Package 'minimax'

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Type Package

Title The Minimax Distribution Family

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Description The minimax family of distributions is a two-parameter family like the beta family, but computationally a lot more tractible.

Imports stats

License GPL-2 | GPL-3

LazyLoad yes

NeedsCompilation no

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Contents

`minimax-package` *Minimax distribution family*

Description

Standard functions to calculate probabilities, densities and quantiles for the minimax family, and to generate pseudo-random values.

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References

See this document for a detailed discussion.

See Also

punif, pbeta.

Examples

```
p <- pminimax(0:10/10, 1:5, 2)
q <- qminimax(p, 1:5, 2)
(d <- dminimax(matrix(0.5, 2, 2), 1:4, 2:3))

set.seed(123)
r <- rminimax(letters, 2, 3)
```

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minimax *Minimax distribution family*

Description

Four short functions to provide density, cumulative probability, quantile and random generation computational facilities for the minimax family of distributions.

Usage

```
dminimax(x, a = 1, b = 1, log = FALSE)
pminimax(x, a = 1, b = 1)
qminimax(y, a = 1, b = 1)
rminimax(n, a = 1, b = 1)
```

Arguments

x	Numeric vector giving the values at which the densities or cumulative probabilities are to be calculated.
y	Numeric vector giving the values at which the quantiles are to be calculated. Values must be between 0 and 1.
n	The number of pseudo-random values to be generated. If length(n) = 1, it must be a non-negative number; if length(n) > 1, the value for n is taken to be length(n).
a, b	Numeric vectors giving the parameters of the distribution. Values must be positive.
log	Logical scalar. Should the log-density be returned rather than the density itself?

Details

The minimax family distributions is a two-parameter with support [0,1]. It has properties very like the beta family, though is computationally much more tractible. Both beta and minimax families have the uniform(0,1) distribution as a special case. For the minimax family, this is the default case.

This package provides the standard four functions for handling the distribution in `R` using the standard prefix naming convention.

The functions are vectorized with respect to the arguments `x`, `y`, `a`, and `b`, with short arguments recycled to match the length of any longer ones.

Value

A vector of density, probability, quantile or pseudo-random values, respectively. Shape and name attributes of the first argument are preserved in the result.

Note

The functions are all written in pure `R` code.

Author(s)

Bill Venables

References

See this document for a detailed discussion.

See Also

`punif`, `pbeta`.

Examples

```
p <- pminimax(0:10/10, 1:5, 2)
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