

# Package ‘mcbette’

September 27, 2023

**Title** Model Comparison Using 'babette'

**Version** 1.15.2

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**Description** 'BEAST2' (<<https://www.beast2.org>>) is a widely used Bayesian phylogenetic tool, that uses DNA/RNA/protein data and many model priors to create a posterior of jointly estimated phylogenies and parameters. 'mcbette' allows to do a Bayesian model comparison over some site and clock models, using 'babette' (<<https://github.com/ropensci/babette/>>).

**License** GPL-3

**RoxygenNote** 7.2.3

**VignetteBuilder** knitr

**URL** <https://github.com/ropensci/mcbette/>

**BugReports** <https://github.com/ropensci/mcbette/issues>

**Imports** babette (>= 2.3), beautier (>= 2.6.2), beastier (>= 2.4.6), curl, devtools, mauricer (>= 2.5), Rmpfr, testit, txtplot

**Suggests** ape, ggplot2, hunspell, knitr, lintr, markdown, nLTT, phangorn, rappdirs, rmarkdown, spelling, stringr, testthat (>= 2.1.0), tracerer

**Language** en-US

**Encoding** UTF-8

**SystemRequirements** BEAST2 (<https://www.beast2.org/>)

**NeedsCompilation** no

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---

|              |   |
|--------------|---|
| calc_weights | <i>Calculate the weights for each marginal likelihood</i> |
|--------------|---|

---

### Description

Calculate the weights for each marginal likelihood

### Usage

```
calc_weights(marg_lik)
```

### Arguments

marg\_lik (non-log) marginal likelihood estimates

### Value

the weight of each marginal likelihood estimate, which will sum up to 1.0

### Author(s)

Richèl J.C. Bilderbeek

## Examples

```
# Evidences (aka marginal likelihoods) can be very small
evidences <- c(0.0001, 0.0002, 0.0003, 0.0004)

# Sum will be 1.0
calc_weights(evidences)

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

can\_run\_mcbette      *Can 'mcbette' run?*

---

## Description

Can 'mcbette' run? Will return **TRUE** if:

- (1) Running on Linux or MacOS
- (2) BEAST2 is installed
- (3) The BEAST2 NS package is installed

## Usage

```
can_run_mcbette(beast2_folder = beastier::get_default_beast2_folder())
```

## Arguments

**beast2\_folder** the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use [get\\_default\\_beast2\\_folder](#) to get the default BEAST2 folder. Use [get\\_default\\_beast2\\_bin\\_path](#) to get the full path to the default BEAST2 executable. Use [get\\_default\\_beast2\\_jar\\_path](#) to get the full path to the default BEAST2 jar file.

## Author(s)

Richèl J.C. Bilderbeek

## Examples

```
can_run_mcbette()

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

check\_beast2\_ns\_pkg      *Checks if the BEAST2 'NS' package is installed.*

---

### Description

Checks if the BEAST2 'NS' package is installed. Will [stop](#) if not

### Usage

```
check_beast2_ns_pkg(beast2_bin_path = beastier::get_default_beast2_bin_path())
```

### Arguments

beast2\_bin\_path  
path to the the BEAST2 binary file

---

check\_marg\_lik      *Check if the marg\_lik*s are of the same type as returned by [est\\_marg\\_lik](#)s.

---

### Description

[stop](#) if not.

### Usage

```
check_marg_lik(marg_lik)
```

### Arguments

marg\_lik      a table of (estimated) marginal likelihoods, as, for example, created by [est\\_marg\\_lik](#)s. This [data.frame](#) has the following columns:

- site\_model\_name: name of the site model, must be an element of [get\\_site\\_model\\_names](#)
- clock\_model\_name: name of the clock model, must be an element of [get\\_clock\\_model\\_names](#)
- tree\_prior\_name: name of the tree prior, must be an element of [get\\_tree\\_prior\\_names](#)
- marg\_log\_lik: estimated marginal (natural) log likelihood
- marg\_log\_lik\_sd: estimated error of marg\_log\_lik
- weight: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)
- ess: effective sample size of the marginal likelihood estimation

Use [get\\_test\\_marg\\_lik](#)s to get a test marg\_lik. Use [is\\_marg\\_lik](#) to determine if a marg\_lik is valid. Use [check\\_marg\\_lik](#) to check that a marg\_lik is valid.

---

check\_mcbette\_state    *Check if the mcbette\_state is valid.*

---

### Description

Check if the mcbette\_state is valid. Will [stop](#) otherwise.

### Usage

```
check_mcbette_state(mcbette_state)
```

### Arguments

mcbette\_state    the [mcbette](#) state, which is a [list](#) with the following elements:

- `beast2_installed` [TRUE](#) if BEAST2 is installed, [FALSE](#) otherwise
- `ns_installed` [NA](#) if BEAST2 is not installed. [TRUE](#) if the BEAST2 NS package is installed [FALSE](#) if the BEAST2 NS package is not installed

### Author(s)

Richèl J.C. Bilderbeek

---

default\_params\_doc    *Documentation of general function arguments. This function does nothing. It is intended to inherit function argument documentation.*

---

### Description

Documentation of general function arguments. This function does nothing. It is intended to inherit function argument documentation.

### Usage

```
default_params_doc(  
  beast2_bin_path,  
  beast2_folder,  
  beast2_working_dir,  
  beast2_options,  
  beast2_optionses,  
  clock_model,  
  clock_models,  
  epsilon,  
  fasta_filename,  
  inference_model,  
  inference_models,
```

```

marg_liks,
mcbette_state,
mcmc,
os,
rng_seed,
site_model,
site_models,
tree_prior,
tree_priors,
verbose
)

```

## Arguments

|                    |  |
|--------------------|--|
| beast2_bin_path    | path to the the BEAST2 binary file   |
| beast2_folder      | the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use <a href="#">get_default_beast2_folder</a> to get the default BEAST2 folder. Use <a href="#">get_default_beast2_bin_path</a> to get the full path to the default BEAST2 executable. Use <a href="#">get_default_beast2_jar_path</a> to get the full path to the default BEAST2 jar file.  |
| beast2_working_dir | folder in which BEAST2 will run and produce intermediate files. By default, this is a temporary folder   |
| beast2_options     | a <code>beast2_options</code> structure, as can be created by <a href="#">create_mcbette_beast2_options</a> .  |
| beast2_optionses   | list of one or more <code>beast2_options</code> structures, as can be created by <a href="#">create_mcbette_beast2_options</a> . Use of reduplicated plural to achieve difference with <code>beast2_options</code>   |
| clock_model        | a clock model, as can be created by <a href="#">create_clock_model</a>   |
| clock_models       | a list of one or more clock models, as can be created by <a href="#">create_clock_models</a>   |
| epsilon            | measure of relative accuracy. Smaller values result in longer, more precise estimations  |
| fasta_filename     | name of the FASTA file   |
| inference_model    | an inference model, as can be created by <a href="#">create_inference_model</a>  |
| inference_models   | a list of one or more inference models, as can be created by <a href="#">create_inference_model</a>  |
| marg_liks          | a table of (estimated) marginal likelihoods, as, for example, created by <a href="#">est_marg_liks</a> . This <code>data.frame</code> has the following columns: <ul style="list-style-type: none"> <li>• <code>site_model_name</code>: name of the site model, must be an element of <a href="#">get_site_model_names</a></li> <li>• <code>clock_model_name</code>: name of the clock model, must be an element of <a href="#">get_clock_model_names</a></li> <li>• <code>tree_prior_name</code>: name of the tree prior, must be an element of <a href="#">get_tree_prior_names</a></li> <li>• <code>marg_log_lik</code>: estimated marginal (natural) log likelihood</li> </ul> |

- marg\_log\_lik\_sd: estimated error of marg\_log\_lik
- weight: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)
- ess: effective sample size of the marginal likelihood estimation

Use [get\\_test\\_marg\\_lik](#)s to get a test marg\_lik. Use [is\\_marg\\_lik](#) to determine if a marg\_lik is valid. Use [check\\_marg\\_lik](#) to check that a marg\_lik is valid.

|               |  |
|---------------|--|
| mcbette_state | the <a href="#">mcbette</a> state, which is a <a href="#">list</a> with the following elements: <ul style="list-style-type: none"> <li>• <a href="#">beast2_installed</a> <b>TRUE</b> if BEAST2 is installed, <b>FALSE</b> otherwise</li> <li>• <a href="#">ns_installed</a> <b>NA</b> if BEAST2 is not installed. <b>TRUE</b> if the BEAST2 NS package is installed <b>FALSE</b> if the BEAST2 NS package is not installed</li> </ul> |
| mcmc          | an MCMC for the Nested Sampling run, as can be created by <a href="#">create_mcmc_nested_sampling</a>  |
| os            | name of the operating system, must be <code>unix</code> (Linux, Mac) or <code>win</code> (Windows)   |
| rng_seed      | a random number generator seed used for the BEAST2 inference   |
| site_model    | a site model, as can be created by <a href="#">create_site_model</a>   |
| site_models   | a list of one or more site models, as can be created by <a href="#">create_site_models</a>   |
| tree_prior    | a tree prior, as can be created by <a href="#">create_tree_prior</a>   |
| tree_priors   | a list of one or more tree priors, as can be created by <a href="#">create_tree_priors</a>   |
| verbose       | if <b>TRUE</b> show debug output   |

**Note**

This is an internal function, so it should be marked with `@noRd`. This is not done, as this will disallow all functions to find the documentation parameters

**Author(s)**

Richèl J.C. Bilderbeek

---

|                           |   |
|---------------------------|---|
| <code>est_marg_lik</code> | <i>Estimate the marginal likelihood for an inference model.</i> |
|---------------------------|---|

---

**Description**

Estimate the marginal likelihood for an inference model.

**Usage**

```
est_marg_lik(
  fasta_filename,
  inference_model = beautier::create_ns_inference_model(),
  beast2_options = beastier::create_mcbette_beast2_options(),
  os = rappdirs::app_dir()$os
)
```

**Arguments**

**fasta\_filename** name of the FASTA file  
**inference\_model**  
                   an inference model, as can be created by [create\\_inference\\_model](#)  
**beast2\_options** a `beast2_options` structure, as can be created by [create\\_mcbette\\_beast2\\_options](#).  
**os** name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

**Value**

a [list](#) showing the estimated marginal likelihoods (and its estimated error), its items are::

- `marg_log_lik`: estimated marginal (natural) log likelihood
- `marg_log_lik_sd`: estimated error of `marg_log_lik`
- `esses` the Effective Sample Size

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

- [can\\_run\\_mcbette](#): see if 'mcbette' can run
- [est\\_marg\\_lik](#): estimate multiple marginal likelihoods

**Examples**

```

if (can_run_mcbette()) {

  # An example FASTA file
  fasta_filename <- system.file("extdata", "simple.fas", package = "mcbette")

  # A testing inference model with inaccurate (thus fast) marginal
  # likelihood estimation
  inference_model <- beautier::create_ns_inference_model()

  # Shorten the run, by doing a short (dirty, unreliable) MCMC
  inference_model$mcmc <- beautier::create_test_ns_mcmc()

  # Setup the options for BEAST2 to be able to call BEAST2 packages
  beast2_options <- beautier::create_mcbette_beast2_options()

  # Estimate the marginal likelihood
  est_marg_lik(
    fasta_filename = fasta_filename,
    inference_model = inference_model,
    beast2_options = beast2_options
  )

  beautier::remove_beautier_folders()
}

```



---

est\_marg\_lik                      *Estimate the marginal likelihoods for one or more inference models*

---

## Description

Estimate the marginal likelihoods (aka evidence) for one or more inference models, based on a single alignment. Also, the marginal likelihoods are compared, resulting in a relative weight for each model, where a relative weight of a model close to 1.0 means that that model is way likelier than the others.

## Usage

```
est_marg_lik(
  fasta_filename,
  inference_models = list(beautier::create_inference_model(mcmc =
    beautier::create_ns_mcmc())),
  beast2_optionses = rep(list(beastier::create_mcbette_beast2_options()), times =
    length(inference_models)),
  verbose = FALSE,
  os = rappdirs::app_dir()$os
)
```

## Arguments

`fasta_filename` name of the FASTA file

`inference_models`  
a list of one or more inference models, as can be created by [create\\_inference\\_model](#)

`beast2_optionses`  
list of one or more `beast2_options` structures, as can be created by [create\\_mcbette\\_beast2\\_options](#).  
Use of reduplicated plural to achieve difference with `beast2_options`

`verbose` if TRUE show debug output

`os` name of the operating system, must be `unix` (Linux, Mac) or `win` (Windows)

## Details

In the process, multiple (temporary) files are created (where `[x]` denotes the index in a list)

- `beast2_optionses[x]$input_filename` path to the the BEAST2 XML input file
- `beast2_optionses[x]$output_state_filename` path to the BEAST2 XML state file
- `inference_models[x]$mcmc$tracelog$filename` path to the BEAST2 trace file with parameter estimates
- `inference_models[x]$mcmc$treelog$filename` path to the BEAST2 trees file with the posterior trees
- `inference_models[x]$mcmc$screenlog$filename` path to the BEAST2 screen output file

These file can be deleted manually by [bbt\\_delete\\_temp\\_files](#), else these will be deleted automatically by the operating system.

**Value**

a [data.frame](#) showing the estimated marginal likelihoods (and its estimated error) per combination of models. Columns are:

- `site_model_name`: name of the site model
- `clock_model_name`: name of the clock model
- `tree_prior_name`: name of the tree prior
- `marg_log_lik`: estimated marginal (natural) log likelihood
- `marg_log_lik_sd`: estimated error of `marg_log_lik`
- `weight`: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)
- `ess`: effective sample size of the marginal likelihood estimation

**Author(s)**

Richèl J.C. Bilderbeek

**See Also**

- [can\\_run\\_mcbette](#): see if 'mcbette' can run
- [est\\_marg\\_lik](#): estimate multiple marginal likelihood of a single inference mode

**Examples**

```
if (can_run_mcbette()) {

  # Use an example FASTA file
  fasta_filename <- system.file("extdata", "simple.fas", package = "mcbette")

  # Create two inference models
  inference_model_1 <- beautier::create_ns_inference_model(
    site_model = beautier::create_jc69_site_model()
  )
  inference_model_2 <- beautier::create_ns_inference_model(
    site_model = beautier::create_hky_site_model()
  )

  # Shorten the run, by doing a short (dirty, unreliable) MCMC
  inference_model_1$mcmc <- beautier::create_test_ns_mcmc()
  inference_model_2$mcmc <- beautier::create_test_ns_mcmc()

  # Combine the inference models
  inference_models <- list(inference_model_1, inference_model_2)

  # Create the BEAST2 options, that will write the output
  # to different (temporary) filenames
  beast2_options_1 <- beastier::create_mcbette_beast2_options()
  beast2_options_2 <- beastier::create_mcbette_beast2_options()
}
```

```

# Combine the two BEAST2 options sets,
# use reduplicated plural
beast2_optionses <- list(beast2_options_1, beast2_options_2)

# Compare the models
marg_lik <- est_marg_lik(
  fasta_filename,
  inference_models = inference_models,
  beast2_optionses = beast2_optionses
)

# Interpret the results
interpret_marg_lik_estimates(marg_lik)

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
}

```

---

get\_mcbette\_state      *Get the current state of [mcbette](#)*

---

## Description

Get the current state of [mcbette](#)

## Usage

```
get_mcbette_state(beast2_folder = beastier::get_default_beast2_folder())
```

## Arguments

`beast2_folder` the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use [get\\_default\\_beast2\\_folder](#) to get the default BEAST2 folder. Use [get\\_default\\_beast2\\_bin\\_path](#) to get the full path to the default BEAST2 executable. Use [get\\_default\\_beast2\\_jar\\_path](#) to get the full path to the default BEAST2 jar file.

## Value

a [list](#) with the following elements:

- `beast2_installed` [TRUE](#) if BEAST2 is installed, [FALSE](#) otherwise
- `ns_installed` [TRUE](#) if the BEAST2 NS package is installed [FALSE](#) if the BEAST2 or the BEAST2 NS package is not installed

**Examples**

```
get_mcbette_state()

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

```
get_test_marg_lik     Get testing marg_lik
```

---

**Description**

Get testing marg\_lik

**Usage**

```
get_test_marg_lik()
```

**Examples**

```
get_test_marg_lik()

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

```
interpret_bayes_factor
      Interpret a Bayes factor
```

---

**Description**

Interpret a Bayes factor, using the interpretation from [1].

**Usage**

```
interpret_bayes_factor(bayes_factor)
```

**Arguments**

bayes\_factor    Bayes factor to be interpreted

**Details**

- [1] H. Jeffreys (1961). The Theory of Probability (3rd ed.). Oxford. p. 432

**Value**

a string with the interpretation in English

**Author(s)**

Richèl J.C. Bilderbeek

**Examples**

```
interpret_bayes_factor(0.5)

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```

---

interpret\_marg\_lik\_estimates

*Interpret the marginal likelihood estimates*

---

**Description**

Interpret the marginal likelihood estimates as created by [est\\_marg\\_lik](#).

**Usage**

```
interpret_marg_lik_estimates(marg_lik)
```

**Arguments**

`marg_lik` a table of (estimated) marginal likelihoods, as, for example, created by [est\\_marg\\_lik](#). This [data.frame](#) has the following columns:

- `site_model_name`: name of the site model, must be an element of [get\\_site\\_model\\_names](#)
- `clock_model_name`: name of the clock model, must be an element of [get\\_clock\\_model\\_names](#)
- `tree_prior_name`: name of the tree prior, must be an element of [get\\_tree\\_prior\\_names](#)
- `marg_log_lik`: estimated marginal (natural) log likelihood
- `marg_log_lik_sd`: estimated error of `marg_log_lik`
- `weight`: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)
- `ess`: effective sample size of the marginal likelihood estimation

Use [get\\_test\\_marg\\_lik](#) to get a test `marg_lik`. Use [is\\_marg\\_lik](#) to determine if a `marg_lik` is valid. Use [check\\_marg\\_lik](#) to check that a `marg_lik` is valid.

**Author(s)**

Richèl J.C. Bilderbeek

---

|             |   |
|-------------|---|
| is_marg_lik | <i>Determine if the marg_lik is valid</i> |
|-------------|---|

---

**Description**

Determine if the marg\_lik is valid

**Usage**

```
is_marg_lik(marg_lik, verbose = FALSE)
```

**Arguments**

|          |  |
|----------|--|
| marg_lik | <p>a table of (estimated) marginal likelihoods, as, for example, created by <a href="#">est_marg_lik</a>. This <a href="#">data.frame</a> has the following columns:</p> <ul style="list-style-type: none"> <li>• site_model_name: name of the site model, must be an element of <a href="#">get_site_model_names</a></li> <li>• clock_model_name: name of the clock model, must be an element of <a href="#">get_clock_model_names</a></li> <li>• tree_prior_name: name of the tree prior, must be an element of <a href="#">get_tree_prior_names</a></li> <li>• marg_log_lik: estimated marginal (natural) log likelihood</li> <li>• marg_log_lik_sd: estimated error of marg_log_lik</li> <li>• weight: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)</li> <li>• ess: effective sample size of the marginal likelihood estimation</li> </ul> <p>Use <a href="#">get_test_marg_lik</a> to get a test marg_lik. Use <a href="#">is_marg_lik</a> to determine if a marg_lik is valid. Use <a href="#">check_marg_lik</a> to check that a marg_lik is valid.</p> |
| verbose  | if TRUE show debug output  |

**Value**

TRUE if the argument is a valid marg\_lik, FALSE otherwise

---

|                |  |
|----------------|--|
| mcbette_report | <i>Create a <a href="#">mcbette</a> report, to be used when reporting bugs</i> |
|----------------|--|

---

**Description**

Create a [mcbette](#) report, to be used when reporting bugs

**Usage**

```
mcbette_report(beast2_folder = beastier::get_default_beast2_folder())
```

### Arguments

`beast2_folder` the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use [get\\_default\\_beast2\\_folder](#) to get the default BEAST2 folder. Use [get\\_default\\_beast2\\_bin\\_path](#) to get the full path to the default BEAST2 executable. Use [get\\_default\\_beast2\\_jar\\_path](#) to get the full path to the default BEAST2 jar file.

### Value

nothing. It is intended that the output (not the return value) is copy-pasted from screen.

### Author(s)

Richèl J.C. Bilderbeek

### Examples

```
if(beastier::is_on_ci()) {  
  mcbette_report()  
}
```

---

`mcbette_self_test`      *Performs a minimal [mcbette](#) run*

---

### Description

Performs a minimal [mcbette](#) run

### Usage

```
mcbette_self_test(beast2_folder = beastier::get_default_beast2_folder())
```

### Arguments

`beast2_folder` the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use [get\\_default\\_beast2\\_folder](#) to get the default BEAST2 folder. Use [get\\_default\\_beast2\\_bin\\_path](#) to get the full path to the default BEAST2 executable. Use [get\\_default\\_beast2\\_jar\\_path](#) to get the full path to the default BEAST2 jar file.

---

plot\_marg\_lik      *Plot the marg\_lik*

---

## Description

Plot the marg\_lik

## Usage

```
plot_marg_lik(marg_lik)
```

## Arguments

`marg_lik` a table of (estimated) marginal likelihoods, as, for example, created by [est\\_marg\\_lik](#). This [data.frame](#) has the following columns:

- `site_model_name`: name of the site model, must be an element of [get\\_site\\_model\\_names](#)
- `clock_model_name`: name of the clock model, must be an element of [get\\_clock\\_model\\_names](#)
- `tree_prior_name`: name of the tree prior, must be an element of [get\\_tree\\_prior\\_names](#)
- `marg_log_lik`: estimated marginal (natural) log likelihood
- `marg_log_lik_sd`: estimated error of `marg_log_lik`
- `weight`: relative model weight, a value from 1.0 (all evidence is in favor of this model combination) to 0.0 (no evidence in favor of this model combination)
- `ess`: effective sample size of the marginal likelihood estimation

Use [get\\_test\\_marg\\_lik](#) to get a test `marg_lik`. Use [is\\_marg\\_lik](#) to determine if a `marg_lik` is valid. Use [check\\_marg\\_lik](#) to check that a `marg_lik` is valid.

## Value

a [ggplot](#)

## Examples

```
plot_marg_lik(get_test_marg_lik())

beastier::remove_beastier_folders()
beastier::check_empty_beastier_folders()
```



---

set\_mcbette\_state      *Set the [mcbette](#) state.*

---

### Description

Set the [mcbette](#) state to having BEAST2 installed with or without installing the BEAST2 NS package.

### Usage

```
set_mcbette_state(  
  mcbette_state,  
  beast2_folder = beastier::get_default_beast2_folder(),  
  verbose = FALSE  
)
```

### Arguments

`mcbette_state`    the [mcbette](#) state, which is a [list](#) with the following elements:

- `beast2_installed` [TRUE](#) if BEAST2 is installed, [FALSE](#) otherwise
- `ns_installed` [NA](#) if BEAST2 is not installed. [TRUE](#) if the BEAST2 NS package is installed [FALSE](#) if the BEAST2 NS package is not installed

`beast2_folder`    the folder where the BEAST2 is installed. Note that this is not the folder where the BEAST2 executable is installed: the BEAST2 executable is in a subfolder. Use [get\\_default\\_beast2\\_folder](#) to get the default BEAST2 folder. Use [get\\_default\\_beast2\\_bin\\_path](#) to get the full path to the default BEAST2 executable. Use [get\\_default\\_beast2\\_jar\\_path](#) to get the full path to the default BEAST2 jar file.

`verbose`          if [TRUE](#) show debug output

### Note

In newer versions of BEAST2, BEAST2 comes pre-installed with the BEAST2 NS package. For such a version, one cannot install BEAST2 without NS. A warning will be issues if one intends to only install BEAST2 (i.e. without the BEAST2 NS package) and gets the BEAST2 NS package installed as a side effect as well.

Also, installing or uninstalling a BEAST2 package from a BEAST2 installation will affect all installations.

### See Also

- Use [get\\_mcbette\\_state](#) to get the current [mcbette](#) state
- Use [check\\_mcbette\\_state](#) to check the current [mcbette](#) state

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