

King Markov

Chris Parrish

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King Markov

reference: McElreath, Statistical Rethinking, chap 8, p.248

```
library(rethinking)
library(ggplot2)
```

King Markov

Metropolis algorithm

```
## R code 8.1
num_weeks <- 1e5
positions <- rep(0,num_weeks)
current <- 10
for ( i in 1:num_weeks ) {
  # record current position
  positions[i] <- current

  # flip coin to generate proposal
  proposal <- current + sample( c(-1,1) , size=1 )
  # now make sure he loops around the archipelago
  if ( proposal < 1 ) proposal <- 10
  if ( proposal > 10 ) proposal <- 1

  # move?
  prob_move <- proposal/current
  current <- ifelse( runif(1) < prob_move , proposal , current )
}
```

histogram

```
data <- data.frame(position = positions)
ggplot(data, aes(position)) +
  geom_histogram(boundary = -0.5, binwidth = 1.0,
                fill = "wheat", color = "saddlebrown")
```

