GeneratedFigures

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3 Jan 2018

Collect inferred models

Here, we extract the inferred model and regimes and add them as columns to the testData_t4 data.table.

Manual execution.

Evaluate the 7 binary criterions on the inferred models

```
if(file.exists("../data-raw/ResultsTestData_t4/TestResultData_t4.RData") ) {
  load("../data-raw/ResultsTestData_t4/TestResultData_t4.RData")
} else {
  testResultData <- NULL
}

testResultDataBhatt <- rbindlist(
  lapply(1:nrow(testData_t4), function(i) {


      resultFile <- paste0("../data-raw/ResultsTestData_t4/FinalResult_MixedGaussian_testData_t4_id_",

    if(file.exists(resultFile)) {
      cat("Loading ", resultFile, "\n")
      load(resultFile)
      bestFitAIC <- RetrieveBestFitAIC(fitMappings)
      trueFromTestData <- RetrieveTrueFromTestData(testData_t4, i)

      bhatt <- bhattacharyya(trueFromTestData$tree, trueFromTestData$trueModel,
                             bestFitAIC$tree, bestFitAIC$inferredModel)

      cat("Bhatt: ", bhatt, "\n")
      data.table(i = i,
                 treeType=testData_t4[i, treeType],
                 treeSize=testData_t4[i, treeSize],
                 numClusters = testData_t4[i, numClusters],
                 crit = factor(c("Bhattacharyya dist.")),
                 tpr = NA,
                 fpr = NA,
                 AIC_Final = AIC(bestFitAIC$inferredModel),
                 AIC_True = AIC(trueFromTestData$trueModel),
                 inferred.x0 = bestFitAIC$inferredModel$X0[[1]],
                 inferred.y0 = bestFitAIC$inferredModel$X0[[2]],
                 true.x0 = trueFromTestData$trueModel$X0[[1]],
                 true.y0 = trueFromTestData$trueModel$X0[[2]],
                 value = bhatt
```

```
                  )
    } else {
      NULL
    }

  })
)

if(!is.null(testResultData)) {
  testResultData <- rbindlist(list(testResultData, testResultDataNew), fill = TRUE)
} else {
  testResultData <- testResultDataNew
}

testResultData[, crit2:=factor(crit, levels = c("Cluster",
                                                "BM process",
                                                "OU process",
                                                "Uncorrelated traits",
                                                "Correlated traits",
                                                "NonDiagonal H",
                                                "Asymmetric H",
                                                "Bhattacharyya dist."))]
```

```
load("../data-raw/ResultsTestData_t4/TestResultData_t4.RData")
testResultData[, numClusters2:=paste0(numClusters, " regimes")]
testResultData[, treeType2:=factor(paste0(treeType, " tree"), levels=c("ultrametric tree", "non-ultrame
ggplot(testResultData[treeSize == "N=80" & !(crit2 %in% c("BM process", "Uncorrelated traits"))]) +
  geom_abline(slope = 1, intercept = 0, linetype = 2, size = 0.2, color="red") +
  geom_label(aes(label = i, x = fpr, y = tpr,
                 #size = 0.5*apply(cbind((0.2+1-tpr), (0.2+fpr)), 1, max),
                 color = 0.5*apply(cbind((0.2+1-tpr), (0.2+fpr)), 1, max),
                 fill = AIC_Final<AIC_True ),
             size = 2,
             position = position_jitter(width=0.05, height = 0.05),
             label.padding = unit(0.1, "lines"), fontface = "bold") +
  xlab("False positive rate") + ylab("True positive rate") +
  scale_color_continuous(low="green", high="red") +
  scale_fill_manual(values = c("TRUE"="white", "FALSE"="black")) +
  #scale_size_continuous(range = c(1.5, 3)) +
  scale_x_continuous(breaks=c(0, 0.25, 0.5, 0.75, 1)) +
  scale_y_continuous(breaks=c(0, 0.25, 0.5, 0.75, 1)) +
  facet_grid(numClusters2*treeType2~crit2) +
  theme_bw() +
  theme(legend.position = "none")

ggplot(testResultData[treeSize == "N=159" & !(crit2 %in% c("BM process", "Uncorrelated traits"))]) +
  geom_abline(slope = 1, intercept = 0, linetype = 2, size = 0.2, color="red") +
  geom_label(aes(label = i, x = fpr, y = tpr,
                 #size = 0.5*apply(cbind((0.2+1-tpr), (0.2+fpr)), 1, max),
                 color = 0.5*apply(cbind((0.2+1-tpr), (0.2+fpr)), 1, max),
                 fill = AIC_Final<AIC_True ),
             size = 2,
             position = position_jitter(width=0.05, height = 0.05),
             label.padding = unit(0.1, "lines"), fontface = "bold") +
```

```
  xlab("False positive rate") + ylab("True positive rate") +
  scale_color_continuous(low="green", high="red") +
  scale_fill_manual(values = c("TRUE"="white", "FALSE"="black")) +
  #scale_size_continuous(range = c(1.5, 3)) +
  scale_x_continuous(breaks=c(0, 0.25, 0.5, 0.75, 1)) +
  scale_y_continuous(breaks=c(0, 0.25, 0.5, 0.75, 1)) +
  facet_grid(numClusters2*treeType2~crit2) +
  theme_bw() +
  theme(legend.position = "none")
```

```
ids <- testData_t4[1:256, list(id = min(.I), .N), keyby=list(treeType, treeSize, numClusters)][, sort(id

for(id in ids) {
  print(data.table(
    id = id,
    type = testData_t4$treeType[[id]],
    size = testData_t4$treeSize[[id]],
    numRegimes = testData_t4$numClusters[[id]]))
  tree <- testData_t4$treeWithRegimes[[id]]
  print(PCMTreeDtNodeRegimes(tree)[endNode <= PCMTreeNumTips(tree), .N, keyby=regime])
}
```

```
##    id        type size numRegimes
## 1:  1 ultrametric N=80          2
##    regime  N
## 1:      1 52
## 2:      2 28
##    id        type size numRegimes
## 1: 33 ultrametric N=80          3
##    regime  N
## 1:      1 31
## 2:      2 21
## 3:      3 28
##    id            type size numRegimes
## 1: 65 non-ultrametric N=80          2
##    regime  N
## 1:      1 52
## 2:      2 28
##    id            type size numRegimes
## 1: 97 non-ultrametric N=80          3
##    regime  N
## 1:      1 24
## 2:      2 29
## 3:      3 27
##     id        type  size numRegimes
## 1: 129 ultrametric N=159          2
##    regime   N
## 1:      1 128
## 2:      2  31
##     id        type  size numRegimes
## 1: 161 ultrametric N=159          5
##    regime  N
## 1:      1 24
## 2:      2 54
```

```
## 3:      3 28
## 4:      4 31
## 5:      5 22
##     id            type  size numRegimes
## 1: 193 non-ultrametric N=159          2
##    regime   N
## 1:      1 117
## 2:      2  42
##     id            type  size numRegimes
## 1: 225 non-ultrametric N=159          5
##    regime  N
## 1:      1 46
## 2:      2 28
## 3:      3 23
## 4:      4 38
## 5:      5 24
```

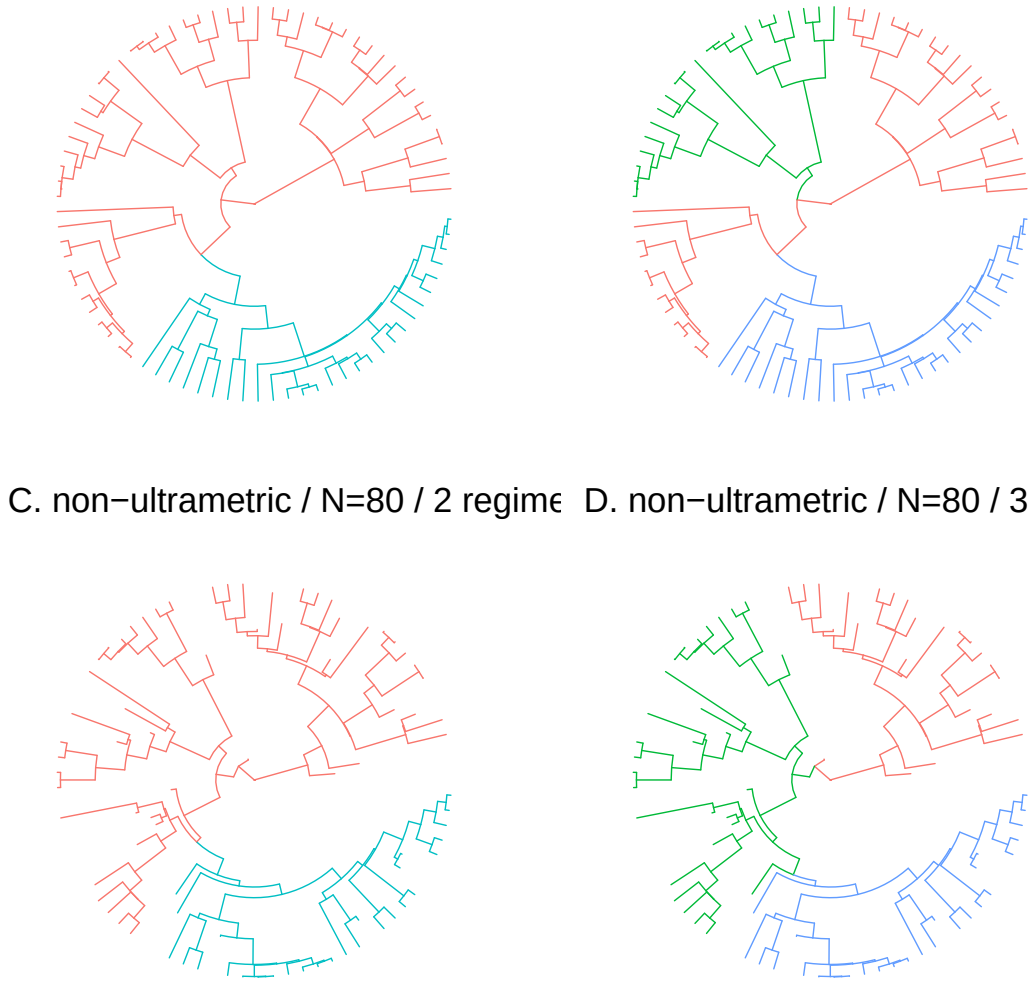
```
ids <- testData_t4[1:256, list(id = min(.I), .N), keyby=list(treeType, treeSize)][, sort(id)]

dtNumAllPartitions <- rbindlist(lapply(ids, function(id) {
  data.table(
    id = id,
    type = testData_t4$treeType[[id]],
    size = testData_t4$treeSize[[id]],
    P18 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 18), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)],
    P19 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 19), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)],
    P20 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 20), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)],
    P21 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 21), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)],
    P22 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 22), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)],
    P23 = data.table(a=sapply(PCMTreeListAllPartitions(
      testData_t4$tree[[id]], 23), length) + 1)[
        , .N, keyby=a][, sum(N*6^a)]
  )
}))

save(dtNumAllPartitions, file = "dtNumAllPartitions.RData")
```

```
load("dtNumAllPartitions.RData")
dtNumAllPartitions
```

```
##     id            type  size       P18      P19      P20      P21     P22
## 1:   1     ultrametric  N=80     24054    17358     1050      582     114
## 2:  65 non-ultrametric  N=80      5550     4902     4254     3822    2922
## 3: 129     ultrametric N=159  85719534 20672574  3862086  3862086  688110
## 4: 193 non-ultrametric N=159 203397990 89043666 56089842 10719654 3108858
```

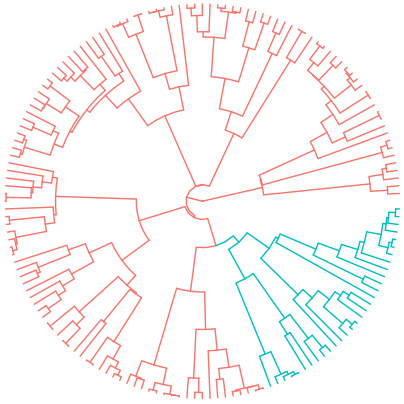
```
##       P23
## 1:     78
## 2:   2238
## 3:  62718
## 4: 547278
```

```
ids <- testData_t4[, list(id = min(.I), .N), keyby=list(treeType, treeSize, numClusters)][, sort(id)]

plList <- lapply(ids, function(id) {
  PCMTreePlot(testData_t4$treeWithRegimes[[id]], layout="fan", open.angle=2, size=.25) +
    ggtitle(paste0(LETTERS[match(id, ids)], ". ",
                   testData_t4$treeType[[id]], " / ",
                   testData_t4$treeSize[[id]], " / ",
                   testData_t4$numClusters[[id]], " regimes"))
})

cowplot::plot_grid(plotlist = plList[1:4], nrow = 2, ncol=2)
```

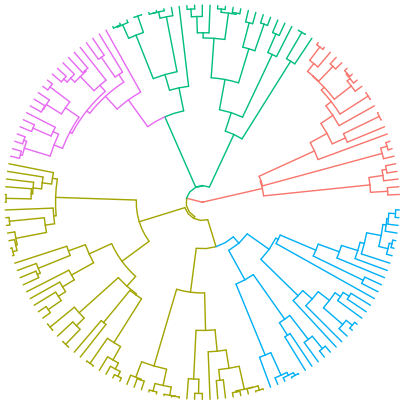



```
cowplot::plot_grid(plotlist = plList[5:8], nrow = 2, ncol=2)
```

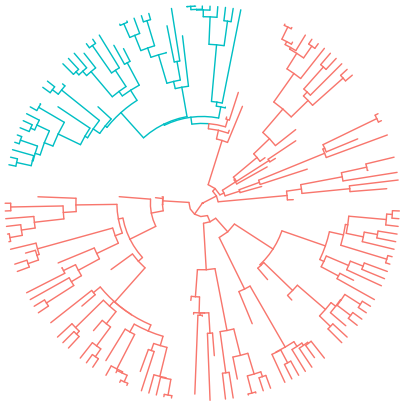
E. ultrametric / N=159 / 2 regimes



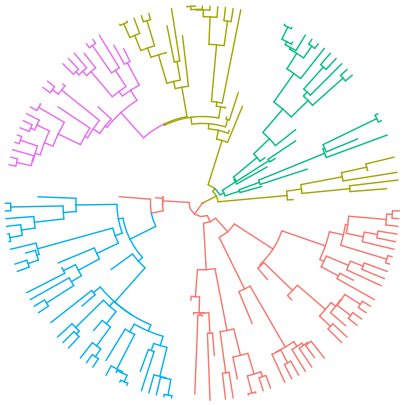
F. ultrametric / N=159 / 5 regimes



G. non−ultrametric / N=159 / 2 regim

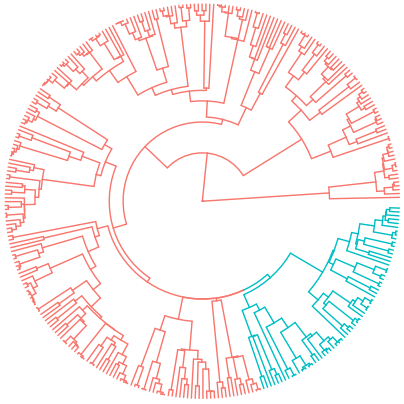


H. non−ultrametric / N=159 / 5 regi

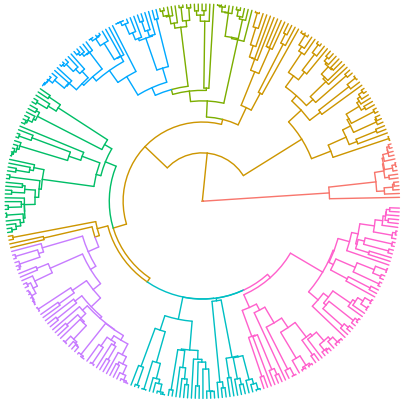


```
cowplot::plot_grid(plotlist = plList[9:12], nrow = 2, ncol=2)
```

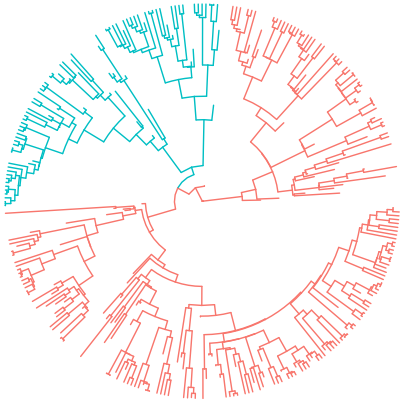
I. ultrametric / N=318 / 2 regimes



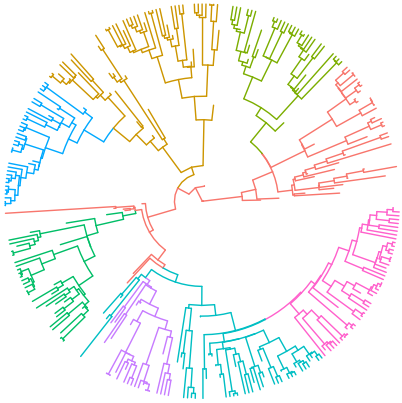
J. ultrametric / N=318 / 8 regimes



K. non−ultrametric / N=318 / 2 regim

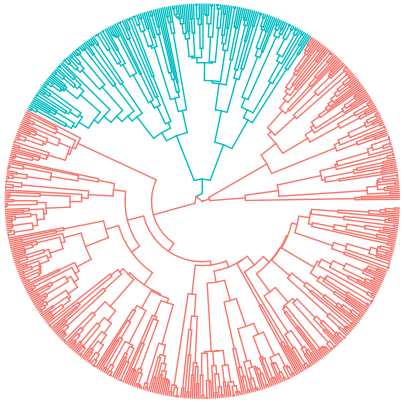


L. non−ultrametric / N=318 / 8 regi

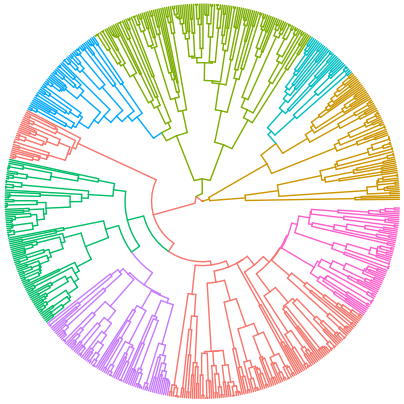


```
cowplot::plot_grid(plotlist = plList[13:16], nrow = 2, ncol=2)
```

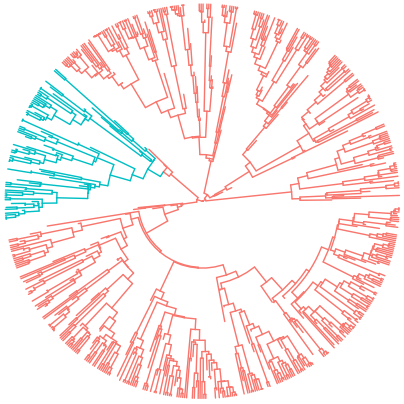
M. ultrametric / N=638 / 2 regimes



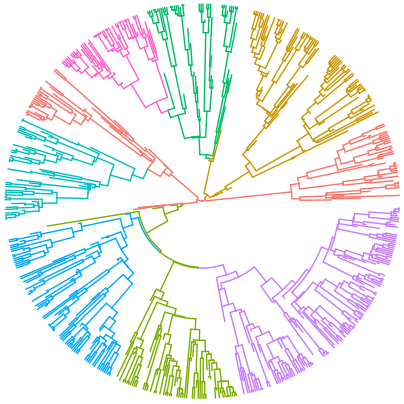
N. ultrametric / N=638 / 8 regimes

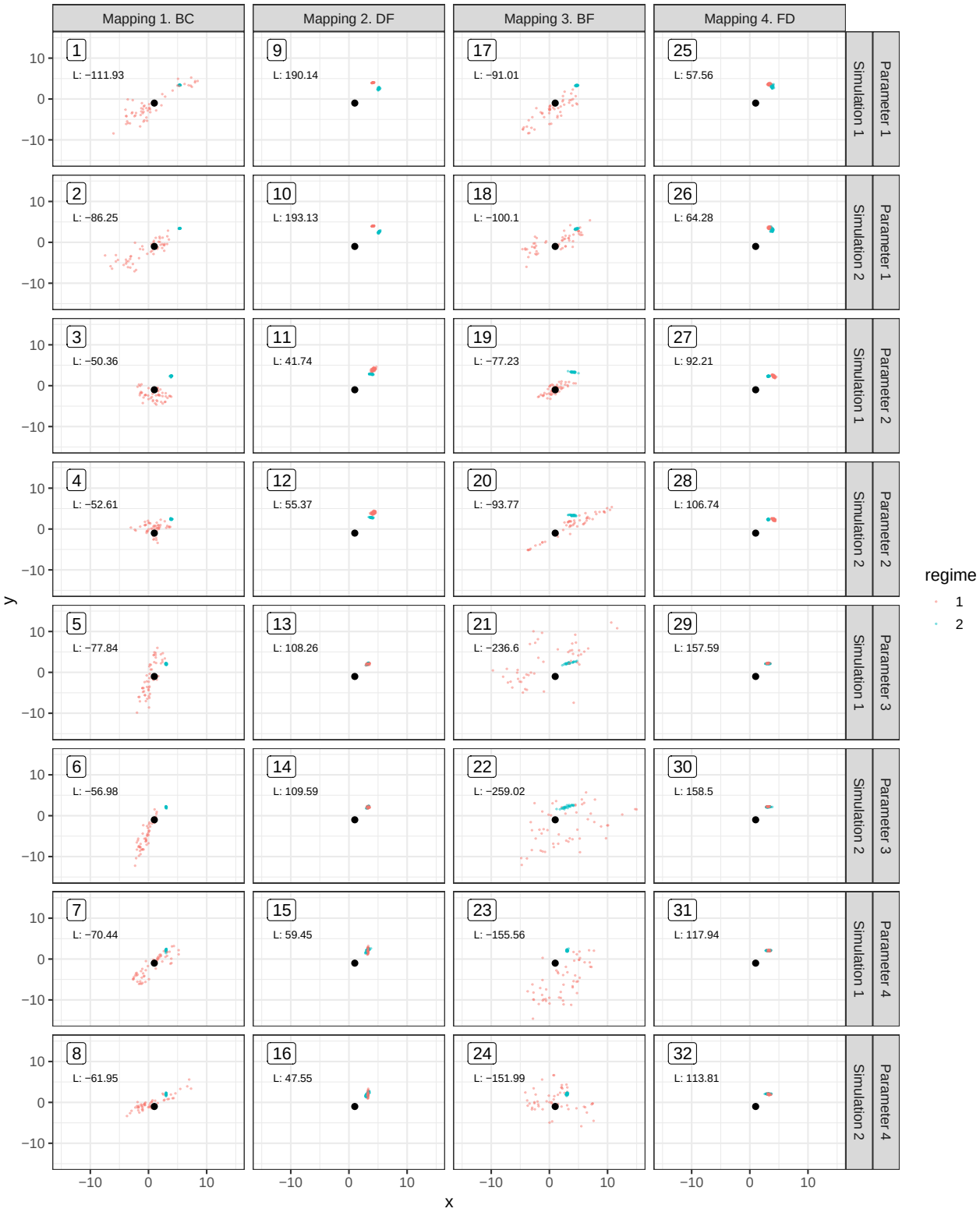


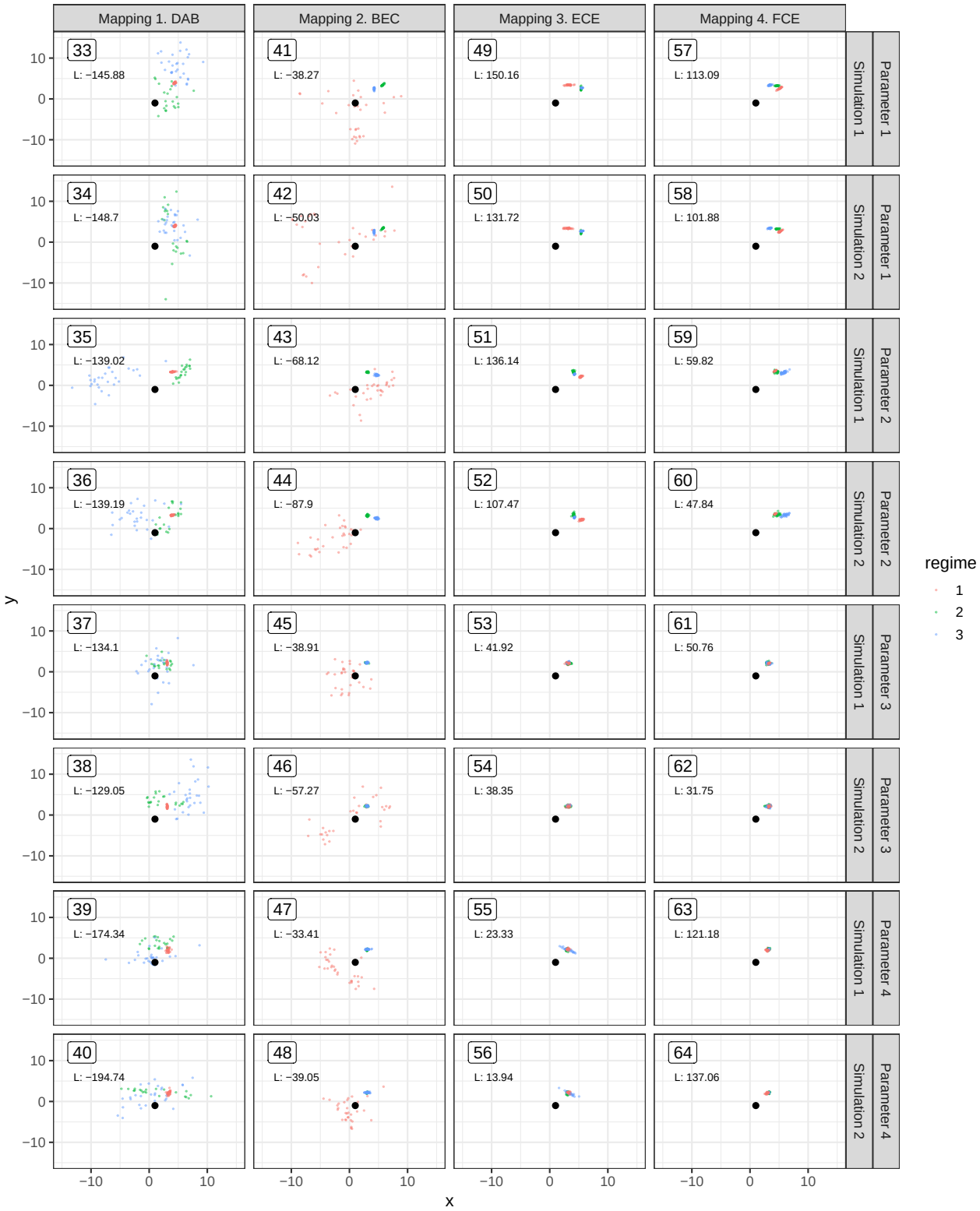
O. non−ultrametric / N=638 / 2 regim



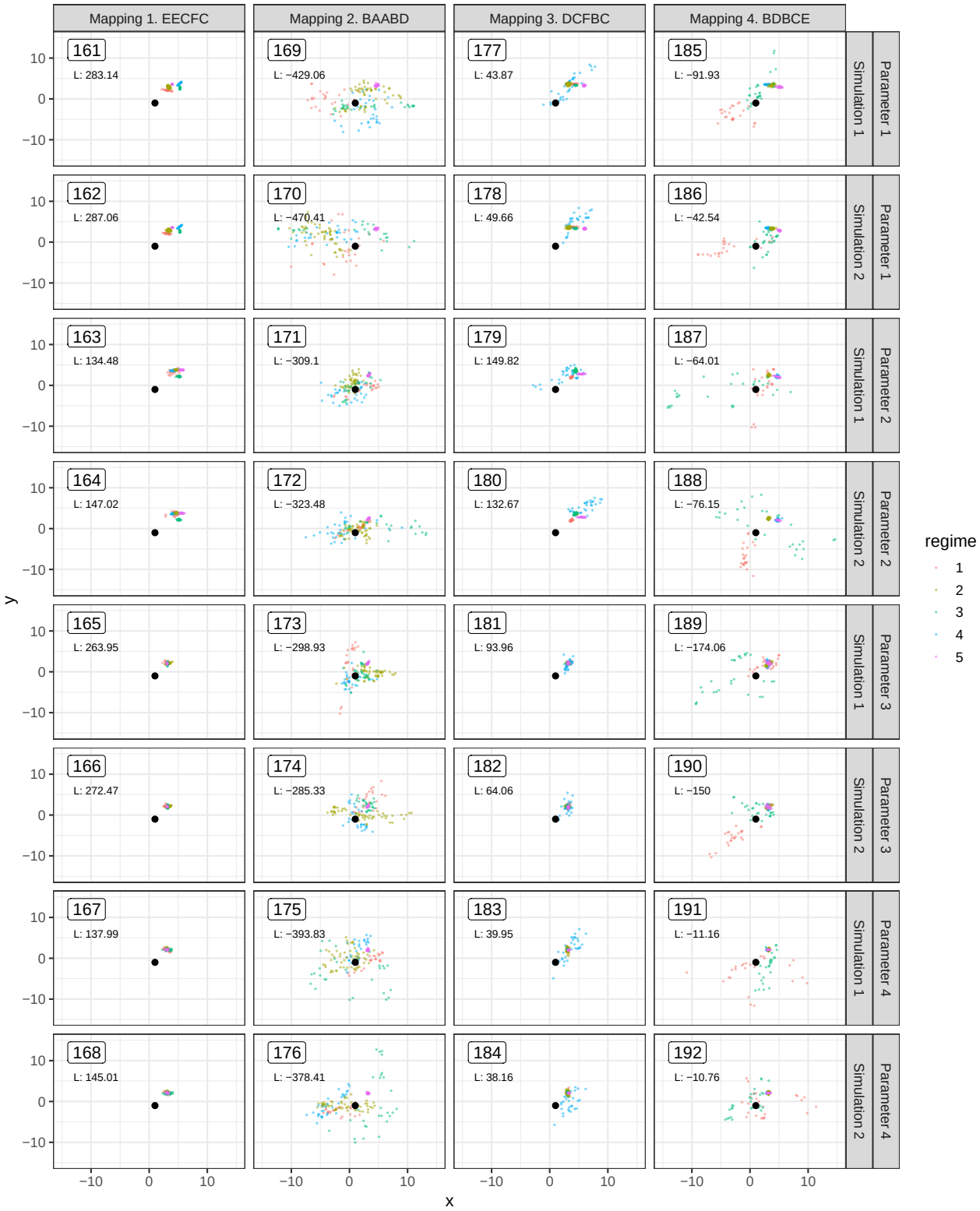
P. non−ultrametric / N=638 / 8 regi

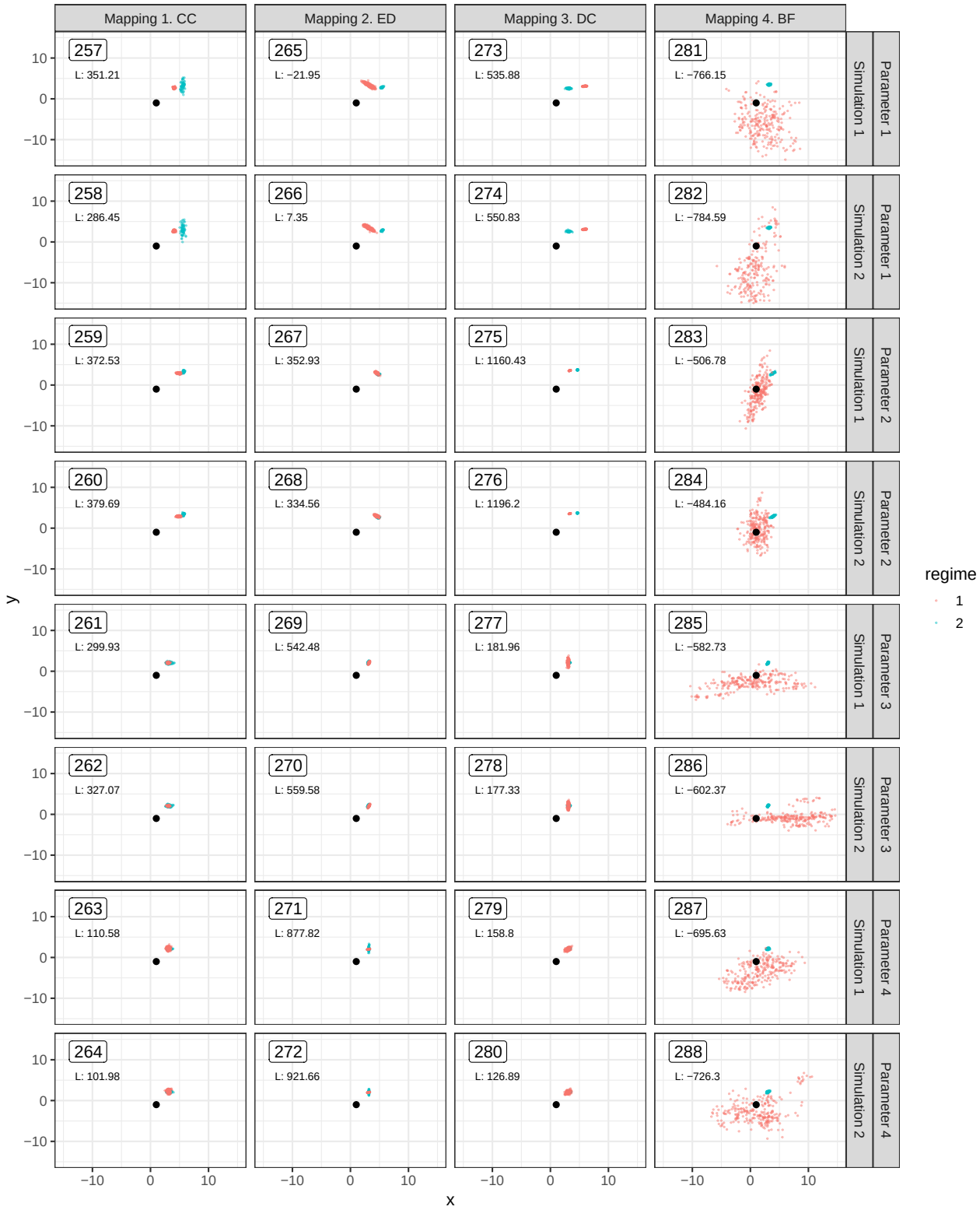


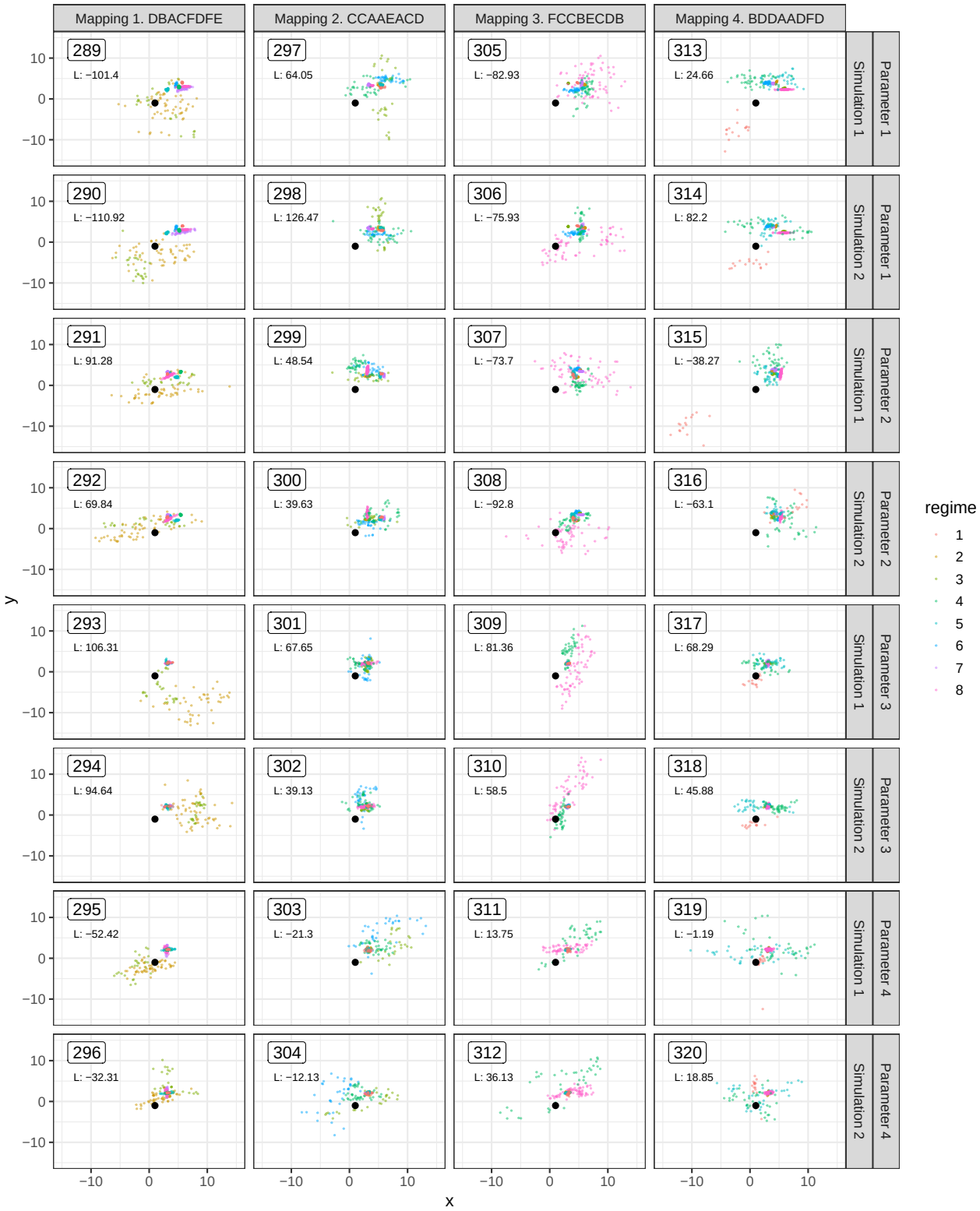

Mapping 1. BC
Mapping 2. DF
Mapping 3. BF
Mapping 4. FD
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
1 L: −111.93
2 L: −86.25
3 L: −50.36
4 L: −52.61
5 L: −77.84
6 L: −56.98
7 L: −70.44
8 L: −61.95
9 L: 190.14
10 L: 193.13
11 L: 41.74
12 L: 55.37
13 L: 108.26
14 L: 109.59
15 L: 59.45
16 L: 47.55
17 L: −91.01
18 L: −100.1
19 L: −77.23
20 L: −93.77
21 L: −236.6
22 L: −259.02
23 L: −155.56
24 L: −151.99
25 L: 57.56
26 L: 64.28
27 L: 92.21
28 L: 106.74
29 L: 157.59
30 L: 158.5
31 L: 117.94
32 L: 113.81
y
x
10
0
−10
regime
1
2


Mapping 1. DAB
Mapping 2. BEC
Mapping 3. ECE
Mapping 4. FCE
Parameter 1
Parameter 2
Parameter 3
Parameter 4
Simulation 1
Simulation 2
33 L: −145.88
41 L: −38.27
49 L: 150.16
57 L: 113.09
34 L: −148.7
42 L: −50.03
50 L: 131.72
58 L: 101.88
35 L: −139.02
43 L: −68.12
51 L: 136.14
59 L: 59.82
36 L: −139.19
44 L: −87.9
52 L: 107.47
60 L: 47.84
37 L: −134.1
45 L: −38.91
53 L: 41.92
61 L: 50.76
38 L: −129.05
46 L: −57.27
54 L: 38.35
62 L: 31.75
39 L: −174.34
47 L: −33.41
55 L: 23.33
63 L: 121.18
40 L: −194.74
48 L: −39.05
56 L: 13.94
64 L: 137.06
10
0
−10
x
y
regime
1
2
3


Mapping 1. ED
Mapping 2. ED
Mapping 3. DE
Mapping 4. AC
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
129
L: −31.27
137
L: 97.6
145
L: 90.71
153
L: −470.52
130
L: −3.71
138
L: 115.54
146
L: 116.31
154
L: −482.68
131
L: 121.4
139
L: 58.26
147
L: 33.04
155
L: −451.56
132
L: 99.11
140
L: 58.77
148
L: 32.93
156
L: −459.64
133
L: 200.57
141
L: 218.74
149
L: 1.06
157
L: −381.26
134
L: 214.55
142
L: 204.69
150
L: 27.29
158
L: −352.96
135
L: 354.22
143
L: 164.63
151
L: −103.03
159
L: −332.67
136
L: 349.19
144
L: 158.64
152
L: −99.4
160
L: −348.43
10
0
−10
y
x
regime
1
2


Mapping 1. EECFC
Mapping 2. BAABD
Mapping 3. DCFBC
Mapping 4. BDBCE
Parameter 1
Parameter 2
Parameter 3
Parameter 4
Simulation 1
Simulation 2
161 L: 283.14
162 L: 287.06
163 L: 134.48
164 L: 147.02
165 L: 263.95
166 L: 272.47
167 L: 137.99
168 L: 145.01
169 L: −429.06
170 L: −470.41
171 L: −309.1
172 L: −323.48
173 L: −298.93
174 L: −285.33
175 L: −393.83
176 L: −378.41
177 L: 43.87
178 L: 49.66
179 L: 149.82
180 L: 132.67
181 L: 93.96
182 L: 64.06
183 L: 39.95
184 L: 38.16
185 L: −91.93
186 L: −42.54
187 L: −64.01
188 L: −76.15
189 L: −174.06
190 L: −150
191 L: −11.16
192 L: −10.76
10
0
−10
x
y
regime
1
2
3
4
5


Mapping 1. CC
Mapping 2. ED
Mapping 3. DC
Mapping 4. BF
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
257 L: 351.21
265 L: −21.95
273 L: 535.88
281 L: −766.15
258 L: 286.45
266 L: 7.35
274 L: 550.83
282 L: −784.59
259 L: 372.53
267 L: 352.93
275 L: 1160.43
283 L: −506.78
260 L: 379.69
268 L: 334.56
276 L: 1196.2
284 L: −484.16
261 L: 299.93
269 L: 542.48
277 L: 181.96
285 L: −582.73
262 L: 327.07
270 L: 559.58
278 L: 177.33
286 L: −602.37
263 L: 110.58
271 L: 877.82
279 L: 158.8
287 L: −695.63
264 L: 101.98
272 L: 921.66
280 L: 126.89
288 L: −726.3
10
0
−10
x
y
regime
1
2


Mapping 1. DBACFDFE
Mapping 2. CCAAEACD
Mapping 3. FCCBECDB
Mapping 4. BDDAADFD
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
289 L: −101.4
297 L: 64.05
305 L: −82.93
313 L: 24.66
290 L: −110.92
298 L: 126.47
306 L: −75.93
314 L: 82.2
291 L: 91.28
299 L: 48.54
307 L: −73.7
315 L: −38.27
292 L: 69.84
300 L: 39.63
308 L: −92.8
316 L: −63.1
293 L: 106.31
301 L: 67.65
309 L: 81.36
317 L: 68.29
294 L: 94.64
302 L: 39.13
310 L: 58.5
318 L: 45.88
295 L: −52.42
303 L: −21.3
311 L: 13.75
319 L: −1.19
296 L: −32.31
304 L: −12.13
312 L: 36.13
320 L: 18.85
10
0
−10
x
y
regime
1
2
3
4
5
6
7
8


Mapping 1. DE
Mapping 2. DF
Mapping 3. BB
Mapping 4. FD
Parameter 1
Parameter 2
Parameter 3
Parameter 4
Simulation 1
Simulation 2
385
L: 446.21
393
L: 345.59
401
L: −2192.36
409
L: 1123.47
386
L: 468.19
394
L: 399.41
402
L: −2218.71
410
L: 1107.86
387
L: 1223.8
395
L: 667.61
403
L: −1589.09
411
L: 567.07
388
L: 1203.14
396
L: 626.93
404
L: −1607.79
412
L: 451.31
389
L: 806.18
397
L: 1420.83
405
L: −1921.33
413
L: 90.25
390
L: 826.19
398
L: 1425.09
406
L: −1929.16
414
L: 187.93
391
L: −377.28
399
L: 1094.65
407
L: −1890.56
415
L: 692.31
392
L: −440.8
400
L: 1193.4
408
L: −1877.81
416
L: 693.65
10
0
−10
x
y
regime
1
2


Mapping 1. FBEEFDEC
Mapping 2. AFBDAFBE
Mapping 3. BBDBBDDA
Mapping 4. BEFAEFEB
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
417 L: 483.61
425 L: −748.3
433 L: −813.35
441 L: −381.29
418 L: 459.64
426 L: −713.17
434 L: −853.12
442 L: −390.06
419 L: 180.78
427 L: −996.13
435 L: −977.14
443 L: −522.37
420 L: 113.6
428 L: −1024.26
436 L: −859.36
444 L: −517.67
421 L: 802.4
429 L: −791.99
437 L: −923.94
445 L: −762.69
422 L: 812.57
430 L: −837.17
438 L: −923.53
446 L: −814.05
423 L: 469.97
431 L: −591.73
439 L: −1067.22
447 L: −343.58
424 L: 489.29
432 L: −563.08
440 L: −1110.66
448 L: −405.42
10
0
−10
x
y
regime
1
2
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4
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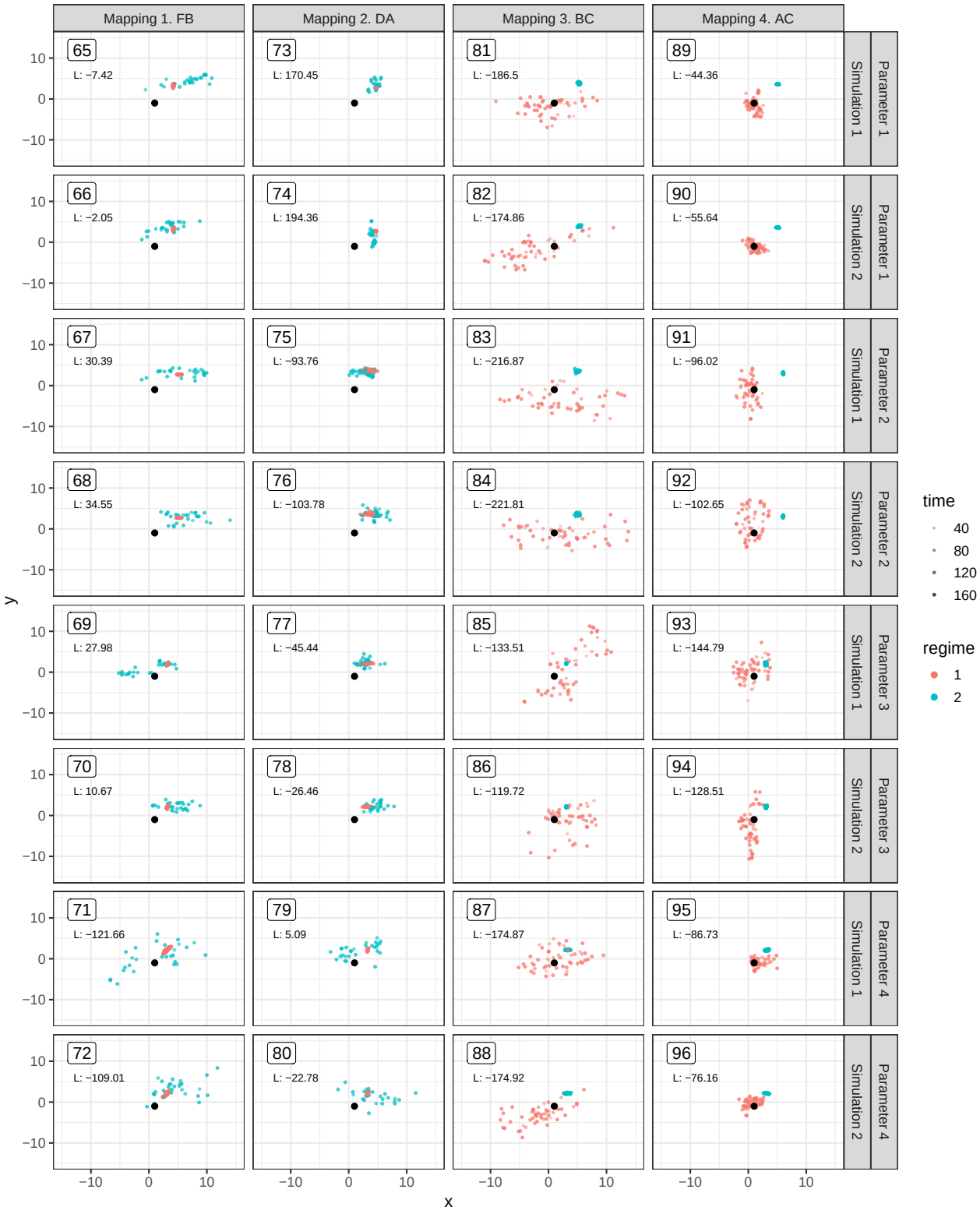
6
7
8


Mapping 1. FB
Mapping 2. DA
Mapping 3. BC
Mapping 4. AC
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
65 L: −7.42
73 L: 170.45
81 L: −186.5
89 L: −44.36
66 L: −2.05
74 L: 194.36
82 L: −174.86
90 L: −55.64
67 L: 30.39
75 L: −93.76
83 L: −216.87
91 L: −96.02
68 L: 34.55
76 L: −103.78
84 L: −221.81
92 L: −102.65
69 L: 27.98
77 L: −45.44
85 L: −133.51
93 L: −144.79
70 L: 10.67
78 L: −26.46
86 L: −119.72
94 L: −128.51
71 L: −121.66
79 L: 5.09
87 L: −174.87
95 L: −86.73
72 L: −109.01
80 L: −22.78
88 L: −174.92
96 L: −76.16
10
0
−10
x
y
time
40
80
120
160
regime
1
2


Mapping 1. FCC
Mapping 2. DCB
Mapping 3. EEE
Mapping 4. AEC
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
97
L: 104.54
105
L: 6
113
L: 61.55
121
L: −35.2
98
L: 89.38
106
L: 14.66
114
L: 53.01
122
L: −41.39
99
L: 119.74
107
L: 4.89
115
L: 182.32
123
L: −65.57
100
L: 122.02
108
L: −7.69
116
L: 180.11
124
L: −57.22
101
L: 43.24
109
L: −54.97
117
L: 89
125
L: 32.84
102
L: 49.53
110
L: −73.88
118
L: 89.6
126
L: 10.88
103
L: 129.89
111
L: −52.49
119
L: 82.3
127
L: 11.26
104
L: 116.14
112
L: −56.09
120
L: 66.81
128
L: 24.32
10
0
−10
y
x
time
40
80
120
160
regime
1
2
3


Mapping 1. AF
Mapping 2. CF
Mapping 3. CC
Mapping 4. CF
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
193
L: −323.34
201
L: 260.09
209
L: 250.49
217
L: −88.33
194
L: −327
202
L: 252.75
210
L: 269.31
218
L: −90.24
195
L: −518
203
L: 235.3
211
L: 240.85
219
L: 41.84
196
L: −509.18
204
L: 249.87
212
L: 226.79
220
L: 41.33
197
L: −310.65
205
L: 266.56
213
L: 201.68
221
L: 309.06
198
L: −338.85
206
L: 275.61
214
L: 203.56
222
L: 315.68
199
L: −378.65
207
L: 36.18
215
L: 215.67
223
L: 141.45
200
L: −395.39
208
L: 43.27
216
L: 208.81
224
L: 166.06
10
0
−10
x
y
time
40
80
120
160
regime
1
2


Mapping 1. FCEFC
Mapping 2. ECBEB
Mapping 3. EABAB
Mapping 4. ADFEE
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
225 L: 240.47
233 L: −144.92
241 L: −273.55
249 L: −106.55
226 L: 213.72
234 L: −116.59
242 L: −283.4
250 L: −76.58
227 L: 168.54
235 L: 7.79
243 L: −295.99
251 L: 71.58
228 L: 185.96
236 L: −35.26
244 L: −287.89
252 L: 44.54
229 L: 168.63
237 L: −32.36
245 L: −147.44
253 L: 30.04
230 L: 169.41
238 L: 9.48
246 L: −163.84
254 L: −6.01
231 L: 176.73
239 L: −112.62
247 L: −412.82
255 L: −113.21
232 L: 166.13
240 L: −106.92
248 L: −428.64
256 L: −117.99
10
0
−10
x
y
time
40
80
120
160
regime
1
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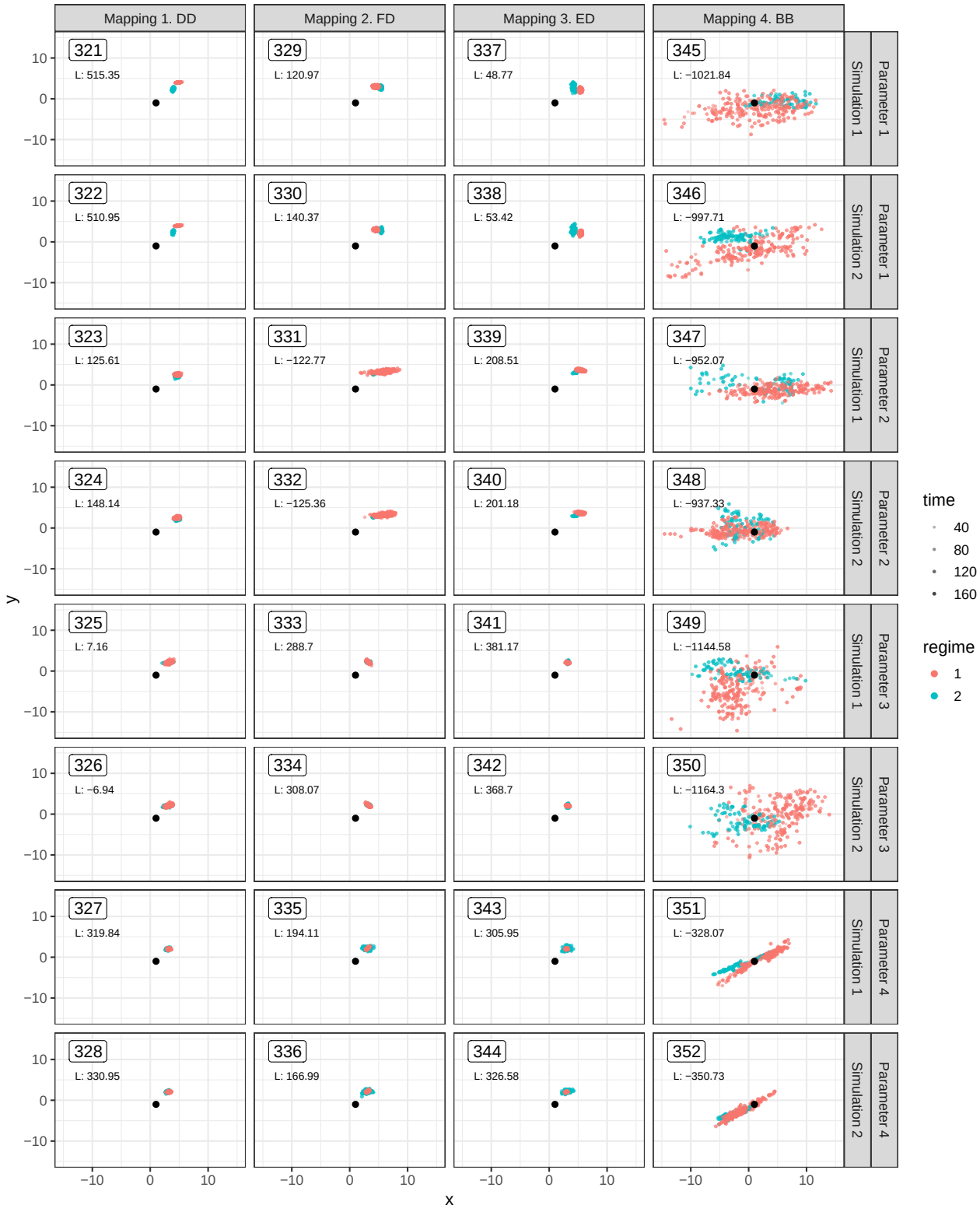
Mapping 1. DD
Mapping 2. FD
Mapping 3. ED
Mapping 4. BB
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
321 L: 515.35
329 L: 120.97
337 L: 48.77
345 L: −1021.84
322 L: 510.95
330 L: 140.37
338 L: 53.42
346 L: −997.71
323 L: 125.61
331 L: −122.77
339 L: 208.51
347 L: −952.07
324 L: 148.14
332 L: −125.36
340 L: 201.18
348 L: −937.33
325 L: 7.16
333 L: 288.7
341 L: 381.17
349 L: −1144.58
326 L: −6.94
334 L: 308.07
342 L: 368.7
350 L: −1164.3
327 L: 319.84
335 L: 194.11
343 L: 305.95
351 L: −328.07
328 L: 330.95
336 L: 166.99
344 L: 326.58
352 L: −350.73
10
0
−10
x
y
time
40
80
120
160
regime
1
2


Mapping 1. ECBEAFDD
Mapping 2. BCDBDABB
Mapping 3. BFCEFCAC
Mapping 4. ECDFFCCF
Simulation 1
Simulation 2
Parameter 1
Parameter 2
Parameter 3
Parameter 4
353 L: 333.16
361 L: −340.1
369 L: 143.49
377 L: 174.57
354 L: 300.55
362 L: −319.94
370 L: 149.24
378 L: 210.64
355 L: −15.5
363 L: −518.01
371 L: 10.02
379 L: 224.47
356 L: 2.69
364 L: −533.41
372 L: −0.17
380 L: 258.2
357 L: 13.35
365 L: −386.73
373 L: −153.13
381 L: 500
358 L: 18.32
366 L: −351.41
374 L: −152.14
382 L: 477.5
359 L: 19.74
367 L: −373.56
375 L: 67.2
383 L: 447.78
360 L: 10.3
368 L: −382.05
376 L: 71.18
384 L: 469.83
x
y
time
40
80
120
160
regime
1
2
3
4
5
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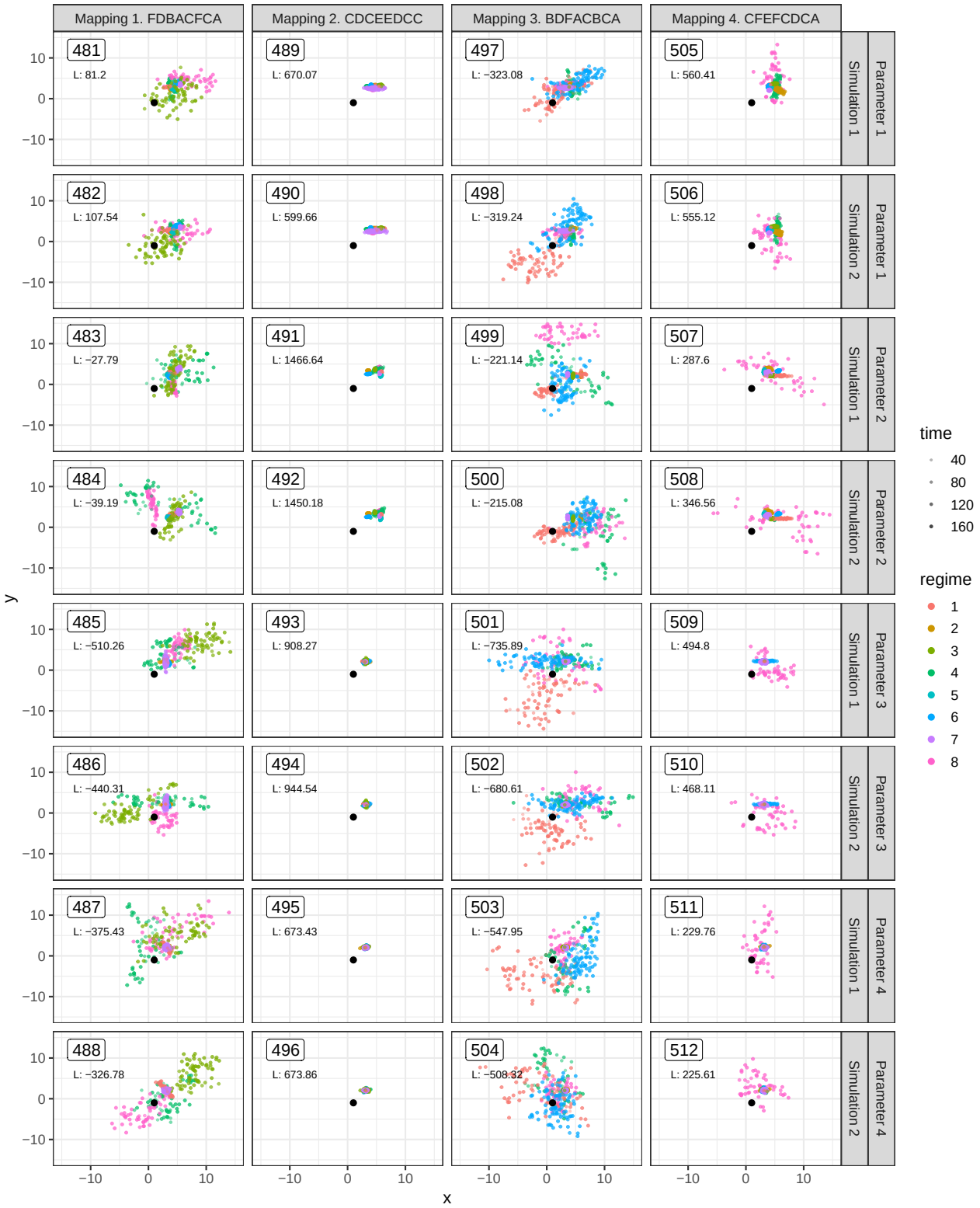
7
8


Mapping 1. DF
Mapping 2. FC
Mapping 3. BA
Mapping 4. BD
Parameter 1
Parameter 2
Parameter 3
Parameter 4
Simulation 1
Simulation 2
449
L: 333.06
457
L: −47.08
465
L: −2493.03
473
L: −581.11
450
L: 339.11
458
L: −30.57
466
L: −2434.27
474
L: −507.67
451
L: −385.68
459
L: 606.29
467
L: −1957.47
475
L: −1643.13
452
L: −373.54
460
L: 581.36
468
L: −1938.66
476
L: −1638.07
453
L: 1068.81
461
L: 766.46
469
L: −2282.86
477
L: −2142.48
454
L: 1070.13
462
L: 789.76
470
L: −2295.42
478
L: −2087.77
455
L: 872.56
463
L: 406.81
471
L: −1943.42
479
L: −1973.85
456
L: 849
464
L: 397.81
472
L: −1928.53
480
L: −1963.29
10
0
−10
x
y
time
40
80
120
160
regime
1
2




```
load("../data-raw/ResultsTestData_t4/TestResultData_t4.RData")
summaryTable <- testResultData[, {
  maskTests <- !is.na(fpr) & !is.na(tpr)
  numTests <- sum(maskTests)
  list(
```

```
    `#tests`=numTests,
    `Better AIC` = sum(AIC_Final[maskTests] - AIC_True[maskTests] <= 0)/numTests,
    fpr=sum(fpr[maskTests])/numTests,
    #`SE(fpr)`=sd(fpr[maskTests])/sqrt(numTests),
    tpr=sum(tpr[maskTests])/numTests#,
    #`SE(tpr)`=sd(tpr[maskTests])/sqrt(numTests)
    )
},
keyby=list(Crit.=crit2, N=factor(treeSize, levels=c("N=80", "N=159", "N=318", "N=638"), labels=c(80, 159
           `#regimes`=as.integer(numClusters),
           `Tree-type`=factor(treeType, levels=c("ultrametric", "non-ultrametric")))][Crit. %in% c("Clus
print.xtable(xtable(summaryTable), comment=FALSE, include.rownames = FALSE)
```