

Package ‘poibin’

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Type Package

Title The Poisson Binomial Distribution

Version 1.3

Date 2018-05-16

Author Yili Hong

Maintainer Yili Hong <yilihong@vt.edu>

Description Implementation of both the exact and approximation methods for computing the cdf of the Poisson binomial distribution. It also provides the pmf, quantile function, and random number generation for the Poisson binomial distribution.

License GPL-2

LazyLoad yes

NeedsCompilation yes

Repository CRAN

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poibin-package	<i>The Poisson Binomial Distribution</i>
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Description

Implementation of both the exact and approximation methods for computing the cdf of the Poisson binomial distribution. It also provides the pmf, quantile function, and random number generation for the Poisson binomial distribution.

Details

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ppoibin	The Poisson Binomial Distribution.

Author(s)

Yili Hong

Maintainer: Yili Hong <yilihong@vt.edu>

References

Hong, Y. (2013). On computing the distribution function for the Poisson binomial distribution. *Computational Statistics & Data Analysis*, Vol. 59, pp. 41-51.

Examples

```

kk=0:10
pp=c(.1,.2,.3,.4,.5)
ppoibin(kk=kk, pp=pp, method = "DFT-CF",wts=rep(2,5))
ppoibin(kk=kk, pp=pp, method = "RF",wts=rep(2,5))
ppoibin(kk=kk, pp=pp, method = "RNA",wts=rep(2,5))
ppoibin(kk=kk, pp=pp, method = "NA",wts=rep(2,5))
dpoibin(kk=kk, pp=pp,wts=rep(2,5))
qpoibin(qq=0:10/10,pp=pp,wts=rep(2,5))
rpoibin(m=2,pp=pp,wts=rep(2,5))
  
```

poibin

The Poisson Binomial Distribution.

Description

The cdf, pmf, quantile function, and random number generation for the Poisson binomial distribution.

Usage

```

ppoibin(kk, pp, method = "DFT-CF", wts=NULL)
dpoibin(kk, pp, wts=NULL)
qpoibin(qq, pp, wts=NULL)
rpoibin(m, pp, wts=NULL)

```

Arguments

kk	The values where the cdf or pmf to be evaluated.
pp	The vector for p_j 's which are the success probabilities for indicators.
method	"DFT-CF" for the DFT-CF method, "RF" for the recursive formula, "RNA" for the refined normal approximation, "NA" for the normal approximation.
wts	The weights for p_j 's.
qq	The values where the quantile function to be evaluated.
m	The number of random numbers to be generated.

Details

See the reference for computational details.

Value

Returns the entire cdf, pmf, quantiles, and random numbers.

Author(s)

Yili Hong

References

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dpoibin(kk=kk, pp=pp, wts=rep(2,5))
qpoibin(qq=0:10/10, pp=pp, wts=rep(2,5))
rpoibin(m=2, pp=pp, wts=rep(2,5))

```

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