Package 'poissonreg'

August 6, 2021

Title Model Wrappers for Poisson Regression

Version 0.1.1

Description Bindings for Poisson regression models for use with the 'parsnip' package. Models include simple generalized linear models, Bayesian models, and zero-inflated Poisson models (Zeileis, Kleiber, and Jackman (2008) ¡doi:10.18637/jss.v027.i08¿).

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URL https://github.com/tidymodels/poissonreg, https://poissonreg.tidymodels.org/

BugReports https://github.com/tidymodels/poissonreg/issues

Depends parsnip (¿= 0.1.3.9000), R (¿= 2.10)

Imports dplyr, generics, glue, purrr, rlang, stats, tibble, tidyr

Suggests covr, pscl, spelling, testthat

Encoding UTF-8

Language en-US

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.1.9000

R topics documented:

`poisson_reg` *Poisson regression models*

Description

`poisson_reg()` defines a generalized linear model for count data that follow a Poisson distribution. There are different ways to fit this model. See the engine-specific pages for more details:

- `glm` (default)
- `hurdle`
- `zeroinfl`
- `glmnet`
- `stan`

More information on how **parsnip** is used for modeling is at `https://www.tidymodels.org/`.

Usage

```
poisson_reg(
  mode = "regression",
  penalty = NULL,
  mixture = NULL,
  engine = "glm"
)

## S3 method for class 'poisson_reg'
update(
  object,
  parameters = NULL,
  penalty = NULL,
  mixture = NULL,
  fresh = FALSE,
  ...
)
```

Arguments

`mode`	A single character string for the type of model. The only possible value for this model is "regression".
`penalty`	A non-negative number representing the total amount of regularization (`glmnet` only).
`mixture`	A number between zero and one (inclusive) that is the proportion of L1 regularization (i.e. lasso) in the model. When `mixture = 1`, it is a pure lasso model while `mixture = 0` indicates that ridge regression is being used. (`glmnet` and `spark` only).
`engine`	A single character string specifying what computational engine to use for fitting.

object	A boosted tree model specification.
parameters	A 1-row tibble or named list with *main* parameters to update. If the individual arguments are used, these will supersede the values in parameters. Also, using engine arguments in this object will result in an error.
fresh	A logical for whether the arguments should be modified in-place of or replaced wholesale.
...	Not used for update().

Details

This function only defines what *type* of model is being fit. Once an engine is specified, the *method* to fit the model is also defined.

The model is not trained or fit until the fit.model_spec() function is used with the data.

Value

An updated model specification.

References

https://www.tidymodels.org, *Tidy Models with R*

See Also

glm engine details, hurdle engine details, zeroinfl engine details, glmnet engine details, stan engine details

Examples

```
poisson_reg()

# Model from Agresti (2007) Table 7.6
log_lin_mod <-
  poisson_reg() %>%
  set_engine("glm") %>%
  fit(count ~ (.)^2, data = seniors)

summary(log_lin_mod$fit)

# ------------------------------------------------------------------------------

library(pscl)

data("bioChemists", package = "pscl")

poisson_reg() %>%
  set_engine("hurdle") %>%
# Extended formula:
  fit(art ~ . | phd, data = bioChemists)

model <- poisson_reg(penalty = 10, mixture = 0.1)
model
update(model, penalty = 1)
update(model, penalty = 1, fresh = TRUE)
```

seniors — *Alcohol, Cigarette, and Marijuana Use for High School Seniors*

Description

Alcohol, Cigarette, and Marijuana Use for High School Seniors

Details

Data are from Table 7.3 of Agresti (2007). The first three columns make up data from a 3-way contingency table.

Value

`seniors` a tibble

Source

Agresti, A (2007). *An Introduction to Categorical Data Analysis.*

Examples

```
data(seniors)
str(seniors)
```

tidy_zip — *Turn zero-inflated model results into a tidy tibble*

Description

Turn zero-inflated model results into a tidy tibble

Usage

```
## S3 method for class 'zeroinfl'
tidy(x, type = "count", ...)

## S3 method for class 'hurdle'
tidy(x, type = "count", ...)
```

Arguments

`x`	A `hurdle` or `zeroinfl` model object.
`type`	A character string for which model coefficients to return: "all", "count", or "zero".
`...`	Not currently used.

Value

A tibble

Index