



Documentation for package 'Places' version 0.2.0

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places

Description

Execute a structural equivalence analysis in bipartite graphs

Usage

```
places(data, col.elements, col.sets)
```

Arguments

<code>data</code>	The input data frame. Data must be in a two-mode edgelist structure
<code>col.elements</code>	The name of the column of elements
<code>col.sets</code>	The name of the column of sets

Format

The input format must be a data frame in a two-mode edgelist structure.

Data frame can contain other variables, relevant columns will be selected in *Arguments* parameters. Missing values, empty cells and repeated pairs (Element-Set) will be deleted for analysis.

Details

A place is a structurally equivalent position defined by one or more sets, containing one or more elements. Then, two or more elements share a place (so, are structurally equivalent) if they are affiliated to the same sets.

A network of places is defined as a collection of places linked by sharing sets. A pair of places are linked if they are defined by at least one set in common. A network of places, as a blockmodel image, is a network of structurally equivalent positions.

Value

The output is a list with three data frames:

- The original two columns data frame and the column "Places" with places labels
- A data frame containing information about places.
 - "PlaceNumber" contains the number of the place, ordered from the highest to the lowest number of sets
 - "PlaceLabel" contains places labels. Labels start with *P*, followed by the place number, the number of elements in place and the number of sets defining place
 - "NbElements" contains the number of elements in the place
 - "NbSets" contains the number of sets defining the place
 - "PlaceDetail" contains the name of all the elements in the place and all the sets defining the place
- The network of places in a two-mode edgelist format

Author(s)

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References

Pizarro, N. (2007). Structural identity and equivalence of individuals in social networks: Beyond duality. *International Sociology*, 22(6), 767-792

Pizarro, N. (2000). Regularidad relacional, redes de lugares y reproducción social. *Política y Sociedad*, Vol 33, 167-198

Pizarro, N. (1999). Appartenances, places et réseaux de places: la reproduction des processus sociaux et la génération d'un espace homogène pour la définition des structures sociales. *Sociologie et Sociétés*, Vol 31(1), 143-161

Examples

```
Result <- places(data = foo, col.elements = "Actors", col.sets = "Groups")
Result <- places(foo, "Actors", "Groups")
```

k-places

Description

Execute a structural equivalence analysis in bipartite graphs allowing a k tolerance level

Usage

```
kplaces(data, col.elements, col.sets, k)
```

Arguments

<code>data</code>	The input data frame. Data must be in a two-mode edgelist structure
<code>col.elements</code>	The name of the column of elements
<code>col.sets</code>	The name of the column of sets
<code>k</code>	A natural number that indicates the tolerance level

Format

The input format must be a data frame in a two-mode edgelist structure.

Data frame can contain other variables, relevant columns will be selected in *Arguments* parameters. Missing values, empty cells and repeated pairs (Element-Set) will be deleted for analysis.

Details

A k -place is a place (a position of structural equivalence) which allows a maximum divergence of k sets that define the place. Compared with [places](#), k -places are a less restrictive way of identifying positions of structural equivalence. This function identifies places and k -places, and a network of places and k -places is created. A network of k -places is defined as a collection of k -places and places linked by sharing sets. A pair of k -places and/or places are linked if they are defined by at least one set in common. A network of k -places, as a blockmodel image, is a network of structurally equivalent positions.

The k -places will not be identified for cases with $k + 1$ sets or less.

The ambiguous cases are reported as messages in the R console. An ambiguous case is a subset of more than two places where the dyads can be a k -place but not all the subset. For example, for $k=1$, the place $P1$ defined by the sets A, B can be a k -place with $P2A, B, C$ or with $P3A, B, D$, but the k -place formed by the three places is not correct because $P2$ and $P3$ are divergent in more than k sets (specifically, the sets C and D)

Value

The output is a list with four data frames:

- The original two columns data frame and the column "k_places" with k -places and places labels'
- A data frame containing information about places and k -places.
"PlaceLabel" contains places and k -places labels. Places labels start with P , followed by the place number, the number of elements in place and the number of sets defining place. K -Places labels start with P , followed by the k -place number, an $*$, the number of elements in k -place, the number of sets in common, and the value of k
"NbElements" contains the number of elements in the place / k -place
"NbSets" contains the number of sets defining the place / k -place
"PlaceDetail" contains the name of all the elements in the place / k -place and all the sets defining the place / k -place
- A data frame with the relation of places merged to k -places and the sets in common
- The network of places in a two-mode edgelist format

Author(s)

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Examples

```
Result <- kplaces(data = foo, col.elements = "Actors", col.sets = "Groups", k = 2)
Result <- kplaces(foo, "Actors", "Groups", 2)
```