Version 3: 3 clusters

Simulate data

```
I <- 50
K <- 3
S <- 10

# choose diffuse priors for gamma
a_gamma <- 2
b_gamma <- 10

set.seed(123)

a <- matrix(NA, nrow=K, ncol=S)
b <- matrix(NA, nrow=K, ncol=S)
for (s in 1:S) {
  a[, s] <- rgamma(K, a_gamma, rate = 1/b_gamma)
  b[, s] <- rgamma(K, a_gamma, rate = 1/b_gamma)
}

# reorder a,b matrices to match ordering of means (U) in S1
U <- a/(a+b)
V <- a+b
U.ordered <- U[order(U[,1]), ]
a.ordered <- a[order(U[,1]),]
b.ordered <- b[order(U[,1]),]
V.ordered <- V[order(U[,1]),]

pi <- as.vector(rdirichlet(1, rep(1, K)))
z <- sample(1:K, size = I, replace = T, prob = pi)

w <- matrix(NA, nrow=I, ncol=S)
for (s in 1:S) {
  w[, s] <- rbeta(I, a.ordered[,s][z], b.ordered[,s][z])
}

tcn <- matrix(2, nrow=I, ncol=S)
m <- matrix(rep(sample(1:2, size = I, replace = T), S), nrow=I, ncol=S)

calcTheta <- function(m, tcn, w) {
  (m * w) / (tcn * w + 2*(1-w))
}
theta <- calcTheta(m, tcn, w)

n <- replicate(S, rpois(I, 100))
y <- matrix(NA, nrow=I, ncol=S)
for (i in 1:I) {
  for (s in 1:S) {
    y[i, s] <- rbinom(1, n[i, s], theta[i,s])
  }
```

```
}
```

JAGS

```
jags.file <- file.path(models.dir, "v3_no_constraints.jags")

test.data <- list("I" = I, "S" = S, "K" = K,
                  "y" = y, "n" = n,
                  "m" = m, "tcn" = tcn)
jags.m <- jags.model(jags.file, test.data,
                     n.chains = 1,
                     inits = list(".RNG.name" = "base::Wichmann-Hill",
                                  ".RNG.seed" = 123))
```

```
## Compiling model graph
##    Resolving undeclared variables
##    Allocating nodes
## Graph information:
##    Observed stochastic nodes: 500
##    Unobserved stochastic nodes: 611
##    Total graph size: 8511
##
## Initializing model
```

```
params <- c("z", "w", "U", "V")
samps <- coda.samples(jags.m, params, n.iter=15000, thin=7)
s <- summary(samps)
effectiveSize(samps)
```

```
##   U[1,1]   U[2,1]   U[3,1]   U[1,2]   U[2,2]   U[3,2]   U[1,3]   U[2,3]
## 2142.000 2142.000 2006.880 2142.000 2142.000 2142.000 1811.995 2142.000
##   U[3,3]   U[1,4]   U[2,4]   U[3,4]   U[1,5]   U[2,5]   U[3,5]   U[1,6]
## 1578.722 2426.304 2142.000 1570.756 2142.000 2142.000 1658.058 2142.000
##   U[2,6]   U[3,6]   U[1,7]   U[2,7]   U[3,7]   U[1,8]   U[2,8]   U[3,8]
## 2142.000 1987.063 1968.406 2197.227 2142.000 1996.482 2142.000 2175.500
##   U[1,9]   U[2,9]   U[3,9]  U[1,10]  U[2,10]  U[3,10]   V[1,1]   V[2,1]
## 2193.014 1483.625 2142.000 2142.000 1662.116 2142.000 1718.416 1972.182
##   V[3,1]   V[1,2]   V[2,2]   V[3,2]   V[1,3]   V[2,3]   V[3,3]   V[1,4]
## 1820.855 1452.636 1817.606 2142.000 1601.271 1640.141 2142.000 2163.888
##   V[2,4]   V[3,4]   V[1,5]   V[2,5]   V[3,5]   V[1,6]   V[2,6]   V[3,6]
## 1639.306 2004.973 1839.223 1823.634 2142.000 1806.398 1719.000 1802.482
##   V[1,7]   V[2,7]   V[3,7]   V[1,8]   V[2,8]   V[3,8]   V[1,9]   V[2,9]
## 1562.180 1896.964 1993.573 1793.223 1945.895 1803.795 1893.288 1879.145
##   V[3,9]  V[1,10]  V[2,10]  V[3,10]   w[1,1]   w[2,1]   w[3,1]   w[4,1]
## 2142.000 1743.050 1685.673 2142.000 1800.997 1959.039 1981.470 2142.000
##   w[5,1]   w[6,1]   w[7,1]   w[8,1]   w[9,1]  w[10,1]  w[11,1]  w[12,1]
## 2142.000 2519.824 2056.323 2142.000 2142.000 2649.001 2142.000 2142.000
##  w[13,1]  w[14,1]  w[15,1]  w[16,1]  w[17,1]  w[18,1]  w[19,1]  w[20,1]
## 2142.000 2142.000 2142.000 2142.000 1956.397 2142.000 2142.000 2142.000
##  w[21,1]  w[22,1]  w[23,1]  w[24,1]  w[25,1]  w[26,1]  w[27,1]  w[28,1]
## 2142.000 1983.856 2142.000 2428.275 2142.000 1891.294 2284.129 2142.000
##  w[29,1]  w[30,1]  w[31,1]  w[32,1]  w[33,1]  w[34,1]  w[35,1]  w[36,1]
## 2142.000 2142.000 1781.407 2142.000 2142.000 2142.000 2142.000 2142.000
```

```
##  w[37,1]  w[38,1]  w[39,1]  w[40,1]  w[41,1]  w[42,1]  w[43,1]  w[44,1]
## 2142.000 2142.000 1829.167 2142.000 2142.000 1853.383 1971.223 2370.350
##  w[45,1]  w[46,1]  w[47,1]  w[48,1]  w[49,1]  w[50,1]   w[1,2]   w[2,2]
## 2142.000 2142.000 2142.000 2142.000 2142.000 2328.024 1755.238 1940.938
##   w[3,2]   w[4,2]   w[5,2]   w[6,2]   w[7,2]   w[8,2]   w[9,2]  w[10,2]
## 2142.000 2142.000 1832.912 2303.186 2343.480 2142.000 1866.467 1807.309
##  w[11,2]  w[12,2]  w[13,2]  w[14,2]  w[15,2]  w[16,2]  w[17,2]  w[18,2]
## 2142.000 2142.000 2142.000 2142.000 1832.196 2142.000 2142.000 2142.000
##  w[19,2]  w[20,2]  w[21,2]  w[22,2]  w[23,2]  w[24,2]  w[25,2]  w[26,2]
## 1948.585 2142.000 2142.000 2142.000 2142.000 2271.819 1798.303 1541.334
##  w[27,2]  w[28,2]  w[29,2]  w[30,2]  w[31,2]  w[32,2]  w[33,2]  w[34,2]
## 2142.000 1861.504 2392.127 1996.999 1984.887 2015.571 2142.000 1986.299
##  w[35,2]  w[36,2]  w[37,2]  w[38,2]  w[39,2]  w[40,2]  w[41,2]  w[42,2]
## 2142.000 1972.838 2142.000 2142.000 1872.781 2142.000 2142.000 2207.614
##  w[43,2]  w[44,2]  w[45,2]  w[46,2]  w[47,2]  w[48,2]  w[49,2]  w[50,2]
## 1805.430 1849.735 2142.000 2142.000 2371.874 2142.000 2003.964 1572.811
##   w[1,3]   w[2,3]   w[3,3]   w[4,3]   w[5,3]   w[6,3]   w[7,3]   w[8,3]
## 2142.000 2142.000 2142.000 2171.721 2677.332 2142.000 2142.000 2142.000
##   w[9,3]  w[10,3]  w[11,3]  w[12,3]  w[13,3]  w[14,3]  w[15,3]  w[16,3]
## 2142.000 1729.736 2002.602 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[17,3]  w[18,3]  w[19,3]  w[20,3]  w[21,3]  w[22,3]  w[23,3]  w[24,3]
## 2184.929 1873.625 2142.000 2142.000 2142.000 1913.038 2142.000 2142.000
##  w[25,3]  w[26,3]  w[27,3]  w[28,3]  w[29,3]  w[30,3]  w[31,3]  w[32,3]
## 2115.147 2142.000 1910.254 2142.000 2142.000 2142.000 1052.805 2142.000
##  w[33,3]  w[34,3]  w[35,3]  w[36,3]  w[37,3]  w[38,3]  w[39,3]  w[40,3]
## 2065.140 2142.000 2303.922 2142.000 2142.000 2005.041 2142.000 2142.000
##  w[41,3]  w[42,3]  w[43,3]  w[44,3]  w[45,3]  w[46,3]  w[47,3]  w[48,3]
## 1906.826 2142.000 2142.000 2142.000 2142.000 2142.000 2312.049 2142.000
##  w[49,3]  w[50,3]   w[1,4]   w[2,4]   w[3,4]   w[4,4]   w[5,4]   w[6,4]
## 2142.000 2142.000 2461.949 2142.000 2142.000 2142.000 2142.000 2142.000
##   w[7,4]   w[8,4]   w[9,4]  w[10,4]  w[11,4]  w[12,4]  w[13,4]  w[14,4]
## 2142.000 2142.000 2142.000 2142.000 2142.000 1567.555 2110.186 1786.340
##  w[15,4]  w[16,4]  w[17,4]  w[18,4]  w[19,4]  w[20,4]  w[21,4]  w[22,4]
## 1978.167 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[23,4]  w[24,4]  w[25,4]  w[26,4]  w[27,4]  w[28,4]  w[29,4]  w[30,4]
## 2142.000 2180.977 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[31,4]  w[32,4]  w[33,4]  w[34,4]  w[35,4]  w[36,4]  w[37,4]  w[38,4]
## 2142.000 2183.922 2142.000 2319.362 2012.250 2142.000 2142.000 2142.000
##  w[39,4]  w[40,4]  w[41,4]  w[42,4]  w[43,4]  w[44,4]  w[45,4]  w[46,4]
## 2142.000 2142.000 2142.000 2142.000 2791.499 2142.000 2142.000 2142.000
##  w[47,4]  w[48,4]  w[49,4]  w[50,4]   w[1,5]   w[2,5]   w[3,5]   w[4,5]
## 2142.000 2142.000 2598.023 2142.000 1985.890 2142.000 2142.000 2142.000
##   w[5,5]   w[6,5]   w[7,5]   w[8,5]   w[9,5]  w[10,5]  w[11,5]  w[12,5]
## 2142.000 2142.000 2052.287 2142.000 2142.000 2142.000 2142.000 1863.392
##  w[13,5]  w[14,5]  w[15,5]  w[16,5]  w[17,5]  w[18,5]  w[19,5]  w[20,5]
## 2142.000 2142.000 2142.000 2011.041 1745.843 2142.000 2142.000 2142.000
##  w[21,5]  w[22,5]  w[23,5]  w[24,5]  w[25,5]  w[26,5]  w[27,5]  w[28,5]
## 2142.000 2142.000 2142.000 1492.224 2142.000 2142.000 2376.384 2142.000
##  w[29,5]  w[30,5]  w[31,5]  w[32,5]  w[33,5]  w[34,5]  w[35,5]  w[36,5]
## 2142.000 2354.851 1731.853 2142.000 2639.707 1787.353 2142.000 2142.000
##  w[37,5]  w[38,5]  w[39,5]  w[40,5]  w[41,5]  w[42,5]  w[43,5]  w[44,5]
## 2142.000 2142.000 2142.000 3391.601 2142.000 2498.970 2142.000 2142.000
##  w[45,5]  w[46,5]  w[47,5]  w[48,5]  w[49,5]  w[50,5]   w[1,6]   w[2,6]
## 2170.709 2124.086 2954.543 2142.000 2142.000 2142.000 2142.000 2142.000
```

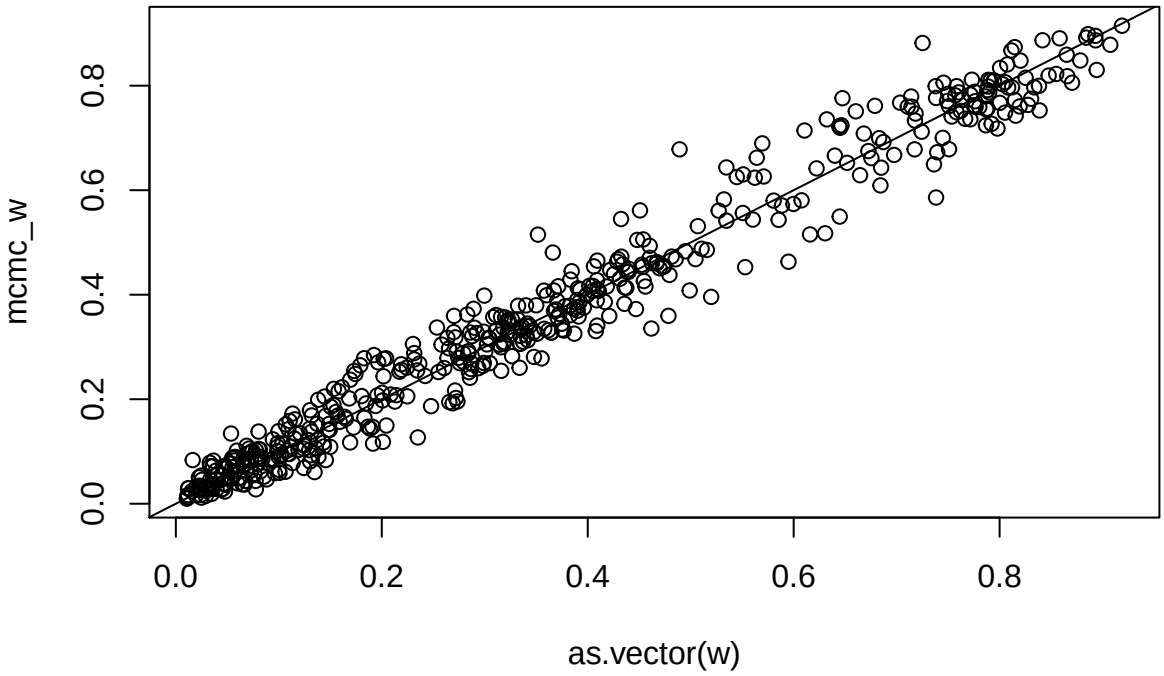
```
##   w[3,6]   w[4,6]   w[5,6]   w[6,6]   w[7,6]   w[8,6]   w[9,6]  w[10,6]
## 1982.180 1962.134 1971.074 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[11,6]  w[12,6]  w[13,6]  w[14,6]  w[15,6]  w[16,6]  w[17,6]  w[18,6]
## 2142.000 2197.534 2142.000 2142.000 2142.000 2184.238 2142.000 2142.000
##  w[19,6]  w[20,6]  w[21,6]  w[22,6]  w[23,6]  w[24,6]  w[25,6]  w[26,6]
## 2142.000 1779.004 2142.000 2015.093 2210.947 1970.288 2142.000 1770.205
##  w[27,6]  w[28,6]  w[29,6]  w[30,6]  w[31,6]  w[32,6]  w[33,6]  w[34,6]
## 1984.322 1924.590 2142.000 2288.599 2142.000 2142.000 1975.540 2297.189
##  w[35,6]  w[36,6]  w[37,6]  w[38,6]  w[39,6]  w[40,6]  w[41,6]  w[42,6]
## 1907.643 2142.000 2142.000 2142.000 1580.768 1735.494 2142.000 1991.563
##  w[43,6]  w[44,6]  w[45,6]  w[46,6]  w[47,6]  w[48,6]  w[49,6]  w[50,6]
## 2142.000 1997.550 2446.214 2142.000 2308.908 2142.000 2221.283 2310.555
##   w[1,7]   w[2,7]   w[3,7]   w[4,7]   w[5,7]   w[6,7]   w[7,7]   w[8,7]
## 2142.000 2142.000 2142.000 1919.233 1975.089 2142.000 2000.950 2142.000
##   w[9,7]  w[10,7]  w[11,7]  w[12,7]  w[13,7]  w[14,7]  w[15,7]  w[16,7]
## 1981.249 2142.000 2579.469 2142.000 2296.497 2142.000 2142.000 2153.435
##  w[17,7]  w[18,7]  w[19,7]  w[20,7]  w[21,7]  w[22,7]  w[23,7]  w[24,7]
## 2002.483 2142.000 1836.664 2142.000 2142.000 2142.000 2142.000 2076.000
##  w[25,7]  w[26,7]  w[27,7]  w[28,7]  w[29,7]  w[30,7]  w[31,7]  w[32,7]
## 1978.407 2142.000 2142.000 2006.511 2142.000 2142.000 2142.000 2142.000
##  w[33,7]  w[34,7]  w[35,7]  w[36,7]  w[37,7]  w[38,7]  w[39,7]  w[40,7]
## 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[41,7]  w[42,7]  w[43,7]  w[44,7]  w[45,7]  w[46,7]  w[47,7]  w[48,7]
## 2142.000 2142.000 1887.613 2142.000 2433.912 2142.000 2329.361 2486.092
##  w[49,7]  w[50,7]   w[1,8]   w[2,8]   w[3,8]   w[4,8]   w[5,8]   w[6,8]
## 2142.000 2142.000 2142.000 2142.000 1974.748 2142.000 1973.238 2142.000
##   w[7,8]   w[8,8]   w[9,8]  w[10,8]  w[11,8]  w[12,8]  w[13,8]  w[14,8]
## 2413.512 2142.000 1963.196 2142.000 2142.000 2142.000 3400.756 2142.000
##  w[15,8]  w[16,8]  w[17,8]  w[18,8]  w[19,8]  w[20,8]  w[21,8]  w[22,8]
## 1915.823 2142.000 2142.000 2496.505 2142.000 2142.000 2142.000 2142.000
##  w[23,8]  w[24,8]  w[25,8]  w[26,8]  w[27,8]  w[28,8]  w[29,8]  w[30,8]
## 2142.000 2142.000 2347.632 2142.000 2351.477 1922.427 2142.000 2142.000
##  w[31,8]  w[32,8]  w[33,8]  w[34,8]  w[35,8]  w[36,8]  w[37,8]  w[38,8]
## 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2693.401 2142.000
##  w[39,8]  w[40,8]  w[41,8]  w[42,8]  w[43,8]  w[44,8]  w[45,8]  w[46,8]
## 2296.933 2142.000 2142.000 2142.000 2142.000 2142.000 2151.750 2142.000
##  w[47,8]  w[48,8]  w[49,8]  w[50,8]   w[1,9]   w[2,9]   w[3,9]   w[4,9]
## 1972.162 2142.000 2485.688 2142.000 2142.000 2142.000 2142.000 2021.215
##   w[5,9]   w[6,9]   w[7,9]   w[8,9]   w[9,9]  w[10,9]  w[11,9]  w[12,9]
## 2142.000 2142.000 2142.000 1920.995 2142.000 2142.000 2142.000 2142.000
##  w[13,9]  w[14,9]  w[15,9]  w[16,9]  w[17,9]  w[18,9]  w[19,9]  w[20,9]
## 2142.000 2142.000 1901.021 2297.457 1926.658 2142.000 2142.000 2142.000
##  w[21,9]  w[22,9]  w[23,9]  w[24,9]  w[25,9]  w[26,9]  w[27,9]  w[28,9]
## 2142.000 2142.000 2142.000 2142.000 2142.000 2012.179 1952.010 2294.422
##  w[29,9]  w[30,9]  w[31,9]  w[32,9]  w[33,9]  w[34,9]  w[35,9]  w[36,9]
## 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000 2142.000
##  w[37,9]  w[38,9]  w[39,9]  w[40,9]  w[41,9]  w[42,9]  w[43,9]  w[44,9]
## 2277.041 2142.000 1899.353 2142.000 2352.514 2142.000 2142.000 2142.000
##  w[45,9]  w[46,9]  w[47,9]  w[48,9]  w[49,9]  w[50,9]  w[1,10]  w[2,10]
## 2142.000 2214.531 2142.000 2142.000 2142.000 2142.000 2048.270 2142.000
##  w[3,10]  w[4,10]  w[5,10]  w[6,10]  w[7,10]  w[8,10]  w[9,10] w[10,10]
## 2142.000 1959.550 2142.000 2142.000 2142.000 2329.004 2142.000 2142.000
## w[11,10] w[12,10] w[13,10] w[14,10] w[15,10] w[16,10] w[17,10] w[18,10]
## 1907.791 2142.000 2142.000 3383.611 2135.752 2142.000 2820.534 1939.852
```

```
## w[19,10] w[20,10] w[21,10] w[22,10] w[23,10] w[24,10] w[25,10] w[26,10]
## 1881.902 2142.000 2142.000 2142.000 2575.129 2007.821 2142.000 2142.000
## w[27,10] w[28,10] w[29,10] w[30,10] w[31,10] w[32,10] w[33,10] w[34,10]
## 2216.867 1978.739 2142.000 2142.000 1933.267 2201.143 2142.000 2142.000
## w[35,10] w[36,10] w[37,10] w[38,10] w[39,10] w[40,10] w[41,10] w[42,10]
## 2142.000 2142.000 2555.469 2142.000 2142.000 1627.877 1982.515 2142.000
## w[43,10] w[44,10] w[45,10] w[46,10] w[47,10] w[48,10] w[49,10] w[50,10]
## 1566.237 2136.387 2142.000 2142.000 2142.000 2142.000 1972.924 2194.389
##     z[1]     z[2]     z[3]     z[4]     z[5]     z[6]     z[7]     z[8]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##     z[9]    z[10]    z[11]    z[12]    z[13]    z[14]    z[15]    z[16]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##    z[17]    z[18]    z[19]    z[20]    z[21]    z[22]    z[23]    z[24]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##    z[25]    z[26]    z[27]    z[28]    z[29]    z[30]    z[31]    z[32]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##    z[33]    z[34]    z[35]    z[36]    z[37]    z[38]    z[39]    z[40]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##    z[41]    z[42]    z[43]    z[44]    z[45]    z[46]    z[47]    z[48]
##    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
##    z[49]    z[50]
##    0.000    0.000
```

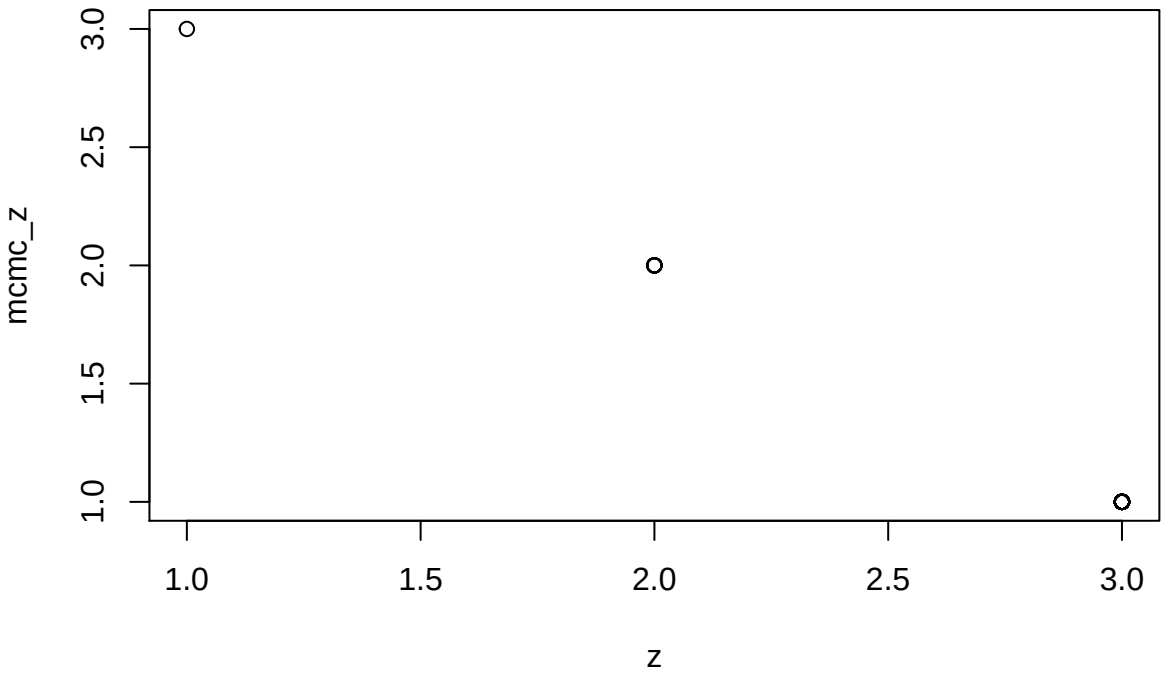
```
pdf(file.path(trace.dir, paste0(runName, "_trace.pdf")))
plot(samps)
dev.off()
```

```
## pdf
##   2
```

```
mcmc_vals <- s$statistics
mcmc_w <- mcmc_vals[substr(rownames(mcmc_vals), 1, 1) == "w", "Mean"]
plot(as.vector(w), mcmc_w, type = "p")
abline(a=0, b=1)
```

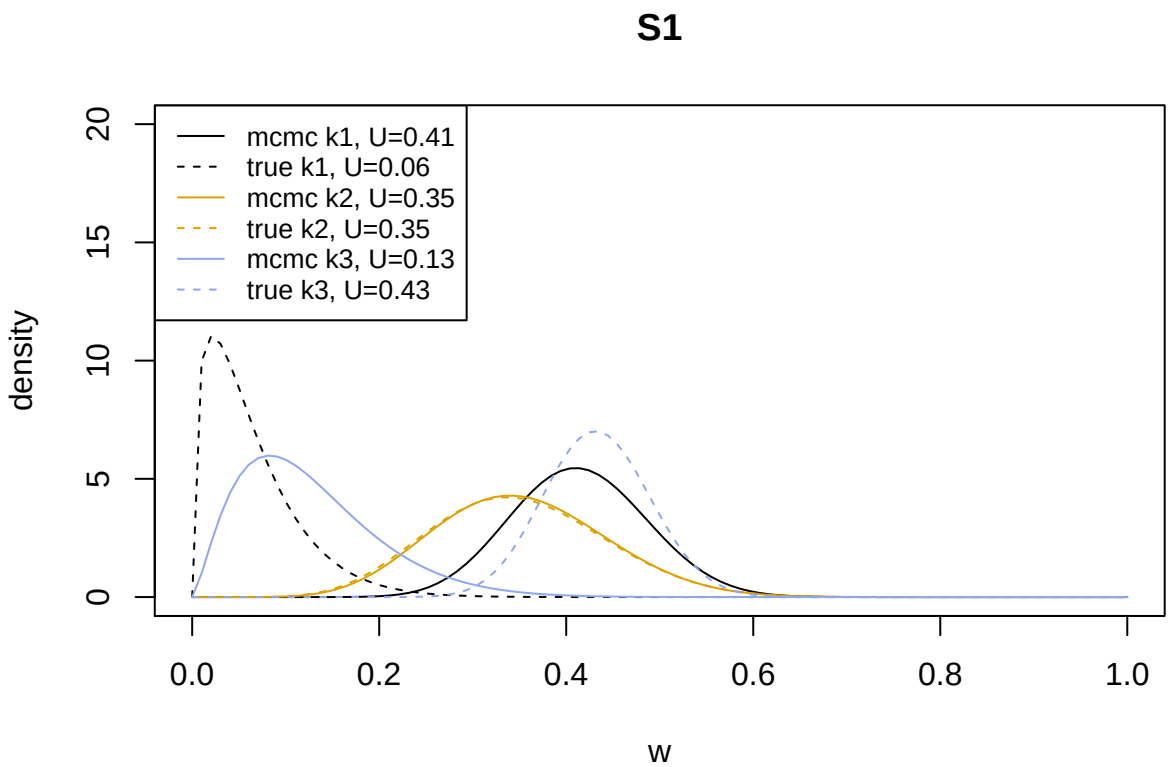


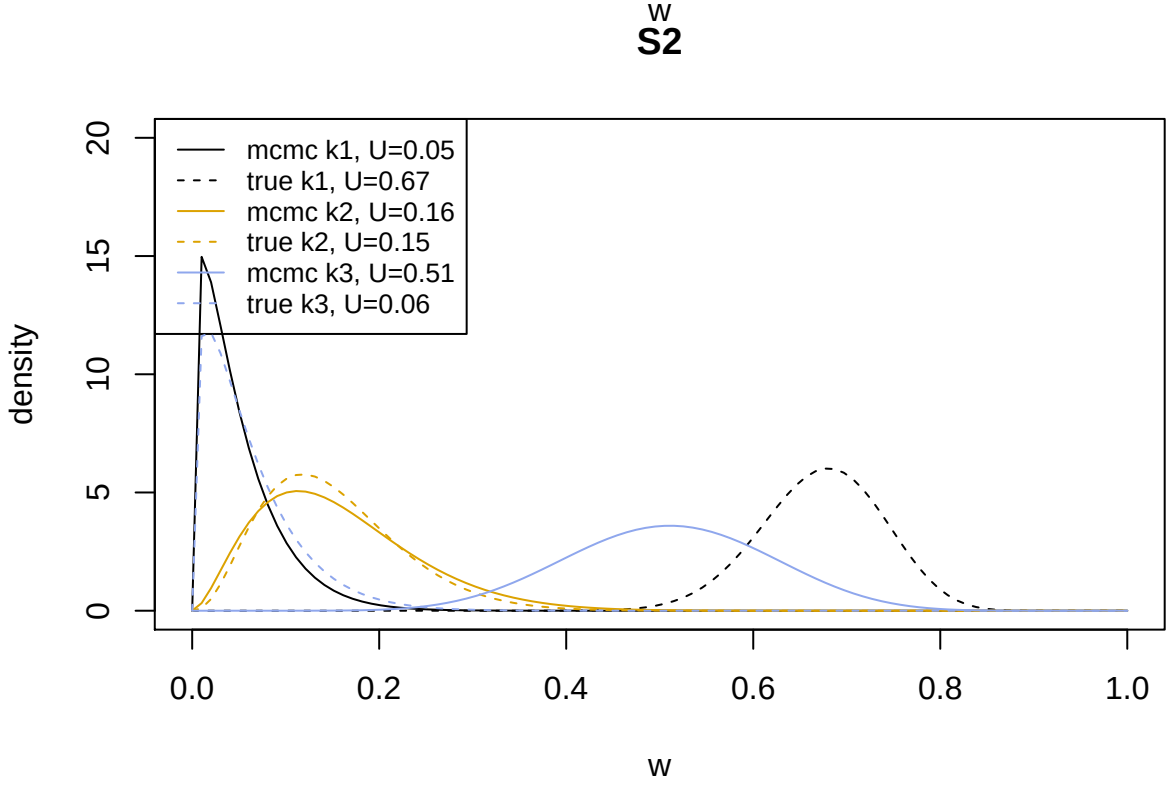
```r
mcmc_z <- as.vector(mcmc_vals[substr(rownames(mcmc_vals), 1, 1) == "z", "Mean"])
#mcmc_z <- round(mcmc_z, 0)
plot(z, mcmc_z, type = "p")
```

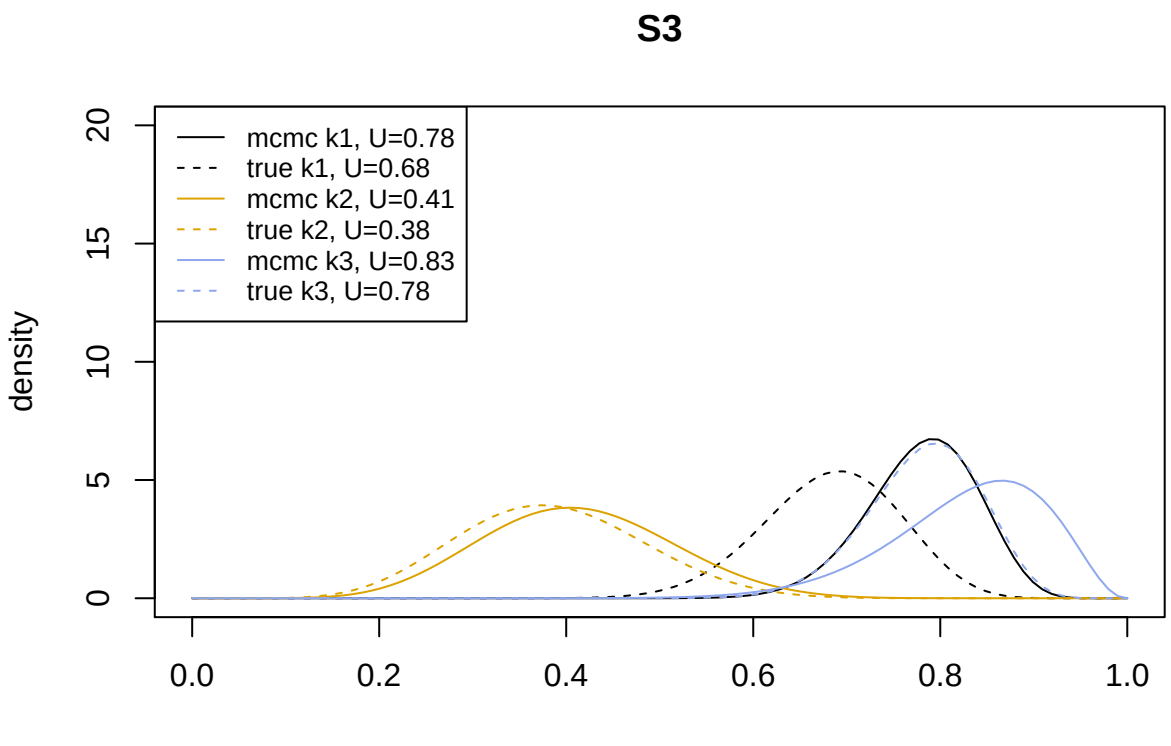


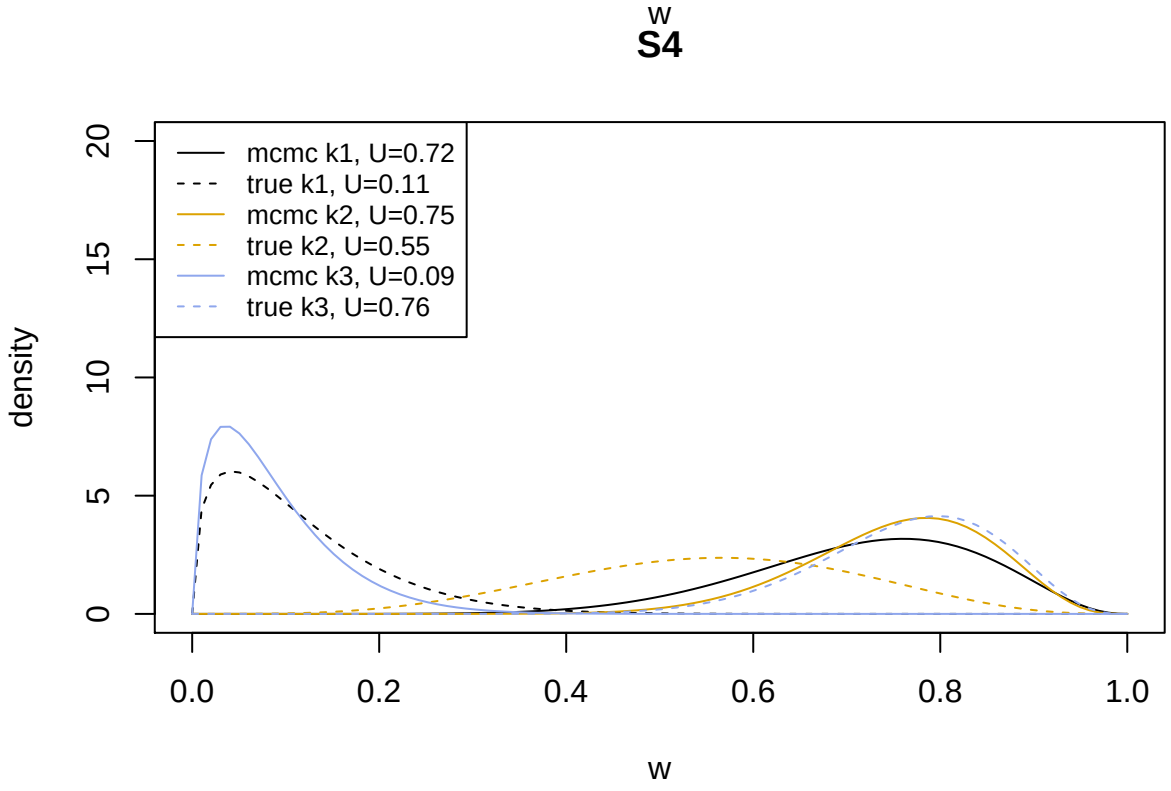

```r
mcmc_U <- mcmc_vals[substr(rownames(mcmc_vals), 1, 1) == "U", "Mean"]
mcmc_U <- matrix(mcmc_U, nrow=K)
mcmc_V <- mcmc_vals[substr(rownames(mcmc_vals), 1, 1) == "V", "Mean"]
mcmc_V <- matrix(mcmc_V, nrow=K)

p <- seq(0, 1, length = 100)
colors <- c("#000000", "#DCA200", "#8FA7ED", "#9D847A", "#A47901")
for (s in 1:S) {
  for (k in 1:K) {
    if (k == 1) {
      # plot mcmc mean U,V
      plot(p, dbeta(p, mcmc_U[k,s] * mcmc_V[k,s], (1-mcmc_U[k,s])*mcmc_V[k,s]),
           main = paste0("S", s),
           ylab = "density", xlab = "w", type = "l", col = colors[k],
           ylim = c(0, 20))
      # plot truth
      lines(p, dbeta(p, a.ordered[k,s], b.ordered[k,s]), type = "l", col = colors[k], lty=2)
      # add legend
      allU <- round(as.vector(rbind(mcmc_U[,s], U.ordered[,s])), digits = 2)
      legend(x = "topleft",
             legend = paste0(c("mcmc k", "true k"), rep(1:K, each=2), ", U=", allU),
             col = colors[rep(1:K, each=2)],
             lty = rep(1:2, K),
             cex=0.8)
    } else {
      # plot mcmc mean U,V
      lines(p, dbeta(p, mcmc_U[k,s] * mcmc_V[k,s], (1-mcmc_U[k,s])*mcmc_V[k,s]),
            type = "l", col = colors[k])
```

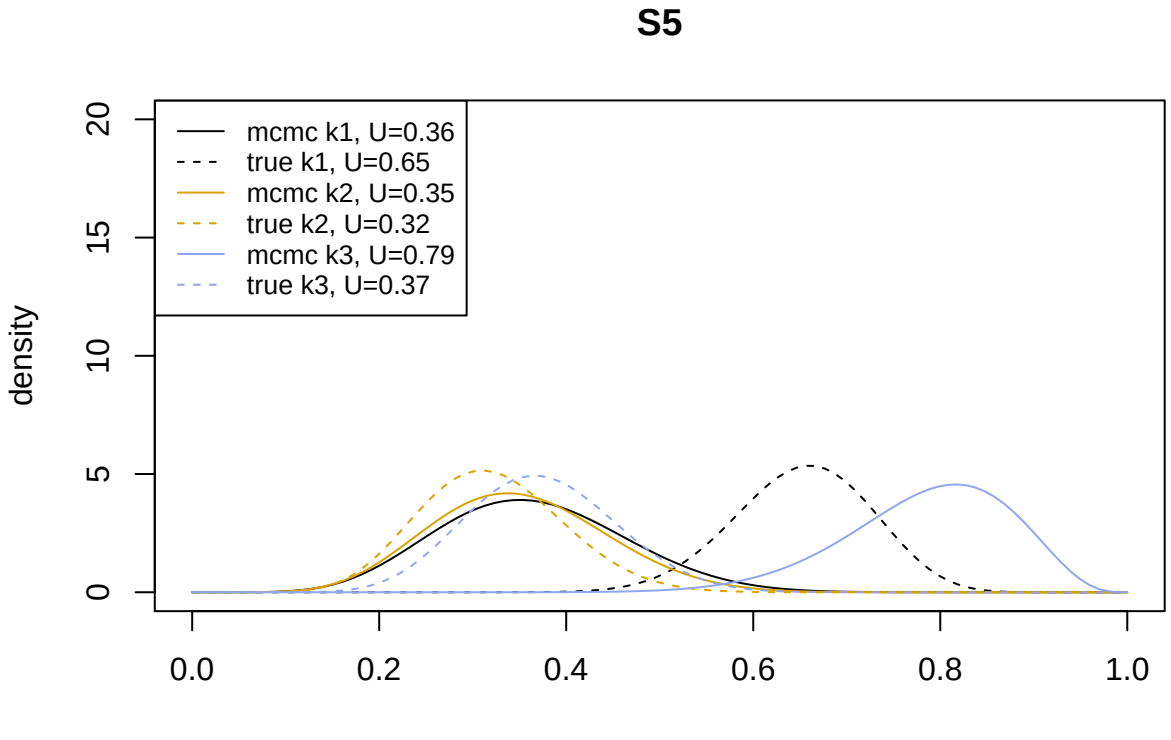
```
      # plot truth
      lines(p, dbeta(p, a.ordered[k,s], b.ordered[k,s]), type = "l", col = colors[k], lty=2)
    }
  }
}
```

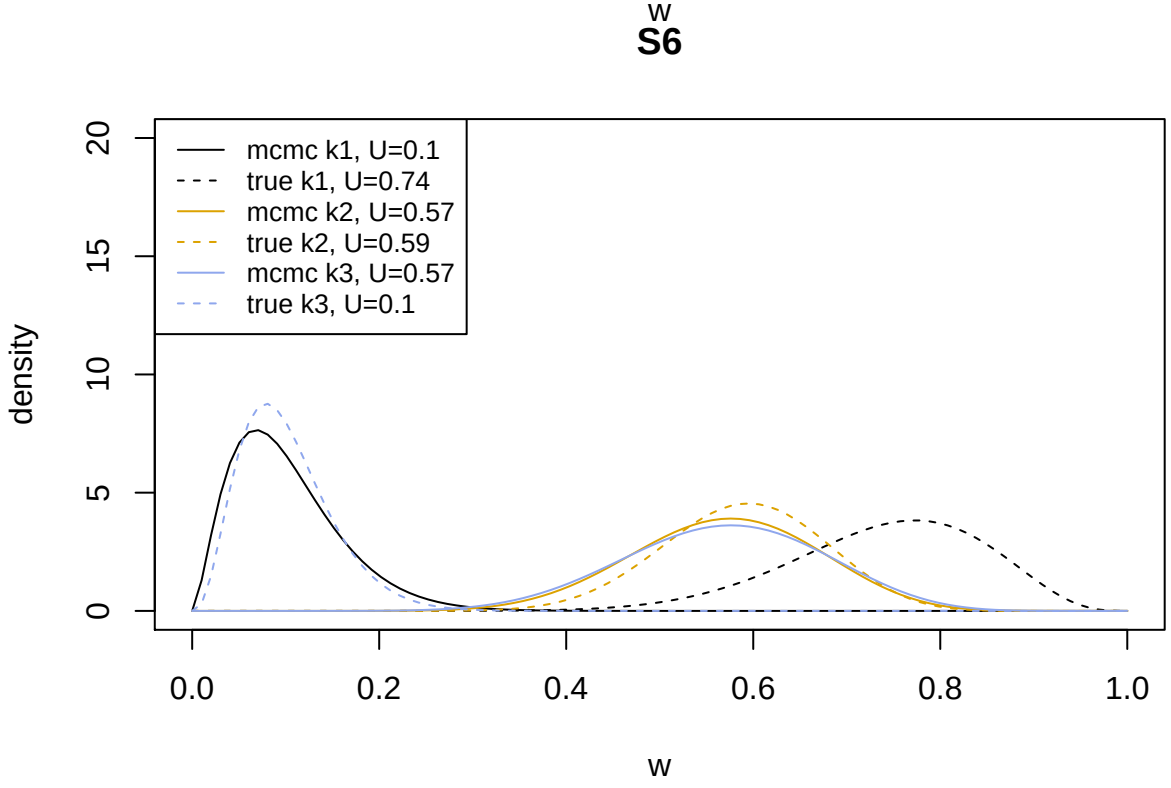


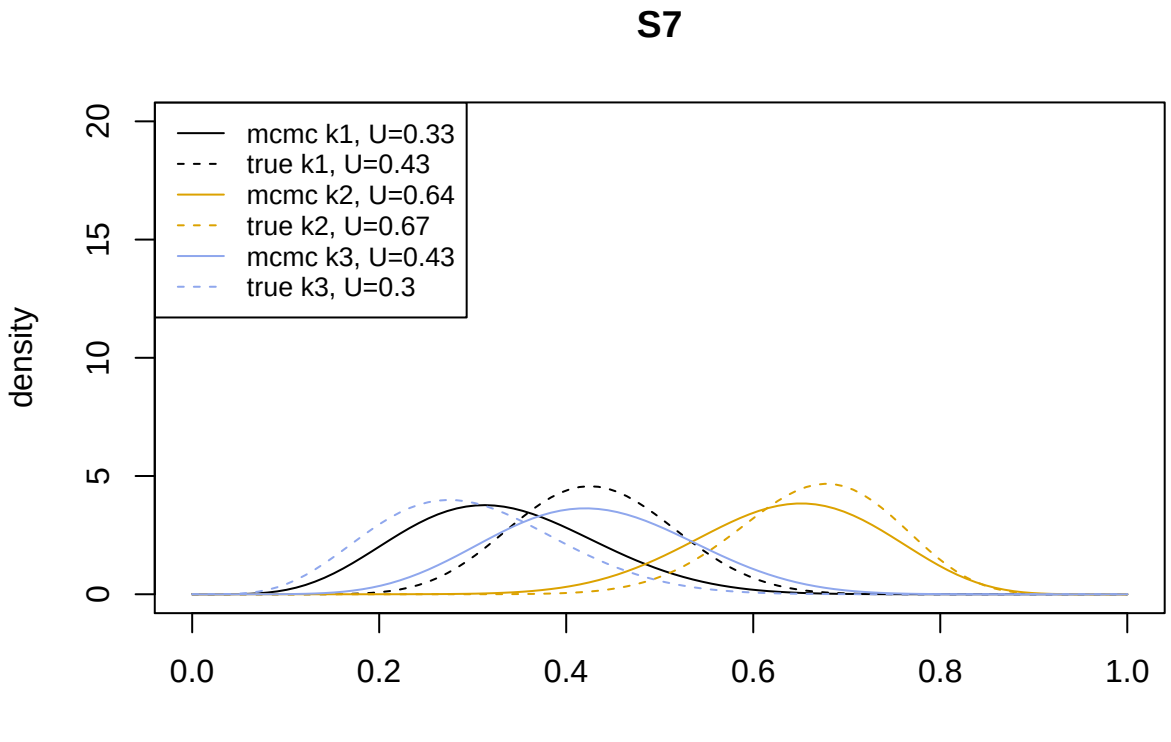


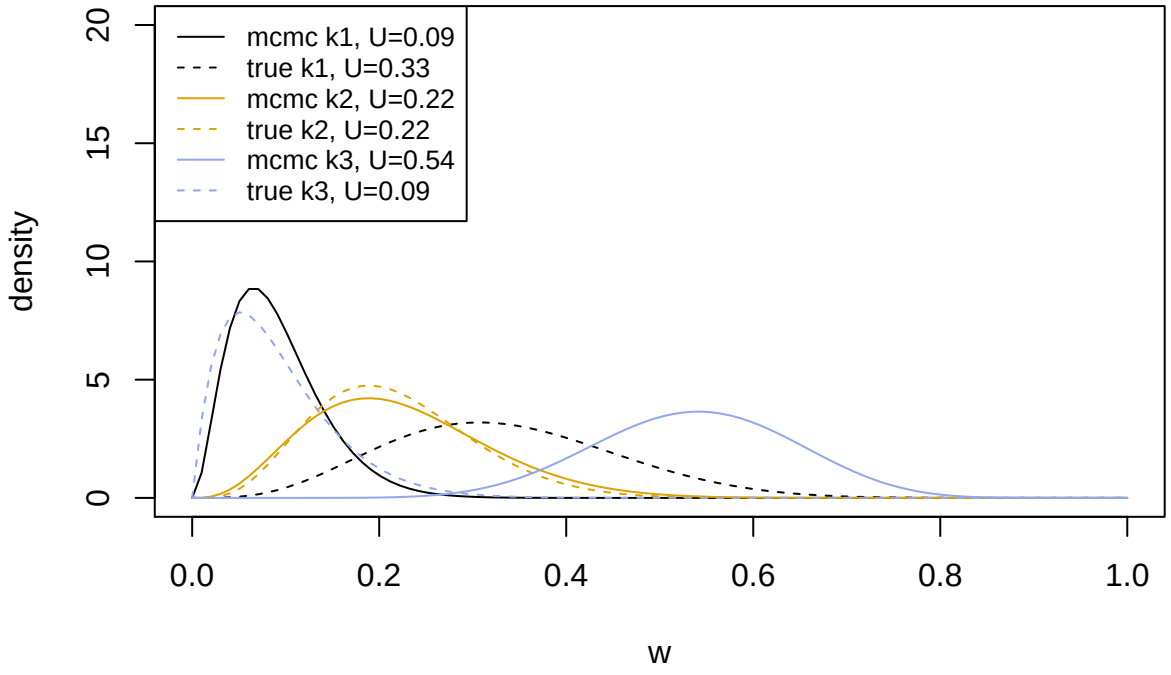

S3
mcmc k1, U=0.78
true k1, U=0.68
mcmc k2, U=0.41
true k2, U=0.38
mcmc k3, U=0.83
true k3, U=0.78
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w

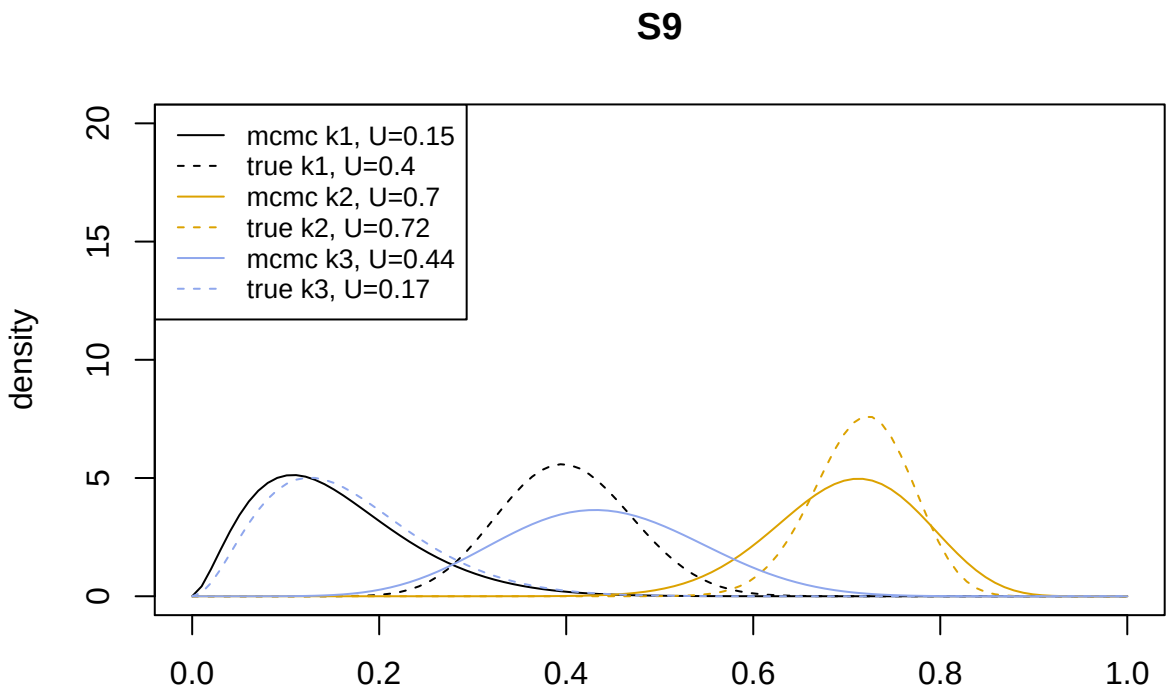

S4
mcmc k1, U=0.72
true k1, U=0.11
mcmc k2, U=0.75
true k2, U=0.55
mcmc k3, U=0.09
true k3, U=0.76
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w

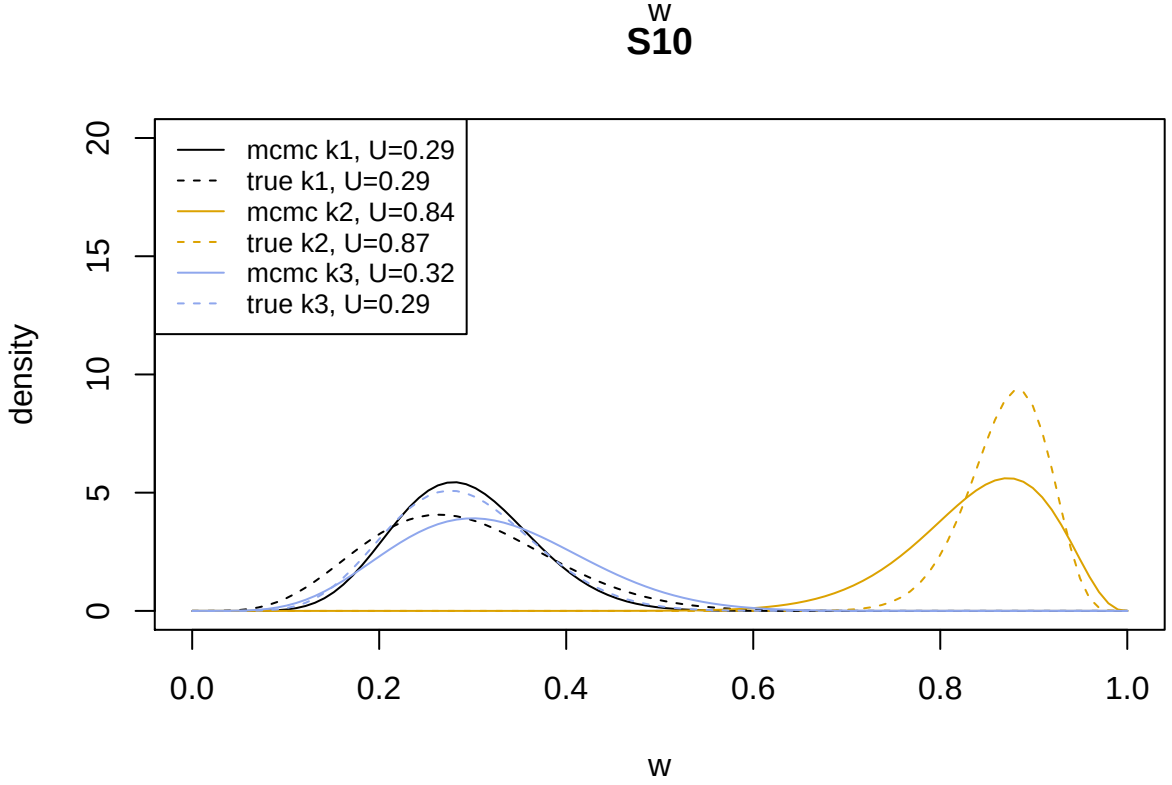

S5
mcmc k1, U=0.36
true k1, U=0.65
mcmc k2, U=0.35
true k2, U=0.32
mcmc k3, U=0.79
true k3, U=0.37
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w


S6
mcmc k1, U=0.1
true k1, U=0.74
mcmc k2, U=0.57
true k2, U=0.59
mcmc k3, U=0.57
true k3, U=0.1
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w


S7
mcmc k1, U=0.33
true k1, U=0.43
mcmc k2, U=0.64
true k2, U=0.67
mcmc k3, U=0.43
true k3, U=0.3
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w


S8
mcmc k1, U=0.09
true k1, U=0.33
mcmc k2, U=0.22
true k2, U=0.22
mcmc k3, U=0.54
true k3, U=0.09
density
0
5
10
15
20
0.0
0.2
0.4
0.6
0.8
1.0
w

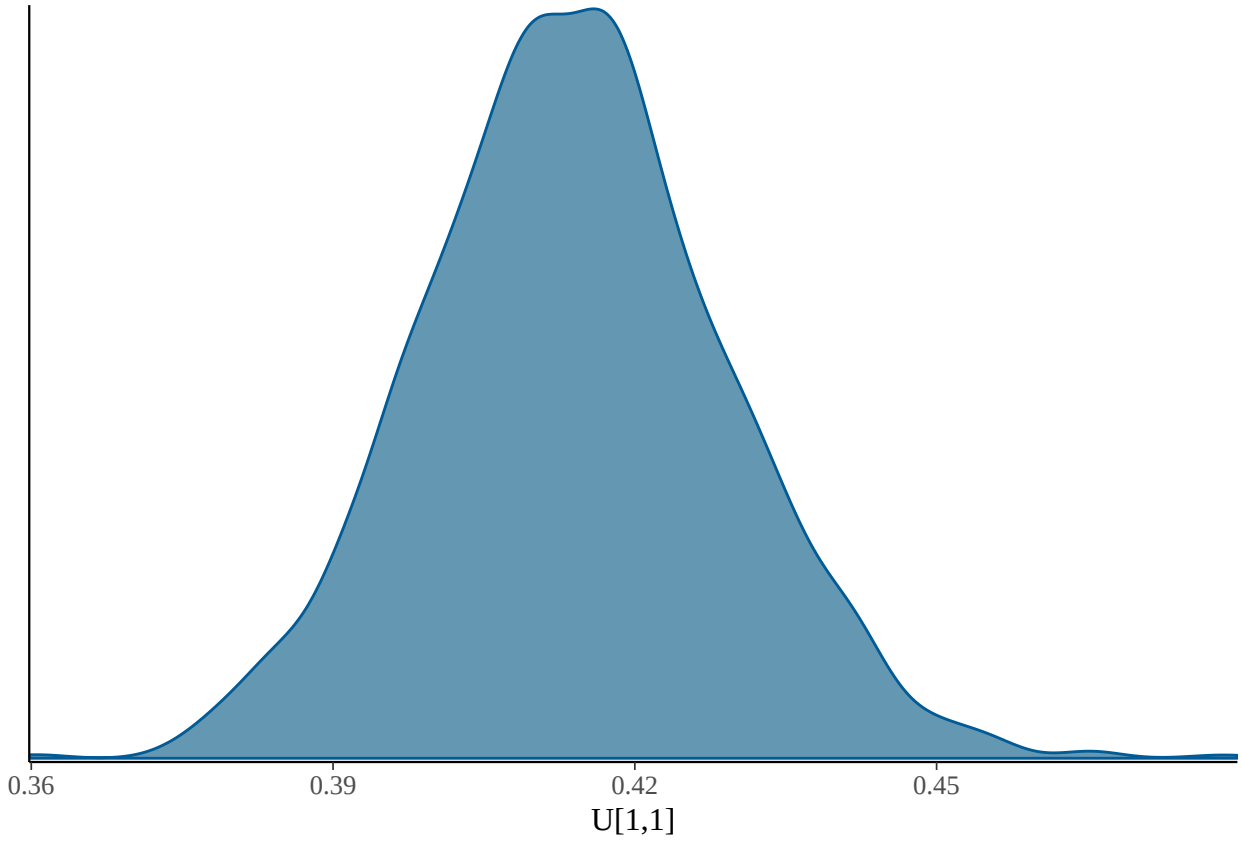




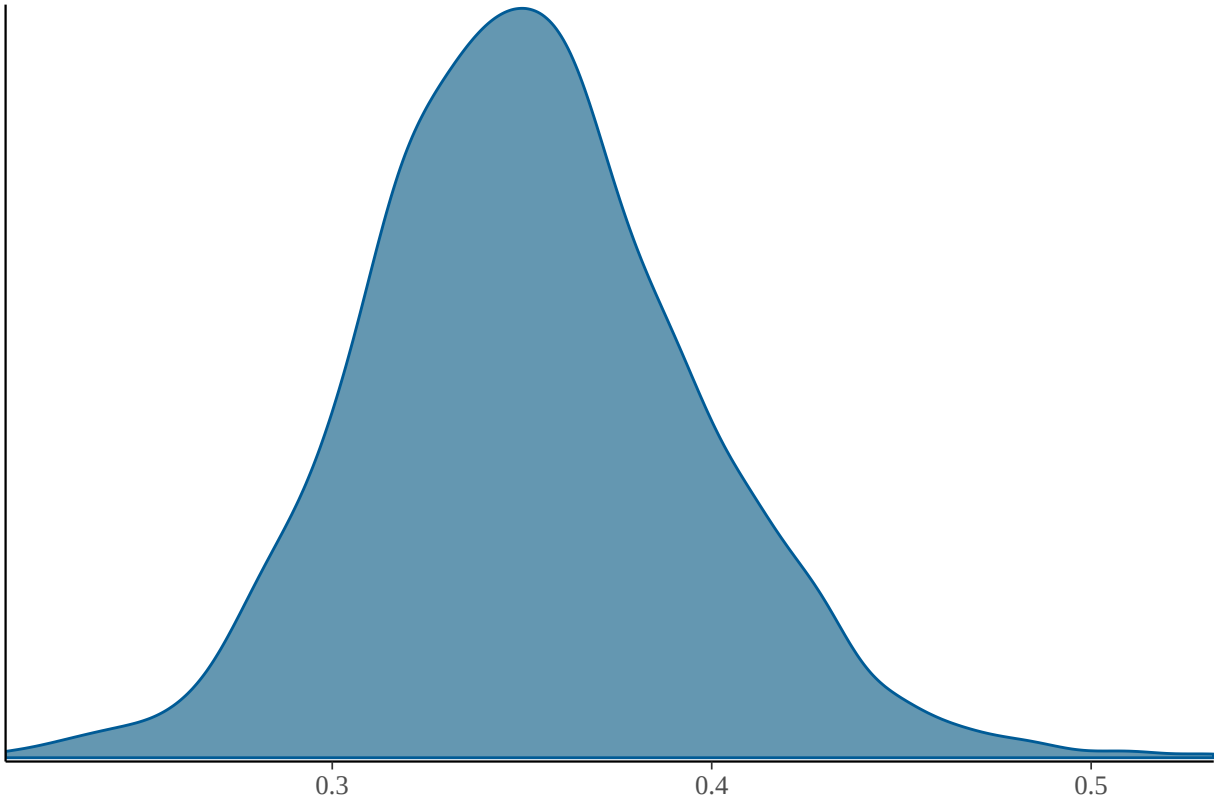

```
# https://cran.r-project.org/web/packages/bayesplot/vignettes/plotting-mcmc-draws.html
posterior <- as.array(samps)

U.ordered[,1]
```

```
## [1] 0.0638265 0.3492084 0.4330499
```

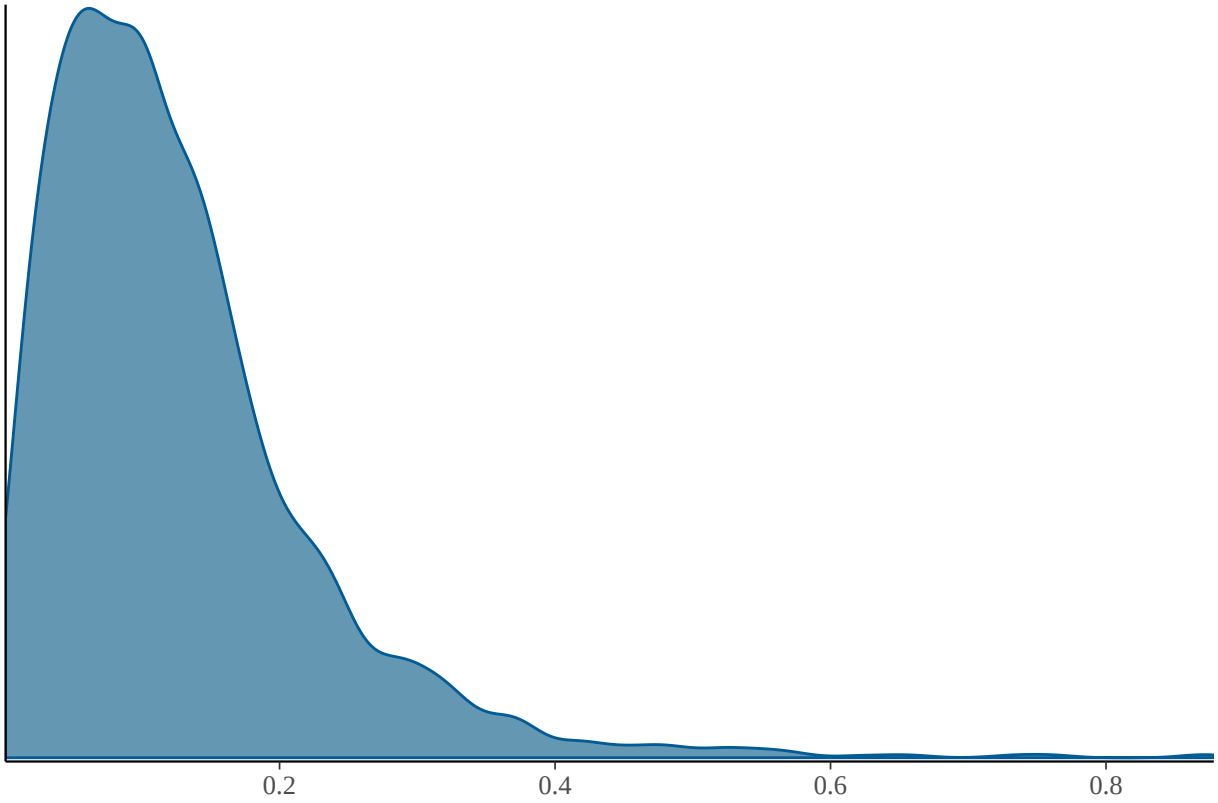
```
mcmc_dens(posterior, pars = "U[1,1]")
```




```
mcmc_dens(posterior, pars = "U[2,1]")
```




```
mcmc_dens(posterior, pars = "U[3,1]")
```



U[3,1]