Package: weighter (via r-universe)

November 11, 2026

Title Model averaging

Version 0.0.1

Description This package implementes model averaging.

License MIT + file LICENSE

Encoding UTF-8

LazyData true

RoxygenNote 7.0.2

Suggests covr, testthat (>= 2.1.0)

Repository https://mrc-ide.r-universe.dev

Date/Publication 2020-05-08 17:39:45 UTC

RemoteUrl https://github.com/mrc-ide/weighter

RemoteRef master

RemoteSha bb66cf38df0a82cbd3c99fe87c80814fbb93a687

Contents

groupvar_to_model 2
model_ranks 2
model_to_groupvar 3
model_weights 4
model_weights_in_group 5

Index **7**

`groupvar_to_model` *Mapping of groupvars to model*

Description

Mapping of groupvar to models run

Usage

```
groupvar_to_model(pred, groupvars)
```

Arguments

`pred`	data.frame with at least one column called model
`groupvars`	quoted variable names used to define groups within which models should be ranked.

Details

In some cases, we might not have the same set of models run for a grouping variable. For example, say the grouping variable is country, and we have Models $m1$, $m2$ and $m3$ run for country $c1$, and models $m1, m2, m3, m4$ run for country $c2$. For this example, `groupvar_to_model` returns a named list where names are formed by concatenating models and elements are countries for which a particular set of models has been run. (m1_m2_m3 = c1, m1_m2_m3_m4 = c2)

Value

list

Author(s)

Sangeeta Bhatia

`model_ranks` *Assign ranks to models*

Description

Rank models according to the error

Usage

```
model_ranks(pred, groupvars, errvar)
```

Arguments

pred	data.frame with at least one column called model
groupvars	quoted variable names used to define groups within which models should be ranked.
errvar	quoted column name that contains the metric used to rank models

Details

When multiple models have made predictions, we want to rank them by their error, where error can be any metric e.g. Root mean squared error or likelihood. Each model is ranked within the groups defined by groupvars

Value

data.frame with the same structure as pred and an extra column called rank which contains the model ranks within the groups defined by groupvar

Author(s)

Sangeeta Bhatia

Examples

```
pred <- data.frame(
  models = as.factor(c("a", "b", "c", "a", "b", "c")),
  country = c("C1", "C1", "C1", "C2", "C2", "C2"),
  error = c(6L, 1L, 3L, 4L, 7L, 9L),
  date = c("1", "1", "1", "2", "2", "2"),
  stringsAsFactors = FALSE
)
model_ranks(pred, c("country", "date"), "error")
```

---

model_to_groupvar *Mapping of models to groups for which they have been run*

Description

Mapping of models to groups for which they have been run

Usage

```
model_to_groupvar(pred, groupvars)
```

Arguments

pred	data.frame with at least one column called model
groupvars	quoted variable names used to define groups within which models should be ranked.

Details

In some cases, we might not have the same set of models run for a grouping variable. For example, say the grouping variable is country, and we have Models M_1, M_2 and M_3 run for country C_1, and models M_1, M_2, M_3, M_4 run country C_2. For this example, this function will return the list m_1 = c_1, c_2, m_2 = c_1, c_1, m_3 = c_1, c_2, m_4 = c_2 This can be used to identify for which countries a give model has been run.

Value

list

Author(s)

Sangeeta Bhatia

`model_weights` *Compute Model Weights*

Description

Compute Model Weights

Usage

```
model_weights(pred, groupvars, errvar)
```

Arguments

`pred`	data.frame with at least one column called model
`groupvars`	quoted variable names used to define groups within which models should be ranked.
`errvar`	quoted column name that contains the metric used to rank models

Details

Compute model weights within each group

Value

named list where the names are the combinations of models run for a group, and each element of the list is a data.frame containing model weights outputted from `model_weights_in_group`

Author(s)

Sangeeta Bhatia

See Also

model_weights_in_group

model_weights_in_group *Compute Model Weights*

Description

Compute model weights from model ranks

Usage

```
model_weights_in_group(pred, groupvars = "model", rankvar = "rank")
```

Arguments

pred	data.frame that has at least columns specified via parameters groupvars and rank. pred is expected to have the same number of elements of grouping variable within each group. That is, each model should have been run for the same number of elements of groupvar. If this is not the case, use model_weights instead.
groupvars	quoted variable names used to define groups within which model weights are computed. Defaults to model.
rankvar	quoted variable names that contain model ranks.

Details

In a group defined by groupvars, the weight of a model is defined as

$$weight(M) = \sum_{i=1}^{M} K(i)/i$$

where $K(i)$ is the number of times model M is ranked i among $M_1, M_2, \ldots M$ models.

Value

a data.frame with columns model and weight where weight is the unnormalised weight of the model

Author(s)

Sangeeta Bhatia

See Also

model_ranks model_weights

Examples

```
pred <- data.frame(
  model = as.factor(c("a", "b", "c", "a", "b", "c")),
  country = c("C1", "C1", "C1", "C2", "C2", "C2"),
  error = c(6L, 1L, 3L, 4L, 7L, 9L),
  date = c("1", "1", "1", "2", "2", "2"),
  stringsAsFactors = FALSE
)
ranked <- model_ranks(pred, c("country", "date"), "error")
model_weights_in_group(ranked)
```

Index

groupvar_to_model, 2

model_ranks, 2
model_to_groupvar, 3
model_weights, 4
model_weights_in_group, 5