Package 'FMC'

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Type Package

Title Factorial Experiments with Minimum Level Changes

Version 1.0.1

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Description Generate cost effective minimally changed run sequences
for symmetrical as well as asymmetrical factorial
designs.

Imports minimalRSD

License GPL (>= 2)

RoxygenNote 7.1.2

NeedsCompilation no

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FMC	*FMC: A package for constructing minimallly changed run sequences in factorial experiments*

Description

The FMC package can be used to construct run sequences with minimum changes in factor levels. Experimenter can save time and resources by minimizing the number of changes in levels of individual facor and therefore the total number of changes. The package provides the function minimal.factorial and gen.level. This technique can be employed to any symmetric or asymmetric factorial combination.

Details

In Design of Experiments (DOE) theory, levels of a factor can be represented as integers e.g. -1 for low, 0 for medium and 1 for high. This representation helps in studying factors with high number of levels. The function "gen.level()" provides the same representation for any factor with given number of total levels. User is expected to enter a vector of total number of levels for each factor to be considered in the experiment. Function "minimal.factorial()" provides the required run sequences for the input vector of level totals. The output also gives the number of changes of each factor along with total number of changes in the run sequence.

FMC functions

gen.level: Generate integers representing the levels of a factor.
minimal.factorial: Generate minimally changed runs for asymmetric and symmetric factorial combinations..

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References

Arpan Bhowmik, Eldho Varghese, Seema Jaggi and Cini Varghese(2016).Minimally changed run sequences in factorial experiments. Communications in Statistics - Theory and Methods, DOI: 10.1080/03610926.2016.1152490.
Arpan Bhowmik, Eldho Varghese, Seema Jaggi and Cini Varghese (2015). Factorial Experiments with Minimum Changes in Run Sequences. Journal of the Indian Society of Agricultural Statistics. 69(3), 243-255.

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gen.level *Generate Levels*

Description

Generate coded integers for given total number of levels of a factor.

Usage

```
gen.level(x)
```

Arguments

x   An integer greater than or equal to 2.

Value

a vector of integers as coded levels for a factor with total number of levels as x.

Examples

```
# To generate 5 levels for a factor
gen.level(5)
```

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minimal.factorial *Minimally Changed Run Sequences*

Description

Generate minimally changed run sequences for a given asymmetrical or symmetrical factorial design.

Usage

```
minimal.factorial(z)
```

Arguments

z   A vector of size 2 with entries integers greater than 1.

Value

returns minimally changed run sequences for given factorial setting as v.

Examples

```
#' ## make a vector of factor levels
z <- c(2,3,4)
# To generate minimmaly changed run sequence
minimal.factorial(z)
```

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