

Model Specification

Detian

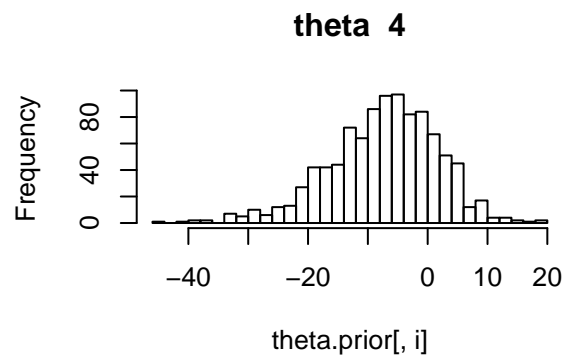
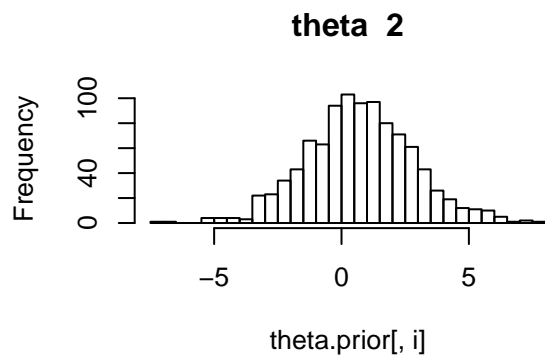
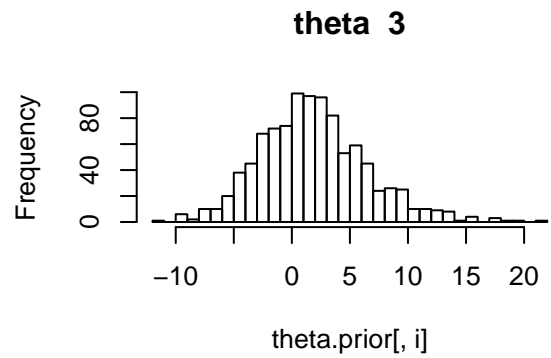
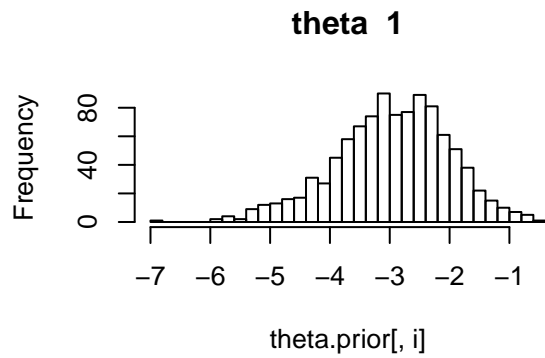
February 17, 2015

```
##
## Attaching package: 'dplyr'
##
## The following objects are masked from 'package:stats':
##
##   filter, lag
##
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
##
## Attaching package: 'magrittr'
##
## The following object is masked from 'package:dplyr':
##
##   %>%
##
## Loading required package: foreach
## Loading required package: iterators
## Loading required package: parallel
```

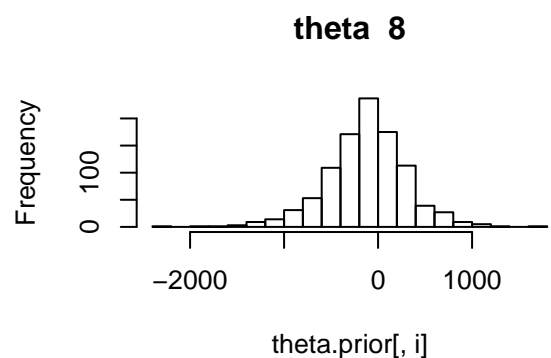
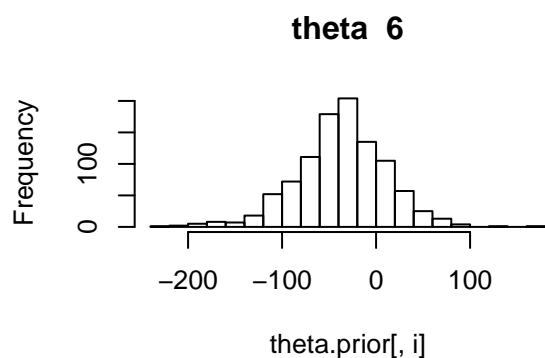
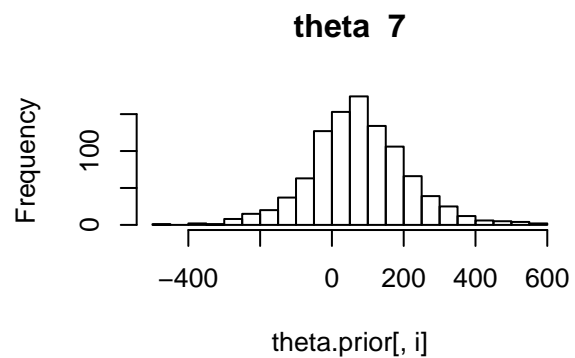
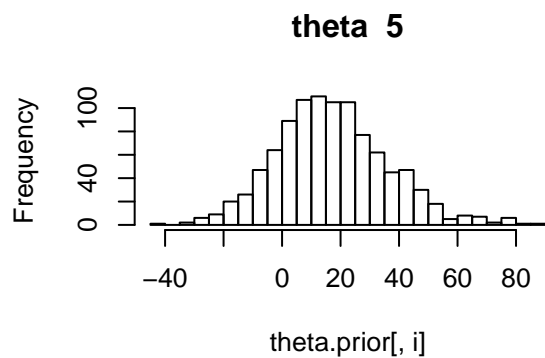
Simulate from $\pi \sim \text{Dirichlet}$:

```
# simulation
registerDoMC(4)
theta.prior = foreach(i=1:1000, .combine=rbind) %dopar% {
  rdirichlet(1,c(4,2,1,2,0.5,0.3,0.1,0.05,0.05)) %>% PiToTheta(.) %>% t(.)
}

# marginal distribution
layout(matrix(1:4,nrow=2))
for (i in 1:4)
{hist(theta.prior[,i],breaks=25,main=paste("theta ",i))}
```



```
for (i in 5:8)
{hist(theta.prior[,i],breaks=25,main=paste("theta ",i))}
```



```
layout(matrix(1,nrow=1))
```

```
# covariance
cor(theta.prior)
```

```
##           [,1]  [,2]  [,3]  [,4]  [,5]  [,6]  [,7]  [,8]
## [1,]  1.00000 -0.7657  0.4868 -0.2978  0.1375 -0.03322 -0.01232  0.02727
## [2,] -0.76573  1.0000 -0.9194  0.7667 -0.5175  0.26697 -0.10747  0.03290
## [3,]  0.48677 -0.9194  1.0000 -0.9339  0.6986 -0.40286  0.18831 -0.07730
## [4,] -0.29775  0.7667 -0.9339  1.0000 -0.8919  0.63052 -0.36769  0.19255
## [5,]  0.13750 -0.5175  0.6986 -0.8919  1.0000 -0.89027  0.63979 -0.40260
## [6,] -0.03322  0.2670 -0.4029  0.6305 -0.8903  1.00000 -0.89761  0.69036
## [7,] -0.01232 -0.1075  0.1883 -0.3677  0.6398 -0.89761  1.00000 -0.92772
## [8,]  0.02727  0.0329 -0.0773  0.1926 -0.4026  0.69036 -0.92772  1.00000
```

```
pairs(theta.prior)
```

