SPINdle conclusions for rules of the reference implementation of the paper "It could be worse, it could be raining": reliable automatic meteorological forecasting for holiday planning

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1 SPINdle

One the Tournament algorithm described in the paper produced a defeasible theory, we can process the theory by means of well-established reasoning technologies, such as Spindle. SPINdle is a logic reasoner that can be used to compute the consequence of defeasible logic theories in an efficient and it can be downloaded at http://spindle.data61.csiro.au/spindle/.

1.1 Spindle conclusions for rules of the reference implementation

```
*****************************************************************************
* SPINdle (version 2.2.4)                                                   *
* Copyright (C) 2009-2014 NICTA Ltd.                                        *
* This software and its documentation is distributed under the terms of the *
* FSF Lesser GNU Public License (LGPL).                                     *
*                                                                           *
* This program comes with ABSOLUTELY NO WARRANTY; This is a free software   *
* and you are welcome to redistribute it under certain conditions; for      *
* details type:                                                             *
* java -jar spindle-<version>.jar --app.license                             *
*****************************************************************************
========================
== application start!! ==
========================
Initialize application context - start
    load application configuration - start
        app.showProgress=false
        app.showStatistics=false
        reasoner.version=2
    load application configuration - end
    configurating I/O classes - start
        generating outputter [spindle.io.outputter.DflTheoryOutputter]...success, type=[dfl]
```

```
        generating outputter [spindle.io.outputter.XmlTheoryOutputter2]...success, type=[xml]
        generating parser [spindle.io.parser.DflTheoryParser2]...success, type=[dfl]
        generating parser [spindle.io.parser.XmlTheoryParser2]...success, type=[xml]
    configurating I/O classes - end
Initialize application context - end
=== System info: Load theory from url: file:/temp/Meteo_SPINDLE_RULES
=== System info: Theory loaded successfully, theory type: SDL.
=== System info: Theory contains no literal variable or boolean function.
=== System info: transform theory to regular form
=== System info: Generate conclusions.
=== System info: Conclusions.
    +D CEt090(X)
    +D CNt090(X)
    +D CSt090(X)
    +D Seaot0190(X)
    +D WCt0NE15(X)
    +D WNt0NE15(X)
    +D WSt0NE15(X)
    +D Wo_t0_5(X)
    -D CCet175(X)
    -D CCet190(X)
    -D CCet230(X)
    -D CCgt090(X)
    -D CCgt190(X)
    -D CCgt290(X)
    -D CCt178(X)
    -D -CCt178(X)
    -D CCt188(X)
    -D -CCt188(X)
    -D CCt238(X)
    -D -CCt238(X)
    -D CCt268(X)
    -D -CCt268(X)
    -D CNet175(X)
    -D CNet190(X)
    -D CNet230(X)
    -D CNgt090(X)
    -D CNgt190(X)
    -D CNgt290(X)
    -D CNt178(X)
    -D -CNt178(X)
    -D CNt188(X)
    -D -CNt188(X)
    -D CNt238(X)
    -D -CNt238(X)
    -D CNt268(X)
    -D -CNt268(X)
    -D CSet175(X)
    -D CSet190(X)
    -D CSet230(X)
```

```
-D CSgt090(X)
-D CSgt190(X)
-D CSgt290(X)
-D CSt178(X)
-D -CSt178(X)
-D CSt188(X)
-D -CSt188(X)
-D CSt238(X)
-D -CSt238(X)
-D CSt268(X)
-D -CSt268(X)
-D Seaet0160(X)
-D Seaet150(X)
-D Seaet210(X)
-D Seagt0190(X)
-D Seagt1100(X)
-D Seagt2100(X)
-D Seat165(X)
-D -Seat165(X)
-D Seat195(X)
-D -Seat195(X)
-D Seat220(X)
-D -Seat220(X)
-D Seat280(X)
-D -Seat280(X)
-D WCet1NE5(X)
-D WCet2N5(X)
-D WCgt0N18(X)
-D WCgt1E8(X)
-D WCgt2E8(X)
-D WCt1E7(X)
-D -WCt1E7(X)
-D WCt1NE6(X)
-D -WCt1NE6(X)
-D WCt2N6(X)
-D -WCt2N6(X)
-D WCt2NE7(X)
-D -WCt2NE7(X)
-D WNet1NE15(X)
-D WNet1NE5(X)
-D WNet2N5(X)
-D WNgt0N18(X)
-D WNgt1N8(X)
-D WNgt2N8(X)
-D WNt1N7(X)
-D -WNt1N7(X)
-D WNt1NE6(X)
-D -WNt1NE6(X)
-D WNt2N6(X)
-D -WNt2N6(X)
```

```
-D WNt2NE7(X)
-D -WNt2NE7(X)
-D WSet1N5(X)
-D WSet1NE5(X)
-D WSet2N5(X)
-D WSgt0N10(X)
-D WSgt1E5(X)
-D WSgt2E5(X)
-D WSt1E5(X)
-D -WSt1E5(X)
-D WSt1N5(X)
-D -WSt1N5(X)
-D WSt2N5(X)
-D -WSt2N5(X)
-D WSt2NE5(X)
-D -WSt2NE5(X)
+d CCet175(X)
+d CCet190(X)
+d CCet230(X)
+d CCgt090(X)
+d CCgt190(X)
+d CCgt290(X)
+d CCt178(X)
+d -CCt188(X)
+d CCt238(X)
+d -CCt268(X)
+d CEt090(X)
+d CNet175(X)
+d CNet190(X)
+d CNet230(X)
+d CNgt090(X)
+d CNgt190(X)
+d CNt090(X)
+d CNt178(X)
+d -CNt188(X)
+d CSet175(X)
+d CSet190(X)
+d CSet230(X)
+d CSgt090(X)
+d CSgt190(X)
+d CSgt290(X)
+d CSt090(X)
+d CSt178(X)
+d -CSt188(X)
+d CSt238(X)
+d -CSt268(X)
+d Seaet0160(X)
+d Seaet150(X)
+d Seaet210(X)
+d Seagt0190(X)
```

+d Seagt1100(X)
+d Seagt2100(X)
+d Seaot0190(X)
+d Seat165(X)
+d -Seat195(X)
+d Seat220(X)
+d -Seat280(X)
+d WCet1NE5(X)
+d WCet2N5(X)
+d WCgtON18(X)
+d WCgt1E8(X)
+d WCgt2E8(X)
+d WCtONE15(X)
+d -WCt1E7(X)
+d WCt1NE6(X)
+d WCt2N6(X)
+d -WCt2NE7(X)
+d WNet1NE15(X)
+d WNet1NE5(X)
+d WNet2N5(X)
+d WNgtON18(X)
+d WNgt1N8(X)
+d WNgt2N8(X)
+d WNtONE15(X)
+d -WNt1N7(X)
+d WNt1NE6(X)
+d WNt2N6(X)
+d -WNt2NE7(X)
+d WSet1N5(X)
+d WSet1NE5(X)
+d WSet2N5(X)
+d WSgtON10(X)
+d WSgt1E5(X)
+d WSgt2E5(X)
+d WStONE15(X)
+d -WSt1E5(X)
+d WSt1N5(X)
+d WSt2N5(X)
+d -WSt2NE5(X)
+d Wo_tO_5(X)
-d -CCt178(X)
-d CCt188(X)
-d -CCt238(X)
-d CCt268(X)
-d CNgt290(X)
-d -CNt178(X)
-d CNt188(X)
-d CNt238(X)
-d -CNt238(X)
-d CNt268(X)

```
    -d -CNt268(X)
    -d -CSt178(X)
    -d CSt188(X)
    -d -CSt238(X)
    -d CSt268(X)
    -d -Seat165(X)
    -d Seat195(X)
    -d -Seat220(X)
    -d Seat280(X)
    -d WCt1E7(X)
    -d -WCt1NE6(X)
    -d -WCt2N6(X)
    -d WCt2NE7(X)
    -d WNt1N7(X)
    -d -WNt1NE6(X)
    -d -WNt2N6(X)
    -d WNt2NE7(X)
    -d WSt1E5(X)
    -d -WSt1N5(X)
    -d -WSt2N5(X)
    -d WSt2NE5(X)

====================================
== Performance statistics summary ==
====================================
== I/O classes configuration time used: 32 ms
== No. of record(s) found: 1
== --- start

+-----------+-----------+----------------+----------------+----------------+----------------+----------------+------------+-----
|   No. of  |   No. of  |   Time used on |   Time used on |   Time used on | Time used on   |    Total time  | Max. Memory |
|    Rules  |  Literals | loading theory | transform theory| remove defeater |    reasoning   |       used     |     used   | filename
+-----------+-----------+----------------+----------------+----------------+----------------+----------------+------------+-----
|       105 |       105 |       0,069 sec |       0,006 sec |       0,000 sec |       0,035 sec |       0,110 sec |     9,63 MB | file:/temp/Meteo_SPINDLE_RULES
+-----------+-----------+----------------+----------------+----------------+----------------+----------------+------------+-----
== --- end

Calling the shutdown routine...
Terminate application context - start
Terminate application context - end
========================================
=== Application shutdown completed! ===
========================================
```