Package 'ispd'

July 22, 2025

Version 0.2

Date 2019-08-13

Title Incomplete Split-Plot Designs

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Depends R (>= 3.5.0)

Imports ibd

Description A collection of several functions related to construction and analysis of incomplete split-plot designs. The package contains functions to obtain and analyze incomplete split-plot designs for three kinds of situations namely (i) when blocks are complete with respect to main plot treatments and main plots are incomplete with respect to subplot treatments, (ii) when blocks are incomplete with respect to main plot treatments and main plots are complete with respect to subplot treatments and (iii) when blocks are incomplete with respect to main plot treatments and main plots are incomplete with respect to subplot treatments.

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NeedsCompilation no

Repository CRAN

Date/Publication 2019-08-19 10:20:03 UTC

Contents

aov.ispd *Analysis of variance of data from an incomplete split-plot design*

Description

This function performs analysis of variance of data from experiments using an incomplete split-plot design for three types of situations namely (i) blocks are complete with respect to main plot treatments and mainplots are incomplete with respect to subplot treatments, (ii) blocks are incomplete with respect to main plot treatments and mainplots are complete with respect to subplot treatments and (iii) blocks are incomplete with respect to main plot treatments and mainplots are also incomplete with respect to subplot treatments.

Usage

```
aov.ispd(obs, block, mp, sp, y, incomplete.block = FALSE, incomplete.mp = TRUE)
```

Arguments

obs	observation numbers
block	block
mp	main plot treatment
sp	subplot treatment
y	response variable
incomplete.block	Are blocks incomplete? Default is FALSE
incomplete.mp	Are main plots incomplete? Default is TRUE

Value

Returns ANOVA table of incomplete split-plot design

Author(s)

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Examples

```
data(cmis)
with(cmis, aov.ispd(obs, block, mp, sp, y, incomplete.block = FALSE, incomplete.mp = TRUE))
data(imcs)
with(imcs, aov.ispd(obs, block, mp, sp, y, incomplete.block = TRUE, incomplete.mp = FALSE))
data(imis)
with(imis, aov.ispd(obs, block, mp, sp, y, incomplete.block = TRUE, incomplete.mp = TRUE))
```

cmis *Data from an experiment using incomplete split-plot design*

Description

Data from an experiment using incomplete split-plot design where blocks are complete with respect to main plot treatments and main plots are incomplete with respect to subplot treatments

Usage

```
data("cmis")
```

Format

A data frame with 36 observations on the following 5 variables.

`obs` Observations

`block` Blocks

`mp` Main plot treatments

`sp` Subplot treatments

`y` The response variable

Examples

```
data(cmis)
```

imcs *Data from an experiment using incomplete split-plot design*

Description

Data from an experiment using incomplete split-plot design where blocks are incomplete with respect to main plot treatments and main plots are complete with respect to subplot treatments

Usage

```
data("imcs")
```

Format

A data frame with 18 observations on the following 5 variables.

`obs` Observations

`block` Blocks

`mp` Main plot treatments

`sp` Subplot treatments

`y` The response variable

Examples

```
data(imcs)
```

`imis` *Data from an experiment using incomplete split-plot design*

Description

Data from an experiment using incomplete split-plot design where blocks are incomplete with respect to main plot treatments and main plots are also incomplete with respect to subplot treatments

Usage

```
data("imis")
```

Format

A data frame with 36 observations on the following 5 variables.

`obs` Observations

`block` Blocks

`mp` Main plot treatments

`sp` Subplot treatments

`y` The response variable

Examples

```
data(imis)
```

`ispd` *Incomplete split-plot design for given number of blocks, number of main plot treatments, number of subplot treatments, number of main plot treatments in blocks and / or number of subplot treatments in main plots*

Description

This function generates an incomplete split-plot design with given number of main plot treatments(v1), number of subplot treatments (v2), number of blocks(b) and block size(k). The incomplete split-plot design may be one of the three kinds: (i) blocks are complete with respect to main plot treatments and mainplots are incomplete with respect to subplot treatments, (ii) blocks are incomplete with respect to main plot treatments and mainplots are complete with respect to subplot treatments and (iii) blocks are incomplete with respect to main plot treatments and mainplots are also incomplete with respect to subplot treatments.

Usage

```
ispd(v1,v2,b,k1 = NULL,k2 = NULL)
```

Arguments

v1	number of main plot treatments
v2	number of subplot treatments
b	number of blocks
k1	number of main plot treatments in each block. If k1 is not specified, it is assumed that k1 = v1
k2	number of subplot treatments in each main plot. If k2 is not specified, it is assumed that k2 = v2

Value

A list containing parameters, design layout and column layout of design

Author(s)

Baidya Nath Mandal <mandal.stat@gmail.com>

Examples

```
ispd(v1 = 3, v2 = 4, b = 3, k1 = 2)
ispd(v1 = 3, v2 = 3, b = 3, k2 = 2)
ispd(v1 = 4, b = 6, k1 = 2, v2 = 3, k2 = 2)
```

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