Package 'Families'

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Type Package

Title Kinship Ties in Virtual Populations

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Suggests knitr, rmarkdown,ggplot2,lubridate,xml2

BuildResaveData best

VignetteBuilder knitr

LazyData true

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Description Tools to study kinship networks, grandparenthood, and double burden (presence of children and oldest old parents) in virtual population produced by 'VirtualPop'.

License GPL-2

NeedsCompilation no

Encoding UTF-8

BugReports https://github.com/willekens/VirtualPop/issues

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`Families-package` *Kinship Ties in Virtual Populations*

Description

Tools to study kinship networks, grandparenthood, and double burden (presence of children and oldest old parents) in virtual population produced by 'VirtualPop'.

Author(s)

Frans Willekens <Willekens@nidi.nl>

`dataLH_F` *dataLH_F data*

Description

Simulated population of four generations, produced by 'VirtualPop'.

Format

A data frame with data on 2965 individuals (1000 in initial cohort).

ID Identification number

gen Generation

sex Sex. A factor with levels Males and Females

bdated Date of birth (decimal date

ddated Date of death (decimal date

x_D Age at death (decimal number

IDpartner ID of partner

IDmother ID of mother

IDfather ID of father

jch Child's line number in the household

nch Number of children ever born

id.1 ID of first child

id.2 ID of 2nd child

id.3 ID of 3rd child

id.4 ID of 4th child

id.5 ID of 5th child

id.6 ID of 6th child

id.7 ID of 7th child

id.8 ID of 8th child

id.9 ID of 9th child

age.1 Age of mother at birth of first child

age.2 Age of mother at birth of 2nd child

age.3 Age of mother at birth of 3rd child

age.4 Age of mother at birth of 4th child

age.5 Age of mother at birth of 5th child

age.6 Age of mother at birth of 6th child

age.7 Age of mother at birth of 7th child

age.8 Age of mother at birth of 8th child

age.9 Age of mother at birth of 9th child

Source

Simulation uses period mortality rates and fertility rates by birth order from the United States 2019. The data are downloaded from the Human Mortality Database (HMD) and the Human Fertility Database (HFD).

Db *Retrieves the date(s) of birth in decimal format*

Description

Retrieves the date(s) of birth from the database

Usage

```
Db(idego, dLH)
```

Arguments

idego	vector of IDs of egos
dLH	Name of database. If dLH is missing, dataLH_F is used.

Value

Returns the dates of birth

Author(s)

Frans Willekens

Examples

```
# Date of birth of first individual in database
data(dataLH_F,package = "Families")
Db(idego=1)
```

Dd *Retrieves the date(s) of death in decimal format*

Description

Retrieves the date(s) of death from the database

Usage

```
Dd(idego, dLH)
```

Arguments

idego	vector of IDs of egos
dLH	Name of database. If dLH is missing, dataLH_F is used.

Value

Returns the date of death

Author(s)

Frans Willekens

Examples

```
# Date of death of first individual in database
data(dataLH_F,package = "Families")
Dd(idego=1)
```

`dpopus` *dpopus data Population of the United States in 2019 reported in the HMD (Population.txt file)*

Description

dpopus data

Population of the United States in 2019 reported in the HMD (Population.txt file)

Format

A data frame with 111 age groups (single years of age).

Females Female population

Males Male population

Source

The data are downloaded from the Human Mortality Database (HMD). Country: USA. Year: 2019

`e0` *Computes (a) Life expectancy at birth, (b) Probability of surviving at age 65, and (c) Probability of surviving at age 85*

Description

Computes (a) Life expectancy at birth, (b) Probability of surviving at age 65, and (c) Probability of surviving at age 85

Usage

```
e0(dLH)
```

Arguments

`dLH`	The name of the database. If missing, dataLH_F is used.

Value

`e0`	Mean ages at death
`Prob65`	Probability of surviving at age 65
`Prob85`	Probability of surviving at age 85

Author(s)

Frans Willekens

Examples

```
data(dataLH_F,package = "Families")
e0(dLH=dataLH_F)
```

IDch *Retrieves ID of children of ego*

Description

Retrieves ID of children of ego or children of vector of egos

Usage

```
IDch(idego, dLH, keep_ego = FALSE)
```

Arguments

idego	ID of ego(s)
dLH	Name of database. If dLH is missing, dataLH_F is used.
keep_ego	Option to link show ID of ego together with ID of mother

Value

ID of children. If ego has no children or IDs of children are not included in database, numeric(0) is returned. If keep_ego=TRUE, a data frame is returned with the following columns: IDego, ID of mother of children, ID of father of children, ID of children, sex of children.

Author(s)

Frans Willekens

Examples

```
data(dataLH_F,package = "Families")
IDch(idego=1)
id <- sample (dataLH_F$ID[dataLH_F$gen==1],10)
IDch(idego=sort(id),keep_ego=TRUE)
```

IDfather *Retrieves ID of father of ego*

Description

Function to retrieve the ID of father of ego or fathers of vector of egos

Usage

```
IDfather(idego, dLH, keep_ego = FALSE)
```

Arguments

idego	ID
dLH	Name of database. If missing, dataLH_F is used.
keep_ego	Option to link show ID of ego together with ID of father

Value

ID of father or (if keep_ego=TRUE, object with ID of ego and ID of father). Returns NA if ID of father is not included in the database

Author(s)

Frans Willekens

Examples

```
data(dataLH_F,package = "Families")
IDfather (idego=sample (dataLH_F$ID,10))
```

IDmother *Retrieves ID of mother of ego*

Description

Retrieves the ID of mother of ego or mothers of vector of egos

Usage

```
IDmother(idego, dLH, keep_ego = FALSE)
```

Arguments

idego	ID
dLH	Name of database. If missing, dataLH_F is used.
keep_ego	Option to show ID of ego together with ID of mother

Value

ID of mother or (if keep_ego=TRUE, object with ID of ego and ID of mother). Returns NA if ID of mother is not included in the database

Author(s)

Frans Willekens

Examples

```
data(dataLH_F,package = "Families")
IDmother (sample (dataLH_F$ID,10))
IDmother(sample (dataLH_F$ID,10),keep_ego=TRUE)
```

IDpartner *Retrieves ID of partner of ego or allocate partner to ego*

Description

Retrieves ID of partners of vector of egos or randomly allocates partners to egos

Usage

```
IDpartner(idego, dLH)
```

Arguments

idego	vector of ID of egos. If idego is missing, then the function allocates partners (from opposite sex) to egos. The allocation is random.
dLH	Name of database. If missing, dataLH_F is used.

Value

IDs of partners. If the argument idego is missing, then a data frame similar to 'dLH' is returned with IDs of partners completed.

Author(s)

Frans Willekens

Examples

```
data(dataLH_F,package = "Families")
IDpartner(idego=1)
# Allocate partner to egos with ID 4,9,30.
IDpartner(idego=dataLH_F$ID[c(4,9,30)])
```

`Multistate` *Multistate life table*

Description

Computes fertility table by birth order

Usage

```
Multistate(rates, mortality = 1)
```

Arguments

`rates`	rates by age and sex and birth rates by age and birth order (or parity)
`mortality`	Indicator variable. Mortality accounted for if mortality=1, else mortality omitted.

Details

The multistate life table is computed using the functions MSLT.S and MLST.e from the Biograph package. The two functions are included in the Multistate function as MSLT_S and MSLT_e.

Value

A list of two objects: itemSthe multistate survival function (S) and multistate transition probabilities (P) itemmsltother measures of the multistate life table: person-years (L); expectation at birth of sojourn times in the various states (e0); expectation at age x of the remaining expected sojourn times in the various states: population-based measures (e.p); expectation at age x of the remaining expected sojourn times in the various states: status-based measures (e.p)

Author(s)

Frans Willekens

Examples

```
data(rates,package = "Families")
z=Multistate(rates)
```

`rates` *rates data*

Description

Mortality rates by age and sex: fertility rates by age and birth order

Format

A list of three objects.

ASDR Mortality rates

ASFR Fertility rates

ratesM Multistate transition rates

Source

The data are downloaded from the Human Mortality Database (HMD) and the Human Fertility Database (HFD). Country: USA. Year: 2019

Index