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anova.power {AMC}
R Documentation

                                Monte Carlo ANOVA power analysis
Description:

This function calculates the power (1-p(error type II)) of an ANOVA made by
Monte Carlo methods.

Usage:

anova.power(dados,N,n,p.c=.05)

Arguments:

dados  data.frame with the data.
N      number of times the Monte Carlo test is performed.
n      number of times randomization is performed in each Monte Carlo test.
p.c    critical value of α (error type I probability).

Details:

Data input must be an object of class data.frame in which the first column
must be a random factor (block), the
second and third columns must be the two factors of interest and the fourth
column must be the
response variable.
The columns names must be "bloco","A","B" and "resp".
The factors being tested must be dummy variables in the form of 0 (presence)
or 1 (absence) and the
blocks, which is not going to be tested, must be represented by an integer,
ranging from 1 untill "nb"
(the total number of blocks).

Value:

The function returns the probability, in percentage, of detecting a
treatment effect when it is assumed
that it exists for each of the two factors and also for the interaction
between then.
The factors are called "A" and "B", for the factors on the second and third
columns of input data.frame,
respectively; the interaction between these two factors is called "A.B".

Warning:
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The power analysis is made upon simulated data assuming that the differences
among treatments and the
controls are not random.
Ellapsed time untill result is given may take too long depending on "N" and
on "n" combined.

Note:

This analysis is not recommended to be done a posteriori.
It should be done before doing the experiment so one can choice a better
number of replicates, blocks etc.

Author(s):

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References:

Gotelli, N. J. and Ellison, A. M. (2004) A primer of ecological statistics.
Sinauer Associates.
Manly, B. F. J. (2007) Randomization, bootstrap and Monte Carlo methods in
Biology. (3rd ed.)
Chapman & Hall/CRC.

See also:

data.gen to create random data conformed with the randomized block design
involving two factors.
anova.MC to do a Monte Carlo test the effects of two factor from randomized
block designs.
anova.graphs for nice graphics of two-factor factorial experiments.

Examples:

dados=data.gen(10,50,8,3,12,15,5)
anova.power(dados,10,99)
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