

pyfuzzy

API Documentation

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Contents

Contents	1
1 Package fuzzy	15
1.1 Modules	15
1.2 Variables	18
2 Module fuzzy.Adjective	19
2.1 Variables	19
2.2 Class Adjective	19
2.2.1 Methods	19
2.2.2 Properties	20
2.2.3 Instance Variables	20
3 Module fuzzy.Exception	21
3.1 Variables	21
3.2 Class FuzzyException	21
3.2.1 Methods	21
3.2.2 Properties	21
4 Module fuzzy.InputVariable	23
4.1 Variables	23
4.2 Class InputVariable	23
4.2.1 Methods	23
4.2.2 Properties	24
4.2.3 Instance Variables	24
5 Module fuzzy.OutputVariable	25
5.1 Variables	25
5.2 Class OutputVariable	25
5.2.1 Methods	25
5.2.2 Properties	26
5.2.3 Instance Variables	26
6 Module fuzzy.Rule	27
6.1 Variables	27
6.2 Class Rule	27
6.2.1 Methods	27
6.2.2 Properties	28

6.2.3	Instance Variables	28
7	Module fuzzy.System	29
7.1	Variables	29
7.2	Class System	29
7.2.1	Methods	29
7.2.2	Properties	30
7.2.3	Instance Variables	30
8	Module fuzzy.Variable	32
8.1	Variables	32
8.2	Class Variable	32
8.2.1	Methods	33
8.2.2	Properties	34
8.2.3	Instance Variables	34
9	Package fuzzy.complement	35
9.1	Modules	35
9.2	Variables	35
10	Module fuzzy.complement.Base	36
10.1	Variables	36
10.2	Class ComplementException	36
10.2.1	Methods	36
10.2.2	Properties	36
10.3	Class Base	37
10.3.1	Methods	37
10.3.2	Properties	38
11	Module fuzzy.complement.Parametric	39
11.1	Variables	39
11.2	Class Parametric	39
11.2.1	Methods	39
11.2.2	Properties	40
11.2.3	Instance Variables	40
12	Module fuzzy.complement.Sugeno	41
12.1	Variables	41
12.2	Class Sugeno	41
12.2.1	Methods	41
12.2.2	Properties	42
12.2.3	Instance Variables	42
13	Module fuzzy.complement.Yager	43
13.1	Variables	43
13.2	Class Yager	43
13.2.1	Methods	43
13.2.2	Properties	44
13.2.3	Instance Variables	44
14	Module fuzzy.complement.Zadeh	45
14.1	Variables	45
14.2	Class Zadeh	45

14.2.1	Methods	45
14.2.2	Properties	46
15	Package fuzzy.defuzzify	47
15.1	Modules	47
15.2	Variables	47
16	Module fuzzy.defuzzify.Base	48
16.1	Variables	48
16.2	Class DefuzzificationException	48
16.2.1	Methods	48
16.2.2	Properties	48
16.3	Class Base	49
16.3.1	Methods	49
16.3.2	Properties	50
16.3.3	Instance Variables	50
17	Module fuzzy.defuzzify.COG	51
17.1	Variables	51
17.2	Class COG	51
17.2.1	Methods	51
17.2.2	Properties	52
17.2.3	Instance Variables	52
18	Module fuzzy.defuzzify.COGS	53
18.1	Variables	53
18.2	Class COGS	53
18.2.1	Methods	53
18.2.2	Properties	54
18.2.3	Instance Variables	54
19	Module fuzzy.defuzzify.Dict	55
19.1	Variables	55
19.2	Class Dict	55
19.2.1	Methods	56
19.2.2	Properties	56
19.2.3	Instance Variables	56
20	Module fuzzy.defuzzify.LM	58
20.1	Variables	58
20.2	Class LM	58
20.2.1	Methods	58
20.2.2	Properties	59
20.2.3	Instance Variables	59
21	Module fuzzy.defuzzify.MaxLeft	60
21.1	Variables	60
21.2	Class MaxLeft	60
21.2.1	Methods	60
21.2.2	Properties	61
21.2.3	Instance Variables	61
22	Module fuzzy.defuzzify.MaxRight	62

22.1	Variables	62
22.2	Class MaxRight	62
22.2.1	Methods	62
22.2.2	Properties	63
22.2.3	Instance Variables	63
23	Module fuzzy.defuzzify.RM	64
23.1	Variables	64
23.2	Class RM	64
23.2.1	Methods	64
23.2.2	Properties	65
23.2.3	Instance Variables	65
24	Package fuzzy.doc	66
24.1	Modules	66
24.2	Variables	66
25	Package fuzzy.doc.plot	67
25.1	Modules	67
25.2	Variables	67
26	Package fuzzy.doc.plot.gnuplot	68
26.1	Modules	68
26.2	Variables	68
27	Module fuzzy.doc.plot.gnuplot.doc	69
27.1	Functions	69
27.2	Variables	69
27.3	Class Doc	69
27.3.1	Methods	70
27.3.2	Properties	73
27.3.3	Instance Variables	74
28	Package fuzzy.doc.structure	75
28.1	Modules	75
28.2	Variables	75
29	Package fuzzy.doc.structure.dot	76
29.1	Modules	76
29.2	Variables	76
30	Module fuzzy.doc.structure.dot.dot	77
30.1	Functions	77
30.2	Variables	77
31	Module fuzzy.doc.structure.dot.handlers	78
31.1	Functions	78
31.2	Variables	78
31.3	Class DocBase	78
31.3.1	Methods	78
31.3.2	Properties	79
31.4	Class Doc_Compound	79
31.4.1	Methods	79

31.4.2 Properties	79
31.5 Class Doc_Const	80
31.5.1 Methods	80
31.5.2 Properties	80
31.6 Class Doc_Input	80
31.6.1 Methods	81
31.6.2 Properties	81
31.7 Class Doc_Not	81
31.7.1 Methods	81
31.7.2 Properties	82
31.8 Class Doc_Norm	82
31.8.1 Methods	82
31.8.2 Properties	82
31.9 Class Doc_ParametricNorm	83
31.9.1 Methods	83
31.9.2 Properties	83
31.10 Class Doc_Adjective	83
31.10.1 Methods	84
31.10.2 Properties	84
31.11 Class Doc_Rule	84
31.11.1 Methods	84
31.11.2 Properties	85
31.12 Class Doc_Variable	85
31.12.1 Methods	85
31.12.2 Properties	86
31.13 Class Doc_OutputVariable	86
31.13.1 Methods	86
31.13.2 Properties	86
32 Package fuzzy.fuzzify	87
32.1 Modules	87
32.2 Variables	87
33 Module fuzzy.fuzzify.Base	88
33.1 Variables	88
33.2 Class Base	88
33.2.1 Methods	88
33.2.2 Properties	89
34 Module fuzzy.fuzzify.Dict	90
34.1 Variables	90
34.2 Class Dict	90
34.2.1 Methods	91
34.2.2 Properties	91
35 Module fuzzy.fuzzify.Plain	92
35.1 Variables	92
35.2 Class Plain	92
35.2.1 Methods	92
35.2.2 Properties	93
36 Package fuzzy.norm	94

36.1	Modules	94
36.2	Variables	95
37	Module fuzzy.norm.AlgebraicProdSum	96
37.1	Variables	96
37.2	Class AlgebraicProdSum	96
37.2.1	Methods	96
37.2.2	Properties	97
37.2.3	Class Variables	97
37.2.4	Instance Variables	97
38	Module fuzzy.norm.AlgebraicProduct	99
38.1	Variables	99
38.2	Class AlgebraicProduct	99
38.2.1	Methods	99
38.2.2	Properties	100
38.2.3	Class Variables	100
39	Module fuzzy.norm.AlgebraicSum	101
39.1	Variables	101
39.2	Class AlgebraicSum	101
39.2.1	Methods	101
39.2.2	Properties	102
39.2.3	Class Variables	102
40	Module fuzzy.norm.ArithmeticMean	103
40.1	Variables	103
40.2	Class ArithmeticMean	103
40.2.1	Methods	103
40.2.2	Properties	104
40.2.3	Class Variables	104
41	Module fuzzy.norm.BoundedDifference	105
41.1	Variables	105
41.2	Class BoundedDifference	105
41.2.1	Methods	105
41.2.2	Properties	106
41.2.3	Class Variables	106
42	Module fuzzy.norm.BoundedSum	107
42.1	Variables	107
42.2	Class BoundedSum	107
42.2.1	Methods	107
42.2.2	Properties	108
42.2.3	Class Variables	108
43	Module fuzzy.norm.DombiIntersection	109
43.1	Variables	109
43.2	Class DombiIntersection	109
43.2.1	Methods	109
43.2.2	Properties	110
43.2.3	Class Variables	110
43.2.4	Instance Variables	110

44	Module fuzzy.norm.DombiUnion	112
44.1	Variables	112
44.2	Class DombiUnion	112
44.2.1	Methods	112
44.2.2	Properties	113
44.2.3	Class Variables	113
44.2.4	Instance Variables	113
45	Module fuzzy.norm.DrasticProduct	115
45.1	Variables	115
45.2	Class DrasticProduct	115
45.2.1	Methods	115
45.2.2	Properties	116
45.2.3	Class Variables	116
46	Module fuzzy.norm.DrasticSum	117
46.1	Variables	117
46.2	Class DrasticSum	117
46.2.1	Methods	117
46.2.2	Properties	118
46.2.3	Class Variables	118
47	Module fuzzy.norm.DualOfGeometricMean	119
47.1	Variables	119
47.2	Class DualOfGeometricMean	119
47.2.1	Methods	119
47.2.2	Properties	120
47.2.3	Class Variables	120
48	Module fuzzy.norm.DualOfHarmonicMean	121
48.1	Variables	121
48.2	Class DualOfHarmonicMean	121
48.2.1	Methods	121
48.2.2	Properties	122
48.2.3	Class Variables	122
49	Module fuzzy.norm.DubiosPradeIntersection	123
49.1	Variables	123
49.2	Class DubiosPradeIntersection	123
49.2.1	Methods	123
49.2.2	Properties	124
49.2.3	Class Variables	124
49.2.4	Instance Variables	124
50	Module fuzzy.norm.DubiosPradeUnion	126
50.1	Variables	126
50.2	Class DubiosPradeUnion	126
50.2.1	Methods	126
50.2.2	Properties	127
50.2.3	Class Variables	127
50.2.4	Instance Variables	127
51	Module fuzzy.norm.EinsteinProduct	129

51.1	Variables	129
51.2	Class EinsteinProduct	129
51.2.1	Methods	129
51.2.2	Properties	130
51.2.3	Class Variables	130
52	Module fuzzy.norm.EinsteinSum	131
52.1	Variables	131
52.2	Class EinsteinSum	131
52.2.1	Methods	131
52.2.2	Properties	132
52.2.3	Class Variables	132
53	Module fuzzy.norm.FrankIntersection	133
53.1	Variables	133
53.2	Class FrankIntersection	133
53.2.1	Methods	133
53.2.2	Properties	134
53.2.3	Class Variables	134
53.2.4	Instance Variables	134
54	Module fuzzy.norm.FrankUnion	136
54.1	Variables	136
54.2	Class FrankUnion	136
54.2.1	Methods	136
54.2.2	Properties	137
54.2.3	Class Variables	137
54.2.4	Instance Variables	137
55	Module fuzzy.norm.FuzzyAnd	139
55.1	Variables	139
55.2	Class FuzzyAnd	139
55.2.1	Methods	139
55.2.2	Properties	140
55.2.3	Class Variables	140
55.2.4	Instance Variables	140
56	Module fuzzy.norm.FuzzyOr	142
56.1	Variables	142
56.2	Class FuzzyOr	142
56.2.1	Methods	142
56.2.2	Properties	143
56.2.3	Class Variables	143
56.2.4	Instance Variables	143
57	Module fuzzy.norm.GammaOperator	145
57.1	Variables	145
57.2	Class GammaOperator	145
57.2.1	Methods	145
57.2.2	Properties	146
57.2.3	Class Variables	146
57.2.4	Instance Variables	146

58	Module <code>fuzzy.norm.GeometricMean</code>	148
58.1	Variables	148
58.2	Class <code>GeometricMean</code>	148
58.2.1	Methods	148
58.2.2	Properties	149
58.2.3	Class Variables	149
59	Module <code>fuzzy.norm.HamacherIntersection</code>	150
59.1	Variables	150
59.2	Class <code>HamacherIntersection</code>	150
59.2.1	Methods	150
59.2.2	Properties	151
59.2.3	Class Variables	151
59.2.4	Instance Variables	151
60	Module <code>fuzzy.norm.HamacherProduct</code>	153
60.1	Variables	153
60.2	Class <code>HamacherProduct</code>	153
60.2.1	Methods	153
60.2.2	Properties	154
60.2.3	Class Variables	154
61	Module <code>fuzzy.norm.HamacherSum</code>	155
61.1	Variables	155
61.2	Class <code>HamacherSum</code>	155
61.2.1	Methods	155
61.2.2	Properties	156
61.2.3	Class Variables	156
62	Module <code>fuzzy.norm.HamacherUnion</code>	157
62.1	Variables	157
62.2	Class <code>HamacherUnion</code>	157
62.2.1	Methods	157
62.2.2	Properties	158
62.2.3	Class Variables	158
62.2.4	Instance Variables	158
63	Module <code>fuzzy.norm.HarmonicMean</code>	160
63.1	Variables	160
63.2	Class <code>HarmonicMean</code>	160
63.2.1	Methods	160
63.2.2	Properties	161
63.2.3	Class Variables	161
64	Module <code>fuzzy.norm.Max</code>	162
64.1	Variables	162
64.2	Class <code>Max</code>	162
64.2.1	Methods	162
64.2.2	Properties	163
64.2.3	Class Variables	163
65	Module <code>fuzzy.norm.Min</code>	164
65.1	Variables	164

65.2 Class Min	164
65.2.1 Methods	164
65.2.2 Properties	165
65.2.3 Class Variables	165
66 Module fuzzy.norm.MinMax	166
66.1 Variables	166
66.2 Class MinMax	166
66.2.1 Methods	166
66.2.2 Properties	167
66.2.3 Class Variables	167
66.2.4 Instance Variables	167
67 Module fuzzy.norm.Norm	169
67.1 Functions	169
67.2 Variables	169
67.3 Class NormException	170
67.3.1 Methods	170
67.3.2 Properties	170
67.4 Class Norm	170
67.4.1 Methods	171
67.4.2 Properties	172
67.4.3 Class Variables	173
68 Module fuzzy.norm.ParametricNorm	174
68.1 Variables	174
68.2 Class ParametricNorm	174
68.2.1 Methods	174
68.2.2 Properties	175
68.2.3 Class Variables	175
68.2.4 Instance Variables	175
69 Module fuzzy.norm.SchweizerIntersection	176
69.1 Variables	176
69.2 Class SchweizerIntersection	176
69.2.1 Methods	176
69.2.2 Properties	177
69.2.3 Class Variables	177
69.2.4 Instance Variables	177
70 Module fuzzy.norm.SchweizerIntersection2	179
70.1 Variables	179
70.2 Class SchweizerIntersection2	179
70.2.1 Methods	179
70.2.2 Properties	180
70.2.3 Class Variables	180
70.2.4 Instance Variables	180
71 Module fuzzy.norm.SchweizerIntersection3	182
71.1 Variables	182
71.2 Class SchweizerIntersection3	182
71.2.1 Methods	182

71.2.2	Properties	183
71.2.3	Class Variables	183
71.2.4	Instance Variables	183
72	Module fuzzy.norm.SchweizerUnion	185
72.1	Variables	185
72.2	Class SchweizerUnion	185
72.2.1	Methods	185
72.2.2	Properties	186
72.2.3	Class Variables	186
72.2.4	Instance Variables	186
73	Module fuzzy.norm.SchweizerUnion2	188
73.1	Variables	188
73.2	Class SchweizerUnion2	188
73.2.1	Methods	188
73.2.2	Properties	189
73.2.3	Class Variables	189
73.2.4	Instance Variables	189
74	Module fuzzy.norm.SchweizerUnion3	191
74.1	Variables	191
74.2	Class SchweizerUnion3	191
74.2.1	Methods	191
74.2.2	Properties	192
74.2.3	Class Variables	192
74.2.4	Instance Variables	192
75	Module fuzzy.norm.YagerIntersection	194
75.1	Variables	194
75.2	Class YagerIntersection	194
75.2.1	Methods	194
75.2.2	Properties	195
75.2.3	Class Variables	195
75.2.4	Instance Variables	195
76	Module fuzzy.norm.YagerUnion	197
76.1	Variables	197
76.2	Class YagerUnion	197
76.2.1	Methods	197
76.2.2	Properties	198
76.2.3	Class Variables	198
76.2.4	Instance Variables	198
77	Package fuzzy.operator	200
77.1	Modules	200
77.2	Variables	200
78	Module fuzzy.operator.Compound	202
78.1	Variables	202
78.2	Class Compound	202
78.2.1	Methods	202
78.2.2	Properties	203

78.2.3 Instance Variables	203
79 Module fuzzy.operator.Const	204
79.1 Variables	204
79.2 Class Const	204
79.2.1 Methods	204
79.2.2 Properties	205
79.2.3 Instance Variables	205
80 Module fuzzy.operator.Input	206
80.1 Variables	206
80.2 Class Input	206
80.2.1 Methods	206
80.2.2 Properties	207
80.2.3 Instance Variables	207
81 Module fuzzy.operator.Not	208
81.1 Variables	208
81.2 Class Not	208
81.2.1 Methods	208
81.2.2 Properties	209
81.2.3 Instance Variables	209
82 Module fuzzy.operator.Operator	210
82.1 Variables	210
82.2 Class Operator	210
82.2.1 Methods	210
82.2.2 Properties	211
83 Package fuzzy.set	212
83.1 Modules	212
83.2 Variables	212
84 Module fuzzy.set.Function	213
84.1 Variables	213
84.2 Class Function	213
84.2.1 Methods	213
84.2.2 Properties	213
85 Module fuzzy.set.PiFunction	214
85.1 Variables	214
85.2 Class PiFunction	214
85.2.1 Methods	215
85.2.2 Properties	216
85.2.3 Instance Variables	216
86 Module fuzzy.set.Polygon	217
86.1 Variables	217
86.2 Class Polygon	217
86.2.1 Methods	218
86.2.2 Properties	220
86.2.3 Class Variables	220

87 Module fuzzy.set.SFunction	221
87.1 Variables	221
87.2 Class SFunction	221
87.2.1 Methods	222
87.2.2 Properties	223
87.2.3 Instance Variables	223
88 Module fuzzy.set.Set	224
88.1 Variables	224
88.2 Class Set	224
88.2.1 Methods	224
88.2.2 Properties	225
89 Module fuzzy.set.Singleton	226
89.1 Variables	226
89.2 Class Singleton	226
89.2.1 Methods	227
89.2.2 Properties	228
89.2.3 Class Variables	228
90 Module fuzzy.set.Trapez	229
90.1 Variables	229
90.2 Class Trapez	229
90.2.1 Methods	230
90.2.2 Properties	231
90.2.3 Class Variables	231
91 Module fuzzy.set.Triangle	232
91.1 Variables	232
91.2 Class Triangle	232
91.2.1 Methods	233
91.2.2 Properties	234
91.2.3 Class Variables	234
92 Module fuzzy.set.ZFunction	235
92.1 Variables	235
92.2 Class ZFunction	235
92.2.1 Methods	236
92.2.2 Properties	236
92.2.3 Instance Variables	237
93 Module fuzzy.set.operations	238
93.1 Functions	238
93.2 Variables	241
94 Package fuzzy.storage	242
94.1 Modules	242
94.2 Variables	242
95 Package fuzzy.storage.fcl	243
95.1 Modules	243
95.2 Variables	243

96	Module <code>fuzzy.storage.fcl.FCLLexer</code>	244
96.1	Functions	244
96.2	Variables	244
96.3	Class <code>FCLLexer</code>	246
96.3.1	Methods	246
96.3.2	Properties	250
96.3.3	Class Variables	250
97	Module <code>fuzzy.storage.fcl.FCLLexer3</code>	251
97.1	Functions	251
97.2	Variables	251
97.3	Class <code>FCLLexer</code>	253
97.3.1	Methods	253
97.3.2	Properties	257
97.3.3	Class Variables	257
98	Module <code>fuzzy.storage.fcl.FCLParser</code>	258
98.1	Functions	258
98.2	Variables	258
98.3	Class <code>FCLParser</code>	260
98.3.1	Methods	260
98.3.2	Properties	263
98.3.3	Class Variables	263
99	Module <code>fuzzy.storage.fcl.Reader</code>	273
99.1	Variables	273
99.2	Class <code>Reader</code>	273
99.2.1	Methods	273
99.2.2	Properties	273
100	Module <code>fuzzy.utils</code>	275
100.1	Functions	275
100.2	Variables	275
	Index	277

1 Package fuzzy

Initialize the fuzzy module.

(GRAPH)

1.1 Modules

- **Adjective:** Describes a ...
(Section 2, p. 19)
- **Exception:** Base class for any kind of exceptions used by this package.
(Section 3, p. 21)
- **InputVariable:** General instance of an input variable.
(Section 4, p. 23)
- **OutputVariable:** General instance of an output variable.
(Section 5, p. 25)
- **Rule:** Represents a fuzzy rule.
(Section 6, p. 27)
- **System:** Main coordinator class of a whole fuzzy system
(Section 7, p. 29)
- **Variable:** Base class for any kind of fuzzy variable.
(Section 8, p. 32)
- **complement:** Complement functions.
(Section 9, p. 35)
 - **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)
- **defuzzify:** Defuzzification functions.
(Section 15, p. 47)
 - **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)
- **doc**: Helpers to generate documentation of a fuzzy system
(Section 24, p. 66)
 - **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)
- **fuzzify**: Fuzzification functions.
(Section 32, p. 87)
 - **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)
- **norm**: This package contains all realized fuzzy norms.
(Section 36, p. 94)
 - **AlgebraicProdSum** (Section 37, p. 96)
 - **AlgebraicProduct** (Section 38, p. 99)
 - **AlgebraicSum** (Section 39, p. 101)
 - **ArithmeticMean** (Section 40, p. 103)
 - **BoundedDifference** (Section 41, p. 105)
 - **BoundedSum** (Section 42, p. 107)
 - **DombiIntersection** (Section 43, p. 109)
 - **DombiUnion** (Section 44, p. 112)
 - **DrasticProduct** (Section 45, p. 115)
 - **DrasticSum** (Section 46, p. 117)
 - **DualOfGeometricMean** (Section 47, p. 119)
 - **DualOfHarmonicMean** (Section 48, p. 121)
 - **DubiosPradeIntersection** (Section 49, p. 123)
 - **DubiosPradeUnion** (Section 50, p. 126)
 - **EinsteinProduct** (Section 51, p. 129)
 - **EinsteinSum** (Section 52, p. 131)
 - **FrankIntersection** (Section 53, p. 133)
 - **FrankUnion** (Section 54, p. 136)
 - **FuzzyAnd** (Section 55, p. 139)
 - **FuzzyOr** (Section 56, p. 142)
 - **GammaOperator** (Section 57, p. 145)
 - **GeometricMean** (Section 58, p. 148)
 - **HamacherIntersection** (Section 59, p. 150)

- **HamacherProduct** (Section 60, p. 153)
- **HamacherSum** (Section 61, p. 155)
- **HamacherUnion** (Section 62, p. 157)
- **HarmonicMean** (Section 63, p. 160)
- **Max** (Section 64, p. 162)
- **Min** (Section 65, p. 164)
- **MinMax** (Section 66, p. 166)
- **Norm**: Abstract base class for any kind of fuzzy norm.
(Section 67, p. 169)
- **ParametricNorm**: Base class for any kind of parametric fuzzy norm.
(Section 68, p. 174)
- **SchweizerIntersection** (Section 69, p. 176)
- **SchweizerIntersection2** (Section 70, p. 179)
- **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)
- **operator**: These operators are used to build fuzzy rules.
(Section 77, p. 200)
 - **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 its 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)
- **set**: Different kind of fuzzy sets.
(Section 83, p. 212)
 - **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)
 - **storage:** Storage functions.
(Section 94, p. 242)
 - **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)
 - **utils:** Helper functions for pyfuzzy.
(Section 100, p. 275)

1.2 Variables

Name	Description
<code>__package__</code>	Value: None
<code>__revision__</code>	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
<code>__revision__</code>	Value: '\$Id: Adjective.py,v 1.16 2010-02-17 19:57:13 rliebscher ...
<code>__package__</code>	Value: 'fuzzy'

2.2 Class Adjective

object  **fuzzy.Adjective.Adjective**

Describes a ... of a variable.

2.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>set</i> =None, <i>COM</i> =None)
Initialize adjective.
Parameters
<i>set</i> : fuzzy set (<i>type</i> = <i>fuzzy.set.Set.Set</i>)
<i>COM</i> : norm (if None the class default <code>_COM</code> is used.) (<i>type</i> = <i>fuzzy.norm.Norm.Norm</i>)
Overrides: object. <code>__init__</code>

<code>setMembershipForValue</code> (<i>self</i> , <i>value</i>)
Get membership for an input value from the fuzzy set.

<code>getMembership</code> (<i>self</i>)
Return membership set in this adjective.

<code>setMembership</code> (<i>self</i> , <i>value</i>)
Set membership of this adjective as result of a rule calculation, if already set use <code>COM</code> norm to merge old and new value.

reset (<i>self</i>)

Reset membership to unknown value (None).

getName (<i>self</i> , <i>system</i>)
--

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

__repr__ (<i>self</i>)

Return representation of instance.

Return Value

representation of instance

(<i>type=string</i>)

Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

2.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

2.2.3 Instance Variables

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

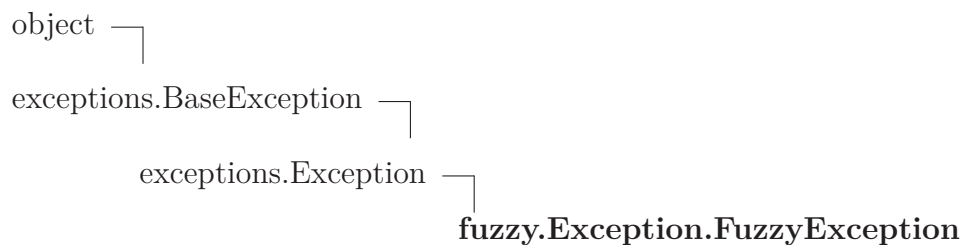
3 Module fuzzy.Exception

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

3.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Exception.py,v 1.8 2010-01-19 21:45:35 rliebscher E...
<code>__package__</code>	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__()`, `__getattr__()`, `__getitem__()`, `__getslice__()`, `__reduce__()`, `__repr__()`, `__setattr__()`, `__setstate__()`, `__str__()`, `__unicode__()`

Inherited from `object`

`__format__()`, `__hash__()`, `__reduce_ex__()`, `__sizeof__()`, `__subclasshook__()`

3.2.2 Properties

Name	Description
<i>Inherited from exceptions.BaseException</i>	args, message
<i>Inherited from object</i>	__class__

4 Module fuzzy.InputVariable

General instance of an input variable.

4.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: InputVariable.py,v 1.9 2010-02-17 19:57:13 rliebsch...'
<code>__package__</code>	Value: 'fuzzy'

4.2 Class 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

<code>__init__</code> (<i>self</i> , <i>fuzzify</i> =None, * <i>args</i> , ** <i>keywords</i>) <hr/> Initialize this input variable with a fuzzification method. Parameters <i>fuzzify</i> : Fuzzification method. (<i>type</i> = <i>fuzzy.fuzzify.Base.Base</i>) Overrides: <code>object.__init__</code>
--

<code>setValue</code> (<i>self</i> , <i>value</i>) <hr/> Let adjectives calculate their membership values. Overrides: <code>fuzzy.Variable.Variable.setValue</code>
--

Inherited from fuzzy.Variable.Variable(Section 8.2)

`__repr__`(), `getName`(), `getValue`(), `reset`()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

4.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

4.2.3 Instance Variables

Name	Description
<code>fuzzify</code>	Fuzzification method. (<i>type=fuzzy.fuzzify.Base.Base</i>)
<i>Inherited from fuzzy.Variable.Variable (Section 8.2)</i>	
<code>description</code> , <code>max</code> , <code>min</code> , <code>unit</code>	

5 Module fuzzy.OutputVariable

General instance of an output variable.

5.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: OutputVariable.py,v 1.14 2010-03-28 18:38:08 rliebs...'
<code>__package__</code>	Value: 'fuzzy'

5.2 Class 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

<code>__init__</code> (<i>self</i> , <i>defuzzify</i> =None, * <i>args</i> , ** <i>keywords</i>) <hr/> Initialize this output variable with a defuzzification method. Parameters <i>defuzzify</i> : Defuzzification method. (<i>type</i> = <i>fuzzy.defuzzify.Base.Base</i>) Overrides: <i>object.__init__</i>
<code>getValue</code> (<i>self</i>) <hr/> <i>defuzzification</i> Overrides: <i>fuzzy.Variable.Variable.getValue</i>

Inherited from fuzzy.Variable.Variable(Section 8.2)

`__repr__`(), `getName`(), `reset`(), `setValue`()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

5.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

5.2.3 Instance Variables

Name	Description
<code>defuzzify</code>	Defuzzification method. (<i>type=fuzzy.defuzzify.Base.Base</i>)
<i>Inherited from fuzzy.Variable.Variable (Section 8.2)</i>	
<code>description</code> , <code>max</code> , <code>min</code> , <code>unit</code>	

6 Module fuzzy.Rule

Represents a fuzzy rule.

6.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Rule.py,v 1.17 2010-02-17 19:57:13 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy'

6.2 Class Rule

```
object ┌
      │
      └─ fuzzy.Rule.Rule
```

This class 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

<code>__init__</code> (<i>self</i> , <i>adjective</i> , <i>operator</i> , <i>certainty</i> =1.0, <i>CER</i> =None)
Initialize instance.
Parameters
adjective: fuzzy adjective to set (<i>type</i> = <code>fuzzy.Adjective.Adjective</code>)
operator: Operator which provides the value to set (<i>type</i> = <code>fuzzy.operator.Operator.Operator</code>)
certainty: how sure are we about this rule (<i>type</i> = <code>float</code>)
CER: fuzzy norm to use with certainty (normally a t-norm) (<i>type</i> = <code>fuzzy.norm.Norm.Norm</code>)
Overrides: <code>object.__init__</code>

compute (<i>self</i>)

Compute and set value for given fuzzy adjective.
--

getName (<i>self</i> , <i>system</i>)
--

Lookup the name given this rule in the given system

__repr__ (<i>self</i>)

Return representation of instance.

Return Value

representation of instance

(*type=string*)

Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

6.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

6.2.3 Instance Variables

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

7 Module fuzzy.System

Main coordinator class of a whole fuzzy system

7.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: System.py,v 1.19 2010-02-17 19:57:13 rliebscher Exp \$'
<code>__package__</code>	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

<code>__init__</code> (<i>self</i> , <i>description</i> ='', <i>variables</i> =None, <i>rules</i> =None)
Constructor.
Parameters
<i>description</i> : description (<i>type</i> =string)
Overrides: object. <code>__init__</code>

<code>reset</code> (<i>self</i>)
Reset all memberships for the next run of calculate

<code>fuzzify</code> (<i>self</i> , <i>input</i>)
Fuzzify the inputs. The input dictionary contains the input values for the named variables.

<code>inference</code> (<i>self</i>)
Calculate the fuzzy inference given by the rules.

defuzzify (<i>self</i> , <i>output</i>)
--

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

calculate (<i>self</i> , <i>input</i> , <i>output</i>)

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 (<i>self</i> , <i>var</i>)
--

Find name of variable in this system

findAdjectiveName (<i>self</i> , <i>adj</i>)

Find name of adjective (and variable) in this system
--

findRuleName (<i>self</i> , <i>_rule</i>)
--

Find name of rule in this system

__repr__ (<i>self</i>)

Return representation of instance.

Return Value

representation of instance

(<i>type=string</i>)

Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

7.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

7.2.3 Instance Variables

Name	Description
description	description (<i>type=string</i>)
rules	dictionary to hold all rules. (<i>type={string:fuzzy.Rule.Rule}</i>)
variables	dictionary to hold all variables. (<i>type={string:fuzzy.Variable.Variable}</i>)

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

8.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

8.2.3 Instance Variables

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

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
<code>__revision__</code>	Value: '\$Id: __init__.py,v 1.3 2009-10-27 20:06:27 rliebscher Ex...
<code>__package__</code>	Value: None

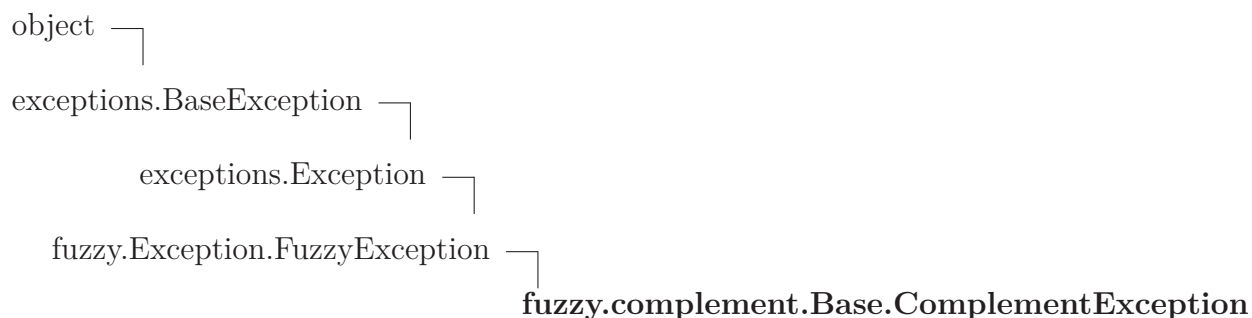
10 Module `fuzzy.complement.Base`

Base class for all complement methods

10.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Base.py,v 1.7 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.complement'

10.2 Class `ComplementException`



An own exception type for complements.

10.2.1 Methods

Inherited from `exceptions.Exception`

`__init__()`, `__new__()`

Inherited from `exceptions.BaseException`

`__delattr__()`, `__getattr__()`, `__getitem__()`, `__getslice__()`, `__reduce__()`, `__repr__()`, `__setattr__()`, `__setstate__()`, `__str__()`, `__unicode__()`

Inherited from `object`

`__format__()`, `__hash__()`, `__reduce_ex__()`, `__sizeof__()`, `__subclasshook__()`

10.2.2 Properties

Name	Description
<i>Inherited from exceptions.BaseException</i>	
args, message	
<i>Inherited from object</i>	
__class__	

10.3 Class Base



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

Base class for all complement methods

10.3.1 Methods

__init__ (<i>self</i> , *args, **keywords)
Initialize the complement instance
Overrides: object.__init__

__call__ (<i>self</i> , value)
Calculate the complement of the value.
Parameters
value: the value to complement (<i>type=float</i>)
Return Value
the complemented value (<i>type=float</i>)

__repr__ (<i>self</i>)
Return representation of instance.
Return Value
representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

10.3.2 Properties

Name	Description
<i>Inherited from object</i> <code>__class__</code>	

11 Module fuzzy.complement.Parametric

Abstract base class for any parametric fuzzy complement

11.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Parametric.py,v 1.9 2010-10-29 19:24:41 rliebscher ...'
<code>__package__</code>	Value: 'fuzzy.complement'

11.2 Class Parametric



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

Abstract base class for any parametric fuzzy complement

11.2.1 Methods

<code>__init__(self, p, *args, **keywords)</code>
Initialize type and parameter
Parameters
p: parameter for complement (<i>type=float</i>)
Overrides: object.__init__

<code>__repr__(self)</code>
Return representation of instance.
Return Value
representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from fuzzy.complement.Base.Base(Section 10.3)`__call__()`***Inherited from object***

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

11.2.2 Properties

Name	Description
<code>p_range</code>	range(s) of valid values for p
<i>Inherited from object</i>	
<code>__class__</code>	

11.2.3 Instance Variables

Name	Description
<code>p</code>	x (<i>type=float</i>)

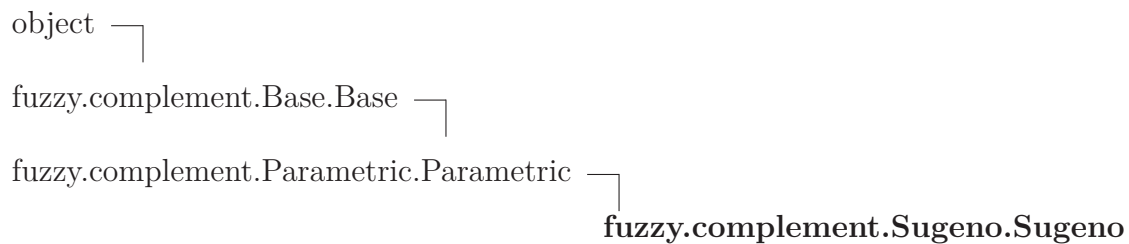
12 Module fuzzy.complement.Sugeno

Complement after Sugeno

12.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Sugeno.py,v 1.7 2010-03-28 18:39:02 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.complement'

12.2 Class Sugeno



Complement after Sugeno

12.2.1 Methods

<code>__init__(self, lambda_=0.0, *args, **keywords)</code>
Initialize instance with given parameter
Parameters
<code>lambda_</code> : The parameter (<i>type=float</i>)
Overrides: <code>object.__init__</code>

<code>__call__(self, value)</code>
calculate the complement of the value
Parameters
value : the value to complement (<i>type=float</i>)
Return Value
the complemented value (<i>type=float</i>)
Overrides: fuzzy.complement.Base.Base. <code>__call__</code>

<code>__repr__(self)</code>
Return representation of instance.
Return Value
representation of instance (<i>type=string</i>)
Overrides: object. <code>__repr__</code>

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

12.2.2 Properties

Name	Description
<code>p_range</code>	<i>Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)</i>
<code>__class__</code>	<i>Inherited from object</i>

12.2.3 Instance Variables

Name	Description
<code>p</code>	<i>Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)</i>

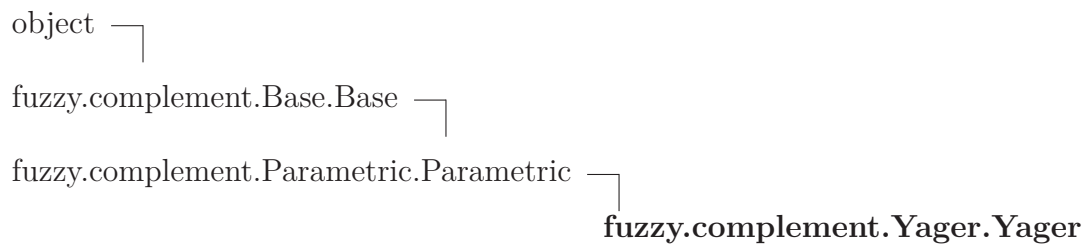
13 Module `fuzzy.complement.Yager`

Complement after Yager

13.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Yager.py,v 1.7 2010-03-28 18:39:02 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.complement'

13.2 Class Yager



Complement after Yager

13.2.1 Methods

<code>__init__(self, omega=1.0, *args, **keywords)</code>
Initialize instance with given parameter
Parameters
omega: The parameter (<i>type=float</i>)
Overrides: <code>object.__init__</code>

<code>__call__(self, value)</code>
calculate the complement of the value
Parameters
value: the value to complement (<i>type=float</i>)
Return Value
the complemented value (<i>type=float</i>)
Overrides: fuzzy.complement.Base.Base. <code>__call__</code>

<code>__repr__(self)</code>
Return representation of instance.
Return Value
representation of instance (<i>type=string</i>)
Overrides: object. <code>__repr__</code>

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

13.2.2 Properties

Name	Description
<code>p_range</code>	<i>Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)</i>
<code>__class__</code>	<i>Inherited from object</i>

13.2.3 Instance Variables

Name	Description
<code>p</code>	<i>Inherited from fuzzy.complement.Parametric.Parametric (Section 11.2)</i>

14 Module fuzzy.complement.Zadeh

Complement after Zadeh

14.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Zadeh.py,v 1.6 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.complement'

14.2 Class Zadeh



Complement after Zadeh

14.2.1 Methods

<code>__init__(self, *args, **keywords)</code>
Initialize the complement instance
Overrides: object.__init__

<code>__call__(self, value)</code>
calculate the complement of the value
Parameters
value: the value to complement
(<i>type=float</i>)
Return Value
the complemented value
(<i>type=float</i>)
Overrides: fuzzy.complement.Base.Base.__call__

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

`__repr__()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

14.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

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
<code>__revision__</code>	Value: '\$Id: Base.py,v 1.12 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

16.2 Class DefuzzificationException



16.2.1 Methods

Inherited from exceptions.Exception

`__init__()`, `__new__()`

Inherited from exceptions.BaseException

`__delattr__()`, `__getattr__()`, `__getitem__()`, `__getslice__()`, `__reduce__()`, `__repr__()`, `__setattr__()`, `__setstate__()`, `__str__()`, `__unicode__()`

Inherited from object

`__format__()`, `__hash__()`, `__reduce_ex__()`, `__sizeof__()`, `__subclasshook__()`

16.2.2 Properties

Name	Description
<i>Inherited from exceptions.BaseException</i>	
args, message	
<i>Inherited from object</i>	
__class__	

16.3 Class Base



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

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

16.3.1 Methods

__init__ (<i>self</i> , <i>INF</i> =None, <i>ACC</i> =None)
x. __init__ (...) initializes x; see help(type(x)) for signature
Parameters
<i>INF</i> : inference norm, used with set of adjective and given value for it (<i>type</i> = <i>fuzzy.norm.Norm.Norm</i>)
<i>ACC</i> : norm for accumulation of set of adjectives (<i>type</i> = <i>fuzzy.norm.Norm.Norm</i>)
Overrides: object. __init__

getValue (<i>self</i> , <i>variable</i>)
Defuzzification.

accumulate (<i>self</i> , <i>variable</i> , <i>segment_size</i> =None)
combining adjective values into one set

value_table (<i>self</i> , <i>set</i>)
get a value table of the polygon representation

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

16.3.2 Properties

Name	Description
<i>Inherited from object</i> __class__	

16.3.3 Instance Variables

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

17 Module fuzzy.defuzzify.COG

Defuzzification which uses the center of gravity method.

17.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: COG.py,v 1.9 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

17.2 Class COG



Defuzzification which uses the center of gravity method.

17.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>INF</i> =None, <i>ACC</i> =None, <i>failsafe</i> =None, <i>segment_size</i> =None, <i>*args</i> , <i>**keywords</i>)

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__`

<code>getValue</code> (<i>self</i> , <i>variable</i>)
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

17.2.2 Properties

Name	Description
<i>Inherited from object</i> <code>__class__</code>	

17.2.3 Instance Variables

Name	Description
<i>Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)</i> ACC, INF, <code>accumulated_set</code> , <code>activated_sets</code>	

18 Module fuzzy.defuzzify.COGS

Defuzzification for singletons.

18.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: COGS.py,v 1.8 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

18.2 Class COGS



Defuzzification for singletons.

18.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>INF</i> =None, <i>ACC</i> =None, <i>failsafe</i> =None, * <i>args</i> , ** <i>keywords</i>)
x. <code>__init__</code> (...) initializes x; see help(type(x)) for signature
Parameters
<i>failsafe</i> : if is not possible to calculate a center of gravity, return this value if not None or forward the exception
Overrides: object. <code>__init__</code>

<code>getValue</code> (<i>self</i> , <i>variable</i>)
Defuzzification using center of gravity method.
Overrides: fuzzy.defuzzify.Base.Base. <code>getValue</code>

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

`__repr__`() , `accumulate`() , `value_table`()

Inherited from object

```

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
__reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
__subclasshook__()

```

18.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

18.2.3 Instance Variables

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

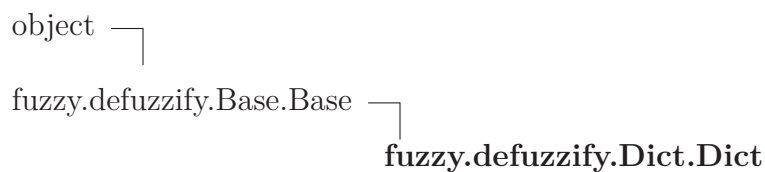
19 Module fuzzy.defuzzify.Dict

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

<p><code>__init__(self, *args, **keywords)</code></p> <p>x.<code>__init__(...)</code> initializes x; see <code>help(type(x))</code> for signature</p> <p>Parameters</p> <p>INF: inference norm, used with set of adjective and given value for it</p> <p>ACC: norm for accumulation of set of adjectives</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<p><code>getValue(self, variable)</code></p> <hr/> <p>no defuzzification just return membership values</p> <p>Overrides: <code>fuzzy.defuzzify.Base.Base.getValue</code></p>
--

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

`__repr__()`, `accumulate()`, `value_table()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

19.2.2 Properties

Name	Description
<code>__class__</code>	<i>Inherited from object</i>

19.2.3 Instance Variables

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

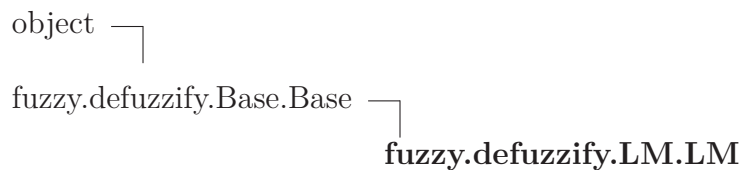
20 Module fuzzy.defuzzify.LM

Defuzzification which uses the left most (local) maximum.

20.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: LM.py,v 1.6 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

20.2 Class LM



Defuzzification which uses the left most (local) maximum.

20.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>INF</i> =None, <i>ACC</i> =None, <i>failsafe</i> =None, * <i>args</i> , ** <i>keywords</i>)
Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible
Parameters
<i>INF</i> : inference norm, used with set of adjective and given value for it
<i>ACC</i> : norm for accumulation of set of adjectives
Overrides: object. <code>__init__</code>

<code>getValue</code> (<i>self</i> , <i>variable</i>)
Defuzzification.
Overrides: fuzzy.defuzzify.Base.Base. <code>getValue</code>

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

`__repr__`() , `accumulate`() , `value_table`()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

20.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

20.2.3 Instance Variables

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

21 Module fuzzy.defuzzify.MaxLeft

Defuzzification which uses the left global maximum.

21.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: MaxLeft.py,v 1.8 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

21.2 Class MaxLeft



Defuzzification which uses the left global maximum.

21.2.1 Methods

<code>__init__(self, INF=None, ACC=None, failsafe=None, *args, **keywords)</code>
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__

<code>getValue(self, variable)</code>
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

21.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

21.2.3 Instance Variables

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

22 Module fuzzy.defuzzify.MaxRight

Defuzzification which uses the right global maximum.

22.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: MaxRight.py,v 1.9 2010-03-28 18:40:33 rliebscher Ex...
<code>__package__</code>	Value: 'fuzzy.defuzzify'

22.2 Class MaxRight



Defuzzification which uses the right global maximum.

22.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>INF</i> =None, <i>ACC</i> =None, <i>failsafe</i> =None, * <i>args</i> , ** <i>keywords</i>)
Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible
Parameters
<i>INF</i> : inference norm, used with set of adjective and given value for it
<i>ACC</i> : norm for accumulation of set of adjectives
Overrides: object. <code>__init__</code>

<code>getValue</code> (<i>self</i> , <i>variable</i>)
Defuzzification.
Overrides: fuzzy.defuzzify.Base.Base. <code>getValue</code>

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

`__repr__`() , `accumulate`() , `value_table`()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

22.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

22.2.3 Instance Variables

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

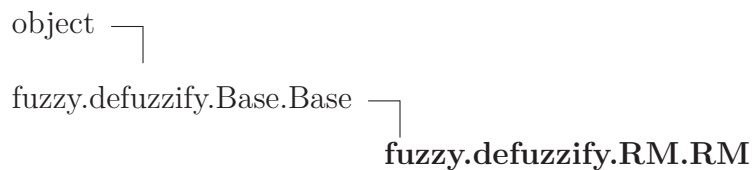
23 Module fuzzy.defuzzify.RM

Defuzzification which uses the right most (local) maximum.

23.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: RM.py,v 1.6 2010-03-28 18:40:33 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.defuzzify'

23.2 Class RM



Defuzzification which uses the right most (local) maximum.

23.2.1 Methods

<p><code>__init__</code>(<i>self</i>, <i>INF</i>=None, <i>ACC</i>=None, <i>failsafe</i>=None, *<i>args</i>, **<i>keywords</i>)</p> <hr/> <p>Initialize the defuzzification method with INF,ACC and an optional value in case defuzzification is not possible</p> <p>Parameters</p> <p> <i>INF</i>: inference norm, used with set of adjective and given value for it</p> <p> <i>ACC</i>: norm for accumulation of set of adjectives</p> <p>Overrides: object.<code>__init__</code></p>
--

<p><code>getValue</code>(<i>self</i>, <i>variable</i>)</p> <hr/> <p>Defuzzification.</p> <p>Overrides: fuzzy.defuzzify.Base.Base.<code>getValue</code></p>

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

`__repr__`() , `accumulate`() , `value_table`()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

23.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

23.2.3 Instance Variables

Name	Description
<i>Inherited from fuzzy.defuzzify.Base.Base (Section 16.3)</i>	
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
<code>__revision__</code>	Value: '\$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...
<code>__package__</code>	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
<code>__revision__</code>	Value: '\$Id: __init__.py,v 1.4 2009-10-27 20:06:27 rliebscher Ex...
<code>__package__</code>	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 dict 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
<code>__revision__</code>	Value: '\$Id: doc.py,v 1.15 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	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__** **__exit__**(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

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

```
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

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


```
create3DPlot_adjective(self, system, x_name, y_name, z_name, adjective,
_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 (<i>type=fuzzy.System.System</i>)
x_name:	name of input variable used for x coordinate values (<i>type=string</i>)
y_name:	name of input variable used for y coordinate values (<i>type=string</i>)
z_name:	name of output variable used for z coordinate values (<i>type=string</i>)
adjective:	name of adjective of output variable used for z coordinate values (<i>type=string</i>)
input_dict:	dictionary used for input values, can be used to predefine other input values (<i>type=dict</i>)
output_dict:	dictionary used for output values (<i>type=dict</i>)
x_logscale:	use logarithmic scale for x values (<i>type=bool</i>)
y_logscale:	use logarithmic scale for y values (<i>type=bool</i>)
z_logscale:	use logarithmic scale for z values (<i>type=bool</i>)

Inherited from object

```
__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
__reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),
__str__(), __subclasshook__()
```

27.3.2 Properties

Name	Description
<i>Inherited from object</i> __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

<code>register_handler(class_, handler)</code>
--

<code>print_dot(obj, out, system, parentname)</code>
--

Print object <code>obj</code> into output stream <code>out</code>

<code>printVariablesDot(system, out)</code>

Print all variables

<code>printRulesDot(system, out)</code>

Print all rules

<code>printDot(system, out)</code>

Print whole system into one graph

<code>print_header(out, name='System')</code>

Print graph header

<code>print_footer(out)</code>

Print graph footer

30.2 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: dot.py,v 1.7 2010-01-21 20:54:44 rliebscher Exp \$'
<code>__package__</code>	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 (<i>obj</i>)
Get an unique ID from object for dot node names

31.2 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: handlers.py,v 1.8 2010-02-17 19:52:28 rliebscher Ex...
<code>__package__</code>	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.Doc_Const, fuzzy.doc.structure.dot.handlers.Doc_Input, fuzzy.doc.structure.dot.handlers.Doc_Not, fuzzy.doc.structure.dot.handlers.Doc_Variable, fuzzy.doc.structure.dot.handlers.Doc_Expression

'Abstract' Base class for everything else

31.3.1 Methods

__init__ (<i>self</i>)
x. __init__ (...) initializes x; see help(type(x)) for signature
Overrides: object. __init__ extit(herited documentation)

make_node (<i>self, out, name, values={}</i>)
--

make_connection (<i>self, out, node1, node2, values={}</i>)
--

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),
 __str__(), __subclasshook__()

31.3.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

31.4 Class Doc_Compound**31.4.1 Methods**

__init__ (<i>self</i>) x. __init__ (...) initializes x; see help(type(x)) for signature Overrides: object. __init__ extit(inherited documentation)

__call__ (<i>self, obj, out, system, parent_name</i>)
--

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

make_connection(), make_node()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),
 __str__(), __subclasshook__()

31.4.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

31.5 Class 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__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),
 __str__(), __subclasshook__()

31.5.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

31.6 Class Doc_Input



31.6.1 Methods

<code>__call__(self, obj, out, system, parent_name)</code>
--

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

`__init__()`, `make_connection()`, `make_node()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

31.6.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

31.7 Class Doc_Not

object

fuzzy.doc.structure.dot.handlers.DocBase

fuzzy.doc.structure.dot.handlers.Doc_Not

31.7.1 Methods

<code>__init__(self)</code>

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

Overrides: object.`__init__` `__init__`(inherited documentation)

<code>__call__(self, obj, out, system, parent_name)</code>
--

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

`make_connection()`, `make_node()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

31.7.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

31.8 Class `Doc_Norm`



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

31.8.1 Methods

<code>__call__(self, obj, out, system, parent_name)</code>
--

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

`__init__()`, `make_connection()`, `make_node()`

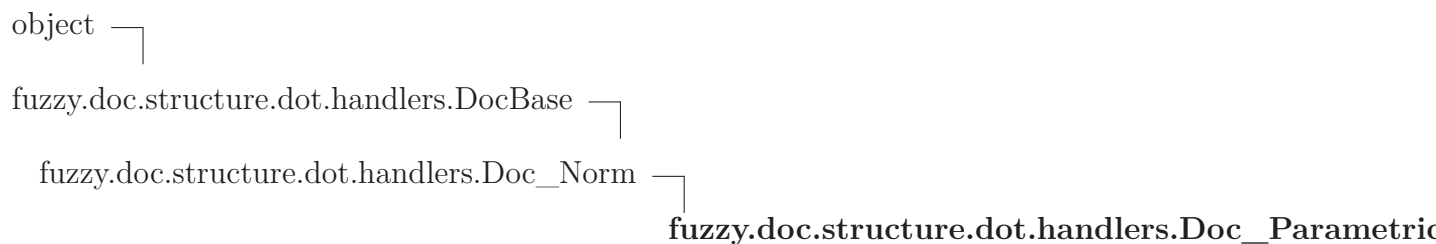
Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

31.8.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

31.9 Class `Doc_ParametricNorm`



31.9.1 Methods

<code>__call__(self, obj, out, system, parent_name)</code> Overrides: <code>fuzzy.doc.structure.dot.handlers.Doc_Norm.__call__</code>
--

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

`__init__()`, `make_connection()`, `make_node()`

Inherited from `object`

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

31.9.2 Properties

Name	Description
<i>Inherited from <code>object</code></i>	
<code>__class__</code>	

31.10 Class `Doc_Adjective`



31.10.1 Methods

```
__init__(self)
```

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

Overrides: `object.__init__` `exit`(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__(), __getattr__(), __hash__(), __new__(),  
__reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),  
__str__(), __subclasshook__()
```

31.10.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

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__` `exit`(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__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),
 __str__(), __subclasshook__()

31.11.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

31.12 Class Doc_Variable**Known Subclasses:** fuzzy.doc.structure.dot.handlers.Doc_OutputVariable**31.12.1 Methods**

<p>__init__(self)</p> <p>x.__init__(...) initializes x; see help(type(x)) for signature</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>

<p>__call__(self, obj, out, system, parent_name)</p>

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

make_connection(), make_node()

Inherited from object

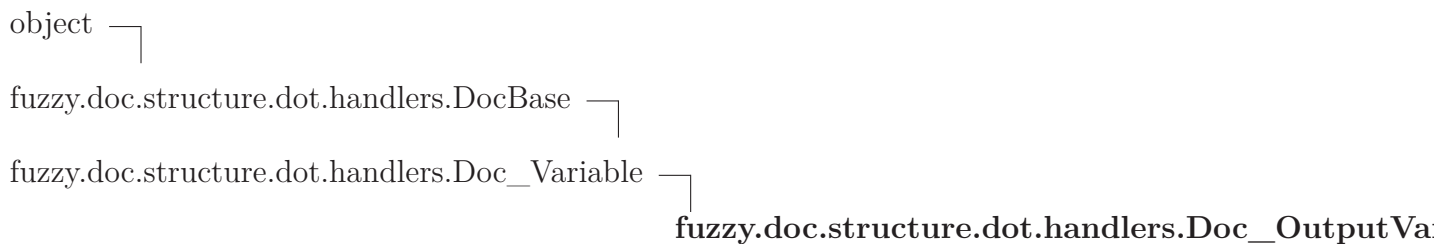
__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(),

`__str__()`, `__subclasshook__()`

31.12.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

31.13 Class `Doc_OutputVariable`



31.13.1 Methods

<code>make_connection</code> (<i>self</i> , <i>out</i> , <i>node1</i> , <i>node2</i> , <i>values</i> ={}) Overrides: <code>fuzzy.doc.structure.dot.handlers.DocBase.make_connection</code>

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

31.13.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

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
<code>__revision__</code>	Value: '\$Id: __init__.py,v 1.5 2010-03-28 18:41:30 rliebscher Ex...
<code>__package__</code>	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 

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__ (<i>self</i>)
Return representation of instance.
Return Value
representation of instance
(<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

33.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

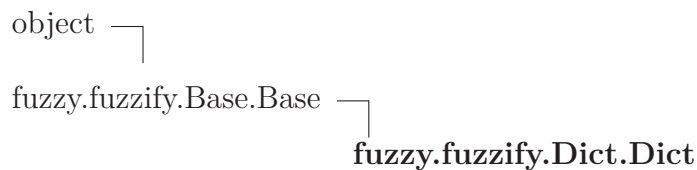
34 Module fuzzy.fuzzify.Dict

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__` `exitit`(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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

34.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

35 Module fuzzy.fuzzify.Plain

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

35.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Plain.py,v 1.7 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.fuzzify'

35.2 Class Plain



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

35.2.1 Methods

<p><code>__init__</code>(<i>self</i>, *args, **keywords)</p> <p>x.<code>__init__</code>(...) initializes x; see help(type(x)) for signature</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>
<p><code>setValue</code>(<i>self</i>, variable, value)</p> <hr/> <p>Let adjectives calculate their membership values.</p> <p>Parameters</p> <p>variable: variable which adjective to set (<i>type=fuzzy.Variable.Variable</i>)</p> <p>variable: value to set the adjectives (<i>type=fuzzy.Variable.Variable</i>)</p> <p>Overrides: fuzzy.fuzzify.Base.Base.setValue</p>

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

`__repr__()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

35.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

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

- **AlgebraicProdSum** (*Section 37, p. 96*)
- **AlgebraicProduct** (*Section 38, p. 99*)
- **AlgebraicSum** (*Section 39, p. 101*)
- **ArithmeticMean** (*Section 40, p. 103*)
- **BoundedDifference** (*Section 41, p. 105*)
- **BoundedSum** (*Section 42, p. 107*)
- **DombiIntersection** (*Section 43, p. 109*)
- **DombiUnion** (*Section 44, p. 112*)
- **DrasticProduct** (*Section 45, p. 115*)
- **DrasticSum** (*Section 46, p. 117*)
- **DualOfGeometricMean** (*Section 47, p. 119*)
- **DualOfHarmonicMean** (*Section 48, p. 121*)
- **DubiosPradeIntersection** (*Section 49, p. 123*)
- **DubiosPradeUnion** (*Section 50, p. 126*)
- **EinsteinProduct** (*Section 51, p. 129*)
- **EinsteinSum** (*Section 52, p. 131*)
- **FrankIntersection** (*Section 53, p. 133*)
- **FrankUnion** (*Section 54, p. 136*)
- **FuzzyAnd** (*Section 55, p. 139*)
- **FuzzyOr** (*Section 56, p. 142*)
- **GammaOperator** (*Section 57, p. 145*)
- **GeometricMean** (*Section 58, p. 148*)
- **HamacherIntersection** (*Section 59, p. 150*)
- **HamacherProduct** (*Section 60, p. 153*)
- **HamacherSum** (*Section 61, p. 155*)
- **HamacherUnion** (*Section 62, p. 157*)
- **HarmonicMean** (*Section 63, p. 160*)
- **Max** (*Section 64, p. 162*)
- **Min** (*Section 65, p. 164*)
- **MinMax** (*Section 66, p. 166*)
- **Norm**: Abstract base class for any kind of fuzzy norm.
(*Section 67, p. 169*)
- **ParametricNorm**: Base class for any kind of parametric fuzzy norm.
(*Section 68, p. 174*)
- **SchweizerIntersection** (*Section 69, p. 176*)
- **SchweizerIntersection2** (*Section 70, p. 179*)

- **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
<code>__revision__</code>	Value: '\$Id: AlgebraicProdSum.py,v 1.7 2009-10-27 20:06:27 rlieb...'
<code>__package__</code>	Value: 'fuzzy.norm'

37.2 Class AlgebraicProdSum

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  fuzzy.norm.AlgebraicProdSum.AlgebraicProdSum

37.2.1 Methods

<p><code>__init__(self, param=0.5)</code></p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> param: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

37.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

37.2.3 Class Variables

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

37.2.4 Instance Variables

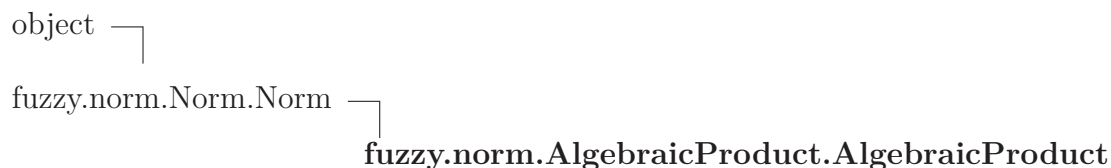
Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

38 Module fuzzy.norm.AlgebraicProduct

38.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: AlgebraicProduct.py,v 1.6 2009-10-27 20:06:27 rlieb...'
<code>__package__</code>	Value: 'fuzzy.norm'

38.2 Class AlgebraicProduct



38.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

38.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

38.2.3 Class Variables

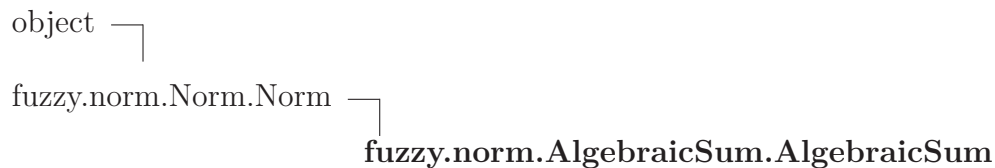
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

39 Module fuzzy.norm.AlgebraicSum

39.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: AlgebraicSum.py,v 1.6 2009-10-27 20:06:27 rliebsche...'
<code>__package__</code>	Value: 'fuzzy.norm'

39.2 Class AlgebraicSum



39.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

39.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

39.2.3 Class Variables

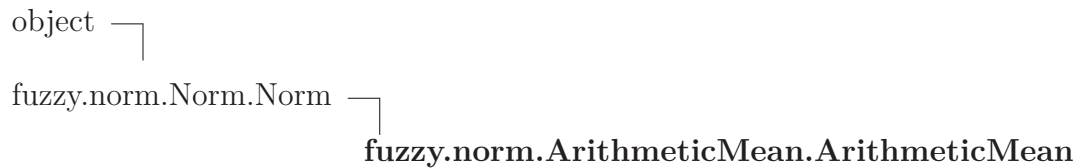
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

40 Module fuzzy.norm.ArithmeticMean

40.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: ArithmeticMean.py,v 1.7 2009-10-27 20:06:27 rliebsc...
<code>__package__</code>	Value: 'fuzzy.norm'

40.2 Class ArithmeticMean



40.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

40.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

40.2.3 Class Variables

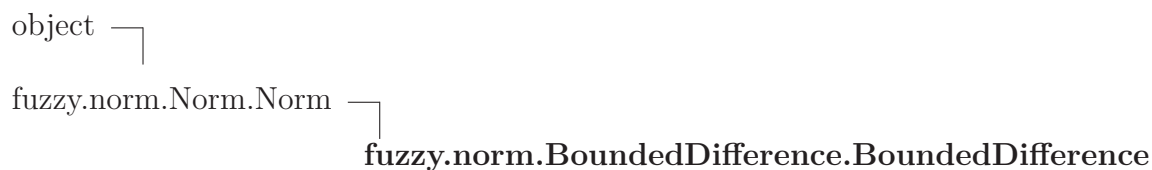
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

41 Module fuzzy.norm.BoundedDifference

41.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: BoundedDifference.py,v 1.6 2009-10-27 20:06:27 rlie...'
<code>__package__</code>	Value: 'fuzzy.norm'

41.2 Class BoundedDifference



41.2.1 Methods

<code>__init__</code> (<i>self</i>) Initialize type of norm Overrides: object. <code>__init__</code> extit(inherited documentation)
--

<code>__call__</code> (<i>self</i> , * <i>args</i>) Calculate result of norm(<i>arg1</i> , <i>arg2</i> ,...) <p>Parameters <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value result of norm calculation <i>(type=float)</i></p> <p>Raises NormException any problem in calculation (wrong number of arguments, numerical problems)</p> Overrides: fuzzy.norm.Norm.Norm. <code>__call__</code> extit(inherited documentation)
--

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

`__repr__`(), `checkArgs2`(), `checkArgsN`(), `getType`()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

41.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

41.2.3 Class Variables

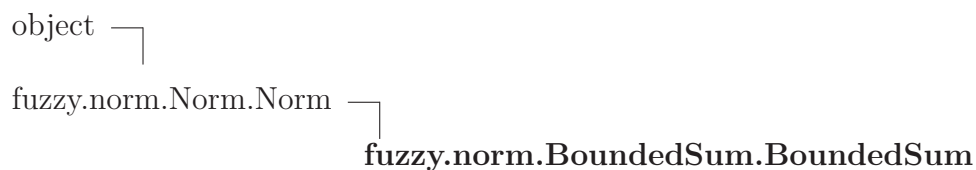
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

42 Module fuzzy.norm.BoundedSum

42.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: BoundedSum.py,v 1.6 2009-10-27 20:06:27 rliebscher ...
<code>__package__</code>	Value: 'fuzzy.norm'

42.2 Class BoundedSum



42.2.1 Methods

<p><code>__init__</code>(<i>self</i>)</p> <p>Initialize type of norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>
--

<p><code>__call__</code>(<i>self</i>, *<i>args</i>)</p> <p>Calculate result of norm(<i>arg1</i>,<i>arg2</i>,...)</p> <p>Parameters</p> <p> <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.<code>__call__</code> extit(inherited documentation)</p>

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

`__repr__`(), `checkArgs2`(), `checkArgsN`(), `getType`()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

42.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

42.2.3 Class Variables

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

43 Module *fuzzy.norm.DombiIntersection*

43.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DombiIntersection.py,v 1.8 2009-10-27 20:06:27 rlie...'
<code>__package__</code>	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

<code>__init__(self, param=0.5)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> <code>__exit__</code> (inherited documentation)

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
Raises
NormException any problem in calculation (wrong number of arguments, numerical problems)
Overrides: <i>fuzzy.norm.Norm.Norm.__call__</i>

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

43.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

43.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

43.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

44 Module *fuzzy.norm.DombiUnion*


44.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DombiUnion.py,v 1.8 2009-10-27 20:06:27 rliebscher ...
<code>__package__</code>	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

<code>__init__</code> (<i>self</i> , <i>param</i> =0.5)
Initialize type and parameter
Parameters
<i>param</i> : parameter for norm
Overrides: object. <code>__init__</code> <code>__exit__</code> (inherited documentation)

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(<i>type=float</i>)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <i>fuzzy.norm.Norm.Norm.__call__</i> extit(inherited documentation)</p>
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

44.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

44.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

44.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

45 Module *fuzzy.norm.DrasticProduct*

45.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DrasticProduct.py,v 1.7 2009-10-27 20:06:27 rliebsc...
<code>__package__</code>	Value: 'fuzzy.norm'

45.2 Class *DrasticProduct*



45.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of <code>norm(arg1,arg2,...)</code></p> <p>Parameters</p> <p><code>args</code>: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p><i>(type=float)</i></p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>
--

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

45.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

45.2.3 Class Variables

Name	Description
<i>Inherited from <code>fuzzy.norm.Norm.Norm</code> (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

46 Module *fuzzy.norm.DrasticSum*

46.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DrasticSum.py,v 1.7 2009-10-27 20:06:27 rliebscher ...
<code>__package__</code>	Value: 'fuzzy.norm'

46.2 Class *DrasticSum*



46.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of <code>norm(arg1,arg2,...)</code></p> <p>Parameters</p> <p><code>args</code>: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p><i>(type=float)</i></p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>
--

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

46.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

46.2.3 Class Variables

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

47 Module *fuzzy.norm.DualOfGeometricMean*

47.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DualOfGeometricMean.py,v 1.9 2009-10-27 20:06:27 rl...
<code>__package__</code>	Value: 'fuzzy.norm'

47.2 Class *DualOfGeometricMean*



47.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of <code>norm(arg1,arg2,...)</code></p> <p>Parameters</p> <p> <code>args</code>: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>
--

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

47.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

47.2.3 Class Variables

Name	Description
<i>Inherited from <code>fuzzy.norm.Norm.Norm</code> (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

48 Module *fuzzy.norm.DualOfHarmonicMean*

48.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DualOfHarmonicMean.py,v 1.7 2009-10-27 20:06:27 rli...
<code>__package__</code>	Value: 'fuzzy.norm'

48.2 Class *DualOfHarmonicMean*



48.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> <i>(type=float)</i></p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

48.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

48.2.3 Class Variables

Name	Description
<i>Inherited from <code>fuzzy.norm.Norm.Norm</code> (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

49 Module *fuzzy.norm.DubiosPradeIntersection*

49.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DubiosPradeIntersection.py,v 1.4 2009-10-27 20:06:2...
<code>__package__</code>	Value: 'fuzzy.norm'

49.2 Class *DubiosPradeIntersection*

object └

fuzzy.norm.Norm.Norm └

fuzzy.norm.ParametricNorm.ParametricNorm └
fuzzy.norm.DubiosPradeIntersection.DubiosPradeIntersection

Dubios Prade 1980

49.2.1 Methods

<code>__init__(self, param=0.5)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> extit(inherited documentation)

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(<i>type=float</i>)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <i>fuzzy.norm.Norm.Norm.__call__</i> extit(inherited documentation)</p>
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

49.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

49.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

49.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

50 Module `fuzzy.norm.DubiosPradeUnion`

50.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: DubiosPradeUnion.py,v 1.4 2009-10-27 20:06:27 rlieb...
<code>__package__</code>	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

<p><code>__init__</code>(<i>self</i>, <i>param</i>=0.5)</p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> <code>__exit__</code>(inherited documentation)</p>

<p><code>__call__</code>(<i>self</i>, *<i>args</i>)</p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.<code>__call__</code> extit(inherited documentation)</p>

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__`(), `__getattr__`(), `__hash__`(), `__new__`(),
`__reduce__`(), `__reduce_ex__`(), `__setattr__`(), `__sizeof__`(), `__str__`(),
`__subclasshook__`()

50.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

50.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

50.2.4 Instance Variables

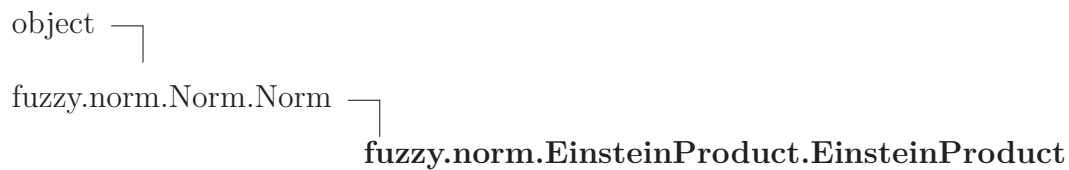
Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

51 Module *fuzzy.norm.EinsteinProduct*

51.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: EinsteinProduct.py,v 1.6 2009-10-27 20:06:27 rliebs...
<code>__package__</code>	Value: 'fuzzy.norm'

51.2 Class *EinsteinProduct*



51.2.1 Methods

<p><code>__init__</code>(<i>self</i>)</p> <p>Initialize type of norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>
--

<p><code>__call__</code>(<i>self</i>, *<i>args</i>)</p> <p>Calculate result of norm(<i>arg1</i>,<i>arg2</i>,...)</p> <p>Parameters</p> <p> <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.<code>__call__</code> extit(inherited documentation)</p>

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

`__repr__`(), `checkArgs2`(), `checkArgsN`(), `getType`()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

51.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

51.2.3 Class Variables

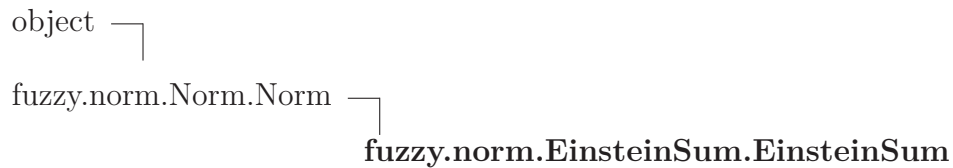
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

52 Module *fuzzy.norm.EinsteinSum*

52.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: EinsteinSum.py,v 1.6 2009-10-27 20:06:27 rliebscher...'
<code>__package__</code>	Value: 'fuzzy.norm'

52.2 Class *EinsteinSum*



52.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of <code>norm(arg1,arg2,...)</code></p> <p>Parameters</p> <p><code>args</code>: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p><i>(type=float)</i></p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>
--

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

52.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

52.2.3 Class Variables

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

53 Module fuzzy.norm.FrankIntersection

53.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: FrankIntersection.py,v 1.7 2009-10-27 20:06:27 rlie...
<code>__package__</code>	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

<code>__init__(self, param=0.5)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> <code>__exit__</code> (inherited documentation)

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

53.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

53.2.3 Class Variables

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

53.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

54 Module fuzzy.norm.FrankUnion


54.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: FrankUnion.py,v 1.7 2009-10-27 20:06:27 rliebscher ...
<code>__package__</code>	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

<code>__init__(self, param=0.5)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> <code>__exit__</code> (inherited documentation)

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

54.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

54.2.3 Class Variables

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

54.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

55 Module fuzzy.norm.FuzzyAnd


55.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: FuzzyAnd.py,v 1.7 2009-10-27 20:06:27 rliebscher Ex...
<code>__package__</code>	Value: 'fuzzy.norm'

55.2 Class FuzzyAnd

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.FuzzyAnd.FuzzyAnd**

55.2.1 Methods

<p><code>__init__</code>(<i>self</i>, <i>param</i>=0.5)</p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

55.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

55.2.3 Class Variables

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

55.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

56 Module fuzzy.norm.FuzzyOr

56.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: FuzzyOr.py,v 1.7 2009-10-27 20:06:27 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.norm'

56.2 Class FuzzyOr

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.FuzzyOr.FuzzyOr**

56.2.1 Methods

<p><code>__init__(self, param=0.5)</code></p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> param: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

56.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

56.2.3 Class Variables

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

56.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

57 Module `fuzzy.norm.GammaOperator`

57.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: GammaOperator.py,v 1.9 2009-10-27 20:06:27 rliebsch...'
<code>__package__</code>	Value: 'fuzzy.norm'

57.2 Class `GammaOperator`

object 

`fuzzy.norm.Norm.Norm` 

`fuzzy.norm.ParametricNorm.ParametricNorm`  `fuzzy.norm.GammaOperator.GammaOperator`

57.2.1 Methods

<code>__init__(self, param=0.5)</code>
Initialize type and parameter
Parameters
<code>param</code> : parameter for norm
Overrides: <code>object.__init__</code> <code>extit</code> (inherited documentation)

<p><code>__call__</code>(<i>self</i>, *<i>args</i>)</p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.<code>__call__</code> extit(inherited documentation)</p>

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__`(), `__getattr__`(), `__hash__`(), `__new__`(),
`__reduce__`(), `__reduce_ex__`(), `__setattr__`(), `__sizeof__`(), `__str__`(),
`__subclasshook__`()

57.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

57.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

57.2.4 Instance Variables

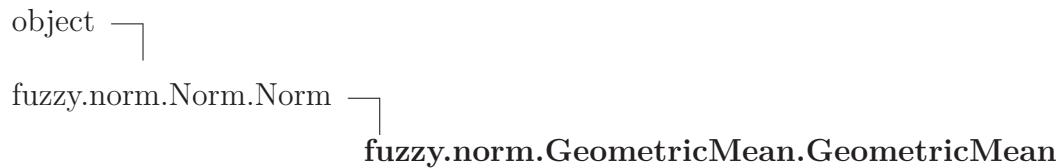
Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

58 Module *fuzzy.norm.GeometricMean*

58.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: GeometricMean.py,v 1.7 2009-10-27 20:06:27 rliebsch...'
<code>__package__</code>	Value: 'fuzzy.norm'

58.2 Class *GeometricMean*



58.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: <code>object.__init__</code> extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <p>Calculate result of <code>norm(arg1,arg2,...)</code></p> <p>Parameters</p> <p><code>args</code>: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p><i>(type=float)</i></p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <code>fuzzy.norm.Norm.Norm.__call__</code> extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

58.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

58.2.3 Class Variables

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

59 Module `fuzzy.norm.HamacherIntersection`

59.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: HamacherIntersection.py,v 1.8 2009-10-27 20:06:27 r...
<code>__package__</code>	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

<code>__init__(self, param=1.0)</code>
Initialize type and parameter
Parameters
<code>param</code> : parameter for norm
Overrides: <code>object.__init__</code> <code>exitit</code> (inherited documentation)

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

59.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

59.2.3 Class Variables

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

59.2.4 Instance Variables

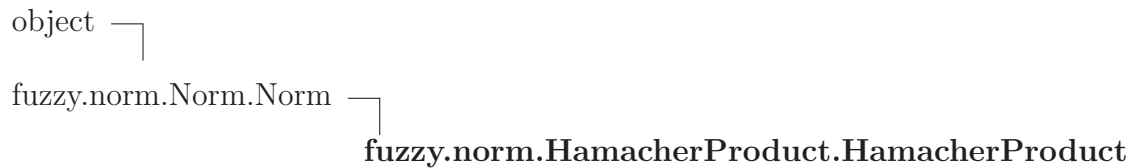
Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

60 Module fuzzy.norm.HamacherProduct

60.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: HamacherProduct.py,v 1.7 2009-10-27 20:06:27 rliebs...
<code>__package__</code>	Value: 'fuzzy.norm'

60.2 Class HamacherProduct



60.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
--

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

60.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

60.2.3 Class Variables

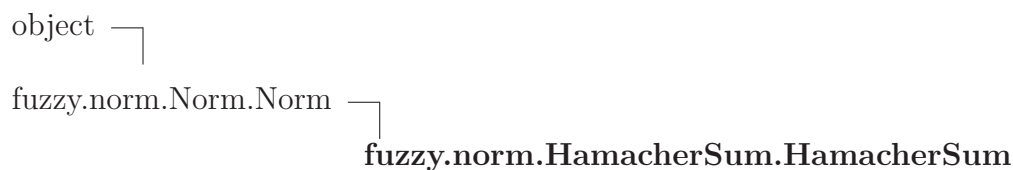
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

61 Module fuzzy.norm.HamacherSum

61.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: HamacherSum.py,v 1.7 2009-10-27 20:06:27 rliebscher...'
<code>__package__</code>	Value: 'fuzzy.norm'

61.2 Class HamacherSum



61.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
--

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

61.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

61.2.3 Class Variables

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

62 Module fuzzy.norm.HamacherUnion

62.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: HamacherUnion.py,v 1.8 2009-10-27 20:06:27 rliebsch...'
<code>__package__</code>	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

<code>__init__(self, param=1.0)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> <code>__exit__</code> (inherited documentation)

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(type=float)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

62.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

62.2.3 Class Variables

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

62.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

63 Module fuzzy.norm.HarmonicMean

63.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: HarmonicMean.py,v 1.8 2009-10-27 20:06:27 rliebsche...'
<code>__package__</code>	Value: 'fuzzy.norm'

63.2 Class HarmonicMean



63.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
--

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

63.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

63.2.3 Class Variables

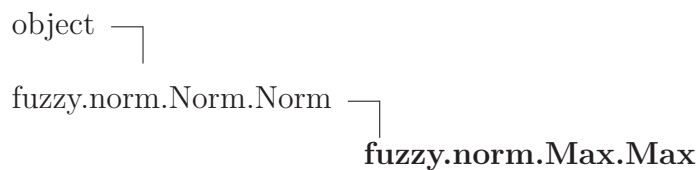
Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

64 Module fuzzy.norm.Max

64.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Max.py,v 1.8 2009-10-27 20:06:27 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.norm'

64.2 Class Max



64.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <hr/> <p>Return maximum of given values.</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

64.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

64.2.3 Class Variables

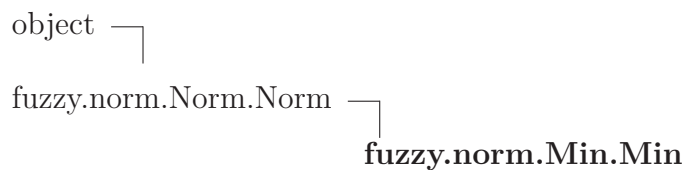
Name	Description
<i>Inherited from <code>fuzzy.norm.Norm.Norm</code> (Section 67.4)</i>	
S_NORM, T_NORM, UNKNOWN	

65 Module fuzzy.norm.Min

65.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Min.py,v 1.8 2009-10-27 20:06:27 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.norm'

65.2 Class Min



65.2.1 Methods

<p><code>__init__(self)</code></p> <p>Initialize type of norm</p> <p>Overrides: object.__init__ extit(inherited documentation)</p>
<p><code>__call__(self, *args)</code></p> <hr/> <p>Return minimum of given values.</p> <p>Parameters</p> <p> args: list of floats as arguments for norm.</p> <p>Return Value</p> <p> result of norm calculation</p> <p> (<i>type=float</i>)</p> <p>Raises</p> <p> NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__</p>

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

`__repr__()`, `checkArgs2()`, `checkArgsN()`, `getType()`

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

65.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

65.2.3 Class Variables

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

66 Module fuzzy.norm.MinMax

66.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: MinMax.py,v 1.7 2009-10-27 20:06:27 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.norm'

66.2 Class MinMax

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.MinMax.MinMax**

66.2.1 Methods

<p><code>__init__</code>(<i>self</i>, <i>param</i>=0.5)</p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

66.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

66.2.3 Class Variables

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

66.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

67 Module `fuzzy.norm.Norm`

Abstract base class for any kind of fuzzy norm.

67.1 Functions

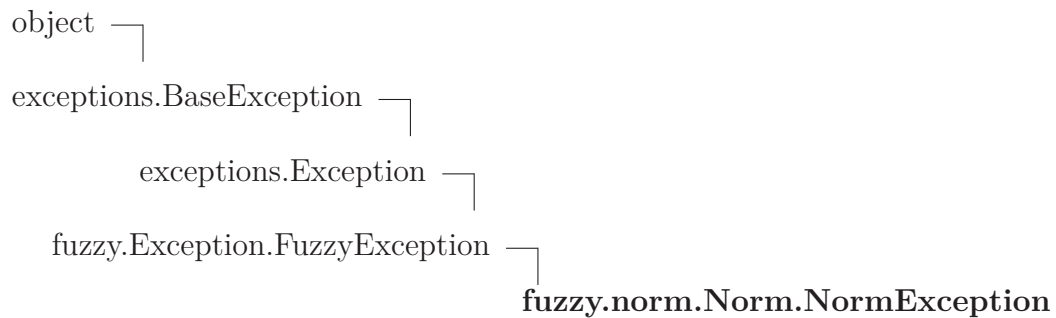
product (*args) <hr/> Calculate product of args. Parameters args: list of floats to multiply (<i>type=list of float</i>) Return Value product of args (<i>type=float</i>)

sum (*args) <hr/> Calculate sum of args. If using numpy the builtin sum doesn't work always! Parameters args: list of floats to sum (<i>type=list of float</i>) Return Value sum of args (<i>type=float</i>)

67.2 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Norm.py,v 1.16 2010-02-17 19:45:00 rliebscher Exp \$'
<code>__package__</code>	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__()`, `__getattr__()`, `__getitem__()`, `__getslice__()`, `__reduce__()`, `__repr__()`, `__setattr__()`, `__setstate__()`, `__str__()`, `__unicode__()`

Inherited from object

`__format__()`, `__hash__()`, `__reduce_ex__()`, `__sizeof__()`, `__subclasshook__()`

67.3.2 Properties

Name	Description
<i>Inherited from exceptions.BaseException</i>	args, message
<i>Inherited from object</i>	<code>__class__</code>

67.4 Class Norm



Known Subclasses: fuzzy.norm.ParametricNorm.ParametricNorm, fuzzy.norm.EinsteinProduct.EinsteinProduct, 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.BoundedDifference.BoundedDifference, fuzzy.norm.DualOfGeometricMean.DualOfGeometricMean

Abstract Base class of any fuzzy norm

67.4.1 Methods

__init__ (<i>self</i> , <i>type</i> =0)
Initialize type of norm
Overrides: object.__init__

__call__ (<i>self</i> , * <i>args</i>)
Calculate result of norm(<i>arg1</i> , <i>arg2</i> ,...)
Parameters
<i>args</i> : list of floats as arguments for norm. (<i>type</i> =list of float)
Return Value
result of norm calculation (<i>type</i> =float)
Raises
NormException any problem in calculation (wrong number of arguments, numerical problems)

getType (<i>self</i>)
Return type of norm: 0 = not defined or not classified 1 = t-norm (= Norm.T_NORM) 2 = s-norm (= Norm.S_NORM)

checkArgs2 (<i>self</i> , <i>args</i>)
Checks args to be 2 float values.
Parameters
<i>args</i> : list of arguments (<i>type=list of float?</i>)
Return Value
first two args as float values (<i>type=(float,float)</i>)

checkArgsN (<i>self</i> , <i>args</i>)
Checks args to be at least 2 float values.
Parameters
<i>args</i> : list of arguments (<i>type=list of float?</i>)
Return Value
arguments as float values (<i>type=list of float</i>)

__repr__ (<i>self</i>)
Return representation of instance.
Return Value
representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

67.4.2 Properties

Name	Description
<i>Inherited from object</i>	
__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
<code>__revision__</code>	Value: '\$Id: ParametricNorm.py,v 1.16 2010-10-29 19:24:41 rliebs...'
<code>__package__</code>	Value: 'fuzzy.norm'

68.2 Class 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.HamacherIntersection.HamacherIntersection, 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.AlgebraicProduct.AlgebraicProduct, fuzzy.norm.MinMax.MinMax, fuzzy.norm.SchweizerIntersection2.SchweizerIntersection2, fuzzy.norm.DombiIntersection.DombiIntersection, fuzzy.norm.SchweizerUnion.SchweizerUnion, fuzzy.norm.DubiosPradeIntersection.DubiosPradeIntersection

Abstract base class for any parametric fuzzy norm

68.2.1 Methods

<code>__init__(self, type, param)</code>
Initialize type and parameter
Parameters
param: parameter for norm (<i>type=float</i>)
Overrides: object. <code>__init__</code>

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

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

__call__(), checkArgs2(), checkArgsN(), getType()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

68.2.2 Properties

Name	Description
p_range	range(s) of valid values for p
<i>Inherited from object</i>	
__class__	

68.2.3 Class Variables

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

68.2.4 Instance Variables

Name	Description
p	x (<i>type=float</i>)

69 Module *fuzzy.norm.SchweizerIntersection*

69.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerIntersection.py,v 1.8 2009-10-27 20:06:27 ...
<code>__package__</code>	Value: 'fuzzy.norm'

69.2 Class *SchweizerIntersection*

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  *fuzzy.norm.SchweizerIntersection.SchweizerInters*

69.2.1 Methods

<code>__init__(self, param=1.0)</code>
Initialize type and parameter
Parameters
<i>param</i> : parameter for norm
Overrides: object. <code>__init__</code> extit(inherited documentation)

<p><code>__call__</code>(<i>self</i>, *<i>args</i>)</p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters <i>args</i>: list of floats as arguments for norm.</p> <p>Return Value result of norm calculation (<i>type=float</i>)</p> <p>Raises NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: <i>fuzzy.norm.Norm.Norm.__call__</i> extit(inherited documentation)</p>

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__`(), `__getattr__`(), `__hash__`(), `__new__`(),
`__reduce__`(), `__reduce_ex__`(), `__setattr__`(), `__sizeof__`(), `__str__`(),
`__subclasshook__`()

69.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

69.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

69.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

70 Module *fuzzy.norm.SchweizerIntersection2*

70.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerIntersection2.py,v 1.10 2010-01-21 20:55:5...
<code>__package__</code>	Value: 'fuzzy.norm'

70.2 Class *SchweizerIntersection2*

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  *fuzzy.norm.SchweizerIntersection2.SchweizerIntersection2*

Schweizer, Sklar 1960

70.2.1 Methods

<code>__init__(self, param=1.0)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> extit(inherited documentation)

<code>__call__</code> (<i>self</i> , * <i>args</i>)
Calculate result of norm(arg1,arg2,...)
Parameters
<i>args</i> : list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
Raises
NormException any problem in calculation (wrong number of arguments, numerical problems)
Overrides: fuzzy.norm.Norm.Norm. <code>__call__</code> 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__`() , `__getattr__`() , `__hash__`() , `__new__`() ,
`__reduce__`() , `__reduce_ex__`() , `__setattr__`() , `__sizeof__`() , `__str__`() ,
`__subclasshook__`()

70.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

70.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

70.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

71 Module *fuzzy.norm.SchweizerIntersection3*

71.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerIntersection3.py,v 1.8 2009-10-27 20:06:27...'
<code>__package__</code>	Value: 'fuzzy.norm'

71.2 Class *SchweizerIntersection3*

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.SchweizerIntersection3.SchweizerInter**

71.2.1 Methods

<p><code>__init__(self, param=1.0)</code></p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> param: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<p>__call__(self, *args)</p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(type=float)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>
--

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__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

71.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

71.2.3 Class Variables

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

71.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

72 Module fuzzy.norm.SchweizerUnion

72.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerUnion.py,v 1.9 2010-01-21 20:55:51 rliebsc...
<code>__package__</code>	Value: 'fuzzy.norm'

72.2 Class SchweizerUnion

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.SchweizerUnion.SchweizerUnion**

72.2.1 Methods

<p><code>__init__</code>(<i>self</i>, <i>param</i>=1.0)</p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters args: list of floats as arguments for norm.</p> <p>Return Value result of norm calculation <i>(type=float)</i></p> <p>Raises NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

72.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

72.2.3 Class Variables

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

72.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

73 Module fuzzy.norm.SchweizerUnion2

73.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerUnion2.py,v 1.9 2010-01-21 20:55:51 rliebs...
<code>__package__</code>	Value: 'fuzzy.norm'

73.2 Class SchweizerUnion2

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  **fuzzy.norm.SchweizerUnion2.SchweizerUnion2**

73.2.1 Methods

<p><code>__init__</code>(<i>self</i>, <i>param</i>=1.0)</p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(type=float)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

73.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

73.2.3 Class Variables

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

73.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

74 Module *fuzzy.norm.SchweizerUnion3*

74.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SchweizerUnion3.py,v 1.7 2009-10-27 20:06:27 rliebs...
<code>__package__</code>	Value: 'fuzzy.norm'

74.2 Class *SchweizerUnion3*

object 

fuzzy.norm.Norm.Norm 

fuzzy.norm.ParametricNorm.ParametricNorm  ***fuzzy.norm.SchweizerUnion3.SchweizerUnion3***

74.2.1 Methods

<code>__init__(self, param=1.0)</code>
Initialize type and parameter
Parameters
param: parameter for norm
Overrides: object. <code>__init__</code> extit(inherited documentation)

<p><code>__call__(self, *args)</code></p> <p>Calculate result of norm(arg1,arg2,...)</p> <p>Parameters</p> <p>args: list of floats as arguments for norm.</p> <p>Return Value</p> <p>result of norm calculation</p> <p>(type=float)</p> <p>Raises</p> <p>NormException any problem in calculation (wrong number of arguments, numerical problems)</p> <p>Overrides: fuzzy.norm.Norm.Norm.__call__ extit(inherited documentation)</p>
--

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

74.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

74.2.3 Class Variables

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

74.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

75 Module *fuzzy.norm.YagerIntersection*

75.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: YagerIntersection.py,v 1.8 2009-10-27 20:06:27 rlie...'
<code>__package__</code>	Value: 'fuzzy.norm'

75.2 Class *YagerIntersection*

object \lrcorner

fuzzy.norm.Norm.Norm \lrcorner

fuzzy.norm.ParametricNorm.ParametricNorm \lrcorner
fuzzy.norm.YagerIntersection.YagerIntersection

Yager 1980

75.2.1 Methods

<p><code>__init__(self, param=1.0)</code></p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <i>param</i>: parameter for norm</p> <p>Overrides: object.<code>__init__</code> extit(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
Raises
NormException any problem in calculation (wrong number of arguments, numerical problems)
Overrides: <i>fuzzy.norm.Norm.Norm.__call__</i> 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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

75.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
<code>p_range</code>	
<i>Inherited from object</i>	
<code>__class__</code>	

75.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.norm.Norm.Norm (Section 67.4)</i>	
<code>S_NORM</code> , <code>T_NORM</code> , <code>UNKNOWN</code>	

75.2.4 Instance Variables

Name	Description
p	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

76 Module `fuzzy.norm.YagerUnion`


76.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: YagerUnion.py,v 1.8 2009-10-27 20:06:27 rliebscher ...
<code>__package__</code>	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

<p><code>__init__(self, param=1.0)</code></p> <p>Initialize type and parameter</p> <p>Parameters</p> <p> <code>param</code>: parameter for norm</p> <p>Overrides: <code>object.__init__</code> <code>exitit</code>(inherited documentation)</p>

<code>__call__(self, *args)</code>
Calculate result of norm(arg1,arg2,...)
Parameters
args: list of floats as arguments for norm.
Return Value
result of norm calculation
(<i>type=float</i>)
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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

76.2.2 Properties

Name	Description
<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>	
p_range	
<i>Inherited from object</i>	
__class__	

76.2.3 Class Variables

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

76.2.4 Instance Variables

Name	Description
<i>p</i>	<i>Inherited from fuzzy.norm.ParametricNorm.ParametricNorm (Section 68.2)</i>

77 Package fuzzy.operator

These operators are used to build fuzzy rules.

For example:

$c\{(A \text{ and } B) \text{ or not } C\}$

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 its 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
<code>__revision__</code>	Value: '\$Id: Compound.py,v 1.16 2010-10-29 19:24:41 rliebscher E...'
<code>__package__</code>	Value: 'fuzzy.operator'

78.2 Class Compound



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

78.2.1 Methods

<code>__init__</code> (<i>self</i> , <i>norm</i> , * <i>inputs</i>)
Constructor.
Parameters
norm: how to combine inputs. (eg. Min,Max,...) (<i>type=fuzzy.norm.Norm.Norm</i>)
inputs: list of inputs (subclassed from <code>fuzzy.operator.Operator.Operator</code>).
Overrides: <code>object.__init__</code>

__call__ (<i>self</i>)
Get current value of input and combine them with help of norm.
Return Value result of operator calculation (<i>type=float</i>)
Raises fuzzy.FuzzyException.FuzzyException any problem in calculation
Overrides: <i>fuzzy.operator.Operator.Operator.__call__</i>

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: <i>object.__repr__</i>

Inherited from object

__delattr__(), *__format__*(), *__getattr__*(), *__hash__*(), *__new__*(),
__reduce__(), *__reduce_ex__*(), *__setattr__*(), *__sizeof__*(), *__str__*(),
__subclasshook__()

78.2.2 Properties

Name	Description
<i>Inherited from object</i> <i>__class__</i>	

78.2.3 Instance Variables

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

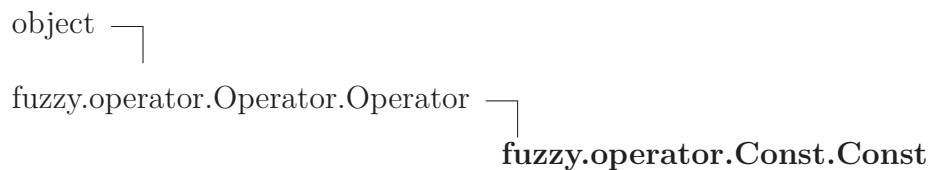
79 Module fuzzy.operator.Const

Special operator class which returns a constant value.

79.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Const.py,v 1.15 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.operator'

79.2 Class Const



Special operator which returns a constant value.

79.2.1 Methods

<code>__init__(self, value)</code>
Constructor.
Parameters
value: value returned at call of <code>__call__()</code> .
<i>(type=float)</i>
Overrides: object. <code>__init__</code>

__call__ (<i>self</i>)
Return stored constant value.
Return Value result of operator calculation (<i>type=float</i>)
Raises fuzzy.FuzzyException.FuzzyException any problem in calculation
Overrides: fuzzy.operator.Operator.Operator.__call__

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

79.2.2 Properties

Name	Description
<i>Inherited from object</i> <code>__class__</code>	

79.2.3 Instance Variables

Name	Description
value	value returned at call of <code>__call__()</code> . (<i>type=float</i>)

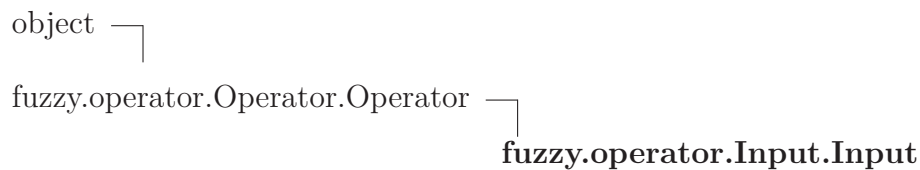
80 Module fuzzy.operator.Input

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

80.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Input.py,v 1.16 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.operator'

80.2 Class Input



Special operator which gets its value from a fuzzy adjective.

80.2.1 Methods

<code>__init__(self, adjective)</code>
Constructor.
Parameters
<i>adjective</i> : from which adjective get the membership value. (<i>type=fuzzy.Adjective.Adjective</i>)
Overrides: object. <code>__init__</code>

<code>__call__(self)</code>
return membership of given adjective.
Return Value result of operator calculation <i>(type=float)</i>
Raises <code>fuzzy.FuzzyException.FuzzyException</code> any problem in calculation
Overrides: <code>fuzzy.operator.Operator.Operator.__call__</code>

<code>__repr__(self)</code>
Return representation of instance.
Return Value representation of instance <i>(type=string)</i>
Overrides: <code>object.__repr__</code>

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

80.2.2 Properties

Name	Description
<i>Inherited from object</i> <code>__class__</code>	

80.2.3 Instance Variables

Name	Description
adjective	from which adjective get the membership value. <i>(type=fuzzy.Adjective.Adjective)</i>

81 Module fuzzy.operator.Not

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

81.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Not.py,v 1.18 2013-01-09 20:10:19 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.operator'

81.2 Class Not



Take value of input operator and calculate complement of it.

81.2.1 Methods

<code>__init__(self, input)</code>
Constructor.
Parameters
<input/> : input which result is to complement. (<i>type=fuzzy.operator.Operator.Operator</i>)
Overrides: object. <code>__init__</code>

__call__ (<i>self</i>)
Get input value and return 1.0-value.
Return Value result of operator calculation (<i>type=float</i>)
Raises fuzzy.FuzzyException.FuzzyException any problem in calculation
Overrides: fuzzy.operator.Operator.Operator.__call__

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

81.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

81.2.3 Instance Variables

Name	Description
input	input which result is to complement. (<i>type=fuzzy.operator.Operator.Operator</i>)

82 Module fuzzy.operator.Operator

Calculate value for fuzzy rule.

Used to build fuzzy rules.

82.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Operator.py,v 1.15 2010-10-29 19:24:41 rliebscher E...
<code>__package__</code>	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

<code>__init__(self)</code>
Dummy initialization, so it is safe to call it from any sub class.
Overrides: object.__init__

<code>__call__(self)</code>
Return current value.
Return Value result of operator calculation (<i>type=float</i>)
Raises fuzzy.FuzzyException.FuzzyException any problem in calculation

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

82.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

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
<code>__revision__</code>	Value: '\$Id: __init__.py,v 1.11 2010-03-28 18:44:46 rliebscher E...
<code>__package__</code>	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
<code>__revision__</code>	Value: '\$Id: Function.py,v 1.13 2010-03-28 18:44:46 rliebscher E...'
<code>__package__</code>	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__()`, `__getattr__()`, `__hash__()`, `__init__()`,
`__new__()`, `__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

84.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

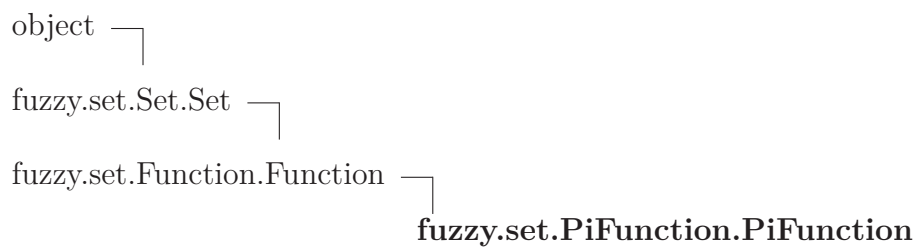
85 Module fuzzy.set.PiFunction

Realize a Pi-shaped fuzzy set

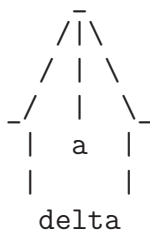
85.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: PiFunction.py,v 1.19 2010-03-28 18:44:46 rliebscher...'
<code>__package__</code>	Value: 'fuzzy.set'

85.2 Class PiFunction



Realize a Pi-shaped fuzzy set:



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

85.2.1 Methods

__init__ (<i>self</i> , <i>a</i> =0.0, <i>delta</i> =1.0)
Initialize a Pi-shaped fuzzy set.
Parameters
<i>a</i> : center of set (<i>type=float</i>)
<i>delta</i> : absolute distance between x-values for minimum and maximum (<i>type=float</i>)
Overrides: object.__init__

__call__ (<i>self</i> , <i>x</i>)
Return membership of <i>x</i> in this fuzzy set. This method makes the set work like a function.
Parameters
<i>x</i> : value for which the membership is to calculate (<i>type=float</i>)
Return Value
membership (<i>type=float</i>)
Overrides: fuzzy.set.Set.Set.__call__

getCOG (<i>self</i>)
Return center of gravity.
Return Value
x-value of center of gravity (<i>type=float</i>)
Overrides: fuzzy.set.Set.Set.getCOG

getValuesX (<i>self</i>)
Return sequence of x-values so we get a smooth function.
Overrides: fuzzy.set.Set.Set.getValuesX

__repr__ (<i>self</i>)
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

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

getValuesXY()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

85.2.2 Properties

Name	Description
<i>Inherited from object</i>	
__class__	

85.2.3 Instance Variables

Name	Description
a	center of set. (<i>type=float</i>)
delta	absolute distance between x-values for minimum and maximum. (<i>type=float</i>)

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
<code>__revision__</code>	Value: '\$Id: Polygon.py,v 1.25 2010-10-29 19:24:41 rliebscher Ex...
<code>__package__</code>	Value: 'fuzzy.set'

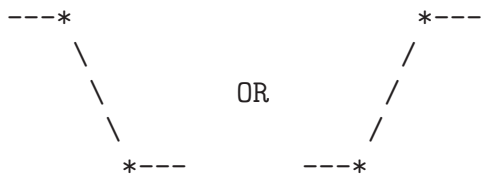
86.2 Class Polygon



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](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:

now	where=END	where=BEGIN
--	*--*	* *
\ \ *	 *--*	\ \ \ \ * *

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__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

86.2.2 Properties

Name	Description
points	points of the polygon. <i>(type=list of 2-tuple (x,y))</i>
<i>Inherited from object</i>	
<code>__class__</code>	

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

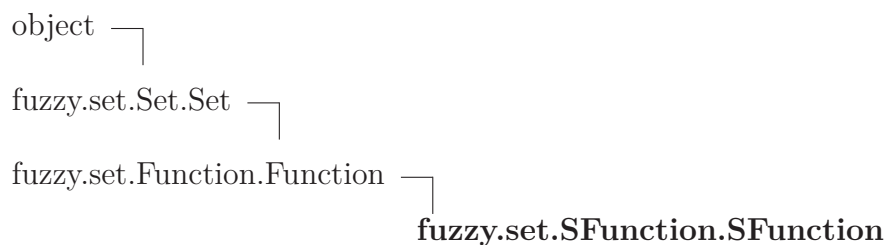
87 Module fuzzy.set.SFunction

Realize a S-shaped fuzzy set.

87.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: SFunction.py,v 1.19 2010-03-28 18:44:46 rliebscher ...'
<code>__package__</code>	Value: 'fuzzy.set'

87.2 Class 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__ (<i>self</i> , <i>a</i> =0.0, <i>delta</i> =1.0)
Initialize a S-shaped fuzzy set.
Parameters
<i>a</i> : center of set (<i>type=float</i>)
<i>delta</i> : absolute distance between x-values for minimum and maximum (<i>type=float</i>)
Overrides: object.__init__

__call__ (<i>self</i> , <i>x</i>)
Return membership of <i>x</i> in this fuzzy set. This method makes the set work like a function.
Parameters
<i>x</i> : value for which the membership is to calculate (<i>type=float</i>)
Return Value
membership (<i>type=float</i>)
Overrides: fuzzy.set.Set.Set.__call__

getCOG (<i>self</i>)
Return center of gravity.
Return Value
x-value of center of gravity (<i>type=float</i>)
Overrides: fuzzy.set.Set.Set.getCOG

getValuesX (<i>self</i>)
Return sequence of x-values so we get a smooth function.
Overrides: fuzzy.set.Set.Set.getValuesX

<code>__repr__(self)</code>
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

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

getValuesXY()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

87.2.2 Properties

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

87.2.3 Instance Variables

Name	Description
a	center of set. (<i>type=float</i>)
delta	absolute distance between x-values for minimum and maximum. (<i>type=float</i>)

88 Module fuzzy.set.Set

Base class for all fuzzy sets.

88.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Set.py,v 1.24 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.set'

88.2 Class Set

object —
 fuzzy.set.Set

Known Subclasses: fuzzy.set.Polygon.Polygon, fuzzy.set.Function.Function

Base class for all types of fuzzy sets.

88.2.1 Methods

<p><code>__call__(self, x)</code></p> <hr/> <p>Return membership of x in this fuzzy set. This method makes the set work like a function.</p> <p>Parameters</p> <p> x: value x (<i>type=float</i>)</p> <p>Return Value</p> <p> membership for value x (<i>type=float</i>)</p>
--

<p><code>getValuesXY(self, flat=True)</code></p> <hr/> <p>Internal helper function to help convert arbitrary fuzzy sets in fuzzy sets represented by a polygon.</p>

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__()`, `__getattr__()`, `__hash__()`, `__init__()`,
`__new__()`, `__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`,
`__str__()`, `__subclasshook__()`

88.2.2 Properties

Name	Description
<i>Inherited from object</i> <code>__class__</code>	

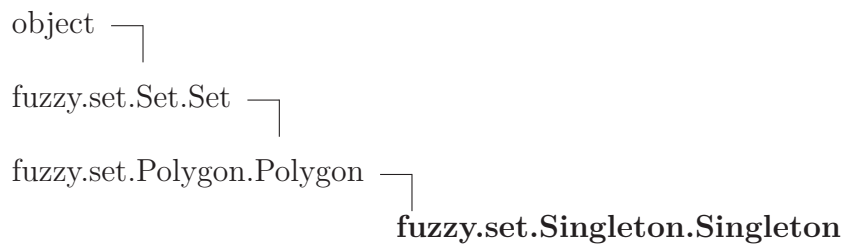
89 Module fuzzy.set.Singleton

This set represents a non-fuzzy number.

89.1 Variables

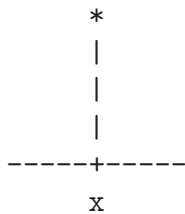
Name	Description
<code>__revision__</code>	Value: '\$Id: Singleton.py,v 1.18 2010-10-29 19:24:41 rliebscher ...'
<code>__package__</code>	Value: 'fuzzy.set'

89.2 Class 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

<code>__repr__(self)</code>
Return representation of instance.
Return Value representation of instance (<i>type=string</i>)
Overrides: object.__repr__

Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)

getValuesX(), getValuesXY()

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__new__()`,
`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

89.2.2 Properties

Name	Description
x	x (<i>type=float</i>)
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
points	
<i>Inherited from object</i>	
<code>__class__</code>	

89.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
BEGIN, END, X, Y	

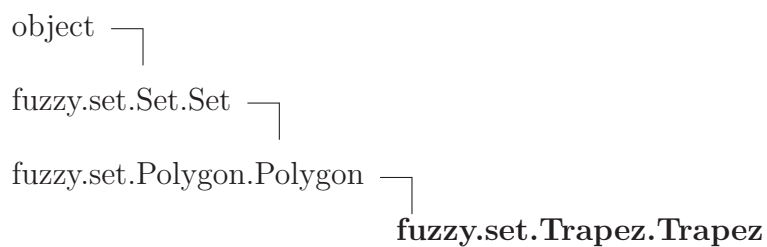
90 Module fuzzy.set.Trapez

Realize a trapezoid-shaped fuzzy set.

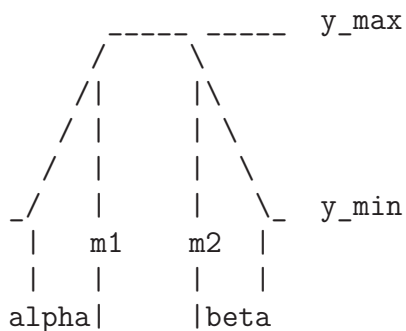
90.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Trapez.py,v 1.19 2010-10-29 19:24:41 rliebscher Exp \$'
<code>__package__</code>	Value: 'fuzzy.set'

90.2 Class 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__(*self*), **getCOG**(*self*), **getValuesX**(*self*), **getValuesXY**(*self*)

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),
 __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
 __subclasshook__()

90.2.2 Properties

Name	Description
y_max	y-value at top of the trapezoid (<i>type=float</i>)
y_min	y-value outside the trapezoid (<i>type=float</i>)
m1	x-value of left top of trapezoid (<i>type=float</i>)
m2	x-value of right top of trapezoid (<i>type=float</i>)
alpha	distance of left corner to m1 (<i>type=float</i>)
beta	distance of right corner to m2 (<i>type=float</i>)
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
points	
<i>Inherited from object</i>	
__class__	

90.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
BEGIN, END, X, Y	

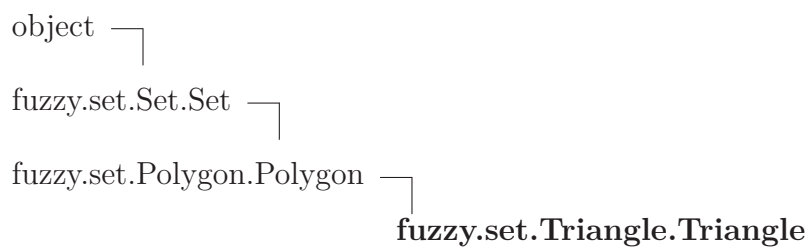
91 Module fuzzy.set.Triangle

Realize a triangle-shaped fuzzy set.

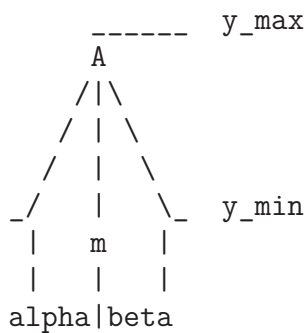
91.1 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: Triangle.py,v 1.20 2010-10-29 19:24:41 rliebscher E...'
<code>__package__</code>	Value: 'fuzzy.set'

91.2 Class Triangle



Realize a triangle-shaped fuzzy set:



See also <http://pyfuzzy.sourceforge.net/demo/set/Triangle.png>

91.2.1 Methods

__init__ (<i>self</i> , <i>m</i> =0.0, <i>alpha</i> =1.0, <i>beta</i> =1.0, <i>y_max</i> =1.0, <i>y_min</i> =0.0)
Initialize a triangle-shaped fuzzy set.
Parameters
<i>y_max</i> : y-value at top of the triangle (1.0)
<i>y_min</i> : y-value outside the triangle (0.0)
<i>m</i> : x-value of top of triangle (0.0)
<i>alpha</i> : distance of left corner to <i>m</i> (1.0)
<i>beta</i> : distance of right corner to <i>m</i> (1.0)
Overrides: object.__init__

add (<i>self</i> , <i>x</i> , <i>y</i> , <i>where</i> =1)
Don't let anyone destroy our triangle.
Overrides: fuzzy.set.Polygon.Polygon.add

remove (<i>self</i> , <i>x</i> , <i>where</i> =1)
Don't let anyone destroy our triangle.
Overrides: fuzzy.set.Polygon.Polygon.remove

clear (<i>self</i>)
Don't let anyone destroy our triangle.
Overrides: fuzzy.set.Polygon.Polygon.clear

__repr__ (<i>self</i>)
Return representation of instance.
Return Value
representation of instance
(<i>type</i> =string)
Overrides: object.__repr__

Inherited from fuzzy.set.Polygon.Polygon(Section 86.2)

__call__(), getCOG(), getValuesX(), getValuesXY()

Inherited from object

__delattr__(), __format__(), __getattr__(), __hash__(), __new__(),

`__reduce__()`, `__reduce_ex__()`, `__setattr__()`, `__sizeof__()`, `__str__()`,
`__subclasshook__()`

91.2.2 Properties

Name	Description
<code>y_max</code>	y-value at top of the triangle (<i>type=float</i>)
<code>y_min</code>	y-value outside the triangle (<i>type=float</i>)
<code>m</code>	x-value of top of triangle (<i>type=float</i>)
<code>alpha</code>	distance of left corner to m (<i>type=float</i>)
<code>beta</code>	distance of right corner to m (<i>type=float</i>)
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
points	
<i>Inherited from object</i>	
<code>__class__</code>	

91.2.3 Class Variables

Name	Description
<i>Inherited from fuzzy.set.Polygon.Polygon (Section 86.2)</i>	
BEGIN, END, X, Y	

92.2.1 Methods

__init__ (<i>self</i> , <i>a</i> =0.0, <i>delta</i> =1.0)
Initialize a Z-shaped fuzzy set.
Parameters
a : center of set (<i>type=float</i>)
delta : absolute distance between x-values for minimum and maximum (<i>type=float</i>)
Overrides: object.__init__

__call__ (<i>self</i> , <i>x</i>)
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 (<i>type=float</i>)
Return Value
membership (<i>type=float</i>)
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__(), __getattr__(), __hash__(), __new__(),
__reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __str__(),
__subclasshook__()

92.2.2 Properties

continued on next page

Name	Description
<i>Inherited from object</i>	
<code>__class__</code>	

92.2.3 Instance Variables

Name	Description
a	center of set. (<i>type=float</i>)
delta	absolute distance between x-values for minimum and maximum. (<i>type=float</i>)

93 Module `fuzzy.set.operations`

Helper functions for calculation with fuzzy sets.

Examples can be found here [U{http://pyfuzzy.sourceforge.net/demo/merge/}](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

<code>check(x, y1, y2)</code>

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 is 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 (<i>COMPLEMENT</i> , <i>set</i> , <i>segment_size</i> =None)	
Returns a new fuzzy set which is this complement of the given set. (Where the membership of the result set is equal to <code>COMPLEMENT(set(x))</code>).	
For meaning of <code>segment_size</code> see also <code>fuzzy.set.operations.merge</code> .	
Parameters	
COMPLEMENT:	fuzzy complement to use. For example <code>Zadeh()</code> , ... Also possible as one param function, eg. <code>lambda x: 1.-x</code> . <i>(type=fuzzy.complement.Base.Base)</i>
set:	fuzzy set <i>(type=fuzzy.set.Set)</i>
segment_size:	maximum size of a segment <i>(type=float/None)</i>
Return Value	
resulting fuzzy set <i>(type=fuzzy.set.Polygon.Polygon)</i>	

93.2 Variables

Name	Description
<code>__revision__</code>	Value: '\$Id: operations.py,v 1.13 2013-01-09 20:10:19 rliebscher...'
<code>__package__</code>	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
<code>__revision__</code>	Value: '\$Id: <code>__init__.py</code> ,v 1.4 2009-10-27 20:06:27 rliebscher Ex...
<code>__package__</code>	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)
```

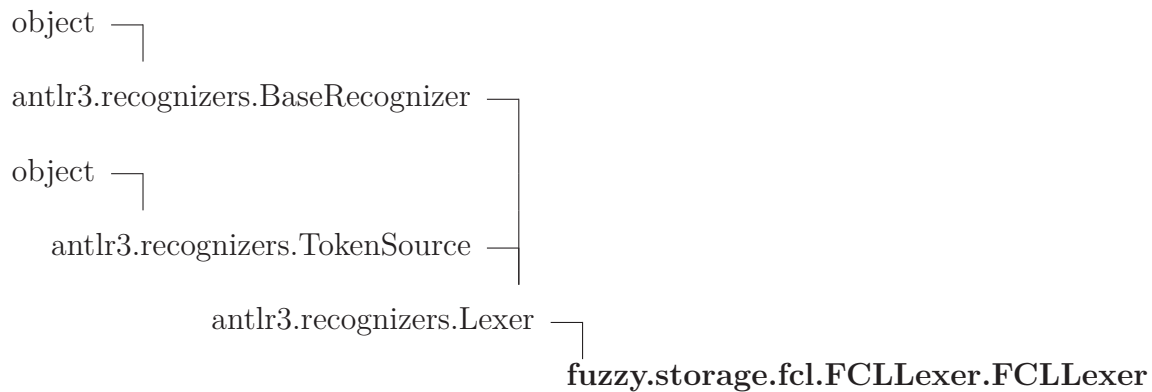
96.2 Variables

Name	Description
<code>__doc__</code>	Value: <code>"""Lexer for reading FCL by the pyfuzzy package."""</code>
<code>__revision__</code>	Value: <code>'\$ Id: FCL.g,v 1.7 2009/10/20 19:15:33 rliebscher Exp \$'</code>
<code>HIDDEN</code>	Value: 99
<code>T__29</code>	Value: 29
<code>T__28</code>	Value: 28
<code>T__27</code>	Value: 27
<code>Real_literal</code>	Value: 9
<code>OR__</code>	Value: 6
<code>T__26</code>	Value: 26
<code>T__25</code>	Value: 25
<code>T__24</code>	Value: 24
<code>T__23</code>	Value: 23
<code>LETTER</code>	Value: 10
<code>T__22</code>	Value: 22
<code>T__21</code>	Value: 21
<code>T__20</code>	Value: 20
<code>AND__</code>	Value: 7
<code>EOF</code>	Value: -1
<code>Identifier</code>	Value: 4
<code>T__55</code>	Value: 55
<code>T__56</code>	Value: 56
<code>T__19</code>	Value: 19
<code>T__57</code>	Value: 57
<code>T__58</code>	Value: 58
<code>T__16</code>	Value: 16
<code>T__51</code>	Value: 51
<code>T__15</code>	Value: 15
<code>T__52</code>	Value: 52

continued on next page

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__` `exitit`(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*)

<code>mInteger_literal(<i>self</i>)</code>
--

<code>mLETTER(<i>self</i>)</code>

<code>mDIGIT(<i>self</i>)</code>

<code>mReal_literal(<i>self</i>)</code>

<code>mWS(<i>self</i>)</code>

<code>mCOMMENT(<i>self</i>)</code>

<code>mTokens(<i>self</i>)</code>

This is the lexer entry point that sets instance var 'token'

Overrides: antlr3.recognizers.Lexer.mTokens exitit(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__(), __getattr__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

96.3.2 Properties

Name	Description
	<i>Inherited from antlr3.recognizers.Lexer</i>
	text
	<i>Inherited from object</i>
__class__	

96.3.3 Class Variables

Name	Description
grammarFileName	Value: <code>'/work/projects/pyfuzzy/pyfuzzy/fuzzy/storage/fcl/FCL.g'</code>
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, ...]
	<i>Inherited from antlr3.recognizers.BaseRecognizer</i> 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)
```

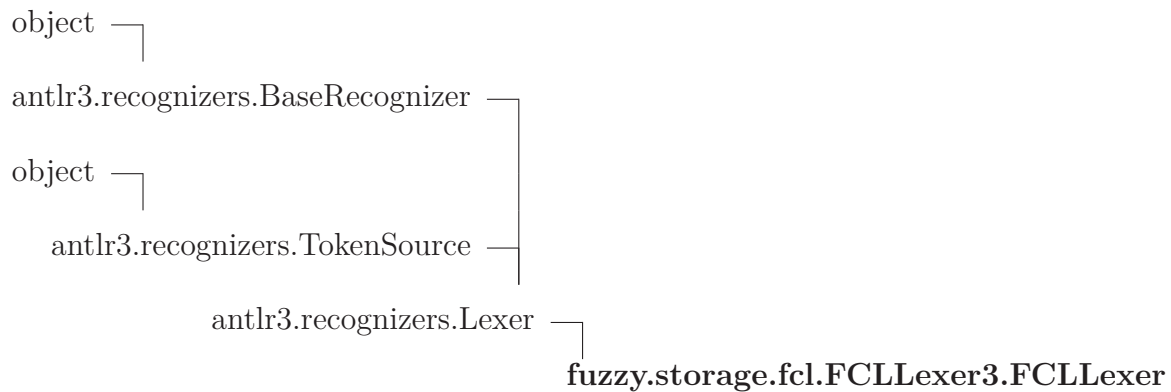
97.2 Variables

Name	Description
<code>__doc__</code>	Value: <code>"""Lexer for reading FCL by the pyfuzzy package."""</code>
<code>__revision__</code>	Value: <code>'\$ Id: FCL.g,v 1.7 2009/10/20 19:15:33 rliebscher Exp \$'</code>
<code>HIDDEN</code>	Value: 99
<code>T__29</code>	Value: 29
<code>T__28</code>	Value: 28
<code>T__27</code>	Value: 27
<code>Real_literal</code>	Value: 9
<code>OR__</code>	Value: 6
<code>T__26</code>	Value: 26
<code>T__25</code>	Value: 25
<code>T__24</code>	Value: 24
<code>T__23</code>	Value: 23
<code>LETTER</code>	Value: 10
<code>T__22</code>	Value: 22
<code>T__21</code>	Value: 21
<code>T__20</code>	Value: 20
<code>AND__</code>	Value: 7
<code>EOF</code>	Value: -1
<code>Identifier</code>	Value: 4
<code>T__55</code>	Value: 55
<code>T__56</code>	Value: 56
<code>T__19</code>	Value: 19
<code>T__57</code>	Value: 57
<code>T__58</code>	Value: 58
<code>T__16</code>	Value: 16
<code>T__51</code>	Value: 51
<code>T__15</code>	Value: 15
<code>T__52</code>	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*)

<code>mInteger_literal(<i>self</i>)</code>
--

<code>mLETTER(<i>self</i>)</code>

<code>mDIGIT(<i>self</i>)</code>

<code>mReal_literal(<i>self</i>)</code>

<code>mWS(<i>self</i>)</code>

<code>mCOMMENT(<i>self</i>)</code>

<code>mTokens(<i>self</i>)</code>

This is the lexer entry point that sets instance var 'token'

Overrides: antlr3.recognizers.Lexer.mTokens exitit(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__(), __getattr__(), __hash__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __setattr__(), __sizeof__(), __str__(), __subclasshook__()

97.3.2 Properties

Name	Description
	<i>Inherited from antlr3.recognizers.Lexer</i>
	text
	<i>Inherited from object</i>
__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, 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...]
	<i>Inherited from antlr3.recognizers.BaseRecognizer</i> 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*)

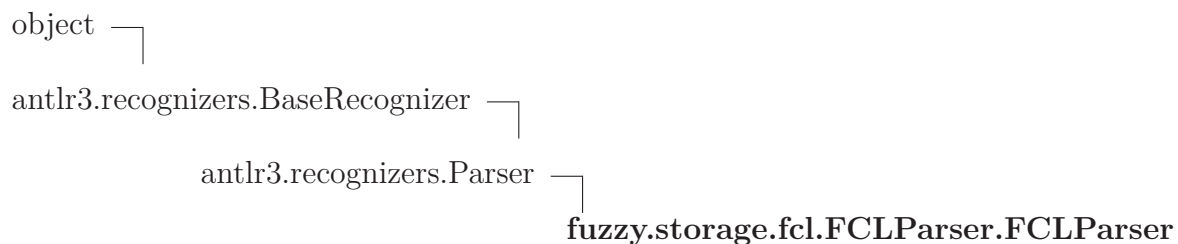
98.2 Variables

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

<code>__init__(self, input, state=None)</code>
x. <code>__init__(...)</code> initializes x; see <code>help(type(x))</code> for signature
Overrides: <code>object.__init__</code> <code>exitit</code> (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)`

<code>variable_name(self)</code>

<code>numeric_literal(self)</code>

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__()`, `__getattr__()`, `__hash__()`, `__new__()`, `__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`, `__sizeof__()`, `__str__()`, `__subclasshook__()`

98.3.2 Properties

Name	Description
<i>Inherited from <code>object</code></i>	
<code>__class__</code>	

98.3.3 Class Variables

Name	Description
<code>grammarFileName</code>	Value: '/work/projects/pyfuzzy/pyfuzzy/fuzzy/storage/fcl/FCL.g'
<code>antlr_version</code>	Value: (3, 1, 2, 2147483647)
<code>antlr_version_str</code>	Value: '3.1.2'
<code>tokenNames</code>	Value: ['<invalid>', '<EOR>', '<DOWN>', '<UP>', 'Identifier', 'D...']
<code>FOLLOW_function_block_declaration_in_main55</code>	Value: frozenset([1])

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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_declaration11-2	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])

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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_method79-1	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_range8-57	Value: frozenset([33])
FOLLOW_33_in_range8-59	Value: frozenset([34])
FOLLOW_34_in_range8-61	Value: frozenset([8, 9])
FOLLOW_numeric_literal_in_range863	Value: frozenset([41])
FOLLOW_41_in_range8-65	Value: frozenset([8, 9])
FOLLOW_numeric_literal_in_range867	Value: frozenset([36])
FOLLOW_36_in_range8-69	Value: frozenset([20])
FOLLOW_20_in_range8-71	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_rule15-68	Value: frozenset([8])
FOLLOW_Integer_literal_in_rule1570	Value: frozenset([18])
FOLLOW_18_in_rule15-72	Value: frozenset([57])
FOLLOW_57_in_rule15-74	Value: frozenset([4, 34, 47, 48, 49, 53])
FOLLOW_condition_in_rule1576	Value: frozenset([58])
FOLLOW_58_in_rule15-78	Value: frozenset([4, 34])

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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])
<i>Inherited from antlr3.recognizers.BaseRecognizer</i> 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
<code>__revision__</code>	Value: '\$Id: Reader.py,v 1.6 2013-01-09 20:10:19 rliebscher Exp \$'
<code>__package__</code>	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

<code>load_from_file(self, filename)</code>
Load a fuzzy system from FCL file.

<code>load_from_stream(self, stream)</code>
Load a fuzzy system from FCL stream.

<code>load_from_string(self, str)</code>
Load a fuzzy system from FCL string.

Inherited from object

`__delattr__()`, `__format__()`, `__getattr__()`, `__hash__()`, `__init__()`,
`__new__()`, `__reduce__()`, `__reduce_ex__()`, `__repr__()`, `__setattr__()`,
`__sizeof__()`, `__str__()`, `__subclasshook__()`

99.2.2 Properties

Name	Description
<i>Inherited from object</i> __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
<code>__revision__</code>	Value: '\$Id: utils.py,v 1.8 2010-01-19 21:45:35 rliebscher Exp \$'
<code>inf</code>	Value: <code>inf</code>

continued on next page

Name	Description
inf_p	Value: inf
inf_n	Value: -inf
__package__	Value: None

Index

- fuzzy (*package*), 15–18
 - fuzzy.Adjective (*module*), 19–20
 - fuzzy.Adjective.Adjective (*class*), 19–20
 - fuzzy.complement (*package*), 35
 - fuzzy.complement.Base (*module*), 36–38
 - fuzzy.complement.Parametric (*module*), 39–40
 - fuzzy.complement.Sugeno (*module*), 41–42
 - fuzzy.complement.Yager (*module*), 43–44
 - fuzzy.complement.Zadeh (*module*), 45–46
 - fuzzy.defuzzify (*package*), 47
 - fuzzy.defuzzify.Base (*module*), 48–50
 - fuzzy.defuzzify.COG (*module*), 51–52
 - fuzzy.defuzzify.COGS (*module*), 53–54
 - fuzzy.defuzzify.Dict (*module*), 55–57
 - fuzzy.defuzzify.LM (*module*), 58–59
 - fuzzy.defuzzify.MaxLeft (*module*), 60–61
 - fuzzy.defuzzify.MaxRight (*module*), 62–63
 - fuzzy.defuzzify.RM (*module*), 64–65
 - fuzzy.doc (*package*), 66
 - fuzzy.doc.plot (*package*), 67
 - fuzzy.doc.structure (*package*), 75
 - fuzzy.Exception (*module*), 21–22
 - fuzzy.fuzzify (*package*), 87
 - fuzzy.fuzzify.Base (*module*), 88–89
 - fuzzy.fuzzify.Dict (*module*), 90–91
 - fuzzy.fuzzify.Plain (*module*), 92–93
 - fuzzy.InputVariable (*module*), 23–24
 - fuzzy.InputVariable.InputVariable (*class*), 23–24
 - fuzzy.norm (*package*), 94–95
 - fuzzy.norm.AlgebraicProdSum (*module*), 96–98
 - fuzzy.norm.AlgebraicProduct (*module*), 99–100
 - fuzzy.norm.AlgebraicSum (*module*), 101–102
 - fuzzy.norm.ArithmeticMean (*module*), 103–104
 - fuzzy.norm.BoundedDifference (*module*), 105–106
 - fuzzy.norm.BoundedSum (*module*), 107–108
 - fuzzy.norm.DombiIntersection (*module*), 109–111
 - fuzzy.norm.DombiUnion (*module*), 112–114
 - fuzzy.norm.DrasticProduct (*module*), 115–116
 - fuzzy.norm.DrasticSum (*module*), 117–118
 - fuzzy.norm.DualOfGeometricMean (*module*), 119–120
 - fuzzy.norm.DualOfHarmonicMean (*module*), 121–122
 - fuzzy.norm.DubiosPradeIntersection (*module*), 123–125
 - fuzzy.norm.DubiosPradeUnion (*module*), 126–128
 - fuzzy.norm.EinsteinProduct (*module*), 129–130
 - fuzzy.norm.EinsteinSum (*module*), 131–132
 - fuzzy.norm.FrankIntersection (*module*), 133–135
 - fuzzy.norm.FrankUnion (*module*), 136–138
 - fuzzy.norm.FuzzyAnd (*module*), 139–141
 - fuzzy.norm.FuzzyOr (*module*), 142–144
 - fuzzy.norm.GammaOperator (*module*), 145–147
 - fuzzy.norm.GeometricMean (*module*), 148–149
 - fuzzy.norm.HamacherIntersection (*module*), 150–152
 - fuzzy.norm.HamacherProduct (*module*), 153–154
 - fuzzy.norm.HamacherSum (*module*), 155–156
 - fuzzy.norm.HamacherUnion (*module*), 157–

- 159
- fuzzy.norm.HarmonicMean (*module*), 160–161
- fuzzy.norm.Max (*module*), 162–163
- fuzzy.norm.Min (*module*), 164–165
- fuzzy.norm.MinMax (*module*), 166–168
- fuzzy.norm.Norm (*module*), 169–173
- fuzzy.norm.ParametricNorm (*module*), 174–175
- fuzzy.norm.SchweizerIntersection (*module*), 176–178
- fuzzy.norm.SchweizerIntersection2 (*module*), 179–181
- fuzzy.norm.SchweizerIntersection3 (*module*), 182–184
- fuzzy.norm.SchweizerUnion (*module*), 185–187
- fuzzy.norm.SchweizerUnion2 (*module*), 188–190
- fuzzy.norm.SchweizerUnion3 (*module*), 191–193
- fuzzy.norm.YagerIntersection (*module*), 194–196
- fuzzy.norm.YagerUnion (*module*), 197–199
- fuzzy.operator (*package*), 200–201
 - fuzzy.operator.Compound (*module*), 202–203
 - fuzzy.operator.Const (*module*), 204–205
 - fuzzy.operator.Input (*module*), 206–207
 - fuzzy.operator.Not (*module*), 208–209
 - fuzzy.operator.Operator (*module*), 210–211
- fuzzy.OutputVariable (*module*), 25–26
 - fuzzy.OutputVariable.OutputVariable (*class*), 25–26
- fuzzy.Rule (*module*), 27–28
 - fuzzy.Rule.Rule (*class*), 27–28
- fuzzy.set (*package*), 212
 - fuzzy.set.Function (*module*), 213
 - fuzzy.set.operations (*module*), 238–241
 - fuzzy.set.PiFunction (*module*), 214–216
 - fuzzy.set.Polygon (*module*), 217–220
 - fuzzy.set.Set (*module*), 224–225
 - fuzzy.set.SFunction (*module*), 221–223
 - fuzzy.set.Singleton (*module*), 226–228
 - fuzzy.set.Trapez (*module*), 229–231
 - fuzzy.set.Triangle (*module*), 232–234
 - fuzzy.set.ZFunction (*module*), 235–237
- fuzzy.storage (*package*), 242
 - fuzzy.storage.fcl (*package*), 243
- fuzzy.System (*module*), 29–31
 - fuzzy.System.System (*class*), 29–31
- fuzzy.utils (*module*), 275–276
 - fuzzy.utils.checkRange (*function*), 275
 - fuzzy.utils.prop (*function*), 275
- fuzzy.Variable (*module*), 32–34
- fuzzy.doc.structure.dot.handlers.Doc_Adjective (*class*), 83–84
 - fuzzy.doc.structure.dot.handlers.Doc_Adjective.__call__ (*method*), 84
- fuzzy.doc.structure.dot.handlers.Doc_Compound (*class*), 79–80
 - fuzzy.doc.structure.dot.handlers.Doc_Compound.__call__ (*method*), 79
- fuzzy.doc.structure.dot.handlers.Doc_Const (*class*), 80
 - fuzzy.doc.structure.dot.handlers.Doc_Const.__call__ (*method*), 80
- fuzzy.doc.structure.dot.handlers.Doc_Input (*class*), 80–81
 - fuzzy.doc.structure.dot.handlers.Doc_Input.__call__ (*method*), 81
- fuzzy.doc.structure.dot.handlers.Doc_Norm (*class*), 82
 - fuzzy.doc.structure.dot.handlers.Doc_Norm.__call__ (*method*), 82
- fuzzy.doc.structure.dot.handlers.Doc_Not (*class*), 81–82
 - fuzzy.doc.structure.dot.handlers.Doc_Not.__call__ (*method*), 81
- fuzzy.doc.structure.dot.handlers.Doc_OutputVariable (*class*), 86–87
- fuzzy.doc.structure.dot.handlers.Doc_ParametricNorm (*class*), 82–83
- fuzzy.doc.structure.dot.handlers.Doc_Rule (*class*), 84–85
 - fuzzy.doc.structure.dot.handlers.Doc_Rule.__call__

