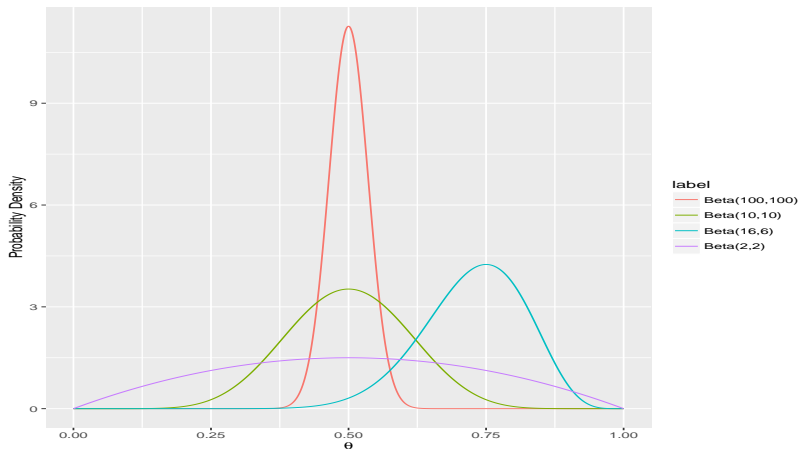# Bayesian Workshop Summary
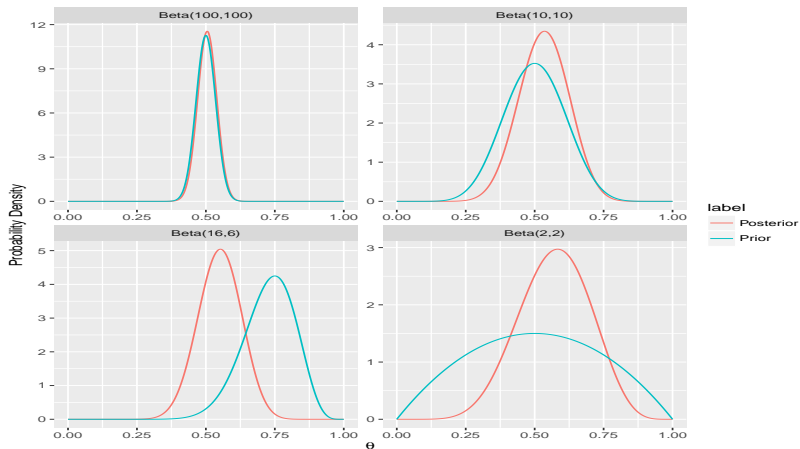
Mick Cooney
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26 May 2016

Prior Beliefs
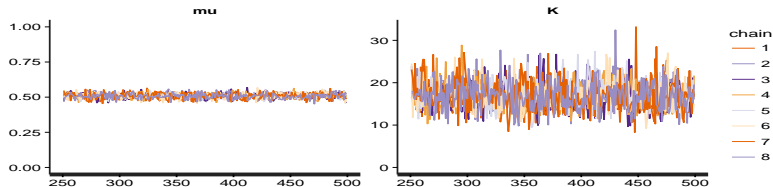
Updated Posterior for 6H, 4T
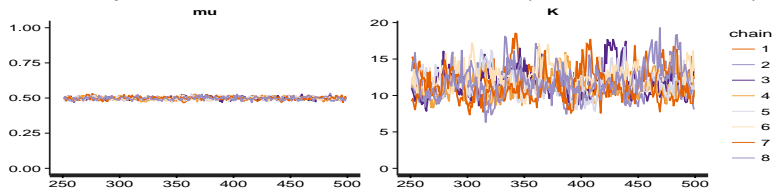
Stan

```
## model {
##   real priorA;
##   real priorB;
##
##   real a;
##   real b;
##
##   priorA <- 2;
##   priorB <- 2;
##
##   a <- mu * K;
##   b <- (1 - mu) * K;
##
##   for(i in 1:n_tests) {
##     success[i] ~ binomial(trials[i], theta[i]);
##   }
##
##   mu    ~ beta(priorA, priorB);
##   theta ~ beta(a, b);
##
##   K ~ gamma(priorShape, priorRate);
## }
```

Hierarchial Models

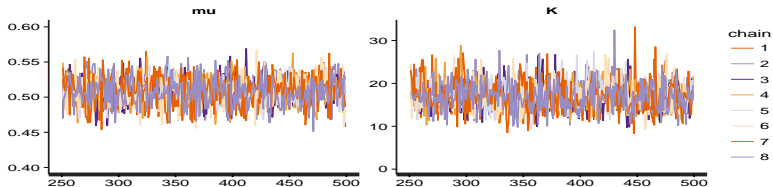

Stan Output for 500 Coins, 50 Tosses – (mu = 0.5, K = 20)

Stan Output for 50 Coins, 250 Tosses – (mu = 0.5, K = 20)

Hierarchial Models

Stan Output for 500 Coins, 50 Tosses – (mu = 0.5, K = 20)

Stan Output for 50 Coins, 250 Tosses – (mu = 0.5, K = 20)