The **betfair** package: An R implementation of the Betfair API

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Betfair

- Founded in 1999 by Andrew Black and Ed Wray.
- Sports betting, casino games, poker, and more recently, FX and CFD exchanges.
- Processes more than five million transactions every day.
- Three million betting exchange customers.

Betting APIs

Global sports exchange

- Real time market data feed and clearing house for: Horse racing, tennis, football (including American), basketball, and almost anything else you can bet on...

Games exchange

- Poker, casino games

Exchanges operate across globally distributed data centers.

The APIs are **free** to use! (higher-speed commercial versions are also available).

The `betfair` Package

Implements the sports exchange API in R (depends on `Rcurl`*).
The API defines R functions in two broad categories:

- Market data.
- User account (place/update/cancel/monitor bets).

All functions use the https protocol and closely follow the syntax of
the Betfair API documentation.

*`Rcurl` is available for Windows from
http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/2.13/.

Package Functions

Account-related

```
login logout keepAlive placeBets cancelBets
cancelBetsByMarket updateBets getBet
getCurrentBets getBetHistory
getMatchedandUnmatchedBets
getMarketProfitAndLoss getAccountFunds
getAccountStatement viewProfile
```

Data-related

```
convertCurrency getActiveEventTypes
getAllCurrencies getAllEventTypes getAllMarkets
getCompleteMarketPricesCompressed
getDetailAvailableMarketDepth getEvents
getInPlayMarkets getMarket getMarketInfo
getMarketPrices getMarketTradedVolume
getPrivateMarkets getSilks
```

Example Session

```
> library('betfair')
> login(username='******', password='********')
> getActiveEventTypes()[1:8,1:3]
       id                 name nextMarketId
   6423      American Football            0
   7511               Baseball            0
   7522             Basketball            0
 136332                  Chess            0
      4                Cricket            0
     11                Cycling            0
      3                   Golf            0
     13 Horse Racing - Todays Card   102707815
```

Market Info

```
> getMarketInfo(102707815)
$marketStatus
[1] "ACTIVE"
$marketSuspendTime
[1] "2011-04-27 18:43:00 GMT"
$numberOfRunners
[1] 9
$delay
[1] 0
$reconciled
[1] FALSE
$openForBspBetting
[1] "true"
```
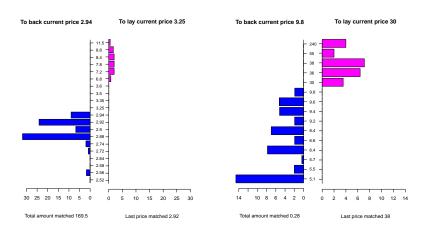
Market Info

```
> getMarket(102707815)$runners
           name selectionId
       Monslewn     5503082
    Destiny Joy     5503083
 Sweet Argument     5343101
          Dower     5503084
      Napa Love     5503085
    Eager Leader     4914430
     Vivs Tiara     5503086
Daiseysgoneagain     4656431
   Rebas Affair     5503087
   Mi Dulce Koko     5503088
```

Order Book

```
x = getCompleteMarketPricesCompressed(102707815)
plotPrice(x['5503084']);  plotPrice(x['4914430'])
```

Placing a Bet

```
bet = newBet(betType='B', marketId=102707815,
        price=2.9, selectionId=5503084, size=100)
b   = placeBets(bet)
```

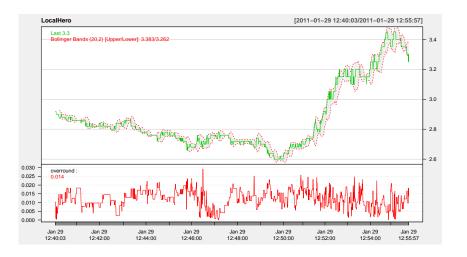Note that bets may be partially matched. Interrogate bet status with:

```
gb = getBet(b$betId)
gb$betStatus
[1] "M"

gb$avgPrice
[1] 2.90
```

Simple Time Series Example

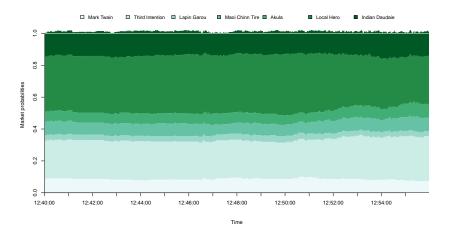Many R packages for quantitative finance apply to saved exchange data.

Betfair does not (yet) provide a historic data API. We saved the matched back prices every second for a race at Cheltenham in this example:

```
library(quantmod)
load('chelt.rdata')
LocalHero = bp1[,"Local Hero"]
chartSeries(LocalHero, theme=chartTheme('white'))
overround = as.xts(rowSums(1/bp1) - 1,
            order.by=index(bp1))
addTA(overround, col=2)
addBBands()
```

Back Price for a Runner and Market Overround

Market Probabilities to Win Prior to Race
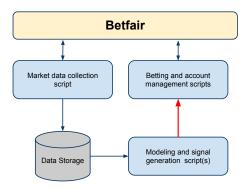
`plotProbs(bp1)`

Market Fundamentals Data

The Betfair API `getSilks` function provides basic ancillary data for horse racing including age, breed, weight, days since last run, trainer, and jockey.

Colin and I also provide cheap subscription access to years of detailed historic market and fundamentals horse racing data, updated daily at:

http://www.betwise.co.uk/smartform

An Example R-based Automated Trading Platform

- Three sets of independent R scripts.
- Signals published via new Redis Publish/Subscribe or Websockets.
- Betting scripts run locally by users.

Lots of Opportunity for Quantitative Methods

Gambling and mathematics have a long mutual history. The ability to analyze and act on high-frequency real time betting markets is relatively new and pretty interesting.

- Bias detection and classification (favorite/longshot bias).
- Arbitrage detection.
- Handicapping models.
- Estimating optimal bet allocation.
- Backtesting and simulation.
- Time series analysis.

On Deck

- This will be on CRAN and http://www.betwise.co.uk soon.
- Games exchange REST API (a poke**R** bot perhaps?).

USA residents: Please, write your Congressman and demand legalization of Internet gambling in the United States.