Package ‘FrF2.catlg128’

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Title Catalogues of resolution IV 128 run 2-level fractional
factorials up to 33 factors that do have 5-letter words

Version 1.2-1

Depends R(>= 2.13.0), FrF2(>= 1.4)

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Description This package provides catalogues of resolution IV regular
fractional factorial designs in 128 runs for up to 33 2-level
factors. The catalogues are complete, excluding resolution IV
designs without 5-letter words, because these do not add value
for a search for clear designs. The previous package version
1.0 with complete catalogues up to 24 runs (24 runs and a
namespace added later) can be downloaded from the authors
website.

License GPL (>= 2)

LazyLoad yes

LazyData yes

Encoding latin1

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     http://prof.beuth-hochschule.de/groemping/

NeedsCompilation no

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R topics documented:

FrF2.catlg128-package .................................................. 2
Catalogues ................................................................. 3

Index .......................... 5
Description

Description: This package provides the complete catalogues of those resolution IV regular fractional factorial designs in 128 runs for up to 33 2-level factors that do have length 5 words (i.e. are not even). For 8 to 11 factors, the best design (resolution higher than IV, i.e. all two-factor interactions are clear) is included only.

Details

The complete set of designs on which these catalogues are based has been provided by Xu (2009) for up to 25 factors and by Mee (2012) for 26 to 33 factors. The designs provided in this package are useful for special tasks to be accomplished with package FrF2. The catalogues are separately provided here, because they are very large and should not be forced upon FrF2 users who do not need them.

The main reason for providing the catalogues is to support estimability requirements for clear two-factor interactions in package FrF2. According to Wu, Mee and Tang (2012), resolution IV designs with no 5-letter words do not add value (there is always a better design that can accomodate the same clear two-factor interactions). Therefore, starting with version 1.1, resolution IV designs without 5-letter words have been omitted from the catalogues, and the title of the package has been changed accordingly, from the previous "Complete catalogues of resolution IV 128 run 2-level fractional factorials up to 24 factors". The previously available complete catalogues of designs can be downloaded from the author’s website. Designs for 25 to 33 factors have been added with version 1.2 of the package.

Author(s)

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References


See Also

Catalogues
Catalogues of regular 128 run designs of various factor numbers

Description

Catalogues of regular 128 run designs of various factor numbers

Usage

catlg128.8to15
catlg128.16
catlg128.17
catlg128.18
catlg128.19
catlg128.20
catlg128.21
catlg128.22
catlg128.23
catlg128.24
catlg128.25
catlg128.26to33

details

The files contain catalogues for regular fractional factorial designs in 128 runs; the numbers after
the period indicate the number(s) of factors covered by the respective catalogue. All the catalogues
are lists of class catlg. They are provided in support of package FrF2.

Their main intention is to support automatic search of clear designs with options estimable and
clear=TRUE in function FrF2. For this purpose, in principle, a complete catalogue of resolution
IV designs in 128 runs would be needed. The catalogues come from Xu (2009; supplement on
his website up to 25 factors) or Mee (2012, personal communication) and have been enriched by
information on clear interactions (entry clear.2fis for each element).

Wu, Mee and Tang (2012) proved that one need not consider designs with no 5-letter words, as
they are always dominated by a better design that can clearly accommodate the same two-factor
interactions. Therefore, as of version 1.1 of this package, the resolution IV designs in the catalogues
have been reduced to those that do have 5-letter words. For the search for clear designs, it even
suffices to search dominating designs only. These are identified by the dominating element of each
catalogue entry. The previous complete catalogues of designs can be downloaded from the author’s
website. Catalogues for 25 to 33 factors have been made available with version 1.2 of the package.

If one of these catalogues is used in the select.catlg option of function FrF2, the function is
guaranteed to find the best clear design in 128 runs for the requested number of factors, when used
with its option estimable.

For earlier versions of the package, the catalogues had to be loaded with a data() command. This
is no longer required, and not even supported; the catalogues are now lazy loaded, i.e. they will be
automatically loaded on first use.
Author(s)

Ulrike Groemping

References


See Also

See Also FrF2, catlg

Examples

catlg128.8to15[1:5]

## example of using a catalogue from this package with function FrF2
## the design in the example will also be found with the default catalogue
## because arrays for all compromise plans with up to 24 factors
## have been added to catlg with FrF2 version 1.1-1
## from package FrF2 1.6-5 onwards, package FrF2.catlg128 need not be loaded
## for the code below to work
## Not run:
plan <- FrF2(128, 23, estimable=compromise(23,1:2)$requirement, select.catlg=catlg128.23)
summary(plan)
length(catlg128.23)

## End(Not run)
Index

*Topic array
  Catalogues, 3
  FrF2.catlg128-package, 2

*Topic design
  Catalogues, 3
  FrF2.catlg128-package, 2

Catalogues, 2, 3
  catlg, 3, 4
    catlg128.16 (Catalogues), 3
    catlg128.17 (Catalogues), 3
    catlg128.18 (Catalogues), 3
    catlg128.19 (Catalogues), 3
    catlg128.20 (Catalogues), 3
    catlg128.21 (Catalogues), 3
    catlg128.22 (Catalogues), 3
    catlg128.23 (Catalogues), 3
    catlg128.24 (Catalogues), 3
    catlg128.25 (Catalogues), 3
    catlg128.26to33 (Catalogues), 3
    catlg128.8to15 (Catalogues), 3

FrF2, 2–4
  FrF2.catlg128 (FrF2.catlg128-package), 2
  FrF2.catlg128-package, 2