

# Package ‘csutil’

May 8, 2026

**Title** Common Base-R Problems Relating to Lists

**Version** 2023.4.25

**Description** Utility functions that help with common base-R problems relating to lists. Lists in base-R are very flexible. This package provides functions to quickly and easily characterize types of lists. That is, to identify if all elements in a list are null, data.frames, lists, or fully named lists. Other functionality is provided for the handling of lists, such as the easy splitting of lists into equally sized groups, and the unnesting of data.frames within fully named lists.

**Depends** R (>= 3.3.0)

**License** MIT + file LICENSE

**URL** <https://www.csids.no/csutil/>, <https://github.com/csids/csutil>

**BugReports** <https://github.com/csids/csutil/issues>

**Encoding** UTF-8

**Imports** data.table, magrittr, ggplot2

**Suggests** testthat, knitr, rmarkdown, rstudioapi, glue

**RoxygenNote** 7.2.3

**VignetteBuilder** knitr

**NeedsCompilation** no

**Author** Richard Aubrey White [aut, cre] (ORCID:  
<<https://orcid.org/0000-0002-6747-1726>>),  
CSIDS [cph]

**Maintainer** Richard Aubrey White <hello@rwhite.no>

**Repository** CRAN

**Date/Publication** 2023-04-25 07:10:02 UTC

## Contents

apply_fn_via_hash_table . . . . .	2
easy_split . . . . .	2
is_all_list_elements_null_or_df . . . . .	3

is_all_list_elements_null_or_fully_named_list . . . . .	4
is_all_list_elements_null_or_list . . . . .	5
is_fully_named_list . . . . .	5
unnest_dfs_within_list_of_fully_named_lists . . . . .	6

<b>Index</b>	<b>8</b>
--------------	----------

---

apply\_fn\_via\_hash\_table

*Apply a function via hash table*

---

### Description

This function extracts the unique input values, applies the given function to it to create a hash table (containing unique input/output combinations), and then matches the original input to the hash table to obtain the desired output.

### Usage

```
apply_fn_via_hash_table(x, fn, ...)
```

### Arguments

x	A vector data that needs a function applied to it.
fn	A function that will be applied to x.
...	Arguments that will be passed to 'fn'.

### Details

This can dramatically speed up computation if there is a lot of data and a limited amount of unique values.

---

easy\_split

*Split a vector into a list of vectors*

---

### Description

Easily split a list into a list of equally sized vectors.

### Usage

```
easy_split(x, size_of_each_group = NULL, number_of_groups = NULL)
```

**Arguments**

x                      The vector to be split

size\_of\_each\_group    If you want to split 'x' into a number of groups, each of 'size\_of\_each\_group' size

number\_of\_groups     How many equally sized groups do you want?

**Details**

You can either specify the length of the list (via 'number\_of\_groups') or the length of the equally sized vectors within each list element (via 'size\_of\_each\_group'). The last element of the list can be shorter than the other elements.

**Value**

A list containing equally sized vectors.

**Examples**

```
easy_split(letters[1:20], size_of_each_group = 3)
easy_split(letters[1:20], number_of_groups = 3)
```

---

is\_all\_list\_elements\_null\_or\_df

*Are all elements in a list null or data.frames?*

---

**Description**

Checks if A) 'x' is a list, B) All elements in 'x' are either null or data.frame.

**Usage**

```
is_all_list_elements_null_or_df(x)
```

**Arguments**

x                      An object

**Value**

Boolean.

**Examples**

```
is_all_list_elements_null_or_df(data.frame())
is_all_list_elements_null_or_df(list(data.frame()))
is_all_list_elements_null_or_df(list(1, NULL))
is_all_list_elements_null_or_df(list(data.frame(), NULL))
is_all_list_elements_null_or_df(list("a"=1, 2))
```

---

is\_all\_list\_elements\_null\_or\_fully\_named\_list

*Are all elements in a list null or fully named lists?*

---

**Description**

Checks if A) 'x' is a list, B) All elements in 'x' are either null or fully named lists.

**Usage**

```
is_all_list_elements_null_or_fully_named_list(x)
```

**Arguments**

x                    An object

**Details**

Fully named lists are lists with each element having a name.

**Value**

Boolean.

**Examples**

```
is_all_list_elements_null_or_fully_named_list(data.frame())
is_all_list_elements_null_or_fully_named_list(list(data.frame()))
is_all_list_elements_null_or_fully_named_list(list(1, NULL))
is_all_list_elements_null_or_fully_named_list(list(list(), NULL))
is_all_list_elements_null_or_fully_named_list(list(list("a" = 1), NULL))
is_all_list_elements_null_or_fully_named_list(list("a"=1, 2))
```

---

`is_all_list_elements_null_or_list`*Are all elements in a list null or lists?*

---

**Description**

Checks if A) 'x' is a list, B) All elements in 'x' are either null or list.

**Usage**

```
is_all_list_elements_null_or_list(x)
```

**Arguments**

x                    An object

**Value**

Boolean.

**Examples**

```
is_all_list_elements_null_or_list(data.frame())
is_all_list_elements_null_or_list(list(data.frame()))
is_all_list_elements_null_or_list(list(1, NULL))
is_all_list_elements_null_or_list(list(list(), NULL))
is_all_list_elements_null_or_list(list("a"=1, 2))
```

---

`is_fully_named_list`    *Is this a fully named list?*

---

**Description**

Checks if 'x' is a list with each element named.

**Usage**

```
is_fully_named_list(x)
```

**Arguments**

x                    An object

**Value**

Boolean.

**Examples**

```
is_fully_named_list(list())
is_fully_named_list(list(1))
is_fully_named_list(list("a"=1))
is_fully_named_list(list("a"=1, 2))
```

---

```
unnest_dfs_within_list_of_fully_named_lists
Unnest data.frames within fully named list
```

---

**Description**

Consider the situation where a function returns a list containing two data.frames. If this function is called repeatedly and the return values are stored in a list, we will have a list of fully named lists (each of which contains a data.frame). Typically, we want to extract the two data.frames from this nested list structure (and rbindlist them).

**Usage**

```
unnest_dfs_within_list_of_fully_named_lists(
  x,
  returned_name_when_dfs_are_not_nested = "data",
  ...
)
```

**Arguments**

`x` A list of fully named lists (which then contain data.frames)  
`returned_name_when_dfs_are_not_nested` When `x` is a single list of data.frames, what name should be returned?  
`...` parameters passed to `data.table::rbindlist`

**Value**

Fully named list, each element containing a data.table.

**Examples**

```
x <- list(
  list(
    "a" = data.frame("v1"=1),
    "b" = data.frame("v2"=3)
  ),
  list(
    "a" = data.frame("v1"=10),
    "b" = data.frame("v2"=30),
    "d" = data.frame("v3"=50)
  ),
)
```

```
list(
  "a" = NULL
),
NULL
)
print(x)
csutil::unnest_dfs_within_list_of_fully_named_lists(x)

x <- list(
  data.frame("v1"=1),
  data.frame("v3"=50)
)
print(x)
csutil::unnest_dfs_within_list_of_fully_named_lists(
  x,
  returned_name_when_dfs_are_not_nested = "NAME",
  fill = TRUE
)
```

# Index

`apply_fn_via_hash_table`, [2](#)

`easy_split`, [2](#)

`is_all_list_elements_null_or_df`, [3](#)

`is_all_list_elements_null_or_fully_named_list`,  
[4](#)

`is_all_list_elements_null_or_list`, [5](#)

`is_fully_named_list`, [5](#)

`unnest_dfs_within_list_of_fully_named_lists`,  
[6](#)