

Package ‘stbl’

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Title Stabilize Function Arguments

Version 0.1.1

Description A set of consistent, opinionated functions to quickly check function arguments, coerce them to the desired configuration, or deliver informative error messages when that is not possible.

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URL <https://github.com/jonthegeek/stbl>,
<https://jonthegeek.github.io/stbl/>

BugReports <https://github.com/jonthegeek/stbl/issues>

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object_type	<i>Identify the class, type, etc of an object</i>
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Description

Extract the class (or type) of an object for use in error messages.

Usage

```
object_type(x)
```

Arguments

x	An object to test.
---	--------------------

Value

A length-1 character vector describing the class of the object.

Examples

```
object_type("a")
object_type(1L)
object_type(1.1)
object_type(mtcars)
object_type(rlang::quo(something))
```

stabilize_arg	<i>Ensure an argument meets expectations</i>
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Description

`stabilize_arg()` is used by other functions such as `stabilize_int()`. Use `stabilize_arg()` if the type-specific functions will not work for your use case, but you would still like to check things like size or whether the argument is NULL.

`stabilize_arg_scalar()` is optimized to check for length-1 vectors.

Usage

```

stabilize_arg(
  x,
  ...,
  allow_null = TRUE,
  allow_na = TRUE,
  min_size = NULL,
  max_size = NULL,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

stabilize_arg_scalar(
  x,
  ...,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  allow_na = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

Arguments

<code>x</code>	The argument to stabilize.
<code>...</code>	These dots are for future extensions and should be empty.
<code>allow_null</code>	Logical. Is NULL an acceptable value?
<code>allow_na</code>	Logical. Are NA values ok?
<code>min_size</code>	Integer. The minimum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>max_size</code>	Integer. The maximum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>x_arg</code>	Character. An argument name for <code>x</code> . The automatic value will work in most cases, or pass it through from higher-level functions to make error messages clearer in unexported functions.
<code>call</code>	The execution environment of the call. See the <code>call</code> argument of <code>rlang::abort()</code> for more information.
<code>x_class</code>	Character. The class name of <code>x</code> to use in error messages. Use this if you remove a special class from <code>x</code> before checking its coercion, but want the error message to match the original class.
<code>allow_zero_length</code>	Logical. Are zero-length vectors acceptable?

Value

`x`, unless one of the checks fails.

Examples

```
wrapper <- function(this_arg, ...) {
  stabilize_arg(this_arg, ...)
}
wrapper(1)
wrapper(NULL)
wrapper(NA)
try(wrapper(NULL, allow_null = FALSE))
try(wrapper(NA, allow_na = FALSE))
try(wrapper(1, min_size = 2))
try(wrapper(1:10, max_size = 5))
stabilize_arg_scalar("a")
stabilize_arg_scalar(1L)
try(stabilize_arg_scalar(1:10))
```

stabilize_chr

Ensure a character argument meets expectations

Description

`to_chr()` checks whether an argument can be coerced to character without losing information, returning it silently if so. Otherwise an informative error message is signaled.

`stabilize_chr()` can check more details about the argument, but is slower than `to_chr()`.

`stabilize_chr_scalar()` and `to_chr_scalar()` are optimized to check for length-1 character vectors.

Usage

```
stabilize_chr(
  x,
  ...,
  allow_null = TRUE,
  allow_na = TRUE,
  min_size = NULL,
  max_size = NULL,
  regex = NULL,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

stabilize_chr_scalar(
  x,
```

```

    ...,
    allow_null = TRUE,
    allow_zero_length = TRUE,
    allow_na = TRUE,
    regex = NULL,
    x_arg = caller_arg(x),
    call = caller_env(),
    x_class = object_type(x)
)

to_chr(
  x,
  allow_null = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

to_chr_scalar(
  x,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

Arguments

<code>x</code>	The argument to stabilize.
<code>...</code>	These dots are for future extensions and should be empty.
<code>allow_null</code>	Logical. Is NULL an acceptable value?
<code>allow_na</code>	Logical. Are NA values ok?
<code>min_size</code>	Integer. The minimum size of the object. Object size will be tested using <code>vecr::vec_size()</code> .
<code>max_size</code>	Integer. The maximum size of the object. Object size will be tested using <code>vecr::vec_size()</code> .
<code>regex</code>	Character scalar. An optional regex pattern to compare the value(s) of <code>x</code> against. If a complex regex pattern throws an error, try installing the <code>stringi</code> package with <code>install.packages("stringi")</code> .
<code>x_arg</code>	Character. An argument name for <code>x</code> . The automatic value will work in most cases, or pass it through from higher-level functions to make error messages clearer in unexported functions.
<code>call</code>	The execution environment of the call. See the <code>call</code> argument of <code>rlang::abort()</code> for more information.

`x_class` Character. The class name of `x` to use in error messages. Use this if you remove a special class from `x` before checking its coercion, but want the error message to match the original class.

`allow_zero_length` Logical. Are zero-length vectors acceptable?

Details

These functions have two important differences from `base::as.character()`:

- `lists` and `data.frames` are *not* coerced to character. In base R, such objects are coerced to character representations of their elements. For example, `as.character(list(1:3))` returns `"1:10"`. In the unlikely event that this is the expected behavior, use `as.character()` instead.
- `NULL` values can be rejected as part of the call to this function (with `allow_null = FALSE`).

Value

The argument as a character vector.

Examples

```
to_chr("a")
to_chr(letters)
to_chr(1:10)
to_chr(1 + 0i)
to_chr(NULL)
try(to_chr(NULL, allow_null = FALSE))

to_chr_scalar("a")
try(to_chr_scalar(letters))

stabilize_chr(letters)
stabilize_chr(1:10)
stabilize_chr(NULL)
try(stabilize_chr(NULL, allow_null = FALSE))
try(stabilize_chr(c("a", NA), allow_na = FALSE))
try(stabilize_chr(letters, min_size = 50))
try(stabilize_chr(letters, max_size = 20))
try(stabilize_chr(c("hide", "find", "find", "hide"), regex = "hide"))

stabilize_chr_scalar(TRUE)
stabilize_chr_scalar("TRUE")
try(stabilize_chr_scalar(c(TRUE, FALSE, TRUE)))
stabilize_chr_scalar(NULL)
try(stabilize_chr_scalar(NULL, allow_null = FALSE))
```

stabilize_fct*Ensure a factor argument meets expectations*

Description

to_fct() checks whether an argument can be coerced to a factor without losing information, returning it silently if so. Otherwise an informative error message is signaled.

stabilize_fct() can check more details about the argument, but is slower than to_fct().

stabilize_fct_scalar() and to_fct_scalar() are optimized to check for length-1 factors.

Usage

```
stabilize_fct(  
  x,  
  ...,  
  allow_null = TRUE,  
  allow_na = TRUE,  
  min_size = NULL,  
  max_size = NULL,  
  levels = NULL,  
  to_na = character(),  
  x_arg = caller_arg(x),  
  call = caller_env(),  
  x_class = object_type(x)  
)
```

```
stabilize_fct_scalar(  
  x,  
  ...,  
  allow_null = TRUE,  
  allow_zero_length = TRUE,  
  allow_na = TRUE,  
  levels = NULL,  
  to_na = character(),  
  x_arg = caller_arg(x),  
  call = caller_env(),  
  x_class = object_type(x)  
)
```

```
to_fct(  
  x,  
  allow_null = TRUE,  
  levels = NULL,  
  to_na = character(),  
  x_arg = caller_arg(x),  
  call = caller_env(),
```

```

  x_class = object_type(x)
)

to_fct_scalar(
  x,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  levels = NULL,
  to_na = character(),
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

Arguments

<code>x</code>	The argument to stabilize.
<code>...</code>	These dots are for future extensions and should be empty.
<code>allow_null</code>	Logical. Is NULL an acceptable value?
<code>allow_na</code>	Logical. Are NA values ok?
<code>min_size</code>	Integer. The minimum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>max_size</code>	Integer. The maximum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>levels</code>	Character. Expected levels. If NULL (default), the levels will be computed by <code>base::factor()</code> .
<code>to_na</code>	Character. Values to coerce to NA.
<code>x_arg</code>	Character. An argument name for <code>x</code> . The automatic value will work in most cases, or pass it through from higher-level functions to make error messages clearer in unexported functions.
<code>call</code>	The execution environment of the call. See the <code>call</code> argument of <code>rlang::abort()</code> for more information.
<code>x_class</code>	Character. The class name of <code>x</code> to use in error messages. Use this if you remove a special class from <code>x</code> before checking its coercion, but want the error message to match the original class.
<code>allow_zero_length</code>	Logical. Are zero-length vectors acceptable?

Details

These functions have important differences from `base::as.factor()` and `base::factor()`:

- Values are never silently coerced to NA unless they are explicitly supplied in the `to_na` argument.
- NULL values can be rejected as part of the call to this function (with `allow_null = FALSE`).

Value

The argument as a factor.

Examples

```
to_fct("a")
to_fct(1:10)
to_fct(NULL)
try(to_fct(letters[1:5], levels = c("a", "c"), to_na = "b"))

to_fct_scalar("a")
try(to_fct_scalar(letters))

stabilize_fct(letters)
try(stabilize_fct(NULL, allow_null = FALSE))
try(stabilize_fct(c("a", NA), allow_na = FALSE))
try(stabilize_fct(c("a", "b", "c"), min_size = 5))
try(stabilize_fct(c("a", "b", "c"), max_size = 2))

stabilize_fct_scalar("a")
try(stabilize_fct_scalar(letters))
try(stabilize_fct_scalar("c", levels = c("a", "b")))
```

stabilize_int

Ensure an integer argument meets expectations

Description

to_int() checks whether an argument can be coerced to integer without losing information, returning it silently if so. Otherwise an informative error message is signaled.

stabilize_int() can check more details about the argument, but is slower than to_int().

stabilize_int_scalar() and to_int_scalar() are optimized to check for length-1 integer vectors.

Usage

```
stabilize_int(
  x,
  ...,
  allow_null = TRUE,
  allow_na = TRUE,
  coerce_character = TRUE,
  coerce_factor = TRUE,
  min_size = NULL,
  max_size = NULL,
  min_value = NULL,
  max_value = NULL,
```

```

    x_arg = caller_arg(x),
    call = caller_env(),
    x_class = object_type(x)
)

stabilize_int_scalar(
  x,
  ...,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  allow_na = TRUE,
  coerce_character = TRUE,
  coerce_factor = TRUE,
  min_value = NULL,
  max_value = NULL,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

to_int(
  x,
  allow_null = TRUE,
  coerce_character = TRUE,
  coerce_factor = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

to_int_scalar(
  x,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  coerce_character = TRUE,
  coerce_factor = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

Arguments

<code>x</code>	The argument to stabilize.
<code>...</code>	These dots are for future extensions and should be empty.
<code>allow_null</code>	Logical. Is NULL an acceptable value?
<code>allow_na</code>	Logical. Are NA values ok?

coerce_character	Logical. Should character vectors such as "1" and "2.0" be coerced to integer?
coerce_factor	Logical. Should factors with values such as "1" and "2.0" be coerced to integer? Note that this function uses the character value from the factor, while <code>as.integer()</code> uses the integer index of the factor.
min_size	Integer. The minimum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
max_size	Integer. The maximum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
min_value	Integer scalar. The lowest allowed value for x. If NULL (default) values are not checked.
max_value	Integer scalar. The highest allowed value for x. If NULL (default) values are not checked.
x_arg	Character. An argument name for x. The automatic value will work in most cases, or pass it through from higher-level functions to make error messages clearer in unexported functions.
call	The execution environment of the call. See the <code>call</code> argument of <code>rlang::abort()</code> for more information.
x_class	Character. The class name of x to use in error messages. Use this if you remove a special class from x before checking its coercion, but want the error message to match the original class.
allow_zero_length	Logical. Are zero-length vectors acceptable?

Value

The argument as an integer.

Examples

```
to_int(1:10)
to_int("1")
to_int(1 + 0i)
to_int(NULL)
try(to_int(c(1, 2, 3.1, 4, 5.2)))
try(to_int("1", coerce_character = FALSE))
try(to_int(c("1", "2", "3.1", "4", "5.2")))
```

```
to_int_scalar("1")
try(to_int_scalar(1:10))
```

```
stabilize_int(1:10)
stabilize_int("1")
stabilize_int(1 + 0i)
stabilize_int(NULL)
try(stabilize_int(NULL, allow_null = FALSE))
try(stabilize_int(c(1, NA), allow_na = FALSE))
try(stabilize_int(letters))
```

```

try(stabilize_int("1", coerce_character = FALSE))
try(stabilize_int(factor(c("1", "a"))))
try(stabilize_int(factor("1"), coerce_factor = FALSE))
try(stabilize_int(1:10, min_value = 3))
try(stabilize_int(1:10, max_value = 7))

stabilize_int_scalar(1L)
stabilize_int_scalar("1")
try(stabilize_int_scalar(1:10))
stabilize_int_scalar(NULL)
try(stabilize_int_scalar(NULL, allow_null = FALSE))

```

stabilize_lgl

Ensure a logical argument meets expectations

Description

`to_lgl()` checks whether an argument can be coerced to logical without losing information, returning it silently if so. Otherwise an informative error message is signaled.

`stabilize_lgl()` can check more details about the argument, but is slower than `to_lgl()`.

`stabilize_lgl_scalar()` and `to_lgl_scalar()` are optimized to check for length-1 logical vectors.

Usage

```

stabilize_lgl(
  x,
  ...,
  allow_null = TRUE,
  allow_na = TRUE,
  min_size = NULL,
  max_size = NULL,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

stabilize_lgl_scalar(
  x,
  ...,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  allow_na = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

```

to_lgl(
  x,
  allow_null = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

to_lgl_scalar(
  x,
  allow_null = TRUE,
  allow_zero_length = TRUE,
  x_arg = caller_arg(x),
  call = caller_env(),
  x_class = object_type(x)
)

```

Arguments

<code>x</code>	The argument to stabilize.
<code>...</code>	These dots are for future extensions and should be empty.
<code>allow_null</code>	Logical. Is NULL an acceptable value?
<code>allow_na</code>	Logical. Are NA values ok?
<code>min_size</code>	Integer. The minimum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>max_size</code>	Integer. The maximum size of the object. Object size will be tested using <code>vctrs::vec_size()</code> .
<code>x_arg</code>	Character. An argument name for <code>x</code> . The automatic value will work in most cases, or pass it through from higher-level functions to make error messages clearer in unexported functions.
<code>call</code>	The execution environment of the call. See the <code>call</code> argument of <code>rlang::abort()</code> for more information.
<code>x_class</code>	Character. The class name of <code>x</code> to use in error messages. Use this if you remove a special class from <code>x</code> before checking its coercion, but want the error message to match the original class.
<code>allow_zero_length</code>	Logical. Are zero-length vectors acceptable?

Value

The argument as a logical vector.

Examples

```

to_lgl(TRUE)
to_lgl("TRUE")

```

```
to_lgl(1:10)
to_lgl(NULL)
try(to_lgl(NULL, allow_null = FALSE))
try(to_lgl(letters))
try(to_lgl(list(TRUE)))

to_lgl_scalar("TRUE")
try(to_lgl_scalar(c(TRUE, FALSE)))

stabilize_lgl(c(TRUE, FALSE, TRUE))
stabilize_lgl("true")
stabilize_lgl(NULL)
try(stabilize_lgl(NULL, allow_null = FALSE))
try(stabilize_lgl(c(TRUE, NA), allow_na = FALSE))
try(stabilize_lgl(letters))
try(stabilize_lgl(c(TRUE, FALSE, TRUE), min_size = 5))
try(stabilize_lgl(c(TRUE, FALSE, TRUE), max_size = 2))

stabilize_lgl_scalar(TRUE)
stabilize_lgl_scalar("TRUE")
try(stabilize_lgl_scalar(c(TRUE, FALSE, TRUE)))
stabilize_lgl_scalar(NULL)
try(stabilize_lgl_scalar(NULL, allow_null = FALSE))
```

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