Package ‘inspector’

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inspect_bfactor checks if an object is a numeric vector of valid Bayes factor values. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

Usage

inspect_bfactor(x, allow_nas = TRUE, warning_nas = TRUE)

Arguments

x An arbitrary object.
allow_nas Logical value. If TRUE then NA and NaN values in x are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in x.
warning_nas Logical value. If TRUE then the presence of NA or NaN values in x generates a warning message. NA and NaN values pass silently otherwise (if allow_nas is TRUE).

Details

inspect_bfactor conducts a series of tests to check if x is a numeric vector of valid Bayes factor values. Namely, inspect_bfactor checks if:

- x is NULL or empty.
- x is an atomic vector.
- x is numeric.
- x has NA or NaN values.
- The values of x are non-negative.
Value

inspect_bfactor does not return any output. There are three possible outcomes:

- The call is silent if:
  - \(x\) is a numeric vector of valid Bayes factor values and there are no \(\text{NA}\) or \(\text{NaN}\) values in \(x\).
  - \(x\) is a numeric vector of valid Bayes factor values, there are some \(\text{NA}\) or \(\text{NaN}\) values in \(x\), \(\text{allow_nas}\) is set to \(\text{TRUE}\) and \(\text{warning_nas}\) is set to \(\text{FALSE}\).
- An informative warning message is given if \(x\) is a numeric vector of valid Bayes factor values, there are some \(\text{NA}\) or \(\text{NaN}\) values in \(x\) and both \(\text{allow_nas}\) and \(\text{warning_nas}\) are set to \(\text{TRUE}\).
- An informative error message is thrown and the execution is stopped if:
  - \(x\) is not a numeric vector of valid Bayes factor values.
  - \(x\) is a numeric vector of valid Bayes factor values, there are some in \(\text{NA}\) or \(\text{NaN}\) values in \(x\) and \(\text{allow_nas}\) is set to \(\text{FALSE}\).

See Also

- \texttt{inspect_bfactor_log} to check if an object is a numeric vector of valid logarithmic Bayes factor values.
- \texttt{bfactor_interpret} for the interpretation of Bayes factors.
- \texttt{inspect_bfactor_scale} to check if an object is a valid Bayes factor interpretation scale.

Examples

# Calls that pass silently:
x1 <- c(0, 0.5, 1, 10, 50, 100)
x2 <- c(NA, 0.5, 1, 10, 50, 100)
inspect_bfactor(x1)
inspect_bfactor(x2, warning_nas = FALSE)
inspect_bfactor(x2, allow_nas = TRUE, warning_nas = FALSE)

# Call that throws an informative warning message:
y <- c(0.1, 0.2, NA, 0.4, 0.5)
try(inspect_bfactor(y))
try(inspect_bfactor(y, warning_nas = TRUE))
try(inspect_bfactor(y, allow_nas = TRUE, warning_nas = TRUE))

# Calls that throw informative error messages:
z <- c(-0.9, 0, 0.1, 0.2, 0.3, 0.4, 0.5)
try(inspect_bfactor(z))
mylist <- list(NULL, TRUE, factor(0.5), matrix(0.5),
               "0.5", list(0.5), NA, NaN, numeric(0), -0.5, -5)
try(inspect_bfactor(mylist[[1]]))
try(inspect_bfactor(mylist[[2]]))
try(inspect_bfactor(mylist[[3]]))
try(inspect_bfactor(mylist[[4]]))
try(inspect_bfactor(mylist[[5]]))
try(inspect_bfactor(mylist[[6]]))
try(inspect_bfactor(mylist[[7]]))
try(inspect_bfactor(mylist[[8]]))
try(inspect_bfactor(mylist[[9]]))
try(inspect_bfactor(mylist[[10]]))
try(inspect_bfactor(mylist[[11]]))

---

**inspect_bfactor_log**  
*Validate vectors of logarithmic Bayes factors*

**Description**

`inspect_bfactor_log` checks if an object is a numeric vector of valid logarithmic Bayes factor values. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

**Usage**

```r
inspect_bfactor_log(x, allow_nas = TRUE, warning_nas = TRUE)
```

**Arguments**

- `x`: An arbitrary object.
- `allow_nas`: Logical value. If TRUE then NA and NaN values in `x` are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in `x`.
- `warning_nas`: Logical value. If TRUE then the presence of NA or NaN values in `x` generates a warning message. NA and NaN values pass silently otherwise (if `allow_nas` is TRUE).

**Details**

`inspect_bfactor_log` conducts a series of tests to check if `x` is a numeric vector of valid logarithmic Bayes factor values. Namely, `inspect_bfactor_log` checks if:

- `x` is NULL or empty.
- `x` is an atomic vector.
- `x` is numeric.
- `x` has NA or NaN values.

**Value**

`inspect_bfactor_log` does not return any output. There are three possible outcomes:

- The call is silent if:
  - `x` is a numeric vector of valid logarithmic Bayes factor values and there are no NA or NaN values in `x`. 

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inspect_bfactor_log

- `x` is a numeric vector of valid logarithmic Bayes factor values, there are some NA or NaN values in `x`, `allow_nas` is set to TRUE and `warning_nas` is set to FALSE.

- An informative warning message is given if `x` is a numeric vector of valid logarithmic Bayes factor values, there are some NA or NaN values in `x` and both `allow_nas` and `warning_nas` are set to TRUE.

- An informative error message is thrown and the execution is stopped if:
  - `x` is not a numeric vector of valid logarithmic Bayes factor values.
  - `x` is a numeric vector of valid logarithmic Bayes factor values, there are some NA or NaN values in `x` and `allow_nas` is set to FALSE.

See Also

- `inspect_bfactor` to check if an object is a numeric vector of valid Bayes factor values.
- `bfactor_log_interpret` for the interpretation of the logarithms of Bayes factors.
- `inspect_bfactor_scale` to check if an object is a Bayes factor interpretation scale.
- `inspect_log_base` to check if an object is an eligible logarithmic base.

Examples

# Calls that pass silently:
x1 <- c(0, 0.5, 1, 10, 50, 100)
x2 <- c(NA, 0.5, 1, 10, 50, 100)
inspect_bfactor_log(x1)
inspect_bfactor_log(x2, warning_nas = FALSE)
inspect_bfactor_log(x2, allow_nas = TRUE, warning_nas = FALSE)

# Call that throws an informative warning message:
y <- c(0.1, 0.2, NA, 0.4, 0.5)
try(inspect_bfactor_log(y))
try(inspect_bfactor_log(y, warning_nas = TRUE))
try(inspect_bfactor_log(y, allow_nas = TRUE, warning_nas = TRUE))

# Calls that throw informative error messages:
mylist <- list(
  NULL, TRUE, factor(.5), matrix(0.5),
  "0.5", list(0.5), numeric(0), NA, NaN
)
try(inspect_bfactor_log(mylist[[1]]))
try(inspect_bfactor_log(mylist[[2]]))
try(inspect_bfactor_log(mylist[[3]]))
try(inspect_bfactor_log(mylist[[4]]))
try(inspect_bfactor_log(mylist[[5]]))
try(inspect_bfactor_log(mylist[[6]]))
try(inspect_bfactor_log(mylist[[7]]))
try(inspect_bfactor_log(mylist[[8]]))
try(inspect_bfactor_log(mylist[[9]]))
inspect_bfactor_scale  
Validate Bayes factor interpretation scales

Description

inspect_bfactor_scale checks if an object is a character vector of \texttt{length} 1 that is eligible to represent one of the Bayes factor interpretation scales available in the \texttt{pcal} package. This can be useful to validate inputs in user-defined functions.

Usage

\texttt{inspect_bfactor_scale(x)}

Arguments

\texttt{x}  
An arbitrary object.

Details

\texttt{inspect_bfactor_scale} conducts a series of tests to check if \texttt{x} is a character vector of \texttt{length} 1 that is eligible to represent one of the Bayes factor interpretation scales available in the \texttt{pcal} package. Namely, \texttt{inspect_bfactor_scale} checks if:

\begin{itemize}
  \item \texttt{x} is \texttt{NULL} or empty.
  \item \texttt{x} is \texttt{NA} or \texttt{NaN}.
  \item \texttt{x} is an atomic vector of \texttt{length} 1
  \item The \texttt{typeof} \texttt{x} is character
  \item The value of \texttt{x} is either "Jeffreys" or "Kass-Raftery" (not case sensitive).
\end{itemize}

Value

\texttt{inspect_bfactor_scale} does not return any output. There are two possible scenarios:

\begin{itemize}
  \item The call is silent if \texttt{x} is a character vector of \texttt{length} 1 that is eligible to represent one of the Bayes factor interpretation scales available in the \texttt{pcal} package.
  \item An informative error message is thrown otherwise.
\end{itemize}

See Also

- \texttt{bfactor_interpret} for the interpretation of Bayes factors.
- \texttt{bfactor_log_interpret} for the interpretation of the logarithms of Bayes factors.
- \texttt{inspect_bfactor} to check if an object is a numeric vector of valid Bayes factor values.
- \texttt{inspect_bfactor_log} to check if an object is a numeric vector of valid logarithmic Bayes factor values.
Examples

# Calls that pass silently:
x1 <- "Jeffreys"
x2 <- "jeffreys"
x3 <- "kass-raftery"
x4 <- "Kass-Raftery"
inspect_bfactor_scale(x1)
inspect_bfactor_scale(x2)
inspect_bfactor_scale(x3)
inspect_bfactor_scale(x4)

# Calls that throw informative error messages:
mylist <- list(
    NULL, NA, NaN, 10, "Bayes", "Jeff",
    "kassraftery", c("jeffreys", "kass-raftery")
)
try(inspect_bfactor_scale(mylist[[1]])
try(inspect_bfactor_scale(mylist[[2]])
try(inspect_bfactor_scale(mylist[[3]])
try(inspect_bfactor_scale(mylist[[4]])
try(inspect_bfactor_scale(mylist[[5]])
try(inspect_bfactor_scale(mylist[[6]])
try(inspect_bfactor_scale(mylist[[7]])
try(inspect_bfactor_scale(mylist[[8]])

inspect_categories

.Validate factor levels

Description

inspect_categories checks if an object is eligible to be used as the levels of a factor. This can be useful to validate inputs in user-defined functions.

Usage

inspect_categories(x)

Arguments

x An arbitrary object.

Details

inspect_categories conducts a series of tests to check if x is eligible to be used as the levels of a factor. Namely, inspect_categories checks if:

- x is NULL or empty.
- x is atomic.
- x has an eligible data type (logical, integer, double, character).
• There are NA or NaN values in x.
• There are repeated values in x.

Value

inspect_categories does not return any output. There are two possible outcomes:

• The call is silent if x is eligible to be used as the levels of a factor.
• An informative error message is thrown otherwise.

See Also

• inspect_data_dichotomous to validate dichotomous data.
• inspect_data_categorical and inspect_data_cat_as_dichom to validate categorical data.
• inspect_par_bernoulli to validate Bernoulli/Binomial proportions.
• inspect_par_multinomial to validate vectors of Multinomial proportions.
• inspect_character to validate character vectors.
• inspect_character_match to validate character vectors with predefined allowed values.

Examples

# Calls that pass silently:
x1 <- 1:5
x2 <- c("yes", "no")
x3 <- c(TRUE, FALSE)
x4 <- factor(c("smoker", "non-smoker"))
x5 <- factor(c("yes", "no", "yes"))
inspect_categories(x1)
inspect_categories(x2)
inspect_categories(x3)
inspect_categories(x4)
inspect_categories(levels(x5))

# Calls that throw informative error messages:
y1 <- c(1, 1:5)
y2 <- c("yes", "no", "yes")
y3 <- factor(c("yes", "no", "yes"))
try(inspect_categories(y1))
try(inspect_categories(y2))
try(inspect_categories(y3))
try(mylist <- list(
   NULL, numeric(0),
   complex(1), list(10), NaN, NA
))
try(inspect_categories(mylist[[1]]))
try(inspect_categories(mylist[[2]]))
try(inspect_categories(mylist[[3]]))
try(inspect_categories(mylist[[4]]))
try(inspect_categories(mylist[[5]]))
try(inspect_categories(mylist[[6]]))
validate_character

**Description**

`inspect_character` checks if an object is a character vector. This can be useful to validate inputs in user-defined functions.

**Usage**

```r
inspect_character(x, allow_nas = TRUE, warning_nas = FALSE)
```

**Arguments**

- `x` An arbitrary object.
- `allow_nas` Logical value. If `TRUE` then NA and NaN values in `x` are allowed. If `FALSE`, execution is stopped and an error message is thrown in case there are NA or NaN values in `x`.
- `warning_nas` Logical value. If `TRUE` then the presence of NA or NaN values in `x` generates a warning message. NA and NaN values pass silently otherwise (if `allow_nas` is set to `TRUE`).

**Details**

`inspect_character` conducts a series of tests to check if `x` is a character vector. Namely, `inspect_character` checks if:

- `x` is NULL or empty.
- `x` is an atomic vector.
- The `typeof x` is character.
- There are NA or NaN values in `x`.

**Value**

`inspect_character` does not return any output. There are three possible outcomes:

- The call is silent if:
  - `x` is a character vector and there are no NA or NaN values in `x`.
  - `x` is a character vector, there are some NA or NaN values in `x`, `allow_nas` is set to `TRUE` and `warning_nas` is set to `FALSE`.
- An informative warning message is thrown if `x` is a character vector, there are some NA or NaN values in `x` and both `allow_nas` and `warning_nas` are set to `TRUE`.
- An informative error message is thrown if:
  - `x` is not a character vector.
  - `x` is a character vector, there are some NA or NaN values in `x` and `allow_nas` is set to `FALSE`. 
See Also

- `inspect_character_match` to validate character vectors with predefined allowed values.
- `inspect_true_or_false` to check if an object is a non-missing logical value.

Examples

```r
# Calls that pass silently:
x1 <- "Kass"
x2 <- c("Kass", "Raftery")
x3 <- c("Kass", "Raftery", NA)
x4 <- letters
inspect_character(x1)
inspect_character(x2)
inspect_character(x3)
inspect_character(x4)

# Call that throws an informative warning message
y <- c("Kass", "Raftery", NA)
try(inspect_character(y, warning_nas = TRUE))

# Calls that throw informative error messages
try(inspect_character(y, allow_nas = FALSE))
mylist <- list(
  NULL, character(0), 1,
  c(1, 2), factor(c(1, 2)), list(c(1, 2)), NaN, NA
)
try(inspect_character(mylist[[1]]))
try(inspect_character(mylist[[2]]))
try(inspect_character(mylist[[3]]))
try(inspect_character(mylist[[4]]))
try(inspect_character(mylist[[5]]))
try(inspect_character(mylist[[6]]))
try(inspect_character(mylist[[7]]))
try(inspect_character(mylist[[8]]))
```

---

**inspect_character_match**

Validate character values

**Description**

`inspect_character_match` checks if an object is a character vector of length 1 that belongs to a set of allowed values. This can be useful to validate inputs in user-defined functions.

**Usage**

`inspect_character_match(x, allowed, case_sensitive = FALSE)`
**Arguments**

- **x**: An arbitrary object.
- **allowed**: A character vector.
- **case_sensitive**: A non-missing logical value.

**Details**

`inspect_character_match` conducts a series of tests to check if `x` is a character vector of length 1 whose value belongs to the set of allowed values. Namely, `inspect_character_match` checks if:

- `x` is `NULL` or empty.
- `x` is an atomic vector of length 1.
- The `typeof x` is character.
- `x` is `NA` or `NaN`.
- `x` is one of the allowed values (as specified in the `allowed` argument).

By default, the comparison of `x` with `allowed` is not case sensitive. If you only want case sensitive matches of `x` to `allowed` set `case_sensitive` to `TRUE`.

**Value**

`inspect_character_match` does not return any output. There are two possible outcomes:

- The call is silent if `x` is a character vector of length 1 whose value belongs to the set of allowed values.
- An informative error message is thrown otherwise.

**See Also**

- `inspect_character` to validate character vectors with arbitrary allowed values.
- `inspect_true_or_false` to check if an object is a non-missing logical value.

**Examples**

```r
# Calls that pass silently:
x1 <- "Kass"
x2 <- "kass"
inspect_character_match(x1, allowed = c("Kass", "Raftery"))
inspect_character_match(x2, allowed = c("Kass", "Raftery"))

# Calls that throw informative error messages:
y1 <- "kasss"
y2 <- "kass"
try(inspect_character_match(y1, allowed = c("Kass", "Raftery")))
try(inspect_character_match(y2,
    allowed = c("Kass", "Raftery"),
    case_sensitive = TRUE
))
```
mylist <- list(
  NULL, character(0), c("abc", "abcd"),
  c("abc", "abc"), "ab", list("abc"), factor("abc"), NaN, NA
)
try(inspect_character_match(mylist[[1]], "abc"))
try(inspect_character_match(mylist[[2]], "abc"))
try(inspect_character_match(mylist[[3]], "abc"))
try(inspect_character_match(mylist[[4]], "abc"))
try(inspect_character_match(mylist[[5]], "abc"))
try(inspect_character_match(mylist[[6]], "abc"))
try(inspect_character_match(mylist[[7]], "abc"))
try(inspect_character_match(mylist[[8]], "abc"))
try(inspect_character_match(mylist[[9]], "abc"))

---

**inspect_data_categorical**

*Validate categorical data*

**Description**

`inspect_data_categorical` checks if an object contains data that is eligible to have been generated by a Multinomial distribution. This can be useful to validate inputs in user-defined functions.

**Usage**

`inspect_data_categorical(data, allow_nas = TRUE, warning_nas = FALSE)`

**Arguments**

- **data**: An arbitrary object.
- **allow_nas**: Logical value. If TRUE then NA and NaN values in data are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in data.
- **warning_nas**: Logical value. If TRUE then the presence of NA or NaN values in data generates a warning message. NA and NaN values pass silently otherwise (if `allow_nas` is set to TRUE).

**Details**

`inspect_data_categorical` conducts a series of tests to check if data is eligible to have been generated by a Multinomial distribution. Namely, `inspect_data_categorical` checks if:

- data is NULL or empty.
- data is atomic and have an eligible data type (logical, integer, double, character).
- data has NA or NaN values.
**Value**

`inspect_data_categorical` does not return any output. There are three possible outcomes:

- The call is silent if:
  - `data` is eligible to have been generated by a Multinomial distribution and there are no NA or NaN values in `data`.
  - `data` is eligible to have been generated by a Multinomial distribution, there are some NA or NaN values in `data` and `warning_nas` is set to FALSE.

- An informative warning message is thrown if: `data` is eligible to have been generated by a Multinomial distribution, there are some NA or NaN values in `data` and `warning_nas` is set to TRUE.

- An informative error message is thrown and the execution is stopped if:
  - `data` is not eligible to have been generated by a Multinomial distribution.
  - `data` is eligible to have been generated by a Multinomial distribution, there are some NA or NaN values in `data` and `allow_nas` is set to TRUE.

**See Also**

- `[inspect_data_cat_as_dichotom](#)` to validate categorical data as dichotomous.
- `[inspect_par_multinomial](#)` to validate vectors of Multinomial proportions.
- `[inspect_data_dichotomous](#)` to validate dichotomous data.
- `[inspect_par_bernoulli](#)` to validate Bernoulli/Binomial proportions.

**Examples**

```r
# Calls that pass silently:
x1 <- c(1, 0, 0, 1, 2)
x2 <- c(FALSE, FALSE, TRUE, NA)
x3 <- c("yes", "no", "yes", "maybe")
x4 <- factor(c("yes", "no", "yes", "maybe"))
x5 <- c(1, 0, 0, 1, 0, NA, 2)
inspect_data_categorical(x1)
inspect_data_categorical(x2)
inspect_data_categorical(x3)
inspect_data_categorical(x4)
inspect_data_categorical(x5)

# Call that throws an informative warning message:
y1 <- c(1, 1, NA, 0, 0, 2)
try(inspect_data_categorical(y1, warning_nas = TRUE))

# Calls that throw an informative error message:
z <- c(1, 1, NA, 0, 0, 2)
try(inspect_data_categorical(z, allow_nas = FALSE))
try(inspect_data_categorical(NULL))
try(inspect_data_categorical(list(1, 0)))
try(inspect_data_categorical(numeric(0)))
```
try(inspect_data_categorical(NaN))
try(inspect_data_categorical(NA))

inspect_data_cat_as_dichotom

Validate categorical data as dichotomous

Description

inspect_data_cat_as_dichotom checks if an object contains valid categorical data that is eligible to be used as dichotomous data. This can be useful to validate inputs in user-defined functions.

Usage

inspect_data_cat_as_dichotom(
data,
success,
allow_nas = TRUE,
warning_nas = FALSE
)

Arguments

data, success Arbitrary objects. success is meant to indicate the value of data that corresponds to a success.
allow_nas Logical value. If TRUE then NA and NaN values in data are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in data.
warning_nas Logical value. If TRUE then the presence of NA or NaN values in data generates a warning message. NA and NaN values pass silently otherwise (if allow_nas is set to TRUE).

Details

inspect_data_cat_as_dichotom conducts a series of tests to check if data contains valid categorical data that is eligible to be used as dichotomous data. Namely, inspect_data_cat_as_dichotom checks if:

• data and success are NULL or empty.
• data and success are atomic and have an eligible data type (logical, integer, double, character).
• data and success have NA or NaN values.
• success has length 1.
• success is observed in data.
**Value**

`inspect_data_cat_as_dichotom` does not return any output. There are three possible outcomes:

- The call is silent if:
  - data contains valid categorical data that is eligible to be used as dichotomous data and there are no NA or NaN values in data.
  - data contains valid categorical data that is eligible to be used as dichotomous data, there are some NA or NaN values in data, allow_nas is set to `TRUE` and warning_nas is set to `FALSE`.
- An informative warning message is thrown if:
  - data contains valid categorical data that is eligible to be used as dichotomous data and success is not observed in data.
  - data contains valid categorical data that is eligible to be used as dichotomous data, there are NA or NaN values in data and both `allow_nas` and `warning_nas` are set to `TRUE`.
- An informative error message is thrown and the execution is stopped if:
  - data does not contain valid categorical data that is eligible to be used as dichotomous data.
  - data contains valid categorical data that is eligible to be used as dichotomous data, there are some NA or NaN values in data and `allow_nas` is set to `FALSE`.

**See Also**

- `inspect_data_categorical` to validate categorical.
- `inspect_par_multinomial` to validate vectors of Multinomial proportions.
- `inspect_data_dichotomous` to validate dichotomous data.
- `inspect_par_bernoulli` to validate Bernoulli/Binomial proportions.

**Examples**

```r
# Calls that pass silently:
x1 <- c(1, 0, 0, 1, 0)
x2 <- c(FALSE, FALSE, TRUE)
x3 <- c("yes", "no", "yes")
x4 <- factor(c("yes", "no", "yes"))
x5 <- c(1, 0, 0, 1, 0, NA)
inspect_data_cat_as_dichotom(x1, success = 1)
inspect_data_cat_as_dichotom(x2, success = TRUE)
inspect_data_cat_as_dichotom(x3, success = "yes")
inspect_data_cat_as_dichotom(x4, success = "yes")
inspect_data_cat_as_dichotom(x5, success = 1)

# Calls that throw an informative warning message:
y1 <- c(1, 1, NA, 0, 0)
y2 <- c(0, 0)
success <- 1
try(inspect_data_cat_as_dichotom(y1, success = 1, warning_nas = TRUE))
try(inspect_data_cat_as_dichotom(y2, success = success))
```


# Calls that throw an informative error message:
try(inspect_data_cat_as_dichotom(y1, 1, allow_nas = FALSE))
try(inspect_data_cat_as_dichotom(NULL, 1))
try(inspect_data_cat_as_dichotom(c(1, 0), NULL))
try(inspect_data_cat_as_dichotom(list(1, 0), 1))
try(inspect_data_cat_as_dichotom(c(1, 0), list(1)))
try(inspect_data_cat_as_dichotom(numeric(0), 0))
try(inspect_data_cat_as_dichotom(1, numeric(0)))
try(inspect_data_cat_as_dichotom(NaN, 1))
try(inspect_data_cat_as_dichotom(NA, 1))
try(inspect_data_cat_as_dichotom(c(1, 0), NA))
try(inspect_data_cat_as_dichotom(c(1, 0), NaN))
try(inspect_data_cat_as_dichotom(c(1, 0), 2))

inspect_data_dichotomous

*Validate dichotomous data*

**Description**

*inspect_data_dichotomous* checks if an object contains data that is eligible to have been generated by a series of Bernoulli trials. This can be useful to validate inputs in user-defined functions.

**Usage**

```
inspect_data_dichotomous(data, success, allow_nas = TRUE, warning_nas = FALSE)
```

**Arguments**

- **data**, **success**
  Arbitrary objects. *success* is meant to indicate the value of *data* that corresponds to a success.

- **allow_nas**
  Logical value. If TRUE then NA and NaN values in *data* are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in *data*.

- **warning_nas**
  Logical value. If TRUE then the presence of NA or NaN values in *data* generates a warning message. NA and NaN values pass silently otherwise (if allow_nas is set to TRUE).

**Details**

*inspect_data_dichotomous* conducts a series of tests to check if *data* is eligible to have been generated by a series of Bernoulli trials. Namely, *inspect_data_dichotomous* checks if:

- *data* and *success* are NULL or empty.
- *data* and *success* are atomic and have an eligible data type (logical, integer, double, character).
- *data* and *success* have NA or NaN values.
The number of unique values in data and success are adequate.
- success has length 1.
- success is observed in data.

**Value**

`inspect_data_dichotomous` does not return any output. There are three possible outcomes:

- The call is silent if:
  - data is eligible to have been generated by a series of Bernoulli trials and there are no NA or NaN values in data.
  - data is eligible to have been generated by a series of Bernoulli trials, there are some NA or NaN values in data, `allow_nas` is set to `TRUE` and `warning_nas` is set to `FALSE`.

- An informative warning message is thrown if:
  - data is eligible to have been generated by a series of Bernoulli trials and success is not observed in data.
  - data is eligible to have been generated by a series of Bernoulli trials, there are NA or NaN values in data and both `allow_nas` and `warning_nas` are set to `TRUE`.

- An informative error message is thrown and the execution is stopped if:
  - data is not eligible to have been generated by a series of Bernoulli trials.
  - data is eligible to have been generated by a series of Bernoulli trials, there are some NA or NaN values in data and `allow_nas` is set to `FALSE`.

**See Also**

- `inspect_par_bernoulli` to validate Bernoulli/Binomial proportions.
- `inspect_data_categorical` and `inspect_data_cat_as_dichotom` to validate categorical data.
- `inspect_par_multinomial` to validate vectors of Multinomial proportions.

**Examples**

```r
# Calls that pass silently:
x1 <- c(1, 0, 0, 1, 0)
x2 <- c(FALSE, FALSE, TRUE)
x3 <- c("yes", "no", "yes")
x4 <- factor(c("yes", "no", "yes"))
x5 <- c(1, 0, 0, 1, 0, NA)
inspect_data_dichotomous(x1, success = 1)
inspect_data_dichotomous(x2, success = TRUE)
inspect_data_dichotomous(x3, success = "yes")
inspect_data_dichotomous(x4, success = "yes")
inspect_data_dichotomous(x5, success = 1)

# Calls that throw an informative warning message:
y1 <- c(1, 1, NA, 0, 0)
y2 <- c(0, 0)
success <- 1
```

try(inspect_data_dichotomous(y1, success = 1, warning_nas = TRUE))
try(inspect_data_dichotomous(y2, success = success))

# Calls that throw an informative error message:
try(inspect_data_dichotomous(NULL, 1))
try(inspect_data_dichotomous(c(1, 0), NULL))
try(inspect_data_dichotomous(list(1, 0), 1))
try(inspect_data_dichotomous(c(1, 0), list(1)))
try(inspect_data_dichotomous(numeric(0), 0))
try(inspect_data_dichotomous(1, numeric(0)))
try(inspect_data_dichotomous(1, numeric(0)))
try(inspect_data_dichotomous(NaN, 1))
try(inspect_data_dichotomous(NA, 1))
try(inspect_data_dichotomous(c(1, 0), NA))
try(inspect_data_dichotomous(c(1, 0), NaN))
try(inspect_data_dichotomous(c(1, 0), 2))

inspect_log_base

Validates logarithmic bases

Description

inspect_log_base checks if an object is a valid logarithmic base. This can be useful to validate inputs in user-defined functions.

Usage

inspect_log_base(x)

Arguments

x An arbitrary object.

Details

inspect_log_base conducts a series of tests to check if x is a valid logarithmic base. Namely, inspect_log_base checks if:

- x is NULL or empty.
- x is an atomic vector of length 1.
- x is numeric.
- x is NA or NaN.
- x is positive.

Value

inspect_log_base does not return any output. There are two possible outcomes:

- The call is silent if x is a numeric vector of length 1 that is a valid logarithmic base.
- An informative error message is thrown otherwise.
inspect_par_bernoulli

See Also

• `bfactor_log_interpret` for the interpretation of the logarithms of Bayes factors.
• `inspect_bfactor_log` to check if an object is a numeric vector of valid logarithmic Bayes factor values.

Examples

# Calls that pass silently:
x1 <- 10
x2 <- exp(1)
x3 <- 0.5
inspect_log_base(x1)
inspect_log_base(x2)
inspect_log_base(x3)

# Calls that throw informative error messages:
mylist <- list(
  NULL, numeric(0), TRUE, factor(10),
  list(10), matrix(10), NaN, NA, -1, 0
)
try(inspect_log_base(mylist[[1]]))
try(inspect_log_base(mylist[[2]]))
try(inspect_log_base(mylist[[3]]))
try(inspect_log_base(mylist[[4]]))
try(inspect_log_base(mylist[[5]]))
try(inspect_log_base(mylist[[6]]))
try(inspect_log_base(mylist[[7]]))
try(inspect_log_base(mylist[[8]]))
try(inspect_log_base(mylist[[9]]))
try(inspect_log_base(mylist[[10]]))

---

inspect_par_bernoulli  Validate parameters for the Bernoulli/Binomial distributions

Description

`inspect_par_bernoulli` checks if an object is an eligible Bernoulli/Binomial proportion. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

Usage

`inspect_par_bernoulli(x)`

Arguments

x  An arbitrary object.
inspect_par_bernoulli

Details

inspect_par_bernoulli conducts a series of tests to check if x is an eligible Bernoulli/Binomial proportion. Namely, inspect_par_bernoulli checks if:

- x is NULL or empty.
- x is an atomic vector
- x is numeric
- x has `length` 1
- x is NA or NaN.
- x is in the (0, 1) interval.

Value

inspect_par_bernoulli does not return any output. There are two possible outcomes:

- The call is silent if x is an eligible Bernoulli/Binomial proportion.
- An informative error message is thrown otherwise.

See Also

- `inspect_par_multinomial` to validate parameters for the Multinomial distribution.
- `inspect_par_beta` to validate parameters for the Beta distribution.
- `inspect_par_dirichlet` to validate parameters for the Dirichlet distribution.
- `inspect_par_haldane` to validate parameters for the Haldane distribution.
- `inspect_data_dichotomous` to validate dichotomous data.
- `inspect_prob` to check if an object is a numeric vector of valid probability values.

Examples

# Calls that pass silently:
x <- 0.5
inspect_par_bernoulli(x)
inspect_par_bernoulli(0.1)

# Calls that throw an informative error message:
mylist <- list(
  NULL, TRUE, factor(.5), matrix(0.5), "0.5",
  list(0.5), NA, NaN, numeric(0), c(0.1, 0.5), -0.5, 1.1
)
try(inspect_par_bernoulli(mylist[[1]]))
try(inspect_par_bernoulli(mylist[[2]]))
try(inspect_par_bernoulli(mylist[[3]]))
try(inspect_par_bernoulli(mylist[[4]]))
try(inspect_par_bernoulli(mylist[[5]]))
try(inspect_par_bernoulli(mylist[[6]]))
try(inspect_par_bernoulli(mylist[[7]]))
try(inspect_par_bernoulli(mylist[[8]]))
try(inspect_par_bernoulli(mylist[[9]]))
try(inspect_par_bernoulli(mylist[[10]]))
try(inspect_par_bernoulli(mylist[[11]]))
try(inspect_par_bernoulli(mylist[[12]]))

---

**Description**

`inspect_par_beta` checks if an object is an eligible vector of parameters for the Beta distribution. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

**Usage**

`inspect_par_beta(x)`

**Arguments**

- `x` An arbitrary object.

**Details**

`inspect_par_beta` conducts a series of tests to check if `x` is an eligible vector of parameters for the Beta distribution. Namely, `inspect_par_beta` checks if:

- `x` is NULL or empty.
- `x` is an atomic vector
- `x` is numeric
- `x` has length 2
- `x` has NA or NaN values.
- All elements of `x` are positive.

**Value**

`inspect_par_beta` does not return any output. There are two possible outcomes:

- The call is silent if `x` is an eligible vector of parameters for the Beta distribution.
- An informative error message is thrown otherwise.

**See Also**

- `inspect_par_bernoulli` to validate parameters for the Bernoulli/Binomial distribution.
- `inspect_par_multinomial` to validate parameters for the Multinomial distribution.
- `inspect_par_dirichlet` to validate parameters for the Dirichlet distribution.
- `inspect_par_haldane` to validate parameters for the Haldane distribution.
Examples

# Calls that pass silently:
x1 <- c(1, 1)
x2 <- c(2, 5)
inspect_par_beta(x1)
inspect_par_beta(x2)

# Calls that throw an informative error message:
mylist <- list(
  NULL, 1, factor(1, 1),
  matrix(c(1, 1)), c("1", "1"), list(1, 1), c(1, NA),
  c(1, NaN), c(TRUE, FALSE), numeric(0), c(-1, 1)
)
try(inspect_par_beta(mylist[[1]]))
try(inspect_par_beta(mylist[[2]]))
try(inspect_par_beta(mylist[[3]]))
try(inspect_par_beta(mylist[[4]]))
try(inspect_par_beta(mylist[[5]]))
try(inspect_par_beta(mylist[[6]]))
try(inspect_par_beta(mylist[[7]]))
try(inspect_par_beta(mylist[[8]]))
try(inspect_par_beta(mylist[[9]]))
try(inspect_par_beta(mylist[[10]]))
try(inspect_par_beta(mylist[[11]]))

inspect_par_dirichlet  Validate parameters for the Dirichlet distribution

Description

inspect_par_dirichlet checks if an object is an eligible vector of parameters for the Dirichlet distribution. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

Usage

inspect_par_dirichlet(x)

Arguments

x  An arbitrary object.

Details

inspect_par_dirichlet conducts a series of tests to check if x is an eligible vector of parameters for the Dirichlet distribution. Namely, inspect_par_dirichlet checks if:

- x is NULL or empty.
- x is an atomic vector
• x is numeric
• x has NA or NaN values.
• All elements of x are positive.

Value

inspect_par_dirichlet does not return any output. There are two possible outcomes:

• The call is silent if x is an eligible vector of parameters for the Dirichlet distribution.
• An informative error message is thrown otherwise.

See Also

• inspect_par_bernoulli to validate parameters for the Bernoulli/Binomial distribution.
• inspect_par_multinomial to validate parameters for the Multinomial distribution.
• inspect_par_beta to validate parameters for the Beta distribution.
• inspect_par_haldane to validate parameters for the Haldane distribution.

Examples

# Calls that pass silently:
x1 <- c(1, 1, 1)
x2 <- c(2, 5)
inspect_par_dirichlet(x1)
inspect_par_dirichlet(x2)

# Calls that throw an informative error message:
mylist <- list(
    NULL, factor(1, 1, 1),
    matrix(c(1, 1, 1)), c("1", "1", "1"), list(1, 1, 1), c(1, NA),
    c(1, NaN, 1), c(TRUE, FALSE), numeric(0), c(-1, 1, 1)
)
try(inspect_par_dirichlet(mylist[[1]]))
try(inspect_par_dirichlet(mylist[[2]]))
try(inspect_par_dirichlet(mylist[[3]]))
try(inspect_par_dirichlet(mylist[[4]]))
try(inspect_par_dirichlet(mylist[[5]]))
try(inspect_par_dirichlet(mylist[[6]]))
try(inspect_par_dirichlet(mylist[[7]]))
try(inspect_par_dirichlet(mylist[[8]]))
try(inspect_par_dirichlet(mylist[[9]]))
try(inspect_par_dirichlet(mylist[[10]]))
inspect_par_haldane **Validate parameters for the Haldane distribution**

Description

inspect_par_haldane checks if an object is an eligible vector of parameters for the Haldane distribution. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

Usage

inspect_par_haldane(x)

Arguments

- x: An arbitrary object.

Details

inspect_par_haldane conducts a series of tests to check if `x` is an eligible vector of parameters for the Haldane distribution. Namely, inspect_par_haldane checks if:

  - `x` is NULL or empty.
  - `x` is an atomic vector
  - `x` is numeric
  - `x` has NA or NaN values.
  - All elements of `x` equal to 0.

Value

inspect_par_haldane does not return any output. There are two possible outcomes:

  - The call is silent if `x` is an eligible vector of parameters for the Haldane distribution.
  - An informative error message is thrown otherwise.

See Also

- inspect_par_bernoulli to validate parameters for the Bernoulli/Binomial distribution.
- inspect_par_multinomial to validate parameters for the Multinomial distribution.
- inspect_par_beta to validate parameters for the Beta distribution.
- inspect_par_dirichlet to validate parameters for the Dirichlet distribution.
Examples

# Calls that pass silently:
x1 <- c(0, 0, 0)
x2 <- c(0, 0)
inpect_par_haldane(x1)
inpect_par_haldane(x2)

# Calls that throw an informative error message:
mylist <- list(
    NULL, factor(0, 0, 0),
    matrix(c(0, 0, 0)), c("0", "0", "0"), list(0, 0, 0), c(0, NA),
    c(0, NaN, 0), c(TRUE, FALSE), numeric(0), c(1, 0, 0)
)
try(inspect_par_haldane(mylist[[1]]))
try(inspect_par_haldane(mylist[[2]]))
try(inspect_par_haldane(mylist[[3]]))
try(inspect_par_haldane(mylist[[4]]))
try(inspect_par_haldane(mylist[[5]]))
try(inspect_par_haldane(mylist[[6]]))
try(inspect_par_haldane(mylist[[7]]))
try(inspect_par_haldane(mylist[[8]]))
try(inspect_par_haldane(mylist[[9]]))
try(inspect_par_haldane(mylist[[10]]))

inspect_par_multinomial

Validate parameters for the Multinomial distribution

Description

inspect_par_multinomial checks if an object is an eligible vector of Multinomial proportions. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

Usage

inspect_par_multinomial(x)

Arguments

x An arbitrary object.

Details

inspect_par_multinomial conducts a series of tests to check if x is an eligible vector of Multinomial proportions. Namely, inspect_par_multinomial checks if:

- x is NULL or empty.
- x is an atomic vector
• x is numeric
• x has NA or NaN values.
• All elements of x are in the (0, 1) interval.
• x sums to 1.

Value

inspect_par_multinomial does not return any output. There are two possible outcomes:

• The call is silent if x is an eligible vector of Multinomial proportions.
• An informative error message is thrown otherwise.

See Also

• inspect_par_bernoulli to validate parameters for the Bernoulli/Binomial distribution.
• inspect_par_beta to validate parameters for the Beta distribution.
• inspect_par_dirichlet to validate parameters for the Dirichlet distribution.
• inspect_par_haldane to validate parameters for the Haldane distribution.
• inspect_data_categorical and inspect_data_cat_as_dichotom to validate categorical data.
• inspect_prob to check if an object is a numeric vector of valid probability values.

Examples

# Calls that pass silently:
x1 <- c(0.5, 0.5)
x2 <- rep(1 / 5, 5)
inspect_par_multinomial(x1)
inspect_par_multinomial(x2)

# Calls that throw an informative error message:
mylist <- list(
  NULL, TRUE, factor(0.5, 0.5),
  matrix(c(0.5, 0.5), c("0.5", "0.5"), list(0.5, 0.5),
  c(0.9, NA), c(0.9, NaN), numeric(0), NA, c(0.9, 0.6), c(-0.1, 0.9)
)
try(inspect_par_multinomial(mylist[[1]]))
try(inspect_par_multinomial(mylist[[2]]))
try(inspect_par_multinomial(mylist[[3]]))
try(inspect_par_multinomial(mylist[[4]]))
try(inspect_par_multinomial(mylist[[5]]))
try(inspect_par_multinomial(mylist[[6]]))
try(inspect_par_multinomial(mylist[[7]]))
try(inspect_par_multinomial(mylist[[8]]))
try(inspect_par_multinomial(mylist[[9]]))
try(inspect_par_multinomial(mylist[[10]]))
try(inspect_par_multinomial(mylist[[11]]))
try(inspect_par_multinomial(mylist[[12]]))
**inspect_prob**

**Validate vectors of probabilities**

**Description**

`inspect_prob` checks if an object is a numeric vector of valid probability values. This can be useful to validate inputs, intermediate calculations or outputs in user-defined functions.

**Usage**

`inspect_prob(x, allow_nas = TRUE, warning_nas = TRUE)`

**Arguments**

- **x**: An arbitrary object.
- **allow_nas**: Logical value. If TRUE then NA and NaN values in x are allowed. If FALSE, execution is stopped and an error message is thrown in case there are NA or NaN values in x.
- **warning_nas**: Logical value. If TRUE then the presence of NA or NaN values in x generates a warning message. NA and NaN values pass silently otherwise (if allow_nas is set to TRUE).

**Details**

`inspect_prob` conducts a series of tests to check if x is a numeric vector of valid probability values. Namely, `inspect_prob` checks if:

- x is NULL or empty.
- x is an atomic vector.
- x is numeric.
- x has NA or NaN values.
- The values of x are in the [0, 1] interval.

**Value**

`inspect_prob` does not return any output. There are three possible outcomes:

- The call is silent if:
  - x is a numeric vector of valid probability values and there are no NA or NaN values in x.
  - x is a numeric vector of valid probability values, there are some NA or NaN values in x, allow_nas is set to TRUE and warning_nas is set to FALSE.
- An informative warning message is thrown if x is a numeric vector of valid probability values, there are some NA or NaN values in x and both allow_nas and warning_nas are set to TRUE.
- An informative error message is thrown and the execution is stopped if:
  - x is not a numeric vector of valid probability values.
  - x is a numeric vector of valid probability values, there are some NA or NaN values in x and allow_nas is set to FALSE.
See Also

- `inspect_par_bernoulli` to check if an object is a valid Bernoulli/Binomial proportion.
- `inspect_par_multinomial` to check if an object is a numeric vector of valid Multinomial proportions.

Examples

# Calls that pass silently:
x1 <- c(0.1, 0.2, 0.3, 0.4, 0.5)
x2 <- c(0.1, 0.2, 0.3, 0.4, 0.5, NA)
inspect_prob(x1)
inspect_prob(x2, warning_nas = FALSE)
inspect_prob(x2, allow_nas = TRUE, warning_nas = FALSE)

# Calls that throw an informative warning message:
y <- c(0.1, 0.2, NA, 0.4, 0.5)
try(inspect_prob(y))
try(inspect_prob(y, allow_nas = TRUE))
try(inspect_prob(y, allow_nas = TRUE, warning_nas = TRUE))

# Calls that throw an informative error message:
zm1 <- c(-0.9, 0, 0.1, 0.2, 0.3, 0.4, 0.5)
zm2 <- c(NA, 0, 0.1, 0.2, 0.3, 0.4, 0.5)
mylist <- list()
    NULL, TRUE, factor(.5), matrix(0.5),
    "0.5", list(0.5), NA, NaN, numeric(0), 1.1, -0.5
try(inspect_prob(mylist[[1]]))
try(inspect_prob(mylist[[2]]))
try(inspect_prob(mylist[[3]]))
try(inspect_prob(mylist[[4]]))
try(inspect_prob(mylist[[5]]))
try(inspect_prob(mylist[[6]]))
try(inspect_prob(mylist[[7]]))
try(inspect_prob(mylist[[8]]))
try(inspect_prob(mylist[[9]]))
try(inspect_prob(mylist[[10]]))
try(inspect_prob(mylist[[11]]))

inspect_true_or_false

Description

`inspect_true_or_false` checks if an object is a non-missing logical vector of length 1. This can be useful to validate inputs in user-defined functions.
Usage

inspect_true_or_false(x)

Arguments

x
An arbitrary object.

Details

inspect_true_or_false conducts a series of tests to check if x is a non-missing logical vector of length 1. Namely, inspect_true_or_false checks if:

- x is NULL or empty.
- x is an atomic vector of length 1.
- The typeof x is logical.
- x is NA or NaN.

Value

inspect_true_or_false does not return any output. There are two possible scenarios:

- The call is silent if x is a non-missing logical vector of length 1.
- An informative error message is thrown otherwise.

See Also

- inspect_character to validate character vectors.
- inspect_character_match to validate character vectors with predefined allowed values.

Examples

# Calls that pass silently:
x <- TRUE
y <- FALSE
inspect_true_or_false(x)
inspect_true_or_false(y)

# Calls that throw informative error messages:
mylist <- list(NULL, NA, NaN, 1, 0, "TRUE")
try(inspect_true_or_false(mylist[[1]]))
try(inspect_true_or_false(mylist[[2]]))
try(inspect_true_or_false(mylist[[3]]))
try(inspect_true_or_false(mylist[[4]]))
try(inspect_true_or_false(mylist[[5]]))
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