Package 'abd'

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Type Package

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Description The abd package contains data sets and sample code for The Analysis of Biological Data by Michael Whitlock and Dolph Schluter (2009; Roberts & Company Publishers).

License GPL-2

LazyLoad yes

LazyData yes

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abd-package *Data sets from The Analysis of Biological Data*

Description

The abd package contains data sets and sample code for the book, *The Analysis of Biological Data* by Michael C. Whitlock and Dolph Schluter (2009; Roberts and Company Publishers).

Details

Package:	abd
Type:	Package
Version:	0.2-8
Date:	2015-07-02
License:	GPL
LazyLoad:	yes
LazyData:	yes

Author(s)

Kevin M. Middleton (middletonk@missouri.edu); Randall Pruim (rpruim@calvin.edu)

References

Whitlock, M.C. and D. Schluter. 2009. *The Analysis of Biological Data*. Roberts and Company Publishers. ISBN: 0981519407. http://www.roberts-publishers.com/biology/the-analysis-of-biological-data.html

Examples

```
trellis.par.set(theme=col.abd())  # set color theme
show.settings()
abdData(3)                        # look for data sets in chapter 3
abdData('Finch')                  # look for data sets with 'finch' in name
```

abdData *Find data in* Analysis of Biological Data

Description

A utility function to assist users to locate data sets in *Analysis of Biological Data* within the abd package.

Usage

```
abdData(..., chapters = 1:21, types = c("Example", "Problem"),
  numbers = 1:100, pattern = "*", ignore.case = TRUE)
```

Arguments

chapters	a numeric vector of chapters to search within
types	a sub-vector of c('Example','Problem')
numbers	a numeric vector of problem numbers
pattern	a pattern to use for regular expression matching against the name of the data frame.
ignore.case	should case be ignored when matching pattern?
...	values for any of chapters, types, or pattern. Which is meant will be inferred from the type of object supplied. This allows users to specify these values in any order and without naming.

Value

A data frame describing data sets from abd that match the search criteria, or NULL if there are no matches.

Author(s)

Randall Pruim (<rpruim@calvin.edu>)

Examples

```
# find all data from examples in chapters 3 and 4
abdData(3:4, 'Example')

# order doesn't matter
abdData('Example', 3:4)

# look for data sets with Example in their name.
abdData(pattern='Example')

# look for data sets with Exercise in their name.
abdData('Exercise')
```

AlgaeCO2 *Carbon Dioxide and Growth Rate in Algae*

Description

Growth rates of the unicellular alga *Chlamydomonas* after 1,000 generations of selection under High and Normal levels of carbon dioxide.

Format

A data frame with 14 observations on the following 2 variables.

treatment a factor with levels `Normal` and `High`

growthrate a numeric vector

Source

Collins, S. and G. Bell. 2004. Phenotypic consequences of 1,000 generations of selection at elevated CO_2 in a green alga. *Nature* 431: 566-569.

Examples

```
AlgaeCO2
xyplot(growthrate ~ treatment, AlgaeCO2, type = c('p', 'a'))
```

`Antilles` *Antilles Bird Immigration Dates*

Description

Approximate dates of immigration for 37 species of birds in the Lesser Antilles.

Format

A data frame with 37 observations of one variable.

immigration.date approximate immigration date (in millions of years)

Source

inferred from Ricklefs, R.E. and E. Bermingham. 2001. Nonequilibrium diversity dynamics of the Lesser Antillean avifauna. *Science* 294: 1522-1524.

References

http://www.sciencemag.org/cgi/content/abstract/sci;294/5546/1522

Examples

```
histogram(~immigration.date, Antilles,n=15)
densityplot(~immigration.date, Antilles)
```

Aspirin *Effects of Aspirin on Cancer Rates*

Description

Frequency of cancer in 39,876 women taking and not taking aspirin.

Format

A data frame with 39876 observations on the following

treatment a factor with levels `Aspirin` and `Placebo`

cancer a factor with levels `no` and `yes`

Source

Cook, N.R., I. Lee, J.M. Gaziano, D. Gordon, P.M. Ridker, J.E. Manson, C.H. Hennekens, and J.E. Buring. 2005. Low-dose aspirin in the primary prevention of cancer. *Journal of the American Medical Association* 294: 47-55.

References

http://www.ncbi.nlm.nih.gov/pubmed/15998890

Examples

```
demo(sec9.2)
```

BeeGenes *Foraging Gene Expression*

Description

Levels of expression of the foraging gene (*for*; `Expression`) in two worker types (`type`) in three bee colonies (`colony`). Note that `colony` is not coded as a factor.

Format

A data frame with 6 observations on the following 3 variables.

type a factor with levels `forager` `nurse`

colony a numeric identifier

expression expression level of the *for* gene

Source

Ben-Shahar, Y., A. Robichon, M.B. Sokolowski, and G.E. Robinson. 2002. Influence of gene action across different time scales on behavior. *Science* 296: 741-744.

Examples

```
str(BeeGenes)
BeeGenes
xtabs( expression ~ type + colony, BeeGenes )
```

BeeLifespans *Bee Lifespans*

Description

Lifespan of 33 foraging honey bees.

Format

A data frame with 33 observations on the following variable.

hours a numeric vector

Source

inferred from Visscher, P.K. and R. Dukas. 1997. Survivorship of foraging honey bees. *Insectes Sociaux* 44: 1-5.

Examples

```
histogram(~hours, BeeLifespans, n=10)
densityplot(~hours, BeeLifespans)
```

Beetles *Beetle Wings and Horns*

Description

Relative size of the horns and wings in 19 female *Onthophagus sagittarius* beetles.

Format

A data frame with 19 observations on the following 2 variables.

horn.size a numeric vector

wing.mass a numeric vector

Source

Emlen, D.J. 2001. Costs and the diversification of exaggerated animal structures. *Science* 291: 1534-1536.

References

http://www.scienceonline.org/cgi/content/abstract/291/5508/1534

Examples

```
str(Beetles)
xyplot(wing.mass ~ horn.size, Beetles)
```

BirdSexRatio *Sex Ratios in Birds*

Description

Correlation coefficient of sex ratio in bird offspring.

Format

A data frame with 15 observations of one variable

corr.coeff correlation coefficient of sex ratio in bird offspring

Source

West, S.A. and B.C. Sheldon. 2002. Constraints in the evolution of sex ratio adjustment. *Science* 295: 1695-1688.

Examples

```
histogram(~corr.coeff, BirdSexRatio, n = 10,
  xlab = "Correlation Coefficient")
```

Blackbirds *Testosterone Levels in Blackbirds*

Description

Experimental manipulation of testosterone levels in male Red-winged Blackbirds (*Agelaius phoeniceus*) and resulting changes in antibody levels

Format

A data frame with 13 observations on the following 6 variables.

before a numeric vector

after a numeric vector

log.before a numeric vector

log.after a numeric vector

diff.in.logs a numeric vector

diff a numeric vector

Source

Hasselquist, D., J.A. Marsh, P.W. Sherman, and J.C. Wingfield. 1999. Is avian immunocompetence suppressed by testosterone? *Behavioral Ecology and Sociobiology* 45: 167-175.

Examples

```
Blackbirds
xyplot(log.after ~ log.before, data = Blackbirds,
  ylab = "log Antibody production after implant",
  xlab = "log Antibody production before implant"
)
```

BodyFatHeatLoss *Heat Loss and Body Fat*

Description

Heat loss during exercise and relative body fat in 12 boys.

Format

A data frame with 12 observations on the following 2 variables.

leanness a numeric vector

lossrate a numeric vector

Source

Sloan, R.E.G. and W.R. Keatinge. 1973. Cooling rates of young people swimming in cold water. *Journal of Applied Physiology* 35: 371-375.

References

http://www.ncbi.nlm.nih.gov/pubmed/4732330

Examples

```
xyplot(lossrate ~ leanness, BodyFatHeatLoss)
```

`BrainExpression` *Proteolipid Protein 1 Gene Expression*

Description

Expression levels of the proteolipid protein 1 gene (PLP1; `PLP1.expression`) in 45 individuals in one of three `groups`.

Format

A data frame with 45 observations on the following 2 variables.

group a factor with levels: `bipolar`, `control`, and `schizo`

PLP1.expression a numeric vector

Source

inferred from Tkachev, D., M.L. Mimmack, M.M. Ryan, M. Wayland, T. Freeman, P.B. Jones, M. Starkey, M.J. Webster, R.H. Yolken, S. Bahn. 2003. Oligodendrocyte dysfunction in schizophrenia and bipolar disorder. *Lancet* 362(9386): 798-805.

Examples

```
bwplot(PLP1.expression ~ group, BrainExpression)
```

BrookTrout *Salmon Survival in the Presence of Brook Trout*

Description

Total numbers of salmon released (`salmon.released`) and surviving (`salmon.surviving`) in 12 streams, 6 with brook trout `present` and 6 with brook trout `absent`. The proportion of salmon surviving (`proportion.surviving`) is given for each stream.

Format

`BrookTrout` is a data frame with 12 observations on the following 4 variables. `BrookTrout2` is a different summary of the same study and gives survival rates for chinook in different years.

trout a factor with levels `absent` and `present` indicating whether brook trout are absent or present in the stream

salmon.released a numeric vector of the total number of salmon released

salmon.surviving a numeric vector of the number of salmon surviving

proportion.surviving a numeric vector of the proportion of salmon surviving

Source

Levin, P.S., S. Achord, B.E. Fiest, and R.W. Zabel. 2002. Non-indigenous brook trout and the demise of Pacific salmon: a forgotten threat? *Proceedings of the Royal Society of London, Series B, Biological Sciences* 269: 1663-1670.

Examples

```
str(BrookTrout)
str(BrookTrout2)

bwplot(proportion.surviving ~ trout, BrookTrout)

aggregate(proportion.surviving ~ trout, BrookTrout, FUN = favstats)
summary(proportion.surviving ~ trout, BrookTrout, fun = favstats)
```

Cavalry *Deaths from Horse Kicks*

Description

Numbers of deaths resulting from horse kicks per regiment-years for the Prussian army.

Format

A data frame with 5 observations on the following 2 variables.

deaths a numeric vector

count a numeric vector

Source

Bortkiewicz, L. 1898. Das Gesetz der Kleinen Zahlen (Teubner, Leipzig), *as cited in* Larson, R.J. and M.L. Marx. 1981. *An Introduction to Mathematical Statistics and its Applications*. Prentice-Hall: Englewood Cliffs, NJ.

Examples

```
Cavalry
xyplot(count ~ deaths, Cavalry, type='h', lwd=4)
barchart(count ~ deaths, Cavalry, horizontal = FALSE,
         box.ratio = 1000, origin=0)
```

Chickadees *Alarm Calls in Chickadees*

Description

Number of "dee" notes per call in Black-capped Chickadees (*Poecile atricapilla*) for 13 predator species with differing body masses.

Format

A data frame with 13 observations on the following 3 variables.

species a character vector

mass a numeric vector

dees a numeric vector

Source

Templeton, C.N., E. Greene, and K. Davis. 2005. Allometry of alarm calls: Black-capped Chickadees encode information about predator size. *Science* 308: 1934-1937.

References

http://www.sciencemag.org/cgi/content/short/308/5730/1934

Examples

```
str(Chickadees)
Chickadees

xyplot(dees ~ mass, data = Chickadees,
   xlab = "Predator body mass (kg)",
   ylab = "'Dees' per call", type=c('p','r')
)
```

ChimpBrains *Brodmann's Area 44 in Chimps*

Description

Asymmetry of Brodmann's area 44 in 20 chimpanzees.

Format

A data frame with 20 observations on the following 3 variables.

name name of chimp

sex a factor with levels F and M

asymmetry asymmetry score

Source

Cantalupo, C. and W.D. Hopkins. 2001. Asymmetric Broca's area in great apes. *Nature* 414: 505.

Examples

```
xyplot(asymmetry ~ sex, ChimpBrains)
aggregate(asymmetry ~ sex, ChimpBrains, FUN = favstats)
summary(asymmetry ~ sex, ChimpBrains, fun = favstats)
```

Cichlids *Cichlid Mating Preference*

Description

Preference index in F1 and F2 crosses of two species of cichlids from Lake Victoria, *Pundamilia pundamilia* and *P. nyererei*.

Format

A data frame with 53 observations on the following 2 variables.

genotype a factor with levels `F1` and `F2`

preference a numeric vector

Source

Haeslery, M.P. and O. Seehausen. 2005. Inheritance of female mating preference in a sympatric sibling species pair of Lake Victoria cichlids: implications for speciation. *Proceedings of the Royal Society of London, Series B, Biological Sciences* 272: 237-245.

References

http://rspb.royalsocietypublishing.org/content/272/1560/237.full.pdf

Examples

```
str(Cichlids)

summary(preference ~ genotype, Cichlids, fun = favstats)

if (require(plyr)) {
ddply(Cichlids, .(genotype),
  function(df)c(mean = mean(df$preference),
                standard.deviation = sd(df$preference),
                n = length(df$preference)))
}
```

CichlidsGnRH *GnRH Levels in Cichlids*

Description

Levels of mRNA for gonadotropin-releasing hormone in cichlids (*Haplochromis burtoni*) that are ($n = 5$) and are not ($n = 6$) territorial.

Format

A data frame with 11 observations on the following 2 variables.

territorial a factor with levels `No` and `Yes`

GnRH.mRNA a numeric vector

Source

White, S.A., T. Nguyen, and R.D. Fernald. 2002. Social regulation of gonadotropin-releasing hormone. *Journal of Experimental Biology* 205: 2567-2581.

References

http://jeb.biologists.org/cgi/content/abstract/205/17/2567

Examples

```
xyplot(GnRH.mRNA ~ territorial, CichlidsGnRH, type=c('p','a'))
```

Clearcuts *Biomass Change in Rainforests near Clearcuts*

Description

Biomass change in 36 Amazonian rainforests following clearcuts ranging from 50 m to several kilometers.

Format

A data frame with 36 observations of one variable.

biomass.change

Source

Laurance, W.F., S.G. Laurance, L.V. Ferreira, J.M. Rankin-de Merona, C. Gascon, T.E. Lovejoy. 1997. Biomass collapse in Amazonian forest fragments. *Science* 278: 1117-1118.

References

http://www.sciencemag.org/cgi/content/abstract/278/5340/1117

Examples

```
str(Clearcuts)
histogram(~biomass.change, Clearcuts)
```

CocaineDopamine *Effects of Cocaine on Dopamine Receptors*

Description

Percent of dopamine receptors blocked (`percent.bocked`) and the perceived level of high as determined by PET scans (`high`) in 34 humans.

Format

A data frame with 34 observations on the following 2 variables.

percent.blocked a numeric vector

high a numeric vector

Source

Volkow, N.D., G.-J. Wang, R.W. Foltin, J.S. Fowler, N.N. Abumrad, S. Vitkun, J. Logan, S.J. Gatley, N. Pappas, R. Hitzemann, and C.E. Shea. 1997. Relationship between subjective effects of cocaine and dopamine transporter occupancy. *Nature* 386: 827-830.

References

http://www.nature.com/nature/journal/v386/n6627/abs/386827a0.html

Examples

```
str(CocaineDopamine)
xyplot(high ~ percent.blocked, CocaineDopamine)
```

col.abd *Lattice theme for Analysis of Biological Data*

Description

This theme will help produce plots with color scheme similar to the one used in *Analysis of Biological Data*

Usage

```
col.abd(bw = FALSE, lty = 1:7)

theme.abd(bw = FALSE, lty = 1:7)
```

Arguments

bw	a logical. Use a grayscale theme instead of color?
lty	line types used for panel.superpose

Details

theme.abd and col.abd are the same function with two names.

Value

a list that can be used as a lattice theme.

Author(s)

Randall Pruim (<rpruim@calvin.edu>)

Examples

```
trellis.par.set(theme=col.abd(bw=TRUE))
show.settings()
trellis.par.set(theme=theme.abd(lty=1))
show.settings()
```

Convictions *Frequency of Convictions for a Cohort of English Boys*

Description

Data on frequency of convictions for a cohort of 395 boys.

Format

A data frame with 15 observations on the following 2 variables.

convictions number of convictions

boys number of boys with given number of convictions

Source

Farrington, D.P. 1994. *Cambridge Study in Delinquent Development* [Great Britain], 1961-1981. 2nd ICPSR ed. Inter-university Consortium for Political and Social Research, Ann Arbor, MI.

References

http://www.icpsr.umich.edu/icpsrweb/NACJD/archive.jsp

Examples

```
str(Convictions)
barchart(boys ~ as.factor(convictions), Convictions, horizontal = FALSE, origin=0)
xyplot( boys ~ convictions, Convictions, type = "h", lwd = 20)
```

ConvictionsAndIncome *Convictions and Income Level in a Cohort of English Boys*

Description

Data reporting the number of individual with and without convictions per income level.

Format

A data frame with 395 observations on the following 2 variables.

convicted a factor with levels `no` and `yes`

income a factor with levels `adequate`, `comfortable`, and `inadequate`

Source

Farrington, D.P. 1994. *Cambridge Study in Delinquent Development* [Great Britain], 1961-1981. 2nd ICPSR ed. Inter-university Consortium for Political and Social Research, Ann Arbor, MI.

References

http://www.icpsr.umich.edu/icpsrweb/NACJD/archive.jsp

Examples

```
str(ConvictionsAndIncome)
ConvictionsAndIncome

xtabs(~ convicted + income, data = ConvictionsAndIncome)
```

Crickets *Immunity and Sperm Viability in Crickets*

Description

Sperm viability and immune function, measured by lysozyme activity in crickets. Each observation is a mean for a single family of males.

Format

A data frame with 41 observations on the following 2 variables.

sperm.viability a numeric vector

lysozyme a numeric vector

Source

Simmons, L.W. and B. Roberts. 2005. Bacterial immunity traded for sperm viability in male crickets. *Science* 309: 2031.

Examples

```
Crickets
xyplot(lysozyme ~ sperm.viability, Crickets)
```

DaphniaLongevity *Daphnia Longevity*

Description

Number of spores and host longevity in the crustacean *Daphnia magna*.

Format

A data frame with 32 observations on the following 2 variables.

longevity a numeric vector

sqrt.spores a numeric vector

Source

Jensen, K.H., T.J. Little, A. Skorping, and D. Ebert. 2006. Empirical support for optimal virulence in a castrating parasite. *PLoS Biology* 4(7): e197

References

http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0040197

Examples

```
str(DaphniaLongevity)
xyplot(sqrt.spores ~ longevity, DaphniaLongevity)
```

DaphniaResistance *Daphnia Resistance to Cyanobacteria*

Description

Resistance of *Daphnia* eggs to different levels of cyanobacteria (cyandensity) from 1962-1997.

Format

A data frame with 32 observations on the following 2 variables.

density a factor with levels: high, low, and med

resistance a numeric vector

Source

inferred from Hairston, N.G., Jr., W. Lampert, C.E. Cáceres, C.L. Holtmeier, L.J. Weider, U. Gaedke, J.M. Fischer, J.A. Fox, and D.M. Post. 1999. Dormant eggs record rapid evolution. *Nature* 401: 446.

Examples

```
str(DaphniaResistance)


bwplot(resistance ~ density, DaphniaResistance)
# with such a small data set, we can display all the data
# rather than a summary
xyplot(resistance ~ density, DaphniaResistance)
histogram( ~ resistance| density, DaphniaResistance,
strip=FALSE, strip.left = TRUE,
layout=c(1,3)
)
```

dataInfo abd *Data Sets*

Description

Information about the location of data sets in *Analysis of Biological Data*

Format

A data frame with 143 observations on the following 5 variables.

name name of data set

chapter chapter in which data set appears

type used in an `Example` or a `Problem`

number example or problem number

sub sub-problem: `a` `b` `c`

See Also

`abdData`

Examples

```
str(dataInfo)
```

DayOfBirth *Day of Birth*

Description

Day of the week for 350 U.S. births in 1999.

Format

A data frame with 7 observations on the following 2 variables.

day a character vector

births a numeric vector

Source

Ventura, S.J., J.A. Martin, S.C. Curtin, F. Menacker, and B.E. Hamilton. 2001. Births: final data for 1999. *National Vital Statistics Reports* Vol. 49, No. 1.

References

http://cdc.gov/NCHS/products/nvsr.htm

Examples

```
DayOfBirth
barchart( day ~ births, DayOfBirth, origin=0)

# Fix bad ordering of days
DayOfBirth$oday <- with(DayOfBirth, ordered(day, levels = day))
barchart( oday ~ births, DayOfBirth, origin=0)
barchart( births ~ oday, DayOfBirth, horizontal = FALSE, origin=0)
barchart( births ~ oday, DayOfBirth, horizontal = FALSE, origin=0,
 scales = list(x=list(rot=45)))

barplot(DayOfBirth$births,
  ylim = c(0, 70),
  names.arg = DayOfBirth$day,
  las = 2,
  mgp = c(3, 0.75, 0))
```

DEET *DEET and Mosquito Bites*

Description

Administered dose of DEET and number of mosquito bites for 52 women.

Format

A data frame with 52 observations on the following 2 variables.

dose a numeric vector

bites a numeric vector

Source

Golenda, C.F., V.B. Solberg, R. Burge, J.M. Gambel, and R.A. Wirtz. 1999. Gender-related efficacy difference to an extended duration formulation of topical N,N-diethyl-*m*-toluamide (DEET). *American Journal of Tropical Medicine and Hygiene* 60: 654-657.

Examples

```
str(DEET)
xyplot(bites ~ dose, DEET)
```

DesertBirds *Desert Bird Census Data*

Description

Census data for desert birds.

Format

A data frame with 43 observations on the following 2 variables.

species a character vector

count a numeric vector

Source

Sauer, J.R., J.E. Hines, and J. Fallon. 2003. The North American breeding bird survey, results and analysis 1966-2002. Version 2003.1. USGS Patuxent Wildlife Research Center, Laurel, MD.

References

http://www.mbr-pwrc.usgs.gov/bbs/

Examples

```
str(DesertBirds)
histogram(~ count, DesertBirds,
  xlab = "Abundance"
  )
```

Dioecy *Dioecy vs. Monomorphism in Plants*

Description

Number of dioecious and monomorphic taxa among pairs of closely related plants.

Format

A data frame with 28 observations on the following 3 variables.

dioecious a numeric vector

monomorphic a numeric vector

taxon.pair identifier for pair

Source

Heilbuth, J.C. 2000. Lower species richness in dioecious clades. *The American Naturalist* 156: 221-241.

Examples

```
xyplot(dioecious ~ monomorphic, Dioecy, alpha = 0.65, pch = 16)
```

`Dolphins` *Dolphin Swimming Behavior*

Description

Percentage of time 8 sleeping dolphins from the Southern Hemisphere spent swimming clockwise.

Format

A data frame with 8 observations on one variable.

percent.clockwise percent of time spent swimming clockwise while sleeping.

Source

Stafne, G.M. and P.R. Manger. 2004. Predominance of clockwise swimming during rest in Southern Hemisphere dolphins. *Physiology and Behavior* 82: 919-926.

References

http://faculty.washington.edu/chudler/dolp.html

Examples

```
Dolphins
hist(Dolphins$percent.clockwise)
histogram(~ percent.clockwise, Dolphins)
```

DungBeetles *Heritability of Body Condition in Dung Beetles*

Description

Body condition (`offspring.condition`) in 36 dung beetles (*Onthophagus taurus*) from 12 `males` each mated to 3 different virgin females.

Format

A data frame with 36 observations on the following 2 variables.

id a numeric vector

offspring.condition a numeric vector

Source

inferred from Kotiaho, J.S., L.W. Simmons, and J.L. Tomkins. 2001. Towards a resolution of the lek paradox. *Nature* 410: 684-686.

References

http://en.wikipedia.org/wiki/Dung_beetle

http://www.nature.com/nature/journal/v410/n6829/abs/410684a0.html

Examples

```
str(DungBeetles)
xyplot(offspring.condition ~ factor(id), DungBeetles,
  xlab='Dung Beetle',
  ylab='offspring condition')
```

Earthworms *Earthworm Diversity and Soil Nitrogen Levels*

Description

Number of earthworm species and total nitrogen content in the soil in 39 hardwood forest plots.

Format

A data frame with 39 observations on the following 2 variables.

worm.species a numeric vector

nitrogen a numeric vector

Source

Gundale, M.J., W.M. Jolly, and T.H. Deluca. 2005. Susceptibility of a northern hardwood forest to exotic earthworm invasion. *Conservation Biology* 19: 1075-1083.

References

http://www3.interscience.wiley.com/journal/118701215/abstract

Examples

```
str(Earthworms)
xyplot(nitrogen ~ worm.species, Earthworms)
```

Earwigs *Earwig Density and Forceps*

Description

Earwig (*Forficula auricularia*) density and the proportion of trapped earwigs with abdominal forceps (used for fighting and courtship).

Format

A data frame with 7 observations on the following 2 variables.

density a numeric vector

proportion.forceps a numeric vector

Source

Tomkins, J.L. and G.S. Brown. 2004. Population density drives the local evolution of a threshold dimorphism. *Nature* 431: 1099-1103.

References

http://en.wikipedia.org/wiki/Forficula_auricularia

http://www.arkive.org/common-european-earwig/forficula-auricularia/

http://eol.org/pages/473785

Examples

```
xyplot(proportion.forceps ~ density, data=Earwigs, type='h', lwd=6)
```

Eelgrass *Eelgrass Genotypes*

Description

Number of shoots (`shoots`) surviving in each of 32 experimental plots planted with 1, 3, or 6 different genotypes of eelgrass (`treatment.genotypes`).

Format

A data frame with 32 observations on the following 2 variables.

genotypes a numeric vector of the number of genotypes planted in each plot

shoots a numeric vector of the total number of shoots in each plot

Source

inferred from Reusch, T.B.H., A. Ehlers, A. Hämmerli, and B. Worm. 2005. Ecosystem recovery after climatic extremes enhanced by genotypic diversity. *Proceedings of the National Academy of Sciences (USA)* 102: 2826-2831.

References

http://www.pnas.org/content/102/8/2826.abstract

Examples

```
Eelgrass

# Convert treatment.genotypes to a factor
Eelgrass$genotypesF <-
  factor(Eelgrass$genotypes)
str(Eelgrass)
xyplot(shoots ~ genotypes, Eelgrass)
xyplot(shoots ~ genotypesF, Eelgrass)
```

ElectricFish *Electric Fish*

Description

Species abundance of electric fish upstream and downstream of the entrance of a tributary in the Amazon basin.

Format

A data frame with 12 observations on the following 3 variables.

tributary a character vector

species.upstream a numeric vector of the number of species of electric fish present upstream of the tributary

species.downstream a numeric vector of the number of species of electric fish present downstream of the tributary

Source

Fernandes, C.C., J. Podos, and J.G. Lundberg. 2004. Amazonian ecology: tributaries enhance the diversity of electric fishes. *Science* 305: 1960-1962.

References

http://www.sciencemag.org/cgi/content/abstract/305/5692/1960

Examples

```
ElectricFish
require(grid)
xyplot(species.upstream ~ species.downstream, data = ElectricFish,
  panel=function(x, y, ...){
    grid.text(ElectricFish$tributary, x=x, y=y,
      rot = 45,
      gp = gpar(cex=.6),
      default.units = 'native')
    }
  )
```

ElVerde *Diet Breadth in a Rainforest Community*

Description

Number of different species (`breadth`) in 127 species (`no.species`) in the rainforest community at El Verde, Puerto Rico

Format

A data frame with 38 observations on the following 2 variables.

breadth a numeric vector

num.species a numeric vector

Source

Waide R.B. and W.B. Reagan, eds. 1996. *The Food Web of a Tropical Rainforest*. University of Chicago Press, Chicago.

Examples

```
ElVerde
xyplot(num.species ~ breadth, ElVerde, type='h',lwd=3)
```

EndangeredSpecies *Endangered and Threatened Species*

Description

Frequency of taxon groups on the U.S. Fish and Wildlife Service list of endangered and threatened species (2002).

Format

A data frame with 11 observations on the following 2 variables.

taxon a character vector

num.species a numeric vector

Source

U.S. Fish and Wildlife Service. 2001. Number of U.S. listed species per calendar year.

References

http://www.fws.gov/endangered/

Examples

```
str(EndangeredSpecies)
EndangeredSpecies
```

FingerRatio *2D:4D Finger Ratio*

Description

The ratio of the lengths of the index finger to the ring finger in 46 males and the number of CAG repeats for each.

Format

A data frame with 46 observations on the following 2 variables.

CAGrepeats a numeric vector of the number of CAG repeats

finger.ratio a numeric vector of the ratio of digit 2 to digit 4

Source

inferred from Manning, J.T., P.E. Bundred, D.J. Newton, and B.F. Flanagan. 2003. The second to fourth digit ratio and variation in the androgen receptor gene. *Evolution and Human Behavior* 24: 399-405.

References

http://en.wikipedia.org/wiki/Digit_ratio

Examples

```
str(FingerRatio)
xyplot(finger.ratio ~ CAGrepeats, FingerRatio,
  xlab = "Number of CAG Repeats",
  ylab = "2D:4D Ratio"
)
```

Fireflies *Spermatophore Mass in Fireflies*

Description

Measurements of spermatophore mass (milligrams) in 35 fireflies (*Photinus ignitus*).

Format

A data frame with 35 observations of one variable.

sp.mass

Source

inferred from Cratsley, C.K. and S.M. Lewis. 2003. Female preference for male courtship flashes in *Photinus ignitus* fireflies. *Behavioral Ecology* 14: 135-140.

References

http://beheco.oxfordjournals.org/cgi/content/abstract/14/1/135

http://en.wikipedia.org/wiki/Firefly

Examples

```
str(Fireflies)
histogram(~sp.mass, Fireflies, n=12)
```

FireflyFlash *Firefly Flash Duration*

Description

Flash duration (measured in milliseconds) of a sample of male fireflies (*Photinus ignitus*; $n = 35$).

Format

A data frame with 35 observations of one variable.

flash duration of flash (milliseconds)

Source

inferred from Cratsley, C.K. and S.M. Lewis. 2003. Female preference for male courtship flashes in *Photinus ignitus* fireflies. *Behavioral Ecology* 14: 135-140.

Examples

```
str(FireflyFlash)
histogram(~flash, FireflyFlash)
```

FlycatcherPatch *Forehead Patch Size in Collared Flycatachers*

Description

Forehead patch size in 30 male Collared Flycatachers measured in two consecutive years.

Format

A data frame with 30 observations on the following 2 variables.

patch98 a numeric vector

patch99 a numeric vector

Source

Griffith, S.C. and B.C. Sheldon. 2001. Phenotypic plasticity in the expression of a sexually selected trait: neglected components of variation. *Animal Behaviour* 61: 987-993.

Examples

```
str(FlycatcherPatch)
xyplot(patch99 ~ patch98, FlycatcherPatch)
```

FlyTestes *Testes Size in Flies*

Description

Testes size (square mm; `Testes.area`) in 8 populations of common yellow dung flies (*Scathophaga stercoraria*) with different mating systems (`Mating.system`).

Format

A data frame with 8 observations on the following 2 variables.

mating a factor with levels `Monogamous` `Polyandrous`

testes.area a numeric vector

Source

Hosken, D.J. and P.I. Ward. 2001. Experimental evidence for testis size evolution via sperm competition. *Ecology Letters* 4: 10-13.

References

http://en.wikipedia.org/wiki/Scathophaga_stercoraria

Examples

```
str(FlyTestes)
FlyTestes
```

GeneRegulation *Gene Regulation in Saccharomyces*

Description

Number of genes regulated by 109 regulatory genes of *Saccharomyces cerevisiae*.

Format

A data frame with 26 observations on the following 2 variables.

genes.regulated a numeric vector

count a numeric vector

Source

Guelzim, N., S. Bottani, P. Bourgine and F. Képès. 2002. Topological and causal structure of the yeast transcriptional regulatory network. *Nature Genetics* 31: 60-63.

Examples

```
str(GeneRegulation)
xyplot(count ~ genes.regulated, GeneRegulation, type='h', lwd=3)
```

GlidingSnakes *GlidingSnakes*

Description

Undulation rate (*Hz*) of 8 paradise tree snakes (*Chrysopelea paradisi*).

Format

A data frame with eight observations of one variable.

undulation.rate undulation rate

Source

Socha, J.J. 2002. Gliding flight in the paradise tree snake. *Nature* 418: 603-604.

References

http://www.nature.com/nature/journal/v418/n6898/abs/418603a.html

http://www.flyingsnake.org/

Examples

```
histogram(~undulation.rate , data=GlidingSnakes, n=7,
  xlab = "Undulation rate (Hz)",
  type='count')
```

GodwitArrival *Godwit Arrival Dates*

Description

Arrival dates for males and females in 10 pairs of Black-tailed Godwits (*Limosa limosa*)

Format

A data frame with 10 observations on the following 2 variables.

female a numeric vector

male a numeric vector

Source

Gunnarsson, T.G., J.A. Gill, T. Sigurbjörnsson, and W.J. Sutherland. 2004. Pair bonds: arrival synchrony in migratory birds. *Nature* 431: 646.

References

http://en.wikipedia.org/wiki/Black-tailed_godwit

Examples

```
xyplot(male~female, GodwitArrival, main='Arrival of Godwit pairs')
```

Grassland *Grassland Diversity*

Description

Species diversity in 10 experimental plots in the Park Grass Experiment at Rothamsted Experimental Station to which varying numbers of nutrients have been added.

Format

A data frame with 10 observations on the following 2 variables.

nutrients a numeric vector

num.species a numeric vector

Source

Harpole, W. S. and D. Tilman. 2007. Grassland species loss due to reduced niche dimension. *Nature* 446: 791-793.

References

http://www.rothamsted.ac.uk/

Examples

```
xyplot(num.species ~ jitter(nutrients, amount=0.1), Grassland, pch=16)
```

GreatTitMalaria *Malaria in Populations of Great Tit*

Description

Two-by-two contingency table of malaria (*Plasmodium*) infection status in control and egg-removal populations of Great Tit (*Parus major*).

Format

A data frame with 65 observations on the following 2 variables.

treatment a factor with levels `Control` and `Egg removal`

response a ordered factor with levels `No Malaria` and `Malaria`

Source

Oppliger, A., P. Christe, and H. Richner. 1996. Clutch size and malaria resistance. *Nature* 381: 565.

References

http://www.nature.com/nature/journal/v381/n6583/abs/381565a0.html

Examples

```
str(GreatTitMalaria)

table(GreatTitMalaria)

if(require(vcd)) {
  mosaic(~treatment + response, GreatTitMalaria)
}
```

Greenspace *Diversity in Urban Green Space*

Description

Measures of biodiversity in 15 urban green spaces in Sheffield, England.

Format

A data frame with 15 observations on the following 6 variables.

site a factor with levels A - O

attachment a numeric vector

area a numeric vector

butterfly a numeric vector

bird a numeric vector

ln.plant a numeric vector

Source

Fuller, R.A., K.N. Irvine, P. Devine-Wright, P.H. Warren, and K.J. Gaston. 2007. Psychological benefits of greenspace increase with biodiversity. *Biology Letters* 3: 390-394.

References

http://rsbl.royalsocietypublishing.org/content/3/4/390.abstract

Examples

```
str(Greenspace)
splom(Greenspace[,2:6])
```

Guppies *Ornamentation and Attractiveness in Guppies*

Description

The father's ornamentation (composite score of color and brightness) and son's attractiveness (relative rates of visits by females) in male guppies (*Poecilia reticulata*).

Format

A data frame with 36 observations on the following 2 variables.

father.ornament a numeric vector

son.attract a numeric vector

Source

inferred from Brooks, R. 2000. Negative genetic correlation between male sexual attractiveness and survival. *Nature* 406: 67-70.

References

http://www.nature.com/nature/journal/v406/n6791/abs/406067a0.html

Examples

```
str(Guppies)
xyplot(son.attract ~ father.ornament,
  Guppies,
  xlab = "Father's ornamentation",
  ylab = "Son's attractiveness"
  )
```

Hemoglobin *Hemoglobin Levels in High Altitude Populations*

Description

Relative rates of hemoglobin concentration in four populations of humans living at different altitudes.

Format

A data frame with 40 observations on the following 3 variables.

hemoglobin a numeric vector

group a factor with levels: Andes, Ethiopia, Tibet, and USA

relative.frequency a numeric vector

Source

inferred from Beall, C.M., M.J. Decker, G.M. Bittenham, I. Kushner, A. Gebremedhin, K.P. Strohl. 2002. An Ethiopian pattern of human adaptation to high-altitude hypoxia. *Proceeding of the National Academy of Sciences (USA)* 99(26): 17215-17218.

References

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC139295/

Examples

```
str(Hemoglobin)

xyplot(relative.frequency ~ hemoglobin | group, Hemoglobin,
  type ='h', lwd=4, layout=c(1,4))
```

HippocampusLesions *Memory and the Hippocampus*

Description

Spatial memory score (`memory`) and percent lesion of the hippocampus (`lesion`).

Format

A data frame with 57 observations on the following 2 variables.

lesion a numeric vector

memory a numeric vector

Source

Broadbent, N.J., L.R. Squire, and R.E. Clark. 2004. Spatial memory, recognition memory, and the hippocampus. *Proceedings of the National Academy of Sciences (USA)* 101: 14515-14520.

Examples

```
HippocampusLesions

xyplot(memory ~ lesion, data = HippocampusLesions,
  pch = 16, col = "red")

plot(memory ~ lesion, data = HippocampusLesions,
  pch = 16, col = "red")
```

histochart *Histogram from tabulated data*

Description

Uses lattice::barchart() to build a histogram from tabulated data.

Usage

```
histochart(x, data = NULL, box.ratio = 100, origin = 0,
  horizontal = FALSE, ...)
```

Arguments

x	formula of form `frequency ~ value`
data	data frame in which the formula x is interpreted
box.ratio	ratio of bar widths to gaps between bars
origin	where do bars begin?
horizontal	Should bars go horizontal?
...	other arguments passed to lattice::barchart()

Details

This is just a convenience wrapper around lattice::barchart().

Author(s)

Randall Pruim (<rpruim@calvin.edu>)

Examples

```
histochart( dbinom(0:30, 30, 0.35) ~ 0:30 )
```

HornedLizards *Horn Length and Predation Status of Horned Lizards*

Description

Squamosal horn length (mm; `horn.length`) and predation status (`group`; living or killed) for 184 horned lizards (*Phrynosoma mcalli*).

Format

A data frame with 184 observations on the following 2 variables.

horn.length a numeric vector

group a numeric vector

Source

Young, K.V., E.D. Brodie, Jr., and E.D. Brodie, III. 2004. How the horned lizard got its horns. *Science* 304: 65.

References

http://www.sciencemag.org/cgi/pdf_extract/304/5667/65

Examples

```
str(HornedLizards)

histogram(~horn.length | group, HornedLizards,
  layout=c(1,2),
  xlab="Horn Length (mm)")
```

HumanBodyTemp *Human Body Temperature*

Description

Body temperature for 25 randomly chosen health people

Format

A data frame with 25 observations of one variable.

temp body temperature (degrees F)

Source

Shoemaker, A. L. 1996. What's normal? – Temperature, gender, and heart rate. *Journal of Statistics Education* 4(2).

References

http://www.amstat.org/publications/jse/v4n2/datasets.shoemaker.html

Mackowiak, P.A., Wasserman, S.S., and Levine, M.M. 1992. A critical appraisal of 98.6 degrees F, the upper limit of the normal body temperature, and other legacies of Carl Reinhold August Wunderlich. *Journal of the American Medical Association* 268: 1578-1580.

Examples

```
histogram(~temp, HumanBodyTemp)
stem(HumanBodyTemp$temp, scale = 2)
favstats(HumanBodyTemp$temp)
```

HumanGeneLengths *Human Gene Lengths*

Description

Lengths in number of nucleotides (gene.length) for 20,290 human genes

Format

A data frame with 20,290 observations on the following variable.

gene.length a numeric vector

Source

Hubbard, T., D. Andrews, M. Caccamo, G. Cameron, Y. Chen, M. Clamp, L. Clarke, G. Coates, T. Cox, F. Cunningham, V. Curwen, T. Cutts, T. Down, R. Durbin, X. M. Fernandez-Suarez, J. Gilbert, M. Hammond, J. Herrero, H. Hotz, K. Howe, V. Iyer, K. Jekosch, A. Kahari, A. Kasprzyk, D. Keefe, S. Keenan, F. Kokocinsci, D. London, I. Longden, G. McVicker, C. Melsopp, P. Meidl, S. Potter, G. Proctor, M. Rae, D. Rios, M. Schuster, S. Searle, J. Severin, G. Slater, D. Smedley, J. Smith, W. Spooner, A. Stabenau, J. Stalker, R. Storey, S. Trevanion, A. Ureta-Vidal, J. Vogel, S. White, C. Woodwark, and E. Birne. 2005. Ensembl 2005. *Nucleic Acids Research* 33: D447-D453.

References

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC540092/

http://www.ensembl.org/

Examples

```
str(HumanGeneLengths)
histogram(~ gene.length, HumanGeneLengths,
          subset = gene.length < 15000)
```

Hurricanes *Intense Hurricanes*

Description

Number of hurricanes greater than or equal to category 3 on the Safir-Simpson scale during the 20th century.

Format

A data frame with 4 observations on the following 2 variables.

hurricanes a numeric vector

count a numeric vector

Source

Blake, E.S., E.N. Rappaport, J.D. Jarrell, and C.W. Landsea. 2005. The deadliest, costliest, and most intense United States tropical cyclones from 1851 to 2006 (and other frequently requested hurricane facts). *NOAA Technical Memorandum NWS TPC-4*.

References

http://www.aoml.noaa.gov/hrd/Landsea/Blakeetal_noaamemoApr2007.pdf

Examples

```
Hurricanes
```

Iguanas *Iguana Body Length Changes*

Description

Body size change in 64 Galápagos marine iguanas (*Amblyrhynchus cristatus*) that survived the 1992-1993 El Niño event.

Format

A data frame with 64 observations of one variable.

change.in.length

Source

Wikelski, M. and C. Thom. 2000. Marine iguanas shrink to survive El Niño. *Nature* 403: 37-38.

References

http://en.wikipedia.org/wiki/Marine_iguana

Examples

```
str(Iguanas)
histogram(~ change.in.length, Iguanas, n = 10)
```

IntertidalAlgae *Intertidal Algae*

Description

Area coverage of red algae (*Mazzaella parksii*) in two herbivore treatments (herbivores) at two tide levels (height).

Format

A data frame with 64 observations on the following 3 variables.

height a factor with levels low and mid

herbivores a factor with levels minus and plus

sqrt.area a numeric vector

Source

Harley, C.D.G. 2003. Individualistic vertical responses of interacting species determine range limits across a horizontal gradient. *Ecology* 84: 1477-1488.

Examples

```
str(IntertidalAlgae)

# Using * includes the main effects and the interaction
aov.fit <- aov(sqrt.area ~ herbivores * height, data = IntertidalAlgae)
summary(aov.fit)
lm.fit <- lm(sqrt.area ~ herbivores * height, data = IntertidalAlgae)
anova(lm.fit)
```

JetLagKnees *Circadian Rhythm Phase Shift*

Description

Shift in circadian rhythm (hours; `shift`) in three light treatments (`treatment`).

Format

A data frame with 22 observations on the following 2 variables.

treatment a factor with levels `control`, `eyes`, and `knee`

shift a numeric vector

Source

inferred from Wright, K.P., Jr. and C.A. Czeisler 2002. Absence of circadian phase resetting in response to bright light behind the knees. *Science* 297: 571.

References

http://www.sciencemag.org/cgi/content/full/297/5581/571

Examples

```
demo(sec15.1)
```

KenyaFinches *Body Mass and Beak Length in Three Species of Finches in Kenya*

Description

Data on body mass and beak length in three species of finches: Crimson-rumped waxbill (`CRU.WAXB`), Cutthroat finch (`CUTTHROA`), and White-browed sparrow weaver (`WB.SPARW`).

Format

A data frame with 45 observations on the following 3 variables.

species a factor with levels: `CRU.WAXB`, `CUTTHROA`, and `WB.SPARW`

mass mass (g)

beak.length beak length (mm)

Source

Schluter, D. 1988. The evolution of finch communities on islands and continents: Kenya vs. Galapagos. *Ecological Monographs* 58: 229-249.

Examples

```
table(KenyaFinches$species)
xyplot(beak.length ~ species, KenyaFinches)
bwplot(beak.length ~ species, KenyaFinches)
```

LanguageBrains *Brain Structure in Bilingual Humans*

Description

Proficiency score (summary of reading, writing, and speech) in subjects' second language and density of gray matter in the left inferior parietal region.

Format

A data frame with 22 observations on the following 2 variables.

proficiency a numeric vector

greymatter a numeric vector

Source

Mechelli, A., J.T. Crinion, U. Noppeney, J. O'Doherty, J. Ashburner, R.S. Frackowiak, and C.J. Price. 2004. Structural plasticity in the bilingual brain. *Nature* 431: 757.

Examples

```
str(LanguageBrains)
xyplot(proficiency ~ greymatter, LanguageBrains)
```

LarvalFish *Exploited Larval Fish*

Description

Age (`age`) and coefficient of variation (`cv`) in larval fish from exploited and unexploited species (`exploited`).

Format

A data frame with 28 observations on the following 3 variables.

age a numeric vector

cv a numeric vector

exploited a factor with levels `no` and `yes`

Source

Hsieh, C.H., C.S. Reiss, J.R. Hunter, J.R. Beddington, R.M. May, and G. Sugihara. 2006. Fishing elevates variability in the abundance of exploited species. *Nature* 443: 859-862.

Examples

```
str(LarvalFish)
xyplot(cv ~ age | exploited, LarvalFish)
xyplot(cv ~ age, groups=exploited, LarvalFish)
```

Lefthanded *Left-handedness and Rates of Violence*

Description

Prevalence of left-handedness (`percent.left`) and homicide rates (`murder`) for 8 societies.

Format

A data frame with 8 observations on the following 2 variables.

percent.left a numeric vector

murder.rate a numeric vector

Source

Faurie, C. and M. Raymond. 2005. Handedness, homicide and negative frequency-dependent selection. *Proceedings of the Royal Society of London B* 272: 25-28.

References

http://rspb.royalsocietypublishing.org/content/272/1558/25.abstract

Examples

```
str(Lefthanded)
xyplot(murder.rate ~ percent.left, Lefthanded)
```

LionCubs *Time to Reproduction in Female Lions*

Description

Time to reproduction (Days) based on whether death of previous cubs was due to infanticide (New) or accidental (Same).

Format

A data frame with 14 observations on the following 2 variables.

cause.of.death a factor with accident and infanticide

days.to.next.cub a numeric vector

Source

Packer, C. and A.E. Pusey. 1983. Adaptations of female lions to infanticide by incoming males. *The American Naturalist* 121: 716-728.

Examples

```
xyplot(days.to.next.cub ~ cause.of.death, LionCubs)
```

LionNoses *Lion Age and Nose Coloration*

Description

Ages (in years; age) of 32 male lions and relative coloration of their noses (proportion.black).

Format

A data frame with 32 observations on the following 2 variables.

age a numeric vector

proportion.black a numeric vector

Source

Whitman, K., A.M. Starfield, H.S. Quadling and C. Packer. 2004. Sustainable trophy hunting of African lions. *Nature* 428: 175-178.

References

http://www.nature.com/nature/journal/v428/n6979/abs/nature02395.html

Examples

```
xyplot(age ~ proportion.black, LionNoses)
```

`LiverPreparation` *Liver Preparation*

Description

The unbound fraction of taurocholate for each of five concentrations of administered taurocholate.

Format

A data frame with 5 observations on the following 2 variables.

concentration a numeric vector

unbound.fraction a numeric vector

Source

Smallwood, R.H., D.J. Morgan, G.W. Mihaly, and R.A. Smallwood. 1998. Effect of a protein binding change on unbound and total plasma concentrations for drugs of intermediate hepatic extraction. *Journal of Pharmacokinetics and Pharmacodynamics* 16:397-411.

References

http://www.ncbi.nlm.nih.gov/pubmed/3199317

Examples

```
str(LiverPreparation)
xyplot(unbound.fraction ~ concentration, LiverPreparation)
```

`LizardBite` *Bite Force in Collard Lizards*

Description

Bite force (N) and territory area in 11 male collared lizards (*Crotaphytus collaris*).

Format

A data frame with 11 observations on the following 2 variables.

bite force of bite (N)

territory area of territory

Note

In the original publication (Lappin and Husak, 2005; Figure 3A), the data are presented in log-10 units. The data in `LizardBite` and in chapter 17, question 9 was back-transformed using *e* (i.e., `exp()`). To recover the data from the original publication, use `10^(log(LizardBite$territory))` and `10^(log(LizardBite$bite))`.

Source

Lappin, A. K., and J. F. Husak. 2005. Weapon performance, not size, determines mating success and potential reproductive output in the collared lizard (*Crotaphytus collaris*). *The American Naturalist* 166: 426-436.

Examples

```
str(LizardBite)
xyplot(territory ~ bite, LizardBite)
```

LizardSprint *Sprint Speeds in Canyon Lizards*

Description

Sprint speeds (`speed`) in 34 canyon lizards (*Sceloporous merriami*) measured in successive years in Big Bend National Park. Note that `lizard` is not coded as a factor.

Format

A data frame with 68 observations on the following 2 variables.

lizard a numeric vector

speed a numeric vector

Source

inferred from Huey, R.B. and A.E. Dunham. 1987. The repeatability of locomotor performance in natural populations of the lizard *Sceloporus merriami*. *Evolution* 42: 1116-1120.

References

http://en.wikipedia.org/wiki/Sceloporus_merriami

Examples

```
histogram(~ speed, LizardSprint)
Lizard2 <- aggregate(speed ~ lizard, LizardSprint, mean)
histogram(~ speed, Lizard2)
```

Lobsters *Lobster Orientation*

Description

Orientation of 15 lobsters relative to initial position.

Format

A data frame with 15 observations of one variable.

orientation

Source

Boles, L.C. and K.J. Lohmann. 2003. True navigation and magnetic maps in spiny lobsters. *Nature* 421: 60-63.

References

http://www.unc.edu/depts/geomag/PDFGeomag/BolesandLohmann2003.pdf

Examples

```
histogram(~ orientation, Lobsters)
dotplot(~ orientation, Lobsters)
```

LodgepolePines *Lodgepole Pine Cone Masses*

Description

Masses of cones of lodgepole pines (`conemass`) from 16 different habitat types (`habitat`) in western North America.

Format

A data frame with 16 observations on the following 4 variables.

habitat a factor with levels: `island absent`, `island present`, and `mainland present`

conemass mass of cone

location `island` or `mainland`

squirrels `absent` or `present`

Source

Edelaar, P. and C.W. Benkman. 2006. Replicated population divergence caused by localised co-evolution? A test of three hypotheses in the Red Crossbill-lodgepole pine system. *Journal of Evolutionary Biology* 19: 1651-1659.

References

http://en.wikipedia.org/wiki/Lodgepole_pine

http://en.wikipedia.org/wiki/Red_crossbill

Examples

```
LodgepolePines
str(LodgepolePines)
xyplot(conemass ~ habitat, LodgepolePines)
```

LupusMice *Autoimmune Reactivity in Lupus-prone Mice*

Description

Autoimmune reactivity (`dilution` at which reactivity could be detected) in three `treatments` of lupus-prone mice.

Format

A data frame with 20 observations on the following 2 variables.

treatment a factor with levels: `enhanced`, `sham`, and `untreated`

dilution a numeric vector of the dilution level at which reactivity could be detected

Source

McGaha, T.L., B. Sorrentino, and J.V. Ravetch. 2005. Restoration of tolerance in lupus by targeted inhibitory receptor expression. *Science* 307: 590-593.

Examples

```
str(LupusMice)
```

Lynx *Population Cycles of Lynx in Canada 1752-1819*

Description

Number of lynx pelts (`pelts`) reported in Canada per year from 1752 to 1819.

Format

A data frame with 68 observations on the following 2 variables.

year a numeric vector

pelts a numeric vector

Source

Elton, C. and M. Nicholson. 1942. The ten-year cycle in numbers of the lynx in Canada. *Journal of Animal Ecology* 11: 215-244.

Examples

```
xyplot(pelts ~ year, Lynx, type=c('p','l'))
```

MarineReserve *Marine Reserve Biomass*

Description

Relative biomass in 32 marine reserves.

Format

A data frame with 32 observations of one variable.

biomass.ratio

Source

Halpern, B.S. 2003. The impact of marine reserves: do reserves work and does reserve size matter? *Ecological Applications* 13: S117-S137.

Examples

```
str(MarineReserve)
histogram(~ biomass.ratio, MarineReserve)
```

MassExtinctions *Mass Extinction Frequency*

Description

The frequency of mass extinctions in the fossil record.

Format

A data frame with 21 observations on the following 2 variables.

num.extinctions a numeric vector

count a numeric vector

Source

Raup, D.M. and J.J. Sepkoski, Jr. 1982. Mass extinctions in the marine fossil record. *Science* 215: 1501-1503.

References

http://www.sciencemag.org/cgi/content/abstract/sci;215/4539/1501

Examples

```
MassExtinctions
```

MoleRats *Energy Expenditure in Mole Rats*

Description

Energy expenditure (`ln.energy`) in two castes (`caste`) of Damaraland mole rats (*Cryptomys damarensis*) with body mass (`ln.mass`) as a covariate.

Format

A data frame with 35 observations on the following 3 variables.

caste a factor with levels `lazy` and `worker`

ln.mass a numeric vector

ln.energy a numeric vector

Source

inferred from Scantlebury, M., J.R. Speakman, M.K. Oosthuizen, T.J. Roper and N.C. Bennett. 2006. Energetics reveals physiologically distinct castes in a eusocial mammal. *Nature* 440: 795-797.

References

http://www.nature.com/nature/journal/v440/n7085/abs/nature04578.html

Examples

```
MoleRats
```

`Mosquitoes` *Body Size in Anopheles Mosquitoes*

Description

Weights of female and male mosquitos (*Anopheles darlingi*)

Format

A data frame with 20 observations on the following 2 variables.

weight a numeric vector

sex a factor with levels `female` and `male`

Source

Lounibos, L.P., N. Nishimura, J. Conn, and R. Lourenco-de-Oliveira. 1995. Life history correlates of adult size in the malaria vector *Anopheles darlingi*. *Memórias do Instituto Oswaldo Cruz* 90: 769-774.

References

http://www.bioline.org.br/request?oc95154

Examples

```
xyplot(weight ~ sex, Mosquitoes)
```

MouseEmpathy *Mouse Empathy*

Description

Percentage of time spent stretching in three treatments of mice. Both `condition` and `treatment` code for the same variable.

Format

A data frame with 42 observations on the following 3 variables.

treatment a factor with levels `Both Writhing`, `Isolated`, and `One Writhing`

percent.stretching a numeric vector

trt a factor with levels `bw`, `isolated`, and `ow`

Source

Langford, D.J., S.E. Crager, Z. Shehzah, S.B. Smith, S.G. Sotocinal, J.S. Levenstadt, M.L. Chande, D.J. Levitin, J.S. Mogill. 2006. Social modulation of pain as evidence for empathy in mice. *Science* 312: 1967-1970.

Examples

```
str(MouseEmpathy)

aov.fit <- aov(percent.stretching ~ treatment, data = MouseEmpathy)
summary(aov.fit)
lm.fit <- lm(percent.stretching ~ treatment, data = MouseEmpathy)
anova(lm.fit)
```

NeanderthalBrains *Cranial Capacity in Neanderthals and Modern Humans*

Description

Brain size (`lnbrain`) and body mass (`lnmass`) in Neanderthals and early modern humans (`species`).

Format

A data frame with 39 observations on the following 3 variables.

ln.mass log of body mass (kg)

ln.brain log of brain size

species a factor with levels `neanderthal` `recent`

Source

Ruff, C.B., E. Trinkaus, and T.W. Holliday. 1997. Body mass and encephalization in Pleistocene *Homo*. *Nature* 387: 173-176.

Examples

```
xyplot(ln.brain ~ ln.mass, data=NeanderthalBrains, groups=species)
```

`NematodeLifespan` *Effects of Trimethadione on Lifespan in Nematodes*

Description

`lifespan` of the nematode *Caenorhabditis elegans* in control and three experimental `treatments` of the anticonvulsant drug trimethadione.

Format

A data frame with 200 observations on the following 2 variables.

treatment a factor with levels: `adult`, `larva`, `larva+adult`, and `water`

lifespan a numeric vector of lifespan

Source

inferred from Evason, K., C. Huang, I. Yamben, D.F. Covey, and K. Kornfeld. 2005. Anticonvulsant medications extend worm life-span. *Science* 307: 258-262.

References

http://www.sciencemag.org/cgi/content/abstract/307/5707/258

Examples

```
str(NematodeLifespan)
```

NeotropicalTrees *Photosynthesis in Neotropical Trees*

Description

Photosynthetic capacity (`photosynthetic.capacity`) and number of fruits produced in the previous season (`previous.fruits`) of 9 females of *Ocotea tenera*.

Format

A data frame with 9 observations on the following 2 variables.

previous.fruits a numeric vector

photosynthetic.capacity a numeric vector

Source

inferred from Wheelwright, N.T. and B.A. Logan. 2004. Previous-year reproduction reduces photosynthetic capacity and slows lifetime growth in females of a neotropical tree. *Proceedings of the National Academy of Sciences (USA)* 101: 8051-8055.

References

http://www.pnas.org/content/101/21/8051.long

Examples

```
str(NeotropicalTrees)
NeotropicalTrees
```

Newts *Tetrodotoxin Resistance in Garter Snakes*

Description

Percent reduction in crawl speed (`resistance`) in the garter snake after injection of the neurotoxin tetrodotoxin from the rough-skinned newt (*Taricha granulosa*).

Format

A data frame with 12 observations on the following 2 variables.

locality a factor with levels: `Benton` and `Warrenton`

resistance a numeric vector

Source

Geffeney, S., E.D. Brodie, Jr., P.C. Ruben, and E.D. Brodie III. 2002. Mechanisms of adaptation in a predator-prey arms race: TTX-resistant sodium channels. *Science* 297: 1336-1339.

References

http://www.sciencemag.org/cgi/content/abstract/297/5585/1336

Examples

```
Newts
```

NorthSeaCod *Atlantic Cod Recruits*

Description

Number ($\log_{10}$ transformed) of Atlantic cod (*Gadus morhua*) that recruited (grew to catchable size) in the North Sea over a 39 years span.

Format

A data frame with 39 observations of one variable.

log10.recruits

Source

inferred from Beaugrand, G., K.M. Brander, J.A. Lindley, S. Souissi, and P.C. Reid. 2003. Plankton effect on cod recruitment in the North Sea. *Nature* 426: 661-664.

References

http://www.nature.com/nature/journal/v426/n6967/abs/nature02164.html

Examples

```
favstats(NorthSeaCod$log10.recruits)
```

NoSmokingDay *No Smoking Day*

Description

Number of workplace injuries on No Smoking Day (`Injuries.on.NSD`) compared to the same Wednesday in the previous year (`Injuries.before.NSD`) for 1987-1996.

Format

A data frame with 10 observations on the following 3 variables.

year a numeric vector

injuries.before.NSD a numeric vector

injuries.on.NSD a numeric vector

Source

Waters, A.J., M.J. Jarvis, and S.R. Sutton. 1998. Nicotine withdrawal and accident rates. *Nature* 394: 137.

References

http://www.nosmokingday.org.uk/

Examples

```
NoSmokingDay
```

OstrichTemp *Ostrich Body and Brain Temperatures*

Description

Body and brain temperatures (°C) in free-ranging ostriches (*Struthio camelus*) at the the Lichtenburg Game Breeding Centre, Lichtenburg, South Africa.

Format

A data frame with 6 observations on the following 3 variables.

ostrich a numeric vector identifying ostrich number

body.temp a numeric vector of body temperature in °C

brain.temp a numeric vector of brain temperature in °C

Source

Fuller, A., P.R. Kamerman, S.K. Maloney, G. Mitchell, and D. Mitchell. 2003. Variability in brain and arterial blood temperatures in free-ranging ostriches in their natural habitat. *Journal of Experimental Biology* 206: 1171-1181.

References

http://jeb.biologists.org/cgi/content/abstract/206/7/1171

http://www.sa-venues.com/game-reserves/nwp_lichtenburg.htm

Examples

```
xyplot(brain.temp ~ body.temp, OstrichTemp)
```

Penguins *Penguin Heart Rate*

Description

Slope of regressions of mass-specific metabolic rate on heart rate for three groups of Macaroni Penguins.

Format

A data frame with 24 observations on the following 2 variables.

group a factor with levels `BF`, `BM`, and `MF`

slope a numeric vector

Source

Green, J. A., P. J. Butler, A. J. Woakes, I. L. Boyd and R. L. Holder. 2001. Heart rate and rate of oxygen consumption of exercising macaroni penguins. *Journal of Experimental Biology* 204: 673-684.

Examples

```
str(Penguins)
dotplot(slope ~ group, Penguins)
```

PlantPersistence *Population Persistence Times*

Description

Persistence times (`generations`) in the annual plant *Cardamine pensylvanica* in four experimental populations (`treatment`).

Format

A data frame with 16 observations on the following 2 variables.

generations a numeric vector

treatment a factor with levels: `Isolated`, `Medium`, `Long`, and `Continuous`

Source

Molofsky, J. and J.-B. Ferdy. 2005. Extinction dynamics in experimental metapopulations. *Proceedings of the National Academy of Sciences (USA)* 102: 3726-3731.

Examples

```
xyplot(generations~treatment, PlantPersistence)
```

Pollen *Sterility in Hybrid Pollens*

Description

Genetic distance between pairs of species of the genus *Silene* and proportion of their hybrid offspring that are sterile.

Format

A data frame with 23 observations on the following 2 variables.

genetic.distance a numeric vector

proportion.sterile a numeric vector

Source

Moyle, L.C., M.S. Olson, and P. Tiffin. 2004. Patterns of reproductive isolation in three angiosperm genera. *Evolution* 58: 1195-1208.

Examples

```
str(Pollen)
xyplot(proportion.sterile ~ genetic.distance, Pollen)
```

Powerball *Powerball Tickets Sold*

Description

The number of Powerball tickets sold per day of the week for three years.

Format

A data frame with 7 observations on the following 2 variables.

day a character vector

millions.of.tickets.sold a numeric vector

Source

Oster, E. 2004. Dreaming big: Why do people play Powerball? *Chance News* 13.02.

References

http://www.dartmouth.edu/~chance/chance_news/recent_news/chance_news_13.02.html

Examples

```
Powerball
xyplot(millions.of.tickets.sold ~ day, Powerball)
```

PrimateMetabolism *Primate Metabolic Rates*

Description

Body mass (g) and metabolic rate (watts) for 17 species of primates.

Format

A data frame with 17 observations on the following 2 variables.

mass mass (g)

bmr metabolic rate (watts)

Source

Heusner, A.A. 1991. Size and power in mammals. *Journal of Experimental Biology* 160: 25-54.

References

http://jeb.biologists.org/cgi/content/abstract/160/1/25

Examples

```
str(PrimateMetabolism)
xyplot(bmr ~ mass, PrimateMetabolism)
xyplot(bmr ~ mass, PrimateMetabolism, scales=list(log=TRUE))
```

PrimateWBC *Primate White Blood Cell Counts and Promiscuity*

Description

White blood cell (WBC) counts in pairs of closely related primate species

Format

A data frame with 9 observations on the following 2 variables.

WBC.less a numeric vector

WBC.more a numeric vector

Source

Nunn, C.L., J.L. Gittleman, and J. Antonovics. 2000. Promiscuity and the primate immune system. *Science* 290: 1168-1170.

Examples

```
xyplot(WBC.more ~ WBC.less, PrimateWBC)
```

ProgesteroneExercise *Progesterone and Exercise*

Description

Progesterone levels and rates of ventilation during submaximal exercise in 30 women.

Format

A data frame with 30 observations on the following 2 variables.

progesterone a numeric vector

ventilation a numeric vector

Source

Brutsaert, T.D., H. Spielvogel, E. Caceres, M. Araoz, R.T. Chatterton, V.J. Vitzthum. 2002. Effect of menstrual cycle phase on exercise performance of high-altitude native women at 3600 m. *Journal of Experimental Biology* 205: 233-239

References

http://jeb.biologists.org/cgi/content/abstract/205/2/233

Examples

```
str(ProgesteroneExercise)
xyplot(ventilation ~ progesterone, ProgesteroneExercise)
```

Pseudoscorpions *Multiple Mating in Pseudoscorpions*

Description

Successful numbers of broods (`Number.of.successful.broods`) in two groups of female pseudoscrpions (*Cordylochernes scorpioides*), one mated to the same male twice and one to two different males.

Format

A data frame with 36 observations on the following 2 variables.

treatment a factor with levels `DM` `SM`

successful.broods a numeric vector

Source

Newcomer, S.D., J.A. Zeh, and D.W. Zeh. 1999. Genetic benefits enhance the reproductive success of polyandrous females. *Proceedings of the National Academy of Sciences (USA)* 96: 10236-10241.

References

http://www.pnas.org/content/96/18/10236.long

Examples

```
str(Pseudoscorpions)
bwplot(successful.broods ~ treatment, Pseudoscorpions)
aggregate(successful.broods ~ treatment, Pseudoscorpions, favstats)
```

Pufferfish *Pufferfish Mimicry*

Description

Number of `predators` approaching models painted to resemble pufferfish (*Canthigaster valentini*) across a range of similarities (`resemblance`)

Format

A data frame with 20 observations on the following 2 variables.

resemblance a numeric vector

predators a numeric vector

Source

Caley, M.J. and D. Schluter. 2003. Predators favour mimicry in a tropical reef fish. *Proceedings of the Royal Society of London Series B, Biological Sciences* 270: 667-672.

References

http://rspb.royalsocietypublishing.org/content/270/1516/667.full.pdf

http://en.wikipedia.org/wiki/Canthigaster_valentini

http://www.fishbase.org/Summary/SpeciesSummary.php?id=6544

Examples

```
str(Pufferfish)
xyplot(predators ~ jitter(resemblance, amount = 0.1), Pufferfish)
Pufferfish
```

Rattlesnakes *Temperature Change and Meal Size in Rattlesnakes*

Description

Temperature change after a meal (rattlesnakes (*Crotalus durissus*).

Format

A data frame with 17 observations on the following 2 variables.

meal.size a numeric vector

temp.change a numeric vector

Source

Tattersall, G.J., W.K. Milsom, A.S. Abe, S.P. Brito, and D.V. Andrade. 2004. The thermogenesis of digestion in rattlesnakes. *Journal of Experimental Biology* 207: 579-585.

References

http://jeb.biologists.org/cgi/content/abstract/207/4/579

Examples

```
str(Rattlesnakes)
xyplot(meal.size ~ temp.change, Rattlesnakes)
```

Rigormortis *Rigormortis and Time of Death*

Description

Number of bodies reaching rigormortis in each hour after death.

Format

A data frame with 12 observations on the following 2 variables.

hours a numeric vector

count a numeric vector

Source

Pounder, D.J. 1995. Postmortem changes and time of death. University of Dundee.

Examples

```
xyplot(count ~ hours, Rigormortis, type='h', lwd=3)
barchart(count ~ hours, Rigormortis, horizontal=FALSE, origin=0)
```

RopeTrick *Indian Rope Trick*

Description

Perceived impressiveness (`impressiveness`) of a written account of the Indian Rope Trick and the corresponding number of `years` since it was witnessed.

Format

A data frame with 21 observations on the following 2 variables.

years a numeric vector

impressiveness a numeric vector

Source

Wiseman, R. and P. Lamont. 1996. Unravelling the Indian rope-trick. *Nature* 383: 212-213.

References

http://www.richardwiseman.com/resources/ropeJSPR.pdf

Examples

```
xyplot(impressiveness ~ years, RopeTrick)
```

SagebrushCrickets *Sagebrush Cricket Mating Times*

Description

Time to mating (`time.to.mating`) in fed and unfed (`treatment`) sagebrush crickets (*Cyphoderris strepitans*).

Format

A data frame with 24 observations on the following 2 variables.

treatment a factor with levels: `fed` and `starved`

time.to.mating a numeric vector

Source

Chadwick Johnson, J., T.M. Ivy, and S.K. Sakaluk. 1999. Female remating propensity contingent on sexual cannibalism in sagebrush crickets, *Cyphoderris strepitans*: a mechanism of cryptic female choice. *Behavioral Ecology* 10: 227-233.

Examples

```
SagebrushCrickets
str(SagebrushCrickets)
```

SalmonColor *Pacific Salmon Color*

Description

Skin color sockeye and kokanee morphs of the Pacific salmon (*Oncorhynchus nerka*) raised in a low carotenoid environment.

Format

A data frame with 35 observations on the following 2 variables.

species a factor with levels kokanee and sockeye

skin.color a numeric vector

Source

Craig, J.K. and C. Foote. 2001. Countergradient variation and secondary sexual color: phenotypic convergence promotes genetic divergence in carotenoid use between sympatric anadromous and nonanadromous morphs of sockeye salmon (*Oncorhynchus nerka*). *Evolution* 55: 380-391.

Examples

```
SalmonColor
histogram(~ skin.color | species, SalmonColor)
bwplot(skin.color ~ species, SalmonColor)
```

Seedlings *Number of Seedlings Per Quadrat*

Description

Data on frequency of seeding per quadrat for 80 hypothetical quadrats.

Format

A data frame with 8 observations on the following 2 variables.

seedlings a numeric vector

count a numeric vector

Examples

```
Seedlings
```

`Selection` *Data for Meta-analysis*

Description

Data for meta-analysis on the relationship between testosterone and aggression.

Format

A data frame with 814 observations on the following 8 variables.

species species investigated

traitname trait investigated

strength.of.selection strength of selection

sample.size size of sample

authors authors of publication

year year of publication

journal journal of publication

volume.pages volume and pages

Source

Kingsolver, J.G., H.E. Hoekstra, J.M. Hoekstra, D. Berrigan, S.N. Vignieri, C.E. Hill, A. Hoang, P. Gibert, and P. Beerli. 2001. The strength of phenotypic selection in natural populations. *The American Naturalist* 157: 245-261.

Examples

```
histogram(~ strength.of.selection, Selection,n=40)
table(Selection$species) -> s
table(s)
s[s>10] # most common species
table(Selection$traitname) -> t
table(t)
t[t>10] # most common traits
```

`SexualSelection` *Sexual Conflict*

Description

Number of species in each of two taxa in closely related taxon pairings and the difference between the two groups. One taxon has multiple matings (`polyandrous.species`) and one has only single matings (`monandrous.species`).

Format

A data frame with 25 observations on the following 4 variables.

polyandrous.species a numeric vector

monandrous.species a numeric vector

difference a numeric vector

taxon.pair identifier

Source

Arnqvist, G., M. Edvardsson, U. Friberg, and T. Nilsson. 2000. Sexual conflict promotes speciation in insects. *Proceedings of the National Academy of Sciences (USA)* 97: 10460-10464.

References

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC27046/

Examples

```
SexualSelection

histogram(~ difference, SexualSelection, n = 20)

hist(SexualSelection$difference, breaks = 20)

# Calculate the number of tests and the number of negative tests
(n <- length(SexualSelection$difference))
(n.neg <- sum(SexualSelection$difference < 0))

2 * pbinom(q = n.neg, size = n, prob = 0.5)

# With a binomial test
binom.test(n.neg, n, p = 0.5)
```

ShadParasites *Shad Parasites*

Description

Frequency of the nematode *Camallanus oxycephalus* per fish.

Format

A data frame with 7 observations on the following 2 variables.

parasites a numeric vector

count a numeric vector

Source

Shaw, D.J., B.T. Grenfell, and A.P. Dobson. 1998. Patterns of macroparasite aggregation in wildlife host populations. *Parasitology* 117: 597-610.

References

http://www.ncbi.nlm.nih.gov/pubmed/9881385

Examples

```
ShadParasites
```

ShrinkingSeals *Seal Body Lengths and Age*

Description

Body length (cm) and age (days) for 9,665 female Northern fur seals (*Callorhinus ursinus*).

Format

A data frame with 9,665 observations on the following 2 variables.

age age (days)

length body length (cm)

Source

Trites, A.W. and M.A. Bigg. 1996. Physical growth of northern fur seals: seasonal fluctuations and migratory influences. *Journal of Zoology (London)* 238: 459-482.

Examples

```
str(ShrinkingSeals)

plot(ShrinkingSeals, pch = 16, cex = 0.5)
xyplot(length ~ age, ShrinkingSeals, pch=16, alpha=0.65, cex=0.6)
```

ShuttleDisaster *Ambient Temperature and O-Ring Failures*

Description

Data on `temperature` and number of O-ring `failures` for 23 space shuttle launches.

Format

A data frame with 23 observations on the following 2 variables.

temperature a numeric vector

failures a numeric vector

Source

Dalal, S.R., E.B. Fowlkes, and B. Hoadley. 1989. Risk analysis of the Space Shuttle: Pre-Challenger prediction of failure. *Journal of the American Statistical Association* 408: 945-957.

References

Tufte, E.R. 1997. *Visual Explanations: Images and Quantities, Evidence and Narrative*. Graphics Press.

http://www.edwardtufte.com/tufte/

Examples

```
str(ShuttleDisaster)
xyplot( jitter(failures, amount=0.1) ~ temperature, ShuttleDisaster,
  ylab='number of failures'
  )
```

Silversword *Rate of Speciation in Silverswords*

Description

Speciation "waiting times" in Hawaiian silverswords (*Dubautia*).

Format

A data frame with 21 observations on the following variable.

waiting.time a numeric vector

Source

inferred from Baldwin, B. G. and M. J. Sanderson 1998. Age and rate of diversification of the Hawaiian silversword alliance (Compositae). *Proceedings of the National Academy of Sciences (USA)* 95: 9402-9406.

Examples

```
Silversword
```

SleepAndPerformance *Sleep and Learning*

Description

The increase in "slow-wave" sleep and improvements in spatial learning tasks in 10 humans.

Format

A data frame with 10 observations on the following 2 variables.

sleep a numeric vector

improvement a numeric vector

Source

Huber, R., M.F. Ghilardi, M. Massimini, and G. Tononi. 2004. Local sleep and learning. *Nature* 430: 78-81.

References

http://www.ncbi.nlm.nih.gov/pubmed/15184907

Examples

```
str(SleepAndPerformance)
xyplot(improvement ~ sleep, SleepAndPerformance)
```

`SockeyeFemales` *Body Masses of Female Sockeye Salmon*

Description

Body Masses of 228 female Sockeye Salmon (*Oncorhynchus nerka*; http://www.nmfs.noaa.gov/pr/species/fish/sockeyesalmon.htm)

Format

A data frame with 228 observations of a single variable.

mass body mass (kg)

Source

Hendry, A.P., O.K. Berg, and T.P. Quinn. 1999. Condition dependence and adaptation-by-time: Breeding date, life history, and energy allocation within a population of salmon. *Oikos* 85: 499-514.

Examples

```
str(SockeyeFemales)
summary(SockeyeFemales)
```

`Sparrows` *Lifetime Reproductive Success in House Sparrows*

Description

A cross table of lifetime reproductive success (`LifetimeRS`) in female and male house sparrows *Passer domesticus* in Norway.

Format

A data frame with 9 observations on the following 3 variables.

lifetimeRS a numeric vector

females a numeric vector

males a numeric vector

Source

Jensen, H., B.-E. Saether, T.H. Ringsby, J. Tufto, S.C. Griffith, and H. Ellegren. 2004. Lifetime reproductive success in relation to morphology in the House Sparrow *Passer domesticus*. *Journal of Animal Ecology* 73: 599-611.

Examples

```
Sparrows
```

`SpiderColonies` *Social Spiders*

Description

Web height above ground (cm) and colony size for 17 colonies of the spider *Cryptophora citricola* in Gabon.

Format

A data frame with 17 observations on the following 3 variables.

colony identifier

height height of web above ground (cm)

spiders number of spiders in colony

Source

Rypstra, A. L. 1979. Foraging folks of spiders, a study of aggregate behavior in *Cryptophora citricola* Forskal (Araneae: Araneidae) in West Africa. *Behavioral Ecology and Sociobiology* 5: 291-300.

Examples

```
str(SpiderColonies)
SpiderColonies
```

SpiderSpeed *Spider Running Speeds after Amputation*

Description

Data on speed before and after amputation of a pedipalp in the spider genus *Tidarren*.

Format

A data frame with 32 observations on the following 2 variables.

speed.before speed (cm/s) before amputation

speed.after speed (cm/s) after amputation

Source

Ramos, M., D.J. Irschick, and T.E. Christenson. 2004. Overcoming an evolutionary conflict: Removal of a reproductive organ greatly increases locomotor performance. *Proceedings of the National Academy of Sciences (USA)* 101: 4883-4887.

References

http://en.wikipedia.org/wiki/Pedipalp, http://en.wikipedia.org/wiki/Tidarren, http://www.pnas.org/content/101/14/4883

Examples

```
xyplot(speed.after ~ speed.before, SpiderSpeed)
favstats(SpiderSpeed$speed.before)
favstats(SpiderSpeed$speed.after)
favstats(SpiderSpeed$speed.after - SpiderSpeed$speed.before)
```

Stalkies1 *Eye Widths in Stalk-Eyed Flies*

Description

Eye width in 9 male stalk-eyed flies (*Cyrtodiopsis dalmanni*).

Format

a data frame with 9 observations of 1 variable

eye.span eye span (mm)

Source

Data provided by Kevin Fowler, University College, London.

Examples

```
Stalkies1
```

`Stalkies2` *Stalk-eyed Fly Eyespan*

Description

Eyespan width (mm; `Eye.span`) in 45 stalk-eyed flies (*Cyrtodiopsis dalmanni*) fed a corn or cotton diet (`Food`).

Format

A data frame with 45 observations on the following 2 variables.

food a factor with levels `Corn` `Cotton`

eye.span a numeric vector

Source

David, P., T. Bjorksten, K. Fowler, and A. Pomiankowski. 2000. Condition-dependent signalling of genetic variation in stalk-eyed flies. *Nature* 406: 186-188.

Examples

```
str(Stalkies2)
xyplot(eye.span ~ food, Stalkies2)
aggregate(eye.span ~ food, Stalkies2, FUN = favstats)
```

`SticklebackPlates` *Number of Lateral Plates in Sticklebacks*

Description

Number of lateral plates (`plates`) in threespine sticklebacks (*Gasterosteus aculeatus*) with three different *Ectodysplasin* genotypes (`mm`, `Mm`, and `MM`).

Format

A data frame with 344 observations on the following 2 variables.

genotype a factor with levels `mm`, `Mm`, and `MM`

plates number of plates

Source

Colosimo, P.F., C.L. Peichel, K. Nereng, B.K. Blackman, M.D. Shapiro, D. Schluter, and D.M. Kingsley. 2004. The genetic architecture of parallel armor plate reduction in threespine sticklebacks. *PLoS Biology* 2: 635-641. http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0020109

References

Colosimo P.F., K.E. Hosemann, S. Balabhadra, G. Villarreal, M. Dickson, J. Grimwood, J Schmutz, R.M. Myers, D. Schluter, D.M. Kingsley. 2005. Widespread parallel evolution in sticklebacks by repeated fixation of ectodysplasin alleles. *Science* 307: 1928-33. http://www.sciencemag.org/cgi/content/full/307/5717/1928

Examples

```
aggregate(plates ~ genotype, SticklebackPlates, FUN = favstats)

histogram( ~ plates | genotype, SticklebackPlates,
  layout = c(1,3),
  n = 15,
  xlab = "Number of Lateral Body Plates"
  )

densityplot( ~ plates | genotype, SticklebackPlates,
  xlab = "Number of Lateral Body Plates",
  layout = c(1,3)
  )
```

SticklebackPreference *Mating Preferences in Sticklebacks*

Description

Mating preference in 9 populations of three-spined sticklebacks.

Format

A data frame with 9 observations of one variable.

preference.index a numeric vector

Source

McKinnon, J. S., S. Mori, B.K. Blackman, L. David, D.M. Kingsley, L. Jamieson, J. Chou, and D. Schluter. 2004. Evidence for ecology's role in speciation. *Nature* 429: 294-298.

References

http://www.nature.com/nature/journal/v429/n6989/abs/nature02556.html

Examples

```
SticklebackPreference
histogram(~ preference.index, SticklebackPreference)
dotplot(~ preference.index, SticklebackPreference)
```

Sumo *Sumo Wrestling Wins*

Description

Counts of number of wins for sumo wrestlers.

Format

A data frame with 16 observations on the following 2 variables.

wins a numeric vector

count a numeric vector

Source

Duggan, M. and S.D. Leavitt. 2002. Winning isn't everything: Corruption in sumo wrestling. *The American Economic Review* 92: 1594-1605.

Examples

```
xyplot(count ~ wins, Sumo, type='h', lwd=4)
```

SyrupSwimming *Syrup Swimming*

Description

Relative swimming speed (speed in syrup / speed in water) for 18 swimmers.

Format

A data frame with 18 observations of one variable.

relative.speed ratio of speed in syrup to speed in water

Source

Gettelfinger, B. and E. L. Cussler. 2004. Will Humans Swim Faster or Slower in Syrup? *AIChE Journal* 50: 2646-2647.

References

http://www3.interscience.wiley.com/journal/109665380/issue

Examples

```
SyrupSwimming
histogram(~ relative.speed, SyrupSwimming)
dotplot(~ relative.speed, SyrupSwimming)
```

TeenDeaths *Causes of Teenage Deaths*

Description

Data from Table 1 (p. 14) on causes of death for all races, both sexes, ages 15-19.

Format

A data frame with 11 observations on the following 2 variables.

cause a character vector

deaths a numeric vector

Source

Anderson, R.N. 2001. Deaths: Leading causes for 1999. *National vital statistics reports* 49(11):1-88. National Center for Health Statistics; Hyattsville, Maryland.

Examples

```
str(TeenDeaths)
TeenDeaths

barchart(deaths ~ cause, TeenDeaths,
  horizontal = FALSE,
  ylab = "Number of Deaths",
  xlab = "Cause of Death", origin=0,
  scales = list(x = list(rot=45)))

barchart(deaths~ordered(cause, levels=cause), TeenDeaths,
  horizontal = FALSE,
  ylab = "Number of Deaths",
  xlab = "Cause of Death", origin=0,
  scales=list(x=list(rot=45))
  )
```

Telomeres *Telomere Shortening*

Description

Telomere length (ratio) and years since their child's diagnosis with chronic illness.

Format

A data frame with 39 observations on the following 2 variables.

years a numeric vector

telomere.length a numeric vector

Source

Epel, E.S., E.H. Blackburn, J. Lin, F.S. Dhabhar, N.E. Adler, J.D. Morrow, and R.M. Cawthon. 2004. Accelerated telomere shortening in response to life stress. *Proceedings of the National Academy of Sciences (USA)* 101: 17312-17315.

References

http://www.pnas.org/content/101/49/17312

Examples

```
xyplot(years ~ telomere.length, Telomeres,
  xlab = "Time since diagnosis (years)",
  ylab = "Telomere length (ratio)"
)
```

TimeOfDeath *Hypoxanthine and Time Since Death*

Description

Hypoxanthine levels in the vitreous humour of the eye and time since death (hours) for 48 subjects.

Format

A data frame with 48 observations on the following 2 variables.

hours a numeric vector

hypoxanthine a numeric vector

Source

James, R.A., P.A. Hoadley, and B.G. Sampson. 1997. Determination of postmortem interval by sampling vitreous humor. *American Journal of Forensic Medicine and Pathology* 18: 158-162.

Examples

```
xyplot(hypoxanthine ~ hours, TimeOfDeath, type=c('p','r'))
```

Toads *Right-handed Toads*

Description

Hypothetical probability of a toad being right-handed

Format

A data frame with 19 observations on the following 2 variables.

n.toads a numeric vector

prob a numeric vector

Examples

```
Toads
# generate this data manually
cbind(0:18, dbinom(0:18, 18, 0.5))
xyplot(prob ~ n.toads, Toads, type = 'h', lwd = 4)
barchart(prob ~ n.toads, Toads, origin=0, horizontal=FALSE)
plotDist('binom', params = list(18,0.5), kind = 'hist')
```

Tobacco *Flower Length in Tobacco Plants*

Description

Distribution of flow lengths in F1 and F2 populations of *Nicotiana*.

Format

A data frame with 13 observations on the following 3 variables.

flower.length a numeric vector of flower length in mm

f1.count a numeric vector of the number of F1 plants with flower lengths in this size range

f2.count a numeric vector of the number of F2 plants with flower lengths in this size range

Source

East, E.M. 1916. Studies on size inheritance in *Nicotiana*. *Genetics* 1: 164-176.

References

http://www.genetics.org/content/vol1/issue2/

http://en.wikipedia.org/wiki/Nicotiana

See Also

Tobacco2

Examples

```
Tobacco
```

Tobacco2 *Flower Length in Tobacco Plants*

Description

Distribution of flow lengths in F1 and F2 populations of *Nicotiana*.

Format

A data frame with 617 observations on the following 2 variables.

flower.length a numeric vector

generation a factor with levels `F1` `F2`

Source

East, E.M. 1916. Studies on size inheritance in *Nicotiana*. *Genetics* 1: 164-176.

References

http://www.genetics.org/content/vol1/issue2/

http://en.wikipedia.org/wiki/Nicotiana

See Also

Tobacco

Examples

```
xtabs(~ flower.length + generation, Tobacco2)
bwplot(flower.length ~ generation, Tobacco2)
```

ToothAge *Radioactive Teeth*

Description

Actual birth year and birth year estimated from relative radioactivity of the enamel for 20 samples.

Format

A data frame with 20 observations on the following 2 variables.

actual a numeric vector

estimated a numeric vector

Source

Spalding, K.L., B.A. Buchholz, L.-E. Bergman, H. Druid, and J. Frisén. 2005. Age written in teeth by nuclear tests. *Nature* 437: 333-334.

Examples

```
str(ToothAge)
xyplot(actual ~ estimated, ToothAge)
```

TreeSeedlings *Tree Seedlings and Sunflecks*

Description

Fleck duration (min) and relative seedling growth rate (mm/mm/week) for 21 seedlings of *Shorea leprosula*.

Format

A data frame with 21 observations on the following 2 variables.

fleck.duration a numeric vector

growth a numeric vector

Source

Leakey, A.D.B., J.D. Scholes, and M.C. Press. 2005. Physiological and ecological significance of sunflecks for dipterocarp seedlings. *Journal of Experimental Botany* 56: 469-482.

References

http://jxb.oxfordjournals.org/cgi/content/short/56/411/469

Examples

```
str(TreeSeedlings)
splom(TreeSeedlings)
```

`Trematodes` *Frequencies of Fish Eaten by Trematode Infection Level*

Description

Frequencies of killifish (*Fundulus parvipinnis*) eaten by birds depending on level of infection by the trematode *Euhaplorchis californiensis*.

Format

A data frame with 141 observations on the following 2 variables.

infection.status a factor with levels: `high`, `light`, and `uninfected`

eaten a factor with levels: `no` and `yes`

Source

Lafferty, K.D. and A.K. Morris. 1996. Altered behavior of parasitized killifish increases susceptibility to predation by bird final hosts. *Ecology* 77: 1390-1397.

Examples

```
demo(sec9.3)
```

`Trillium` *Trillium Recruitment near Clearcuts*

Description

Recruitment of *Trillium* and distance to nearest clearcut in eight populations in southwestern Oregon.

Format

A data frame with 8 observations on the following 3 variables.

population a numeric vector

edge.dist a numeric vector

recruitment a numeric vector

Source

Jules, E.S. and B.J. Rathcke. 1999. Mechanisms of reduced trillium recruitment along edges of old-growth forest fragments. *Conservation Biology* 13: 784-793

Examples

```
str(Trillium)
splom(Trillium)
```

Truffles *Truffle Distribution*

Description

Number of truffles per plot for 288 plots in an old growth forest in northeastern California.

Format

A data frame with 5 observations on the following 2 variables.

truffles a numeric vector

count a numeric vector

Source

Waters, J.R., K.S. McKelvey, D.L. Luoam, and C.J. Zabel. 1997. Truffle production in old-growth and mature fir stands in northeastern California. *Forest Ecology and Management* 96: 155-166.

References

http://www.fs.fed.us/psw/publications/watersj/waters2.PDF

Examples

```
Truffles
xyplot(count ~ truffles, Truffles, type='h', lwd=4)
barchart(count ~ truffles, Truffles, origin=0, horizontal=FALSE)
```

TsetseLearning *Dietary Learning in Tsetse Flies*

Description

Dietary conditioning `treatment` and subsequent proportion of tsetse flies (*Glossina palpalis*) feeding on cow blood in each of 13 cohorts.

Format

A data frame with 13 observations on the following 2 variables.

treatment a factor with levels `cow` and `lizard`

proportion.cow a numeric vector

Source

inferred from Bouyer, J., M. Pruvot, Z. Bengaly, P.M. Guerin, and R. Lancelot. 2007. Learning influences host choice in tsetse. *Biology Letters* 3: 113-116.

References

http://rsbl.royalsocietypublishing.org/content/3/2/113.full

Examples

```
xyplot(proportion.cow ~ treatment, TsetseLearning)
```

TwoKids *Number of Boys in Two-Child Families*

Description

The number of boys in a sample of 2,444 two-child families.

Format

A data frame with 3 observations on the following 2 variables.

num.boys a numeric vector

count a numeric vector

Source

Rodgers, J.L. and D. Doughty. 2001. Does having boys or girls run in the family? *Chance Magazine* Fall 2001: 8-13.

References

http://www.dartmouth.edu/~chance/chance_news/recent_news/chance_news_10.11.html#item13

Examples

```
TwoKids
observed <- TwoKids$count
expected <- c(585.3, 1221.4, 637.3)
chisq.test(observed, p = expected, rescale.p = TRUE)

# Alternate calculation, using Pr[male] = 0.512
# and rbinom. See Figure 5.7-1
n <- sum(observed)
pr.m <- 0.512
pr.f <- 0.488

# Calculate the probabilities of 0, 1, and 2 males
(pr.0 <- pr.f^2)
(pr.1 <- pr.m * pr.f + pr.f * pr.m)
(pr.2 <- pr.m^2)

set.seed(1)
(expected2 <- c(rbinom(1, n, pr.0),
                rbinom(1, n, pr.1),
                rbinom(1, n, pr.2)))
chisq.test(observed, p = expected2, rescale.p = TRUE)
```

VampireBites *Vampire Bat Bites*

Description

Numbers of cattle bitten by the cow's estrous cycle.

Format

A data frame with 4 observations on the following 3 variables.

estrous a factor with levels: no and yes

bitten a factor with levels: no and yes

count a numeric vector

Source

Turner, D.C. 1975. *The Vampire Bat: a Field Study in Behavior and Ecology*. Johns Hopkins Press: Baltimore, MD.

Examples

```
demo(sec9.4)
```

`VasopressinVoles` *Vasopressin Manipulation in the Meadow Vole*

Description

Time spent with a female (`percent`) in control and vasopressin-enhanced groups (`treatment`) of meadow voles (*Microtus pennsylvanicus*).

Format

A data frame with 31 observations on the following 2 variables.

treatment a factor with levels `control` and `enhanced`

percent a numeric vector

Source

inferred from Lim, M.M., Z. Wang, D.E. Olazabal, X. Ren, E.F. Terwilliger, and L.J. Young. 2004. Enhanced partner preference in a promiscuous species by manipulating the expression of a single gene. *Nature* 429: 754-757.

Examples

```
xyplot(percent ~ treatment, VasopressinVoles, type=c('p','a'))
bwplot(percent ~ treatment, VasopressinVoles)
```

`Vines` *Climbing Vines*

Description

Number of `climbing` and `nonclimbing` species within closely related general of plants.

Format

A data frame with 48 observations on the following 2 variables.

climbing a numeric vector

nonclimbing a numeric vector

Source

Gianoli, E. 2004. Evolution of a climbing habit promotes diversification in flowering plants. *Proceedings of the Royal Society of London, Series B, Biological Sciences* 271: 2011-2015.

References

http://rspb.royalsocietypublishing.org/content/271/1552/2011.full.pdf

Examples

```
xyplot(nonclimbing ~ climbing, Vines, scales=list(log=TRUE))
```

VoleDispersal *Home Range Size in Field Voles*

Description

Home range size size in field voles (*Microtus agrestis*).

Format

A data frame with 5 observations on the following 3 variables.

homeranges a numeric vector

count a numeric vector

sex a factor with levels `female` and `male`

Source

Sandell, M., J. Agrell, S. Erlinge, and J. Nelson. 1991. Adult philopatry and dispersal in the field vole *Microtus agrestis*. *Oecologia* 86: 153-158.

Examples

```
xtabs(count~sex+homeranges,VoleDispersal)
barchart( xtabs(count~sex+homeranges,VoleDispersal), origin=0, auto.key=TRUE)
barchart(count~sex+homeranges,VoleDispersal, origin=0)
barchart(count~sex,groups=homeranges,VoleDispersal, origin=0)
barchart(count~sex,groups=homeranges,VoleDispersal, origin=0,stack=TRUE)
```

WalkingStickFemurs *Walking Stick Femur Length*

Description

Two measures of femur length `femur.length` for each of 25 walking sticks (*Timema cristinae*). Note that `specimen` is not coded as a factor.

Format

A data frame with 50 observations on the following 2 variables.

specimen a integer denoting specimen number.

femur.length a numeric vector of femur length

Source

Nosil, P. and B.J. Crespi. 2006. Experimental evidence that predation promotes divergence in adaptive radiation. *Proceedings of the National Academy of Sciences (USA)* 103: 9090-9095.

References

http://www.sfu.ca/biology/faculty/crespi/pdfs/96-Nosil&Crespi2006PNAS.pdf

Examples

```
demo(sec15.6)
```

WalkingStickHeads *Walking Stick Head Width*

Description

Two measures of head width (`head.width`) for each of 25 walking sticks (*Timema cristinae*).

Format

A data frame with 50 observations on the following 2 variables.

specimen a factor with levels `1-25`

head.width a numeric vector

Source

Nosil, P. and B.J. Crespi. 2006. Experimental evidence that predation promotes divergence in adaptive radiation. *Proceedings of the National Academy of Sciences (USA)* 103: 9090-9095.

References

http://www.sfu.ca/biology/faculty/crespi/pdfs/96-Nosil&Crespi2006PNAS.pdf

Examples

```
aggregate(head.width ~ specimen, data=WalkingStickHeads, mean) -> WS
histogram(~ head.width, WS)
```

WeddellSeals *Energetic Cost of Diving*

Description

Comparison of oxygen consumption in feeding vs. non-feeding dives of the same length in the Weddell seal (*Leptonychotes weddellii*).

Format

A data frame with 10 observations on the following 3 variables.

individual a numeric vector

oxygen.use.nonfeeding a numeric vector

oxygen.use.feeding a numeric vector

Source

Williams, T.M., L.A. Fuiman, M. Horning, and R.W. Davis. 2004. The cost of foraging by a marine predator, the Weddell seal *Leptonychotes weddellii*: pricing by the stroke. *Journal of Experimental Biology* 207: 973-982.

References

http://jeb.biologists.org/cgi/content/full/207/6/973

Examples

```
xyplot(oxygen.use.nonfeeding ~ oxygen.use.feeding, WeddellSeals)
```

WillsDebates *Presidential "Wills"*

Description

Number of times a presidential candidate said "will," "shall," or "going to" in presidential debates from 1960-2004 (years incomplete).

Format

A data frame with 8 observations on the following 6 variables.

year year of presidential debate(s)

winner winner of the popular vote (may not be winner of election)

loser loser of popular vote (may not be loser of election)

winner.wills number of times will/shall used by winner during debates

loser.wills number of times will/shall used by loser during debates

diff.wills difference between number of times will/shall used by two candidates

Examples

```
WillsDebates
```

WillsPresidents *Presidential "Wills"*

Description

Number of times a presidential candidate said "will," "shall," or "going to" in presidential debates from 1960-2004 (years incomplete).

Format

A data frame with 16 observations on the following 3 variables.

candidate a character vector with the candidate's name

winner a factor with levels `n` `y` indicating whether the candidate won the election `y` or not.

wills a numeric vector

loser.wills a numeric vector

difference a numeric vector

year a numeric vector

See Also

WillsDebates

Examples

```
WillsPresidents
```

WolfTeeth *Wolf Tooth Measurements*

Description

Measurement (cm) of the distance between the canine and last molar teeth in 35 wolves.

Format

A data frame with 35 observations of one variable.

length distance from canine to last molar teach (cm)

Source

Whitlock, M. 1996. The heritability of fluctuating asymmetry and the genetic control of developmental stability. *Proceedings of the Royal Society, Series B* 263: 849-853.

References

http://rspb.royalsocietypublishing.org/content/263/1372/849.abstract

Examples

```
histogram(~ length, WolfTeeth)
```

Wolves *Inbreeding in Wolves*

Description

Inbreeding coefficient and the number of pups produced in 24 mated pairs of wolves (*Canis lupus*) from 1983-2002.

Format

A data frame with 24 observations on the following 2 variables.

inbreeding.coefficient a numeric vector

pups a numeric vector

Source

Liberg, O.H., H. Andrén, H.-C. Pedersen, H. Sand, D. Sejberg, P. Wabakken, M. Åkesson, and S. Bensch. 2005. Severe inbreeding depression in a wild wolf (*Canis lupus*) population. *Biology Letters* 1: 17-20.

Examples

```
Wolves
xyplot(inbreeding.coefficient ~ jitter(pups, amount=0.15), Wolves)
```

WorldCup *World Cup Goals*

Description

Number of goals per team during the 2002 World Cup.

Format

A data frame with 7 observations on the following 2 variables.

score a numeric vector

count a numeric vector

Examples

```
xyplot(count ~ score, WorldCup, type='h', lwd=4)
barchart(count ~ score, WorldCup, origin=0, horizontal=FALSE)
```

WrasseSexes *Distribution of Wrasses*

Description

Number and sex of adult wrasses in a section of the Great Barrier Reef.

Format

A data frame with 3 observations on the following 3 variables.

males a numeric vector

females a numeric vector

count a numeric vector

Examples

```
xtabs(count ~ males + females, WrasseSexes)
```

YeastGenes *Yeast Regulatory Genes*

Description

Number of genes regulated by 109 yeast regulatory genes.

Format

A data frame with 6 observations on the following 2 variables.

genes.controlled a numeric vector

count a numeric vector

Source

Guelzim, N., S. Bottani, P. Bourgine and F. Képès. 2002. Topological and causal structure of the yeast transcriptional regulatory network. *Nature Genetics* 31: 60-63.

Examples

```
str(YeastGenes)
barchart(count ~ genes.controlled , origin=0, YeastGenes, horizontal=FALSE)
```

ZebraFinchBeaks *Mate Preference in Zebra Finches*

Description

Percentage of time that a female spent next to a carotenoid-supplemented male Zebra Finch compared to his non-supplemented brother.

Format

A numeric vector with 10 observations.

Source

Blount, J.D., N.B. Metcalfe, T.R. Birkhead, P.F. Surai. 2003. Carotenoid modulation of immune function and sexual attractiveness in Zebra Finches. *Science* 300: 125-127.

References

http://www.sciencemag.org/cgi/content/abstract/300/5616/125

Examples

```
ZebraFinchBeaks
```

ZebraFinches *Zebra Finch Carotenoids*

Description

Data on cell-mediated immunocompetence (PHA) and humoral immunity (SRBC) in Zebra Finches that received supplemental carotenoids (CAROT) and those that did not (NO).

Format

A data frame with 20 observations on the following 3 variables.

treatment a factor with levels: CAROT and NO

PHA a numeric vector

SRBC a numeric vector

Source

McGraw, K.J. and D.R. Ardia. 2003. Carotenoids, immunocompetence, and the information content of sexual colors: an experimental test. *The American Naturalist* 162: 704-712.

Examples

```
ZebraFinches
```

ZooMortality *Home Range Size and Mortality*

Description

Home range size ($\log_{10}$) and captive infant mortality (for 20 species of carnivores.

Format

A data frame with 20 observations on the following 2 variables.

log.homerange a numeric vector

mortality a numeric vector

Source

Clubb, R. and G. Mason. 2003. Captivity effects on wide ranging carnivores. *Nature* 425: 473-474.

Examples

```
str(ZooMortality)
```

`Zooplankton` *Zooplankton Depredation*

Description

Diversity of zooplankton (`zooplankton`) prey in each of 5 replicate blocks (`block`) of three treatment levels (`treatment`). By default, `block` is not coded as a factor.

Format

A data frame with 15 observations on the following 3 variables.

treatment a factor with levels `control`, `high`, and `low`

zooplankton a numeric vector

block a numeric vector

Source

inferred from Svanbäck, R. and D.I. Bolnick. 2007. Intraspecific competition drives increased resource use diversity within a natural population. *Proceedings of the Royal Society of London Series B, Biological Sciences* 274: 839-844.

Examples

```
Zooplankton

Zooplankton$block <- factor(Zooplankton$block)
str(Zooplankton)

aov.fit <- aov(zooplankton ~ block + treatment,
  data = Zooplankton)
summary(aov.fit)
```

Index