# API Documentation

## API Documentation

## August 28, 2010

# Contents

C	onter	nts	1
1	Mod	dule temporaldrt	4
	1.1	Functions	4
	1.2	Variables	5
	1.3	Class AbstractDrs	5
		1.3.1 Methods	5
		1.3.2 Properties	6
	1.4	Class ConcatenationDRS	8
		1.4.1 Methods	9
			10
	1.5		11
			12
			13
	1.6		14
		•	14
			16
	1.7		16
			17
			18
	1.8		19
		•	19
			21
	1.9		23
			24
			25
	1.10	1	26
			26
			28
	1.11	1	30
		•	31
			32
	1.12	1	34
		±	35
			36
	1.13		38
	1.10		20

CONTENTS

	1.13.2 Properties	40
1 11		42
1.14	1 1	43
		44
1.15	1	46
		47
	1	48
1.16	±	49
	1.16.1 Methods	49
	1.16.2 Properties	51
1.17	Class DrtLocationTimeApplicationExpression	52
		52
		54
1 18	1	54
1.10		55
		56
1 10		58
1.19	1	
		59
	1	60
1.20		60
		61
		62
1.21	11 1	62
	1.21.1 Methods	62
		64
1.22		65
		65
		67
1 23	1	67
1.20	1 11 1	68
		69
1 0 4	1	
1.24		71
		72
	±	73
1.25		74
		74
		76
1.26	Class DrtTimeVariableExpression	78
	1.26.1 Methods	79
	1.26.2 Properties	80
1.27	Class DrtTokens	80
	1.27.1 Methods	81
		81
	•	81
1 28		81
1.20		81
1.00	•	82
1.29		83
		83
	1.29.2 Properties	83 85 85

CONTENTS

 		. 85
 		. 85
 		. 86
 		. 86
 		. 86
 		. 87
 		. 87
		0.6

## 1 Module temporaldrt

Temporal logic extension of nltk.sem.drt Keeps track of time referents and temporal DRS-conditions.

New function resolving LOCPRO(t) from a non-finite verb to the location time referent introduced by a finite auxiliary.

Version: 1.0

**Date:** Tue, 24 Aug 2010

Author: Peter Makarov

#### 1.1 Functions

#### ${\bf DrtVariableExpression}(variable)$

This is a factory method that instantiates and returns a subtype of DrtAbstractVariableExpression appropriate for the given variable. Extended with DrtTimeVariableExpression for time referents.

#### $is\_indvar(expr)$

An individual variable must be a single lowercase character other than 'e', 't', 'n', followed by zero or more digits.

#### **Parameters**

expr: str

#### Return Value

boolean True if expr is of the correct form

#### $is\_propername(expr)$

A proper name is capitalized. We assume that John(x) uniquely identifies the bearer of the name John and so, when going from Kamp & Reyle's DRT format into classical FOL logic, we change a condition like that into John = x.

#### **Parameters**

expr: str

#### Return Value

boolean True if expr is of the correct form

#### $is\_timevar(expr)$

An time variable must be a single lowercase 't' or 'n' character followed by zero or more digits. Do we need a separate type for utterance time n?

#### **Parameters**

expr: str

#### Return Value

boolean True if expr is of the correct form

test()	
test_2()	

 $\mathbf{test}\_4()$ 

unique\_variable(pattern=None, ignore=None)

Return a new, unique variable. param pattern: Variable that is being replaced. The new variable must be the same type. param term: a set of Variables that should not be returned from this function. return: Variable

#### 1.2 Variables

 $\mathbf{test}_{-3}()$ 

Name	Description
TIME_TYPE	Value: i
package	Value: None

### 1.3 Class AbstractDrs

 $\label{lem:known} \textbf{Known Subclasses:} \ \ \textbf{temporaldrt.DrtBooleanExpression, temporaldrt.DrtA} \ \ \textbf{temporaldrt.DrtA} \ \ \ \textbf{temporaldrt.DrtApplicationExpression, temporaldrt.DrtEqualityExpression, temporaldrt.DrtLambdaExpression, temporaldrt.DrtNegatedExpression, tempora$ 

This is the base abstract Temproal DRT Expression from which every Temporal DRT Expression extends.

#### 1.3.1 Methods

\_\_add\_\_(self, other)
Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

\_\_gt\_\_(self, other)
Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

\_\_lt\_\_(self, other)
Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ **neg** $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

**applyto**(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

 ${\bf make\_VariableExpression}(\textit{self}, \textit{variable})$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_\_and\_\_(), draw(), get\_refs(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## Inherited from object

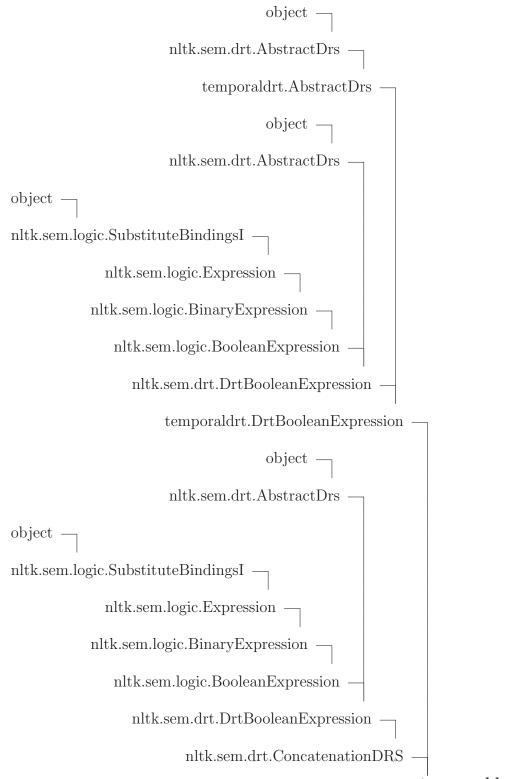
```
__delattr__(), __format__(), __getattribute__(), __hash__(), __init__(), __new__(), __reduce__(), __reduce_ex__(), __repr__(), __stattr__(), __stzeof__(), __str__(), __subclasshook__()
```

#### 1.3.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

Class AbstractDrs Module temporaldrt

#### 1.4 Class ConcatenationDRS



DRS of the form '(DRS + DRS)'

#### 1.4.1 Methods

replace(self, variable, expression, replace\_bound=False)

Replace all instances of variable v with expression E in self, where v is free in self.

**Parameters** 

variable: Variable The variable to replace

expression: Expression The expression with which to replace

it

replace\_bound: boolean Should bound variables be replaced?

Overrides: nltk.sem.logic.Expression.replace

simplify(self)

Return Value

beta-converted version of this expression

Overrides: nltk.sem.logic.Expression.simplify extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.Concatenation DRS$

## $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

# $Inherited\ from\ nltk.sem.logic.Binary Expression$

$$\_init\_(),\,findtype(),\,str(),\,visit()$$

# $Inherited\ from\ nltk.sem.logic. Expression$

 $\label{eq:call_(), lash_(), lash_(),$ 

## Inherited from object

## Inherited from temporaldrt.DrtBooleanExpression(Section 1.8)

resolve(self, trail = [], output = [])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## Inherited from temporaldrt.AbstractDrs(Section 1.3)

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ g $\mathbf{t}$ \_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}\mathbf{neg}_{-}(self)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

**applyto**(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

normalize(self)

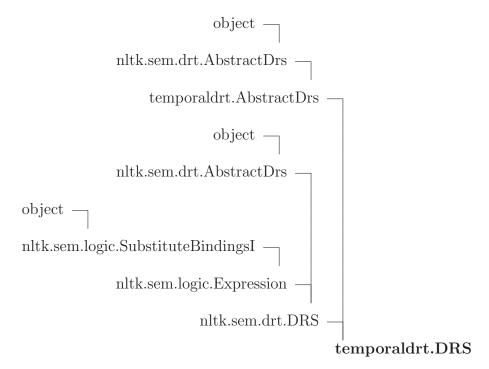
Rename auto-generated unique variables

#### 1.4.2 Properties

Class DRS Module temporaldrt

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

## 1.5 Class DRS



A Temporal Discourse Representation Structure.

Class DRS Module temporaldrt

#### 1.5.1 Methods

#### replace(self, variable, expression, replace\_bound=False)

Replace all instances of variable v with expression E in self, where v is free in self.

#### **Parameters**

variable: Variable The variable to replace

expression: Expression The expression with which to replace

it

replace\_bound: boolean Should bound variables be replaced?

Overrides: nltk.sem.logic.Expression.replace

### resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## simplify(self)

#### Return Value

beta-converted version of this expression

Overrides: nltk.sem.logic.Expression.simplify extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DRS$

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

#### Inherited from nltk.sem.logic.Expression

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), findtype(), negate(), substitute\_bindings()

#### Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

#### Inherited from temporaldrt.AbstractDrs(Section 1.3)

Class DRS Module temporaldrt

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.\_lt\_$ 

 $\_$ **neg** $\_(self)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

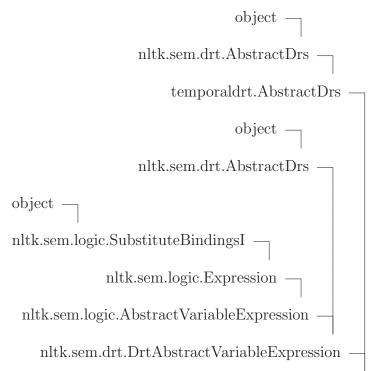
normalize(self)

Rename auto-generated unique variables

#### 1.5.2 Properties

$\mathbf{Name}$	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

### 1.6 Class DrtAbstractVariableExpression



temporal drt. Drt Abstract Variable Expression

 $\textbf{Known Subclasses:} \ temporal drt. Drt Constant Expression, temporal drt. Drt Individual Variable Expression, temporal drt. Drt Function Variable Expression$ 

#### 1.6.1 Methods

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

fol(), get\_refs()

 $Inherited\ from\ nltk.sem.drt.AbstractDrs$ 

 $\verb|--and--()|, draw(), is pronoun_function(), resolve\_anaphora(), tp\_equals(), typecheck()$ 

### $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), replace(), simplify(), str(), visit()

## $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), substitute\_bindings(), variables()

### Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## Inherited from temporaldrt.AbstractDrs(Section 1.3)

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ neg $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

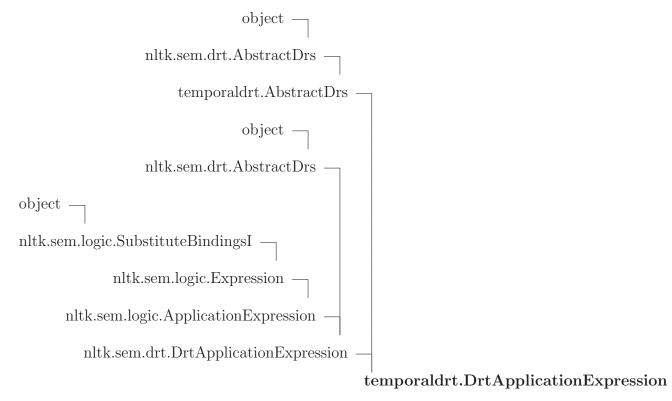
normalize(self)

Rename auto-generated unique variables

#### 1.6.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

## 1.7 Class DrtApplicationExpression



 $\textbf{Known Subclasses:} \ temporal drt. Drt Time Application Expression, temporal drt. Drt Possible Presupp Accorden temporal drt. Drt Presupposition Application Expression, temporal drt. Drt Proper Name Application Expression drt. Drt Proper Name Application Drt Proper Name Application Drt Proper Name Application Drt$ 

#### 1.7.1 Methods

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtApplication Expression$

fol(), get\_refs()

### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

### $Inherited\ from\ nltk.sem.logic. Application Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), free(), simplify(), str(), uncurry(), visit()

### Inherited from nltk.sem.logic.Expression

 $\label{eq:call_optimize} $$\operatorname{L-call}_{-}(), \operatorname{L-hash}_{-}(), \operatorname{L-repr}_{-}(), \operatorname{L-str}_{-}(), \operatorname{negate}(), \operatorname{replace}(), \operatorname{substitute\_bindings}(), \operatorname{variables}()$$ 

#### Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## Inherited from temporaldrt.AbstractDrs(Section 1.3)

\_\_**add**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.\_lt\_$ 

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.applyto$ 

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides: \ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

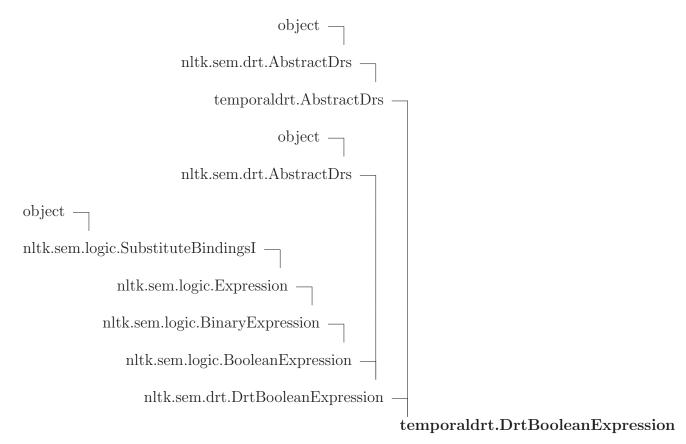
normalize(self)

Rename auto-generated unique variables

### 1.7.2 Properties

Name	Description		
Inherited from nltk.sem.drt.2	Inherited from nltk.sem.drt.AbstractDrs		
type	type		
Inherited from nltk.sem.logic.ApplicationExpression			
args			
Inherited from object			
class			

## 1.8 Class DrtBooleanExpression



 $\textbf{Known Subclasses:} \ \text{temporaldrt.} Concatenation DRS, \ \text{temporaldrt.} Drt Iff Expression, \ \text{temporaldrt.} Drt Imp Expression, \ \text{temporaldrt.} Drt Or Expression$ 

#### 1.8.1 Methods

```
resolve(self, trail=[], output=[])
resolve anaphora should not resolve individuals and events to time referents.
resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.
Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)
```

 $Inherited\ from\ nltk.sem.drt.DrtBoolean Expression$ 

get\_refs()

 $Inherited\ from\ nltk.sem.drt.AbstractDrs$ 

\_\_and\_\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.Binary Expression$

## Inherited from nltk.sem.logic.Expression

```
__call__(), __hash__(), __neq__(), __repr__(), __str__(), free(), negate(), replace(), simplify(), substitute_bindings(), variables()
```

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_(self, other)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ neg $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_or\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

$\mathbf{normalize}(\mathit{self})$	
Rename auto-generated unique variables	

### 1.8.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

## $1.9 \quad {\bf Class\ DrtConstant Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
nltk.sem.drt.DrtAbstractVariableExpression —
temporaldrt.DrtAbstractVariableExpression —
object —
nltk.sem.drt.AbstractDrs —
object —
object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

Known Subclasses: temporaldrt.DrtProperNameExpression

#### 1.9.1 Methods

### $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

fol(), get\_refs()

### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.Constant Expression$

free()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), replace(), simplify(), str(), visit()

### Inherited from nltk.sem.logic.Expression

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), negate(), substitute\_bindings(), variables()

## Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## Inherited from temporaldrt.DrtAbstractVariableExpression(Section 1.6)

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

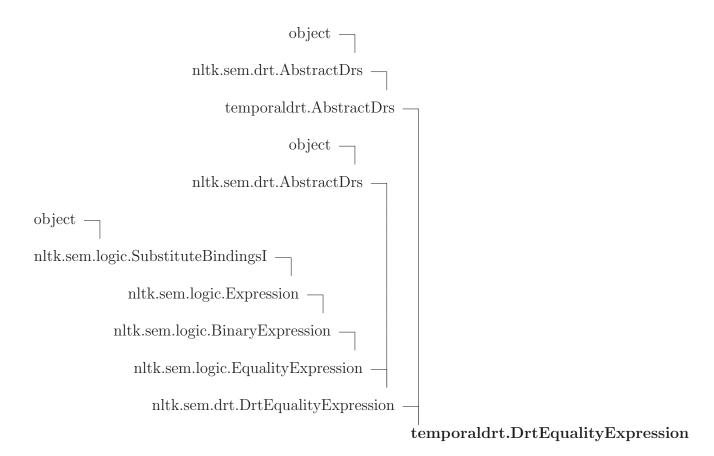
normalize(self)

Rename auto-generated unique variables

#### 1.9.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

### 1.10 Class DrtEqualityExpression



#### 1.10.1 Methods

resolve(self, trail=[], output=[])
resolve anaphora should not resolve individuals and events to time referents.
resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.
Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

#### $Inherited\ from\ nltk.sem.drt.DrtEqualityExpression$

### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

#### $Inherited\ from\ nltk.sem.logic.EqualityExpression$

getOp()

## $Inherited\ from\ nltk.sem.logic.Binary Expression$

## Inherited from nltk.sem.logic.Expression

```
__call__(), __hash__(), __neq__(), __repr__(), __str__(), free(), negate(), replace(), simplify(), substitute_bindings(), variables()
```

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_(self, other)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ neg $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_**or**\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

onumber   onu	
Rename auto-generated unique variables	

## 1.10.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

# ${\bf 1.11}\quad {\bf Class\ DrtEventVariable Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
nltk.sem.drt.DrtAbstractVariableExpression —
temporaldrt.DrtAbstractVariableExpression —
object —
nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs — object —
object —
object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

#### 1.11.1 Methods

### $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_\_and\_\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

### $Inherited\ from\ nltk.sem.logic. Expression$

 $_{-call}(), _{hash}(), _{neq}(), _{repr}(), _{str}(), free(), negate(), substitute\_bindings(), variables()$ 

### Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

### $Inherited\ from\ temporal drt. Drt Abstract Variable Expression (Section\ 1.6)$

## resolve(self, trail = [], output = [])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

```
__add__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__add__
```

```
__gt__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__gt__
```

```
__lt__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__lt__
```

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides: \ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

 ${\bf make\_VariableExpression}(\mathit{self}, \mathit{variable})$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.11.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

## ${\bf 1.12}\quad {\bf Class\ Drt Function Variable Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
nltk.sem.drt.DrtAbstractVariableExpression —
temporaldrt.DrtAbstractVariableExpression —
object —
nltk.sem.drt.AbstractDrs —
object —
object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
nltk.sem.logic.SubstituteBindingsI —  nltk.sem.logic.Expression —  nltk.sem.logic.AbstractVariableExpression —  nltk.sem.drt.DrtAbstractVariableExpression —
nltk.sem.logic.SubstituteBindingsI —  nltk.sem.logic.Expression —  nltk.sem.logic.AbstractVariableExpression —  nltk.sem.drt.DrtAbstractVariableExpression —  object —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

#### 1.12.1 Methods

### $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

fol(), get\_refs()

### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_\_and\_\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.Function Variable Expression$

free()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), replace(), simplify(), str(), visit()

### $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), negate(), substitute\_bindings(), variables()

### Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## $Inherited\ from\ temporal drt. Drt Abstract Variable Expression (Section\ 1.6)$

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

\_\_**add**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt. AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.12.2 Properties

Name	Description	
Inherited from nltk.sem.drt.AbstractDrs		
type		
Inherited from object		
class		

# ${\bf 1.13 \quad Class \ Drt Iff Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.BinaryExpression —
nltk.sem.logic.BooleanExpression —
nltk.sem.drt.DrtBooleanExpression —
temporaldrt.DrtBooleanExpression —
object —
object — nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs —
'
nltk.sem.drt.AbstractDrs — object —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — object — object —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression —

#### 1.13.1 Methods

#### $Inherited\ from\ nltk.sem.drt.DrtIffExpression$

fol()

#### $Inherited\ from\ nltk.sem.drt.DrtBoolean Expression$

get\_refs()

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic. Iff Expression$

getOp()

#### $Inherited\ from\ nltk.sem.logic.Binary Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), str(), visit()

## $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), replace(), simplify(), substitute\_bindings(), variables()

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## $Inherited\ from\ temporal drt. Drt Boolean Expression (Section\ 1.8)$

 $\mathbf{resolve}(\mathit{self}, \mathit{trail} = [], \mathit{output} = [])$ 

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

# $Inherited\ from\ temporal drt. AbstractDrs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ g $\mathbf{t}$ \_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ **neg** $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.13.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

# ${\bf 1.14}\quad {\bf Class\ DrtImpExpression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.BinaryExpression —
nltk.sem.logic.BooleanExpression —
nltk.sem.drt.DrtBooleanExpression —
temporaldrt.DrtBooleanExpression —
object —
object — nltk.sem.drt.AbstractDrs —
•
nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs — object —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — object — object —

#### 1.14.1 Methods

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtImpExpression$

fol()

## $Inherited\ from\ nltk.sem.drt.DrtBoolean Expression$

get\_refs()

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.ImpExpression$

getOp()

## Inherited from nltk.sem.logic.BinaryExpression

$$\_eq\_(), \ \_init\_(), \ findtype(), \ str(), \ visit()$$

## $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), replace(), simplify(), substitute\_bindings(), variables()

# Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

# $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

\_\_add\_\_(self, other)
Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides:  $nltk.sem.drt.AbstractDrs.\_gt\_$ 

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(*self*, *other*)

 $Overrides:\ nltk.sem.drt.AbstractDrs.\_or\_$ 

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.14.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

# $1.15 \quad {\bf Class~Drt Individual Variable Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
nltk.sem.drt.DrtAbstractVariableExpression —
temporaldrt.DrtAbstractVariableExpression —
object —
$_{ m nltk.sem.drt.AbstractDrs}$
object —
object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

 $\textbf{Known Subclasses:} \ temporal drt. Drt Event Variable Expression, temporal drt. Drt Time Variable Expression and the properties of the$ 

#### 1.15.1 Methods

#### $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

```
fol(), get_refs()
```

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

```
__eq__(), __init__(), findtype(), replace(), simplify(), str(), visit()
```

## $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), substitute\_bindings(), variables()

#### Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

#### $Inherited\ from\ temporal drt. Drt Abstract Variable Expression (Section\ 1.6)$

```
resolve(self, trail=[], output=[])
```

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

```
-add_-(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

```
\_gt\_(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

```
_{-}lt_{-}(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides: \ nltk.sem.drt. AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

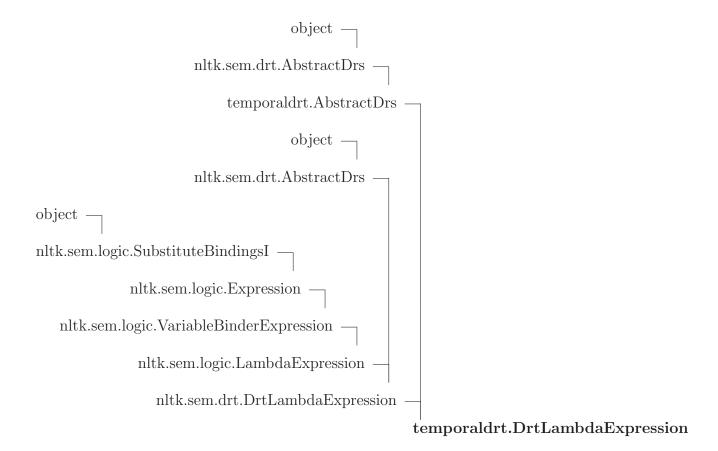
normalize(self)

Rename auto-generated unique variables

#### 1.15.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

## 1.16 Class DrtLambdaExpression



#### 1.16.1 Methods

## alpha\_convert(self, newvar)

Rename all occurrences of the variable introduced by this variable binder in the expression to @newvar.

#### **Parameters**

newvar: Variable, for the new variable

Overrides: nltk.sem.logic.VariableBinderExpression.alpha\_convert

#### replace(self, variable, expression, replace\_bound=False)

Replace every instance of 'variable' with 'expression'

#### **Parameters**

variable: Variable The variable to replace

expression: Expression The expression with which to replace

it

replace\_bound: boolean Should bound variables be replaced?

Overrides: nltk.sem.logic.Expression.replace

See Also: Expression.replace()

## resolve(self, trail = [], output = [])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtLambda Expression$

fol()

# $Inherited\ from\ nltk.sem.drt.AbstractDrs$

 $\label{eq:local_local_local} $$\operatorname{L-and}_{-}(), \operatorname{draw}(), \operatorname{get\_refs}(), \operatorname{is\_pronoun\_function}(), \operatorname{resolve\_anaphora}(), \operatorname{tp\_equals}(), \operatorname{typecheck}() \\$ 

# $Inherited\ from\ nltk.sem.logic.Lambda Expression$

str()

# $Inherited\ from\ nltk.sem.logic. Variable Binder Expression$

 $--\mathrm{eq}_{--}(),\;--\mathrm{init}_{--}(),\;\mathrm{findtype}(),\;\mathrm{free}(),\;\mathrm{variables}(),\;\mathrm{visit}()$ 

# $Inherited\ from\ nltk.sem.logic. Expression$

 $\label{eq:call_optimization} $$\operatorname{L-call}_{-}(), \ \operatorname{L-hash}_{-}(), \ \operatorname{L-repr}_{-}(), \ \operatorname{L-str}_{-}(), \ \operatorname{negate}(), \ \operatorname{simplify}(), \ \operatorname{substitute\_bindings}()$ 

# Inherited from object

 $\label{lem:condition} $$ \__delattr_{-}(), \__format_{-}(), \__getattribute_{-}(), \__new_{-}(), \__reduce_{-}(), \__reduce_{-}(), \__setattr_{-}(), \__sizeof_{-}(), \__subclasshook_{-}() $$ 

# $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ **gt** $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_(self)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

**applyto**(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides:\ nltk.sem.drt. AbstractDrs.make\_Variable Expression$ 

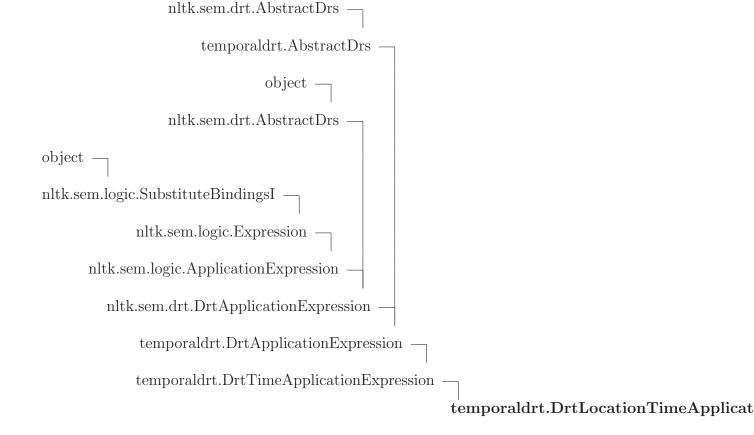
normalize(self)

Rename auto-generated unique variables

#### 1.16.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

#### 1.17 Class DrtLocationTimeApplicationExpression



#### 1.17.1 Methods

```
resolve(self, trail=[], output=[])
Reverses trail list
Overrides: temporaldrt.AbstractDrs.resolve
```

## $Inherited\ from\ nltk.sem.drt.DrtApplication Expression$

fol(), get\_refs()

## $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_\_and\_\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

 $Inherited\ from\ nltk.sem.logic.Application Expression$ 

```
__eq__(), __init__(), findtype(), free(), simplify(), str(), uncurry(), visit()
```

#### Inherited from nltk.sem.logic.Expression

 $_{-call}(), _{hash}(), _{neq}(), _{repr}(), _{str}(), _{negate}(), _{replace}(), _{substitute\_bindings}(), _{variables}()$ 

#### Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_(self)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_\_

\_\_**or**\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

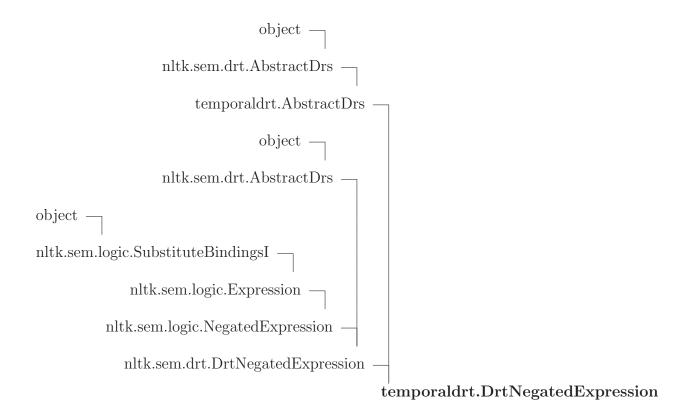
normalize(self)

Rename auto-generated unique variables

#### 1.17.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from nltk.sem.logic.ApplicationExpression	
args	
Inherited from object	
class	

## 1.18 Class DrtNegatedExpression



#### 1.18.1 Methods

resolve(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtNegated Expression$

fol(), get\_refs()

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

#### $Inherited\ from\ nltk.sem.logic.Negated Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), negate(), str(), visit()

#### Inherited from nltk.sem.logic.Expression

 $_{-call}(), _{-hash}(), _{-neq}(), _{-repr}(), _{-str}(), free(), replace(), simplify(), substitute_bindings(), variables()$ 

#### Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.\_lt\_$ 

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.applyto$ 

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt. AbstractDrs. make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides: \ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.18.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

# $1.19 \quad {\bf Class~DrtOrExpression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.BinaryExpression —
nltk.sem.logic.BooleanExpression —
nltk.sem.drt.DrtBooleanExpression —
temporaldrt.DrtBooleanExpression —
object —
object — nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs — object —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — object — object —
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression — object — nltk.sem.logic.SubstituteBindingsI — 58
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.BinaryExpression — nltk.sem.logic.BooleanExpression — nltk.sem.drt.DrtBooleanExpression — object — nltk.sem.logic.SubstituteBindingsI —

#### 1.19.1 Methods

#### $Inherited\ from\ nltk.sem.drt.DrtOrExpression$

fol()

#### $Inherited\ from\ nltk.sem.drt.DrtBoolean Expression$

get\_refs()

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic. Or Expression$

getOp()

#### $Inherited\ from\ nltk.sem.logic.Binary Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), str(), visit()

#### Inherited from nltk.sem.logic.Expression

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), replace(), simplify(), substitute\_bindings(), variables()

#### Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

#### Inherited from temporaldrt.DrtBooleanExpression(Section 1.8)

**resolve**(self, trail=[], output=[])

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. AbstractDrs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_\_\mathbf{gt}\_\_(self, other)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ **neg** $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

#### 1.19.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

#### 1.20 Class DrtParser

object —
nltk.sem.logic.LogicParser —
nltk.sem.drt.DrtParser —
temporaldrt.DrtParser

Class DrtParser Module temporaldrt

DrtParser producing conditions and referents for temporal logic

#### 1.20.1 Methods

#### get\_BooleanExpression\_factory(self, tok)

This method serves as a hook for other logic parsers that have different boolean operators

Overrides: nltk.sem.logic.LogicParser.get\_BooleanExpression\_factory

handle\_DRS(self, tok, context)

Overrides: nltk.sem.drt.DrtParser.handle\_DRS

#### make\_ApplicationExpression(self, function, argument)

If statement added returning DrtTimeApplicationExpression

Overrides: nltk.sem.logic.LogicParser.make\_ApplicationExpression

#### make\_EqualityExpression(self, first, second)

This method serves as a hook for other logic parsers that have different equality expression classes

 $Overrides:\ nltk.sem.logic.LogicParser.make\_EqualityExpression$ 

#### make\_LambdaExpression(self, variables, term)

Overrides: nltk.sem.logic.LogicParser.make\_LambdaExpression

#### make\_NegatedExpression(self, expression)

Overrides: nltk.sem.logic.LogicParser.make\_NegatedExpression

#### make\_VariableExpression(self, name)

Overrides: nltk.sem.logic.LogicParser.make\_VariableExpression

#### $Inherited\ from\ nltk.sem.drt.DrtParser$

\_\_init\_\_(), get\_all\_symbols(), handle(), isvariable(), make\_BooleanExpression()

#### $Inherited\ from\ nltk.sem.logic.LogicParser$

\_repr\_(), assertNextToken(), assertToken(), attempt\_ApplicationExpression(), attempt\_BooleanExpression(), attempt\_EqualityExpression(), attempt\_adjuncts(), get\_QuantifiedExpression(), token\_variable(), handle\_lambda(), handle\_negation(), handle\_open(), handle\_quant(), handle\_variable(), has\_priority(), inRange(), make\_QuanifiedExpression(),

parse(), parse\_Expression(), process(), process\_quoted\_token(), token()

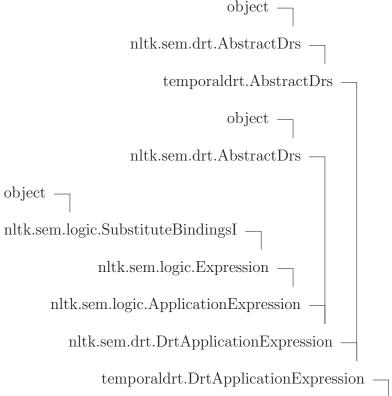
#### Inherited from object

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

#### 1.20.2 Properties

Name	Description
Inherited from object	
_class	

## 1.21 Class DrtPossiblePresuppAccomodationExpression



temporaldrt.DrtPossiblePresuppAccomoda

#### 1.21.1 Methods

 $Inherited\ from\ nltk.sem.drt.DrtApplication Expression$ 

```
fol(), get_refs()
```

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

#### $Inherited\ from\ nltk.sem.logic.Application Expression$

```
__eq__(), __init__(), findtype(), free(), simplify(), str(), uncurry(), visit()
```

#### $Inherited\ from\ nltk.sem.logic. Expression$

 $\label{eq:call_optimize} $$\_$call_-(), $\_$hash_-(), $\_$repr_-(), $\_$str_-(), negate(), replace(), substitute\_bindings(), variables()$ 

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

#### $Inherited\ from\ temporal drt. Drt Application Expression (Section\ 1.7)$

```
resolve(self, trail=[], output=[])
```

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. AbstractDrs (Section\ 1.3)$

```
\_add\_(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

```
\_gt\_(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

```
_{-}lt_{-}(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

```
\_\mathbf{neg}\_(self)
```

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

```
\_or\_(self, other)
```

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.applyto$ 

make\_EqualityExpression(self, first, second)

 $Overrides: \ nltk.sem.drt.AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

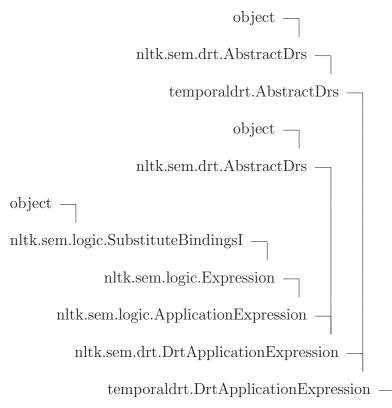
**normalize**(self)

Rename auto-generated unique variables

#### 1.21.2 Properties

Name	Description
Inherited from nltk.sem.drt.2	AbstractDrs
type	
Inherited from nltk.sem.logic	Application Expression
args	
Inherited from object	
class	

#### 1.22 Class DrtPresuppositionApplicationExpression



temporal drt. Drt Presupposition Application

#### **1.22.1** Methods

 $\mathbf{get\_variable}(self)$ 

 $\mathbf{resolve}(\mathit{self}, \mathit{trail} = \texttt{[]}, \mathit{output} = \texttt{[]})$ 

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

 $Inherited\ from\ nltk.sem.drt.DrtApplicationExpression$ 

fol(), get\_refs()

 $Inherited\ from\ nltk.sem.drt.AbstractDrs$ 

\_\_and\_\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.Application Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), free(), simplify(), str(), uncurry(), visit()

## Inherited from nltk.sem.logic.Expression

 $\label{eq:call_optimize} $$\_$call_(), $\_$hash_(), $\_$repr_(), $\_$str_(), negate(), replace(), substitute\_bindings(), variables()$ 

## Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_(self, other)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ neg $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_**or**\_\_(self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

#### make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

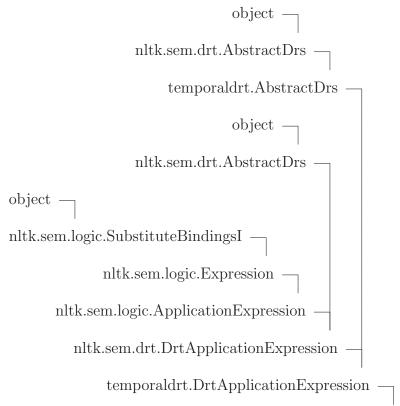
Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

Rename auto-generated unique variables

#### 1.22.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from nltk.sem.logic	Application Expression
args	
Inherited from object	
class	

#### 1.23 Class DrtProperNameApplicationExpression



temporal drt. Drt Proper Name Application Experiment Proper Name Application Proper Name Application Experiment Proper Name Application Proper Name Applica

#### 1.23.1 Methods

## $\mathbf{fol}(self)$

New condition for proper names added

Overrides: nltk.sem.drt.DrtApplicationExpression.fol

#### get\_variable(self)

$$resolve(self, trail = [], output = [])$$

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ nltk.sem.drt.DrtApplication Expression$

get\_refs()

## $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

# $Inherited\ from\ nltk.sem.logic.Application Expression$

$$\label{eq:condition} $\operatorname{Leq}_{-}(), \ \operatorname{Linit}_{-}(), \ \operatorname{findtype}(), \ \operatorname{free}(), \ \operatorname{simplify}(), \ \operatorname{str}(), \ \operatorname{uncurry}(), \ \operatorname{visit}() $$$

# $Inherited\ from\ nltk.sem.logic. Expression$

 $\label{eq:call_optimize} $$\operatorname{L-call}_{-}(), \operatorname{L-hash}_{-}(), \operatorname{L-repr}_{-}(), \operatorname{L-str}_{-}(), \operatorname{negate}(), \operatorname{replace}(), \operatorname{substitute\_bindings}(), \operatorname{variables}()$$ 

# Inherited from object

```
a_{--} delattr_(), a_{--} format_(), a_{--} getattribute_(), a_{--} new_(), a_{--} reduce_(), a_{--} reduce_ex_(), a_{--} setattr_(), a_{--} sizeof_(), a_{--} subclasshook_()
```

# $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

```
__add__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__add__
```

```
\_gt\_(self, other)
```

Overrides:  $nltk.sem.drt.AbstractDrs.\_gt\_$ 

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

 $\_$ or $\_$ (self, other)

 $Overrides:\ nltk.sem.drt.AbstractDrs.\_or\_$ 

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

 $make\_EqualityExpression(self, first, second)$ 

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

normalize(self)

Rename auto-generated unique variables

## 1.23.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from nltk.sem.logic	. Application Expression
args	
Inherited from object	
_class	

# ${\bf 1.24}\quad {\bf Class~DrtProperNameExpression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
I
nltk.sem.drt.DrtAbstractVariableExpression —
$temporal drt. Drt Abstract Variable Expression \$
object —
I
nltk.sem.drt.AbstractDrs $-$
nltk.sem.drt.AbstractDrs — object — nltk.sem.logic.SubstituteBindingsI —
object —
object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

Class for proper names

#### 1.24.1 Methods

#### $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

fol(), get\_refs()

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic.Constant Expression$

free()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

\_\_eq\_\_(), \_\_init\_\_(), findtype(), replace(), simplify(), str(), visit()

#### Inherited from nltk.sem.logic.Expression

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), negate(), substitute\_bindings(), variables()

## Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_getattribute\_\_(), \_\_new\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_sizeof\_\_(), \_\_subclasshook\_\_()

#### $Inherited\ from\ temporal drt. Drt Abstract Variable Expression (Section\ 1.6)$

 $\mathbf{resolve}(\mathit{self}, \mathit{trail} = [], \mathit{output} = [])$ 

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_$ **neg** $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_neg\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

 $make\_EqualityExpression(self, first, second)$ 

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

 $Overrides:\ nltk.sem.drt.AbstractDrs.make\_VariableExpression$ 

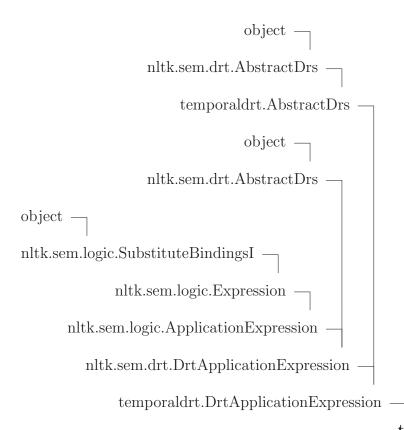
normalize(self)

Rename auto-generated unique variables

#### 1.24.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

## 1.25 Class DrtTimeApplicationExpression



temporal drt. Drt Time Application Expressio

Known Subclasses: temporaldrt.DrtLocationTimeApplicationExpression

Type of DRS-conditions used in temporal logic

#### 1.25.1 Methods

# $Inherited\ from\ nltk.sem.drt.DrtApplication \textit{Expression}$

 $Inherited\ from\ nltk.sem.drt.AbstractDrs$ 

$$\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()$$

 $Inherited\ from\ nltk.sem.logic.Application Expression$ 

$$\label{eq:condition} $$ $_-eq_-(), \ $_-init_-(), \ findtype(), \ free(), \ simplify(), \ str(), \ uncurry(), \ visit() $$$$

 $Inherited\ from\ nltk.sem.logic. Expression$ 

variables()

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## Inherited from temporaldrt.DrtApplicationExpression(Section 1.7)

```
resolve(self, trail=[], output=[])
```

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

## $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ **gt** $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $\_\mathbf{neg}_{--}(self)$ 

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

 $\_$ or $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

$\mathbf{normalize}(\mathit{self})$	
Rename auto-generated unique variables	

# 1.25.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from nltk.sem.logic.ApplicationExpression	
args	
Inherited from object	
class	

# ${\bf 1.26 \quad Class \ Drt Time Variable Expression}$

object —
nltk.sem.drt.AbstractDrs —
temporaldrt.AbstractDrs —
object —
nltk.sem.drt.AbstractDrs —
object —
nltk.sem.logic.SubstituteBindingsI —
nltk.sem.logic.Expression —
nltk.sem.logic.AbstractVariableExpression —
nltk.sem.drt.DrtAbstractVariableExpression —
temporaldrt.DrtAbstractVariableExpression —
object —
nltk.sem.drt.AbstractDrs —
nltk.sem.drt.AbstractDrs — object —
object —
object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object —
object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression — nltk.sem.logic.AbstractVariableExpression — nltk.sem.drt.DrtAbstractVariableExpression — object — nltk.sem.logic.SubstituteBindingsI — nltk.sem.logic.Expression —

Type of discourse referents of time

#### **1.26.1** Methods

## $Inherited\ from\ nltk.sem.drt.DrtAbstractVariable Expression$

```
fol(), get_refs()
```

## $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_and\_(), draw(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

## $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$

```
__eq__(), __init__(), findtype(), replace(), simplify(), str(), visit()
```

## $Inherited\ from\ nltk.sem.logic. Expression$

\_\_call\_\_(), \_\_hash\_\_(), \_\_neq\_\_(), \_\_repr\_\_(), \_\_str\_\_(), free(), negate(), substitute\_bindings(), variables()

## Inherited from object

```
__delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce_ex__(), __setattr__(), __sizeof__(), __subclasshook__()
```

## $Inherited\ from\ temporal drt. Drt Abstract Variable Expression (Section\ 1.6)$

```
resolve(self, trail=[], output=[])
```

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

Overrides: temporaldrt.AbstractDrs.resolve extit(inherited documentation)

# $Inherited\ from\ temporal drt. Abstract Drs (Section\ 1.3)$

```
__add__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__add__
```

```
__gt__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__gt__
```

```
__lt__(self, other)
Overrides: nltk.sem.drt.AbstractDrs.__lt__
```

 $\_$ neg $\_$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_\_or\_\_

applyto(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

 $Overrides:\ nltk.sem.drt. AbstractDrs.make\_EqualityExpression$ 

make\_VariableExpression(self, variable)

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

normalize(self)

Rename auto-generated unique variables

#### 1.26.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

### 1.27 Class DrtTokens

object —
nltk.sem.logic.Tokens —
nltk.sem.drt.DrtTokens —
temporaldrt.DrtTokens

#### 1.27.1 Methods

## Inherited from object

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

#### 1.27.2 Properties

Name	Description
Inherited from object	
class	

### 1.27.3 Class Variables

Name	Description
LOCATION_TIME	Value: 'LOCPRO'
PRESUPPOSITION	Value: 'PRESUPP'
PRESUPP_ACCOMODA-	Value: 'ACCOMOD'
TION	
Inherited from nltk.sem.drt.l	
CLOSE_BRACKET, DRS, DRS_CONC, OPEN_BRACKET, PRONOUN,	
PUNCT, SYMBOLS, TOKENS	
Inherited from nltk.sem.logic	e. Tokens
ALL, AND, BINOPS, CLOSE, COMMA, DOT, EQ, EXISTS, IFF, IMP,	
LAMBDA, NEQ, NLTK, NO	OT, OLD_NLTK, OPEN, OR, PROVER9,
QUANTS, x	

## 1.28 Class LocationTimeResolutionException

object —	
exceptions. BaseException $\overline{}$	
exceptions.Exception	
	temporal drt. Location Time Resolution Exception

#### 1.28.1 Methods

Inherited from exceptions. Exception

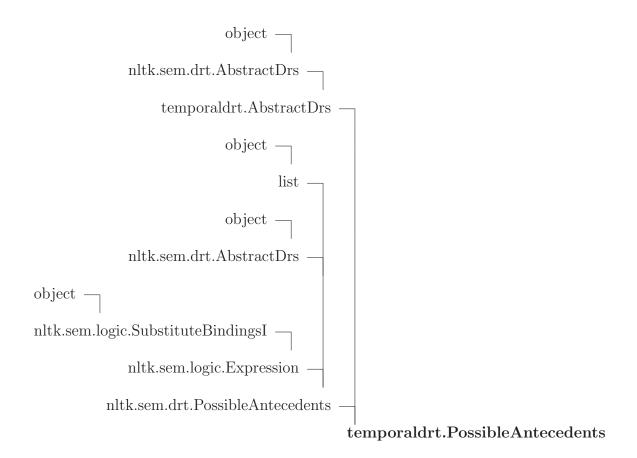
## $Inherited\ from\ exceptions. Base Exception$

## Inherited from object

### 1.28.2 Properties

Name	Description
Inherited from exceptions. Be	iseException
args, message	
Inherited from object	
class	

### 1.29 Class PossibleAntecedents



#### 1.29.1 Methods

#### $Inherited\ from\ nltk.sem.drt.Possible Antecedents$

free(), replace(), str()

#### Inherited from list

```
__contains__(), __delitem__(), __delslice__(), __eq__(), __ge__(), __getattribute__(), __getitem__(), __getslice__(), __iadd__(), __imul__(), __init__(), __iter__(), __len__(), __len__(), __mul__(), __nev__(), __repr__(), __reversed__(), __rmul__(), __setitem__(), __setslice__(), __sizeof__(), append(), count(), extend(), index(), insert(), pop(), remove(), reverse(), sort()
```

#### $Inherited\ from\ nltk.sem.drt.AbstractDrs$

\_\_and\_\_(), draw(), get\_refs(), is\_pronoun\_function(), resolve\_anaphora(), tp\_equals(), typecheck()

#### Inherited from nltk.sem.logic.Expression

 $\label{eq:call_operate} $$\_$call_(), \_neq_(), \_str_(), findtype(), negate(), simplify(), substitute\_bindings(), variables(), visit()$ 

## Inherited from object

\_\_delattr\_\_(), \_\_format\_\_(), \_\_reduce\_\_(), \_\_reduce\_ex\_\_(), \_\_setattr\_\_(), \_\_subclasshook\_\_()

# Inherited from temporaldrt.AbstractDrs(Section 1.3)

 $\_$ add $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_add\_\_

 $\_$ gt $\_$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_gt\_\_

 $_{-}$ lt $_{-}$ (self, other)

Overrides: nltk.sem.drt.AbstractDrs.\_\_lt\_\_

 $_{-}$ **neg** $_{-}$ (self)

Overrides: nltk.sem.drt.AbstractDrs.\_\_neg\_\_

\_\_**or**\_\_(*self*, *other*)

Overrides: nltk.sem.drt.AbstractDrs.\_or\_

**applyto**(self, other)

Overrides: nltk.sem.drt.AbstractDrs.applyto

make\_EqualityExpression(self, first, second)

Overrides: nltk.sem.drt.AbstractDrs.make\_EqualityExpression

 $make\_VariableExpression(self, variable)$ 

Overrides: nltk.sem.drt.AbstractDrs.make\_VariableExpression

normalize(self)

Rename auto-generated unique variables

Class TimeType Module temporaldrt

```
resolve(self, trail=[], output=[])
```

resolve anaphora should not resolve individuals and events to time referents.

resolve location time picks out the nearest time referent other than the one in LOCPRO(t), for which purpose the PossibleAntecedents class is not used.

#### 1.29.2 Properties

Name	Description
Inherited from nltk.sem.drt.AbstractDrs	
type	
Inherited from object	
class	

#### 1.29.3 Class Variables

Name	Description
Inherited from list	
_hash	

## 1.30 Class TimeType

```
object —
nltk.sem.logic.Type —
nltk.sem.logic.BasicType —
temporaldrt.TimeType
```

Basic type of times added on top of nltk.sem.logic. Extend to utterance time referent 'n'.

#### 1.30.1 Methods

```
__str__(self)
str(x)
Overrides: object.__str__ extit(inherited documentation)
```

 $\mathbf{str}(self)$ 

## Inherited from nltk.sem.logic.BasicType

## Inherited from nltk.sem.logic.Type

## Inherited from object

```
\label{lem:condition} $$ $\_-delattr_-(), \_-format_-(), \_-getattribute_-(), \_-init_-(), \_-new_-(), \_-reduce_-(), \_-reduce_-ex_-(), \_-setattr_-(), \_-sizeof_-(), \_-subclasshook_-() $
```

## 1.30.2 Properties

Name	Description
Inherited from object	
_class	

# 1.31 Class TimeVariableExpression

object —	
nltk.sem.logic.SubstituteBindings I $\hdots$	
nltk.sem.logic.Expression —	
nltk.sem.logic.AbstractVariableExpression $-$	
nltk.sem.logic. Individual Variable Expression	
	temporaldrt.TimeVariableExpression

# ${\bf Known~Subclasses:}~ {\bf temporal drt. Drt Time Variable Expression}$

This class represents variables that take the form of a single lowercase 'i' character followed by zero or more digits.

#### 1.31.1 Methods

 $Inherited\ from\ nltk.sem.logic. Abstract Variable Expression$ 

## Inherited from nltk.sem.logic.Expression

## Inherited from object

$$\label{lem:condition} $$ $\_\_delattr_{-}(), \_\_format_{-}(), \_\_getattribute_{-}(), \_\_new_{-}(), \_\_reduce_{-}(), \_\_reduce_{-}(), \_\_setattr_{-}(), \_\_sizeof_{-}(), \_\_subclasshook_{-}() $$$

#### 1.31.2 Properties

Name	Description
Inherited from object	
class	

#### 1.31.3 Class Variables

Name	Description
type	Value: i

# Index

temporaldrt.DrtPresuppositionApplicationExpression (class), 64-67 ), temporaldrt.DrtPresuppositionApplicationExpression (method), 65 temporaldrt.DrtProperNameApplicationExpression (class), 67-69 temporaldrt.DrtProperNameApplicationExpression.g (method), 68 temporaldrt.DrtProperNameExpression (class), 69-73 temporaldrt.DrtTimeApplicationExpression (class), 73-76 temporaldrt.DrtTimeVariableExpression (class), 76-80 temporaldrt.DrtTokens (class), 80-81 temporaldrt.DrtVariableExpression (function), 4 temporaldrt.si.indvar (function), 4 temporaldrt.is.propername (function), 4 temporaldrt.LocationTimeResolutionException (class), 81-82 temporaldrt.PossibleAntecedents (class), 82-85 temporaldrt.test (function), 4 temporaldrt.test (function), 5 temporaldrt.test_2 (function), 5 temporaldrt.TimeType (class), 85-86 temporaldrt.TimeType.str (method), 85 temporaldrt.TimeType.str (method), 85 temporaldrt.TimeVariableExpression (class), 86-87 temporaldrt.unique_variable (function), 5 tession
nExpression
)