Package: itssl (via r-universe)

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Type Package

Title Functions For An Internal TSL Statistics Workshop

Version 0.2.0

Description A set of helpful functions to assist with live coding the presentation of a statistics primer. Also includes some functions and data used in tasks and also provides interactive examples.

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LazyData true

Depends R (>= 3.5.0)

Imports cowplot, dplyr, fGarch, ggplot2, knitr, magrittr, scatterplot3d, tibble, tidyr, tidyselect

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Contents

`hello` *Hello, World!*

Description

Prints 'Hello, world!'.

Usage

```
hello()
```

Examples

```
hello()
```

its_add_line_time *Add another line to an existing plot*

Description

Add another line to an existing plot

Usage

```
its_add_line_time(a = 1, b = 0, colour = "dodgerblue")
```

Arguments

a	the slope of the new line
b	the intercept of the new line
colour	colour of the new line

Value

a ggplot2 geom

Examples

```
its_axplusb_time() + its_add_line_time(a=4, colour="orange")
```

its_axplusb_time *Draw a straight line graph*

Description

Draw a straight line graph

Usage

```
its_axplusb_time(xrange = c(-4, 4), yrange = NULL, a = 1, b = 0)
```

Arguments

xrange	the extent of the x-axis
yrange	the (optional) extent of the y-axis
a	the slope of the line
b	the intercept of the line

Value

a ggplot2 plot

Examples

```
its_axplusb_time()
its_axplusb_time(xrange = c(-10, 10), a = 4, b = 3)
```

`its_barplot_time` *generate a barplot*

Description

generate a barplot

Usage

```
its_barplot_time(
  df,
  names_to = "group",
  values_to = "value",
  colour = "dodgerblue",
  join_tops = FALSE,
  points = FALSE
)
```

Arguments

`names_to`	what to call the variable containing the variable names
`values_to`	what to call the variable containing the values
`colour`	colour of the bars
`join_tops`	add a line joining the tops of bars
`points`	show individual points (geom_jitter)

Value

ggplot

its_bendy_line_time *returns a straight line plot with a bend in it*

Description

returns a straight line plot with a bend in it

Usage

```
its_bendy_line_time()
```

its_categoric_scatter_time *returns a categoric scatter plot*

Description

returns a categoric scatter plot

Usage

```
its_categoric_scatter_time(
  df,
  names_to = "group",
  values_to = "value",
  colour = "dodgerblue",
  join_tops = FALSE
)
```

its_compost_time *compost data*

Description

compost data

Usage

```
its_compost_time()
```

`its_food_data_time` *food data*

Description

food data

Usage

```
its_food_data_time(n = 20)
```

`its_food_plot_time` *hot dog and ice cream box plots*

Description

hot dog and ice cream box plots

Usage

```
its_food_plot_time()
```

`its_food_two_ways_time` *plot interaction in food and condiment*

Description

plot interaction in food and condiment

Usage

```
its_food_two_ways_time()
```

`its_hr_score_scheme_time` *hr scores table*

Description

hr scores table

Usage

```
its_hr_score_scheme_time()
```

its_hr_scores_time *hr score data*

Description

hr score data

Usage

```
its_hr_scores_time()
```

its_interaction_example_time *example interactions*

Description

example interactions

Usage

```
its_interaction_example_time()
```

its_is_the_mean_a_good_summary_time *plots of goodness of the mean*

Description

plots of goodness of the mean

Usage

```
its_is_the_mean_a_good_summary_time(n, type = "hist")
```

Arguments

n	number of points to generate
type	hist or jitter type of plot to return

its_job_mood_time *job data*

Description

job data

Usage

```
its_job_mood_time()
```

its_mendel_count_data_time *mendel count data*

Description

mendel count data

Usage

```
its_mendel_count_data_time()
```

its_mendel_data_time *mendel data*

Description

mendel data

Usage

```
its_mendel_data_time()
```

its_mendel_frequency_time *mendel frequency data*

Description

mendel frequency data

Usage

```
its_mendel_frequency_time()
```

its_multi_category_with_lines_time *returns a multi categry line plot*

Description

returns a multi categry line plot

Usage

```
its_multi_category_with_lines_time()
```

its_plot_chickwts_time *plot of the chickwts data*

Description

plot of the chickwts data

Usage

```
its_plot_chickwts_time()
```

its_plot_xy_time *plot xy data*

Description

plot xy data

Usage

```
its_plot_xy_time(df, line = FALSE, residuals = FALSE)
```

Arguments

df	dataframe with columns x and y
line	draw the computed line
residuals	draw the residuals

Value

ggplot

its_random_xy_time *Generate some x and y data in a dataframe*

Description

Generate some x and y data in a dataframe

Usage

```
its_random_xy_time(n, min = 5, max = 15, mult = 2, seed = "456")
```

Arguments

n	number of points
min	minimum random value
max	maximum random value
mult	how much bigger on average y is than x
seed	random seed

its_remove_a_group_time *removes a group from a dataframe*

Description

removes a group from a dataframe

Usage

```
its_remove_a_group_time(df, col = "group", level = "trt2")
```

its_small_data_frame_time *tutorial data*

Description

tutorial data

Usage

```
its_small_data_frame_time()
```

its_summary_plot_time *returns a plot summarising hypothesis tests as a figure*

Description

returns a plot summarising hypothesis tests as a figure

Usage

```
its_summary_plot_time()
```

its_three_variable_plot_time *returns a multidimensional plot*

Description

returns a multidimensional plot

Usage

```
its_three_variable_plot_time()
```

its_voting_data_time *voter data*

Description

voter data

Usage

```
its_voting_data_time()
```

its_wide_to_long_time *returns a long version of a table*

Description

returns a long version of a table

Usage

```
its_wide_to_long_time(df, names_to = "group", values_to = "value")
```

potato_blight *Potato late blight outbreaks and the weather*

Description

For 25 years at Prosser, Washington, whether a potato late blight outbreak occurred, recorded alongside the spring and summer rainfall for that year. The outcome is yes/no (1/0), which makes this a natural example for logistic regression: can we predict an outbreak from the weather?

Usage

```
potato_blight
```

Format

A data frame with 25 rows and 6 variables:

year calendar year

blight whether a blight outbreak was detected (1 = yes, 0 = no)

rain_spring number of rainy days in April and May

rain_summer number of rainy days in July and August

precip_may precipitation in May on days warmer than 5C (mm)

area area affected by blight (hectares)

Source

Johnson, D. A., Alldredge, J. R. and Vakoch, D. L. (1996). Potato late blight forecasting models for the semiarid environment of south-central Washington. *Phytopathology*, 86, 480-484. Obtained via the **agridat** package (dataset `johnson.blight`).

Examples

```
glm(blight ~ rain_spring, data = potato_blight, family = binomial)
```

potato_nematode *Potato cyst-nematode resistance across genotypes and populations*

Description

Real data on the number of potato cyst nematode cysts that formed on each of 11 potato genotypes when challenged with each of 5 different nematode populations. Because every genotype meets every population, the data form a genotype-by-population grid – ideal for asking whether resistance depends on which nematode population is doing the attacking (a statistical interaction).

Usage

```
potato_nematode
```

Format

A data frame with 55 rows and 3 variables:

genotype potato genotype (11 levels)

population potato cyst nematode population (5 levels)

cysts number of cysts that formed

Source

F. A. van Eeuwijk (1995). Multiplicative Interaction in Generalized Linear Models. *Biometrics*, 51, 1017-1032. Obtained via the **agridat** package (dataset `vaneeuwijk.nematodes`).

References

Arntzen, F. K. and van Eeuwijk, F. A. (1992). Variation in resistance level of potato genotypes and virulence level of potato cyst nematode populations. *Euphytica*, 62, 135-143.

Examples

```
lm(cysts ~ genotype + population + genotype:population, data = potato_nematode)
```

---

potato_scab *Potato scab infection under sulfur treatments*

Description

A small, real field experiment in which sulfur was applied to potato plots, either in autumn ("fall") or spring and at three different rates, alongside an untreated control. Each plot was scored for the percentage of the tuber surface affected by scab. Because the treatment is both a dose (how much sulfur) and a category (when it was applied), this one little dataset can illustrate a straight-line relationship, a two-group comparison and a several-group comparison.

Usage

```
potato_scab
```

Format

A data frame with 32 rows and 6 variables:

infection percentage of the tuber surface affected by scab

sulfur sulfur dose applied (0 = none, then 3, 6, 12 in the original coded units)

season when the sulfur was applied: `none`, `fall` or `spring`

treatment the original treatment code (e.g. `F3` = fall, dose 3; `0` = untreated control)

row plot row position in the field

col plot column position in the field

Source

W. G. Cochran and G. M. Cox (1957) *Experimental Designs*, 2nd ed. John Wiley, New York. Obtained via the **agridat** package (dataset `cochran.crd`).

References

Tamura, R. N., Nelson, L. A. and Naderman, G. C. (1988). An investigation of the validity and usefulness of trend analysis for field plot data. *Agronomy Journal*, 80, 712-718.

Examples

```
lm(infection ~ sulfur, data = potato_scab)
```

Index