# Package 'GamblR'

February 6, 2018

**Title** Gambling with R

**Version** 0.9

**Description** An R package for applying statistical methods common in gambling in an easy and reliable manner.

**Depends** R (>= 2.12)

**License** GPL (>= 3)

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 6.0.1.9000

## R topics documented:



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`ckelly` *Arbitage-like Kelly Criterion*

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### Description

Compare odds from multiple books with the Kelly Criterion

### Usage

```
ckelly(homeodds, awayodds, chomeodds, cawayodds,
  oddstype = default.GamblR.odds())
```

### Arguments

| | |
|---|---|
| homeodds | A vector of odds for the first team for book A |
| awayodds | A vector of odds for the second team for book A |
| chomeodds | A vector of odds for the first team for book B |
| cawayodds | A vector of odds for the second team for book B |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |

### Details

Uses the odds from book A to determine the win probabilites of team A or B and then gives the Kelly optimal bet for those same teams on book B. Useful for betting when trusted book updates quickly leaving other books with favourable odds.

### Value

A vector of bankroll fractions (for each individual bet)

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## convertodds *Convert odds*

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### Description

Convert between odd types

### Usage

```
convertodds(odds, from = default.GamblR.odds(), to = "decimal",
  round = TRUE)
```

### Arguments

| | |
|---|---|
| odds | A vector of odds in the "from" format |
| from | Odds to convert from |
| to | Odds to convert to |
| round | Round the result? (TRUE/FALSE) |

### Details

Can convert between implied probability (improb), decimal, american, fractional, hongkong, indonesian, and malay odd types

## Value

A vector of odds in the "to" format

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`espread` *Estimate spread*

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## Description

Estimate the effective odds for a different points spread

## Usage

```
espread(mlodds, spreadodds, oldspread = c(-3, 3), newspread = c(-3.5, 3.5),
  oddstype1 = default.GamblR.odds(), oddstype2 = default.GamblR.odds())
```

## Arguments

| | |
|---|---|
| `mlodds` | Moneyline odds (vector of length two) |
| `spreadodds` | Odds for the original spread (vector of length two) |
| `oldspread` | The original points spread |
| `newspread` | The 'new' spread to convert to |
| `oddstype1` | Format of original odds (e.g. decimal, see Convert odds) |
| `oddstype2` | Format of output odds (e.g. decimal, see Convert odds) |

## Details

Extrapolates what the effective odds for a new point spread would be based on the original spread and the money line odds. Useful for deciding if a tip is worth tailing when your book has a different spread.

## Value

A list containing containing the new effective odds and new points spread.

## hedge *Hedge Calculator*

### Description

Determine the best hedge bet to make

### Usage

```
hedge(initialbet, initialodds, hedgeodds, oddstype = default.GamblR.odds())
```

### Arguments

| | |
|---|---|
| initialbet | Initial bet amount |
| initialodds | Odds that initial bet was made at |
| hedgeodds | Odds of the prospective hedge (this may be able to take any length of input?) |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |

### Value

A list containing the hedge amount, the amount won if the initial bet wins, and the amount won if the hedge bet wins

## kelly *Kelly Criterion*

### Description

Kelly Criterion calculation

### Usage

```
kelly(p, odds, oddstype = default.GamblR.odds(), fraction = 1)
```

### Arguments

| | |
|---|---|
| p | A vector of event probabilites |
| odds | A vector of event odds |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |
| fraction | Bet fraction (for fractional Kelly) |

### Value

A vector of bankroll fractions (for each individual bet)

## kellymulti *Kelly-multi*

### Description

The workhorse for kellymulti2

### Usage

```
kellymulti(pmatrix, oddsmatrix, oddstype = default.GamblR.odds(),
  fraction = 1)
```

### Arguments

| | |
|---|---|
| pmatrix | A matrix of event probabilities |
| oddsmatrix | A matrix of event odds |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |
| fraction | Bet fraction (for fractional Kelly) |

### Value

A matrix containing bet fractions for each event

## kellymulti2 *Kelly Criterion for multiple simultaneous events/games*

### Description

Determine the bet fractions for multiple (uncorrelated) games/event occuring at the same time

### Usage

```
kellymulti2(probhome, oddhome, oddaway, probtie = NULL, oddtie = NULL,
  homenames = NULL, awaynames = NULL, oddstype = default.GamblR.odds(),
  fraction = 1, ou = FALSE)
```

### Arguments

| | |
|---|---|
| probhome | Probability for the home teams to win |
| oddhome | Odds for the home teams |
| oddaway | Odds for the away teams |
| probtie | Probability of ties (optional) |
| oddtie | Odds for ties (optional) |

| | |
|---|---|
| homenames | Names of the home teams |
| awaynames | Names of the away teams |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |
| fraction | Bet fraction (for fractional Kelly) |
| ou | Over/under bet? (TRUE/FALSE) |

## Value

A dataframe containing the matchup names along with the fractonal bet amount for the simultaneous Kelly Criterion

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`reversekelly` *Reverse Kelly Criterion*

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## Description

Reverse Kelly Criterion calculation

## Usage

```
reversekelly(oldodds, newodds, betpercent, oddstype1 = default.GamblR.odds(),
  oddstype2 = default.GamblR.odds())
```

## Arguments

| | |
|---|---|
| oldodds | Original odds |
| newodds | New odds |
| betpercent | Bet percentage "tipped" for the original odds |
| oddstype1 | Format of original odds (e.g. decimal, see Convert odds) |
| oddstype2 | Format of new odds (e.g. decimal, see Convert odds) |

## Details

Calculates the implied propability from a "tip" assuming it is Kelly optimal. Useful for tailing a tip when the odds at your book are different. (e.g. If 5% at $1.75 is Kelly optimal then 2% at $1.70 may also be so.

## Value

A list containing the Kelly optimal bet for the new odds, the implied probability of the 'tip', the old implied probability, the old edge, the new implied probability, and the new edge.

## rose *S Criterion*

### Description

Similar to the Kelly Criterion but for known standard deviation

### Usage

```
rose(b, p, sd, odds = "decimal")
```

### Arguments

| | |
|---|---|
| b | Vector of event odds |
| p | Vector of event probabilities |
| sd | Vector of event probability standard deviations |
| odds | Format of input odds (e.g. decimal, see Convert odds) |
| fraction | Bet fraction (for fractional Kelly) |

### Value

A list contaning the S optimal bet fraction, the Kelly optimal bet fraction, and the ratio of S to Kelly (for use with Simultaneous Kelly).

## winper *Determine win percentages*

### Description

Calculates the probablities each time will win along with the book's margin

### Usage

```
winper(odds, oddstype = default.GamblR.odds())
```

### Arguments

| | |
|---|---|
| odds | A vector of odds for a single event (e.g. win/loss, win/loss/tie) |
| oddstype | Format of input odds (e.g. decimal, see Convert odds) |

### Value

A list containing the implied probability for each event along with the book's margin

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