Package: mcmcderive (via r-universe)

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Title Derive MCMC Parameters

Version 0.1.2.9002

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, rlang, universals

Suggests coda, covr, doParallel, plyr, testthat (>= 3.0.0)

Config/testthat/edition 3

Encoding UTF-8

Language en-US

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RoxygenNote 7.2.3

Repository https://poissonconsulting.r-universe.dev

RemoteUrl https://github.com/poissonconsulting/mcmcderive

RemoteRef HEAD

RemoteSha 796f03d0829410c86f886e0b5de817809ecd02f5

Contents

expression_vectorize *Convert New Expression*

Description

Takes an expression and removes the for loop and adds cbind for arrays.

Usage

```
expression_vectorize(x)
```

Arguments

x	An expression

Value

An expression

Examples

```
expression_vectorize(rlang::expr(for(i in 1:nObs) {eCount[i] <- b0}))
expression_vectorize(
  rlang::expr(
    for(i in 1:length(LogLength)) {eWeightLength[i] <- b0 + bDayte * Dayte[i]}
  )
)
expression_vectorize(
  rlang::expr(
    for(i in 1:nObs) {eAnnual[i] <- bAnn[Ann[i]] + bSA[Site[i], Ann[i]]}
  )
)
```

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,
  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)

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