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Command Line System Version 4.6.3
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  G.I. Webb & S. Zhang (2005). K-Optimal Rule Discovery.
  Data Mining and Knowledge Discovery, 10(1): 39-79.

Thu Sep 15 19:25:37 2011

settings-file=iris.mos
! This example demonstrates the use of holdout evaluation.
! Note, you may need to specify the full path name for tutorial.itl.
item-list-file=iris.scr.itl
! Use the concise=2 output format and show RHScoverage.
concise=2
show-RHScoverage=yes
! The next option specifies that 50% of the data is used for rule discovery
proportion=0.5
! Use the remaining data for holdout evaluation.
out-of-sample-holdout-evaluation
! The default holdout test is test-positive correlation.
! The following option specifies an addition holdout test.
test-improvement=yes
Using default filter mode for holdout evaluation runs: filter-mode=insigificant

Imported 75 cases/75 holdout cases/15 items


Only 52 rules satisfy specified constraints.

The following 44 rules passed holdout evaluation

O1 -> d1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]

O1 -> c1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]

d1 -> O1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]

d1 -> c1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]

c1 -> O1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]
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c1 -> d1
[Coverage=0.373 (28); RHS Coverage=0.373 (28); Support=0.373 (28); Strength=1.00
0; Lift=2.68; Leverage=0.2340 (17.5); p=3.18E-21]

O2 -> c2
[Coverage=0.360 (27); RHS Coverage=0.333 (25); Support=0.333 (25); Strength=0.92
6; Lift=2.78; Leverage=0.2133 (16.0); p=6.67E-18]

c2 -> O2
[Coverage=0.333 (25); RHS Coverage=0.360 (27); Support=0.333 (25); Strength=1.00
0; Lift=2.78; Leverage=0.2133 (16.0); p=6.67E-18]

f2 -> O2
[Coverage=0.373 (28); RHS Coverage=0.360 (27); Support=0.347 (26); Strength=0.92
9; Lift=2.58; Leverage=0.2123 (15.9); p=9.70E-17]

O2 -> f2
[Coverage=0.360 (27); RHS Coverage=0.373 (28); Support=0.347 (26); Strength=0.96
3; Lift=2.58; Leverage=0.2123 (15.9); p=9.70E-17]

f2 -> c2
[Coverage=0.373 (28); RHS Coverage=0.333 (25); Support=0.333 (25); Strength=0.89
3; Lift=2.68; Leverage=0.2089 (15.7); p=6.23E-17]

c2 -> f2
[Coverage=0.333 (25); RHS Coverage=0.373 (28); Support=0.333 (25); Strength=1.00
0; Lift=2.68; Leverage=0.2089 (15.7); p=6.23E-17]

a1 -> O1
[Coverage=0.400 (30); RHS Coverage=0.373 (28); Support=0.347 (26); Strength=0.86
7; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

a1 -> d1
[Coverage=0.400 (30); RHS Coverage=0.373 (28); Support=0.347 (26); Strength=0.86
7; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

a1 -> c1
[Coverage=0.400 (30); RHS Coverage=0.373 (28); Support=0.347 (26); Strength=0.86
7; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

O1 -> a1
[Coverage=0.373 (28); RHS Coverage=0.400 (30); Support=0.347 (26); Strength=0.92
9; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

d1 -> a1
[Coverage=0.373 (28); RHS Coverage=0.400 (30); Support=0.347 (26); Strength=0.92
9; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

c1 -> a1
[Coverage=0.373 (28); RHS Coverage=0.400 (30); Support=0.347 (26); Strength=0.92
9; Lift=2.32; Leverage=0.1973 (14.8); p=8.68E-14]

O3 -> c3
[Coverage=0.267 (20); RHS Coverage=0.293 (22); Support=0.267 (20); Strength=1.00
0; Lift=3.41; Leverage=0.1884 (14.1); p=2.88E-16]

c3 -> O3
[Coverage=0.293 (22); RHS Coverage=0.267 (20); Support=0.267 (20); Strength=0.90
9; Lift=3.41; Leverage=0.1884 (14.1); p=2.88E-16]

d3 -> c3
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[Coverage=0.253 (19); RHS Coverage=0.293 (22); Support=0.253 (19); Strength=1.00
0; Lift=3.41; Leverage=0.1790 (13.4); p=5.37E-15]

c3 -> d3
[Coverage=0.293 (22); RHS Coverage=0.253 (19); Support=0.253 (19); Strength=0.86
4; Lift=3.41; Leverage=0.1790 (13.4); p=5.37E-15]

d3 -> O3
[Coverage=0.253 (19); RHS Coverage=0.267 (20); Support=0.240 (18); Strength=0.94
7; Lift=3.55; Leverage=0.1724 (12.9); p=3.65E-14]

O3 -> d3
[Coverage=0.267 (20); RHS Coverage=0.253 (19); Support=0.240 (18); Strength=0.90
0; Lift=3.55; Leverage=0.1724 (12.9); p=3.65E-14]

c3 -> a3
[Coverage=0.293 (22); RHS Coverage=0.347 (26); Support=0.253 (19); Strength=0.86
4; Lift=2.49; Leverage=0.1516 (11.4); p=2.40E-09]

a3 -> c3
[Coverage=0.347 (26); RHS Coverage=0.293 (22); Support=0.253 (19); Strength=0.73
1; Lift=2.49; Leverage=0.1516 (11.4); p=2.40E-09]

O3 -> a3
[Coverage=0.267 (20); RHS Coverage=0.347 (26); Support=0.240 (18); Strength=0.90
0; Lift=2.60; Leverage=0.1476 (11.1); p=2.33E-09]

a3 -> O3
[Coverage=0.347 (26); RHS Coverage=0.267 (20); Support=0.240 (18); Strength=0.69
2; Lift=2.60; Leverage=0.1476 (11.1); p=2.33E-09]

d3 -> a3
[Coverage=0.253 (19); RHS Coverage=0.347 (26); Support=0.213 (16); Strength=0.84
2; Lift=2.43; Leverage=0.1255 (9.4); p=3.54E-07]

a3 -> d3
[Coverage=0.347 (26); RHS Coverage=0.253 (19); Support=0.213 (16); Strength=0.61
5; Lift=2.43; Leverage=0.1255 (9.4); p=3.54E-07]

b3 -> O1
[Coverage=0.240 (18); RHS Coverage=0.373 (28); Support=0.200 (15); Strength=0.83
3; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]

b3 -> d1
[Coverage=0.240 (18); RHS Coverage=0.373 (28); Support=0.200 (15); Strength=0.83
3; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]

b3 -> c1
[Coverage=0.240 (18); RHS Coverage=0.373 (28); Support=0.200 (15); Strength=0.83
3; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]

O1 -> b3
[Coverage=0.373 (28); RHS Coverage=0.240 (18); Support=0.200 (15); Strength=0.53
6; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]

d1 -> b3
[Coverage=0.373 (28); RHS Coverage=0.240 (18); Support=0.200 (15); Strength=0.53
6; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]

c1 -> b3
[Coverage=0.373 (28); RHS Coverage=0.240 (18); Support=0.200 (15); Strength=0.53
6; Lift=2.23; Leverage=0.1104 (8.3); p=6.70E-06]
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c2 -> b1
[Coverage=0.333 (25); RHS Coverage=0.360 (27); Support=0.200 (15); Strength=0.60
0; Lift=1.67; Leverage=0.0800 (6.0); p=0.00265]

b1 -> c2
[Coverage=0.360 (27); RHS Coverage=0.333 (25); Support=0.200 (15); Strength=0.55
6; Lift=1.67; Leverage=0.0800 (6.0); p=0.00265]

f2 -> b1
[Coverage=0.373 (28); RHS Coverage=0.360 (27); Support=0.213 (16); Strength=0.57
1; Lift=1.59; Leverage=0.0789 (5.9); p=0.00360]

b1 -> f2
[Coverage=0.360 (27); RHS Coverage=0.373 (28); Support=0.213 (16); Strength=0.59
3; Lift=1.59; Leverage=0.0789 (5.9); p=0.00360]

a1 -> b3
[Coverage=0.400 (30); RHS Coverage=0.240 (18); Support=0.173 (13); Strength=0.43
3; Lift=1.81; Leverage=0.0773 (5.8); p=0.00178]

b3 -> a1
[Coverage=0.240 (18); RHS Coverage=0.400 (30); Support=0.173 (13); Strength=0.72
2; Lift=1.81; Leverage=0.0773 (5.8); p=0.00178]

b1 -> O2
[Coverage=0.360 (27); RHS Coverage=0.360 (27); Support=0.200 (15); Strength=0.55
6; Lift=1.54; Leverage=0.0704 (5.3); p=0.00855]

O2 -> b1
[Coverage=0.360 (27); RHS Coverage=0.360 (27); Support=0.200 (15); Strength=0.55
6; Lift=1.54; Leverage=0.0704 (5.3); p=0.00855]


The following 8 rules failed holdout evaluation, adjusted critical value = 0.012
5

a2 -> O2
[Coverage=0.253 (19); RHS Coverage=0.360 (27); Support=0.200 (15); Strength=0.78
9; Lift=2.19; Leverage=0.1088 (8.2); p=1.26E-05]
Holdout coverage = 17, holdout support = 8, holdout strength = 0.471
Fails positive correlation, p = 0.0877
Fails significant improvement with respect to DEFAULT, p = 0.0877

O2 -> a2
[Coverage=0.360 (27); RHS Coverage=0.253 (19); Support=0.200 (15); Strength=0.55
6; Lift=2.19; Leverage=0.1088 (8.2); p=1.26E-05]
Holdout coverage = 23, holdout support = 8, holdout strength = 0.348
Fails positive correlation, p = 0.0877
Fails significant improvement with respect to DEFAULT, p = 0.0877

a2 -> c2
[Coverage=0.253 (19); RHS Coverage=0.333 (25); Support=0.187 (14); Strength=0.73
7; Lift=2.21; Leverage=0.1022 (7.7); p=3.57E-05]
Holdout coverage = 17, holdout support = 7, holdout strength = 0.412
Fails positive correlation, p = 0.112
Fails significant improvement with respect to DEFAULT, p = 0.112

c2 -> a2
[Coverage=0.333 (25); RHS Coverage=0.253 (19); Support=0.187 (14); Strength=0.56
0; Lift=2.21; Leverage=0.1022 (7.7); p=3.57E-05]
Holdout coverage = 20, holdout support = 7, holdout strength = 0.350
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Fails positive correlation, p = 0.112
Fails significant improvement with respect to DEFAULT, p = 0.112

f2 -> a2
[Coverage=0.373 (28); RHS Coverage=0.253 (19); Support=0.187 (14); Strength=0.50
0; Lift=1.97; Leverage=0.0921 (6.9); p=0.000240]
Holdout coverage = 26, holdout support = 10, holdout strength = 0.385
Fails positive correlation, p = 0.0197
Fails significant improvement with respect to DEFAULT, p = 0.0197

a2 -> f2
[Coverage=0.253 (19); RHS Coverage=0.373 (28); Support=0.187 (14); Strength=0.73
7; Lift=1.97; Leverage=0.0921 (6.9); p=0.000240]
Holdout coverage = 17, holdout support = 10, holdout strength = 0.588
Fails positive correlation, p = 0.0197
Fails significant improvement with respect to DEFAULT, p = 0.0197

O3 -> b1
[Coverage=0.267 (20); RHS Coverage=0.360 (27); Support=0.147 (11); Strength=0.55
0; Lift=1.53; Leverage=0.0507 (3.8); p=0.0376]
Holdout coverage = 30, holdout support = 10, holdout strength = 0.333
Fails positive correlation, p = 0.886
Fails significant improvement with respect to DEFAULT, p = 0.886

b1 -> O3
[Coverage=0.360 (27); RHS Coverage=0.267 (20); Support=0.147 (11); Strength=0.40
7; Lift=1.53; Leverage=0.0507 (3.8); p=0.0376]
Holdout coverage = 30, holdout support = 10, holdout strength = 0.333
Fails positive correlation, p = 0.886
Fails significant improvement with respect to DEFAULT, p = 0.886
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