Package: rankPlayedInference (via r-universe)

May 11, 2026

Version 1.0

Date 2026-05-05

Title Conditional Probability Distributions in Hearts Card Game

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Depends R (>= 4.2.0)

Imports grDevices, graphics

Description For a given suit, if you add up the number of cards that you hold, plus the number that has been played so far, you can easily determine the number that remains in the combined hands of your three opponents. You can also determine the (``special'') card of highest rank of the remaining cards for that suit. At some point, you notice that a certain opponent discards that special card. What can you infer about his holding in that suit? A series of simulation studies are reported here that allows a quantitative inference based on the conditional probability, given that the opponent has the special card. The same procedure is also used for the conditional probability, given that the opponent does not have the special card.

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Encoding UTF-8

VignetteBuilder knitr

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

RoxygenNote 7.3.3

Config/testthat/edition 3

NeedsCompilation no

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

Date/Publication 2026-05-11 20:09:35 UTC

RemoteUrl https://github.com/cran/rankPlayedInference

RemoteRef HEAD

RemoteSha aad78d28cc842902ef24117477be6bc5863ddd31

Contents

`bins` *bins*

Description

Randomly assign each object (card rank) to one of three bins (player hand)

Usage

```
bins(ranks, nbins = 3)
```

Arguments

`ranks`	integer vector like 1:n
`nbins`	integer number of player hands = 3

Details

this algorithm was found in the "AI Overview" of a google search that did not provide a specific reference

Value

returns the bins (player hand) resulting from random simulations

Examples

```
ranks<-1:5
b<-bins(ranks)

b<-bins(1:5)
```

freqDistPlot *freqDistPlot*

Description

plot some histograms

Usage

```
freqDistPlot(l2, n, dir = tempdir())
```

Arguments

l2	return value of probDist()
n	integer number of cards
dir	character string path name for png output file

Value

returns no values but has side effect of plotting some histograms

probDist *probDist*

Description

compute the histograms based on the results of the simulation studies

Usage

```
probDist(l, rank)
```

Arguments

l	return value of rankPlayedInference()
rank	integer designated rank usually the highest value among rank vector

Value

returns a list of histograms

Examples

```
l<-rankPlayedInference(1:5,10)
l2<-probDist(l,5)
```

`rankPlayedInference` *rankPlayedInference*

Description

organize the results of the simulation studies

Usage

```
rankPlayedInference(ranks, niter = 1000)
```

Arguments

`ranks`	integer vector e.g. 1:n
`niter`	integer number of iterations

Value

returns a list whose components are return values of bins()

Examples

```
l<-rankPlayedInference(1:5,10)
```

`rankPlayedInferenceDriver` *rankPlayedInferenceDriver*

Description

driver to invoke rankPlayedInference(), probDist(), and freqDistPlot()

Usage

```
rankPlayedInferenceDriver(niter = 1000, dir)
```

Arguments

`niter`	integer number of iterations
`dir`	param passed to freqDistPlot()

Value

returns the return value of probDist()

Examples

```
dir<-tempdir()
print(sprintf("Output directory for png images is %s",dir))
l2<-rankPlayedInferenceDriver(10,dir)
```

Index