Package 'unitedR'

August 31, 2015

Title unitedR- Assessment and Evaluation of formations in United

Version 0.1

Description This package helps to find the optimal formation for united.

Depends R (>= 3.1.2),
methods,
plyr

License GPL (>=2)

LazyData true

Collate 'simRedCard.R'
'getLineup.R'
'formation.R'
'penaltyGoalsProb.R'
'summary.R'
'unitedRPackage.R'
'unitedRoverview.R'
'unitedSimClass.R'
'unitedSimResults.R'
'unitedSimOne.R'
'unitedSim.R'

Suggests testthat,
knitr

VignetteBuilder knitr

R topics documented:

unitedR-package *United - Assessment and Evaluation*

Description

United - Assessment and Evaluation

Details

Package:	unitedR
Type:	Package
Version:	1.0
Date:	2014-12-18
License:	GPL (>= 2)
LazyLoad:	yes

This package provides functionality for the assessment of line ups and formations in United.

Author(s)

David Schindler <dv.schindler@gmail.com>, Markus Terhuerne <m.terhuerne@gmail.com>

References

Unkown

formation *Representing a formation*

Description

Represents a valid united formation.

Usage

```
formation(GK, SW, DF, MF, ST, hardness = c(0, 0, 0, 0, 0), homeAdv = c(0, 0,
  0, 0, 0))
```

Arguments

GK	integer for the strength goalkeeper
SW	vector for the strength of the sweeper, can be NA or a numeric
DF	numeric vector for the strengths of the players in the defense
MF	numeric vector for the strengths of the players in the midfield
ST	numeric vector of integers for the strenghts of the strikers
hardness	numeric vector of integers for the used hardness
homeAdv	home advantage

Value

S4 object of the class formation.

---

getLineup,formation-method *Lineup of a united formation*

Description

Generates a numeric vector which specifies the used united lineup

Usage

```
## S4 method for signature 'formation'
getLineup(obj)

getLineup(obj)
```

Arguments

obj	object of the class formation.

Value

vector of the used lineup

---

overview *Overview over the parameters used in the* unitedR *package*

Description

This list of parameters yields a comprehensive overview of the parameters used in the unitedR package.

Arguments

away	away team (an object of the S4class formation)
DF	numeric vector for the strengths of the players in the defense
formation	object of the S4class formation
GK	integer for the strength goalkeeper
hardness	numeric vector of integers for the used hardness
home	home team (an object of the S4class formation)
homeAdv	home advantage
MF	numeric vector for the strengths of the players in the midfield
penaltyGoalProb	probability of a goal by a singular penalty
posPenalties	number of possible penalties in a game

r	number of replications for the simulation of hardness and penalties
ST	numeric vector of integers for the strenghts of the strikers
SW	vector for the strength of the sweeper, can be NA or a numeric
x	a variable x.

`penaltyGoalsProb` *Computing goals by united*

Description

Computes the distribution function of possible goals by penalties.

Usage

```
penaltyGoalsProb(posPenalties, penaltyGoalProb)
```

Arguments

posPenalties	number of possible penalties in a game
penaltyGoalProb	probability of a goal by a singular penalty

Value

A data.frame with two columns: the possible goals and the probability for achieving this number of goals.

`simRedCard,formation,numeric-method` *Simulate red card(s)*

Description

Simulates red card(s) in the united and returns the adjusted lineup.

Usage

```
## S4 method for signature 'formation,numeric'
simRedCard(obj, lineup)

simRedCard(obj, lineup)
```

Arguments

obj	object of the class formation
lineup	lineup of the corresponding object obj

Value

vector of the adjusted lineup for the red card(s)

summary *Summary of assessments of a randomization procedure*

Description

Summary of assessments of a randomization procedure

Usage

```
summary(object, ...)

## S4 method for signature 'unitedSim'
summary(object)

## S4 method for signature 'unitedSimResults'
summary(object)
```

Arguments

object	object of class unitedSimResults
...	additional arguments affecting the summary that will be produced.

Value

data.frame with a summary of the assessed object.

unitedSim *Simulating a formation*

Description

Simulates a formation against another formations (several formations of away are possible).

Usage

```
unitedSim(home, ..., r)
```

Arguments

home	home team (an object of the S4class formation)
...	several objects of the class formation
r	number of replications for the simulation of hardness and penalties

Value

Creates an object of the unitedSim class.

Examples

```
home <- formation(10, NA, c(7,5,3), c(8,8), c(10,10,8))
away <- formation(5, 8, c(8,8), c(10,10), c(10,10,10),
 hardness = c(0,0,0,0,1))
set.seed(123)
unitedSim(home, away)
# can also be simualated
unitedSim(home, away, r = 100)
# several away lineups
unitedSim(home, away, away)
# several away lineups simulated
unitedSim(home, away, away, r = 100)
```

`unitedSimOne` *Simulating a formation*

Description

Simulates a formation against another formation.

Usage

```
unitedSimOne(home, away, r)
```

Arguments

`home`	home team (an object of the S4class `formation`)
`away`	away team (an object of the S4class `formation`)
`r`	number of replications for the simulation of hardness and penalties

Value

Creates an object of the `unitedSim` class.

Examples

```
home <- formation(10, NA, c(7,5,3), c(8,8), c(10,10,8))
away <- formation(5, 8, c(8,8), c(10,10), c(10,10,10),
 hardness = c(0,0,0,0,1))
set.seed(123)
unitedSimOne(home, away)
# you can even simulated the game
unitedSimOne(home, away, r = 100)
```

Index