Package: evenBreak (via r-universe)

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Version 1.0

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Title A Posteriori Probs of Suits Breaking Evenly Across Four Hands

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Depends R (>= 4.2.0)

Imports combinat, graphics, stats, utils

Description We quantitatively evaluated the assertion that says if one
suit is found to be evenly distributed among the 4 players, the
rest of the suits are more likely to be evenly distributed. Our
mathematical analyses show that, if one suit is found to be
evenly distributed, then a second suit has a slightly elevated
probability (ranging between 10% to 15%) of being evenly
distributed. If two suits are found to be evenly distributed,
then a third suit has a substantially elevated probability
(ranging between 30% to 50%) of being evenly distributed.This
package refers to methods and authentic data from Ely
Culbertson <https://www.bridgebum.com/law_of_symmetry.php>,
Gregory Stoll
<https://gregstoll.com/~gregstoll/bridge/math.html>, and
details of performing the probability calculations from Jeremy
L. Martin
<https://jlmartin.ku.edu/~jlmartin/bridge/basics.pdf>, Emile
Borel and Andre Cheron (1954) ``The Mathematical Theory of
Bridge'',Antonio Vivaldi and Gianni Barracho (2001, ISBN:0 7134
8663 5) ``Probabilities and Alternatives in Bridge'', Ken
Monzingo (2005) ``Hand and Suit Patterns''
<http://web2.acbl.org/documentlibrary/teachers/celebritylessons/
handpatternsrevised.pdf>Ken
Monzingo (2005) ``Hand and Suit Patterns''
<http://web2.acbl.org/documentlibrary/teachers/celebritylessons/
handpatternsrevised.pdf>.

License GPL (>= 2)

Encoding UTF-8

VignetteBuilder knitr

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

RoxygenNote 7.3.1

Config/testthat/edition 3

NeedsCompilation no

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

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

RemoteRef HEAD

RemoteSha 1d9e8e1633b933d066579bc25a5c7b381e0841a6

Contents

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compareProbs   *compareProbs*

Description

organizes invoking evenBreakDriver() for 4 deck sizes, and presenting the results in a table and in a graph scatter plot of 2 sets of distribution probabilities

Usage

```
compareProbs(verbose)
```

Arguments

verbose   Boolean if TRUE print output data

Value

returns no value, but has side effects of printing a table and a graph of the probability of a given distribution of a single suit across 4 hands, conditioned on the number of suits that are known to be evenly distributed.

Author(s)

Barry Zeeberg

Examples

```
compareProbs()
```

---

evenBreak	*evenBreak*

Description

compute the probability of a given distribution of a single suit across 4 hands

Usage

```
evenBreak(D4,n1,n2,n3,PERM)
```

Arguments

D4	one quarter of the size of the deck, normally = 13
n1	the number of cards in the suit in the hands of player 1
n2	the number of cards in the suit in the hands of player 2
n3	the number of cards in the suit in the hands of player 3
PERM	the number of permutations

Value

returns the probability of a given distribution of a single suit across 4 hands

Author(s)

Barry Zeeberg

Examples

```
n1<-3
n2<-3
n3<-3
n4<-13-(n1+n2+n3)
PERM<-length(unique(combinat::permn(c(n1,n2,n3,n4))))
PERM
evenBreak(13,n1,n2,n3,1)*length(unique(combinat::permn(c(n1,n2,n3,n4))))
```

evenBreakDriver *evenBreakDriver*

Description

loop through all possible distributions of a single suit across 4 hands

Usage

```
evenBreakDriver(D4)
```

Arguments

D4   one quarter of the size of the deck, normally = 13

Value

returns a table of the probability of a given distribution of a single suit across 4 hands, conditioned on the number of suits that are known to be evenly distributed.

Author(s)

Barry Zeeberg

Examples

```
evenBreakDriver(13)
```

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