Package 'RcmdrPlugin.aRnova'

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Type Package

Title R Commander Plug-in for Repeated-Measures ANOVA

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Depends R (>= 3.2.0)

Imports Rcmdr

Suggests knitr

Description R Commander plug-in for repeated-measures and mixed-design
  ('split-plot') ANOVA.
  It adds a new menu entry for repeated measures that allows
  to deal with up to three within-subject factors and optionally with
  one or several between-subject factors.
  It also provides supplementary options to oneWayAnova() and
  multiWayAnova() functions, such as choice of ANOVA type, display of
  effect sizes and post hoc analysis for multiWayAnova().

License GPL (>= 2)

LazyLoad yes

LazyData yes

NeedsCompilation no

RoxygenNote 7.3.2

VignetteBuilder knitr

Repository CRAN

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Contents

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generalizedLinearModel_

Generalized Linear Model

Description

This is a minor modification of generalizedLinearModel where size effects are computed and displayed for logistic regression

Usage

```
generalizedLinearModel_()
```

See Also

generalizedLinearModel

Moore *Status, Authoritarianism, and Conformity*

Description

The `Moore` data frame has 45 rows and 4 columns. The data are for subjects in a social-psychological experiment, who were faced with manipulated disagreement from a partner of either of low or high status. The subjects could either conform to the partner's judgment or stick with their own judgment.

Usage

```
Moore
```

Format

This data frame contains the following columns:

partner.status Partner's status. A factor with levels: high, low.

conformity Number of conforming responses in 40 critical trials.

fcategory F-Scale Categorized. A factor with levels (note levels out of order): high, low, medium.

fscore Authoritarianism: F-Scale score.

Source

Moore, J. C., Jr. and Krupat, E. (1971) Relationship between source status, authoritarianism and conformity in a social setting. *Sociometry* **34**, 122–134.

Personal communication from J. Moore, Department of Sociology, York University.

References

Fox, J. (2008) *Applied Regression Analysis and Generalized Linear Models*, Second Edition. Sage.

Fox, J. and Weisberg, S. (2011) *An R Companion to Applied Regression*, Second Edition, Sage.

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multiWayAnova_	*Multiway ANOVA*

Description

This is a modification of Rcmdr::multiWayAnova() where supplementary options have been added.

Usage

```
multiWayAnova_()
```

Details

Options:

- 'SS type': type of sum of squared, default: type = 2. See Details in Anova
- 'Effect size': compute and prints effect size (partial eta squares)
- 'Summary statistics for groups': prints summary statistics for groups formed by all combinatuions of factors
- 'Pairwise comparisons of means': performs post-hoc Tukey's HSD test on significant (p < .05) or close to significant (p < 0.1) effects.

On OK, the following operations are carried out:

- Computes ANOVA using Anova
- Computes effect sizes (partial eta squared)

- Prints a summary of marginal statistics (count, min, max, mean, ds)
- runs post-hoc analysis on significant or close to significant effects
- Generates an 'extended' dataset (extension `.ext`) containing additionak columns `'<factorA.factorB:...>'` that allows differentiate measures from groups or subjects with same factors levels. This 'extended' dataset is useful for ploting means and post-hoc analysis

Value

None

See Also

[Anova](#) for the computation of ANOVA

OBrienKaiser   *O'Brien and Kaiser's Repeated-Measures Data*

Description

These contrived repeated-measures data are taken from O'Brien and Kaiser (1985). The data are from an imaginary study in which 16 female and male subjects, who are divided into three treatments, are measured at a pretest, postest, and a follow-up session; during each session, they are measured at five occasions at intervals of one hour. The design, therefore, has two between-subject and two within-subject factors.

The contrasts for the `treatment` factor are set to $-2, 1, 1$ and $0, -1, 1$. The contrasts for the `gender` factor are set to `contr.sum`.

Usage

```
OBrienKaiser
```

Format

A data frame with 16 observations on the following 17 variables.

treatment a factor with levels `control` `A` `B`

gender a factor with levels `F` `M`

pre.1 pretest, hour 1

pre.2 pretest, hour 2

pre.3 pretest, hour 3

pre.4 pretest, hour 4

pre.5 pretest, hour 5

post.1 posttest, hour 1

post.2 posttest, hour 2

```
post.3  posttest, hour 3
```

```
post.4  posttest, hour 4
```

```
post.5  posttest, hour 5
```

```
fup.1  follow-up, hour 1
```

```
fup.2  follow-up, hour 2
```

```
fup.3  follow-up, hour 3
```

```
fup.4  follow-up, hour 4
```

```
fup.5  follow-up, hour 5
```

Source

O'Brien, R. G., and Kaiser, M. K. (1985) MANOVA method for analyzing repeated measures designs: An extensive primer. *Psychological Bulletin* **97**, 316–333, Table 7.

Examples

```
OBrienKaiser
contrasts(OBrienKaiser$treatment)
contrasts(OBrienKaiser$gender)
```

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oneWayAnova_   *One way ANOVA*

Description

This is a modification of Rcmdr::oneWayAnova() where supplementary options have been added.

Usage

```
oneWayAnova_()
```

Details

Options:

- 'Effect size': compute and prints effect size (partial eta squared)
- 'Summary statistics for groups': prints summary statistics for groups formed by the between subject factor
- 'Pairwise comparisons of means': performs post-hoc Tukey's HSD test.

On OK, the following operations are carried out:

- Computes ANOVA using [aov](#)
- Computes effect sizes (partial eta squared)
- Prints a summary of marginal statistics (count, min, max, mean, ds)
- runs post-hoc analysis

Value

None

See Also

[aov](aov) for the computation of ANOVA

Pottery   *Chemical Composition of Pottery*

Description

The data give the chemical composition of ancient pottery found at four sites in Great Britain. They appear in Hand, et al. (1994), and are used to illustrate MANOVA in the SAS Manual. (Suggested by Michael Friendly.)

Usage

```
Pottery
```

Format

A data frame with 26 observations on the following 6 variables.

Site a factor with levels AshleyRails Caldicot IsleThorns Llanedyrn

Al Aluminum

Fe Iron

Mg Magnesium

Ca Calcium

Na Sodium

Source

Hand, D. J., Daly, F., Lunn, A. D., McConway, K. J., and E., O. (1994) *A Handbook of Small Data Sets*. Chapman and Hall.

Examples

```
Pottery
```

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repMeasAnova	*Repeated measures ANOVA*

Description

Dialog box to (i) select the within-subject variables corresponding to the factors defined in `repMeasAnovaSetup`, (ii) select the between-suject factors, (iii) set options and (iv) launch the repeated measures anova.

Usage

```
repMeasAnova(.withinfactors, .withinlevels)
```

Arguments

`.withinfactors`	list of within-subject factors
`.withinlevels`	list of within-subject variables

Details

Options:

- `'SS type'`: type of sum of squares, default: `type = 2`. See Details in `Anova`
- `'Effect size'`: compute and prints effect size (partial eta squared)
- `'Summary statistics for groups'`: prints summary statistics for groups formed by all combinations of factors
- `'Pairwise comparisons of means'`: performs post-hoc Tukey's HSD test on significant ($p < .05$) or close to significant ($p < 0.1$) effects.

On OK, the following operations are carried out:

- Generates a dataset containing complete cases and converted from 'wide' to 'long' format (extension `.cplt.lg`), with the following columns added:
    - `'id'` (factor): identifies the subjects.
    - `'DV'` (numeric): the measure or dependent variable.
    - `'trial'` (int): variable that differentiates multiple measures (`'DV'`) from the same subject (`'id'`).
    - `'<factorA>'` (factor): levels of the within-suject factor A (one column per within subject factor)
    - `'<factorA.factorB:...>'` (factor): factor that differentiates multiple measures from groups or subjects with same factors levels

    This 'long' dataset is useful for ploting means and post-hoc analysis
- Computes repeated measure ANOVA using `Anova`
- Computes effect sizes (partial eta squared)
- Prints a summary of marginal statistics (count, min, max, mean, ds)
- runs post-hoc analysis on significant or close to significant effects

Value

None

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See Also

[repMeasAnovaSetup](#) for the definition of within factors, [Anova](#) for the computation of ANOVA

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repMeasAnovaSetup   *Repeated measure ANOVA setup*

Description

Dialog box to enter the names and levels of within-factors.

Usage

```
repMeasAnovaSetup()
```

Details

Up to three factors can be entered. A valid within-factor entry must consist in a syntactically valid name (see [make.names](#)) and 2 levels or more.

On OK:

- The first valid entries are kept and stored in `.withinfactors` and `.withinlevels` for factor names and levels, respectively.
- The next dialog box (repMeasAnova(.withinfactors, .withinfactors) is launched.

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See Also

[repMeasAnova](#).

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