

Package ‘KMsurv’

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Title Data sets from Klein and Moeschberger (1997), Survival Analysis

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Description Data sets and functions for Klein and Moeschberger (1997), “Survival Analysis, Techniques for Censored and Truncated Data”, Springer.

Depends survival

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aids

data from Section 1.19

Description

The `aids` data frame has 295 rows and 3 columns.

Format

This data frame contains the following columns:

infect Infection time for AIDS, years

induct Induction time for AIDS, years

adult Indicator of adult (1=adult, 0=child)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Lagakos et al. *Biometrika* 68 (1981): 515-523.

Examples

```
data(aids)
```

alloauto	<i>data from Section 1.9</i>
----------	------------------------------

Description

The `alloauto` data frame has 90 rows and 5 columns.

Format

This data frame contains the following columns:

time Time to death or relapse, months

type Type of transplant (1=allogeneic, 2=autologous)

delta Leukemia-free survival indicator (0=alive without relapse, 1=dead or relapse)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Kardaun Stat. Nederlandica 37 (1983), 103-126.

Examples

```
data(alloauto)
```

allograft	<i>data from Exercise 13.1, p418</i>
-----------	--------------------------------------

Description

The `allograft` data frame has 34 rows and 4 columns.

Format

This data frame contains the following columns:

patient Patient

time Time to graft rejection, days

rejection Indicator of graft rejection (1=yes, 0=no)

match Good HLA skin match (1=yes, 0=no)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Batchelor and Hackett Lancet 2 (1970): 581-583.

Examples

```
data(allograft)
```

azt

data from Exercise 4.7, p122

Description

The `azt` data frame has 45 rows and 4 columns.

Format

This data frame contains the following columns:

patient Patient number

ageentry Age at entry into AZT study, months

age Age at death or censoring time, months

death Death indicator (1=dead, 0=alive)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(azt)
```

baboon

data from Exercise 5.8, p147

Description

The `baboon` data frame has 25 rows and 2 columns.

Format

This data frame contains the following columns:

date Date (day/month/year)

time Descent time (military time)

observed Indicator of observed or not (1=observed, 0=not observed)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(baboon)
```

bcdeter *data from Section 1.18*

Description

The `bcdeter` data frame has 92 rows and 3 columns.

Format

This data frame contains the following columns:

lower Lower limit of interval, months

upper Upper limit of interval, months

treat Treatment regimen (1=radiotherapy only, 2=radiotherapy + chemotherapy)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Beadle et al *Cancer* 54 (1984):2911-2918.

Examples

```
data(bcdeter)
```

bfeed *data from Section 1.14*

Description

The `bfeed` data frame has 927 rows and 10 columns.

Format

This data frame contains the following columns:

duration Duration of breast feeding, weeks

delta Indicator of completed breast feeding (1=yes, 0=no)

race Race of mother (1=white, 2=black, 3=other)

poverty Mother in poverty (1=yes, 0=no)

smoke Mother smoked at birth of child (1=yes, 0=no)

alcohol Mother used alcohol at birth of child (1=yes, 0=no)

agemth Age of mother at birth of child

ybirth Year of birth

yschool Education level of mother (years of school)

pc3mth Prenatal care after 3rd month (1=yes, 0=no)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. *National Longitudinal Survey of Youth Handbook* The Ohio State University, 1995.

Examples

```
data(bfeed)
```

```
bmt
```

```
data from Section 1.3
```

Description

The `bmt` data frame has 137 rows and 22 columns.

Format

This data frame contains the following columns:

group Disease Group 1-ALL, 2-AML Low Risk, 3-AML High Risk

t1 Time To Death Or On Study Time

t2 Disease Free Survival Time (Time To Relapse, Death Or End Of Study)

d1 Death Indicator 1-Dead 0-Alive

d2 Relapse Indicator 1-Relapsed, 0-Disease Free

d3 Disease Free Survival Indicator 1-Dead Or Relapsed, 0-Alive Disease Free)

ta Time To Acute Graft-Versus-Host Disease

da Acute GVHD Indicator 1-Developed Acute GVHD 0-Never Developed Acute GVHD)

tc Time To Chronic Graft-Versus-Host Disease

dc Chronic GVHD Indicator 1-Developed Chronic GVHD 0-Never Developed Chronic GVHD

tp Time To Chronic Graft-Versus-Host Disease

dp Platelet Recovery Indicator 1-Platelets Returned To Normal, 0-Platelets Never Returned to Normal

z1 Patient Age In Years

z2 Donor Age In Years

z3 Patient Sex: 1-Male, 0-Female

z4 Donor Sex: 1-Male, 0-Female

z5 Patient CMV Status: 1-CMV Positive, 0-CMV Negative

z6 Donor CMV Status: 1-CMV Positive, 0-CMV Negative

z7 Waiting Time to Transplant In Days

z8 FAB: 1-FAB Grade 4 Or 5 and AML, 0-Otherwise

z9 Hospital: 1-The Ohio State University, 2-Alferd , 3-St. Vincent, 4-Hahnemann

z10 MTX Used as a Graft-Versus-Host- Prophylactic: 1-Yes 0-No

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(bmt)
```

```
bncf          data from Exercise 7.7, p223
```

Description

The `bncf` data frame has 34 rows and 3 columns.

Format

This data frame contains the following columns:

trt Treatment (1=untreated, 2=radiated, 3=radiated + BPA)

time Death time or on-study time, days

death Death indicator (1=dead, 0=alive)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(bncf)
```

```
bncf          data from Exercise 7.13, p225
```

Description

The `rats` data frame has 50 rows and 4 columns.

Format

This data frame contains the following columns:

time Time to tumor development

tumor Indicator of tumor development (1=yes, 0=no)

trt Treatment (1=treated with drug, 0=given placebo)

litter Litter

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(rats)
```

```
btrial
```

data from Section 1.5

Description

The `btrial` data frame has 45 rows and 3 columns.

Format

This data frame contains the following columns:

time Time to death or on-study time, months

death Death indicator (0=alive, 1=dead)

im Immunohistochemical response (1=negative, 2=positive)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Sedmak et al. *Modern Pathology* 2 (1989): 516-520.

Examples

```
data(btrial)
```

```
burn
```

data from Section 1.6

Description

The `burn` data frame has 154 rows and 17 columns.

Format

This data frame contains the following columns:

Obs Observation number

Z1 Treatment: 0=routine bathing 1=Body cleansing

Z2 Gender (0=male 1=female)

Z3 Race: 0=nonwhite 1=white

Z4 Percentage of total surface area burned

Z5 Burn site indicator: head 1=yes, 0=no

Z6 Burn site indicator: buttock 1=yes, 0=no

Z7 Burn site indicator: trunk 1=yes, 0=no

Z8 Burn site indicator: upper leg 1=yes, 0=no

Z9 Burn site indicator: lower leg 1=yes, 0=no

Z10 Burn site indicator: respiratory tract 1=yes, 0=no

Z11 Type of burn: 1=chemical, 2=scald, 3=electric, 4=flame

T1 Time to excision or on study time

D1 Excision indicator: 1=yes 0=no

T2 Time to prophylactic antibiotic treatment or on study time

D2 Prophylactic antibiotic treatment: 1=yes 0=no

T3 Time to straphylococcus aureus infection or on study time

D3 Straphylococcus aureus infection: 1=yes 0=no

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Ichida et al. *Stat. Med.* 12 (1993): 301-310.

Examples

```
data(burn)
```

channing

data from Section 1.16

Description

The `channing` data frame has 462 rows and 6 columns.

Format

This data frame contains the following columns:

- obs** Observation number
- death** Death status (1=dead, 0=alive)
- ageentry** Age of entry into retirement home, months
- age** Age of death or left retirement home, months
- time** Difference between the above two ages, months
- gender** Gender (1=male, 2=female)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Hyde Biometrika (1977), 225-230.

Examples

```
data(channing)
```

drug6mp	<i>data from Section 1.2</i>
---------	------------------------------

Description

The drug6mp data frame has 21 rows and 5 columns.

Format

This data frame contains the following columns:

- pair** pair number
- remstat** Remission status at randomization (1=partial, 2=complete)
- t1** Time to relapse for placebo patients, months
- t2** Time to relapse for 6-MP patients, months
- relapse** Relapse indicator (0=censored, 1=relapse) for 6-MP patients

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Freireich et al. (1963) *Blood* 21: 699-716.

Examples

```
data(drug6mp)
```

`drughiv`*data from Exercise 7.6, p222*

Description

The `drughiv` data frame has 34 rows and 3 columns.

Format

This data frame contains the following columns:

drug Drug combination (1=AZT + zalcitabine, 2=AZT + zalcitabine + saquinavir)

time Time after drug administration to CD4 count at a specified level, days

delta Indicator of CD4 count reaching specified level (1=yes, 0=no)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(drughiv)
```

`hodg`*data from Section 1.10*

Description

The `hodg` data frame has 43 rows and 6 columns.

Format

This data frame contains the following columns:

gtype Graft type (1=allogenic, 2=autologous)

dtype Disease type (1=Non Hodgkin lymphoma, 2=Hodgkins disease)

time Time to death or relapse, days

delta Death/relapse indicator (0=alive, 1=dead)

score Karnofsky score

wtime Waiting time to transplant in months

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Avalos et al. Bone Marrow Transplantation 13(1993):133-138.

Examples

```
data(hodg)
```

```
kidney           data from Section 1.4
```

Description

The `kidney` data frame has 119 rows and 3 columns.

Format

This data frame contains the following columns:

time Time to infection, months

delta Infection indicator (0=no, 1=yes)

type Catheter placement (1=surgically, 2=percutaneously)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Nahman et al. J. Am Soc. Nephrology 3 (1992): 103-107.

Examples

```
data(kidney)
```

```
kidrecurr           Data on 38 individuals using a kidney dialysis machine
```

Description

Data on 38 individuals using a kidney dialysis machine See Problem 13.5.2

Usage

```
data(kidrecurr)
```

Format

A data frame with 38 observations on the following 10 variables.

patient Patient number
time1 Time one of recurrence of infection, days
infect1 Indicator infection one (1=yes, 0=no)
time2 Time two of recurrence of infection, days
infect2 Indicator infection two (1=yes, 0=no)
age Patient's age
gender Patient's gender
gn Disease type GN (1=yes, 0=no)
an Disease type AN (1=yes, 0=no)
pkd Disease type PKD (1=yes, 0=no)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. McGilchrist and Aisbett 47 (1991):461-466.

Examples

```
data(kidrecurr)
```

kidtran

data from Section 1.7

Description

The `kidtran` data frame has 863 rows and 6 columns.

Format

This data frame contains the following columns:

obs Observation number
time Time to death or on-study time
delta Death indicator (0=alive, 1=dead)
gender 1=male, 2=female
race 1=white, 2=black
age Age in years

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(kidtran)
```

```
larynx
```

```
data from Section 1.8
```

Description

The `larynx` data frame has 90 rows and 5 columns.

Format

This data frame contains the following columns:

stage Stage of disease (1=stage 1, 2=stage2, 3=stage 3, 4=stage 4)

time Time to death or on-study time, months

age Age at diagnosis of larynx cancer

diagyr Year of diagnosis of larynx cancer

delta Death indicator (0=alive, 1=dead)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. *Kardaaun Stat. Nederlandica* 37 (1983), 103-126.

Examples

```
data(larynx)
```

lifetab	<i>Create cohort life table</i>
---------	---------------------------------

Description

Create cohort life table.

Usage

```
lifetab(tis, ninit, nlost, nevent)
```

Arguments

<code>tis</code>	a vector of end points of time intervals, whose length is 1 greater than <code>nlost</code> and <code>nevent</code> .
<code>ninit</code>	the number of subjects initially entering the study.
<code>nlost</code>	a vector of the number of individuals lost follow or withdrawn alive for whatever reason.
<code>nevent</code>	a vector of the number of individuals who experienced the event

Value

A `data.frame` with the following columns:

<code>nsubs</code>	the number of subject entering the intervals who have not experienced the event.
<code>nlost</code>	the number of individuals lost follow or withdrawn alive for whatever reason.
<code>nrisk</code>	the estimated number of individuals at risk of experiencing the event.
<code>nevent</code>	the number of individuals who experienced the event.
<code>surv</code>	the estimated survival function at the start of the intervals.
<code>pdf</code>	the estimated probability density function at the midpoint of the intervals.
<code>hazard</code>	the estimated hazard rate at the midpoint of the intervals.
<code>se.surv</code>	the estimated standard deviation of survival at the beginning of the intervals.
<code>se.pdf</code>	the estimated standard deviation of the prbability density function at the midpoint of the intervals.
<code>se.hazard</code>	the estimated standard deviation of the hazard function at the midpoint of the intervals

The `row.names` are the intervals.

Author(s)

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Examples

```
tis <- c(0, 2, 3, 5, 7, 11, 17, 25, 37, 53, NA)
nsubs <- c(927, 848, 774, 649, 565, 449, 296, 186, 112, 27)
nlost <- c(2, 3, 6, 9, 7, 5, 3, rep(0, 3))
nevent <- c(77, 71, 119, 75, 109, 148, 107, 74, 85, 27)

lifetab(tis, nsubs[1], nlost, nevent)
```

lung

data from Exercise 4.4, p120

Description

The lung data frame has 25 rows and 4 columns.

Format

This data frame contains the following columns:

time Days to death

death Death indicator (1=dead), complete follow-up on all patients

time2 Days to 3/31/80 or death (interim analysis)

death2 Death indicator as of 3/31/80 (1=dead, 0=alive)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(lung)
```

pneumon

data from Section 1.13

Description

The pneumon data frame has 3470 rows and 15 columns.

Format

This data frame contains the following columns:

- chldage** Age child had pneumonia, months
- hospital** Indicator for hospitalization for pneumonia (1=yes, 0=no)
- mothage** Age of the mother, years
- urban** Urban environment for mother (1=yes, 0=no)
- alcohol** Alcohol use by mother during pregnancy (1=yes, 0=no)
- smoke** Cigarette use by mother during pregnancy (1=yes, 0=no)
- region** Region of the country (1=northeast, 2=north central, 3=south, 4=west)
- poverty** Mother at poverty level (1=yes, 0=no)
- bweight** Normal birthweight (>5.5 lbs.) (1=yes, 0=no)
- race** Race of the mother (1=white, 2=black, 3=other)
- education** Education of the mother, years of school
- nsibs** Number of siblings of the child
- wmonth** Month the child was weaned
- sfmonth** Month the child on solid food
- agepn** Age child in the hospital for pneumonia, months

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. *National Longitudinal Survey of Youth Handbook* The Ohio State University, 1995.

Examples

```
data(pneumon)
```

psych

data from Section 1.15

Description

The `psych` data frame has 927 rows and 10 columns.

Format

This data frame contains the following columns:

- sex** Patient sex (1=male, 2=female)
- age** Patient age
- time** Time to death or on-study time
- death** Death indicator (0=alive, 1=dead)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Woollen Biometrics 37 (1981): 687-696.

Examples

```
data(psych)
```

```
std          data from Section 1.12
```

Description

The `std` data frame has 877 rows and 3 columns.

Format

This data frame contains the following columns:

obs Observation number
race Race (W=white, B=black)
marital Marital status (D=divorced / separated, M=married, S=single)
age AGE
yschool Years of schooling
iinfct Initial infection (1= gonorrhea, 2=chlamydia, 3=both)
npartner Number of partners
os12m Oral sex within 12 months (1=yes, 0=no)
os30d Oral sex within 30 days (1=yes, 0=no)
rs12m Rectal sex within 12 months (1=yes, 0=no)
rs30d Rectal sex within 30 days (1=yes, 0=no)
abdpain Presence of abdominal pain (1=yes, 0=no)
discharge Sign of discharge (1=yes, 0=no)
dysuria Sign of dysuria (1=yes, 0=no)
condom Condom use (1=always, 2=sometime, 3=never)
itch Sign of itch (1=yes, 0=no)
lesion Sign of lesion (1=yes, 0=no)
rash Sign of rash (1=yes, 0=no)
lymph Sign of lymph (1=yes, 0=no)
vagina Involvement vagina at exam (1=yes, 0=no)
dhexam Discharge at exam (1=yes, 0=no)
abnode Abnormal node at exam (1=yes, 0=no)
rinfct Reinfection (1=yes, 0=no)
time Time to reinfection

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(std)
```

stddiag	<i>data from Exercise 5.6, p146</i>
---------	-------------------------------------

Description

The stddiag data frame has 25 rows and 2 columns.

Format

This data frame contains the following columns:

encounter Months from 1/93 to encounter

diagnosed Months until STD diagnosed in the clinic

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(stddiag)
```

tongue	<i>data from Section 1.11</i>
--------	-------------------------------

Description

The tongue data frame has 80 rows and 3 columns.

Format

This data frame contains the following columns:

type Tumor DNA profile (1=Aneuploid Tumor, 2=Diploid Tumor)

time Time to death or on-study time, weeks

delta Death indicator (0=alive, 1=dead)

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Sickle-Santanello et al. *Cytometry* 9 (1988): 594-599.

Examples

```
data(tongue)
```

```
twins          data from Exercise 7.14, p225
```

Description

The `twins` data frame has 24 rows and 3 columns.

Format

This data frame contains the following columns:

id Twin number

age Age of twin's death from CHD, months

death Death (male twin) from CHD indicator (1=dead from CHD, 0=alive or other cause of death)

gender 1=male, 2=female

Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

Examples

```
data(twins)
```

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