
## Yp[3,6]  passed           1     0.8115
## Yp[4,6]  passed           1     0.0593
## Yp[5,6]  passed           1     0.4430
## Yp[6,6]  passed           1     0.4518
## Yp[7,6]  passed           1     0.4110
## Yp[8,6]  passed           1     0.3118
## Yp[9,6]  passed           1     0.1070
## Yp[10,6] passed           1     0.2507
## Yp[11,6] passed           1     0.8486
## Yp[12,6] passed           1     0.2611
## Yp[13,6] passed           1     0.2365
## Yp[14,6] passed           1     0.1712
## Yp[15,6] passed           1     0.3206
## Yp[16,6] passed           1     0.7177
## Yp[17,6] passed           1     0.4788
## Yp[18,6] passed           1     0.7195
## Yp[19,6] passed           1     0.1290
## Yp[20,6] passed           1     0.9452
## Yp[21,6] passed           1     0.0890
## Yp[22,6] passed           1     0.1762
## Yp[23,6] passed           1     0.6217
## Yp[24,6] passed           1     0.8036
## Yp[25,6] passed           1     0.5399
## Yp[26,6] passed           1     0.3881
## Yp[27,6] passed           1     0.2626
## Yp[28,6] passed           1     0.1776
## Yp[29,6] passed           1     0.8857
## Yp[30,6] passed           1     0.9615
## Yp[31,6] passed           1     0.6498
## Yp[32,6] passed           1     0.3494
```

```
## Yp[33,6] passed          1     0.4964
## Yp[34,6] passed          1     0.2999
## Yp[35,6] passed          1     0.8750
## Yp[36,6] passed       8001     0.0915
## Yp[37,6] passed          1     0.4914
## Yp[38,6] passed          1     0.0582
## Yp[39,6] passed          1     0.3792
## Yp[40,6] passed          1     0.7037
## Yp[41,6] passed          1     0.5287
## Yp[1,7]  passed          1     0.9697
## Yp[2,7]  passed          1     0.6977
## Yp[3,7]  passed          1     0.7251
## Yp[4,7]  passed          1     0.4954
## Yp[5,7]  passed          1     0.7090
## Yp[6,7]  passed          1     0.2560
## Yp[7,7]  passed          1     0.3443
## Yp[8,7]  passed          1     0.6700
## Yp[9,7]  passed          1     0.2535
## Yp[10,7] passed          1     0.1263
## Yp[11,7] passed          1     0.5490
## Yp[12,7] passed          1     0.8956
## Yp[13,7] passed          1     0.6267
## Yp[14,7] passed          1     0.7401
## Yp[15,7] passed          1     0.9940
## Yp[16,7] passed          1     0.4347
## Yp[17,7] passed          1     0.9992
## Yp[18,7] passed          1     0.4466
## Yp[19,7] passed          1     0.6401
## Yp[20,7] passed          1     0.7501
## Yp[21,7] passed          1     0.8902
## Yp[22,7] passed          1     0.4319
## Yp[23,7] passed          1     0.8459
## Yp[24,7] passed          1     0.1902
## Yp[25,7] passed          1     0.6317
## Yp[26,7] passed          1     0.6226
## Yp[27,7] passed          1     0.3059
## Yp[28,7] passed          1     0.1127
## Yp[29,7] passed          1     0.8777
## Yp[30,7] passed          1     0.0636
## Yp[31,7] passed          1     0.2536
## Yp[32,7] passed          1     0.8347
## Yp[33,7] passed          1     0.3305
## Yp[34,7] passed          1     0.3552
## Yp[35,7] passed          1     0.8406
## Yp[36,7] passed          1     0.0665
## Yp[37,7] passed          1     0.6000
## Yp[38,7] passed          1     0.5000
## Yp[39,7] passed          1     0.7007
## Yp[40,7] passed          1     0.3586
## Yp[41,7] passed          1     0.9687
## Yp[1,8]  passed          1     0.7674
## Yp[2,8]  passed          1     0.6138
## Yp[3,8]  passed          1     0.5989
## Yp[4,8]  passed          1     0.2557
```

```
## Yp[5,8]  passed          1     0.4569
## Yp[6,8]  passed          1     0.4020
## Yp[7,8]  passed          1     0.4913
## Yp[8,8]  passed          1     0.4786
## Yp[9,8]  passed          1     0.1523
## Yp[10,8] passed          1     0.1781
## Yp[11,8] passed          1     0.2378
## Yp[12,8] passed          1     0.4842
## Yp[13,8] passed          1     0.3363
## Yp[14,8] passed          1     0.4968
## Yp[15,8] passed       4001     0.0660
## Yp[16,8] passed          1     0.5371
## Yp[17,8] passed          1     0.9386
## Yp[18,8] passed          1     0.0698
## Yp[19,8] passed          1     0.6495
## Yp[20,8] passed          1     0.2342
## Yp[21,8] passed          1     0.2762
## Yp[22,8] passed          1     0.1168
## Yp[23,8] passed          1     0.1768
## Yp[24,8] passed          1     0.5395
## Yp[25,8] passed          1     0.6780
## Yp[26,8] passed          1     0.6975
## Yp[27,8] passed          1     0.4956
## Yp[28,8] passed          1     0.1680
## Yp[29,8] passed          1     0.5299
## Yp[30,8] passed          1     0.4308
## Yp[31,8] passed          1     0.7001
## Yp[32,8] passed          1     0.3807
## Yp[33,8] passed          1     0.3908
## Yp[34,8] passed          1     0.5744
## Yp[35,8] passed          1     0.3929
## Yp[36,8] passed          1     0.2003
## Yp[37,8] passed          1     0.5805
## Yp[38,8] passed          1     0.7829
## Yp[39,8] passed          1     0.6210
## Yp[40,8] passed          1     0.8487
## Yp[41,8] passed          1     0.5836
## Yp[1,9]  passed          1     0.2568
## Yp[2,9]  passed          1     0.9206
## Yp[3,9]  passed          1     0.5555
## Yp[4,9]  passed          1     0.6518
## Yp[5,9]  passed          1     0.6303
## Yp[6,9]  passed          1     0.0713
## Yp[7,9]  passed          1     0.2975
## Yp[8,9]  passed          1     0.4213
## Yp[9,9]  passed          1     0.1217
## Yp[10,9] passed          1     0.5955
## Yp[11,9] passed          1     0.7754
## Yp[12,9] passed          1     0.5886
## Yp[13,9] passed          1     0.3043
## Yp[14,9] passed          1     0.5394
## Yp[15,9] passed          1     0.3920
## Yp[16,9] passed       8001     0.1662
## Yp[17,9] passed          1     0.0708
```

```
## Yp[18,9] passed           1     0.3589
## Yp[19,9] passed           1     0.3730
## Yp[20,9] passed           1     0.5439
## Yp[21,9] passed           1     0.5540
## Yp[22,9] passed           1     0.4139
## Yp[23,9] passed           1     0.3833
## Yp[24,9] passed           1     0.8005
## Yp[25,9] passed           1     0.4351
## Yp[26,9] passed           1     0.4350
## Yp[27,9] passed           1     0.1481
## Yp[28,9] passed           1     0.2816
## Yp[29,9] passed           1     0.9811
## Yp[30,9] passed           1     0.0961
## Yp[31,9] passed           1     0.9478
## Yp[32,9] passed        4001     0.1148
## Yp[33,9] passed           1     0.6611
## Yp[34,9] passed           1     0.1283
## Yp[35,9] passed           1     0.5414
## Yp[36,9] passed        8001     0.1358
## Yp[37,9] passed           1     0.9189
## Yp[38,9] passed           1     0.1651
## Yp[39,9] passed           1     0.9449
## Yp[40,9] passed           1     0.1249
## Yp[41,9] passed           1     0.0717
## alpha[1] passed           1     0.5709
## alpha[2] passed           1     0.8092
## alpha[3] passed           1     0.1331
## alpha[4] passed           1     0.4673
## alpha[5] passed           1     0.7971
## alpha[6] passed           1     0.5509
## alpha[7] passed           1     0.9137
## alpha[8] passed           1     0.6132
## alpha[9] passed           1     0.2645
## beta[1]  passed           1     0.5308
## beta[2]  passed           1     0.7735
## beta[3]  passed           1     0.1826
## beta[4]  passed           1     0.4694
## beta[5]  passed           1     0.7338
## beta[6]  passed           1     0.5406
## beta[7]  passed           1     0.9294
## beta[8]  passed           1     0.6770
## beta[9]  passed           1     0.2304
## r[1]     passed           1     0.9109
## r[2]     passed           1     0.5917
## r[3]     passed           1     0.1930
## r[4]     passed           1     0.5958
## r[5]     passed           1     0.2901
## r[6]     passed           1     0.0926
## r[7]     passed           1     0.3677
## r[8]     passed           1     0.7231
## r[9]     passed           1     0.3078
##
##          Halfwidth Mean     Halfwidth
##          test
```

```
## Dm[1]    passed     0.74034 0.002081
## Dm[2]    passed     1.94773 0.003694
## Dm[3]    passed     1.07088 0.002566
## Dm[4]    passed     0.86970 0.002550
## Dm[5]    passed     0.93874 0.002548
## Dm[6]    passed     1.69888 0.003193
## Dm[7]    passed     0.64501 0.002129
## Dm[8]    passed     0.52324 0.002016
## Dm[9]    passed     0.89283 0.002478
## Dsd[1]   passed     0.93718 0.002405
## Dsd[2]   passed     1.76013 0.004728
## Dsd[3]   passed     1.15637 0.002531
## Dsd[4]   passed     1.06940 0.003613
## Dsd[5]   passed     1.17015 0.003955
## Dsd[6]   passed     1.50302 0.002967
## Dsd[7]   passed     0.91860 0.003246
## Dsd[8]   passed     0.77991 0.002319
## Dsd[9]   passed     1.06944 0.002882
## Yp[1,1]  passed     1.00835 0.014024
## Yp[2,1]  passed     0.99008 0.013070
## Yp[3,1]  passed     0.97380 0.013067
## Yp[4,1]  passed     0.95557 0.013160
## Yp[5,1]  passed     0.93573 0.012075
## Yp[6,1]  passed     0.92163 0.012091
## Yp[7,1]  passed     0.89943 0.011799
## Yp[8,1]  passed     0.88402 0.010974
## Yp[9,1]  passed     0.86315 0.010963
## Yp[10,1] passed     0.85223 0.010580
## Yp[11,1] passed     0.84210 0.010182
## Yp[12,1] passed     0.81985 0.010551
## Yp[13,1] passed     0.81127 0.009831
## Yp[14,1] passed     0.79583 0.009745
## Yp[15,1] passed     0.78422 0.009592
## Yp[16,1] passed     0.75705 0.009307
## Yp[17,1] passed     0.75710 0.009426
## Yp[18,1] passed     0.74198 0.009292
## Yp[19,1] passed     0.73290 0.009229
## Yp[20,1] passed     0.73072 0.009151
## Yp[21,1] passed     0.71898 0.009135
## Yp[22,1] passed     0.71200 0.009070
## Yp[23,1] passed     0.68722 0.008854
## Yp[24,1] passed     0.68227 0.008704
## Yp[25,1] passed     0.67390 0.008830
## Yp[26,1] passed     0.66033 0.008449
## Yp[27,1] passed     0.66360 0.008760
## Yp[28,1] passed     0.65677 0.008690
## Yp[29,1] passed     0.63208 0.008622
## Yp[30,1] passed     0.63502 0.008603
## Yp[31,1] passed     0.63192 0.008593
## Yp[32,1] passed     0.62077 0.008637
## Yp[33,1] passed     0.61318 0.008905
## Yp[34,1] passed     0.60695 0.008836
## Yp[35,1] passed     0.60242 0.008810
## Yp[36,1] passed     0.59382 0.010678
```

```
## Yp[37,1] passed     0.58470 0.008862
## Yp[38,1] passed     0.57170 0.008505
## Yp[39,1] passed     0.56463 0.009085
## Yp[40,1] passed     0.56468 0.009365
## Yp[41,1] passed     0.55883 0.009515
## Yp[1,2]  passed     1.05700 0.013964
## Yp[2,2]  passed     1.05810 0.013078
## Yp[3,2]  passed     1.11015 0.013861
## Yp[4,2]  passed     1.13660 0.013905
## Yp[5,2]  passed     1.17950 0.013888
## Yp[6,2]  passed     1.21893 0.013927
## Yp[7,2]  passed     1.23190 0.014829
## Yp[8,2]  passed     1.27677 0.014812
## Yp[9,2]  passed     1.30970 0.014731
## Yp[10,2] passed     1.35220 0.013912
## Yp[11,2] passed     1.37563 0.014638
## Yp[12,2] passed     1.41225 0.014320
## Yp[13,2] passed     1.46170 0.014601
## Yp[14,2] passed     1.50825 0.015235
## Yp[15,2] passed     1.54430 0.014461
## Yp[16,2] passed     1.59353 0.014938
## Yp[17,2] passed     1.61990 0.014539
## Yp[18,2] passed     1.68175 0.015202
## Yp[19,2] passed     1.71760 0.015078
## Yp[20,2] passed     1.77745 0.015177
## Yp[21,2] passed     1.81795 0.015338
## Yp[22,2] passed     1.88377 0.015635
## Yp[23,2] passed     1.94548 0.016158
## Yp[24,2] passed     1.98812 0.016237
## Yp[25,2] passed     2.04217 0.016375
## Yp[26,2] passed     2.10082 0.016943
## Yp[27,2] passed     2.17065 0.017353
## Yp[28,2] passed     2.24352 0.017851
## Yp[29,2] passed     2.30293 0.018233
## Yp[30,2] passed     2.37277 0.018435
## Yp[31,2] passed     2.44144 0.020171
## Yp[32,2] passed     2.50477 0.019350
## Yp[33,2] passed     2.60832 0.019972
## Yp[34,2] passed     2.66432 0.020281
## Yp[35,2] passed     2.75802 0.021059
## Yp[36,2] passed     2.83375 0.023903
## Yp[37,2] passed     2.93355 0.023749
## Yp[38,2] passed     3.02125 0.025865
## Yp[39,2] passed     3.10255 0.026110
## Yp[40,2] passed     3.20340 0.028121
## Yp[41,2] passed     3.30107 0.027020
## Yp[1,3]  passed     0.88717 0.013483
## Yp[2,3]  passed     0.90453 0.012949
## Yp[3,3]  passed     0.91690 0.012957
## Yp[4,3]  passed     0.91461 0.013557
## Yp[5,3]  passed     0.92417 0.012707
## Yp[6,3]  passed     0.93768 0.012407
## Yp[7,3]  passed     0.93763 0.012033
## Yp[8,3]  passed     0.93737 0.011701
```

```
## Yp[9,3]  passed     0.95432 0.011485
## Yp[10,3] passed     0.96227 0.011542
## Yp[11,3] passed     0.96436 0.012370
## Yp[12,3] passed     0.97098 0.011386
## Yp[13,3] passed     0.98220 0.011651
## Yp[14,3] passed     0.99150 0.012243
## Yp[15,3] passed     0.99390 0.011038
## Yp[16,3] passed     1.00405 0.011028
## Yp[17,3] passed     1.01450 0.011209
## Yp[18,3] passed     1.01838 0.011154
## Yp[19,3] passed     1.03763 0.011265
## Yp[20,3] passed     1.04757 0.011299
## Yp[21,3] passed     1.05665 0.011200
## Yp[22,3] passed     1.05890 0.011320
## Yp[23,3] passed     1.08330 0.011656
## Yp[24,3] passed     1.08515 0.011523
## Yp[25,3] passed     1.09405 0.011678
## Yp[26,3] passed     1.09880 0.011660
## Yp[27,3] passed     1.11030 0.011559
## Yp[28,3] passed     1.13560 0.012088
## Yp[29,3] passed     1.13905 0.012071
## Yp[30,3] passed     1.15350 0.011988
## Yp[31,3] passed     1.17245 0.012359
## Yp[32,3] passed     1.17560 0.012812
## Yp[33,3] passed     1.17910 0.012649
## Yp[34,3] passed     1.20790 0.013011
## Yp[35,3] passed     1.21410 0.013156
## Yp[36,3] passed     1.24717 0.013822
## Yp[37,3] passed     1.25705 0.013970
## Yp[38,3] passed     1.26048 0.014147
## Yp[39,3] passed     1.29107 0.014853
## Yp[40,3] passed     1.29250 0.015417
## Yp[41,3] passed     1.32289 0.016131
## Yp[1,4]  passed     1.37777 0.018486
## Yp[2,4]  passed     1.32680 0.018121
## Yp[3,4]  passed     1.29045 0.017120
## Yp[4,4]  passed     1.24570 0.016449
## Yp[5,4]  passed     1.23247 0.015784
## Yp[6,4]  passed     1.21185 0.015162
## Yp[7,4]  passed     1.16210 0.014283
## Yp[8,4]  passed     1.12730 0.014010
## Yp[9,4]  passed     1.09695 0.012991
## Yp[10,4] passed     1.08068 0.013604
## Yp[11,4] passed     1.04598 0.012260
## Yp[12,4] passed     1.01845 0.012226
## Yp[13,4] passed     0.98345 0.011632
## Yp[14,4] passed     0.96078 0.011141
## Yp[15,4] passed     0.93598 0.010962
## Yp[16,4] passed     0.93078 0.010846
## Yp[17,4] passed     0.89661 0.011190
## Yp[18,4] passed     0.87552 0.010300
## Yp[19,4] passed     0.85385 0.010267
## Yp[20,4] passed     0.84413 0.010184
## Yp[21,4] passed     0.81290 0.010048
```

```
## Yp[22,4] passed     0.80345 0.009875
## Yp[23,4] passed     0.77764 0.010257
## Yp[24,4] passed     0.77345 0.009736
## Yp[25,4] passed     0.75867 0.009637
## Yp[26,4] passed     0.74515 0.009524
## Yp[27,4] passed     0.71908 0.009360
## Yp[28,4] passed     0.69783 0.009194
## Yp[29,4] passed     0.68715 0.009225
## Yp[30,4] passed     0.67473 0.009296
## Yp[31,4] passed     0.66442 0.012614
## Yp[32,4] passed     0.64643 0.008962
## Yp[33,4] passed     0.63565 0.009131
## Yp[34,4] passed     0.61908 0.008865
## Yp[35,4] passed     0.60823 0.009355
## Yp[36,4] passed     0.59083 0.008928
## Yp[37,4] passed     0.58990 0.009595
## Yp[38,4] passed     0.56715 0.008937
## Yp[39,4] passed     0.56880 0.008960
## Yp[40,4] passed     0.55947 0.009368
## Yp[41,4] passed     0.54800 0.009397
## Yp[1,5]  passed     0.35132 0.009274
## Yp[2,5]  passed     0.36268 0.009228
## Yp[3,5]  passed     0.37965 0.009102
## Yp[4,5]  passed     0.38877 0.009757
## Yp[5,5]  passed     0.40853 0.009578
## Yp[6,5]  passed     0.42655 0.009484
## Yp[7,5]  passed     0.44248 0.009984
## Yp[8,5]  passed     0.46235 0.009957
## Yp[9,5]  passed     0.47963 0.009985
## Yp[10,5] passed     0.49667 0.010331
## Yp[11,5] passed     0.52563 0.009895
## Yp[12,5] passed     0.54322 0.009915
## Yp[13,5] passed     0.56450 0.010509
## Yp[14,5] passed     0.58685 0.010419
## Yp[15,5] passed     0.61538 0.010206
## Yp[16,5] passed     0.65105 0.010490
## Yp[17,5] passed     0.67012 0.010758
## Yp[18,5] passed     0.70442 0.010232
## Yp[19,5] passed     0.72742 0.009376
## Yp[20,5] passed     0.75975 0.009899
## Yp[21,5] passed     0.80642 0.009722
## Yp[22,5] passed     0.83975 0.010005
## Yp[23,5] passed     0.87513 0.010201
## Yp[24,5] passed     0.92035 0.010444
## Yp[25,5] passed     0.95835 0.010545
## Yp[26,5] passed     0.98995 0.010749
## Yp[27,5] passed     1.05097 0.011103
## Yp[28,5] passed     1.09640 0.011375
## Yp[29,5] passed     1.15387 0.011731
## Yp[30,5] passed     1.21093 0.012155
## Yp[31,5] passed     1.27083 0.012447
## Yp[32,5] passed     1.33838 0.013296
## Yp[33,5] passed     1.39548 0.013918
## Yp[34,5] passed     1.48525 0.016832
```

```
## Yp[35,5] passed     1.52640 0.015532
## Yp[36,5] passed     1.61745 0.017015
## Yp[37,5] passed     1.69083 0.017731
## Yp[38,5] passed     1.80880 0.020235
## Yp[39,5] passed     1.88180 0.020513
## Yp[40,5] passed     1.99146 0.031158
## Yp[41,5] passed     2.06297 0.026921
## Yp[1,6]  passed     1.27973 0.016003
## Yp[2,6]  passed     1.28198 0.015123
## Yp[3,6]  passed     1.31885 0.015813
## Yp[4,6]  passed     1.31440 0.015466
## Yp[5,6]  passed     1.33420 0.014341
## Yp[6,6]  passed     1.35860 0.015773
## Yp[7,6]  passed     1.36963 0.014749
## Yp[8,6]  passed     1.38475 0.014350
## Yp[9,6]  passed     1.41800 0.014526
## Yp[10,6] passed     1.43120 0.014784
## Yp[11,6] passed     1.44792 0.014749
## Yp[12,6] passed     1.46855 0.015005
## Yp[13,6] passed     1.48175 0.013946
## Yp[14,6] passed     1.51012 0.014316
## Yp[15,6] passed     1.52850 0.014348
## Yp[16,6] passed     1.54937 0.013814
## Yp[17,6] passed     1.57102 0.013927
## Yp[18,6] passed     1.58835 0.014443
## Yp[19,6] passed     1.59973 0.014161
## Yp[20,6] passed     1.63478 0.014230
## Yp[21,6] passed     1.65358 0.014447
## Yp[22,6] passed     1.68035 0.014442
## Yp[23,6] passed     1.70623 0.014777
## Yp[24,6] passed     1.73752 0.014818
## Yp[25,6] passed     1.76012 0.014996
## Yp[26,6] passed     1.78620 0.015029
## Yp[27,6] passed     1.82292 0.015296
## Yp[28,6] passed     1.83733 0.015436
## Yp[29,6] passed     1.86690 0.015683
## Yp[30,6] passed     1.90535 0.016221
## Yp[31,6] passed     1.92530 0.015914
## Yp[32,6] passed     1.96070 0.016369
## Yp[33,6] passed     1.98653 0.016926
## Yp[34,6] passed     2.01875 0.016989
## Yp[35,6] passed     2.07417 0.017612
## Yp[36,6] passed     2.09166 0.020654
## Yp[37,6] passed     2.12265 0.018101
## Yp[38,6] passed     2.15010 0.020162
## Yp[39,6] passed     2.19260 0.020146
## Yp[40,6] passed     2.23115 0.020422
## Yp[41,6] passed     2.26615 0.021010
## Yp[1,7]  passed     1.04190 0.014734
## Yp[2,7]  passed     1.00440 0.014325
## Yp[3,7]  passed     0.97335 0.013602
## Yp[4,7]  passed     0.95445 0.013722
## Yp[5,7]  passed     0.92120 0.012902
## Yp[6,7]  passed     0.90223 0.012994
```

```
## Yp[7,7]  passed     0.88067 0.011803
## Yp[8,7]  passed     0.84562 0.011500
## Yp[9,7]  passed     0.82035 0.010895
## Yp[10,7] passed     0.80237 0.010901
## Yp[11,7] passed     0.79168 0.010416
## Yp[12,7] passed     0.76695 0.010166
## Yp[13,7] passed     0.73503 0.009706
## Yp[14,7] passed     0.72293 0.009641
## Yp[15,7] passed     0.70005 0.009483
## Yp[16,7] passed     0.68522 0.009323
## Yp[17,7] passed     0.66865 0.009302
## Yp[18,7] passed     0.65650 0.009376
## Yp[19,7] passed     0.63055 0.008964
## Yp[20,7] passed     0.62248 0.008806
## Yp[21,7] passed     0.59685 0.008663
## Yp[22,7] passed     0.59060 0.008475
## Yp[23,7] passed     0.57805 0.008550
## Yp[24,7] passed     0.56490 0.008349
## Yp[25,7] passed     0.55702 0.008444
## Yp[26,7] passed     0.53897 0.008253
## Yp[27,7] passed     0.52305 0.008087
## Yp[28,7] passed     0.51110 0.007942
## Yp[29,7] passed     0.50428 0.008191
## Yp[30,7] passed     0.49585 0.008036
## Yp[31,7] passed     0.48137 0.007665
## Yp[32,7] passed     0.46605 0.007553
## Yp[33,7] passed     0.45960 0.007644
## Yp[34,7] passed     0.45563 0.007639
## Yp[35,7] passed     0.44500 0.007541
## Yp[36,7] passed     0.43117 0.007968
## Yp[37,7] passed     0.42428 0.007949
## Yp[38,7] passed     0.41970 0.007752
## Yp[39,7] passed     0.40465 0.007393
## Yp[40,7] passed     0.40487 0.007979
## Yp[41,7] passed     0.39365 0.007490
## Yp[1,8]  passed     0.48890 0.010743
## Yp[2,8]  passed     0.48745 0.010767
## Yp[3,8]  passed     0.48578 0.010176
## Yp[4,8]  passed     0.48730 0.010173
## Yp[5,8]  passed     0.48565 0.009734
## Yp[6,8]  passed     0.49057 0.009931
## Yp[7,8]  passed     0.48738 0.009673
## Yp[8,8]  passed     0.49112 0.008977
## Yp[9,8]  passed     0.49173 0.009290
## Yp[10,8] passed     0.48970 0.009197
## Yp[11,8] passed     0.48805 0.008770
## Yp[12,8] passed     0.49200 0.008760
## Yp[13,8] passed     0.48928 0.008474
## Yp[14,8] passed     0.49057 0.008392
## Yp[15,8] passed     0.49925 0.008870
## Yp[16,8] passed     0.50082 0.007969
## Yp[17,8] passed     0.49933 0.007798
## Yp[18,8] passed     0.49430 0.007870
## Yp[19,8] passed     0.49920 0.007822
```

```
## Yp[20,8] passed     0.50865 0.007711
## Yp[21,8] passed     0.50162 0.007637
## Yp[22,8] passed     0.50715 0.007796
## Yp[23,8] passed     0.52102 0.007835
## Yp[24,8] passed     0.51985 0.007890
## Yp[25,8] passed     0.52158 0.007930
## Yp[26,8] passed     0.52105 0.007774
## Yp[27,8] passed     0.52840 0.007947
## Yp[28,8] passed     0.53865 0.008007
## Yp[29,8] passed     0.53727 0.008124
## Yp[30,8] passed     0.54700 0.008102
## Yp[31,8] passed     0.55202 0.008519
## Yp[32,8] passed     0.55330 0.008266
## Yp[33,8] passed     0.55665 0.008355
## Yp[34,8] passed     0.56117 0.008821
## Yp[35,8] passed     0.57340 0.009124
## Yp[36,8] passed     0.57473 0.009175
## Yp[37,8] passed     0.57845 0.009521
## Yp[38,8] passed     0.59390 0.010076
## Yp[39,8] passed     0.59888 0.010340
## Yp[40,8] passed     0.61880 0.010868
## Yp[41,8] passed     0.61240 0.011565
## Yp[1,9]  passed     0.72445 0.012432
## Yp[2,9]  passed     0.73500 0.012430
## Yp[3,9]  passed     0.72952 0.011667
## Yp[4,9]  passed     0.74098 0.011809
## Yp[5,9]  passed     0.74492 0.011563
## Yp[6,9]  passed     0.75448 0.012080
## Yp[7,9]  passed     0.76362 0.011131
## Yp[8,9]  passed     0.76190 0.011419
## Yp[9,9]  passed     0.76190 0.011349
## Yp[10,9] passed     0.77920 0.010982
## Yp[11,9] passed     0.77235 0.010837
## Yp[12,9] passed     0.78758 0.010303
## Yp[13,9] passed     0.79280 0.010811
## Yp[14,9] passed     0.80905 0.010349
## Yp[15,9] passed     0.81788 0.010606
## Yp[16,9] passed     0.81216 0.011395
## Yp[17,9] passed     0.82875 0.010235
## Yp[18,9] passed     0.84110 0.010195
## Yp[19,9] passed     0.85682 0.010533
## Yp[20,9] passed     0.86203 0.010612
## Yp[21,9] passed     0.86957 0.010519
## Yp[22,9] passed     0.88658 0.010565
## Yp[23,9] passed     0.89925 0.010624
## Yp[24,9] passed     0.90695 0.010843
## Yp[25,9] passed     0.91555 0.010865
## Yp[26,9] passed     0.92402 0.010920
## Yp[27,9] passed     0.93668 0.011071
## Yp[28,9] passed     0.95690 0.011253
## Yp[29,9] passed     0.96618 0.011152
## Yp[30,9] passed     0.97930 0.011451
## Yp[31,9] passed     0.98208 0.011367
## Yp[32,9] passed     1.00889 0.013073
```

```
## Yp[33,9] passed     1.02077 0.011746
## Yp[34,9] passed     1.02835 0.012464
## Yp[35,9] passed     1.04002 0.012956
## Yp[36,9] passed     1.06678 0.014672
## Yp[37,9] passed     1.08018 0.013472
## Yp[38,9] passed     1.08413 0.014078
## Yp[39,9] passed     1.10842 0.015113
## Yp[40,9] passed     1.13262 0.015685
## Yp[41,9] passed     1.15593 0.016217
## alpha[1] failed    -0.02838 0.009167
## alpha[2] failed    -0.00944 0.009004
## alpha[3] passed    -0.15801 0.010278
## alpha[4] passed     0.28660 0.009919
## alpha[5] passed    -1.20991 0.023178
## alpha[6] passed     0.19719 0.008404
## alpha[7] failed     0.01063 0.009266
## alpha[8] passed    -0.83470 0.019441
## alpha[9] passed    -0.39902 0.013264
## beta[1]  passed    -0.01544 0.000435
## beta[2]  passed     0.02873 0.000352
## beta[3]  passed     0.00929 0.000419
## beta[4]  passed    -0.02390 0.000456
## beta[5]  passed     0.04608 0.000803
## beta[6]  passed     0.01438 0.000341
## beta[7]  passed    -0.02567 0.000457
## beta[8]  failed     0.00603 0.000768
## beta[9]  passed     0.01160 0.000534
## r[1]     passed     5.71762 0.029907
## r[2]     passed     6.56951 0.028494
## r[3]     passed     5.81179 0.030393
## r[4]     passed     5.13679 0.032779
## r[5]     passed     6.62035 0.029591
## r[6]     passed     6.96470 0.028357
## r[7]     passed     4.23671 0.040823
## r[8]     passed     5.00248 0.035278
## r[9]     passed     4.95207 0.034271
##
## [[2]]
##
##          Stationarity start     p-value
##          test         iteration
## Dm[1]    passed           1     0.1916
## Dm[2]    failed          NA     0.0255
## Dm[3]    passed           1     0.2559
## Dm[4]    passed           1     0.7683
## Dm[5]    passed           1     0.6113
## Dm[6]    passed           1     0.1917
## Dm[7]    passed           1     0.8527
## Dm[8]    passed           1     0.1808
## Dm[9]    passed           1     0.9248
## Dsd[1]   passed           1     0.5151
## Dsd[2]   passed           1     0.0843
## Dsd[3]   passed           1     0.4143
## Dsd[4]   passed           1     0.3394
```

```
## Dsd[5]   passed           1     0.2355
## Dsd[6]   passed           1     0.5651
## Dsd[7]   passed           1     0.9829
## Dsd[8]   passed           1     0.3443
## Dsd[9]   passed           1     0.8241
## Yp[1,1]  passed           1     0.2288
## Yp[2,1]  passed           1     0.1760
## Yp[3,1]  passed           1     0.3102
## Yp[4,1]  passed           1     0.0752
## Yp[5,1]  passed           1     0.1694
## Yp[6,1]  passed           1     0.8457
## Yp[7,1]  passed           1     0.1033
## Yp[8,1]  passed           1     0.3450
## Yp[9,1]  passed           1     0.7167
## Yp[10,1] passed           1     0.6506
## Yp[11,1] passed           1     0.5214
## Yp[12,1] passed           1     0.6645
## Yp[13,1] passed           1     0.5074
## Yp[14,1] passed           1     0.0522
## Yp[15,1] passed           1     0.3534
## Yp[16,1] passed           1     0.4252
## Yp[17,1] passed           1     0.7946
## Yp[18,1] passed           1     0.1000
## Yp[19,1] passed           1     0.4832
## Yp[20,1] passed           1     0.2795
## Yp[21,1] passed           1     0.1087
## Yp[22,1] passed           1     0.5837
## Yp[23,1] passed           1     0.6531
## Yp[24,1] passed           1     0.4497
## Yp[25,1] passed           1     0.3883
## Yp[26,1] passed           1     0.8048
## Yp[27,1] passed           1     0.7376
## Yp[28,1] passed           1     0.3222
## Yp[29,1] passed           1     0.3827
## Yp[30,1] passed           1     0.2486
## Yp[31,1] passed           1     0.7028
## Yp[32,1] passed           1     0.8488
## Yp[33,1] passed           1     0.9245
## Yp[34,1] passed           1     0.2471
## Yp[35,1] passed           1     0.0881
## Yp[36,1] passed           1     0.6638
## Yp[37,1] passed       12001     0.4093
## Yp[38,1] passed           1     0.1619
## Yp[39,1] passed           1     0.7686
## Yp[40,1] passed           1     0.2152
## Yp[41,1] passed           1     0.0534
## Yp[1,2]  passed           1     0.4938
## Yp[2,2]  passed           1     0.2123
## Yp[3,2]  passed           1     0.4945
## Yp[4,2]  passed           1     0.0537
## Yp[5,2]  passed           1     0.1788
## Yp[6,2]  passed           1     0.1700
## Yp[7,2]  passed           1     0.0843
## Yp[8,2]  passed           1     0.1577
```

```
## Yp[9,2]  passed          1     0.4280
## Yp[10,2] passed          1     0.3528
## Yp[11,2] passed          1     0.1573
## Yp[12,2] passed          1     0.2041
## Yp[13,2] passed          1     0.5122
## Yp[14,2] passed          1     0.8608
## Yp[15,2] passed          1     0.9575
## Yp[16,2] passed          1     0.9312
## Yp[17,2] passed          1     0.1811
## Yp[18,2] passed          1     0.7177
## Yp[19,2] passed          1     0.5044
## Yp[20,2] passed          1     0.9091
## Yp[21,2] passed          1     0.6814
## Yp[22,2] passed          1     0.2233
## Yp[23,2] passed          1     0.5026
## Yp[24,2] passed          1     0.3385
## Yp[25,2] passed          1     0.9052
## Yp[26,2] passed          1     0.6841
## Yp[27,2] passed          1     0.2078
## Yp[28,2] passed          1     0.9678
## Yp[29,2] passed          1     0.0786
## Yp[30,2] passed          1     0.5997
## Yp[31,2] passed          1     0.5942
## Yp[32,2] passed          1     0.3168
## Yp[33,2] passed          1     0.8775
## Yp[34,2] passed          1     0.8473
## Yp[35,2] passed          1     0.9173
## Yp[36,2] passed          1     0.7849
## Yp[37,2] passed          1     0.4037
## Yp[38,2] passed          1     0.0922
## Yp[39,2] passed          1     0.3756
## Yp[40,2] passed          1     0.8901
## Yp[41,2] passed          1     0.6179
## Yp[1,3]  passed          1     0.7389
## Yp[2,3]  passed          1     0.6679
## Yp[3,3]  passed          1     0.6828
## Yp[4,3]  passed          1     0.9030
## Yp[5,3]  passed          1     0.1508
## Yp[6,3]  passed          1     0.2476
## Yp[7,3]  passed          1     0.9863
## Yp[8,3]  passed          1     0.4281
## Yp[9,3]  passed      16001     0.0520
## Yp[10,3] passed          1     0.2019
## Yp[11,3] passed          1     0.7162
## Yp[12,3] passed          1     0.7009
## Yp[13,3] passed          1     0.9004
## Yp[14,3] passed          1     0.6334
## Yp[15,3] passed          1     0.9367
## Yp[16,3] passed          1     0.6497
## Yp[17,3] passed          1     0.0899
## Yp[18,3] passed          1     0.2517
## Yp[19,3] passed          1     0.7949
## Yp[20,3] passed          1     0.8432
## Yp[21,3] passed          1     0.7897
```

```
## Yp[22,3] passed          1     0.9398
## Yp[23,3] passed          1     0.9317
## Yp[24,3] passed          1     0.3012
## Yp[25,3] passed          1     0.4748
## Yp[26,3] passed          1     0.1848
## Yp[27,3] passed          1     0.7572
## Yp[28,3] passed          1     0.1630
## Yp[29,3] passed          1     0.6840
## Yp[30,3] passed          1     0.1787
## Yp[31,3] passed          1     0.7366
## Yp[32,3] passed          1     0.0562
## Yp[33,3] passed          1     0.3175
## Yp[34,3] passed          1     0.1077
## Yp[35,3] passed          1     0.0641
## Yp[36,3] passed       4001     0.0765
## Yp[37,3] passed          1     0.5137
## Yp[38,3] passed          1     0.6107
## Yp[39,3] passed          1     0.1334
## Yp[40,3] passed          1     0.9254
## Yp[41,3] passed          1     0.5496
## Yp[1,4]  passed          1     0.1118
## Yp[2,4]  passed          1     0.7354
## Yp[3,4]  passed          1     0.6807
## Yp[4,4]  passed          1     0.4701
## Yp[5,4]  passed       4001     0.7939
## Yp[6,4]  passed          1     0.1360
## Yp[7,4]  passed          1     0.8392
## Yp[8,4]  passed          1     0.6352
## Yp[9,4]  passed          1     0.2562
## Yp[10,4] passed          1     0.8049
## Yp[11,4] passed          1     0.2680
## Yp[12,4] passed          1     0.0739
## Yp[13,4] passed          1     0.6187
## Yp[14,4] passed          1     0.0603
## Yp[15,4] passed       4001     0.1671
## Yp[16,4] passed          1     0.2233
## Yp[17,4] passed          1     0.2077
## Yp[18,4] passed          1     0.8614
## Yp[19,4] passed          1     0.2430
## Yp[20,4] passed          1     0.7270
## Yp[21,4] passed          1     0.3052
## Yp[22,4] passed          1     0.5967
## Yp[23,4] passed          1     0.7984
## Yp[24,4] passed          1     0.8073
## Yp[25,4] passed          1     0.4634
## Yp[26,4] passed          1     0.3518
## Yp[27,4] passed          1     0.3862
## Yp[28,4] passed          1     0.3856
## Yp[29,4] passed          1     0.2280
## Yp[30,4] passed          1     0.4432
## Yp[31,4] passed       4001     0.0674
## Yp[32,4] passed          1     0.3436
## Yp[33,4] passed          1     0.4994
## Yp[34,4] passed          1     0.8735
```

```
## Yp[35,4] passed       12001     0.0501
## Yp[36,4] passed           1     0.4887
## Yp[37,4] passed           1     0.5647
## Yp[38,4] passed           1     0.5088
## Yp[39,4] passed           1     0.5013
## Yp[40,4] passed           1     0.8826
## Yp[41,4] passed           1     0.2605
## Yp[1,5]  passed           1     0.8438
## Yp[2,5]  passed           1     0.8822
## Yp[3,5]  passed           1     0.4782
## Yp[4,5]  passed           1     0.1288
## Yp[5,5]  passed           1     0.6198
## Yp[6,5]  passed           1     0.1834
## Yp[7,5]  passed           1     0.8398
## Yp[8,5]  passed           1     0.9518
## Yp[9,5]  passed           1     0.9577
## Yp[10,5] passed           1     0.6285
## Yp[11,5] passed           1     0.8029
## Yp[12,5] passed           1     0.2041
## Yp[13,5] passed           1     0.9688
## Yp[14,5] passed           1     0.1387
## Yp[15,5] passed           1     0.5770
## Yp[16,5] passed           1     0.6986
## Yp[17,5] passed           1     0.5282
## Yp[18,5] passed           1     0.0840
## Yp[19,5] passed           1     0.7216
## Yp[20,5] passed           1     0.2771
## Yp[21,5] passed           1     0.9621
## Yp[22,5] passed           1     0.5523
## Yp[23,5] passed           1     0.2311
## Yp[24,5] passed           1     0.6816
## Yp[25,5] passed           1     0.9380
## Yp[26,5] passed           1     0.8854
## Yp[27,5] passed           1     0.5021
## Yp[28,5] passed           1     0.9674
## Yp[29,5] passed           1     0.4627
## Yp[30,5] passed           1     0.7341
## Yp[31,5] passed           1     0.9313
## Yp[32,5] passed           1     0.7161
## Yp[33,5] passed           1     0.1540
## Yp[34,5] passed           1     0.5059
## Yp[35,5] passed           1     0.5678
## Yp[36,5] passed           1     0.5957
## Yp[37,5] passed           1     0.4430
## Yp[38,5] passed           1     0.0746
## Yp[39,5] passed           1     0.5148
## Yp[40,5] passed        8001     0.1795
## Yp[41,5] passed           1     0.6641
## Yp[1,6]  passed           1     0.5630
## Yp[2,6]  passed           1     0.9184
## Yp[3,6]  passed           1     0.5051
## Yp[4,6]  passed           1     0.6380
## Yp[5,6]  passed           1     0.6286
## Yp[6,6]  passed           1     0.2739
```

```
## Yp[7,6]  passed          1     0.9259
## Yp[8,6]  passed          1     0.6227
## Yp[9,6]  passed          1     0.5884
## Yp[10,6] passed          1     0.4887
## Yp[11,6] passed          1     0.4149
## Yp[12,6] passed          1     0.1561
## Yp[13,6] passed          1     0.6440
## Yp[14,6] passed       4001     0.2048
## Yp[15,6] passed          1     0.1976
## Yp[16,6] passed          1     0.5323
## Yp[17,6] passed      16001     0.2617
## Yp[18,6] passed          1     0.7228
## Yp[19,6] passed          1     0.4849
## Yp[20,6] passed          1     0.2254
## Yp[21,6] passed          1     0.3550
## Yp[22,6] passed          1     0.3526
## Yp[23,6] passed          1     0.7331
## Yp[24,6] passed          1     0.8875
## Yp[25,6] passed          1     0.1864
## Yp[26,6] passed          1     0.5356
## Yp[27,6] passed          1     0.3031
## Yp[28,6] passed          1     0.6810
## Yp[29,6] passed          1     0.3858
## Yp[30,6] passed          1     0.6280
## Yp[31,6] passed          1     0.6578
## Yp[32,6] passed          1     0.5364
## Yp[33,6] passed          1     0.9263
## Yp[34,6] passed          1     0.5809
## Yp[35,6] passed          1     0.1546
## Yp[36,6] passed          1     0.3315
## Yp[37,6] passed          1     0.8523
## Yp[38,6] passed          1     0.6538
## Yp[39,6] passed          1     0.4055
## Yp[40,6] passed          1     0.6321
## Yp[41,6] passed          1     0.2351
## Yp[1,7]  passed          1     0.3790
## Yp[2,7]  passed          1     0.6121
## Yp[3,7]  passed          1     0.3709
## Yp[4,7]  passed          1     0.3038
## Yp[5,7]  passed          1     0.8517
## Yp[6,7]  passed          1     0.2782
## Yp[7,7]  passed          1     0.3943
## Yp[8,7]  passed          1     0.8034
## Yp[9,7]  passed          1     0.7803
## Yp[10,7] passed          1     0.7510
## Yp[11,7] passed          1     0.4378
## Yp[12,7] passed          1     0.8260
## Yp[13,7] passed          1     0.5181
## Yp[14,7] passed          1     0.4166
## Yp[15,7] passed       4001     0.0549
## Yp[16,7] passed          1     0.8840
## Yp[17,7] passed          1     0.5985
## Yp[18,7] passed          1     0.5376
## Yp[19,7] passed          1     0.6663
```

```
## Yp[20,7] passed          1     0.2231
## Yp[21,7] passed          1     0.2244
## Yp[22,7] passed          1     0.4583
## Yp[23,7] passed          1     0.2294
## Yp[24,7] passed          1     0.8059
## Yp[25,7] passed          1     0.1861
## Yp[26,7] passed          1     0.5954
## Yp[27,7] passed          1     0.3811
## Yp[28,7] passed          1     0.5507
## Yp[29,7] passed          1     0.2360
## Yp[30,7] passed          1     0.5651
## Yp[31,7] passed          1     0.2594
## Yp[32,7] passed          1     0.9766
## Yp[33,7] passed          1     0.1107
## Yp[34,7] passed          1     0.5972
## Yp[35,7] passed       4001     0.1126
## Yp[36,7] passed          1     0.4754
## Yp[37,7] passed          1     0.9776
## Yp[38,7] passed          1     0.7876
## Yp[39,7] passed          1     0.9241
## Yp[40,7] passed          1     0.5752
## Yp[41,7] passed          1     0.5791
## Yp[1,8]  passed          1     0.2704
## Yp[2,8]  passed          1     0.0712
## Yp[3,8]  passed          1     0.0990
## Yp[4,8]  passed          1     0.5260
## Yp[5,8]  passed          1     0.4150
## Yp[6,8]  passed          1     0.6097
## Yp[7,8]  passed          1     0.3215
## Yp[8,8]  passed          1     0.6262
## Yp[9,8]  passed          1     0.2292
## Yp[10,8] passed          1     0.3900
## Yp[11,8] passed       8001     0.1998
## Yp[12,8] passed          1     0.4542
## Yp[13,8] passed       8001     0.0830
## Yp[14,8] passed          1     0.2571
## Yp[15,8] passed          1     0.8377
## Yp[16,8] passed          1     0.9586
## Yp[17,8] passed          1     0.4566
## Yp[18,8] passed          1     0.1642
## Yp[19,8] passed          1     0.2043
## Yp[20,8] passed          1     0.0813
## Yp[21,8] passed       4001     0.0787
## Yp[22,8] passed          1     0.2744
## Yp[23,8] passed          1     0.8570
## Yp[24,8] passed          1     0.9318
## Yp[25,8] passed          1     0.4760
## Yp[26,8] passed          1     0.8632
## Yp[27,8] passed          1     0.5210
## Yp[28,8] passed          1     0.1373
## Yp[29,8] passed          1     0.7489
## Yp[30,8] passed          1     0.3256
## Yp[31,8] passed          1     0.7100
## Yp[32,8] passed          1     0.1674
```

```
## Yp[33,8] passed          1     0.0656
## Yp[34,8] passed          1     0.7342
## Yp[35,8] passed          1     0.1646
## Yp[36,8] passed          1     0.8175
## Yp[37,8] passed          1     0.9622
## Yp[38,8] passed          1     0.9705
## Yp[39,8] passed          1     0.6342
## Yp[40,8] passed          1     0.2089
## Yp[41,8] passed          1     0.5576
## Yp[1,9]  passed          1     0.3388
## Yp[2,9]  passed          1     0.1710
## Yp[3,9]  passed          1     0.7876
## Yp[4,9]  passed          1     0.6435
## Yp[5,9]  passed          1     0.6252
## Yp[6,9]  passed          1     0.6136
## Yp[7,9]  passed          1     0.8345
## Yp[8,9]  passed          1     0.8388
## Yp[9,9]  passed          1     0.6054
## Yp[10,9] passed          1     0.8924
## Yp[11,9] passed          1     0.1617
## Yp[12,9] passed          1     0.1712
## Yp[13,9] passed          1     0.9280
## Yp[14,9] passed          1     0.6716
## Yp[15,9] passed          1     0.8626
## Yp[16,9] passed          1     0.7224
## Yp[17,9] passed          1     0.1535
## Yp[18,9] passed          1     0.1059
## Yp[19,9] passed          1     0.5588
## Yp[20,9] passed          1     0.3696
## Yp[21,9] passed          1     0.4791
## Yp[22,9] passed          1     0.3525
## Yp[23,9] passed          1     0.6854
## Yp[24,9] passed          1     0.6145
## Yp[25,9] passed          1     0.2053
## Yp[26,9] passed          1     0.6041
## Yp[27,9] passed          1     0.6919
## Yp[28,9] passed          1     0.1756
## Yp[29,9] passed          1     0.3890
## Yp[30,9] passed          1     0.1264
## Yp[31,9] passed          1     0.4921
## Yp[32,9] passed          1     0.6724
## Yp[33,9] passed          1     0.7481
## Yp[34,9] passed          1     0.7874
## Yp[35,9] passed          1     0.5495
## Yp[36,9] passed          1     0.0568
## Yp[37,9] passed          1     0.3073
## Yp[38,9] passed          1     0.2105
## Yp[39,9] passed          1     0.6670
## Yp[40,9] passed          1     0.5690
## Yp[41,9] passed          1     0.5382
## alpha[1] passed      12001     0.4318
## alpha[2] passed          1     0.5541
## alpha[3] passed          1     0.7899
## alpha[4] passed          1     0.1625
```

```
## alpha[5] passed           1     0.6264
## alpha[6] passed           1     0.5907
## alpha[7] passed           1     0.7798
## alpha[8] passed           1     0.2091
## alpha[9] passed           1     0.8736
## beta[1]  passed           1     0.0755
## beta[2]  passed           1     0.6089
## beta[3]  passed           1     0.6579
## beta[4]  passed           1     0.1622
## beta[5]  passed           1     0.6123
## beta[6]  passed           1     0.6693
## beta[7]  passed           1     0.9432
## beta[8]  passed           1     0.2123
## beta[9]  passed           1     0.8815
## r[1]     passed           1     0.2146
## r[2]     passed           1     0.3803
## r[3]     passed           1     0.2245
## r[4]     passed           1     0.8097
## r[5]     passed           1     0.4921
## r[6]     passed           1     0.0629
## r[7]     passed           1     0.8760
## r[8]     passed           1     0.1688
## r[9]     passed           1     0.9034
##
##          Halfwidth Mean     Halfwidth
##          test
## Dm[1]    passed     0.73964 0.002133
## Dm[2]    <NA>            NA       NA
## Dm[3]    passed     1.07145 0.002557
## Dm[4]    passed     0.86743 0.002550
## Dm[5]    passed     0.93782 0.002456
## Dm[6]    passed     1.69933 0.003232
## Dm[7]    passed     0.64619 0.002103
## Dm[8]    passed     0.52273 0.002015
## Dm[9]    passed     0.89151 0.002505
## Dsd[1]   passed     0.93873 0.002435
## Dsd[2]   passed     1.76443 0.004793
## Dsd[3]   passed     1.15521 0.002514
## Dsd[4]   passed     1.06698 0.003501
## Dsd[5]   passed     1.16932 0.004082
## Dsd[6]   passed     1.50255 0.002938
## Dsd[7]   passed     0.92165 0.003361
## Dsd[8]   passed     0.77889 0.002230
## Dsd[9]   passed     1.07018 0.002959
## Yp[1,1]  passed     1.01765 0.014329
## Yp[2,1]  passed     1.00130 0.013885
## Yp[3,1]  passed     0.98960 0.013601
## Yp[4,1]  passed     0.95475 0.012510
## Yp[5,1]  passed     0.93140 0.012041
## Yp[6,1]  passed     0.93245 0.012818
## Yp[7,1]  passed     0.91715 0.012427
## Yp[8,1]  passed     0.89565 0.012019
## Yp[9,1]  passed     0.87060 0.010851
## Yp[10,1] passed     0.86100 0.011171
```

```
## Yp[11,1] passed     0.84683 0.010681
## Yp[12,1] passed     0.82212 0.010305
## Yp[13,1] passed     0.82225 0.009950
## Yp[14,1] passed     0.81198 0.009855
## Yp[15,1] passed     0.78897 0.009598
## Yp[16,1] passed     0.78333 0.009726
## Yp[17,1] passed     0.76318 0.009403
## Yp[18,1] passed     0.75675 0.009327
## Yp[19,1] passed     0.73742 0.009284
## Yp[20,1] passed     0.73288 0.009181
## Yp[21,1] passed     0.72345 0.009130
## Yp[22,1] passed     0.70457 0.009023
## Yp[23,1] passed     0.70080 0.009078
## Yp[24,1] passed     0.67975 0.008852
## Yp[25,1] passed     0.66912 0.008740
## Yp[26,1] passed     0.66930 0.009051
## Yp[27,1] passed     0.65877 0.008756
## Yp[28,1] passed     0.64923 0.009078
## Yp[29,1] passed     0.63948 0.008722
## Yp[30,1] passed     0.63033 0.008571
## Yp[31,1] passed     0.62035 0.008758
## Yp[32,1] passed     0.61910 0.008543
## Yp[33,1] passed     0.61233 0.008590
## Yp[34,1] passed     0.60230 0.009085
## Yp[35,1] passed     0.58478 0.008615
## Yp[36,1] passed     0.58835 0.009004
## Yp[37,1] passed     0.56050 0.010706
## Yp[38,1] passed     0.57032 0.008775
## Yp[39,1] passed     0.56810 0.009134
## Yp[40,1] passed     0.55235 0.008654
## Yp[41,1] passed     0.55232 0.009308
## Yp[1,2]  passed     1.04960 0.014483
## Yp[2,2]  passed     1.08278 0.013922
## Yp[3,2]  passed     1.09967 0.014399
## Yp[4,2]  passed     1.13217 0.014991
## Yp[5,2]  passed     1.15667 0.014227
## Yp[6,2]  passed     1.19542 0.014443
## Yp[7,2]  passed     1.22927 0.014518
## Yp[8,2]  passed     1.26848 0.014143
## Yp[9,2]  passed     1.29570 0.014371
## Yp[10,2] passed     1.33815 0.014776
## Yp[11,2] passed     1.36947 0.014710
## Yp[12,2] passed     1.41105 0.014150
## Yp[13,2] passed     1.46550 0.014548
## Yp[14,2] passed     1.49293 0.014934
## Yp[15,2] passed     1.54730 0.014852
## Yp[16,2] passed     1.58963 0.015284
## Yp[17,2] passed     1.62183 0.014278
## Yp[18,2] passed     1.66950 0.014668
## Yp[19,2] passed     1.72325 0.014829
## Yp[20,2] passed     1.76775 0.015203
## Yp[21,2] passed     1.83692 0.015356
## Yp[22,2] passed     1.88728 0.015948
## Yp[23,2] passed     1.94762 0.016330
```

```
## Yp[24,2] passed     1.99178 0.016453
## Yp[25,2] passed     2.06300 0.016662
## Yp[26,2] passed     2.11780 0.017240
## Yp[27,2] passed     2.17525 0.017252
## Yp[28,2] passed     2.23577 0.017639
## Yp[29,2] passed     2.29577 0.017844
## Yp[30,2] passed     2.36877 0.018444
## Yp[31,2] passed     2.45765 0.019400
## Yp[32,2] passed     2.52577 0.019306
## Yp[33,2] passed     2.59483 0.019865
## Yp[34,2] passed     2.69055 0.022017
## Yp[35,2] passed     2.76543 0.021553
## Yp[36,2] passed     2.83470 0.022861
## Yp[37,2] passed     2.93670 0.024216
## Yp[38,2] passed     3.02305 0.024330
## Yp[39,2] passed     3.14110 0.027177
## Yp[40,2] passed     3.23605 0.026352
## Yp[41,2] passed     3.33890 0.028676
## Yp[1,3]  passed     0.90497 0.013002
## Yp[2,3]  passed     0.90453 0.012662
## Yp[3,3]  passed     0.90890 0.012355
## Yp[4,3]  passed     0.92660 0.012408
## Yp[5,3]  passed     0.92117 0.012566
## Yp[6,3]  passed     0.92700 0.012650
## Yp[7,3]  passed     0.94550 0.012098
## Yp[8,3]  passed     0.95378 0.011810
## Yp[9,3]  passed     0.96613 0.014690
## Yp[10,3] passed     0.96685 0.011616
## Yp[11,3] passed     0.97098 0.012036
## Yp[12,3] passed     0.97305 0.011283
## Yp[13,3] passed     0.97820 0.011349
## Yp[14,3] passed     0.98923 0.011246
## Yp[15,3] passed     0.98750 0.011175
## Yp[16,3] passed     1.01770 0.011005
## Yp[17,3] passed     1.01497 0.011282
## Yp[18,3] passed     1.02435 0.011204
## Yp[19,3] passed     1.03927 0.011261
## Yp[20,3] passed     1.03497 0.011280
## Yp[21,3] passed     1.04965 0.011260
## Yp[22,3] passed     1.07092 0.011476
## Yp[23,3] passed     1.07455 0.011516
## Yp[24,3] passed     1.07805 0.011546
## Yp[25,3] passed     1.10795 0.011729
## Yp[26,3] passed     1.11112 0.011756
## Yp[27,3] passed     1.11115 0.011788
## Yp[28,3] passed     1.13177 0.011939
## Yp[29,3] passed     1.13872 0.011979
## Yp[30,3] passed     1.15603 0.012668
## Yp[31,3] passed     1.16653 0.012572
## Yp[32,3] passed     1.17390 0.012461
## Yp[33,3] passed     1.20105 0.012677
## Yp[34,3] passed     1.21040 0.012823
## Yp[35,3] passed     1.23237 0.013449
## Yp[36,3] passed     1.23594 0.014672
```

```
## Yp[37,3] passed     1.26452 0.014482
## Yp[38,3] passed     1.26375 0.014321
## Yp[39,3] passed     1.27865 0.014580
## Yp[40,3] passed     1.30160 0.015375
## Yp[41,3] passed     1.32330 0.015944
## Yp[1,4]  passed     1.37245 0.018628
## Yp[2,4]  passed     1.33282 0.017926
## Yp[3,4]  passed     1.29100 0.017158
## Yp[4,4]  passed     1.27040 0.015847
## Yp[5,4]  passed     1.21553 0.016293
## Yp[6,4]  passed     1.19887 0.014935
## Yp[7,4]  passed     1.16350 0.014379
## Yp[8,4]  passed     1.13688 0.013717
## Yp[9,4]  passed     1.10595 0.013109
## Yp[10,4] passed     1.07160 0.012788
## Yp[11,4] passed     1.04195 0.012122
## Yp[12,4] passed     1.01757 0.011994
## Yp[13,4] passed     0.99157 0.011735
## Yp[14,4] passed     0.96870 0.011129
## Yp[15,4] passed     0.94333 0.011458
## Yp[16,4] passed     0.92797 0.010801
## Yp[17,4] passed     0.90438 0.010625
## Yp[18,4] passed     0.88000 0.010472
## Yp[19,4] passed     0.85700 0.010291
## Yp[20,4] passed     0.83947 0.010141
## Yp[21,4] passed     0.82650 0.010063
## Yp[22,4] passed     0.80037 0.009919
## Yp[23,4] passed     0.78840 0.009847
## Yp[24,4] passed     0.76497 0.009600
## Yp[25,4] passed     0.74405 0.009653
## Yp[26,4] passed     0.74003 0.009701
## Yp[27,4] passed     0.71390 0.009361
## Yp[28,4] passed     0.70293 0.009441
## Yp[29,4] passed     0.67888 0.008980
## Yp[30,4] passed     0.67243 0.009103
## Yp[31,4] passed     0.65911 0.009398
## Yp[32,4] passed     0.65197 0.009217
## Yp[33,4] passed     0.63543 0.009020
## Yp[34,4] passed     0.61075 0.009485
## Yp[35,4] passed     0.60532 0.010941
## Yp[36,4] passed     0.59883 0.008890
## Yp[37,4] passed     0.58100 0.009033
## Yp[38,4] passed     0.57620 0.009111
## Yp[39,4] passed     0.55522 0.008888
## Yp[40,4] passed     0.55175 0.008884
## Yp[41,4] passed     0.53940 0.008813
## Yp[1,5]  passed     0.34480 0.009070
## Yp[2,5]  passed     0.35415 0.009169
## Yp[3,5]  passed     0.36920 0.009206
## Yp[4,5]  passed     0.39493 0.009666
## Yp[5,5]  passed     0.40603 0.009782
## Yp[6,5]  passed     0.41685 0.009113
## Yp[7,5]  passed     0.43852 0.009372
## Yp[8,5]  passed     0.45758 0.009497
```

```
## Yp[9,5]  passed     0.47663 0.009760
## Yp[10,5] passed     0.48965 0.009121
## Yp[11,5] passed     0.52115 0.010023
## Yp[12,5] passed     0.54705 0.010362
## Yp[13,5] passed     0.55848 0.011086
## Yp[14,5] passed     0.58203 0.009605
## Yp[15,5] passed     0.61023 0.010031
## Yp[16,5] passed     0.64182 0.009919
## Yp[17,5] passed     0.67038 0.009894
## Yp[18,5] passed     0.69045 0.009656
## Yp[19,5] passed     0.72405 0.009861
## Yp[20,5] passed     0.76225 0.010054
## Yp[21,5] passed     0.79278 0.009990
## Yp[22,5] passed     0.83667 0.010186
## Yp[23,5] passed     0.87880 0.010175
## Yp[24,5] passed     0.91940 0.010367
## Yp[25,5] passed     0.97255 0.011036
## Yp[26,5] passed     0.99708 0.010886
## Yp[27,5] passed     1.05365 0.011131
## Yp[28,5] passed     1.09767 0.011501
## Yp[29,5] passed     1.15290 0.011750
## Yp[30,5] passed     1.20895 0.012065
## Yp[31,5] passed     1.26232 0.012551
## Yp[32,5] passed     1.33830 0.013503
## Yp[33,5] passed     1.40610 0.013416
## Yp[34,5] passed     1.46855 0.014822
## Yp[35,5] passed     1.54350 0.015384
## Yp[36,5] passed     1.62660 0.016983
## Yp[37,5] passed     1.69130 0.018173
## Yp[38,5] passed     1.77208 0.020463
## Yp[39,5] passed     1.88427 0.022051
## Yp[40,5] passed     1.95084 0.024789
## Yp[41,5] passed     2.07250 0.024588
## Yp[1,6]  passed     1.28190 0.015913
## Yp[2,6]  passed     1.29333 0.015977
## Yp[3,6]  passed     1.31458 0.015142
## Yp[4,6]  passed     1.33305 0.015504
## Yp[5,6]  passed     1.34165 0.015724
## Yp[6,6]  passed     1.35575 0.015514
## Yp[7,6]  passed     1.37702 0.016051
## Yp[8,6]  passed     1.39630 0.015450
## Yp[9,6]  passed     1.41805 0.014453
## Yp[10,6] passed     1.43053 0.015069
## Yp[11,6] passed     1.45233 0.014443
## Yp[12,6] passed     1.46582 0.015224
## Yp[13,6] passed     1.49463 0.014110
## Yp[14,6] passed     1.50592 0.014693
## Yp[15,6] passed     1.53448 0.014591
## Yp[16,6] passed     1.55862 0.014241
## Yp[17,6] passed     1.57829 0.018252
## Yp[18,6] passed     1.59708 0.014020
## Yp[19,6] passed     1.62135 0.014446
## Yp[20,6] passed     1.64965 0.014564
## Yp[21,6] passed     1.66610 0.014590
```

```
## Yp[22,6] passed     1.68972 0.014525
## Yp[23,6] passed     1.71900 0.014542
## Yp[24,6] passed     1.74495 0.014860
## Yp[25,6] passed     1.75405 0.014942
## Yp[26,6] passed     1.78225 0.015222
## Yp[27,6] passed     1.81947 0.015325
## Yp[28,6] passed     1.84327 0.015452
## Yp[29,6] passed     1.85855 0.015569
## Yp[30,6] passed     1.89825 0.015947
## Yp[31,6] passed     1.92088 0.016345
## Yp[32,6] passed     1.95398 0.016739
## Yp[33,6] passed     1.98982 0.016879
## Yp[34,6] passed     2.02038 0.017262
## Yp[35,6] passed     2.05940 0.017734
## Yp[36,6] passed     2.08548 0.017858
## Yp[37,6] passed     2.12412 0.019260
## Yp[38,6] passed     2.14752 0.019051
## Yp[39,6] passed     2.17468 0.020416
## Yp[40,6] passed     2.22337 0.020220
## Yp[41,6] passed     2.26693 0.021491
## Yp[1,7]  passed     1.04965 0.015554
## Yp[2,7]  passed     1.01978 0.014697
## Yp[3,7]  passed     0.99528 0.013898
## Yp[4,7]  passed     0.97480 0.013346
## Yp[5,7]  passed     0.93420 0.012668
## Yp[6,7]  passed     0.90335 0.012063
## Yp[7,7]  passed     0.87715 0.011789
## Yp[8,7]  passed     0.85183 0.011322
## Yp[9,7]  passed     0.84440 0.011113
## Yp[10,7] passed     0.79950 0.010718
## Yp[11,7] passed     0.78663 0.010465
## Yp[12,7] passed     0.76513 0.010220
## Yp[13,7] passed     0.74905 0.010348
## Yp[14,7] passed     0.71473 0.009710
## Yp[15,7] passed     0.69811 0.010093
## Yp[16,7] passed     0.69130 0.009950
## Yp[17,7] passed     0.66375 0.009222
## Yp[18,7] passed     0.65275 0.009151
## Yp[19,7] passed     0.62870 0.008932
## Yp[20,7] passed     0.62265 0.008819
## Yp[21,7] passed     0.60565 0.008728
## Yp[22,7] passed     0.59515 0.008652
## Yp[23,7] passed     0.58025 0.008505
## Yp[24,7] passed     0.56193 0.008390
## Yp[25,7] passed     0.54590 0.008212
## Yp[26,7] passed     0.53868 0.008161
## Yp[27,7] passed     0.52587 0.008065
## Yp[28,7] passed     0.51530 0.007924
## Yp[29,7] passed     0.49328 0.007765
## Yp[30,7] passed     0.49180 0.008163
## Yp[31,7] passed     0.47880 0.007734
## Yp[32,7] passed     0.46492 0.007709
## Yp[33,7] passed     0.45808 0.007872
## Yp[34,7] passed     0.44932 0.007685
```

```
## Yp[35,7] passed     0.43833 0.008130
## Yp[36,7] passed     0.43085 0.007793
## Yp[37,7] passed     0.41918 0.007715
## Yp[38,7] passed     0.41587 0.007519
## Yp[39,7] passed     0.41223 0.007924
## Yp[40,7] passed     0.39603 0.007626
## Yp[41,7] passed     0.40203 0.007861
## Yp[1,8]  passed     0.50290 0.011378
## Yp[2,8]  passed     0.49388 0.010235
## Yp[3,8]  passed     0.49473 0.010054
## Yp[4,8]  passed     0.49207 0.010262
## Yp[5,8]  passed     0.49062 0.009473
## Yp[6,8]  passed     0.49748 0.009991
## Yp[7,8]  passed     0.49650 0.009294
## Yp[8,8]  passed     0.49828 0.009477
## Yp[9,8]  passed     0.49578 0.009221
## Yp[10,8] passed     0.49145 0.008809
## Yp[11,8] passed     0.49906 0.010014
## Yp[12,8] passed     0.49690 0.008653
## Yp[13,8] passed     0.49331 0.009304
## Yp[14,8] passed     0.49715 0.008064
## Yp[15,8] passed     0.49788 0.007963
## Yp[16,8] passed     0.50015 0.007821
## Yp[17,8] passed     0.49420 0.007873
## Yp[18,8] passed     0.50075 0.007838
## Yp[19,8] passed     0.49780 0.007674
## Yp[20,8] passed     0.50508 0.007745
## Yp[21,8] passed     0.50731 0.008287
## Yp[22,8] passed     0.51350 0.007939
## Yp[23,8] passed     0.51500 0.007856
## Yp[24,8] passed     0.51328 0.007717
## Yp[25,8] passed     0.51467 0.007739
## Yp[26,8] passed     0.52323 0.008016
## Yp[27,8] passed     0.52963 0.007945
## Yp[28,8] passed     0.52605 0.007881
## Yp[29,8] passed     0.53558 0.007964
## Yp[30,8] passed     0.54822 0.008105
## Yp[31,8] passed     0.55012 0.008307
## Yp[32,8] passed     0.55110 0.008175
## Yp[33,8] passed     0.55285 0.008277
## Yp[34,8] passed     0.56432 0.008821
## Yp[35,8] passed     0.57573 0.009663
## Yp[36,8] passed     0.57280 0.009446
## Yp[37,8] passed     0.57990 0.009749
## Yp[38,8] passed     0.58403 0.009471
## Yp[39,8] passed     0.60325 0.010702
## Yp[40,8] passed     0.61020 0.010850
## Yp[41,8] passed     0.61510 0.011016
## Yp[1,9]  passed     0.71783 0.012201
## Yp[2,9]  passed     0.72360 0.012276
## Yp[3,9]  passed     0.72600 0.011712
## Yp[4,9]  passed     0.73033 0.012208
## Yp[5,9]  passed     0.74575 0.011752
## Yp[6,9]  passed     0.75275 0.011444
```

```
## Yp[7,9]  passed     0.75228 0.011326
## Yp[8,9]  passed     0.75918 0.011064
## Yp[9,9]  passed     0.76585 0.010976
## Yp[10,9] passed     0.76690 0.010631
## Yp[11,9] passed     0.77912 0.011014
## Yp[12,9] passed     0.78350 0.010442
## Yp[13,9] passed     0.79517 0.010606
## Yp[14,9] passed     0.81550 0.011305
## Yp[15,9] passed     0.80942 0.010474
## Yp[16,9] passed     0.81850 0.010444
## Yp[17,9] passed     0.83113 0.010430
## Yp[18,9] passed     0.83475 0.010916
## Yp[19,9] passed     0.85247 0.010418
## Yp[20,9] passed     0.85423 0.010486
## Yp[21,9] passed     0.86633 0.010445
## Yp[22,9] passed     0.87648 0.010467
## Yp[23,9] passed     0.89182 0.010641
## Yp[24,9] passed     0.89885 0.010755
## Yp[25,9] passed     0.91822 0.010783
## Yp[26,9] passed     0.91583 0.011062
## Yp[27,9] passed     0.93990 0.011030
## Yp[28,9] passed     0.94675 0.011059
## Yp[29,9] passed     0.96090 0.011180
## Yp[30,9] passed     0.97405 0.011567
## Yp[31,9] passed     0.98460 0.011499
## Yp[32,9] passed     1.00517 0.011697
## Yp[33,9] passed     1.02990 0.012479
## Yp[34,9] passed     1.03317 0.012219
## Yp[35,9] passed     1.04495 0.012337
## Yp[36,9] passed     1.06255 0.013041
## Yp[37,9] passed     1.08065 0.014432
## Yp[38,9] passed     1.09770 0.014514
## Yp[39,9] passed     1.11947 0.014873
## Yp[40,9] passed     1.12288 0.015047
## Yp[41,9] passed     1.15680 0.015825
## alpha[1] failed    -0.00939 0.011027
## alpha[2] failed    -0.01343 0.009256
## alpha[3] passed    -0.15904 0.010031
## alpha[4] passed     0.29051 0.009408
## alpha[5] passed    -1.21953 0.023005
## alpha[6] passed     0.20187 0.008486
## alpha[7] failed     0.01998 0.009411
## alpha[8] passed    -0.82379 0.018990
## alpha[9] passed    -0.40899 0.013323
## beta[1]  passed    -0.01606 0.000442
## beta[2]  passed     0.02895 0.000359
## beta[3]  passed     0.00937 0.000419
## beta[4]  passed    -0.02411 0.000446
## beta[5]  passed     0.04645 0.000803
## beta[6]  passed     0.01424 0.000344
## beta[7]  passed    -0.02609 0.000463
## beta[8]  failed     0.00556 0.000746
## beta[9]  passed     0.01194 0.000530
## r[1]     passed     5.68622 0.029875
```

```
## r[2]     passed     6.57139 0.028703
## r[3]     passed     5.84719 0.029881
## r[4]     passed     5.17967 0.033318
## r[5]     passed     6.63607 0.030517
## r[6]     passed     6.97351 0.028456
## r[7]     passed     4.24103 0.041749
## r[8]     passed     5.00675 0.034725
## r[9]     passed     4.98541 0.034493
```

```
  # check that our chain???s length is satisfactory.
  raftery.diag(out.coda)
```

```
## [[1]]
##
## Quantile (q) = 0.025
## Accuracy (r) = +/- 0.005
## Probability (s) = 0.95
##
##           Burn-in  Total  Lower bound  Dependence
##           (M)      (N)    (Nmin)       factor (I)
##  Dm[1]    2        4848   3746          1.29
##  Dm[2]    2        4263   3746          1.14
##  Dm[3]    2        4852   3746          1.30
##  Dm[4]    2        4040   3746          1.08
##  Dm[5]    2        4051   3746          1.08
##  Dm[6]    2        4452   3746          1.19
##  Dm[7]    2        5455   3746          1.46
##  Dm[8]    2        4192   3746          1.12
##  Dm[9]    2        4640   3746          1.24
##  Dsd[1]   2        3811   3746          1.02
##  Dsd[2]   2        3872   3746          1.03
##  Dsd[3]   2        3843   3746          1.03
##  Dsd[4]   2        4027   3746          1.08
##  Dsd[5]   2        3896   3746          1.04
##  Dsd[6]   2        3792   3746          1.01
##  Dsd[7]   2        3813   3746          1.02
##  Dsd[8]   2        3916   3746          1.05
##  Dsd[9]   2        3845   3746          1.03
##  Yp[1,1]  4        78208  3746         20.90
##  Yp[2,1]  4        79848  3746         21.30
##  Yp[3,1]  2        38727  3746         10.30
##  Yp[4,1]  2        39452  3746         10.50
##  Yp[5,1]  2        39479  3746         10.50
##  Yp[6,1]  2        39652  3746         10.60
##  Yp[7,1]  2        39617  3746         10.60
##  Yp[8,1]  2        38812  3746         10.40
##  Yp[9,1]  1        38283  3746         10.20
##  Yp[10,1] 2        39254  3746         10.50
##  Yp[11,1] 2        38486  3746         10.30
##  Yp[12,1] 2        38800  3746         10.40
##  Yp[13,1] 2        39027  3746         10.40
##  Yp[14,1] 2        38552  3746         10.30
##  Yp[15,1] 2        38748  3746         10.30
##  Yp[16,1] 1        38487  3746         10.30
##  Yp[17,1] 2        38225  3746         10.20
```

```
##  Yp[18,1] 1        38354  3746         10.20
##  Yp[19,1] 2        38092  3746         10.20
##  Yp[20,1] 2        37949  3746         10.10
##  Yp[21,1] 1        38461  3746         10.30
##  Yp[22,1] 2        38523  3746         10.30
##  Yp[23,1] 1        38325  3746         10.20
##  Yp[24,1] 2        37715  3746         10.10
##  Yp[25,1] 2        38353  3746         10.20
##  Yp[26,1] 2        37909  3746         10.10
##  Yp[27,1] 1        37981  3746         10.10
##  Yp[28,1] 2        37631  3746         10.00
##  Yp[29,1] 2        38667  3746         10.30
##  Yp[30,1] 2        38428  3746         10.30
##  Yp[31,1] 2        38040  3746         10.20
##  Yp[32,1] 2        38523  3746         10.30
##  Yp[33,1] 2        38951  3746         10.40
##  Yp[34,1] 2        38546  3746         10.30
##  Yp[35,1] 2        38120  3746         10.20
##  Yp[36,1] 2        37907  3746         10.10
##  Yp[37,1] 2        38138  3746         10.20
##  Yp[38,1] 2        37822  3746         10.10
##  Yp[39,1] 2        38446  3746         10.30
##  Yp[40,1] 2        38293  3746         10.20
##  Yp[41,1] 2        38426  3746         10.30
##  Yp[1,2]  2        37852  3746         10.10
##  Yp[2,2]  2        37926  3746         10.10
##  Yp[3,2]  4        75050  3746         20.00
##  Yp[4,2]  2        36855  3746          9.84
##  Yp[5,2]  2        36397  3746          9.72
##  Yp[6,2]  2        35225  3746          9.40
##  Yp[7,2]  2        35165  3746          9.39
##  Yp[8,2]  2        34305  3746          9.16
##  Yp[9,2]  2        33288  3746          8.89
##  Yp[10,2] 2        32876  3746          8.78
##  Yp[11,2] 2        32386  3746          8.65
##  Yp[12,2] 2        32709  3746          8.73
##  Yp[13,2] 2        31963  3746          8.53
##  Yp[14,2] 2        30266  3746          8.08
##  Yp[15,2] 2        29810  3746          7.96
##  Yp[16,2] 2        29203  3746          7.80
##  Yp[17,2] 2        28353  3746          7.57
##  Yp[18,2] 2        28076  3746          7.49
##  Yp[19,2] 2        27772  3746          7.41
##  Yp[20,2] 2        26100  3746          6.97
##  Yp[21,2] 2        25547  3746          6.82
##  Yp[22,2] 2        24514  3746          6.54
##  Yp[23,2] 2        23454  3746          6.26
##  Yp[24,2] 2        23302  3746          6.22
##  Yp[25,2] 2        22546  3746          6.02
##  Yp[26,2] 2        21493  3746          5.74
##  Yp[27,2] 2        21262  3746          5.68
##  Yp[28,2] 2        20201  3746          5.39
##  Yp[29,2] 2        19926  3746          5.32
##  Yp[30,2] 2        18881  3746          5.04
```

```
##  Yp[31,2] 2        18064  3746         4.82
##  Yp[32,2] 2        17481  3746         4.67
##  Yp[33,2] 2        16487  3746         4.40
##  Yp[34,2] 2        16100  3746         4.30
##  Yp[35,2] 2        15773  3746         4.21
##  Yp[36,2] 2        14943  3746         3.99
##  Yp[37,2] 2        14569  3746         3.89
##  Yp[38,2] 2        13995  3746         3.74
##  Yp[39,2] 2        12840  3746         3.43
##  Yp[40,2] 2        12495  3746         3.34
##  Yp[41,2] 2        12043  3746         3.21
##  Yp[1,3]  2        41406  3746        11.10
##  Yp[2,3]  2        39726  3746        10.60
##  Yp[3,3]  2        40268  3746        10.70
##  Yp[4,3]  2        39797  3746        10.60
##  Yp[5,3]  2        39381  3746        10.50
##  Yp[6,3]  2        39490  3746        10.50
##  Yp[7,3]  2        39007  3746        10.40
##  Yp[8,3]  2        39017  3746        10.40
##  Yp[9,3]  2        38528  3746        10.30
##  Yp[10,3] 2        37976  3746        10.10
##  Yp[11,3] 2        38382  3746        10.20
##  Yp[12,3] 2        38078  3746        10.20
##  Yp[13,3] 2        38164  3746        10.20
##  Yp[14,3] 1        37177  3746         9.92
##  Yp[15,3] 2        37803  3746        10.10
##  Yp[16,3] 2        37396  3746         9.98
##  Yp[17,3] 2        37272  3746         9.95
##  Yp[18,3] 1        36998  3746         9.88
##  Yp[19,3] 2        36416  3746         9.72
##  Yp[20,3] 2        36986  3746         9.87
##  Yp[21,3] 1        36586  3746         9.77
##  Yp[22,3] 2        36268  3746         9.68
##  Yp[23,3] 2        36057  3746         9.63
##  Yp[24,3] 2        35654  3746         9.52
##  Yp[25,3] 2        36429  3746         9.72
##  Yp[26,3] 2        36721  3746         9.80
##  Yp[27,3] 2        35412  3746         9.45
##  Yp[28,3] 2        35886  3746         9.58
##  Yp[29,3] 1        35843  3746         9.57
##  Yp[30,3] 2        36072  3746         9.63
##  Yp[31,3] 1        35315  3746         9.43
##  Yp[32,3] 2        36127  3746         9.64
##  Yp[33,3] 2        36197  3746         9.66
##  Yp[34,3] 2        35855  3746         9.57
##  Yp[35,3] 2        36107  3746         9.64
##  Yp[36,3] 2        35019  3746         9.35
##  Yp[37,3] 1        34605  3746         9.24
##  Yp[38,3] 2        35953  3746         9.60
##  Yp[39,3] 2        35274  3746         9.42
##  Yp[40,3] 2        35894  3746         9.58
##  Yp[41,3] 2        35201  3746         9.40
##  Yp[1,4]  4        71612  3746        19.10
##  Yp[2,4]  2        35608  3746         9.51
```

```
##  Yp[3,4]  4        72774  3746        19.40
##  Yp[4,4]  2        37698  3746        10.10
##  Yp[5,4]  2        36853  3746         9.84
##  Yp[6,4]  2        37475  3746        10.00
##  Yp[7,4]  2        36849  3746         9.84
##  Yp[8,4]  2        37763  3746        10.10
##  Yp[9,4]  2        37294  3746         9.96
##  Yp[10,4] 2        37493  3746        10.00
##  Yp[11,4] 2        37794  3746        10.10
##  Yp[12,4] 2        37834  3746        10.10
##  Yp[13,4] 2        37855  3746        10.10
##  Yp[14,4] 2        38098  3746        10.20
##  Yp[15,4] 2        38599  3746        10.30
##  Yp[16,4] 2        37604  3746        10.00
##  Yp[17,4] 2        38374  3746        10.20
##  Yp[18,4] 2        38614  3746        10.30
##  Yp[19,4] 2        39390  3746        10.50
##  Yp[20,4] 2        38606  3746        10.30
##  Yp[21,4] 2        37777  3746        10.10
##  Yp[22,4] 2        38980  3746        10.40
##  Yp[23,4] 2        39070  3746        10.40
##  Yp[24,4] 1        38359  3746        10.20
##  Yp[25,4] 1        38411  3746        10.30
##  Yp[26,4] 2        37885  3746        10.10
##  Yp[27,4] 1        38319  3746        10.20
##  Yp[28,4] 1        38320  3746        10.20
##  Yp[29,4] 2        38008  3746        10.10
##  Yp[30,4] 2        38304  3746        10.20
##  Yp[31,4] 2        38639  3746        10.30
##  Yp[32,4] 1        37883  3746        10.10
##  Yp[33,4] 2        38743  3746        10.30
##  Yp[34,4] 2        38186  3746        10.20
##  Yp[35,4] 2        38292  3746        10.20
##  Yp[36,4] 2        38281  3746        10.20
##  Yp[37,4] 2        38302  3746        10.20
##  Yp[38,4] 2        38148  3746        10.20
##  Yp[39,4] 2        38160  3746        10.20
##  Yp[40,4] 2        38218  3746        10.20
##  Yp[41,4] 2        38149  3746        10.20
##  Yp[1,5]  4        65976  3746        17.60
##  Yp[2,5]  4        67584  3746        18.00
##  Yp[3,5]  9       107283  3746        28.60
##  Yp[4,5]  6        70630  3746        18.90
##  Yp[5,5]  4        71046  3746        19.00
##  Yp[6,5]  4        71354  3746        19.00
##  Yp[7,5]  6       108726  3746        29.00
##  Yp[8,5]  2        37128  3746         9.91
##  Yp[9,5]  4        75848  3746        20.20
##  Yp[10,5] 4        76082  3746        20.30
##  Yp[11,5] 4        76520  3746        20.40
##  Yp[12,5] 2        39381  3746        10.50
##  Yp[13,5] 2        38576  3746        10.30
##  Yp[14,5] 2        38682  3746        10.30
##  Yp[15,5] 2        38918  3746        10.40
```

```
##  Yp[16,5] 2        39378  3746         10.50
##  Yp[17,5] 2        40005  3746         10.70
##  Yp[18,5] 2        39594  3746         10.60
##  Yp[19,5] 2        39129  3746         10.40
##  Yp[20,5] 2        38673  3746         10.30
##  Yp[21,5] 2        38168  3746         10.20
##  Yp[22,5] 2        38885  3746         10.40
##  Yp[23,5] 2        38829  3746         10.40
##  Yp[24,5] 2        38588  3746         10.30
##  Yp[25,5] 1        37337  3746          9.97
##  Yp[26,5] 2        36919  3746          9.86
##  Yp[27,5] 1        36457  3746          9.73
##  Yp[28,5] 2        36024  3746          9.62
##  Yp[29,5] 2        35482  3746          9.47
##  Yp[30,5] 1        34518  3746          9.21
##  Yp[31,5] 2        33847  3746          9.04
##  Yp[32,5] 1        32821  3746          8.76
##  Yp[33,5] 2        32699  3746          8.73
##  Yp[34,5] 2        31421  3746          8.39
##  Yp[35,5] 2        30519  3746          8.15
##  Yp[36,5] 2        29842  3746          7.97
##  Yp[37,5] 2        28636  3746          7.64
##  Yp[38,5] 2        27636  3746          7.38
##  Yp[39,5] 2        26731  3746          7.14
##  Yp[40,5] 2        25746  3746          6.87
##  Yp[41,5] 2        25373  3746          6.77
##  Yp[1,6]  2        36157  3746          9.65
##  Yp[2,6]  2        36233  3746          9.67
##  Yp[3,6]  4        70616  3746         18.90
##  Yp[4,6]  2        34239  3746          9.14
##  Yp[5,6]  2        33225  3746          8.87
##  Yp[6,6]  2        33374  3746          8.91
##  Yp[7,6]  2        33229  3746          8.87
##  Yp[8,6]  2        32414  3746          8.65
##  Yp[9,6]  2        31923  3746          8.52
##  Yp[10,6] 2        31850  3746          8.50
##  Yp[11,6] 2        31563  3746          8.43
##  Yp[12,6] 2        30935  3746          8.26
##  Yp[13,6] 2        30091  3746          8.03
##  Yp[14,6] 2        30482  3746          8.14
##  Yp[15,6] 2        30057  3746          8.02
##  Yp[16,6] 2        29141  3746          7.78
##  Yp[17,6] 2        29622  3746          7.91
##  Yp[18,6] 1        28651  3746          7.65
##  Yp[19,6] 2        28486  3746          7.60
##  Yp[20,6] 2        28136  3746          7.51
##  Yp[21,6] 2        28091  3746          7.50
##  Yp[22,6] 2        27118  3746          7.24
##  Yp[23,6] 2        26729  3746          7.14
##  Yp[24,6] 2        26178  3746          6.99
##  Yp[25,6] 1        26169  3746          6.99
##  Yp[26,6] 2        25149  3746          6.71
##  Yp[27,6] 1        25114  3746          6.70
##  Yp[28,6] 2        25057  3746          6.69
```

```
##  Yp[29,6] 2        24699  3746          6.59
##  Yp[30,6] 2        24480  3746          6.53
##  Yp[31,6] 2        23666  3746          6.32
##  Yp[32,6] 2        23763  3746          6.34
##  Yp[33,6] 2        24187  3746          6.46
##  Yp[34,6] 2        22915  3746          6.12
##  Yp[35,6] 2        22888  3746          6.11
##  Yp[36,6] 2        22502  3746          6.01
##  Yp[37,6] 2        21999  3746          5.87
##  Yp[38,6] 2        21641  3746          5.78
##  Yp[39,6] 2        21498  3746          5.74
##  Yp[40,6] 2        20826  3746          5.56
##  Yp[41,6] 4        42828  3746         11.40
##  Yp[1,7]  4        79230  3746         21.20
##  Yp[2,7]  2        39306  3746         10.50
##  Yp[3,7]  2        40108  3746         10.70
##  Yp[4,7]  2        39664  3746         10.60
##  Yp[5,7]  2        40148  3746         10.70
##  Yp[6,7]  2        40027  3746         10.70
##  Yp[7,7]  2        39521  3746         10.60
##  Yp[8,7]  2        39151  3746         10.50
##  Yp[9,7]  2        39927  3746         10.70
##  Yp[10,7] 2        39002  3746         10.40
##  Yp[11,7] 2        38912  3746         10.40
##  Yp[12,7] 2        39099  3746         10.40
##  Yp[13,7] 2        39014  3746         10.40
##  Yp[14,7] 2        38842  3746         10.40
##  Yp[15,7] 2        38751  3746         10.30
##  Yp[16,7] 2        38911  3746         10.40
##  Yp[17,7] 2        38346  3746         10.20
##  Yp[18,7] 1        37915  3746         10.10
##  Yp[19,7] 1        37671  3746         10.10
##  Yp[20,7] 1        37518  3746         10.00
##  Yp[21,7] 2        37539  3746         10.00
##  Yp[22,7] 2        36880  3746          9.85
##  Yp[23,7] 2        37687  3746         10.10
##  Yp[24,7] 2        36930  3746          9.86
##  Yp[25,7] 1        36437  3746          9.73
##  Yp[26,7] 2        36817  3746          9.83
##  Yp[27,7] 2        36791  3746          9.82
##  Yp[28,7] 2        35800  3746          9.56
##  Yp[29,7] 2        36427  3746          9.72
##  Yp[30,7] 2        35117  3746          9.37
##  Yp[31,7] 2        35682  3746          9.53
##  Yp[32,7] 2        34225  3746          9.14
##  Yp[33,7] 2        34948  3746          9.33
##  Yp[34,7] 2        35138  3746          9.38
##  Yp[35,7] 2        34908  3746          9.32
##  Yp[36,7] 2        34297  3746          9.16
##  Yp[37,7] 2        34891  3746          9.31
##  Yp[38,7] 2        34113  3746          9.11
##  Yp[39,7] 2        34450  3746          9.20
##  Yp[40,7] 2        33779  3746          9.02
##  Yp[41,7] 2        33295  3746          8.89
```

```
##  Yp[1,8]  6        76338  3746        20.40
##  Yp[2,8]  6        76408  3746        20.40
##  Yp[3,8]  4        73394  3746        19.60
##  Yp[4,8]  4        74186  3746        19.80
##  Yp[5,8]  6       110769  3746        29.60
##  Yp[6,8]  4        75642  3746        20.20
##  Yp[7,8]  4        74620  3746        19.90
##  Yp[8,8]  2        37351  3746         9.97
##  Yp[9,8]  2        36719  3746         9.80
##  Yp[10,8] 4        73344  3746        19.60
##  Yp[11,8] 4        74528  3746        19.90
##  Yp[12,8] 2        37399  3746         9.98
##  Yp[13,8] 2        36325  3746         9.70
##  Yp[14,8] 2        36902  3746         9.85
##  Yp[15,8] 2        35859  3746         9.57
##  Yp[16,8] 2        35959  3746         9.60
##  Yp[17,8] 2        36305  3746         9.69
##  Yp[18,8] 2        36278  3746         9.68
##  Yp[19,8] 2        36150  3746         9.65
##  Yp[20,8] 2        35695  3746         9.53
##  Yp[21,8] 2        35993  3746         9.61
##  Yp[22,8] 1        35720  3746         9.54
##  Yp[23,8] 2        36311  3746         9.69
##  Yp[24,8] 2        36629  3746         9.78
##  Yp[25,8] 1        36000  3746         9.61
##  Yp[26,8] 2        36663  3746         9.79
##  Yp[27,8] 2        36496  3746         9.74
##  Yp[28,8] 2        36290  3746         9.69
##  Yp[29,8] 2        36711  3746         9.80
##  Yp[30,8] 2        36892  3746         9.85
##  Yp[31,8] 2        36727  3746         9.80
##  Yp[32,8] 2        36989  3746         9.87
##  Yp[33,8] 2        37719  3746        10.10
##  Yp[34,8] 2        37851  3746        10.10
##  Yp[35,8] 2        38471  3746        10.30
##  Yp[36,8] 2        37366  3746         9.97
##  Yp[37,8] 2        37737  3746        10.10
##  Yp[38,8] 2        38437  3746        10.30
##  Yp[39,8] 2        38867  3746        10.40
##  Yp[40,8] 4        78050  3746        20.80
##  Yp[41,8] 4        77654  3746        20.70
##  Yp[1,9]  4        81396  3746        21.70
##  Yp[2,9]  4        81216  3746        21.70
##  Yp[3,9]  4        79162  3746        21.10
##  Yp[4,9]  4        81458  3746        21.70
##  Yp[5,9]  4        79390  3746        21.20
##  Yp[6,9]  4        79926  3746        21.30
##  Yp[7,9]  4        80934  3746        21.60
##  Yp[8,9]  2        39546  3746        10.60
##  Yp[9,9]  2        39918  3746        10.70
##  Yp[10,9] 2        39236  3746        10.50
##  Yp[11,9] 2        39326  3746        10.50
##  Yp[12,9] 2        39751  3746        10.60
##  Yp[13,9] 2        38951  3746        10.40
```

```
##  Yp[14,9] 2        39279  3746        10.50
##  Yp[15,9] 2        39096  3746        10.40
##  Yp[16,9] 2        38674  3746        10.30
##  Yp[17,9] 2        38585  3746        10.30
##  Yp[18,9] 2        37720  3746        10.10
##  Yp[19,9] 2        39191  3746        10.50
##  Yp[20,9] 2        38518  3746        10.30
##  Yp[21,9] 1        38185  3746        10.20
##  Yp[22,9] 1        38069  3746        10.20
##  Yp[23,9] 2        38237  3746        10.20
##  Yp[24,9] 2        37813  3746        10.10
##  Yp[25,9] 1        38119  3746        10.20
##  Yp[26,9] 2        38451  3746        10.30
##  Yp[27,9] 2        38155  3746        10.20
##  Yp[28,9] 2        37919  3746        10.10
##  Yp[29,9] 2        38238  3746        10.20
##  Yp[30,9] 2        37869  3746        10.10
##  Yp[31,9] 2        37892  3746        10.10
##  Yp[32,9] 2        38279  3746        10.20
##  Yp[33,9] 2        37245  3746         9.94
##  Yp[34,9] 2        38078  3746        10.20
##  Yp[35,9] 2        38929  3746        10.40
##  Yp[36,9] 2        37702  3746        10.10
##  Yp[37,9] 2        38297  3746        10.20
##  Yp[38,9] 2        38403  3746        10.30
##  Yp[39,9] 2        37922  3746        10.10
##  Yp[40,9] 2        38344  3746        10.20
##  Yp[41,9] 2        38366  3746        10.20
##  alpha[1] 18       18621  3746         4.97
##  alpha[2] 24       26172  3746         6.99
##  alpha[3] 20       22648  3746         6.05
##  alpha[4] 15       18384  3746         4.91
##  alpha[5] 30       40164  3746        10.70
##  alpha[6] 20       22964  3746         6.13
##  alpha[7] 15       16341  3746         4.36
##  alpha[8] 24       29388  3746         7.85
##  alpha[9] 24       27292  3746         7.29
##  beta[1]  12       14982  3746         4.00
##  beta[2]  20       22532  3746         6.01
##  beta[3]  15       17178  3746         4.59
##  beta[4]  15       17580  3746         4.69
##  beta[5]  24       24844  3746         6.63
##  beta[6]  15       17652  3746         4.71
##  beta[7]  16       20592  3746         5.50
##  beta[8]  15       17847  3746         4.76
##  beta[9]  15       15927  3746         4.25
##  r[1]     4        4693   3746         1.25
##  r[2]     4        4933   3746         1.32
##  r[3]     3        4455   3746         1.19
##  r[4]     3        4577   3746         1.22
##  r[5]     4        5313   3746         1.42
##  r[6]     4        5298   3746         1.41
##  r[7]     3        4145   3746         1.11
##  r[8]     3        4539   3746         1.21
```

```
##  r[9]     3        4511   3746          1.20
##
##
## [[2]]
##
## Quantile (q) = 0.025
## Accuracy (r) = +/- 0.005
## Probability (s) = 0.95
##
##           Burn-in  Total  Lower bound  Dependence
##           (M)      (N)    (Nmin)       factor (I)
##  Dm[1]    2        4796   3746          1.28
##  Dm[2]    2        4646   3746          1.24
##  Dm[3]    2        5097   3746          1.36
##  Dm[4]    2        4026   3746          1.07
##  Dm[5]    2        3907   3746          1.04
##  Dm[6]    2        4446   3746          1.19
##  Dm[7]    2        5197   3746          1.39
##  Dm[8]    2        4305   3746          1.15
##  Dm[9]    2        4674   3746          1.25
##  Dsd[1]   2        3929   3746          1.05
##  Dsd[2]   2        3830   3746          1.02
##  Dsd[3]   2        3860   3746          1.03
##  Dsd[4]   2        3886   3746          1.04
##  Dsd[5]   2        3805   3746          1.02
##  Dsd[6]   2        3778   3746          1.01
##  Dsd[7]   2        3848   3746          1.03
##  Dsd[8]   3        4119   3746          1.10
##  Dsd[9]   2        3839   3746          1.02
##  Yp[1,1]  2        40095  3746         10.70
##  Yp[2,1]  2        39896  3746         10.70
##  Yp[3,1]  2        39227  3746         10.50
##  Yp[4,1]  4        78022  3746         20.80
##  Yp[5,1]  2        38944  3746         10.40
##  Yp[6,1]  2        38759  3746         10.30
##  Yp[7,1]  2        39285  3746         10.50
##  Yp[8,1]  2        39438  3746         10.50
##  Yp[9,1]  2        38710  3746         10.30
##  Yp[10,1] 2        39122  3746         10.40
##  Yp[11,1] 2        39039  3746         10.40
##  Yp[12,1] 2        38948  3746         10.40
##  Yp[13,1] 2        39118  3746         10.40
##  Yp[14,1] 2        38585  3746         10.30
##  Yp[15,1] 2        39334  3746         10.50
##  Yp[16,1] 2        39180  3746         10.50
##  Yp[17,1] 1        38522  3746         10.30
##  Yp[18,1] 1        38370  3746         10.20
##  Yp[19,1] 2        38705  3746         10.30
##  Yp[20,1] 2        39089  3746         10.40
##  Yp[21,1] 2        38216  3746         10.20
##  Yp[22,1] 2        38491  3746         10.30
##  Yp[23,1] 2        38744  3746         10.30
##  Yp[24,1] 2        38688  3746         10.30
##  Yp[25,1] 1        38220  3746         10.20
```

```
##  Yp[26,1] 2        37993  3746         10.10
##  Yp[27,1] 2        37828  3746         10.10
##  Yp[28,1] 2        38371  3746         10.20
##  Yp[29,1] 2        38683  3746         10.30
##  Yp[30,1] 2        38182  3746         10.20
##  Yp[31,1] 2        37872  3746         10.10
##  Yp[32,1] 1        37678  3746         10.10
##  Yp[33,1] 2        38088  3746         10.20
##  Yp[34,1] 2        38502  3746         10.30
##  Yp[35,1] 2        38191  3746         10.20
##  Yp[36,1] 2        38008  3746         10.10
##  Yp[37,1] 2        37850  3746         10.10
##  Yp[38,1] 2        38159  3746         10.20
##  Yp[39,1] 2        37302  3746          9.96
##  Yp[40,1] 2        38424  3746         10.30
##  Yp[41,1] 2        38797  3746         10.40
##  Yp[1,2]  2        38209  3746         10.20
##  Yp[2,2]  2        37727  3746         10.10
##  Yp[3,2]  2        37418  3746          9.99
##  Yp[4,2]  2        36976  3746          9.87
##  Yp[5,2]  2        36424  3746          9.72
##  Yp[6,2]  2        35797  3746          9.56
##  Yp[7,2]  2        35428  3746          9.46
##  Yp[8,2]  2        34480  3746          9.20
##  Yp[9,2]  2        34615  3746          9.24
##  Yp[10,2] 2        33233  3746          8.87
##  Yp[11,2] 2        33649  3746          8.98
##  Yp[12,2] 1        31644  3746          8.45
##  Yp[13,2] 2        30895  3746          8.25
##  Yp[14,2] 2        30839  3746          8.23
##  Yp[15,2] 2        29675  3746          7.92
##  Yp[16,2] 2        29478  3746          7.87
##  Yp[17,2] 2        28319  3746          7.56
##  Yp[18,2] 1        27918  3746          7.45
##  Yp[19,2] 2        26604  3746          7.10
##  Yp[20,2] 2        26395  3746          7.05
##  Yp[21,2] 2        25040  3746          6.68
##  Yp[22,2] 1        24670  3746          6.59
##  Yp[23,2] 2        24681  3746          6.59
##  Yp[24,2] 2        23265  3746          6.21
##  Yp[25,2] 2        22521  3746          6.01
##  Yp[26,2] 1        21831  3746          5.83
##  Yp[27,2] 1        20727  3746          5.53
##  Yp[28,2] 2        20662  3746          5.52
##  Yp[29,2] 2        19420  3746          5.18
##  Yp[30,2] 2        19019  3746          5.08
##  Yp[31,2] 2        17693  3746          4.72
##  Yp[32,2] 2        17102  3746          4.57
##  Yp[33,2] 2        17104  3746          4.57
##  Yp[34,2] 1        15775  3746          4.21
##  Yp[35,2] 2        15473  3746          4.13
##  Yp[36,2] 2        15414  3746          4.11
##  Yp[37,2] 2        14177  3746          3.78
##  Yp[38,2] 2        13497  3746          3.60
```

```
##  Yp[39,2] 1        12704  3746          3.39
##  Yp[40,2] 2        12093  3746          3.23
##  Yp[41,2] 2        11867  3746          3.17
##  Yp[1,3]  4        81054  3746         21.60
##  Yp[2,3]  2        40058  3746         10.70
##  Yp[3,3]  2        39303  3746         10.50
##  Yp[4,3]  2        39727  3746         10.60
##  Yp[5,3]  2        39949  3746         10.70
##  Yp[6,3]  2        39342  3746         10.50
##  Yp[7,3]  2        39114  3746         10.40
##  Yp[8,3]  2        39062  3746         10.40
##  Yp[9,3]  2        37691  3746         10.10
##  Yp[10,3] 2        38600  3746         10.30
##  Yp[11,3] 2        37714  3746         10.10
##  Yp[12,3] 2        37528  3746         10.00
##  Yp[13,3] 2        38136  3746         10.20
##  Yp[14,3] 2        38146  3746         10.20
##  Yp[15,3] 2        38016  3746         10.10
##  Yp[16,3] 1        36976  3746          9.87
##  Yp[17,3] 2        37348  3746          9.97
##  Yp[18,3] 2        37373  3746          9.98
##  Yp[19,3] 2        36969  3746          9.87
##  Yp[20,3] 2        36982  3746          9.87
##  Yp[21,3] 1        36625  3746          9.78
##  Yp[22,3] 2        37297  3746          9.96
##  Yp[23,3] 2        36144  3746          9.65
##  Yp[24,3] 2        36097  3746          9.64
##  Yp[25,3] 2        35551  3746          9.49
##  Yp[26,3] 2        36761  3746          9.81
##  Yp[27,3] 2        36130  3746          9.64
##  Yp[28,3] 1        35878  3746          9.58
##  Yp[29,3] 1        35774  3746          9.55
##  Yp[30,3] 2        35746  3746          9.54
##  Yp[31,3] 2        36169  3746          9.66
##  Yp[32,3] 2        35746  3746          9.54
##  Yp[33,3] 2        35881  3746          9.58
##  Yp[34,3] 2        36260  3746          9.68
##  Yp[35,3] 2        35585  3746          9.50
##  Yp[36,3] 2        34894  3746          9.32
##  Yp[37,3] 2        35344  3746          9.44
##  Yp[38,3] 2        36015  3746          9.61
##  Yp[39,3] 2        35860  3746          9.57
##  Yp[40,3] 2        36175  3746          9.66
##  Yp[41,3] 2        35437  3746          9.46
##  Yp[1,4]  2        36220  3746          9.67
##  Yp[2,4]  4        72874  3746         19.50
##  Yp[3,4]  4        71692  3746         19.10
##  Yp[4,4]  2        36668  3746          9.79
##  Yp[5,4]  2        37061  3746          9.89
##  Yp[6,4]  2        36983  3746          9.87
##  Yp[7,4]  2        36779  3746          9.82
##  Yp[8,4]  2        37431  3746          9.99
##  Yp[9,4]  2        37212  3746          9.93
##  Yp[10,4] 2        37267  3746          9.95
```

```
##  Yp[11,4] 2        37864  3746         10.10
##  Yp[12,4] 2        37784  3746         10.10
##  Yp[13,4] 2        37814  3746         10.10
##  Yp[14,4] 2        37213  3746          9.93
##  Yp[15,4] 2        37507  3746         10.00
##  Yp[16,4] 2        37091  3746          9.90
##  Yp[17,4] 2        38339  3746         10.20
##  Yp[18,4] 2        38329  3746         10.20
##  Yp[19,4] 2        38758  3746         10.30
##  Yp[20,4] 2        38719  3746         10.30
##  Yp[21,4] 2        38083  3746         10.20
##  Yp[22,4] 2        38557  3746         10.30
##  Yp[23,4] 1        38547  3746         10.30
##  Yp[24,4] 2        38574  3746         10.30
##  Yp[25,4] 2        38115  3746         10.20
##  Yp[26,4] 2        38913  3746         10.40
##  Yp[27,4] 2        38726  3746         10.30
##  Yp[28,4] 2        39380  3746         10.50
##  Yp[29,4] 2        38412  3746         10.30
##  Yp[30,4] 2        38443  3746         10.30
##  Yp[31,4] 2        38198  3746         10.20
##  Yp[32,4] 2        38764  3746         10.30
##  Yp[33,4] 2        38823  3746         10.40
##  Yp[34,4] 2        38566  3746         10.30
##  Yp[35,4] 2        38028  3746         10.20
##  Yp[36,4] 2        38588  3746         10.30
##  Yp[37,4] 2        38534  3746         10.30
##  Yp[38,4] 2        38429  3746         10.30
##  Yp[39,4] 2        38475  3746         10.30
##  Yp[40,4] 2        38053  3746         10.20
##  Yp[41,4] 2        37866  3746         10.10
##  Yp[1,5]  4        64380  3746         17.20
##  Yp[2,5]  6        67412  3746         18.00
##  Yp[3,5]  6       102666  3746         27.40
##  Yp[4,5]  4        68330  3746         18.20
##  Yp[5,5]  6       106089  3746         28.30
##  Yp[6,5]  4        71512  3746         19.10
##  Yp[7,5]  6        76076  3746         20.30
##  Yp[8,5]  4        73262  3746         19.60
##  Yp[9,5]  4        74560  3746         19.90
##  Yp[10,5] 4        74890  3746         20.00
##  Yp[11,5] 4        76444  3746         20.40
##  Yp[12,5] 4        76892  3746         20.50
##  Yp[13,5] 4        78362  3746         20.90
##  Yp[14,5] 2        38935  3746         10.40
##  Yp[15,5] 2        39174  3746         10.50
##  Yp[16,5] 2        38969  3746         10.40
##  Yp[17,5] 2        39260  3746         10.50
##  Yp[18,5] 2        39107  3746         10.40
##  Yp[19,5] 2        39362  3746         10.50
##  Yp[20,5] 2        39280  3746         10.50
##  Yp[21,5] 2        38951  3746         10.40
##  Yp[22,5] 1        38264  3746         10.20
##  Yp[23,5] 2        38194  3746         10.20
```

```
##  Yp[24,5] 2        38146  3746         10.20
##  Yp[25,5] 2        38367  3746         10.20
##  Yp[26,5] 2        37438  3746          9.99
##  Yp[27,5] 2        36214  3746          9.67
##  Yp[28,5] 1        35945  3746          9.60
##  Yp[29,5] 2        34683  3746          9.26
##  Yp[30,5] 2        34895  3746          9.32
##  Yp[31,5] 2        33615  3746          8.97
##  Yp[32,5] 2        32281  3746          8.62
##  Yp[33,5] 2        31630  3746          8.44
##  Yp[34,5] 1        30939  3746          8.26
##  Yp[35,5] 1        30336  3746          8.10
##  Yp[36,5] 2        29477  3746          7.87
##  Yp[37,5] 2        28302  3746          7.56
##  Yp[38,5] 2        27882  3746          7.44
##  Yp[39,5] 2        26133  3746          6.98
##  Yp[40,5] 2        26398  3746          7.05
##  Yp[41,5] 2        25206  3746          6.73
##  Yp[1,6]  2        35577  3746          9.50
##  Yp[2,6]  2        35257  3746          9.41
##  Yp[3,6]  2        34683  3746          9.26
##  Yp[4,6]  2        34168  3746          9.12
##  Yp[5,6]  2        33436  3746          8.93
##  Yp[6,6]  2        33618  3746          8.97
##  Yp[7,6]  2        32886  3746          8.78
##  Yp[8,6]  2        32988  3746          8.81
##  Yp[9,6]  2        32032  3746          8.55
##  Yp[10,6] 2        31478  3746          8.40
##  Yp[11,6] 2        31216  3746          8.33
##  Yp[12,6] 2        30753  3746          8.21
##  Yp[13,6] 2        30353  3746          8.10
##  Yp[14,6] 2        29955  3746          8.00
##  Yp[15,6] 2        30061  3746          8.02
##  Yp[16,6] 2        29304  3746          7.82
##  Yp[17,6] 1        29148  3746          7.78
##  Yp[18,6] 2        28690  3746          7.66
##  Yp[19,6] 2        28355  3746          7.57
##  Yp[20,6] 1        27791  3746          7.42
##  Yp[21,6] 2        27397  3746          7.31
##  Yp[22,6] 1        27202  3746          7.26
##  Yp[23,6] 2        26102  3746          6.97
##  Yp[24,6] 2        26765  3746          7.14
##  Yp[25,6] 2        25926  3746          6.92
##  Yp[26,6] 2        26232  3746          7.00
##  Yp[27,6] 2        25340  3746          6.76
##  Yp[28,6] 2        24697  3746          6.59
##  Yp[29,6] 2        24640  3746          6.58
##  Yp[30,6] 2        24520  3746          6.55
##  Yp[31,6] 2        24677  3746          6.59
##  Yp[32,6] 2        24274  3746          6.48
##  Yp[33,6] 2        23410  3746          6.25
##  Yp[34,6] 2        23025  3746          6.15
##  Yp[35,6] 2        22446  3746          5.99
##  Yp[36,6] 2        22722  3746          6.07
```

```
##  Yp[37,6] 2        22320  3746         5.96
##  Yp[38,6] 2        22118  3746         5.90
##  Yp[39,6] 2        21810  3746         5.82
##  Yp[40,6] 2        21071  3746         5.62
##  Yp[41,6] 2        20670  3746         5.52
##  Yp[1,7]  4        79886  3746        21.30
##  Yp[2,7]  2        39645  3746        10.60
##  Yp[3,7]  2        39922  3746        10.70
##  Yp[4,7]  2        39487  3746        10.50
##  Yp[5,7]  2        39003  3746        10.40
##  Yp[6,7]  2        39510  3746        10.50
##  Yp[7,7]  2        39770  3746        10.60
##  Yp[8,7]  2        38886  3746        10.40
##  Yp[9,7]  2        39645  3746        10.60
##  Yp[10,7] 2        39189  3746        10.50
##  Yp[11,7] 2        38645  3746        10.30
##  Yp[12,7] 1        38474  3746        10.30
##  Yp[13,7] 2        38171  3746        10.20
##  Yp[14,7] 2        38533  3746        10.30
##  Yp[15,7] 1        38243  3746        10.20
##  Yp[16,7] 1        38011  3746        10.10
##  Yp[17,7] 1        37773  3746        10.10
##  Yp[18,7] 2        38014  3746        10.10
##  Yp[19,7] 2        37717  3746        10.10
##  Yp[20,7] 1        37611  3746        10.00
##  Yp[21,7] 2        37158  3746         9.92
##  Yp[22,7] 2        36949  3746         9.86
##  Yp[23,7] 1        37049  3746         9.89
##  Yp[24,7] 2        37129  3746         9.91
##  Yp[25,7] 2        36788  3746         9.82
##  Yp[26,7] 2        36600  3746         9.77
##  Yp[27,7] 2        36215  3746         9.67
##  Yp[28,7] 2        36129  3746         9.64
##  Yp[29,7] 2        35781  3746         9.55
##  Yp[30,7] 2        34981  3746         9.34
##  Yp[31,7] 1        34863  3746         9.31
##  Yp[32,7] 2        34938  3746         9.33
##  Yp[33,7] 1        34114  3746         9.11
##  Yp[34,7] 2        34720  3746         9.27
##  Yp[35,7] 2        35005  3746         9.34
##  Yp[36,7] 2        34067  3746         9.09
##  Yp[37,7] 2        33878  3746         9.04
##  Yp[38,7] 2        34183  3746         9.13
##  Yp[39,7] 2        33574  3746         8.96
##  Yp[40,7] 2        33223  3746         8.87
##  Yp[41,7] 2        33853  3746         9.04
##  Yp[1,8]  9       114879  3746        30.70
##  Yp[2,8]  4        75376  3746        20.10
##  Yp[3,8]  4        74976  3746        20.00
##  Yp[4,8]  4        74318  3746        19.80
##  Yp[5,8]  4        74042  3746        19.80
##  Yp[6,8]  4        74434  3746        19.90
##  Yp[7,8]  2        38062  3746        10.20
##  Yp[8,8]  2        37540  3746        10.00
```

```
##  Yp[9,8]  2        36804  3746         9.82
##  Yp[10,8] 2        36354  3746         9.70
##  Yp[11,8] 2        36577  3746         9.76
##  Yp[12,8] 2        37214  3746         9.93
##  Yp[13,8] 2        36987  3746         9.87
##  Yp[14,8] 2        36823  3746         9.83
##  Yp[15,8] 2        36231  3746         9.67
##  Yp[16,8] 2        36738  3746         9.81
##  Yp[17,8] 2        36578  3746         9.76
##  Yp[18,8] 2        36224  3746         9.67
##  Yp[19,8] 2        36154  3746         9.65
##  Yp[20,8] 2        36552  3746         9.76
##  Yp[21,8] 2        36575  3746         9.76
##  Yp[22,8] 2        36322  3746         9.70
##  Yp[23,8] 2        36488  3746         9.74
##  Yp[24,8] 1        36165  3746         9.65
##  Yp[25,8] 1        35957  3746         9.60
##  Yp[26,8] 2        36678  3746         9.79
##  Yp[27,8] 2        36695  3746         9.80
##  Yp[28,8] 2        36695  3746         9.80
##  Yp[29,8] 2        36538  3746         9.75
##  Yp[30,8] 1        36535  3746         9.75
##  Yp[31,8] 2        36864  3746         9.84
##  Yp[32,8] 2        37097  3746         9.90
##  Yp[33,8] 2        37201  3746         9.93
##  Yp[34,8] 1        36607  3746         9.77
##  Yp[35,8] 2        37446  3746        10.00
##  Yp[36,8] 2        37599  3746        10.00
##  Yp[37,8] 2        37855  3746        10.10
##  Yp[38,8] 2        37751  3746        10.10
##  Yp[39,8] 2        38868  3746        10.40
##  Yp[40,8] 2        39294  3746        10.50
##  Yp[41,8] 4        78058  3746        20.80
##  Yp[1,9]  4        80772  3746        21.60
##  Yp[2,9]  4        82168  3746        21.90
##  Yp[3,9]  2        40955  3746        10.90
##  Yp[4,9]  4        81096  3746        21.60
##  Yp[5,9]  2        40461  3746        10.80
##  Yp[6,9]  4        81892  3746        21.90
##  Yp[7,9]  4        79354  3746        21.20
##  Yp[8,9]  4        79920  3746        21.30
##  Yp[9,9]  2        40499  3746        10.80
##  Yp[10,9] 2        39619  3746        10.60
##  Yp[11,9] 2        39777  3746        10.60
##  Yp[12,9] 2        40033  3746        10.70
##  Yp[13,9] 2        38979  3746        10.40
##  Yp[14,9] 2        39219  3746        10.50
##  Yp[15,9] 2        38149  3746        10.20
##  Yp[16,9] 2        38735  3746        10.30
##  Yp[17,9] 2        39174  3746        10.50
##  Yp[18,9] 2        38702  3746        10.30
##  Yp[19,9] 2        38912  3746        10.40
##  Yp[20,9] 2        39079  3746        10.40
##  Yp[21,9] 2        38446  3746        10.30
```

```
##  Yp[22,9] 2        38536  3746         10.30
##  Yp[23,9] 2        38782  3746         10.40
##  Yp[24,9] 1        38171  3746         10.20
##  Yp[25,9] 2        38208  3746         10.20
##  Yp[26,9] 2        38419  3746         10.30
##  Yp[27,9] 1        37947  3746         10.10
##  Yp[28,9] 2        38149  3746         10.20
##  Yp[29,9] 1        37730  3746         10.10
##  Yp[30,9] 2        38281  3746         10.20
##  Yp[31,9] 1        37684  3746         10.10
##  Yp[32,9] 2        37939  3746         10.10
##  Yp[33,9] 2        38449  3746         10.30
##  Yp[34,9] 2        38144  3746         10.20
##  Yp[35,9] 2        37788  3746         10.10
##  Yp[36,9] 2        38145  3746         10.20
##  Yp[37,9] 2        37978  3746         10.10
##  Yp[38,9] 2        38051  3746         10.20
##  Yp[39,9] 2        38530  3746         10.30
##  Yp[40,9] 2        38444  3746         10.30
##  Yp[41,9] 2        38347  3746         10.20
##  alpha[1] 18       19515  3746          5.21
##  alpha[2] 18       21048  3746          5.62
##  alpha[3] 18       19515  3746          5.21
##  alpha[4] 15       17937  3746          4.79
##  alpha[5] 30       32470  3746          8.67
##  alpha[6] 20       23172  3746          6.19
##  alpha[7] 15       17979  3746          4.80
##  alpha[8] 25       31710  3746          8.47
##  alpha[9] 30       30865  3746          8.24
##  beta[1]  15       17844  3746          4.76
##  beta[2]  20       21384  3746          5.71
##  beta[3]  15       17847  3746          4.76
##  beta[4]  15       17400  3746          4.64
##  beta[5]  30       36234  3746          9.67
##  beta[6]  16       21068  3746          5.62
##  beta[7]  15       17466  3746          4.66
##  beta[8]  16       19840  3746          5.30
##  beta[9]  16       17716  3746          4.73
##  r[1]     3        4558   3746          1.22
##  r[2]     4        5123   3746          1.37
##  r[3]     4        4673   3746          1.25
##  r[4]     3        4474   3746          1.19
##  r[5]     6        8502   3746          2.27
##  r[6]     5        5517   3746          1.47
##  r[7]     3        4188   3746          1.12
##  r[8]     3        4337   3746          1.16
##  r[9]     3        4455   3746          1.19
```

```
  geweke.diag(out.coda)
```

```
## [[1]]
##
## Fraction in 1st window = 0.1
## Fraction in 2nd window = 0.5
##
```

```
##     Dm[1]     Dm[2]     Dm[3]     Dm[4]     Dm[5]     Dm[6]     Dm[7]
##  0.831005  0.716292  0.243816 -1.089503  1.856450 -0.746458  0.625069
##     Dm[8]     Dm[9]    Dsd[1]    Dsd[2]    Dsd[3]    Dsd[4]    Dsd[5]
## -2.385467 -0.809570  0.531296  1.104563 -0.149448 -0.553606  1.782916
##    Dsd[6]    Dsd[7]    Dsd[8]    Dsd[9]   Yp[1,1]   Yp[2,1]   Yp[3,1]
## -1.017018  0.722239 -2.449992 -1.230635 -1.079145 -0.663402 -0.510405
##   Yp[4,1]   Yp[5,1]   Yp[6,1]   Yp[7,1]   Yp[8,1]   Yp[9,1]  Yp[10,1]
##  1.249109 -0.397241 -0.615645  0.111236  0.173594  1.118690 -0.272803
##  Yp[11,1]  Yp[12,1]  Yp[13,1]  Yp[14,1]  Yp[15,1]  Yp[16,1]  Yp[17,1]
##  0.018343  0.756717  1.499496  1.502307 -0.314776  0.641888  0.371636
##  Yp[18,1]  Yp[19,1]  Yp[20,1]  Yp[21,1]  Yp[22,1]  Yp[23,1]  Yp[24,1]
##  0.665043  0.092756 -0.297387  0.982316  0.714308  0.944316 -1.063702
##  Yp[25,1]  Yp[26,1]  Yp[27,1]  Yp[28,1]  Yp[29,1]  Yp[30,1]  Yp[31,1]
##  0.068742 -0.085733 -0.357409  0.379196 -0.451367  0.306396 -0.521017
##  Yp[32,1]  Yp[33,1]  Yp[34,1]  Yp[35,1]  Yp[36,1]  Yp[37,1]  Yp[38,1]
## -0.981007 -0.131618  1.601465  0.481847 -1.147251  0.795339 -0.325333
##  Yp[39,1]  Yp[40,1]  Yp[41,1]   Yp[1,2]   Yp[2,2]   Yp[3,2]   Yp[4,2]
##  0.061602  0.674779 -0.072275  0.266076  1.035671 -1.460665 -1.085842
##   Yp[5,2]   Yp[6,2]   Yp[7,2]   Yp[8,2]   Yp[9,2]  Yp[10,2]  Yp[11,2]
## -0.950062  0.323411  0.590555 -1.413624  0.420503 -1.137199 -0.575375
##  Yp[12,2]  Yp[13,2]  Yp[14,2]  Yp[15,2]  Yp[16,2]  Yp[17,2]  Yp[18,2]
##  1.607915 -1.175465 -2.641849 -0.245128  0.161075 -1.040818 -0.687883
##  Yp[19,2]  Yp[20,2]  Yp[21,2]  Yp[22,2]  Yp[23,2]  Yp[24,2]  Yp[25,2]
##  0.185416 -0.719693  1.008670  0.220114 -1.077284  0.901526  0.791781
##  Yp[26,2]  Yp[27,2]  Yp[28,2]  Yp[29,2]  Yp[30,2]  Yp[31,2]  Yp[32,2]
## -0.127701 -0.188642 -0.573066 -0.931178  1.451459  1.342299  0.687383
##  Yp[33,2]  Yp[34,2]  Yp[35,2]  Yp[36,2]  Yp[37,2]  Yp[38,2]  Yp[39,2]
## -0.576030  0.812455  0.493106  0.356094 -2.101379  0.274488  0.607566
##  Yp[40,2]  Yp[41,2]   Yp[1,3]   Yp[2,3]   Yp[3,3]   Yp[4,3]   Yp[5,3]
## -1.095684 -0.084783  3.137238  0.059224  1.672919  2.605146  0.908116
##   Yp[6,3]   Yp[7,3]   Yp[8,3]   Yp[9,3]  Yp[10,3]  Yp[11,3]  Yp[12,3]
## -0.128810 -0.572638  0.669415  1.205818  1.033416  2.315254  1.410912
##  Yp[13,3]  Yp[14,3]  Yp[15,3]  Yp[16,3]  Yp[17,3]  Yp[18,3]  Yp[19,3]
##  0.889247  2.834513 -0.250174 -1.350486 -0.156778  0.855629  0.538182
##  Yp[20,3]  Yp[21,3]  Yp[22,3]  Yp[23,3]  Yp[24,3]  Yp[25,3]  Yp[26,3]
## -1.708982  0.117222 -1.099280  0.155224 -0.841481  1.303180 -0.590717
##  Yp[27,3]  Yp[28,3]  Yp[29,3]  Yp[30,3]  Yp[31,3]  Yp[32,3]  Yp[33,3]
## -0.984444 -0.531751 -1.656392 -1.176489 -1.987973 -1.217687  1.365842
##  Yp[34,3]  Yp[35,3]  Yp[36,3]  Yp[37,3]  Yp[38,3]  Yp[39,3]  Yp[40,3]
## -0.125196 -0.340073 -0.503536  0.131598 -2.470058  0.586293 -1.086908
##  Yp[41,3]   Yp[1,4]   Yp[2,4]   Yp[3,4]   Yp[4,4]   Yp[5,4]   Yp[6,4]
## -2.630427 -0.429867 -0.354518 -0.681451 -1.808694 -1.002082 -0.471747
##   Yp[7,4]   Yp[8,4]   Yp[9,4]  Yp[10,4]  Yp[11,4]  Yp[12,4]  Yp[13,4]
## -0.774181 -0.630314  0.087227  1.112767  1.026524 -0.984742  0.498659
##  Yp[14,4]  Yp[15,4]  Yp[16,4]  Yp[17,4]  Yp[18,4]  Yp[19,4]  Yp[20,4]
## -0.171306 -0.603791 -0.318107 -2.740130 -0.478063  0.618494 -1.153303
##  Yp[21,4]  Yp[22,4]  Yp[23,4]  Yp[24,4]  Yp[25,4]  Yp[26,4]  Yp[27,4]
##  0.319413 -0.547856 -1.338774 -1.053061 -1.003601 -1.571502  0.475004
##  Yp[28,4]  Yp[29,4]  Yp[30,4]  Yp[31,4]  Yp[32,4]  Yp[33,4]  Yp[34,4]
##  0.997613 -1.974451 -0.345102  0.411683  0.884428  0.202660  0.540839
##  Yp[35,4]  Yp[36,4]  Yp[37,4]  Yp[38,4]  Yp[39,4]  Yp[40,4]  Yp[41,4]
##  1.176164  0.235428 -0.525004 -0.920036  0.449407  0.406159 -0.676969
##   Yp[1,5]   Yp[2,5]   Yp[3,5]   Yp[4,5]   Yp[5,5]   Yp[6,5]   Yp[7,5]
##  0.209174  0.113020  0.046314 -1.545169 -0.879140 -0.753163 -1.238701
```

```
##   Yp[8,5]   Yp[9,5]  Yp[10,5]  Yp[11,5]  Yp[12,5]  Yp[13,5]  Yp[14,5]
## -0.574419  0.738346  1.133569 -0.073470 -0.540391 -0.676050 -0.284118
##  Yp[15,5]  Yp[16,5]  Yp[17,5]  Yp[18,5]  Yp[19,5]  Yp[20,5]  Yp[21,5]
##  0.155027 -0.813226 -0.308333  0.457908  0.252896 -0.055612 -0.126583
##  Yp[22,5]  Yp[23,5]  Yp[24,5]  Yp[25,5]  Yp[26,5]  Yp[27,5]  Yp[28,5]
## -0.782037  0.011911 -0.459099  0.375295 -0.897703  1.373620  0.133529
##  Yp[29,5]  Yp[30,5]  Yp[31,5]  Yp[32,5]  Yp[33,5]  Yp[34,5]  Yp[35,5]
##  1.626419 -0.296399  0.029312  0.695484  0.044356 -1.171795  0.741998
##  Yp[36,5]  Yp[37,5]  Yp[38,5]  Yp[39,5]  Yp[40,5]  Yp[41,5]   Yp[1,6]
## -0.384093  0.012415  1.350366  1.611894 -0.317592  0.130341  0.043410
##   Yp[2,6]   Yp[3,6]   Yp[4,6]   Yp[5,6]   Yp[6,6]   Yp[7,6]   Yp[8,6]
## -0.042798 -0.196314  1.961479  0.408404  0.673387  0.927540  1.349109
##   Yp[9,6]  Yp[10,6]  Yp[11,6]  Yp[12,6]  Yp[13,6]  Yp[14,6]  Yp[15,6]
##  1.823470 -0.103391 -0.814575  0.473846  1.169823 -1.674086  1.179807
##  Yp[16,6]  Yp[17,6]  Yp[18,6]  Yp[19,6]  Yp[20,6]  Yp[21,6]  Yp[22,6]
##  0.618589  0.602029  1.719070  0.950328 -0.547523  0.479558 -1.319066
##  Yp[23,6]  Yp[24,6]  Yp[25,6]  Yp[26,6]  Yp[27,6]  Yp[28,6]  Yp[29,6]
##  1.072495  0.328722  2.071791 -0.243850 -1.309758 -1.662697  0.561985
##  Yp[30,6]  Yp[31,6]  Yp[32,6]  Yp[33,6]  Yp[34,6]  Yp[35,6]  Yp[36,6]
## -1.063653 -0.269397 -0.149655  0.729929 -1.188489  0.124915 -0.566709
##  Yp[37,6]  Yp[38,6]  Yp[39,6]  Yp[40,6]  Yp[41,6]   Yp[1,7]   Yp[2,7]
## -0.557400  0.140993 -1.166686  1.053186 -1.138646 -0.297227 -0.370456
##   Yp[3,7]   Yp[4,7]   Yp[5,7]   Yp[6,7]   Yp[7,7]   Yp[8,7]   Yp[9,7]
##  1.228347 -0.125464  0.422341 -1.146712 -0.299084 -0.452416  0.954690
##  Yp[10,7]  Yp[11,7]  Yp[12,7]  Yp[13,7]  Yp[14,7]  Yp[15,7]  Yp[16,7]
## -2.310478  0.645427  0.482270  0.166607  0.864225 -0.664290  0.113449
##  Yp[17,7]  Yp[18,7]  Yp[19,7]  Yp[20,7]  Yp[21,7]  Yp[22,7]  Yp[23,7]
## -0.017057 -1.295315 -0.286711 -0.886474  0.438897 -1.405220 -0.605818
##  Yp[24,7]  Yp[25,7]  Yp[26,7]  Yp[27,7]  Yp[28,7]  Yp[29,7]  Yp[30,7]
## -1.804738 -0.099819  1.635571  1.254431 -1.023643 -0.485779  0.871362
##  Yp[31,7]  Yp[32,7]  Yp[33,7]  Yp[34,7]  Yp[35,7]  Yp[36,7]  Yp[37,7]
## -0.212549 -0.656388  0.560067  0.274347 -0.093308  0.495819  0.019934
##  Yp[38,7]  Yp[39,7]  Yp[40,7]  Yp[41,7]   Yp[1,8]   Yp[2,8]   Yp[3,8]
##  0.426670  0.406943  0.416999 -0.448593  0.311709 -0.465706 -0.518068
##   Yp[4,8]   Yp[5,8]   Yp[6,8]   Yp[7,8]   Yp[8,8]   Yp[9,8]  Yp[10,8]
## -1.626459 -0.584266 -1.570126 -0.364101 -0.523167 -0.495433  0.964215
##  Yp[11,8]  Yp[12,8]  Yp[13,8]  Yp[14,8]  Yp[15,8]  Yp[16,8]  Yp[17,8]
##  0.403359  0.039637 -1.150286 -1.313175 -1.804681 -0.680710  0.332281
##  Yp[18,8]  Yp[19,8]  Yp[20,8]  Yp[21,8]  Yp[22,8]  Yp[23,8]  Yp[24,8]
## -1.975376  0.508860  0.802865 -0.080591  1.201662 -0.642170  0.840329
##  Yp[25,8]  Yp[26,8]  Yp[27,8]  Yp[28,8]  Yp[29,8]  Yp[30,8]  Yp[31,8]
## -1.454314 -0.073819  1.004291  1.709033 -0.228184  1.213650 -0.107966
##  Yp[32,8]  Yp[33,8]  Yp[34,8]  Yp[35,8]  Yp[36,8]  Yp[37,8]  Yp[38,8]
## -0.969327 -1.989672 -1.036369  0.854875  0.402737 -0.615578 -0.937504
##  Yp[39,8]  Yp[40,8]  Yp[41,8]   Yp[1,9]   Yp[2,9]   Yp[3,9]   Yp[4,9]
##  0.318360 -0.665465  0.434081  0.960554 -0.402273  0.034435  0.655327
##   Yp[5,9]   Yp[6,9]   Yp[7,9]   Yp[8,9]   Yp[9,9]  Yp[10,9]  Yp[11,9]
##  0.206154  1.438052 -1.162401  1.956792  0.489436  0.355438  0.002263
##  Yp[12,9]  Yp[13,9]  Yp[14,9]  Yp[15,9]  Yp[16,9]  Yp[17,9]  Yp[18,9]
##  0.092060  1.138651  0.119898  0.209867  1.116607 -0.029669  0.548309
##  Yp[19,9]  Yp[20,9]  Yp[21,9]  Yp[22,9]  Yp[23,9]  Yp[24,9]  Yp[25,9]
##  0.038168  1.059199  0.611289 -1.109785  1.415997 -0.229773  0.593524
##  Yp[26,9]  Yp[27,9]  Yp[28,9]  Yp[29,9]  Yp[30,9]  Yp[31,9]  Yp[32,9]
##  0.209419  0.827927 -1.086926 -0.634815 -2.118879 -0.380957 -1.877219
```

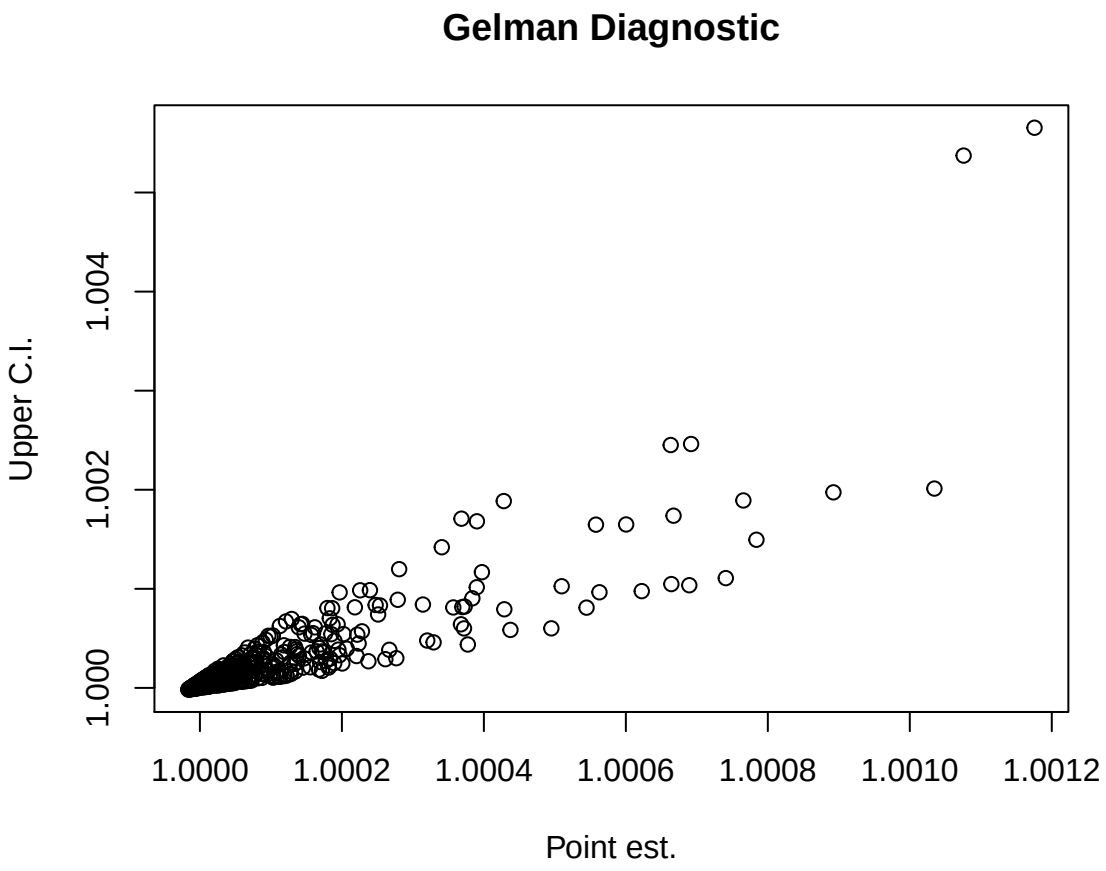
```
##  Yp[33,9]  Yp[34,9]  Yp[35,9]  Yp[36,9]  Yp[37,9]  Yp[38,9]  Yp[39,9]
## -0.397206 -0.672544 -1.803334 -1.573656  0.385311 -1.221807  0.207634
##  Yp[40,9]  Yp[41,9]  alpha[1]  alpha[2]  alpha[3]  alpha[4]  alpha[5]
## -0.224836 -0.149213 -0.045564 -0.730937  1.319904 -0.724091 -0.366071
##  alpha[6]  alpha[7]  alpha[8]  alpha[9]   beta[1]   beta[2]   beta[3]
##  0.675682  0.477962 -0.120334  1.022470  0.175342  0.676541 -1.445649
##   beta[4]   beta[5]   beta[6]   beta[7]   beta[8]   beta[9]      r[1]
##  0.536850  0.407864 -0.799441 -0.572748  0.018565 -1.041576  0.220405
##      r[2]      r[3]      r[4]      r[5]      r[6]      r[7]      r[8]
## -0.659674  0.597586  0.072431 -0.279741  0.181387 -1.604690 -0.123386
##      r[9]
## -0.331351
##
##
## [[2]]
##
## Fraction in 1st window = 0.1
## Fraction in 2nd window = 0.5
##
##      Dm[1]      Dm[2]      Dm[3]      Dm[4]      Dm[5]      Dm[6]
##  0.0925421  0.1805637  0.8367303  1.6367416  0.9716648 -1.0258982
##      Dm[7]      Dm[8]      Dm[9]     Dsd[1]     Dsd[2]     Dsd[3]
##  0.0776156 -1.1316588 -0.2591533  0.4387770  1.5581250  1.0240162
##     Dsd[4]     Dsd[5]     Dsd[6]     Dsd[7]     Dsd[8]     Dsd[9]
##  1.7996916  0.1820952 -1.2740631  0.3596488 -0.5647884  0.2005342
##    Yp[1,1]    Yp[2,1]    Yp[3,1]    Yp[4,1]    Yp[5,1]    Yp[6,1]
## -0.0923389  0.9203645 -1.4166063 -0.5849875 -0.3445848 -0.1911422
##    Yp[7,1]    Yp[8,1]    Yp[9,1]   Yp[10,1]   Yp[11,1]   Yp[12,1]
## -0.5340662 -0.4217270 -1.3018573 -0.5162285 -0.6820186  0.5566883
##   Yp[13,1]   Yp[14,1]   Yp[15,1]   Yp[16,1]   Yp[17,1]   Yp[18,1]
## -0.4601640 -1.1223551 -1.8289741  0.0857424  0.5761174 -0.4969826
##   Yp[19,1]   Yp[20,1]   Yp[21,1]   Yp[22,1]   Yp[23,1]   Yp[24,1]
##  0.0701489  1.6585961  1.4831146 -0.4446170 -0.2991791 -0.2595604
##   Yp[25,1]   Yp[26,1]   Yp[27,1]   Yp[28,1]   Yp[29,1]   Yp[30,1]
## -1.1759835 -0.4551087  0.2734223 -0.2377249 -1.4080933 -0.6715775
##   Yp[31,1]   Yp[32,1]   Yp[33,1]   Yp[34,1]   Yp[35,1]   Yp[36,1]
##  1.2863728 -0.6410019  0.5002238  0.5610712  0.9725392 -0.5450832
##   Yp[37,1]   Yp[38,1]   Yp[39,1]   Yp[40,1]   Yp[41,1]    Yp[1,2]
##  0.7004764  2.0097503  0.6260833  0.8084580  0.1917042 -1.2376792
##    Yp[2,2]    Yp[3,2]    Yp[4,2]    Yp[5,2]    Yp[6,2]    Yp[7,2]
##  0.2862442  0.7062214 -3.1731179  1.4991418 -1.4304281  0.4732500
##    Yp[8,2]    Yp[9,2]   Yp[10,2]   Yp[11,2]   Yp[12,2]   Yp[13,2]
## -1.2089712 -0.2624231  0.1116825 -0.1339164 -0.3122079 -1.0598247
##   Yp[14,2]   Yp[15,2]   Yp[16,2]   Yp[17,2]   Yp[18,2]   Yp[19,2]
##  0.0659766 -0.5993505 -0.2725059 -0.0702110 -1.5261431 -0.3285896
##   Yp[20,2]   Yp[21,2]   Yp[22,2]   Yp[23,2]   Yp[24,2]   Yp[25,2]
##  0.0279632 -0.0478008 -0.8509847 -1.9145173 -1.8429856 -0.0566932
##   Yp[26,2]   Yp[27,2]   Yp[28,2]   Yp[29,2]   Yp[30,2]   Yp[31,2]
## -0.3162171 -0.8184280 -0.2827515  2.1278737 -0.2776950 -0.0526058
##   Yp[32,2]   Yp[33,2]   Yp[34,2]   Yp[35,2]   Yp[36,2]   Yp[37,2]
## -1.1202423 -0.5062913  0.9717239  0.2086828 -0.7341413 -0.8985381
##   Yp[38,2]   Yp[39,2]   Yp[40,2]   Yp[41,2]    Yp[1,3]    Yp[2,3]
##  0.1074362 -0.0684791  0.8099146 -1.0296486 -0.4052592 -0.7837688
##    Yp[3,3]    Yp[4,3]    Yp[5,3]    Yp[6,3]    Yp[7,3]    Yp[8,3]
```

```
## -1.3507466 -0.1011981 -1.2292672 -2.0308124 -0.3756591 -0.3671451
##    Yp[9,3]   Yp[10,3]   Yp[11,3]   Yp[12,3]   Yp[13,3]   Yp[14,3]
## -0.4483686 -2.4370180  0.2929697 -0.1255461  0.5012547 -2.0761414
##   Yp[15,3]   Yp[16,3]   Yp[17,3]   Yp[18,3]   Yp[19,3]   Yp[20,3]
## -0.3094846  0.5054148  1.6375597  0.1875563  0.6983566  1.2690402
##   Yp[21,3]   Yp[22,3]   Yp[23,3]   Yp[24,3]   Yp[25,3]   Yp[26,3]
## -0.3096436 -0.9258682 -0.0431082  1.2025697 -0.1879791 -0.3616018
##   Yp[27,3]   Yp[28,3]   Yp[29,3]   Yp[30,3]   Yp[31,3]   Yp[32,3]
## -0.0034269  0.7000813  0.7645425 -1.0453415  0.3838818  0.8863953
##   Yp[33,3]   Yp[34,3]   Yp[35,3]   Yp[36,3]   Yp[37,3]   Yp[38,3]
##  0.9677073 -0.4119704  1.1579816  1.3205756  0.3333961 -0.3225545
##   Yp[39,3]   Yp[40,3]   Yp[41,3]    Yp[1,4]    Yp[2,4]    Yp[3,4]
##  2.5521430  0.4689047  0.3816980  2.3175186  1.3208909  0.4524281
##    Yp[4,4]    Yp[5,4]    Yp[6,4]    Yp[7,4]    Yp[8,4]    Yp[9,4]
##  2.2727809  3.0580265  2.8593998  0.1459677 -0.3216809  2.3999599
##   Yp[10,4]   Yp[11,4]   Yp[12,4]   Yp[13,4]   Yp[14,4]   Yp[15,4]
##  1.8249804 -0.2262685  2.1317580  0.4261034  2.8070079  3.3324239
##   Yp[16,4]   Yp[17,4]   Yp[18,4]   Yp[19,4]   Yp[20,4]   Yp[21,4]
##  1.7992280  1.8277045 -0.3534741 -0.0120991  0.3749197  1.7366392
##   Yp[22,4]   Yp[23,4]   Yp[24,4]   Yp[25,4]   Yp[26,4]   Yp[27,4]
## -1.0268770  0.5195537 -0.1980541 -2.7045392  1.1793929 -0.3143349
##   Yp[28,4]   Yp[29,4]   Yp[30,4]   Yp[31,4]   Yp[32,4]   Yp[33,4]
## -0.3587294 -0.0549514 -0.8928241  1.3689666 -0.5619558  0.5092362
##   Yp[34,4]   Yp[35,4]   Yp[36,4]   Yp[37,4]   Yp[38,4]   Yp[39,4]
## -1.4161200  0.4899268 -0.3691479 -0.4955030 -1.8107351 -1.5799951
##   Yp[40,4]   Yp[41,4]    Yp[1,5]    Yp[2,5]    Yp[3,5]    Yp[4,5]
## -0.8966083 -2.4016056  0.8726958  0.4312315  1.0732226 -0.3731454
##    Yp[5,5]    Yp[6,5]    Yp[7,5]    Yp[8,5]    Yp[9,5]   Yp[10,5]
##  0.5934464  0.0363848  0.8270062  1.1528483  0.6738408  2.2960190
##   Yp[11,5]   Yp[12,5]   Yp[13,5]   Yp[14,5]   Yp[15,5]   Yp[16,5]
##  0.9582236 -0.2335740  1.0219067  0.1546047  0.8621413  1.1716050
##   Yp[17,5]   Yp[18,5]   Yp[19,5]   Yp[20,5]   Yp[21,5]   Yp[22,5]
##  1.1304727  1.1647311  0.7007590  2.5656910  0.5850546 -0.1446654
##   Yp[23,5]   Yp[24,5]   Yp[25,5]   Yp[26,5]   Yp[27,5]   Yp[28,5]
## -0.8178152  0.7024870 -0.9706339  0.3619630  1.9376094  0.1399257
##   Yp[29,5]   Yp[30,5]   Yp[31,5]   Yp[32,5]   Yp[33,5]   Yp[34,5]
## -0.3067425 -0.1583512 -1.0277276 -1.5590239  1.4336263 -0.5819006
##   Yp[35,5]   Yp[36,5]   Yp[37,5]   Yp[38,5]   Yp[39,5]   Yp[40,5]
## -1.4685142 -0.9570346 -0.4645222  0.3260627 -1.9333910  1.0087726
##   Yp[41,5]    Yp[1,6]    Yp[2,6]    Yp[3,6]    Yp[4,6]    Yp[5,6]
## -0.3084961  0.7745392  0.2354804  0.5396532  0.5251321 -0.8619704
##    Yp[6,6]    Yp[7,6]    Yp[8,6]    Yp[9,6]   Yp[10,6]   Yp[11,6]
## -0.7128251  0.8919388  0.4587813 -0.0181603  0.5691220 -0.0573301
##   Yp[12,6]   Yp[13,6]   Yp[14,6]   Yp[15,6]   Yp[16,6]   Yp[17,6]
## -0.4485921  0.6820690  2.6872980 -0.9196109 -1.0971924 -2.3076477
##   Yp[18,6]   Yp[19,6]   Yp[20,6]   Yp[21,6]   Yp[22,6]   Yp[23,6]
## -0.0688505 -0.4813490 -0.9504060 -0.2964730  0.5697999 -0.1739137
##   Yp[24,6]   Yp[25,6]   Yp[26,6]   Yp[27,6]   Yp[28,6]   Yp[29,6]
##  0.1651949 -0.7480774 -0.0791606  0.9953032  0.1271897  0.5280523
##   Yp[30,6]   Yp[31,6]   Yp[32,6]   Yp[33,6]   Yp[34,6]   Yp[35,6]
## -0.6283682  1.0047228  0.1575413  0.3090938 -0.0097734  0.2215351
##   Yp[36,6]   Yp[37,6]   Yp[38,6]   Yp[39,6]   Yp[40,6]   Yp[41,6]
##  0.3910801  0.2090959  0.2279180 -1.0044457 -1.0400857 -0.4517951
##    Yp[1,7]    Yp[2,7]    Yp[3,7]    Yp[4,7]    Yp[5,7]    Yp[6,7]
```

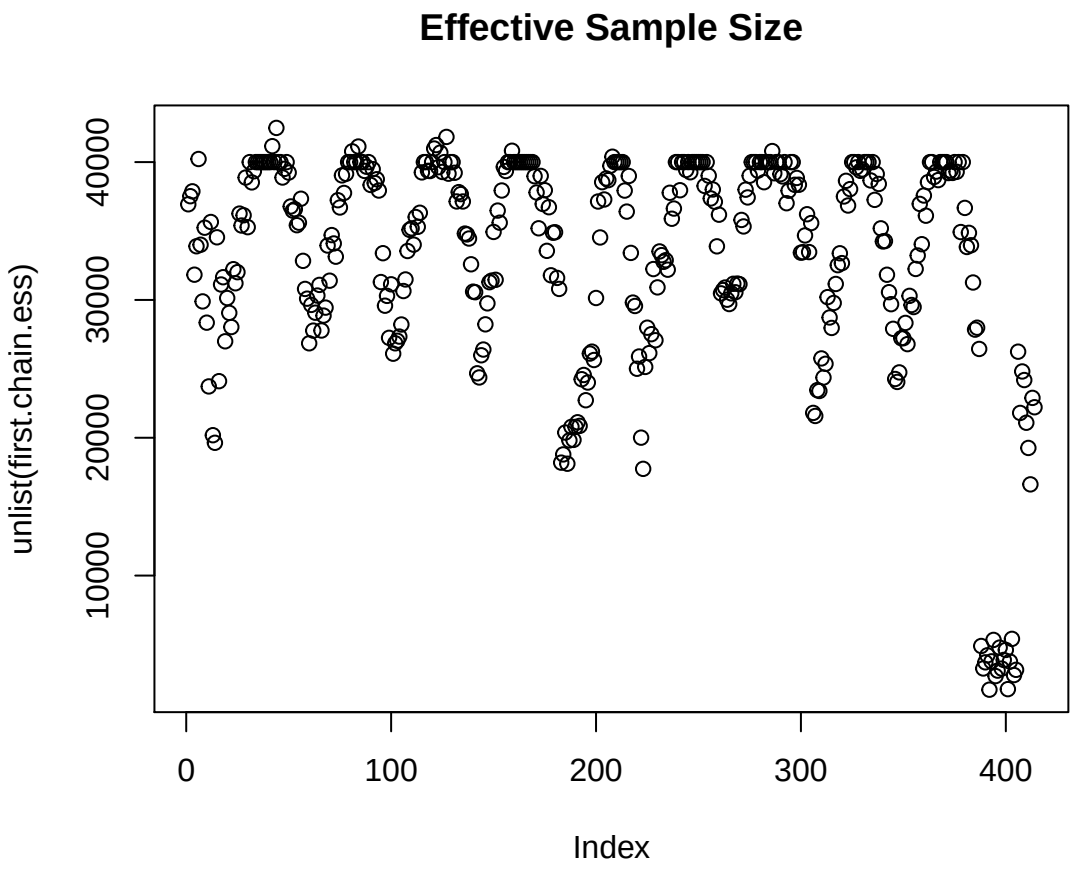
```
##  1.4203995  1.0043180 -0.9601583 -0.9994754  1.0940139  1.5805534
##    Yp[7,7]    Yp[8,7]    Yp[9,7]   Yp[10,7]   Yp[11,7]   Yp[12,7]
##  0.3408472  1.8126227 -0.1043842  0.1066052 -0.0981448 -0.1316531
##   Yp[13,7]   Yp[14,7]   Yp[15,7]   Yp[16,7]   Yp[17,7]   Yp[18,7]
##  0.5256347  0.1891091  1.3913652  0.3037633  0.9641525  0.8074711
##   Yp[19,7]   Yp[20,7]   Yp[21,7]   Yp[22,7]   Yp[23,7]   Yp[24,7]
## -1.7811428 -1.1842507 -1.4394127  0.3650594 -0.7720539  0.9865268
##   Yp[25,7]   Yp[26,7]   Yp[27,7]   Yp[28,7]   Yp[29,7]   Yp[30,7]
##  0.5472756  0.0511079 -0.7963771 -1.2561123  0.7070615 -0.5526958
##   Yp[31,7]   Yp[32,7]   Yp[33,7]   Yp[34,7]   Yp[35,7]   Yp[36,7]
## -0.4642829 -0.6331534 -0.6978448  0.5784896  1.4537008 -0.1141246
##   Yp[37,7]   Yp[38,7]   Yp[39,7]   Yp[40,7]   Yp[41,7]    Yp[1,8]
##  0.3065373  0.2236573 -0.4528514  0.3778578  0.6830448 -2.1977023
##    Yp[2,8]    Yp[3,8]    Yp[4,8]    Yp[5,8]    Yp[6,8]    Yp[7,8]
## -2.3340964 -2.0366032 -2.6926285 -1.9391343 -0.9240166 -1.4623267
##    Yp[8,8]    Yp[9,8]   Yp[10,8]   Yp[11,8]   Yp[12,8]   Yp[13,8]
## -0.3674988 -1.4659222 -2.3273019 -0.8042750 -0.1893192 -1.3181274
##   Yp[14,8]   Yp[15,8]   Yp[16,8]   Yp[17,8]   Yp[18,8]   Yp[19,8]
## -2.2676925 -0.7021758  0.1442463 -0.8522265 -2.3419719 -0.5097400
##   Yp[20,8]   Yp[21,8]   Yp[22,8]   Yp[23,8]   Yp[24,8]   Yp[25,8]
##  2.1087440 -1.0951814 -1.3353964 -0.7092092 -0.6091675  1.0606920
##   Yp[26,8]   Yp[27,8]   Yp[28,8]   Yp[29,8]   Yp[30,8]   Yp[31,8]
##  0.8777631  1.1424942  0.3057423 -0.1414909  1.4097653  1.1346347
##   Yp[32,8]   Yp[33,8]   Yp[34,8]   Yp[35,8]   Yp[36,8]   Yp[37,8]
##  2.1226856  1.3128644  0.3529166  1.9690338  0.7436059  0.5538141
##   Yp[38,8]   Yp[39,8]   Yp[40,8]   Yp[41,8]    Yp[1,9]    Yp[2,9]
##  0.0054406  1.4369103  2.3565079 -0.1484220 -0.4299332 -1.4671987
##    Yp[3,9]    Yp[4,9]    Yp[5,9]    Yp[6,9]    Yp[7,9]    Yp[8,9]
##  0.0001781  0.1484354 -0.6505464 -0.1753997 -0.6025438 -0.6648240
##    Yp[9,9]   Yp[10,9]   Yp[11,9]   Yp[12,9]   Yp[13,9]   Yp[14,9]
## -1.3189043 -0.7007461  0.4198812  1.1461218  0.0049278 -0.7359860
##   Yp[15,9]   Yp[16,9]   Yp[17,9]   Yp[18,9]   Yp[19,9]   Yp[20,9]
## -0.8952353 -0.9179605 -3.5123365 -2.4121896  0.2297682  0.5294234
##   Yp[21,9]   Yp[22,9]   Yp[23,9]   Yp[24,9]   Yp[25,9]   Yp[26,9]
## -0.2287541 -0.0895635  0.0797853  0.1974275  0.8902517 -0.2990037
##   Yp[27,9]   Yp[28,9]   Yp[29,9]   Yp[30,9]   Yp[31,9]   Yp[32,9]
## -0.5520689 -1.5091472 -0.9783332  0.2848616  1.2565460  0.0805203
##   Yp[33,9]   Yp[34,9]   Yp[35,9]   Yp[36,9]   Yp[37,9]   Yp[38,9]
## -0.9304827 -0.2127183  1.5559642 -0.3315030  0.8720504 -0.7781661
##   Yp[39,9]   Yp[40,9]   Yp[41,9]   alpha[1]   alpha[2]   alpha[3]
##  0.1025162 -0.1021642 -0.0657346 -0.9095076 -0.8070849 -0.6445357
##   alpha[4]   alpha[5]   alpha[6]   alpha[7]   alpha[8]   alpha[9]
##  2.5712412  0.8107152 -0.5039722  0.9108122 -2.0253914 -0.5250926
##    beta[1]    beta[2]    beta[3]    beta[4]    beta[5]    beta[6]
##  1.0904572  0.7115612  0.8748839 -2.6554446 -0.7873320  0.4563187
##    beta[7]    beta[8]    beta[9]       r[1]       r[2]       r[3]
## -0.8217205  2.1372708  0.5711163  0.2295001 -0.4547669  0.7112242
##       r[4]       r[5]       r[6]       r[7]       r[8]       r[9]
## -0.6713571 -0.7515564  1.6180232 -0.6433396 -0.8108863 -1.2922825
```

```
if(n.chains > 1)
{
 gelman.srf <-gelman.diag(out.coda)
 plot(gelman.srf$psrf,main = "Gelman Diagnostic")
```

```
}
```




```
chains.ess <- lapply(out.coda,effectiveSize)
first.chain.ess <- chains.ess[1]
plot(unlist(first.chain.ess), main="Effective Sample Size")
```




```
pval.m <- matrix(nrow = 9,ncol = 2)
 for(k in 1:9){
   # Compute the test stats for the data
   D0   <- c(   mean(X.num[,k]),   sd(X.num[,k]))
   Dnames <- c("mean Y", "sd Y")
   # Compute the test stats for the models
   chain <- out.coda[[1]]
   D1   <- cbind(chain[,paste("Dm[",k,"]",sep='')],chain[,paste("Dsd[",k,"]",sep='')])
   pval1 <- rep(0,2)
   names(pval1)<-Dnames

   for(j in 1:2){
   pval1[j] <- mean(D1[,j]>D0[j])
   }
   pval.m[k,] <- pval1
 }
 colnames(pval.m)<-c("pval.mean","pval.sd")
 pander(data.frame(pval.m), caption = "Baeysian p-values Poisson GLM")
```

Table 2: Baeysian p-values Poisson GLM

pval.mean	pval.sd
0.4608	0.4229

pval.mean	pval.sd
0.4845	0.6899
0.4863	0.6022
0.4333	0.4221
0.5112	0.7552
0.4502	0.7967
0.4577	0.2717
0.5141	0.431
0.5132	0.4415

```
    ####Predictions Median
  predictedMedian <- matrix(nrow = 41,ncol = 9)
  diff.pred.train <- matrix(nrow = 41,ncol = 9)
  for( i in 1:length(rownames(so$quantiles)) )
  {
    rn.so <- rownames(so$quantiles)[i]

    if(grepl("Yp",rn.so)  )
    {
      print(rn.so)
      idx <-gsub('Yp','',rn.so)
      idx <-gsub('\\[','',idx)
      idx<-gsub('\\]','',idx)
      strsplit(idx,",")
      idi <- as.numeric(strsplit(idx,",")[[1]][1])
      idj <- as.numeric(strsplit(idx,",")[[1]][2])
      predictedMedian[idi,idj] <- so$quantiles[i,][3]# 50% Quantiles for predicted
      diff.pred.train[idi,idj] <-  predictedMedian[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }
```

```
## [1] "Yp[1,1]"
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## [1] "Yp[23,7]"
## [1] "Yp[24,7]"
## [1] "Yp[25,7]"
## [1] "Yp[26,7]"
## [1] "Yp[27,7]"
## [1] "Yp[28,7]"
## [1] "Yp[29,7]"
## [1] "Yp[30,7]"
## [1] "Yp[31,7]"
## [1] "Yp[32,7]"
## [1] "Yp[33,7]"
## [1] "Yp[34,7]"
## [1] "Yp[35,7]"
## [1] "Yp[36,7]"
## [1] "Yp[37,7]"
## [1] "Yp[38,7]"
## [1] "Yp[39,7]"
## [1] "Yp[40,7]"
## [1] "Yp[41,7]"
## [1] "Yp[1,8]"
## [1] "Yp[2,8]"
```

```
## [1] "Yp[3,8]"
## [1] "Yp[4,8]"
## [1] "Yp[5,8]"
## [1] "Yp[6,8]"
## [1] "Yp[7,8]"
## [1] "Yp[8,8]"
## [1] "Yp[9,8]"
## [1] "Yp[10,8]"
## [1] "Yp[11,8]"
## [1] "Yp[12,8]"
## [1] "Yp[13,8]"
## [1] "Yp[14,8]"
## [1] "Yp[15,8]"
## [1] "Yp[16,8]"
## [1] "Yp[17,8]"
## [1] "Yp[18,8]"
## [1] "Yp[19,8]"
## [1] "Yp[20,8]"
## [1] "Yp[21,8]"
## [1] "Yp[22,8]"
## [1] "Yp[23,8]"
## [1] "Yp[24,8]"
## [1] "Yp[25,8]"
## [1] "Yp[26,8]"
## [1] "Yp[27,8]"
## [1] "Yp[28,8]"
## [1] "Yp[29,8]"
## [1] "Yp[30,8]"
## [1] "Yp[31,8]"
## [1] "Yp[32,8]"
## [1] "Yp[33,8]"
## [1] "Yp[34,8]"
## [1] "Yp[35,8]"
## [1] "Yp[36,8]"
## [1] "Yp[37,8]"
## [1] "Yp[38,8]"
## [1] "Yp[39,8]"
## [1] "Yp[40,8]"
## [1] "Yp[41,8]"
## [1] "Yp[1,9]"
## [1] "Yp[2,9]"
## [1] "Yp[3,9]"
## [1] "Yp[4,9]"
## [1] "Yp[5,9]"
## [1] "Yp[6,9]"
## [1] "Yp[7,9]"
## [1] "Yp[8,9]"
## [1] "Yp[9,9]"
## [1] "Yp[10,9]"
## [1] "Yp[11,9]"
## [1] "Yp[12,9]"
## [1] "Yp[13,9]"
## [1] "Yp[14,9]"
## [1] "Yp[15,9]"
```

```
## [1] "Yp[16,9]"
## [1] "Yp[17,9]"
## [1] "Yp[18,9]"
## [1] "Yp[19,9]"
## [1] "Yp[20,9]"
## [1] "Yp[21,9]"
## [1] "Yp[22,9]"
## [1] "Yp[23,9]"
## [1] "Yp[24,9]"
## [1] "Yp[25,9]"
## [1] "Yp[26,9]"
## [1] "Yp[27,9]"
## [1] "Yp[28,9]"
## [1] "Yp[29,9]"
## [1] "Yp[30,9]"
## [1] "Yp[31,9]"
## [1] "Yp[32,9]"
## [1] "Yp[33,9]"
## [1] "Yp[34,9]"
## [1] "Yp[35,9]"
## [1] "Yp[36,9]"
## [1] "Yp[37,9]"
## [1] "Yp[38,9]"
## [1] "Yp[39,9]"
## [1] "Yp[40,9]"
## [1] "Yp[41,9]"
```

```
train.mse <- sum(diff.pred.train^2)/(41*9)
pander (train.mse, caption="training MSE - via posteriaor medians")
```

1.168

```
####Predictions Mode - don't need fancy mode fn since it's count data

Mode <- function(x) {
  ux <- unique(x)
  ux[which.max(tabulate(match(x, ux)))]
  }

chain <- out.coda[[1]]
predictedMode <- matrix(nrow = 41,ncol = 9)
diff.pred.train.mode <- matrix(nrow = 41,ncol = 9)
for( i in 1:ncol(chain) )
{
  colname <- colnames(chain)[i]
  if(grepl("Yp",colname)  )
  {
    idx <-gsub('Yp','',colname)
    idx <-gsub('\\[','',idx)
    idx<-gsub('\\]','',idx)
    strsplit(idx,",")
    idi <- as.numeric(strsplit(idx,",")[[1]][1])
    idj <- as.numeric(strsplit(idx,",")[[1]][2])
    samples <- chain[,i]
    predictedMode[idi,idj] <- as.numeric(Mode(samples))
```

```
      diff.pred.train.mode[idi,idj] <-  predictedMode[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }

  train.mse <- sum(diff.pred.train.mode^2)/(41*9)
  pander (train.mse, caption="training MSE - via posterior modes")
```

1.745

```
   ####Predictions Mean
  chain <- out.coda[[1]]
  predictedMean <- matrix(nrow = 41,ncol = 9)
  diff.pred.train.mean <- matrix(nrow = 41,ncol = 9)
  for( i in 1:ncol(chain) )
  {
    colname <- colnames(chain)[i]
    if(grepl("Yp",colname)  )
    {
      idx <-gsub('Yp','',colname)
      idx <-gsub('\\[','',idx)
      idx<-gsub('\\]','',idx)
      strsplit(idx,",")
      idi <- as.numeric(strsplit(idx,",")[[1]][1])
      idj <- as.numeric(strsplit(idx,",")[[1]][2])
      samples <- chain[,i]
      predictedMean[idi,idj] <- as.numeric(mean(samples))
      diff.pred.train.mean[idi,idj] <-  predictedMean[idi,idj] - X.num[idi,idj]

    }else{
      next
    }
  }
  train.mse <- sum(diff.pred.train.mean^2)/(41*9)
  pander (train.mse, caption="training MSE - via posteriaor means")
```

1.11

DIC Calculation

```
dic_pois <- dic.samples(model_pois, variable.names = c("beta",
    "alpha"), n.iter = nSamples, progress.bar = "none")
dic_pois
```

```
## Mean deviance:  957.6
## penalty 16.76
## Penalized deviance: 974.4
```

```
dic_nb <- dic.samples(model_nb, variable.names = c("beta",
    "alpha"), n.iter = nSamples, progress.bar = "none")
dic_nb
```

```
## Mean deviance:  957.7
## penalty 19.4
## Penalized deviance: 977.1
```