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1  -- vim: ts=2 sw=2 et :
2  -- LOOK.LDA: landscape analysis
3  -- (c) 2022 Tim Monahan, tim@ieee.org, BSD-2 license
4  local i,l = require"lht", require"lwk"
5  local any,cli,csv,fmt = l.any, l.cli, l.csv, l.fmt
6  local lt,main,many,map = l.lt, l.main, l.many, l.map
7  local o, oo,per,shuffle,sort,splice = l.o, l.oo, l.per, l.shuffle, l.sort, l.splice
8  local NUM,ROW,ROWS = l.NUM, l.ROW, l.ROWS
9  local the = cli(L.the,L.help)
10
11 local go,non(),() -- place to store enabled and disabled tests
12
13 function go.the()
14   if the.lood then oo(the) end; return type(the.seed)=="number" end
15
16 function go.row( n)
17   n=0
18   for r in csv(the.file) do n=n+1; if the.lood then oo(r) end end
19   return n == 3192 end
20
21 function go.egg( rows)
22   rows= ROWS(the.file)
23   if the.lood then map(rows,ys,oo) end
24   return rows.ys[1],n1=5140 and rows.ys[1].lo=1613 end
25
26 function go.clone( rows)
27   rows= ROWS(the.file)
28   return rows:mid()[3]=20 end
29
30 function go.dist( r1,rows,ok)
31   ok,rows= true, ROWS(the.file);
32   r1 = rows.all[1]
33   for _,r2 in pairs(rows.all) do
34     ok = ok and r2:dist(r2)=0
35     ok = ok and r1:dist(r2) == r2:dist(r1) end
36   return ok end
37
38 function go.around( r1,rows, order)
39   rows = ROWS(the.file);
40   r1 = rows.all[1]
41   order = rows:around(r1)
42   return order[#order//3].dist < order[#order//2].dist end
43
44 function go.far( rows,r1,r2,ok)
45   ok = true
46   rows = ROWS(the.file);
47   for k=1,10 do
48     r1 = rows:far(any(rows.all))
49     r2 = rows:far(r1)
50     ok = ok and r1:dist(r2) > .5 end
51   return ok end
52
53 function go.bettors( t,n1)
54   t=sort(ROWS(the.file).all)
55   n1=10
56   for k=1,n1 do oo(t[k].cells) end; print""
57   for k=#t-n1, #t do oo(t[k].cells) end
58   return t[1] < t[#t]
59 end
60
61 function go.how( t,n,bests,rests)
62   t = ROWS(the.file)
63   t.all = sort(t.all)
64   n = (#t.all)*.5 // 1
65   bests = splice(t.all, 1, n)
66   rests = splice(t.all, n+1, #t.all)
67   t:how(bests,rests)
68   oo(t::clone(bests):mid())
69   oo(t::clone(rests):mid())
70   return true
71 end
72
73 function go.look( rows,best,bests,rests,n,names,b4,guess,b,g)
74   rows = ROWS(the.file)
75   names=map(rows.ys,function(col) return col.txt end)
76   b=NUM()
77   g=NUM()
78   b4=rows:mid()
79   for i=1,10 do
80     rows = ROWS(the.file)
81     rows.all = shuffle(rows.all)
82     best,bests,rests = rows:look()
83     for n,r in pairs(sort(rows.all)) do r.rank = math.floor(100*n/#rows.all //1) e
84   end
85   n=0;for _,r in pairs(rows.all) do if r.evaluated then n=n+1 end end
86   guess=rows:clone(many(rows.all,n))
87   for _,rank in pairs(map(sort(bests,lt"rank"),function(r) return r.rank end)) do
88     b=ad(rank) end
89   for _,rank in pairs(map(sort(guess.all,lt"rank"),function(r) return r.rank end)
90   do g=ad(rank) end
91   print(fmt("%20s %20s %20s",
92     o(names),o(b4),
93     o(rows:clone(bests):mid()),
94     o(bests)#bests,rests#rests,evalled=n)) end
95   for _p in pairs(0..2..4..6..8) do io.write(per(bhas(),p),")" end; print""
96   for _p in pairs(0..2..4..6..8) do io.write(per(g:has(),p),")" end; print""
97   return true end
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