Package ‘RKelly’

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Type Package

Title Translate Odds and Probabilities

Version 1.0

Description Calculates the Kelly criterion (Kelly, J.L. (1956) <doi:10.1002/j.1538-7305.1956.tb03809.x>) for bets given quoted prices, model predictions and commissions. Additionally it contains helper functions to calculate the probabilities for wins and draws in multi-leg games.

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Encoding UTF-8

LazyData true

RoxygenNote 6.1.1

Suggests testthat, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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R topics documented:

chance_to_draw_n_games *Calculates the chance to draw out of n matches*

Description

Calculates the chance to draw out of n matches

Usage

```
chance_to_draw_n_games(p, n)
```

Arguments

p	probability of first (or second) player winning match
n	number of matches

Value

The decimal chance for a draw

Examples

```
chance_to_draw_n_games(0.4, 4) # Draw chance if one player has p=0.4 in four matches
```

chance_to_win_n_games *Calculate win chance after multiple matches*

Description

Chance of a player winning the majority of n matches. Draws count not as a win

Usage

```
chance_to_win_n_games(p, n)
```

Arguments

p	probability for player to win a single match
n	number of total matches playes

Value

The decimal chance of winning a game

Examples

```
chance_to_win_n_games(0.55,5) # Chance for player with p=0.55 to win best of 5 matches
```

`kelly_back_dec` *Kelly for back bet*

Description

Kelly for back bet

Usage

```
kelly_back_dec(price, p, commision_rate)
```

Arguments

`price`	Price to back in decimal odds
`p`	Probability of event to to materialise
`commision_rate`	Rate of commision charged on WINNINGS

Value

Kelly optimised fraction of stake relative to bank

Examples

```
kelly_back_dec(2,0.5,0.05)
```

`kelly_criterion` *The Kelly criterion*

Description

The Kelly criterion

Usage

```
kelly_criterion(p, alpha_w, alpha_l)
```

Arguments

`p`	The objective probability of the event
`alpha_w`	The return multiplier in case of the event happening
`alpha_l`	The return multiplier in case of the event not happening

Value

The Kelly optimised fraction of the bankroll that should be bet

References

Thorp, Edward O. (1997; revised 1998). The Kelly Criterion in Blackjack, Sports Betting, and the Stock Market. http://www.eecs.harvard.edu/cs286r/courses/fall12/papers/Thorpe_KellyCriterion2007.pdf

Examples

```
kelly_criterion(0.5,1,1)
```

`kelly_lay_dec` *Kelly for lay bet*

Description

Kelly for lay bet

Usage

```
kelly_lay_dec(price, p, commision_rate)
```

Arguments

`price`	Price at which to lay
`p`	Base probability of event that is being laid
`commision_rate`	Rate of commision charged on WINNINGS

Value

Kelly optimised fraction of stake relative to bank

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