Package ‘assertive.base’
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Author Richard Cotton [aut, cre],
      Sunkyu Choi [trl],
      Ivanka Skakun [trl],
      Gergely Darci [trl],
      Anton Antonov [trl],
      Hisham Ben Hamidane [trl],
      Anja Billing [trl],
      Aditya Bhagat [trl],
      Rasmus Bª<ci>c3<ci>a5><ci>c3<ci>a5>th [trl],
      Mine Cetinkaya-Rundel [trl],
      Aspasia Chatzieftymiou [trl]
Maintainer Richard Cotton <richierocks@gmail.com>
Description A minimal set of predicates and assertions used by the assertive package. This is mainly for use by other package developers who want to include run-time testing features in their own packages. End-users will usually want to use assertive directly.
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**are_identical**

*Are the inputs identical?*

**Description**

Checks if the inputs are identical.
are_identical

Usage

are_identical(
  x,
  y,
  allow_attributes = FALSE,
  .xname = get_name_in_parent(x),
  .yname = get_name_in_parent(y)
)

are_identical_legacy(..., l = list())

assert_are_identical(
  x,
  y,
  allow_attributes = FALSE,
  severity = getOption("assertive.severity", "stop")
)

assert_all_are_identical_legacy(..., l = list())

assert_any_are_identical_legacy(..., l = list())

Arguments

x      An R object or expression.
y      Another R object or expression.
allow_attributes
       If TRUE, The attributes of x and y are allowed to differ.
.xname Not intended to be used directly.
.yname Not intended to be used directly.
...    Some R expressions, deprecated.
l      A list of R expressions, deprecated.
severity How severe should the consequences of the assertion be? Either "stop", "warning", "message", or "none".

Value

are_identical returns TRUE if x and y are identical. The assert_* function throws an error on failure.

The legacy function are_identical_legacy allows an arbitrary number of inputs and returns a symmetric square logical matrix which is TRUE where pairs of inputs are identical. (The new version of the function is easier to work with, and it is recommended that you switch your code to it.)

See Also

identical, are_same_length
assertionError

Examples

```r
x <- 1:5
are_identical(c(1, -1), cos(c(0, pi))
assertive.base::dont_stop(assert_are_identical(c(1, 1), cos(c(0, pi))))
```

### Description

Error, warning, and message classes derived from their simple equivalents.

### Usage

```r
assertionError(message, call = NULL, predicate_name = NULL)
assertionWarning(message, call = NULL, predicate_name = NULL)
assertionMessage(message, call = NULL, predicate_name = NULL)
```

### Arguments

- `message` A string describing the problem.
- `call` A call describing the source of the condition.
- `predicate_name` A string naming the predicate that was called when the condition occurred.

### Value

An object of class `assertionError`, `assertionWarning`, or `assertionMessage`.

### Note

These objects behave the same as the standard-issue `simpleError`, `simpleWarning`, and `simpleMessage` objects from base-R. The extra class allows you to provide custom handling for assertions inside `tryCatch`.

### Examples

```r
tryCatch(
  assert_all_are_true(FALSE),
  error = function(e)
  { if(inherits(e, "assertionCondition"))
  {
    # Handle assertions
    message("This is an assertion condition.

    # Handle assertions cause by a specific predicate
```
assert_engine

if(e$predicate_name == "is_true")
{
}
} else
{
  # Handle other error types
}
)

assert_engine  
Throws an error if a condition isn’t met

Description
The workhorse of the package that creates an assertion from a predicate. If a condition isn’t met, then an error is thrown. This function is exported for use by package developers so that they can create their own assert functions.

Usage
assert_engine(
predicate,
..., 
msg = "The assertion failed.",
what = c("all", "any"),
na_ignore = FALSE,
severity = c("stop", "warning", "message", "none")
)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>predicate</td>
<td>Function that returns a logical value (possibly a vector).</td>
</tr>
<tr>
<td>...</td>
<td>Passed to the predicate function.</td>
</tr>
<tr>
<td>msg</td>
<td>The error message, in the event of failure.</td>
</tr>
<tr>
<td>what</td>
<td>Either ‘all’ or ‘any’, to reduce vectorised tests to a single value.</td>
</tr>
<tr>
<td>na Ignore</td>
<td>A logical value. If FALSE, NA values cause an error; otherwise they do not.</td>
</tr>
<tr>
<td>severity</td>
<td>How severe should the consequences of the assertion be? Either &quot;stop&quot;, &quot;warning&quot;, &quot;message&quot;, or &quot;none&quot;.</td>
</tr>
</tbody>
</table>

Value

FALSE with the attribute message, as provided in the input.
**bapply**

Wrapper to `vapply` that returns booleans

**Description**

Wrapper to `vapply` for functions that return a boolean (logical scalar) value.

**Usage**

`bapply(x, predicate, ...)`

**Arguments**

- `x` A vector (atomic or list).
- `predicate` A predicate (function that returns a bool) to apply, elementwise to `x`.
- `...` Passed to `vapply`.

**Value**

A logical vector.

**Note**

`USE.IMPORTS` is set to TRUE
call_and_name

See Also

vapply.

---

**call_and_name**

*Call a function, and give the result names.*

### Description

Calls a function, and names the result with the first argument.

### Usage

```r
call_and_name(fn, x, ...)
```

### Arguments

- `fn`  
  A function to call. See note below.
- `x`  
  The first input to `fn`.
- `...`  
  Optional additional inputs to `fn`.

### Value

The result of `fn(x,...)`, with names given by the argument `x`.

### Note

The function, `fn`, should return an object with the same length as the input `x`. For speed and simplicity, this isn’t checked; it is up to the developer of the assertion to make sure that this condition holds.

### See Also

`cause` and `na`.

### Examples

```r
call_and_name(is.finite, c(1, Inf, NA))
```

# Make sure that the output is the same size as the input.
# Don't do this:
dont_stop(call_and_name(isTRUE, list(TRUE, FALSE, NA)))
# Do this instead:
call_and_name(
  Vectorize(isTRUE, SIMPLIFY = FALSE),
  list(TRUE, FALSE, NA)
)
cause

Get or set the "cause" attribute

Description

Gets or sets the "cause" (of failure) attribute of a variable.

Usage

cause(x)

cause(x) <- value

Arguments

x
Any variable.

c
Passed to gettextf and stored in the "cause" attribute.

Value

The get method returns the "cause" attribute.

See Also

set_cause

Examples

# Scalar case
yn <- is_identical_to_true(FALSE)
cause(yn)

# Vector case
ym <- is_true(c(TRUE, FALSE, NA))
cause(y)

coerce_to

Coerce variable to a different class

Description

Coerce the input to a different class, with a warning. More reliable than as, and supports coercion to multiple classes.

Usage

coerce_to(x, target_class, .xname = get_name_in_parent(x))
### Arguments

- **x**: Input to coerce.
- **target_class**: The desired class of `x`. Multiple values allowed (see note).
- **.xname**: Not intended to be used directly.

### Value

The input `x` after attempted coercion to the target class.

### Note

If `x` does not already have the target class, a warning is given before coercion. The function will try and convert the `x` to each of the classes given in `target_class`, in order, until it succeeds or runs out of classes to try. It will first try and convert `x` using a dedicated `as.target_class` function if that exists. If it does not exist, or throws an error then `coerce_to` will try to use `as(x, target_class)`.

### See Also

`is` and `as`.

### Examples

```r
# Numbers can be coerced to characters but not to calls.
don't_stop(coerce_to(1:5, c("call", "character")))
```

---

### Description

Runs code without stopping for warnings or errors.

### Usage

```r
don't_stop(expr)
```

### Arguments

- **expr**: Code to execute.

### Value

A list containing the results of evaluating each call in `expr`.

### Note

This function is dangerous, since it overrides warnings and errors. Its intended use is for documenting examples of warnings and errors.
false

**Description**

Always returns the value FALSE, with a cause attribute.

**Usage**

false(...)

**Arguments**

... Passed to gettextf to create a cause of failure message.

**Value**

FALSE with the attribute cause, as provided in the input.

**See Also**

cause and na.
get_name_in_parent

Get the name of a variable in the parent frame

Description

Gets the name of the input in the parent frame.

Usage

get_name_in_parent(x, escape_percent = TRUE)

Arguments

x Variable to get the name of.

escape_percent Logical. If TRUE, percent signs are doubled, making the value suitable for use with sprintf (and hence by false and na).

Value

A string giving the name of the input in the parent frame.

Examples

outside <- 1
f <- function(inside, escape_percent)
{
  get_name_in_parent(inside, escape_percent)
}
f(outside, TRUE)
f('10%', TRUE)
f('10%', FALSE)

is2

Alternative version of is

Description

If a function named is.class exists, call is.class(x). If not, call is(x, class).

Usage

is2(x, class, .xname = get_name_in_parent(x))
Arguments

- **x**: Input to check.
- **class**: Target class that x maybe belong to.
- **.xname**: Not intended to be used directly.

Value

TRUE if x belongs to the class and FALSE otherwise.

See Also

is, and assert_is_all_of for the corresponding assert fns.

Examples

```r
is2(1:5, "character")
is2(matrix(1:5), "character")
is2(1:5, c("character", "list", "numeric"))
is2(mean, c("function", "data.frame"))
```

merge.list

Merges two lists, taking duplicated elements from the first list.

Usage

```r
## S3 method for class 'list'
merge(x, y, warn_on_dups = TRUE, allow_unnamed_elements = FALSE, ...)
```

Arguments

- **x**: A list.
- **y**: A list.
- **warn_on_dups**: TRUE or FALSE. Should a warning be given if both x and y have elements with the same name. See note.
- **allow_unnamed_elements**: TRUE or FALSE. Should unnamed elements be allowed?
- **...**: Ignored.

Value

A list, combining elements from x and y.
merge_dots_with_list

Note
In the event of elements that are duplicated between x and y, the versions from x are used.

See Also
merge_dots_with_list, merge

Examples
merge(
  list(foo = 1, bar = 2, baz = 3),
  list(foo = 4, baz = 5, quux = 6)
)

# If unnamed elements are allowed, they are included at the end
merge(
  list("a", foo = 1, "b", bar = 2, baz = 3, "c"),
  list(foo = 4, "a", baz = 5, "b", quux = 6, "d"),
  allowUnnamedElements = TRUE
)

merge_dots_with_list  Merge ellipsis args with a list.

Description
Merges variable length ellipsis arguments to a function with a list argument.

Usage
merge_dots_with_list(
  ...,
  l = list(),
  warn_on_dupes = TRUE,
  allowUnnamedElements = FALSE
)

Arguments

...  Some inputs.

l     A list.

warn_on_dupes  TRUE or FALSE. Should a warning be given if both x and y have elements with
               the same name. See note.

allowUnnamedElements  TRUE or FALSE. Should unnamed elements be allowed?
Value

A list containing the merged inputs.

Note

If any arguments are present in both the . . . and l arguments, the . . . version takes preference, and a warning is thrown.

See Also

merge.list, merge

Examples

merge_dots_with_list(
  foo = 1,
  bar = 2,
  baz = 3,
  l = list(foo = 4, baz = 5, quux = 6)
)

Description

Always returns the value (logical) NA, with a cause attribute.

Usage

na(...)

Arguments

... Passed to gettextf to create a cause of failure message.

Value

NA with the attribute cause, as provided in the input.

See Also

cause and false.
Parenthesise a character vector by wrapping elements in brackets, dashes or commas.

Usage

```r
cparenthesize(x, type = c("round_brackets", "square_brackets", "curly_brackets", "angle_brackets", "chevrons", "hyphens", "en_dashes", "em_dashes", "commas"))
cparenthesise(x, type = c("round_brackets", "square_brackets", "curly_brackets", "angle_brackets", "chevrons", "hyphens", "en_dashes", "em_dashes", "commas"))
```

Arguments

- `x` Character vector to wrap in parentheses.
- `type` String naming the type of parenthesis.

Value

A character vector of the input wrapped in parentheses.

Note

English grammar terminology is awfully confusing. The verb 'to parenthesise' means to wrap a phrase in brackets or dashes or commas, thus denoting it as supplementary material that could be left out. A 'parenthesis' as a noun is often used as a synonym for a round bracket.

See Also

`sQuote`

Examples

```r
paste("There were three", cparenthesise(3), "mice in the experiment.")
paste("I love parmos",
     cparenthesise("Teesside's finest culinary invention", "en_dashes"),
     "but they are sure to give me heart disease.")
```
parenthesise(letters[1:5], "curly")
paste0(
  "The R language",
  parenthesise("an offshoot of S and Scheme", "commas"),
  "is quite good for data analysis."
)

print.scalar_with_cause

*Print methods for objects with a cause attribute*

**Description**

Prints objects of class `scalar_with_cause` and `vector_with_cause`.

**Usage**

## S3 method for class 'scalar_with_cause'
print(x, ...)

## S3 method for class 'vector_with_cause'
print(x, na_ignore = FALSE, n_to_show = 10, ...)

**Arguments**

- `x` an object of class `scalar_with_cause` or `vector_with_cause`.
- `...` Currently unused.
- `na_ignore` A logical value. If FALSE, NA values are printed; otherwise they do not. Like `na.rm` in many stats package functions, except that the position of the failing values does not change.
- `n_to_show` A natural number. The maximum number of failures to show.

print_and_capture

*Print a variable and capture the output*

**Description**

Prints a variable and captures the output, collapsing the value to a single string.

**Usage**

print_and_capture(x, ...)
safe_deparse

Arguments

  x         A variable.
  ...      Arguments passed to print methods.

Value

A string.

See Also

  print, capture.output

Examples

# This is useful for including data frames in warnings or errors
message("This is the sleep dataset:\n", print_and_capture(sleep))

safe_deparse       Safe version of deparse

Description

A version of deparse that is guaranteed to always return a single string.

Usage

  safe_deparse(expr, ...)

Arguments

  expr     Any R expression.
  ...      Passed to deparse.

Value

A character vector or length one.

Note

By default the RStudio IDE truncates output in the console at 1000 characters. Consequently, if you use safe_deparse on large or complex objects, you won’t see the full value. You can change the setting using Tools -> "Global Options..." -> Code -> Display -> Console -> "Limit length of lines displayed in console to:.“.
Examples

```r
# safe_deparse only differs from deparse when the deparse string is longer
# than width.cutoff
deparse(CO2, width.cutoff = 500L) # has length 6
safe_deparse(CO2) # has length 1
```

Description

Sets the cause attribute of an object and returns that object.

Usage

```r
set_cause(x, false_value, missing_value = "missing")
```

Arguments

- `x`: A variable.
- `false_value`: A character vector to set the cause to, where `x` is FALSE.
- `missing_value`: A character vector to set the cause to, where `x` is NA.

Details

If `x` is TRUE everywhere, this returns the input without setting a cause. Otherwise, the cause is an empty string where `x` is TRUE, `false_value` where it is FALSE, and `missing_value` where it is NA.

Value

`x`, with a new cause attribute.

See Also

`cause`, `setNames`
strip_attributes

Strip all attributes from a variable

Description

Strips all the attributes from a variable.

Usage

strip_attributes(x)

Arguments

x Input to strip.

Value

x, without attributes.

Examples

x <- structure(c(foo = 1, bar = 2), some_attr = 3)
x2 <- strip_attributes(x)
attributes(x)
attributes(x2)

Truth

Is the input TRUE/FALSE/NA?

Description

Checks to see if the input is TRUE, FALSE or NA.

Usage

assert_is_identical_to_false(
x,
allow_attributes = FALSE,
severity = getOption("assertive.severity", "stop")
)

assert_is_identical_to_na(
x,
allow_attributes = FALSE,
severity = getOption("assertive.severity", "stop")
)
assert_is_identical_to_true(
  x,
  allow_attributes = FALSE,
  severity = getOption("assertive.severity", "stop")
)

assert_all_are_false(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_false(x, severity = getOption("assertive.severity", "stop"))
assert_all_are_na(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_na(x, severity = getOption("assertive.severity", "stop"))
assert_all_are_true(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_true(x, severity = getOption("assertive.severity", "stop"))
assert_all_are_not_false(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_not_false(x, severity = getOption("assertive.severity", "stop"))
assert_all_are_not_na(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_not_na(x, severity = getOption("assertive.severity", "stop"))
assert_all_are_not_true(x, severity = getOption("assertive.severity", "stop"))
assert_any_are_not_true(x, severity = getOption("assertive.severity", "stop"))

is_identical_to_false(
  x,
  allow_attributes = FALSE,
  .xname = get_name_in_parent(x)
)

is_identical_to_na(x, allow_attributes = FALSE, .xname = get_name_in_parent(x))

is_identical_to_true(
  x,
  allow_attributes = FALSE,
  .xname = get_name_in_parent(x)
)

is_false(x, .xname = get_name_in_parent(x))

is_na(x, coerce_to_logical = FALSE, .xname = get_name_in_parent(x))
is_not_na(x, coerce_to_logical = FALSE, .xname = get_name_in_parent(x))

is_not_false(x, .xname = get_name_in_parent(x))

is_not_true(x, .xname = get_name_in_parent(x))

is_true(x, .xname = get_name_in_parent(x))

Arguments

x Input to check. See note.
allow_attributes If TRUE, a scalar value of TRUE with attributes is allowed.
severity How severe should the consequences of the assertion be? Either "stop", "warning", "message", or "none".
.xname Not intended to be used directly.
coerce_to_logical Logical: should the input be coerced to logical before checking? See note.

Value

The is* functions return TRUE if the input is TRUE/FALSE. The assert_* functions return nothing but throw an error if the corresponding is_* function returns FALSE.

Note

is_identical_to_true wraps the base function isTRUE, providing more information on failure. Likewise, is_identical_to_false checks that the input is identical to FALSE. If allow_attributes is TRUE, a scalar value of TRUE with attributes is allowed. is_true and is_false are vectorized, returning TRUE when the inputs are TRUE and FALSE respectively.

The for is_true, is_false, is_not_true and is_not_false, x argument will be coerced to be a logical vector if it isn’t already.

Coercion to logical is optional for is_na and is_not_na. If you do coerce, it means that is_na differs in behaviour from base::is_na for character vector, list and data frame inputs. To replicate the behaviour of is_na, ensure the argument coerce_to_logical is FALSE (this is the default).

Note that in assertive version 0.1-4 and prior, is_identical_to_true/false were named is_true/false and the vectorized versions were not present.

See Also

isTRUE.

Examples

# Checks against logical values using base::identical
assert_is_identical_to_true(TRUE)
assert_is_identical_to_false(FALSE)
assert_is_identical_to_na(NA)

# Other NA types match
assert_is_identical_to_na(NA_complex_)

# NaN is not NA
dont_stop(assert_is_identical_to_na(NaN))

# For a slightly less strict test, you can ignore attributes
assert_is_identical_to_true(c(truth = TRUE), allow_attributes = TRUE)
assert_is_identical_to_false(matrix(FALSE), allow_attributes = TRUE)
assert_is_identical_to_na(structure(NA, class = "nanana"), allow_attributes = TRUE)

# Vectorized predicates (package name explicitly given to prevent
# problems with testthat name clash)
x <- c(TRUE, FALSE, NA)
assertive.base::is_true(x)
assertive.base::is_false(x)
is_na(x)

# ...and their opposites
is_not_true(x)
is_not_false(x)
is_not_na(x)

# Check that at least one element fits the condition
assert_any_are_true(x)
assert_any_are_false(x)
assert_any_are_na(x)

# These checks should fail:
dont_stop(
  assert_is_identical_to_true(c(truth = TRUE))
  assert_is_identical_to_true(!)
  assert_is_identical_to_true(c(TRUE, TRUE))
  assert_is_identical_to_false(matrix(FALSE))
  assert_is_identical_to_na(structure(NA, class = "nanana"))
  assert_all_are_true(x)
  assert_all_are_false(x)
  assert_all_are_na(x)
)

# is.na and is_not_na has non-standard behaviour for data.frames and lists.
# is.na and is_not_na coerce to logical vectors (except character input).
# unlist the input or use an apply function.
d <- data.frame(
  x = c(TRUE, FALSE, NA),
  y = c(0, NA, 2),
  z = c("a", "NA", NA)
)
is.na(d)
is.na(unlist(d))
use_first

*Only use the first element of a vector*

**Description**

If the input is not scalar, then only the first element is returned, with a warning.

**Usage**

```r
use_first(x, indexer = c("[[", "["]), .xname = get_name_in_parent(x))
```

**Arguments**

- `x`: Input that should be scalar.
- `indexer`: Either double indexing, "[[" (the default) or single indexing "]".
- `.xname`: Not intended to be used directly.

**Value**

If `x` is scalar, it is returned unchanged, otherwise only the first element is returned, with a warning.

**Examples**

```r
dont_stop(use_first(1:5))
```
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