Package ‘mxkssd’

February 20, 2015

Version 1.1

Date 2011-08-05

Title Efficient mixed-level k-circulant supersaturated designs

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Depends R(>= 2.13.0)

Description mxkssd is a package that generates efficient balanced mixed-level k-circulant supersaturated designs by interchanging the elements of the generator vector. The package tries to generate a supersaturated design that has EfNOD efficiency more than user specified efficiency level (mef). The package also displays the progress of generation of an efficient mixed-level k-circulant design through a progress bar. The progress of 100 per cent means that one full round of interchange is completed. More than one full round (typically 4-5 rounds) of interchange may be required for larger designs.

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Repository CRAN

Date/Publication 2011-08-08 05:42:20

NeedsCompilation no

R topics documented:

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Description

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Usage

mxkssd(m,n,level_vec,k,mef)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>number of factors</td>
</tr>
<tr>
<td>n</td>
<td>number of runs</td>
</tr>
<tr>
<td>level_vec</td>
<td>level vector containing the levels of the factors such that (n-1) factors have each of these levels</td>
</tr>
<tr>
<td>k</td>
<td>order of circulation</td>
</tr>
<tr>
<td>mef</td>
<td>minimum efficiency required, should be between 0 to 1</td>
</tr>
</tbody>
</table>

Value

A list containing following items

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>number of factors</td>
</tr>
<tr>
<td>n</td>
<td>number of runs</td>
</tr>
<tr>
<td>level_vec</td>
<td>level vector containing the levels of the factors such that (n-1) factors have each of these levels</td>
</tr>
<tr>
<td>k</td>
<td>order of circulation</td>
</tr>
<tr>
<td>generator.vector</td>
<td>generator vector</td>
</tr>
<tr>
<td>design</td>
<td>design</td>
</tr>
<tr>
<td>EfNOD.efficiency</td>
<td>EfNOD efficiency</td>
</tr>
<tr>
<td>max.fNOD</td>
<td>maximum fNOD</td>
</tr>
<tr>
<td>time.taken</td>
<td>time taken to generate the design</td>
</tr>
<tr>
<td>number.aliased.pairs</td>
<td>number of aliased pairs of columns</td>
</tr>
</tbody>
</table>
Author(s)
B N Mandal

References

Examples
```r
#To generate an efficient mixed level 2-circulant supersaturated design
#with 8 runs and 14 factors such that 7 factors have number of levels 2 and
#another 7 factors have number of levels 4. So the level_vec is c(2,4).
#The required minimum efficiency is 1.
mxkssd(14,8,c(2,4),2,1)
```
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