Package 'MetricsWeighted'

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Title Weighted Metrics for Machine Learning

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Description Provides weighted versions of several metrics used in machine learning.

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Imports stats

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NeedsCompilation no

R topics documented:

accuracy *Accuracy*

Description

Returns weighted accuracy, i.e. the weighted proportion of elements in `predicted` that are equal to those in `observed`.

Usage

```
accuracy(actual, predicted, w = NULL, ...)
```

Arguments

`actual`	Observed values.
`predicted`	Predicted values.
`w`	Optional case weights.
`...`	Further arguments passed to `weighted_mean`.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
accuracy(c(0, 0, 1, 1), c(0, 0, 1, 1))
accuracy(c(1, 0, 0, 1), c(0, 0, 1, 1))
accuracy(c(1, 0, 0, 1), c(0, 0, 1, 1), w = 1:4)
```

AUC *Area under the ROC*

Description

Returns weighted AUC, i.e. the area under the receiver operating curve, based on a deterministic version of `glmnet::auc`.

Usage

```
AUC(actual, predicted, w = NULL, ...)
```

Arguments

`actual`	Observed values (0 or 1).
`predicted`	Predicted values (not necessarily between 0 and 1).
`w`	Optional case weights. Not dealt with currently.
`...`	Currently not used.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
AUC(c(0, 0, 1, 1), 2 * c(0.1, 0.1, 0.9, 0.8))
AUC(c(1, 0, 0, 1), c(0.1, 0.1, 0.9, 0.8))
AUC(c(0, 0, 1, 1), c(0.1, 0.1, 0.9, 0.8), w = 1:4)
```

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classification_error *Classification error*

Description

Returns weighted classification error, i.e. the weighted proportion of elements in `predicted` that are unequal to those in `observed`.

Usage

```
classification_error(actual, predicted, w = NULL, ...)
```

Arguments

`actual`	Observed values.
`predicted`	Predicted values.
`w`	Optional case weights.
`...`	Further arguments passed to `weighted_mean`.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
classification_error(c(0, 0, 1, 1), c(0, 0, 1, 1))
classification_error(c(1, 0, 0, 1), c(0, 0, 1, 1))
classification_error(c(1, 0, 0, 1), c(0, 0, 1, 1), w = 1:4)
```

deviance_tweedie *Tweedie deviance*

Description

Returns (average) weighted Tweedie deviance with parameter p. This includes the normal deviance (p = 0), the Poisson deviance (p = 1), as well as the Gamma deviance (p = 2).

Usage

```
deviance_tweedie(actual, predicted, w = NULL, p = 1, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
p	Tweedie power.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
deviance_tweedie(1:10, (1:10)^2, p = 0)
deviance_tweedie(1:10, (1:10)^2, p = 1)
deviance_tweedie(1:10, (1:10)^2, p = 2)
deviance_tweedie(1:10, (1:10)^2, p = 1.5)
deviance_tweedie(1:10, (1:10)^2, p = 1.5, w = rep(1, 10))
deviance_tweedie(1:10, (1:10)^2, p = 1.5, w = 1:10)
```

f1_score *F1 score*

Description

Returns weighted F1 score, the harmonic mean of precision and recall.

Usage

```
f1_score(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values (0 or 1).
predicted	Predicted values (0 or 1).
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
f1_score(c(0, 0, 1, 1), c(0, 0, 1, 1))
f1_score(c(1, 0, 0, 1), c(0, 0, 1, 1))
f1_score(c(1, 0, 0, 1), c(0, 0, 1, 1), w = 1:4)
```

---

logLoss *Log Loss / binary cross entropy*

Description

Returns weighted logloss/cross entropy.

Usage

```
logLoss(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
logLoss(c(0, 0, 1, 1), c(0.1, 0.1, 0.9, 0.8))
logLoss(c(1, 0, 0, 1), c(0.1, 0.1, 0.9, 0.8))
logLoss(c(0, 0, 1, 1), c(0.1, 0.1, 0.9, 0.8), w = 1:4)
```

mae *Mean absolute error*

Description

Returns weighted mean absolute error of predicted values.

Usage

```
mae(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
mae(1:10, (1:10)^2)
mae(1:10, (1:10)^2, w = rep(1, 10))
mae(1:10, (1:10)^2, w = 1:10)
```

mape *Mean absolute percentage error*

Description

Returns weighted mean absolute percentage error of predicted values.

Usage

```
mape(actual, predicted, w = NULL, clip_small = 0, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
clip_small	Minimal absolute value in the denominator. Used to avoid divisions by 0.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
mape(1:10, (1:10)^2)
mape(1:10, (1:10)^2, w = rep(1, 10))
mape(1:10, (1:10)^2, w = 1:10)
```

---

mse *Mean-squared error*

Description

Returns weighted mean-squared error of predicted values.

Usage

```
mse(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
mse(1:10, (1:10)^2)
mse(1:10, (1:10)^2, w = rep(1, 10))
mse(1:10, (1:10)^2, w = 1:10)
```

precision *Precision*

Description

Returns weighted precision.

Usage

```
precision(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values (0 or 1).
predicted	Predicted values (0 or 1).
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
precision(c(0, 0, 1, 1), c(0, 0, 1, 1))
precision(c(1, 0, 0, 1), c(0, 0, 1, 1))
precision(c(1, 0, 0, 1), c(0, 0, 1, 1), w = 1:4)
```

recall *Recall*

Description

Returns weighted recall.

Usage

```
recall(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values (0 or 1).
predicted	Predicted values (0 or 1).
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
recall(c(0, 0, 1, 1), c(0, 0, 1, 1))
recall(c(1, 0, 0, 1), c(0, 0, 1, 1))
recall(c(1, 0, 0, 1), c(0, 0, 1, 1), w = 1:4)
```

---

rmse *Root-mean-squared error*

Description

Returns (weighted) root-mean-squared error of predicted values.

Usage

```
rmse(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
rmse(1:10, (1:10)^2)
rmse(1:10, (1:10)^2, w = rep(1, 10))
rmse(1:10, (1:10)^2, w = 1:10)
```

r_squared *R-squared*

Description

Returns weighted R-squared of predicted values.

Usage

```
r_squared(actual, predicted, w = NULL, ...)
```

Arguments

actual	Observed values.
predicted	Predicted values.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A numeric vector of length one.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
r_squared(1:10, c(1, 1:9))
r_squared(1:10, c(1, 1:9), w = rep(1, 10))
r_squared(1:10, c(1, 1:9), w = 1:10)
```

weighted_mean *Weighted mean that handles NULL weights*

Description

Returns weighted mean of numeric vector.

Usage

```
weighted_mean(x, w = NULL, ...)
```

Arguments

x	Numeric vector.
w	Optional case weights.
...	Further arguments passed to weighted_mean.

Value

A length-one numeric vector.

Author(s)

Michael Mayer, <mayermichael79@gmail.com>

Examples

```
weighted_mean(1:10)
weighted_mean(1:10, w = NULL)
weighted_mean(1:10, w = 1:10)
```

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