

Package ‘BiObjClass’

July 21, 2025

Type Package

Title Classification of Algorithms

Version 0.1.0

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Description Implements the Bi-objective Lexicographical Classification method and Performance Assessment Ratio at 10% metric for algorithm classification. Constructs matrices representing algorithm performance under multiple criteria, facilitating decision-making in algorithm selection and evaluation. Analyzes and compares algorithm performance based on various metrics to identify the most suitable algorithms for specific tasks. This package includes methods for algorithm classification and evaluation, with examples provided in the documentation. Carvalho (2019) presents a statistical evaluation of algorithmic computational experimentation with infeasible solutions <doi:10.48550/arXiv.1902.00101>. Moreira and Carvalho (2023) analyze power in preprocessing methodologies for datasets with missing values <doi:10.1080/03610918.2023.2234683>.

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Encoding UTF-8

RoxygenNote 7.3.1

NeedsCompilation no

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Repository CRAN

Date/Publication 2024-05-06 19:00:21 UTC

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bilex*Bilex Function*

Description

This function reads two CSV files containing matrices of values (T_file and R_file) and applies a transformation to matrix R according to certain rules.

Usage

```
bilex(R_file, T_file, has_header = FALSE)
```

Arguments

R_file	The filename of the CSV file containing the matrix R (located in inst/extdata).
T_file	The filename of the CSV file containing the matrix T (located in inst/extdata).
has_header	Logical, indicating if the CSV files have a header row. Default is FALSE.

Details

This function performs a transformation on matrix R based on the following rules: - If a value in R is 0, it is replaced by a classification value. - Classification values are determined based on comparisons between neighboring values in R and corresponding values in T. - The classification of each value in R depends on the values in the same row of R, considering both numerical values and the relationship with neighboring values.

Value

A modified matrix R according to the specified rules.

Examples

```
bilex_result <- bilex(system.file("extdata", "R.csv", package = "BiObjClass"),  
  system.file("extdata", "T.csv", package = "BiObjClass"), has_header = TRUE)
```

```
bilex_result <- bilex(system.file("extdata", "R.csv", package = "BiObjClass"),  
  system.file("extdata", "T.csv", package = "BiObjClass"))
```

par10

*par10 Function***Description**

This function reads a CSV file containing a matrix of values and modifies it as follows: If a value in the matrix is 0, it is replaced by 10 times the maximum non-zero value in the corresponding row.

Usage

```
par10(G_file, has_header = FALSE)
```

Arguments

G_file	The path to the CSV file containing the matrix of values.
has_header	Logical, indicating if the CSV file has a header row. Default is FALSE.

Value

A matrix where each 0 value is replaced by 10 times the maximum non-zero value in its corresponding row.

Examples

```
par10_result <- par10(system.file("extdata", "R.csv", package = "BiObjClass"), has_header = TRUE)
```

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