Hints for assignment 3

Q1.

A and B are constants from prior in Jags-Ydich-XnomSsubj-MbernBeta.R (i.e a=2,b=2)

Heads and tails are from the myData corresponding to theta[1], hence :

H = length(myData$y[myData$s == "A" & myData$y == 1]);

T = length(myData$y[myData$s == "A" & myData$y == 0])

And for plotting you can use the following: thetaGrid=seq(0,1,length=201)

lines(thetaGrid , dbeta(thetaGrid , a+H , b+T),col="red")

Q2.

For 2c and 2f you can use the following code for your understanding:

This will compute your likelihood.

```
theta = c()# given values N = rep(4,4) omega=0.5 kappa=2 alpha
= omega * (kappa-2) + 1 beta = (1-omega) * (kappa-2) + 1
mleProb = theta^z * (1-theta)^(N-z) * dbeta(theta, alpha, beta)
lik = prod(mleProb)
```

Q3. a.

Be careful the script provided is of one tailed.

Q4.a and c. Use the R script given. Since the 95% CI will go to one-tailed p-values of 0.025, the two tailed p-values on either side will go to 0.05, So look for values against 0.05.

Q5. G, I, j. Make sure you highlight or report the lines of code you are changing.

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Q.6. a.

Use the following function as a starting point.

```
myprop <- function(n, p){    out <- sample(c(0.3, 0.6), size = n,
replace = TRUE, prob = c(p, 1-p))    return(out)
}
```

6.d. Binomial liklihood

6.e. $h(\theta)=p(\theta)f(x|\theta)$ # you know $f(x|\theta)$ from 6.d.

$p(\theta)=$ beta$(\theta|2,2)$ #beta prior

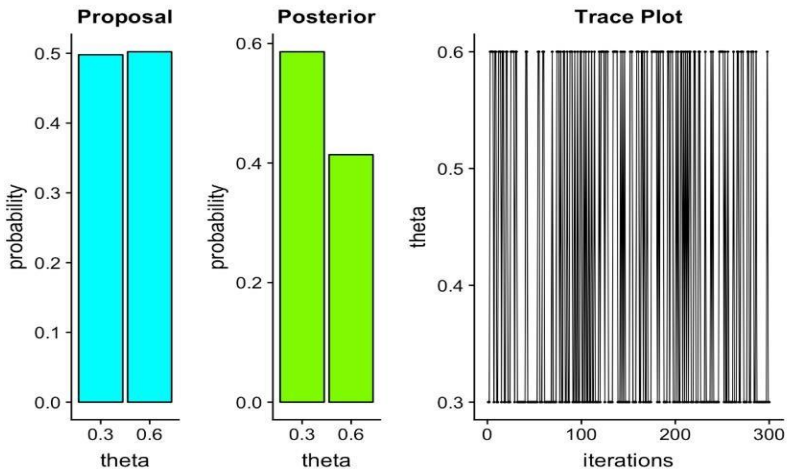
solve $h(\theta)$

6.f. acceptRate=min$(1,h_j(\theta)/h_i(\theta))$

6.g.i Plot:

```
g #proposal plot post
#posterior plot t
#trace plot
print(plot_grid(g, post, t, nrow = 1, rel_widths = c(,,))) #you know the wid
th ratio 😊
```

Plot may look something like this:



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