

MPT solution

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One-High Threshold Model ~ results

```
library(rjags)

data <- list(
  hits      = c( 8,  9, 14, 14, 13,  8, 13, 12, 11,
                 4,  8, 13, 15, 12, 11,  9,  5,  5,
                 6, 15, 11, 14, 12, 12, 11,  1, 14,
                 13,  7, 11, 12,  8, 11) ,
  fas       = c( 4, 4, 0, 1, 2, 0, 3, 1, 3, 0, 0, 1,
                 0, 0, 0, 0, 1, 0, 3, 0, 0, 1, 2, 1,
                 2, 0, 0, 0, 2, 1, 2, 0, 2) ,
  nPeople   = 33 ,
  nOld      = 15 ,
  nNew      = 15 )
```

```

modelString = "
  # MPT single high threshold
  model{
    for (i in 1:nPeople){
      hits[i] ~ dbin(thetaHit, nOld)
      fas[i]  ~ dbin(thetaFA , nNew)
    }
    thetaHit = rho + (1-rho)*gamma
    thetaFA  = gamma
    rho      ~ dunif(0, 1)
    gamma    ~ dunif(0, 1)
  }
"

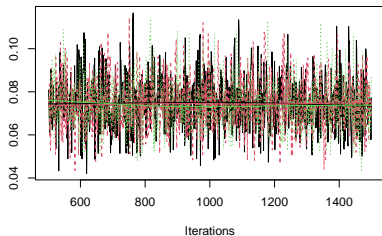
modelFile <- "mpt_solution.jags"
writeLines( modelString , con = modelFile)

```

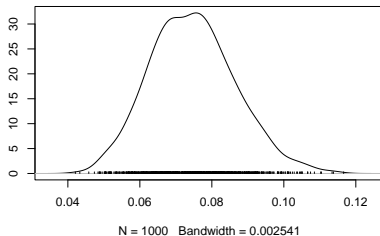
```
jagsModel = jags.model( file      = modelFile,  
                        data      =      data,  
                        n.chains  =      3 ,  
                        n.adapt   =      500 )  
  
set.seed(0)  
samples = coda.samples( jagsModel,  
                        variable.names = c("gamma",  
                                           "rho"),  
                        n.iter        = 1000 )  
  
plot(samples)
```

One-High Threshold Model ~ figures

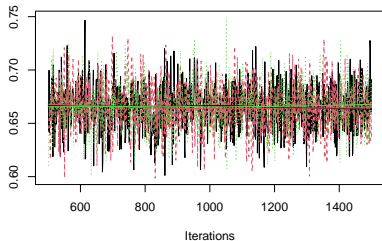
Trace of gamma



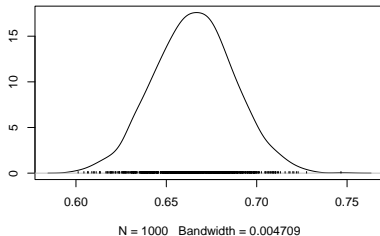
Density of gamma



Trace of rho



Density of rho



One-High Threshold Model ~ summary statistics

```
summary(samples)$statistics
```

##		Mean	SD	Naive SE	Time-series SE
##	gamma	0.07469895	0.01189014	0.0002170833	0.0002755683
##	rho	0.66542650	0.02202969	0.0004022052	0.0005046011

```
summary(samples)$quantiles
```

##		2.5%	25%	50%	75%	97.5%
##	gamma	0.05271075	0.06630381	0.07423132	0.08228381	0.09955606
##	rho	0.62229776	0.65041471	0.66557979	0.68027602	0.70956385

One-High Threshold Model ~ convergence

```
effectiveSize(samples)
```

```
##      gamma      rho  
## 1868.057 1913.821
```

```
gelman.diag(samples)
```

```
## Potential scale reduction factors:
```

```
##
```

```
##      Point est. Upper C.I.
```

```
## gamma          1          1.00
```

```
## rho            1          1.01
```

```
##
```

```
## Multivariate psrf
```

```
##
```

```
## 1
```