Package: quickPWCR (via r-universe)

November 2, 2026

Type Package

Title Quickly construct and rate large binary pairwised comparisons

Version 1.0

Date 2024-04-23

Description A collection of functions for constructing large pairwised comparisons and rating them using Elo rating system with supporting parallel processing. The method of random sample pairs is based on Reservoir Sampling proposed by JVitter (1985) <doi:10.1145/3147.3165>.

License GPL-3

Encoding UTF-8

RoxygenNote 7.3.1

Language en_GB

LazyData true

Roxygen list(markdown = TRUE)

Suggests testthat (>= 3.0.0), knitr, rmarkdown

VignetteBuilder knitr, rmarkdown

Imports Rcpp, parallel, pbmcapply, dplyr

LinkingTo Rcpp

Repository https://billbillbilly.r-universe.dev

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m_elo *randompair*

Description

ramdonly pair players using reservoir sampling method.

Usage

```
m_elo(
  df_pw,
  wl,
  elo_randomisations = 500,
  initial_rating = 0,
  k = 100,
  cores = 1
)
```

Arguments

df_pw	dataframe, indicating a dataframe that includes the columns of winners and losers.
wl	vector, indicating the column names of winners and losers (c('w', 'l')). The first column name is for winners and the second column name is for losers.
elo_randomisations	numeric, indicating the number of interactions that the Elo rating system is run with the randomized pairwise comparisons
initial_rating	The initial rating of the players at the beginning
k	numeric, the K-factor determines the amount of change to the updated ratings
cores	numeric, indicating the number of CUP cores to be used for parallel processing

Value

dataframe

References

Glickman, M. E., & Jones, A. C. (1999). Rating the chess rating system. CHANCE-BERLIN THEN NEW YORK-, 12, 21-28.

Examples

```
df <- data.frame(a = c(1,6,0,4,'a','v',9,'n'), b = c('w',3,5,2,'d','j',8,'p'))
pw <- quickPWCR::m_elo(df_pw = df,
                       wl = c('a', 'b'),
                       elo_randomisations = 100,
                       initial_rating = 1000,
```

```
                    k = 100,
                    cores = 1)
```

`randompair` *randompair*

Description

ramdonly pair players using reservoir sampling method.

Usage

```
randompair(players, k, cores = 1)
```

Arguments

`players`	vector, indicating a list of players.
`k`	numeric, indicating how many players each player will be paired with.
`cores`	numeric, indicating the number of CUP cores to be used for parallel

Value

dataframe

References

JVitter, J. S. (1985). Random sampling with a reservoir. ACM Transactions on Mathematical Software (TOMS), 11(1), 37-57.

Examples

```
players <- c(1, 'a', 'c', 4, 7, 2, 'w', 'y', 3, 0, 8)
pw <- quickPWCR::randompair(players = players, k = 3)
```

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