

Package: OLSengine (via r-universe)

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Title Transparent and Assisted Linear Modeling Engine

Version 1.0.0

Description A transparent, modular, and base-R implemented statistical engine for linear regression (OLS), analysis of variance (ANOVA), and logistic regression (Logit). Designed under the principle of "assisted simplicity", it features an integrated methodological "customs" (Aduana) that automatically audits mathematical assumptions (e.g., multicollinearity, heteroskedasticity, normality, and perfect separation) and outputs publication-ready, APA-formatted tables. It deliberately avoids hidden heuristics and external dependencies, ensuring computational transparency and reproducibility for applied research.

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URL <https://github.com/msoto-perez/OLSengine>

BugReports <https://github.com/msoto-perez/OLSengine/issues>

Encoding UTF-8

RoxygenNote 7.3.3

VignetteBuilder knitr

Suggests knitr, rmarkdown

NeedsCompilation no

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paper_engine	<i>Transparent and Assisted Linear Modeling Engine</i>
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Description

Estimates OLS regression, ANOVA/t-tests, or binary logistic regression models using pure base R matrix algebra. Automatically audits statistical assumptions through an integrated methodological customs layer and returns publication-ready APA-formatted tables. Designed for applied researchers and early-career academics who need a single, transparent workflow from estimation to reporting.

Usage

```
paper_engine(
  formula,
  data,
  model = "ols",
  robust = FALSE,
  non_parametric = FALSE,
  paired = FALSE,
  digits = 2
)
```

Arguments

formula	A formula object specifying the model (e.g., $y \sim x1 + x2$).
data	A data frame containing all variables referenced in formula.
model	A character string indicating the estimation engine. One of "ols" (default), "anova", or "logit".
robust	Logical or "auto". Controls heteroskedasticity-robust standard errors (HC3) for OLS models. If TRUE, HC3 SEs are always applied. If "auto", they are applied only when the Breusch-Pagan test detects heteroskedasticity ($p < .05$). Default is FALSE.
non_parametric	Logical or "auto". Controls non-parametric fallback for ANOVA/t-test models. If TRUE, Kruskal-Wallis or Wilcoxon tests are used. If "auto", transition occurs when Shapiro-Wilk detects non-normality ($p < .05$). Default is FALSE.
paired	Logical. If TRUE, assumes paired/dependent samples for ANOVA/t-test models (pre-post designs). Default is FALSE.
digits	Integer. Number of decimal places in output tables. Default is 2.

Value

An object of class `basic_model`, which is a list containing:

tables A list of formatted data frames with estimation results.

diagnostics A list of raw diagnostic statistics (p-values, fit indices).

messages A character vector of methodological guidance messages from the customs layer.

method A character string indicating the engine used ("ols", "anova", or "logit").

data The cleaned data frame used for estimation (after listwise deletion).

Examples

```
# OLS example
set.seed(42)
df <- data.frame(y = rnorm(100), x1 = rnorm(100), x2 = rnorm(100))
result <- paper_engine(y ~ x1 + x2, data = df, model = "ols")
print(result$tables)
print(result$messages)

# ANOVA example
df2 <- data.frame(score = c(rnorm(30, 5), rnorm(30, 7)),
                     group = rep(c("A", "B"), each = 30))
result2 <- paper_engine(score ~ group, data = df2, model = "anova")
print(result2$tables)

# Logit example
df3 <- data.frame(y = rbinom(100, 1, 0.5), x = rnorm(100))
result3 <- paper_engine(y ~ x, data = df3, model = "logit")
print(result3$tables)
```

plot_engine

Generate Publication-Ready Plots for Basic Models

Description

Produces minimalist APA-style plots from a `basic_model` object returned by `paper_engine`. The plot type is selected automatically based on the estimation method: a forest plot of coefficients with 95% CI for OLS, a group means plot with 95% CI error bars for ANOVA, and a logistic probability curve for logistic regression.

Usage

```
plot_engine(model_object, y_label = NULL, x_label = NULL)
```

Arguments

model_object	An object of class <code>basic_model</code> generated by <code>paper_engine</code> .
y_label	A character string for the Y-axis label. If NULL (default), a label is generated automatically from the model type.
x_label	A character string for the X-axis label. If NULL (default), a label is generated automatically from the model type.

Value

A base R plot rendered in the active graphics device. The function is called for its side effect (the plot) and returns NULL invisibly.

Examples

```
set.seed(42)
df <- data.frame(y = rnorm(100), x1 = rnorm(100), x2 = rnorm(100))
result <- paper_engine(y ~ x1 + x2, data = df, model = "ols")
plot_engine(result, y_label = "Outcome", x_label = "Predictors")
```

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