

Package ‘GPIC’

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Type Package

Title Quantifying Group Performance in Individual Competitions

Version 0.1.0

Description Compute the GPIC index as described in Pham (2020)
<doi:10.35542/osf.io/ajz5v>.

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Author Duy Nghia Pham [aut, cre] (<<https://orcid.org/0000-0003-1349-1710>>)

Maintainer Duy Nghia Pham <nghiapham@yandex.com>

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GPIC-package

GPIC: Quantifying Group Performance in Individual Competitions

Description

Compute the GPIC index as described in Pham (2020) doi: [10.35542/osf.io/ajz5v](https://doi.org/10.35542/osf.io/ajz5v).

Guidelines

GPIC index reflects both the quantity and quality of prizes that a group of participants obtained in individual competitions. Call `vec2idx` and `df2idx` to compute GPIC index for a single group and multiple groups, respectively. The results of Vietnamese National Olympiads are provided as sample datasets `vno` and `vnomath`.

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Author(s)

Duy Nghia Pham <nghiapham@yandex.com>

df2idx

Compute GPIC for Multiple Groups

Description

`df2idx` computes the index based on the number of prizes that several groups obtained and the proportion of prizes in the pool.

Usage

```
df2idx(df, pool = NULL, type = NULL)
```

Arguments

df	a data frame with name of groups as the first column and number of prizes as remaining columns.
pool	a vector of prize counts or proportions from the pool.
type	the type of the above-mentioned pool, "n" for counts or "p" for proportions.

Value

df2idx returns a dataframe with name of groups as the first column and GPIC index as the second column.

Examples

```
df2idx(vnomath)
df2idx(vnomath, c(61, 477, 836, 1007), "n")
df2idx(vnomath, c(0.026, 0.200, 0.351, 0.423), "p")
```

n2p

Calculate Proportions

Description

n2p converts a vector of counts to a vector of proportions.

Usage

```
n2p(n)
```

Arguments

n	a vector of counts.
---	---------------------

Value

n2p returns a vector of proportions.

Examples

```
n2p(c(61, 477, 836, 1007))
```

vec2idx *Compute GPIC for Single Group*

Description

vec2idx computes the index based on the number of prizes that a group obtained and the proportion of prizes in the pool.

Usage

```
vec2idx(x, pool, type)
```

Arguments

x a vector of prize counts from a single group.
pool a vector of prize counts or proportions from the pool.
type the type of the above-mentioned pool, "n" for counts or "p" for proportions.

Value

vec2idx returns a numeric that is the GPIC index.

Examples

```
vec2idx(c(3, 19, 34, 22), c(61, 477, 836, 1007), "n")
vec2idx(c(3, 19, 34, 22), c(0.026, 0.200, 0.351, 0.423), "p")
```

vno *Results of Vietnamese National Olympiads 2010-2020*

Description

A dataset containing the information of more than 24,000 awarded students over 11 years.

Usage

```
vno
```

Format

A data frame with 24151 rows and 5 variables:

ID student ID
Year year of award
Team administrative contest team that delegated the student
Subject test subject
Prize award achieved

Source

doi: [10.5281/zenodo.3764691](https://doi.org/10.5281/zenodo.3764691)

vnomath

Results of Vietnamese Mathematical Olympiad 2010-2020

Description

A dataset containing the number of prizes in Mathematics over 11 years of administrative contest teams

Usage

vnomath

Format

A data frame with 68 rows and 5 variables:

Team administrative contest team

First number of First prizes

Second number of Second prizes

Third number of Third prizes

Consolation number of Consolation prizes

Source

doi: [10.5281/zenodo.3764691](https://doi.org/10.5281/zenodo.3764691)

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