

# Package ‘mrap’

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**Title** Machine-Readable Data Analysis Results with Function Wrappers

**Version** 1.0.1

**Description** You can use the set of wrappers for analytical schemata to reduce the effort in writing machine-readable data. The set of all-in-one wrappers will cover widely used functions from data analysis packages.

**License** MIT + file LICENSE

**Encoding** UTF-8

**RoxygenNote** 7.2.3

**URL** <https://gitlab.com/TIBHannover/lki/knowledge-loom/mrap-r>

**BugReports** <https://gitlab.com/TIBHannover/lki/knowledge-loom/mrap-r/-/issues>

**Imports** dtreg, jsonlite, stringr

**Suggests** knitr, lme4, rmarkdown, testthat (>= 3.0.0)

**Config/testthat/edition** 3

**VignetteBuilder** knitr

**NeedsCompilation** no

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algorithm\_evaluation *Create an algorithm\_evaluation instance*

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## Description

Create an algorithm\_evaluation instance

## Usage

```
algorithm_evaluation(code_string, input_data, named_list_results)
```

## Arguments

code\_string     A line of code as a string, or "N/A" if not given  
input\_data       A data frame, a named list, or a URL as a string  
named\_list\_results  
                  A named list with metrics and values

## Value

An algorithm\_evaluation instance

## Examples

```
res <- list(F1= 0.46, recall = 0.51)
inst_ae <- algorithm_evaluation("N/A", "data_url", res)
```

---

class_discovery	<i>Create a class_discovery instance</i>
-----------------	--

---

**Description**

Create a class\_discovery instance

**Usage**

```
class_discovery(code_string, input_data, test_results)
```

**Arguments**

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

**Value**

A class\_discovery instance

**Examples**

```
clust_data <- iris[-5]
res <- data.frame(result_1 = 1, result_2 = 2)
inst_cd <- class_discovery(
  "stats::kmeans(clust_data, 3)",
  iris,
  res
)
```

---

class_prediction	<i>Create a class_prediction instance</i>
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---

**Description**

Create a class\_prediction instance

**Usage**

```
class_prediction(code_string, input_data, test_results)
```

**Arguments**

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

**Value**

A class\_prediction instance

**Examples**

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_cp <- class_prediction(
  "stats::glm(Species ~ Petal.Width + Petal.Length, family='binomial', iris)",
  iris,
  res
)
```

---

correlation\_analysis *Create a correlation\_analysis instance*

---

**Description**

Create a correlation\_analysis instance

**Usage**

```
correlation_analysis(code_string, input_data, test_results)
```

**Arguments**

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

**Value**

A correlation\_analysis instance

**Examples**

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_ca <- correlation_analysis(
  "stats::cor.test(iris$Petal.Length, iris$Sepal.Length)",
  iris,
  res
)
```

---

data_analysis	<i>Create a data_analysis instance</i>
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**Description**

Create a data\_analysis instance

**Usage**

```
data_analysis(instances, code_reference = NULL)
```

**Arguments**

instances      Analytic instance or a list of instances  
code\_reference    A URL of the code implementing data analysis

**Value**

A data analysis instance

**Examples**

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
inst_da <- data_analysis(inst_ds)
```

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descriptive_statistics	<i>Create a descriptive_statistics instance</i>
------------------------	---

---

**Description**

Create a descriptive\_statistics instance

**Usage**

```
descriptive_statistics(code_string, input_data, test_results)
```

**Arguments**

code\_string      A line of code as a string, or "N/A" if not given  
input\_data        A data frame, a named list, or a URL as a string  
test\_results     A data frame or a list of data frames

**Value**

A descriptive\_statistics instance

**Examples**

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
```

---

factor_analysis	<i>Create a factor_analysis instance</i>
-----------------	--

---

**Description**

Create a factor\_analysis instance

**Usage**

```
factor_analysis(code_string, input_data, test_results)
```

**Arguments**

code_string	A line of code as a string, or "N/A" if not given
input_data	A data frame, a named list, or a URL as a string
test_results	A data frame or a list of data frames

**Value**

A factor\_analysis instance

**Examples**

```
fa_data <- iris[-5]
res <- data.frame(result_1 = 1, result_2 = 2)
inst_fa <- factor_analysis(
  "stats::princomp(fa_data)",
  iris,
  res
)
```

---

group\_comparison      *Create a group\_comparison instance*

---

**Description**

Create a group\_comparison instance

**Usage**

```
group_comparison(code_string, input_data, test_results)
```

**Arguments**

code\_string      A line of code as a string, or "N/A" if not given  
input\_data        A data frame, a named list, or a URL as a string  
test\_results     A data frame or a list of data frames

**Value**

A group\_comparison instance

**Examples**

```
res <- data.frame(result_1 = 1, result_2 = 2)
inst_gc <- group_comparison(
  "stats::aov(Petal.Length ~ Species, data = iris)",
  iris,
  res
)
```

---

multilevel\_analysis      *Create a multilevel\_analysis instance*

---

**Description**

Create a multilevel\_analysis instance

**Usage**

```
multilevel_analysis(code_string, input_data, test_results)
```

**Arguments**

code\_string      A line of code as a string, or "N/A" if not given  
input\_data        A data frame, a named list, or a URL as a string  
test\_results     A data frame or a list of data frames

**Value**

A `multilevel_analysis` instance

**Examples**

```
code_string <- "lme4::lmer(math ~ homework + (1 | schid))"  
res <- data.frame(result_1 = 1, result_2 = 2)  
inst <- multilevel_analysis(code_string, "data_url", res)
```

---

`regression_analysis`    *Create a regression\_analysis instance*

---

**Description**

Create a `regression_analysis` instance

**Usage**

```
regression_analysis(code_string, input_data, test_results)
```

**Arguments**

<code>code_string</code>	A line of code as a string, or "N/A" if not given
<code>input_data</code>	A data frame, a named list, or a URL as a string
<code>test_results</code>	A data frame or a list of data frames

**Value**

A `regression_analysis` instance

**Examples**

```
res <- data.frame(result_1 = 1, result_2 = 2)  
inst_ra <- regression_analysis(  
  "stats::lm(Petal.Length ~ Sepal.Length, data = iris)",  
  iris,  
  res  
)
```

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stats_aov	<i>Wrap stats::aov function</i>
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**Description**

Wrap stats::aov function

**Usage**

```
stats_aov(...)
```

**Arguments**

... the same arguments as in the wrapped function

**Value**

a list of ANOVA object and R6 class instance

**Examples**

```
results <- stats_aov(Petal.Length ~ Species, data = iris)
```

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to_jsonld	<i>Write an instance in JSON-LD format</i>
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**Description**

This function is imported from dtreg for ease-of-use

**Usage**

```
to_jsonld(instance)
```

**Arguments**

instance An instance of an R6 class

**Value**

JSON string in JSON-LD format

**Examples**

```
res <- data.frame(mean = 3.758)
inst_ds <- descriptive_statistics(
  "base::mean(iris$Petal.Length)",
  iris,
  res
)
json <- to_jsonld(inst_ds)
```

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