pyfuzzy

API Documentation

April 5, 2013

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Initialize the fuzzy module.

(GRAPH)

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1.2 Variables

Name	Description
___package___	**Value:** `None`
___revision___	**Value:** `'$Id: __init__.py,v 1.8 2009-10-27 20:06:27 rliebscher Ex...`

2 Module fuzzy.Adjective

Describes a ... of a variable.

2.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Adjective.py,v 1.16 2010-02-17 19:57:13 rliebscher ...`
___package___	**Value:** `'fuzzy'`

2.2 Class Adjective

object
└ **fuzzy.Adjective.Adjective**

Describes a ... of a variable.

2.2.1 Methods

___init___(*self*, *set*=`None`, *COM*=`None`)

Initialize adjective.

Parameters

`set:` fuzzy set

(type=`fuzzy.set.Set.Set`)

`COM:` norm (if None the class default _COM is used.)

(type=`fuzzy.norm.Norm.Norm`)

Overrides: object.___init___

setMembershipForValue(*self*, *value*)

Get membership for an input value from the fuzzy set.

getMembership(*self*)

Return membership set in this adjective.

setMembership(*self*, *value*)

Set membership of this adjective as result of a rule calculation, if already set use COM norm to merge old and new value.

reset(*self*)

Reset membership to unknown value (None).

getName(*self*, *system*)

Find own name in given system. Returns a tuple (var_name,adj_name) of None.

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

2.2.2 Properties

Name	Description
Inherited from object ___class___	

2.2.3 Instance Variables

Name	Description
COM	norm (if None the class default _COM is used.) *(type=**fuzzy.norm.Norm.Norm**)*
membership	set or calculated membership *(type=float)*
set	fuzzy set *(type=**fuzzy.set.Set.Set**)*

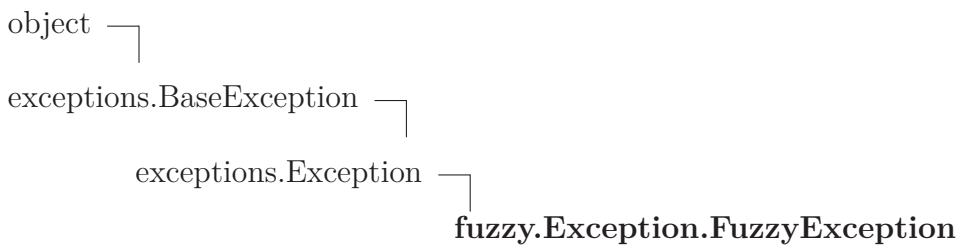
3 Module fuzzy.Exception

Base class for any kind of exceptions used by this package.

3.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Exception.py,v 1.8 2010-01-19 21:45:35 rliebscher E...`
___package___	**Value:** `None`

3.2 Class FuzzyException



Known Subclasses: fuzzy.complement.Base.ComplementException, fuzzy.norm.Norm.NormException, fuzzy.defuzzify.Base.DefuzzificationException

Base class for any kind of exceptions used by this package.

3.2.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

3.2.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

4 Module fuzzy.InputVariable

General instance of an input variable.

4.1 Variables

Name	Description
___revision___	**Value:** `'$Id: InputVariable.py,v 1.9 2010-02-17 19:57:13 rliebsch...`
___package___	**Value:** `'fuzzy'`

4.2 Class InputVariable

object
└
fuzzy.Variable.Variable
└
fuzzy.InputVariable.InputVariable

General instance of an input variable The fuzzification is provided by special object for this purpose, set as fuzzify param. Also marker, so you can check if any variable is an (instance of) input variable

4.2.1 Methods

___init___(*self*, *fuzzify*=`None`, **args*, ***keywords*)

Initialize this input variable with a fuzzification method.

Parameters

`fuzzify`: Fuzzification method.

(type=`fuzzy.fuzzify.Base.Base`)

Overrides: object.___init___

setValue(*self*, *value*)

Let adjectives calculate their membership values.

Overrides: fuzzy.Variable.Variable.setValue

Inherited from fuzzy.Variable.Variable(Section 8.2)

___repr___(), getName(), getValue(), reset()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

4.2.2 Properties

Name	Description
Inherited from object ___class___	

4.2.3 Instance Variables

Name	Description
fuzzify	Fuzzification method. *(type=`fuzzy.fuzzify.Base.Base`)*
Inherited from fuzzy.Variable.Variable (Section 8.2) description, max, min, unit	

5 Module fuzzy.OutputVariable

General instance of an output variable.

5.1 Variables

Name	Description
___revision___	**Value:** `'$Id: OutputVariable.py,v 1.14 2010-03-28 18:38:08 rliebs...`
___package___	**Value:** `'fuzzy'`

5.2 Class OutputVariable

object
└
fuzzy.Variable.Variable
└
fuzzy.OutputVariable.OutputVariable

General instance of an output variable. The defuzzification is provided by special object for this purpose, set as defuzzify param. Also marker, so you can check if any variable is an (instance of) output variable

5.2.1 Methods

___init___(*self*, *defuzzify*=`None`, **args*, ***keywords*)

Initialize this output variable with a defuzzification method.

Parameters

`defuzzify`: Defuzzification method.

(type=`fuzzy.defuzzify.Base.Base`)

Overrides: object.___init___

getValue(*self*)

defuzzification

Overrides: fuzzy.Variable.Variable.getValue

Inherited from fuzzy.Variable.Variable(Section 8.2)

___repr___(), getName(), reset(), setValue()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

5.2.2 Properties

Name	Description
Inherited from object ___class___	

5.2.3 Instance Variables

Name	Description
defuzzify	Defuzzification method. *(type=`fuzzy.defuzzify.Base.Base`)*
Inherited from fuzzy.Variable.Variable (Section 8.2) description, max, min, unit	

6 Module fuzzy.Rule

Represents a fuzzy rule.

6.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Rule.py,v 1.17 2010-02-17 19:57:13 rliebscher Exp $'`
___package___	**Value:** `'fuzzy'`

6.2 Class Rule

object
└
fuzzy.Rule.Rule

This is realizes an important part of the inference engine. It represents and calculates the value of a fuzzy rule and sets the given adjective to the appropriate value.

6.2.1 Methods

___init___(*self*, *adjective*, *operator*, *certainty*=`1.0`, *CER*=`None`)

Initialize instance.

Parameters

`adjective`: fuzzy adjective to set
*(type=**fuzzy.Adjective.Adjective**)*

`operator`: Operator which provides the value to set
*(type=**fuzzy.operator.Operator.Operator**)*

`certainty`: how sure are we about this rule
(type=float)

`CER`: fuzzy norm to use with certainty (normally a t-norm)
*(type=**fuzzy.norm.Norm.Norm**)*

Overrides: object.___init___

compute(*self*)

Compute and set value for given fuzzy adjective.

getName(*self*, *system*)

Lookup the name given this rule in the given system

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

6.2.2 Properties

Name	Description
Inherited from object ___class___	

6.2.3 Instance Variables

Name	Description
CER	fuzzy norm to use with certainty (normally a t-norm) *(type=`fuzzy.norm.Norm.Norm`)*
adjective	fuzzy adjective to set *(type=`fuzzy.Adjective.Adjective`)*
certainty	how sure are we about this rule *(type=float)*
operator	Operator which provides the value to set *(type=`fuzzy.operator.Operator.Operator`)*

7 Module fuzzy.System

Main coordinator class of a whole fuzzy system

7.1 Variables

Name	Description
___revision___	**Value:** `'$Id: System.py,v 1.19 2010-02-17 19:57:13 rliebscher Exp $'`
___package___	**Value:** `None`

7.2 Class System

object
└ **fuzzy.System.System**

Holds all stuff together. (variables, rules, ...) Provides methods to do calculation with it.

7.2.1 Methods

___init___(*self*, *description*=`''`, *variables*=`None`, *rules*=`None`)

Constructor.

Parameters

`description`: description

(type=string)

Overrides: object.___init___

reset(*self*)

Reset all memberships for the next run of calculate

fuzzify(*self*, *input*)

Fuzzify the inputs. The input dictionary contains the input values for the named variables.

inference(*self*)

Calculate the fuzzy inference given by the rules.

defuzzify(*self*, *output*)

Defuzzyfy the variables. The output dictionary serves as container and provides the names of the variables to read.

calculate(*self*, *input*, *output*)

Do a complete fuzzy calculation step. The input dictionary contains the input values for the named variables. The output dictionary serves as container and provides the names of the variables to read.

findVariableName(*self*, *var*)

Find name of variable in this system

findAdjectiveName(*self*, *adj*)

Find name of adjective (and variable) in this system

findRuleName(*self*, *_rule*)

Find name of rule in this system

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

7.2.2 Properties

Name	Description
Inherited from object	
___class___	

7.2.3 Instance Variables

Name	Description
description	description *(type=string)*
rules	dictionary to hold all rules. *(type={string:`fuzzy.Rule.Rule`})*
variables	dictionary to hold all variables. *(type={string:`fuzzy.Variable.Variable`})*

8 Module fuzzy.Variable

Base class for any kind of fuzzy variable.

8.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Variable.py,v 1.16 2010-02-17 19:57:13 rliebscher E...`
___package___	**Value:** `None`

8.2 Class Variable

object
└ **fuzzy.Variable.Variable**

Known Subclasses: fuzzy.OutputVariable.OutputVariable, fuzzy.InputVariable.InputVariable

Base class for any kind of fuzzy variable. Returns as output the previous input value.

8.2.1 Methods

___init___(*self*, *description*=’’, *min*=0.0, *max*=1.0, *unit*=’’, *adjectives*=None)

x.___init___(...) initializes x; see help(type(x)) for signature

Parameters

`description`: Description of the fuzzy variable

(type=string)

`min`: minimum value (not strictly enforced, but useful for some external tools)

(type=float)

`max`: maximum value (not strictly enforced, but useful for some external tools)

(type=float)

`unit`: Unit of the values

(type=string)

Overrides: object.___init___

setValue(*self*, *value*)

Just store the value.

getValue(*self*)

Return previous input value.

reset(*self*)

Reset meberships of adjectives for new calculation step.

getName(*self*, *system*)

Lookup the name given this variable in the given system

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

8.2.2 Properties

Name	Description
Inherited from object ___class___	

8.2.3 Instance Variables

Name	Description
description	Description of the fuzzy variable *(type=string)*
max	maximum value (not strictly enforced, but useful for some external tools) *(type=float)*
min	minimum value (not strictly enforced, but useful for some external tools) *(type=float)*
unit	Unit of the values *(type=string)*

9 Package fuzzy.complement

Complement functions.

9.1 Modules

- **Base**: Base class for all complement methods
  (Section 10, p. 36)
- **Parametric**: Abstract base class for any parametric fuzzy complement
  (Section 11, p. 39)
- **Sugeno**: Complement after Sugeno
  (Section 12, p. 41)
- **Yager**: Complement after Yager
  (Section 13, p. 43)
- **Zadeh**: Complement after Zadeh
  (Section 14, p. 45)

9.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.3 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

10 Module fuzzy.complement.Base

Base class for all complement methods

10.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Base.py,v 1.7 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.complement'`

10.2 Class ComplementException

object
└ exceptions.BaseException
└ exceptions.Exception
└ fuzzy.Exception.FuzzyException
└ **fuzzy.complement.Base.ComplementException**

An own exception type for complements.

10.2.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

10.2.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
___class___	

10.3 Class Base

object
└
fuzzy.complement.Base.Base

Known Subclasses: fuzzy.complement.Parametric.Parametric, fuzzy.complement.Zadeh.Zadeh

Base class for all complement methods

10.3.1 Methods

___init___(*self*, **args*, ***keywords*)

Initialize the complement instance

Overrides: object.___init___

___call___(*self*, *value*)

Calculate the complement of the value.

Parameters

`value`: the value to complement

(type=float)

Return Value

the complemented value

(type=float)

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

10.3.2 Properties

Name	Description
Inherited from object ___class___	

11 Module fuzzy.complement.Parametric

Abstract base class for any parametric fuzzy complement

11.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Parametric.py,v 1.9 2010-10-29 19:24:41 rliebscher ...`
___package___	**Value:** `'fuzzy.complement'`

11.2 Class Parametric

object
└
fuzzy.complement.Base.Base
└
fuzzy.complement.Parametric.Parametric

Known Subclasses: fuzzy.complement.Yager.Yager, fuzzy.complement.Sugeno.Sugeno

Abstract base class for any parametric fuzzy complement

11.2.1 Methods

___init___(*self*, *p*, **args*, ***keywords*)

Initialize type and parameter

Parameters

`p`: parameter for complement

(type=float)

Overrides: object.___init___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.complement.Base.Base(Section 10.3)

___call___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

11.2.2 Properties

Name	Description
p_range	range(s) of valid values for p
Inherited from object ___class___	

11.2.3 Instance Variables

Name	Description
p	x *(type=float)*

12 Module fuzzy.complement.Sugeno

Complement after Sugeno

12.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Sugeno.py,v 1.7 2010-03-28 18:39:02 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.complement'`

12.2 Class Sugeno

object
└ fuzzy.complement.Base.Base
└ fuzzy.complement.Parametric.Parametric
└ **fuzzy.complement.Sugeno.Sugeno**

Complement after Sugeno

12.2.1 Methods

___init___(*self*, *lambda_*=`0.0`, **args*, ***keywords*)

Initialize instance with given parameter

Parameters

`lambda_`: The parameter

(type=float)

Overrides: object.___init___

___call___(*self*, *value*)

calculate the complement of the value

Parameters

`value`: the value to complement

(type=float)

Return Value

the complemented value

(type=float)

Overrides: fuzzy.complement.Base.Base.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

12.2.2 Properties

Name	Description
Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)	
p_range	
Inherited from object	
___class___	

12.2.3 Instance Variables

Name	Description
Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)	
p	

13 Module fuzzy.complement.Yager

Complement after Yager

13.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Yager.py,v 1.7 2010-03-28 18:39:02 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.complement'`

13.2 Class Yager

object
└
fuzzy.complement.Base.Base
└
fuzzy.complement.Parametric.Parametric
└
fuzzy.complement.Yager.Yager

Complement after Yager

13.2.1 Methods

___init___(*self*, *omega*=`1.0`, **args*, ***keywords*)

Initialize instance with given parameter

Parameters

`omega`: The parameter

(type=float)

Overrides: object.___init___

___call___(*self*, *value*)

calculate the complement of the value

Parameters

`value`: the value to complement

(type=float)

Return Value

the complemented value

(type=float)

Overrides: fuzzy.complement.Base.Base.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

13.2.2 Properties

Name	Description
Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)	
p_range	
Inherited from object	
___class___	

13.2.3 Instance Variables

Name	Description
Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)	
p	

14 Module fuzzy.complement.Zadeh

Complement after Zadeh

14.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Zadeh.py,v 1.6 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.complement'`

14.2 Class Zadeh

object
fuzzy.complement.Base.Base
fuzzy.complement.Zadeh.Zadeh

Complement after Zadeh

14.2.1 Methods

___init___(*self*, **args*, ***keywords*)

Initialize the complement instance

Overrides: object.___init___

___call___(*self*, *value*)

calculate the complement of the value

Parameters

`value`: the value to complement

(type=float)

Return Value

the complemented value

(type=float)

Overrides: fuzzy.complement.Base.Base.___call___

Inherited from fuzzy.complement.Base.Base(Section 10.3)

___repr___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

14.2.2 Properties

Name	Description
Inherited from object	
___class___	

15 Package fuzzy.defuzzify

Defuzzification functions.

15.1 Modules

- **Base**: Abstract base class for defuzzification which results in a numeric value.
  (Section 16, p. 48)
- **COG**: Defuzzification which uses the center of gravity method.
  (Section 17, p. 51)
- **COGS**: Defuzzification for singletons.
  (Section 18, p. 53)
- **Dict**: Not a real defuzzification.
  (Section 19, p. 55)
- **LM**: Defuzzification which uses the left most (local) maximum.
  (Section 20, p. 58)
- **MaxLeft**: Defuzzification which uses the left global maximum.
  (Section 21, p. 60)
- **MaxRight**: Defuzzification which uses the right global maximum.
  (Section 22, p. 62)
- **RM**: Defuzzification which uses the right most (local) maximum.
  (Section 23, p. 64)

15.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.5 2010-03-28 18:40:33 rliebscher Ex...`
___package___	**Value:** `None`

16 Module fuzzy.defuzzify.Base

Abstract base class for defuzzification which results in a numeric value.

16.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Base.py,v 1.12 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

16.2 Class DefuzzificationException

object
exceptions.BaseException
exceptions.Exception
fuzzy.Exception.FuzzyException
fuzzy.defuzzify.Base.DefuzzificationException

16.2.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

16.2.2 Properties

Name	Description
Inherited from exceptions.BaseException	
args, message	
Inherited from object	
__class__	

16.3 Class Base

object
└
fuzzy.defuzzify.Base.Base

Known Subclasses: fuzzy.defuzzify.MaxLeft.MaxLeft, fuzzy.defuzzify.Dict.Dict, fuzzy.defuzzify.COGS.C
fuzzy.defuzzify.RM.RM, fuzzy.defuzzify.COG.COG, fuzzy.defuzzify.LM.LM, fuzzy.defuzzify.MaxRight.Max

Abstract base class for defuzzification which results in a numeric value.

16.3.1 Methods

__init__(*self*, *INF*=`None`, *ACC*=`None`)

x.__init__(...) initializes x; see help(type(x)) for signature

Parameters

`INF`: inference norm, used with set of adjective and given value for it
*(type=**`fuzzy.norm.Norm.Norm`**)*

`ACC`: norm for accumulation of set of adjectives
*(type=**`fuzzy.norm.Norm.Norm`**)*

Overrides: object.__init__

getValue(*self*, *variable*)

Defuzzification.

accumulate(*self*, *variable*, *segment_size*=`None`)

combining adjective values into one set

value_table(*self*, *set*)

get a value table of the polygon representation

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

16.3.2 Properties

Name	Description
Inherited from object	
___class___	

16.3.3 Instance Variables

Name	Description
ACC	norm for accumulation of set of adjectives *(type=`fuzzy.norm.Norm.Norm`)*
INF	inference norm, used with set of adjective and given value for it *(type=`fuzzy.norm.Norm.Norm`)*
accumulated_set	result of accumulation of activated sets *(type=`fuzzy.set.Polygon.Polygon`)*
activated_sets	results of activation of adjectives of variable. *(type={string:`fuzzy.set.Polygon.Polygon`})*

17 Module fuzzy.defuzzify.COG

Defuzzification which uses the center of gravity method.

17.1 Variables

Name	Description
___revision___	**Value:** `'$Id: COG.py,v 1.9 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

17.2 Class COG

object
fuzzy.defuzzify.Base.Base
fuzzy.defuzzify.COG.COG

Defuzzification which uses the center of gravity method.

17.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, *segment_size*=`None`, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Parameters

`failsafe`: if is not possible to calculate a center of gravity, return this value if not None or forward the exception

`segment_size`: maximum length of segment in polygon of accumulated result set

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification using center of gravity method.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

17.2.2 Properties

Name	Description
Inherited from object	
___class___	

17.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

18 Module fuzzy.defuzzify.COGS

Defuzzification for singletons.

18.1 Variables

Name	Description
___revision___	**Value:** `'$Id: COGS.py,v 1.8 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

18.2 Class COGS

object
fuzzy.defuzzify.Base.Base
fuzzy.defuzzify.COGS.COGS

Defuzzification for singletons.

18.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Parameters

`failsafe`: if is not possible to calculate a center of gravity, return this value if not None or forward the exception

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification using center of gravity method.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

18.2.2 Properties

Name	Description
Inherited from object	
___class___	

18.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

19 Module fuzzy.defuzzify.Dict

Not a real defuzzification. Just stores the adjective memberships in a dictionary for output.

19.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Dict.py,v 1.9 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

19.2 Class Dict

Not a real defuzzification. Just stores the adjective memberships in a dictionary for output. You should use in the adjectives instances of Set itself.

What can be done with this?

For example:

You want help with buying a car.

Input are your preferences:

```
speed, payload (1-10), ...
```

(map to "very important, important, doesn't matter, not wanted, never" ;-)

Output are choices: cars with adjectives: ferrari, truck, ...

rules are as follows:

```
if speed->very_important && payload->never then car->ferrari
if payload->very_important then car->truck
```

... and so on

Then you use this as follows:

```
input variables
```

```
{ speed:3, payload:1, ...}
==>
output_variables
{ car: {
         ferrari:0.1,
         truck: 1.0,
         ...
       }
}
```

19.2.1 Methods

___init___(*self*, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Parameters

`INF`: inference norm, used with set of adjective and given value for it

`ACC`: norm for accumulation of set of adjectives

Overrides: object.___init___ extit(inherited documentation)

getValue(*self*, *variable*)

no defuzzification just return membership values

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

19.2.2 Properties

Name	Description
Inherited from object	
___class___	

19.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

20 Module fuzzy.defuzzify.LM

Defuzzification which uses the left most (local) maximum.

20.1 Variables

Name	Description
___revision___	**Value:** `'$Id: LM.py,v 1.6 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

20.2 Class LM

object
└
fuzzy.defuzzify.Base.Base
└
fuzzy.defuzzify.LM.LM

Defuzzification which uses the left most (local) maximum.

20.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, **args*, ***keywords*)

Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible

Parameters

`INF`: inference norm, used with set of adjective and given value for it

`ACC`: norm for accumulation of set of adjectives

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

20.2.2 Properties

Name	Description
Inherited from object	
___class___	

20.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

21 Module fuzzy.defuzzify.MaxLeft

Defuzzification which uses the left global maximum.

21.1 Variables

Name	Description
___revision___	**Value:** `'$Id: MaxLeft.py,v 1.8 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

21.2 Class MaxLeft

object
fuzzy.defuzzify.Base.Base
fuzzy.defuzzify.MaxLeft.MaxLeft

Defuzzification which uses the left global maximum.

21.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, **args*, ***keywords*)

Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible

Parameters

`INF`: inference norm, used with set of adjective and given value for it

`ACC`: norm for accumulation of set of adjectives

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

21.2.2 Properties

Name	Description
Inherited from object	
___class___	

21.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

22 Module fuzzy.defuzzify.MaxRight

Defuzzification which uses the right global maximum.

22.1 Variables

Name	Description
___revision___	**Value:** `'$Id: MaxRight.py,v 1.9 2010-03-28 18:40:33 rliebscher Ex...`
___package___	**Value:** `'fuzzy.defuzzify'`

22.2 Class MaxRight

object

fuzzy.defuzzify.Base.Base

fuzzy.defuzzify.MaxRight.MaxRight

Defuzzification which uses the right global maximum.

22.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, **args*, ***keywords*)

Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible

Parameters

`INF`: inference norm, used with set of adjective and given value for it

`ACC`: norm for accumulation of set of adjectives

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

22.2.2 Properties

Name	Description
Inherited from object	
___class___	

22.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

23 Module fuzzy.defuzzify.RM

Defuzzification which uses the right most (local) maximum.

23.1 Variables

Name	Description
___revision___	**Value:** `'$Id: RM.py,v 1.6 2010-03-28 18:40:33 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.defuzzify'`

23.2 Class RM

object

fuzzy.defuzzify.Base.Base

fuzzy.defuzzify.RM.RM

Defuzzification which uses the right most (local) maximum.

23.2.1 Methods

___init___(*self*, *INF*=`None`, *ACC*=`None`, *failsafe*=`None`, **args*, ***keywords*)

Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible

Parameters

`INF`: inference norm, used with set of adjective and given value for it

`ACC`: norm for accumulation of set of adjectives

Overrides: object.___init___

getValue(*self*, *variable*)

Defuzzification.

Overrides: fuzzy.defuzzify.Base.Base.getValue

Inherited from fuzzy.defuzzify.Base.Base(Section 16.3)

___repr___(), accumulate(), value_table()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

23.2.2 Properties

Name	Description
Inherited from object	
___class___	

23.2.3 Instance Variables

Name	Description
Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)	
ACC, INF, accumulated_set, activated_sets	

24 Package fuzzy.doc

Helpers to generate documentation of a fuzzy system

24.1 Modules

- **plot**: Generate documentation by plotting some parts of the system
  (Section 25, p. 67)
  - **gnuplot**: Documentation
    (Section 26, p. 68)
    - **doc**: Plotting of variables, adjectives, ...
      (Section 27, p. 69)
- **structure**: Generate documentation of structure of system
  (Section 28, p. 75)
  - **dot**: Documentation
    (Section 29, p. 76)
    - **dot**: Generates description of structure in dot format
      (Section 30, p. 77)
    - **handlers**: Handlers for different object types which print the object in dot format
      (Section 31, p. 78)

24.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.5 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

25 Package fuzzy.doc.plot

Generate documentation by plotting some parts of the system

25.1 Modules

- **gnuplot**: Documentation
  (Section 26, p. 68)
  - **doc**: Plotting of variables, adjectives, ...
    (Section 27, p. 69)

25.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

26 Package fuzzy.doc.plot.gnuplot

Documentation

26.1 Modules

- **doc**: Plotting of variables, adjectives, ...
  (Section 27, p. 69)

26.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

27 Module fuzzy.doc.plot.gnuplot.doc

Plotting of variables, adjectives, ... using gnuplot

27.1 Functions

getMinMax(*set*)

get tuple with minimum and maximum x-values used by the set.

getGlobalMinMax(*sets*)

get tuple with minimum and maximum x-values used by the sets of this dicts of sets.

getPoints(*sets*)

Collect all important points of all adjectives in this dict of sets.

getSets(*variable*)

Get all sets of adjectives in this variable.

27.2 Variables

Name	Description
___revision___	**Value:** `'$Id: doc.py,v 1.15 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.doc.plot.gnuplot'`

27.3 Class Doc

object
└ **fuzzy.doc.plot.gnuplot.doc.Doc**

Main object. Get an instance of this to do your work.

27.3.1 Methods

___init___(*self*, *directory*=`'doc'`)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

setTerminal(*self*, *g*, *filename*)

initGnuplot2D(*self*, *filename*=`'plot'`, *xlabel*=`None`, *ylabel*=`None`, *title*=`None`, *xrange_*=`None`, *yrange*=`None`, *x_logscale*=`0`, *y_logscale*=`0`)

initGnuplot3D(*self*, *filename*=`'plot3D'`, *xlabel*=`None`, *ylabel*=`None`, *zlabel*=`None`, *title*=`None`, *xrange_*=`None`, *yrange*=`None`, *zrange*=`None`, *x_logscale*=`0`, *y_logscale*=`0`, *z_logscale*=`0`)

getValues(*self*, *v*)

getValuesSets(*self*, *sets*)

createDoc(*self*, *system*)

create plots of all variables defined in the given system.

createDocVariable(*self*, *v*, *name*, *x_logscale*=`0`, *y_logscale*=`0`)

Creates a 2D plot of a variable

createDocSets(*self*, *sets*, *name*, *x_logscale*=`0`, *y_logscale*=`0`, *description*=`None`, *units*=`None`)

Creates a 2D plot of dict of sets

create2DPlot(*self*, *system*, *x_name*, *y_name*, *input_dict*=`None`, *output_dict*=`None`, *x_logscale*=`0`, *y_logscale*=`0`)

Creates a 2D plot of an input variable and an output variable. Other (const) variables have to be set beforehand in the dictionary input_dict.

Parameters

`system:`	the fuzzy system to use *(type=**fuzzy.System.System**)*
`x_name:`	name of input variable used for x coordinate values *(type=string)*
`y_name:`	name of output variable used for y coordinate values *(type=string)*
`input_dict:`	dictionary used for input values, can be used to predefine other input values *(type=dict)*
`output_dict:`	dictionary used for output values *(type=dict)*
`x_logscale:`	use logarithmic scale for x values *(type=bool)*
`y_logscale:`	use logarithmic scale for y values *(type=bool)*

create3DPlot(*self*, *system*, *x_name*, *y_name*, *z_name*, *input_dict*=`None`, *output_dict*=`None`, *x_logscale*=`0`, *y_logscale*=`0`, *z_logscale*=`0`)

Creates a 3D plot of 2 input variables and an output variable. Other (const) variables have to be set beforehand in the dictionary input_dict.

Parameters

`system:`	the fuzzy system to use *(type=**fuzzy.System.System**)*
`x_name:`	name of input variable used for x coordinate values *(type=string)*
`y_name:`	name of input variable used for y coordinate values *(type=string)*
`z_name:`	name of output variable used for z coordinate values *(type=string)*
`input_dict:`	dictionary used for input values, can be used to predefine other input values *(type=dict)*
`output_dict:`	dictionary used for output values *(type=dict)*
`x_logscale:`	use logarithmic scale for x values *(type=bool)*
`y_logscale:`	use logarithmic scale for y values *(type=bool)*
`z_logscale:`	use logarithmic scale for z values *(type=bool)*

create3DPlot_adjective(*self*, *system*, *x_name*, *y_name*, *z_name*, *adjective*, *input_dict*=`None`, *output_dict*=`None`, *x_logscale*=`0`, *y_logscale*=`0`, *z_logscale*=`0`)

Creates a 3D plot of 2 input variables and an adjective of the output variable. Other (const) variables have to be set beforehand in the dictionary input_dict.

Parameters

`system:`	the fuzzy system to use *(type=**fuzzy.System.System**)*
`x_name:`	name of input variable used for x coordinate values *(type=string)*
`y_name:`	name of input variable used for y coordinate values *(type=string)*
`z_name:`	name of output variable used for z coordinate values *(type=string)*
`adjective:`	name of adjective of output variable used for z coordinate values *(type=string)*
`input_dict:`	dictionary used for input values, can be used to predefine other input values *(type=dict)*
`output_dict:`	dictionary used for output values *(type=dict)*
`x_logscale:`	use logarithmic scale for x values *(type=bool)*
`y_logscale:`	use logarithmic scale for y values *(type=bool)*
`z_logscale:`	use logarithmic scale for z values *(type=bool)*

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

27.3.2 Properties

Name	Description
Inherited from object	
__class__	

27.3.3 Instance Variables

Name	Description
overscan	the plotted range is *[min-o,max+o]* with *o=(max-min)*overscan*

28 Package fuzzy.doc.structure

Generate documentation of structure of system

28.1 Modules

- **dot**: Documentation
  (Section 29, p. 76)
  - **dot**: Generates description of structure in dot format
    (Section 30, p. 77)
  - **handlers**: Handlers for different object types which print the object in dot format
    (Section 31, p. 78)

28.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

29 Package fuzzy.doc.structure.dot

Documentation

29.1 Modules

- **dot**: Generates description of structure in dot format
  (Section 30, p. 77)
- **handlers**: Handlers for different object types which print the object in dot format
  (Section 31, p. 78)

29.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

30 Module fuzzy.doc.structure.dot.dot

Generates description of structure in dot format

30.1 Functions

register_handler(*class_*, *handler*)

print_dot(*obj*, *out*, *system*, *parentname*)

Print object obj into output stream out

printVariablesDot(*system*, *out*)

Print all variables

printRulesDot(*system*, *out*)

Print all rules

printDot(*system*, *out*)

Print whole system into one graph

print_header(*out*, *name*=`'System'`)

Print graph header

print_footer(*out*)

Print graph footer

30.2 Variables

Name	Description
___revision___	**Value:** `'$Id: dot.py,v 1.7 2010-01-21 20:54:44 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.doc.structure.dot'`

31 Module fuzzy.doc.structure.dot.handlers

Handlers for different object types which print the object in dot format

31.1 Functions

ID(*obj*)

Get an unique ID from object for dot node names

31.2 Variables

Name	Description
___revision___	**Value:** `'$Id: handlers.py,v 1.8 2010-02-17 19:52:28 rliebscher Ex...`
___package___	**Value:** `'fuzzy.doc.structure.dot'`

31.3 Class DocBase

object

fuzzy.doc.structure.dot.handlers.DocBase

Known Subclasses: fuzzy.doc.structure.dot.handlers.Doc_Adjective, fuzzy.doc.structure.dot.handlers.Do
fuzzy.doc.structure.dot.handlers.Doc_Const, fuzzy.doc.structure.dot.handlers.Doc_Input, fuzzy.doc.struct
fuzzy.doc.structure.dot.handlers.Doc_Not, fuzzy.doc.structure.dot.handlers.Doc_Variable, fuzzy.doc.struc

'Abstract' Base class for everything else

31.3.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

make_node(*self*, *out*, *name*, *values*=`{}`)

make_connection(*self*, *out*, *node1*, *node2*, *values*=`{}`)

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.3.2 Properties

Name	Description
Inherited from object	
___class___	

31.4 Class Doc_Compound

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Compound

31.4.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.4.2 Properties

Name	Description
Inherited from object	
___class___	

31.5 Class Doc_Const

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Const

31.5.1 Methods

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

___init___(), make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.5.2 Properties

Name	Description
Inherited from object	
___class___	

31.6 Class Doc_Input

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Input

31.6.1 Methods

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

___init___(), make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.6.2 Properties

Name	Description
Inherited from object	
___class___	

31.7 Class Doc_Not

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Not

31.7.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.7.2 Properties

Name	Description
Inherited from object	
___class___	

31.8 Class Doc_Norm

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Norm

Known Subclasses: fuzzy.doc.structure.dot.handlers.Doc_ParametricNorm

31.8.1 Methods

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

___init___(), make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.8.2 Properties

Name	Description
Inherited from object	
___class___	

31.9 Class Doc_ParametricNorm

object
fuzzy.doc.structure.dot.handlers.DocBase
fuzzy.doc.structure.dot.handlers.Doc_Norm
fuzzy.doc.structure.dot.handlers.Doc_Parametric

31.9.1 Methods

___call___(*self*, *obj*, *out*, *system*, *parent_name*)
Overrides: fuzzy.doc.structure.dot.handlers.Doc_Norm.___call___

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

___init___(), make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.9.2 Properties

Name	Description
Inherited from object	
___class___	

31.10 Class Doc_Adjective

object
fuzzy.doc.structure.dot.handlers.DocBase
fuzzy.doc.structure.dot.handlers.Doc_Adjective

31.10.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.10.2 Properties

Name	Description
Inherited from object	
___class___	

31.11 Class Doc_Rule

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Rule

31.11.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.11.2 Properties

Name	Description
Inherited from object	
___class___	

31.12 Class Doc_Variable

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Variable

Known Subclasses: fuzzy.doc.structure.dot.handlers.Doc_OutputVariable

31.12.1 Methods

___init___(*self*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *obj*, *out*, *system*, *parent_name*)

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_connection(), make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(),

___str___(), ___subclasshook___()

31.12.2 Properties

Name	Description
Inherited from object	
___class___	

31.13 Class Doc_OutputVariable

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Variable

fuzzy.doc.structure.dot.handlers.Doc_OutputVa

31.13.1 Methods

make_connection(*self*, *out*, *node1*, *node2*, *values*={})

Overrides: fuzzy.doc.structure.dot.handlers.DocBase.make_connection

Inherited from fuzzy.doc.structure.dot.handlers.Doc_Variable(Section 31.12)

___call___(), ___init___()

Inherited from fuzzy.doc.structure.dot.handlers.DocBase(Section 31.3)

make_node()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

31.13.2 Properties

Name	Description
Inherited from object	
___class___	

32 Package fuzzy.fuzzify

Fuzzification functions.

32.1 Modules

- **Base**: base class for all fuzzification methods
  (Section 33, p. 88)
- **Dict**: Fuzzification which sets adjectives values according the values in given dictionary.
  (Section 34, p. 90)
- **Plain**: Fuzzification which sets adjectives values according their set memberships for given value.
  (Section 35, p. 92)

32.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.5 2010-03-28 18:41:30 rliebscher Ex...`
___package___	**Value:** `None`

33 Module fuzzy.fuzzify.Base

base class for all fuzzification methods

33.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Base.py,v 1.7 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `None`

33.2 Class Base

object
└ **fuzzy.fuzzify.Base.Base**

Known Subclasses: fuzzy.fuzzify.Dict.Dict, fuzzy.fuzzify.Plain.Plain

base class for all fuzzification methods

33.2.1 Methods

___init___(*self*, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

setValue(*self*, *variable*, *value*)

Set value to adjectives of variable.

Parameters

`variable:` variable which adjective to set
*(type=**fuzzy.Variable.Variable**)*

`variable:` value to set the adjectives
*(type=**fuzzy.Variable.Variable**)*

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

33.2.2 Properties

Name	Description
Inherited from object	
___class___	

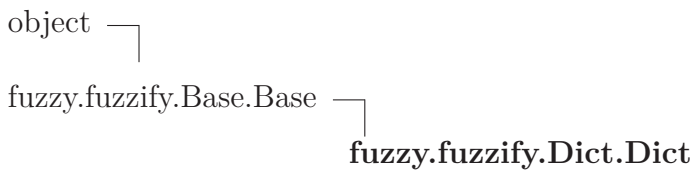
34 Module fuzzy.fuzzify.Dict

Fuzzification which sets adjectives values according the values in given dictionary.

34.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Dict.py,v 1.8 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.fuzzify'`

34.2 Class Dict



Fuzzification method which gets adjective memberships in a dictionary instead of values to fuzzify. You should use in the adjectives instances of Set itself.

Q : What can be done with this?

A : Break complexity, by divide big and heavy fuzzy systems into small ones :

```
input1 ----> *******
input2 ----> * FIS *
input3 ----> *     * ------> output
input4 ----> *******
```

should be:

```
input1 ----> *******
input2 ----> *FIS 1* ----+
             *******     |
                         +--> *******
input3 ----> ******* -------> *FIS 3* ----> output
input4 ----> *FIS 2*          *******
             *******
```

Q : Why don't defuzzify outputs of FIS1 and FIS2 ?

A : Defuzzification mean data loss.

34.2.1 Methods

___init___(*self*, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

setValue(*self*, *variable*, *value*)

Do not let adjectives calculate their membership values. Instead use the provided values from dictionary.

Parameters

`variable:` variable which adjective to set

(type=`fuzzy.Variable.Variable`)

`variable:` values to set the adjectives

(type=`fuzzy.Variable.Variable`)

Overrides: fuzzy.fuzzify.Base.Base.setValue

Inherited from fuzzy.fuzzify.Base.Base(Section 33.2)

___repr___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

34.2.2 Properties

Name	Description
Inherited from object	
___class___	

35 Module fuzzy.fuzzify.Plain

Fuzzification which sets adjectives values according their set memberships for given value.

35.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Plain.py,v 1.7 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.fuzzify'`

35.2 Class Plain

object
└
fuzzy.fuzzify.Base.Base
└
fuzzy.fuzzify.Plain.Plain

Just fuzzify the input value using the membership values of the given adjectives

35.2.1 Methods

___init___(*self*, **args*, ***keywords*)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

setValue(*self*, *variable*, *value*)

Let adjectives calculate their membership values.

Parameters

`variable:` variable which adjective to set
(type=`fuzzy.Variable.Variable`)

`variable:` value to set the adjectives
(type=`fuzzy.Variable.Variable`)

Overrides: fuzzy.fuzzify.Base.Base.setValue

Inherited from fuzzy.fuzzify.Base.Base(Section 33.2)

___repr___()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

35.2.2 Properties

Name	Description
Inherited from object	
___class___	

36 Package fuzzy.norm

This package contains all realized fuzzy norms.

Examples can be found here http://pyfuzzy.sourceforge.net/demo/norm/

36.1 Modules

- **SchweizerIntersection3** *(Section 71, p. 182)*
- **SchweizerUnion** *(Section 72, p. 185)*
- **SchweizerUnion2** *(Section 73, p. 188)*
- **SchweizerUnion3** *(Section 74, p. 191)*
- **YagerIntersection** *(Section 75, p. 194)*
- **YagerUnion** *(Section 76, p. 197)*

36.2 Variables

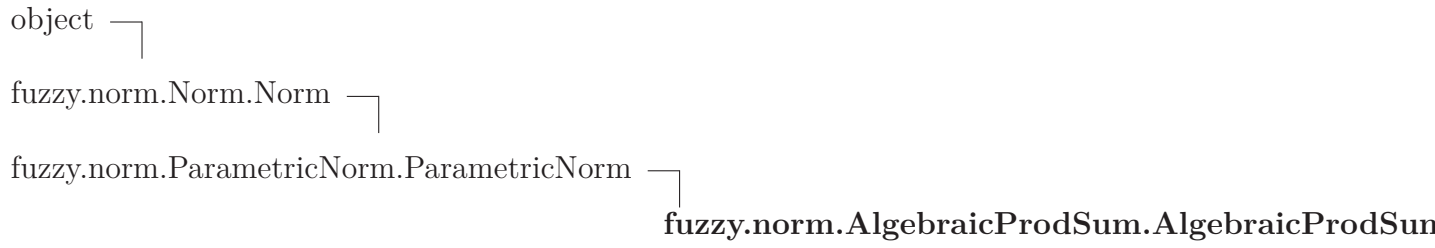
Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.8 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

37 Module fuzzy.norm.AlgebraicProdSum

37.1 Variables

Name	Description
___revision___	**Value:** `'$Id: AlgebraicProdSum.py,v 1.7 2009-10-27 20:06:27 rlieb...`
___package___	**Value:** `'fuzzy.norm'`

37.2 Class AlgebraicProdSum



37.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

37.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

37.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

37.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

38 Module fuzzy.norm.AlgebraicProduct

38.1 Variables

Name	Description
___revision___	**Value:** `'$Id: AlgebraicProduct.py,v 1.6 2009-10-27 20:06:27 rlieb...`
___package___	**Value:** `'fuzzy.norm'`

38.2 Class AlgebraicProduct

object
fuzzy.norm.Norm.Norm
fuzzy.norm.AlgebraicProduct.AlgebraicProduct

38.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

38.2.2 Properties

Name	Description
Inherited from object ___class___	

38.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

39 Module fuzzy.norm.AlgebraicSum

39.1 Variables

Name	Description
___revision___	**Value:** `'$Id: AlgebraicSum.py,v 1.6 2009-10-27 20:06:27 rliebsche...`
___package___	**Value:** `'fuzzy.norm'`

39.2 Class AlgebraicSum

object
fuzzy.norm.Norm.Norm
fuzzy.norm.AlgebraicSum.AlgebraicSum

39.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

39.2.2 Properties

Name	Description
Inherited from object	
___class___	

39.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

40 Module fuzzy.norm.ArithmeticMean

40.1 Variables

Name	Description
___revision___	**Value:** `'$Id: ArithmeticMean.py,v 1.7 2009-10-27 20:06:27 rliebsc...`
___package___	**Value:** `'fuzzy.norm'`

40.2 Class ArithmeticMean

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ArithmeticMean.ArithmeticMean

40.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

40.2.2 Properties

Name	Description
Inherited from object ___class___	

40.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

41 Module fuzzy.norm.BoundedDifference

41.1 Variables

Name	Description
___revision___	**Value:** `'$Id: BoundedDifference.py,v 1.6 2009-10-27 20:06:27 rlie...`
___package___	**Value:** `'fuzzy.norm'`

41.2 Class BoundedDifference

object
fuzzy.norm.Norm.Norm
fuzzy.norm.BoundedDifference.BoundedDifference

41.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

41.2.2 Properties

Name	Description
Inherited from object ___class___	

41.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

42 Module fuzzy.norm.BoundedSum

42.1 Variables

Name	Description
___revision___	**Value:** `'$Id: BoundedSum.py,v 1.6 2009-10-27 20:06:27 rliebscher ...`
___package___	**Value:** `'fuzzy.norm'`

42.2 Class BoundedSum

object

fuzzy.norm.Norm.Norm

fuzzy.norm.BoundedSum.BoundedSum

42.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

42.2.2 Properties

Name	Description
Inherited from object ___class___	

42.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

43 Module fuzzy.norm.DombiIntersection

43.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DombiIntersection.py,v 1.8 2009-10-27 20:06:27 rlie...`
___package___	**Value:** `'fuzzy.norm'`

43.2 Class DombiIntersection

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.DombiIntersection.DombiIntersection

Dombi 1982

43.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

43.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

43.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

43.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

44 Module fuzzy.norm.DombiUnion

44.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DombiUnion.py,v 1.8 2009-10-27 20:06:27 rliebscher ...`
___package___	**Value:** `'fuzzy.norm'`

44.2 Class DombiUnion

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.DombiUnion.DombiUnion

Dombi 1982

44.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

44.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

44.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

44.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

45 Module fuzzy.norm.DrasticProduct

45.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DrasticProduct.py,v 1.7 2009-10-27 20:06:27 rliebsc...`
___package___	**Value:** `'fuzzy.norm'`

45.2 Class DrasticProduct

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.DrasticProduct.DrasticProduct

45.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

45.2.2 Properties

Name	Description
Inherited from object	
___class___	

45.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

46 Module fuzzy.norm.DrasticSum

46.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DrasticSum.py,v 1.7 2009-10-27 20:06:27 rliebscher ...`
___package___	**Value:** `'fuzzy.norm'`

46.2 Class DrasticSum

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.DrasticSum.DrasticSum

46.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

46.2.2 Properties

Name	Description
Inherited from object ___class___	

46.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

47 Module fuzzy.norm.DualOfGeometricMean

47.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DualOfGeometricMean.py,v 1.9 2009-10-27 20:06:27 rl...`
___package___	**Value:** `'fuzzy.norm'`

47.2 Class DualOfGeometricMean

object
fuzzy.norm.Norm.Norm
fuzzy.norm.DualOfGeometricMean.DualOfGeometricMean

47.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

47.2.2 Properties

Name	Description
Inherited from object ___class___	

47.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

48 Module fuzzy.norm.DualOfHarmonicMean

48.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DualOfHarmonicMean.py,v 1.7 2009-10-27 20:06:27 rli...`
___package___	**Value:** `'fuzzy.norm'`

48.2 Class DualOfHarmonicMean

object
fuzzy.norm.Norm.Norm
fuzzy.norm.DualOfHarmonicMean.DualOfHarmonicMean

48.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

48.2.2 Properties

Name	Description
Inherited from object ___class___	

48.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

49 Module fuzzy.norm.DubiosPradeIntersection

49.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DubiosPradeIntersection.py,v 1.4 2009-10-27 20:06:2...`
___package___	**Value:** `'fuzzy.norm'`

49.2 Class DubiosPradeIntersection

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.DubiosPradeIntersection.DubiosPrade

Dubios Prade 1980

49.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

49.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

49.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

49.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

50 Module fuzzy.norm.DubiosPradeUnion

50.1 Variables

Name	Description
___revision___	**Value:** `'$Id: DubiosPradeUnion.py,v 1.4 2009-10-27 20:06:27 rlieb...`
___package___	**Value:** `'fuzzy.norm'`

50.2 Class DubiosPradeUnion

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.DubiosPradeUnion.DubiosPradeUnion

Dubios Prade 1980

50.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

50.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

50.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

50.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

51 Module fuzzy.norm.EinsteinProduct

51.1 Variables

Name	Description
___revision___	**Value:** `'$Id: EinsteinProduct.py,v 1.6 2009-10-27 20:06:27 rliebs...`
___package___	**Value:** `'fuzzy.norm'`

51.2 Class EinsteinProduct

object
fuzzy.norm.Norm.Norm
fuzzy.norm.EinsteinProduct.EinsteinProduct

51.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

51.2.2 Properties

Name	Description
Inherited from object	
___class___	

51.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

52 Module fuzzy.norm.EinsteinSum

52.1 Variables

Name	Description
___revision___	**Value:** `'$Id: EinsteinSum.py,v 1.6 2009-10-27 20:06:27 rliebscher...`
___package___	**Value:** `'fuzzy.norm'`

52.2 Class EinsteinSum

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.EinsteinSum.EinsteinSum

52.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

52.2.2 Properties

Name	Description
Inherited from object ___class___	

52.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

53 Module fuzzy.norm.FrankIntersection

53.1 Variables

Name	Description
___revision___	**Value:** `'$Id: FrankIntersection.py,v 1.7 2009-10-27 20:06:27 rlie...`
___package___	**Value:** `'fuzzy.norm'`

53.2 Class FrankIntersection

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.FrankIntersection.FrankIntersection

Frank 1979

53.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

53.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

53.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

53.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

54 Module fuzzy.norm.FrankUnion

54.1 Variables

Name	Description
___revision___	**Value:** `'$Id: FrankUnion.py,v 1.7 2009-10-27 20:06:27 rliebscher ...`
___package___	**Value:** `'fuzzy.norm'`

54.2 Class FrankUnion

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.FrankUnion.FrankUnion

Frank 1979

54.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

54.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

54.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

54.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

55 Module fuzzy.norm.FuzzyAnd

55.1 Variables

Name	Description
___revision___	**Value:** `'$Id: FuzzyAnd.py,v 1.7 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `'fuzzy.norm'`

55.2 Class FuzzyAnd

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.FuzzyAnd.FuzzyAnd

55.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

55.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

55.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

55.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

56 Module fuzzy.norm.FuzzyOr

56.1 Variables

Name	Description
___revision___	**Value:** `'$Id: FuzzyOr.py,v 1.7 2009-10-27 20:06:27 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.norm'`

56.2 Class FuzzyOr

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.FuzzyOr.FuzzyOr

56.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

56.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

56.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

56.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

57 Module fuzzy.norm.GammaOperator

57.1 Variables

Name	Description
___revision___	**Value:** `'$Id: GammaOperator.py,v 1.9 2009-10-27 20:06:27 rliebsch...`
___package___	**Value:** `'fuzzy.norm'`

57.2 Class GammaOperator

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.GammaOperator.GammaOperator

57.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

57.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

57.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

57.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

58 Module fuzzy.norm.GeometricMean

58.1 Variables

Name	Description
___revision___	**Value:** `'$Id: GeometricMean.py,v 1.7 2009-10-27 20:06:27 rliebsch...`
___package___	**Value:** `'fuzzy.norm'`

58.2 Class GeometricMean

object
fuzzy.norm.Norm.Norm
fuzzy.norm.GeometricMean.GeometricMean

58.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

58.2.2 Properties

Name	Description
Inherited from object ___class___	

58.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

59 Module fuzzy.norm.HamacherIntersection

59.1 Variables

Name	Description
___revision___	**Value:** `'$Id: HamacherIntersection.py,v 1.8 2009-10-27 20:06:27 r...`
___package___	**Value:** `'fuzzy.norm'`

59.2 Class HamacherIntersection

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.HamacherIntersection.HamacherInter

Hamacher 1978

59.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

59.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

59.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

59.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

60 Module fuzzy.norm.HamacherProduct

60.1 Variables

Name	Description
___revision___	**Value:** `'$Id: HamacherProduct.py,v 1.7 2009-10-27 20:06:27 rliebs...`
___package___	**Value:** `'fuzzy.norm'`

60.2 Class HamacherProduct

object
fuzzy.norm.Norm.Norm
fuzzy.norm.HamacherProduct.HamacherProduct

60.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

60.2.2 Properties

Name	Description
Inherited from object ___class___	

60.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

61 Module fuzzy.norm.HamacherSum

61.1 Variables

Name	Description
___revision___	**Value:** `'$Id: HamacherSum.py,v 1.7 2009-10-27 20:06:27 rliebscher...`
___package___	**Value:** `'fuzzy.norm'`

61.2 Class HamacherSum

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.HamacherSum.HamacherSum

61.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

61.2.2 Properties

Name	Description
Inherited from object	
___class___	

61.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

62 Module fuzzy.norm.HamacherUnion

62.1 Variables

Name	Description
___revision___	**Value:** `'$Id: HamacherUnion.py,v 1.8 2009-10-27 20:06:27 rliebsch...`
___package___	**Value:** `'fuzzy.norm'`

62.2 Class HamacherUnion

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.HamacherUnion.HamacherUnion

Hamacher 1978

62.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

62.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

62.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

62.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

63 Module fuzzy.norm.HarmonicMean

63.1 Variables

Name	Description
___revision___	**Value:** `'$Id: HarmonicMean.py,v 1.8 2009-10-27 20:06:27 rliebsche...`
___package___	**Value:** `'fuzzy.norm'`

63.2 Class HarmonicMean

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.HarmonicMean.HarmonicMean

63.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

63.2.2 Properties

Name	Description
Inherited from object	
___class___	

63.2.3 Class Variables

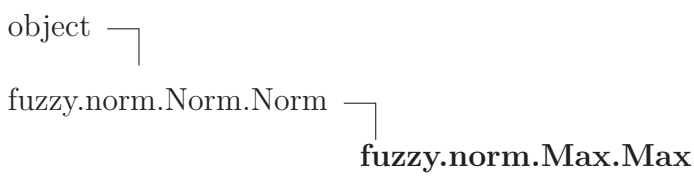
Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

64 Module fuzzy.norm.Max

64.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Max.py,v 1.8 2009-10-27 20:06:27 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.norm'`

64.2 Class Max



64.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Return maximum of given values.

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

64.2.2 Properties

Name	Description
Inherited from object ___class___	

64.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

65 Module fuzzy.norm.Min

65.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Min.py,v 1.8 2009-10-27 20:06:27 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.norm'`

65.2 Class Min

object
fuzzy.norm.Norm.Norm
fuzzy.norm.Min.Min

65.2.1 Methods

___init___(*self*)

Initialize type of norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Return minimum of given values.

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___repr___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

65.2.2 Properties

Name	Description
Inherited from object ___class___	

65.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

66 Module fuzzy.norm.MinMax

66.1 Variables

Name	Description
___revision___	**Value:** `'$Id: MinMax.py,v 1.7 2009-10-27 20:06:27 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.norm'`

66.2 Class MinMax

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.MinMax.MinMax

66.2.1 Methods

___init___(*self*, *param*=`0.5`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

66.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

66.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

66.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

67 Module fuzzy.norm.Norm

Abstract base class for any kind of fuzzy norm.

67.1 Functions

product(**args*)

Calculate product of args.

Parameters

`args`: list of floats to multiply

(type=list of float)

Return Value

product of args

(type=float)

sum(**args*)

Calculate sum of args.

If using numpy the builtin sum doesn't work always!

Parameters

`args`: list of floats to sum

(type=list of float)

Return Value

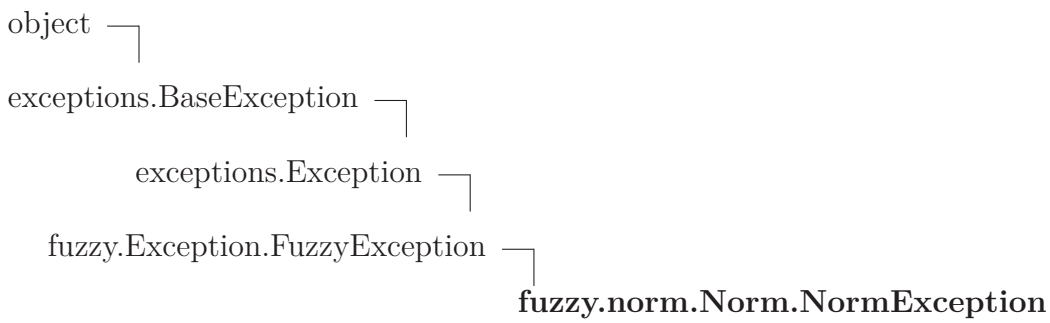
sum of args

(type=float)

67.2 Variables

Name	Description
___revision___	**Value:** `'$Id: Norm.py,v 1.16 2010-02-17 19:45:00 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.norm'`

67.3 Class NormException



Base class for any exception in norm calculations.

67.3.1 Methods

Inherited from exceptions.Exception

___init___(), ___new___()

Inherited from exceptions.BaseException

___delattr___(), ___getattribute___(), ___getitem___(), ___getslice___(), ___reduce___(), ___repr___(), ___setattr___(), ___setstate___(), ___str___(), ___unicode___()

Inherited from object

___format___(), ___hash___(), ___reduce_ex___(), ___sizeof___(), ___subclasshook___()

67.3.2 Properties

Name	Description
Inherited from exceptions.BaseException args, message	
Inherited from object ___class___	

67.4 Class Norm

Known Subclasses: fuzzy.norm.ParametricNorm.ParametricNorm, fuzzy.norm.EinsteinProduct.Einstein
fuzzy.norm.HamacherSum.HamacherSum, fuzzy.norm.DualOfHarmonicMean.DualOfHarmonicMean,
fuzzy.norm.Max.Max, fuzzy.norm.DrasticSum.DrasticSum, fuzzy.norm.GeometricMean.GeometricMean,
fuzzy.norm.AlgebraicSum.AlgebraicSum, fuzzy.norm.HarmonicMean.HarmonicMean, fuzzy.norm.Min.Min,
fuzzy.norm.ArithmeticMean.ArithmeticMean, fuzzy.norm.DrasticProduct.DrasticProduct, fuzzy.norm.Bou
fuzzy.norm.EinsteinSum.EinsteinSum, fuzzy.norm.HamacherProduct.HamacherProduct, fuzzy.norm.Algeb
fuzzy.norm.BoundedDifference.BoundedDifference, fuzzy.norm.DualOfGeometricMean.DualOfGeometricM

Abstract Base class of any fuzzy norm

67.4.1 Methods

___init___(*self*, *type*=0)

Initialize type of norm

Overrides: object.___init___

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

(type=list of float)

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

getType(*self*)

Return type of norm: 0 = not defined or not classified 1 = t-norm (= Norm.T_NORM) 2 = s-norm (= Norm.S_NORM)

checkArgs2(*self*, *args*)

Checks args to be 2 float values.

Parameters

`args`: list of arguments

(type=list of float?)

Return Value

first two args as float values

(type=(float,float))

checkArgsN(*self*, *args*)

Checks args to be at least 2 float values.

Parameters

`args`: list of arguments

(type=list of float?)

Return Value

arguments as float values

(type=list of float)

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

67.4.2 Properties

Name	Description
Inherited from object	
___class___	

67.4.3 Class Variables

Name	Description
UNKNOWN	type of norm unknown **Value:** `0`
T_NORM	norm is t-norm **Value:** `1`
S_NORM	norm is s-norm **Value:** `2`

68 Module fuzzy.norm.ParametricNorm

Base class for any kind of parametric fuzzy norm.

68.1 Variables

Name	Description
___revision___	**Value:** `'$Id: ParametricNorm.py,v 1.16 2010-10-29 19:24:41 rliebs...`
___package___	**Value:** `'fuzzy.norm'`

68.2 Class ParametricNorm

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm

Known Subclasses: fuzzy.norm.FuzzyOr.FuzzyOr, fuzzy.norm.DubiosPradeUnion.DubiosPradeUnion, fuzzy.norm.SchweizerIntersection3.SchweizerIntersection3, fuzzy.norm.SchweizerUnion2.SchweizerUnion2, fuzzy.norm.SchweizerUnion3.SchweizerUnion3, fuzzy.norm.YagerUnion.YagerUnion, fuzzy.norm.Hamacher fuzzy.norm.FrankUnion.FrankUnion, fuzzy.norm.HamacherIntersection.HamacherIntersection, fuzzy.norm.SchweizerIntersection.SchweizerIntersection, fuzzy.norm.DombiIntersection.DombiIntersection, fuzzy.norm.FrankIntersection.FrankIntersection, fuzzy.norm.YagerIntersection.YagerIntersection, fuzzy.norm.GammaOperator.GammaOperator, fuzzy.norm.FuzzyAnd.FuzzyAnd, fuzzy.norm.AlgebraicPro fuzzy.norm.MinMax.MinMax, fuzzy.norm.SchweizerIntersection2.SchweizerIntersection2, fuzzy.norm.Domb fuzzy.norm.SchweizerUnion.SchweizerUnion, fuzzy.norm.DubiosPradeIntersection.DubiosPradeIntersection

Abstract base class for any parametric fuzzy norm

68.2.1 Methods

___init___(*self*, *type*, *param*)

Initialize type and parameter

Parameters

`param`: parameter for norm

(type=float)

Overrides: object.___init___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

___call___(), checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

68.2.2 Properties

Name	Description
p_range	range(s) of valid values for p
Inherited from object ___class___	

68.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4) S_NORM, T_NORM, UNKNOWN	

68.2.4 Instance Variables

Name	Description
p	x *(type=float)*

69 Module fuzzy.norm.SchweizerIntersection

69.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerIntersection.py,v 1.8 2009-10-27 20:06:27 ...`
___package___	**Value:** `'fuzzy.norm'`

69.2 Class SchweizerIntersection

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.SchweizerIntersection.SchweizerInters

69.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

69.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

69.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

69.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

70 Module fuzzy.norm.SchweizerIntersection2

70.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerIntersection2.py,v 1.10 2010-01-21 20:55:5...`
___package___	**Value:** `'fuzzy.norm'`

70.2 Class SchweizerIntersection2

object

fuzzy.norm.Norm.Norm

fuzzy.norm.ParametricNorm.ParametricNorm

fuzzy.norm.SchweizerIntersection2.SchweizerInter

Schweizer,Sklar 1960

70.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

70.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

70.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

70.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

71 Module fuzzy.norm.SchweizerIntersection3

71.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerIntersection3.py,v 1.8 2009-10-27 20:06:27...`
___package___	**Value:** `'fuzzy.norm'`

71.2 Class SchweizerIntersection3

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.SchweizerIntersection3.SchweizerInter

71.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param:` parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

71.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

71.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

71.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

72 Module fuzzy.norm.SchweizerUnion

72.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerUnion.py,v 1.9 2010-01-21 20:55:51 rliebsc...`
___package___	**Value:** `'fuzzy.norm'`

72.2 Class SchweizerUnion

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.SchweizerUnion.SchweizerUnion

72.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

72.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

72.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

72.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

73 Module fuzzy.norm.SchweizerUnion2

73.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerUnion2.py,v 1.9 2010-01-21 20:55:51 rliebs...`
___package___	**Value:** `'fuzzy.norm'`

73.2 Class SchweizerUnion2

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.SchweizerUnion2.SchweizerUnion2

73.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

73.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

73.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

73.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

74 Module fuzzy.norm.SchweizerUnion3

74.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SchweizerUnion3.py,v 1.7 2009-10-27 20:06:27 rliebs...`
___package___	**Value:** `'fuzzy.norm'`

74.2 Class SchweizerUnion3

object
fuzzy.norm.Norm.Norm
fuzzy.norm.ParametricNorm.ParametricNorm
fuzzy.norm.SchweizerUnion3.SchweizerUnion3

74.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

74.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

74.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

74.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

75 Module fuzzy.norm.YagerIntersection

75.1 Variables

Name	Description
___revision___	**Value:** `'$Id: YagerIntersection.py,v 1.8 2009-10-27 20:06:27 rlie...`
___package___	**Value:** `'fuzzy.norm'`

75.2 Class YagerIntersection

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.YagerIntersection.YagerIntersection

Yager 1980

75.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

75.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

75.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

75.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

76 Module fuzzy.norm.YagerUnion

76.1 Variables

Name	Description
___revision___	**Value:** `'$Id: YagerUnion.py,v 1.8 2009-10-27 20:06:27 rliebscher ...`
___package___	**Value:** `'fuzzy.norm'`

76.2 Class YagerUnion

object
└
fuzzy.norm.Norm.Norm
└
fuzzy.norm.ParametricNorm.ParametricNorm
└
fuzzy.norm.YagerUnion.YagerUnion

Yager 1980

76.2.1 Methods

___init___(*self*, *param*=`1.0`)

Initialize type and parameter

Parameters

`param`: parameter for norm

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, **args*)

Calculate result of norm(arg1,arg2,...)

Parameters

`args`: list of floats as arguments for norm.

Return Value

result of norm calulation

(type=float)

Raises

`NormException` any problem in calculation (wrong number of arguments, numerical problems)

Overrides: fuzzy.norm.Norm.Norm.___call___ extit(inherited documentation)

Inherited from fuzzy.norm.ParametricNorm.ParametricNorm(Section 68.2)

___repr___()

Inherited from fuzzy.norm.Norm.Norm(Section 67.4)

checkArgs2(), checkArgsN(), getType()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

76.2.2 Properties

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p_range	
Inherited from object	
___class___	

76.2.3 Class Variables

Name	Description
Inherited from fuzzy.norm.Norm.Norm (Section 67.4)	
S_NORM, T_NORM, UNKNOWN	

76.2.4 Instance Variables

Name	Description
Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)	
p	

77 Package fuzzy.operator

These operators are used to build fuzzy rules.

For example:

c{(A and B) or not C}

where

- A,B,C is an adjective of a fuzzy variable and
- 'and'/'or' are fuzzy norms

can be modelled as:

```
Compound(FuzzyOr(),
    Compound(FuzzyAnd(),
        Input(A),
        Input(B)
    ),
    Not(
        Input(C)
    )
)
```

77.1 Modules

- **Compound**: The Compound class takes values of several input operators and processes them through a given norm.
  (Section 78, p. 202)
- **Const**: Special operator class which returns a constant value.
  (Section 79, p. 204)
- **Input**: Special operator class which gets it value from a fuzzy adjective.
  (Section 80, p. 206)
- **Not**: Operator class which takes value of input operator and calculates complement of it.
  (Section 81, p. 208)
- **Operator**: Calculate value for fuzzy rule.
  (Section 82, p. 210)

77.2 Variables

Name	Description
___revision___	**Value:** '$Id: __init__.py,v 1.6 2009-10-27 20:06:27 rliebscher Ex...

continued on next page

Name	Description
___package___	**Value:** `None`

78 Module fuzzy.operator.Compound

The Compound class takes values of several input operators and processes them through a given norm.

78.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Compound.py,v 1.16 2010-10-29 19:24:41 rliebscher E...`
___package___	**Value:** `'fuzzy.operator'`

78.2 Class Compound

object
└
fuzzy.operator.Operator.Operator
└
fuzzy.operator.Compound.Compound

Take values of input operators and process them through the given norm.

78.2.1 Methods

___init___(*self*, *norm*, **inputs*)

Constructor.

Parameters

`norm`: how to combine inputs. (eg. Min,Max,...)
(type=`fuzzy.norm.Norm.Norm`)

`inputs`: list of inputs (subclassed from `fuzzy.operator.Operator.Operator`).

Overrides: object.___init___

___call___(*self*)

Get current value of input and combine them with help of norm.

Return Value

result of operator calculation

(type=float)

Raises

`fuzzy.FuzzyException.FuzzyException` any problem in calculation

Overrides: fuzzy.operator.Operator.Operator.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

78.2.2 Properties

Name	Description
Inherited from object ___class___	

78.2.3 Instance Variables

Name	Description
inputs	list of inputs (subclassed from `fuzzy.operator.Operator.Operator`).
norm	how to combine inputs. (eg. Min,Max,...) *(type=`fuzzy.norm.Norm.Norm`)*

79 Module fuzzy.operator.Const

Special operator class which returns a constant value.

79.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Const.py,v 1.15 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.operator'`

79.2 Class Const

object
└
fuzzy.operator.Operator.Operator
└
fuzzy.operator.Const.Const

Special operator which returns a constant value.

79.2.1 Methods

___init___(*self*, *value*)

Constructor.

Parameters

`value`: value returned at call of ___call___().

(type=float)

Overrides: object.___init___

___call___(*self*)

Return stored constant value.

Return Value

result of operator calculation

(type=float)

Raises

`fuzzy.FuzzyException.FuzzyException` any problem in calculation

Overrides: fuzzy.operator.Operator.Operator.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

79.2.2 Properties

Name	Description
Inherited from object ___class___	

79.2.3 Instance Variables

Name	Description
value	value returned at call of ___call___(). *(type=float)*

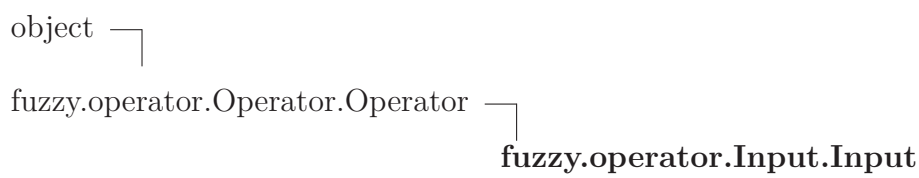
80 Module fuzzy.operator.Input

Special operator class which gets it value from a fuzzy adjective.

80.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Input.py,v 1.16 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.operator'`

80.2 Class Input



Special operator which gets it value from a fuzzy adjective.

80.2.1 Methods

___init___(*self*, *adjective*)

Constructor.

Parameters

`adjective`: from which adjective get the membership value.

(type=`fuzzy.Adjective.Adjective`)

Overrides: object.___init___

___call___(*self*)

return membership of given adjective.

Return Value

result of operator calculation

(type=float)

Raises

`fuzzy.FuzzyException.FuzzyException` any problem in calculation

Overrides: fuzzy.operator.Operator.Operator.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

80.2.2 Properties

Name	Description
Inherited from object ___class___	

80.2.3 Instance Variables

Name	Description
adjective	from which adjective get the membership value. *(type=`fuzzy.Adjective.Adjective`)*

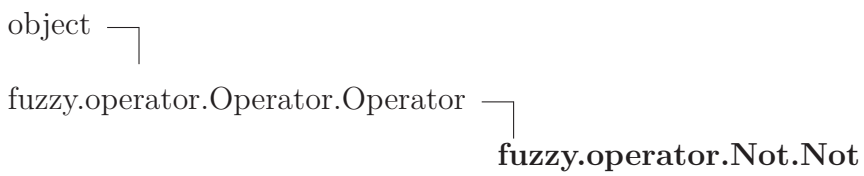
81 Module fuzzy.operator.Not

Operator class which takes value of input operator and calculates complement of it.

81.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Not.py,v 1.18 2013-01-09 20:10:19 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.operator'`

81.2 Class Not



Take value of input operator and calculate complement of it.

81.2.1 Methods

___init___(*self*, *input*)

Constructor.

Parameters

`input`: input which result is to complement.

(type=`fuzzy.operator.Operator.Operator`)

Overrides: object.___init___

___call___(*self*)

Get input value and return 1.0-value.

Return Value

result of operator calculation

(type=float)

Raises

`fuzzy.FuzzyException.FuzzyException` any problem in calculation

Overrides: fuzzy.operator.Operator.Operator.___call___

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

81.2.2 Properties

Name	Description
Inherited from object	
___class___	

81.2.3 Instance Variables

Name	Description
input	input which result is to complement. *(type=`fuzzy.operator.Operator.Operator`)*

82 Module fuzzy.operator.Operator

Calculate value for fuzzy rule.

Used to build fuzzy rules.

82.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Operator.py,v 1.15 2010-10-29 19:24:41 rliebscher E...`
___package___	**Value:** `None`

82.2 Class Operator

object
└ **fuzzy.operator.Operator.Operator**

Known Subclasses: fuzzy.operator.Compound.Compound, fuzzy.operator.Const.Const, fuzzy.operator.N fuzzy.operator.Input.Input

Abstract base class for any kind of operator.

82.2.1 Methods

___init___(*self*)

Dummy initialization, so it is safe to call it from any sub class.

Overrides: object.___init___

___call___(*self*)

Return current value.

Return Value

result of operator calculation

(type=float)

Raises

`fuzzy.FuzzyException.FuzzyException` any problem in calculation

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

82.2.2 Properties

Name	Description
Inherited from object	
___class___	

83 Package fuzzy.set

Different kind of fuzzy sets. For any of these you can call `set(x)` to get the membership value of x.

See `Set` for more.

Examples can be found here *http://pyfuzzy.sourceforge.net/demo/set/*

83.1 Modules

- **Function**: Base class for any fuzzy set defined by a function (not a polygon).
  (Section 84, p. 213)
- **PiFunction**: Realize a Pi-shaped fuzzy set
  (Section 85, p. 214)
- **Polygon**: Represents a fuzzy set, which membership function is the shape of a polygon.
  (Section 86, p. 217)
- **SFunction**: Realize a S-shaped fuzzy set.
  (Section 87, p. 221)
- **Set**: Base class for all fuzzy sets.
  (Section 88, p. 224)
- **Singleton**: This set represents a non-fuzzy number.
  (Section 89, p. 226)
- **Trapez**: Realize a trapezoid-shaped fuzzy set.
  (Section 90, p. 229)
- **Triangle**: Realize a triangle-shaped fuzzy set.
  (Section 91, p. 232)
- **ZFunction**: Realize a Z-shaped fuzzy set.
  (Section 92, p. 235)
- **operations**: Helper functions for calculation with fuzzy sets.
  (Section 93, p. 238)

83.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.11 2010-03-28 18:44:46 rliebscher E...`
___package___	**Value:** `None`

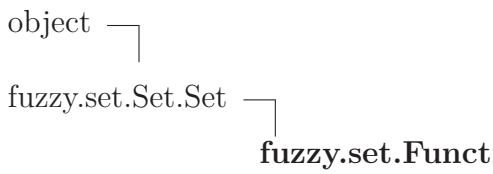
84 Module fuzzy.set.Function

Base class for any fuzzy set defined by a function (not a polygon).

84.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Function.py,v 1.13 2010-03-28 18:44:46 rliebscher E...`
___package___	**Value:** `'fuzzy.set'`

84.2 Class Function



Known Subclasses: fuzzy.set.PiFunction.PiFunction, fuzzy.set.SFunction.SFunction

Base class for any fuzzy set defined by a function (not a polygon).

84.2.1 Methods

Inherited from fuzzy.set.Set.Set(Section 88.2)

___call___(), ___repr___(), getCOG(), getValuesX(), getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___init___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

84.2.2 Properties

Name	Description
Inherited from object	
___class___	

85 Module fuzzy.set.PiFunction

Realize a Pi-shaped fuzzy set

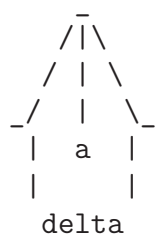
85.1 Variables

Name	Description
___revision___	**Value:** `'$Id: PiFunction.py,v 1.19 2010-03-28 18:44:46 rliebscher...`
___package___	**Value:** `'fuzzy.set'`

85.2 Class PiFunction

object
└ fuzzy.set.Set.Set
└ fuzzy.set.Function.Function
└ **fuzzy.set.PiFunction.PiFunction**

Realize a Pi-shaped fuzzy set:



See also *http://pyfuzzy.sourceforge.net/demo/set/PiFunction.png*

85.2.1 Methods

___init___(*self*, *a*=`0.0`, *delta*=`1.0`)

Initialize a Pi-shaped fuzzy set.

Parameters

`a:` center of set

(type=float)

`delta:` absolute distance between x-values for minimum and maximum

(type=float)

Overrides: object.___init___

___call___(*self*, *x*)

Return membership of x in this fuzzy set. This method makes the set work like a function.

Parameters

`x:` value for which the membership is to calculate

(type=float)

Return Value

membership

(type=float)

Overrides: fuzzy.set.Set.Set.___call___

getCOG(*self*)

Return center of gravity.

Return Value

x-value of center of gravity

(type=float)

Overrides: fuzzy.set.Set.Set.getCOG

getValuesX(*self*)

Return sequence of x-values so we get a smooth function.

Overrides: fuzzy.set.Set.Set.getValuesX

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.set.Set.Set(Section 88.2)

getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

85.2.2 Properties

Name	Description
Inherited from object ___class___	

85.2.3 Instance Variables

Name	Description
a	center of set. *(type=float)*
delta	absolute distance between x-values for minimum and maximum. *(type=float)*

86 Module fuzzy.set.Polygon

Represents a fuzzy set, which membership function is the shape of a polygon. For example: triangle, trapezoid, rectangle, or something similar.

86.1 Variables

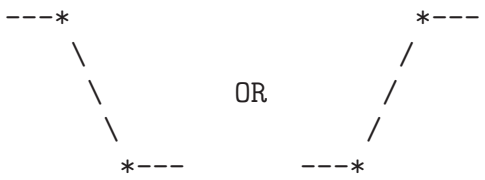
Name	Description
___revision___	**Value:** `'$Id: Polygon.py,v 1.25 2010-10-29 19:24:41 rliebscher Ex...`
___package___	**Value:** `'fuzzy.set'`

86.2 Class Polygon

Known Subclasses: fuzzy.set.Triangle.Triangle, fuzzy.set.Singleton.Singleton, fuzzy.set.Trapez.Trapez

Represents a fuzzy set, which membership function is the shape of a polygon. For example: triangle, trapezoid, rectangle, or something similar.

If you need something similar to ZFunction or SFunction, use this class directly by building it from two points.:



See also *http://pyfuzzy.sourceforge.net/demo/set/Polygon%20(Demo).png*

86.2.1 Methods

___init___(*self*, *points*=`None`)

Initialize with given sorted list of (x,y) values

Parameters

`points`: sorted list of 2-tuples of (x,y) values

(type=list of 2-tuples (float,float))

Overrides: object.___init___

___call___(*self*, *x*)

Get membership of value x.

Parameters

`x`: value x

Return Value

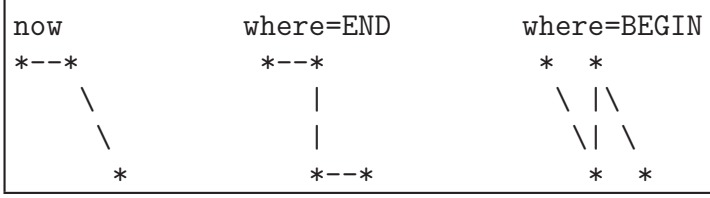
membership for value x

(type=float)

Overrides: fuzzy.set.Set.Set.___call___

add(*self*, *x*, *y*, *where*=`1`)

Add a new point to the polygon. The parameter where controls at which end it is inserted. (The points are always sorted, but if two have the same x value their order is important. For example: adding a second point(y=0) in the middle:



remove(*self*, *x*, *where*=1)

Remove a point from the polygon. The parameter where controls at which end it is removed. (The points are always sorted, but if two have the same x value their order is important. For example: removing the second point in the middle:

```
now            where=END        where=BEGIN
*--*            *--*             *
   |                \              \
   |                 \              \
   *--*               *              *--*
```

clear(*self*)

Reset polygon to zero.

getValuesX(*self*)

Return sequence of x-values for set.

Overrides: fuzzy.set.Set.Set.getValuesX

getValuesXY(*self*, *flat*=True)

Return sequence of (x,y)-values for set. In case of vertical slopes, y is a tuple of y-values for flat = False. Otherwise several (x,y)-values will be generated having identical x-values.

Overrides: fuzzy.set.Set.Set.getValuesXY

getCOG(*self*)

Return center of gravity.

Return Value

x-value of center of gravity

(type=float)

Overrides: fuzzy.set.Set.Set.getCOG

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

86.2.2 Properties

Name	Description
points	points of the polygon. *(type=list of 2-tuple (x,y))*
Inherited from object ___class___	

86.2.3 Class Variables

Name	Description
X	index of x value in tuple **Value:** `0`
Y	index of y value in tuple **Value:** `1`
BEGIN	**Value:** `0`
END	**Value:** `1`

87 Module fuzzy.set.SFunction

Realize a S-shaped fuzzy set.

87.1 Variables

Name	Description
___revision___	**Value:** `'$Id: SFunction.py,v 1.19 2010-03-28 18:44:46 rliebscher ...`
___package___	**Value:** `'fuzzy.set'`

87.2 Class SFunction

object
fuzzy.set.Set.Set
fuzzy.Function.Function
fuzzy.set.SFunction.SFunction

Known Subclasses: fuzzy.set.ZFunction.ZFunction

Realize a S-shaped fuzzy set:

See also *http://pyfuzzy.sourceforge.net/demo/set/SFunction.png*

87.2.1 Methods

___init___(*self*, *a*=`0.0`, *delta*=`1.0`)

Initialize a S-shaped fuzzy set.

Parameters

`a:` center of set

(type=float)

`delta:` absolute distance between x-values for minimum and maximum

(type=float)

Overrides: object.___init___

___call___(*self*, *x*)

Return membership of x in this fuzzy set. This method makes the set work like a function.

Parameters

`x:` value for which the membership is to calculate

(type=float)

Return Value

membership

(type=float)

Overrides: fuzzy.set.Set.Set.___call___

getCOG(*self*)

Return center of gravity.

Return Value

x-value of center of gravity

(type=float)

Overrides: fuzzy.set.Set.Set.getCOG

getValuesX(*self*)

Return sequence of x-values so we get a smooth function.

Overrides: fuzzy.set.Set.Set.getValuesX

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.set.Set.Set(Section 88.2)

getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

87.2.2 Properties

Name	Description
Inherited from object ___class___	

87.2.3 Instance Variables

Name	Description
a	center of set. *(type=float)*
delta	absolute distance between x-values for minimum and maximum. *(type=float)*

88 Module fuzzy.set.Set

Base class for all fuzzy sets.

88.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Set.py,v 1.24 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.set'`

88.2 Class Set

object
└ **fuzzy.set.Set.Set**

Known Subclasses: fuzzy.set.Polygon.Polygon, fuzzy.set.Function.Function

Base class for all types of fuzzy sets.

88.2.1 Methods

___call___(*self*, *x*)

Return membership of x in this fuzzy set. This method makes the set work like a function.

Parameters

`x`: value x

(type=float)

Return Value

membership for value x

(type=float)

getValuesXY(*self*, *flat*=`True`)

Internal helper function to help convert arbitrary fuzzy sets in fuzzy sets represented by a polygon.

getValuesX(*self*)

Internal helper function to help convert arbitrary fuzzy sets in fuzzy sets represented by a polygon.

getCOG(*self*)

Returns center of gravity.

Return Value

x-value of center of gravity

(type=float)

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___init___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

88.2.2 Properties

Name	Description
Inherited from object	
___class___	

89 Module fuzzy.set.Singleton

This set represents a non-fuzzy number.

89.1 Variables

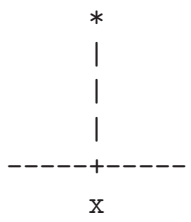
Name	Description
___revision___	**Value:** `'$Id: Singleton.py,v 1.18 2010-10-29 19:24:41 rliebscher ...`
___package___	**Value:** `'fuzzy.set'`

89.2 Class Singleton

object
fuzzy.set.Set.Set
fuzzy.set.Polygon.Polygon
fuzzy.set.Singleton.Singleton

This set represents a non-fuzzy number.

Its membership is only for x equal 1.:



See also *http://pyfuzzy.sourceforge.net/demo/set/Singleton.png*

89.2.1 Methods

___init___(*self*, *x*=`0.0`)

Initialize with given sorted list of (x,y) values

Parameters

`points:` sorted list of 2-tuples of (x,y) values

Overrides: object.___init___ extit(inherited documentation)

___call___(*self*, *x*)

Get membership of value x.

Parameters

`x:` value x

Return Value

membership for value x

(type=float)

Overrides: fuzzy.set.Set.Set.___call___

getCOG(*self*)

Return center of gravity.

Return Value

x-value of center of gravity

(type=float)

Overrides: fuzzy.set.Set.Set.getCOG

add(*self*, *x*, *y*, *where*=`1`)

Don't let anyone destroy our singleton.

Overrides: fuzzy.set.Polygon.Polygon.add

remove(*self*, *x*, *where*=`1`)

Don't let anyone destroy our singleton.

Overrides: fuzzy.set.Polygon.Polygon.remove

clear(*self*)

Don't let anyone destroy our singleton.

Overrides: fuzzy.set.Polygon.Polygon.clear

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.set.Polygon.Polygon(Section 86.2)

getValuesX(), getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

89.2.2 Properties

Name	Description
x	x *(type=float)*
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) points	
Inherited from object ___class___	

89.2.3 Class Variables

Name	Description
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) BEGIN, END, X, Y	

90 Module fuzzy.set.Trapez

Realize a trapezoid-shaped fuzzy set.

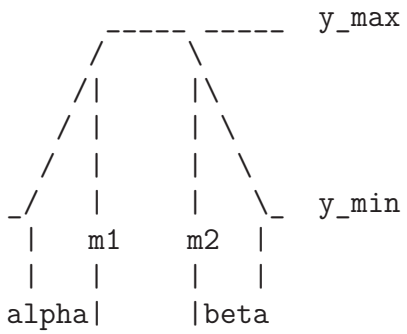
90.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Trapez.py,v 1.19 2010-10-29 19:24:41 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.set'`

90.2 Class Trapez

object
fuzzy.set.Set.Set
fuzzy.set.Polygon.Polygon
fuzzy.set.Trapez.Trapez

Realize a trapezoid-shaped fuzzy set:



See also *http://pyfuzzy.sourceforge.net/demo/set/Trapez.png*

90.2.1 Methods

___init___(*self*, *m1*=-0.5, *m2*=0.5, *alpha*=0.5, *beta*=0.5, *y_max*=1.0, *y_min*=0.0)

Initialize a trapezoid-shaped fuzzy set.

Parameters

`y_max:` y-value at top of the trapezoid (1.0)

`y_min:` y-value outside the trapezoid (0.0)

`m1:` x-value of left top of trapezoid (-0.5)

`m2:` x-value of right top of trapezoid (0.5)

`alpha:` distance of left corner to m1 (0.5)

`beta:` distance of right corner to m2 (0.5)

Overrides: object.___init___

add(*self*, *x*, *y*, *where*=1)

Don't let anyone destroy our trapezoid.

Overrides: fuzzy.set.Polygon.Polygon.add

remove(*self*, *x*, *where*=1)

Don't let anyone destroy our trapezoid.

Overrides: fuzzy.set.Polygon.Polygon.remove

clear(*self*)

Don't let anyone destroy our trapezoid.

Overrides: fuzzy.set.Polygon.Polygon.clear

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.set.Polygon.Polygon(Section 86.2)

___call___(), getCOG(), getValuesX(), getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

90.2.2 Properties

Name	Description
y_max	y-value at top of the trapezoid *(type=float)*
y_min	y-value outside the trapezoid *(type=float)*
m1	x-value of left top of trapezoid *(type=float)*
m2	x-value of right top of trapezoid *(type=float)*
alpha	distance of left corner to m1 *(type=float)*
beta	distance of right corner to m2 *(type=float)*
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) points	
Inherited from object ___class___	

90.2.3 Class Variables

Name	Description
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) BEGIN, END, X, Y	

91 Module fuzzy.set.Triangle

Realize a triangle-shaped fuzzy set.

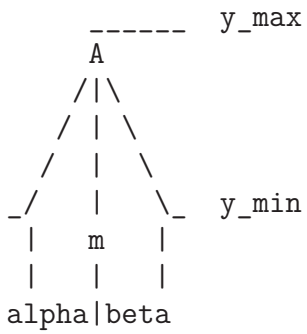
91.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Triangle.py,v 1.20 2010-10-29 19:24:41 rliebscher E...`
___package___	**Value:** `'fuzzy.set'`

91.2 Class Triangle

object
fuzzy.set.Set.Set
fuzzy.set.Polygon.Polygon
fuzzy.set.Triangle.Triangle

Realize a triangle-shaped fuzzy set:



See also *http://pyfuzzy.sourceforge.net/demo/set/Triangle.png*

91.2.1 Methods

___init___(*self*, *m*=0.0, *alpha*=1.0, *beta*=1.0, *y_max*=1.0, *y_min*=0.0)

Initialize a triangle-shaped fuzzy set.

Parameters

`y_max`: y-value at top of the triangle (1.0)

`y_min`: y-value outside the triangle (0.0)

`m`: x-value of top of triangle (0.0)

`alpha`: distance of left corner to m (1.0)

`beta`: distance of right corner to m (1.0)

Overrides: object.___init___

add(*self*, *x*, *y*, *where*=1)

Don't let anyone destroy our triangle.

Overrides: fuzzy.set.Polygon.Polygon.add

remove(*self*, *x*, *where*=1)

Don't let anyone destroy our triangle.

Overrides: fuzzy.set.Polygon.Polygon.remove

clear(*self*)

Don't let anyone destroy our triangle.

Overrides: fuzzy.set.Polygon.Polygon.clear

___repr___(*self*)

Return representation of instance.

Return Value

representation of instance

(type=string)

Overrides: object.___repr___

Inherited from fuzzy.set.Polygon.Polygon(Section 86.2)

___call___(), getCOG(), getValuesX(), getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(),

___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

91.2.2 Properties

Name	Description
y_max	y-value at top of the triangle *(type=float)*
y_min	y-value outside the triangle *(type=float)*
m	x-value of top of triangle *(type=float)*
alpha	distance of left corner to m *(type=float)*
beta	distance of right corner to m *(type=float)*
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) points	
Inherited from object ___class___	

91.2.3 Class Variables

Name	Description
Inherited from fuzzy.set.Polygon.Polygon (Section 86.2) BEGIN, END, X, Y	

92 Module fuzzy.set.ZFunction

Realize a Z-shaped fuzzy set.

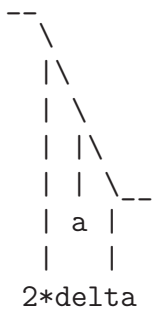
92.1 Variables

Name	Description
___revision___	**Value:** `'$Id: ZFunction.py,v 1.17 2010-03-28 18:44:46 rliebscher ...`
___package___	**Value:** `'fuzzy.set'`

92.2 Class ZFunction

object
└ fuzzy.set.Set.Set
└ fuzzy.set.Function.Function
└ fuzzy.set.SFunction.SFunction
└ **fuzzy.set.ZFunction.ZFunction**

Realize a Z-shaped fuzzy set:



see also *http://pyfuzzy.sourceforge.net/demo/set/ZFunction.png*

92.2.1 Methods

___init___(*self*, *a*=`0.0`, *delta*=`1.0`)

Initialize a Z-shaped fuzzy set.

Parameters

`a:` center of set

(type=float)

`delta:` absolute distance between x-values for minimum and maximum

(type=float)

Overrides: object.___init___

___call___(*self*, *x*)

Return membership of x in this fuzzy set. This method makes the set work like a function.

Parameters

`x:` value for which the membership is to calculate

(type=float)

Return Value

membership

(type=float)

Overrides: fuzzy.set.Set.Set.___call___

Inherited from fuzzy.set.SFunction.SFunction(Section 87.2)

___repr___(), getCOG(), getValuesX()

Inherited from fuzzy.set.Set.Set(Section 88.2)

getValuesXY()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

92.2.2 Properties

continued on next page

Name	Description

Name	Description
Inherited from object ___class___	

92.2.3 Instance Variables

Name	Description
a	center of set. *(type=float)*
delta	absolute distance between x-values for minimum and maximum. *(type=float)*

93 Module fuzzy.set.operations

```
Helper functions for calculation with fuzzy sets.

Examples can be found here U{http://pyfuzzy.sourceforge.net/demo/merge/}

* Intersection of set1 and set2 can be done by

  C{set = merge(T_NORM,set1,set2)}

  where T_NORM is a t-norm eg. Min.
  (or a function which accepts two parameters as min().)

* Union of set1 and set2 can be done by

  C{set = merge(S_NORM,set1,set2)}

  where S_NORM is a s-norm eg. Max.
  (or a function which accepts two parameters as max().)

* Complement of set1 can be done by

  C{set = norm(lambda a,b:1.0-a ,set1,0.0)}

  using a user defined function for it.
  (The second parameter is ignored or better said
  it doesn't influence the value, it only influences
  maybe where the points of the resulting polygon are
  set.)

* Activation function can be done by

  C{set = norm(act_norm,set,act_value)}

  where act_norm is any L{fuzzy.norm} or two params function (eg. min)
  and act_value is the result of a rule calculation.
```

93.1 Functions

check(*x*, *y1*, *y2*)

merge(*NORM*, *set1*, *set2*, *segment_size*=`None`)

Returns a new fuzzy set which is the merger of set1 and set2, where the membership of the result set is equal to `NORM(set1(x),set2(x))`.

For nonlinear operations you might want set the segment size to a value which controls how large a linear segment of the result can be. See also the following examples:

- *http://pyfuzzy.sourceforge.net/demo/merge/AlgebraicProduct_d_d.png* - The algebraic product is *x*y*, so using it on the same set, it calculates the square of it.
- *http://pyfuzzy.sourceforge.net/demo/merge/AlgebraicSum_d_d.png* - The algebraic sum is *x+y-x*y*.

Parameters

`NORM`: fuzzy norm to calculate both sets values. For example Min(), Max(), ... Also possible as two params function, eg. `lambda a,b: (a+b)/2`..

*(type=**fuzzy.norm.Norm.Norm**)*

`set1`: fuzzy set

*(type=**fuzzy.set.Set**)*

`set2`: fuzzy set

*(type=**fuzzy.set.Set**)*

`segment_size`: maximum size of a segment

(type=float/None)

Return Value

resulting fuzzy set

*(type=**fuzzy.set.Polygon.Polygon**)*

norm(*NORM*, *set*, *value*, *segment_size*=`None`)

Returns a new fuzzy set which ist this set normed with value. where the membership of the result set is equal to `NORM(set(x),value)`.

For meaning of segment_size see also `fuzzy.set.operations.merge`.

Parameters

`NORM`: fuzzy norm to calculate set's values with value. For example Min(), Max(), ... Also possible as two params function, eg. `lambda a,b: (a+b)/2`..

*(type=**fuzzy.norm.Norm.Norm**)*

`set`: fuzzy set

*(type=**fuzzy.set.Set**)*

`value`: value

(type=float)

`segment_size`: maximum size of a segment

(type=float/None)

Return Value

resulting fuzzy set

*(type=**fuzzy.set.Polygon.Polygon**)*

complement(*COMPLEMENT*, *set*, *segment_size*=`None`)

Returns a new fuzzy set which is this complement of the given set. (Where the membership of the result set is equal to `COMPLEMENT(set(x))`.

For meaning of segment_size see also `fuzzy.set.operations.merge`.

Parameters

`COMPLEMENT`: fuzzy complement to use. For example Zadeh(), ... Also possible as one param function, eg. `lambda x: 1.-x`.

*(type=**fuzzy.complement.Base.Base**)*

`set`: fuzzy set

*(type=**fuzzy.set.Set**)*

`segment_size`: maximum size of a segment

(type=float/None)

Return Value

resulting fuzzy set

*(type=**fuzzy.set.Polygon.Polygon**)*

93.2 Variables

Name	Description
___revision___	**Value:** `'$Id: operations.py,v 1.13 2013-01-09 20:10:19 rliebscher...`
___package___	**Value:** `'fuzzy.set'`

94 Package fuzzy.storage

Storage functions.

94.1 Modules

- **fcl**: Reading and writing FCL files.
  (Section 95, p. 243)
  - **FCLLexer**: Lexer for reading FCL by the pyfuzzy package.
    (Section 96, p. 244)
  - **FCLLexer3**: Lexer for reading FCL by the pyfuzzy package.
    (Section 97, p. 251)
  - **FCLParser**: Parser for reading FCL by the pyfuzzy package.
    (Section 98, p. 258)
  - **Reader**: Load a fuzzy system from FCL file, stream or string.
    (Section 99, p. 273)

94.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

95 Package fuzzy.storage.fcl

Reading and writing FCL files.

95.1 Modules

- **FCLLexer**: Lexer for reading FCL by the pyfuzzy package. *(Section 96, p. 244)*
- **FCLLexer3**: Lexer for reading FCL by the pyfuzzy package. *(Section 97, p. 251)*
- **FCLParser**: Parser for reading FCL by the pyfuzzy package. *(Section 98, p. 258)*
- **Reader**: Load a fuzzy system from FCL file, stream or string. *(Section 99, p. 273)*

95.2 Variables

Name	Description
___revision___	**Value:** `'$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...`
___package___	**Value:** `None`

96 Module fuzzy.storage.fcl.FCLLexer

Lexer for reading FCL by the pyfuzzy package.

96.1 Functions

main(*argv*, *stdin*=`sys.stderr`, *stdout*=`sys.stderr`, *stderr*=`sys.stderr`)

96.2 Variables

Name	Description
__doc__	**Value:** `"""Lexer for reading FCL by the pyfuzzy package."""`
__revision__	**Value:** `'$ Id:  FCL.g,v 1.7 2009/10/20 19:15:33 rliebscher Exp $'`
HIDDEN	**Value:** `99`
T__29	**Value:** `29`
T__28	**Value:** `28`
T__27	**Value:** `27`
Real_literal	**Value:** `9`
OR_	**Value:** `6`
T__26	**Value:** `26`
T__25	**Value:** `25`
T__24	**Value:** `24`
T__23	**Value:** `23`
LETTER	**Value:** `10`
T__22	**Value:** `22`
T__21	**Value:** `21`
T__20	**Value:** `20`
AND_	**Value:** `7`
EOF	**Value:** `-1`
Identifier	**Value:** `4`
T__55	**Value:** `55`
T__56	**Value:** `56`
T__19	**Value:** `19`
T__57	**Value:** `57`
T__58	**Value:** `58`
T__16	**Value:** `16`
T__51	**Value:** `51`
T__15	**Value:** `15`
T__52	**Value:** `52`

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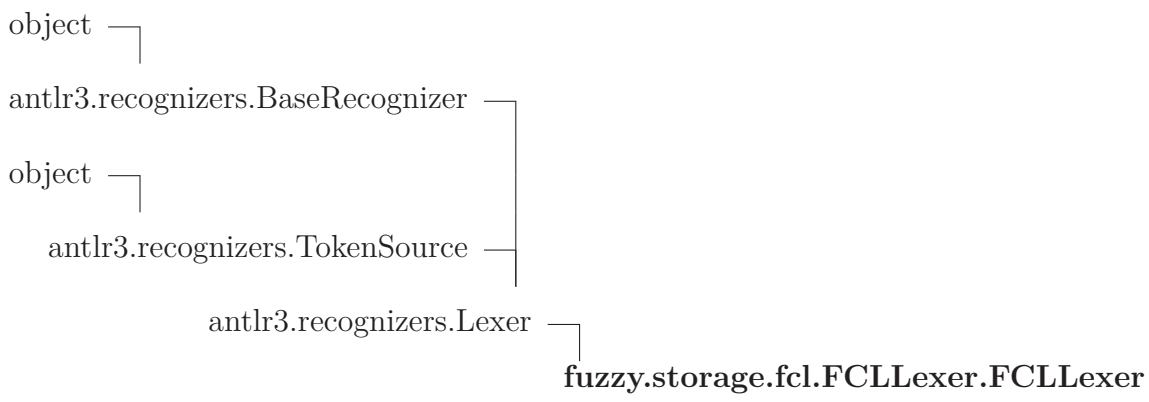
Name	Description
T__18	**Value:** 18
T__53	**Value:** 53
T__54	**Value:** 54
T__17	**Value:** 17
Integer_literal_wo_sign	**Value:** 11
T__14	**Value:** 14
T__59	**Value:** 59
DIGIT	**Value:** 5
COMMENT	**Value:** 13
T__50	**Value:** 50
T__42	**Value:** 42
T__43	**Value:** 43
T__40	**Value:** 40
T__41	**Value:** 41
T__46	**Value:** 46
T__47	**Value:** 47
T__44	**Value:** 44
T__45	**Value:** 45
T__48	**Value:** 48
T__49	**Value:** 49
T__30	**Value:** 30
T__31	**Value:** 31
T__32	**Value:** 32
T__33	**Value:** 33
WS	**Value:** 12
T__34	**Value:** 34
T__35	**Value:** 35
Integer_literal	**Value:** 8
T__36	**Value:** 36
T__37	**Value:** 37
T__38	**Value:** 38
T__39	**Value:** 39
__package__	**Value:** 'fuzzy.storage.fcl'

96.3 Class FCLLexer



96.3.1 Methods

___init___(*self*, *input*=None, *state*=None)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

mT___14(*self*)

mT___15(*self*)

mT___16(*self*)

mT___17(*self*)

mT___18(*self*)

mT___19(*self*)

mT___20(*self*)

mT___21(*self*)

mT___22(*self*)

mT___23(*self*)

mT___24(*self*)

mT___25(*self*)

mT___26(*self*)

mT___27(*self*)

mT___28(*self*)

mT___29(*self*)

mT___30(*self*)

mT___31(*self*)

mT___32(*self*)

mT___33(*self*)

mT___34(*self*)

mT___35(*self*)

mT___36(*self*)

mT___37(*self*)

mT___38(*self*)

mT___39(*self*)

mT___40(*self*)

mT___41(*self*)

mT___42(*self*)

mT___43(*self*)

mT___44(*self*)

mT___45(*self*)

mT___46(*self*)

mT___47(*self*)

mT___48(*self*)

mT___49(*self*)

mT___50(*self*)

mT___51(*self*)

mT___52(*self*)

mT___53(*self*)

mT___54(*self*)

mT___55(*self*)

mT___56(*self*)

mT___57(*self*)

mT___58(*self*)

mT___59(*self*)

mOR__(*self*)

mAND__(*self*)

mIdentifier(*self*)

mInteger_literal_wo_sign(*self*)

mInteger_literal(*self*)

mLETTER(*self*)

mDIGIT(*self*)

mReal_literal(*self*)

mWS(*self*)

mCOMMENT(*self*)

mTokens(*self*)

This is the lexer entry point that sets instance var 'token'

Overrides: antlr3.recognizers.Lexer.mTokens extit(inherited documentation)

Inherited from antlr3.recognizers.Lexer

emit(), getCharErrorDisplay(), getCharIndex(), getCharPositionInLine(), getErrorMessage(), getLine(), getSourceName(), getText(), match(), matchAny(), matchRange(), nextToken(), recover(), reportError(), reset(), setCharStream(), setText(), skip(), traceIn(), traceOut()

Inherited from antlr3.recognizers.BaseRecognizer

alreadyParsedRule(), beginResync(), combineFollows(), computeContextSensitiveRuleFOLLOW(), computeErrorRecoverySet(), consumeUntil(), displayRecognitionError(), emitErrorMessage(), endResync(), failed(), getBacktrackingLevel(), getCurrentInputSymbol(), getErrorHeader(), getGrammarFileName(), getMissingSymbol(), getNumberOfSyntaxErrors(), getRuleInvocationStack(), getRuleMemoization(), getTokenErrorDisplay(), memoize(), mismatchIsMissingToken(), mismatchIsUnwantedToken(), recoverFromMismatchedSet(), recoverFromMismatchedToken(), setBacktrackingLevel(), setInput(), toStrings()

Inherited from antlr3.recognizers.TokenSource

___iter___(), next()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

96.3.2 Properties

Name	Description
Inherited from antlr3.recognizers.Lexer text	
Inherited from object ___class___	

96.3.3 Class Variables

Name	Description
grammarFileName	**Value:** `'/work/projects/pyfuzzy/pyfuzzy/fuzzy/storage/fcl/FCL.g'`
antlr_version	**Value:** `(3, 1, 2, 2147483647)`
antlr_version_str	**Value:** `'3.1.2'`
DFA8_eot	**Value:** `[-1, 24, 24, 24, 32, 24, -1, 24, 24, 24, 24, 43, -1, -1, ...`
DFA8_eof	**Value:** `[-1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, ...`
DFA8_min	**Value:** `[9, 85, 78, 84, 61, 65, -1, 65, 69, 80, 69, 42, -1, -1, 6...`
DFA8_max	**Value:** `[122, 85, 78, 84, 61, 85, -1, 65, 69, 82, 72, 42, -1, -1,...`
DFA8_accept	**Value:** `[-1, -1, -1, -1, -1, -1, 7, -1, -1, -1, -1, -1, 22, 23, -...`
DFA8_special	**Value:** `[-1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, ...`
DFA8_transition	**Value:** `[[27, 27, -1, 27, 27, -1, -1, -1, -1, -1, -1, -1, -1, -1,...`
Inherited from antlr3.recognizers.BaseRecognizer DEFAULT_TOKEN_CHANNEL, HIDDEN, MEMO_RULE_FAILED, MEMO_RULE_UNKNOWN, tokenNames	

97 Module fuzzy.storage.fcl.FCLLexer3

Lexer for reading FCL by the pyfuzzy package.

97.1 Functions

main(*argv*, *stdin*=`sys.stderr`, *stdout*=`sys.stderr`, *stderr*=`sys.stderr`)

97.2 Variables

Name	Description
__doc__	**Value:** `"""Lexer for reading FCL by the pyfuzzy package."""`
__revision__	**Value:** `'$ Id:  FCL.g,v 1.7 2009/10/20 19:15:33 rliebscher Exp $'`
HIDDEN	**Value:** `99`
T__29	**Value:** `29`
T__28	**Value:** `28`
T__27	**Value:** `27`
Real_literal	**Value:** `9`
OR_	**Value:** `6`
T__26	**Value:** `26`
T__25	**Value:** `25`
T__24	**Value:** `24`
T__23	**Value:** `23`
LETTER	**Value:** `10`
T__22	**Value:** `22`
T__21	**Value:** `21`
T__20	**Value:** `20`
AND_	**Value:** `7`
EOF	**Value:** `-1`
Identifier	**Value:** `4`
T__55	**Value:** `55`
T__56	**Value:** `56`
T__19	**Value:** `19`
T__57	**Value:** `57`
T__58	**Value:** `58`
T__16	**Value:** `16`
T__51	**Value:** `51`
T__15	**Value:** `15`
T__52	**Value:** `52`

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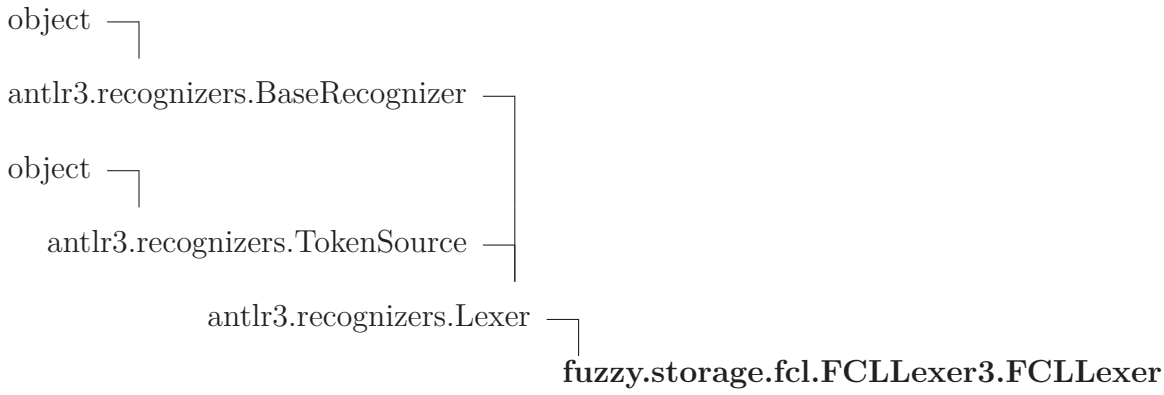
Name	Description
T__18	**Value:** 18
T__53	**Value:** 53
T__54	**Value:** 54
T__17	**Value:** 17
Integer_literal_wo_sign	**Value:** 11
T__14	**Value:** 14
T__59	**Value:** 59
DIGIT	**Value:** 5
COMMENT	**Value:** 13
T__50	**Value:** 50
T__42	**Value:** 42
T__43	**Value:** 43
T__40	**Value:** 40
T__41	**Value:** 41
T__46	**Value:** 46
T__47	**Value:** 47
T__44	**Value:** 44
T__45	**Value:** 45
T__48	**Value:** 48
T__49	**Value:** 49
T__30	**Value:** 30
T__31	**Value:** 31
T__32	**Value:** 32
T__33	**Value:** 33
WS	**Value:** 12
T__34	**Value:** 34
T__35	**Value:** 35
Integer_literal	**Value:** 8
T__36	**Value:** 36
T__37	**Value:** 37
T__38	**Value:** 38
T__39	**Value:** 39
__package__	**Value:** 'fuzzy.storage.fcl'

97.3 Class FCLLexer



97.3.1 Methods

___init___(*self*, *input*=`None`, *state*=`None`)

x.___init___(...) initializes x; see help(type(x)) for signature

Overrides: object.___init___ extit(inherited documentation)

mT___14(*self*)

mT___15(*self*)

mT___16(*self*)

mT___17(*self*)

mT___18(*self*)

mT___19(*self*)

mT___20(*self*)

mT___21(*self*)

mT___22(*self*)

mT___23(*self*)

mT___24(*self*)

mT___25(*self*)

mT___26(*self*)

mT___27(*self*)

mT___28(*self*)

mT___29(*self*)

mT___30(*self*)

mT___31(*self*)

mT___32(*self*)

mT___33(*self*)

mT___34(*self*)

mT___35(*self*)

mT___36(*self*)

mT___37(*self*)

mT___38(*self*)

mT___39(*self*)

mT___40(*self*)

mT___41(*self*)

mT___42(*self*)

mT___43(*self*)

mT___44(*self*)

mT___45(*self*)

mT___46(*self*)

mT___47(*self*)

mT___48(*self*)

mT___49(*self*)

mT___50(*self*)

mT___51(*self*)

mT___52(*self*)

mT___53(*self*)

mT___54(*self*)

mT___55(*self*)

mT___56(*self*)

mT___57(*self*)

mT___58(*self*)

mT___59(*self*)

mOR__(*self*)

mAND__(*self*)

mIdentifier(*self*)

mInteger__literal__wo__sign(*self*)

mInteger_literal(*self*)

mLETTER(*self*)

mDIGIT(*self*)

mReal_literal(*self*)

mWS(*self*)

mCOMMENT(*self*)

mTokens(*self*)

This is the lexer entry point that sets instance var 'token'

Overrides: antlr3.recognizers.Lexer.mTokens extit(inherited documentation)

Inherited from antlr3.recognizers.Lexer

emit(), getCharErrorDisplay(), getCharIndex(), getCharPositionInLine(), getErrorMessage(), getLine(), getSourceName(), getText(), match(), matchAny(), matchRange(), nextToken(), recover(), reportError(), reset(), setCharStream(), setText(), skip(), traceIn(), traceOut()

Inherited from antlr3.recognizers.BaseRecognizer

alreadyParsedRule(), beginResync(), combineFollows(), computeContextSensitiveRuleFOLLOW(), computeErrorRecoverySet(), consumeUntil(), displayRecognitionError(), emitErrorMessage(), endResync(), failed(), getBacktrackingLevel(), getCurrentInputSymbol(), getErrorHeader(), getGrammarFileName(), getMissingSymbol(), getNumberOfSyntaxErrors(), getRuleInvocationStack(), getRuleMemoization(), getTokenErrorDisplay(), memoize(), mismatchIsMissingToken(), mismatchIsUnwantedToken(), recoverFromMismatchedSet(), recoverFromMismatchedToken(), setBacktrackingLevel(), setInput(), toStrings()

Inherited from antlr3.recognizers.TokenSource

___iter___(), next()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

97.3.2 Properties

Name	Description
Inherited from antlr3.recognizers.Lexer text	
Inherited from object ___class___	

97.3.3 Class Variables

Name	Description
grammarFileName	**Value:** `'/work/projects/pyfuzzy/pyfuzzy/fuzzy/storage/fcl/FCL.g'`
antlr_version	**Value:** `(3, 1, 2, 2147483647)`
antlr_version_str	**Value:** `'3.1.2'`
DFA8_eot	**Value:** `[92, 102, 102, 102, 102, 102, 102, 102, 102, 102, 102, 10...`
DFA8_eof	**Value:** `[117, 117, 117, 117, 117, 117, 117, 117, 117, 117, 117, 1...`
DFA8_min	**Value:** `[9, 85, 78, 84, 61, 65, 92, 102, 102, 102, 102, 102,...`
DFA8_max	**Value:** `[122, 85, 78, 84, 61, 85, 92, 102, 102, 102, 102, 102, 10...`
DFA8_accept	**Value:** `[92, 92, 92, 92, 92, 92, 102, 102, 102, 102, 102, 102, 10...`
DFA8_special	**Value:** `[117, 117, 117, 117, 117, 117, 117, 117, 117, 117, 117, 1...`
DFA8_transition	**Value:** `[[27, 27, 92, 102, 102, 102, 102, 102, 102, 102, 102, 102...`
Inherited from antlr3.recognizers.BaseRecognizer DEFAULT_TOKEN_CHANNEL, HIDDEN, MEMO_RULE_FAILED, MEMO_RULE_UNKNOWN, tokenNames	

98 Module fuzzy.storage.fcl.FCLParser

Parser for reading FCL by the pyfuzzy package.

98.1 Functions

getNorm(*name*, *p*=`None`)

Get an instance of a fuzzy norm with given name. Normally looks into the fuzzy.norm package for a suitable class.

getSet(*name*, *params*=`[]`)

Get an instance of a fuzzy set with given name. Normally looks into the fuzzy.set package for a suitable class.

getDefuzzificationMethod(*name*)

Get an instance of a defuzzification method with given name. Normally looks into the fuzzy.defuzzify package for a suitable class.

defineOperator(*name*, *norm*)

Defines a operator (AND,OR,...) to use a given norm.

getOperator(*name*)

Get the norm for previous defined operator name.

defineStructType(*name*)

Remember name of a struct definition

defineStructTypeElement(*name*, *elem*)

Add a struct element

getStructType(*name*)

Get list of elements of a struct definition

main(*argv*, *stdin*=`sys.stderr`, *stdout*=`sys.stderr`, *stderr*=`sys.stderr`)

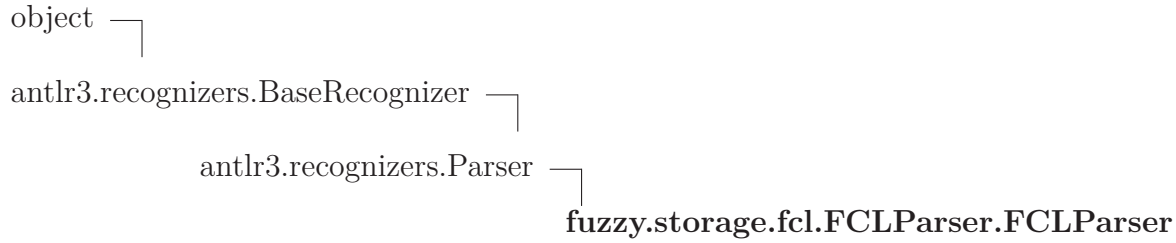
98.2 Variables

Name	Description
___doc___	**Value:** `"""Parser for reading FCL by the pyfuzzy package."""`
___revision___	**Value:** `'$Id: FCLParser.py,v 1.9 2013-01-09 20:10:19 rliebscher E...`
HIDDEN	**Value:** 99
T___29	**Value:** 29
T___28	**Value:** 28
Real_literal	**Value:** 9
OR_	**Value:** 6
T___27	**Value:** 27
T___26	**Value:** 26
T___25	**Value:** 25
T___24	**Value:** 24
LETTER	**Value:** 10
T___23	**Value:** 23
T___22	**Value:** 22
T___21	**Value:** 21
T___20	**Value:** 20
AND_	**Value:** 7
EOF	**Value:** -1
Identifier	**Value:** 4
T___55	**Value:** 55
T___56	**Value:** 56
T___19	**Value:** 19
T___57	**Value:** 57
T___58	**Value:** 58
T___16	**Value:** 16
T___51	**Value:** 51
T___15	**Value:** 15
T___52	**Value:** 52
T___18	**Value:** 18
T___53	**Value:** 53
T___54	**Value:** 54
T___17	**Value:** 17
Integer_literal_wo_sign	**Value:** 11
T___14	**Value:** 14
T___59	**Value:** 59
DIGIT	**Value:** 5
COMMENT	**Value:** 13
T___50	**Value:** 50
T___42	**Value:** 42
T___43	**Value:** 43

continued on next page

Name	Description
T__40	**Value:** 40
T__41	**Value:** 41
T__46	**Value:** 46
T__47	**Value:** 47
T__44	**Value:** 44
T__45	**Value:** 45
T__48	**Value:** 48
T__49	**Value:** 49
T__30	**Value:** 30
T__31	**Value:** 31
T__32	**Value:** 32
WS	**Value:** 12
T__33	**Value:** 33
T__34	**Value:** 34
Integer_literal	**Value:** 8
T__35	**Value:** 35
T__36	**Value:** 36
T__37	**Value:** 37
T__38	**Value:** 38
T__39	**Value:** 39
tokenNames	**Value:** ['<invalid>', '<EOR>', '<DOWN>', '<UP>', 'Identifier', 'D...
__package__	**Value:** 'fuzzy.storage.fcl'

98.3 Class FCLParser



98.3.1 Methods

__init__(*self*, *input*, *state*=None)

x.__init__(...) initializes x; see help(type(x)) for signature

Overrides: object.__init__ extit(inherited documentation)

main(*self*)

function_block_declaration(*self*)

type_definition(*self*)

struct_element(*self*, *struct_name*)

fb_io_var_declarations(*self*)

input_declarations(*self*)

output_declarations(*self*)

var_decl(*self*, *output_var*)

type(*self*)

function_block_body(*self*)

fuzzify_block(*self*)

defuzzify_block(*self*)

rule_block(*self*)

option_block(*self*)

linguistic_term(*self*, *var_name*)

membership_function(*self*)

singleton(*self*)

points(*self*)

pyfuzzy_set(*self*)

defuzzification_method(*self*, *var_name*)

default_value(*self*, *var_name*)

range(*self*)

operator_name_any(*self*)

operator_name_AND(*self*)

operator_name_OR(*self*)

operator_definition(*self*)

activation_method(*self*)

accumulation_method(*self*)

condition(*self*)

subcondition(*self*)

subcondition2(*self*)

conclusion(*self*)

conclusion2(*self*)

conclusion3(*self*)

rule(*self*, *block_name*)

weighting_factor(*self*)

function_block_name(*self*)

rule_block_name(*self*)

term_name(*self*)

f_variable_name(*self*)

variable_name(*self*)

numeric_literal(*self*)

Inherited from antlr3.recognizers.Parser

getCurrentInputSymbol(), getMissingSymbol(), getSourceName(), getTokenStream(), reset(), setTokenStream(), traceIn(), traceOut()

Inherited from antlr3.recognizers.BaseRecognizer

alreadyParsedRule(), beginResync(), combineFollows(), computeContextSensitiveRuleFOLLOW(), computeErrorRecoverySet(), consumeUntil(), displayRecognitionError(), emitErrorMessage(), endResync(), failed(), getBacktrackingLevel(), getErrorHeader(), getErrorMessage(), getGrammarFileName(), getNumberOfSyntaxErrors(), getRuleInvocationStack(), getRuleMemoization(), getTokenErrorDisplay(), match(), matchAny(), memoize(), mismatchIsMissingToken(), mismatchIsUnwantedToken(), recover(), recoverFromMismatchedSet(), recoverFromMismatchedToken(), reportError(), setBacktrackingLevel(), setInput(), toStrings()

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

98.3.2 Properties

Name	Description
Inherited from object	
___class___	

98.3.3 Class Variables

Name	Description
grammarFileName	**Value:** '/work/projects/pyfuzzy/pyfuzzy/fuzzy/storage/fcl/FCL.g'
antlr_version	**Value:** (3, 1, 2, 2147483647)
antlr_version_str	**Value:** '3.1.2'
tokenNames	**Value:** ['<invalid>', '<EOR>', '<DOWN>', '<UP>', 'Identifier', 'D...
FOLLOW_function_block_declaration_in_main55	**Value:** frozenset([1])

continued on next page

Name	Description
FOLLOW_14_in_function_block_declaration71	**Value:** `frozenset([4])`
FOLLOW_function_block_name_in_function_block_declaration77	**Value:** `frozenset([15, 16, 21, 23, 24, 26, 28, 30])`
FOLLOW_type_definition_in_function_block_declaration85	**Value:** `frozenset([15, 16, 21, 23, 24, 26, 28, 30])`
FOLLOW_fb_io_var_declarations_in_function_block_declaration92	**Value:** `frozenset([15, 21, 23, 24, 26, 28, 30])`
FOLLOW_function_block_body_in_function_block_declaration100	**Value:** `frozenset([15])`
FOLLOW_15_in_function_block_declaration106	**Value:** `frozenset([])`
FOLLOW_EOF_in_function_block_declaration112	**Value:** `frozenset([1])`
FOLLOW_16_in_type_definition126	**Value:** `frozenset([4])`
FOLLOW_Identifier_in_type_definition128	**Value:** `frozenset([4])`
FOLLOW_struct_element_in_type_definition132	**Value:** `frozenset([4, 17])`
FOLLOW_17_in_type_definition136	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_struct_element151	**Value:** `frozenset([18])`
FOLLOW_18_in_struct_element153	**Value:** `frozenset([19])`
FOLLOW_19_in_struct_element155	**Value:** `frozenset([20])`
FOLLOW_20_in_struct_element157	**Value:** `frozenset([1])`
FOLLOW_input_declarations_in_fb_io_var_declarations172	**Value:** `frozenset([1])`
FOLLOW_output_declarations_in_fb_io_var_declarations178	**Value:** `frozenset([1])`
FOLLOW_21_in_input_declarations189	**Value:** `frozenset([4])`

continued on next page

Name	Description
FOLLOW_var_decl_in_input_declarations191	**Value:** `frozenset([4, 22])`
FOLLOW_22_in_input_declarations195	**Value:** `frozenset([1])`
FOLLOW_23_in_output_declarations203	**Value:** `frozenset([4])`
FOLLOW_var_decl_in_output_declarations205	**Value:** `frozenset([4, 22])`
FOLLOW_22_in_output_declarations209	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_var_decl223	**Value:** `frozenset([18])`
FOLLOW_18_in_var_decl227	**Value:** `frozenset([4, 19])`
FOLLOW_type_in_var_decl231	**Value:** `frozenset([20])`
FOLLOW_20_in_var_decl235	**Value:** `frozenset([1])`
FOLLOW_19_in_type254	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_type264	**Value:** `frozenset([1])`
FOLLOW_fuzzify_block_in_function_block_body286	**Value:** `frozenset([1, 24, 26, 28, 30])`
FOLLOW_defuzzify_block_in_function_block_body293	**Value:** `frozenset([1, 26, 28, 30])`
FOLLOW_rule_block_in_function_block_body300	**Value:** `frozenset([1, 28, 30])`
FOLLOW_option_block_in_function_block_body307	**Value:** `frozenset([1, 30])`
FOLLOW_24_in_fuzzify_block325	**Value:** `frozenset([4])`
FOLLOW_variable_name_in_fuzzify_block331	**Value:** `frozenset([25, 32])`
FOLLOW_linguistic_term_in_fuzzify_block337	**Value:** `frozenset([25, 32])`
FOLLOW_25_in_fuzzify_block345	**Value:** `frozenset([1])`

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Name	Description
FOLLOW_26_in_defuzzify_block362	**Value:** `frozenset([4])`
FOLLOW_f_variable_name_in_defuzzify_block368	**Value:** `frozenset([32, 51])`
FOLLOW_linguistic_term_in_defuzzify_block374	**Value:** `frozenset([32, 51])`
FOLLOW_accumulation_method_in_defuzzify_block382	**Value:** `frozenset([37])`
FOLLOW_defuzzification_method_in_defuzzify_block388	**Value:** `frozenset([27, 38, 40])`
FOLLOW_default_value_in_defuzzify_block395	**Value:** `frozenset([27, 40])`
FOLLOW_range_in_defuzzify_block403	**Value:** `frozenset([27])`
FOLLOW_27_in_defuzzify_block410	**Value:** `frozenset([1])`
FOLLOW_28_in_rule_block427	**Value:** `frozenset([4])`
FOLLOW_rule_block_name_in_rule_block435	**Value:** `frozenset([6, 7, 29, 50, 56])`
FOLLOW_operator_definition_in_rule_block443	**Value:** `frozenset([6, 7, 29, 50, 56])`
FOLLOW_activation_method_in_rule_block452	**Value:** `frozenset([29, 56])`
FOLLOW_rule_in_rule_block461	**Value:** `frozenset([29, 56])`
FOLLOW_29_in_rule_block469	**Value:** `frozenset([1])`
FOLLOW_30_in_option_block477	**Value:** `frozenset([31])`
FOLLOW_31_in_option_block481	**Value:** `frozenset([1])`
FOLLOW_32_in_linguistic_term496	**Value:** `frozenset([4])`
FOLLOW_term_name_in_linguistic_term498	**Value:** `frozenset([33])`
FOLLOW_33_in_linguistic_term500	**Value:** `frozenset([4, 8, 9, 34])`

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Name	Description
FOLLOW_membership_function_in_linguistic_term502	**Value:** `frozenset([20])`
FOLLOW_20_in_linguistic_term504	**Value:** `frozenset([1])`
FOLLOW_singleton_in_membership_function526	**Value:** `frozenset([1])`
FOLLOW_points_in_membership_function538	**Value:** `frozenset([1])`
FOLLOW_pyfuzzy_set_in_membership_function550	**Value:** `frozenset([1])`
FOLLOW_numeric_literal_in_singleton573	**Value:** `frozenset([1])`
FOLLOW_variable_name_in_singleton585	**Value:** `frozenset([1])`
FOLLOW_34_in_points617	**Value:** `frozenset([4, 8, 9])`
FOLLOW_numeric_literal_in_points627	**Value:** `frozenset([35])`
FOLLOW_variable_name_in_points631	**Value:** `frozenset([35])`
FOLLOW_35_in_points639	**Value:** `frozenset([8, 9])`
FOLLOW_numeric_literal_in_points648	**Value:** `frozenset([36])`
FOLLOW_36_in_points655	**Value:** `frozenset([1, 34])`
FOLLOW_Identifier_in_pyfuzzy_set699	**Value:** `frozenset([34])`
FOLLOW_34_in_pyfuzzy_set704	**Value:** `frozenset([8, 9, 36])`
FOLLOW_numeric_literal_in_pyfuzzy_set716	**Value:** `frozenset([35, 36])`
FOLLOW_35_in_pyfuzzy_set732	**Value:** `frozenset([8, 9])`
FOLLOW_numeric_literal_in_pyfuzzy_set742	**Value:** `frozenset([35, 36])`
FOLLOW_36_in_pyfuzzy_set762	**Value:** `frozenset([1])`
FOLLOW_37_in_defuzzification_method785	**Value:** `frozenset([18])`

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Name	Description
FOLLOW_18_in_defuzzification_method787	**Value:** `frozenset([4])`
FOLLOW_Identifier_in_defuzzification_method791	**Value:** `frozenset([20])`
FOLLOW_20_in_defuzzification_method797	**Value:** `frozenset([1])`
FOLLOW_38_in_default_value812	**Value:** `frozenset([33])`
FOLLOW_33_in_default_value814	**Value:** `frozenset([8, 9, 39])`
FOLLOW_numeric_literal_in_default_value824	**Value:** `frozenset([20])`
FOLLOW_39_in_default_value836	**Value:** `frozenset([20])`
FOLLOW_20_in_default_value846	**Value:** `frozenset([1])`
FOLLOW_40_in_range857	**Value:** `frozenset([33])`
FOLLOW_33_in_range859	**Value:** `frozenset([34])`
FOLLOW_34_in_range861	**Value:** `frozenset([8, 9])`
FOLLOW_numeric_literal_in_range863	**Value:** `frozenset([41])`
FOLLOW_41_in_range865	**Value:** `frozenset([8, 9])`
FOLLOW_numeric_literal_in_range867	**Value:** `frozenset([36])`
FOLLOW_36_in_range869	**Value:** `frozenset([20])`
FOLLOW_20_in_range871	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_operator_name_any890	**Value:** `frozenset([1, 42])`
FOLLOW_42_in_operator_name_any893	**Value:** `frozenset([8, 9])`
FOLLOW_numeric_literal_in_operator_name_any897	**Value:** `frozenset([43])`
FOLLOW_43_in_operator_name_any899	**Value:** `frozenset([1])`

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Name	Description
FOLLOW_44_in_operator_name_AND922	**Value:** `frozenset([1])`
FOLLOW_45_in_operator_name_AND932	**Value:** `frozenset([1])`
FOLLOW_46_in_operator_name_AND942	**Value:** `frozenset([1])`
FOLLOW_operator_name_any_in_operator_name_AND955	**Value:** `frozenset([1])`
FOLLOW_47_in_operator_name_OR976	**Value:** `frozenset([1])`
FOLLOW_48_in_operator_name_OR986	**Value:** `frozenset([1])`
FOLLOW_49_in_operator_name_OR996	**Value:** `frozenset([1])`
FOLLOW_operator_name_any_in_operator_name_OR1009	**Value:** `frozenset([1])`
FOLLOW_OR_in_operator_definition1053	**Value:** `frozenset([18])`
FOLLOW_18_in_operator_definition1055	**Value:** `frozenset([4, 47, 48, 49])`
FOLLOW_operator_name_OR_in_operator_definition1059	**Value:** `frozenset([20])`
FOLLOW_AND_in_operator_definition1070	**Value:** `frozenset([18])`
FOLLOW_18_in_operator_definition1072	**Value:** `frozenset([4, 44, 45, 46, 47, 48, 49])`
FOLLOW_operator_name_AND_in_operator_definition1076	**Value:** `frozenset([20])`
FOLLOW_20_in_operator_definition1085	**Value:** `frozenset([1])`
FOLLOW_50_in_activation_method1094	**Value:** `frozenset([18])`
FOLLOW_18_in_activation_method1096	**Value:** `frozenset([44, 45])`
FOLLOW_set_in_activation_method1098	**Value:** `frozenset([20])`
FOLLOW_20_in_activation_method1106	**Value:** `frozenset([1])`

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Name	Description
FOLLOW_51_in_accumulation_method1114	**Value:** `frozenset([18])`
FOLLOW_18_in_accumulation_method1116	**Value:** `frozenset([47, 49, 52])`
FOLLOW_set_in_accumulation_method1118	**Value:** `frozenset([20])`
FOLLOW_20_in_accumulation_method1130	**Value:** `frozenset([1])`
FOLLOW_subcondition_in_condition1161	**Value:** `frozenset([1, 6, 7])`
FOLLOW_set_in_condition1189	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_subcondition_in_condition1211	**Value:** `frozenset([1, 6, 7])`
FOLLOW_53_in_subcondition1251	**Value:** `frozenset([34])`
FOLLOW_34_in_subcondition1253	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_condition_in_subcondition1255	**Value:** `frozenset([36])`
FOLLOW_36_in_subcondition1257	**Value:** `frozenset([1])`
FOLLOW_subcondition2_in_subcondition1269	**Value:** `frozenset([1])`
FOLLOW_34_in_subcondition21296	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_condition_in_subcondition21300	**Value:** `frozenset([36])`
FOLLOW_36_in_subcondition21302	**Value:** `frozenset([1])`
FOLLOW_variable_name_in_subcondition21322	**Value:** `frozenset([54, 55])`
FOLLOW_54_in_subcondition21325	**Value:** `frozenset([4, 53])`
FOLLOW_53_in_subcondition21329	**Value:** `frozenset([4])`
FOLLOW_55_in_subcondition21334	**Value:** `frozenset([4])`
FOLLOW_term_name_in_subcondition21338	**Value:** `frozenset([1])`
FOLLOW_operator_name_any_in_subcondition21360	**Value:** `frozenset([34])`

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Name	Description
FOLLOW_34_in_subcondition21362	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_condition_in_subcondition21366	**Value:** `frozenset([35])`
FOLLOW_35_in_subcondition21368	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_condition_in_subcondition21372	**Value:** `frozenset([36])`
FOLLOW_36_in_subcondition21374	**Value:** `frozenset([1])`
FOLLOW_conclusion2_in_conclusion1422	**Value:** `frozenset([1, 35])`
FOLLOW_35_in_conclusion1436	**Value:** `frozenset([4, 34])`
FOLLOW_conclusion2_in_conclusion1440	**Value:** `frozenset([1, 35])`
FOLLOW_34_in_conclusion21474	**Value:** `frozenset([4, 34])`
FOLLOW_conclusion3_in_conclusion21478	**Value:** `frozenset([36])`
FOLLOW_36_in_conclusion21481	**Value:** `frozenset([1])`
FOLLOW_conclusion3_in_conclusion21501	**Value:** `frozenset([1])`
FOLLOW_variable_name_in_conclusion31538	**Value:** `frozenset([54])`
FOLLOW_54_in_conclusion31540	**Value:** `frozenset([4])`
FOLLOW_term_name_in_conclusion31544	**Value:** `frozenset([1])`
FOLLOW_56_in_rule1568	**Value:** `frozenset([8])`
FOLLOW_Integer_literal_in_rule1570	**Value:** `frozenset([18])`
FOLLOW_18_in_rule1572	**Value:** `frozenset([57])`
FOLLOW_57_in_rule1574	**Value:** `frozenset([4, 34, 47, 48, 49, 53])`
FOLLOW_condition_in_rule1576	**Value:** `frozenset([58])`
FOLLOW_58_in_rule1578	**Value:** `frozenset([4, 34])`

continued on next page

Name	Description
FOLLOW_conclusion_in_rule1580	**Value:** `frozenset([20, 59])`
FOLLOW_59_in_rule1583	**Value:** `frozenset([8, 9])`
FOLLOW_weighting_factor_in_rule1585	**Value:** `frozenset([20])`
FOLLOW_20_in_rule1591	**Value:** `frozenset([1])`
FOLLOW_numeric_literal_in_weighting_factor1606	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_function_block_name1617	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_rule_block_name1625	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_term_name1633	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_f_variable_name1641	**Value:** `frozenset([1])`
FOLLOW_Identifier_in_variable_name1649	**Value:** `frozenset([1])`
FOLLOW_set_in_numeric_literal0	**Value:** `frozenset([1])`
Inherited from antlr3.recognizers.BaseRecognizer DEFAULT_TOKEN_CHANNEL, HIDDEN, MEMO_RULE_FAILED, MEMO_RULE_UNKNOWN	

99 Module fuzzy.storage.fcl.Reader

Load a fuzzy system from FCL file, stream or string.

99.1 Variables

Name	Description
___revision___	**Value:** `'$Id: Reader.py,v 1.6 2013-01-09 20:10:19 rliebscher Exp $'`
___package___	**Value:** `'fuzzy.storage.fcl'`

99.2 Class Reader

object
└ **fuzzy.storage.fcl.Reader.Reader**

Parses a FCL file to a fuzzy.System.System instance

99.2.1 Methods

load_from_file(*self*, *filename*)

Load a fuzzy system from FCL file.

load_from_stream(*self*, *stream*)

Load a fuzzy system from FCL stream.

load_from_string(*self*, *str*)

Load a fuzzy system from FCL string.

Inherited from object

___delattr___(), ___format___(), ___getattribute___(), ___hash___(), ___init___(), ___new___(), ___reduce___(), ___reduce_ex___(), ___repr___(), ___setattr___(), ___sizeof___(), ___str___(), ___subclasshook___()

99.2.2 Properties

Name	Description
Inherited from object	
__class__	

100 Module fuzzy.utils

Helper functions for pyfuzzy.

100.1 Functions

prop(*func*)

Function decorator for defining property attributes

The decorated function is expected to return a dictionary containing one or more of the following pairs:

- fget - function for getting attribute value
- fset - function for setting attribute value
- fdel - function for deleting attribute

This can be conveniently constructed by the locals() builtin function; see: *http://aspn.activestate.com/ASPN/Cookbook/Python/Recipe/205183*

checkRange(*value*, *ranges*)

Checks if the value is in the defined range.

The range definition is a list/iterator from:

- float values belonging to the defined range *x \in {a}*
- 2-tuples of two floats which define a range not including the tuple values itself *x \in]a,b[*
- 2-list of two floats which define a range including the list values *x \in [a,b]*

The order of elements is not important. So could define the set of integer numbers by a generator returning the following sequence: *0,1,-1,2,-2,3-,3,...* .

It returns True if the value is in one of the defined ranges. Otherwise it returns false.

100.2 Variables

Name	Description
___revision___	**Value:** `'$Id: utils.py,v 1.8 2010-01-19 21:45:35 rliebscher Exp $'`
inf	**Value:** `inf`

continued on next page

Name	Description
inf_p	**Value:** `inf`
inf_n	**Value:** `-inf`
___package___	**Value:** `None`

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