Package ‘ipfp’

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Type Package
Title Fast Implementation of the Iterative Proportional Fitting Procedure in C
Version 1.0.2
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Description A fast (C) implementation of the iterative proportional fitting procedure.
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LazyLoad yes
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RoxygenNote 7.1.2
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R topics documented:

ipfp .......................................................... 1

Index 3

<table>
<thead>
<tr>
<th>ipfp</th>
<th>Function to run IPFP (iterative proportional fitting procedure)</th>
</tr>
</thead>
</table>

Description

Use IPFP starting from x0 to produce vector x s.t. Ax = y within tolerance. Need to ensure that x0 > 0.
Usage

ipfp(
  y,
  A,
  x0,
  tol = sqrt(.Machine$double.eps),
  maxit = 1000,
  verbose = FALSE,
  full = FALSE
)

Arguments

  y numeric constraint vector (length nrow)
  A constraint matrix (nrow x ncol)
  x0 numeric initial vector (length ncol)
  tol numeric tolerance for IPFP; defaults to sqrt(.Machine$double.eps)
  maxit integer maximum number of iterations for IPFP; defaults to 1e3
  verbose logical parameter to select verbose output from C function
  full logical parameter to select full return (with diagnostic info)

Value

  if not full, a vector of length ncol containing solution obtained by IPFP. If full, a list containing solution (as x), the number of iterations (as iter), and the L2 norm of Ax - y (as errNorm)

Examples

A <- matrix(c(1,0,0, 1,0,0, 0,1,0, 0,1,0, 0,0,1), nrow=3)
x <- rgamma(ncol(A), 10, 1/100)
y <- A %*% x
x0 <- x * rgamma(length(x), 10, 10)
ans <- ipfp(y, A, x0, full=TRUE)
print(ans)
print(x)
Index

* array
  ipfp. 1
* iteration
  ipfp. 1

ipfp. 1