

Generation of multi-level directed graphs

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library(knitr)
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knitr::opts_chunk$set(cache=FALSE)
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import sys
import time
mldgpath = "C:/Users/petelin/Documents/MLDG"
sys.path.insert(0, mldgpath)
import mldg

model = 'mfs'
modelpath = mldgpath + "/models/" + model
meshfile = modelpath + "/" + "meshmask.nc"

projspath = mldgpath + "/" + "projects"
nx = 60
ny = 30
project = model + "_" + "%2dx%2d" % (nx,ny)
projpath = projspath + '/' + project

geompath = projpath + '/geometry'
vertfile = geompath + '/' + model + '_vertices_' + "%dx%d" % (nx,ny) + '.shp'

start_time = time.time()
(verts,name,long_name,lon_wmc,lat_wmc) = mldg.load_vertices(vertfile)
elapsed_time = time.time() - start_time
m, s = divmod(elapsed_time, 60)
h, m = divmod(m, 60)
print 'Load vertices elapsed time: ' + '%d hours %02d minutes %02d seconds' % (h, m, s)

trajpath = projpath + '/trajectories'
trajfile = trajpath + '/mfs_ariane_1999_2011.nc'
baseyear = 1999
basemonth = 1
baseday = 2
yearmin = 1999
yearmax = 2011
monthmin = 1
monthmax = 12
depthmin = 0
depthmax = -20.
timeinter = 6
sampinter = 3

exampath = projpath + '/examples'
examfile = exampath + '/' + model + '_examples_' + ('%dx%d' % (nx,ny)) + '_' + \
('%04d' % timeinter) + '_days_years_' + ('%d_%d' % (yearmin, yearmax)) + \
'_ ' + 'depth' + '_' + ('%04d_%04d' % (depthmin*(-1.),depthmax*(-1.))) + '.txt'
```

```

start_time = time.time()
(nout,nerr) = mldg.generate_examples(verts,name,trajfile,baseyear,basemonth,baseday, \
                                     yearmin,monthmin,yearmax,monthmax,depthmin,depthmax, \
                                     examfile,timeinter,sampinter)
print 'Number of examples generated: %d \tNumber of errors: %d' % (nout, nerr)
elapsed_time = time.time() - start_time
m, s = divmod(elapsed_time, 60)
h, m = divmod(m, 60)
print 'Generate examples elapsed time: ' + '%d hours %02d minutes %02d seconds' % (h, m, s)

minSupport = 0.0001
minConf = 0.0001
maxIS = 640000

rulepath = projpath + '/rules'
rulefile = rulepath + '/' + model + '_rules_' + ('%dx%d' % (nx,ny)) + '_' + \
           '%04d' % timeinter + 'days_years_' + ('%d_%d' % (yearmin, yearmax)) + \
           '_' + 'depth' + '_' + ('%04d_%04d' % (depthmin*(-1.),depthmax*(-1.))) + '.txt'

start_time = time.time()
(nrules,nmatch) = mldg.generate_assoc_rules(vertfile,examfile,minSupport,minConf,maxIS,rulefile)

print 'Number of assoc. rules generated: %d \tNumber of matched rules: %d' % (nrules, nmatch)
elapsed_time = time.time() - start_time
m, s = divmod(elapsed_time, 60)
h, m = divmod(m, 60)
print 'Generate assoc. rules elapsed time: ' + '%d hours %02d minutes %02d seconds' % (h, m, s)

graphpath = projpath + '/graphs'
start_time = time.time()
generate_graphs(graphpath, rulefile)
elapsed_time = time.time() - start_time
m, s = divmod(elapsed_time, 60)
h, m = divmod(m, 60)
print 'Generate graphs elapsed time: ' + '%d hours %02d minutes %02d seconds' % (h, m, s)

## Load vertices elapsed time: 0 hours 00 minutes 00 seconds
## 366
## 96280
## Number of examples generated: 2742420    Number of errors: 0
## Generate examples elapsed time: 2 hours 18 minutes 50 seconds
## 13975 rules with support higher than or equal to 0.000100 found.
## Number of matched rules: 3409
## Number of assoc. rules generated: 13975    Number of matched rules: 3409
## Generate assoc. rules elapsed time: 0 hours 03 minutes 34 seconds
## C:/Users/petelin/Documents/MLDG\mldg.py:938: KernelWarning: 'TabDelimExampleGenerator': 'C:/Users/petelin/Documents/MLDG\data = orange.ExampleTable(fname1)
## Traceback (most recent call last):
##   File "<string>", line 76, in <module>
## NameError: name 'generate_graphs' is not defined

```