Package ‘pbbd’

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Title Position Balanced and Nearly Position Balanced Block Designs
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Depends R (>= 4.1.0)
Imports ibd (>= 1.5)
Description Generates a position balanced or nearly position balanced block design with given parameters. This package can also convert a given proper and equireplicate block design into a position balanced or nearly position balanced block design.
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NeedsCompilation no
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balancify  

**Position balanced and nearly position balanced block design**

**Description**

This function generates a position balanced or nearly position balanced block design from a given equireplicate and proper block design.

**Usage**

`balancify(d1)`

**Arguments**

- **d1**
  
  Block design specified in the form of a b x k matrix with elements labelled as 1 to v where b is number of blocks, k is block size and v is number of treatments.

**Value**

- **design**
  
  (Nearly) position balanced block design

- **p**
  
  Treatment by Position incidence matrix

**Note**

Input design should be equireplicate that is, each treatment should have equal replications. Block sizes should be same for each block. For any issue, kindly report to author.

**Author(s)**

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**Examples**

```r

d1 = matrix(c(3, 4, 6,
5, 6, 7,
1, 4, 5,
2, 4, 7,
1, 3, 7,
1, 2, 6,
2, 3, 5), ncol = 3, byrow = TRUE)
balancify(d1)

d1 = matrix(c(7,9, 8,
1, 6, 8,
1, 3, 9,
4, 6, 9,
5, 6, 7,
1, 4, 5,
3, 5, 8),
```
Description

This function generates a position balanced or nearly position balanced block design with given parameters. User needs to specify number of treatments (v), number of blocks (b) and block size (k).

Usage

```r
pbbd(v, b, k)
```

Arguments

- **v**: Number of treatments
- **b**: Number of blocks
- **k**: Block size

Value

- **parameters**: Parameters v,b,r,k. Here r is number of replications of each treatment
- **efficiencies**: A- and D-efficiency of the design generated
- **design**: Position balanced block design
- **P**: Treatment verus position incidence matrix

Note

This function works for generating a position balanced block design for up to 30 treatments and block size 10. For getting design with larger number of treatments and/or block size, it is better to use balancify() function with a design supplied by user to make the design position balanced.

Author(s)

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Examples

```r
pbbd(7,7,3)
```

```r
pbbd(9,12,3)
```
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