Skip to content

Freestyle Predicates (freestyle.predicates)

This module contains predicates operating on vertices (0D elements) and polylines (1D elements). It is also intended to be a collection of examples for predicate definition in Python.

User-defined predicates inherit one of the following base classes, depending on the object type (0D or 1D) to operate on and the arity (unary or binary):

- freestyle.types.BinaryPredicate0D
- freestyle.types.BinaryPredicate1D
- freestyle.types.UnaryPredicate0D
- freestyle.types.UnaryPredicate1D

class freestyle.predicates.**AndBP1D**

class freestyle.predicates.**AndUP1D**

class freestyle.predicates.**ContourUP1D**

Class hierarchy: freestyle.types.UnaryPredicate1D > ContourUP1D

__call__(inter)

Returns true if the Interface1D is a contour. An Interface1D is a contour if it is bordered by a different shape on each of its sides.

PARAMETERS:

inter (freestyle.types.Interface1D) – An Interface1D object.

RETURNS:

True if the Interface1D is a contour, false otherwise.

RETURN TYPE:

bool

class freestyle.predicates.**DensityLowerThanUP1D**

Class hierarchy: freestyle.types.UnaryPredicate1D > DensityLowerThanUP1D

__init__(threshold, sigma=2.0)

Builds a DensityLowerThanUP1D object.

PARAMETERS:

- **threshold** (*float*) – The value of the threshold density. Any Interface1D having a density lower than this threshold will match.
- **sigma** (*float*) – The sigma value defining the density evaluation window size used in the freestyle.functions.DensityF0D functor.

__call__(inter)

Returns true if the density evaluated for the Interface1D is less than a user-defined density value.

PARAMETERS:

inter (freestyle.types.Interface1D) – An Interface1D object.

RETURNS:

True if the density is lower than a threshold.

RETURN TYPE:

bool

class freestyle.predicates.**EqualToChainingTimeStampUP1D**

Class hierarchy: freestyle.types.UnaryPredicate1D > freestyle.types.EqualToChainingTimeStampUP1I

__init__(ts)

Builds a EqualToChainingTimeStampUP1D object.

PARAMETERS:

ts (*int*) – A time stamp value.

__call__(inter)

Returns true if the Interface1D's time stamp is equal to a certain user-defined value.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True if the time stamp is equal to a user-defined value.

RETURN TYPE:

bool

class freestyle.predicates.**EqualToTimeStampUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `EqualToTimeStampUP1D`

__init__(ts)

Builds a EqualToTimeStampUP1D object.

PARAMETERS:

ts (*int*) – A time stamp value.

__call__(inter)

Returns true if the Interface1D's time stamp is equal to a certain user-defined value.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True if the time stamp is equal to a user-defined value.

RETURN TYPE:

bool

class freestyle.predicates.**ExternalContourUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `ExternalContourUP1D`

__call__(inter)

Returns true if the Interface1D is an external contour. An Interface1D is an external contour if it is bordered by no shape on one of its sides.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True if the Interface1D is an external contour, false otherwise.

RETURN TYPE:

bool

class freestyle.predicates.**FalseBP1D**

Class hierarchy: `freestyle.types.BinaryPredicate1D` > `FalseBP1D`

__call__(inter1, inter2)

Always returns false.

PARAMETERS:

- **inter1** (`freestyle.types.Interface1D`) – The first Interface1D object.
- **inter2** (`freestyle.types.Interface1D`) – The second Interface1D object.

RETURNS:

False.

RETURN TYPE:

bool

class freestyle.predicates.**FalseUP0D**

Class hierarchy: `freestyle.types.UnaryPredicate0D` > `FalseUP0D`

__call__(it)

Always returns false.

PARAMETERS:

it (`freestyle.types.Interface0DIterator`) – An Interface0DIterator object.

RETURNS:

False.

RETURN TYPE:

bool

class freestyle.predicates.**FalseUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `FalseUP1D`

__call__(inter)

Always returns false.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

False.

RETURN TYPE:

bool

class freestyle.predicates.**Length2DBP1D**

Class hierarchy: `freestyle.types.BinaryPredicate1D` > `Length2DBP1D`

__call__(inter1, inter2)

Returns true if the 2D length of inter1 is less than the 2D length of inter2.

PARAMETERS:

- **inter1** (`freestyle.types.Interface1D`) – The first Interface1D object.
- **inter2** (`freestyle.types.Interface1D`) – The second Interface1D object.

RETURNS:

True or false.

RETURN TYPE:

bool

class freestyle.predicates.**MaterialBP1D**

Checks whether the two supplied ViewEdges have the same material.

class freestyle.predicates.**NotBP1D**

class freestyle.predicates.**NotUP1D**

class freestyle.predicates.**ObjectNamesUP1D**

class freestyle.predicates.**OrBP1D**

class freestyle.predicates.**OrUP1D**

class freestyle.predicates.**QuantitativeInvisibilityRangeUP1D**

class freestyle.predicates.**QuantitativeInvisibilityUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `QuantitativeInvisibilityUP1D`

__init__(qi=0)

Builds a QuantitativeInvisibilityUP1D object.

PARAMETERS:

qi (*int*) – The Quantitative Invisibility you want the Interface1D to have.

__call__(inter)

Returns true if the Quantitative Invisibility evaluated at an Interface1D, using the `freestyle.functions.QuantitativeInvisibilityF1D` functor, equals a certain user-defined value.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True if Quantitative Invisibility equals a user-defined value.

RETURN TYPE:

bool

class freestyle.predicates.**SameShapeIdBP1D**

Class hierarchy: `freestyle.types.BinaryPredicate1D` > `SameShapeIdBP1D`

__call__(inter1, inter2)

Returns true if inter1 and inter2 belong to the same shape.

PARAMETERS:

- **inter1** (`freestyle.types.Interface1D`) – The first Interface1D object.
- **inter2** (`freestyle.types.Interface1D`) – The second Interface1D object.

RETURNS:

True or false.

RETURN TYPE:

bool

class freestyle.predicates.**ShapeUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `ShapeUP1D`

__init__(first, second=0)

Builds a ShapeUP1D object.

PARAMETERS:

- **first** (*int*) – The first Id component.

- **second** (*int*) – The second Id component.

__call__(inter)

Returns true if the shape to which the Interface1D belongs to has the same `freestyle.types.Id` as the one specified by the user.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True if Interface1D belongs to the shape of the user-specified Id.

RETURN TYPE:

bool

class freestyle.predicates.**TrueBP1D**

Class hierarchy: `freestyle.types.BinaryPredicate1D` > `TrueBP1D`

__call__(inter1, inter2)

Always returns true.

PARAMETERS:

- **inter1** (`freestyle.types.Interface1D`) – The first Interface1D object.
- **inter2** (`freestyle.types.Interface1D`) – The second Interface1D object.

RETURNS:

True.

RETURN TYPE:

bool

class freestyle.predicates.**TrueUP0D**

Class hierarchy: `freestyle.types.UnaryPredicate0D` > `TrueUP0D`

__call__(it)

Always returns true.

PARAMETERS:

it (`freestyle.types.Interface0DIterator`) – An Interface0DIterator object.

RETURNS:

True.

RETURN TYPE:

bool

class freestyle.predicates.**TrueUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `TrueUP1D`

__call__(inter)

Always returns true.

PARAMETERS:

inter (`freestyle.types.Interface1D`) – An Interface1D object.

RETURNS:

True.

RETURN TYPE:

bool

class freestyle.predicates.**ViewMapGradientNormBP1D**

Class hierarchy: `freestyle.types.BinaryPredicate1D` > `ViewMapGradientNormBP1D`

__init__(level, integration_type=IntegrationType.MEAN, sampling=2.0)

Builds a ViewMapGradientNormBP1D object.

PARAMETERS:

- **level** (*int*) – The level of the pyramid from which the pixel must be read.
- **integration_type** (`freestyle.types.IntegrationType`) – The integration method used to compute a single value from set of values.
- **sampling** (*float*) – The resolution used to sample the chain: GetViewMapGradientNormF0D is evaluated at each sample point and the result is obtained by combining the resulting values into a single one, following the method specified by integration_type.

__call__(inter1, inter2)

Returns true if the evaluation of the Gradient norm Function is higher for inter1 than for inter2.

PARAMETERS:

- **inter1** (`freestyle.types.Interface1D`) – The first Interface1D object.
- **inter2** (`freestyle.types.Interface1D`) – The second Interface1D object.

RETURNS:

True or false.

RETURN TYPE:

bool

class freestyle.predicates.**WithinImageBoundaryUP1D**

Class hierarchy: `freestyle.types.UnaryPredicate1D` > `WithinImageBoundaryUP1D`

__init__(xmin, ymin, xmax, ymax)

Builds an WithinImageBoundaryUP1D object.

PARAMETERS:

- **xmin** (*float*) – X lower bound of the image boundary.
- **ymin** (*float*) – Y lower bound of the image boundary.
- **xmax** (*float*) – X upper bound of the image boundary.
- **ymax** (*float*) – Y upper bound of the image boundary.

__call__(inter)

Returns true if the Interface1D intersects with image boundary.

class freestyle.predicates.**pyBackTVertexUP0D**

Check whether an Interface0DIterator references a TVertex and is the one that is hidden (inferred from the context).

class freestyle.predicates.**pyClosedCurveUP1D**

class freestyle.predicates.**pyDensityFunctorUP1D**

class freestyle.predicates.**pyDensityUP1D**

class freestyle.predicates.**pyDensityVariableSigmaUP1D**

class freestyle.predicates.**pyHighDensityAnisotropyUP1D**

class freestyle.predicates.**pyHighDirectionalViewMapDensityUP1D**

class freestyle.predicates.**pyHighSteerableViewMapDensityUP1D**

class freestyle.predicates.**pyHighSteerableViewMapDensityUP1D**

class freestyle.predicates.**pyHighViewMapDensityUP1D**

class freestyle.predicates.**pyHighViewMapGradientNormUP1D**

class freestyle.predicates.**pyHigherCurvature2DAngleUP0D**

class freestyle.predicates.**pyHigherLengthUP1D**

class freestyle.predicates.**pyHigherNumberOfTurnsUP1D**

class freestyle.predicates.**pyIsInOccludersListUP1D**

class freestyle.predicates.**pyIsOccludedByIdListUP1D**

class freestyle.predicates.**pyIsOccludedByItselfUP1D**

class freestyle.predicates.**pyIsOccludedByUP1D**

class freestyle.predicates.**pyLengthBP1D**

class freestyle.predicates.**pyLowDirectionalViewMapDensityUP1D**

class freestyle.predicates.**pyLowSteerableViewMapDensityUP1D**

class freestyle.predicates.**pyNFirstUP1D**

class freestyle.predicates.**pyNatureBP1D**

class freestyle.predicates.**pyNatureUP1D**

class freestyle.predicates.**pyParameterUP0D**

class freestyle.predicates.**pyParameterUP0DGoodOne**

class freestyle.predicates.**pyProjectedXBP1D**

class freestyle.predicates.**pyProjectedYBP1D**

class freestyle.predicates.**pyShapeIdListUP1D**

class freestyle.predicates.**pyShapeIdUP1D**

class freestyle.predicates.**pyShuffleBP1D**

class freestyle.predicates.**pySilhouetteFirstBP1D**

class freestyle.predicates.**pyUEqualsUP0D**

class freestyle.predicates.**pyVertexNatureUP0D**

class freestyle.predicates.**pyViewMapGradientNormBP1D**

class freestyle.predicates.**pyZBP1D**

class freestyle.predicates.**pyZDiscontinuityBP1D**

class freestyle.predicates.**pyZSmallerUP1D**