

```
## This is bayesplot version 1.7.1

## - Online documentation and vignettes at mc-stan.org/bayesplot

## - bayesplot theme set to bayesplot::theme_default()

## * Does _not_ affect other ggplot2 plots

## * See ?bayesplot_theme_set for details on theme setting
```

```
library(gridExtra)
```

```
## Warning: package 'gridExtra' was built under R version 3.6.2
```

```
##
```

```
## Attaching package: 'gridExtra'
```

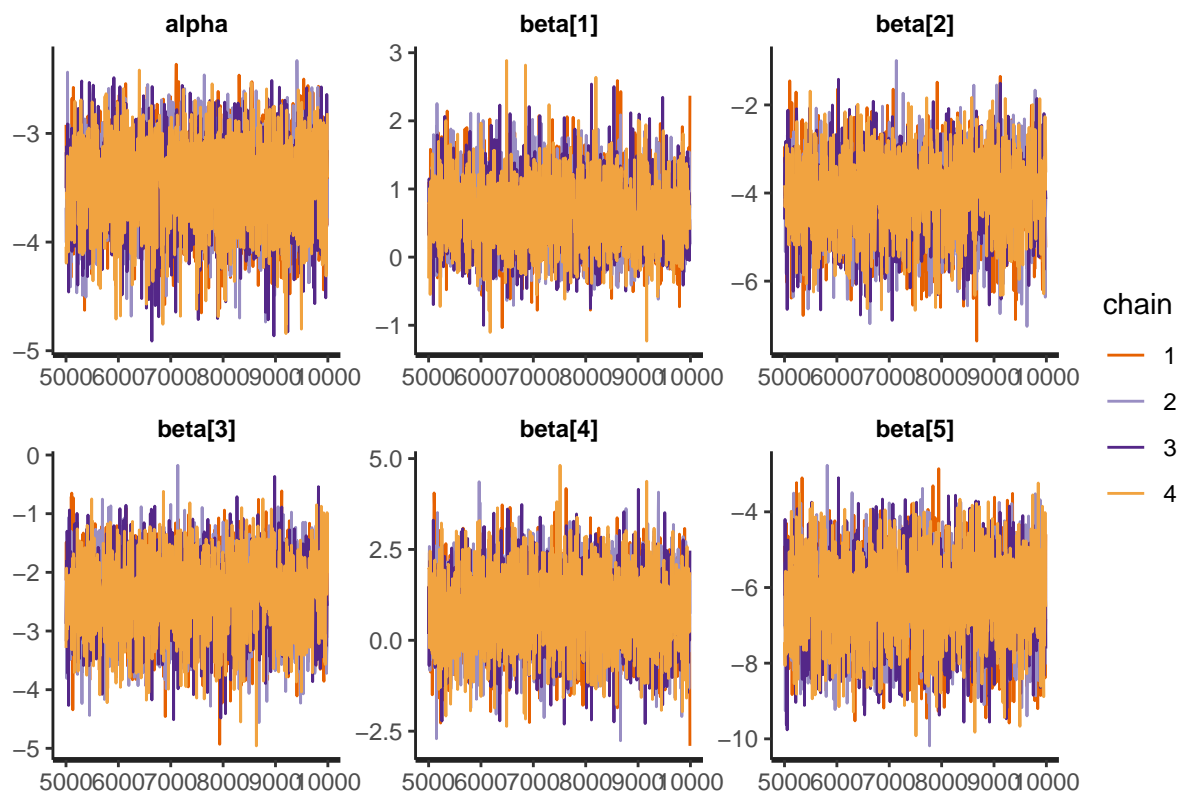
```
## The following object is masked from 'package:dplyr':
```

```
##
```

```
## combine
```

```
Sys.setenv(LOCAL_CPPFLAGS = '-march=corei7 -mtune=corei7')
set.seed(10086)
```

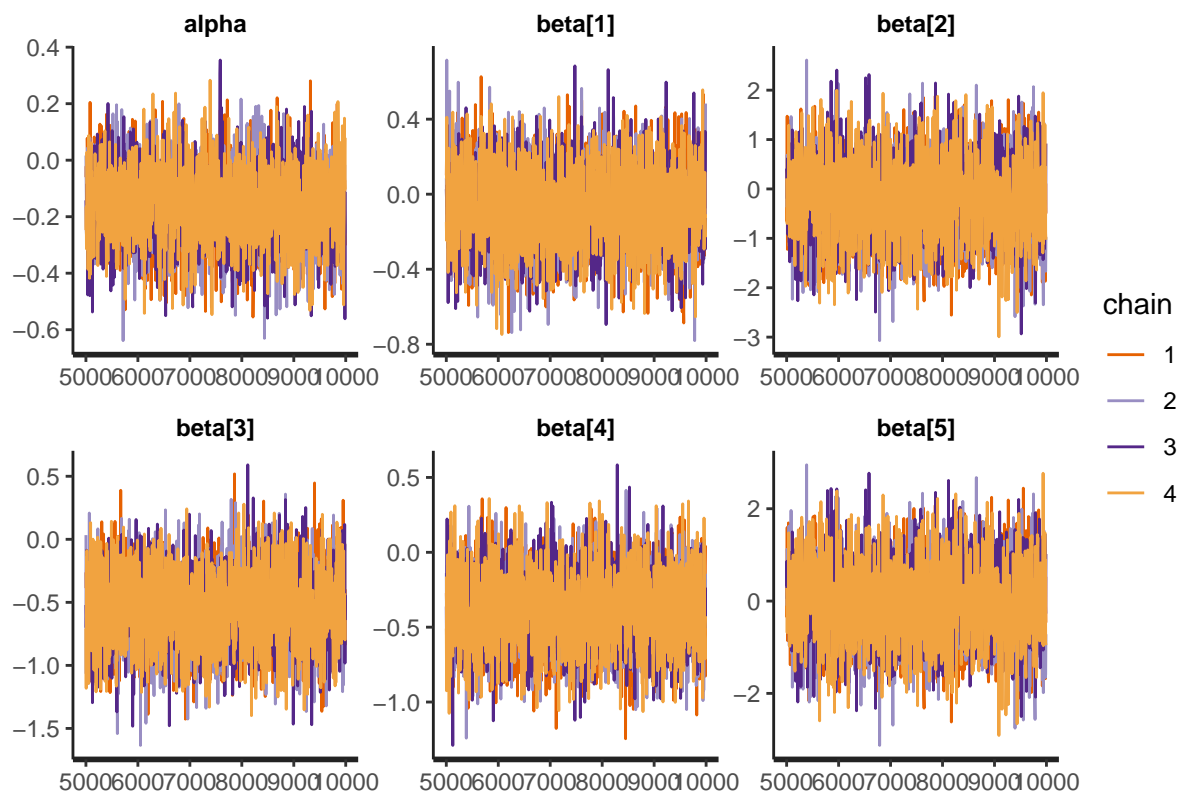
```
traceplot(logit_us, c('alpha', 'beta'))
```



```
print(logit_us, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##          mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha   -3.46    0.01 0.40 -4.30 -2.71 3536   1
## beta[1]  0.64    0.01 0.51 -0.30  1.70 3981   1
## beta[2] -4.07    0.02 0.90 -5.91 -2.39 3348   1
## beta[3] -2.41    0.01 0.64 -3.72 -1.21 3685   1
## beta[4]  0.83    0.02 1.06 -1.26  2.86 4019   1
## beta[5] -6.32    0.02 1.13 -8.66 -4.21 3927   1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:42:51 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
traceplot(logit_canada, c('alpha', 'beta'))
```

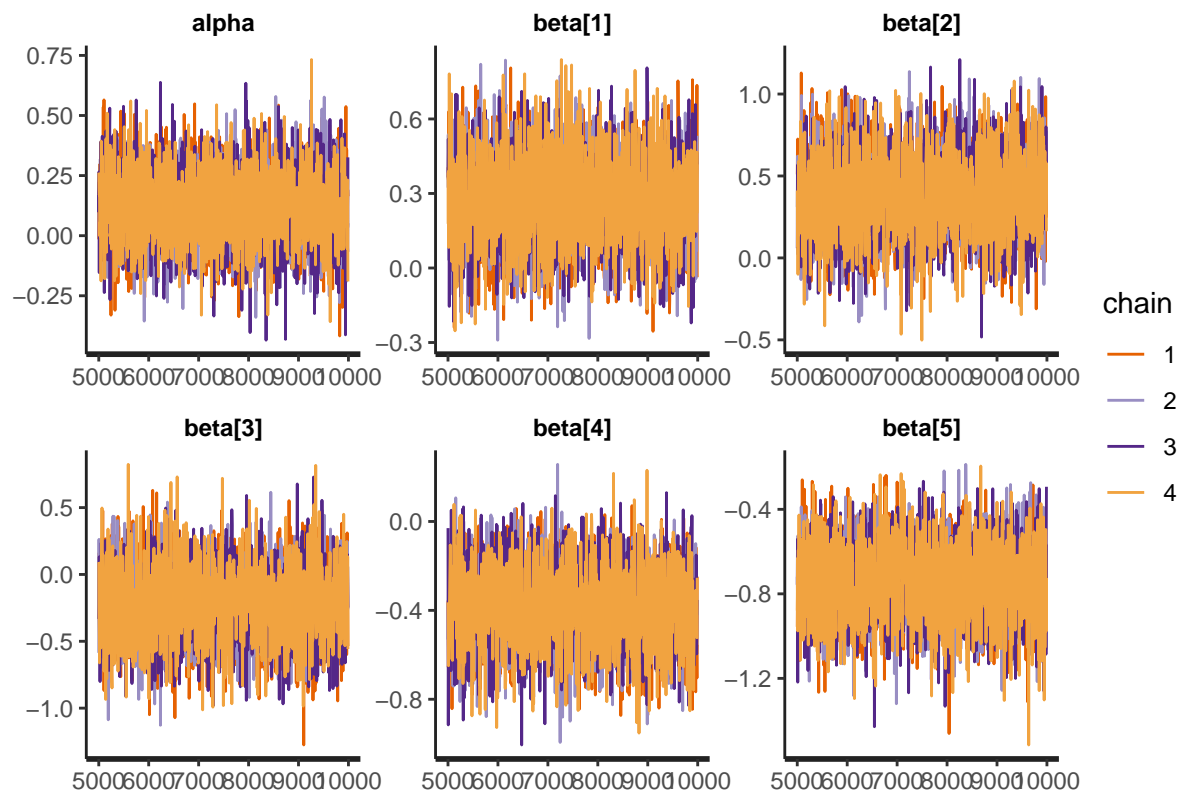


```
print(logit_canada, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
```

```
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha  -0.16   0.00 0.13 -0.43  0.10 3926   1
## beta[1] -0.06   0.00 0.21 -0.47  0.34 4014   1
## beta[2] -0.21   0.01 0.80 -1.78  1.37 3768   1
## beta[3] -0.54   0.00 0.30 -1.13  0.03 3860   1
## beta[4] -0.39   0.00 0.25 -0.88  0.10 3943   1
## beta[5] -0.04   0.01 0.86 -1.69  1.68 3804   1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:43:38 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
traceplot(logit_luxembourg, c('alpha', 'beta'))
```

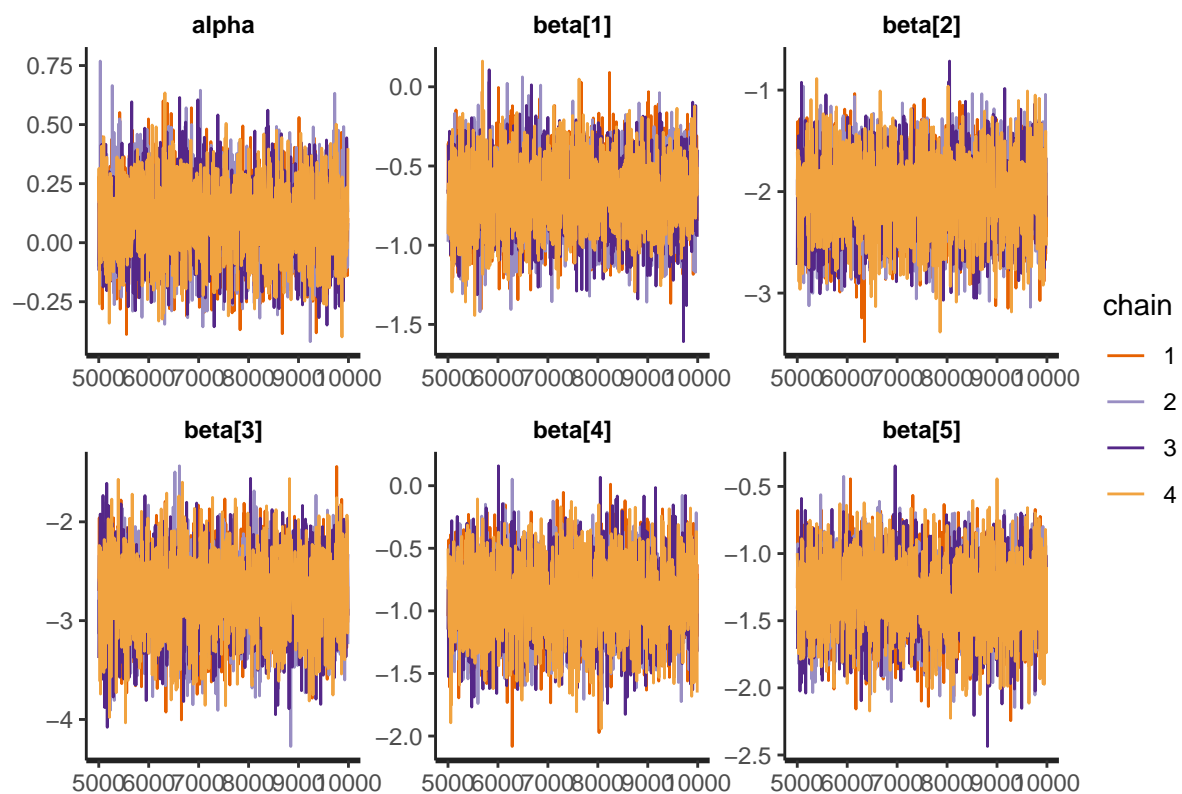


```
print(logit_luxembourg, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
```

```
## alpha      0.12      0 0.15 -0.18  0.41  4101    1
## beta[1]    0.27      0 0.18 -0.08  0.62  3826    1
## beta[2]    0.38      0 0.25 -0.09  0.87  3597    1
## beta[3]   -0.23      0 0.28 -0.77  0.32  3819    1
## beta[4]   -0.38      0 0.18 -0.74 -0.05  3514    1
## beta[5]   -0.74      0 0.18 -1.10 -0.40  3765    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:43:54 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
traceplot(logit_netherlands, c('alpha', 'beta'))
```

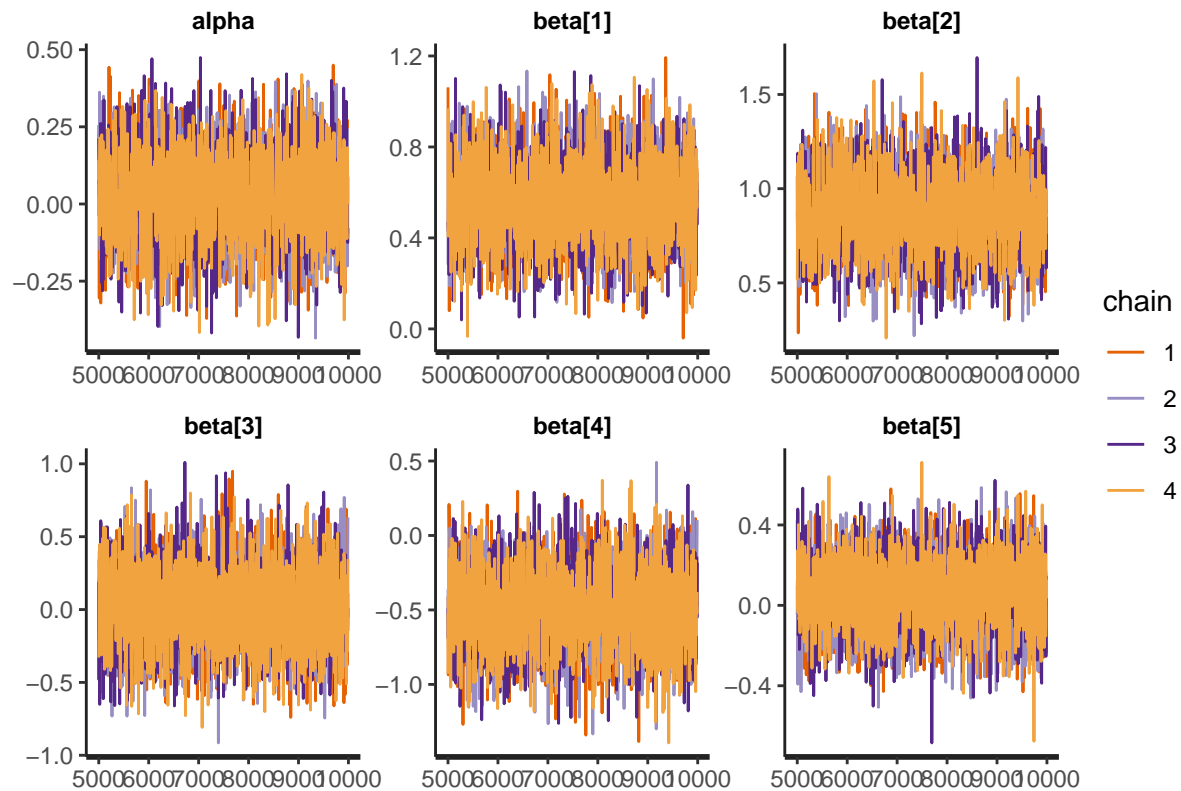


```
print(logit_netherlands, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha      0.10   0.00 0.16 -0.23  0.42  3966    1
## beta[1]   -0.69   0.00 0.23 -1.13 -0.24  3907    1
## beta[2]   -2.03   0.01 0.38 -2.80 -1.31  3887    1
## beta[3]   -2.73   0.01 0.40 -3.55 -1.98  3813    1
```

```
## beta[4] -0.90    0.00 0.30 -1.52 -0.31  3980    1
## beta[5] -1.31    0.00 0.27 -1.87 -0.78  3756    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:44:16 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
traceplot(logit_denmark, c('alpha', 'beta'))
```

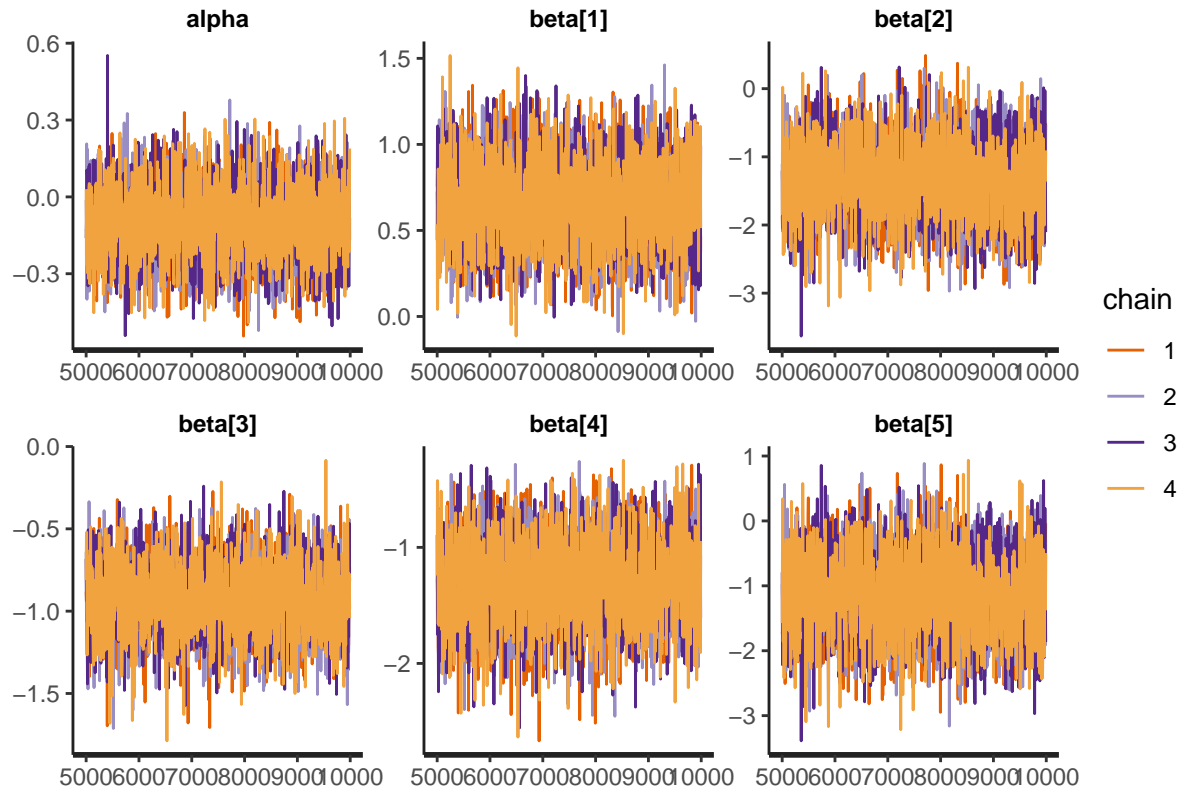


```
print(logit_denmark, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##          mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha    0.03      0 0.14 -0.25  0.31  3321    1
## beta[1]   0.57      0 0.18  0.22  0.91  3880    1
## beta[2]   0.87      0 0.20  0.48  1.27  3949    1
## beta[3]   0.02      0 0.27 -0.51  0.55  3982    1
## beta[4]  -0.49      0 0.26 -1.00  0.02  3796    1
## beta[5]   0.05      0 0.18 -0.29  0.40  3442    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:44:36 2020.
```

```
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

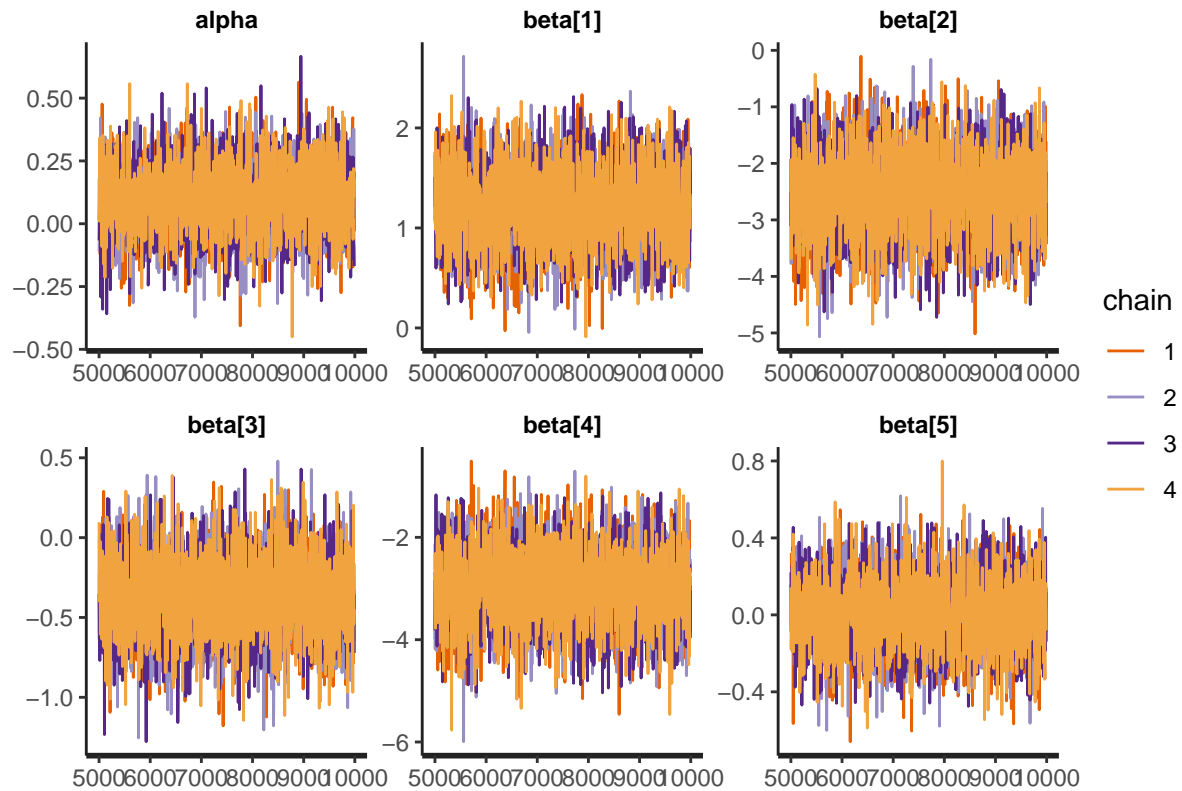
```
traceplot(logit_france, c('alpha', 'beta'))
```



```
print(logit_france, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha  -0.10    0.00  0.14 -0.37  0.17  4031    1
## beta[1]  0.67    0.00  0.24  0.19  1.15  3716    1
## beta[2] -1.33    0.01  0.56 -2.44 -0.24  3372    1
## beta[3] -0.92    0.00  0.22 -1.35 -0.50  4011    1
## beta[4] -1.31    0.01  0.37 -2.04 -0.60  3627    1
## beta[5] -1.14    0.01  0.63 -2.38  0.07  3353    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:45:07 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

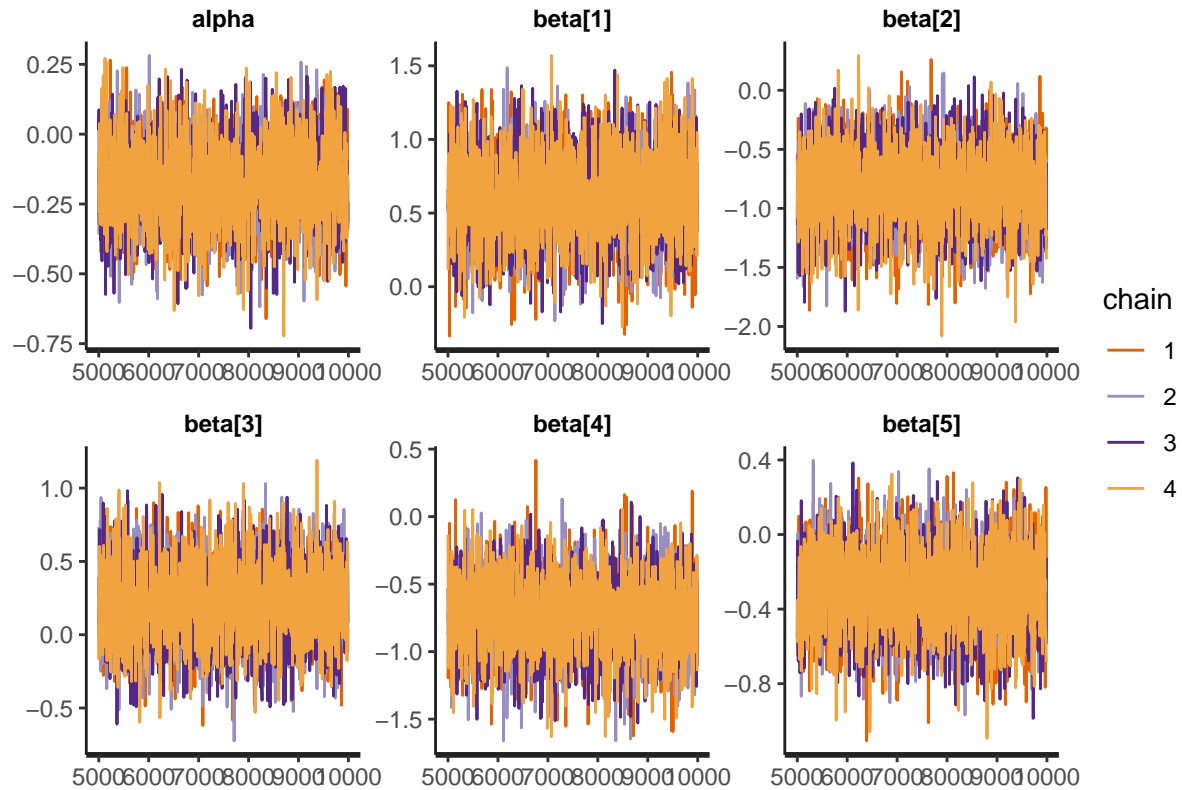
```
traceplot(logit_germany, c('alpha', 'beta'))
```



```
print(logit_germany, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##          mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha    0.10   0.00 0.14 -0.16  0.36  4102   1
## beta[1]   1.22   0.01 0.38  0.46  1.96  4054   1
## beta[2]  -2.54   0.01 0.72 -3.96 -1.15  4089   1
## beta[3]  -0.38   0.00 0.25 -0.87  0.13  3880   1
## beta[4]  -2.99   0.01 0.74 -4.46 -1.55  4029   1
## beta[5]   0.00   0.00 0.19 -0.36  0.37  4115   1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:45:47 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

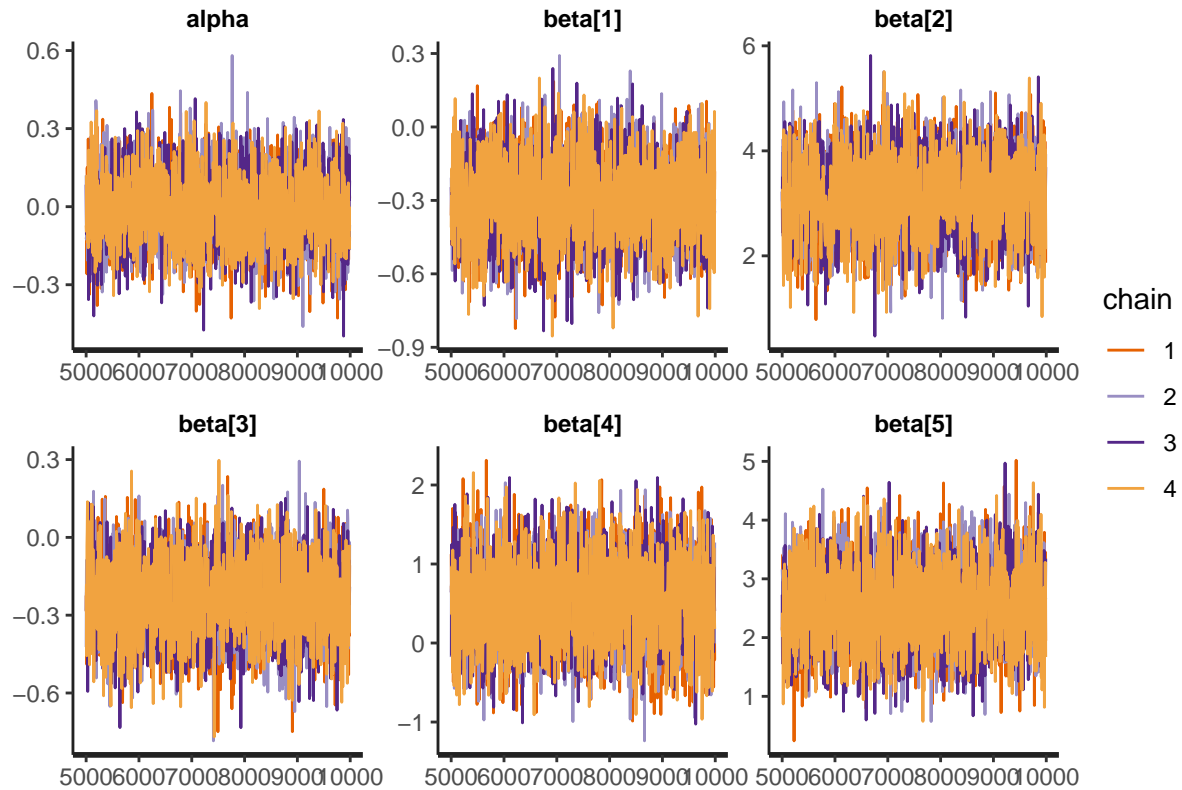
```
traceplot(logit_japan, c('alpha', 'beta'))
```



```
print(logit_japan, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha  -0.17   0.00 0.14 -0.45  0.11  4028   1
## beta[1]  0.60   0.00 0.28  0.04  1.18  3542   1
## beta[2] -0.81   0.01 0.32 -1.45 -0.20  3770   1
## beta[3]  0.20   0.00 0.26 -0.29  0.74  3827   1
## beta[4] -0.73   0.00 0.27 -1.28 -0.21  3515   1
## beta[5] -0.30   0.00 0.21 -0.73  0.11  3750   1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:46:08 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

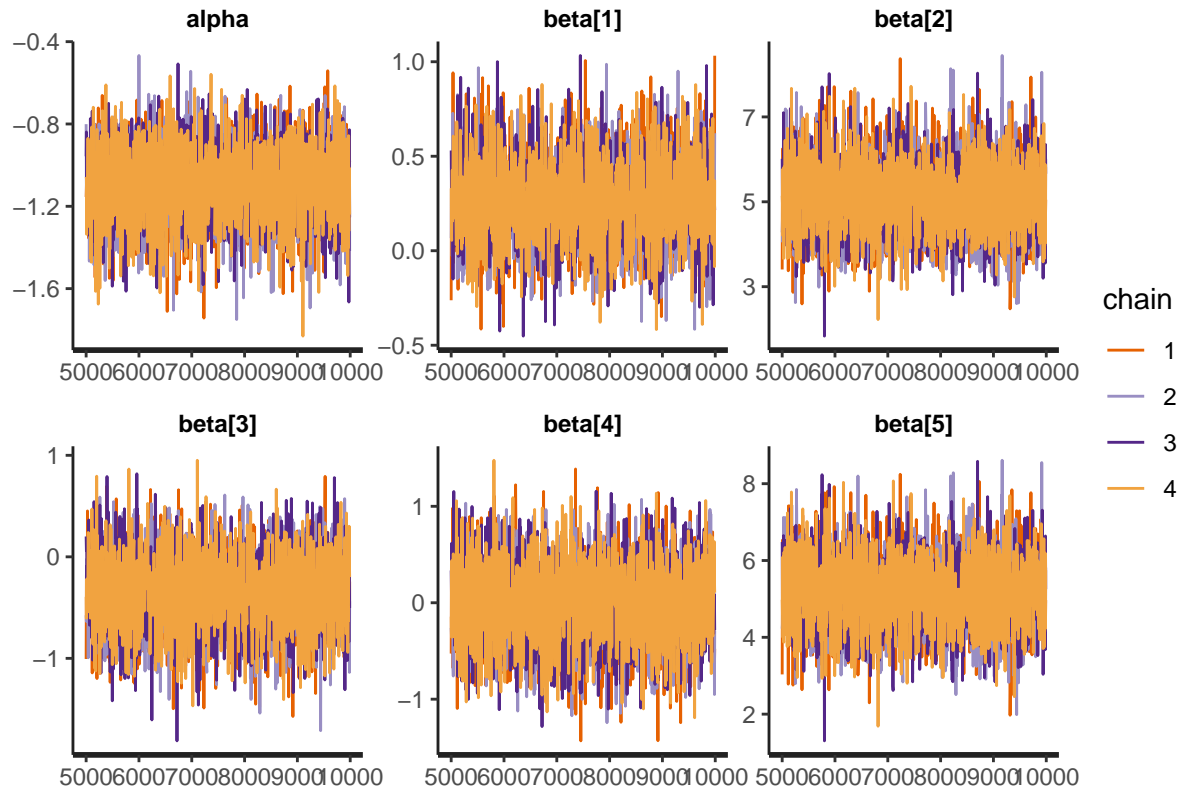
```
traceplot(logit_korea, c('alpha', 'beta'))
```

```
print(logit_korea, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha    0.00    0.00  0.14 -0.27  0.26  3940    1
## beta[1] -0.30    0.00  0.16 -0.61  0.02  4080    1
## beta[2]  3.15    0.01  0.72  1.70  4.54  3943    1
## beta[3] -0.23    0.00  0.15 -0.53  0.05  3950    1
## beta[4]  0.53    0.01  0.53 -0.51  1.58  4100    1
## beta[5]  2.55    0.01  0.67  1.28  3.85  3492    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:46:49 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

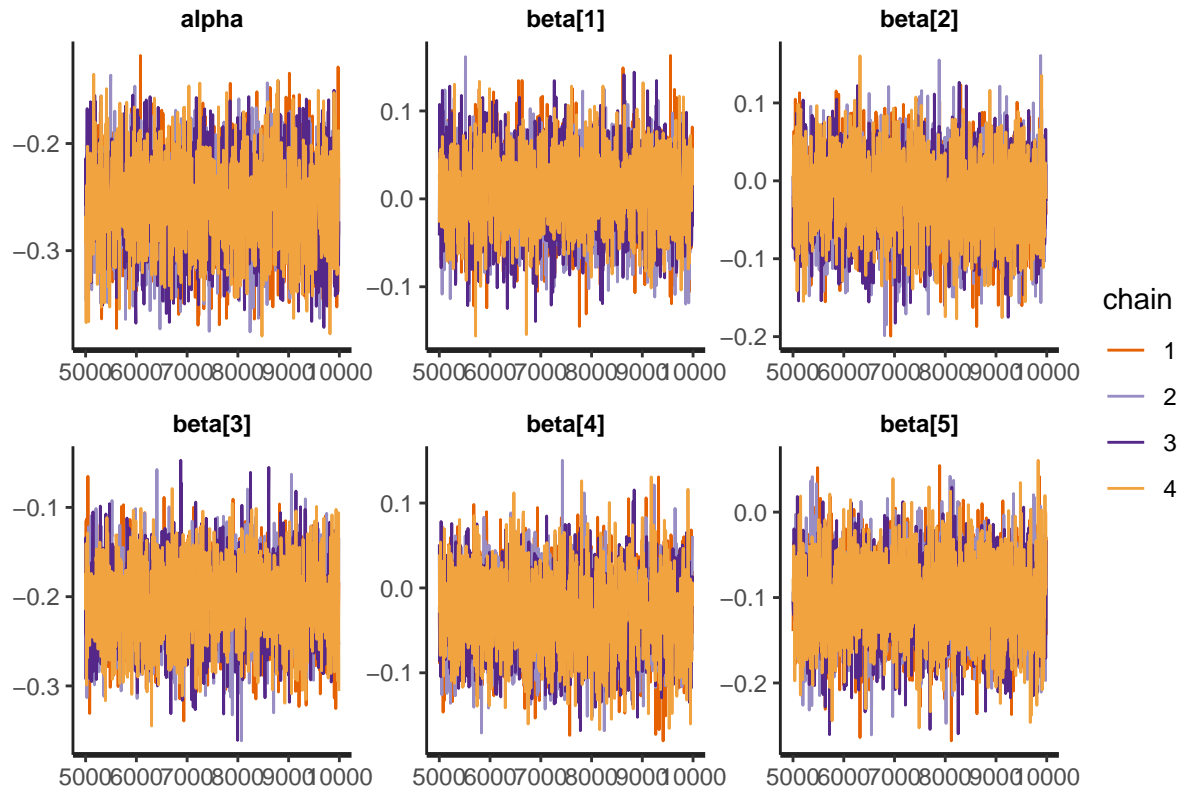
```
traceplot(logit_uk, c('alpha', 'beta'))
```



```
print(logit_uk, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha  -1.09    0.00 0.18 -1.47 -0.76 3761   1
## beta[1]  0.28    0.00 0.21 -0.14  0.71 3631   1
## beta[2]  5.14    0.01 0.85  3.56  6.85 3572   1
## beta[3] -0.35    0.01 0.37 -1.10  0.36 3855   1
## beta[4] -0.02    0.01 0.42 -0.84  0.80 3902   1
## beta[5]  5.14    0.02 0.94  3.37  7.02 3550   1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:47:30 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```

```
traceplot(logit_mixed, c('alpha', 'beta'))
```



```
print(logit_mixed, c('alpha', 'beta'), probs = c(0.025, 0.975))
```

```
## Inference for Stan model: logit.
## 4 chains, each with iter=10000; warmup=5000; thin=5;
## post-warmup draws per chain=1000, total post-warmup draws=4000.
##
##      mean se_mean   sd  2.5% 97.5% n_eff Rhat
## alpha  -0.26      0 0.04 -0.34 -0.18  3753    1
## beta[1]  0.01      0 0.04 -0.08  0.09  4080    1
## beta[2] -0.02      0 0.05 -0.12  0.08  4077    1
## beta[3] -0.21      0 0.04 -0.29 -0.12  3805    1
## beta[4] -0.03      0 0.05 -0.12  0.06  3995    1
## beta[5] -0.10      0 0.05 -0.20 -0.01  3925    1
##
## Samples were drawn using NUTS(diag_e) at Sat Apr 25 12:49:06 2020.
## For each parameter, n_eff is a crude measure of effective sample size,
## and Rhat is the potential scale reduction factor on split chains (at
## convergence, Rhat=1).
```