Package ‘mcmcderive’

February 11, 2021

Title Derive MCMC Parameters
Version 0.1.1
Description Generates derived parameter(s) from Monte Carlo
        Markov Chain (MCMC) samples using R code. This allows Bayesian models
to be fitted without the inclusion of derived parameters which add
unnecessary clutter and slow model fitting. For more information on
MCMC samples see Brooks et al. (2011) <isbn:978-1-4200-7941-8>.
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URL https://github.com/poissonconsulting/mcmcderive
BugReports https://github.com/poissonconsulting/mcmcderive/issues
Depends R (>= 3.5)
Imports abind, chk, extras, mcmcr, nlist, purrr, universals
Suggests coda, covr, doParallel, plyr, testthat
Encoding UTF-8
Language en-US
LazyData true
RoxygenNote 7.1.1
NeedsCompilation no
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Repository CRAN
Date/Publication 2021-02-11 07:00:08 UTC

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mcmc_derive

MCMC Derive

Description
Generates an MCMC object with derived parameters from an MCMC object.

Usage
mcmc_derive(object, ...)

## S3 method for class 'nlist'
mcmc_derive(
  object,
  expr,
  values = list(),
  monitor = ".*",
  primary = FALSE,
  silent =getOption("mcmcderive.silent", FALSE),
  ...
)

## S3 method for class 'nlists'
mcmc_derive(
  object,
  expr,
  values = list(),
  monitor = ".*",
  primary = FALSE,
  silent =getOption("mcmcderive.silent", FALSE),
  ...
)

## S3 method for class 'mcmc'
mcmc_derive(
  object,
  expr,
  values = list(),
  monitor = ".*",
  primary = FALSE,
  silent =getOption("mcmcderive.silent", FALSE),
  ...
)

## S3 method for class 'mcmc.list'
mcmc_derive(
  object,
mcmc_derive

```r
expr,
values = list(),
monitor = ".*",
primary = FALSE,
parallel = FALSE,
silent = getOption("mcmcderive.silent", FALSE),
...
)

## S3 method for class 'mcmcr'
mcmc_derive(
  object,
  expr,
  values = list(),
  monitor = ".*",
  primary = FALSE,
  parallel = FALSE,
  silent = getOption("mcmcderive.silent", FALSE),
  ...
)

## S3 method for class 'mcmcrs'
mcmc_derive(
  object,
  expr,
  values = list(),
  monitor = ".*",
  primary = FALSE,
  parallel = FALSE,
  silent = getOption("mcmcderive.silent", FALSE),
  ...
)

Arguments

object An MCMC object.
...
Unused.
expr A string of the R code defining the values of the derived parameter(s) with respect to the parameters in object.
values A named list of additional R objects to evaluate in the R expression.
monitor A regular expression specifying the derived parameter(s) in expr to monitor.
primary A flag specifying whether to include the original primary parameters in the new MCMC object.
silent A flag specifying whether to suppress messages and warnings.
parallel A flag specifying whether to generate the derived parameters for each chain in parallel.
```
Details

It's important to note that parameters in the expression that also occur in the original object are not included in the new object unless primary = TRUE in which case they are simply copied from the original object to the new one. This applies even when the primary parameters are redefined in values.

Value

An MCMC object with the derived parameter(s).

Methods (by class)

• nlist: Get derived parameters for an nlist::nlist-object()
• nlists: Get derived parameters for an nlist::nlists-object()
• mcmc: Get derived parameters for an coda::mcmc() object
• mcmc.list: Get derived parameters for an coda::mcmc.list() object
• mcmcr: Get derived parameters for an mcmcr::mcmcr-object()
• mcmcrs: Get derived parameters for an mcmcr::mcmcrs-object()

Examples

mcmcr::mcmcr_example

expr <- "
  log(alpha2) <- alpha
  gamma <- sum(alpha) * sigma"

mcmc_derive(mcmcr::mcmcr_example, expr, silent = TRUE)
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